

Semiconductor Data Library Master Index

*prepared by
Technical Information Center*

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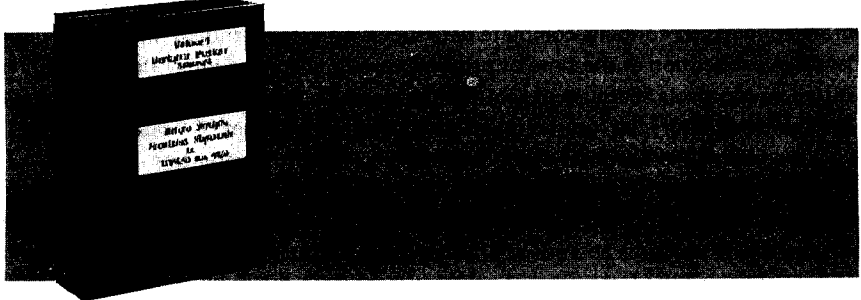
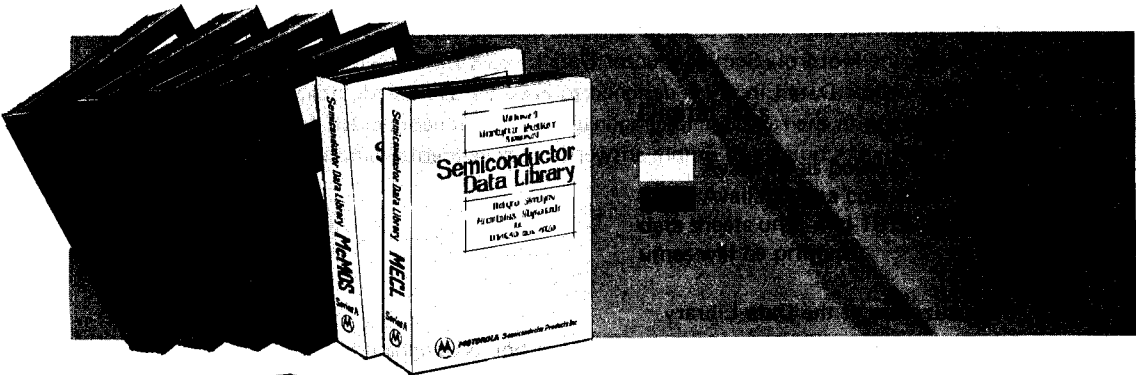
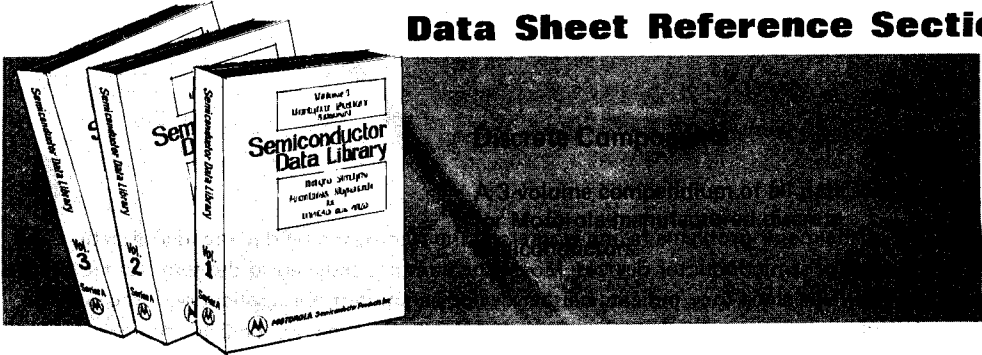
Series A
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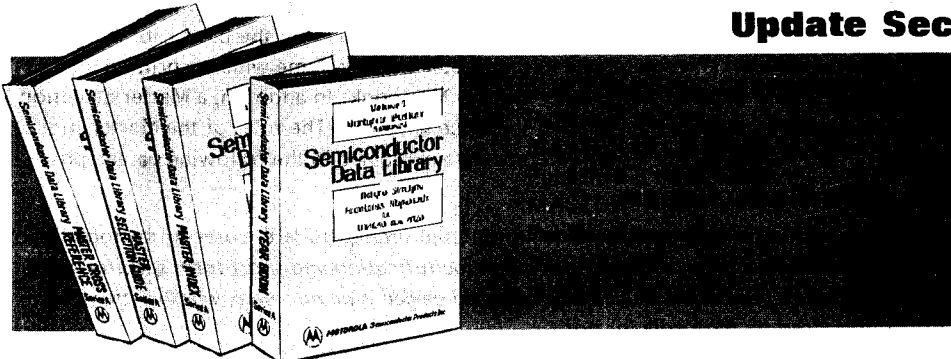
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Motorola Semiconductor Data Library

Data Sheet Reference Section



Update Section



Motorola Semiconductor Data Library

One of the major problems facing workers in the electronics field is the identification and selection of semiconductor devices. Most type numbers assigned to the semiconductors are of little value since they indicate neither device parameters nor applications. Because it is difficult even to identify the many thousands of device type numbers, let alone evaluate their relative merits, engineers often limit their designs to a few well known device types — despite the fact that newer or more suitable devices may be available. To help alleviate this problem, the Motorola Semiconductor Data Library has been developed. The Motorola Semiconductor Data Library is designed to keep the semiconductor user thoroughly acquainted with the rapidly changing inventory of semiconductor capabilities. Properly used, it provides quick and simple answers to device identification, selection and utilization problems.

Organization of the Data Library

The heart of the Data Library is a series of books designated as the Data-Sheet Reference Section in the illustration. This book series is divided into two groups — discrete components and integrated circuits. It contains complete data sheets on every standard discrete semiconductor device in production at the time of printing, as well as for the integrated circuit lines manufactured by Motorola. Because of Motorola's strong involvement in almost every major category of semiconductors, be it discrete or integrated, this basic set of "data books" provides a good overall cross-section of the industry's solid-state capabilities.

To keep the Data-Sheet Reference Section up to date, the initial series of data books is supplemented each year with a Data-Sheet Yearbook. The yearbook contains the complete data sheets of all new products and major product revisions introduced by Motorola since the initial publication of the Data Library — Series A, or since the publication of the previous Yearbook. Hence, the Data-Sheet Reference Section will always be current on a yearly basis.

Exact location of the latest issue of a particular data sheet (in the basic Library or the subsequent Yearbooks) is referenced in the Master Index volume which is printed and distributed each year in conjunction with the new Yearbook. In addition, a Master Selection Guide is published periodically to assist in device selection. The roles of the Master Index, Selection Guide, and Master Cross-Reference are explained in the following paragraphs.

Device Identification Made Easy

The Master Index volume does much more than simply guide the user to the location of the latest device data sheet. *It provides quick identification and short-form specifications for all Motorola products and all EIA-registered device type numbers, whether the device is manufactured by Motorola, or not.*

The list of questions answered quickly and easily by the information in the Master Index is impressive.

1. What is the major function of any semiconductor device designated by an EIA-registered type number?
2. What are its significant electrical and mechanical characteristics?
3. Does Motorola manufacture the device or a suitable electrical replacement?
4. Where can the complete data sheet for Motorola-manufactured devices be located?

In addition to answering the above questions the Master Index contains:

5. Identification of all Motorola manufactured linear and digital integrated circuits.
6. Devices for Military Applications.
7. Chips
8. Mounting hardware and heatsinks.
9. Dimensioned device outlines.
10. Listing of available application literature, data books, handbooks, and product brochures.

All in all, the contents of this volume makes it one of the most useful semiconductor identification documents available for the personal reference library of every engineer, purchasing agent and marketing specialist in the electronics field.

Device Selection Simplified

Of the tens of thousands of semiconductors available, which are most suitable for a particular application? This question is answered quickly in the Master Selection Guide Volume of the Library — at least for devices manufactured by Motorola. And the broad inventory of Motorola semiconductors for most major device categories enhances the importance of this document as a first-look reference for the selection of semiconductors for new equipment designs.

The importance placed on this document is evidenced by the fact that it is the only volume in the Library that is published three times a year. Thus, it makes available to the user short-form comparison specifications of the latest Motorola semiconductors almost as quickly as they are introduced.

The selector guides in this document are arranged first by specific product categories i.e., power transistors, thyristors, rectifiers, and RF transistors, etc., then by specific application (amplifiers, switches, oscillators, etc.) and finally, by preferred devices recommended for these specific applications. Each successive Master Selection Guide highlights those new devices introduced since the previous publication so that the user is constantly aware of the latest capabilities. This also permits the user to send for the individual data sheets for such new devices that may not yet be included in the latest data sheet Yearbook.

Device Replacement Simplified

The final document in the Library is the Master Cross-Reference. Published annually, this volume lists thousands of device type numbers — both EIA-registered and competitive house numbers — which Motorola does not manufacture under the specified type numbers, but for which Motorola offers either a direct replacement or a device with similar electrical characteristics. It covers both discrete devices and integrated circuits and offers a much needed replacement directory.

In general, the Motorola Semiconductor Data Library is dedicated to simplify the task of device identification, selection and utilization and to provide a much needed, up-to-date and easy-to-use reference source.

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Library List

Semiconductor Data Library Glossary

The following glossary of Motorola device prefixes and a brief description is presented to aid the reader in locating the short-form specifications for specific device types.

Prefix	Description	Table No.
AA	Diode — Zener	1
AB	Diode — Zener	1
AC	Diode — Zener	1
AD	Diode — Zener	1
AE	Diode — Zener	1
AF	Diode — Zener	1
AG	Diode — Zener	1
BB	Diode — Tuning (Varactor)	3
BU	Transistor — Si Power	7
MA	Transistor — Ge Microwave	7
MB	Transistor — Si Power	8
MD	Diode — Dual Carrier	4
ME	Diode — Rectifier (Rectifier)	4
MC	Diode — Rectifier (Rectifier)	6
MC	Integrated Circuit — Linear/Digital	Sect 5
MC-A	Reference Amplifier Assembly	1
MC-B	Integrated Circuit — Beam Lead Flat Pack	Sect 5
MC-C	Integrated Circuit — Beam Lead GMA	1
MC-D	Integrated Circuit — Digital/Linear Chip	1
MC-E	Integrated Circuit — Linear Flat Chip	1
MC-F	Integrated Circuit — Discretely Mounted	Sect 5
MC-G	Diode — Guard Ringing	1
MC-H	Integrated Circuit — Memory	Sect 5
MC-I	Thyristor (Low-Voltage Rectifier)	6
MC-J	Transistor — Dual Mount Can (Multiple Devices)	7
MC-K	Transistor — Rectifier	1
MC-L	Assemblies — Diode	1
MC-M	Functional Circuit — Digital/Linear	Sect 5
MC-N	Transistor — Field Effect — Metal Gate	9
MC-O	Mounting Hardware	Sect 8
MC-P	Transistor — Ceramic Lead Dual-In-Line	7
MC-Q	Transistor — RF and Microwave Hybrids	11
MC-R	Transistor — Si Power	7
MC-S	Unencapsulated Si Power	1
MC-T	Transistor — Si Power — Plastic	7
MC-U	Mounting Kit	Sect 8
MC-V	Optical Devices — Light-Emitting Diode	5
MC-W	Integrated Circuit — Linear Monolithic	Sect 5

UNCAPSULATED DEVICE INDEX

Prefix	Description
MM	Transistor - Small Signal
MMCD	Transistor - RF Power
MMCF	Unencapsulated - Si Junction Diode
MMCFD	Unencapsulated - Film Thick Diode
MMCM	Transistor - Micro - Small Power Transistor
MMCO	Unencapsulated - Thin Film Capacitor
MMCR	Unencapsulated - Thin Film Resistor
MMCS	Unencapsulated - Small Signal Transistor
MMQ	Diode - Switching
MMT	Transistor - Field Effect Metal Oxide
NMT	Transistor - Micro - Small Signal Transistor
MOC	Optoelectronic Device
MP	Transistor - Gs Power
MPC	Power Hybrid Circuit - (Voltage Regulator)
MFF	Transistor - Field Effect - Metal
MPI	Diode - Micro - Small Signal
MPM	Transistor - Micro - Small Signal
MPH	Diode - PIN Junction
MPO	Transistor - Plastic Encapsulated
MPS	Transistor - Plastic Encapsulated
MPS-A	Amplifier Series
MPS-H	High Frequency Series
MPS-K	Diode
MPS-L	Logic Driver Series
MPS-U	Unijunction
MPT	Transistor - Programmable Unijunction
MPU	Transistor - Programmable Unijunction
MPZ	Transient Suppressor Diode - Zener Diode
MQ	Transistor - Good Flat Pack
MR	Rectifier
MRA	Rectifier - Power
MRO	Optoelectronic Device
MAF	Transistor - RF and Microwave
MS	Transistor - Heat Sink
M6D	Diode - Dual - Plastic TO-18
MU	Transistor - Unijunction
MUS	Unijunction Switch
MV	Diode - Tunneling
MVAM	Timing Device - Monostable Multivibrator
MVI	Diode - Micro - Small Signal
MPS	Unijunction Diode
ME	Diode - Power
MGC	Unencapsulated - Diode - Micro

Unencapsulated Device (U) does not characterize device.

How to Use the Semiconductor Data Library Master Index for Device Identification

Turn to Section 1, Table 1 on page 1-2 and locate the device number from the numerical listing. In some instances, the information in the table may refer to a second table for the desired electrical characteristics.

Turn to Section 3, Table 7 on page 3-2 and locate the device number from the numerical listing. In some cases, the information in this table may refer to a second table for electrical characteristics.

Turn to the Motorola Glossary listing on page viii. This listing will identify the product and refer to the table in which the electrical characteristics are detailed in alpha-numerical sequence. The non-registered listings follow the EIA registered part numbers.

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1N... JEDEC Registered Devices and Motorola Non-Registered Devices



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TABLE 1 - DIODE INDEX

This index is a master numerical index for 1N... type numbers and short-form specifications for rectifiers, zeners, signal diodes and reference devices with registered and non-registered specifications. Specifications for Thyristor (four-layer) diodes, transient suppressors, varactors, microwave, and UHF diodes are shown in other tables. See the index on Page 1-1.

KEY

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					VRWM Volts	VF Volts	IO Amp	IR mA	IFSM Amp	VZ Nom Volts	IZT mA	Tol VZ±%	PD
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	VF @ IF Volts	IF	IR	trr μs	VZ Nom Volts	TC %/°C	IZT mA	Temp Range °C
<p>Numerical Listing of Registered Type Numbers *Available from Motorola</p> <p>S - Silicon G - Germanium A - Gallium Arsenide E - Selenium</p> <p>Type number of recommended replacement or of nearest electrical equivalent</p>					<p>RECTIFIERS SHOWN IN BOLD TYPE</p> <p>VRWM - Peak Working Reverse Voltage</p> <p>VF - Forward Voltage Drop (Average and Peak values shown without distinction)</p> <p>IO - Average Forward Current Rating</p> <p>IR - Average Reverse Current</p> <p>IFSM - Peak Surge Current</p>					<p>ZENER DIODES SHOWN IN BOLD TYPE</p> <p>VZ(Nom) - Nominal Zener Breakdown Vo tage</p> <p>IZT - Test Current for Zener Voltage</p> <p>Tol - Tolerance for Specified Nominal Zener Breakdown Voltage</p> <p>PD - Maximum Power Dissipation m - mW W - W</p>			
<p>First type number on data sheet where the EIA type or replacement part number is located DR</p> <p>Table where short-form specifications are given</p>					<p>SIGNAL DIODES SHOWN IN LIGHT TYPE</p> <p>PRV - Peak Reverse Voltage</p> <p>VF @ IF - Maximum Forward Voltage at Indicated Forward Current, A - Ampere m - mA</p> <p>IR - Reverse Current - m - mA n - nA * - μA</p> <p>trr - Reverse Recovery Time</p>					<p>REFERENCE DIODES SHOWN IN LIGHT TYPE</p> <p>VZ(Nom) - Nominal Zener Breakdown Vo tage</p> <p>TC - Average Temperature Coefficient over Temperature Range</p> <p>IZT - Test Current for Zener Voltage</p> <p>Temp Range - Operating Range of Average TC</p>			

The Codes Listed Below Identify The Type of Products.

CODE PRODUCT

3	3-layer (diac)
4	4-layer Diode
A	Assembly, Rectifier
B	Backward Diode
C	Clipper, Zener
D	Light Detector
E	Light-Emitter
F	Fast Recovery Rectifier
G	General-Purpose Rectifier
H	Hot-Carrier (Schottky) Rectifier

CODE PRODUCT

I	Current Regulator
J	Hot-Carrier (Schottky) Signal Diode
M	Microwave/UHF Diode
P	Power Transient Suppressor
Q	Reference Amplifier
R	Reference Diode
S	Signal Diode, General Purpose
T	Tunnel Diode
V	Varactor
Z	Zener Diode

1N78D-1N140

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D	
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%		
					SIGNAL DIODES					REFERENCE DIODES				
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp						
Volts	Volts @			μs	Volts	%/°C	mA	Range °C						
1N78D	S		Table 4	M										
1N78E	S		Table 4	M										
1N78F	S		Table 4	M										
1N79	S			M										
1N81	G			S	50	1.0	3.0m	10*						
1N81A	G			S	40	1.0	3.0m	10*						
1N82	S		Table 4	M										
1N82A	S		Table 4	M										
1N82AG	S		Table 4	M										
1N82G	S		Table 4	M										
1N83	G			S	225	1.0	5.0m	30*						
1N84	G			S	12	1.0	60m	0.1m						
1N85	S			D										
1N86	G			S	70	1.0	4.0m	50*						
1N87	S			S	23	0.25	0.1m	30*						
1N87A	S			S	23	0.25	0.1m	10*						
1N88	G			S	85	1.0	2.5m	0.1m						
1N89	G			S	100	1.0	3.5m	8.0*						
1N90	G			S	75	1.0	5.0m	800*						
1N91	G			G	100	0.5	0.15	4.0	25					
1N92	G			G	200	0.5	0.1	2.0	25					
1N93	G			G	300	0.5	0.075	1.3	25					
1N94	G			S	380	0.7	0.5	0.8	25					
1N95	G			S	75	1.0	10m	800*						
1N96	G			S	75	1.0	20m	800*						
1N96A	G			S	60	1.0	40m	500*						
1N97	G			S	100	1.0	10m	100*						
1N98	G			S	100	1.0	20m	100*						
1N98A	G			S	250	1.0	40m	100*						
1N99	G			S	100	1.0	10m	50*						
1N100	G			S	100	1.0	20m	50*						
1N100A	G			S	80	1.0	40m	0.05m						
1N101	G			S	150	1.0	10m	10*						
1N102	G			S	75	1.0	15m	3.0*						
1N103	G			S	12	1.0	30m	0.1m						
1N104	G			S	12	1.0	30m	0.1m						
1N105	S		Table 4	M										
1N106	G			S	300	1.0	20m	70*						
1N107	G			S	10	1.0	150m	200*						
1N108	G			S	50	1.0	50m	200*						
1N109	G			S	15	1.0	1.0m	0.1m						
1N110	G		Table 4	M										
1N111	G			S	70	1.0	5.0m	25*						
1N112	G			S	70	1.0	5.0m	50*						
1N113	G			S	70	1.0	2.5m	25*						
1N114	G			S	70	1.0	2.5m	50*						
1N115	G			S	70	1.0	2.5m	100*						
1N116	G			S	75	1.0	5.0m	100*						
1N117	G			S	75	1.0	10m	100*						
1N118	G			S	75	1.0	20m	100*						
1N118A	G			S	60	1.0	40m	0.1m						
1N119	G			S	60	1.0	5.0m		0.5					
1N120	G			S	60	1.0	5.0m		0.5					
1N124	G		Table 4	M										
1N124A	G		Table 4	M										
1N126	G			S	75	1.0	5.0m	50*						
1N126A	G			S	75	1.0	2.5m	50*						
1N127	G			S	125	1.0	3.0m	25*						
1N127A	G			S	125	1.0	2.5m	25*						
1N128	G			S	50	1.0	3.0m	10*						
1N128A	G			S	40	1.0	3.0m	10*						
1N132	G			S	25									
1N133	G			S	5.0	0.5	3.0m	300*						
1N134	G		Table 4	M										
1N137A	S			S	36	1.0	3.0m	0.03*						
1N137B	S			S	36	1.0	20m	0.03*						
1N138A	S			S	18	1.0	5.0m	0.01*						
1N138B	S			S	18	1.0	40m	0.01*						
1N139	G			S	40	1.0	20m	1.5m						
1N140	G			S	70	1.0	40m	300*						

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol V _Z ±%	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA		
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	@	f _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp				
Volts	Volts				μs	Volts	%/°C	mA	Range °C				
1N141	G			S	70	1.0	20m	50*					
1N142	G			S	100	1.0	5.0m	100*					
1N143	G			S	100	1.0	40m	100*					
1N144	G			S	30	1.0	100m	200*					
1N145	G			S	30	1.0	40m	100*					
1N147	G		Table 4	M									
1N147A	G		Table 4	M									
1N149	S		Table 4	M									
1N150	S		Table 4	M									
1N151	G			G	100	0.7	0.5	2.4	25				
1N152	G			G	200	0.7	0.5	1.9	25				
1N153	G			G	300	0.7	0.5	1.2	25				
1N155	S		Table 4	M									
1N155A	S		Table 4	M									
1N156	S		Table 4	M									
1N158	G			G	380	1.4	0.5	0.8	25				
1N160	S			M									
1N173A	S		Table 4	M									
1N188				D									
1N189				D									
1N190	G			S	3.0	0.75	10m	0.8m					
1N191	G			S	90	1.0	5.0m		0.5				
1N192	G			S	70	1.0	5.0m		0.5				
1N193	S			S	40	2.0	1.0m	40*	0.5				
1N194	S			S	40	2.0	1.5m	10*	0.2				
1N194A	S			S	40	1.0	1.0m	10*	0.2				
1N195	S			S	40	2.0	2.0m	10*	0.3				
1N196	S			S	40	2.0	1.0m	10*	0.1				
1N198	G			S	80	1.0	4.0m	10*					
1N198A	G			S	80	1.0	4.0m	10*					
1N198B	G			S	80	1.0	4.0m	10*	0.3				
1N200	S			S	68	1.0	50m						
1N201	S			S	8.2	1.0	35m						
1N202	S			S	10	1.0	30m						
1N203	S			S	12	1.0	23m						
1N204	S			S	15	1.0	17m						
1N205	S			S	18	1.0	12m	0.1*					
1N206	S			S	22	1.0	9.0m	0.1*					
1N207	S			S	27	1.0	7.0m	0.1*					
1N208	S			S	33	1.0	5.5m	0.1*					
1N209	S			S	39	1.0	4.5m	0.1*					
1N210	S			S	47	1.0	3.5m	0.1*					
1N211	S			S	56	1.0	2.7m	1.0*					
1N212	S			S	68	1.0	2.0m	1.0*					
1N213	S			S	82	1.0	1.5m	1.0*					
1N214	S			S	100	1.0	1.2m	1.0*					
1N215	S			S	120	1.0	0.9m	1.0*					
1N216	S			S	150	1.0	0.7m	5.0*					
1N217	S			S	180	4.0	6.5m	5.0*					
1N218	S			S	220	4.0	6.0m	5.0*					
1N219	S			S	270	4.0	3.0m	5.0*					
1N220	S			S	330	4.0	2.2m	5.0*					
1N221	S			S	390	4.0	2.0m	5.0*					
1N222	S			S	470	4.0	1.5m	5.0*					
1N225	S			C						10	0.2		150m
1N225A	S			C						9.1	0.2	5.0	150m
1N226	S			C						12	0.2	5.0	150m
1N226A	S			C						10	0.2	5.0	150m
1N227	S			C						14.5	0.2	5.0	150m
1N227A	S			C						14.5	0.2	5.0	150m
1N228	S			C						18	0.2	5.0	150m
1N228A	S			C						18	0.2	5.0	150m
1N229	S			C						21	0.2	5.0	150m
1N229A	S			C						21	0.2	5.0	150m
1N230	S			C						27	0.2	5.0	150m
1N231	S			C						32	0.2	5.0	150m
1N232	S			C						39	0.2	5.0	150m
1N233	S			C						45	0.2	5.0	150m
1N234	S			C						54	0.2	5.0	150m
1N235	S			C						64	0.2	5.0	150m

1N236-1N304

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C						
1N236 1N237 1N238 1N239 1N248	S S S S S			C C C C G					80 100 120 145	0.2 0.2 0.2 0.2		150m 150m 150m 150m	
1N248A ★1N248B ★1N248C 1N249 ★1N249A	S S S S S	1N248B 1N249B	1N248B 1N248B 1N248B 1N248B	G G G G G	50 50 39 100 100	1.5 1.5 1.2 1.5 1.5	10 20 20 10 20	5.0 5.0 3.8 5.0 5.0	250 250 350 200 250				
★1N249B ★1N249C 1N250 1N250A ★1N250B	S S S S S		1N248B 1N248B	G G G G G	100 77 200 200 200	1.5 1.2 1.5 1.5 1.5	20 20 10 20 20	5.0 3.6 5.0 5.0 5.0	250 350 200 250 250				
★1N250C 1N251 1N252 1N253 1N254	S S S S S		1N248B	G S S G G	154 30 20 95 190	1.2 1.0 1.0 1.5 1.5	20 5.0m 10m 1.0 0.4	3.4 0.1* 0.1* 0.1 1.5	350 0.15 0.15 4.0 1.5				
1N255 1N256 1N259 1N263 1N264	S S S G S	MR1121 MR1122	MR1120 MR1120	G G M M M	380 570	1.5 1.5	0.4 0.2	1.5 1.0					
1N265 1N266 1N267 1N268 1N269	G G G G G		Table 4	S S S S M	90 60 25 30	1.0 1.0 1.0 1.0	3.2m 4.0m 3.5m 2.5m	100* 75* 12* 20*					
1N270 1N273 1N276 1N277 1N278	G G G G G			S S S S S	80 30 50 100 50	1.0 1.0 1.0 1.0 1.0	200m 100m 40m 100m 20m	100* 20* 100* 75* 125*	0.3				
1N279 1N281 1N282 1N283 1N285	G G G G G		Table 4	S S S S M	30 60 20	1.0 1.0 1.0	100m 100m 40m 200m	200* 30* 20m 20*					
1N286 1N286A 1N287 1N288 1N289	S S G G G	Table 4 Table 4		M M S S S	60 85 85	1.0 1.0 1.0	20m 40m 20m	1.5m 350* 50*					
1N290 1N291 1N292 1N294 1N294A	G G G G G			S S S S S	120 120 75 60 60	1.0 1.0 1.0 1.0 1.0	5.0m 40m 100m 5.0m 5.0m	100* 100* 200* 10* 10*					
1N295 1N295A 1N296 1N297 1N297A	G G G G G			S S S S S	40 40 40 80 80	1.0 1.0	3.5m 3.5m	200* 200* 200m 10* 10*					
1N298 1N298A 1N299 1N300 1N300A	G G G S S			S S S S S	70 30 15 15	2.0 2.0 0.5 1.0 1.0	30m 30m 3.0m 15m 30m	250* 200m 0.001* 0.001*					
1N300B 1N301 1N301A 1N301B 1N302	S S S S S			S S S S S	15 70 70 70 225	1.0 1.0 1.0 1.0 1.0	50m 50m 18m 50m 1.0m	0.001* 0.05* 0.05* 0.01* 0.2*					
1N302A 1N303 1N303A 1N303B 1N304	S S S S S			S S S S S	225 125 125 125 55	1.0 1.0 1.0 1.0 1.5	5.0m 3.0m 12m 50m 2.0m	0.2* 0.1* 0.1* 0.1* 2.0*					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V_{RWM}	V_F	I_O	I_R	I_{FSM}	V_Z Nom	I_{ZT}	Tol	P_D	
					Volts	Volts	Amp	mA	Amp	Volts	mA	$V_Z \pm \%$		
					SIGNAL DIODES					REFERENCE DIODES				
PRV	V_F	I_F	I_R	t_{rr}	V_Z Nom	T_C	I_{ZT}	Temp						
Volts	Volts @			μs	Volts	$^{\circ}C$	mA	Range $^{\circ}C$						
1N305	G			S	60	0.8	100m	20*						
1N306	G			S	15	0.8	100m	2.0*						
1N307	G			S	125	1.0	100m	5.0*						
1N308	G			S	8.0	1.0	300m	500*						
1N309	G			S	40	1.0	100m	100*						
1N310	G		Table 4	S	125	1.0	40m	20*						
1N311	G			M										
1N312	G			S	60	1.0	70m	50*						
1N313	G			S	125	1.0	40m	10*						
1N314	G			S				0.05m						
1N315	G			G	300	0.48	0.075	0.3						
1N315A	G			G	200	0.48	0.1	0.16						
1N316	S	1N4001	1N4001	G	50	2.0	0.2							
1N317	S	1N4002	1N4001	G	100	2.0	0.2							
1N318	S	1N4003	1N4001	G	200	2.0	0.2							
1N319	S	1N4004	1N4001	G	350	2.0	0.2							
1N320	S	1N4005	1N4001	G	500	2.0	0.2							
1N321	S	1N4007	1N4001	G	850	1.2	0.25	1.0						
1N322	S	1N4007	1N4001	G	850	1.2	0.25	1.0						
1N323	S	1N4001	1N4001	G	50	2.0	0.4							
1N324	S	1N4002	1N4001	G	100	2.0	0.4							
1N325	S	1N4003	1N4001	G	200	2.0	0.4							
1N326	S	1N4004	1N4001	G	350	2.0	0.4							
1N327	S	1N4005	1N4001	G	500	2.0	0.4							
1N328	S	1N4007	1N4001	G	850	1.2	0.4	0.06						
1N329	S	1N4007	1N4001	G	1000	1.2	0.4	0.06						
1N330	S			S	32	1.0	3.0m	0.03*						
1N331	S			S	16	1.0	5.0m	0.01*						
1N332	S	MR1124	MR1120	G	400	2.0	0.4	0.2						
1N333	S	MR1124	MR1120	G	400	2.0	0.2	0.2						
1N334	S	MR1123	MR1120	G	300	2.0	0.4	0.2						
1N335	S	MR1123	MR1120	G	300	2.0	0.2	0.2						
1N336	S	MR1122	MR1120	G	200	2.0	0.4	0.1						
1N337	S	MR1122	MR1120	G	200	2.0	0.2	0.1						
1N338	S	MR1121	MR1120	G	100	2.0	1.0	0.2						
1N339	S	MR1121	MR1120	G	100	2.0	0.4	0.1						
1N340	S	MR1121	MR1120	G	100	2.0	0.2	0.1						
1N341	S	MR1124	MR1120	G	400	2.0	0.4	0.5						
1N342	S	MR1124	MR1120	G	400	2.0	0.2	0.5						
1N343	S	MR1123	MR1120	G	300	2.0	0.4	0.5						
1N344	S	MR1123	MR1120	G	300	2.0	0.2	0.5						
1N345	S	MR1122	MR1120	G	200	2.0	0.4	0.5						
1N346	S	MR1122	MR1120	G	200	2.0	0.2	0.5						
1N347	S	MR1121	MR1120	G	100	2.0	1.0	0.5						
1N348	S	MR1121	MR1120	G	100	2.0	0.4	0.5						
1N349	S	MR1121	MR1120	G	100	2.0	0.2	0.5						
1N350	S			S	70	1.0	20m	0.03*						
1N351	S			S	120	1.0	20m	0.03*						
1N352	S			S	170	1.0	20m	0.05*						
1N353	S			S	225	1.0	20m	0.1*						
1N354	S			S	325	1.0	20m	0.1*						
1N355	G			S	100	1.0	4.0m	50*						
1N358	S			S										
1N358A	S			S										
1N359	S	1N4001	1N4001	G	50	2.0	0.1							
1N360	S	1N4002	1N4001	G	100	2.0	0.1							
1N361	S	1N4003	1N4001	G	200	2.0	0.1							
1N362	S	1N4004	1N4001	G	350	2.0	0.1							
1N363	S	1N4005	1N4001	G	500	2.0	0.1							
1N364	S	1N4007	1N4001	G	850	1.2	0.1	0.06						
1N365	S	1N4007	1N4001	G	1000	1.2	0.1	0.06						
1N367	G			S	15									
1N368	G			G	200	0.5	0.1	0.3						
1N368A	G			G	200	0.5	0.1	0.16						
1N369	G		Table 4	M										
1N369A	S			Z										
1N370	S	1N5221B		1N5221	Z						1.8	20	+20	200m
1N371	S	1N5221A		1N5221	Z						2.4	20	+20	200m
1N372	S	1N5225A		1N5221	Z						2.9	15	+20	200m
1N373	S	1N5227A	1N5221	Z						3.5	10	+20	200m	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
1N374	S	1N5229A	1N5221	Z						4.1	10	10	200m
1N375	S	1N5230A	1N5221	Z						4.8	10	5.0	200m
1N376	S	1N5233A	1N5221	Z						5.8	10	5.0	200m
1N377	S	1N5236A	1N5221	Z						7.1	13	5.0	200m
1N378	S	1N5238A	1N5221	Z						8.75	14	0.2	200m
1N379	S	1N5240A	1N5221	Z						10.5	15	0.2	200m
1N380	S	1N5243A	1N5221	Z						12.8	14	0.2	200m
1N381	S	1N5246A	1N5221	Z						15.8	15	0.2	200m
1N382	S	1N5249A	1N5221	Z						19	10	0.2	200m
1N383	S	1N5252A	1N5221	Z						23.5	15	0.2	200m
1N384	S	1N5255A	1N5221	Z						28.5	12	0.2	200m
1N385	S	1N5258A	1N5221	Z						34.5	13	0.2	200m
1N386	S	1N5260A	1N5221	Z						41	10	0.2	200m
1N387	S	1N5261A	1N5221	Z						48.5	11	0.2	200m
1N388	S	1N5264A	1N5221	Z						58	10	0.2	200m
1N389	S	1N5266A	1N5221	Z						71	14	0.2	200m
1N390	S	1N5269A	1N5221	Z						87.5	15	0.2	200m
1N391	S	1N5271A	1N5221	Z						105	15	0.2	200m
1N392	S	1N5274A	1N5221	Z						127.5	14	0.2	200m
1N393	S	1N5277A	1N5221	Z						157.5	14	0.2	200m
1N394	S	1N5280A	1N5221	Z						190	10	0.2	200m
1N395	S			Z						235	15	0.1	200m
1N396	S			Z						285	12	0.1	200m
1N397	S			Z						345	13	0.1	200m
1N398	S			Z						410	10	0.1	200m
1N399	S			Z						485	11	0.1	200m
1N400	S			Z						580	10	0.1	200m
1N401	S			S	1.5								
1N402	S			S	2.0								
1N403	S			S	2.5								
1N404	S			S	3.1								
1N405	S			S	3.7	1.0	225m						
1N406	S			S	4.3	1.0	200m						
1N407	S			S	5.2	1.0	170m						
1N408	S			S	6.2	1.0	130m						
1N411B	S	MR1810SB	MR1210	G	50	1.5	50	25	525				
1N412B	S	MR1811SB	MR1210	G	100	1.5	50	25	525				
1N413B	S	MR1813SB	MR1210	G	200	1.5	50	25	525				
1N415B	S		Table 4	M									
1N415C	S		Table 4	M									
1N415D	S		Table 4	M									
1N415E	S		Table 4	M									
1N415F	S		Table 4	M									
1N415G	S		Table 4	M									
1N415H	S		Table 4	M									
1N416B	S		Table 4	M									
1N416C	S		Table 4	M									
1N416D	S		Table 4	M									
1N416E	S		Table 4	M									
1N416F	S		Table 4	M									
1N416G	S		Table 4	M									
1N417	G			S	60				0.3				
1N418	G			S	60	1.0	7.0m		0.3				
1N419	G			S	80	1.0	125m		0.3				
★1N429	S		1N429	R						6.2		7.5	
1N430	S	1N3156	1N3154	R						8.4	0.002	10	-55/100
1N430A	S	1N3157	1N3154	R						8.4	0.001	10	-55/100
1N430B	S	1N3157A	1N3154	R						8.4	0.001	10	-55/150
1N431	S			S	68	0.55	15m						
1N432	S			S	40	1.0	10m	5.0n					
1N432A	S			S	40	1.0	20m	5.0n					
1N433	S			S	145	1.0	3.0m	0.1*					
1N433A	S			S	145	1.0	10m	0.1*					
1N434	S			S	180	1.0	2.0m	0.1*					
1N434A	S			S	180	1.0	7.0m	0.1*					
1N435	G			S	40			0.3m					
1N440	S	1N4002	1N4001	G	100	1.5	0.3	0.3					
1N440B	S	1N4002	1N4001	G	100	1.5	0.3	0.3	15				
1N441	S	1N4003	1N4001	G	200	1.5	0.3	0.75					
1N441B	S	1N4003	1N4001	G	200	1.5			15				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	f _F	I _R	I _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N442	S	1N4004	1N4001	G	300	1.5	0.3	1.0					
1N442B	S	1N4004	1N4001	G	300	1.5		0.001	15				
1N443	S	1N4004	1N4001	G	400	1.5	0.3	1.5					
1N443B	S	1N4004	1N4001	G	400	1.5			15				
1N444	S	1N4005	1N4001	G	500	1.5	0.3	1.75					
1N444B	S	1N4005	1N4001	G	500	1.5			15				
1N445	S	1N4005	1N4001	G	600	1.5	0.3	2.0					
1N445B	S	1N4005	1N4001	G	600	1.5		0.002	15				
1N446	M			M									
1N447	G			S	30	1.0	25m	20*					
1N448	G			S	100	1.0	25m	30*					
1N449	G			S	30	1.0	50m	10*					
1N450	G			S	100	1.0	50m	30*					
1N451	G			S	150	1.0	50m	150*					
1N452	G			S	30	1.0	100m	30*					
1N453	G			S	100	1.0	100m	30*					
1N454	G			S	50	1.0	200m	50*					
1N455	G			S	30	1.0	300m	30*					
1N456	S			S	25	1.0	40m	25n					
1N456A	S			S	25	1.0	100m	25n					
1N457	S			S	60	1.0	20m	25n					
1N457A	S			S	60	1.0	100m	25n					
1N458	S			S	125	1.0	2.0m	25n					
1N458A	S			S	125	1.0	100m	25n					
1N459	S			S	175	1.0	3.0m	25n					
1N459A	S			S	175	1.0	100m	25n					
1N460	S			S	90	1.0	5.0m	0.1*					
1N460A	S			S	90	1.0	15m	0.1*					
1N461	S			S	25	1.0	15m	0.5*					
1N461A	S			S	25	1.0	100m	0.5*					
1N462	S			S	60	1.0	5.0m	0.5*					
1N462A	S			S	60	1.0	100m	0.5*					
1N463	S			S	175	1.0	1.0m	0.5*					
1N463A	S			S	175	1.0	100m	0.5*					
1N464	S			S	125	1.0	3.0m	0.5*					
1N464A	S			S	125	1.0	100m	0.5*					
1N465	S	1N5223A	1N5221	Z						3.2	5.0		200m
1N465A	S	1N5223B	1N5221	Z						2.7	5.0	5.0	200m
1N465B	S			Z						2.7	5.0	1.0	200m
1N466	S	1N5226A	1N5221	Z						3.9	5.0		200m
1N466A	S	1N5226B	1N5221	Z						3.3	5.0	5.0	200m
1N466B	S			Z						3.3	5.0	1.0	200m
1N467	S	1N5228B	1N5221	Z						4.5	5.0		200m
1N467A	S	1N5228B	1N5221	Z						3.9	5.0	5.0	200m
1N467B	S			Z						3.9	5.0	1.0	200m
1N468	S	1N5230A	1N5221	Z						5.4	5.0		200m
1N468A	S	1N5230B	1N5221	Z						4.7	5.0	5.0	200m
1N468B	S			Z						4.7	5.0	1.0	200m
1N469	S	1N5232B	1N5221	Z						6.4	5.0		200m
1N469A	S	1N5232B	1N5221	Z						5.6	5.0	5.0	200m
1N469B	S			Z						5.6	6.0	1.0	200m
1N470	S	1N5235B	1N5221	Z						8.0	5.0		200m
1N470A	S	1N5235B	1N5221	Z						6.8	5.0	5.0	200m
1N470B	S			C						6.8	5.0	1.0	200m
1N471	S			C						3.9	5.0		200m
1N471A	S			C						3.3	5.0	5.0	200m
1N472	S			C						4.5	5.0		200m
1N472A	S			C						3.9	5.0	5.0	200m
1N473	S			C						5.4	5.0		200m
1N473A	S			C						4.7	5.0	5.0	200m
1N474	S			C						6.4	5.0		200m
1N474A	S			C						5.6	5.0	5.0	200m
1N475	S			C						8.0	5.0		150m
1N475A	S			C						6.8	5.0	5.0	200m
1N476	G			S	90	1.0	2.5m	11*					
1N477	G			S	90	1.0	2.5m	11*					
1N478	G			S	90	1.0	5.0m	7.0*					
1N479	G			S	90	1.0	5.0m	7.0*					
1N480	G			S	60	1.0	5.0m		0.5				
1N481	G			G	200	0.5	0.1	1.9	25				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
1N482	S			S	36	1.1	100m	0.25*					
1N482A	S			S	36	1.0	100m	25n					
1N482B	S			S	36	1.0	100m	25n					
1N483	S			S	70	1.0	100m	25n					
1N483A	S			S	70	1.0	100m	25n					
1N483B	S			S	70	1.0	100m	25n					
1N484	S			S	130	1.1	100m	0.25*					
1N484A	S			S	130	1.0	100m	25n					
1N484B	S			S	130	1.0	100m	25n					
1N485	S			S	180	1.1	100m	0.25*					
1N485A	S			S	180	1.0	100m	25n					
1N485B	S			S	180	1.0	100m	25n					
1N486	S			S	225	1.1	100m	0.25*					
1N486A	S			S	225	1.0	100m	0.05*					
1N486B	S			S	225	1.0	100m	0.05*					
1N487	S			S	300	1.1	100m	0.25*					
1N487A	S			S	300	1.0	100m	0.1*					
1N487B	S			S	300	1.0	100m	0.1*					
1N488	S			S	380	1.1	100m	0.25*					
1N488A	S			S	380	1.0	100m	0.1*					
1N488B	S			S	380	1.0	100m	0.1*					
1N490	G			S	90	1.0	5.0m		0.5				
1N497	G			S	30	1.0	100m	20*					
1N498	G			S	60	1.0	100m	25*					
1N499	G			S	75	1.0	100m	30*					
1N500	G			S	80	1.0	100m	40*					
1N501	G			S	100	1.0	100m	40*					
1N502	G			S	120	1.0	100m	50*					
1N503	S	1N4001	1N4001	G	50	1.2	0.33	0.5					
1N504	S	1N4002	1N4001	G	100	1.2	0.33	0.5					
1N505	S	1N4003	1N4001	G	200	1.2	0.33	0.5					
1N506	S	1N4004	1N4001	G	300	1.2	0.33	0.5					
1N507	S	1N4004	1N4001	G	400	1.2	0.33	0.25					
1N508	S	1N4005	1N4001	G	600	1.2	0.33	0.25					
1N509	S	1N4006	1N4001	G	800	1.2	0.33	0.25					
1N510	S	1N4007	1N4001	G	1000	1.2	0.33	0.25					
1N511	S	1N4001	1N4001	G	50	1.2	1.0	0.5					
1N512	S	1N4002	1N4001	G	100	1.2	1.0	0.5					
1N513	S	1N4003	1N4001	G	200	1.2	1.0	0.5					
1N514	S	1N4004	1N4001	G	300	1.2	1.0	0.5					
1N515	S	1N4004	1N4001	G	400	1.2	1.0	0.25					
1N516	S	1N4005	1N4001	G	600	1.2	1.0	0.25					
1N517	S	1N4006	1N4001	G	800	1.2	1.0	0.25					
1N518	S	1N4007	1N4001	G	1000	1.2	1.0	0.25					
1N519	S	1N4001	1N4001	G	50	1.2	1.25	0.5					
1N520	S	1N4002	1N4001	G	100	1.2	1.25	0.5					
1N521	S	1N4003	1N4001	G	200	1.2	1.25	0.5					
1N522	S	1N4004	1N4001	G	300	1.2	1.25	0.5					
1N523	S	1N4004	1N4001	G	400	1.2	1.25	0.25					
1N524	S	1N4005	1N4001	G	600	1.2	1.25	0.25					
1N525	S	1N4006	1N4001	G	800	1.2	1.25	0.25					
1N526	S	1N4007	1N4001	G	1000	1.2	1.25	0.25					
1N527	G			S	10	0.3	1.0m	50*					
1N530	S	1N4002	1N4001	G	100	2.0	0.3	0.003	3.0				
1N531	S	1N4003	1N4001	G	200	2.0	0.3	3.0					
1N532	S	1N4004	1N4001	G	300	2.0	0.3	0.01	3.0				
1N533	S	1N4004	1N4001	G	400	2.0	0.3	0.015	3.0				
1N534	S	1N4005	1N4001	G	500	2.0	0.3	3.0					
1N535	S	1N4005	1N4001	G	600	2.0	0.3	0.02	3.0				
1N536	S	1N4001	1N4001	G	50	0.5	0.25	0.4	15				
1N537	S	1N4002	1N4001	G	100	0.4	0.25	0.5	15				
1N538	S	1N4003	1N4001	G	200	0.3	0.25	0.5	15				
1N539	S	1N4004	1N4001	G	300	0.5	0.25	0.3	15				
1N540	S	1N4004	1N4001	G	400	0.5	0.25	0.3	15				
1N541	G			S	45	2.2	10m	18*					
1N542	G			S									
1N543	S	MR991A	MR990A	G	1200	10	0.01	0.1					
1N543A	S			G	1200	8.0	0.035	0.1					
1N544	S			G	1000	10	0.015	0.1					
1N544A	S			G	1000	10	0.075	0.1					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{VRWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol V _Z ±%	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA		
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @	mA	mA	μs	Volts	%/°C	mA	Range °C					
1N547	S	1N4005	1N4001	G	600	1.1	0.25	0.35	15				
1N548	S	1N4007	1N4001	G	900	1.1	0.3	0.35	15				
1N549	S	MR1-1200	MR1-1200	G	1200	1.1	0.3	0.35	15				
1N550	S	MR1121	MR1120	G	100	1.5	0.5		4.0				
1N551	S	MR1122	MR1120	G	200	1.5	0.5	0.001	4.0				
1N552	S	MR1123	MR1120	G	300	1.5	0.5		4.0				
1N553	S	MR1124	MR1120	G	400	1.5	0.5		4.0				
1N554	S	MR1125	MR1120	G	500	1.5	0.5		4.0				
1N555	S	MR1126	MR1120	G	600	1.5	0.5	0.005	4.0				
1N560	S	1N4006	1N4001	G	800	1.75	0.25	0.015	2.0				
1N561	S	1N4007	1N4001	G	1000	1.75	0.25	0.02	2.0				
1N562	S	MR1128	MR1120	G	800	1.75	0.4	0.015	3.0				
1N563	S	MR1130	MR1120	G	1000	1.75	0.4	0.02	3.0				
1N566	G			S	220	1.0	20m	0.2m					
1N567	G			S	100	1.0	150m	0.15m	0.3				
1N568	G			S	7.0	0.32	5.0m	0.1m	0.08				
1N569	G			S	12	0.5	250m	0.05m					
1N570	G			S	1250	10	37.5	0.1					
1N571	G			S		1.0	200m	100*	4.0				
1N573	G			S	380	0.15	0.25						
1N574	G			G	380	0.15	0.3						
1N575	G			G	380	0.3	0.35						
1N575A	G			G	380	0.15	0.35						
1N576A	G			G	380	0.15	0.4						
1N581	G			G	380	0.15	0.25						
1N582	G			G	380	0.15	0.3						
1N583	G			G	380	0.15	0.35						
1N584	G			G	380	0.15	0.4						
1N588	S	MR991A	MR990A	G	1500	1.75	0.1	0.1	5.0				
1N589	S	MR991A	MR990A	G	1500	1.75	0.25	0.1	10				
1N590	S			G	1500	8.0	0.075	0.1					
1N591	S			G	1500	8.0	0.075	0.1					
1N596	S	1N4005	1N4001	G	600	3.0	0.125	0.025	1.0				
1N597	S	1N4006	1N4001	G	800	3.0	0.125	0.025	1.0				
1N598	S	1N4007	1N4001	G	1000	3.0	0.125	0.025	1.0				
1N599	S	1N4001	1N4001	G	50	1.5	0.3	0.025	2.0				
1N599A	S	1N4001	1N4001	G	50	1.5	0.3	0.001	2.0				
1N600	S	1N4002	1N4001	G	100	1.5	0.3	0.025	2.0				
1N600A	S	1N4002	1N4001	G	100	1.5	0.3	0.001	2.0				
1N601	S	1N4003	1N4001	G	150	1.5	0.3	0.025	2.0				
1N601A	S	1N4003	1N4001	G	150	1.5	0.3	0.001	2.0				
1N602	S	1N4003	1N4001	G	200	1.5	0.3	0.025	2.0				
1N602A	S	1N4003	1N4001	G	200	1.5	0.3	0.001	2.0				
1N603	S	1N4004	1N4001	G	300	1.5	0.3	0.025	2.0				
1N603A	S	1N4004	1N4001	G	300	1.5	0.3	0.001	2.0				
1N604	S	1N4004	1N4001	G	400	1.5	0.3	0.025	2.0				
1N604A	S	1N4004	1N4001	G	400	1.5	0.3		2.0				
1N605	S	1N4005	1N4001	G	500	1.5	0.3	0.025	2.0				
1N605A	S	1N4005	1N4001	G	500	1.5	0.3	0.002	2.0				
1N606	S	1N4005	1N4001	G	600	1.5	0.3	0.025	2.0				
1N606A	S	1N4005	1N4001	G	600	1.5	0.3		2.0				
1N607	S	MR1120	MR1120	G	50	1.5	0.8	0.025	3.0				
1N607A	S	MR1120	MR1120	G	50	1.5	0.8	0.001	3.0				
1N608	S	MR1121	MR1120	G	100	1.5	0.8	0.025	3.0				
1N608A	S	MR1121	MR1120	G	100	1.5	0.8	0.001	3.0				
1N609	S	MR1122	MR1120	G	150	1.5	0.8	0.025	3.0				
1N609A	S	MR1122	MR1120	G	150	1.5	0.8	0.001	3.0				
1N610	S	MR1122	MR1120	G	200	1.5	0.8	0.025	3.0				
1N610A	S	MR1122	MR1120	G	200	1.5	0.8	0.001	3.0				
1N611	S	MR1123	MR1120	G	300	1.5	0.8	0.025	3.0				
1N611A	S	MR1123	MR1120	G	300	1.5	0.8	0.001	3.0				
1N612	S	MR1124	MR1120	G	400	1.5	0.8	0.025	3.0				
1N612A	S	MR1124	MR1120	G	400	1.5	0.8	1.5	3.0				
1N613	S	MR1125	MR1120	G	500	1.5	0.8	0.025	3.0				
1N613A	S	MR1125	MR1120	G	500	1.5	0.8	0.002	3.0				
1N614	S	MR1126	MR1120	G	600	1.5	0.8	0.025	3.0				
1N614A	S	MR1126	MR1120	G	600	1.5	0.8	2.5	3.0				
1N615	G			S	300		0.075	1.2	25				
1N616	G			S	20	1.0	8.0m	0.4m					
1N617	G			S	115	1.0	3.0m	11*					

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TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
1N618	G			S	115	1.0	5.0m	7.0*					
1N619	S			S	30	1.0	3.0m	0.08*					
1N622	S			S	150	1.0	7.0m	0.16*					
1N625	S			S		1.5	4.0m	1.0*	1.0				
1N626	S			S		1.5	4.0m	1.0*	1.0				
1N627	S			S		1.5	4.0m	1.0*	1.0				
1N628	S			S		1.5	4.0m	1.0*	1.0				
1N629	S			S		1.5	4.0m	1.0*	1.0				
1N630	S			S									
1N631	G			M	60				0.3				
1N632	G			S	60	1.0	7.0m		0.3				
1N633	G			S	80	1.0	125m		0.3				
1N634	G			S	100	1.0	50m	45*					
1N635	S			S	150	1.0	50m	175*					
1N636	G			S	60	1.0	2.5m	10*					
1N643	S			S	175	1.0	10m	1.0*	0.3				
1N643A	S			S	175	1.0	100m	1.0*	0.3				
1N645	S	1N4003	1N4001	S	225	1.0	400m	0.2*					
1N645A	S	1N4003	1N4001	S	225	1.0	400m	0.05*					
1N646	S	1N4004	1N4001	S	300	1.0	400m	0.2*					
1N647	S	1N4004	1N4001	S	400	1.0	400m	0.2*					
1N648	S	1N4005	1N4001	S	500	1.0	400m	0.2*					
1N649	S	1N4005	1N4001	S	600	1.0	400m	0.2*					
1N658	S			S	100	1.0	100m	0.05*	0.3				
1N658A	S			S	120	1.0	100m	25n	0.3				
1N659	S			S	50	1.0	6.0m	5.0*	0.3				
1N659A	S			S	60	1.0	10m	25n	0.3				
1N660	S			S	100	1.0	6.0m	5.0*	0.3				
1N660A	S			S	120	1.0	10m	25n	0.3				
1N661	S			S	200	1.0	6.0m	1.0*	0.3				
1N661A	S			S	240	1.0	10m	25n	0.3				
1N662	S			S	80	1.0	10m	1.0*	0.5				
1N662A	S			S	80	1.0	100m	1.0*	0.3				
1N663	S			S	80	1.0	100m	5.0*	0.5				
1N663A	S			S	80	1.0	100m	0.1*	0.3				
1N664	S	1N5237A	1N5221	Z						8.2	10	10	25m
1N665	S	1N5242A	1N5221	Z						12	10	10	0.25W
1N666	S	1N5245B	1N5221	Z						15	5.0	5.0	0.25W
1N667	S	1N5248A	1N5221	Z						18	5.0	10	0.25W
1N668	S	1N5251A	1N5221	Z						22	5.0	10	0.25W
1N669	S	1N5254A	1N5221	Z						27	5.0	10	0.25W
1N670	S	1N5266B	1N5221	Z						68	1.0	5.0	250m
1N671	S	1N5271A	1N5221	Z						100	1.0	10	0.25W
1N672	S	1N5276A	1N5221	Z						150	1.0	10	0.25W
1N673	S		1N5221	S	350	1.0	250m	1.0*					
1N674	S	1N5230A	1N5221	Z						4.7	20	10	250m
1N675	S	1N5234B	1N5221	Z						6.2	20	5.0	250m
1N676	S	1N4002	1N4001	G	100	1.0	0.075	0.2	3.0				
1N677	S	1N4002	1N4001	G	100	1.0	0.15	0.2	5.0				
1N678	S	1N4003	1N4001	G	200	1.0	0.075	0.2	3.0				
1N679	S	1N4003	1N4001	G	200	1.0	0.15	0.2	5.0				
1N681	S	1N4004	1N4001	G	300	1.0	0.075	0.2	3.0				
1N682	S	1N4004	1N4001	G	300	1.0	0.15	0.2	5.0				
1N683	S	1N4004	1N4001	G	400	1.0	0.075	0.2	3.0				
1N684	S	1N4004	1N4001	G	400	1.0	0.15	0.2	5.0				
1N685	S	1N4005	1N4001	G	500	1.0	0.075	0.2	3.0				
1N686	S	1N4005	1N4001	G	500	1.0	0.15	0.2	5.0				
1N687	S	1N4005	1N4001	G	600	1.0	0.075	0.2	3.0				
1N689	S	1N4005	1N4001	G	600	1.0	0.15	0.2	5.0				
1N690	S			S	36	1.0	400m	0.25*	0.8				
1N691	S			S	70	1.0	400m	0.25*	0.8				
1N692	S			S	100	1.0	400m	0.25*	0.8				
1N693	S			S	130	1.0	400m	0.25*	0.8				
1N695	S			S	20	1.0	100m	2.0*	0.3				
1N695A	G			S	25	0.5	10m	2.0*	0.3				
1N696	S			S	30	1.0	10m	15n	5.0				
1N697	S			S		0.25		1.0*					
1N698	G			S	25	0.65	30m	160*	0.5				
1N699	G			S	80	1.0	100m		0.3				
1N701	S	1N5240B	1N5221	Z						10.5	10		250m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM}	V_F	I_O	I_R	I_{FSM}	V_Z Nom	I_{ZT}	Tol	P_D
					Volts	Volts	Amp	mA	Amp	Volts	mA	$V_Z \pm \%$	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V_F	I_f	I_R	t_{rr}	V_Z Nom	T_C	I_{ZT}	Temp					
Volts	Volts @			μs	Volts	$^{\circ}C$	mA	Range $^{\circ}C$					
★1N702	S	1N5223A	1N5221	Z						3.2	5.0		250m
★1N702A	S	1N5223B	1N5221	Z						2.9	5.0		250m
★1N703	S	1N5227A	1N5221	Z						3.9	5.0		250m
★1N703A	S	1N5227B	1N5221	Z						3.67	5.0		250m
★1N704	S	1N5229A	1N5221	Z						4.5	5.0		250m
★1N704A	S	1N5229B	1N5221	Z						4.3	5.0		250m
★1N705	S	1N5230A	1N5221	Z						5.4	5.0		250m
★1N705A	S	1N5230B	1N5221	Z						5.12	5.0		250m
★1N706	S	1N5232A	1N5221	Z						6.4	5.0		250m
★1N706A	S	1N5232B	1N5221	Z						6.1	5.0		250m
★1N707	S	1N5236A	1N5221	Z						8.0	5.0		250m
★1N707A	S	1N5236B	1N5221	Z						7.55	5.0		250m
★1N708	S	1N5232A	1N5221	Z							25	10	250m
★1N708A	S	1N5232B	1N5221	Z							25	5.0	250m
★1N709	S	1N5234A	1N5221	Z							25	10	250m
★1N709A	S	1N5234B	1N5221	Z							25	5.0	250m
★1N710	S	1N5235A	1N5221	Z							25	10	250m
★1N710A	S	1N5235B	1N5221	Z							25	5.0	250m
★1N711	S	1N5236A	1N5221	Z							25	10	250m
★1N711A	S	1N5236B	1N5221	Z							25	5.0	250m
★1N712	S	1N5237A	1N5221	Z							25	10	250m
★1N712A	S	1N5237B	1N5221	Z							25	5.0	250m
★1N713	S	1N5239A	1N5221	Z							12	10	250m
★1N713A	S	1N5239B	1N5221	Z							12	5.0	250m
★1N714	S	1N5240A	1N5221	Z							12	10	250m
★1N714A	S	1N5240B	1N5221	Z							12	5.0	250m
★1N715	S	1N5241A	1N5221	Z							12	10	250m
★1N715A	S	1N5241B	1N5221	Z							12	5.0	250m
★1N716	S	1N5242A	1N5221	Z							12	10	250m
★1N716A	S	1N5242B	1N5221	Z							12	5.0	250m
★1N717	S	1N5243A	1N5221	Z							12	10	250m
★1N717A	S	1N5243B	1N5221	Z							12	5.0	250m
★1N718	S	1N5245A	1N5221	Z							12	10	250m
★1N718A	S	1N5245B	1N5221	Z							12	5.0	250m
★1N719	S	1N5246A	1N5221	Z							12	10	250m
★1N719A	S	1N5246B	1N5221	Z							12	5.0	250m
★1N720	S	1N5248A	1N5221	Z							12	10	250m
★1N720A	S	1N5248B	1N5221	Z							12	5.0	250m
★1N721	S	1N5250A	1N5221	Z							4.0	10	250m
★1N721A	S	1N5250B	1N5221	Z							4.0	5.0	250m
★1N722	S	1N5251A	1N5221	Z						22	4.0	10	250m
★1N722A	S	1N5251B	1N5221	Z						22	4.0	5.0	250m
★1N723	S	1N5252A	1N5221	Z						24	4.0	10	250m
★1N723A	S	1N5252B	1N5221	Z						24	4.0	5.0	250m
★1N724	S	1N5254A	1N5221	Z						27	4.0	10	250m
★1N724A	S	1N5254B	1N5221	Z						27	4.0	5.0	250m
★1N725	S	1N5256A	1N5221	Z						30	4.0	10	250m
★1N725A	S	1N5256B	1N5221	Z						30	4.0	5.0	250m
★1N726	S	1N5257A	1N5221	Z						33	4.0	10	250m
★1N726A	S	1N5257B	1N5221	Z						33	4.0	5.0	250m
★1N727	S	1N5258A	1N5221	Z						36	4.0	10	250m
★1N727A	S	1N5258B	1N5221	Z						36	4.0	5.0	250m
★1N728	S	1N5259A	1N5221	Z						39	4.0	10	250m
★1N728A	S	1N5259B	1N5221	Z						39	4.0	5.0	250m
★1N729	S	1N5260A	1N5221	Z						43	4.0	10	250m
★1N729A	S	1N5260B	1N5221	Z						43	4.0	5.0	250m
★1N730	S	1N5261A	1N5221	Z						47	4.0	10	250m
★1N730A	S	1N5261B	1N5221	Z						47	4.0	5.0	250m
★1N731	S	1N5262A	1N5221	Z						51	4.0	10	250m
★1N731A	S	1N5262B	1N5221	Z						51	4.0	5.0	250m
★1N732	S	1N5263A	1N5221	Z						56	4.0	10	250m
★1N732A	S	1N5263B	1N5221	Z						56	4.0	5.0	250m
★1N733	S	1N5265A	1N5221	Z						62	2.0	10	250m
★1N733A	S	1N5265B	1N5221	Z						62	2.0	5.0	250m
★1N734	S	1N5266A	1N5221	Z						68	2.0	10	250m
★1N734A	S	1N5266B	1N5221	Z						68	2.0	5.0	250m
★1N735	S	1N5267A	1N5221	Z						75	2.0	10	250m
★1N735A	S	1N5267B	1N5221	Z						75	2.0	5.0	250m
★1N736	S	1N5268A	1N5221	Z						82	2.0	10	250m
★1N736A	S	1N5268B	1N5221	Z						82	2.0	5.0	250m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N737	S	1N5270A	1N5221	Z						91	1.0	10	250m	
★1N737A	S	1N5270B	1N5221	Z						91	1.0	5.0	250m	
★1N738	S	1N5271A	1N5221	Z						100	1.0	10	250m	
★1N738A	S	1N5271B	1N5221	Z						100	1.0	5.0	250m	
★1N739	S	1N5272A	1N5221	Z						110	1.0	10	250m	
★1N739A	S	1N5272B	1N5221	Z						110	1.0	5.0	250m	
★1N740	S	1N5273A	1N5221	Z						120	1.0	10	250m	
★1N740A	S	1N5273B	1N5221	Z						120	1.0	5.0	250m	
★1N741	S	1N5274A	1N5221	Z						130	1.0	10	250m	
★1N741A	S	1N5274B	1N5221	Z						130	1.0	5.0	250m	
★1N742	S	1N5276A	1N5221	Z						150	1.0	10	250m	
★1N742A	S	1N5276B	1N5221	Z						150	1.0	5.0	250m	
★1N743	S	1N5277A	1N5221	Z						160	1.0	10	250m	
★1N743A	S	1N5277B	1N5221	Z						160	1.0	5.0	250m	
★1N744	S	1N5279A	1N5221	Z						180	1.0	10	250m	
★1N744A	S	1N5279B	1N5221	Z						180	1.0	5.0	250m	
★1N745	S	1N5281A	1N5221	Z						200	1.0	0	250m	
★1N745A	S	1N5281B	1N5221	Z						200	1.0	5.0	250m	
★1N746	S		1N746	Z						3.3	20	0	400m	
★1N746A	S		1N746	Z						3.3	20	5.0	400m	
★1N747	S		1N746	Z						3.6	20	10	400m	
★1N747A	S		1N746	Z						3.6	20	5.0	400m	
★1N748	S		1N746	Z						3.9	20	10	400m	
★1N748A	S		1N746	Z						3.9	20	5.0	400m	
★1N749	S		1N746	Z						4.3	20	10	400m	
★1N749A	S		1N746	Z						4.3	20	5.0	400m	
★1N750	S		1N746	Z						4.7	20	10	400m	
★1N750A	S		1N746	Z						4.7	20	5.0	400m	
★1N751	S		1N746	Z						5.1	20	10	400m	
★1N751A	S		1N746	Z						5.1	20	5.0	400m	
★1N752	S		1N746	Z						5.6	20	10	400m	
★1N752A	S		1N746	Z						5.6	20	5.0	400m	
★1N753	S		1N746	Z						6.2	20	10	400m	
★1N753A	S		1N746	Z						6.2	20	5.0	400m	
★1N754	S		1N746	Z						6.8	20	10	400m	
★1N754A	S		1N746	Z						6.8	20	5.0	400m	
★1N755	S		1N746	Z						7.5	20	10	400m	
★1N755A	S		1N746	Z						7.5	20	5.0	400m	
★1N756	S		1N746	Z						8.2	20	10	400m	
★1N756A	S		1N746	Z						8.2	20	5.0	400m	
★1N757	S		1N746	Z						9.1	20	10	400m	
★1N757A	S		1N746	Z						9.1	20	5.0	400m	
★1N758	S		1N746	Z						10.0	20	10	400m	
★1N758A	S		1N746	Z						10.0	20	5.0	400m	
★1N759	S		1N746	Z						12.0	20	10	400m	
★1N759A	S		1N746	Z						12.0	20	5.0	400m	
★1N761	S	1N5230A	1N5221	Z						5.4	10	10	250m	
★1N762	S	1N5232B	1N5221	Z						6.4	10	10	250m	
★1N763	S	1N5238B	1N5221	Z						8.0	10	10	250m	
★1N764	S	1N5238A	1N5221	Z						10.0	10	10	250m	
★1N765	S	1N5240A	1N5221	Z						12.0	5.0		250m	
★1N766	S	1N5243A	1N5221	Z						14.5	5.0		250m	
★1N767	S	1N5246A	1N5221	Z						18	5.0		250m	
★1N768	S	1N5249A	1N5221	Z						21	5.0		250m	
★1N769	S	1N5252A	1N5221	Z						27	5.0		250m	
1N770	G			S	20	0.42	5.0m	40*	0.35					
1N771	G			S	80	1.0	100m	25*						
1N771A	G			S	80	1.0	200m	25*						
1N771B	G			S	80	1.0	400m	25*						
1N772	G			S	70	1.0	100m	50*						
1N772A	G			S	70	1.0	200m	50*						
1N773	G			S	65	1.0	100m	10*						
1N773A	G			S	65	1.0	200m	10*						
1N774	G			S	60	1.0	100m	15*						
1N774A	G			S	60	1.0	200m	15*						
1N775	G			S	60	1.0	100m	20*						
1N776	G			S	20	1.0	50m	200*						
1N777	G			S	60	1.0	100m	25*	3.5					
1N778	S			S	100	1.0	10m	0.5*	0.3					
1N779	S			S	175	1.0	10m	0.5*	0.3					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	f _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N781	G			S	40	0.45	10m	5.0*	0.5				
1N781A	G			S	40	0.45	10m	5.0*	0.5				
1N789	S			S		1.0	10m	1.0*	0.5				
1N790	S			S		1.0	10m	5.0*	0.25				
1N791	S			S		1.0	50m	5.0*	0.5				
1N792	S			S		1.0	100m	5.0*	0.5				
1N793	S			S		1.0	10m	1.0*	0.5				
1N794	S			S		1.0	10m	5.0*	0.25				
1N795	S			S		1.0	50m	5.0*	0.5				
1N796	S			S		1.0	100m	5.0*	0.5				
1N797	S			S		1.0	10m	1.0*	0.5				
1N798	S			S		1.0	10m	5.0*	0.25				
1N799	S			S		1.0	50m	5.0*	0.5				
1N800	S			S		1.0	100m	5.0*	0.5				
1N801	S			S		1.0	10m	1.0*	0.5				
1N802	S			S		1.0	50m	5.0*	0.5				
1N803	S			S		1.0	10m	5.0*	0.5				
1N804	S			S		1.0	50m	1.0*	0.5				
1N805	G			S	40	1.0	3.0m	100*					
1N806	S			S	100	1.0	4.0m	0.5*	0.3				
1N807	S			S	180	1.0	4.0m	0.5*	0.3				
1N808	S			S	100	1.0	100m	1.0*	0.3				
1N809	S			S	200	1.0	100m	1.0*	0.3				
1N810	S			S	50	1.0	1.0m	1.0*	50				
1N811	S			S	20	1.0	1.0m	1.0*	0.25				
1N812	S			S	30	1.0	1.0m	0.1*	0.25				
1N813	S			S	15	1.0	5.0m	0.5*	0.25				
1N814	S			S	40	1.0	2.0m	0.1*	0.25				
1N815	S			S	15	1.5	100m	0.5*	0.25				
1N816	S			S	6.0	1.0	100m	0.1*					
1N817	S			S	200	1.5	6.0m	20*	1.0				
1N818	S			S	80	1.5	30m	0.25*	0.5				
1N819	S			S	80	1.0	200m	25n					
★1N821	S		1N821	R						6.2	0.01	7.5	-55/100
★1N821A	S		1N821	R						6.2	0.01	7.5	-55/100
1N822	S			R						6.2	0.01	7.5	-55/100
★1N823	S		1N821	R						6.2	0.005	7.5	-55/100
★1N823A	S		1N821	R						6.2	0.005	7.5	-55/100
1N824	S			R						6.2	0.005	7.5	-55/100
★1N825	S		1N821	R						6.2	0.002	7.5	-55/100
★1N825A	S		1N821	R						6.2	0.002	7.5	-55/100
1N826	S	1N825	1N821	R						6.5	0.002	7.5	-55/100
★1N827	S		1N821	R						6.2	0.001	7.5	-55/100
★1N827A	S		1N821	R						6.2	0.001	7.5	-55/100
1N828	S	1N827	1N821	R						6.5	0.001	7.5	-55/100
★1N829	S		1N821	R						6.2	0.0005	7.5	-55/100
1N830	S		Table 4	M									
1N830A	S		Table 4	M									
1N831	S		Table 4	M									
1N831A	S		Table 4	M									
1N831B	S		Table 4	M									
1N832	S		Table 4	M									
1N832A	S		Table 4	M									
1N832B	S		Table 4	M									
1N832D	S		Table 4	M									
1N833	S		Table 4	M									
1N833A	G		Table 4	M									
1N835	S			S	30	0.5	5.0m	20*	0.5				
1N836	G			S	5.0								
1N837	S			S		1.0	150m	0.1*	0.5				
1N837A	S			S		1.0	150m	0.1*	0.3				
1N838	S			S		1.0	150m	0.1*	0.5				
1N839	S			S		1.0	150m	0.1*	0.5				
1N840	S			S		1.0	150m	0.1*	0.3				
1N841	S			S		1.0	150m	0.1*	0.3				
1N842	S			S		1.0	150m	0.1*	0.3				
1N843	S			S		1.0	150m	0.1*	0.3				
1N844	S			S		1.0	200m	0.1*	0.5				
1N845	S			S		1.0	200m	0.1*	0.5				
1N846	S	1N4001	1N4001	G	50	0.6	200m	20*					



TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N847	S	1N4002	1N4001	G	100	0.6	200m	20*					
1N848	S	1N4003	1N4001	G	200	0.6	200m	20*					
1N849	S	1N4004	1N4001	G	300	0.6	200m	20*					
1N850	S	1N4004	1N4001	G	400	0.6	200m	20*					
1N851	S	1N4005	1N4001	G	500	0.6	200m	20*					
1N852	S	1N4005	1N4001	G	600	0.6	200m	20*					
1N853	S	1N4006	1N4001	G	700	0.6	200m	20*					
1N854	S	1N4006	1N4001	G	800	0.6	200m	20*					
1N855	S	1N4007	1N4001	G	900	0.6	200m	20*					
1N856	S	1N4007	1N4001	G	1.0k	0.6	200m	20*					
1N857	S	1N4001	1N4001	G	50	0.6	150m	20*					
1N858	S	1N4002	1N4001	G	100	0.6	150m	20*					
1N859	S	1N4003	1N4001	G	200	0.6	150m	20*					
1N860	S	1N4004	1N4001	G	300	0.6	150m	20*					
1N861	S	1N4004	1N4001	G	400	0.6	150m	20*					
1N862	S	1N4005	1N4001	G	500	0.6	150m	20*					
1N863	S	1N4005	1N4001	G	600	0.6	150m	20*					
1N864	S	1N4006	1N4001	G	700	0.6	150m	20*					
1N865	S	1N4006	1N4001	G	800	0.6	150m	20*					
1N866	S	1N4007	1N4001	G	900	0.6	150m	20*					
1N867	S	1N4007	1N4001	G	1.0k	0.6	150m	20*					
1N868	S	1N4001	1N4001	G	50	0.6	100m	20*					
1N869	S	1N4002	1N4001	G	100	0.6	100m	20*					
1N870	S	1N4003	1N4001	G	200	0.6	100m	20*					
1N871	S	1N4004	1N4001	G	300	0.6	100m	20*					
1N872	S	1N4004	1N4001	G	400	0.6	100m	20*					
1N873	S	1N4005	1N4001	G	500	0.6	100m	20*					
1N874	S	1N4005	1N4001	G	600	0.6	100m	20*					
1N875	S	1N4006	1N4001	G	700	0.6	100m	20*					
1N876	S	1N4006	1N4001	G	800	0.6	100m	20*					
1N877	S	1N4007	1N4001	G	900	0.6	100m	20*					
1N878	S	1N4007	1N4001	G	1.0k	0.6	100m	20*					
1N879	S	1N4001	1N4001	G	50	0.6	50m	20*					
1N880	S	1N4002	1N4001	G	100	0.6	50m	20*					
1N881	S	1N4003	1N4001	G	200	0.6	50m	20*					
1N882	S	1N4004	1N4001	G	300	0.6	50m	20*					
1N883	S	1N4004	1N4001	G	400	0.6	50m	20*					
1N884	S	1N4005	1N4001	G	500	0.6	50m	20*					
1N885	S	1N4005	1N4001	G	600	0.6	50m	20*					
1N886	S	1N4006	1N4001	G	700	0.6	50m	20*					
1N887	S	1N4006	1N4001	G	800	0.6	50m	20*					
1N888	S	1N4007	1N4001	G	900	0.6	50m	20*					
1N889	S	1N4007	1N4001	G	1.0k	0.6	50m	20*					
1N890	S			S	60	1.0	20m	25m					
1N891	S			S		1.0	50m	0.1*	0.3				
1N892	S			S		1.0	50m	0.1*	0.3				
1N893	S			S		1.0	50m	0.1*	0.3				
1N894	G			S	5.0								
1N895	G			S	5.0								
1N896	G			S	5.0								
1N897	S			S	2.5	1.0	50m	0.1*	1.0				
1N898	S			S	2.5	1.0	100m	5.0*	0.3				
1N899	S			S	85	1.0	5.0m	0.1*	0.3				
1N900	S			S	85	1.0	50m	0.1*	0.3				
1N901	S			S	85	1.0	100m	0.5*	0.3				
1N902	S			S	170	1.0	10m	1.0*	0.3				
1N903	S			S	40	1.0	10m	0.1*	4.0				
1N903A	S			S	40	1.0	20m	0.1*	4.0				
1N904	S			S	30	1.0	10m	0.1*	4.0				
1N904A	S			S	30	1.0	20m	0.1*	4.0				
1N905	S			S	20	1.0	10m	0.1*	4.0				
1N905A	S			S	20	1.0	20m	0.1*	4.0				
1N906	S			S	20	1.0	10m	0.1*	4.0				
1N906A	S			S	20	1.0	20m	0.1*	4.0				
1N907	S			S	30	1.0	10m	0.1*	4.0				
1N907A	S			S	30	1.0	20m	0.1*	4.0				
1N908	S			S	40	1.0	10m	0.1*	4.0				
1N908A	S			S	40	1.0	20m	0.1*	4.0				
1N909	G			S	50	1.0	100m	10*					
1N910	G			S	30	1.0	100m	10*					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
1N911	G			S	20	1.0	100m	10*					
1N912	S			S	10	0.62	1.0m	1.0*					
1N912A	S			S	10	0.62	1.0m	1.0*					
1N913	S			S	10	0.62	1.0m	5.0*					
1N913A	S			S	10	0.62	1.0m	1.0*					
1N914	S			S	75	1.0	10m	5.0*	4.0				
1N914A	S			S	75	1.0	20m	5.0*	4.0				
1N914B	S			S	75	1.0	100m	5.0*	4.0				
1N915	S			S	50	1.0	50m	5.0*	10				
1N916	S			S	75	1.0	10m	5.0*	4.0				
1N916A	S			S	75	1.0	20m	5.0*	4.0				
1N916B	S			S	75	1.0	30m	5.0*	4.0				
1N917	S			S	30	1.0	10m	0.05*	3.0				
1N918	S		Table 4	M									
1N919	S			S	150	1.0	100m	0.5*	0.3				
1N920	S			S	36	1.0	500m	0.25*	0.3				
1N921	S			S	70	1.0	500m	0.25*	0.3				
1N922	S			S	100	1.0	500m	0.25*	0.3				
1N923	S			S	130	1.0	500m	0.25*	0.3				
1N925	S			S	32	1.0	5.0m	1.0*	0.15				
1N926	S			S	32	1.0	5.0m	0.1*	0.15				
1N927	S			S	52	1.0	10m	0.1*	0.15				
1N928	S			S	96	1.0	10m	0.1*	0.15				
1N929	S			S	20	1.0	20m	0.1*					
1N930	S			S	50	1.0	20m	0.1*					
1N931	S			S	100	1.0	20m	0.1*					
1N932	S			S	200	1.0	20m	0.1*					
1N933	G			S	100	1.0	14m	10*					
1N934	S			S	60	1.0	30m	10*	0.4				
★1N935	S		1N935	R				25n	1.0	9.0	0.01	7.5	0/75
★1N935A	S		1N935	R						9.0	0.01	7.5	-55/100
★1N935B	S		1N935	R						9.0	0.01	7.5	-55/150
★1N936	S		1N935	R						9.0	0.005	7.5	0/75
★1N936A	S		1N935	R						9.0	0.005	7.5	-55/100
★1N936B	S		1N935	R						9.0	0.005	7.5	-55/150
★1N937	S		1N935	R						9.0	0.002	7.5	0/75
★1N937A	S		1N935	R						9.0	0.002	7.5	-55/100
★1N937B	S		1N935	R						9.0	0.002	7.5	-55/150
★1N938	S		1N935	R						9.0	0.001	7.5	0/75
★1N938A	S		1N935	R						9.0	0.001	7.5	-55/100
★1N938B	S		1N935	R						9.0	0.001	7.5	-55/150
★1N939	S		1N935	R						9.0	0.0005	7.5	0/75
★1N939A	S		1N935	R						9.0	0.0005	7.5	-55/100
★1N939B	S		1N935	R						9.0	0.0005	7.5	-55/150
1N940	S			R						9.0	0.0002	7.5	0/75
1N940A	S			R						9.0	0.0002	7.5	-55/100
1N940B	S			R						9.0	0.0002	7.5	-55/150
★1N941	S		1N941	R						11.7	0.01	7.5	0/75
★1N941A	S		1N941	R						11.7	0.01	7.5	-55/100
★1N941B	S		1N941	R						11.7	0.01	7.5	-55/150
★1N942	S		1N941	R						11.7	0.005	7.5	0/75
★1N942A	S		1N941	R						11.7	0.005	7.5	-55/100
★1N942B	S		1N941	R						11.7	0.005	7.5	-55/150
★1N943	S		1N941	R						11.7	0.002	7.5	0/75
★1N943A	S		1N941	R						11.7	0.002	7.5	-55/100
★1N943B	S		1N941	R						11.7	0.002	7.5	-55/150
★1N944	S		1N941	R						11.7	0.001	7.5	0/75
★1N944A	S		1N941	R						11.7	0.001	7.5	-55/100
★1N944B	S		1N941	R						11.7	0.001	7.5	-55/150
★1N945	S		1N941	R						11.7	0.0005	7.5	0/75
★1N945A	S		1N941	R						11.7	0.0005	7.5	-55/100
★1N945B	S		1N941	R						11.7	0.0005	7.5	-55/150
1N946	S			R						11.7	0.0002	7.5	0/75
1N946A	S			R						11.7	0.0002	7.5	-55/100
1N946B	S			R						11.7	0.0002	7.5	-55/150
1N947	S			S		1.0	400m	2.0*					
1N948	S			S	36	1.5	100m	0.25*	1.0				
1N949	G			S	50	0.39	10m	10*					
1N950	S		Table 3	V									
thru	S												

1N956-1N979B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES									
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D						
					SIGNAL DIODES					REFERENCE DIODES									
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C						
1N956			Table 3	Z															
★1N957	S		1N957	Z						6.8	18.5	20	400m						
★1N957A	S		1N957	Z						6.8	18.5	10	400m						
★1N957B	S		1N957	Z						6.8	18.5	5.0	400m						
★1N958	S		1N957	Z						7.5	16.5	20	400m						
★1N958A	S		1N957	Z						7.5	16.5	10	400m						
★1N958B	S		1N957	Z						7.5	16.5	5.0	400m						
★1N959	S		1N957	Z						8.2	15	20	400m						
★1N959A	S		1N957	Z						8.2	15	10	400m						
★1N959B	S		1N957	Z						8.2	15	5.0	400m						
★1N960	S		1N957	Z						9.1	14	20	400m						
★1N960A	S		1N957	Z						9.1	14	10	400m						
★1N960B	S		1N957	Z						9.1	14	5.0	400m						
★1N961	S		1N957	Z						10	12.5	20	400m						
★1N961A	S		1N957	Z						10	12.5	10	400m						
★1N961B	S		1N957	Z						10	12.5	5.0	400m						
★1N962	S		1N957	Z						11	11.5	20	400m						
★1N962A	S		1N957	Z						11	11.5	10	400m						
★1N962B	S		1N957	Z						11	11.5	5.0	400m						
★1N963	S		1N957	Z						12	10.5	20	400m						
★1N963A	S		1N957	Z						12	10.5	10	400m						
★1N963B	S		1N957	Z						12	10.5	5.0	400m						
★1N964	S		1N957	Z						13	9.5	20	400m						
★1N964A	S		1N957	Z						13	9.5	10	400m						
★1N964B	S		1N957	Z						13	9.5	5.0	400m						
★1N965	S		1N957	Z						15	8.5	20	400m						
★1N965A	S		1N957	Z						15	8.5	10	400m						
★1N965B	S		1N957	Z						15	8.5	5.0	400m						
★1N966	S		1N957	Z						16	7.8	20	400m						
★1N966A	S		1N957	Z						16	7.8	10	400m						
★1N966B	S		1N957	Z						16	7.8	5.0	400m						
★1N967	S		1N957	Z						18	7.0	20	400m						
★1N967A	S		1N957	Z						18	7.0	10	400m						
★1N967B	S		1N957	Z						18	7.0	5.0	400m						
★1N968	S		1N957	Z						20	6.2	20	400m						
★1N968A	S		1N957	Z						20	6.2	10	400m						
★1N968B	S		1N957	Z						20	6.2	5.0	400m						
★1N969	S		1N957	Z						22	5.6	20	400m						
★1N969A	S		1N957	Z						22	5.6	10	400m						
★1N969B	S		1N957	Z						22	5.6	5.0	400m						
★1N970	S		1N957	Z						24	5.2	20	400m						
★1N970A	S		1N957	Z						24	5.2	10	400m						
★1N970B	S		1N957	Z						24	5.2	5.0	400m						
★1N971	S		1N957	Z						27	4.6	20	400m						
★1N971A	S		1N957	Z						27	4.6	10	400m						
★1N971B	S		1N957	Z						27	4.6	5.0	400m						
★1N972	S		1N957	Z						30	4.2	20	400m						
★1N972A	S		1N957	Z						30	4.2	10	400m						
★1N972B	S		1N957	Z						30	4.2	5.0	400m						
★1N973	S		1N957	Z						33	3.8	20	400m						
★1N973A	S		1N957	Z						33	3.8	10	400m						
★1N973B	S		1N957	Z						33	3.8	5.0	400m						
★1N974	S		1N957	Z						36	3.4	20	400m						
★1N974A	S		1N957	Z						36	3.4	10	400m						
★1N974B	S		1N957	Z						36	3.4	5.0	400m						
★1N975	S		1N957	Z						39	3.2	20	400m						
★1N975A	S		1N957	Z						39	3.2	10	400m						
★1N975B	S		1N957	Z						39	3.2	5.0	400m						
★1N976	S		1N957	Z						43	3.0	20	400m						
★1N976A	S		1N957	Z						43	3.0	10	400m						
★1N976B	S		1N957	Z						43	3.0	5.0	400m						
★1N977	S		1N957	Z						47	2.7	20	400m						
★1N977A	S		1N957	Z						47	2.7	10	400m						
★1N977B	S		1N957	Z						47	2.7	5.0	400m						
★1N978	S		1N957	Z						51	2.5	20	400m						
★1N978A	S		1N957	Z						51	2.5	10	400m						
★1N978B	S		1N957	Z						51	2.5	5.0	400m						
★1N979	S		1N957	Z						56	2.2	20	400m						
★1N979A	S		1N957	Z						56	2.2	10	400m						
★1N979B	S		1N957	Z						56	2.2	5.0	400m						

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N980	S		1N957	Z						62	2.0	20	400m
★1N980A	S		1N957	Z						62	2.0	10	400m
★1N980B	S		1N957	Z						62	2.0	5.0	400m
★1N981	S		1N957	Z						68	1.8	20	400m
★1N981A	S		1N957	Z						68	1.8	10	400m
★1N981B	S		1N957	Z						68	1.8	5.0	400m
★1N982	S		1N957	Z						75	1.7	20	400m
★1N982A	S		1N957	Z						75	1.7	10	400m
★1N982B	S		1N957	Z						75	1.7	5.0	400m
★1N983	S		1N957	Z						82	1.5	20	400m
★1N983A	S		1N957	Z						82	1.5	10	400m
★1N983B	S		1N957	Z						82	1.5	5.0	400m
★1N984	S		1N957	Z						91	1.4	20	400m
★1N984A	S		1N957	Z						91	1.4	10	400m
★1N984B	S		1N957	Z						91	1.4	5.0	400m
★1N985	S		1N957	Z						100	1.3	20	400m
★1N985A	S		1N957	Z						100	1.3	10	400m
★1N985B	S		1N957	Z						100	1.3	5.0	400m
★1N986	S		1N957	Z						110	1.1	20	400m
★1N986A	S		1N957	Z						110	1.1	10	400m
★1N986B	S		1N957	Z						110	1.1	5.0	400m
★1N987	S		1N957	Z						120	1.0	20	400m
★1N987A	S		1N957	Z						120	1.0	10	400m
★1N987B	S		1N957	Z						120	1.0	5.0	400m
★1N988	S		1N957	Z						130	0.95	20	400m
★1N988A	S		1N957	Z						130	0.95	10	400m
★1N988B	S		1N957	Z						130	0.95	5.0	400m
★1N989	S		1N957	Z						150	0.85	20	400m
★1N989A	S		1N957	Z						150	0.85	10	400m
★1N989B	S		1N957	Z						150	0.85	5.0	400m
★1N990	S		1N957	Z						160	0.80	20	400m
★1N990A	S		1N957	Z						160	0.80	10	400m
★1N990B	S		1N957	Z						160	0.80	5.0	400m
★1N991	S		1N957	Z						180	0.68	20	400m
★1N991A	S		1N957	Z						180	0.68	10	400m
★1N991B	S		1N957	Z						180	0.68	5.0	400m
★1N992	S		1N957	Z						200	0.65	20	400m
★1N992A	S		1N957	Z						200	0.65	10	400m
★1N992B	S		1N957	Z						200	0.65	5.0	400m
1N993	S			S	20	1.2	10m	1.0*	4.0				
1N994	G			S	6.5	1.0	10m	30*	2.0				
1N995	G			S	15	0.5	10m	10*	6.0				
1N996	G			S	20	0.8	40m	15*	0.3				
1N997	S			S	35	1.0	10m	25n	0.15				
1N998	S			S	150	1.0	200m	1.0n					
1N999	S			S	100	1.0	50m	1.0n	4.0				
1N1005	G			G	380	0.15	0.25						
1N1007	G			G	380	0.3	0.35						
1N1008	G			G	380	0.3	0.4						
1N1013	G			G	380	0.15	0.25						
1N1016	G			G	380	0.15	0.4						
1N1021	G			G	380	0.15	0.25						
1N1022	G			G	380	0.15	0.3						
1N1023	G			G	380	0.15	0.35						
1N1024	G			G	380	0.15	0.4						
1N1028	S	1N4001	1N4001	G	50	1.5	0.25		15				
1N1029	S	1N4002	1N4001	G	100	1.5	0.25		15				
1N1030	S	1N4003	1N4001	G	150	1.5	0.25		15				
1N1031	S	1N4003	1N4001	G	200	1.5	0.25		15				
1N1032	S	1N4004	1N4001	G	300	1.5	0.25		15				
1N1033	S	1N4004	1N4001	G	400	1.5	0.25		15				
1N1034	S			G	50	1.5	0.5		15				
1N1035	S			G	100	1.5	0.5		15				
1N1036	S			G	150	1.5	0.5		15				
1N1037	S			G	200	1.5	0.5		15				
1N1038	S			G	300	1.5	0.5		15				
1N1039	S			G	400	1.5	0.5		15				
1N1040	S			G	50	1.5	0.5		15				
1N1041	S			G	100	1.5	0.5		15				
1N1042	S			G	150	1.5	0.5		15				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N1043	S			G	200	1.5	0.5			15			
1N1044	S			S	300	1.5	0.5			15			
1N1045	S			G	400	1.5	0.5			15			
1N1046	S			G	50	1.5	0.5			15			
1N1047	S			G	100	1.5	0.5			15			
1N1048	S			G	150	1.5	0.5			15			
1N1049	S			S	200	1.5	0.5			15			
1N1050	S			G	300	1.5	0.5			15			
1N1051	S			S	400	1.5	0.5			15			
1N1052	S	1N4001	1N4001	G	50	1.5	0.5			20			
1N1053	S	1N4002	1N4001	G	100	1.5	0.5			20			
1N1054	S	1N4003	1N4001	G	150	1.5	0.5			20			
1N1055	S	1N4003	1N4001	G	200	1.5	0.5			20			
1N1056	S	1N4004	1N4001	G	300	1.5	0.5			20			
1N1057	S	1N4004	1N4001	G	400	1.5	0.5			20			
1N1058	S			G	50	1.5	1.5			20			
1N1059	S			G	100	1.5	1.5			20			
1N1060	S			G	150	1.5	1.5			20			
1N1061	S			G	200	1.5	1.5			20			
1N1062	S			G	300	1.5	1.5			20			
1N1063	S			G	400	1.5	1.5			20			
1N1064	S			G	50	1.5	1.5			20			
1N1065	S			G	100	1.5	1.5			20			
1N1066	S			G	150	1.5	1.5			20			
1N1067	S			G	200	1.5	1.5			20			
1N1068	S			G	300	1.5	1.5			20			
1N1069	S			G	400	1.5	1.5			20			
1N1070	S			G	50	1.5	1.5			20			
1N1071	S			G	100	1.5	1.5			20			
1N1072	S			G	150	1.5	1.5			20			
1N1973	S			G	200	1.5	1.5			20			
1N1074	S			G	300	1.5	1.5			20			
1N1075	S			G	400	1.5	1.5			20			
1N1076	S			G	50	1.5	5.0			50			
1N1077	S			G	100	1.5	5.0			50			
1N1078	S			G	150	1.5	5.0			50			
1N1079	S			G	200	1.5	5.0			50			
1N1080	S			G	300	1.5	5.0			50			
1N1081	S	1N4002	1N4001	G	100	1.5	0.25			15			
1N1082	S	1N4003	1N4001	G	200	1.5	0.25			15			
1N1083	S	1N4004	1N4001	G	300	1.5	0.25			15			
1N1084	S	1N4004	1N4001	G	400	1.5	0.25			15			
1N1085	S			G	100	1.5	0.6			24			
1N1086	S			G	200	1.5	0.6			24			
1N1087	S			G	300	1.5	0.6			24			
1N1088	S			G	400	1.5	0.6			24			
1N1089	S			G	100	1.5	2.0			24			
1N1090	S			G	200	1.5	2.0			24			
1N1091	S			G	300	1.5	2.0			24			
1N1092	S			G	400	1.5	2.0			24			
1N1093	G			S	15	0.4	5.0m	25*	0.5				
1N1095	S	1N4005	1N4001	G	500	0.5	0.425	0.3	15				
1N1096	S	1N4005	1N4001	G	600	0.5	0.4	0.3	15				
1N1100	S	1N4002	1N4001	G	100	1.2	0.25	0.2	15				
1N1101	S	1N4003	1N4001	G	200	1.2	0.25	0.2	15				
1N1102	S	1N4004	1N4001	G	300	1.2	0.25	0.2	15				
1N1103	S	1N4004	1N4001	G	400	1.2	0.25	0.2	15				
1N1104	S	1N4005	1N4001	G	500	1.2	0.25	0.2	15				
1N1105	S	1N4005	1N4001	G	600	1.2	0.25	0.2	15				
1N1108	S			G	800	3.0	0.225		13.5				
1N1109	S			G	1200	4.5	0.212		12.7				
1N1110	S			G	1600	6.0	0.2		12				
1N1111	S			G	2000	7.5	0.187		11.2				
1N1112	S			G	2400	9.0	0.175		10.5				
1N1113	S			G	2800	10.5	0.162		9.7				
1N1115	S	MR1121	MR1120	G	100	0.65	0.6	0.4	15				
1N1116	S	MR1122	MR1120	G	200	0.65	0.6	0.3	15				
1N1117	S	MR1123	MR1120	G	300	0.65	0.6	0.3	15				
1N1118	S	MR1124	MR1120	G	400	0.65	0.6	0.3	15				
1N1119	S	MR1125	MR1120	G	500	0.65	0.6	0.3	15				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @	mA	mA	μs	Volts	°C	mA	Range °C					
1N120	S	MR1126	MR1120	G	600	0.65	0.6	0.3	15				
★1N124	S			G	200	1.1	3.0	0.3	25				
★1N124A	S	1N1124		G	200		3.3	0.3	25				
★1N125	S			G	300	1.1	3.0	0.3	25				
★1N125A	S	1N1125		G	300		3.3	0.3	25				
★1N126	S			G	400	1.1	3.0	0.3	25				
★1N126A	S	1N1126		G	400		3.3	0.3	25				
★1N127	S			G	500	1.1	3.0	0.3	25				
★1N127A	S	1N1126		G	500		3.3	0.3	25				
★1N128	S			G	600	1.1	3.0	0.3	25				
★1N128A	S	1N1126		G	600		3.3	0.3	25				
1N130	S			G	1500	15	0.3	0.05					
1N131	S			G	1500	15	0.3	0.05					
1N132	S	Table 4		M									
1N133	S			G	1500	15	0.085	0.025	3.5				
1N134	S			G	1500	7.5	0.115	0.025	3.5				
1N135	S			G	1800	18	0.075	0.025	3.5				
1N136	S			G	1800	9.0	0.095	0.025	3.5				
1N137	S			G	2400	24	0.057	0.025	3.5				
1N138	S			G	2400	12	0.070	0.025	3.5				
1N139	S			G	3600	27	0.075	0.025	3.5				
1N140	S			G	3600	18	0.075	0.025	3.5				
1N141	S			G	4800	36	0.070	0.025	3.5				
1N142	S			G	4800	24	0.057	0.025	3.5				
1N143	S			G	6000	45	0.057	0.025	3.5				
1N143A	S			G	6000	30	0.075	0.025	3.5				
1N144	S			G	7200	54	0.057	0.025	3.5				
1N145	S			G	7200	36	0.070	0.025	3.5				
1N146	S			G	8000	60	0.050	0.025	3.5				
1N147	S			G	12k	60	0.050	0.025	3.5				
1N148	S			G	14k	52	0.057	0.025	3.5				
1N149	S			G	16k	60	0.050	0.025	3.5				
1N150	S			G	1600		0.75		8.0				
1N150A	S			G	1600	6.5	0.375	1.0	10				
1N157	S			G	50		20		200				
1N158	S			G	100		20						
1N159	S			G	200		20						
1N160	S			G	300		20						
1N161	S			G	50		35		350				
1N162	S			G	100		35		350				
1N163	S			G	200		35		350				
1N164	S			G	300		35		350				
1N165	S			G	50		100		1000				
1N166	S			G	100		100		1000				
1N167	S			G	200		100		1000				
1N168	S			G	300		100		1000				
1N169	S	1N4004	1N4001	G			0.5						
1N169A	S	1N4004	1N4001	G	400		0.5	3.5					
1N170	G			S	50	1.0	4.0m	5.0*					
1N171	G			S	50		20						
1N172	S			G	100		20						
1N173	S			G	200		20						
1N174	S			G	300		20						
1N175	S			G	50		35		350				
1N176	S			G	100		35		350				
1N177	S			G	200		35		350				
1N178	S			G	300		35		350				
1N179	S			G	50		100		1000				
1N180	S			G	100		100		1000				
1N181	S			G	200		100		1000				
1N182	S			G	300		100		1000				
★1N183	S		1N183	G	50	1.7	35	10	500				
★1N183A	S			G	50	1.1	40	5.0					
★1N184	S		1N183	G	100	1.7	35	10	500				
★1N184A	S			G	100	1.1	40	5.0					
★1N185	S		1N183	G	150	1.7	35	10	500				
★1N185A	S			G	150	1.1	40	5.0					
★1N186	S		1N183	G	200	1.7	35	10	500				
★1N186A	S			G	200	1.1	40	5.0					
★1N187	S		1N183	G	300	1.7	35	10	500				

1N1187A-1N1224A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N1187A	S			G	300	1.1	40	5.0					
★1N1188	S		1N1183	G	400	1.7	35	10	500				
★1N1188A	S			G	400	1.1	40	5.0					
★1N1189	S		1N1183	G	500	1.7	35	10	500				
★1N1189A	S			G	500	1.2	40	2.0	800				
★1N1190	S		1N1183	G	600	1.7	35	10	500				
1N1190A	S			G	600	1.2	40	1.8	800				
★1N1191	S		1N248B	G	50	2.35	18	5.0	220				
1N1191A	S			G	50	2.0	22	2.5	500				
★1N1192	S		1N248B	G	100	2.35	18	5.0	220				
1N1192A	S			G	100	2.0	22	2.5	500				
★1N1193	S		1N248B	G	150	2.35	18	5.0	220				
1N1193A	S			G	150	2.0	22	2.5	500				
★1N1194	S		1N248B	G	200	2.35	18	5.0	220				
1N1194A	S			G	200	2.0	22	2.5	500				
★1N1195	S		1N248B	G	300	2.35	18	5.0	220				
★1N1195A	S		1N248B	G	300	0.6	20	3.2	350				
★1N1196	S		1N248B	G	400	2.35	18	5.0	220				
★1N1196A	S		1N248B	G	400	0.6	20	2.5	350				
★1N1197	S		1N248B	G	500	2.35	18	5.0	220				
★1N1197A	S		1N248B	G	500	0.6	20	2.2	350				
★1N1198	S		1N248B	G	600	2.35	18	5.0	220				
★1N1198A	S		1N248B	G	600	0.6	20	1.5	350				
★1N1199	S			G	50		12	10					
★1N1199A	S	1N1199		G	50	1.35	12	3.0	240				
1N1199B	S			G	50	1.2	12	0.9	250				
★1N1200	S			G	100		12	10					
★1N1200A	S	1N1200		G	100	1.35	50	2.5	240				
1N1200B	S			G	100	1.2	12	0.9	250				
★1N1201	S			G	150		12	10					
★1N1201A	S	1N1201		G	150	1.35	50	2.25	240				
1N1201B	S			G	150	1.2	12	0.9	250				
★1N1202	S			G	200		12	10					
★1N1202A	S	1N1202		G	200	1.35	50	2.0	240				
1N1202B	S			G	200	1.2	12	0.9	250				
★1N1203	S			G	300		12	10					
★1N1203A	S	1N1203		G	300	1.35	50	1.75	240				
1N1203B	S			G	300	1.2	12	0.9	250				
★1N1204	S			G	400		12	10					
★1N1204A	S	1N1204		G	400	1.35	50	1.5	240				
1N1204B	S			G	400	1.2	12	0.9	250				
★1N1205	S			G	500		12	10					
★1N1205A	S	1N1205		G	500	1.35	50	1.25	240				
1N1205B	S			G	500	1.2	12	0.9	250				
★1N1206	S			G	600		12	10					
★1N1206A	S	1N1206		G	600	1.35	50	1.0	240				
1N1206B	S			G	600	1.2	12	0.9	250				
1N1217	S	1N4001	1N4001	G	50	1.0	1.6	1.5	20				
1N1217A	S	1N4001	1N4001	G	50	1.5	1.6	0.05					
1N1217B	S			G	50	1.7	1.35	0.3	25				
1N1218	S	1N4002	1N4001	G	100	1.0	1.6	1.5	20				
1N1218A	S	1N4002	1N4001	G	100	1.5	1.6	0.05					
1N1218B	S			G	100	1.7	1.35	0.3	25				
1N1219	S	1N4003	1N4001	G	150	1.0	1.6	1.5	20				
1N1219A	S	1N4003	1N4001	G	150	1.5	1.6	0.05					
1N1219B	S			G	150	1.7	1.35	0.3	25				
1N1220	S	1N4003	1N4001	G	200	1.0	1.6	1.5	20				
1N1220A	S	1N4003	1N4001	G	200	1.5	1.6	0.05					
1N1220B	S			G	200	1.7	1.35	0.3	25				
1N1221	S	1N4004	1N4001	G	300	1.0	1.6	1.5	20				
1N1221A	S	1N4004	1N4001	G	300	1.5	1.6	0.05					
1N1221B	S			G	300	1.7	1.35	0.3	25				
1N1222	S	1N4004	1N4001	G	400	1.0	1.6	1.5	20				
1N1222A	S	1N4004	1N4001	G	400	1.5	1.6	0.05					
1N1222B	S			G	400	1.7	1.35	0.3	25				
1N1223	S	1N4005	1N4001	G	500	1.0	1.6	1.5	20				
1N1223A	S	1N4005	1N4001	G	500	1.5	1.6	0.05					
1N1223B	S			C	500	1.7	1.35	0.3	25				
1N1224	S	1N4005	1N4001	G	600	1.0	1.6	1.5	20				
1N1224A	S	1N4005	1N4001	G	600	1.5	1.6	0.05					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RRM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °/°C	I _{ZT} mA	Temp Range °C
1N1224B	S			G	600	1.62	1.25	0.3	25				
1N1225	S	1N4006	1N4001	G	700	1.0	1.6	1.5	20				
1N1225A	S	1N4006	1N4001	G	700	1.55	1.1	0.5	25				
1N1225B	S			G	700	1.62	1.25	0.3	25				
1N1226	S	1N4006	1N4001	G	800	1.0	1.6	1.5	20				
1N1226A	S	1N4006	1N4001	G	800	1.50	1.1	0.5	25				
1N1226B	S			G	800	1.58	1.15	0.3	25				
1N1227	S			G	50	1.0	1.6	1.5	20				
1N1227A	S	MR1120	MR1120	G	50	1.5	1.6	0.05					
1N1228	S			G	100	1.0	1.6	1.5	20				
1N1228A	S	MR1121	MR1120	G	100	1.5	1.6	0.05					
1N1229	S			G	150	1.0	1.6	1.5	20				
1N1229A	S	MR1122	MR1120	G	150	1.5	1.6	0.05					
1N1230	S			G	200	1.0	1.6	1.5	20				
1N1230A	S	MR1122	MR1120	G	200	1.5	1.6	0.05					
1N1231	S			G	300	1.0	1.6	1.5	20				
1N1231A	S	MR1123	MR1120	G	300	1.5	1.6	0.05					
1N1232	S			G	400	1.0	1.6	1.5	20				
1N1232A	S	MR1124	MR1120	G	400	1.5	1.6	0.05					
1N1233	S			G	500	1.0	1.6	1.5	20				
1N1233A	S	MR1125	MR1120	G	500	1.5	1.6	0.05					
1N1234	S			G	600	1.0	1.6	1.5	20				
1N1234A	S	MR1126	MR1120	G	600	1.5	1.6	0.05					
1N1235	S			G	700	1.0	1.6	1.5	20				
1N1236	S			G	800	1.0	1.6	1.5	20				
1N1237	S			G	1600		0.75		8.0				
1N1238	S			G	1600		0.75		8.0				
1N1239	S			G	2800		0.5		5.0				
1N1240	S			G	50	1.0	0.25	0.5	5.0				
1N1241	S			G	100	1.0	0.25	0.5	5.0				
1N1242	S			G	200	1.0	0.25	0.5	5.0				
1N1243	S			G	300	1.0	0.2	0.5	5.0				
1N1244	S			G	400	1.0	0.15	0.5					
1N1244A	S			G	400	1.0	0.2	0.5	5.0				
1N1245	S			G	500	1.0	0.13	0.4					
1N1246	S			G	600	1.0	0.115	0.3					
1N1247	S			G	700	1.0	0.1	0.2					
1N1248	S			G	800	1.0	0.08	0.1					
1N1249	S			G	900	1.0	0.065	0.1					
1N1250	S			G	1000	1.0	0.05	0.1					
1N1251	S	1N4001	1N4001	G	50	1.0	0.5	0.5	5.0				
1N1252	S	1N4002	1N4001	G	100	1.0	0.5	0.5	5.0				
1N1253	S	1N4003	1N4001	G	200	1.0	0.5	0.5	5.0				
1N1254	S	1N4004	1N4001	G	300	1.0	0.5	0.5	5.0				
1N1255	S	1N4004	1N4001	G	400	1.0	0.5	0.5					
1N1255A	S	1N4004	1N4001	G	400	1.0	0.3	0.5	5.0				
1N1256	S	1N4005	1N4001	G	500	1.0	0.3	0.4					
1N1257	S	1N4005	1N4001	G	600	1.0	0.3	0.3					
1N1258	S	1N4006	1N4001	G	700	1.0	0.28	0.2					
1N1259	S	1N4006	1N4001	G	800	1.0	0.27	0.1					
1N1260	S	1N4007	1N4001	G	900	1.0	0.25	0.1					
1N1261	S	1N4007	1N4001	G	1000	1.0	0.24	0.1					
1N1262	S			G	4500		0.25		2.5				
1N1263	S			G	50		150		1500				
1N1263A	S			G	50		200		2000				
1N1264	S			G	100		150		1500				
1N1264A	S			G	100		200		2000				
1N1265	S			G	200		150		1500				
1N1265A	S			G	200		200		2000				
1N1266	S			G	300		150		1500				
1N1266A	S			G	300		200		2000				
1N1267	S			G	50		150		1500				
1N1267A	S			G	50		200		2000				
1N1268	S			G	100		150		1500				
1N1268A	S			G	100		200		2000				
1N1269	S			G	200		150		1500				
1N1269A	S			G	200		200		2000				
1N1270	S			G	300		150		1500				
1N1270A	S			G	300		200		2000				
1N1271	S			G	50		160	40					

1N1272-1N1344B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	f	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N1272	S			G	100		160	40					
1N1273	S			G	150		160	40					
1N1274	S			G	200		160	40					
1N1275	S			G	300		160	40					
1N1276	S			G	400		160	40					
1N1277	S			G	500		160	40					
1N1281	S			G	50		160	40					
1N1282	S			G	100		160	40					
1N1283	S			G	150		160	40					
1N1284	S			G	200		160	40					
1N1285	S			G	300		160	40					
1N1286	S			G	400		160	40					
1N1287	S			G	500		160	40					
1N1291	S			G	50		160	40					
1N1292	S			G	100		160	40					
1N1293	S			G	150		160	40					
1N1294	S			G	200		160	40					
1N1295	S			G	300		160	40					
1N1296	S			G	400		160	40					
1N1297	S			G	500		160	40					
1N1301	S	1N1183	1N1183	G	50	1.5	37	2.0	300				
1N1302	S	1N1184	1N1183	G	100	1.5	37	2.0	300				
1N1304	S	1N1186	1N1183	G	200	1.5	37	2.0	300				
1N1306	S	1N1187	1N1183	G	300	1.5	37	2.0	300				
★1N1313	S			Z						8.8	0.2	10	150m
★1N1313A	S			Z						8.8	0.2	5.0	150m
★1N1314	S			Z						10.5	0.2	10	150m
★1N1314A	S			Z						10.5	0.2	5.0	150m
★1N1315	S			Z						12.8	0.2	10	150m
★1N1315A	S			Z						12.8	0.2	5.0	150m
★1N1316	S			Z						15.8	0.2	10	150m
★1N1316A	S			Z						15.8	0.2	5.0	150m
★1N1317	S			Z						19	0.2	10	150m
★1N1317A	S			Z						19	0.2	5.0	150m
★1N1318	S			Z						23	0.2	10	150m
★1N1318A	S			Z						23	0.2	5.0	150m
★1N1319	S			Z						28	0.2	10	150m
★1N1319A	S			Z						28	0.2	5.0	150m
★1N1320	S			Z						34.5	0.2	10	150m
★1N1320A	S			Z						34.5	0.2	5.0	150m
★1N1321	S			Z						41	0.2	10	150m
★1N1321A	S			Z						41	0.2	5.0	150m
★1N1322	S			Z						48.5	0.2	10	150m
★1N1322A	S			Z						48.5	0.2	5.0	150m
★1N1323	S			Z						58	0.2	10	150m
★1N1323A	S			Z						58	0.2	5.0	150m
★1N1324	S			Z						71	0.2	10	150m
★1N1325	S			Z						89.5	0.2	10	150m
★1N1326	S			Z						105	0.2	10	150m
★1N1327	S			Z						127	0.2	10	150m
1N1329	S			G	1500	1.3	0.1	0.02	2.0				
1N1330	S			G	50		240	50					
1N1331	S			G	100		240	50					
1N1332	S			G	150		240	50					
1N1333	S			G	200		240	50					
1N1334	S			G	300		240	50					
1N1335	S			G	400		240	50					
1N1336	S			G	500		240	50					
1N1341	S			G	50	1.6	6.0	4.0	150				
1N1341A	S	MR1120	MR1120	G	50	1.4	6.0	3.0	150				
1N1341B	S			G	50	1.2	6.0	0.45	160				
1N1342	S			G	100	1.6	6.0	4.0	150				
1N1342A	S	MR1121	MR1120	G	100	1.4	6.0	2.5	150				
1N1342B	S			G	100	1.2	6.0	0.45	160				
1N1343	S			G	150	1.6	6.0	4.0	150				
1N1343A	S	MR1122	MR1120	G	150	1.4	6.0	2.25	150				
1N1343B	S			G	150	1.2	6.0	0.45	160				
1N1344	S			G	200	1.6	6.0	4.0	150				
1N1344A	S	MR1122	MR1120	G	200	1.4	6.0	2.0	150				
1N1344B	S			G	200	1.2	6.0	0.45	160				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	α	f _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °/°C	I _{ZT} mA	Temp Range °C
1N1345	S	MR1123	MR1120	G	300	1.6	6.0	4.0	150				
1N1345A	S			G	300	1.4	6.0	1.75	150				
1N1345B	S			G	300	1.2	6.0	0.45	160				
1N1346	S			G	400	1.6	6.0	4.0	150				
1N1346A	S			C	400	1.4	6.0	1.5	150				
1N1346B	S	MR1125	MR1120	G	400	1.2	6.0	0.45	160				
1N1347	S			G	500	1.6	6.0	4.0	150				
1N1347A	S			G	500	1.4	6.0	1.25	150				
1N1347B	S			G	500	1.2	6.0	0.45	160				
1N1348	S			G	600	1.6	6.0	4.0	150				
1N1348A	S	MR1126	MR1120	G	600	1.4	6.0	1.0	150				
1N1348B	S			G	600	1.2	6.0	0.45	160				
★1N1351	S			1N2974A	1N2970	G					10	500	10	10W
★1N1351A	S	1N2974B	1N2970	G					10	500	5.0	10W	
★1N1352	S	1N2975A	1N2970	G					11	500	10	10W	
★1N1352A	S	1N2975B	1N2970	G					11	500	5.0	10W	
★1N1353	S	1N2976A	1N2970	G					12	500	10	10W	
★1N1353A	S	1N2976B	1N2970	G					12	500	5.0	10W	
★1N1354	S	1N2977A	1N2970	G					13	500	10	10W	
★1N1354A	S	1N2977B	1N2970	G					13	500	5.0	10W	
★1N1355	S	1N2979A	1N2970	G					15	500	10	10W	
★1N1355A	S	1N2979B	1N2970	G					15	500	5.0	10W	
★1N1356	S	1N2980A	1N2970	Z					16	500	10	10W	
★1N1356A	S	1N2980B	1N2970	Z					16	500	5.0	10W	
★1N1357	S	1N2982A	1N2970	Z					18	150	10	10W	
★1N1357A	S	1N2982B	1N2970	Z					18	150	5.0	10W	
★1N1358	S	1N2984A	1N2970	Z					20	150	10	10W	
★1N1358A	S	1N2984B	1N2970	Z					20	150	5.0	10W	
★1N1359	S	1N2985A	1N2970	Z					22	150	10	10W	
★1N1359A	S	1N2985B	1N2970	Z					22	150	5.0	10W	
★1N1360	S	1N2986A	1N2970	Z					24	150	10	10W	
★1N1360A	S	1N2986B	1N2970	Z					24	150	5.0	10W	
★1N1361	S	1N2988A	1N2970	Z					27	150	10	10W	
★1N1361A	S	1N2988B	1N2970	Z					27	150	5.0	10W	
★1N1362	S	1N2989A	1N2970	Z					30	150	10	10W	
★1N1362A	S	1N2989B	1N2970	Z					30	150	5.0	10W	
★1N1363	S	1N2990A	1N2970	Z					33	150	10	10W	
★1N1363A	S	1N2990B	1N2970	Z					33	150	5.0	10W	
★1N1364	S	1N2991A	1N2970	Z					36	150	10	10W	
★1N1364A	S	1N2991B	1N2970	Z					36	150	5.0	10W	
★1N1365	S	1N2992A	1N2970	Z					39	150	10	10W	
★1N1365A	S	1N2992B	1N2970	Z					39	150	5.0	10W	
★1N1366	S	1N2993A	1N2970	Z					43	150	10	10W	
★1N1366A	S	1N2993B	1N2970	Z					43	150	5.0	10W	
★1N1367	S	1N2995A	1N2970	Z					47	150	10	10W	
★1N1367A	S	1N2995B	1N2970	Z					47	150	5.0	10W	
★1N1368	S	1N2997A	1N2970	Z					51	150	10	10W	
★1N1368A	S	1N2997B	1N2970	Z					51	150	5.0	10W	
★1N1369	S	1N2999A	1N2970	Z					56	150	10	10W	
★1N1369A	S	1N2999B	1N2970	Z					56	150	5.0	10W	
★1N1370	S	1N3000A	1N2970	Z					62	50	10	10W	
★1N1370A	S	1N3000B	1N2970	Z					62	50	5.0	10W	
★1N1371	S	1N3001A	1N2970	Z					68	50	10	10W	
★1N1371A	S	1N3001B	1N2970	Z					68	50	5.0	10W	
★1N1372	S	1N3002A	1N2970	Z					75	50	10	10W	
★1N1372A	S	1N3002B	1N2970	Z					75	50	5.0	10W	
★1N1373	S	1N3003A	1N2970	Z					82	50	10	10W	
★1N1373A	S	1N3003B	1N2970	Z					82	50	5.0	10W	
★1N1374	S	1N3004A	1N2970	Z					91	50	10	10W	
★1N1374A	S	1N3004B	1N2970	Z					91	50	5.0	10W	
★1N1375	S	1N3005A	1N2970	Z					100	50	10	10W	
★1N1375A	S	1N3005B	1N2970	Z					100	50	5.0	10W	
1N1376	S			G	50		240	50					
1N1377	S			G	100		240	50					
1N1378	S			G	150		240	50					
1N1379	S			G	200		240	50					
1N1380	S			G	300		240	50					
1N1381	S			G	400		240	50					
1N1382	S			G	500		240	50					
1N1396	S	MR1810SB	MR1210	G	50	1.55	70	15	1200				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZI} mA	Temp Range °C					
1N1397	S	MR1811SB	MR1210	G	100	1.55	70	15	1200				
1N1398	S	MR1812SB	MR1210	G	150	1.55	70	15	1200				
1N1399	S	MR1813SB	MR1210	G	200	1.55	70	15	1200				
1N1400	S	MR1815SB	MR1210	G	300	1.55	70	15	1200				
1N1401	S	MR1817SB	MR1210	G	400	1.55	70	15	1200				
1N1402	S	MR1818SB	MR1210	G	500	1.55	70	15	1200				
1N1403	S	MR1819SB	MR1210	G	600	1.55	70	15	1200				
1N1406	S	1N4005	1N4001	G	600	5.0	0.1	0.1	3.5				
1N1407	S	1N4006	1N4001	G	800	5.0	1.0	0.1	3.5				
1N1408	S	1N4007	1N4001	G	1000	5.0	1.0	0.1	3.5				
1N1409	S	MR991A	MR990A	G	1200	5.0	0.1	0.1	3.5				
1N1410	S	MR991A	MR990A	G	1500	6.25	0.1	0.1	3.5				
1N1411	S	MR992A	MR990A	G	1800	7.5	0.1	0.1	3.5				
1N1412	S	MR992A	MR990A	G	2000	6.25	0.1	0.1	3.5				
1N1413	S	MR993A	MR990A	G	2400	7.5	0.1	0.1	3.5				
1N1414	S			G	400	1.25	10	1.0	100				
1N1415	S			S		1.1	1.0	1.0*					
1N1416	S	1N2972B	1N2970	Z						8.2	200	5.0	10W
1N1417	S	1N2976B	1N2970	Z						12	200	5.0	10W
1N1418	S	1N2979B	1N2970	Z						15	100	5.0	10W
1N1419	S	1N2982B	1N2970	Z						18	100	5.0	10W
1N1420	S	1N2985B	1N2970	Z						22	100	5.0	10W
1N1421	S	1N2988B	1N2970	Z						27	50	5.0	10W
1N1422	S	1N3001B	1N2970	Z						68	20	5.0	10W
1N1423	S	1N3005B	1N2970	Z						100	20	5.0	10W
1N1424	S	1N3011B	1N2970	Z						150	10	5.0	10W
1N1425	S	1N4738A	1N2970	Z						8.2	20	5.0	1.0W
1N1426	S	1N4742A	1N2970	Z						12	20	5.0	1.0W
1N1427	S	1N4744A	1N2970	Z						15	10	5.0	1.0W
1N1428	S	1N4746A	1N2970	Z						18	10	5.0	1.0W
1N1429	S	1N4748A	1N2970	Z						22	10	5.0	1.0W
1N1430	S	1N4750A	1N2070	Z						27	5.0	5.0	1.0W
1N1431	S	1N4760A	1N2070	Z						68	2.0	5.0	1.0W
1N1432	S	1N4764A	1N2070	Z						100	2.0	5.0	1.0W
1N1433	S	1M150ZS5		Z						150	1.0	5.0	10W
1N1434	S	1N1183	1N1183	G	50	1.2	30	5.0					
1N1435	S	1N1184	1N1183	G	100	1.2	30	5.0					
1N1436	S	1N1186	1N1183	G	200	1.2	30	5.0					
1N1437	S	1N1188	1N1183	G	400	1.2	30	5.0					
1N1438	S	1N1190	1N1183	G	600	1.2	30	5.0					
1N1440	S	1N4003	1N4001	G	200	1.2	0.75	0.5	30				
1N1441	S	1N4004	1N4001	G	300	1.2	0.75	0.5	30				
1N1442	S	1N4004	1N4001	G	400	1.2	0.75	0.5	30				
1N1443	S	1N4007	1N4001	G	1000	1.0	1.6	1.5	20				
1N1443A	S			G	1000	1.45	1.1	0.5	25				
1N1443B	S			G	1000	1.55	1.1	0.3	25				
1N1444	S	MR1130	MR1120	G	1000	1.0	1.6	1.5	20				
1N1445	S			G	360	2.0	0.2	4.0					
1N1446	S			G	100	2.0		2.0					
1N1447	S			G	200	2.0		2.0					
1N1448	S			G	300	1.4		2.0					
1N1449	S			G	400	2.0		2.0					
1N1450	S			G	100	1.4		5.0					
1N1451	S			G	200	1.4		5.0					
1N1452	S			G	300	1.4		5.0					
1N1453	S			G	400	1.4		5.0					
1N1454	S			G	100	1.5	25	25					
1N1455	S			G	200	1.5	25	25					
1N1456	S			G	300	1.5	25	25					
1N1457	S			G	400	1.5	25	25					
1N1458	S			G	100	1.5	35	25					
1N1459	S			G	200	1.5	35	25					
1N1460	S			G	300	1.5	35	25					
1N1461	S			G	400	1.5	35	25					
1N1462	S			C	100	1.5	50	50					
1N1463	S			G	200	1.5	50	50					
1N1464	S			G	300	1.5	50	50					
1N1465	S			G	400	1.5	50	50					
1N1466	S	MR1221FB	MR1220	G	100	1.5	75	50					
1N1467	S	MR1223FB	MR1220	G	200	1.5	75	50					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	(α)	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp				
Volts	Volts				μs	Volts	/°C	mA	Range °C				
1N1468	S	MR1225FB	MR1220	G	300	1.5	75	50					
1N1469	S	MR1227FB	MR1220	G	400	1.5	75	50					
1N1470	S			G	100	1.5	100	100					
1N1471	S			G	200	1.5	100	100					
1N1472	S			G	300	1.5	100	100					
1N1473	S			G	400	1.5	100	100					
1N1474	S			G	100	1.5	150	100					
1N1475	S			G	200	1.5	150	100					
1N1476	S			G	300	1.5	150	100					
1N1477	S			G	400	1.5	150	100					
1N1478	S	MR1241FB	MR1240	G	100	1.5	200	100					
1N1479	S	MR1243FB	MR1240	G	200	1.5	200	100					
1N1480	S	MR1245FB	MR1240	G	300	1.5	200	100					
1N1481	S	MR1247FB	MR1240	G	400	1.5	200	100					
1N1482	S	1N3995A	1N3993	Z						4.7	200	5.0	10W
1N1483	S	1N3998A	1N3993	Z						6.2	200	5.0	10W
1N1484	S	1N4732A	1N4728	Z						4.7	50	5.0	1.0W
1N1485	S	1N4735A	1N4728	Z						6.2	20	5.0	1.0W
1N1486	S	1N4005	1N4001	G	500		0.5	3.5					
1N1487	S	1N4002	1N4001	G	100	0.55	0.25	0.4	15				
1N1488	S	1N4003	1N4001	G	200	0.55	0.25	0.3	15				
1N1489	S	1N4004	1N4001	G	300	0.55	0.25	0.3	15				
1N1490	S	1N4004	1N4001	G	400	0.55	0.25	0.3	15				
1N1491	S	1N4005	1N4001	G	500	0.55		0.3	15				
1N1492	S	1N4005	1N4001	G	600	0.55		0.3	15				
★1N1507	S	1N4730	1N4728	Z						3.9	35	10	750m
★1N1507A	S	1N4730A	1N4728	Z						3.9	35	5.0	750m
★1N1508	S	1N4732	1N4728	Z						4.7	30	10	750m
★1N1508A	S	1N4732A	1N4728	Z						4.7	30	5.0	750m
★1N1509	S	1N4734	1N4728	Z						5.6	25	10	750m
★1N1509A	S	1N4734A	1N4728	Z						5.6	25	5.0	750m
★1N1510	S	1N4736	1N4728	Z						6.8	22	10	750m
★1N1510A	S	1N4736A	1N4728	Z						6.8	22	5.0	750m
★1N1511	S	1N4738	1N4728	Z						8.2	18	10	750m
★1N1511A	S	1N4738A	1N4728	Z						8.2	18	5.0	750m
★1N1512	S	1N4740	1N4728	Z						10	15	10	750m
★1N1512A	S	1N4740A	1N4728	Z						10	15	5.0	750m
★1N1513	S	1N4742	1N4728	Z						12	12	10	750m
★1N1513A	S	1N4742A	1N4728	Z						12	12	5.0	750m
★1N1514	S	1N4744	1N4728	Z						15	10	10	750m
★1N1514A	S	1N4744A	1N4728	Z						15	10	5.0	750m
★1N1515	S	1N4746	1N4728	Z						18	8.0	10	750m
★1N1515A	S	1N4746A	1N4728	Z						18	8.0	5.0	750m
★1N1516	S	1N4748	1N4728	Z						22	6.0	10	750m
★1N1516A	S	1N4748A	1N4728	Z						22	6.0	5.0	750m
★1N1517	S	1N4750	1N4728	Z						27	5.0	10	750m
★1N1517A	S	1N4750A	1N4728	Z						27	5.0	5.0	750m
★1N1518	S	1N4730	1N4728	Z						3.9	50	10	1.0W
★1N1518A	S	1N4730A	1N4728	Z						3.9	50	5.0	1.0W
★1N1519	S	1N4732	1N4728	Z						4.7	40	10	1.0W
★1N1519A	S	1N4732A	1N4728	Z						4.7	40	5.0	1.0W
★1N1520	S	1N4734	1N4728	Z						5.6	35	10	1.0W
★1N1520A	S	1N4734A	1N4728	Z						5.6	35	5.0	1.0W
★1N1521	S	1N4736	1N4728	Z						6.8	30	10	1.0W
★1N1521A	S	1N4736A	1N4728	Z						6.8	30	5.0	1.0W
★1N1522	S	1N4738	1N4728	Z						8.2	25	10	1.0W
★1N1522A	S	1N4738A	1N4728	Z						8.2	25	5.0	1.0W
★1N1523	S	1N4740	1N4728	Z						10	20	10	1.0W
★1N1523A	S	1N4740A	1N4728	Z						10	20	5.0	1.0W
★1N1524	S	1N4742	1N4728	Z						12	15	10	1.0W
★1N1524A	S	1N4742A	1N4728	Z						12	15	5.0	1.0W
★1N1525	S	1N4744	1N4728	Z						15	13	10	1.0W
★1N1525A	S	1N4744A	1N4728	Z						15	13	5.0	1.0W
★1N1526	S	1N4746	1N4728	Z						18	10	10	1.0W
★1N1526A	S	1N4746A	1N4728	Z						18	10	5.0	1.0W
★1N1527	S	1N4748	1N4728	Z						22	9.0	10	1.0W
★1N1527A	S	1N4748A	1N4728	Z						22	9.0	5.0	1.0W
★1N1528	S	1N4750	1N4728	Z						27	7.0	10	1.0W
★1N1528A	S	1N4750A	1N4728	Z						27	7.0	5.0	1.0W
★1N1530	S	1N3156	1N3154	R						8.4	0.002	10	-55/100

1N1530A-1N1596A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES								
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D					
					SIGNAL DIODES					REFERENCE DIODES								
PRV Volts	V _F Volts @ I _F	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C										
★1N1530A	S	1N3157	1N3154	G														
1N1537	S	MR1120	MR1120	G	50	1.5	1.6	0.05		8.4	0.002	10	-55/100					
1N1538	S	MR1121	MR1120	G	100	1.5	1.6	0.05										
1N1539	S	MR1122	MR1120	G	150	1.5	1.6	0.05										
1N1540	S	MR1122	MR1120	G	200	1.5	1.6	0.05										
1N1541	S	MR1123	MR1120	G	300	1.5	1.6	0.05										
1N1542	S	MR1124	MR1120	G	400	1.5	1.6	0.05										
1N1543	S	MR1125	MR1120	G	500	1.5	1.6	0.05										
1N1544	S	MR1126	MR1120	G	600	1.5	1.6	0.05										
1N1551	S	MR1121	MR1120	G	100	1.4		1.0										
1N1552	S	MR1122	MR1120	G	200	1.4		1.0										
1N1553	S	MR1123	MR1120	G	300	1.4		1.0										
1N1554	S	MR1124	MR1120	G	400	1.4		1.0										
1N1555	S	MR1125	MR1120	G	500	1.4		1.0										
1N1556	S	1N4002	1N4001	G	100	1.4	0.75	1.0										
1N1557	S	1N4003	1N4001	G	200	1.4	0.75	1.0										
1N1558	S	1N4004	1N4001	G	300	1.4	0.75	1.0										
1N1559	S	1N4004	1N4001	G	400	1.4	0.75	1.0										
1N1560	S	1N4005	1N4001	G	500	1.4	0.75	1.0										
1N1561	G			S	25	0.4	12m	25*										
1N1562	G			S	25	0.4	8.0m	25*										
1N1563	S			G	100	1.5	1.0	0.003	70									
1N1563A	S			G	100	1.5	1.5	0.003	70									
1N1564	S			G	200	1.5	1.0	0.003	70									
1N1564A	S			G	200	1.5	1.5	0.003	70									
1N1565	S			G	300	1.5	1.0	0.003	70									
1N1565A	S			G	300	1.5	1.5	0.003	70									
1N1566	S			G	400	1.5	1.0	0.003	70									
1N1566A	S			G	400	1.5	1.5	0.003	70									
1N1567	S			G	500	1.2	1.0	0.005	70									
1N1567A	S			G	500	1.5	1.5	0.003	70									
1N1568	S			G	600	1.2	1.0	0.005	70									
1N1568A	S			G	600	1.5	1.5	0.003	70									
1N1569	S			G	100	1.5	1.0	0.005	70									
1N1570	S			G	200	1.5	1.0	0.005	70									
1N1571	S			G	300	1.5	1.0	0.005	70									
1N1572	S			G	400	1.5	1.0	0.005	70									
1N1573	S			G	500	1.5	1.0	0.005	70									
1N1574	S			G	600	1.5	1.0	0.005	70									
1N1575	S			G	100	1.5	3.5	0.005	70									
1N1576	S			G	200	1.5	3.5	0.005	70									
1N1577	S			G	300	1.5	3.5	0.005	70									
1N1578	S			G	400	1.5	3.5	0.005	70									
1N1579	S			G	500	1.5	3.5	0.005	70									
1N1580	S			G	600	1.5	3.5	0.005	70									
1N1581	S	MR1120	MR1120	G	50	1.5	3.0	5.0	40									
1N1582	S	MR1121	MR1120	G	100	1.5	3.0	5.0	40									
1N1583	S	MR1122	MR1120	G	200	1.5	3.0	5.0	40									
1N1584	S	MR1123	MR1120	G	300	1.5	3.0	5.0	40									
1N1585	S	MR1124	MR1120	G	400	1.5	3.0	5.0	40									
1N1586	S	MR1125	MR1120	G	500	1.5	3.0	5.0	40									
1N1587	S	MR1126	MR1120	G	600	1.5	3.0	5.0	40									
★1N1588	S	1N3993	1N3993	Z						3.9	150	10	3.5W					
★1N1588A	S	1N3993A	1N3993	Z						3.9	150	5.0	3.5W					
★1N1589	S	1N3995	1N3993	Z						4.7	125	10	3.5W					
★1N1589A	S	1N3995A	1N3993	Z						4.7	125	5.0	3.5W					
★1N1590	S	1N3997	1N3993	Z						5.6	110	10	3.5W					
★1N1590A	S	1N3997A	1N3993	Z						5.6	110	5.0	3.5W					
★1N1591	S	1N2970RA	1N2970	Z						6.8	100	10	3.5W					
★1N1591A	S	1N2970RB	1N2970	Z						6.8	100	5.0	3.5W					
★1N1592	S	1N2972RA	1N2970	Z						8.2	80	10	3.5W					
★1N1592A	S	1N2972RB	1N2970	Z						8.2	80	5.0	3.5W					
★1N1593	S	1N2974RA	1N2970	Z						10	70	10	3.5W					
★1N1593A	S	1N2974RB	1N2970	Z						10	70	5.0	3.5W					
★1N1594	S	1N2976RA	1N2970	Z						12	50	10	3.5W					
★1N1594A	S	1N2976RB	1N2970	Z						12	50	5.0	3.5W					
★1N1595	S	1N2979RA	1N2970	Z						15	40	10	3.5W					
★1N1595A	S	1N2979RB	1N2970	Z						15	40	5.0	3.5W					
★1N1596	S	1N2982RA	1N2970	Z						18	35	10	3.5W					
★1N1596A	S	1N2982RB	1N2970	Z						18	35	5.0	3.5W					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol V _Z %	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA		
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @	mA	mA	μs	Volts	°C	mA	Range °C					
★1N1597	S	1N2985RA	1N2970	Z						22	30	10	3.5W
★1N1597A	S	1N2985RB	1N2970	Z						22	30	5.0	3.5W
★1N1598	S	1N2988RA	1N2970	Z						27	25	10	3.5W
★1N1598A	S	1N2988RB	1N2970	Z						27	25	5.0	3.5W
★1N1599	S	1N3993	1N3993	Z						3.9	500	10	10W
★1N1599A	S	1N3993A	1N3993	Z						3.9	500	5.0	10W
★1N1600	S	1N3995	1N3993	Z						4.7	400	10	10W
★1N1600A	S	1N3995A	1N3993	Z						4.7	400	5.0	10W
★1N1601	S	1N3997	1N3993	Z						5.6	350	10	10W
★1N1601A	S	1N3997A	1N3993	Z						5.6	350	5.0	10W
★1N1602	S	1N2970RA	1N2970	Z						6.8	300	10	10W
★1N1602A	S	1N2970RB	1N2970	Z						6.8	300	5.0	10W
★1N1603	S	1N2972RA	1N2970	Z						8.2	250	10	10W
★1N1603A	S	1N2972RB	1N2970	Z						8.2	250	5.0	10W
★1N1604	S	1N2974RA	1N2970	Z						10	200	10	10W
★1N1604A	S	1N2974RB	1N2970	Z						10	200	5.0	10W
★1N1605	S	1N2976RA	1N2970	Z						12	170	10	10W
★1N1605A	S	1N2976RB	1N2970	Z						12	170	5.0	10W
★1N1606	S	1N2979RA	1N2970	Z						15	140	10	10W
★1N1606A	S	1N2979RB	1N2970	Z						15	140	5.0	10W
★1N1607	S	1N2982RA	1N2970	Z						18	110	10	10W
★1N1607A	S	1N2982RB	1N2970	Z						18	110	5.0	10W
★1N1608	S	1N2985RA	1N2970	Z						22	90	10	10W
★1N1608A	S	1N2985RB	1N2970	Z						22	90	5.0	10W
★1N1609	S	1N2988RA	1N2970	Z						27	70	10	10W
★1N1609A	S	1N2988RB	1N2970	Z						27	70	5.0	10W
1N1610	S		Table 4	M									
1N1611	S		Table 4	M									
1N1611A	S		Table 4	M									
1N1611B	S		Table 4	M									
1N1612	S	MR1120	MR1120	G	50	1.5	5.0	1.0					
1N1613	S	MR1121	MR1120	G	100	1.5	5.0	1.0					
1N1614	S	MR1122	MR1120	G	200	1.5	5.0	1.0					
1N1615	S	MR1124	MR1120	G	400	1.5	5.0	1.0					
1N1616	S	MR1126	MR1120	G	600	1.5	5.0	1.0					
1N1617	S	1N4002	1N4001	G	100	1.2	1.5		60				
1N1618	S	1N4003	1N4001	G	200	1.2	1.5		60				
1N1619	S	1N4004	1N4001	G	300	1.2	1.5		60				
1N1620	S	1N4004	1N4001	G	400	1.2	1.5		60				
1N1621	S	MR1121	MR1120	G	100	1.2	10		80				
1N1622	S	MR1122	MR1120	G	200	1.2	10		80				
1N1623	S	MR1123	MR1120	G	300	1.2	10		80				
1N1624	S	MR1124	MR1120	G	400	1.2	10		80				
1N1625	E			G	48	1.0		0.015	0.005				
1N1625A	F			G	48	1.0		0.015	0.01				
1N1626	E			G	96	2.0		0.015	0.005				
1N1626A	E			G	96	2.0		0.015	0.01				
1N1627	E			G	48	1.0	0.003	0.027	0.08				
1N1628	E			G	96	2.0	0.003	0.027	0.08				
1N1629	E			G	144	3.0	0.003	0.027	0.08				
1N1630	E			G	192	4.0	0.003	0.027	0.08				
1N1631	E			G	240	5.0	0.003	0.027	0.08				
1N1632	E			G	288	6.0	0.003	0.027	0.08				
1N1633	E			G	336	7.0	0.003	0.027	0.08				
1N1634	E			G	384	8.0	0.003	0.027	0.08				
1N1635	E			G	48	1.0	0.013	0.108	0.25				
1N1636	E			G	96	2.0	0.013	0.108	0.25				
1N1637	E			G	144	3.0	0.013	0.108	0.25				
1N1638	E			G	192	4.0	0.013	0.108	0.25				
1N1639	E			G	240	5.0	0.013	0.108	0.25				
1N1640	E			G	48	1.0	0.028	0.240	0.55				
1N1641	E			G	96	2.0	0.028	0.240	0.55				
1N1642	E			G	144	3.0	0.028	0.240	0.55				
1N1644	S	1N4001	1N4001	G	50	0.5	0.75	0.4	15				
1N1645	S	1N4002	1N4001	G	100	0.5	0.75	0.4	15				
1N1646	S	1N4003	1N4001	G	150	0.5	0.75	0.3	15				
1N1647	S	1N4003	1N4001	G	200	0.5	0.75	0.3	15				
1N1648	S	1N4004	1N4001	G	250	0.5	0.75	0.3	15				
1N1649	S	1N4004	1N4001	G	300	0.5	0.75	0.3	15				
1N1650	S	1N4004	1N4001	G	350	0.5	0.75	0.3	15				

1N1651-1N1740

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °/°C	I _{Z1} mA	Temp Range °C
1N1651	S	1N4004	1N4001	G	400	0.5	0.25	0.3	15				
1N1652	S	1N4005	1N4001	G	500	0.5	0.25	0.3	15				
1N1653	S	1N4005	1N4001	G	600	0.5	0.25	0.3	15				
1N1660	S	MR1220SB	MR1220SE	G	50		160	40					
1N1661	S	MR1221SB	MR1220	G	100		160	40					
1N1662	S	MR1222SB	MR1220	G	150		160	40					
1N1663	S	MR1223SB	MR1220	G	200		160	40					
1N1664	S	MR1225SB	MR1220	G	300		160	40					
1N1665	S	MR1227SB	MR1220	G	400		160	40					
1N1666	S	MR1228SB	MR1220	G	500		160	40					
1N1670	S			G	50		240	50					
1N1671	S			G	100		240	50					
1N1672	S			G	150		240	50					
1N1673	S			G	200		240	50					
1N1674	S			G	300		240	50					
1N1675	S			G	400		240	50					
1N1676	S			G	500		240	50					
1N1680	S			G	150	1.1	50	25	700				
1N1681	S			G	250	1.1	50	25	700				
1N1682	S			G	300	1.1	50	25	700				
1N1683	S			G	350	1.1	50	25	700				
1N1684	S			G	400	1.1	50	25	700				
1N1685	S			G	450	1.1	50	25	700				
1N1686	S			G	500	1.1	50	25	700				
1N1687	S			G	600	1.1	50	25	700				
1N1688	S			G	700	1.1	50	25	700				
1N1689	S			G	800	1.1	50	25	700				
1N1690	S			G	900	1.1	50	25	700				
1N1691	S			G	1000	1.1	50	25	700				
1N1692	S	1N4002	1N4001	G	100	0.6	0.25	0.5	20				
1N1693	S	1N4003	1N4001	G	200	0.6	0.25	0.5	20				
1N1694	S	1N4004	1N4001	G	300	0.6	0.25	0.5	20				
1N1695	S	1N4004	1N4001	G	400	0.6	0.25	0.5	20				
1N1696	S	1N4005	1N4001	G	500	0.6	0.25	0.5	20				
1N1697	S	1N4005	1N4001	G	600	0.6	0.25	0.5	20				
1N1698	S			G	6600	33	0.062						
1N1699	S			G	10k	37	0.058						
1N1700	S			G	12k	45	0.05						
1N1701	S	1N4001	1N4001	G	50	1.3	0.3	0.2	8.0				
1N1702	S	1N4002	1N4001	G	100	1.3	0.3	0.2	8.0				
1N1703	S	1N4003	1N4001	G	200	1.3	0.3	0.2	8.0				
1N1704	S	1N4004	1N4001	G	300	1.3	0.3	0.2	8.0				
1N1705	S	1N4004	1N4001	G	400	1.3	0.3	0.2	8.0				
1N1706	S	1N4005	1N4001	G	500	1.3	0.3	0.2	8.0				
1N1707	S	1N4001	1N4001	G	50	1.15	0.5	0.2	10				
1N1708	S	1N4002	1N4001	G	100	1.15	0.5	0.2	10				
1N1709	S	1N4003	1N4001	G	200	1.15	0.5	0.2	10				
1N1710	S	1N4004	1N4001	G	300	1.15	0.5	0.2	10				
1N1711	S	1N4004	1N4001	G	400	1.15	0.5	0.2	10				
1N1712	S	1N4005	1N4001	G	500	1.15	0.5	0.2	10				
1N1730	S	1N4007	1N4001	G	1000	5.0		0.1	2.5				
1N1730A	S			G	1000		0.35		6.0				
1N1731	S	MR991A	MR990A	G	1500	5.0		0.1	2.5				
1N1731A	S			G	1500		0.35		6.0				
1N1732	S	MR992A	MR990A	G	2000	9.0		0.1	2.5				
1N1732A	S			G	2000		0.35		6.0				
1N1733	S	MR994A	MR990A	G	3000	12		0.1	2.5				
1N1733A	S			G	3000		0.35		6.0				
1N1734	S	MR996A	MR990A	G	5000	18		0.1	2.5				
1N1734A	S			G	5000		0.35		6.0				
★1N1735	S	1N821	1N821	R					6.2	0.8	7.5	-55/150	
★1N1736	S	1N941A	1N941	R					12.4	0.8	7.5	-55/150	
★1N1736A	S	1N942A	1N941	R					12.4	0.4	7.5	-55/150	
★1N1737	S	1N4060	1N429	R					18.6	0.8	7.5	-55/150	
★1N1737A	S	1N4060A	1N429	R					18.6	0.4	7.5	-55/150	
★1N1738	S	1N4062	1N429	R					24.8	0.8	7.5	-55/150	
★1N1738A	S	1N4062A	1N429	R					24.8	0.4	7.5	-55/150	
★1N1739	S	1N4064	1N429	R					31	0.8	7.5	-55/150	
★1N1739A	S	1N4064A	1N429	R					31	0.4	7.5	-55/150	
★1N1740	S	1N4066	1N429	R					37.2	0.8	7.5	-55/150	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	(α I _F)	I _R	t _{rr} μ s	V _Z Nom Volts	T _C °C	I _{ZT} mA	Temp Range °C
★1N1740A	S	1N4066A	1N429	R						37.2	0.4	7.5	55/150
★1N1741	S	1N4067	1N429	R						43.4	0.8	7.5	55/150
★1N1741A	S	1N4067A	1N429	R						43.4	0.4	7.5	55/150
★1N1742	S	1N4069	1N429	R						49.6	0.8	7.5	55/150
★1N1742A	S	1N4069A	1N429	R						49.6	0.4	7.5	55/150
1N1743	S	1N2974A	1N2970	Z						10	250	10	10W
1N1744	S	1N4740	1N4728	Z						10	25	10	1.0W
1N1745	S			G	1500	15	0.32	0.2	3.5				
1N1746	S			G	1500	7.5	0.5	0.2	3.5				
1N1747	S			G	1800	18	0.31	0.2	3.5				
1N1748	S			G	1800	9.0	0.38	0.2	3.5				
1N1749	S			G	2400	24	0.37	0.2	3.5				
1N1750	S			G	2400	12	0.32	0.2	3.5				
1N1751	S			G	3600	27	0.42	0.2	3.5				
1N1752	S			G	3600	18	0.41	0.2	3.5				
1N1753	S			G	4800	36	0.38	0.2	3.5				
1N1754	S			G	4800	24	0.37	0.2	3.5				
1N1755	S			G	6000	45	0.33	0.2	3.5				
1N1756	S			G	6000	30	0.41	0.2	3.5				
1N1757	S			G	7200	54	0.33	0.2	3.5				
1N1758	S			G	7200	36	0.38	0.2	3.5				
1N1759	S			G	8000	60	0.29	0.2	3.5				
1N1760	S			G	12k	60	0.29	0.2	3.5				
1N1761	S			G	14k	52	0.34	0.2	3.5				
1N1762	S			G	16k	60	0.29	0.2	3.5				
1N1763	S	1N4004	1N4001	G	400	3.0	0.5	0.1	35				
1N1763A	S			G	400	1.2	1.0	0.5	25				
1N1764	S	1N4005	1N4001	G	500	3.0	0.5	0.1	35				
1N1764A	S			G	500	1.2	1.0	0.5	25				
★1N1765	S	1N4734	1N4728	Z						5.6	100	10	1.0W
★1N1765A	S	1N4734A	1N4728	Z						5.6	100	5.0	1.0W
★1N1766	S	1N4735	1N4728	Z						6.2	100	10	1.0W
★1N1766A	S	1N4735A	1N4728	Z						6.2	100	5.0	1.0W
★1N1767	S	1N4736	1N4728	Z						6.8	100	10	1.0W
★1N1767A	S	1N4736A	1N4728	Z						6.8	100	5.0	1.0W
★1N1768	S	1N4737	1N4728	Z						7.5	100	10	1.0W
★1N1768A	S	1N4737A	1N4728	Z						7.5	100	5.0	1.0W
★1N1769	S	1N4738	1N4728	Z						8.2	100	10	1.0W
★1N1769A	S	1N4738A	1N4728	Z						8.2	100	5.0	1.0W
★1N1770	S	1N4739	1N4728	Z						9.1	50	10	1.0W
★1N1770A	S	1N4739A	1N4728	Z						9.1	50	5.0	1.0W
★1N1771	S	1N4740	1N4728	Z						10	50	10	1.0W
★1N1771A	S	1N4740A	1N4728	Z						10	50	5.0	1.0W
★1N1772	S	1N4741	1N4728	Z						11	50	10	1.0W
★1N1772A	S	1N4741A	1N4728	Z						11	50	5.0	1.0W
★1N1773	S	1N4742	1N4728	Z						12	50	10	1.0W
★1N1773A	S	1N4742A	1N4728	Z						12	50	5.0	1.0W
★1N1774	S	1N4743	1N4728	Z						13	50	10	1.0W
★1N1774A	S	1N4743A	1N4728	Z						13	50	5.0	1.0W
★1N1775	S	1N4744	1N4728	Z						15	50	10	1.0W
★1N1775A	S	1N4744A	1N4728	Z						15	50	5.0	1.0W
★1N1776	S	1N4745	1N4728	Z						16	50	10	1.0W
★1N1776A	S	1N4745A	1N4728	Z						16	50	5.0	1.0W
★1N1777	S	1N4746	1N4728	Z						18	50	10	1.0W
★1N1777A	S	1N4746A	1N4728	Z						18	50	5.0	1.0W
★1N1778	S	1N4747	1N4728	Z						20	15	10	1.0W
★1N1778A	S	1N4747A	1N4728	Z						20	15	5.0	1.0W
★1N1779	S	1N4748	1N4728	Z						22	15	10	1.0W
★1N1779A	S	1N4748A	1N4728	Z						22	15	5.0	1.0W
★1N1780	S	1N4749	1N4728	Z						24	15	10	1.0W
★1N1780A	S	1N4749A	1N4728	Z						24	15	5.0	1.0W
★1N1781	S	1N4750	1N4728	Z						27	15	10	1.0W
★1N1781A	S	1N4750A	1N4728	Z						27	15	5.0	1.0W
★1N1782	S	1N4751	1N4728	Z						30	15	10	1.0W
★1N1782A	S	1N4751A	1N4728	Z						30	15	5.0	1.0W
★1N1783	S	1N4752	1N4728	Z						33	15	10	1.0W
★1N1783A	S	1N4752A	1N4728	Z						33	15	5.0	1.0W
★1N1784	S	1N4753	1N4728	Z						36	15	10	1.0W
★1N1784A	S	1N4753A	1N4728	Z						36	15	5.0	1.0W
★1N1785	S	1N4754	1N4728	Z						39	15	10	1.0W

1N1785A-1N1820

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	T _O V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N1785A	S	1N4754A	1N4728	Z						39	15	5.0	1.0W
★1N1786	S	1N4755	1N4728	Z						43	15	10	1.0W
★1N1786A	S	1N4755A	1N4728	Z						43	15	5.0	1.0W
★1N1787	S	1N4756	1N4728	Z						47	15	10	1.0W
★1N1787A	S	1N4756A	1N4728	Z						47	15	5.0	1.0W
★1N1788	S	1N4757	1N4728	Z						51	15	10	1.0W
★1N1788A	S	1N4757A	1N4728	Z						51	15	5.0	1.0W
★1N1789	S	1N4758	1N4728	Z						56	15	10	1.0W
★1N1789A	S	1N4758A	1N4728	Z						56	15	5.0	1.0W
★1N1790	S	1N4759	1N4728	Z						62	5.0	10	1.0W
★1N1790A	S	1N4759A	1N4728	Z						62	5.0	5.0	1.0W
★1N1791	S	1N4760	1N4728	Z						68	5.0	10	1.0W
★1N1791A	S	1N4760A	1N4728	Z						68	5.0	5.0	1.0W
★1N1792	S	1N4761	1N4728	Z						75	5.0	10	1.0W
★1N1792A	S	1N4761A	1N4728	Z						75	5.0	5.0	1.0W
★1N1793	S	1N4762	1N4728	Z						82	5.0	10	1.0W
★1N1793A	S	1N4762A	1N4728	Z						82	5.0	5.0	1.0W
★1N1794	S	1N4763	1N4728	Z						91	5.0	10	1.0W
★1N1794A	S	1N4763A	1N4728	Z						91	5.0	5.0	1.0W
★1N1795	S	1N4764	1N4728	Z						100	5.0	10	1.0W
★1N1795A	S	1N4764A	1N4728	Z						100	5.0	5.0	1.0W
★1N1796	S	1M110ZS1C	1N4728	Z						110	5.0	10	1.0W
★1N1796A	S	1M110ZS5	1N4728	Z						110	5.0	5.0	1.0W
★1N1797	S	1M120ZS10	1N4728	Z						120	5.0	10	1.0W
★1N1797A	S	1M120ZS5	1N4728	Z						120	5.0	5.0	1.0W
★1N1798	S	1M130ZS10	1N4728	Z						130	5.0	10	1.0W
★1N1798A	S	1M130ZS5	1N4728	Z						130	5.0	5.0	1.0W
★1N1799	S	1M150ZS10	1N4728	Z						150	5.0	10	1.0W
★1N1799A	S	1M150ZS5	1N4728	Z						150	5.0	5.0	1.0W
★1N1800	S	1M160ZS10	1N4728	Z						160	5.0	10	1.0W
★1N1800A	S	1M160ZS5	1N4728	Z						160	5.0	5.0	1.0W
★1N1801	S	1M180ZS10	1N4728	Z						180	5.0	10	1.0W
★1N1801A	S	1M180ZS5	1N4728	Z						180	5.0	5.0	1.0W
★1N1802	S	1M200ZS10	1N4728	Z						200	5.0	10	1.0W
★1N1802A	S	1M200ZS5	1N4728	Z						200	5.0	5.0	1.0W
★1N1803	S	1N3997R	1N3993	Z						5.6	5.0	10	10W
★1N1803A	S	1N3997RA	1N3993	Z						5.6	1000	5.0	10W
★1N1804	S	1N3998R	1N3993	Z						6.2	1000	10	10W
★1N1804A	S	1N3998RA	1N3993	Z						6.2	1000	5.0	10W
★1N1805	S	1N2970A	1N2970	Z						6.8	1000	10	10W
★1N1805A	S	1N2970B	1N2970	Z						6.8	1000	5.0	10W
★1N1806	S	1N2971A	1N2970	Z						7.5	1000	10	10W
★1N1806A	S	1N2971B	1N2970	Z						7.5	1000	5.0	10W
★1N1807	S	1N2972A	1N2970	Z						8.2	1000	10	10W
★1N1807A	S	1N2972B	1N2970	Z						8.2	1000	5.0	10W
★1N1808	S	1N2973A	1N2970	Z						9.1	1000	10	10W
★1N1808A	S	1N2973B	1N2970	Z						9.1	500	5.0	10W
★1N1809	S	1N3007A	1N2970	Z						110	50	10	10W
★1N1809A	S	1N3007B	1N2970	Z						110	50	5.0	10W
★1N1810	S	1N3008A	1N2970	Z						120	50	10	10W
★1N1810A	S	1N3008B	1N2970	Z						120	50	5.0	10W
★1N1811	S	1N3009A	1N2970	Z						130	50	10	10W
★1N1811A	S	1N3009B	1N2970	Z						130	50	5.0	10W
★1N1812	S	1N3011A	1N2970	Z						150	50	10	10W
★1N1812A	S	1N3011B	1N2970	Z						150	50	5.0	10W
★1N1813	S	1N3012A	1N2970	Z						160	50	10	10W
★1N1813A	S	1N3012B	1N2970	Z						160	50	5.0	10W
★1N1814	S	1N3014A	1N2970	Z						180	50	10	10W
★1N1814A	S	1N3014B	1N2970	Z						180	50	5.0	10W
★1N1815	S	1N3015A	1N2970	Z						200	50	10	10W
★1N1815A	S	1N3015B	1N2970	Z						200	50	5.0	10W
★1N1816	S	1N2977A	1N2970	Z						13	500	10	10W
★1N1816A	S	1N2977B	1N2970	Z						13	500	5.0	10W
★1N1817	S	1N2979A	1N2970	Z						15	500	10	10W
★1N1817A	S	1N2979B	1N2970	Z						15	500	5.0	10W
★1N1818	S	1N2980A	1N2970	Z						16	500	10	10W
★1N1818A	S	1N2980B	1N2970	Z						16	500	5.0	10W
★1N1819	S	1N2982A	1N2970	Z						18	500	10	10W
★1N1819A	S	1N2982B	1N2970	Z						18	500	5.0	10W
★1N1820	S	1N2984A	1N2970	Z						20	250	10	10W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N1820A	S	1N2984B	1N2970	Z						20	250	5.0	10W
★1N1821	S	1N2985A	1N2970	Z						22	250	10	10W
★1N1821A	S	1N2985B	1N2970	Z						22	250	5.0	10W
★1N1822	S	1N2986A	1N2970	Z						24	250	10	10W
★1N1822A	S	1N2986B	1N2970	Z						24	250	5.0	10W
★1N1823	S	1N2988A	1N2970	Z						27	250	10	10W
★1N1823A	S	1N2988B	1N2970	Z						27	250	5.0	10W
★1N1824	S	1N2989A	1N2970	Z						30	250	10	10W
★1N1824A	S	1N2989B	1N2970	Z						30	250	5.0	10W
★1N1825	S	1N2990A	1N2970	Z						33	150	10	10W
★1N1825A	S	1N2990B	1N2970	Z						33	150	5.0	10W
★1N1826	S	1N2991A	1N2970	Z						36	150	10	10W
★1N1826A	S	1N2991B	1N2970	Z						36	150	5.0	10W
★1N1827	S	1N2992A	1N2970	Z						39	150	10	10W
★1N1827A	S	1N2992B	1N2970	Z						39	150	5.0	10W
★1N1828	S	1N2993A	1N2970	Z						43	150	10	10W
★1N1828A	S	1N2993B	1N2970	Z						43	150	5.0	10W
★1N1829	S	1N2995A	1N2970	Z						47	150	10	10W
★1N1829A	S	1N2995B	1N2970	Z						47	150	5.0	10W
★1N1830	S	1N2997A	1N2970	Z						51	150	10	10W
★1N1830A	S	1N2997B	1N2970	Z						51	150	5.0	10W
★1N1831	S	1N2999A	1N2970	Z						56	150	10	10W
★1N1831A	S	1N2999B	1N2970	Z						56	150	5.0	10W
★1N1832	S	1N3000A	1N2970	Z						62	50	10	10W
★1N1832A	S	1N3000B	1N2970	Z						62	50	5.0	10W
★1N1833	S	1N3001A	1N2970	Z						68	50	10	10W
★1N1833A	S	1N3001B	1N2970	Z						68	50	5.0	10W
★1N1834	S	1N3002A	1N2970	Z						75	50	10	10W
★1N1834A	S	1N3002B	1N2970	Z						75	50	5.0	10W
★1N1835	S	1N3003A	1N2970	Z						82	50	10	10W
★1N1835A	S	1N3003B	1N2970	Z						82	50	5.0	10W
★1N1836	S	1N3004A	1N2970	Z						91	50	10	10W
★1N1836A	S	1N3004B	1N2970	Z						91	50	5.0	10W
1N1838	G		Table 4	M									
1N1839	S			G	6.8	1.0	0.085		0.26				
1N1840	S			G	10	1.0	0.077		0.23				
1N1841	S			G	15	1.0	0.063		0.19				
1N1842	S			G	22	1.0	0.05		0.15				
1N1843	S			G	33	1.0	0.04		0.12				
1N1844	S			G	47	1.0	0.03		0.095				
1N1845	S			G	68	1.0	0.023	0.001	0.072				
1N1846	S			G	100	1.0	0.016	0.001	0.050				
1N1847	S			G	150	1.0	0.011	0.003	0.035				
1N1848	S			G	220	4.0	0.009	0.005	0.028				
1N1849	S			G	330	4.0	0.0075	0.005	0.024				
1N1850	S			G	470	4.0	0.006	0.005	0.020				
1N1851	S			G	6.8		0.085		0.26				
1N1852	S			G	10		0.077		0.23				
1N1853	S			G	15		0.063		0.190				
1N1854	S			G	22		0.05		0.150				
1N1855	S			G	33		0.04		0.120				
1N1856	S			G	47		0.03		0.095				
1N1857	S			G	68		0.023	0.001	0.072				
1N1858	S			G	100		0.016	0.001	0.050				
1N1859	S			G	150		0.011	0.003	0.035				
1N1860	S			G	220		0.009	0.005	0.028				
1N1861	S			G	330			0.005	0.024				
1N1862	S			G	470		0.006	0.005	0.020				
1N1863	S			G	6.8		0.085		0.260				
1N1864	S			G	10		0.077		0.230				
1N1865	S			G	15		0.063		0.190				
1N1866	S			G	22		0.05		0.150				
1N1867	S			G	33		0.04		0.120				
1N1868	S			G	47		0.03		0.095				
1N1869	S			G	68		0.023	0.001	0.072				
1N1870	S			G	100		0.016	0.001	0.050				
1N1871	S			G	150		0.011	0.003	0.035				
1N1872	S			G	220		0.009	0.005	0.028				
1N1873	S			G	330			0.005	0.024				
1N1874	S			G	470		0.006	0.005	0.020				

1N1875-1N1944

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N1875	S	1N4738	1N4728	Z						8.2	25	10	1.0W
1N1876	S	1N4740	1N4728	Z						10	25	10	1.0W
1N1877	S	1N4742	1N4728	Z						12	25	10	1.0W
1N1878	S	1N4744	1N4728	Z						15	25	10	1.0W
1N1879	S	1N4746	1N4728	Z						18	25	10	1.0W
1N1880	S	1N4748	1N4728	Z						22	8.0	10	1.0W
1N1881	S	1N4750	1N4728	Z						27	8.0	10	1.0W
1N1882	S	1N4752	1N4728	Z						33	8.0	10	1.0W
1N1883	S	1N4754	1N4728	Z						39	8.0	10	1.0W
1N1884	S	1N4756	1N4728	Z						47	8.0	10	1.0W
1N1885	S	1N4758	1N4728	Z						56	8.0	10	1.0W
1N1886	S	1N4760	1N4728	Z						68	3.0	10	1.0W
1N1887	S	1N4762	1N4728	Z						82	3.0	10	1.0W
1N1888	S	1N4764	1N4728	Z						100	3.0	10	1.0W
1N1889	S	1M120ZS10	1N4728	Z						120	3.0	10	1.0W
1N1890	S	1M150ZS10	1N4728	Z						150	3.0	10	1.0W
1N1891	S	1N2972A	1N2970	Z						8.2	25	10	10W
1N1892	S	1N2974A	1N2970	Z						10	25	10	10W
1N1893	S	1N2976A	1N2970	Z						10	25	10	10W
1N1894	S	1N2979A	1N2970	Z						15	25	10	10W
1N1895	S	1N2982A	1N2970	Z						18	25	10	10W
1N1896	S	1N2985A	1N2970	Z						22	8.0	10	10W
1N1897	S	1N2988A	1N2970	Z						27	8.0	10	10W
1N1898	S	1N2990A	1N2970	Z						33	8.0	10	10W
1N1899	S	1N2992A	1N2970	Z						39	8.0	10	10W
1N1900	S	1N2995A	1N2970	Z						47	8.0	10	10W
1N1901	S	1N2999A	1N2970	Z						56	8.0	10	10W
1N1902	S	1N3001A	1N2970	Z						68	3.0	10	10W
1N1903	S	1N3003A	1N2970	Z						82	3.0	10	10W
1N1904	S	1N3005A	1N2970	Z						100	3.0	10	10W
1N1905	S	1N3008A	1N2970	Z						120	3.0	10	10W
1N1906	S	1N3011A	1N2970	Z						150	3.0	10	10W
1N1907	S	1N4001	1N4001	G	50	1.0	1.5	0.01	30				
1N1908	S	1N4002	1N4001	G	100	1.0	1.5	0.01	30				
1N1909	S	1N4003	1N4001	G	200	1.0	1.5	0.01	30				
1N1910	S			G	300	1.0	1.5	0.01	30				
1N1911	S	1N4004	1N4001	G	400	1.0	1.5	0.01	30				
1N1912	S	1N4005	1N4001	G	500	1.0	1.5	0.01	30				
1N1913	S	1N4005	1N4001	G	600	1.0	1.5	0.01	30				
1N1914	S	1N4006	1N4001	G	700	1.0	1.5	0.01	30				
1N1915	S	1N4006	1N4001	G	800	1.0	1.5	0.01	30				
1N1916	S	1N4007	1N4001	G	900	1.0	1.5	0.01	30				
1N1917	S			G	50	1.0	4.0	0.01	30				
1N1918	S			G	100	1.0	4.0	0.01	30				
1N1919	S			G	200	1.0	4.0	0.01	30				
1N1920	S			G	300	1.0	4.0	0.01	30				
1N1921	S			G	400	1.0	4.0	0.01	30				
1N1922	S			G	500	1.0	4.0	0.01	30				
1N1923	S			G	600	1.0	4.0	0.01	30				
1N1924	S			G	700	1.0	4.0	0.01	30				
1N1925	S			G	800	1.0	4.0	0.01	30				
1N1926	S			G	900	1.0	4.0	0.01	30				
1N1927	S	1N5228A	1N5221	Z						3.9	5.0	10	200m
1N1928	S	1N5230A	1N5221	Z						4.7	5.0	10	200m
1N1929	S	1N5232A	1N5221	Z						5.6	5.0	10	200m
1N1930	S	1N5235A	1N5221	Z						6.8	5.0	10	200m
1N1931	S	1N5237A	1N5221	Z						8.2	5.0	10	200m
1N1932	S	1N5240A	1N5221	Z						10	5.0	10	200m
1N1933	S	1N5242A	1N5221	Z						12	1.0	10	200m
1N1934	S	1N5245A	1N5221	Z						15	1.0	10	200m
1N1935	S	1N5248A	1N5221	Z						18	1.0	10	200m
1N1936	S	1N5251A	1N5221	Z						22	1.0	10	200m
1N1937	S	1N5254A	1N5221	Z						27	1.0	10	200m
1N1938	S	1N5257A	1N5221	Z						33	0.2	10	200m
1N1939	S	1N5259A	1N5221	Z						39	0.2	10	200m
1N1940	S	1N5261A	1N5221	Z						47	0.2	10	200m
1N1941	S	1N5263A	1N5221	Z						56	0.2	10	200m
1N1942	S	1N5266A	1N5221	Z						68	0.2	10	200m
1N1943	S	1N5268A	1N5221	Z						82	0.2	10	200m
1N1944	S	1N5271A	1N5221	Z						100	0.2	10	200m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	@ I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts			μs	Volts	°C	mA	Range °C					
1N1945	S	1N5273A	1N5221	Z						120	0.2	10	200m
1N1946	S	1N5276A	1N5221	Z						150	0.1	10	200m
1N1947	S	1N5279A	1N5221	Z						180	0.1	10	200m
1N1948	S			Z						220	0.1	10	200m
1N1949	S			Z						270	0.1	10	200m
1N1950	S			Z						330	0.1	10	200m
1N1951	S			Z						390	0.1	10	200m
1N1952	S			Z						470	0.1	10	200m
1N1953	S			Z						560	0.1	10	200m
1N1954	S	1N5228A	1N5221	Z						3.9	5.0	10	400m
1N1955	S	1N5230A	1N5221	Z						4.7	5.0	10	400m
1N1956	S	1N5232A	1N5221	Z						5.6	5.0	10	400m
1N1957	S	1N5235A	1N5221	Z						6.8	5.0	10	400m
1N1958	S	1N5237A	1N5221	Z						8.2	5.0	10	400m
1N1959	S	1N5240A	1N5221	Z						10	5.0	10	400m
1N1960	S	1N5242A	1N5221	Z						12	1.0	10	400m
1N1961	S	1N5245A	1N5221	Z						15	1.0	10	400m
1N1962	S	1N5248A	1N5221	Z						18	1.0	10	400m
1N1963	S	1N5251A	1N5221	Z						22	1.0	10	400m
1N1964	S	1N5254A	1N5221	Z						27	1.0	10	400m
1N1965	S	1N5257A	1N5221	Z						33	0.2	10	400m
1N1966	S	1N5259A	1N5221	Z						39	0.2	10	400m
1N1967	S	1N5261A	1N5221	Z						47	0.2	10	400m
1N1968	S	1N5263A	1N5221	Z						56	0.2	10	400m
1N1969	S	1N5266A	1N5221	Z						68	0.2	10	400m
1N1970	S	1N5268A	1N5221	Z						82	0.2	10	400m
1N1971	S	1N5271A	1N5221	Z						100	0.2	10	400m
1N1972	S	1N5273A	1N5221	Z						120	0.2	10	400m
1N1973	S	1N5276A	1N5221	Z						150	0.1	10	400m
1N1974	S	1N5279A	1N5221	Z						180	0.1	10	400m
1N1975	S			Z						220	0.1	10	400m
1N1976	S			Z						270	0.1	10	400m
1N1977	S			Z						330	0.1	10	400m
1N1978	S			Z						390	0.1	10	400m
1N1979	S			Z						470	0.1	10	400m
1N1980	S			Z						560	0.1	10	400m
1N1981	S	1N5228A	1N5221	Z						3.9	5.0	10	150m
1N1982	S	1N5230A	1N5221	Z						4.7	5.0	10	150m
1N1983	S	1N5232A	1N5221	Z						5.6	5.0	10	150m
1N1984	S	1N5235A	1N5221	Z						6.8	5.0	10	150m
1N1985	S	1N5237A	1N5221	Z						8.2	5.0	10	150m
1N1986	S	1N5240A	1N5221	Z						10	5.0	10	150m
1N1987	S	1N5242A	1N5221	Z						12	1.0	10	150m
1N1988	S	1N5245A	1N5221	Z						15	1.0	10	150m
1N1989	S	1N5248A	1N5221	Z						18	1.0	10	150m
1N1990	S	1N5251A	1N5221	Z						22	1.0	10	150m
1N1991	S	1N5254A	1N5221	Z						27	1.0	10	150m
1N1992	S	1N5257A	1N5221	Z						33	0.2	10	150m
1N1993	S	1N5259A	1N5221	Z						39	0.2	10	150m
1N1994	S	1N5261A	1N5221	Z						47	0.2	10	150m
1N1995	S	1N5263A	1N5221	Z						56	0.2	10	150m
1N1996	S	1N5266A	1N5221	Z						68	0.2	10	150m
1N1997	S	1N5268A	1N5221	Z						82	0.2	10	150m
1N1998	S	1N5271A	1N5221	Z						100	0.2	10	150m
1N1999	S	1N5273A	1N5221	Z						120	0.2	10	150m
1N2000	S	1N5276A	1N5221	Z						150	0.1	10	150m
1N2001	S	1N5279A	1N5221	Z						180	0.1	10	150m
1N2002	S			Z						220	0.1	10	150m
1N2003	S			Z						270	0.1	10	150m
1N2004	S			Z						330	0.1	10	150m
1N2005	S			Z						390	0.1	10	150m
1N2006	S			Z						470	0.1	10	150m
1N2007	S			Z						560	0.1	10	150m
★1N2008	S	1N3005A	1N2970	Z						100	50	10	10W
★1N2009	S	1N3007A	1N2970	Z						110	50	10	10W
★1N2010	S	1N3008A	1N2970	Z						120	50	10	10W
★1N2011	S	1N3009A	1N2970	Z						130	50	10	10W
★1N2012	S	1N3011A	1N2970	Z						150	50	10	10W
1N3013	S	1N4001	1N4001	G	50	1.2	0.25	0.25	10				
1N2014	S	1N4002	1N4001	G	100	1.2	0.25	0.25	10				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom	T _C %/°C	I _{ZT} mA	Temp Range °C
1N2015	S	1N4003	1N4001	G	150	1.2	0.25	0.25	10				
1N2016	S	1N4003	1N4001	G	200	1.2	0.25	0.25	10				
1N2017	S	1N4004	1N4001	G	250	1.2	0.25	0.25	10				
1N2018	S	1N4004	1N4001	G	300	1.2	0.25	0.25	10				
1N2019	S	1N4004	1N4001	G	350	1.2	0.25	0.25	10				
1N2020	S	1N4004	1N4001	G	400	1.2	0.25	0.25	10				
1N2021	S	1N1185	1N1183	G	150	1.5	10	5.0	110				
1N2022	S	1N1187	1N1183	G	250	1.5	10	5.0	110				
1N2023	S	1N1187	1N1183	G	300	1.5	10	5.0	110				
1N2024	S	1N1188	1N1183	G	350	1.5	10	5.0	110				
1N2025	S	1N1188	1N1183	G	400	1.5	10	5.0	110				
1N2026	S	MR1120	MR1120	G	50	2.0	1.0	0.5	25				
1N2027	S	MR1122	MR1120	G	200	2.0	1.0	0.5	25				
1N2028	S	MR1123	MR1120	G	300	2.0	1.0	0.5	25				
1N2029	S	MR1124	MR1120	G	400	2.0	1.0	0.5	25				
1N2030	S	MR1125	MR1120	G	500	2.0	1.0	0.5	25				
1N2031	S	MR1126	MR1120	G	600	2.0	1.0	0.5	25				
★1N2032	S	1N4732	1N4728	Z						4.4	10	5.0	750m
★1N2033	S	1N4734	1N4728	Z						5.6	10	5.0	750m
★1N2034	S	1N4736	1N4728	Z						6.6	10	5.0	750m
★1N2035	S	1N4739	1N4728	Z						8.8	10	5.0	750m
★1N2036	S	1N4740	1N4728	Z						10.5	5.0	5.0	750m
★1N2037	S	1N4743	1N4728	Z						12.8	5.0	5.0	750m
★1N2038	S	1N4745	1N4728	Z						15.8	5.0	5.0	750m
★1N2039	S	1N4747	1N4728	Z						19	5.0	5.0	750m
★1N2040	S	1N4749	1N4728	Z						23.5	5.0	5.0	750m
★1N2041	S	1N3995	1N3993	Z						4.9	1.0	5.0	10W
★1N2042	S	1N3997	1N3993	Z						5.8	1.0	5.0	10W
★1N2043	S	1N2970RA	1N2970	Z						6.6	1.0	5.0	10W
★1N2044	S	1N2973RA	1N2970	Z						8.8	500	5.0	10W
★1N2045	S	1N2974RB	1N2970	Z						10.5	500	5.0	10W
★1N2046	S	1N2977RA	1N2970	Z						12.8	500	5.0	10W
★1N2047	S	1N2980RA	1N2970	Z						15.8	500	5.0	10W
★1N2048	S	1N2983RA	1N2970	Z						19	500	5.0	10W
★1N2049	S	1N2986RA	1N2970	Z						23.5	150	5.0	10W
1N2054	S	MR1230SB	MR1230	G	50	1.6	250	55	4500				
1N2055	S	MR1231SB	MR1230	G	100	1.6	250	55	4500				
1N2056	S	MR1232SB	MR1230	G	150	1.6	250	55	4500				
1N2057	S	MR1233SB	MR1230	G	200	1.6	250	55	4500				
1N2058	S	MR1234SB	MR1230	G	250	1.6	250	55	4500				
1N2059	S	MR1235SB	MR1230	G	300	1.6	250	55	4500				
1N2060	S	MR1236SB	MR1230	G	350	1.6	250	55	4500				
1N2061	S	MR1237SB	MR1230	G	400	1.6	250	55	4500				
1N2062	S	MR1238SB	MR1230	G	450	1.6	250	55	4500				
1N2063	S	MR1238SB	MR1230	G	500	1.6	250	55	4500				
1N2064	S	MR1239SB	MR1230	G	600	1.6	250	55	4500				
1N2065	S			G	700	1.6	250	55	4500				
1N2066	S			G	800	1.6	250	55	4500				
1N2067	S			G	900	1.6	250	55	4500				
1N2068	S			G	1000	1.6	250	55	4500				
1N2069	S	1N4003	1N4001	G	200	0.6	0.75	0.2	22				
1N2069A	S	1N4003	1N4001	G	200	0.5	0.75	0.05	22				
1N2070	S	1N4004	1N4001	G	400	0.6	0.75	0.2	22				
1N2070A	S	1N4004	1N4001	G	400	0.5	0.75	0.05	22				
1N2071	S	1N4005	1N4001	G	600	0.6	0.75	0.2	22				
1N2071A	S	1N4005	1N4001	G	600	0.5	0.75	0.05	22				
1N2072	S	1N4001	1N4001	G	50	1.1	0.625	0.25	30				
1N2073	S	1N4002	1N4001	G	100	1.1	0.625	0.25	30				
1N2074	S	1N4003	1N4001	G	150	1.1	0.625	0.25	30				
1N2075	S	1N4003	1N4001	G	200	1.1	0.625	0.25	30				
1N2076	S	1N4004	1N4001	G	250	1.1	0.625	0.25	30				
1N2077	S	1N4004	1N4001	G	300	1.1	0.625	0.25	30				
1N2078	S	1N4004	1N4001	G	400	1.1	0.625	0.25	30				
1N2079	S	1N4005	1N4001	G	500	1.1	0.625	0.25	30				
1N2080	S	1N4001	1N4001	G	50	0.75	0.5	0.35	15				
1N2081	S	1N4002	1N4001	G	100	0.75	0.5	0.35	15				
1N2082	S	1N4003	1N4001	G	200	0.75	0.5	0.35	15				
1N2083	S	1N4004	1N4001	G	300	0.75	0.5	0.35	15				
1N2084	S	1N4004	1N4001	G	400	0.75	0.5	0.35	15				
1N2085	S	1N4005	1N4001	G	500	0.75	0.5	0.35	15				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N2086	S	1N4005	1N4001	G	600	0.75	0.5	0.35	15				
1N2088	S			G	500	1.2	0.75	0.5	30				
1N2089	S			G	600	1.2	0.75	0.5	30				
1N2090	S			G	50	0.5	0.5	0.25	15				
1N2091	S			G	100	0.5	0.5	0.25	15				
1N2092	S			G	200	0.5	0.5	0.25	15				
1N2093	S			G	300	0.5	0.5	0.25	15				
1N2094	S			G	400	0.5	0.5	0.25	15				
1N2095	S			G	500	0.5	0.5	0.25	15				
1N2096	S			G	600	0.5	0.5	0.25	15				
1N2102	S		Table 4	M									
1N2103	S	1N4001	1N4001	G	50	1.2	0.75	0.3	10				
1N2104	S	1N4002	1N4001	G	100	1.2	0.75	0.3	10				
1N2105	S	1N4003	1N4001	G	200	1.2	0.75	0.3	10				
1N2106	S	1N4004	1N4001	G	300	1.2	0.75	0.3	10				
1N2107	S	1N4004	1N4001	G	400	1.2	0.75	0.3	10				
1N2108	S	1N4005	1N4001	G	500	1.2	0.75	0.3	10				
1N2109	S			G	50	1.2	2.0	0.3	10				
1N2110	S			G	100	1.2	2.0	0.3	10				
1N2111	S			G	200	1.2	2.0	0.3	10				
1N2112	S			G	300	1.2	2.0	0.3	10				
1N2113	S			G	400	1.2	2.0	0.3	10				
1N2114	S			G	500	1.2	2.0	0.3	10				
1N2115	S	1N4004	1N4001	G	365	0.8	0.2	0.25	10				
1N2116	S			G	400	1.4	0.5	0.4	15				
1N2117	S	1N4006	1N4001	G	720	1.3	0.75	0.010	15				
1N2127	S		Table 4	M									
1N2127A	S		Table 4	M									
1N2128	S	MR1200FL	MR1200	G	50	2.0	60	10	700				
1N2128A	S	MR1200FL	MR1200	G	50	2.0	60	10	900				
1N2129	S	MR1201FL	MR1200	G	100	2.0	60	10	700				
1N2129A	S	MR1201FL	MR1200	G	100	2.0	60	10	900				
1N2130	S	MR1202FL	MR1200	G	150	2.0	60	10	700				
1N2130A	S	MR1202FL	MR1200	G	150	2.0	60	10	900				
1N2131	S	MR1203FL	MR1200	G	200	2.0	60	10	700				
1N2131A	S	MR1203FL	MR1200	G	200	2.0	60	10	900				
1N2132	S	MR1204FL	MR1200	G	250	2.0	60	10	700				
1N2132A	S	MR1204FL	MR1200	G	250	2.0	60	10	900				
1N2133	S	MR1205FL	MR1200	G	300	2.0	60	10	700				
1N2133A	S	MR1205FL	MR1200	G	300	2.0	60	10	900				
1N2134	S	MR1206FL	MR1200	G	350	2.0	60	10	700				
1N2134A	S	MR1206FL	MR1200	G	350	2.0	60	10	900				
1N2135	S	MR1207FL	MR1200	G	400	2.0	60	10	700				
1N2135A	S	MR1207FL	MR1200	G	400	2.0	60	10	900				
1N2136	S			G	450	2.0	60	10	700				
1N2136A	S			G	450	2.0	60	10	900				
1N2137	S			G	500	2.0	60	10	700				
1N2137A	S			G	500	2.0	60	10	900				
1N2138	S			G	600	2.0	60	10	700				
1N2138A	S			G	600	2.0	60	10	900				
1N2139	S			G	20k	60	0.052	0.2	3.5				
1N2146	S			S	120	1.1	500m	1.0*	0.1				
1N2147	S			G	50	1.2	6.0	0.5	150				
1N2147A	S			G	50	1.0	6.0	0.1	150				
1N2148	S			G	100	1.2	6.0	0.5	150				
1N2148A	S			G	100	1.0	6.0	0.1	150				
1N2149	S			G	200	1.2	6.0	0.5	150				
1N2149A	S			G	200	1.0	6.0	0.1	150				
1N2150	S			G	300	1.2	6.0	0.5	150				
1N2150A	S			G	300	1.0	6.0	0.1	150				
1N2151	S			G	400	1.2	6.0	0.5	150				
1N2151A	S			G	400	1.0	6.0	0.1	150				
1N2152	S			G	500	1.2	6.0	0.5	150				
1N2152A	S			G	500	1.0	6.0	0.1	150				
1N2153	S			G	600	1.2	6.0	0.5	150				
1N2153A	S			G	600	1.0	6.0	0.1	150				
1N2154	S	1N1183	1N1183	G	50	0.6	25	5.0	300				
1N2155	S	1N1184	1N1183	G	100	0.6	25	4.5	300				
1N2156	S	1N1186	1N1183	G	200	0.6	25	4.0	300				
1N2157	S	1N1187	1N1183	G	300	0.6	25	3.5	300				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N2158	S	1N1188	1N1183	G	400	0.6	25	3.0	300				
1N2159	S	1N1189	1N1183	G	500	0.6	25	2.5	300				
1N2160	S	1N1190	1N1183	G	600	0.6	25	2.0	300				
★1N2163	S		1N2163	G						9.4	0.05	10	0/+70
★1N2163A	S		1N2163	G						9.4	0.05	10	0/+70
★1N2164	S		1N2163	G						9.4	0.05	10	-55/+125
★1N2164A	S		1N2163	G						9.4	0.05	10	-55/+125
★1N2165	S		1N2163	G						9.4	0.05	10	-55/+185
★1N2165A	S		1N2163	G						9.4	0.05	10	-55/+185
★1N2166	S		1N2163	G						9.4	0.001	10	0/+70
★1N2166A	S		1N2163	G						9.4	0.001	10	0/+70
★1N2167	S		1N2163	G						9.4	0.001	10	-55/+125
★1N2167A	S		1N2163	G						9.4	0.001	10	-55/+125
★1N2168	S		1N2163	R						9.4	0.001	10	-55/+185
★1N2168A	S		1N2163	R						9.4	0.001	10	-55/+185
★1N2169	S		1N2163	R						9.4	0.0005	10	0/+70
★1N2169A	S		1N2163	R						9.4	0.0005	10	0/+70
★1N2170	S		1N2163	R						9.4	0.0005	10	-55/+125
★1N2170A	S		1N2163	R						9.4	0.0005	10	-55/+125
★1N2171	S		1N2163	R						9.4	0.0005	10	-55/+185
★1N2171A	S		1N2163	R						9.4	0.0005	10	-55/+185
1N2172	S			G	50	1.5	50	0.25	525				
1N2173	S			G	100	1.5	50	0.25	525				
1N2174	S			G	200	1.5	50	0.25	525				
1N2175	S			D									
1N2176	S			G	50	1.1	3.0	0.3	15				
1N2177	S			G	100	1.1	3.0	0.3	15				
1N2178	S			G	150	1.1	3.0	0.3	15				
1N2179	S			G	200	1.1	3.0	0.3	15				
1N2180	S			G	300	1.1	3.0	0.3	15				
1N2181	S			G	400	1.1	3.0	0.3	15				
1N2182	S			G	500	1.1	3.0	0.3	15				
1N2183	S			G	600	1.1	3.0	0.3	15				
1N2184	S			G	50	1.5	3.0	5.0	40				
1N2185	S			G	100	1.5	3.0	5.0	40				
1N2186	S			G	150	1.5	3.0	5.0	40				
1N2187	S			G	200	1.5	3.0	5.0	40				
1N2188	S			G	300	1.5	3.0	5.0	40				
1N2189	S			G	400	1.5	3.0	5.0	40				
1N2190	S			G	500	1.5	3.0	5.0	40				
1N2191	S			G	600	1.5	3.0	5.0	40				
1N2192	S			G	800	1.5	3.0	5.0	40				
1N2193	S			G	1000	1.5	3.0	5.0	40				
1N2194	S			G	50	1.25	6.0	10	100				
1N2195	S			G	100	1.25	6.0	10	100				
1N2196	S			G	150	1.25	6.0	10	100				
1N2197	S			G	200	1.25	6.0	10	100				
1N2198	S			G	300	1.25	6.0	10	100				
1N2199	S			G	400	1.25	6.0	10	100				
1N2200	S			G	500	1.25	6.0	10	100				
1N2201	S			G	600	1.25	6.0	10	100				
1N2202	S			G	800	1.25	6.0	10	100				
1N2203	S			G	1000	1.25	6.0	10	100				
1N2204	S			G	50	1.25	12	10	200				
1N2205	S			G	100	1.25	12	10	200				
1N2206	S			G	150	1.25	12	10	200				
1N2207	S			G	200	1.25	12	10	200				
1N2208	S			G	300	1.25	12	10	200				
1N2209	S			G	400	1.25	12	10	200				
1N2210	S			G	500	1.25	12	10	200				
1N2211	S			G	600	1.25	12	10	200				
1N2212	S			G	800	1.25	12	10	200				
1N2213	S			G	1000	1.25	12	10	200				
1N2214	S			Z									
1N2217	S	MR1120	MR1120	G	50		1.5	0.003	20	5.6	35		1.0W
1N2218	S	MR1125	MR1120	G	500	1.2	0.4	0.003	20				
1N2219	S			G	500		1.5	0.003	20				
1N2220	S	MR1126	MR1120	G	600	1.2	0.4	0.003	20				
1N2221	S			G	600		1.5	0.003	20				
1N2222	S	MR1128	MR1120	G	800	1.2	0.3	0.003	20				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts	@		μs	Volts	°/°C	mA	Range °C					
1N2222A	S			G	800	1.2	0.3	0.003	20				
1N2223	S			G	800		1.0	0.003	20				
1N2223A	S			G	800		1.0	0.003	20				
1N2224	S	MR1130	MR1120	G	1000	1.2	0.3	0.003	20				
1N2224A	S			G	1000	1.2	0.3	0.003	20				
1N2225	S			G	1000		1.0	0.003	20				
1N2225A	S			G	1000		1.0	0.003	20				
1N2226	S			G	1200	1.2	0.3	0.003	20				
1N2226A	S			G	1200	1.2	0.3	0.003	20				
1N2227	S			G	1200		1.0	0.003	20				
1N2227A	S			G	1200		1.0	0.003	20				
1N2228	S	MR1120	MR1120	G	50	1.2	1.0	0.003	100				
1N2228A	S	MR1120	MR1120	G	50	1.2	1.6	0.003	100				
1N2229	S			G	50		5.0	0.003	100				
1N2229A	S			G	50		5.0	0.003	100				
1N2230	S	MR1122	MR1120	G	200	1.2	1.0	0.003	100				
1N2230A	S	MR1122	MR1120	G	200	1.2	1.6	0.003	100				
1N2231	S			G	200		5.0	0.003	100				
1N2231A	S	MR1123	MR1120	G	200		5.0	0.003	100				
1N2232	S	MR1123	MR1120	G	300	1.2	1.0	0.003	100				
1N2232A	S			G	300	1.2	1.6	0.003	100				
1N2233	S			G	300		5.0	0.003	100				
1N2233A	S			G	300		5.0	0.003	100				
1N2234	S	MR1124	MR1120	G	400	1.2	1.0	0.003	100				
1N2234A	S	MR1124	MR1120	G	400	1.2	1.6	0.003	100				
1N2235	S			G	400		5.0	0.003	100				
1N2235A	S			G	400		5.0	0.003	100				
1N2236	S	MR1125	MR1120	G	500	1.2	1.0	0.003	100				
1N2236A	S	MR1125	MR1120	G	500	1.2	1.6	0.003	100				
1N2237	S			G	500		5.0	0.003	100				
1N2237A	S			G	500		5.0	0.003	100				
1N2238	S	MR1126	MR1120	G	600	1.2	1.0	0.003	100				
1N2238A	S	MR1126	MR1120	G	600	1.2	1.6	0.003	100				
1N2239	S			G	600		5.0	0.003	100				
1N2239A	S			G	600		5.0	0.003	100				
1N2240	S	MR1128	MR1120	G	800	1.2	1.5	0.003	100				
1N2240A	S	MR1128	MR1120	G	800	1.2	1.5	0.003	100				
1N2241	S			G	800		5.0	0.003	100				
1N2241A	S			G	800		5.0	0.003	100				
1N2242	S	MR1130	MR1120	G	1000	1.2	1.5	0.003	100				
1N2242A	S	MR1130	MR1120	G	1000	1.2	1.6	0.003	100				
1N2243	S			G	1000		5.0	0.003	100				
1N2243A	S			G	1000		5.0	0.003	100				
1N2244	S			G	1200	1.2	1.5	0.003	100				
1N2244A	S			G	1200	1.2	1.6	0.003	100				
1N2245	S			G	1200		5.0	0.003	100				
1N2245A	S			G	1200		5.0	0.003	100				
1N2246	S			G	50	1.2	3.0	0.005	200				
1N2246A	S			G	50	1.2	3.0	0.003	200				
1N2247	S			G	50		10	0.005	200				
1N2247A	S			G	50		10	0.003	200				
1N2248	S			G	100	1.2	3.0	0.005	200				
1N2248A	S			G	100	1.2	3.0	0.003	200				
1N2249	S			G	100		10	0.005	200				
1N2249A	S			G	100		10	0.003	200				
1N2250	S			G	200	1.2	3.0	0.005	200				
1N2250A	S			G	200	1.2	3.0	0.003	200				
1N2251	S			G	200		5.0	0.005	200				
1N2251A	S			G	200		10	0.003	200				
1N2252	S			G	300	1.2	3.0	0.005	200				
1N2252A	S			G	300	1.2	3.0	0.003	200				
1N2253	S			G	300		10	0.005	200				
1N2253A	S			G	300		10	0.003	200				
1N2254	S			G	400	1.2	3.0	0.005	200				
1N2254A	S			G	400	1.2	3.0	0.003	200				
1N2255	S			G	400		10	0.005	200				
1N2255A	S			G	400		10	0.003	200				
1N2256	S			G	500	1.2	3.0	0.005	200				
1N2256A	S			G	500	1.2	3.0	0.003	200				
1N2257	S			G	500		10	0.005	200				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N2257A	S			G	500		10	0.005	200				
1N2258	S			G	600	1.2	3.0	0.005	200				
1N2258A	S			G	600	1.2	3.0	0.003	200				
1N2259	S			G	600		10	0.005	200				
1N2259A	S			G	600		10	0.003	200				
1N2260	S			G	800	1.2	3.0	0.003	200				
1N2260A	S			G	800	1.2	3.0	0.005	200				
1N2261	S			G	800		10	0.01	200				
1N2261A	S			G	800		10	0.005	200				
1N2262	S			G	1000	1.2	3.0	0.010	200				
1N2262A	S			G	1000	1.2	3.0	0.005	200				
1N2263	S			G	1000		10	0.01	200				
1N2263A	S			G	1000		10	0.005	200				
1N2264	S			G	1200	1.2	3.0	0.010	200				
1N2264A	S			G	1200	1.2	3.0	0.005	200				
1N2265	S			G	1200		10	0.01	200				
1N2265A	S			G	1200		10	0.005	200				
1N2266	S	MR1120	MR1120	G	50	1.2	0.3	0.003	20				
1N2267	S			G	50		1.0	0.003	20				
1N2268	S	MR1125	MR1120	G	500	1.2	0.3	0.003	20				
1N2269	S			G	500		1.0	0.003	20				
1N2270	S	MR1126	MR1120	G	600	1.2	0.3	0.003	20				
1N2271	S			G	600		1.0	0.003	20				
1N2272	S	MR1120	MR1120	G	50	1.2	6.0	1.0	400				
1N2273	S	MR1121	MR1120	G	100	1.2	6.0	1.0	400				
1N2274	S	MR1122	MR1120	G	200	1.2	6.0	1.0	400				
1N2275	S	MR1123	MR1120	G	300	1.2	6.0	1.0	400				
1N2276	S	MR1124	MR1120	G	400	1.2	6.0	1.0	400				
1N2277	S	MR1125	MR1120	G	500	1.2	6.0	1.0	400				
1N2278	S	MR1126	MR1120	G	600	1.2	6.0	1.0	400				
1N2279	S	MR1128	MR1120	G	800	1.2	6.0	1.0	400				
1N2280	S			G	1000	1.2	6.0	1.0	400				
1N2281	S			G	1200	1.2	6.0	1.0	400				
1N2282	S			G	300	1.5	20	5.0	400				
1N2283	S			G	400	1.5	20	5.0	400				
1N2284	S			G	500	1.5	20	5.0	400				
1N2285	S			G	600	1.5	20	5.0	400				
1N2286	S			G	800	1.5	20	5.0	400				
1N2287	S			G	1000	1.5	20	5.0	400				
1N2288	S			G	1200	1.5	20	5.0	400				
1N2289	S			G	100		1.5	0.003	20				
1N2289A	S			G	100		1.5	0.003	20				
1N2290	S			G	100		5.0	0.003	100				
1N2290A	S			G	100		5.0	0.003	100				
1N2291	S			G	200		1.5	0.003	20				
1N2291A	S			G	200		1.5	0.003	20				
1N2292	S			G	300		1.5	0.003	20				
1N2292A	S			G	300		1.5	0.003	20				
1N2293	S			G	400		1.5	0.003	20				
1N2293A	S			G	400		1.5	0.003	20				
1N2294	S			G	50	1.1	22	10	160				
1N2295	S			G	100	1.1	22	10	160				
1N2296	S			G	150	1.1	22	10	160				
1N2297	S			G	200	1.1	22	10	160				
1N2298	S			G	250	1.1	22	10	160				
1N2299	S			G	300	1.1	22	10	160				
1N2300	S			G	350	1.1	22	10	160				
1N2301	S			G	400	1.1	22	10	160				
1N2302	S			G	50	1.1	22	10	160				
1N2303	S			G	100	1.1	22	10	160				
1N2304	S			G	150	1.1	22	10	160				
1N2305	S			G	200	1.1	22	10	160				
1N2306	S			G	250	1.1	22	10	160				
1N2307	S			G	300	1.1	22	10	160				
1N2308	S			G	350	1.1	22	10	160				
1N2309	S			G	400	1.1	22	10	160				
1N2310	S			G	50	1.1	35	20	300				
1N2311	S			G	100	1.1	35	20	300				
1N2312	S			G	150	1.1	35	20	300				
1N2313	S			G	200	1.1	35	20	300				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N2314	S			G	250	1.1	35	20	300				
1N2315	S			G	300	1.1	35	20	300				
1N2316	S			G	350	1.1	35	20	300				
1N2317	S			G	400	1.1	35	20	300				
1N2318	S			G	50	1.1	35	20	300				
1N2319	S			G	100	1.1	35	20	300				
1N2320	S			G	150	1.1	35	20	300				
1N2321	S			G	200	1.1	35	20	300				
1N2322	S			G	250	1.1	35	20	300				
1N2323	S			G	300	1.1	35	20	300				
1N2324	S			G	350	1.1	35	20	300				
1N2325	S			G	400	1.1	35	20	300				
1N2326	G			S	1.0	0.150	2.0m						
1N2327	S			S	300	3.3	400m	15*					
1N2328	S			S	300	3.3	400m	15*					
1N2348	S	MR1120	MR1120	G	50	1.1	3.0	0.3	15				
1N2349	S	MR1121	MR1120	G	100	1.1	3.0	0.3	15				
1N2350	S	MR1122	MR1120	G	150	1.1	3.0	0.3	15				
1N2357	S			G	1400		0.4	0.001	15				
1N2358	S			G	1500		0.4	0.001	15				
1N2359	S			G	1600		0.4	0.001	15				
1N2360	S			G	1800		0.4	0.001	15				
1N2361	S			G	2000		0.4	0.001	15				
1N2362	S			G	1400		1.0	0.001	15				
1N2362A	S			G	1400		5.0	0.001	20				
1N2362B	S			G	1400		10	0.001	25				
1N2363	S			G	1400		1.0	0.001	15				
1N2363A	S			G	1400		5.0	0.001	20				
1N2363B	S			G	1400		10	0.001	25				
1N2364	S			G	1500		1.0	0.001	15				
1N2364A	S			G	1500		5.0	0.001	20				
1N2364B	S			G	1500		10	0.001	25				
1N2365	S			G	1500		1.0	0.001	15				
1N2365A	S			G	1500		5.0	0.001	20				
1N2365B	S			G	1500		10	0.001	25				
1N2366	S			G	1600		1.0	0.001	15				
1N2366A	S			G	1600		5.0	0.001	20				
1N2366B	S			G	1600		10	0.001	25				
1N2367	S			G	1600		1.0	0.001	15				
1N2367A	S			G	1600		5.0	0.001	20				
1N2367B	S			G	1600		10	0.001	25				
1N2368	S			G	1800		1.0	0.001	15				
1N2368A	S			G	1800		5.0	0.001	20				
1N2368B	S			G	1800		10	0.001	25				
1N2369	S			G	1800		1.0	0.001	15				
1N2369A	S			G	1800		5.0	0.001	20				
1N2369B	S			G	1800		10	0.001	25				
1N2370	S			G	2000		1.0	0.001	15				
1N2370A	S			G	2000		5.0	0.001	20				
1N2370B	S			G	2000		10	0.001	25				
1N2371	S			G	2000		1.0	0.001	15				
1N2371A	S			G	2000		5.0	0.001	20				
1N2371B	S			G	2000		10	0.001	25				
1N2372	S			G	1000		0.2	0.5	12				
1N2373	S	1N4005	1N4001	G	600	3.0	0.1	0.250	12				
1N2374	S	1N4007	1N4001	G	1000	3.0	0.1	0.250	12				
1N2375	S	MR991A	MR990A	G	1500	4.5	0.1	0.250	12				
1N2376	S	MR992A	MR990A	G	2000	7.5	0.1	0.250	12				
1N2377	S	MR993A	MR990A	G	2400	9.0	0.075	0.250	12				
1N2378	S	MR994A	MR990A	G	3000	9.0	0.075	0.250	12				
1N2379	S	MR995A	MR990A	G	4000	15.0	0.05	0.250	12				
1N2380	S	1N2383	1N1730	G	6000	22.5	0.05	0.250	12				
1N2381	S	1N2385	1N1730	G	10k	37.5	0.025	0.025	12				
★1N2382	S		1N1730	G	4000	18	0.15	0.2	6.0				
1N2382A	S			G	4000	6.0	0.35	0.2	6.0				
★1N2383	S		1N1730	G	6000	27	0.1	0.2	6.0				
1N2383A	S			G	6000	9.0	0.35	0.2	6.0				
★1N2384	S		1N1730	G	8000	27	0.07	0.2	6.0				
1N2384A	S			G	8000	12	0.275	0.2	6.0				
★1N2385	S		1N1730	G	10k	39	0.07	0.2	6.0				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N2385A	S			G	10k	15	0.2	0.2	6.0				
1N2386	G			G	5.0								
1N2387	S	1N4751	1N4728	S						30	8.0	10	1.0W
1N2389	S			G	1600	4.8	0.6	0.5	15				
1N2390	S			G	50	1.2	1.5	0.3	35				
1N2391	S			G	100	1.2	1.5	0.3	35				
1N2392	S			G	200	1.2	1.5	0.3	35				
1N2393	S			G	300	1.2	1.5	0.3	35				
1N2394	S			G	400	1.2	1.5	0.3	35				
1N2395	S			G	500	1.2	1.5	0.3	35				
1N2396	S			G	600	1.2	1.5	0.3	35				
1N2397	S			G	700	1.2	1.5	0.3	35				
1N2398	S			G	800	1.2	1.5	0.3	35				
1N2399	S			G	50	1.2	1.5	0.3	35				
1N2400	S			G	100	1.2	1.5	0.3	35				
1N2401	S			G	200	1.2	1.5	0.3	35				
1N2402	S			G	300	1.2	1.5	0.3	35				
1N2403	S			G	400	1.2	1.5	0.3	35				
1N2404	S			G	500	1.2	1.5	0.3	35				
1N2405	S			G	600	1.2	1.5	0.3	35				
1N2406	S			G	700	1.2	1.5	0.3	35				
1N2407	S			G	800	1.2	1.5	0.3	35				
1N2408	S			G	50	1.2	1.5	0.3	35				
1N2409	S			G	100	1.2	1.5	0.3	35				
1N2410	S			G	200	1.2	1.5	0.3	35				
1N2411	S			G	300	1.2	1.5	0.3	35				
1N2412	S			G	400	1.2	1.5	0.3	35				
1N2413	S			G	500	1.2	1.5	0.3	35				
1N2414	S			G	600	1.2	1.5	0.3	35				
1N2415	S			G	700	1.2	1.5	0.3	35				
1N2416	S			G	800	1.2	1.5	0.3	35				
1N2417	S			G	50	1.2	1.5	0.3	35				
1N2418	S			G	100	1.2	1.5	0.3	35				
1N2419	S			G	200	1.2	1.5	0.3	35				
1N2420	S			G	300	1.2	1.5	0.3	35				
1N2421	S			G	400	1.2	1.5	0.3	35				
1N2422	S			G	500	1.2	1.5	0.3	35				
1N2423	S			G	600	1.2	1.5	0.3	35				
1N2424	S			G	700	1.2	1.5	0.3	35				
1N2425	S			G	800	1.2	1.5	0.3	35				
1N2482	S	1N4003	1N4001	G	200	1.2	0.75	0.5	30				
1N2483	S	1N4004	1N4001	G	400	1.2	0.75	0.5	30				
1N2484	S	1N4005	1N4001	G	500	1.2	0.75	0.5	30				
1N2485	S	1N4003	1N4001	G	200	1.2	0.75	0.5	30				
1N2486	S	1N4004	1N4001	G	300	1.2	0.75	0.5	30				
1N2487	S	1N4004	1N4001	G	400	1.2	0.75	0.5	30				
1N2488	S	1N4005	1N4001	G	500	1.2	0.75	0.5	30				
1N2489	S	1N4005	1N4001	G	600	1.2	0.75	0.5	30				
1N2490	S			G	1600	4.8	0.5	0.5	15				
1N2491	S	MR1120	MR1120	G	50	1.5	6.0	2.0	150				
1N2492	S	MR1121	MR1120	G	100	1.5	6.0	2.0	150				
1N2493	S	MR1122	MR1120	G	200	1.5	6.0	2.0	150				
1N2494	S	MR1123	MR1120	G	300	1.5	6.0	2.0	150				
1N2495	S	MR1124	MR1120	G	400	1.5	6.0	2.0	150				
1N2496	S	MR1125	MR1120	G	500	1.5	6.0	2.0	150				
1N2497	S	MR1126	MR1120	G	600	1.5	6.0	2.0	150				
★1N2498	S	1N2974A	1N2970	Z						10	500	10	10W
★1N2498A	S	1N2974B	1N2970	Z						10	500	5.0	10W
★1N2499	S	1N2975A	1N2970	Z						11	500	10	10W
★1N2499A	S	1N2975B	1N2970	Z						11	500	5.0	10W
★1N2500	S	1N2976A	1N2970	Z						12	500	10	10W
1N2500A	S	1N2976B	1N2970	Z						12	500	5.0	10W
1N2501	S	1N4006	1N4001	G	800	1.7	0.15	0.2	2.5				
1N2502	S	1N4007	1N4001	G	1000	1.7	0.15	0.2	2.5				
1N2503	S			G	1200	1.7	0.15	0.2	2.5				
1N2504	S			G	1500	1.7	0.15	0.2	2.5				
1N2505	S	1N4006	1N4001	G	800	1.7	0.3	0.2	2.5				
1N2506	S	1N4006	1N4001	G	1000	1.7	0.3	0.2	2.5				
1N2507	S			G	1200	1.7	0.3	0.2	2.5				
1N2508	S			G	1500	1.7	0.3	0.2	2.5				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{VRM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N2509	S		Table 4	M										
1N2510	S		Table 4	M										
1N2512	S	MR1121	MR1120	G	100	1.1	4.0	0.002	30					
1N2513	S	MR1122	MR1120	G	200	1.1	4.0	0.002	30					
1N2514	S	MR1123	MR1120	G	300	1.1	4.0	0.002	30					
1N2515	S	MR1124	MR1120	G	400	1.1	4.0	0.002	30					
1N2516	S	MR1125	MR1120	G	500	1.1	4.0	0.002	30					
1N2517	S	MR1125	MR1120	G	600	1.1	4.0	0.002	30					
1N2518	S			G	100	1.1		0.002	30					
1N2519	S			G	200	1.1		0.002	30					
1N2520	S			G	300	1.1		0.002	30					
1N2521	S			G	400	1.1		0.002	30					
1N2522	S			G	500	1.1		0.002	30					
1N2523	S			G	600	1.1		0.002	30					
1N2524	S			G	50	1.2	2.5	0.5	50					
1N2525	S			G	100	1.2	2.5	0.5	50					
1N2526	S			G	200	1.2	2.5	0.5	50					
1N2527	S			G	300	1.2	2.5	0.5	50					
1N2528	S			G	400	1.2	2.5	0.5	50					
1N2529	S			G	500	1.2	2.5	0.5	50					
1N2530	S			G	600	1.2	2.5	0.5	50					
1N2531	S			G	700	1.2	2.5	0.5	50					
1N2532	S			G	800	1.2	2.5	0.5	50					
1N2533	S			G	900	1.2	2.5	0.5	50					
1N2534	S			G	1000	1.2	2.5	0.5	50					
1N2535	S			G	50	1.0	2.5	0.1	50					
1N2536	S			G	100	1.0	2.5	0.1	50					
1N2537	S			G	200	1.0	2.5	0.1	50					
1N2538	S			G	300	1.0	2.5	0.1	50					
1N2539	S			G	400	1.0	2.5	0.1	50					
1N2540	S			G	500	1.0	2.5	0.1	50					
1N2541	S			G	600	1.0	2.5	0.1	50					
1N2542	S			G	700	1.0	2.5	0.1	50					
1N2543	S			G	800	1.0	2.5	0.1	50					
1N2544	S			G	900	1.0	2.5	0.1	50					
1N2545	S			G	1000	1.0	2.5	0.1	50					
1N2546	S			G	50	1.5	2.5	1.0	50					
1N2547	S			G	100	1.5	2.5	1.0	50					
1N2548	S			G	200	1.5	2.5	1.0	50					
1N2549	S			G	300	1.5	2.5	1.0	50					
1N2550	S			G	400	1.5	2.5	1.0	50					
1N2551	S			G	500	1.5	2.5	1.0	50					
1N2552	S			G	600	1.5	2.5	1.0	50					
1N2553	S			G	700	1.5	2.5	1.0	50					
1N2554	S			G	800	1.5	2.5	1.0	50					
1N2555	S			G	900	1.5	2.5	1.0	50					
1N2556	S			G	1000	1.5	2.5	1.0	50					
1N2557	S			G	700	1.2	6.0	0.5	150					
1N2558	S			G	800	1.2	6.0	0.5	150					
1N2559	S			G	900	1.2	6.0	0.5	150					
1N2560	S			G	1000	1.2	6.0	0.5	150					
1N2561	S			G	700	1.0	6.0	0.1	150					
1N2562	S			G	800	1.0	6.0	0.1	150					
1N2563	S			G	900	1.0	6.0	0.1	150					
1N2564	S			G	1000	1.0	6.0	0.1	150					
1N2565	S			G	50	1.5	6.0	1.0	150					
1N2566	S			G	100	1.5	6.0	1.0	150					
1N2567	S			G	200	1.5	6.0	1.0	150					
1N2568	S			G	300	1.5	6.0	1.0	150					
1N2569	S			G	400	1.5	6.0	1.0	150					
1N2570	S			G	500	1.5	6.0	1.0	150					
1N2571	S			G	600	1.5	6.0	1.0	150					
1N2572	S			G	700	1.5	6.0	1.0	150					
1N2573	S			G	800	1.5	6.0	1.0	150					
1N2574	S			G	900	1.5	6.0	1.0	150					
1N2575	S			G	1000	1.5	6.0	1.0	150					
1N2576	S			G	50	1.2	12	1.0	250					
1N2577	S			G	100	1.2	12	1.0	250					
1N2578	S			G	200	1.2	12	1.0	250					
1N2579	S			G	300	1.2	12	1.0	250					

1N2580-1N2635

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	T _{OL} V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N2580	S			G	400	1.2	12	1.0	250				
1N2581	S			G	500	1.2	12	1.0	250				
1N2582	S			G	600	1.2	12	1.0	250				
1N2583	S			G	700	1.2	12	1.0	250				
1N2584	S			G	800	1.2	12	1.0	250				
1N2585	S			G	900	1.2	12	1.0	250				
1N2586	S			G	1000	1.2	12	1.0	250				
1N2587	S			G	50	1.0	12	0.2	250				
1N2588	S			G	100	1.0	12	0.2	250				
1N2589	S			G	200	1.0	12	0.2	250				
1N2590	S			G	300	1.0	12	0.2	250				
1N2591	S			G	400	1.0	12	0.2	250				
1N2592	S			G	500	1.0	12	0.2	250				
1N2593	S			G	600	1.0	12	0.2	250				
1N2594	S			G	700	1.0	12	0.2	250				
1N2595	S			G	800	1.0	12	0.2	250				
1N2596	S			G	900	1.0	12	0.2	250				
1N2597	S			G	1000	1.0	12	0.2	250				
1N2598	S			G	50	1.5	12	2.0	250				
1N2599	S			G	100	1.5	12	2.0	250				
1N2600	S			G	200	1.5	12	2.0	250				
1N2601	S			G	300	1.5	12	2.0	250				
1N2602	S			G	400	1.5	12	2.0	250				
1N2603	S			G	500	1.5	12	2.0	250				
1N2604	S			G	600	1.5	12	2.0	250				
1N2605	S			G	700	1.5	12	2.0	250				
1N2606	S			G	800	1.5	12	2.0	250				
1N2607	S			G	900	1.5	12	2.0	250				
1N2608	S			G	1000	1.5	12	2.0	250				
★1N2609	S	1N4001	1N4001	G	50	1.1	0.75	0.3	30				
★1N2610	S	1N4002	1N4001	G	100	1.1	0.75	0.3	30				
★1N2611	S	1N4003	1N4001	G	200	1.1	0.75	0.3	30				
★1N2612	S	1N4004	1N4001	G	300	1.1	0.75	0.3	30				
★1N2613	S	1N4004	1N4001	G	400	1.1	0.75	0.3	30				
★1N2614	S	1N4005	1N4001	G	500	1.1	0.75	0.3	30				
★1N2615	S	1N4005	1N4001	G	600	1.1	0.75	0.3	30				
★1N2616	S	1N4006	1N4001	G	800	1.1	0.75	0.3	30				
★1N2617	S	1N4007	1N4001	G	1000	1.1	0.75	0.3	30				
1N2618	S			G	1200	1.1	0.75	0.3	30				
1N2619	S			G	1500	1.1	0.75	0.3	30				
★1N2620	S		1N2620	R						9.7	0.01	10	0/75
★1N2620A	S		1N2620	R						9.7	0.01	10	-55/100
★1N2620B	S		1N2620	R						9.7	0.01	10	-55/150
★1N2621	S		1N2620	R						9.7	0.005	10	0/75
★1N2621A	S		1N2620	R						9.7	0.005	10	-55/100
★1N2621B	S		1N2620	R						9.7	0.005	10	-55/150
★1N2622	S		1N2620	R						9.7	0.002	10	0/75
★1N2622A	S		1N2620	R						9.7	0.002	10	-55/100
★1N2622B	S		1N2620	R						9.7	0.002	10	-55/150
★1N2623	S		1N2620	R						9.7	0.001	10	0/75
★1N2623A	S		1N2620	R						9.7	0.001	10	-55/100
★1N2623B	S		1N2620	R						9.7	0.001	10	-55/150
★1N2624	S		1N2620	R						9.7	0.0005	10	0/75
★1N2624A	S		1N2620	R						9.7	0.0005	10	-55/100
★1N2624B	S		1N2620	R						9.7	0.0005	10	-55/150
1N2625	S	1N937	1N935	R						9.7	0.0002	10	0/75
1N2625A	S	1N937A	1N935	R						9.4	0.0002	10	-55/100
1N2625B	S	1N937B	1N935	R						9.4	0.0002	10	-55/150
1N2626	S	1N938	1N935	R						9.4	0.0001	10	0/75
1N2626A	S	1N938A	1N935	R						9.4	0.0001	10	-55/100
1N2626B	S	1N938B	1N935	R						9.4	0.0001	10	-55/150
1N2627	V		Table 3	V									
1N2628	V		Table 3	V									
1N2629	G			S	5.0								
1N2630	S			G	1500	2.25	0.085	0.5	5.0				
1N2631	S			G	1600	3.0	0.6	0.5	5.0				
1N2632	S			G	2800	6.0	0.2	0.5	5.0				
1N2633	S			G	1600	3.0	0.6	0.5	5.0				
1N2634	S			G	1600	3.0	0.6	0.5	5.0				
1N2635	S			G	1500	2.25	0.085	0.5	5.0				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N2636	S			G	1500	2.25	0.085	0.5	5.0				
1N2637	S			G		28.0	0.25	0.5	5.0				
1N2638	S			G	100	1.3	1.5	0.3	15				
1N2641	S			G	200	1.3	1.5	0.3	15				
1N2644	S			G	300	1.3	1.5	0.3	15				
1N2647	S			G	400	1.3	1.5	0.3	15				
1N2650	S			G	600	2.6	1.5	0.3	15				
1N2653	S			G	800	2.6	1.5	0.3	15				
1N2656	S			G	1200	3.9	1.5	0.8	15				
1N2659	S			G	1600	5.2	1.5	0.8	15				
1N2662	S			G	2000	6.5	1.5	0.8	15				
1N2664	S			G	2400	7.8	1.5	0.8	15				
1N2666	S			G	3200	10.4	1.5	0.8	15				
1N2667	S			G	4000	13	1.5	0.8	15				
1N2668	S			G	4800	15.6	1.5	0.8	15				
1N2669	S			G	100	1.3	3.6	0.3	15				
1N2673	S			G	200	1.3	3.6	0.3	15				
1N2677	S			G	300	1.3	3.6	0.3	15				
1N2681	S			G	400	1.3	3.6	0.3	15				
1N2685	S			G	600	2.6	3.6	0.3	15				
1N2687	S			G	800	2.6	3.6	0.3	15				
1N2689	S			G	900	3.9	3.6	0.3	15				
1N2690	S			G	1200	3.9	3.6	0.8	15				
1N2691	S			G	1600	5.2	3.6	0.8	15				
1N2692	S			G	100	1.3	7.2	0.3	15				
1N2694	S			G	200	1.3	7.2	0.3	15				
1N2696	S			G	300	1.3	7.2	0.3	15				
1N2698	S			G	400	1.3	7.2	0.3	15				
1N2700	S			G	600	2.6	7.2	0.3	15				
1N2701	S			G	800	2.6	7.2	0.3	15				
1N2702	S			G	100	1.3	3.0	0.2	15				
1N2705	S			G	200	1.3	3.0	0.2	15				
1N2708	S			G	300	1.3	3.0	0.2	15				
1N2711	S			G	400	1.3	3.0	0.2	15				
1N2714	S			G	600	2.6	3.0	0.2	15				
1N2717	S			G	800	2.6	3.0	0.2	15				
1N2720	S			G	1200	3.9	3.0	0.8	15				
1N2722	S			G	1600	5.2	3.0	0.8	15				
1N2723	S			G	2000	6.5	3.0	0.8	15				
1N2724	S			G	2400	7.8	3.0	0.8	15				
1N2725	S			G	100	1.3	3.0	0.3	15				
1N2728	S			G	200	1.3	3.0	0.3	15				
1N2731	S			G	300	1.3	3.0	0.3	15				
1N2734	S			G	400	1.3	3.0	0.3	15				
1N2737	S			G	600	2.6	3.0	0.3	15				
1N2738	S			G	800	2.6	3.0	0.3	15				
1N2739	S			G	1200	3.9	3.0	0.8	15				
1N2740	S			G	100	1.3	3.6	0.3	15				
1N2742	S			G	200	1.3	3.6	0.3	15				
1N2744	S			G	300	1.3	3.6	0.3	15				
1N2746	S			G	400	1.3	3.6	0.3	15				
1N2748	S			G	600	2.6	3.6	0.3	15				
1N2749	S			G	800	2.6	3.6	0.3	15				
1N2750	S			G	100	1.3	3.0	0.3	15				
1N2753	S			G	200	1.3	3.0	0.3	15				
1N2756	S			G	300	1.3	3.0	0.3	15				
1N2759	S			G	400	1.3	3.0	0.3	15				
1N2762	S			G	600	2.6	3.0	0.3	15				
1N2763	S			G	800	2.6	3.0	0.3	15				
1N2764	S			G	1200	3.9	3.0	0.8	15				
1N2765	S	1N823A	1N821	R						6.8	0.005	7.5	-55/100
1N2765A	S	1N825A	1N821	R						6.8	0.0025	7.5	-55/100
1N2766	S	1N1736A	1N429	R						13.6	0.005	7.5	-55/100
1N2766A	S	1N1736A	1N429	R						13.6	0.0025	7.5	-55/100
1N2767	S	1N4061	1N429	R						20.4	0.005	7.5	-55/100
1N2767A	S	1N4061A	1N429	R						20.4	0.0025	7.5	-55/100
1N2768	S	1N4063	1N429	R						27.2	0.005	7.5	-55/100
1N2768A	S	1N4063A	1N429	R						27.2	0.0025	7.5	-55/100
1N2769	S	1N4065	1N429	R						34.0	0.005	7.5	-55/100
1N2769A	S	1N4065A	1N429	R						34.0	0.0025	7.5	-55/100

1N2770-1N2816

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C		
1N2770	S	1N4067	1N429	R										
1N2770A	S	1N4067A	1N429	R										
1N2772	S			G	700	1.8	0.5		15					
1N2773	S			G	800	1.8	0.5		15					
1N2774	S			G	900	1.8	0.5		15					
1N2775	S			G	1000	1.8	0.5		15					
1N2776	S			G	1100	1.8	0.5		15					
1N2777	S			G	1200	1.8	0.5		15					
1N2778	S			G	1300	1.8	0.5		15					
1N2779	S			G	1400	1.8	0.5		15					
1N2780	S			G	1500	1.8	0.5		15					
1N2781	S			G	1600	1.8	0.5		15					
1N2782	S			S	5.0		2.0*							
1N2783	S	1N3000A	1N2970	Z										
1N2784	S			G	200	1.5	8.0	5.0	200	62		10	6.0W	
1N2785	S			G	400	1.5	8.0	5.0	200					
1N2786	S			G	200	1.2	10	10.0	180					
1N2787	S			G	400	1.2	10	10.0	180					
1N2788	S			G	200	1.3	12.5	5.0	340					
1N2789	S			G	400	1.3	12.5	5.0	340					
1N2790	S	1N3156	1N3154	R						8.5	0.002	10	-55/100	
1N2791	S			S										
1N2793	S	1N1183	1N1183	G	50	1.25	5.0	5.0	75					
1N2794	S	1N1184	1N1183	G	100	1.25	5.0	5.0	75					
1N2795	S	1N1185	1N1183	G	150	1.25	5.0	5.0	75					
1N2796	S	1N1186	1N1183	G	200	1.25	5.0	5.0	75					
1N2797	S	1N1187	1N1183	G	250	1.25	5.0	5.0	75					
1N2798	S	1N1187	1N1183	G	300	1.25	5.0	5.0	75					
1N2799	S	1N1188	1N1183	G	350	1.25	5.0	5.0	75					
1N2800	S	1N1188	1N1183	G	400	1.25	5.0	5.0	75					
1N2801	G			S										
1N2802	S		Table 4	M	20	0.36	5.0m	2.0*	500					
1N2803	S			G										
★1N2804	S		1N2804	Z	400	1.2	250	36	3500	6.8	1850	20	50W	
★1N2804A	S		1N2804	Z						6.8	1850	10	50W	
★1N2804B	S		1N2804	Z						6.8	1850	5.0	50W	
★1N2805	S		1N2804	Z						7.5	1700	20	50W	
★1N2805A	S		1N2804	Z						7.5	1700	10	50W	
★1N2805B	S		1N2804	Z						7.5	1700	5.0	50W	
★1N2806	S		1N2804	Z						8.2	1500	20	50W	
★1N2806A	S		1N2804	Z						8.2	1500	10	50W	
★1N2806B	S		1N2804	Z						8.2	1500	5.0	50W	
★1N2807	S		1N2804	Z						9.1	1370	20	50W	
★1N2807A	S		1N2804	Z						9.1	1370	10	50W	
★1N2807B	S		1N2804	Z						9.1	1370	5.0	50W	
★1N2808	S		1N2804	Z						10	1200	20	50W	
★1N2808A	S		1N2804	Z						10	1200	10	50W	
★1N2808B	S		1N2804	Z						10	1200	5.0	50W	
★1N2809	S		1N2804	Z						11	1100	20	50W	
★1N2809A	S		1N2804	Z						11	1100	10	50W	
★1N2809B	S		1N2804	Z						11	1100	5.0	50W	
★1N2810	S		1N2804	Z						12	1000	20	50W	
★1N2810A	S		1N2804	Z						12	1000	10	50W	
★1N2810B	S		1N2804	Z						12	1000	5.0	50W	
★1N2811	S		1N2804	Z						13	960	20	50W	
★1N2811A	S		1N2804	Z						13	960	10	50W	
★1N2811B	S		1N2804	Z						13	960	5.0	50W	
★1N2812	S		1N2804	Z						14	890	20	50W	
★1N2812A	S		1N2804	Z						14	890	10	50W	
★1N2812B	S		1N2804	Z						14	890	5.0	50W	
★1N2813	S		1N2804	Z						15	830	20	50W	
★1N2813A	S		1N2804	Z						15	830	10	50W	
★1N2813B	S		1N2804	Z						15	830	5.0	50W	
★1N2814	S		1N2804	Z						16	780	20	50W	
★1N2814A	S		1N2804	Z						16	780	10	50W	
★1N2814B	S		1N2804	Z						16	780	5.0	50W	
★1N2815	S		1N2804	Z						17	740	20	50W	
★1N2815A	S		1N2804	Z						17	740	10	50W	
★1N2815B	S		1N2804	Z						17	740	5.0	50W	
★1N2816	S		1N2804	Z						18	700	20	50W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	I _C %/°C	I _{ZT} mA	Temp Range °C
★1N2816A	S		1N2804	Z						18	700	10	50W
★1N2816B	S		1N2804	Z						18	700	5.0	50W
★1N2817	S		1N2804	Z						19	660	20	50W
★1N2817A	S		1N2804	Z						19	660	10	50W
★1N2817B	S		1N2804	Z						19	660	5.0	50W
★1N2818	S		1N2804	Z						20	630	20	50W
★1N2818A	S		1N2804	Z						20	630	10	50W
★1N2818B	S		1N2804	Z						20	630	5.0	50W
★1N2819	S		1N2804	Z						22	570	20	50W
★1N2819A	S		1N2804	Z						22	570	10	50W
★1N2819B	S		1N2804	Z						22	570	5.0	50W
★1N2820	S		1N2804	Z						24	520	20	50W
★1N2820A	S		1N2804	Z						24	520	10	50W
★1N2820B	S		1N2804	Z						24	520	5.0	50W
★1N2821	S		1N2804	Z						25	500	20	50W
★1N2821A	S		1N2804	Z						25	500	10	50W
★1N2821B	S		1N2804	Z						25	500	5.0	50W
★1N2822	S		1N2804	Z						27	460	20	50W
★1N2822A	S		1N2804	Z						27	460	10	50W
★1N2822B	S		1N2804	Z						27	460	5.0	50W
★1N2823	S		1N2804	Z						30	420	20	50W
★1N2823A	S		1N2804	Z						30	420	10	50W
★1N2823B	S		1N2804	Z						30	420	5.0	50W
★1N2824	S		1N2804	Z						33	380	20	50W
★1N2824A	S		1N2804	Z						33	380	10	50W
★1N2824B	S		1N2804	Z						33	380	5.0	50W
★1N2825	S		1N2804	Z						36	350	20	50W
★1N2825A	S		1N2804	Z						36	350	10	50W
★1N2825B	S		1N2804	Z						36	350	5.0	50W
★1N2826	S		1N2804	Z						39	320	20	50W
★1N2826A	S		1N2804	Z						39	320	10	50W
★1N2826B	S		1N2804	Z						39	320	5.0	50W
★1N2827	S		1N2804	Z						43	290	20	50W
★1N2827A	S		1N2804	Z						43	290	10	50W
★1N2827B	S		1N2804	Z						43	290	5.0	50W
★1N2828	S		1N2804	Z						45	280	20	50W
★1N2828A	S		1N2804	Z						45	280	10	50W
★1N2828B	S		1N2804	Z						45	280	5.0	50W
★1N2829	S		1N2804	Z						47	270	20	50W
★1N2829A	S		1N2804	Z						47	270	10	50W
★1N2829B	S		1N2804	Z						47	270	5.0	50W
★1N2830	S		1N2804	Z						50	250	20	50W
★1N2830A	S		1N2804	Z						50	250	10	50W
★1N2830B	S		1N2804	Z						50	250	5.0	50W
★1N2831	S		1N2804	Z						51	245	20	50W
★1N2831A	S		1N2804	Z						51	245	10	50W
★1N2831B	S		1N2804	Z						51	245	5.0	50W
★1N2832	S		1N2804	Z						56	220	20	50W
★1N2832A	S		1N2804	Z						56	220	10	50W
★1N2832B	S		1N2804	Z						56	220	5.0	50W
★1N2833	S		1N2804	Z						62	200	20	50W
★1N2833A	S		1N2804	Z						62	200	10	50W
★1N2833B	S		1N2804	Z						62	200	5.0	50W
★1N2834	S		1N2804	Z						68	180	20	50W
★1N2834A	S		1N2804	Z						68	180	10	50W
★1N2834B	S		1N2804	Z						68	180	5.0	50W
★1N2835	S		1N2804	Z						75	170	20	50W
★1N2835A	S		1N2804	Z						75	170	10	50W
★1N2835B	S		1N2804	Z						75	170	5.0	50W
★1N2836	S		1N2804	Z						82	150	20	50W
★1N2836A	S		1N2804	Z						82	150	10	50W
★1N2836B	S		1N2804	Z						82	150	5.0	50W
★1N2837	S		1N2804	Z						91	140	20	50W
★1N2837A	S		1N2804	Z						91	140	10	50W
★1N2837B	S		1N2804	Z						91	140	5.0	50W
★1N2838	S		1N2804	Z						100	120	20	50W
★1N2838A	S		1N2804	Z						100	120	10	50W
★1N2838B	S		1N2804	Z						100	120	5.0	50W
★1N2839	S		1N2804	Z						105	120	20	50W
★1N2839A	S		1N2804	Z						105	120	10	50W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _O
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N2839B	S		1N2804	Z						105	120	5.0	50W
★1N2840	S		1N2804	Z						110	110	20	50W
★1N2840A	S		1N2804	Z						110	110	10	50W
★1N2840B	S		1N2804	Z						110	110	5.0	50W
★1N2841	S		1N2804	Z						120	100	20	50W
★1N2841A	S		1N2804	Z						120	100	10	50W
★1N2841B	S		1N2804	Z						120	100	5.0	50W
★1N2842	S		1N2804	Z						130	95	20	50W
★1N2842A	S		1N2804	Z						130	95	10	50W
★1N2842B	S		1N2804	Z						130	95	5.0	50W
★1N2843	S		1N2804	Z						140	90	20	50W
★1N2843A	S		1N2804	Z						140	90	10	50W
★1N2843B	S		1N2804	Z						140	90	5.0	50W
★1N2844	S		1N2804	Z						160	80	20	50W
★1N2844A	S		1N2804	Z						160	80	10	50W
★1N2844B	S		1N2804	Z						160	80	5.0	50W
★1N2845	S		1N2804	Z						180	68	20	50W
★1N2845A	S		1N2804	Z						180	68	10	50W
★1N2845B	S		1N2804	Z						180	68	5.0	50W
★1N2846	S		1N2804	Z						200	65	20	50W
★1N2846A	S		1N2804	Z						200	65	10	50W
★1N2846B	S		1N2804	Z						200	65	5.0	50W
1N2847	S			G	100	2.0	1.5	0.3	15				
1N2848	S			G	200	2.0	1.5	0.2	15				
1N2849	S			G	300	2.0	1.5	0.2	15				
1N2850	S			G	400	2.0	1.5	0.2	15				
1N2851	S			G	500	2.0	1.5	0.2	15				
1N2852	S			G	600	2.0	1.5	0.2	15				
1N2855	S			G	600	1.2	250	25	3500				
1N2856	S			G	800	1.2	250	20	4500				
1N2857	S			G	1000	1.2	250	15	4500				
1N2858	S	1N4001	1N4001	G	50	1.2	0.75	0.3	40				
1N2858A	S			G	50	1.2	1.0	0.3	25				
1N2859	S	1N4002	1N4001	G	100	1.2	0.75	0.3	40				
1N2859A	S			G	100	1.2	1.0	0.3	25				
1N2860	S	1N4003	1N4001	G	200	1.2	0.75	0.3	40				
1N2860A	S			G	200	1.2	1.0	0.3	25				
1N2861	S	1N4004	1N4001	G	300	1.2	0.75	0.2	40				
1N2861A	S			G	300	1.2	1.0	0.3	25				
1N2862	S	1N4004	1N4001	G	400	1.2	0.75	0.2	40				
1N2862A	S			G	400	1.2	1.0	0.3	25				
1N2863	S	1N4005	1N4001	G	500	1.2	0.75	0.2	40				
1N2863A	S			G	500	1.2	1.0	0.3	25				
1N2864	S	1N4005	1N4001	G	600	1.2	0.75	0.2	40				
1N2864A	S			G	600	1.2	1.0	0.3	25				
1N2865	S			G	1000	2.5	0.7	0.1	7.0				
1N2866	S			G	1500	2.5	0.7	0.1	7.0				
1N2867	S			G	1000	2.5	0.7	0.1	7.0				
1N2868	S			G	1500	2.5	0.7	0.1	7.0				
1N2878	S	1N4006	1N4001	S	700	2.0	250m	0.5*					
1N2879	S	1N4006	1N4001	S	700	2.0	250m	0.5*					
1N2880	S	1N4007	1N4001	S	1.0k	2.0	250m	0.5*					
1N2881	S	1N4007	1N4001	S	1.0k	2.0	250m	0.5*					
1N2882	S	1N4007	1N4001	S	500	3.0	250m	0.5*					
1N2883	S	1N4007	1N4001	S	500	3.0	250m	0.5*					
1N2884	S	MR991A	MR990A	S	400	4.0	250m	0.5*					
1N2885	S	MR991A	MR990A	S	400	4.0	250m	0.5*					
1N2886	S	MR991A	MR990A	S	500	3.0	250m	0.5*					
1N2887	S	MR991A	MR990A	S	500	3.0	250m	0.5*					
1N2888	S			S	750	5.0	250m	0.5*					
1N2889	S	MR992A	MR990A	S	750	5.0	250m	0.5*					
1N2890	S	MR992A	MR990A	S	2.0k	4.0	250m	0.5*					
1N2891	S	MR992A	MR990A	S	2.0k	4.0	250m	0.5*					
1N2892	S	MR993A	MR990A	S	100	6.0	250m	0.5*					
1N2893	S	MR993A	MR990A	S	100	6.0	250m	0.5*					
1N2894	S	MR994A	MR990A	S	450	7.0	250m	0.5*					
1N2895	S	MR994A	MR990A	S	450	7.0	250m	0.5*					
1N2896	S	MR994A	MR990A	S	500	5.0	250m	0.5*					
1N2897	S	MR994A	MR990A	S	500	5.0	250m	0.5*					
1N2898	S	MR995A	MR990A	S	800	8.0	250m	0.5*					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _O
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	f _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °C	I _{ZT} mA	Temp Range °C
1N2899	S	MR995A	MR990A	S	800	8.0	250m	0.5*					
1N2900	S	MR995A	MR990A	S	3.0k	6.0	250m	0.5*					
1N2901	S	MR995A	MR990A	S	3.0k	6.0	250m	0.5*					
1N2902	S			S	150	9.0	250m	0.5*					
1N2903	S			S	150	9.0	250m	0.5*					
1N2904	S			S	500	7.0	250m	0.5*					
1N2905	S			S	500	7.0	250m	0.5*					
1N2906	S			S	500	10	250m	0.5*					
1N2907	S			S	500	10	250m	0.5*					
1N2908	S			S	850	11	250m	0.5*					
1N2909	S			S	850	11	250m	0.5*					
1N2910	S			S	4.0k	8.0	250m	0.5*					
1N2911	S			S	4.0k	8.0	250m	0.5*					
1N2912	S			S	200	12	250m	0.5*					
1N2913	S			S	200	12	250m	0.5*					
1N2914	S			S	500	9.0	250m	0.5*					
1N2915	S			S	500	9.0	250m	0.5*					
1N2916	S			S	550	13	250m	0.5*					
1N2917	S			S	550	13	250m	0.5*					
1N2918	S			S	5.0k	10	250m	0.5*					
1N2919	S			S	5.0k	10	250m	0.5*					
1N2920	S			S	500	11	250m	0.5*					
1N2921	S			S	500	11	250m	0.5*					
1N2922	S			S	6.0k	12	250m	0.5*					
1N2923	S			S	6.0k	12	250m	0.5*					
1N2924	S			S	500	13	250m	0.5*					
1N2925	S			S	500	13	250m	0.5*					
1N2926			Table 4	M									
1N2926A			Table 4	M									
1N2927A				T									
thru 1N2934 A	S			T									
1N2937	S	1N2996A	1N2970	Z						45	25	5.0	10W
1N2938	S			Z						0.9	100	15	2.0W
1N2939, A	S			Z									
thru 1N2941, A	G			T									
1N2969	G			T									
1N2969A	G			T									
★1N2970	S		1N2970	Z						6.8	370	20	10W
★1N2970A	S		1N2970	Z						6.8	370	10	10W
★1N2970B	S		1N2970	Z						6.8	370	5.0	10W
★1N2971	S		1N2970	Z						7.5	335	20	10W
★1N2971A	S		1N2970	Z						7.5	335	10	10W
★1N2971B	S		1N2970	Z						7.5	335	5.0	10W
★1N2972	S		1N2970	Z						8.2	305	20	10W
★1N2972A	S		1N2970	Z						8.2	305	10	10W
★1N2972B	S		1N2970	Z						8.2	305	5.0	10W
★1N2973	S		1N2970	Z						9.1	275	20	10W
★1N2973A	S		1N2970	Z						9.1	275	10	10W
★1N2973B	S		1N2970	Z						9.1	275	5.0	10W
★1N2974	S		1N2970	Z						10	250	20	10W
★1N2974A	S		1N2970	Z						10	250	10	10W
★1N2974B	S		1N2970	Z						10	250	5.0	10W
★1N2975	S		1N2970	Z						11	230	20	10W
★1N2975A	S		1N2970	Z						11	230	10	10W
★1N2975B	S		1N2970	Z						11	230	5.0	10W
★1N2976	S		1N2970	Z						12	210	20	10W
★1N2976A	S		1N2970	Z						12	210	10	10W
★1N2976B	S		1N2970	Z						12	210	5.0	10W
★1N2977	S		1N2970	Z						13	190	20	10W
★1N2977A	S		1N2970	Z						13	190	10	10W
★1N2977B	S		1N2970	Z						13	190	5.0	10W
★1N2978	S		1N2970	Z						14	180	20	10W
★1N2978A	S		1N2970	Z						14	180	10	10W
★1N2978B	S		1N2970	Z						14	180	5.0	10W
★1N2979	S		1N2970	Z						15	170	20	10W
★1N2979A	S		1N2970	Z						15	170	10	10W
★1N2979B	S		1N2970	Z						15	170	5.0	10W
★1N2980	S		1N2970	Z						16	155	20	10W

1N2980A-1N3003A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
★1N2980A	S		1N2970	Z						16	155	10	10W
★1N2980B	S		1N2970	Z						16	155	5.0	10W
★1N2981	S		1N2970	Z						17	145	20	10W
★1N2981A	S		1N2970	Z						17	145	10	10W
★1N2981B	S		1N2970	Z						17	145	5.0	10W
★1N2982	S		1N2970	Z						18	140	20	10W
★1N2982A	S		1N2970	Z						18	140	10	10W
★1N2982B	S		1N2970	Z						18	140	5.0	10W
★1N2983	S		1N2970	Z						19	130	20	10W
★1N2983A	S		1N2970	Z						19	130	10	10W
★1N2983B	S		1N2970	Z						19	130	5.0	10W
★1N2984	S		1N2970	Z						20	125	20	10W
★1N2984A	S		1N2970	Z						20	125	10	10W
★1N2984B	S		1N2970	Z						20	125	5.0	10W
★1N2985	S		1N2970	Z						22	115	20	10W
★1N2985A	S		1N2970	Z						22	115	10	10W
★1N2985B	S		1N2970	Z						22	115	5.0	10W
★1N2986	S		1N2970	Z						24	105	20	10W
★1N2986A	S		1N2970	Z						24	105	10	10W
★1N2986B	S		1N2970	Z						24	105	5.0	10W
★1N2987	S		1N2970	Z						25	100	20	10W
★1N2987A	S		1N2970	Z						25	100	10	10W
★1N2987B	S		1N2970	Z						25	100	5.0	10W
★1N2988	S		1N2970	Z						27	95	20	10W
★1N2988A	S		1N2970	Z						27	95	10	10W
★1N2988B	S		1N2970	Z						27	95	5.0	10W
★1N2989	S		1N2970	Z						30	85	20	10W
★1N2989A	S		1N2970	Z						30	85	10	10W
★1N2989B	S		1N2970	Z						30	85	5.0	10W
★1N2990	S		1N2970	Z						33	75	20	10W
★1N2990A	S		1N2970	Z						33	75	10	10W
★1N2990B	S		1N2970	Z						33	75	5.0	10W
★1N2991	S		1N2970	Z						36	70	20	10W
★1N2991A	S		1N2970	Z						36	70	10	10W
★1N2991B	S		1N2970	Z						36	70	5.0	10W
★1N2992	S		1N2970	Z						39	65	20	10W
★1N2992A	S		1N2970	Z						39	65	10	10W
★1N2992B	S		1N2970	Z						39	65	5.0	10W
★1N2993	S		1N2970	Z						43	60	20	10W
★1N2993A	S		1N2970	Z						43	60	10	10W
★1N2993B	S		1N2970	Z						43	60	5.0	10W
★1N2994	S		1N2970	Z						45	55	20	10W
★1N2994A	S		1N2970	Z						45	55	10	10W
★1N2994B	S		1N2970	Z						45	55	5.0	10W
★1N2995	S		1N2970	Z						47	55	20	10W
★1N2995A	S		1N2970	Z						47	55	10	10W
★1N2995B	S		1N2970	Z						47	55	5.0	10W
★1N2996	S		1N2970	Z						50	50	20	10W
★1N2996A	S		1N2970	Z						50	50	10	10W
★1N2996B	S		1N2970	Z						50	50	5.0	10W
★1N2997	S		1N2970	Z						51	50	20	10W
★1N2997A	S		1N2970	Z						51	50	10	10W
★1N2997B	S		1N2970	Z						51	50	5.0	10W
★1N2998	S		1N2970	Z						52	50	20	10W
★1N2998A	S		1N2970	Z						52	50	10	10W
★1N2998B	S		1N2970	Z						52	50	5.0	10W
★1N2999	S		1N2970	Z						56	45	20	10W
★1N2999A	S		1N2970	Z						56	45	10	10W
★1N2999B	S		1N2970	Z						56	45	5.0	10W
★1N3000	S		1N2970	Z						62	40	20	10W
★1N3000A	S		1N2970	Z						62	40	10	10W
★1N3000B	S		1N2970	Z						62	40	5.0	10W
★1N3001	S		1N2970	Z						68	37	20	10W
★1N3001A	S		1N2970	Z						68	37	10	10W
★1N3001B	S		1N2970	Z						68	37	5.0	10W
★1N3002	S		1N2970	Z						75	33	20	10W
★1N3002A	S		1N2970	Z						75	33	10	10W
★1N3002B	S		1N2970	Z						75	33	5.0	10W
★1N3003	S		1N2970	Z						82	30	20	10W
★1N3003A	S		1N2970	Z						82	30	10	10W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N3003B	S		1N2970	Z						82	30	5.0	10W
★1N3004	S		1N2970	Z						91	28	20	10W
★1N3004A	S		1N2970	Z						91	28	10	10W
★1N3004B	S		1N2970	Z						91	28	5.0	10W
★1N3005	S		1N2970	Z						100	25	20	10W
★1N3005A	S		1N2970	Z						100	25	10	10W
★1N3005B	S		1N2970	Z						100	25	5.0	10W
★1N3006	S		1N2970	Z						105	25	20	10W
★1N3006A	S		1N2970	Z						105	25	10	10W
★1N3006B	S		1N2970	Z						105	25	5.0	10W
★1N3007	S		1N2970	Z						110	23	20	10W
★1N3007A	S		1N2970	Z						110	23	10	10W
★1N3007B	S		1N2970	Z						110	23	5.0	10W
★1N3008	S		1N2970	Z						120	20	20	10W
★1N3008A	S		1N2970	Z						120	20	10	10W
★1N3008B	S		1N2970	Z						120	20	5.0	10W
★1N3009	S		1N2970	Z						130	19	20	10W
★1N3009A	S		1N2970	Z						130	19	10	10W
★1N3009B	S		1N2970	Z						130	19	5.0	10W
★1N3010	S		1N2970	Z						140	18	20	10W
★1N3010A	S		1N2970	Z						140	18	10	10W
★1N3010B	S		1N2970	Z						140	18	5.0	10W
★1N3011	S		1N2970	Z						150	17	20	10W
★1N3011A	S		1N2970	Z						150	17	10	10W
★1N3011B	S		1N2970	Z						150	17	5.0	10W
★1N3012	S		1N2970	Z						160	16	20	10W
★1N3012A	S		1N2970	Z						160	16	10	10W
★1N3012B	S		1N2970	Z						160	16	5.0	10W
★1N3013	S		1N2970	Z						175	14	20	10W
★1N3013A	S		1N2970	Z						175	14	10	10W
★1N3013B	S		1N2970	Z						175	14	5.0	10W
★1N3014	S		1N2970	Z						180	14	20	10W
★1N3014A	S		1N2970	Z						180	14	10	10W
★1N3014B	S		1N2970	Z						180	14	5.0	10W
★1N3015	S		1N2970	Z						200	12	20	10W
★1N3015A	S		1N2970	Z						200	12	10	10W
★1N3015B	S		1N2970	Z						200	12	5.0	10W
★1N3016	S		1N3821	Z						6.8	37	20	1.0W
★1N3016A	S		1N3821	Z						6.8	37	10	1.0W
★1N3016B	S		1N3821	Z						6.8	37	5.0	1.0W
★1N3017	S		1N3821	Z						7.5	34	20	1.0W
★1N3017A	S		1N3821	Z						7.5	34	10	1.0W
★1N3017B	S		1N3821	Z						7.5	34	5.0	1.0W
★1N3018	S		1N3821	Z						8.2	31	20	1.0W
★1N3018A	S		1N3821	Z						8.2	31	10	1.0W
★1N3018B	S		1N3821	Z						8.2	31	5.0	1.0W
★1N3019	S		1N3821	Z						9.1	28	20	1.0W
★1N3019A	S		1N3821	Z						9.1	28	10	1.0W
★1N3019B	S		1N3821	Z						9.1	28	5.0	1.0W
★1N3020	S		1N3821	Z						10	25	20	1.0W
★1N3020A	S		1N3821	Z						10	25	10	1.0W
★1N3020B	S		1N3821	Z						10	25	5.0	1.0W
★1N3021	S		1N3821	Z						11	23	20	1.0W
★1N3021A	S		1N3821	Z						11	23	10	1.0W
★1N3021B	S		1N3821	Z						11	23	5.0	1.0W
★1N3022	S		1N3821	Z						12	21	20	1.0W
★1N3022A	S		1N3821	Z						12	21	10	1.0W
★1N3022B	S		1N3821	Z						12	21	5.0	1.0W
★1N3023	S		1N3821	Z						13	19	20	1.0W
★1N3023A	S		1N3821	Z						13	19	10	1.0W
★1N3023B	S		1N3821	Z						13	19	5.0	1.0W
★1N3024	S		1N3821	Z						15	17	20	1.0W
★1N3024A	S		1N3821	Z						15	17	10	1.0W
★1N3024B	S		1N3821	Z						15	17	5.0	1.0W
★1N3025	S		1N3821	Z						16	15.5	20	1.0W
★1N3025A	S		1N3821	Z						16	15.5	10	1.0W
★1N3025B	S		1N3821	Z						16	15.5	5.0	1.0W
★1N3026	S		1N3821	Z						18	14	20	1.0W
★1N3026A	S		1N3821	Z						18	14	10	1.0W
★1N3026B	S		1N3821	Z						18	14	5.0	1.0W

1N3027-1N3050

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM} Volts	V_F Volts	I_O Amp	I_R mA	I_{FSM} Amp	V_Z Nom Volts	I_{ZT} mA	T_{Cl} $V_Z \pm \%$	P_D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V_f Volts @ I_f	I_R	t_{rr} μs	V_Z Nom Volts	T_C $^{\circ}C$	I_{ZT} mA	Temp Range $^{\circ}C$						
★1N3027	S		1N3821	Z					20	12.5	20	1.0W	
★1N3027A	S		1N3821	Z					20	12.5	10	1.0W	
★1N3027B	S		1N3821	Z					20	12.5	5.0	1.0W	
★1N3028	S		1N3821	Z					22	11.5	20	1.0W	
★1N3028A	S		1N3821	Z					22	11.5	10	1.0W	
★1N3028B	S		1N3821	Z					22	11.5	5.0	1.0W	
★1N3029	S		1N3821	Z					24	10.5	20	1.0W	
★1N3029A	S		1N3821	Z					24	10.5	10	1.0W	
★1N3029B	S		1N3821	Z					24	10.5	5.0	1.0W	
★1N3030	S		1N3821	Z					27	9.5	20	1.0W	
★1N3030A	S		1N3821	Z					27	9.5	10	1.0W	
★1N3030B	S		1N3821	Z					27	9.5	5.0	1.0W	
★1N3031	S		1N3821	Z					30	8.5	20	1.0W	
★1N3031A	S		1N3821	Z					30	8.5	10	1.0W	
★1N3031B	S		1N3821	Z					30	8.5	5.0	1.0W	
★1N3032	S		1N3821	Z					33	7.5	20	1.0W	
★1N3032A	S		1N3821	Z					33	7.5	10	1.0W	
★1N3032B	S		1N3821	Z					33	7.5	5.0	1.0W	
★1N3033	S		1N3821	Z					36	7.0	20	1.0W	
★1N3033A	S		1N3821	Z					36	7.0	10	1.0W	
★1N3033B	S		1N3821	Z					36	7.0	5.0	1.0W	
★1N3034	S		1N3821	Z					39	6.5	20	1.0W	
★1N3034A	S		1N3821	Z					39	6.5	10	1.0W	
★1N3034B	S		1N3821	Z					39	6.5	5.0	1.0W	
★1N3035	S		1N3821	Z					43	6.0	20	1.0W	
★1N3035A	S		1N3821	Z					43	6.0	10	1.0W	
★1N3035B	S		1N3821	Z					43	6.0	5.0	1.0W	
★1N3036	S		1N3821	Z					47	5.5	20	1.0W	
★1N3036A	S		1N3821	Z					47	5.5	10	1.0W	
★1N3036B	S		1N3821	Z					47	5.5	5.0	1.0W	
★1N3037	S		1N3821	Z					51	5.0	20	1.0W	
★1N3037A	S		1N3821	Z					51	5.0	10	1.0W	
★1N3037B	S		1N3821	Z					51	5.0	5.0	1.0W	
★1N3038	S		1N3821	Z					56	4.5	20	1.0W	
★1N3038A	S		1N3821	Z					56	4.5	10	1.0W	
★1N3038B	S		1N3821	Z					56	4.5	5.0	1.0W	
★1N3039	S		1N3821	Z					62	4.0	20	1.0W	
★1N3039A	S		1N3821	Z					62	4.0	10	1.0W	
★1N3039B	S		1N3821	Z					62	4.0	5.0	1.0W	
★1N3040	S		1N3821	Z					68	3.7	20	1.0W	
★1N3040A	S		1N3821	Z					68	3.7	10	1.0W	
★1N3040B	S		1N3821	Z					68	3.7	5.0	1.0W	
★1N3041	S		1N3821	Z					75	3.3	20	1.0W	
★1N3041A	S		1N3821	Z					75	3.3	10	1.0W	
★1N3041B	S		1N3821	Z					75	3.3	5.0	1.0W	
★1N3042	S		1N3821	Z					82	3.0	20	1.0W	
★1N3042A	S		1N3821	Z					82	3.0	10	1.0W	
★1N3042B	S		1N3821	Z					82	3.0	5.0	1.0W	
★1N3043	S		1N3821	Z					91	2.8	20	1.0W	
★1N3043A	S		1N3821	Z					91	2.8	10	1.0W	
★1N3043B	S		1N3821	Z					91	2.8	5.0	1.0W	
★1N3044	S		1N3821	Z					100	2.5	20	1.0W	
★1N3044A	S		1N3821	Z					100	2.5	10	1.0W	
★1N3044B	S		1N3821	Z					100	2.5	5.0	1.0W	
★1N3045	S		1N3821	Z					110	2.3	20	1.0W	
★1N3045A	S		1N3821	Z					110	2.3	10	1.0W	
★1N3045B	S		1N3821	Z					110	2.3	5.0	1.0W	
★1N3046	S		1N3821	Z					120	2.0	20	1.0W	
★1N3046A	S		1N3821	Z					120	2.0	10	1.0W	
★1N3046B	S		1N3821	Z					120	2.0	5.0	1.0W	
★1N3047	S		1N3821	Z					130	1.9	20	1.0W	
★1N3047A	S		1N3821	Z					130	1.9	10	1.0W	
★1N3047B	S		1N3821	Z					130	1.9	5.0	1.0W	
★1N3048	S		1N3821	Z					150	1.7	20	1.0W	
★1N3048A	S		1N3821	Z					150	1.7	10	1.0W	
★1N3048B	S		1N3821	Z					150	1.7	5.0	1.0W	
★1N3049	S		1N3821	Z					160	1.6	20	1.0W	
★1N3049A	S		1N3821	Z					160	1.6	10	1.0W	
★1N3049B	S		1N3821	Z					160	1.6	5.0	1.0W	
★1N3050	S		1N3821	Z					180	1.4	20	1.0W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N3050A ★1N3050B ★1N3051 ★1N3051A ★1N3051B	S S S S S		1N3821 1N3821 1N3821 1N3821 1N3821	Z Z Z Z Z						180 180 200	1.4 1.4 1.2 1.2 1.2	10 5.0 20 10 5.0	1.0W 1.0W 1.0W 1.0W 1.0W
1N3052 1N3053 1N3054 1N3055 1N3056	S S S S S			G G G G G	12k 14k 16k 18k 20k	70 75 80 85 90	0.1 0.1 0.1 0.1 0.1	0.2 0.2 0.2 0.2 0.2	6.0 6.0 6.0 6.0 6.0				
1N3057 1N3058 1N3059 1N3060 1N3061	S S S S S			G G G G G	22k 24k 26k 28k 30k	95 100 105 120 125	0.1 0.1 0.1 0.1 0.1	0.2 0.2 0.2 0.2 0.2	6.0 6.0 6.0 6.0 6.0				
1N3062 1N3063 1N3064 1N3065 1N3066	S S S S S			S S S S S	75 75 75 75 75	1.0 0.85 1.0 1.0 1.0	20m 10m 10m 20m 10m	0.1* 0.1* 0.1* 0.1* 0.1*	2.0 2.0 4.0 2.0 2.0				
1N3067 1N3068 1N3069 1N3070 1N3071	S S S S S			S S S S S	30 30 65 200 200	1.0 1.0 1.0 1.0 1.0	5.0m 5.0m 50m 100m 100m	0.1* 0.1* 0.1* 0.1* 0.1*	2.0 50 50 50 50				
1N3072 1N3073 1N3074 1N3075 1N3076	S S S S S	1N4001 1N4002 1N4003 1N4003 1N4004	1N4001 1N4001 1N4001 1N4001 1N4001	G G G G G	50 100 150 200 250	1.5 1.5 1.5 1.5 1.5	0.2 0.2 0.2 0.2 0.2	0.5 0.5 0.5 0.5 0.5	10 10 10 10 10				
1N3077 1N3078 1N3079 1N3080 1N3081	S S S S S	1N4004 1N4004 1N4004 1N4005 1N4005	1N4001 1N4001 1N4001 1N4001 1N4001	G G G G G	300 350 400 500 600	1.5 1.5 1.5 1.5 1.5	0.2 0.2 0.2 0.2 0.2	0.5 0.5 0.5 0.5 0.5	10 10 10 10 10				
1N3082 1N3083 1N3084 1N3085 1N3086	S S S S S	1N4003 1N4004 1N4005 MR1121SB MR1223SB	1N4001 1N4001 1N4001 MR1220 MR1220	G G G G G	200 400 600 100 200	1.25 1.25 1.25 1.1 1.1	0.5 0.5 0.5 150 150	0.2 0.2 0.2 40 40	15 15 15 1500 1500				
1N3087 1N3088 1N3089 1N3090 1N3091	S S S S S	MR1225SB MR1227SB MR1228SB MR1229SB	MR1200 MR1200 MR1200 MR1220	G G G G G	300 400 500 600 800	1.1 1.1 1.1 1.1 1.1	150 150 150 150 150	40 40 40 40 40	1500 1500 1500 1500 1500				
1N3092 1N3093 1N3097 1N3098,A 1N3099,A	S G G S S		Table 4 1N3016	G M S Z Z	1000 30	1.1 0.5	150 10m	40 4.0*	1500 0.5				
1N3100,A 1N3101,A 1N3102,A 1N3103,A 1N3104,A	S S S S S	1N3050A 1N3051A 1N3008A 1N3011A 1N3014A	1N2970 1N2970 1N2970	Z Z Z Z Z						180 220 120 150 180	3.0 3.0 3.0 3.0 3.0	20/10 20/10 20/10	1.0W 1.0W 1.0W 1.0W 1.0W
1N3105,A 1N3106 1N3107 1N3108 1N3109	S S S S S	1N3015A	1N2970	Z G G G G	800 1200 800 1200	1.6 3.2 1.6 3.2	0.75 0.5 1.5 0.7	0.3 0.3 0.3 0.3	30 15 30 15	220	3.0		1.0W
1N3110 1N3111 1N3112 1N3113 thru	G S S S A	MR1220SB IN4737A	MR1220 IN4728	S G Z T T	8.0 50	0.45 1.1	5.0m 150	20* 40	1500	7.4	120	5.0	1.0W
1N3120 1N3121 1N3122 1N3123 1N3124	G G S S S			T S S S S	50 20 40 40	0.25 0.3 1.5 1.0	0.1m 1.0m 10m 20m	3.5* 4.5* 0.1* 0.1*	0.5 4.0 4.0				

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TYPE D.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
125 128	G			S T T	40	0.4	5.0m	100*	0.3				
130 138	G A			T T									
1N3139 1N3140 1N3141 1N3142 1N3143	S S S S G		Table 4	G G G G M	50 100 150 200	1.55 1.55 1.55 1.55	70 70 70 70	15 15 15 15	1200 1200 1200 1200				
1N3144 1N3145 1N3146 1N3147 1N3148	G G G S S	1N3155A	1N3154	S S S S R	20 65 20 45	0.3 0.45 1.0 1.0	1.0m 10m 50m 100m	20* 25* 100*	0.5 2.0 1.0	8.5	0.005	10	-55/100
1N3149 1N3149A 1N3150 1N3151 ★1N3154	G G G S S		1N3154	T T T G R	7200	27	0.1	250	12	8.8	0.01	10	-55/100
★1N3154A ★1N3155 ★1N3155A ★1N3156 ★1N3156A	S S S S S		1N3154	R R R R R						8.8 8.8 8.8 8.8 8.8	0.01 0.005 0.005 0.002 0.002	10 10 10 10 10	-55/100 -55/100 -55/100 -55/100 -55/100
★1N3157 ★1N3157A 1N3159 1N3160 1N3161	S S G G S	MR1230SB	MR1230	R R S S G	15 60 50	0.45 1.0 1.30	10m 5.0m 240	12* 16	0.3 3000	8.8 8.8	0.001 0.001	10 10	-55/100 -55/100
1N3162 1N3163 1N3164 1N3165 1N3166	S S S S S	MR1231SB MR1232SB MR1233SB MR1234SB MR1235SB	MR1230 MR1230 MR1230 MR1230 MR1230	G G G G G	100 150 200 250 300	1.30 1.30 1.30 1.30 1.30	240 240 240 240 240	16 16 16 16 16	3000 3000 3000 3000 3000				
1N3167 1N3168 1N3169 1N3170 1N3171	S S S S S	MR1236SB MR1237SB MR1238SB MR1239SB	MR1230 MR1230 MR1230 MR1230	G G G G G	350 400 500 600 700	1.30 1.30 1.30 1.30 1.92	240 240 240 240 240	16 16 16 16 16	3000 3000 3000 3000 3000				
1N3171A 1N3172 1N3172A 1N3173 1N3173A	S S S S S			G G G G G	700 800 800 900 900	1.9 1.92 1.9 1.92 1.9	240 240 240 240 240	16 16 16 16 16	3000 3000 3000 3000 3000				
1N3174 1N3174A 1N3175 1N3176 1N3177	S S S S S			G G G G G	1000 1000 1200 1400 1600	1.92 1.9 1.4 1.4 1.4	240 240 240 240 240	16 16 15 15 15	3000 3000 3000 3000 3000				
1N3179 1N3180 1N3181 1N3182 1N3183	S S S S S	1N5237A	1N5221 Table 3	S S Z V G	200 110 350	1.0 1.5 1.0	100m 500m 0.5	10* 5.0*	4.0	7.7	14	10	0.6W
1N3184 1N3185 1N3186 1N3187 1N3188	S S S S S			G G G G G	500 700 1000 1500 2000	1.0 2.0 2.0 3.0 4.0	0.5 0.5 0.5 0.5 0.5		4.0 4.0 4.0 4.0 4.0				
1N3189 1N3190 1N3191 1N3192 1N3193	S S S S S	1N4003 1N4004 1N4005	1N4001 1N4001 1N4001	G G G S G	200 400 600 200 200	1.1 1.1 1.1 1.0 1.2	1.0 1.0 1.0 100m 0.75	0.2 0.2 0.2 10* 0.2	30 30 30				
1N3194 1N3195 1N3196 1N3197 1N3198	S S S G S	1N4004 1N4005 1N4006	1N4001 1N4001 1N4001	G G G S Z	400 600 800 30	1.2 1.2 1.2 1.0	0.75 0.75 0.75 150m	0.2 0.2 0.2 50*	40 40 40 0.3	2.25	10	2.0	0.4W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
IN3199	S	IN3155	IN3154	R						8.8	0.005	10	50/100
IN3200	S	IN3156	IN3154	R						8.8	0.003	10	50/100
IN3201	S	IN3156	IN3154	R						8.8	0.002	10	50/100
IN3202	S	IN3157	IN3154	R						8.8	0.001	10	50/100
IN3203	G			S	25	0.5	35m	50*	0.3				
IN3206	S			S	80	1.0	10m	5.0*	4.0				
IN3207	S			S	50	1.0	150m	0.05*	6.0				
★IN3208	S		IN3208	G	50	1.5	15	10	250				
★IN3209	S		IN3208	G	100	1.5	15	10	250				
★IN3210	S		IN3208	G	200	1.5	15	10	250				
★IN3211	S		IN3208	G	300	1.5	15	10	250				
★IN3212	S		IN3208	G	400	1.5	15	10	250				
★IN3213	S		1N248B	G	500	1.5	15	10	250				
★IN3214	S		1N248B	G	600	1.5	15	10	250				
IN3215	S			S	80	0.7	1.0m	10*	0.25				
IN3217 thru IN3222	G			T									
IN3223	S			S	150	1.5	4.0m	20*	800				
IN3225	G			S	40	1.0	5.0m	33*	0.5				
IN3227	S	1N4002	1N4001	G	100	3.3	0.5	0.250	12.5				
IN3228	S	1N4003	1N4001	G	200	3.3	0.5	0.250	12.5				
IN3229	S	1N4004	1N4001	G	400	3.3	0.5	0.250	12.5				
IN3230	S	1N4005	1N4001	G	600	3.3	0.5	0.250	12.5				
IN3231	S	1N4006	1N4001	G	800	3.3	0.5	0.250	12.5				
IN3232	S	1N4007	1N4001	G	1000	3.3	0.5	0.250	12.5				
IN3233	S			G	1200	3.3	0.5	0.250	12.5				
IN3234	S			G	1500	3.3	0.5	0.250	12.5				
IN3235	S			G	1800	3.3	0.5	0.250	12.5				
IN3236	S			G	2000	3.3	0.5	0.250	12.5				
IN3237	S	1N4001	1N4001	G	50	2.2	0.75	0.250	15.0				
IN3238	S	1N4002	1N4001	G	100	2.2	0.75	0.250	15.0				
IN3239	S	1N4003	1N4001	G	200	2.2	0.75	0.250	15.0				
IN3240	S	1N4004	1N4001	G	400	2.2	0.75	0.250	15.0				
IN3241	S	1N4005	1N4001	G	600	2.2	0.75	0.250	15.0				
IN3242	S	1N4006	1N4001	G	800	2.2	0.75	0.250	15.0				
IN3243	S	1N4007	1N4001	G	1000	2.2	0.75	0.250	15.0				
IN3244	S			G	1200	2.2	0.75	0.250	15.0				
IN3245	S			G	1500	2.2	0.75	0.250	15.0				
IN3246	S	1N4001	1N4001	G	50	1.1	1.0	0.250	20.0				
IN3247	S	1N4002	1N4001	G	100	1.1	1.0	0.250	20.0				
IN3248	S	1N4003	1N4001	G	200	1.1	1.0	0.250	20.0				
IN3249	S	1N4004	1N4001	G	400	1.1	1.0	0.250	20.0				
IN3250	S	1N4005	1N4001	G	600	1.1	1.0	0.250	20.0				
IN3251	S	1N4006	1N4001	G	800	1.1	1.0	0.250	20.0				
IN3252	S	1N4007	1N4001	G	1000	1.1	1.0	0.250	20.0				
IN3253	S	1N4003	1N4001	G	200	1.2	0.75	0.2	40				
IN3254	S	1N4004	1N4001	G	400	1.2	0.75	0.2	40				
IN3255	S	1N4005	1N4001	G	600	1.2	0.75	0.2	40				
IN3256	S	1N4006	1N4001	G	800	1.2	0.5	0.2	40				
IN3257	S			S	80	1.0	30m	0.025*	300				
IN3258	S			S	80	1.0	100m	0.025*	400				
IN3260	S	MR1220SB	MR1220	G	50	1.6	160	12	2000				
IN3261	S	MR1221SB	MR1220	G	100	1.6	160	12	2000				
IN3262	S	MR1222SB	MR1220	G	150	1.6	160	12	2000				
IN3263	S	MR1223SB	MR1220	G	200	1.6	160	12	2000				
IN3264	S	MR1224SB	MR1220	G	250	1.6	160	12	2000				
IN3265	S	MR1225SB	MR1220	G	300	1.6	160	12	2000				
IN3266	S	MR1226SB	MR1220	G	350	1.6	160	12	2000				
IN3267	S	MR1227SB	MR1220	G	400	1.6	160	12	2000				
IN3268	S	MR1228SB	MR1220	G	500	1.6	160	12	2000				
IN3269	S	MR1229SB	MR1220	G	600	1.6	160	12	2000				
IN3270	S			G	700	1.6	160	12	2000				
IN3271	S			G	800	1.6	160	12	2000				
IN3272	S			G	900	1.6	160	12	2000				
IN3273	S			G	1000	1.6	160	12	2000				
IN3274	S			G	1200	1.4	160	12	2000				
IN3275	S			G	1400	1.4	160	12	2000				
IN3276	S			G	1600	1.4	160	12	2000				
IN3277	S			G	200	1.3	0.75		25				

1N3278-1N3316

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N3278	S			G	400	1.3	0.75		25				
1N3279	S			S	600	1.3	0.75		25				
1N3280	S			G	800	1.3	0.75		25				
1N3281	S			G	1000	1.3	0.75		25				
1N3282	S		1N3213	G	1000	3.7	0.1		2.5				
1N3283	S		1N3213	G	1500	3.7	0.1		2.5				
1N3284	S		1N3213	G	2000	3.7	0.1		2.5				
1N3285	S		1N3213	G	2500	3.7	0.1		2.5				
1N3286	S		1N3213	G	3000	3.7	0.1		2.5				
1N3287	G			S	6.0	0.312	1.0m	15*					
1N3288	S			G	100	1.5	100	200	1600				
1N3288A	S	MR1811R		G	100	1.5	100	24	2300				
1N3289	S			G	200	1.5	100	300	1600				
1N3289A	S	MR1813R		G	200	1.5	100	24	2300				
1N3290	S			G	300	1.5	100	400	1600				
1N3290A	S	MR1815R		G	300	1.5	100	24	2300				
1N3291	S			G	400	1.5	100	525	1600				
1N3291A	S	MR1817R		G	400	1.5	100	24	2300				
1N3292	S			G	500	1.5	100	650	1600				
1N3292A	S			G	500	1.5	100	21	1600				
1N3292B	S	MR1818SB		G	500	1.5	100	21	2300				
1N3293	S			G	600	1.5	100	800	1600				
1N3293A	S	MR1819SB		G	600	1.5	100	17	2300				
1N3294	S			G	800	1.5	100	1050	1600				
1N3294A	S			G	800	1.5	100	13	2300				
1N3295	S			G	1000	1.5	100	1300	1600				
1N3295A	S			G	1000	1.5	100	11	2300				
1N3296	S			G	1200	1.5	100	1600	1600				
1N3296A	S			G	1200	1.5	100	9.0	2300				
1N3297	S			G	1400	1.5	100	1800	1600				
1N3297A	S			G	1400	1.5	100	7.0	2300				
1N3298	S			S	70	0.9	500m	0.2*	20				
1N3298A	S			S	70	0.9	0.5	0.2*					
1N3299	S		Table 6	S	70	0.9							
1N3304A	S		Table 6	Z									
★1N3305	S		1N2804	Z					6.8	1850	20	50W	
★1N3305A	S		1N2804	Z					6.8	1850	10	50W	
★1N3305B	S		1N2804	Z					6.8	1850	5.0	50W	
★1N3306	S		1N2804	Z					7.5	1700	20	50W	
★1N3306A	S		1N2804	Z					7.5	1700	10	50W	
★1N3306B	S		1N2804	Z					7.5	1700	5.0	50W	
★1N3307	S		1N2804	Z					8.2	1500	20	50W	
★1N3307A	S		1N2804	Z					8.2	1500	10	50W	
★1N3307B	S		1N2804	Z					8.2	1500	5.0	50W	
★1N3308	S		1N2804	Z					9.1	1370	20	50W	
★1N3308A	S		1N2804	Z					9.1	1370	10	50W	
★1N3308B	S		1N2804	Z					9.1	1370	5.0	50W	
★1N3309	S		1N2804	Z					10	1200	20	50W	
★1N3309A	S		1N2804	Z					10	1200	10	50W	
★1N3309B	S		1N2804	Z					10	1200	5.0	50W	
★1N3310	S		1N2804	Z					11	1100	20	50W	
★1N3310A	S		1N2804	Z					11	1100	10	50W	
★1N3310B	S		1N2804	Z					11	1100	5.0	50W	
★1N3311	S		1N2804	Z					12	1000	20	50W	
★1N3311A	S		1N2804	Z					12	1000	10	50W	
★1N3311B	S		1N2804	Z					12	1000	5.0	50W	
★1N3312	S		1N2804	Z					13	960	20	50W	
★1N3312A	S		1N2804	Z					13	960	10	50W	
★1N3312B	S		1N2804	Z					13	960	5.0	50W	
★1N3313	S		1N2804	Z					14	890	20	50W	
★1N3313A	S		1N2804	Z					14	890	10	50W	
★1N3313B	S		1N2804	Z					14	890	5.0	50W	
★1N3314	S		1N2804	Z					15	830	20	50W	
★1N3314A	S		1N2804	Z					15	830	10	50W	
★1N3314B	S		1N2804	Z					15	830	5.0	50W	
★1N3315	S		1N2804	Z					16	780	20	50W	
★1N3315A	S		1N2804	Z					16	780	10	50W	
★1N3315B	S		1N2804	Z					16	780	5.0	50W	
★1N3316	S		1N2804	Z					17	740	20	50W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N3316A	S		1N2804	Z						17	740	10	50W
★1N3316B	S		1N2804	Z						17	740	5.0	50W
★1N3317	S		1N2804	Z						18	700	20	50W
★1N3317A	S		1N2804	Z						18	700	10	50W
★1N3317B	S		1N2804	Z						18	700	5.0	50W
★1N3318	S		1N2804	Z						19	660	20	50W
★1N3318A	S		1N2804	Z						19	660	10	50W
★1N3318B	S		1N2804	Z						19	660	5.0	50W
★1N3319	S		1N2804	Z						20	630	20	50W
★1N3319A	S		1N2804	Z						20	630	10	50W
★1N3319B	S		1N2804	Z						20	630	5.0	50W
★1N3320	S		1N2804	Z						22	570	20	50W
★1N3320A	S		1N2804	Z						22	570	10	50W
★1N3320B	S		1N2804	Z						22	570	5.0	50W
★1N3321	S		1N2804	Z						24	520	20	50W
★1N3321A	S		1N2804	Z						24	520	10	50W
★1N3321B	S		1N2804	Z						24	520	5.0	50W
★1N3322	S		1N2804	Z						25	500	20	50W
★1N3322A	S		1N2804	Z						25	500	10	50W
★1N3322B	S		1N2804	Z						25	500	5.0	50W
★1N3323	S		1N2804	Z						27	460	20	50W
★1N3323A	S		1N2804	Z						27	460	10	50W
★1N3323B	S		1N2804	Z						27	460	5.0	50W
★1N3324	S		1N2804	Z						30	420	20	50W
★1N3324A	S		1N2804	Z						30	420	10	50W
★1N3324B	S		1N2804	Z						30	420	5.0	50W
★1N3325	S		1N2804	Z						33	380	20	50W
★1N3325A	S		1N2804	Z						33	380	10	50W
★1N3325B	S		1N2804	Z						33	380	5.0	50W
★1N3326	S		1N2804	Z						36	350	20	50W
★1N3326A	S		1N2804	Z						36	350	10	50W
★1N3326B	S		1N2804	Z						36	350	5.0	50W
★1N3327	S		1N2804	Z						39	320	20	50W
★1N3327A	S		1N2804	Z						39	320	10	50W
★1N3327B	S		1N2804	Z						39	320	5.0	50W
★1N3328	S		1N2804	Z						43	290	20	50W
★1N3328A	S		1N2804	Z						43	290	10	50W
★1N3328B	S		1N2804	Z						43	290	5.0	50W
★1N3329	S		1N2804	Z						45	280	20	50W
★1N3329A	S		1N2804	Z						45	280	10	50W
★1N3329B	S		1N2804	Z						45	280	5.0	50W
★1N3330	S		1N2804	Z						47	270	20	50W
★1N3330A	S		1N2804	Z						47	270	10	50W
★1N3330B	S		1N2804	Z						47	270	5.0	50W
★1N3331	S		1N2804	Z						50	250	20	50W
★1N3331A	S		1N2804	Z						50	250	10	50W
★1N3331B	S		1N2804	Z						50	250	5.0	50W
★1N3332	S		1N2804	Z						51	245	20	50W
★1N3332A	S		1N2804	Z						51	245	10	50W
★1N3332B	S		1N2804	Z						51	245	5.0	50W
★1N3333	S		1N2804	Z						52	240	20	50W
★1N3333A	S		1N2804	Z						52	240	10	50W
★1N3333B	S		1N2804	Z						52	240	5.0	50W
★1N3334	S		1N2804	Z						56	220	20	50W
★1N3334A	S		1N2804	Z						56	220	10	50W
★1N3334B	S		1N2804	Z						56	220	5.0	50W
★1N3335	S		1N2804	Z						62	200	20	50W
★1N3335A	S		1N2804	Z						62	200	10	50W
★1N3335B	S		1N2804	Z						62	200	5.0	50W
★1N3336	S		1N2804	Z						68	180	20	50W
★1N3336A	S		1N2804	Z						68	180	10	50W
★1N3336B	S		1N2804	Z						68	180	5.0	50W
★1N3337	S		1N2804	Z						75	170	20	50W
★1N3337A	S		1N2804	Z						75	170	10	50W
★1N3337B	S		1N2804	Z						75	170	5.0	50W
★1N3338	S		1N2804	Z						82	150	20	50W
★1N3338A	S		1N2804	Z						82	150	10	50W
★1N3338B	S		1N2804	Z						82	150	5.0	50W
★1N3339	S		1N2804	Z						91	140	20	50W
★1N3339A	S		1N2804	Z						91	140	10	50W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _Z mA	Temp Range °C					
★1N3339B	S		1N2804	Z						91	140	5.0	50W
★1N3340	S		1N2804	Z						100	120	2.0	50W
★1N3340A	S		1N2804	Z						100	120	1.0	50W
★1N3340B	S		1N2804	Z						100	120	5.0	50W
★1N3341	S		1N2804	Z						105	120	2.0	50W
★1N3341A	S		1N2804	Z						105	120	1.0	50W
★1N3341B	S		1N2804	Z						105	120	5.0	50W
★1N3342	S		1N2804	Z						110	110	2.0	50W
★1N3342A	S		1N2804	Z						110	110	1.0	50W
★1N3342B	S		1N2804	Z						110	110	5.0	50W
★1N3343	S		1N2804	Z						120	100	2.0	50W
★1N3343A	S		1N2804	Z						120	100	1.0	50W
★1N3343B	S		1N2804	Z						120	100	5.0	50W
★1N3344	S		1N2804	Z						130	95	2.0	50W
★1N3344A	S		1N2804	Z						130	95	1.0	50W
★1N3344B	S		1N2804	Z						130	95	5.0	50W
★1N3345	S		1N2804	Z						140	90	2.0	50W
★1N3345A	S		1N2804	Z						140	90	1.0	50W
★1N3345B	S		1N2804	Z						140	90	5.0	50W
★1N3346	S		1N2804	Z						150	85	2.0	50W
★1N3346A	S		1N2804	Z						150	85	1.0	50W
★1N3346B	S		1N2804	Z						150	85	5.0	50W
★1N3347	S		1N2804	Z						160	80	2.0	50W
★1N3347A	S		1N2804	Z						160	80	1.0	50W
★1N3347B	S		1N2804	Z						160	80	5.0	50W
★1N3348	S		1N2804	Z						175	70	2.0	50W
★1N3348A	S		1N2804	Z						175	70	1.0	50W
★1N3348B	S		1N2804	Z						175	70	5.0	50W
★1N3349	S		1N2804	Z						180	68	2.0	50W
★1N3349A	S		1N2804	Z						180	68	1.0	50W
★1N3349B	S		1N2804	Z						180	68	5.0	50W
★1N3350	S		1N2804	Z						200	65	2.0	50W
★1N3350A	S		1N2804	Z						200	65	1.0	50W
★1N3350B	S		1N2804	Z						200	65	5.0	50W
1N3353	G			B									
1N3354	S			G	10	1.2	3.0	0.020	30				
1N3355	S			G	15	1.2	3.0	0.020	30				
1N3356	S			G	25	1.2	3.0	0.010	30				
1N3357	S			G	50	1.2	3.0	0.010	30				
1N3358	S			G	75	1.2	3.0	0.010	30				
1N3359	S			G	100	1.2	3.0	0.010	30				
1N3360	S			G	150	1.2	3.0	0.010	30				
1N3361	S			G	200	1.2	3.0	0.010	30				
1N3362	S			G	300	1.2	3.0	0.010	30				
1N3363	S			G	400	1.2	3.0	0.010	30				
1N3364	S			G	500	1.2	3.0	0.010	30				
1N3365	S			G	600	1.2	3.0	0.010	30				
1N3366	S			G	700	1.2	3.0	0.010	30				
1N3367	S			G	800	2.0	3.0	0.010	30				
1N3368	S			G	900	2.0	3.0	0.010	30				
1N3369	S			G	1000	2.5	3.0	0.025	30				
1N3370	S			G	1200	2.5	3.0	0.025	30				
1N3371	S			G	1500	2.5	3.0	0.025	30				
1N3372	S			G	10	1.0	20	0.315	200				
1N3373	S			G	25	1.0	20	0.315	200				
1N3374	S			G	50	1.0	20	0.315	200				
1N3375	S			G	100	1.0	20	0.315	200				
1N3376	S			G	150	1.0	20	0.315	200				
1N3377	S			G	200	1.0	20	0.315	200				
1N3378	S			G	300	1.0	20	0.315	200				
1N3379	S			G	400	1.0	20	0.315	200				
1N3380	S			G	500	1.0	20	0.315	200				
1N3381	S			S	15	1.0	500m	10*					
1N3382	S			S	15	1.0	500m	10*					
1N3383	S			S	50	1.0	500m	10*					
1N3384	S			S	75	1.0	500m	15*					
1N3385	S			S	100	1.0	500m	20*					
1N3386	S			S	150	1.0	500m	20*					
1N3387	S			S	200	1.0	500m	20*					
1N3388	S			S	250	1.0	500m	25*					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N3389	S			S	300	1.0	500m	25*						
1N3390	S			S	400	1.0	500m	25*						
1N3391	S			S	500	1.0	500m	25*						
1N3392	S			Z						1.5	50	10	500m	
1N3393	S			Z						1.8	50	10	500m	
1N3394	S			C						2.2	50	10	500m	
1N3395	S			C						2.7	50	10	500m	
1N3396	S			C						3.3	30	10	500m	
1N3397	S			C						3.9	30	10	500m	
1N3398	S			C						4.7	30	10	500m	
1N3399	S			C						5.6	20	10	500m	
1N3400	S			C						6.8	20	10	500m	
1N3401	S			C						8.2	10	10	500m	
1N3402	S			C						10	10	10	500m	
1N3403	S			C						12	10	10	500m	
1N3404	S			C						15	10	10	500m	
1N3405	S			C						18	10	10	500m	
1N3406	S			C						22	3.0	10	500m	
1N3407	S			C						27	3.0	10	500m	
1N3408	S			C						33	3.0	10	500m	
1N3409	S			C						39	1.5	10	500m	
1N3410	S			C						47	1.5	10	500m	
1N3411	S	1N5234A	1N5221	Z						6.2	1.0	10	500m	
1N3412	S	1N5235A	1N5221	Z						6.8	1.0	10	500m	
1N3413	S	1N5236A	1N5221	Z						7.5	1.0	10	500m	
1N3414	S	1N5237A	1N5221	Z						8.2	1.0	10	500m	
1N3415	S	1N5240A	1N5221	Z						10	1.0	10	500m	
1N3416	S	1N5242A	1N5221	Z						12	1.0	10	500m	
1N3417	S	1N5245A	1N5221	Z						15	1.0	10	500m	
1N3418	S	1N5248A	1N5221	Z						18	1.0	10	500m	
1N3419	S	1N5251A	1N5221	Z						22	1.0	10	500m	
1N3420	S	1N5254A	1N5221	Z						27	1.0	10	500m	
1N3421	S	1N5256A	1N5221	Z						30	1.0	10	500m	
1N3422	S	1N5257A	1N5221	Z						33	1.0	10	500m	
1N3423	S	1N5259A	1N5221	Z						39	1.0	10	500m	
1N3424	S	1N5261A	1N5221	Z						47	1.0	10	500m	
1N3425	S	1N5263A	1N5221	Z						56	1.0	10	500m	
1N3426	S	1N5266A	1N5222	Z						68	1.0	10	500m	
1N3427	S	1N5268A	1N5221	Z						82	1.0	10	500m	
1N3428	S	1N5271A	1N5221	Z						100	1.0	10	500m	
1N3429	S	1N5273A	1N5221	Z						120	1.0	10	500m	
1N3430	S	1N5276A	1N5221	Z						150	1.0	10	500m	
1N3431	S	1N5279A	1N5221	Z						180	1.0	10	500m	
1N3432	S	1N5281A	1N5221	Z						220	1.0	10	500m	
1N3433	S	1N4738	1N4728	Z						8.2	25	10	2.0W	
1N3434	S	1N4740	1N4728	Z						10.0	25	10	2.0W	
1N3435	S	1N4742	1N4728	Z						12.0	25	10	2.0W	
1N3436	S	1N4744	1N4728	Z						15.0	25	10	2.0W	
1N3437	S	1N4746	1N4728	Z						18.0	25	10	2.0W	
1N3438	S	1N4748	1N4728	Z						22.0	7.5	10	2.0W	
1N3439	S	1N4750	1N4728	Z						27.0	7.5	10	2.0W	
1N3440	S	1N4752	1N4728	Z						33.0	7.5	10	2.0W	
1N3441	S	1N4754	1N4728	Z						39.0	7.5	10	2.0W	
1N3442	S	1N4756	1N4728	Z						47.0	7.5	10	2.0W	
1N3443	S	1N4735	1N4728	Z						6.2	2.0	10	2.0W	
1N3444	S	1N4736	1N4728	Z						6.8	2.0	10	2.0W	
1N3445	S	1N4738	1N4728	Z						8.2	2.0	10	2.0W	
1N3446	S	1N4740	1N4728	Z						10	2.0	10	2.0W	
1N3447	S	1N4742	1N4728	Z						12	2.0	10	2.0W	
1N3448	S	1N4744	1N4728	Z						15	2.0	10	2.0W	
1N3449	S	1N4746	1N4728	Z						18	2.0	10	2.0W	
1N3450	S	1N4748	1N4728	Z						22	2.0	10	2.0W	
1N3451	S	1N4750	1N4728	Z						27	2.0	10	2.0W	
1N3452	S	1N4751	1N4728	Z						30	2.0	10	2.0W	
1N3453	S	1N4752	1N4728	Z						33	2.0	10	2.0W	
1N3454	S	1N4754	1N4728	Z						39	2.0	10	2.0W	
1N3455	S	1N4756	1N4728	Z						47	2.0	10	2.0W	
1N3456	S	1N4758	1N4728	Z						56	2.0	10	2.0W	
1N3457	S	1N4760	1N4728	Z						68	2.0	10	2.0W	
1N3458	S	1N4762	1N4728	Z						82	2.0	10	2.0W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N3459	S	1N4764	1N4728	Z						100	2.0	10	2.0W
1N3460	S	1M120ZS10	1N4728	Z						120	2.0	10	2.0W
1N3461	S	1M150ZS10	1N4728	Z						150	2.0	10	2.0W
1N3462	S	1M180ZS10	1N4728	Z						180	2.0	10	2.0W
1N3463	S	1M200ZS5	1N4728	Z						220	2.0	10	2.0W
1N3464	S			G	8500	30.0	0.1	0.001	2.0				
1N3465	G			S	60	1.0	200m	20*					
1N3466	G			S	40	1.0	200m	15*					
1N3467	G			S	15	0.5	20m	15*	2.0				
1N3468	G			S	15	0.5	20m	60*	2.0				
1N3469	G			S	35	0.5	600m	15*					
1N3470	G			S	35	0.5	600m	30*					
1N3471	S			S	40	1.0	10m	20n	2.0				
1N3473	S			G	200	1.4	0.75	0.5	20				
1N3474	S			G	400	1.4	0.75	0.5	20				
1N3475	S			G	600	1.4	0.75	0.5	20				
1N3476	S			Z	800	1.4	0.5	0.5	20				
1N3477	S	1N5221A	1N5221	G						2.2	5.0	10	250m
1N3477A	S	1N5221B	1N5221	Z						2.2	5.0	5.0	250m
1N3478	S			S	200	1.0	500m	10*					
1N3479	S			S	400	1.0	500m	10*					
1N3480	S			M	600	1.0	500m	10*					
1N3481	G		Table 4	M									
1N3482	G		Table 4	M									
1N3483	S			S	8.0	0.6	10m	30*					
1N3484	G			S	75	0.45	10m	4.0*					
1N3485	S			S	175	1.0	10m	25n	0.05				
1N3486	S	1N4007	1N4001	G	1000	2.0	0.4	0.05	10				
1N3487	S	MR1-1200	MR1-1200	G	1200	2.0	0.4	0.05	10				
1N3488	V		Table 3	V									
1N3489			Table 6	A									
1N3490			Table 6	A									
★1N3491	S		1N3491	G	50	1.7	18	1.0	300				
★1N3492	S		1N3491	G	100	1.7	18	1.0	300				
★1N3493	S		1N3491	G	200	1.7	18	1.0	300				
★1N3494	S		1N3491	G	300	1.7	18	1.0	300				
★1N3495	S		1N3491	G	400	1.7	18	1.0	300				
1N3496	S	1N823	1N821	R					6.2	0.005	7.5	-55/100	
1N3497	S	1N825	1N821	R					6.2	0.002	7.5	-55/100	
1N3498	S	1N827	1N821	R					6.2	0.001	7.5	-55/100	
1N3499	S	1N829	1N821	R					6.2	0.0005	7.5	-55/100	
1N3500	S	1N821	1N821	R					6.2	0.01	7.5	-55/100	
1N3501	S	MZ640	MZ600	R					6.35	0.01	7.5	-55/100	
1N3502	S	MZ620	MZ600	R					6.35	0.01	7.5	-55/100	
1N3503	S	MZ610	MZ600	R					6.35	0.005	7.5	-55/100	
1N3504	S	MZ605	MZ600	R					6.35	0.002	7.5	-55/100	
1N3506	S	1N5226B	1N5221	Z					3.3	20	5.0	20W	
1N3507	S	1N5227B	1N5221	Z					3.6	20	5.0	20W	
1N3508	S	1N5228B	1N5221	Z					3.9	20	5.0	20W	
1N3509	S	1N5229B	1N5221	Z					4.3	20	5.0	20W	
1N3510	S	1N5230B	1N5221	Z					4.7	20	5.0	20W	
1N3511	S	1N5231B	1N5221	Z					5.1	20	5.0	20W	
1N3512	S	1N5232B	1N5221	Z					5.6	20	5.0	20W	
1N3513	S	1N5234B	1N5221	Z					6.2	20	5.0	20W	
1N3514	S	1N5235B	1N5221	Z					6.8	20	5.0	20W	
1N3515	S	1N5236B	1N5221	Z					7.5	10	5.0	10W	
1N3516	S	1N5237B	1N5221	Z					8.2	10	5.0	10W	
1N3517	S	1N5239B	1N5221	Z					9.1	10	5.0	10W	
1N3518	S	1N5240B	1N5221	Z					10	10	5.0	10W	
1N3519	S	1N5241B	1N5221	Z					11	10	5.0	10W	
1N3520	S	1N5242B	1N5221	Z					12	10	5.0	10W	
1N3521	S	1N5243B	1N5221	Z					13	10	5.0	10W	
1N3522	S	1N5245B	1N5221	Z					15	5.0	5.0	5.0W	
1N3523	S	1N5246B	1N5221	Z					16	5.0	5.0	5.0W	
1N3524	S	1N5248B	1N5221	Z					18	5.0	5.0	5.0W	
1N3525	S	1N5250B	1N5221	Z					20	5.0	5.0	5.0W	
1N3526	S	1N5251B	1N5221	Z					22	5.0	5.0	5.0W	
1N3527	S	1N5252B	1N5221	Z					24	5.0	5.0	5.0W	
1N3528	S	1N5254B	1N5221	Z					27	4.0	5.0	4.0W	
1N3529	S	1N5256B	1N5221	Z					30	4.0	5.0	4.0W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N3530	S	1N5257B	1N5221	Z						33	3.0	5.0	3.0W
1N3531	S	1N5258B	1N5221	Z						36	3.0	5.0	3.0W
1N3532	S	1N5259B	1N5221	Z						39	3.0	5.0	3.0W
1N3533	S	1N5260B	1N5221	Z						43	2.0	5.0	2.0W
1N3534	S	1N5261B	1N5221	Z						47	2.0	5.0	2.0W
1N3535	S			S									
1N3536	S			S									
1N3537	S			S						12	25	8.3	1.0W
1N3538	S			S	150		2.5m	2.0*					
1N3539	S			B									
1N3539A	S			B									
1N3540	S			B									
1N3540A	S			B									
1N3541	S			B									
1N3541A	S			B									
1N3542	S			B									
1N3542A	S			B									
1N3543	S			B									
1N3543A	S			B									
1N3544	S	1N4002	1N4001	G	100	1.5	0.6	0.2	15				
1N3545	S	1N4003	1N4001	G	200	1.5	0.6	0.2	15				
1N3546	S	1N4004	1N4001	G	300	1.5	0.6	0.2	15				
1N3547	S	1N4004	1N4001	G	400	1.5	0.6	0.2	15				
1N3548	S	1N4005	1N4001	G	500	1.5	0.6	0.2	15				
1N3549	S	1N4005	1N4001	G	600	1.5	0.6	0.2	15				
1N3550	S			S	180	1.0	50m		1.5				
1N3551	S		Table 3	V									
1N3552	S		Table 3	V									
1N3553	S	1N821	1N821	R						6.3	0.01	7.5	-55/100
1N3554	S		Table 3	V									
thru 1N3557	S		Table 3	V									
1N3558	S			Z									
1N3559	G			S	24	1.0	200m	20*					
1N3560	T			T									
thru 1N3562	G			G									
1N3563	S			G	1000	1.2	0.4	0.2	40				
1N3564	S			S	15	1.0	40m						
1N3565	S			S	6.0	2.0	2.0	25m					
1N3566	S			G	800	2.25	1.0	0.5	20				
1N3567	S			S	50	1.0	100m	0.05*	2.0				
1N3568	S			S	80	1.0	20m	1.0*	2.0				
1N3569	S	MR1121	MR1120	G	100	1.3	3.5	0.4	35				
1N3570	S	MR1123	MR1120	G	200	1.3	3.5	0.4	35				
1N3571	S	MR1123	MR1120	G	300	1.3	3.5	0.4	35				
1N3572	S	MR1124	MR1120	G	400	1.3	3.5	0.4	35				
1N3573	S	MR1125	MR1120	G	500	1.3	3.5	0.4	35				
1N3574	S	MR1126	MR1120	G	600	1.3	3.5	0.4	35				
1N3575	S			S	60	0.74	1.0m	0.75n					
1N3576	S			S	125	0.74	1.0m	0.75n					
1N3577	S			S	175	0.74	1.0m	0.75n					
1N3578	S			S	225	0.74	1.0m	0.75n					
1N3579	S			S	275	0.74	1.0m	0.75n					
★1N3580	S		1N2163	R						11.7	0.01	7.5	0/75
★1N3580A	S		1N2163	R						11.7	0.01	7.5	-55/100
★1N3580B	S		1N2163	R						11.7	0.01	7.5	-55/150
★1N3581	S		1N2163	R						11.7	0.005	7.5	0/75
★1N3581A	S		1N2163	R						11.7	0.005	7.5	-55/100
★1N3581B	S		1N2163	R						11.7	0.005	7.5	-55/150
★1N3582	S		1N2163	R						11.7	0.002	7.5	0/75
★1N3582A	S		1N2163	R						11.7	0.002	7.5	-55/100
★1N3582B	S		1N2163	R						11.7	0.002	7.5	-55/150
★1N3583	S		1N2163	R						11.7	0.001	7.5	0/75
★1N3583A	S		1N2163	R						11.7	0.001	7.5	-55/100
★1N3583B	S		1N2163	R						11.7	0.001	7.5	-55/150
1N3584	S	1N945	1N941	R						11.7	0.0005	7.5	0/75
1N3584A	S	1N945A	1N941	R						11.7	0.0005	7.5	-55/100
1N3584B	S	1N945B	1N941	R						11.7	0.0005	7.5	-55/100
1N3585	S	MR1240SB	MR1240	G	50	1.25	400	25	8000	11.7	0.0005	7.5	-55/150

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TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N3586	S	MR1241SB	MR1240	G	100	1.25	400	25	8000				
1N3587	S	MR1243SB	MR1240	G	200	1.25	400	25	8000				
1N3588	S	MR1245SB	MR1240	G	300	1.25	400	25	8000				
1N3589	S	MR1247SB	MR1240	G	400	1.25	400	25	8000				
1N3590	S	MR1248SB	MR1240	G	500	1.25	400	25	8000				
1N3591	S	MR1249SB	MR1240	G	600	1.25	400	25	8000				
1N3592	G			S	30	0.35	2.0m	4.0*	0.04				
1N3593	S			S	40	1.0	10m	25n	10				
1N3594	S			S	60	1.0	50m	0.1m	6.0				
1N3595	S			S	125	1.0	200m	1.0m	3.0				
1N3596	S			S	20	1.0	30m	0.1*	4.0				
1N3597	S			S	150	1.2	400m	0.1*	0.3				
1N3598	S			S	50	0.85	10m	0.1*	4.0				
1N3599	S			S	150	1.0	100m	0.1*	50				
1N3600	S			S	50	1.0	200m	100*	6.0				
1N3601	S			S	75	1.0	10m	0.1*	5.0				
1N3602	S			S	50	1.0	20m	0.1*	5.0				
1N3603	S			S	30	1.0	30m	0.1*	5.0				
1N3604	S			S	75	1.0	50m	0.05*	2.0				
1N3605	S			S	40	0.55	0.1m	0.05*	2.0				
1N3606	S			S	75	0.55	0.1m	0.05*	2.0				
1N3607	S			S	75	1.0	50m	0.05*	2.0				
1N3608	S			S	40	0.55	0.1m	0.05*	2.0				
1N3609	S			S	75	0.55	0.1m	0.05*	2.0				
1N3611	S	1N4003	1N4001	S	200	1.0	750m	10*					
1N3612	S	1N4004	1N4001	S	400	1.0	750m	10*					
1N3613	S	1N4005	1N4001	S	600	1.0	750m	10*					
1N3614	S	1N4006	1N4001	S	800	1.0	750m	10*					
1N3615	S	MR1120	MR1120	G	50	1.2	16	3.0	300				
1N3616	S	MR1121	MR1120	G	100	1.2	16	2.5	300				
1N3617	S	MR1122	MR1120	G	150	1.2	16	2.25	300				
1N3618	S	MR1122	MR1120	G	200	1.2	16	2.0	300				
1N3619	S	MR1123	MR1120	G	300	1.2	16	1.75	300				
1N3620	S	MR1124	MR1120	G	400	1.2	16	1.5	300				
1N3621	S	MR1125	MR1120	G	500	1.2	16	1.25	300				
1N3622	S	MR1126	MR1120	G	600	1.2	16	1.0	300				
1N3623	S	MR1128	MR1120	G	800	1.2	16	0.75	300				
1N3624	S	MR1130	MR1120	G	1000	1.2	16	0.6	300				
1N3625	S			S	225	1.0	40m	0.5*	0.5				
1N3626	G			S	50	0.5	10m	1.0m	0.45				
1N3627			Table 3	V									
1N3628			Table 3	V									
1N3629	S			G	100	1.0	0.75	0.01	30				
1N3630	S			G	200	1.0	0.75	0.01	30				
1N3631	S			G	300	1.0	0.75	0.01	30				
1N3632	S			G	400	1.0	0.75	0.01	30				
1N3633	S			G	500	1.0	0.75	0.01	30				
1N3634	S			G	600	1.0	0.75	0.01	30				
1N3635	S			G	700	1.0	0.75	0.01	30				
1N3636	S			G	800	1.0	0.75	0.01	30				
1N3637	S			G	900	1.0	0.75	0.01	30				
1N3638	S			G	1000	1.0	0.75	0.01	30				
1N3639	S	1N4003	1N4001	G	200	1.2	0.75	0.2	40				
1N3640	S	1N4004	1N4001	G	400	1.2	0.75	0.2	40				
1N3641	S	1N4005	1N4001	G	600	1.2	0.75	0.2	40				
1N3642	S	1N4006	1N4001	G	800	1.2	0.75	0.2	40				
1N3643	S			S	1000	5.0	250m	5.0*					
1N3644	S			S	1500	5.0	250m	5.0*					
1N3645	S			S	1000	5.0	250m	5.0*					
1N3646	S			S	2500	5.0	250m	5.0*					
1N3647	S			S	3000	5.0	250m	5.0*					
1N3648	S			G	10k	23	0.35	0.5	30				
★1N3649	S	MR1128	MR1120	G	800	1.1	1.0	0.005	25				
1N3650	S	MR1130	MR1120	G	1000	1.1	1.0	0.005	25				
1N3653	S			S	90	1.0	400m	25n	4.0				
1N3654	S			S	90	1.0	50m	25n	4.0				
1N3655	S		Table 4	M									
1N3655A	S		Table 4	M									
1N3655B	S		Table 4	M									
1N3656	S			S	200	1.2	500m	0.01m					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS						ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D	
					SIGNAL DIODES						REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °/°C	I _{ZT} mA	Temp Range °C	
1N3657	S			S	400	1.2	500m	0.01m						
1N3658	S			S	600	1.2	500m	0.01m						
★1N3659	S		1N3659	G	50	1.4	25	5.0	400					
★1N3660	S		1N3659	G	100	1.4	25	4.5	400					
★1N3661	S		1N3659	G	200	1.4	25	4.0	400					
★1N3662	S		1N3659	G	300	1.4	25	3.5	400					
★1N3663	S		1N3659	G	400	1.4	25	3.0	400					
1N3664	S			G	500	1.4	25	2.5	400					
1N3665	S			G	600	1.4	25	2.0	400					
1N3666	G			S	80	1.0	200m	25*	0.3					
1N3667	S			G	500	1.2	1.5	1.2	30					
1N3668	S			S	30	1.0	5.0m	0.1*	0.15					
1N3669	S			S	70	1.1	400m	0.25*	0.2					
1N3670	S	MR1128	MR1120	G	700	2.05	12	3.0	200					
1N3670A	S	MR1128	MR1120	G	700	1.5	12	0.9	240					
1N3671	S	MR1128	MR1120	G	800	2.05	12	2.0	200					
1N3671A	S	MR1128	MR1120	G	800	1.3	12	0.8	240					
1N3672	S	MR1130	MR1120	G	900	2.05	12	2.0	200					
1N3672A	S	MR1130	MR1120	G	900	1.15	12	0.7	240					
1N3673	S	MR1130	MR1120	G	1000	2.05	12	1.0	200					
1N3673A	S	MR1130	MR1120	G	1000	1.0	12	0.6	240					
★1N3675	S	1N4736	1N4728	Z						6.8	19	20	750m	
★1N3675A	S	1N4736	1N4728	Z						6.8	19	10	750m	
★1N3675B	S	1N4736A	1N4728	Z						6.8	19	5.0	750m	
★1N3676	S	1N4737	1N4728	Z						7.5	17	20	750m	
★1N3676A	S	1N4737	1N4728	Z						7.5	17	10	750m	
★1N3676B	S	1N4737A	1N4728	Z						7.5	17	5.0	750m	
★1N3677	S	1N4738	1N4728	Z						8.2	15	20	750m	
★1N3677A	S	1N4738	1N4728	Z						8.2	15	10	750m	
★1N3677B	S	1N4738A	1N4728	Z						8.2	15	5.0	750m	
★1N3678	S	1N4739	1N4728	Z						9.1	14	20	750m	
★1N3678A	S	1N4739	1N4728	Z						9.1	14	10	750m	
★1N3678B	S	1N4739A	1N4728	Z						9.1	14	5.0	750m	
★1N3679	S	1N4740	1N4728	Z						10	13	20	750m	
★1N3679A	S	1N4740	1N4728	Z						10	13	10	750m	
★1N3679B	S	1N4740A	1N4728	Z						10	13	5.0	750m	
★1N3680	S	1N4741	1N4728	Z						11	12	20	750m	
★1N3680A	S	1N4741	1N4728	Z						11	12	10	750m	
★1N3680B	S	1N4741A	1N4728	Z						11	12	5.0	750m	
★1N3681	S	1N4742	1N4728	Z						12	11	20	750m	
★1N3681A	S	1N4742	1N4728	Z						12	11	10	750m	
★1N3681B	S	1N4742A	1N4728	Z						12	11	5.0	750m	
★1N3682	S	1N4743	1N4728	Z						13	9.5	20	750m	
★1N3682A	S	1N4743	1N4728	Z						13	9.5	10	750m	
★1N3682B	S	1N4743A	1N4728	Z						13	9.5	5.0	750m	
★1N3683	S	1N4744	1N4728	Z						15	8.5	20	750m	
★1N3683A	S	1N4744	1N4728	Z						15	8.5	10	750m	
★1N3683B	S	1N4744A	1N4728	Z						15	8.5	5.0	750m	
★1N3684	S	1N4745	1N4728	Z						16	7.8	20	750m	
★1N3684A	S	1N4745	1N4728	Z						16	7.8	10	750m	
★1N3684B	S	1N4745A	1N4728	Z						16	7.8	5.0	750m	
★1N3685	S	1N4746	1N4728	Z						18	7.0	20	750m	
★1N3685A	S	1N4746	1N4728	Z						18	7.0	10	750m	
★1N3685B	S	1N4746A	1N4728	Z						18	7.0	5.0	750m	
★1N3686	S	1N4747	1N4728	Z						20	6.2	20	750m	
★1N3686A	S	1N4747	1N4728	Z						20	6.2	10	750m	
★1N3686B	S	1N4747A	1N4728	Z						20	6.2	5.0	750m	
★1N3687	S	1N4748	1N4728	Z						22	5.6	20	750m	
★1N3687A	S	1N4748	1N4728	Z						22	5.6	10	750m	
★1N3687B	S	1N4748A	1N4728	Z						22	5.6	5.0	750m	
★1N3688	S	1N4749	1N4728	Z						24	5.2	20	750m	
★1N3688A	S	1N4749	1N4728	Z						24	5.2	10	750m	
★1N3688B	S	1N4749A	1N4728	Z						24	5.2	5.0	750m	
★1N3689	S	1N4750	1N4728	Z						27	4.6	20	750m	
★1N3689A	S	1N4750	1N4728	Z						27	4.6	10	750m	
★1N3689B	S	1N4750A	1N4728	Z						27	4.6	5.0	750m	
★1N3690	S	1N4751	1N4728	Z						30	4.2	20	750m	
★1N3690A	S	1N4751	1N4728	Z						30	4.2	10	750m	
★1N3690B	S	1N4751A	1N4728	Z						30	4.2	5.0	750m	
★1N3691	S	1N4752	1N4728	Z						33	3.8	20	750m	

1N3691A-1N3728

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	T _C V _Z %/°C	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N3691A	S	1N4752	1N4728	Z						33	3.8	10	750m
★1N3691B	S	1N4752A	1N4728	Z						33	3.8	5.0	750m
★1N3692	S	1N4753	1N4728	Z						36	3.4	20	750m
★1N3692A	S	1N4753	1N4728	Z						36	3.4	10	750m
★1N3692B	S	1N4753A	1N4728	Z						36	3.4	5.0	750m
★1N3693	S	1N4754	1N4728	Z						39	3.2	20	750m
★1N3693A	S	1N4754	1N4728	Z						39	3.2	10	750m
★1N3693B	S	1N4754A	1N4728	Z						39	3.2	5.0	750m
★1N3694	S	1N4755	1N4728	Z						43	3.0	20	750m
★1N3694A	S	1N4755	1N4728	Z						43	3.0	10	750m
★1N3694B	S	1N4755A	1N4728	Z						43	3.0	5.0	750m
★1N3695	S	1N4756	1N4728	Z						47	2.7	20	750m
★1N3695A	S	1N4756	1N4728	Z						47	2.7	10	750m
★1N3695B	S	1N4756A	1N4728	Z						47	2.7	5.0	750m
★1N3696	S	1N4757	1N4728	Z						51	2.5	20	750m
★1N3696A	S	1N4757	1N4728	Z						51	2.5	10	750m
★1N3696B	S	1N4757A	1N4728	Z						51	2.5	5.0	750m
★1N3697	S	1N4758	1N4728	Z						56	2.2	20	750m
★1N3697A	S	1N4758	1N4728	Z						56	2.2	10	750m
★1N3697B	S	1N4758A	1N4728	Z						56	2.2	5.0	750m
★1N3698	S	1N4759	1N4728	Z						62	2.0	20	750m
★1N3698A	S	1N4759	1N4728	Z						62	2.0	10	750m
★1N3698B	S	1N4759A	1N4728	Z						62	2.0	5.0	750m
★1N3699	S	1N4760	1N4728	Z						68	1.8	20	750m
★1N3699A	S	1N4760	1N4728	Z						68	1.8	10	750m
★1N3699B	S	1N4760A	1N4728	Z						68	1.8	5.0	750m
★1N3700	S	1N4761	1N4728	Z						75	1.7	20	750m
★1N3700A	S	1N4761	1N4728	Z						75	1.7	10	750m
★1N3700B	S	1N4761A	1N4728	Z						75	1.7	5.0	750m
★1N3701	S	1N4762	1N4728	Z						82	1.5	20	750m
★1N3701A	S	1N4762	1N4728	Z						82	1.5	10	750m
★1N3701B	S	1N4762A	1N4728	Z						82	1.5	5.0	750m
★1N3702	S	1N4763	1N4728	Z						91	1.4	20	750m
★1N3702A	S	1N4763	1N4728	Z						91	1.4	10	750m
★1N3702B	S	1N4763A	1N4728	Z						91	1.4	5.0	750m
★1N3703	S	1N4764	1N4728	Z						100	1.3	20	750m
★1N3703A	S	1N4764	1N4728	Z						100	1.3	10	750m
★1N3703B	S	1N4764A	1N4728	Z						100	1.3	5.0	750m
1N3704	S	1M110ZS10	1N4728	Z						110	1.1	20	750m
1N3704A	S	1M110ZS10	1N4728	Z						110	1.1	10	750m
1N3704B	S	1M110ZS5	1N4728	Z						110	1.1	5.0	750m
1N3705	S	1M120ZS10	1N4728	Z						120	1.0	20	750m
1N3705A	S	1M120ZS10	1N4728	Z						120	1.0	10	750m
1N3705B	S	1M120ZS5	1N4728	Z						120	1.0	5.0	750m
1N3706	S	1M130ZS10	1N4728	Z						130	0.95	20	750m
1N3706A	S	1M130ZS10	1N4728	Z						130	0.95	10	750m
1N3706B	S	1M130ZS5	1N4728	Z						130	0.95	5.0	750m
1N3707	S	1M150ZS10	1N4728	Z						150	0.85	20	750m
1N3707A	S	1M150ZS10	1N4728	Z						150	0.85	10	750m
1N3707B	S	1M150ZS5	1N4728	Z						150	0.85	5.0	750m
1N3708	S	1M160ZS10	1N4728	Z						160	0.80	20	750m
1N3708A	S	1M160ZS10	1N4728	Z						160	0.80	10	750m
1N3708B	S	1M160ZS5	1N4728	Z						160	0.80	5.0	750m
1N3709	S	1M180ZS10	1N4728	Z						180	0.68	20	750m
1N3709A	S	1M180ZS10	1N4728	Z						180	0.68	10	750m
1N3709B	S	1M180ZS5	1N4728	Z						180	0.68	5.0	750m
1N3710	S	1M200ZS10	1N4728	Z						200	0.65	20	750m
1N3710A	S	1M200ZS10	1N4718	Z						200	0.65	10	750m
1N3710B	S	1M200ZS5	1N4728	Z						200	0.65	5.0	750m
1N3711	S			G	6000	11	0.15	0.025	5.0				
1N3712 thru 1N3721	G			T									
1N3722	S			S									
1N3723	S	1N4007	1N4001	G	1000	2.2	20m	0.1*	10				
1N3724	S	MR1-1200	MR1-1200	G	1200	2.2	0.75	0.005	12				
1N3725	S	MR1-1400	MR1-1200	G	1400	2.2	0.75	0.005	12				
1N3726	S	MR1-1600	MR1-1200	G	1600	2.2	0.75	0.005	12				
1N3727	S			G	1800	2.2	0.75	0.005	12				
1N3728	S			S	550	1.2	400m	0.1*					

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N3729 1N3730 1N3731 1N3732 1N3733	S S S S S		1N4728 Table 4	S S S Z M	600 80 80	1.0 1.0 1.0	5.0m 750m 100m	0.1* 0.1* 5.0*	0.5 15 3.0	5.1	40	5.0	1.0W
1N3734 1N3735 1N3736 1N3737 1N3738	S S S S S	MR1231SB MR1233SB MR1235SB MR1237SB	MR1230 MR1230 MR1230 MR1230	D G G G G	100 200 300 400	1.3 1.3 1.3 1.3	250 250 250 250	16 16 16 16	4500 4500 4500 4500				
1N3739 1N3740 1N3741 1N3742 1N3743	S S S S S	MR1238SB MR1239SB	MR1230 MR1230	G G G G G	500 600 800 1000 1200	1.3 1.3 1.3 1.3 1.3	250 250 250 250 250	13 12 9.0 7.0 7.0	4500 4500 4500 4500 4500				
1N3744 1N3745 1N3746 1N3747 1N3748	S S S S S		Table 4 Table 4 Table 4 1N4003	G M M M G	1400	1.3	250	7.0	4500				
1N3749 1N3750 1N3751 1N3752 1N3753	S S S S G	1N4004 1N4005 1N4006 1N4007	1N4001 1N4001 1N4001 1N4001	G G G G S	400 600 800 1000 55	1.5 1.5 1.5 1.5 1.0	0.5 0.5 0.5 0.5 150m	5.0*	20 20 20 20				
1N3754 1N3755 1N3756 1N3757 1N3758	S S S S S	1N4003 1N4004	1N4001 1N4001	G G G G G	100 200 400 200 400	1.2 1.2 1.2 1.0 1.0	0.15 0.15 0.15 1.0 1.0	0.3 0.3 0.3	15 15 15 30 30				
1N3759 1N3760 1N3761 1N3762 1N3763	S S S S S	1N4005 1N4006 1N4007	1N4001 1N4001 1N4001	G G G G R	600 800 1000 5300	1.0 1.0 1.0 1.0	1.0 1.0 1.0 0.065	0.005	30 30 30 15	20	0.002	10	-55/100
1N3764 1N3765 1N3766 1N3767 1N3768	S G G G G			G G G G G	3000 700 800 900 1000	6.5 1.8 1.8 1.8 1.8	0.2 35 35 35 35	0.1 5.0 4.0 3.0 2.0	8.0 400 400 400 400				
1N3769 1N3770 1N3771 1N3772 1N3773	G S S S G		Table 3 Table 6 Table 6	S V 4 4 S	90	0.5	25m	5.0*					
1N3774 1N3775 1N3776 1N3777 1N3778	S S S S S		Table 4	Z G Z S M	1500 40	2.2 1.1	3.3 10m	0.1 0.1*	15 4.0	1.15 10	10 25	2.0 10	0.34W 6.0W
1N3779 1N3780 1N3781 1N3782 1N3783	S S S S S	1N821A 1N821A 1N823A 1N825A 1N827A	1N821 1N821 1N821 1N821 1N821	R R R R R						6.5 6.5 6.5 6.5 6.5	0.015 0.01 0.005 0.002 0.001	7.5 7.5 7.5 7.5 7.5	-55/100 -55/100 -55/100 -55/100 -55/100
1N3784 ★1N3785 ★1N3785A ★1N3785B ★1N3786	S S S S S	1N829A	1N821 1N3785 1N3785 1N3785 1N3785	R Z Z Z Z						6.5 6.8 6.8 6.8 7.5	0.0005 55 55 55 50	7.5 20 10 5.0 20	-55/100 1.5W 1.5W 1.5W 1.5W
★1N3786A ★1N3786B ★1N3787 ★1N3787A ★1N3787B	S S S S S		1N3785 1N3785 1N3785 1N3785 1N3785	Z Z Z Z Z						7.5 7.5 8.2 8.2 8.2	50 50 46 46 46	10 5.0 20 10 5.0	1.5W 1.5W 1.5W 1.5W 1.5W
★1N3788 ★1N3788A ★1N3788B ★1N3789 ★1N3789A	S S S S S		1N3785 1N3785 1N3785 1N3785 1N3785	Z Z Z Z Z						9.1 9.1 9.1 10 10	41 41 41 37 37	20 10 5.0 20 10	1.5W 1.5W 1.5W 1.5W 1.5W

1N3789B-1N3812B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N3789B	S		1N3785	Z						10	37	5.0	1.5W
★1N3790	S		1N3785	Z						11	34	20	1.5W
★1N3790A	S		1N3785	Z						11	34	10	1.5W
★1N3790B	S		1N3785	Z						11	34	5.0	1.5W
★1N3791	S		1N3785	Z						12	31	20	1.5W
★1N3791A	S		1N3785	Z						12	31	10	1.5W
★1N3791B	S		1N3785	Z						12	31	5.0	1.5W
★1N3792	S		1N3785	Z						13	29	20	1.5W
★1N3792A	S		1N3785	Z						13	29	10	1.5W
★1N3792B	S		1N3785	Z						13	29	5.0	1.5W
★1N3793	S		1N3785	Z						15	25	20	1.5W
★1N3793A	S		1N3785	Z						15	25	10	1.5W
★1N3793B	S		1N3785	Z						15	25	5.0	1.5W
★1N3794	S		1N3785	Z						16	23	20	1.5W
★1N3794A	S		1N3785	Z						16	23	10	1.5W
★1N3794B	S		1N3785	Z						16	23	5.0	1.5W
★1N3795	S		1N3785	Z						18	21	20	1.5W
★1N3795A	S		1N3785	Z						18	21	10	1.5W
★1N3795B	S		1N3785	Z						18	21	5.0	1.5W
★1N3796	S		1N3785	Z						20	19	20	1.5W
★1N3796A	S		1N3785	Z						20	19	10	1.5W
★1N3796B	S		1N3785	Z						20	19	5.0	1.5W
★1N3797	S		1N3785	Z						22	17	20	1.5W
★1N3797A	S		1N3785	Z						22	17	10	1.5W
★1N3797B	S		1N3785	Z						22	17	5.0	1.5W
★1N3798	S		1N3785	Z						24	16	20	1.5W
★1N3798A	S		1N3785	Z						24	16	10	1.5W
★1N3798B	S		1N3785	Z						24	16	5.0	1.5W
★1N3799	S		1N3785	Z						27	14	20	1.5W
★1N3799A	S		1N3785	Z						27	14	10	1.5W
★1N3799B	S		1N3785	Z						27	14	5.0	1.5W
★1N3800	S		1N3785	Z						30	12	20	1.5W
★1N3800A	S		1N3785	Z						30	12	10	1.5W
★1N3800B	S		1N3785	Z						30	12	5.0	1.5W
★1N3801	S		1N3785	Z						33	11	20	1.5W
★1N3801A	S		1N3785	Z						33	11	10	1.5W
★1N3801B	S		1N3785	Z						33	11	5.0	1.5W
★1N3802	S		1N3785	Z						36	10	20	1.5W
★1N3802A	S		1N3785	Z						36	10	10	1.5W
★1N3802B	S		1N3785	Z						36	10	5.0	1.5W
★1N3803	S		1N3785	Z						39	10	20	1.5W
★1N3803A	S		1N3785	Z						39	10	10	1.5W
★1N3803B	S		1N3785	Z						39	10	5.0	1.5W
★1N3804	S		1N3785	Z						43	9.0	20	1.5W
★1N3804A	S		1N3785	Z						43	9.0	10	1.5W
★1N3804B	S		1N3785	Z						43	9.0	5.0	1.5W
★1N3805	S		1N3785	Z						47	8.0	20	1.5W
★1N3805A	S		1N3785	Z						47	8.0	10	1.5W
★1N3805B	S		1N3785	Z						47	8.0	5.0	1.5W
★1N3806	S		1N3785	Z						51	7.4	20	1.5W
★1N3806A	S		1N3785	Z						51	7.4	10	1.5W
★1N3806B	S		1N3785	Z						51	7.4	5.0	1.5W
★1N3807	S		1N3785	Z						56	6.7	20	1.5W
★1N3807A	S		1N3785	Z						56	6.7	10	1.5W
★1N3807B	S		1N3785	Z						56	6.7	5.0	1.5W
★1N3808	S		1N3785	Z						62	6.0	20	1.5W
★1N3808A	S		1N3785	Z						62	6.0	10	1.5W
★1N3808B	S		1N3785	Z						62	6.0	5.0	1.5W
★1N3809	S		1N3785	Z						68	5.5	20	1.5W
★1N3809A	S		1N3785	Z						68	5.5	10	1.5W
★1N3809B	S		1N3785	Z						68	5.5	5.0	1.5W
★1N3810	S		1N3785	Z						75	5.0	20	1.5W
★1N3810A	S		1N3785	Z						75	5.0	10	1.5W
★1N3810B	S		1N3785	Z						75	5.0	5.0	1.5W
★1N3811	S		1N3785	Z						82	4.5	20	1.5W
★1N3811A	S		1N3785	Z						82	4.5	10	1.5W
★1N3811B	S		1N3785	Z						82	4.5	5.0	1.5W
★1N3812	S		1N3785	Z						91	4.1	20	1.5W
★1N3812A	S		1N3785	Z						91	4.1	10	1.5W
★1N3812B	S		1N3785	Z						91	4.1	5.0	1.5W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N3813	S		1N3785	Z						100	3.7	20	1.5W
★1N3813A	S		1N3785	Z						100	3.7	10	1.5W
★1N3813B	S		1N3785	Z						100	3.7	5.0	1.5W
★1N3814	S		1N3785	Z						110	3.4	20	1.5W
★1N3814A	S		1N3785	Z						110	3.4	10	1.5W
★1N3814B	S		1N3785	Z						110	3.4	5.0	1.5W
★1N3815	S		1N3785	Z						120	3.1	20	1.5W
★1N3815A	S		1N3785	Z						120	3.1	10	1.5W
★1N3815B	S		1N3785	Z						120	3.1	5.0	1.5W
★1N3816	S		1N3785	Z						130	2.9	20	1.5W
★1N3816A	S		1N3785	Z						130	2.9	10	1.5W
★1N3816B	S		1N3785	Z						130	2.9	5.0	1.5W
★1N3817	S		1N3785	Z						150	2.5	20	1.5W
★1N3817A	S		1N3785	Z						150	2.5	10	1.5W
★1N3817B	S		1N3785	Z						150	2.5	5.0	1.5W
★1N3818	S		1N3785	Z						160	2.3	20	1.5W
★1N3818A	S		1N3785	Z						160	2.3	10	1.5W
★1N3818B	S		1N3785	Z						160	2.3	5.0	1.5W
★1N3819	S		1N3785	Z						180	2.1	20	1.5W
★1N3819A	S		1N3785	Z						180	2.1	10	1.5W
★1N3819B	S		1N3785	Z						180	2.1	5.0	1.5W
★1N3820	S		1N3785	Z						200	1.9	20	1.5W
★1N3820A	S		1N3785	Z						200	1.9	10	1.5W
★1N3820B	S		1N3785	Z						200	1.9	5.0	1.5W
★1N3821	S		1N3821	Z						3.3	76	10	1.0W
★1N3821A	S		1N3821	Z						3.3	76	5.0	1.0W
★1N3822	S		1N3821	Z						3.6	69	10	1.0W
★1N3822A	S		1N3821	Z						3.6	69	5.0	1.0W
★1N3823	S		1N3821	Z						3.9	64	10	1.0W
★1N3823A	S		1N3821	Z						3.9	64	5.0	1.0W
★1N3824	S		1N3821	Z						4.3	58	10	1.0W
★1N3824A	S		1N3821	Z						4.3	58	5.0	1.0W
★1N3825	S		1N3821	Z						4.7	53	10	1.0W
★1N3825A	S		1N3821	Z						4.7	53	5.0	1.0W
★1N3826	S		1N3821	Z						5.1	49	10	1.0W
★1N3826A	S		1N3821	Z						5.1	49	5.0	1.0W
★1N3827	S		1N3821	Z						5.6	45	10	1.0W
★1N3827A	S		1N3821	Z						5.6	45	5.0	1.0W
★1N3828	S		1N3821	Z						6.2	41	10	1.0W
★1N3828A	S		1N3821	Z						6.2	41	5.0	1.0W
★1N3829	S		1N3821	Z						6.8	37	10	1.0W
★1N3829A	S		1N3821	Z						6.8	37	5.0	1.0W
★1N3830	S		1N3821	Z						7.5	34	10	1.0W
★1N3830A	S		1N3821	Z						7.5	34	5.0	1.0W
1N3831			Table 6	4									
thru 1N3846 1N3847 thru 1N3860	G		Table 6	4 T T									
1N3861	G			T									
1N3862	G			T									
1N3863	G			T									
1N3864	S			S		125	1.5	200m	1.0n				
1N3865	G			S		80		100m	15*	0.9			
1N3866	S	1N4003	1N4001	G		200	1.5	1.0	0.05	25			
1N3867	S	1N4004	1N4001	G		400	1.5	1.0	0.5	25			
1N3868	S	1N4005	1N4001	G		600	1.5	1.0	0.05	25			
1N3869	S	1N5007	1N4001	G		1000	3.0	0.5	0.05	10			
1N3870	G	MR1-1600	MR1-1200	G		1500	3.0	0.5	0.05	10			
1N3871	S			G		2500	6.0	0.25	0.05	5.0			
1N3872	S			S		90	1.0	150m	0.1*	15			
1N3873	S			S		50	1.14	0.2	0.1*	4.0			
1N3874	G			G		50	1.5	6.0	3.0	75			
1N3875	G			G		100	1.5	6.0	3.0	75			
1N3876	S			G		200	1.5	6.0	3.0	75			
1N3877	S			G		300	1.5	6.0	3.0	75			
1N3878	S			G		400	1.5	6.0	3.0	75			
★1N3879	S		1N3879	F		50	1.5	6.0	3.0	150			
★1N3880	S		1N3879	F		150	1.5	6.0	3.0	150			

1N3881-1N3950

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N3881	S		1N3879	F	200	1.5	6.0	3.0	150					
★1N3882	S		1N3879	F	300	1.5	6.0	3.0	150					
★1N3883	S		1N3879	F	400	1.5	6.0	3.0	150					
1N3884	S			G	50	1.5	12	3.0	150					
1N3885	S			G	100	1.5	12	3.0	150					
1N3886	S			G	200	1.5	12	3.0	150					
1N3887	S			G	300	1.5	12	3.0	150					
1N3888	S			G	400	1.5	12	3.0	150					
★1N3889	S		1N3889	F	50	1.5	12	3.0	200					
★1N3890	S		1N3889	F	100	1.5	12	3.0	200					
★1N3891	S		1N3889	F	200	1.5	12	3.0	200					
★1N3892	S		1N3889	F	300	1.5	12	3.0	200					
★1N3893	S		1N3889	F	400	1.5	12	3.0	200					
1N3894	S			S	400	1.0	400m	0.2*						
1N3895	S			S	350	1.0	200m	0.5*						
1N3896	S	1N5221B	1N5221	Z						0.77	50	5.0	250m	
1N3897	S			Z						1.5	30	5.0	250m	
1N3898	S			Z						2.0	20	5.0	250m	
★1N3899	S			F			50	1.5	20	6.0	250			
★1N3900	S			F			100	1.5	20	6.0	250			
★1N3901	S		1N3899	F	200	1.5	20	6.0	250					
★1N3902	S		1N3899	F	300	1.5	20	6.0	250					
★1N3903	S		1N3899	F	400	1.5	20	6.0	250					
1N3904	S			G	50	1.5	20	6.0	225					
1N3905	S			G	100	1.5	20	6.0	225					
1N3906	S			G	200	1.5	20	6.0	225					
1N3907	S			G	300	1.5	20	6.0	225					
1N3908	S			G	400	1.5	20	6.0	225					
★1N3909	S		1N3909	F	50	1.5	30	10	300					
★1N3910	S		1N3909	F	100	1.5	30	10	300					
★1N3911	S		1N3909	F	200	1.5	30	10	300					
★1N3912	S		1N3909	F	300	1.5	30	10	300					
★1N3913	S		1N3909	F	400	1.5	30	10	300					
1N3914	S			G	50	1.5	30	10	300					
1N3915	S			G	100	1.5	30	10	300					
1N3916	S			G	200	1.5	30	10	300					
1N3917	S			G	300	1.5	30	10	300					
1N3918	S			G	400	1.5	30	10	300					
1N3919	S			G	1000	2.0	5.0	0.5	100					
1N3920	S			G	1500	2.0	5.0	0.5	100					
1N3921	S			G	2000	2.0	5.0	0.5	100					
1N3922	S			G	2500	2.0	5.0	0.5	100					
1N3923	S			G	3000	2.0	5.0	0.5	100					
1N3924	S			G	1000	2.0	10	0.5	100					
1N3925	S			G	1500	2.0	10	0.5	100					
1N3926	S			G	2000	2.0	10	0.5	100					
1N3927	S			G	2500	2.0	10	0.5	100					
1N3928	S			G	3000	2.0	10	0.5	100					
1N3929	S			S	1000	2.0	1.0	10*						
1N3930	S			S	1500	2.0	1.0	10*						
1N3931	S			S	2000	2.0	1.0	10*						
1N3932	S			S	1500	2.0	1.0	10*						
1N3933	S			S	3000	2.0	1.0	10*						
1N3934	S			G	1200	2.5	1.0	0.4	50					
1N3935	S		Table 6	4										
thru 1N3937			Table 6	4										
1N3938	S	1N4003	1N4001	G	200	1.1	2.0	0.4	30					
1N3939	S	1N4004	1N4001	G	400	1.1	2.0	0.2	30					
1N3940	S	1N4005	1N4001	G	600	1.1	2.0	0.2	30					
1N3941	S	1N4006	1N4001	G	800	1.5	2.0	0.2	30					
1N3942	S	1N4007	1N4001	G	1000	1.5	2.0	0.2	30					
1N3943	S			S	30	2.5	300m	100*						
1N3944	G			S	15	0.75	10m	2.5*	12					
1N3945	G			V										
thru 1N3947			Table 3	V										
1N3948	S		Table 3	T										
1N3949	S	1N2984B	1N2970	Z						20	250	5.0	10W	
1N3950	S	1N3796B	1N3785	Z						20	19	5.0	1.5W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amps	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N3951	S	15M25Z5		Z						25	15	5.0	1.5W
1N3952	S			S	130	0.74	10m	25n					
1N3953	G			S	40	0.5	35m	50*	300				
1N3954	S			S	50	1.0	200m	0.1*	4.0				
1N3955	S			G	100	1.3	70	15	1200				
1N3956	S			S	40	0.55	100*	0.05*	2.0				
1N3957	S			S	1000	1.0	400m	10*					
1N3958	S	1N3880	1N4933	G	100	1.3	3.5	0.4	35				
1N3959	S	1N3881	1N4933	G	200	1.3	3.5	0.4	35				
1N3960	S	1N3882	1N4933	G	300	1.3	3.5	0.4	35				
1N3961	S	1N3883	1N4933	G	400	1.3	3.5	0.4	35				
1N3962	S	MR1366	1N4933	G	500	1.3	3.5	0.4	35				
1N3963	S	MR1366	1N4933	G	600	1.3	3.5	0.4	35				
1N3964	S			G	200	1.6	22	1.0	200				
1N3965	S			G	400	1.6	22	1.0	200				
1N3966	S			G	600	1.6	22	1.0	200				
1N3967	S			G	800	1.6	22	1.0	200				
1N3968	S			G	200	1.6	50	2.0	600				
1N3969	S			G	400	1.6	50	2.0	600				
1N3970	S			G	600	1.6	50	2.0	600				
1N3971	S			G	800	1.6	50	2.0	600				
1N3972	S			G	200	1.5	104	5.0	1500				
1N3973	S			G	400	1.5	104	5.0	1500				
1N3974	S			G	600	1.5	104	5.0	1500				
1N3975	S			G	800	1.5	104	5.0	1500				
1N3976	S			G	200	1.5	250	10	4000				
1N3977	S			G	400	1.5	250	10	4000				
1N3978	S			G	600	1.5	250	10	4000				
1N3979	S			G	800	1.5	250	10	4000				
1N3981	S			S	200	1.0	900m	0.01m					
1N3982	S			S	400	1.0	900m	0.01m					
1N3983	S			S	600	1.0	900m	0.01m					
1N3984	S	1N3997A	1N3993	Z						5.5	1000	5.0	10W
1N3985	S	1N3998A	1N3993	Z						6.0	1000	5.0	10W
1N3986	S	1N3998A	1N3993	Z						6.2	805	5.0	10W
1N3987	S			G	700	1.4	6.0	0.9	150				
1N3988	S	MR1128	MR1120	G	800	1.4	6.0	0.8	150				
1N3989	S	MR1130	MR1120	G	900	1.4	6.0	0.7	150				
1N3990	S	MR1130	MR1120	G	1000	1.4	6.0	0.6	150				
1N3991	G			S	35	0.55	30m	1.0m	1.0				
1N3992	S			S	4000	5.0	250m	5.0*					
★1N3993	S		1N3993	Z						3.9	640	10	10W
★1N3993A	S		1N3993	Z						3.9	640	5.0	10W
★1N3994	S		1N3993	Z						4.3	580	10	10W
★1N3994A	S		1N3993	Z						4.3	580	5.0	10W
★1N3995	S		1N3993	Z						4.7	530	10	10W
★1N3995A	S		1N3993	Z						4.7	530	5.0	10W
★1N3996	S		1N3993	Z						5.1	490	10	10W
★1N3996A	S		1N3993	Z						5.1	490	5.0	10W
★1N3997	S		1N3993	Z						5.6	445	10	10W
★1N3997A	S		1N3993	Z						5.6	445	5.0	10W
★1N3998	S		1N3993	Z						6.2	405	10	10W
★1N3998A	S		1N3993	Z						6.2	405	5.0	10W
★1N3999	S		1N3993	Z						6.8	370	10	10W
★1N3999A	S		1N3993	Z						6.8	370	5.0	10W
★1N4000	S		1N3993	Z						7.5	335	10	10W
★1N4000A	S		1N3993	Z						7.5	335	5.0	10W
★1N4001	S		1N4001	G	50	1.1	1.0	0.03	30				
★1N4002	S		1N4001	G	100	1.1	1.0	0.03	30				
★1N4003	S		1N4001	G	200	1.1	1.0	0.03	30				
★1N4004	S		1N4001	G	400	1.1	1.0	0.03	30				
★1N4005	S		1N4001	G	600	1.1	1.0	0.03	30				
★1N4006	S		1N4001	G	800	1.1	1.0	0.03	30				
★1N4007	S		1N4001	G	1000	1.1	1.0	0.03	30				
1N4008	G			S	12	0.5	10m	0.1m	70				
1N4009	S	1N821	1N821	S	25	1.0	30m	0.1m	4.0				
1N4010	S			R						6.2	0.01	7.5	25/100
1N4011	S			G	1000	1.1	0.5	0.2	30				
1N4012	S			G	700	1.3	12	1.0	200				
1N4013	S			G	800	1.3	12	1.0	200				

1N4014-1N4038A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N4014	S			G	900	1.3	12	1.0	200				
1N4015	S			Z	1000	1.3	12	1.0	200				
1N4016	S	1N2972	1N2970	Z						8.2	150	20	5.0W
1N4016A	S	1N2972A	1N2970	Z						8.2	150	10	5.0W
1N4016B	S	1N2972B	1N2970	Z						8.2	150	5.0	5.0W
1N4017	S	1N2973	1N2970	Z						9.1	135	20	5.0W
1N4017A	S	1N2973A	1N2970	Z						9.1	135	10	5.0W
1N4017B	S	1N2973B	1N2970	Z						9.1	135	5.0	5.0W
1N4018	S	1N2974	1N2970	Z						10	125	20	5.0W
1N4018A	S	1N2974A	1N2970	Z						10	125	10	5.0W
1N4018B	S	1N2974B	1N2970	Z						10	125	5.0	5.0W
1N4019	S	1N2975	1N2970	Z						11	115	20	5.0W
1N4019A	S	1N2975A	1N2970	Z						11	115	10	5.0W
1N4019B	S	1N2975B	1N2970	Z						11	115	5.0	5.0W
1N4020	S	1N2976	1N2970	Z						12	105	20	5.0W
1N4020A	S	1N2976A	1N2970	Z						12	105	10	5.0W
1N4020B	S	1N2976B	1N2970	Z						12	105	5.0	5.0W
1N4021	S	1N2977	1N2970	Z						13	95	20	5.0W
1N4021A	S	1N2977A	1N2970	Z						13	95	10	5.0W
1N4021B	S	1N2977B	1N2970	Z						13	95	5.0	5.0W
1N4022	S	1N2979	1N2970	Z						15	85	20	5.0W
1N4022A	S	1N2979A	1N2970	Z						15	85	10	5.0W
1N4022B	S	1N2979B	1N2970	Z						15	85	5.0	5.0W
1N4023	S	1N2980	1N2970	Z						16	80	20	5.0W
1N4023A	S	1N2980A	1N2970	Z						16	80	10	5.0W
1N4023B	S	1N2980B	1N2970	Z						16	80	5.0	5.0W
1N4024	S	1N2982	1N2970	Z						18	70	20	5.0W
1N4024A	S	1N2982A	1N2970	Z						18	70	10	5.0W
1N4024B	S	1N2982B	1N2970	Z						18	70	5.0	5.0W
1N4025	S	1N2984	1N2970	Z						20	65	20	5.0W
1N4025A	S	1N2984A	1N2970	Z						20	65	10	5.0W
1N4025B	S	1N2984B	1N2970	Z						20	65	5.0	5.0W
1N4026	S	1N2985	1N2970	Z						22	55	20	5.0W
1N4026A	S	1N2985A	1N2970	Z						22	55	10	5.0W
1N4026B	S	1N2985B	1N2970	Z						22	55	5.0	5.0W
1N4027	S	1N2986	1N2970	Z						24	50	20	5.0W
1N4027A	S	1N2986A	1N2970	Z						24	50	10	5.0W
1N4027B	S	1N2986B	1N2970	Z						24	50	5.0	5.0W
1N4028	S	1N2988	1N2970	Z						27	45	20	5.0W
1N4028A	S	1N2988A	1N2970	Z						27	45	10	5.0W
1N4028B	S	1N2988B	1N2970	Z						27	45	5.0	5.0W
1N4029	S	1N2989	1N2970	Z						30	42	20	5.0W
1N4029A	S	1N2989A	1N2970	Z						30	42	10	5.0W
1N4029B	S	1N2989B	1N2970	Z						30	42	5.0	5.0W
1N4030	S	1N2990	1N2970	Z						33	38	20	5.0W
1N4030A	S	1N2990A	1N2970	Z						33	38	10	5.0W
1N4030B	S	1N2990B	1N2970	Z						33	38	5.0	5.0W
1N4031	S	1N2991	1N2970	Z						36	35	20	5.0W
1N4031A	S	1N2991A	1N2970	Z						36	35	10	5.0W
1N4031B	S	1N2991B	1N2970	Z						36	35	5.0	5.0W
1N4032	S	1N2992	1N2970	Z						39	32	20	5.0W
1N4032A	S	1N2992A	1N2970	Z						39	32	10	5.0W
1N4032B	S	1N2992B	1N2970	Z						39	32	5.0	5.0W
1N4033	S	1N2993	1N2970	Z						43	29	20	5.0W
1N4033A	S	1N2993A	1N2970	Z						43	29	10	5.0W
1N4033B	S	1N2993B	1N2970	Z						43	29	5.0	5.0W
1N4034	S	1N2995	1N2970	Z						47	27	20	5.0W
1N4034A	S	1N2995A	1N2970	Z						47	27	10	5.0W
1N4034B	S	1N2995B	1N2970	Z						47	27	5.0	5.0W
1N4035	S	1N2997	1N2970	Z						51	25	20	5.0W
1N4035A	S	1N2997A	1N2970	Z						51	25	10	5.0W
1N4035B	S	1N2997B	1N2970	Z						51	25	5.0	5.0W
1N4036	S	1N2999	1N2970	Z						56	22	20	5.0W
1N4036A	S	1N2999A	1N2970	Z						56	22	10	5.0W
1N4036B	S	1N2999B	1N2970	Z						56	22	5.0	5.0W
1N4037	S	1N3000	1N2970	Z						62	20	20	5.0W
1N4037A	S	1N3000A	1N2970	Z						62	20	10	5.0W
1N4037B	S	1N3000B	1N2970	Z						62	20	5.0	5.0W
1N4038	S	1N3001	1N2970	Z						68	18	20	5.0W
1N4038A	S	1N3001A	1N2970	Z						68	18	10	5.0W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol V _Z %	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA		
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
1N4038B	S	1N3001B	1N2970	Z						68	18	5.0	5.0W
1N4039	S	1N3002	1N2970	Z						75	17	20	5.0W
1N4039A	S	1N3002A	1N2970	Z						75	17	10	5.0W
1N4039B	S	1N3002B	1N2970	Z						75	17	5.0	5.0W
1N4040	S	1N3003	1N2970	Z						82	15	20	5.0W
1N4040A	S	1N3003A	1N2970	Z						82	15	10	5.0W
1N4040B	S	1N3003B	1N2970	Z						82	15	5.0	5.0W
1N4041	S	1N3004	1N2970	Z						91	14	20	5.0W
1N4041A	S	1N3004A	1N2970	Z						91	14	10	5.0W
1N4041B	S	1N3004B	1N2970	Z						91	14	5.0	5.0W
1N4042	S	1N3005	1N2970	Z						100	13	20	5.0W
1N4042A	S	1N3005A	1N2970	Z						100	13	10	5.0W
1N4042B	S	1N3005B	1N2970	Z						100	13	5.0	5.0W
1N4043	S			S									
1N4044	S	MR1230SB	MR1230	S	25	1.0	275	0.1*	2.0				
				G	50	1.35	275	15	5000				
1N4045	S	MR1231SB	MR1230	G	100	1.35	275	15	5000				
1N4046	S	MR1232SB	MR1230	G	150	1.35	275	15	5000				
1N4047	S	MR1233SB	MR1230	G	200	1.35	275	15	5000				
1N4048	S	MR1234SB	MR1230	G	250	1.35	275	15	5000				
1N4049	S	MR1235SB	MR1230	G	300	1.35	275	15	5000				
1N4050	S	MR1237SB	MR1230	G	400	1.35	275	15	5000				
1N4051	S	MR1238SB	MR1230	G	500	1.35	275	15	5000				
1N4052	S	MR1239SB	MR1230	G	600	1.35	275	15	5000				
1N4053	S			G	700	1.35	275	15	5000				
1N4054	S			G	800	1.35	275	15	5000				
1N4055	S			G	900	1.35	275	15	5000				
1N4056	S			G	1000	1.35	275	15	5000				
★1N4057	S		1N429	R						12.4	0.005	10	-55/100
★1N4057A	S		1N429	R						12.4	0.002	10	-55/100
★1N4058	S		1N429	R						14.6	0.005	10	-55/100
★1N4058A	S		1N429	R						14.6	0.002	10	-55/100
★1N4059	S		1N429	R						16.8	0.005	10	-55/100
★1N4059A	S		1N429	R						16.8	0.002	10	-55/100
★1N4060	S		1N429	R						18.5	0.005	10	-55/100
★1N4060A	S		1N429	R						18.5	0.002	10	-55/100
★1N4061	S		1N429	R						21	0.005	10	-55/100
★1N4061A	S		1N429	R						21	0.002	10	-55/100
★1N4062	S		1N429	R						23	0.005	10	-55/100
★1N4062A	S		1N429	R						23	0.002	10	-55/100
★1N4063	S		1N429	R						27	0.005	10	-55/100
★1N4063A	S		1N429	R						27	0.002	10	-55/100
★1N4064	S		1N429	R						30	0.005	10	-55/100
★1N4064A	S		1N429	R						30	0.002	10	-55/100
★1N4065	S		1N429	R						33	0.005	10	-55/100
★1N4065A	S		1N429	R						33	0.002	10	-55/100
★1N4066	S		1N429	R						37	0.005	7.5	-55/100
★1N4066A	S		1N429	R						37	0.002	7.5	-55/100
★1N4067	S		1N429	R						43	0.005	7.5	-55/100
★1N4067A	S		1N429	R						43	0.002	7.5	-55/100
★1N4068	S		1N429	R						47	0.005	7.5	-55/100
★1N4068A	S		1N429	R						47	0.002	7.5	-55/100
★1N4069	S		1N429	R						51	0.005	7.5	-55/100
★1N4069A	S		1N429	R						51	0.002	7.5	-55/100
★1N4070	S		1N429	R						56	0.005	7.5	-55/100
★1N4070A	S		1N429	R						56	0.002	7.5	-55/100
★1N4071	S		1N429	R						62	0.005	7.5	-55/100
★1N4071A	S		1N429	R						62	0.002	7.5	-55/100
★1N4072	S		1N429	R						68	0.005	5.0	-55/100
★1N4072A	S		1N429	R						68	0.002	5.0	-55/100
★1N4073	S		1N429	R						75	0.005	5.0	-55/100
★1N4073A	S		1N429	R						75	0.002	5.0	-55/100
★1N4074	S		1N429	R						82	0.005	5.0	-55/100
★1N4074A	S		1N429	R						82	0.002	5.0	-55/100
★1N4075	S		1N429	R						87	0.005	5.0	-55/100
★1N4075A	S		1N429	R						87	0.002	5.0	-55/100
★1N4076	S		1N429	R						91	0.005	5.0	-55/100
★1N4076A	S		1N429	R						91	0.002	5.0	-55/100
★1N4077	S		1N429	R						100	0.002	5.0	-55/100
★1N4077A	S		1N429	R						100	0.002	5.0	-55/100
★1N4078	S		1N429	R						105	0.005	2.5	-55/100

1N4078A-1N4140

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	I _C %/°C	I _{ZT} mA	Temp Range °C					
★1N4078A	S		1N429	R						105	0.002	2.5	-55/100
★1N4079	S		1N429	R						110	0.005	2.5	-55/100
★1N4079A	S		1N429	R						110	0.002	2.5	-55/100
★1N4080	S		1N429	R						120	0.005	2.5	-55/100
★1N4080A	S		1N429	R						120	0.002	2.5	-55/100
★1N4081	S		1N429	R						130	0.005	2.5	-55/100
★1N4081A	S		1N429	R						130	0.002	2.5	-55/100
★1N4082	S		1N429	R						140	0.005	2.5	-55/100
★1N4082A	S		1N429	R						140	0.002	2.5	-55/100
★1N4083	S		1N429	R						150	0.005	2.5	-55/100
★1N4083A	S		1N429	R						150	0.002	2.5	-55/100
★1N4084	S		1N429	R						175	0.005	2.5	-55/100
★1N4084A	S		1N429	R						175	0.002	2.5	-55/100
★1N4085	S		1N429	R						200	0.005	2.5	-55/100
★1N4085A	S		1N429	R						200	0.002	2.5	-55/100
1N4086	S			S	70	1.0	200m	0.25m	200				
1N4087	S			S	50	0.975	30m	90m	2.5				
1N4088	G			S	30	1.0	100m	0.2m					
1N4089	S			G	400	1.2	400	0.2	75				
1N4090	G			B									
1N4091	S		Table 3	V									
1N4092	S			S									
1N4093	S			S	50	1.0	5.0m	1.0*					
1N4094	S	1N2624B	1N2620	R		1.0	5.0m	1.0		9.6			
1N4095	S	1N5231A	1N5221	Z						5.0	5.0	10	330m
1N4096	S	1N4763A	1N4728	Z						90	8.0	5.0	3.0W
1N4097	S	1N4764A	1N4728	Z						100	5.0	5.0	3.0W
1N4098	S	1M150ZS5	1N4728	Z						150	5.0	5.0	3.0W
★1N4099	S		1N4099	Z						6.8	0.25	5.0	250m
★1N4100	S		1N4099	Z						7.5	0.25	5.0	250m
★1N4101	S		1N4099	Z						8.2	0.25	5.0	250m
★1N4102	S		1N4099	Z						8.7	0.25	5.0	250m
★1N4103	S		1N4099	Z						9.1	0.25	5.0	250m
★1N4104	S		1N4099	Z						10	0.25	5.0	250m
★1N4105	S		1N4099	Z						11	0.25	5.0	250m
★1N4106	S		1N4099	Z						12	0.25	5.0	250m
★1N4107	S		1N4099	Z						13	0.25	5.0	250m
★1N4108	S		1N4099	Z						14	0.25	5.0	250m
★1N4109	S		1N4099	Z						15	0.25	5.0	250m
★1N4110	S		1N4099	Z						16	0.25	5.0	250m
★1N4111	S		1N4099	Z						17	0.25	5.0	250m
★1N4112	S		1N4099	Z						18	0.25	5.0	250m
★1N4113	S		1N4099	Z						19	0.25	5.0	250m
★1N4114	S		1N4099	Z						20	0.25	5.0	250m
★1N4115	S		1N4099	Z						22	0.25	5.0	250m
★1N4116	S		1N4099	Z						24	0.25	5.0	250m
★1N4117	S		1N4099	Z						25	0.25	5.0	250m
★1N4118	S		1N4099	Z						27	0.25	5.0	250m
★1N4119	S		1N4099	Z						28	0.25	5.0	250m
★1N4120	S		1N4099	Z						30	0.25	5.0	250m
★1N4121	S		1N4099	Z						33	0.25	5.0	250m
★1N4122	S		1N4099	Z						36	0.25	5.0	250m
★1N4123	S		1N4099	Z						39	0.25	5.0	250m
★1N4124	S		1N4099	Z						43	0.25	5.0	250m
★1N4125	S		1N4099	Z						47	0.25	5.0	250m
★1N4126	S		1N4099	Z						51	0.25	5.0	250m
★1N4127	S		1N4099	Z						56	0.25	5.0	250m
★1N4128	S		1N4099	Z						60	0.25	5.0	250m
★1N4129	S		1N4099	Z						62	0.25	5.0	250m
★1N4130	S		1N4099	Z						68	0.25	5.0	250m
★1N4131	S		1N4099	Z						75	0.25	5.0	250m
★1N4132	S		1N4099	Z						82	0.25	5.0	250m
★1N4133	S		1N4099	Z						87	0.25	5.0	250m
★1N4134	S		1N4099	Z						91	0.25	5.0	250m
★1N4135	S		1N4099	Z						100	0.25	5.0	250m
1N4136	S			G	200	1.6	70	16	750				
1N4137	S			G	400	1.6	70	12	750				
1N4138	S			G	600	1.6	70	8.0	750				
1N4139	S	1N4719	1N4719	G	50	1.0	3.0	0.1	300				
1N4140	S	1N4720	1N4719	G	100	1.0	3.0	0.1	300				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N4141	S	1N4721	1N4719	G	200	1.0	3.0	0.1	300				
1N4142	S	1N4722	1N4719	G	400	1.0	3.0	0.1	300				
1N4143	S	1N4723	1N4719	G	600	1.0	3.0	0.1	300				
1N4144	S	1N4724	1N4719	G	800	1.0	3.0	0.1	300				
1N4145	S	1N4725	1N4719	G	1000	1.0	3.0	0.1	300				
1N4146	S			G	1200	1.0	3.0	0.1	300				
1N4147	S			S	30	1.0	30m	0.1*	10				
1N4148	S			S	75	1.0	10m	25n	4.0				
1N4149	S			S	75	1.0	10m	25n	4.0				
1N4150	S			S	50	1.0	200m	0.1*	6.0				
1N4151	S			S	50	1.0	50m	50n	2.0				
1N4152	S			S	30	0.88	20m	50n	2.0				
1N4153	S			S	50	0.88	20m	50n	2.0				
1N4154	S			S	25	1.0	30m	0.1*	4.0				
1N4155	S			S	400	1.0	100m	0.1*	10				
1N4156	S			S	20	1.84	0.1	50n					
1N4157	S			S	20	2.66	0.1	50n					
1N4158	S	1N4736	1N4728	Z						6.8	37	20	1.0W
1N4158A	S	1N4736	1N4728	Z						6.8	37	10	1.0W
1N4158B	S	1N4736A	1N4728	Z						6.8	37	5.0	1.0W
1N4159	S	1N4737	1N4728	Z						7.5	34	20	1.0W
1N4159A	S	1N4737	1N4728	Z						7.5	34	10	1.0W
1N4159B	S	1N4737A	1N4728	Z						7.5	34	5.0	1.0W
1N4160	S	1N4738	1N4728	Z						8.2	31	20	1.0W
1N4160A	S	1N4738	1N4728	Z						8.2	31	10	1.0W
1N4160B	S	1N4738A	1N4728	Z						8.2	31	5.0	1.0W
1N4161	S	1N4739	1N4728	Z						9.1	28	20	1.0W
1N4161A	S	1N4739	1N4728	Z						9.1	28	10	1.0W
1N4161B	S	1N4739A	1N4728	Z						9.1	28	5.0	1.0W
1N4162	S	1N4740	1N4728	Z						10	25	20	1.0W
1N4162A	S	1N4740	1N4728	Z						10	25	10	1.0W
1N4162B	S	1N4740A	1N4728	Z						10	25	5.0	1.0W
1N4163	S	1N4741	1N4728	Z						11	23	20	1.0W
1N4163A	S	1N4741	1N4728	Z						11	23	10	1.0W
1N4163B	S	1N4741A	1N4728	Z						11	23	5.0	1.0W
1N4164	S	1N4742	1N4728	Z						12	21	20	1.0W
1N4164A	S	1N4742	1N4728	Z						12	21	10	1.0W
1N4164B	S	1N4742A	1N4728	Z						12	21	5.0	1.0W
1N4165	S	1N4743	1N4728	Z						13	19	20	1.0W
1N4165A	S	1N4743	1N4728	Z						13	19	10	1.0W
1N4165B	S	1N4743A	1N4728	Z						13	19	5.0	1.0W
1N4166	S	1N4744	1N4728	Z						15	17	20	1.0W
1N4166A	S	1N4744	1N4728	Z						15	17	10	1.0W
1N4166B	S	1N4744A	1N4728	Z						15	17	5.0	1.0W
1N4167	S	1N4745	1N4728	Z						16	16	20	1.0W
1N4167A	S	1N4745	1N4728	Z						16	16	10	1.0W
1N4167B	S	1N4745A	1N4728	Z						16	16	5.0	1.0W
1N4168	S	1N4746	1N4728	Z						18	14	20	1.0W
1N4168A	S	1N4746	1N4728	Z						18	14	10	1.0W
1N4168B	S	1N4746A	1N4728	Z						18	14	5.0	1.0W
1N4169	S	1N4747	1N4728	Z						20	13	20	1.0W
1N4169A	S	1N4747	1N4728	Z						20	13	10	1.0W
1N4169B	S	1N4747A	1N4728	Z						20	13	5.0	1.0W
1N4170	S	1N4748	1N4728	Z						22	12	20	1.0W
1N4170A	S	1N4748	1N4728	Z						22	12	10	1.0W
1N4170B	S	1N4748A	1N4728	Z						22	12	5.0	1.0W
1N4171	S	1N4749	1N4728	Z						24	11	20	1.0W
1N4171A	S	1N4749	1N4728	Z						24	11	10	1.0W
1N4171B	S	1N4749A	1N4728	Z						24	11	5.0	1.0W
1N4172	S	1N4750	1N4718	Z						27	9.5	20	1.0W
1N4172A	S	1N4750	1N4728	Z						27	9.5	10	1.0W
1N4172B	S	1N4750A	1N4728	Z						27	9.5	5.0	1.0W
1N4173	S	1N4751	1N4728	Z						30	8.5	20	1.0W
1N4173A	S	1N4751	1N4728	Z						30	8.5	10	1.0W
1N4173B	S	1N4751A	1N4728	Z						30	8.5	5.0	1.0W
1N4174	S	1N4752	1N4728	Z						33	7.5	20	1.0W
1N4174A	S	1N4752	1N4728	Z						33	7.5	10	1.0W
1N4174B	S	1N4752A	1N4728	Z						33	7.5	5.0	1.0W
1N4175	S	1N4753	1N4728	Z						36	7.0	20	1.0W
1N4175A	S	1N4753	1N4728	Z						36	7.0	10	1.0W

1N4175B-1N4198B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ± %	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
PRV Volts	V _F Volts	@ f	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N4175B	S	1N4753A	1N4728	Z							36	7.0	5.0	1.0W
1N4176	S	1N4754	1N4728	Z							39	6.5	20	1.0W
1N4176A	S	1N4754	1N4728	Z							39	6.5	10	1.0W
1N4176B	S	1N4754A	1N4728	Z							39	6.5	5.0	1.0W
1N4177	S	1N4755	1N4728	Z							43	6.0	20	1.0W
1N4177A	S	1N4755	1N4728	Z							43	6.0	10	1.0W
1N4177B	S	1N4755A	1N4728	Z							43	6.0	5.0	1.0W
1N4178	S	1N4756	1N4728	Z							47	5.5	20	1.0W
1N4178A	S	1N4756	1N4728	Z							47	5.5	10	1.0W
1N4178B	S	1N4756A	1N4728	Z							47	5.5	5.0	1.0W
1N4179	S	1N4757	1N4728	Z							51	5.0	20	1.0W
1N4179A	S	1N4757	1N4728	Z							51	5.0	10	1.0W
1N4179B	S	1N4757A	1N4728	Z							51	5.0	5.0	1.0W
1N4180	S	1N4758	1N4728	Z							56	4.5	20	1.0W
1N4180A	S	1N4758	1N4728	Z							56	4.5	10	1.0W
1N4180B	S	1N4758A	1N4728	Z							56	4.5	5.0	1.0W
1N4181	S	1N4759	1N4728	Z							62	4.0	20	1.0W
1N4181A	S	1N4759	1N4728	Z							62	4.0	10	1.0W
1N4181B	S	1N4759A	1N4728	Z							62	4.0	5.0	1.0W
1N4182	S	1N4760	1N4728	Z							68	3.7	20	1.0W
1N4182A	S	1N4760	1N4728	Z							68	3.7	10	1.0W
1N4182B	S	1N4760A	1N4728	Z							68	3.7	5.0	1.0W
1N4183	S	1N4761	1N4728	Z							75	3.3	20	1.0W
1N4183A	S	1N4761	1N4728	Z							75	3.3	10	1.0W
1N4183B	S	1N4761A	1N4728	Z							75	3.3	5.0	1.0W
1N4184	S	1N4762	1N4728	Z							82	3.0	20	1.0W
1N4184A	S	1N4762	1N4728	Z							82	3.0	10	1.0W
1N4184B	S	1N4762A	1N4728	Z							82	3.0	5.0	1.0W
1N4185	S	1N4763	1N4728	Z							91	2.8	20	1.0W
1N4185A	S	1N4763	1N4728	Z							91	2.8	10	1.0W
1N4185B	S	1N4763A	1N4728	Z							91	2.8	5.0	1.0W
1N4186	S	1N4764	1N4728	Z							100	2.5	20	1.0W
1N4186A	S	1N4764	1N4728	Z							100	2.5	10	1.0W
1N4186B	S	1N4764A	1N4728	Z							100	2.5	5.0	1.0W
1N4187	S		1N4728	Z							110	2.3	20	1.0W
1N4187A	S		1N4728	Z							110	2.3	10	1.0W
1N4187B	S		1N4728	Z							110	2.3	5.0	1.0W
1N4188	S		1N4728	Z							120	2.0	20	1.0W
1N4188A	S		1N4728	Z							120	2.0	10	1.0W
1N4188B	S		1N4728	Z							120	2.0	5.0	1.0W
1N4189	S		1N4728	Z							130	1.9	20	1.0W
1N4189A	S		1N4728	Z							130	1.9	10	1.0W
1N4189B	S		1N4728	Z							130	1.9	5.0	1.0W
1N4190	S		1N4728	Z							150	1.7	20	1.0W
1N4190A	S		1N4728	Z							150	1.7	10	1.0W
1N4190B	S		1N4728	Z							150	1.7	5.0	1.0W
1N4191	S		1N4728	Z							160	1.6	20	1.0W
1N4191A	S		1N4728	Z							160	1.6	10	1.0W
1N4191B	S		1N4728	Z							160	1.6	5.0	1.0W
1N4192	S		1N4728	Z							180	1.4	20	1.0W
1N4192A	S		1N4728	Z							180	1.4	10	1.0W
1N4192B	S		1N4728	Z							180	1.4	5.0	1.0W
1N4193	S		1N4728	Z							200	1.2	20	1.0W
1N4193A	S		1N4728	Z							200	1.2	10	1.0W
1N4193B	S		1N4728	Z							200	1.2	5.0	1.0W
1N4194	S	1N2970	1N2970	Z							6.8	370	20	10W
1N4194A	S	1N2970A	1N2970	Z							6.8	370	10	10W
1N4194B	S	1N2970B	1N2970	Z							6.8	370	5.0	10W
1N4195	S	1N2971	1N2970	Z							7.5	335	20	10W
1N4195A	S	1N2971A	1N2970	Z							7.5	335	10	10W
1N4195B	S	1N2971B	1N2970	Z							7.5	335	5.0	10W
1N4196	S	1N2972	1N2970	Z							8.2	305	20	10W
1N4196A	S	1N2972A	1N2970	Z							8.2	305	10	10W
1N4196B	S	1N2972B	1N2970	Z							8.2	305	5.0	10W
1N4197	S	1N2973	1N2970	Z							9.1	275	20	10W
1N4197A	S	1N2973A	1N2970	Z							9.1	275	10	10W
1N4197B	S	1N2973B	1N2970	Z							9.1	275	5.0	10W
1N4198	S	1N2974	1N2970	Z							10	250	20	10W
1N4198A	S	1N2974A	1N2970	Z							10	250	10	10W
1N4198B	S	1N2974B	1N2970	Z							10	250	5.0	10W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM} Volts	V_F Volts	I_O Amp	I_R mA	I_{FSM} Amp	V_Z Nom Volts	I_{ZT} mA	Tol $V_Z \pm \%$	P_D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V_F Volts @ I_f	I_R	t_{rr} μs	V_Z Nom Volts	T_C %/°C	I_{ZT} mA	Temp Range °C	
1N4199	S	1N2975	1N2970	Z						11	230	20	10W
1N4199A	S	1N2975A	1N2970	Z						11	230	10	10W
1N4199B	S	1N2975B	1N2970	Z						11	230	5.0	10W
1N4200	S	1N2976	1N2970	Z						12	210	20	10W
1N4200A	S	1N2976A	1N2970	Z						12	210	10	10W
1N4200B	S	1N2976B	1N2970	Z						12	210	5.0	10W
1N4201	S	1N2977	1N2970	Z						13	190	20	10W
1N4201A	S	1N2977A	1N2970	Z						13	190	10	10W
1N4201B	S	1N2977B	1N2970	Z						13	190	5.0	10W
1N4202	S	1N2978	1N2970	Z						14	180	20	10W
1N4202A	S	1N2978A	1N2970	Z						14	180	10	10W
1N4202B	S	1N2978B	1N2970	Z						14	180	5.0	10W
1N4203	S	1N2979	1N2970	Z						15	170	20	10W
1N4203A	S	1N2979A	1N2970	Z						15	170	10	10W
1N4203B	S	1N2979B	1N2970	Z						15	170	5.0	10W
1N4204	S	1N2980	1N2970	Z						16	155	20	10W
1N4204A	S	1N2980A	1N2970	Z						16	155	10	10W
1N4204B	S	1N2980B	1N2970	Z						16	155	5.0	10W
1N4205	S	1N2981	1N2970	Z						17	145	20	10W
1N4205A	S	1N2981A	1N2970	Z						17	145	10	10W
1N4205B	S	1N2981B	1N2970	Z						17	145	5.0	10W
1N4206	S	1N2982	1N2970	Z						18	140	20	10W
1N4206A	S	1N2982A	1N2970	Z						18	140	10	10W
1N4206B	S	1N2982B	1N2970	Z						18	140	5.0	10W
1N4207	S	1N2983	1N2970	Z						19	130	20	10W
1N4207A	S	1N2983A	1N2970	Z						19	130	10	10W
1N4207B	S	1N2983B	1N2970	Z						19	130	5.0	10W
1N4208	S	1N2984	1N2970	Z						20	125	20	10W
1N4208A	S	1N2984A	1N2970	Z						20	125	10	10W
1N4208B	S	1N2984B	1N2970	Z						20	125	5.0	10W
1N4209	S	1N2985	1N2970	Z						22	115	20	10W
1N4209A	S	1N2985A	1N2970	Z						22	115	10	10W
1N4209B	S	1N2985B	1N2970	Z						22	115	5.0	10W
1N4210	S	1N2986	1N2970	Z						24	105	20	10W
1N4210A	S	1N2986A	1N2970	Z						24	105	10	10W
1N4210B	S	1N2986B	1N2970	Z						24	105	5.0	10W
1N4211	S	1N2987	1N2970	Z						25	100	20	10W
1N4211A	S	1N2987A	1N2970	Z						25	100	10	10W
1N4211B	S	1N2987B	1N2970	Z						25	100	5.0	10W
1N4212	S	1N2988	1N2970	Z						27	95	20	10W
1N4212A	S	1N2988A	1N2970	Z						27	95	10	10W
1N4212B	S	1N2988B	1N2970	Z						27	95	5.0	10W
1N4213	S	1N2989	1N2970	Z						30	85	20	10W
1N4213A	S	1N2989A	1N2970	Z						30	85	10	10W
1N4213B	S	1N2989B	1N2970	Z						30	85	5.0	10W
1N4214	S	1N2990	1N2970	Z						33	75	20	10W
1N4214A	S	1N2990A	1N2970	Z						33	75	10	10W
1N4214B	S	1N2990B	1N2970	Z						33	75	5.0	10W
1N4215	S	1N2991	1N2970	Z						36	70	20	10W
1N4215A	S	1N2991A	1N2970	Z						36	70	10	10W
1N4215B	S	1N2991B	1N2970	Z						36	70	5.0	10W
1N4216	S	1N2992	1N2970	Z						39	65	20	10W
1N4216A	S	1N2992A	1N2970	Z						39	65	10	10W
1N4216B	S	1N2992B	1N2970	Z						39	65	5.0	10W
1N4217	S	1N2993	1N2970	Z						43	60	20	10W
1N4217A	S	1N2993A	1N2970	Z						43	60	10	10W
1N4217B	S	1N2993B	1N2970	Z						43	60	5.0	10W
1N4218	S	1N2994	1N2970	Z						45	55	20	10W
1N4218A	S	1N2994A	1N2970	Z						45	55	10	10W
1N4218B	S	1N2994B	1N2970	Z						45	55	5.0	10W
1N4219	S	1N2995	1N2970	Z						47	55	20	10W
1N4219A	S	1N2995A	1N2970	Z						47	55	10	10W
1N4219B	S	1N2995B	1N2970	Z						47	55	5.0	10W
1N4220	S	1N2996	1N2970	Z						50	50	20	10W
1N4220A	S	1N2996A	1N2970	Z						50	50	10	10W
1N4220B	S	1N2996B	1N2970	Z						50	50	5.0	10W
1N4221	S	1N2997	1N2970	Z						51	50	20	10W
1N4221A	S	1N2997A	1N2970	Z						51	50	10	10W
1N4221B	S	1N2997B	1N2970	Z						51	50	5.0	10W
1N4222	S	1N2998	1N2970	Z						52	50	20	10W

1N4222A-1N4256

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	I _C %/°C	I _{ZT} mA	Temp Range °C	
1N4222A	S	1N2998A	1N2970	Z						52	50	10	10W
1N4222B	S	1N2998B	1N2970	Z						52	50	5.0	10W
1N4223	S	1N2999	1N2970	Z						56	45	20	10W
1N4223A	S	1N2999A	1N2970	Z						56	45	10	10W
1N4223B	S	1N2999B	1N2970	Z						56	45	5.0	10W
1N4224	S	1N3000	1N2970	Z						62	40	20	10W
1N4224A	S	1N3000A	1N2970	Z						62	40	10	10W
1N4224B	S	1N3000B	1N2970	Z						62	40	5.0	10W
1N4225	S	1N3001	1N2970	Z						68	37	20	10W
1N4225A	S	1N3001A	1N2970	Z						68	37	10	10W
1N4225B	S	1N3001B	1N2970	Z						68	37	5.0	10W
1N4226	S	1N3002	1N2970	Z						75	33	20	10W
1N4226A	S	1N3002A	1N2970	Z						75	33	10	10W
1N4226B	S	1N3002B	1N2970	Z						75	33	5.0	10W
1N4227	S	1N3003	1N2970	Z						82	30	20	10W
1N4227A	S	1N3003A	1N2970	Z						82	30	10	10W
1N4227B	S	1N3003B	1N2970	Z						82	30	5.0	10W
1N4228	S	1N3004	1N2970	Z						91	28	20	10W
1N4228A	S	1N3004A	1N2970	Z						91	28	10	10W
1N4228B	S	1N3004B	1N2970	Z						91	28	5.0	10W
1N4229	S	1N3005	1N2970	Z						100	25	20	10W
1N4229A	S	1N3005A	1N2970	Z						100	25	10	10W
1N4229B	S	1N3005B	1N2970	Z						100	25	5.0	10W
1N4230	S	1N3006	1N2970	Z						105	25	20	10W
1N4230A	S	1N3006A	1N2970	Z						105	25	10	10W
1N4230B	S	1N3006B	1N2970	Z						105	25	5.0	10W
1N4231	S	1N3007	1N2970	Z						110	23	20	10W
1N4231A	S	1N3007A	1N2970	Z						110	23	10	10W
1N4231B	S	1N3007B	1N2970	Z						110	23	5.0	10W
1N4232	S	1N3008	1N2970	Z						120	20	20	10W
1N4232A	S	1N3008A	1N2970	Z						120	20	10	10W
1N4232B	S	1N3008B	1N2970	Z						120	20	5.0	10W
1N4233	S	1N3009	1N2970	Z						130	19	20	10W
1N4233A	S	1N3009A	1N2970	Z						130	19	10	10W
1N4233B	S	1N3009B	1N2970	Z						130	19	5.0	10W
1N4234	S	1N3010	1N2970	Z						140	18	20	10W
1N4234A	S	1N3010A	1N2970	Z						140	18	10	10W
1N4234B	S	1N3010B	1N2970	Z						140	18	5.0	10W
1N4235	S	1N3011	1N2970	Z						150	17	20	10W
1N4235A	S	1N3011A	1N2970	Z						150	17	10	10W
1N4235B	S	1N3011B	1N2970	Z						150	17	5.0	10W
1N4236	S	1N3012	1N2970	Z						160	16	20	10W
1N4236A	S	1N3012A	1N2970	Z						160	16	10	10W
1N4236B	S	1N3012B	1N2970	Z						160	16	5.0	10W
1N4237	S	1N3013	1N2970	Z						175	14	20	10W
1N4237A	S	1N3013A	1N2970	Z						175	14	10	10W
1N4237B	S	1N3013B	1N2970	Z						175	14	5.0	10W
1N4238	S	1N3014	1N2970	Z						180	14	20	10W
1N4238A	S	1N3014A	1N2970	Z						180	14	10	10W
1N4238B	S	1N3014B	1N2970	Z						180	14	5.0	10W
1N4239	S	1N3015	1N2970	Z						200	12	20	10W
1N4239A	S	1N3015A	1N2970	Z						200	12	10	10W
1N4239B	S	1N3015B	1N2970	Z						200	12	5.0	10W
1N4240	S			Z						400	5.0	2.0	10W
1N4241	S			Z						350	6.0	2.0	10W
1N4242	S			S	40	1.0	20m	0.1n	2.0				
1N4243	S			S	40	1.0	10m	0.1n	2.0				
1N4244	S			S	10	1.0	20m	0.1*	0.75				
1N4245	S	1N4003	1N4001	G	200	1.64	1.0	0.05	25				
1N4246	S	1N4004	1N4001	G	400	1.64	1.0	0.05	25				
1N4247	S	1N4005	1N4001	G	600	1.64	1.0	0.05	25				
1N4248	S	1N4006	1N4001	G	800	1.64	1.0	0.05	25				
1N4249	S	1N4007	1N4001	G	1000	1.64	1.0	0.05	25				
1N4250	S	1N4006	1N4001	G	800		0.5	0.05	10				
1N4251	S	1N4007	1N4001	G	1000		0.5	0.05	10				
1N4252	S	MR1-1200	MR1-1200	G	1200		0.5	0.05	10				
1N4253	S	MR1-1600	MR1-1200	G	1500		0.5	0.05	10				
1N4254	S	MR991A	MR990A	G	1500	4.8	0.25	0.05	6.25				
1N4255	S	MR992A	MR990A	G	2000	4.8	0.25	0.05	6.25				
1N4256	S	MR993A	MR990A	G	2500	4.8	0.25	0.05	6.25				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	ToI V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C °C	I _{ZT} mA	Temp Range °C
1N4257	S	MR994A	MR990A	Z	3000	4.8	0.25	0.05	6.25	6.8	370	20	10W
1N4258	S	1N2970	1N2970	Z						6.8	370	10	10W
1N4258A	S	1N2970A	1N2970	Z						6.8	370	5.0	10W
1N4258B	S	1N2970B	1N2970	Z						7.5	335	20	10W
1N4259	S	1N2971	1N2970	Z									
1N4259A	S	1N2971A	1N2970	Z						7.5	335	10	10W
1N4259B	S	1N2971B	1N2970	Z						7.5	335	5.0	10W
1N4260	S	1N2972	1N2970	Z						8.2	305	20	10W
1N4260A	S	1N2972A	1N2970	Z						8.2	305	10	10W
1N4260B	S	1N2972B	1N2970	Z						8.2	305	5.0	10W
1N4261	S	1N2973	1N2970	Z						9.1	275	20	10W
1N4261A	S	1N2973A	1N2970	Z						9.1	275	10	10W
1N4261B	S	1N2973B	1N2970	Z						9.1	275	5.0	10W
1N4262	S	1N2974	1N2970	Z						10	250	20	10W
1N4262A	S	1N2974A	1N2970	Z						10	250	10	10W
1N4262B	S	1N2974B	1N2970	Z						10	250	5.0	10W
1N4263	S	1N2975	1N2970	Z						11	230	20	10W
1N4263A	S	1N2975A	1N2970	Z						11	230	10	10W
1N4263B	S	1N2975B	1N2970	Z						11	230	5.0	10W
1N4264	S	1N2976	1N2970	Z						12	210	20	10W
1N4264A	S	1N2976A	1N2970	Z						12	210	10	10W
1N4264B	S	1N2976B	1N2970	Z						12	210	5.0	10W
1N4265	S	1N2977	1N2970	Z						13	190	20	10W
1N4265A	S	1N2977A	1N2970	Z						13	190	10	10W
1N4265B	S	1N2977B	1N2970	Z						13	190	5.0	10W
1N4266	S	1N2979	1N2970	Z						15	170	20	10W
1N4266A	S	1N2979A	1N2970	Z						15	170	10	10W
1N4266B	S	1N2979B	1N2970	Z						15	170	5.0	10W
1N4267	S	1N2980	1N2970	Z						16	155	20	10W
1N4267A	S	1N2980A	1N2970	Z						16	155	10	10W
1N4267B	S	1N2980B	1N2970	Z						16	155	5.0	10W
1N4268	S	1N2982	1N2970	Z						18	140	20	10W
1N4268A	S	1N2982A	1N2970	Z						18	140	10	10W
1N4268B	S	1N2982B	1N2970	Z						18	140	5.0	10W
1N4269	S	1N2984	1N2970	Z						20	125	20	10W
1N4269A	S	1N2984A	1N2970	Z						20	125	10	10W
1N4269B	S	1N2984B	1N2970	Z						20	125	5.0	10W
1N4270	S	1N2985	1N2979	Z						22	115	20	10W
1N4270A	S	1N2985A	1N2970	Z						22	115	10	10W
1N4270B	S	1N2985B	1N2970	Z						22	115	5.0	10W
1N4271	S	1N2986	1N2970	Z						24	105	20	10W
1N4271A	S	1N2986A	1N2970	Z						24	105	10	10W
1N4271B	S	1N2986B	1N2970	Z						24	105	5.0	10W
1N4272	S	1N2988	1N2970	Z						27	95	20	10W
1N4272A	S	1N2988A	1N2970	Z						27	95	10	10W
1N4272B	S	1N2988B	1N2970	Z						27	95	5.0	10W
1N4273	S	1N2989	1N2970	Z						30	85	20	10W
1N4273A	S	1N2989A	1N2970	Z						30	85	10	10W
1N4273B	S	1N2989B	1N2970	Z						30	85	5.0	10W
1N4274	S	1N2990	1N2970	Z						33	75	20	10W
1N4274A	S	1N2990A	1N2970	Z						33	75	10	10W
1N4274B	S	1N2990B	1N2970	Z						33	75	5.0	10W
1N4275	S	1N2991	1N2970	Z						36	70	20	10W
1N4275A	S	1N2991A	1N2970	Z						36	70	10	10W
1N4275B	S	1N2991B	1N2970	Z						36	70	5.0	10W
1N4276	S	1N2992	1N2970	Z						39	65	20	10W
1N4276A	S	1N2992A	1N2970	Z						39	65	10	10W
1N4276B	S	1N2992B	1N2970	Z						39	65	5.0	10W
1N4277	S	1N2993	1N2970	Z						43	60	20	10W
1N4277A	S	1N2993A	1N2970	Z						43	60	10	10W
1N4277B	S	1N2993B	1N2970	Z						43	60	5.0	10W
1N4278	S	1N2995	1N2970	Z						47	55	20	10W
1N4278A	S	1N2995A	1N2970	Z						47	55	10	10W
1N4278B	S	1N2995B	1N2970	Z						47	55	5.0	10W
1N4279	S	1N2997	1N2970	Z						51	55	20	10W
1N4279A	S	1N2997A	1N2970	Z						51	55	10	10W
1N4279B	S	1N2997B	1N2970	Z						51	55	5.0	10W
1N4280	S	1N2999	1N2970	Z						56	45	20	10W
1N4280A	S	1N2999A	1N2970	Z						56	45	10	10W
1N4280B	S	1N2999B	1N2970	Z						56	45	5.0	10W

1N4281-1N4306

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
PRV Volts	V _F Volts	@	f	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N4281	S	1N3000	1N2970	Z						62	40	20	10W	
1N4281A	S	1N3000A	1N2970	Z						62	40	10	10W	
1N4281B	S	1N3000B	1N2970	Z						62	40	5.0	10W	
1N4282	S	1N3001	1N2970	Z						68	37	20	10W	
1N4282A	S	1N3001A	1N2970	Z						68	37	10	10W	
1N4282B	S	1N3001B	1N2970	Z						68	37	5.0	10W	
1N4283	S	1N3002	1N2970	Z						75	33	20	10W	
1N4283A	S	1N3002A	1N2970	Z						75	33	10	10W	
1N4283B	S	1N3002B	1N2970	Z						75	33	5.0	10W	
1N4284	S	1N3003	1N2970	Z						82	30	20	10W	
1N4284A	S	1N3003A	1N2970	Z						82	30	10	10W	
1N4284B	S	1N3003B	1N2970	Z						82	30	5.0	10W	
1N4285	S	1N3004	1N2970	Z						91	28	20	10W	
1N4285A	S	1N3004A	1N2970	Z						91	28	10	10W	
1N4285B	S	1N3004B	1N2970	Z						91	28	5.0	10W	
1N4286	S	1N3005	1N2970	Z						100	25	20	10W	
1N4286A	S	1N3005A	1N2970	Z						100	25	10	10W	
1N4286B	S	1N3005B	1N2970	Z						100	25	5.0	10W	
1N4287	S	1N3007	1N2970	Z						110	23	20	10W	
1N4287A	S	1N3007A	1N2970	Z						110	23	10	10W	
1N4287B	S	1N3007B	1N2970	Z						110	23	5.0	10W	
1N4288	S	1N3008	1N2970	Z						120	20	20	10W	
1N4288A	S	1N3008A	1N2970	Z						120	20	10	10W	
1N4288B	S	1N3008B	1N2970	Z						120	20	5.0	10W	
1N4289	S	1N3009	1N2970	Z						130	19	20	10W	
1N4289A	S	1N3009A	1N2970	Z						130	19	10	10W	
1N4289B	S	1N3009B	1N2970	Z						130	19	5.0	10W	
1N4290	S	1N3011	1N2970	Z						150	17	20	10W	
1N4290A	S	1N3011A	1N2970	Z						150	17	10	10W	
1N4290B	S	1N3011B	1N2970	Z						150	17	5.0	10W	
1N4291	S	1N3012	1N2970	Z						160	16	20	10W	
1N4291A	S	1N3012A	1N2970	Z						160	16	10	10W	
1N4291B	S	1N3012B	1N2970	Z						160	16	5.0	10W	
1N4292	S	1N3014	1N2970	Z						180	14	20	10W	
1N4292A	S	1N3014A	1N2970	Z						180	14	10	10W	
1N4292B	S	1N3014B	1N2970	Z						180	14	5.0	10W	
1N4293	S	1N3015	1N2970	Z						200	12	20	10W	
1N4293A	S	1N3015A	1N2970	Z						200	12	10	10W	
1N4293B	S	1N3015B	1N2970	Z						200	12	5.0	10W	
1N4294	S		Table 4	M										
1N4295	S			R						10	0.012	10	-55/150	
1N4295A	S			R						10	0.012	10	-55/150	
1N4296	S			R						10	0.012	20	-55/150	
1N4296A	S			R						10	0.012	20	-55/150	
1N4297	S			R						8.8	0.01	200	0/75	
1N4297A	S			R						8.8	0.01	200	-55/100	
1N4297B	S			R						8.8	0.01	200	-55/150	
1N4298	S			R						8.8	0.005	200	0/75	
1N4298A	S			R						8.8	0.005	200	-55/100	
1N4298B	S			R						8.8	0.005	200	-55/150	
1N4299	S			R						11.3	0.01	150	0/75	
1N4299A	S			R						11.3	0.01	150	-55/100	
1N4299B	S			R						11.3	0.01	150	-55/150	
1N4300	S			R						11.3	0.01	150	0/75	
1N4300A	S			R						11.3	0.005	150	-55/100	
1N4300B	S			R						11.3	0.005	150	-55/150	
1N4301	S			R						8.8	0.01	1000	0/50	
1N4301A	S			R						8.8	0.01	1000	-55/50	
1N4301B	S			R						8.8	0.01	1000	-55/50	
1N4302	S			R						8.8	0.01	1000	0/50	
1N4302A	S			R						8.8	0.005	1000	-55/100	
1N4302B	S			R						8.8	0.005	1000	-55/150	
1N4303	S			R						11.3	0.005	1000	0/75	
1N4303A	S			R						11.3	0.01	750	-55/50	
1N4303B	S			R						11.3	0.01	750	-55/50	
1N4304	S			R						11.3	0.005	750	0/50	
1N4304A	S			R						11.3	0.005	750	-55/50	
1N4304B	S			R						11.3	0.005	750	-55/50	
1N4305	S			S										
1N4306	S			S						75 50	0.575 1.0	0.25m 50m	0.1* 50n	2.0 2.0

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N4307	S			S	50	1.0	50m	50n	2.0				
1N4308	S			S	80	1.0	200m	0.1*	2.0				
1N4309	S			S	40	1.0	400m	0.1*	2.0				
1N4310	S			S	60	1.0	400m	0.1*	2.0				
1N4311	S			S	80	1.0	300m	0.1*	2.0				
1N4312	S			S	120	1.0	200m	0.1*	2.0				
1N4313	S			S	80	1.0	100m	0.1*	4.0				
1N4314	S			S	80	1.0	200m	0.1*	2.0				
1N4315	S			S	40	1.0	400m	0.1*	2.0				
1N4316	S			S	60	1.0	400m	0.1*	2.0				
1N4317	S			S	80	1.0	300m	0.1*	2.0				
1N4318	S			S	120	1.0	200m	0.1*	2.0				
1N4319	S			S	80	1.0	100m	0.1*	4.0				
1N4320	S			S	640			1.0*					
1N4321	S	5M50ZS10	1N4728	Z						50	15	10	3.0W
1N4322	S			S	50	1.0	0.2	0.1*	6.0				
1N4323	S	1N4736	1N4728	Z						6.8	37	20	1.0W
1N4323A	S	1N4736	1N4728	Z						6.8	37	10	1.0W
1N4323B	S	1N4736A	1N4728	Z						6.8	37	5.0	1.0W
1N4324	S	1N4737	1N4728	Z						7.5	34	20	1.0W
1N4324A	S	1N4737	1N4728	Z						7.5	34	10	1.0W
1N4324B	S	1N4737A	1N4728	Z						7.5	34	5.0	1.0W
1N4325	S	1N4738	1N4728	Z						8.2	31	20	1.0W
1N4325A	S	1N4738	1N4728	Z						8.2	31	10	1.0W
1N4325B	S	1N4738A	1N4728	Z						8.2	31	5.0	1.0W
1N4326	S	1N4739	1N4728	Z						9.1	28	20	1.0W
1N4326A	S	1N4739	1N4728	Z						9.1	28	10	1.0W
1N4326B	S	1N4739A	1N4728	Z						9.1	28	5.0	1.0W
1N4327	S	1N4740	1N4728	Z						10	25	20	1.0W
1N4327A	S	1N4740	1N4728	Z						10	25	10	1.0W
1N4327B	S	1N4740A	1N4728	Z						10	25	5.0	1.0W
1N4328	S	1N4741	1N4728	Z						11	23	20	1.0W
1N4328A	S	1N4741	1N4728	Z						11	23	10	1.0W
1N4328B	S	1N4741A	1N4728	Z						11	23	5.0	1.0W
1N4329	S	1N4742	1N4728	Z						12	21	20	1.0W
1N4329A	S	1N4742	1N4728	Z						12	21	10	1.0W
1N4329B	S	1N4742A	1N4728	Z						12	21	5.0	1.0W
1N4330	S	1N4743	1N4728	Z						13	19	20	1.0W
1N4330A	S	1N4743	1N4728	Z						13	19	10	1.0W
1N4330B	S	1N4743A	1N4728	Z						13	19	5.0	1.0W
1N4331	S	1N4744	1N4728	Z						15	17	20	1.0W
1N4331A	S	1N4744	1N4728	Z						15	17	10	1.0W
1N4331B	S	1N4744A	1N4728	Z						15	17	5.0	1.0W
1N4332	S	1N4745	1N4728	Z						16	16	20	1.0W
1N4332A	S	1N4745	1N4728	Z						16	16	10	1.0W
1N4332B	S	1N4745A	1N4728	Z						16	16	5.0	1.0W
1N4333	S	1N4746	1N4728	Z						18	14	20	1.0W
1N4333A	S	1N4746	1N4728	Z						18	14	10	1.0W
1N4333B	S	1N4746A	1N4728	Z						18	14	5.0	1.0W
1N4334	S	1N4747	1N4728	Z						20	13	20	1.0W
1N4334A	S	1N4747	1N4728	Z						20	13	10	1.0W
1N4334B	S	1N4747A	1N4728	Z						20	13	5.0	1.0W
1N4335	S	1N4748	1N4728	Z						22	12	20	1.0W
1N4335A	S	1N4748	1N4728	Z						22	12	10	1.0W
1N4335B	S	1N4748A	1N4728	Z						22	12	5.0	1.0W
1N4336	S	1N4749	1N4728	Z						24	11	20	1.0W
1N4336A	S	1N4749	1N4728	Z						24	11	10	1.0W
1N4336B	S	1N4749A	1N4728	Z						24	11	5.0	1.0W
1N4337	S	1N4750	1N4728	Z						27	9.5	20	1.0W
1N4337A	S	1N4750	1N4728	Z						27	9.5	10	1.0W
1N4337B	S	1N4750A	1N4728	Z						27	9.5	5.0	1.0W
1N4338	S	1N4751	1N4728	Z						30	8.5	20	1.0W
1N4338A	S	1N4751	1N4728	Z						30	8.5	10	1.0W
1N4338B	S	1N4751A	1N4728	Z						30	8.5	5.0	1.0W
1N4339	S	1N4752	1N4728	Z						33	7.5	20	1.0W
1N4339A	S	1N4752	1N4728	Z						33	7.5	10	1.0W
1N4339B	S	1N4752A	1N4728	Z						33	7.5	5.0	1.0W
1N4340	S	1N4753	1N4728	Z						36	7.0	20	1.0W
1N4340A	S	1N4753	1N4728	Z						36	7.0	10	1.0W
1N4340B	S	1N4753A	1N4728	Z						36	7.0	5.0	1.0W

1N4341-1N4372

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @ I _F	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N4341	S	1N4754	1N4728	Z						39	6.5	20	1.0W
1N4341A	S	1N4754	1N4728	Z						39	6.5	10	1.0W
1N4341B	S	1N4754A	1N4728	Z						39	6.5	5.0	1.0W
1N4342	S	1N4755	1N4728	Z						43	6.0	20	1.0W
1N4342A	S	1N4755	1N4728	Z						43	6.0	10	1.0W
1N4342B	S	1N4755A	1N4728	Z						43	6.0	5.0	1.0W
1N4343	S	1N4756	1N4728	Z						47	5.5	20	1.0W
1N4343A	S	1N4756	1N4728	Z						47	5.5	10	1.0W
1N4343B	S	1N4756A	1N4728	Z						47	5.5	5.0	1.0W
1N4344	S	1N4757	1N4728	Z						51	5.0	20	1.0W
1N4344A	S	1N4757	1N4728	Z						51	5.0	10	1.0W
1N4344B	S	1N4757A	1N4728	Z						51	5.0	5.0	1.0W
1N4345	S	1N4758	1N4728	Z						56	4.5	20	1.0W
1N4345A	S	1N4758	1N4728	Z						56	4.5	10	1.0W
1N4345B	S	1N4758A	1N4728	Z						56	4.5	5.0	1.0W
1N4346	S	1N4759	1N4728	Z						62	4.0	20	1.0W
1N4346A	S	1N4759	1N4728	Z						62	4.0	10	1.0W
1N4346B	S	1N4759A	1N4728	Z						62	4.0	5.0	1.0W
1N4347	S	1N4760	1N4728	Z						68	3.7	20	1.0W
1N4347A	S	1N4760	1N4728	Z						68	3.7	10	1.0W
1N4347B	S	1N4760A	1N4728	Z						68	3.7	5.0	1.0W
1N4348	S	1N4761	1N4728	Z						75	3.3	20	1.0W
1N4348A	S	1N4761	1N4728	Z						75	3.3	10	1.0W
1N4348B	S	1N4761A	1N4728	Z						75	3.3	5.0	1.0W
1N4349	S	1N4762	1N4728	Z						82	3.0	20	1.0W
1N4349A	S	1N4762	1N4728	Z						82	3.0	10	1.0W
1N4349B	S	1N4762A	1N4728	Z						82	3.0	5.0	1.0W
1N4350	S	1N4763	1N4728	Z						91	2.8	20	1.0W
1N4350A	S	1N4763	1N4728	Z						91	2.8	10	1.0W
1N4350B	S	1N4763A	1N4728	Z						91	2.8	5.0	1.0W
1N4351	S	1N4764	1N4728	Z						100	2.5	20	1.0W
1N4351A	S	1N4764	1N4728	Z						100	2.5	10	1.0W
1N4351B	S	1N4764A	1N4728	Z						100	2.5	5.0	1.0W
1N4352	S	1M110ZS10	1N4728	Z						110	2.3	20	1.0W
1N4352A	S	1M110ZS10	1N4728	Z						110	2.3	10	1.0W
1N4352B	S	1M110ZS5	1N4728	Z						110	2.3	5.0	1.0W
1N4353	S	1M120ZS10	1N4728	Z						120	2.0	20	1.0W
1N4353A	S	1M120ZS10	1N4728	Z						120	2.0	10	1.0W
1N4353B	S	1M120ZS5	1N4728	Z						120	2.0	5.0	1.0W
1N4354	S	1M130ZS10	1N4728	Z						130	1.9	20	1.0W
1N4354A	S	1M130ZS10	1N4728	Z						130	1.9	10	1.0W
1N4354B	S	1M130ZS5	1N4728	Z						130	1.9	5.0	1.0W
1N4355	S	1M150ZS10	1N4728	Z						150	1.7	20	1.0W
1N4355A	S	1M150ZS10	1N4728	Z						150	1.7	10	1.0W
1N4355B	S	1M150ZS5	1N4728	Z						150	1.7	5.0	1.0W
1N4356	S	1M160ZS10	1N4728	Z						160	1.6	20	1.0W
1N4356A	S	1M160ZS10	1N4728	Z						160	1.6	10	1.0W
1N4356B	S	1M160ZS5	1N4728	Z						160	1.6	5.0	1.0W
1N4357	S	1M180ZS10	1N4728	Z						180	1.4	20	1.0W
1N4357A	S	1M180ZS10	1N4728	Z						180	1.4	10	1.0W
1N4357B	S	1M180ZS5	1N4728	Z						180	1.4	5.0	1.0W
1N4358	S	1M200ZS10	1N4728	Z						200	1.2	20	1.0W
1N4358A	S	1M200ZS10	1N4728	Z						200	1.2	10	1.0W
1N4358B	S	1M200ZS5	1N4728	Z						200	1.2	5.0	1.0W
1N4359	S			S	200								
1N4360	S	1N4370A	1N746	Z						2.4	10	5.0	0.25W
1N4361	S	1N4007	1N4001	G	900	1.3	0.5	0.5	20				
1N4362	S			S	100	0.9	0.1	10n					
1N4363	S			S	120	1.0	0.2	0.1*	40				
1N4364	S	1N4002	1N4001	G	100	1.5	0.75	0.1	20				
1N4365	S	1N4003	1N4001	G	200	1.5	0.75	0.1	20				
1N4366	S	1N4004	1N4001	G	300	1.5	0.75	0.1	20				
1N4367	S	1N4004	1N4001	G	400	1.5	0.75	0.1	20				
1N4368	S	1N4005	1N4001	G	500	1.5	0.75	0.1	20				
1N4369	S	1N4005	1N4001	G	600	1.5	0.75	0.1	20				
★1N4370	S		1N746	Z						2.4	20	10	0.4W
★1N4370A	S		1N746	Z						2.4	20	5.0	0.4W
★1N4371	S		1N746	Z						2.7	20	10	0.4W
★1N4371A	S		1N746	Z						2.7	20	5.0	0.4W
★1N4372	S		1N746	Z						3.0	20	10	0.4W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C		
★1N4372A	S	MR991A	1N746	Z						3.0	20	5.0	0.4W	
1N4373	S			S	80	1.0	10m	5.0*	4.0					
1N4374	S			G	1500	1.75	0.75	0.1	15					
1N4375	S			S	50	1.0	20m	10n	6.0					
1N4376	S			S	10	1.1	50m	0.1*	0.75					
1N4377	S	Table 4		G	25k	30	0.75	0.1	50					
1N4378	S				D									
1N4379	S				M									
1N4380	S				S	50	1.4	570m	50n	1.8				
1N4381	G				S	25	0.35	2.0m	0.1m	0.1				
1N4382	S	1N4003	1N4001	S	55	1.0	0.3	0.1*	6.5					
1N4383	S			G	200	1.3	1.0	0.275	50					
1N4384	S		1N4004	G	400	1.3	1.0	0.25	50					
1N4385	S		1N4005	G	600	1.3	1.0	0.225	50					
★1N4387	S			Table 3	V									
★1N4388	S	Table 3		V										
1N4389	S				S	5.0	1.0	2.0m	0.1m					
1N4390	S				S	20	1.0	5.0m	0.2*	0.5				
1N4391	S				S	20	1.0	2.0m	0.2*	0.5				
1N4392	S				S	15	1.0	2.0m	1.0*	0.5				
1N4393, A,B thru 1N4399, A,B	S			T										
				T										
1N4400	S	1N4736	1N4728	Z						6.8	37	20	1.0W	
1N4401	S	1N4737	1N4728	Z						7.5	34	20	1.0W	
1N4402	S	1N4738	1N4728	Z						8.2	31	20	1.0W	
1N4403	S	1N4739	1N4728	Z						9.1	28	20	1.0W	
1N4404	S	1N4740	1N4728	Z						10	25	20	1.0W	
1N4405	S	1N4741	1N4728	Z						11	23	20	1.0W	
1N4406	S	1N4742	1N4728	Z						12	21	20	1.0W	
1N4407	S	1N4743	1N4728	Z						13	19	20	1.0W	
1N4408	S	1N4744	1N4728	Z						15	17	20	1.0W	
1N4409	S	1N4745	1N4728	Z						16	19	20	1.0W	
1N4410	S	1N4746	1N4728	Z						18	14	20	1.0W	
1N4411	S	1N4747	1N4728	Z						20	13	20	1.0W	
1N4412	S	1N4748	1N4728	Z						22	12	20	1.0W	
1N4413	S	1N4749	1N4728	Z						24	11	20	1.0W	
1N4414	S	1N4750	1N4728	Z						27	9.5	20	1.0W	
1N4415	S	1N4751	1N4728	Z						30	8.5	20	1.0W	
1N4416	S	1N4752	1N4728	Z						33	7.5	20	1.0W	
1N4417	S	1N4753	1N4728	Z						36	7.0	20	1.0W	
1N4418	S	1N4754	1N4728	Z						39	6.5	20	1.0W	
1N4419	S	1N4755	1N4728	Z						43	6.0	20	1.0W	
1N4420	S	1N4756	1N4728	Z						47	5.5	20	1.0W	
1N4421	S	1N4757	1N4728	Z						51	5.0	20	1.0W	
1N4422	S	1N4758	1N4728	Z						56	4.5	20	1.0W	
1N4423	S	1N4759	1N4728	Z						62	4.0	20	1.0W	
1N4424	S	1N4760	1N4728	Z						68	3.7	20	1.0W	
1N4425	S	1N4761	1N4728	Z						75	3.3	20	1.0W	
1N4426	S	1N4762	1N4728	Z						82	3.0	20	1.0W	
1N4427	S	1N4763	1N4728	Z						91	2.8	20	1.0W	
1N4428	S	1N4764	1N4728	Z						100	2.5	20	1.0W	
1N4429	S	1M110ZS10	1N4728	Z						110	2.3	20	1.0W	
1N4430	S	1M120ZS10	1N4728	Z						120	2.0	20	1.0W	
1N4431	S	1M130ZS10	1N4728	Z						130	1.9	20	1.0W	
1N4432	S	1M150ZS10	1N4728	Z						150	1.7	20	1.0W	
1N4433	S	1M160ZS10	1N4728	Z						160	1.6	20	1.0W	
1N4434	S	1M180ZS10	1N4728	Z						180	1.4	20	1.0W	
1N4435	S	1M200ZS10	1N4728	Z						200	1.2	20	1.0W	
1N4436	S			G	200	1.2	10	1.0	100					
1N4437	S			G	400	1.2	10	1.0	100					
1N4438	S			G	600	1.0	10	1.0	100					
1N4439	S			G	800	1.2	10	1.0	100					
1N4440	S			G	1000	1.2	10	1.0	100					
1N4441	S			S	1500	4.0	0.025	0.001	3.0					
1N4442	S			S	30	1.0	0.1	1.0n	1.0					
1N4443	S			S	50	1.0	0.1	2.0n	0.6					
1N4444	S			S	50	1.0	0.1	50n	7.0					

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TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C						
1N4445	S			S	100	1.0	0.1	50n	4.0				
1N4446	S			S	75	1.0	20m	25n	4.0				
1N4447	S			S	75	1.0	20m	25n	4.0				
1N4448	S			S	75	0.72	5.0m	25n	4.0				
1N4449	S			S	75	0.73	5.0m	25n	4.0				
1N4450	S			S	30	0.92	0.1	50n	4.0				
1N4451	S			S	30	0.875	0.1	50n	10				
1N4452	S			S	30	1.2	1.0	50n	50				
1N4453	S			S	20	0.92	0.1	50n					
1N4454	S			S	75	1.0	10m	0.1*	2.0				
1N4455	S			S	50	0.7	5.0m	0.1*					
1N4456	S			S	35	1.0	0.15	0.2*	1.5				
1N4457	S			S	50	1.0	0.2	0.2*	1.5				
1N4458	S			G	800	1.5	5.0	0.5	150				
1N4459	S			G	1000	1.5	5.0	0.5	150				
1N4460	S	1N4735A	1N4728	Z						6.2	40	5.0	1.5W
1N4461	S	1N4736A	1N4728	Z						6.8	37	5.0	1.5W
1N4462	S	1N4737A	1N4728	Z						7.5	34	5.0	1.5W
1N4463	S	1N4738A	1N4728	Z						8.2	31	5.0	1.5W
1N4464	S	1N4739A	1N4728	Z						9.1	28	5.0	1.5W
1N4465	S	1N4740A	1N4728	Z						10	25	5.0	1.5W
1N4466	S	1N4741A	1N4728	Z						11	23	5.0	1.5W
1N4467	S	1N4742A	1N4728	Z						12	21	5.0	1.5W
1N4468	S	1N4743A	1N4728	Z						13	19	5.0	1.5W
1N4469	S	1N4744A	1N4728	Z						15	17	5.0	1.5W
1N4470	S	1N4745A	1N4728	Z						16	16	5.0	1.5W
1N4471	S	1N4746A	1N4728	Z						18	14	5.0	1.5W
1N4472	S	1N4747A	1N4728	Z						20	13	5.0	1.5W
1N4473	S	1N4748A	1N4728	Z						22	12	5.0	1.5W
1N4474	S	1N4749A	1N4728	Z						24	11	5.0	1.5W
1N4475	S	1N4750A	1N4728	Z						27	9.5	5.0	1.5W
1N4476	S	1N4751A	1N4728	Z						30	8.5	5.0	1.5W
1N4477	S	1N4752A	1N4728	Z						33	7.5	5.0	1.5W
1N4478	S	1N4753A	1N4728	Z						36	7.0	5.0	1.5W
1N4479	S	1N4754A	1N4728	Z						39	6.5	5.0	1.5W
1N4480	S	1N4755A	1N4728	Z						43	6.0	5.0	1.5W
1N4481	S	1N4756A	1N4728	Z						47	5.5	5.0	1.5W
1N4482	S	1N4757A	1N4728	Z						51	5.0	5.0	1.5W
1N4483	S	1N4758A	1N4728	Z						56	4.5	5.0	1.5W
1N4484	S	1N4759A	1N4728	Z						62	4.0	5.0	1.5W
1N4485	S	1N4760A	1N4728	Z						68	3.7	5.0	1.5W
1N4486	S	1N4761A	1N4728	Z						75	3.3	5.0	1.5W
1N4487	S	1N4762A	1N4728	Z						82	3.0	5.0	1.5W
1N4488	S	1N4763A	1N4728	Z						91	2.8	5.0	1.5W
1N4489	S	1N4764A	1N4728	Z						100	2.5	5.0	1.5W
1N4490	S	1M110ZS5	1N4728	Z						110	2.3	5.0	1.5W
1N4491	S	1M120ZS5	1N4728	Z						120	2.0	5.0	1.5W
1N4492	S	1M130ZS5	1N4728	Z						130	1.9	5.0	1.5W
1N4493	S	1M150ZS5	1N4728	Z						150	1.7	5.0	1.5W
1N4494	S	1M160ZS5	1N4728	Z						160	1.6	5.0	1.5W
1N4495	S	1M180ZS5	1N4728	Z						180	1.4	5.0	1.5W
1N4496	S	1M200ZS5	1N4728	Z						200	1.2	5.0	1.5W
1N4497	S			G	1600	3.0	0.75	0.1	35				
1N4498	S			G	3000	5.0	0.75	0.1	35				
1N4499	S	1N4735A	1N4728	Z						6.2		5.0	1.0W
1N4500	S			S	80	1.0	0.3	0.1*	4.0				
1N4501	S			R						7.4	0.01		-55/100
1N4502	G			S	20	0.3	3.0m	10*					
1N4503	S	1N4752	1N4728	Z						33	20	10	3.0W
1N4504	S	1N5388A	1N5333	Z						200	4.0	10	3.0W
1N4505	S			G	6000	8.5	0.1	0.1	20				
1N4506	S	MR1122	MR1120	G	200	1.4	12	2.5	240				
1N4507	S	MR1124	MR1120	G	400	1.4	12	2.5	240				
1N4508	S	MR1126	MR1120	G	600	1.4	12	2.5	240				
1N4509	S	MR1128	MR1120	G	800	1.4	12	2.0	240				
1N4510	S	MR1130	MR1120	G	1000	1.4	12	1.75	240				
1N4511	S			G	1200	1.4	12	1.5	240				
1N4512	S			S	10	0.777	5.0m	10n					
1N4513	S			G	2000	4.5	0.25	0.1	20				
1N4514	S			G	800	1.0	1.1	0.1	50				

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N4517	S			G	200	1.2	2.0	0.1	100				
1N4523	G			S	15	1.0	0.1	30*	8.0				
1N4524	G			S	10	0.65	10m	12*	3.0				
1N4525	S			S	200	1.4	35	3.5	500				
1N4526	S			G	400	1.4	35	3.5	500				
1N4527	S			G	600	1.4	35	3.5	500				
1N4528	S			G	800	1.4	35	3.0	500				
1N4529	S			G	1000	1.4	35	2.5	500				
1N4530	S			S	1200	1.4	35	2.0	500				
1N4531	S			S	75	1.0	10m	25n	4.0				
1N4532	S			S	75	1.0	10m	0.1*	2.0				
1N4533	S			S	40	0.88	20m	50n	2.0				
1N4534	S			S	50	0.88	20m	50n	2.0				
1N4535	S			Z						3.45	5.0	5.0	0.5W
1N4536	S			S	25	1.0	30m	0.1*	2.0				
1N4537	S			G	1500	1.85	3.0	0.3	15				
1N4538	S			G	2000	1.85	3.0	0.3	15				
1N4539	S			G	2500	1.85	3.0	0.3	15				
1N4540	S			G	3000	1.85	3.0	0.3	15				
1N4541	S			S	225	1.0	0.4	20n					
1N4542	S			S	400	1.0	0.4	20n					
1N4543	S			S	600	1.0	0.4	20n					
1N4544	S			S	800	1.0	0.4	20n					
1N4545	S			S	1000	1.0	400m	0.02*					
1N4546	S			G	25k	30	1.0	0.1	50				
1N4547	S			S	25	1.0	25m	10n					
1N4548	S			S	25	1.0	30m	0.1*	4.0				
★1N4549	S		1N2804	Z						3.9	3.2	20	50W
★1N4549A	S		1N2804	Z						3.9	3.2	10	50W
★1N4549B	S		1N2804	Z						3.9	3.2	5.0	50W
★1N4550	S		1N2804	Z						4.3	2900	20	50W
★1N4550A	S		1N2804	Z						4.3	2900	10	50W
★1N4550B	S		1N2804	Z						4.3	2900	5.0	50W
★1N4551	S		1N2804	Z						4.7	2600	20	50W
★1N4551A	S		1N2804	Z						4.7	2600	10	50W
★1N4551B	S		1N2804	Z						4.7	2600	5.0	50W
★1N4552	S		1N2804	Z						5.1	2400	20	50W
★1N4552A	S		1N2804	Z						5.1	2400	10	50W
★1N4552B	S		1N2804	Z						5.1	2400	5.0	50W
★1N4553	S		1N2804	Z						5.6	2200	20	50W
★1N4553A	S		1N2804	Z						5.6	2200	10	50W
★1N4553B	S		1N2804	Z						5.6	2200	5.0	50W
★1N4554	S		1N2804	Z						6.2	2000	20	50W
★1N4554A	S		1N2804	Z						6.2	2000	10	50W
★1N4554B	S		1N2804	Z						6.2	2000	5.0	50W
★1N4555	S		1N2804	Z						6.8	1800	20	50W
★1N4555A	S		1N2804	Z						6.8	1800	10	50W
★1N4555B	S		1N2804	Z						6.8	1800	5.0	50W
★1N4556	S		1N2804	Z						7.5	1600	20	50W
★1N4556A	S		1N2804	Z						7.5	1600	10	50W
★1N4556B	S		1N2804	Z						7.5	1600	5.0	50W
★1N4557	S		1N2804	Z						3.9	3200	20	50W
★1N4557A	S		1N2804	Z						3.9	3200	10	50W
★1N4557B	S		1N2804	Z						3.9	3200	5.0	50W
★1N4558	S		1N2804	Z						4.3	2900	20	50W
★1N4558A	S		1N2804	Z						4.3	2900	10	50W
★1N4558B	S		1N2804	Z						4.3	2900	5.0	50W
★1N4559	S		1N2804	Z						4.7	2800	20	50W
★1N4559A	S		1N2804	Z						4.7	2800	10	50W
★1N4559B	S		1N2804	Z						4.7	2800	5.0	50W
★1N4560	S		1N2804	Z						5.1	2400	20	50W
★1N4560A	S		1N2804	Z						5.1	2400	10	50W
★1N4560B	S		1N2804	Z						5.1	2400	5.0	50W
★1N4561	S		1N2804	Z						5.6	2200	20	50W
★1N4561A	S		1N2804	Z						5.6	2200	10	50W
★1N4561B	S		1N2804	Z						5.6	2200	5.0	50W
★1N4562	S		1N2804	Z						6.2	2000	20	50W
★1N4562A	S		1N2804	Z						6.2	2000	10	50W
★1N4562B	S		1N2804	Z						6.2	2000	5.0	50W
★1N4563	S		1N2804	Z						6.8	1800	20	50W

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TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N4563A	S		1N2804	Z						6.8	1800	10	50W
★1N4563B	S		1N2804	Z						6.8	1800	5.0	50W
★1N4564	S		1N2804	Z						7.5	1600	20	50W
★1N4564A	S		1N2804	Z						7.5	1600	10	50W
★1N4564B	S		1N2804	Z						7.5	1600	5.0	50W
★1N4565	S		1N4565	R						6.4	0.01	0.5	0/75
★1N4565A	S		1N4565	R						6.4	0.01	0.5	-55/100
★1N4566	S		1N4565	R						6.4	0.005	0.5	0/75
★1N4566A	S		1N4565	R						6.4	0.005	3.5	-55/100
★1N4567	S		1N4565	R						6.4	0.002	3.5	0/75
★1N4567A	S		1N4565	R						6.4	0.002	3.5	-55/100
★1N4568	S		1N4565	R						6.4	0.001	3.5	0/76
★1N4568A	S		1N4565	R						6.4	0.001	3.5	-55/100
★1N4569	S		1N4565	R						6.4	0.0005	3.5	0/75
★1N4569A	S		1N4565	R						6.4	0.0005	3.5	-55/100
★1N4570	S		1N4565	R						6.4	0.01	1.0	0/75
★1N4570A	S		1N4565	R						6.4	0.01	1.0	-55/100
★1N4571	S		1N4565	R						6.4	0.005	1.0	0/75
★1N4571A	S		1N4565	R						6.4	0.005	1.0	-55/100
★1N4572	S		1N4565	R						6.4	0.002	1.0	0/75
★1N4572A	S		1N4565	R						6.4	0.002	1.0	-55/100
★1N4573	S		1N4565	R						6.4	0.001	1.0	0/75
★1N4573A	S		1N4565	R						6.4	0.001	1.0	-55/100
★1N4574	S		1N4565	R						6.4	0.0005	1.0	0/75
★1N4574A	S		1N4565	R						6.4	0.0005	1.0	-55/100
★1N4575	S		1N4565	R						6.4	0.01	2.0	0/75
★1N4575A	S		1N4565	R						6.4	0.01	2.0	-55/100
★1N4576	S		1N4565	R						6.4	0.005	2.0	0/75
★1N4576A	S		1N4565	R						6.4	0.005	2.0	-55/100
★1N4577	S		1N4565	R						6.4	0.002	2.0	0/75
★1N4577A	S		1N4565	R						6.4	0.002	2.0	-55/100
★1N4578	S		1N4565	R						6.4	0.001	2.0	0/75
★1N4578A	S		1N4565	R						6.4	0.001	2.0	-55/100
★1N4579	S		1N4565	R						6.4	0.0005	2.0	0/75
★1N4579A	S		1N4565	R						6.4	0.0005	2.0	-55/100
★1N4580	S		1N4565	R						6.4	0.01	4.0	0/75
★1N4580A	S		1N4565	R						6.4	0.01	4.0	-55/100
★1N4581	S		1N4565	R						6.4	0.005	4.0	0/75
★1N4581A	S		1N4565	R						6.4	0.005	4.0	-55/100
★1N4582	S		1N4565	R						6.4	0.002	4.0	0/75
★1N4582A	S		1N4565	R						6.4	0.002	4.0	-55/100
★1N4583	S		1N4565	R						6.4	0.0001	4.0	0/75
★1N4583A	S		1N4565	R						6.4	0.0001	4.0	-55/100
★1N4584	S		1N4565	R						6.4	0.0005	4.0	0/75
★1N4584A	S		1N4565	R						6.4	0.0005	4.0	-55/100
1N4585	S			G	800	1.3	1.0	0.2	50				
1N4586	S			G	1000	1.3	1.0	0.2	50				
1N4587	S	MR1221SB	MR1220	G	100	1.35	150	9.5	3000				
1N4588	S	MR1223SB	MR1220	G	200	1.35	150	9.5	3000				
1N4589	S	MR1225SB	MR1220	G	300	1.35	150	9.5	3000				
1N4590	S	MR1227SB	MR1220	G	400	1.35	150	9.0	3000				
1N4591	S	MR1228SB	MR1220	G	500	1.35	150	8.0	3000				
1N4592	S	MR1229SB	MR1220	G	600	1.35	150	6.5	3000				
1N4593	S			G	800	1.35	150	5.5	3000				
1N4594	S			G	1000	1.35	150	4.5	3000				
1N4595	S			G	1200	1.35	150	4.0	3000				
1N4596	S			G	1400	1.35	150	3.5	3000				
1N4597	S			G	5000	5.0	0.025		1.0				
1N4598	S		Table 3	V									
1N4599	S		Table 3	V									
1N4600	S		Table 4	M									
1N4601	S		Table 4	M									
1N4602	S		Table 4	M									
1N4603	S		Table 4	M									
1N4604	S		Table 4	M									
1N4605	S		Table 4	M									
1N4606	S			S	70	1.0	0.2	0.25*	6.0				
1N4607	S			S	70	0.95	250m	0.25*	10				
1N4608	S			S	70	0.96	350m	0.25*	10				
1N4609	S		Table 3	V									

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C % / °C	I _{ZT} mA	Temp Range °C
1N4610	S			S	55	1.1	0.3	0.1*	2.0	6.6	0.005	2.0	-50/175
1N4611	S	1N4576A	1N4549	R						6.6	0.002	2.0	-50/175
1N4611A	S	1N4577A	1N4549	R						6.6	0.001	2.0	-50/175
1N4611B	S	1N4578A	1N4549	R						6.6	0.0005	2.0	-50/175
1N4611C	S	1N4579A	1N4549	R						6.6	0.0005	2.0	-50/175
1N4612	S	1N4581A	1N4549	R						6.6	0.005	5.0	-50/175
1N4612A	S	1N4582A	1N4549	R						6.6	0.002	5.0	-50/175
1N4612B	S	1N4583A	1N4549	R						6.6	0.001	5.0	-50/175
1N4612C	S	1N4584A	1N4549	R						6.6	0.0005	5.0	-50/175
1N4613	S	1N4581A	1N4549	R						6.6	0.005	10	-50/175
1N4613A	S	1N4582A	1N4549	R						6.6	0.002	10	-50/175
1N4613B	S	1N4583A	1N4549	R						6.6	0.001	10	-50/175
1N4613C	S	1N4584A	1N4549	R						6.6	0.0005	10	-50/175
1N4614	S	MZ4614	1N4099	Z						1.8	0.25	5.0	0.25W
1N4615	S	MZ4615	1N4099	Z						2.0	0.25	5.0	0.25W
1N4616	S	MZ4616	1N4099	Z						2.2	0.25	5.0	0.25W
1N4617	S	MZ4617	1N4099	Z						2.4	0.25	5.0	0.25W
1N4618	S	MZ4618	1N4099	Z						2.7	0.25	5.0	0.25W
1N4619	S	MZ4619	1N4099	Z						3.0	0.25	5.0	0.25W
1N4620	S	MZ4620	1N4099	Z						3.3	0.25	5.0	0.25W
1N4621	S	MZ4621	1N4099	Z						3.6	0.25	5.0	0.25W
1N4622	S	MZ4622	1N4099	Z						3.9	0.25	5.0	0.25W
1N4623	S	MZ4623	1N4099	Z						4.3	0.25	5.0	0.25W
1N4624	S	MZ4624	1N4099	Z						4.7	0.25	5.0	0.25W
1N4625	S	MZ4625	1N4099	Z						5.1	0.25	5.0	0.25W
1N4626	S	MZ4626	1N4099	Z						5.6	0.25	5.0	0.25W
1N4627	S	MZ4627	1N4099	Z						6.2	0.25	5.0	0.25W
1N4628	S	1N4736A	1N4728	Z						6.8	19	5.0	0.6W
1N4629	S	1N4737A	1N4728	Z						7.5	17	5.0	0.6W
1N4630	S	1N4738A	1N4728	Z						8.2	15	5.0	0.6W
1N4631	S	1N4739A	1N4728	Z						9.1	14	5.0	0.6W
1N4632	S	1N4740A	1N4728	Z						10	13	5.0	0.6W
1N4633	S	1N4741A	1N4728	Z						11	12	5.0	0.6W
1N4634	S	1N4742A	1N4728	Z						12	11	5.0	0.6W
1N4635	S	1N4743A	1N4728	Z						13	9.5	5.0	0.6W
1N4636	S	1N4744A	1N4728	Z						15	8.5	5.0	0.6W
1N4637	S	1N4745A	1N4728	Z						16	7.8	5.0	0.6W
1N4638	S	1N4746A	1N4728	Z						18	7.0	5.0	0.6W
1N4639	S	1N4747A	1N4728	Z						20	6.2	5.0	0.6W
1N4640	S	1N4748A	1N4728	Z						22	6.0	5.0	0.6W
1N4641	S	1N4749A	1N4728	Z						24	5.2	5.0	0.6W
1N4642	S	1N4750A	1N4728	Z						27	4.6	5.0	0.6W
1N4643	S	1N4751A	1N4728	Z						30	4.2	5.0	0.6W
1N4644	S	1N4752A	1N4728	Z						33	3.8	5.0	0.6W
1N4645	S	1N4753A	1N4728	Z						36	3.4	5.0	0.6W
1N4646	S	1N4754A	1N4728	Z						39	3.2	5.0	0.6W
1N4647	S	1N4755A	1N4728	Z						43	3.0	5.0	0.6W
1N4648	S	1N4756A	1N4728	Z						47	2.7	5.0	0.6W
1N4649	S	1N4728A	1N4728	Z						3.3	10	5.0	1.0W
1N4650	S	1N4729A	1N4728	Z						3.6	10	5.0	1.0W
1N4651	S	1N4730A	1N4728	Z						3.9	64	5.0	1.0W
1N4652	S	1N4731A	1N4728	Z						4.3	58	5.0	1.0W
1N4653	S	1N4732A	1N4728	Z						4.7	53	5.0	1.0W
1N4654	S	1N4733A	1N4728	Z						5.1	49	5.0	1.0W
1N4655	S	1N4734A	1N4728	Z						5.6	45	5.0	1.0W
1N4656	S	1N4735A	1N4728	Z						6.2	41	5.0	1.0W
1N4657	S	1N4736A	1N4728	Z						6.8	37	5.0	1.0W
1N4658	S	1N4737A	1N4728	Z						7.5	34	5.0	1.0W
1N4659	S	1N4738A	1N4728	Z						8.2	31	5.0	1.0W
1N4660	S	1N4739A	1N4728	Z						9.1	28	5.0	1.0W
1N4661	S	1N4740A	1N4728	Z						10	25	5.0	1.0W
1N4662	S	1N4741A	1N4728	Z						11	23	5.0	1.0W
1N4663	S	1N4742A	1N4728	Z						12	21	5.0	1.0W
1N4664	S	1N4743A	1N4728	Z						13	19	5.0	1.0W
1N4665	S	1N4744A	1N4728	Z						15	17	5.0	1.0W
1N4666	S	1N4745A	1N4728	Z						16	16	5.0	1.0W
1N4667	S	1N4746A	1N4728	Z						18	14	5.0	1.0W
1N4668	S	1N4747A	1N4728	Z						20	13	5.0	1.0W
1N4669	S	1N4748A	1N4728	Z						22	12	5.0	1.0W
1N4670	S	1N4749A	1N4728	Z						24	11	5.0	1.0W

1N4671-1N4734

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _O
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
1N4671	S	1N4750A	1N4728	Z						27	9.5	5.0	1.0W
1N4672	S	1N4751A	1N4728	Z						30	8.5	5.0	1.0W
1N4673	S	1N4752A	1N4728	Z						33	7.5	5.0	1.0W
1N4674	S	1N4753A	1N4728	Z						36	7.0	5.0	1.0W
1N4675	S	1N4754A	1N4728	Z						39	6.5	5.0	1.0W
1N4676	S	1N4755A	1N4728	Z						43	6.0	5.0	1.0W
1N4677	S	1N4756A	1N4728	Z						47	5.5	5.0	1.0W
1N4678	S			Z						1.8	0.05	5.0	250m
1N4679	S			Z						2.0	0.05	5.0	250m
1N4680	S			Z						2.2	0.05	5.0	250m
1N4681	S			Z						2.4	0.05	5.0	250m
1N4682	S			Z						2.7	0.05	5.0	250m
1N4683	S			Z						3.0	0.05	5.0	250m
1N4684	S			Z						3.3	0.05	5.0	250m
1N4685	S			Z						3.6	0.05	5.0	250m
1N4686	S			Z						3.9	0.05	5.0	250m
1N4687	S			Z						4.3	0.05	5.0	250m
1N4688	S			Z						4.7	0.05	5.0	250m
1N4689	S			Z						5.1	0.05	5.0	250m
1N4690	S			Z						5.6	0.05	5.0	250m
1N4691	S			Z						6.2	0.05	5.0	250m
1N4692	S			Z						6.8	0.05	5.0	250m
1N4693	S			Z						7.5	0.05	5.0	250m
1N4694	S			Z						8.2	0.05	5.0	250m
1N4695	S			Z						8.7	0.05	5.0	250m
1N4696	S			Z						9.1	0.05	5.0	250m
1N4697	S			Z						10	0.05	5.0	250m
1N4698	S			Z						11	0.05	5.0	250m
1N4699	S			Z						12	0.05	5.0	250m
1N4700	S			Z						13	0.05	5.0	250m
1N4701	S			Z						14	0.05	5.0	250m
1N4702	S			Z						15	0.05	5.0	250m
1N4703	S			Z						16	0.05	5.0	250m
1N4704	S			Z						17	0.05	5.0	250m
1N4705	S			Z						18	0.05	5.0	250m
1N4706	S			Z						19	0.05	5.0	250m
1N4707	S			Z						20	0.05	5.0	250m
1N4708	S			Z						22	0.05	5.0	250m
1N4709	S			Z						24	0.05	5.0	250m
1N4710	S			Z						25	0.05	5.0	250m
1N4711	S			Z						27	0.05	5.0	250m
1N4712	S			Z						28	0.05	5.0	250m
1N4713	S			Z						30	0.05	5.0	250m
1N4714	S			Z						33	0.05	5.0	250m
1N4715	S			Z						36	0.05	5.0	250m
1N4716	S			Z						39	0.05	5.0	250m
1N4717	S			Z						43	0.05	5.0	250m
1N4718	S			S									
★1N4719	S		1N4719	G	50	1.2	0.75	50*	180				
★1N4720	S		1N4719	G	50	1.0	3.0	1.5	300				
				G	100	1.0	3.0	1.5	300				
★1N4721	S		1N4719	G	200	1.0	3.0	1.5	300				
★1N4722	S		1N4719	G	400	1.0	3.0	1.5	300				
★1N4723	S		1N4719	G	600	1.0	3.0	1.5	300				
★1N4724	S		1N4719	G	800	1.0	3.0	1.5	300				
★1N4725	S		1N4719	G	1000	1.0	3.0	1.5	300				
1N4726	S			S	20	0.85	10m	0.1*					
★1N4728	S		1N4728	Z	20	0.85	10m	0.1*					
★1N4728A	S		1N4728	Z						3.3	76	10	1.0W
★1N4729	S		1N4728	Z						3.3	76	5.0	1.0W
				Z						3.6	69	10	1.0W
★1N4729A	S		1N4728	Z						3.6	69	5.0	1.0W
★1N4730	S		1N4728	Z						3.9	64	10	1.0W
★1N4730A	S		1N4728	Z						3.9	64	5.0	1.0W
★1N4731	S		1N4728	Z						4.3	58	10	1.0W
★1N4731A	S		1N4728	Z						4.3	58	5.0	1.0W
★1N4732	S		1N4728	Z						4.7	53	10	1.0W
★1N4732A	S		1N4728	Z						4.7	53	5.0	1.0W
★1N4733	S		1N4728	Z						5.1	49	10	1.0W
★1N4733A	S		1N4728	Z						5.1	49	5.0	1.0W
★1N4734	S		1N4728	Z						5.6	45	10	1.0W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N4734A	S		1N4728	Z						5.6	45	5.0	1.0W
★1N4735	S		1N4728	Z						6.2	41	10	1.0W
★1N4735A	S		1N4728	Z						6.2	41	5.0	1.0W
★1N4736	S		1N4728	Z						6.8	37	10	1.0W
★1N4736A	S		1N4728	Z						6.8	37	5.0	1.0W
★1N4737	S		1N4728	Z						7.5	34	10	1.0W
★1N4737A	S		1N4728	Z						7.5	34	5.0	1.0W
★1N4738	S		1N4728	Z						8.2	31	10	1.0W
★1N4738A	S		1N4728	Z						8.2	31	5.0	1.0W
★1N4739	S		1N4728	Z						9.1	28	10	1.0W
★1N4739A	S		1N4728	Z						9.1	28	5.0	1.0W
★1N4740	S		1N4728	Z						10	25	10	1.0W
★1N4740A	S		1N4728	Z						10	25	5.0	1.0W
★1N4741	S		1N4728	Z						11	23	10	1.0W
★1N4741A	S		1N4728	Z						11	23	5.0	1.0W
★1N4742	S		1N4728	Z						12	21	10	1.0W
★1N4742A	S		1N4728	Z						12	21	5.0	1.0W
★1N4743	S		1N4728	Z						13	19	10	1.0W
★1N4743A	S		1N4728	Z						13	19	5.0	1.0W
★1N4744	S		1N4728	Z						15	17	10	1.0W
★1N4744A	S		1N4728	Z						15	17	5.0	1.0W
★1N4745	S		1N4728	Z						16	15.5	10	1.0W
★1N4745A	S		1N4728	Z						16	15.5	5.0	1.0W
★1N4746	S		1N4728	Z						18	14	10	1.0W
★1N4746A	S		1N4728	Z						18	14	5.0	1.0W
★1N4747	S		1N4728	Z						20	12.5	10	1.0W
★1N4747A	S		1N4728	Z						20	12.5	5.0	1.0W
★1N4748	S		1N4728	Z						22	11.5	10	1.0W
★1N4748A	S		1N4728	Z						22	11.5	5.0	1.0W
★1N4749	S		1N4728	Z						24	10.5	10	1.0W
★1N4749A	S		1N4728	Z						24	10.5	5.0	1.0W
★1N4750	S		1N4728	Z						27	9.5	10	1.0W
★1N4750A	S		1N4728	Z						27	9.5	5.0	1.0W
★1N4751	S		1N4728	Z						30	8.5	10	1.0W
★1N4751A	S		1N4728	Z						30	8.5	5.0	1.0W
★1N4752	S		1N4728	Z						33	7.5	10	1.0W
★1N4752A	S		1N4728	Z						33	7.5	5.0	1.0W
★1N4753	S		1N4728	Z						36	7.0	10	1.0W
★1N4753A	S		1N4728	Z						36	7.0	5.0	1.0W
★1N4754	S		1N4728	Z						39	6.5	10	1.0W
★1N4754A	S		1N4728	Z						39	6.5	5.0	1.0W
★1N4755	S		1N4728	Z						43	6.0	10	1.0W
★1N4755A	S		1N4728	Z						43	6.0	5.0	1.0W
★1N4756	S		1N4728	Z						47	5.5	10	1.0W
★1N4756A	S		1N4728	Z						47	5.5	5.0	1.0W
★1N4757	S		1N4728	Z						51	5.0	10	1.0W
★1N4757A	S		1N4728	Z						51	5.0	5.0	1.0W
★1N4758	S		1N4728	Z						56	4.5	10	1.0W
★1N4758A	S		1N4728	Z						56	4.5	5.0	1.0W
★1N4759	S		1N4728	Z						62	4.0	10	1.0W
★1N4759A	S		1N4728	Z						62	4.0	5.0	1.0W
★1N4760	S		1N4728	Z						68	3.7	10	1.0W
★1N4760A	S		1N4728	Z						68	3.7	5.0	1.0W
★1N4761	S		1N4728	Z						75	3.3	10	1.0W
★1N4761A	S		1N4728	Z						75	3.3	5.0	1.0W
★1N4762	S		1N4728	Z						82	3.0	10	1.0W
★1N4762A	S		1N4728	Z						82	3.0	5.0	1.0W
★1N4763	S		1N4728	Z						91	2.8	10	1.0W
★1N4763A	S		1N4728	Z						91	2.8	5.0	1.0W
★1N4764	S		1N4728	Z						100	2.5	10	1.0W
★1N4764A	S		1N4728	Z						100	2.4	5.0	1.0W
★1N4765	S		1N4565	R						9.1	0.01	0.5	0/75
★1N4765A	S		1N4565	R						9.1	0.01	0.5	-55/100
★1N4766	S		1N4565	R						9.1	0.005	0.5	0/75
★1N4766A	S		1N4565	R						9.1	0.005	0.5	-55/100
★1N4767	S		1N4565	R						9.1	0.002	0.5	0/75
★1N4767A	S		1N4565	R						9.1	0.002	0.5	-55/100
★1N4768	S		1N4565	R						9.1	0.001	0.5	0/75
★1N4768A	S		1N4565	R						9.1	0.001	0.5	-55/100
★1N4769	S		1N4565	R						9.1	0.0005	0.5	0/75

1N4769A-1N4837B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	I _{OL} V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N4769A	S		1N4565	R						9.1	0.0005	0.5	-55/100
★1N4770	S		1N4565	R						9.1	0.01	1.0	0/75
★1N4770A	S		1N4565	R						9.1	0.01	1.0	-55/100
★1N4771	S		1N4565	R						9.1	0.005	1.0	0/75
★1N4771A	S		1N4565	R						9.1	0.005	1.0	-55/100
★1N4772	S		1N4565	R						9.1	0.002	1.0	0/75
★1N4772A	S		1N4565	R						9.1	0.002	1.0	-55/100
★1N4773	S		1N4565	R						9.1	0.001	1.0	0/75
★1N4773A	S		1N4565	R						9.1	0.001	1.0	-55/100
★1N4774	S		1N4565	R						9.1	0.0005	1.0	0/75
★1N4774A	S		1N4565	R						9.1	0.0005	1.0	-55/100
★1N4775	S		1N4565	R						8.5	0.01	0.5	0/75
★1N4775A	S		1N4565	R						8.5	0.01	0.5	-55/100
★1N4776	S		1N4565	R						8.5	0.005	0.5	0/75
★1N4776A	S		1N4565	R						8.5	0.005	0.5	-55/100
★1N4777	S		1N4565	R						8.5	0.002	0.5	0/75
★1N4777A	S		1N4565	R						8.5	0.002	0.5	-55/100
★1N4778	S		1N4565	R						8.5	0.001	0.5	0/75
★1N4778A	S		1N4565	R						8.5	0.001	0.5	-55/100
★1N4779	S		1N4565	R						8.5	0.0005	0.5	0/75
★1N4779A	S		1N4565	R						8.5	0.0005	0.5	-55/100
★1N4780	S		1N4565	R						8.5	0.01	1.0	0/75
★1N4780A	S		1N4565	R						8.5	0.01	1.0	-55/100
★1N4781	S		1N4565	R						8.5	0.005	1.0	0/75
★1N4781A	S		1N4565	R						8.5	0.005	1.0	-55/100
★1N4782	S		1N4565	R						8.5	0.002	1.0	0/75
★1N4782A	S		1N4565	R						8.5	0.002	1.0	-55/100
★1N4783	S		1N4565	R						8.5	0.001	1.0	0/75
★1N4783A	S		1N4565	R						8.5	0.001	1.0	-55/100
★1N4784	S		1N4565	R						8.5	0.0005	1.0	0/75
★1N4784A	S		1N4565	R						8.5	0.0005	1.0	-55/100
1N4786 thru 1N4815 1N4816	S		Table 3	V									
	S	1N4001	Table 3 1N4001	V G	50	1.3	1.5	0.25	50				
1N4817	S	1N4002	1N4001	G	100	1.3	1.5	0.25	50				
1N4818	S	1N4003	1N4001	G	200	1.3	1.5	0.25	50				
1N4819	S	1N4004	1N4001	G	300	1.3	1.5	0.25	50				
1N4820	S	1N4004	1N4001	G	400	1.3	1.5	0.25	50				
1N4821	S	1N4005	1N4001	G	500	1.3	1.5	0.25	50				
1N4822	S	1N4005	1N4001	G	600	1.3	1.5	0.25	50				
1N4823	S	1N4934	1N4933	G	100	1.25	1.0	1.0	35				
1N4824	S	1N4935	1N4933	G	200	1.25	1.0	1.0	35				
1N4825	S	1N4936	1N4933	G	400	1.25	1.0	1.0	35				
1N4826	S	1N4937	1N4933	G	600	1.25	1.0	1.0	35				
1N4827	G			S	30	1.0	40m	15*	0.2				
1N4828	S			S	20	1.1	0.1	0.1*					
1N4829	S			S	20	1.87	0.1	0.1*					
1N4830	S			S	20	2.69	0.1	0.1*					
1N4831	S	1N4739	1N4728	Z						9.1	28	20	1.2W
1N4831A	S	1N4739	1N4728	Z						9.1	28	10	1.2W
1N4831B	S	1N4739A	1N4728	Z						9.1	28	5.0	1.2W
1N4832	S	1N4740	1N4728	Z						10	25	20	1.2W
1N4832A	S	1N4740	1N4728	Z						10	25	10	1.2W
1N4832B	S	1N4740A	1N4728	Z						10	25	5.0	1.2W
1N4833	S	1N4741	1N4728	Z						11	23	20	1.2W
1N4833A	S	1N4741	1N4728	Z						11	23	10	1.2W
1N4833B	S	1N4741A	1N4728	Z						11	23	5.0	1.2W
1N4834	S	1N4742	1N4728	Z						12	21	20	1.2W
1N4834A	S	1N4742	1N4728	Z						12	21	10	1.2W
1N4834B	S	1N4742A	1N4728	Z						12	21	5.0	1.2W
1N4835	S	1N4743	1N4728	Z						13	19	20	1.2W
1N4835A	S	1N4743	1N4728	Z						13	19	10	1.2W
1N4835B	S	1N4743A	1N4728	Z						13	19	5.0	1.2W
1N4836	S	1N4744	1N4728	Z						15	17	20	1.2W
1N4836A	S	1N4744	1N4728	Z						15	17	10	1.2W
1N4836B	S	1N4744A	1N4728	Z						15	17	5.0	1.2W
1N4837	S	1N4745	1N4728	Z						16	16	20	1.2W
1N4837A	S	1N4745	1N4728	Z						16	16	10	1.2W
1N4837B	S	1N4745A	1N4728	Z						16	16	5.0	1.2W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM}	V_F	I_O	I_R	I_{FSM}	V_Z Nom	I_{ZT}	Tol	P_D
					Volts	Volts	Amp	mA	Amp	Volts	mA	$V_Z \pm \%$	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V_F	I_F	I_R	t_{rr}	V_Z Nom	T_C	I_{ZT}	Temp					
Volts	Volts @			μs	Volts	$^{\circ}C$	mA	Range $^{\circ}C$					
1N4838	S	1N4746	1N4728	Z						18	14	20	1.2W
1N4838A	S	1N4746	1N4728	Z						18	14	10	1.2W
1N4838B	S	1N4746A	1N4728	Z						18	14	5.0	1.2W
1N4839	S	1N4747	1N4728	Z						20	19	20	1.2W
1N4839A	S	1N4747	1N4728	Z						20	19	10	1.2W
1N4839B	S	1N4747A	1N4728	Z						20	19	5.0	1.2W
1N4840	S	1N4748	1N4728	Z						22	11	20	1.2W
1N4840A	S	1N4748	1N4728	Z						22	11	10	1.2W
1N4840B	S	1N4748A	1N4728	Z						22	11	5.0	1.2W
1N4841	S	1N4749	1N4728	Z						24	11	20	1.2W
1N4841A	S	1N4749	1N4728	Z						24	11	10	1.2W
1N4841B	S	1N4749A	1N4728	Z						24	11	5.0	1.2W
1N4842	S	1N4750	1N4728	Z						27	9.3	20	1.2W
1N4842A	S	1N4750	1N4728	Z						27	9.3	10	1.2W
1N4842B	S	1N4750A	1N4728	Z						27	9.3	5.0	1.2W
1N4843	S	1N4751	1N4728	Z						30	8.3	20	1.2W
1N4843A	S	1N4751	1N4728	Z						30	8.3	10	1.2W
1N4843B	S	1N4751A	1N4728	Z						30	8.3	5.0	1.2W
1N4844	S	1N4752	1N4728	Z						33	7.5	20	1.2W
1N4844A	S	1N4752	1N4728	Z						33	7.5	10	1.2W
1N4844B	S	1N4752A	1N4728	Z						33	7.5	5.0	1.2W
1N4845	S	1N4753	1N4728	Z						36	7.0	20	1.2W
1N4845A	S	1N4753	1N4728	Z						36	7.0	10	1.2W
1N4845B	S	1N4753A	1N4728	Z						36	7.0	5.0	1.2W
1N4846	S	1N4754	1N4728	Z						39	6.5	20	1.2W
1N4846A	S	1N4754	1N4728	Z						39	6.5	10	1.2W
1N4846B	S	1N4754A	1N4728	Z						39	6.5	5.0	1.2W
1N4847	S	1N4755	1N4728	Z						43	5.8	20	1.2W
1N4847A	S	1N4755	1N4728	Z						43	5.8	10	1.2W
1N4847B	S	1N4755A	1N4728	Z						43	5.8	5.0	1.2W
1N4848	C	1N4756	1N4728	Z						47	5.3	20	1.2W
1N4848A	S	1N4756	1N4728	Z						47	5.3	10	1.2W
1N4848B	S	1N4756A	1N4728	Z						47	5.3	5.0	1.2W
1N4849	S	1N4757	1N4728	Z						51	5.0	20	1.2W
1N4849A	S	1N4757	1N4728	Z						51	5.0	10	1.2W
1N4849B	S	1N4757A	1N4728	Z						51	5.0	5.0	1.2W
1N4850	S	1N4758	1N4728	Z						56	4.5	20	1.2W
1N4850A	S	1N4758	1N4728	Z						56	4.5	10	1.2W
1N4850B	S	1N4758A	1N4728	Z						56	4.5	5.0	1.2W
1N4851	S	1N4759	1N4728	Z						62	4.0	20	1.2W
1N4851A	S	1N4759	1N4728	Z						62	4.0	10	1.2W
1N4851B	S	1N4759A	1N4728	Z						62	4.0	5.0	1.2W
1N4852	S	1N4760	1N4728	Z						68	3.7	20	1.2W
1N4852A	S	1N4760	1N4728	Z						68	3.7	10	1.2W
1N4852B	S	1N4760A	1N4728	Z						68	3.7	5.0	1.2W
1N4853	S	1N4761	1N4728	Z						75	3.3	20	1.2W
1N4853A	S	1N4761	1N4728	Z						75	3.3	10	1.2W
1N4853B	S	1N4761A	1N4728	Z						75	3.3	5.0	1.2W
1N4854	S	1N4762	1N4728	Z						82	3.0	20	1.2W
1N4854A	S	1N4762	1N4728	Z						82	3.0	10	1.2W
1N4854B	S	1N4762A	1N4728	Z						82	3.0	5.0	1.2W
1N4855	S	1N4763	1N4728	Z						91	2.8	20	1.2W
1N4855A	S	1N4763	1N4728	Z						91	2.8	10	1.2W
1N4855B	S	1N4763A	1N4728	Z						91	2.8	5.0	1.2W
1N4856	S	1N5764	1N4728	Z						100	2.5	20	1.2W
1N4856A	S	1N5764	1N4728	Z						100	2.5	10	1.2W
1N4856B	S	1N5764A	1N4728	Z						100	2.5	5.0	1.2W
1N4857	S	1M110ZS10	1N4728	Z						110	2.3	20	1.2W
1N4857A	S	1M110ZS10	1N4728	Z						110	2.3	10	1.2W
1N4857B	S	1M110ZS5	1N4728	Z						110	2.3	5.0	1.2W
1N4858	S	1M120ZS10	1N4728	Z						120	1.2	20	1.2W
1N4858A	S	1M120ZS10	1N4728	Z						120	1.2	10	1.2W
1N4858B	S	1M120ZS5	1N4728	Z						120	1.2	5.0	1.2W
1N4859	S	1M130ZS10	1N4728	Z						130	1.9	20	1.2W
1N4859A	S	1M130ZS10	1N4728	Z						130	1.9	10	1.2W
1N4859B	S	1M130ZS5	1N4728	Z						130	1.9	5.0	1.2W
1N4860	S	1M150ZS10	1N4728	Z						150	1.7	20	1.2W
1N4860A	S	1M150ZS10	1N4728	Z						150	1.7	10	1.2W
1N4860B	S	1M150ZS5	1N4728	Z						150	1.7	5.0	1.2W
1N4861	S			S	50	1.2	0.1	2.0n	1.0				

1N4862-1N4910A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	T _{Cl} V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N4862	S			S	50	1.1	0.1	5.0n	1.0				
1N4863	S			S	50	1.2	0.1	50n	7.0				
1N4864	S			S	80	1.1	0.1	0.1*	9.0				
1N4865	S			G	1500	2.4	1.25	0.6	150				
1N4866	S			G	2500	3.6	1.25	0.6	150				
1N4876	S			G	3000	4.8	1.25	0.6	150				
1N4868	S			G	5000	8.4	1.25	0.6	150				
1N4869	S			G	7500	12	1.25	0.6	150				
1N4870	S			G	10k	16	1.25	0.6	150				
1N4871	S			G	12k	18	1.25	0.6	150				
1N4872	S			G	15k	23	1.25	0.6	150				
1N4873	S			G	20k	30	1.25	0.6	150				
1N4874	S			G	25k	38	1.25	0.6	150				
1N4875	S			G	30k	46	1.25	0.6	150				
1N4876	S			G	40k	60	1.25	0.6	150				
1N4877	S			G	50k	76	1.25	0.6	150				
1N4878	S			G	100	1.3	100	5.0	1500				
1N4879	S	MR1221SB	MR1220	G	100	1.3	160	10	2200				
1N4880	S			G	100	1.2	250	10	4000				
1N4881	S	1N4747	1N4728	Z						40	20	.10	3.0W
1N4882	S	1N4753	1N4728	Z						20	36	.10	3.0W
1N4883	S	1N4742A	1N4728	Z						65	12	5.0	3.0W
1N4884	S	1N4747A	1N4728	Z						40	20	5.0	3.0W
1N4885	S		Table 3	V									
1N4886	S		Table 3	V									
1N4887	S			G	75k	115	1.25	0.6	150				
1N4888	S			S	12	1.0	20m	50n					
1N4889	S	1N3000B	1N2970	Z						62	20	5.0	5.0W
1N4890	S	MZ640	MZ600	R						6.35	0.001	7.5	25/100
1N4890A	S	MZ640	MZ600	R						6.35	0.001	7.5	55/100
1N4891	S	MZ640	MZ600	R						6.35	0.0005	7.5	25/100
1N4891A	S	MZ640	MZ600	R						6.35	0.0005	7.5	55/100
1N4892	S	MZ620	MZ600	R						6.35	0.001	7.5	25/100
1N4892A	S	MZ620	MZ600	R						6.35	0.001	7.5	55/100
1N4893	S	MZ620	MZ600	R						6.35	0.0005	7.5	25/100
1N4893A	S	MZ620	MZ600	R						6.35	0.0005	7.5	55/100
1N4894	S	MZ610	MZ600	R						6.35	0.001	7.5	25/100
1N4894A	S	MZ610	MZ600	R						6.35	0.001	7.5	55/100
1N4895	S	MZ610	MZ600	R						6.35	0.0005	7.5	25/100
1N4895A	S	MZ610	MZ600	R						6.35	0.0005	7.5	55/100
★1N4896	S		1N4765	R						12.8	0.01	0.5	25/100
★1N4896A	S		1N4765	R						12.8	0.01	0.5	55/100
★1N4897	S		1N4765	R						12.8	0.005	0.5	25/100
★1N4897A	S		1N4765	R						12.8	0.005	0.5	55/100
★1N4898	S		1N4765	R						12.8	0.002	0.5	25/100
★1N4898A	S		1N4765	R						12.8	0.002	0.5	55/100
★1N4899	S		1N4765	R						12.8	0.001	0.5	25/100
★1N4899A	S		1N4765	R						12.8	0.001	0.5	55/100
★1N4900	S		1N4765	R						12.8	0.01	1.0	25/100
★1N4900A	S		1N4765	R						12.8	0.01	1.0	55/100
★1N4901	S		1N4765	R						12.8	0.005	1.0	25/100
★1N4901A	S		1N4765	R						12.8	0.005	1.0	55/100
★1N4902	S		1N4765	R						12.8	0.002	1.0	25/100
★1N4902A	S		1N4765	R						12.8	0.002	1.0	55/100
★1N4903	S		1N4765	R						12.8	0.001	1.0	25/100
★1N4903A	S		1N4765	R						12.8	0.001	1.0	55/100
★1N4904	S		1N4765	R						12.8	0.01	2.0	25/100
★1N4904A	S		1N4765	R						12.8	0.01	2.0	55/100
★1N4905	S		1N4765	R						12.8	0.005	2.0	25/100
★1N4905A	S		1N4765	R						12.8	0.005	2.0	55/100
★1N4906	S		1N4765	R						12.8	0.002	2.0	25/100
★1N4906A	S		1N4765	R						12.8	0.002	2.0	55/100
★1N4907	S		1N4765	R						12.8	0.001	2.0	25/100
★1N4907A	S		1N4765	R						12.8	0.001	2.0	55/100
★1N4908	S		1N4765	R						12.8	0.01	4.0	25/100
★1N4908A	S		1N4765	R						12.8	0.01	4.0	55/100
★1N4909	S		1N4765	R						12.8	0.005	4.0	25/100
★1N4909A	S		1N4765	R						12.8	0.005	4.0	55/100
★1N4910	S		1N4765	R						12.8	0.002	4.0	25/100
★1N4910A	S		1N4765	R						12.8	0.002	4.0	55/100

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N4911	S		1N4765	R						12.8	0.001	4.0	25/100
★1N4911A	S		1N4765	R						12.8	0.001	4.0	-55/100
★1N4912	S		1N4765	R						12.8	0.01	7.5	25/100
★1N4912A	S		1N4765	R						12.8	0.01	7.5	-55/100
★1N4913	S		1N4765	R						12.8	0.005	7.5	25/100
★1N4913A	S		1N4765	R						12.8	0.005	7.5	-55/100
★1N4914	S		1N4765	R						12.8	0.002	7.5	25/100
★1N4914A	S		1N4765	R						12.8	0.002	7.5	-55/100
★1N4915	S		1N4765	R						12.8	0.001	7.5	25/100
★1N4915A	S		1N4765	R						12.8	0.001	7.5	-55/100
★1N4916	S		1N4765	R						19.2	0.01	0.5	25/100
★1N4916A	S		1N4765	R						19.2	0.01	0.5	-55/100
★1N4917	S		1N4765	R						19.2	0.005	0.5	25/100
★1N4917A	S		1N4765	R						19.2	0.005	0.5	-55/100
★1N4918	S		1N4765	R						19.2	0.002	0.5	25/100
★1N4918A	S		1N4765	R						19.2	0.002	0.5	-55/100
★1N4919	S		1N4765	R						19.2	0.01	1.0	25/100
★1N4919A	S		1N4765	R						19.2	0.01	1.0	-55/100
★1N4920	S		1N4765	R						19.2	0.005	1.0	25/100
★1N4920A	S		1N4765	R						19.2	0.005	1.0	-55/100
★1N4921	S		1N4765	R						19.2	0.002	1.0	25/100
★1N4921A	S		1N4765	R						19.2	0.002	1.0	-55/100
★1N4922	S		1N4765	R						19.2	0.01	2.0	25/100
★1N4922A	S		1N4765	R						19.2	0.01	2.0	-55/100
★1N4923	S		1N4765	R						19.2	0.005	2.0	25/100
★1N4923A	S		1N4765	R						19.2	0.005	2.0	-55/100
★1N4924	S		1N4765	R						19.2	0.002	2.0	25/100
★1N4924A	S		1N4765	R						19.2	0.002	2.0	-55/100
★1N4925	S		1N4765	R						19.2	0.01	4.0	25/100
★1N4925A	S		1N4765	R						19.2	0.01	4.0	-55/100
★1N4926	S		1N4765	R						19.2	0.005	4.0	25/100
★1N4926A	S		1N4765	R						19.2	0.005	4.0	-55/100
★1N4927	S		1N4765	R						19.2	0.002	4.0	25/100
★1N4927A	S		1N4765	R						19.2	0.002	4.0	-55/100
★1N4928	S		1N4765	R						19.2	0.001	4.0	25/100
★1N4928A	S		1N4765	R						19.2	0.001	4.0	-55/100
★1N4929	S		1N4765	R						19.2	0.01	7.5	25/100
★1N4929A	S		1N4765	R						19.2	0.01	7.5	-55/100
★1N4930	S		1N4765	R						19.2	0.005	7.5	25/100
★1N4930A	S		1N4765	R						19.2	0.005	7.5	-55/100
★1N4931	S		1N4765	R						19.2	0.002	7.5	25/100
★1N4931A	S		1N4765	R						19.2	0.002	7.5	-55/100
★1N4932	S		1N4765	R						19.2	0.001	7.5	25/100
★1N4932A	S		1N4765	R						19.2	0.001	7.5	-55/100
★1N4933	S		1N4933	F	50	1.2	1.0	0.3	30				
★1N4934	S		1N4933	F	100	1.2	1.0	0.3	30				
★1N4935	S		1N4933	F	200	1.2	1.0	0.3	30				
★1N4936	S		1N4933	F	400	1.2	1.0	0.3	30				
★1N4937	S		1N4933	F	600	1.2	1.0	0.3	30				
1N4938	S			S	200	1.0	0.1	0.1*	50				
1N4939	G		Table 4	M									
1N4940	G		Table 4	M									
1N4941	S		Table 3	V									
1N4942	S			S	200	1.5	3.0	0.5m	150n				
1N4943	S			S	300	1.5	3.0	0.5m	150n				
1N4944	S			S	400	1.5	3.0	0.5m	150n				
1N4945	S			S	500	1.5	3.0	0.5m	150n				
1N4946	S			S	600	1.5	3.0	0.5m	250n				
1N4947	S			S	800	1.5	3.0	0.5m	300n				
1N4948	S			S	1000	1.5	3.0	0.5m	500n				
1N4950	S			S	25	0.53	1.0m	0.1m					
1N4951	S			S	20	0.85	1.0m	0.1*					
1N4952	S			S	50	0.85	1.0m	0.1*					
1N4954	S	1N5342B	1N5333	Z						6.8	175	5.0	3.0W
1N4955	S	1N5343B	1N5333	Z						7.5	175	5.0	3.0W
1N4956	S	1N5344B	1N5333	Z						8.2	150	5.0	3.0W
1N4957	S	1N5346B	1N5333	Z						9.1	150	5.0	3.0W
1N4958	S	1N5347B	1N5333	Z						10	125	5.0	3.0W
1N4959	S	1N5348B	1N5333	Z						11	120	5.0	3.0W
1N4960	S	1N5349B	1N5333	Z						12	100	5.0	3.0W

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TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N4961	S	1N5350B	1N5333	Z						13	100	5.0	3.0W
1N4962	S	1N5352B	1N5333	Z						15	75	5.0	3.0W
1N4963	S	1N5353B	1N5333	Z						16	5.0	5.0	3.0W
1N4964	S	1N5355B	1N5333	Z						18	65	5.0	3.0W
1N4965	S	1N5357B	1N5333	Z						20	65	5.0	3.0W
1N4966	S	1N5358B	1N5333	Z						22	50	5.0	3.0W
1N4967	S	1N5359B	1N5333	Z						24	50	5.0	3.0W
1N4968	S	1N5361B	1N5333	Z						27	50	5.0	3.0W
1N4969	S	1N5363B	1N5333	Z						30	40	5.0	3.0W
1N4970	S	1N5364B	1N5333	Z						33	40	5.0	3.0W
1N4971	S	1N5365B	1N5333	Z						36	30	5.0	3.0W
1N4972	S	1N5366B	1N5333	Z						39	30	5.0	3.0W
1N4973	S	1N5367B	1N5333	Z						43	30	5.0	3.0W
1N4974	S	1N5368B	1N5333	Z						47	25	5.0	3.0W
1N4975	S	1N5369B	1N5333	Z						51	25	5.0	3.0W
1N4976	S	1N5370B	1N5333	Z						56	20	5.0	3.0W
1N4977	S	1N5372B	1N5333	Z						62	20	5.0	3.0W
1N4978	S	1N5373B	1N5333	Z						68	20	5.0	3.0W
1N4979	S	1N5374B	1N5333	Z						75	20	5.0	3.0W
1N4980	S	1N5375B	1N5333	Z						82	15	5.0	3.0W
1N4981	S	1N5377B	1N5333	Z						91	15	5.0	3.0W
1N4982	S	1N5378B	1N5333	Z						100	12	5.0	3.0W
1N4983	S	1N5379B	1N5333	Z						110	12	5.0	3.0W
1N4984	S	1N5380B	1N5333	Z						120	10	5.0	3.0W
1N4985	S	1N5381B	1N5333	Z						130	19	5.0	3.0W
1N4986	S	1N5383B	1N5333	Z						150	8.0	5.0	3.0W
1N4987	S	1N5384B	1N5333	Z						160	8.0	5.0	3.0W
1N4988	S	1N5386B	1N5333	Z						180	5.0	5.0	3.0W
1N4989	S	1N5388B	1N5333	Z						200	5.0	5.0	3.0W
1N4990	S			Z						220	5.0	5.0	3.0W
1N4991	S			Z						240	5.0	5.0	3.0W
1N4992	S			Z						270	5.0	5.0	3.0W
1N4993	S			Z						300	4.0	5.0	3.0W
1N4994	S			Z						330	4.0	5.0	3.0W
1N4995	S			Z						360	3.0	5.0	3.0W
1N4996	S			Z						390	3.0	5.0	3.0W
★1N4997	S		1N4719	G	50	1.0	3.0	2.0	300				
★1N4998	S		1N4719	G	100	1.0	3.0	2.0	300				
★1N4999	S		1N4719	G	200	1.0	3.0	2.0	300				
★1N5000	S		1N4719	G	400	1.0	3.0	2.0	300				
★1N5001	S		1N4719	G	600	1.0	3.0	1.0	300				
★1N5002	S		1N4719	G	800	1.0	3.0	1.0	300				
★1N5003	S		1N4719	G	1000	1.0	3.0	1.0	300				
1N5004	S			G	100	1.3	1.0	1.0	35				
1N5005	S			G	200	1.3	1.0	1.0	35				
1N5006	S			G	400	1.3	1.0	1.0	35				
1N5007	S			G	600	1.3	1.0	1.0	35				
1N5008	S	1N4728	1N4728	Z						3.3	189	10	2.5W
1N5008A	S	1N4728A	1N4728	Z						3.3	189	5.0	2.5W
1N5009	S	1N4729	1N4728	Z						3.6	173	10	2.5W
1N5009A	S	1N4729A	1N4728	Z						3.6	173	5.0	2.5W
1N5010	S	1N4730	1N4728	Z						3.9	160	10	2.5W
1N5010A	S	1N4730A	1N4728	Z						3.9	160	5.0	2.5W
1N5011	S	1N4731	1N4728	Z						4.3	145	10	2.5W
1N5011A	S	1N4731A	1N4728	Z						4.3	145	5.0	2.5W
1N5012	S	1N4732	1N4728	Z						4.7	133	10	2.5W
1N5012A	S	1N4732A	1N4728	Z						4.7	133	5.0	2.5W
1N5013	S	1N4733	1N4728	Z						5.1	122	10	2.5W
1N5013A	S	1N4733A	1N4728	Z						5.1	122	5.0	2.5W
1N5014	S	1N4734	1N4728	Z						5.6	111	10	2.5W
1N5014A	S	1N4734A	1N4728	Z						5.6	111	5.0	2.5W
1N5015	S	1N4735	1N4728	Z						6.2	104	10	2.5W
1N5015A	S	1N4735A	1N4728	Z						6.2	104	5.0	2.5W
1N5016	S	1N4736	1N4728	Z						6.8	92	10	2.5W
1N5016A	S	1N4736A	1N4728	Z						6.8	92	5.0	2.5W
1N5017	S	1N4737	1N4728	Z						7.5	83	10	2.5W
1N5017A	S	1N4737A	1N4728	Z						7.5	83	5.0	2.5W
1N5018	S	1N4738	1N4728	Z						8.2	76	10	2.5W
1N5018A	S	1N4738A	1N4728	Z						8.2	76	5.0	2.5W
1N5019	S	1N4739	1N4728	Z						9.1	69	10	2.5W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N5019A	S	1N4739A	1N4728	Z						9.1	69	5.0	2.5W
1N5020	S	1N4740	1N4728	Z						10	62	10	2.5W
1N5020A	S	1N4740A	1N4728	Z						10	62	5.0	2.5W
1N5021	S	1N4741	1N4728	Z						11	57	10	2.5W
1N5021A	S	1N4741A	1N4728	Z						11	57	5.0	2.5W
1N5022	S	1N4742	1N4728	Z						12	52	10	2.5W
1N5022A	S	1N4742A	1N4728	Z						12	52	5.0	2.5W
1N5023	S	1N4743	1N4728	Z						13	48	10	2.5W
1N5023A	S	1N4743A	1N4728	Z						13	48	5.0	2.5W
1N5024	S	1M14ZS10		Z						14	45	10	2.5W
1N5024A	S	1M14ZS5		Z						14	45	5.0	2.5W
1N5025	S	1N4744	1N4728	Z						15	42	10	2.5W
1N5025A	S	1N4744A	1N4728	Z						15	42	5.0	2.5W
1N5026	S	1N4745	1N4728	Z						16	39	10	2.5W
1N5026A	S	1N4745A	1N4728	Z						16	39	5.0	2.5W
1N5027	S	1M17ZS10		Z						17	37	10	2.5W
1N5027A	S	1M17ZS5		Z						17	37	5.0	2.5W
1N5028	S	1N4746	1N4728	Z						18	35	10	2.5W
1N5028A	S	1N4746A	1N4728	Z						18	35	5.0	2.5W
1N5029	S	1M19ZS10		Z						19	33	10	2.5W
1N5029A	S	1M19ZS5		Z						19	33	5.0	2.5W
1N5030	S	1N4747	1N4728	Z						20	31	10	2.5W
1N5030A	S	1N4747A	1N4728	Z						20	31	5.0	2.5W
1N5031	S	1N4748	1N4728	Z						22	28	10	2.5W
1N5031A	S	1N4748A	1N4728	Z						22	28	5.0	2.5W
1N5032	S	1N4749	1N4728	Z						24	26	10	2.5W
1N5032A	S	1N4749A	1N4728	Z						24	26	5.0	2.5W
1N5033	S	1M25ZS10		Z						25	25	10	2.5W
1N5033A	S	1M25ZS5		Z						25	25	5.0	2.5W
1N5034	S	1N4750	1N4728	Z						27	23	10	2.5W
1N5034A	S	1N4750A	1N4728	Z						27	23	5.0	2.5W
1N5035	S	1N4751	1N4728	Z						30	21	10	2.5W
1N5035A	S	1N4751A	1N4728	Z						30	21	5.0	2.5W
1N5036	S	1N4752	1N4728	Z						33	19	10	2.5W
1N5036A	S	1N4752A	1N4728	Z						33	19	5.0	2.5W
1N5037	S	1N4753	1N4728	Z						36	17	10	2.5W
1N5037A	S	1N4753A	1N4728	Z						36	17	5.0	2.5W
1N5038	S	1N4754	1N4728	Z						39	16	10	2.5W
1N5038A	S	1N4754A	1N4728	Z						39	16	5.0	2.5W
1N5039	S	1N4755	1N4728	Z						43	15	10	2.5W
1N5039A	S	1N4755A	1N4728	Z						43	15	5.0	2.5W
1N5040	S	1M45ZS10		Z						45	14	10	2.5W
1N5040A	S	1M45ZS5		Z						45	14	5.0	2.5W
1N5041	S	1N4756	1N4728	Z						47	13	10	2.5W
1N5041A	S	1N4756A	1N4728	Z						47	13	5.0	2.5W
1N5042	S	1M50ZS10		Z						50	12	10	2.5W
1N5042A	S	1M50ZS5		Z						50	12	5.0	2.5W
1N5043	S	1N4757	1N4728	Z						51	12	10	2.5W
1N5043A	S	1N4757A	1N4728	Z						51	12	5.0	2.5W
1N5044	S	1M52ZS10		Z						52	12	10	2.5W
1N5044A	S	1M52ZS5		Z						52	12	5.0	2.5W
1N5045	S	1N4758	1N4728	Z						56	11	10	2.5W
1N5045A	S	1N4758A	1N4728	Z						56	11	5.0	2.5W
1N5046	S	1N4759	1N4728	Z						62	10	10	2.5W
1N5046A	S	1N4759A	1N4728	Z						62	10	5.0	2.5W
1N5047	S	1N4760	1N4728	Z						68	9.2	10	2.5W
1N5047A	S	1N4760A	1N4728	Z						68	9.2	5.0	2.5W
1N5048	S	1N4761	1N4728	Z						75	8.3	10	2.5W
1N5048A	S	1N4761A	1N4728	Z						75	8.3	5.0	2.5W
1N5049	S	1N4762	1N4728	Z						82	7.6	10	2.5W
1N5049A	S	1N4762A	1N4728	Z						82	7.6	5.0	2.5W
1N5050	S	1N4763	1N4728	Z						91	6.9	10	2.5W
1N5050A	S	1N4763A	1N4728	Z						91	6.9	5.0	2.5W
1N5051	S	1N4764	1N4728	Z						100	6.2	10	2.5W
1N5051A	S	1N4764A	1N4728	Z						100	6.2	5.0	2.5W
1N5052	S	1N4006	1N4001	G	700	1.3	1.5	0.5	50				
1N5053	S	1N4006	1N4001	G	800	1.3	1.5	0.5	50				
1N5054	S	1N4007	1N4001	G	1000	1.3	1.5	0.5	50				
1N5055	S	1N4002	1N4001	G	100	1.4	1.0	0.25	30				
1N5056	S	1N4003	1N4001	G	200	1.4	1.0	0.25	30				

1N5057-1N5125

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM} Volts	V_F Volts	I_O Amp	I_R mA	I_{FSM} Amp	V_Z Nom Volts	I_{ZT} mA	Tol $V_Z \pm \%$	P_D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V_F Volts @	I_F	I_R	t_{rr} μs	V_Z Nom Volts	T_C %/°C	I_{ZT} mA	Temp Range °C
1N5057	S	1N4004	1N4001	G	300	1.4	0.8	0.25	30				
1N5058	S	1N4004	1N4001	G	400	1.4	0.8	0.25	30				
1N5059	S	1N4003	1N4001	G	200	1.0	1.5	0.3	100				
1N5060	S	1N4004	1N4001	G	400	1.0	1.5	0.3	100				
1N5061	S	1N4005	1N4001	G	600	1.0	1.5	0.2	100				
1N5062	S	1N4006	1N4001	G	800	1.0	1.25	0.2	100				
1N5063	S	1N4736A	1N4728	Z						6.8	75	5.0	3.0W
1N5064	S	1N4737A	1N4728	Z						7.5	75	5.0	3.0W
1N5065	S	1N4738A	1N4728	Z						8.2	75	5.0	3.0W
1N5066	S	1N4739A	1N4728	Z						9.1	75	5.0	3.0W
1N5067	S	1N4740A	1N4728	Z						10	75	5.0	3.0W
1N5068	S	1N4741A	1N4728	Z						11	70	5.0	3.0W
1N5069	S	1N4743A	1N4728	Z						13	50	5.0	3.0W
1N5070	S	1M14ZS5		Z						14	50	5.0	3.0W
★ 1N5071	S	1N4744A	1N4728	Z						15	50	5.0	3.0W
1N5072	S	1N4745A	1N4728	Z						16	50	5.0	3.0W
1N5073	S	1N4746A	1N4728	Z						18	40	5.0	3.0W
1N5074	S	1N4748A	1N4728	Z						22	30	5.0	3.0W
1N5075	S	1N4749A	1N4728	Z						24	30	5.0	3.0W
1N5076	S	1N4750A	1N4728	Z						27	25	5.0	3.0W
1N5077	S	1N4751A	1N4728	Z						30	25	5.0	3.0W
1N5078	S	1N4752A	1N4728	Z						33	20	5.0	3.0W
1N5079	S	1N4753A	1N4728	Z						36	20	5.0	3.0W
1N5080	S	1N4754A	1N4728	Z						39	20	5.0	3.0W
1N5081	S	1M40ZS5		Z						40	20	5.0	3.0W
1N5081	S	1M40ZS5		Z						40	20	5.0	3.0W
1N5082	S	1N4755A	1N4728	Z						43	15	5.0	3.0W
1N5083	S	1M45ZS5		Z						45	15	5.0	3.0W
1N5084	S	1N4756A	1N4728	Z						47	15	5.0	3.0W
1N5085	S	1M50ZS5		Z						50	15	5.0	3.0W
1N5086	S	1N4757A	1N4728	Z						51	15	5.0	3.0W
1N5087	S	1N4758A	1N4728	Z						56	10	5.0	3.0W
1N5088	S	1M60ZS5		Z						60	10	5.0	3.0W
1N5089	S	1N4759A	1N4728	Z						62	10	5.0	3.0W
1N5090	S	1N4760A		Z						68	10	5.0	3.0W
1N5091	S	1M70ZS5		Z						70	10	5.0	3.0W
1N5092	S	1N4761A	1N4728	Z						75	10	5.0	3.0W
1N5093	S	1M80ZS5		Z						80	10	5.0	3.0W
1N5094	S	1N4762A	1N4728	Z						82	10	5.0	3.0W
1N5095	S	1N4763A	1N4728	Z						91	8.0	5.0	3.0W
1N5096	S	1M110ZS5	1N4728	Z						110	5.0	5.0	3.0W
1N5097	S	1M120ZS5	1N4728	Z						120	5.0	5.0	3.0W
1N5098	S	1M130ZS5	1N4728	Z						130	5.0	5.0	3.0W
1N5099	S	1M140ZS5	1N4728	Z						140	5.0	5.0	3.0W
1N5100	S	1M160ZS5	1N4728	Z						160	4.0	5.0	3.0W
1N5101	S	1M170ZS5	1N4728	Z						170	4.0	5.0	3.0W
1N5102	S	1M180ZS5	1N4728	Z						180	4.0	5.0	3.0W
1N5103	S	1M190ZS5	1N4728	Z						190	4.0	5.0	3.0W
1N5104	S	1M200ZS5	1N4728	Z						200	3.0	5.0	3.0W
1N5105	S	1M110ZSB5	1N4728	Z						220	3.0	5.0	3.0W
1N5106	S	1M120ZSB5	1N4728	Z						240	3.0	5.0	3.0W
1N5107	S	1M130ZSB5	1N4728	Z						260	3.0	5.0	3.0W
1N5108	S	1M135ZSB5	1N4728	Z						270	3.0	5.0	3.0W
1N5109	S	1M140ZSB5	1N4728	Z						280	3.0	5.0	3.0W
1N5110	S	1M150ZSB5	1N4728	Z						300	3.0	5.0	3.0W
1N5111	S	1M160ZSB5	1N4728	Z						320	2.0	5.0	3.0W
1N5112	S	1M165ZSB5	1N4728	Z						330	2.0	5.0	3.0W
1N5113	S	1M170ZSB5	1N4728	Z						340	2.0	5.0	3.0W
1N5114	S	1M180ZSB5	1N4728	Z						360	2.0	5.0	3.0W
1N5115	S	1M190ZSB5	1N4728	Z						380	2.0	5.0	3.0W
1N5116	S	1M195ZSB5	1N4728	Z						390	2.0	5.0	3.0W
1N5117	S			Z						400	2.0	5.0	3.0W
1N5118	S	1N5341B	1N5333	Z						14	100	5.0	5.0W
1N5119	S			Z						40	30	5.0	5.0W
1N5120	S			Z						45	30	5.0	5.0W
1N5121	S			Z						50	25	5.0	5.0W
1N5122	S	1N5371B	1N5333	Z						60	20	5.0	5.0W
1N5123	S			Z						70	20	5.0	5.0W
1N5124	S			Z						80	15	5.0	5.0W
1N5125	S			Z						90	15	5.0	5.0W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N5126	S	1N5382B	1N5333	Z						140	8.0	5.0	5.0W	
1N5127	S	1N5385B	1N5333	Z						170	8.0	5.0	5.0W	
1N5128	S	1N5387B	1N5333	Z						190	5.0	5.0	5.0W	
1N5129	S			Z							260	5.0	5.0	5.0W
1N5130	S			Z							280	4.0	5.0	5.0W
1N5131	S					Z						320	4.0	5.0	5.0W
1N5132	S			Z						340	4.0	5.0	5.0W	
1N5133	S			Z						380	3.0	5.0	5.0W	
1N5134	S			Z							3.0	5.0	5.0W	
1N5136	S		Table 3	V										
thru 1N5148			Table 3	V										
1N5136A			Table 3	V										
thru 1N5148A			Table 3	V										
1N5150A			Table 3	V										
1N5152A			Table 3	V										
1N5153A			Table 3	V										
1N5155A			Table 3	V										
1N5156			Table 3	V										
thru 1N5157			Table 3	V										
1N5158			Table 6	4										
thru 1N5160			Table 6	4										
1N5163	S			S	35	1.0	200m		0.5n					
1N5164	S			S	35	1.0	300m		0.4n					
1N5165,A			Table 4	M										
1N5166,A			Table 4	M										
1N5167,A			Table 4	M										
1N5168			Table 4	M										
1N5169			Table 4	M										
1N5170	S	1N4001	1N4001	G	15	1.2	2.0	0.025	200					
1N5171	S	1N4002	1N4001	G	50	1.2	2.0	0.025	200					
1N5172	S	1N4002	1N4001	G	100	1.2	2.0	0.025	200					
1N5173	S	1N4004	1N4001	G	300	1.2	2.0	0.025	200					
1N5174	S	1N4004	1N4001	G	400	1.2	2.0	0.025	200					
1N5175	S	1N4005	1N4001	G	500	1.2	2.0	0.025	200					
1N5176	S	1N4005	1N4001	G	600	1.2	2.0	0.025	200					
1N5177	S	1N4006	1N4001	G	800	1.2	2.0	0.025	200					
1N5178	S	1N4007	1N4001	G	1000	1.2	2.0	0.025	200					
1N5179	S			S		2.8	1.0	50	200					
1N5180	S			G	100	1.25	4.0	100	100					
1N5181	S			G	4000		0.6	0.02						
1N5182	S			G	5000		0.6	0.02						
1N5183	S			G	7500		0.6	0.02						
1N5184	S			G	10000		0.6	0.02						
1N5185	S	MR850	MR850	G	50	1.1	3.0	0.100	80					
1N5185A	S	MR850	MR850	G	50	1.1	4.0	0.022	80					
1N5186	S	MR851	MR850	G	100	1.1	3.0	0.100	80					
1N5186A	S	MR851	MR850	G	100	1.1	4.0	0.022	80					
1N5187	S	MR852	MR850	G	200	1.1	3.0	0.100	80					
1N5187A	S	MR852	MR850	G	200	1.1	4.0	0.022	80					
1N5188	S	MR854	MR850	G	400	1.1	3.0	0.100	80					
1N5188A	S	MR854	MR850	G	400	1.1	4.0	0.022	80					
1N5189	S	MR856	MR850	G	500	1.1	3.0	0.100	80					
1N5189A	S	MR856	MR850	G	500	1.1	4.0	0.022	80					
1N5190	S	MR856	MR850	G	600	1.1	3.0	0.100	80					
1N5190A	S	MR856	MR850	G	600	1.1	4.0	0.022	80					
1N5197	S	MR501	MR501	G	50		2.0	0.1						
1N5198	S	MR501	MR501	G	100		2.0	0.1						
1N5199	S	MR502	MR501	G	200		2.0	0.1						
1N5200	S	MR504	MR501	G	400		2.0	0.1						
1N5201	S	MR506	MR501	G	600		2.0	0.1						
1N5206	S			G	400	1.1	2.0	0.003	25					
1N5207	S			G	400	1.25	4.0	0.005	100					
1N5211	S			G	200	1.2	1.0	0.2	50					
1N5212	S			G	400	1.2	1.0	0.2	50					
1N5213	S			G	600	1.2	1.0	0.2	50					
1N5214	S			G	800	1.2	0.75	0.2	50					

1N5215-1N5242

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N5215	S			G	200	1.2	1.0	0.2	50				
1N5216	S			G	400	1.2	1.0	0.2	50				
1N5217	S			G	600	1.2	1.0	0.2	50				
1N5218	S			G	800	1.2	0.75	0.2	50				
1N5219	S			S	30	1.0	50	50	0.002				
1N5220	S			S	30	1.2	50	50					
★1N5221	S		1N5221	Z						2.4	20	10	500m
★1N5221A	S		1N5221	Z						2.4	20	10	500m
★1N5221B	S		1N5221	Z						2.4	20	5.0	500m
★1N5222	S		1N5221	Z						2.5	20	10	500m
★1N5222A	S		1N5221	Z						2.5	20	10	500m
★1N5222B	S		1N5221	Z						2.5	20	5.0	500m
★1N5223	S		1N5221	Z						2.7	20	10	500m
★1N5223A	S		1N5221	Z						2.7	20	10	500m
★1N5223B	S		1N5221	Z						2.7	20	5.0	500m
★1N5224	S		1N5221	Z						2.8	20	10	500m
★1N5224A	S		1N5221	Z						2.8	20	10	500m
★1N5224B	S		1N5221	Z						2.8	20	5.0	500m
★1N5225	S		1N5221	Z						3.0	20	10	500m
★1N5225A	S		1N5221	Z						3.0	20	10	500m
★1N5225B	S		1N5221	Z						3.0	20	5.0	500m
★1N5226	S		1N5221	Z						3.3	20	10	500m
★1N5226A	S		1N5221	Z						3.3	20	10	500m
★1N5226B	S		1N5221	Z						3.3	20	5.0	500m
★1N5227	S		1N5221	Z						3.6	20	10	500m
★1N5227A	S		1N5221	Z						3.6	20	10	500m
★1N5227B	S		1N5221	Z						3.6	20	5.0	500m
★1N5228	S		1N5221	Z						3.9	20	10	500m
★1N5228A	S		1N5221	Z						3.9	20	10	500m
★1N5228B	S		1N5221	Z						3.9	20	5.0	500m
★1N5229	S		1N5221	Z						4.3	20	10	500m
★1N5229A	S		1N5221	Z						4.3	20	10	500m
★1N5229B	S		1N5221	Z						4.3	20	5.0	500m
★1N5230	S		1N5221	Z						4.7	20	10	500m
★1N5230A	S		1N5221	Z						4.7	20	10	500m
★1N5230B	S		1N5221	Z						4.7	20	5.0	500m
★1N5231	S		1N5221	Z						5.1	20	10	500m
★1N5231A	S		1N5221	Z						5.1	20	10	500m
★1N5231B	S		1N5221	Z						5.1	20	5.0	500m
★1N5232	S		1N5221	Z						5.6	20	10	500m
★1N5232A	S		1N5221	Z						5.6	20	10	500m
★1N5232B	S		1N5221	Z						5.6	20	5.0	500m
★1N5233	S		1N5221	Z						6.0	20	10	500m
★1N5233A	S		1N5221	Z						6.0	20	10	500m
★1N5233B	S		1N5221	Z						6.0	20	5.0	500m
★1N5234	S		1N5221	Z						6.2	20	10	500m
★1N5234A	S		1N5221	Z						6.2	20	10	500m
★1N5234B	S		1N5221	Z						6.2	20	5.0	500m
★1N5235	S		1N5221	Z						6.8	20	10	500m
★1N5235A	S		1N5221	Z						6.8	20	10	500m
★1N5235B	S		1N5221	Z						6.8	20	5.0	500m
★1N5236	S		1N5221	Z						7.5	20	10	500m
★1N5236A	S		1N5221	Z						7.5	20	10	500m
★1N5236B	S		1N5221	Z						7.5	20	5.0	500m
★1N5237	S		1N5221	Z						8.2	20	10	500m
★1N5237A	S		1N5221	Z						8.2	20	10	500m
★1N5237B	S		1N5221	Z						8.2	20	5.0	500m
★1N5238	S		1N5221	Z						8.7	20	10	500m
★1N5238A	S		1N5221	Z						8.7	20	10	500m
★1N5238B	S		1N5221	Z						8.7	20	5.0	500m
★1N5239	S		1N5221	Z						9.1	20	10	500m
★1N5239A	S		1N5221	Z						9.1	20	10	500m
★1N5239B	S		1N5221	Z						9.1	20	5.0	500m
★1N5240	S		1N5221	Z						10	20	10	500m
★1N5240A	S		1N5221	Z						10	20	10	500m
★1N5240B	S		1N5221	Z						10	20	5.0	500m
★1N5241	S		1N5221	Z						11	20	10	500m
★1N5241A	S		1N5221	Z						11	20	10	500m
★1N5241B	S		1N5221	Z						11	20	5.0	500m
★1N5242	S		1N5221	Z						12	20	10	500m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N5242A	S		1N5221	Z						12	20	10	500m
★1N5242B	S		1N5221	Z						12	20	5.0	500m
★1N5243	S		1N5221	Z						13	9.5	10	500m
★1N5243A	S		1N5221	Z						13	9.5	10	500m
★1N5243B	S		1N5221	Z						13	9.5	5.0	500m
★1N5244	S		1N5221	Z						14	9.0	10	500m
★1N5244A	S		1N5221	Z						14	9.0	10	500m
★1N5244B	S		1N5221	Z						14	9.0	5.0	500m
★1N5245	S		1N5221	Z						15	8.5	10	500m
★1N5245A	S		1N5221	Z						15	8.5	10	500m
★1N5245B	S		1N5221	Z						15	8.5	5.0	500m
★1N5246	S		1N5221	Z						16	7.8	10	500m
★1N5246A	S		1N5221	Z						16	7.8	10	500m
★1N5246B	S		1N5221	Z						16	7.8	5.0	500m
★1N5247	S		1N5221	Z						17	7.4	10	500m
★1N5247A	S		1N5221	Z						17	7.4	10	500m
★1N5247B	S		1N5221	Z						17	7.4	5.0	500m
★1N5248	S		1N5221	Z						18	7.0	10	500m
★1N5248A	S		1N5221	Z						18	7.0	10	500m
★1N5248B	S		1N5221	Z						18	7.0	5.0	500m
★1N5249	S		1N5221	Z						19	6.6	10	500m
★1N5249A	S		1N5221	Z						19	6.6	10	500m
★1N5249B	S		1N5221	Z						19	6.6	5.0	500m
★1N5250	S		1N5221	Z						20	6.2	10	500m
★1N5250A	S		1N5221	Z						20	6.2	10	500m
★1N5250B	S		1N5221	Z						20	6.2	5.0	500m
★1N5251	S		1N5221	Z						22	5.6	10	500m
★1N5251A	S		1N5221	Z						22	5.6	10	500m
★1N5251B	S		1N5221	Z						22	5.6	5.0	500m
★1N5252	S		1N5221	Z						24	5.2	10	500m
★1N5252A	S		1N5221	Z						24	5.2	10	500m
★1N5252B	S		1N5221	Z						24	5.2	5.0	500m
★1N5253	S		1N5221	Z						25	5.0	10	500m
★1N5253A	S		1N5221	Z						25	5.0	10	500m
★1N5253B	S		1N5221	Z						25	5.0	5.0	500m
★1N5254	S		1N5221	Z						27	4.6	10	500m
★1N5254A	S		1N5221	Z						27	4.6	10	500m
★1N5254B	S		1N5221	Z						27	4.6	5.0	500m
★1N5255	S		1N5221	Z						28	4.5	10	500m
★1N5255A	S		1N5221	Z						28	4.5	10	500m
★1N5255B	S		1N5221	Z						28	4.5	5.0	500m
★1N5256	S		1N5221	Z						30	4.2	10	500m
★1N5256A	S		1N5221	Z						30	4.2	10	500m
★1N5256B	S		1N5221	Z						30	4.2	5.0	500m
★1N5257	S		1N5221	Z						33	3.8	10	500m
★1N5257A	S		1N5221	Z						33	3.8	10	500m
★1N5257B	S		1N5221	Z						33	3.8	5.0	500m
★1N5258	S		1N5221	Z						36	3.4	10	500m
★1N5258A	S		1N5221	Z						36	3.4	10	500m
★1N5258B	S		1N5221	Z						36	3.4	5.0	500m
★1N5259	S		1N5221	Z						39	3.2	10	500m
★1N5259A	S		1N5221	Z						39	3.2	10	500m
★1N5259B	S		1N5221	Z						39	3.2	5.0	500m
★1N5260	S		1N5221	Z						43	3.0	10	500m
★1N5260A	S		1N5221	Z						43	3.0	10	500m
★1N5260B	S		1N5221	Z						43	3.0	5.0	500m
★1N5261	S		1N5221	Z						47	2.7	10	500m
★1N5261A	S		1N5221	Z						47	2.7	10	500m
★1N5261B	S		1N5221	Z						47	2.7	5.0	500m
★1N5262	S		1N5221	Z						51	2.5	10	500m
★1N5262A	S		1N5221	Z						51	2.5	10	500m
★1N5262B	S		1N5221	Z						51	2.5	5.0	500m
★1N5263	S		1N5221	Z						56	2.2	10	500m
★1N5263A	S		1N5221	Z						56	2.2	10	500m
★1N5263B	S		1N5221	Z						56	2.2	5.0	500m
★1N5264	S		1N5221	Z						60	2.1	10	500m
★1N5264A	S		1N5221	Z						60	2.1	10	500m
★1N5264B	S		1N5221	Z						60	2.1	5.0	500m
★1N5265	S		1N5221	Z						62	2.0	10	500m
★1N5265A	S		1N5221	Z						62	2.0	10	500m

1N5265B-1N5334A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	I _{OL} V _Z ± %	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	ZT nA	Temp Range °C	
★1N5265B	S		1N5221	Z						62	2.0	5.0	500m	
★1N5266	S		1N5221	Z						68	1.8	10	500m	
★1N5266A	S		1N5221	Z						68	1.8	10	500m	
★1N5266B	S		1N5221	Z						68	1.8	5.0	500m	
★1N5267	S		1N5221	Z						75	1.7	10	500m	
★1N5267A	S		1N5221	Z						75	1.7	10	500m	
★1N5267B	S		1N5221	Z						75	1.7	5.0	500m	
★1N5268	S		1N5221	Z						82	1.5	10	500m	
★1N5268A	S		1N5221	Z						82	1.5	10	500m	
★1N5268B	S		1N5221	Z						82	1.5	5.0	500m	
★1N5269	S		1N5221	Z						87	1.4	10	500m	
★1N5269A	S		1N5221	Z						87	1.4	10	500m	
★1N5269B	S		1N5221	Z						87	1.4	5.0	500m	
★1N5270	S		1N5221	Z						91	1.4	10	500m	
★1N5270A	S		1N5221	Z						91	1.4	10	500m	
★1N5270B	S		1N5221	Z						91	1.4	5.0	500m	
★1N5271	S		1N5221	Z						100	1.3	10	500m	
★1N5271A	S		1N5221	Z						100	1.3	10	500m	
★1N5271B	S		1N5221	Z						100	1.3	5.0	500m	
★1N5272	S		1N5221	Z						110	1.1	10	500m	
★1N5272A	S		1N5221	Z						110	1.1	10	500m	
★1N5272B	S		1N5221	Z						110	1.1	5.0	500m	
★1N5273	S		1N5221	Z						120	1.0	10	500m	
★1N5273A	S		1N5221	Z						120	1.0	10	500m	
★1N5273B	S		1N5221	Z						120	1.0	5.0	500m	
★1N5274	S		1N5221	Z						130	0.95	10	500m	
★1N5274A	S		1N5221	Z						130	0.95	10	500m	
★1N5274B	S		1N5221	Z						130	0.95	5.0	500m	
★1N5275	S		1N5221	Z						140	0.90	10	500m	
★1N5275A	S		1N5221	Z						140	0.90	10	500m	
★1N5275B	S		1N5221	Z						140	0.90	5.0	500m	
★1N5276	S		1N5221	Z						150	0.85	10	500m	
★1N5276A	S		1N5221	Z						150	0.85	10	500m	
★1N5276B	S		1N5221	Z						150	0.85	5.0	500m	
★1N5277	S		1N5221	Z						160	0.80	10	500m	
★1N5277A	S		1N5221	Z						160	0.80	10	500m	
★1N5277B	S		1N5221	Z						160	0.80	5.0	500m	
★1N5278	S		1N5221	Z						170	0.74	10	500m	
★1N5278A	S		1N5221	Z						170	0.74	10	500m	
★1N5278B	S		1N5221	Z						170	0.74	5.0	500m	
★1N5279	S		1N5221	Z						180	0.68	10	500m	
★1N5279A	S		1N5221	Z						180	0.68	10	500m	
★1N5279B	S		1N5221	Z						180	0.68	5.0	500m	
★1N5280	S		1N5221	Z						190	0.66	10	500m	
★1N5280A	S		1N5221	Z						190	0.66	10	500m	
★1N5280B	S		1N5221	Z						190	0.66	5.0	500m	
★1N5281	S		1N5221	Z						200	0.65	10	500m	
★1N5281A	S		1N5221	Z						200	0.65	10	500m	
★1N5281B	S		1N5221	Z						200	0.65	10	500m	
1N5282	S		1N5221	S		55	1.3	500m	0.1*	0.004	200	0.65	5.0	500m
1N5283 thru 1N5314				I										
1N5315	S			S		75	0.49	0.1m	0.05*	0.004				
1N5316	S			S		75	0.49	0.1m	0.05*	0.004				
1N5317	S			S		55	1.17	500m	0.1*	0.004				
1N5318	S			S		50	0.87	200m	0.1*	0.004				
1N5319	S			S		25	1.0	100m	100*	0.004				
1N5320	S			G		100		1.0		20				
1N5324	S			G		15000	24	0.010	0.025	0.75				
1N5326	S			G		100		12		200				
1N5329	S			G		100		0.135	0.150	10				
1N5330	S			G		100		0.540	0.150	15				
1N5331	S			G		1200		12		240				
1N5332	S			G		1200		35		500				
★1N5333	S		1N5333	Z						3.3	380	20	5.0W	
★1N5333A	S		1N5333	Z						3.3	380	10	5.0W	
★1N5333B	S		1N5333	Z						3.3	380	5	5.0W	
★1N5334	S		1N5333	Z						3.6	350	20	5.0W	
★1N5334A	S		1N5333	Z						3.6	350	10	5.0W	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM}	V_F	I_O	I_R	I_{FSM}	V_Z Nom	I_{ZT}	Tol	P_D
					Volts	Volts	Amp	mA	Amp	Volts	mA	$V_Z \pm \%$	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V_F	I_F	I_R	t_{rr}	V_Z Nom	T_C	I_{ZT}	Temp					
Volts	Volts @			μs	Volts	$^{\circ}C$	mA	Range $^{\circ}C$					
★1N5334B	S		1N5333	Z						3.6	350	5	5.0W
★1N5335	S		1N5333	Z						3.9	320	20	5.0W
★1N5335A	S		1N5333	Z						3.9	320	10	5.0W
★1N5335B	S		1N5333	Z						3.9	320	5	5.0W
★1N5336	S		1N5333	Z						4.3	290	20	5.0W
★1N5336A	S		1N5333	Z						4.3	290	10	5.0W
★1N5336B	S		1N5333	Z						4.3	290	5	5.0W
★1N5337	S		1N5333	Z						4.7	260	20	5.0W
★1N5337A	S		1N5333	Z						4.7	260	10	5.0W
★1N5337B	S		1N5333	Z						4.7	260	5	5.0W
★1N5338	S		1N5333	Z						5.1	240	20	5.0W
★1N5338A	S		1N5333	Z						5.1	240	10	5.0W
★1N5338B	S		1N5333	Z						5.1	240	5	5.0W
★1N5339	S		1N5333	Z						5.6	220	20	5.0W
★1N5339A	S		1N5333	Z						5.6	220	10	5.0W
★1N5339B	S		1N5333	Z						5.6	220	5	5.0W
★1N5340	S		1N5333	Z						6.0	200	20	5.0W
★1N5340A	S		1N5333	Z						6.0	200	10	5.0W
★1N5340B	S		1N5333	Z						6.0	200	5	5.0W
★1N5341	S		1N5333	Z						6.2	200	20	5.0W
★1N5341A	S		1N5333	Z						6.2	200	10	5.0W
★1N5341B	S		1N5333	Z						6.2	200	5	5.0W
★1N5342	S		1N5333	Z						6.8	175	20	5.0W
★1N5342A	S		1N5333	Z						6.8	175	10	5.0W
★1N5342B	S		1N5333	Z						6.8	175	5	5.0W
★1N5343	S		1N5333	Z						7.5	175	20	5.0W
★1N5343A	S		1N5333	Z						7.5	175	10	5.0W
★1N5343B	S		1N5333	Z						7.5	175	5	5.0W
★1N5344	S		1N5333	Z						8.2	150	20	5.0W
★1N5344A	S		1N5333	Z						8.2	150	10	5.0W
★1N5344B	S		1N5333	Z						8.2	150	5	5.0W
★1N5345	S		1N5333	Z						8.7	150	20	5.0W
★1N5345A	S		1N5333	Z						8.7	150	10	5.0W
★1N5345B	S		1N5333	Z						8.7	150	5	5.0W
★1N5346	S		1N5333	Z						9.1	150	20	5.0W
★1N5346A	S		1N5333	Z						9.1	150	10	5.0W
★1N5346B	S		1N5333	Z						9.1	150	5	5.0W
★1N5347	S		1N5333	Z						10	125	20	5.0W
★1N5347A	S		1N5333	Z						10	125	10	5.0W
★1N5347B	S		1N5333	Z						10	125	5	5.0W
★1N5348	S		1N5333	Z						11	125	20	5.0W
★1N5348A	S		1N5333	Z						11	125	10	5.0W
★1N5348B	S		1N5333	Z						11	125	5	5.0W
★1N5349	S		1N5333	Z						12	100	20	5.0W
★1N5349A	S		1N5333	Z						12	100	10	5.0W
★1N5349B	S		1N5333	Z						12	100	5	5.0W
★1N5350	S		1N5333	Z						13	100	20	5.0W
★1N5350A	S		1N5333	Z						13	100	10	5.0W
★1N5350B	S		1N5333	Z						13	100	5	5.0W
★1N5351	S		1N5333	Z						14	100	20	5.0W
★1N5351A	S		1N5333	Z						14	100	10	5.0W
★1N5351B	S		1N5333	Z						14	100	5	5.0W
★1N5352	S		1N5333	Z						15	75	20	5.0W
★1N5352A	S		1N5333	Z						15	75	10	5.0W
★1N5352B	S		1N5333	Z						15	75	5	5.0W
★1N5353	S		1N5333	Z						16	75	20	5.0W
★1N5353A	S		1N5333	Z						16	75	10	5.0W
★1N5353B	S		1N5333	Z						16	75	5	5.0W
★1N5354	S		1N5333	Z						17	70	20	5.0W
★1N5354A	S		1N5333	Z						17	70	10	5.0W
★1N5354B	S		1N5333	Z						17	70	5	5.0W
★1N5355	S		1N5333	Z						18	65	20	5.0W
★1N5355A	S		1N5333	Z						18	65	10	5.0W
★1N5355B	S		1N5333	Z						18	65	5	5.0W
★1N5356	S		1N5333	Z						19	65	20	5.0W
★1N5356A	S		1N5333	Z						19	65	10	5.0W
★1N5356B	S		1N5333	Z						19	65	5	5.0W
★1N5357	S		1N5333	Z						20	65	20	5.0W
★1N5357A	S		1N5333	Z						20	65	10	5.0W
★1N5357B	S		1N5333	Z						20	65	5	5.0W

1N5358-1N5381

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N5358	S		1N5333	Z						22	50	20	5.0W
★1N5358A	S		1N5333	Z						22	50	10	5.0W
★1N5358B	S		1N5333	Z						22	50	5	5.0W
★1N5359	S		1N5333	Z						24	50	20	5.0W
★1N5359A	S		1N5333	Z						24	50	10	5.0W
★1N5359B	S		1N5333	Z						24	50	5	5.0W
★1N5360	S		1N5333	Z						25	50	20	5.0W
★1N5360A	S		1N5333	Z						25	50	10	5.0W
★1N5360B	S		1N5333	Z						25	50	5	5.0W
★1N5361	S		1N5333	Z						27	50	20	5.0W
★1N5361A	S		1N5333	Z						27	50	10	5.0W
★1N5361B	S		1N5333	Z						27	50	5	5.0W
★1N5362	S		1N5333	Z						28	50	20	5.0W
★1N5362A	S		1N5333	Z						28	50	10	5.0W
★1N5362B	S		1N5333	Z						28	50	5	5.0W
★1N5363	S		1N5333	Z						30	40	20	5.0W
★1N5363A	S		1N5333	Z						30	40	10	5.0W
★1N5363B	S		1N5333	Z						30	40	5	5.0W
★1N5364	S		1N5333	Z						33	40	20	5.0W
★1N5364A	S		1N5333	Z						33	40	10	5.0W
★1N5364B	S		1N5333	Z						33	40	5	5.0W
★1N5365	S		1N5333	Z						36	30	20	5.0W
★1N5365A	S		1N5333	Z						36	30	10	5.0W
★1N5365B	S		1N5333	Z						36	30	5	5.0W
★1N5366	S		1N5333	Z						39	30	20	5.0W
★1N5366A	S		1N5333	Z						39	30	10	5.0W
★1N5366B	S		1N5333	Z						39	30	5	5.0W
★1N5367	S		1N5333	Z						43	30	20	5.0W
★1N5367A	S		1N5333	Z						43	30	10	5.0W
★1N5367B	S		1N5333	Z						43	30	5	5.0W
★1N5368	S		1N5333	Z						47	25	20	5.0W
★1N5368A	S		1N5333	Z						47	25	10	5.0W
★1N5368B	S		1N5333	Z						47	25	5	5.0W
★1N5369	S		1N5333	Z						51	25	20	5.0W
★1N5369A	S		1N5333	Z						51	25	10	5.0W
★1N5369B	S		1N5333	Z						51	25	5	5.0W
★1N5370	S		1N5333	Z						56	20	20	5.0W
★1N5370A	S		1N5333	Z						56	20	10	5.0W
★1N5370B	S		1N5333	Z						56	20	5	5.0W
★1N5371	S		1N5333	Z						60	20	20	5.0W
★1N5371A	S		1N5333	Z						60	20	10	5.0W
★1N5371B	S		1N5333	Z						60	20	5	5.0W
★1N5372	S		1N5333	Z						62	20	20	5.0W
★1N5372A	S		1N5333	Z						62	20	10	5.0W
★1N5372B	S		1N5333	Z						62	20	5	5.0W
★1N5373	S		1N5333	Z						68	20	20	5.0W
★1N5373A	S		1N5333	Z						68	20	10	5.0W
★1N5373B	S		1N5333	Z						68	20	5	5.0W
★1N5374	S		1N5333	Z						75	20	20	5.0W
★1N5374A	S		1N5333	Z						75	20	10	5.0W
★1N5374B	S		1N5333	Z						75	20	5	5.0W
★1N5375	S		1N5333	Z						82	15	20	5.0W
★1N5375A	S		1N5333	Z						82	15	10	5.0W
★1N5375B	S		1N5333	Z						82	15	5	5.0W
★1N5376	S		1N5333	Z						87	15	20	5.0W
★1N5376A	S		1N5333	Z						87	15	10	5.0W
★1N5376B	S		1N5333	Z						87	15	5	5.0W
★1N5377	S		1N5333	Z						91	15	20	5.0W
★1N5377A	S		1N5333	Z						91	15	10	5.0W
★1N5377B	S		1N5333	Z						91	15	5	5.0W
★1N5378	S		1N5333	Z						100	12	20	5.0W
★1N5378A	S		1N5333	Z						100	12	10	5.0W
★1N5378B	S		1N5333	Z						100	12	5	5.0W
★1N5379	S		1N5333	Z						110	12	20	5.0W
★1N5379A	S		1N5333	Z						110	12	10	5.0W
★1N5379B	S		1N5333	Z						110	12	5	5.0W
★1N5380	S		1N5333	Z						120	10	20	5.0W
★1N5380A	S		1N5333	Z						120	10	10	5.0W
★1N5380B	S		1N5333	Z						120	10	5	5.0W
★1N5381	S		1N5333	Z						130	10	20	5.0W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
★1N5381A	S		1N5333	Z						130	10	10	5.0W
★1N5381B	S		1N5333	Z						130	10	5	5.0W
★1N5382	S		1N5333	Z						140	8.0	20	5.0W
★1N5382A	S		1N5333	Z						140	8.0	10	5.0W
★1N5382B	S		1N5333	Z						140	8.0	5	5.0W
★1N5383	S		1N5333	Z						150	8.0	20	5.0W
★1N5383A	S		1N5333	Z						150	8.0	10	5.0W
★1N5383B	S		1N5333	Z						150	8.0	5	5.0W
★1N5384	S		1N5333	Z						160	8.0	20	5.0W
★1N5384A	S		1N5333	Z						160	8.0	10	5.0W
★1N5384B	S		1N5333	Z						160	8.0	5	5.0W
★1N5385	S		1N5333	Z						170	8.0	20	5.0W
★1N5385A	S		1N5333	Z						170	8.0	10	5.0W
★1N5385B	S		1N5333	Z						170	8.0	5	5.0W
★1N5386	S		1N5333	Z						180	5.0	20	5.0W
★1N5386A	S		1N5333	Z						180	5.0	10	5.0W
★1N5386B	S		1N5333	Z						180	5.0	5	5.0W
★1N5387	S		1N5333	Z						190	5.0	20	5.0W
★1N5387A	S		1N5333	Z						190	5.0	10	5.0W
★1N5387B	S		1N5333	Z						190	5.0	5	5.0W
★1N5388	S		1N5333	Z						200	5.0	20	5.0W
★1N5388A	S		1N5333	Z						200	5.0	10	5.0W
★1N5388B	S		1N5333	Z						200	5.0	5	5.0W
1N5389	S			G	40,000	80	0.100	0.10	10				
1N5390	S			H									
1N5391	S	MR501	MR501	G	50		1.5		50				
1N5392	S	MR501	MR501	G	100		1.5		50				
1N5393	S	MR502	MR501	G	200		1.5		50				
1N5394	S	MR504	MR501	G	300		1.5		50				
1N5395	S	MR504	MR501	G	400		1.5		50				
1N5396	S	MR506	MR501	G	500		1.5		50				
1N5397	S	MR506	MR501	G	600		1.5		50				
1N5398	S	MR508	MR501	G	800		1.5		50				
1N5399	S	MR510	MR501	G	1000		1.5		50				
1N5400	S	MR501	MR501	G	50		3.0		200				
1N5401	S	MR501	MR501	G	100		3.0		200				
1N5402	S	MR502	MR501	G	200		3.0		200				
1N5403	S	MR504	MR501	G	300		3.0		200				
1N5404	S	MR504	MR501	G	400		3.0		200				
1N5405	S	MR506	MR501	G	500		3.0		200				
1N5406	S	MR506	MR501	G	600		3.0		200				
1N5407	S	MR508	MR501	G	800		3.0		200				
1N5408	S	MR510	MR501	G	1000		3.0		200				
1N5409	S			G	175		40		1000				
1N5410	S			G	175		12		200				
1N5411	S			3									
1N5412	S			S	30	0.500	0.1m	100n	0.002				
1N5413	S			S	55	0.500	0.1m	100n	0.002				
1N5414	S			S	75	0.500	0.1m	100n	0.002				
1N5415	S			G	50				200				
1N5416	S			G	100				200				
1N5417	S			G	200				200				
1N5418	S			G	400				200				
1N5419	S			G	500				200				
1N5420	S			G	600				200				
1N5421 thru 1N5425			Table 3	V									
1N5426	S		Table 3	V									
1N5427	S			S		1.0	40m	1.0*					
	S			S		1.0	10m	0.10*	0.004				
1N5428	S			S		1.0	100m	0.10*	0.050				
1N5429	S			S		1.0	200m	0.005*					
1N5430	S			S		1.0	200m	0.10*	0.004				
1N5431	S			S		1.3	500m	0.10*	0.004				
1N5432	S			S		1.3	50m	0.050*	0.75n				
1N5433	S	MR856	MR850	G	600		2.0		25				
1N5434	S	MR856	MR850	G	600		2.0		60				
1N5435	S	MR856	MR850	G	600		12		200				
1N5436	M			M									
1N5437	M			M									

1N5438-1N5529A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D	
					SIGNAL DIODES					REFERENCE MODES				
PRV Volts	V _s Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C						
1N5439 thru 1N5476 1N5477	S		Table 4 Table 3 Table 3	M V G										
1N5478 1N5479 1N5480 1N5481 1N5482	S S S S S			G G G G G	6000		0.6	0.350	80					
1N5483 1N5484 1N5485 1N5488 ★1N5518 ★1N5518A	S S S S S S		1N5518 1N5518	G G G Z Z	3600 4800 6000		1.0 1.0 1.0	0.350 0.350 0.350	80 80 80	3.3 3.3	20 20	20 10	40m 40m	
★1N5518B 1N5518C 1N5518D ★1N5519 ★1N5519A	S S S S S		1N5518 1N5518	Z Z Z Z Z						3.3 3.3 3.3 3.6 3.6	20 20 20 20 20	5.0 2.0 1.0 20 20	40m 40m 400m 400m 400m	
★1N5519B 1N5519C 1N5519D ★1N5520 ★1N5520A	S S S S S		1N5518 1N5518	Z Z Z Z Z						3.6 3.6 3.6 3.9 3.9	20 20 20 20 20	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5520B 1N5520C 1N5520D ★1N5521 ★1N5521A	S S S S S		1N5518 1N5518	Z Z Z Z Z						3.9 3.9 3.9 4.3 4.3	20 20 20 20 20	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5521B 1N5521C 1N5521D ★1N5522 ★1N5522A	S S S S S		1N5518 1N5518	Z Z Z Z Z						4.3 4.3 4.3 4.7 4.7	20 20 20 10 10	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5522B 1N5522C 1N5522D ★1N5523 ★1N5523A	S S S S S		1N5518 1N5518	Z Z Z Z Z						4.7 4.7 4.7 5.1 5.1	10 10 10 5.0 5.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5523B 1N5523C 1N5523D ★1N5524 ★1N5524A	S S S S S		1N5518 1N5518	Z Z Z Z Z						5.1 5.1 5.1 5.6 5.6	5.0 5.0 5.0 3.0 3.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5524B 1N5524C 1N5524D ★1N5525 ★1N5525A	S S S S S		1N5518 1N5518	Z Z Z Z Z						5.6 5.6 5.6 6.2 6.2	3.0 3.0 3.0 1.0 1.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5525B 1N5525C 1N5525D ★1N5526 ★1N5526A	S S S S S		1N5518 1N5518	Z Z Z Z Z						6.2 6.2 6.2 6.8 6.8	1.0 1.0 1.0 1.0 1.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5526B 1N5526C 1N5526D ★1N5527 ★1N5527A	S S S S S		1N5518 1N5518	Z Z Z Z Z						6.8 6.8 6.8 7.5 7.5	1.0 1.0 1.0 1.0 1.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5527B 1N5527C 1N5527D ★1N5528 ★1N5528A	S S S S S		1N5518 1N5518	Z Z Z Z Z						7.5 7.5 7.5 8.2 8.2	1.0 1.0 1.0 1.0 1.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	
★1N5528B 1N5528C 1N5528D ★1N5529 ★1N5529A	S S S S S		1N5518 1N5518	Z Z Z Z Z						8.2 8.2 8.2 9.1 9.1	1.0 1.0 1.0 1.0 1.0	5.0 2.0 1.0 20 20	400m 400m 400m 400m 400m	

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N5529B	S		1N5518	Z						9.1	1.0	5.0	400m
1N5529C	S			Z						9.1	1.0	2.0	400m
1N5529D	S			Z						9.1	1.0	1.0	400m
★1N5530	S		1N5518	Z						10	1.0	20	400m
★1N5530A	S		1N5518	Z						10	1.0	10	400m
★1N5530B	S		1N5518	Z						10	1.0	5.0	400m
1N5530C	S			Z						10	1.0	2.0	400m
1N5530D	S			Z						10	1.0	1.0	400m
★1N5531	S		1N5518	Z						11	1.0	20	400m
★1N5531A	S		1N5518	Z						11	1.0	10	400m
★1N5531B	S		1N5518	Z						11	1.0	5.0	400m
1N5531C	S			Z						11	1.0	2.0	400m
1N5531D	S			Z						11	1.0	1.0	400m
★1N5532	S		1N5518	Z						12	1.0	20	400m
★1N5532A	S		1N5518	Z						12	1.0	10	400m
★1N5532B	S		1N5518	Z						12	1.0	5.0	400m
1N5532C	S			Z						12	1.0	2.0	400m
1N5532D	S			Z						12	1.0	1.0	400m
★1N5533	S		1N5518	Z						13	1.0	20	400m
★1N5533A	S		1N5518	Z						13	1.0	10	400m
★1N5533B	S		1N5518	Z						13	1.0	5.0	400m
1N5533C	S			Z						13	1.0	2.0	400m
1N5533D	S			Z						13	1.0	1.0	400m
★1N5534	S		1N5518	Z						14	1.0	20	400m
★1N5534A	S		1N5518	Z						14	1.0	10	400m
★1N5534B	S		1N5518	Z						14	1.0	5.0	400m
1N5534C	S			Z						14	1.0	2.0	400m
1N5534D	S			Z						14	1.0	1.0	400m
★1N5535	S		1N5518	Z						15	1.0	20	400m
★1N5535A	S		1N5518	Z						15	1.0	10	400m
★1N5535B	S		1N5518	Z						15	1.0	5.0	400m
1N5535C	S			Z						15	1.0	2.0	400m
1N5535D	S			Z						15	1.0	1.0	400m
★1N5536	S		1N5518	Z						16	1.0	20	400m
★1N5536A	S		1N5518	Z						16	1.0	10	400m
★1N5536B	S		1N5518	Z						16	1.0	5.0	400m
1N5536C	S			Z						16	1.0	2.0	400m
1N5536D	S			Z						16	1.0	1.0	400m
★1N5537	S		1N5518	Z						17	1.0	20	400m
★1N5537A	S		1N5518	Z						17	1.0	10	400m
★1N5537B	S		1N5518	Z						17	1.0	5.0	400m
1N5537C	S			Z						17	1.0	2.0	400m
1N5537D	S			Z						17	1.0	1.0	400m
★1N5538	S		1N5518	Z						18	1.0	20	400m
★1N5538A	S		1N5518	Z						18	1.0	10	400m
★1N5538B	S		1N5518	Z						18	1.0	5.0	400m
1N5538C	S			Z						18	1.0	2.0	400m
1N5538D	S			Z						18	1.0	1.0	400m
★1N5539	S		1N5518	Z						19	1.0	20	400m
★1N5539A	S		1N5518	Z						19	1.0	10	400m
★1N5539B	S		1N5518	Z						19	1.0	5.0	400m
1N5539C	S			Z						19	1.0	2.0	400m
1N5539D	S			Z						19	1.0	1.0	400m
★1N5540	S		1N5518	Z						20	1.0	20	400m
★1N5540A	S		1N5518	Z						20	1.0	10	400m
★1N5540B	S		1N5518	Z						20	1.0	5.0	400m
1N5540C	S			Z						20	1.0	2.0	400m
1N5540D	S			Z						20	1.0	1.0	400m
★1N5541	S		1N5518	Z						22	1.0	20	400m
★1N5541A	S		1N5518	Z						22	1.0	10	400m
★1N5541B	S		1N5518	Z						22	1.0	5.0	400m
1N5541C	S			Z						22	1.0	2.0	400m
1N5541D	S			Z						22	1.0	1.0	400m
★1N5542	S		1N5518	Z						24	1.0	20	400m
★1N5542A	S		1N5518	Z						24	1.0	10	400m
★1N5542B	S		1N5518	Z						24	1.0	5.0	400m
1N5542C	S			Z						24	1.0	2.0	400m
1N5542D	S			Z						24	1.0	1.0	400m
★1N5543	S		1N5518	Z						25	1.0	20	400m
★1N5543A	S		1N5518	Z						25	1.0	10	400m

1N5543B-1N5573A

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	T _{cl} V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★1N5543B	S		1N5518	Z						25	1.0	5.0	400m
1N5543C	S			Z						25	1.0	2.0	400m
1N5543D	S			Z						25	1.0	1.0	400m
★1N5544	S		1N5518	Z						28	1.0	2.0	400m
★1N5544A	S		1N5518	Z						28	1.0	1.0	400m
★1N5544B	S		1N5518	Z						28	1.0	5.0	400m
1N5544C	S			Z						28	1.0	2.0	400m
1N5544D	S			Z						28	1.0	1.0	400m
★1N5545	S		1N5518	Z						30	1.0	2.0	400m
★1N5545A	S		1N5518	Z						30	1.0	1.0	400m
★1N5545B	S		1N5518	Z						30	1.0	5.0	400m
1N5545C	S			Z						30	1.0	2.0	400m
1N5545D	S			Z						30	1.0	1.0	400m
★1N5546	S		1N5518	Z						33	1.0	2.0	400m
★1N5546A	S		1N5518	Z						33	1.0	1.0	400m
★1N5546B	S		1N5518	Z						33	1.0	5.0	400m
1N5546C	S			Z						33	1.0	2.0	400m
1N5546D	S			Z						33	1.0	1.0	400m
1N5550	S	MR502	MR501	G	200	1.0	3.0	0.025	150				
1N5551	S	MR504	MR501	G	400	1.0	3.0	0.025	150				
1N5552	S	MR506	MR501	G	600	1.0	3.0	0.025	150				
1N5553	S	MR508	MR501	G	800	1.1	3.0	0.025	150				
1N5554	S	MR510	MR501	G	1000	1.1	3.0	0.025	150				
1N5555 thru			Table 2	P									
1N5558	S		Table 2	P									
1N5559	S			Z						6.8	37	20	1.0W
1N5559A	S			Z						6.8	37	10	1.0W
1N5559B	S			Z						6.8	37	5.0	1.0W
1N5560	S			Z						7.5	34	20	1.0W
1N5560A	S			Z						7.5	34	10	1.0W
1N5560B	S			Z						7.5	34	5.0	1.0W
1N5561	S			Z						8.2	31	20	1.0W
1N5561A	S			Z						8.2	31	10	1.0W
1N5561B	S			Z						8.2	31	5.0	1.0W
1N5562	S			Z						9.1	28	20	1.0W
1N5562A	S			Z						9.1	28	10	1.0W
1N5562B	S			Z						9.1	28	5.0	1.0W
1N5563	S			Z						10	25	20	1.0W
1N5563A	S			Z						10	25	10	1.0W
1N5563B	S			Z						10	25	5.0	1.0W
1N5564	S			Z						11	23	20	1.0W
1N5564A	S			Z						11	23	10	1.0W
1N5564B	S			Z						11	23	5.0	1.0W
1N5565	S			Z						12	21	20	1.0W
1N5565A	S			Z						12	21	10	1.0W
1N5565B	S			Z						12	21	5.0	1.0W
1N5566	S			Z						13	19	20	1.0W
1N5566A	S			Z						13	19	10	1.0W
1N5566B	S			Z						13	19	5.0	1.0W
1N5567	S			Z						15	17	20	1.0W
1N5567A	S			Z						15	17	10	1.0W
1N5567B	S			Z						15	17	5.0	1.0W
1N5568	S			Z						16	15	20	1.0W
1N5568A	S			Z						16	15	10	1.0W
1N5568B	S			Z						16	15	5.0	1.0W
1N5569	S			Z						18	14	20	1.0W
1N5569A	S			Z						18	14	10	1.0W
1N5569B	S			Z						18	14	5.0	1.0W
1N5570	S			Z						20	12	20	1.0W
1N5570A	S			Z						20	12	10	1.0W
1N5570B	S			Z						20	12	5.0	1.0W
1N5571	S			Z						22	11	20	1.0W
1N5571A	S			Z						22	11	10	1.0W
1N5571B	S			Z						22	11	5.0	1.0W
1N5572	S			Z						24	10	20	1.0W
1N5572A	S			Z						24	10	10	1.0W
1N5572B	S			Z						24	10	5.0	1.0W
1N5573	S			Z						27	9.5	20	1.0W
1N5573A	S			Z						27	9.5	10	1.0W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts	@ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N5573B	S			Z						27	9.5	5.0	1.0W
1N5574	S			Z						30	8.5	20	1.0W
1N5574A	S			Z						30	8.5	10	1.0W
1N5574B	S			Z						30	8.5	5.0	1.0W
1N5575	S			Z						33	7.5	20	1.0W
1N5575A	S			Z						33	7.5	10	1.0W
1N5575B	S			Z						33	7.5	5.0	1.0W
1N5576	S			Z						36	7.0	20	1.0W
1N5576A	S			Z						36	7.0	10	1.0W
1N5576B	S			Z						36	7.0	5.0	1.0W
1N5577	S			Z						39	6.5	20	1.0W
1N5577A	S			Z						39	6.5	10	1.0W
1N5577B	S			Z						39	6.5	5.0	1.0W
1N5578	S			Z						43	6.0	20	1.0W
1N5578A	S			Z						43	6.0	10	1.0W
1N5578B	S			Z						43	6.0	5.0	1.0W
1N5579	S			Z						47	5.5	20	1.0W
1N5579A	S			Z						47	5.5	10	1.0W
1N5579B	S			Z						47	5.5	5.0	1.0W
1N5580	S			Z						51	5.0	20	1.0W
1N5580A	S			Z						51	5.0	10	1.0W
1N5580B	S			Z						51	5.0	5.0	1.0W
1N5581	S			Z						56	4.5	20	1.0W
1N5581A	S			Z						56	4.5	10	1.0W
1N5581B	S			Z						56	4.5	5.0	1.0W
1N5582	S			Z						62	4.0	20	1.0W
1N5582A	S			Z						62	4.0	10	1.0W
1N5582B	S			Z						62	4.0	5.0	1.0W
1N5583	S			Z						68	3.7	20	1.0W
1N5583A	S			Z						68	3.7	10	1.0W
1N5583B	S			Z						68	3.7	5.0	1.0W
1N5584	S			Z						75	3.3	20	1.0W
1N5584A	S			Z						75	3.3	10	1.0W
1N5584B	S			Z						75	3.3	5.0	1.0W
1N5585	S			Z						82	3.0	20	1.0W
1N5585A	S			Z						82	3.0	10	1.0W
1N5585B	S			Z						82	3.0	5.0	1.0W
1N5586	S			Z						91	2.8	20	1.0W
1N5586A	S			Z						91	2.8	10	1.0W
1N5586B	S			Z						91	2.8	5.0	1.0W
1N5587	S			Z						100	2.5	20	1.0W
1N5587A	S			Z						100	2.5	10	1.0W
1N5587B	S			Z						100	2.5	5.0	1.0W
1N5588	S			Z						110	2.3	20	1.0W
1N5588A	S			Z						110	2.3	10	1.0W
1N5588B	S			Z						110	2.3	5.0	1.0W
1N5589	S			Z						120	2.0	20	1.0W
1N5589A	S			Z						120	2.0	10	1.0W
1N5589B	S			Z						120	2.0	5.0	1.0W
1N5590	S			Z						130	1.9	20	1.0W
1N5590A	S			Z						130	1.9	10	1.0W
1N5590B	S			Z						130	1.9	5.0	1.0W
1N5591	S			Z						150	1.7	20	1.0W
1N5591A	S			Z						150	1.7	10	1.0W
1N5591B	S			Z						150	1.7	5.0	1.0W
1N5592	S			Z						160	1.6	20	1.0W
1N5592A	S			Z						160	1.6	10	1.0W
1N5592B	S			Z						160	1.6	5.0	1.0W
1N5593	S			Z						180	1.4	20	1.0W
1N5593A	S			Z						180	1.4	10	1.0W
1N5593B	S			Z						180	1.4	5.0	1.0W
1N5594	S			Z						200	1.2	20	1.0W
1N5594A	S			Z						200	1.2	10	1.0W
1N5594B	S			Z						200	1.2	5.0	1.0W
1N5595	S			G	5000	7.4	1.15	0.30	30	200	1.2		
1N5596	S			G	7500	11	0.87	0.30	30				
1N5597	S			G	10,000	14.5	0.70	0.30	30				
1N5598	S			G	15,000	23	0.47	0.30	30				
1N5599	S			G	2500	3.7	2.1	0.75	100				
1N5600	S			G	5000	7.4	1.4	0.75	100				

1N5601-1N5746B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	∅ D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	I _C mA/°C	I _{ZT} mA	Temp Range °C
1N5601	S			G	7500	11	0.92	0.75	100				
1N5602	S			C	2500	5.0	4.6	1.0	200				
1N5603	S			G	5000	9.0	3.5	1.0	200				
1N5604	S			G	7500	12	2.3	1.0	200				
1N5605	S			S	70	1.0	20m	25n					
1N5606	S			S	150	1.0	7.0m	25n					
1N5607	S			S	200	1.0	3.0m	25n					
1N5608	S			S	120	1.0	100m	50n					
1N5609	S			S	120	1.0	6.0m	5.0*					
1N5610	S		Table 2	P									
thru													
1N5613	S		Table 2	P									
1N5614	S			G	200	1.2	1.0	0.0025	50				
1N5615	S			G	200	1.2	1.0	0.0025	50				
1N5616	S			G	400	1.2	1.0	0.0025	50				
1N5617	S			G	400	1.2	1.0	0.0025	50				
1N5618	S			G	600	1.2	1.0	0.0025	50				
1N5619	S			G	600	1.2	1.0	0.0025	50				
1N5620	S			G	800	1.2	1.0	0.0025	50				
1N5621	S			G	800	1.2	1.0	0.0025	50				
1N5622	S			G	1000	1.2	1.0	0.0025	50				
1N5623	S			G	1000	1.2	1.0	0.0025	50				
1N5624	S	MR502	MR501	G	200	0.95	3.0	0.3	125				
1N5625	S	MR504	MR501	G	400	0.95	3.0	0.3	125				
1N5626	S	MR506	MR501	G	600	0.95	3.0	0.3	125				
1N5627	S	MR508	MR501	G	800	0.95	3.0	0.3	125				
1N5629.A	S		Table 2	F									
thru													
1N5665.A	S		Table 2	P						1.8	1.0	10	250m
1N5666.A	S			Z									
1N5667.A	S			Z						2.0	1.0	10	250m
1N5668.A	S			Z						2.2	1.0	10	250m
1N5669.A	S			Z						2.4	1.0	10	250m
1N5670.A	S			Z						2.7	1.0	10	250m
1N5671.A	S			Z						3.0	1.0	10	250m
1N5672.A	S			Z						3.3	1.0	10	250m
1N5673.A	S			Z						3.6	1.0	10	250m
1N5674.A	S			Z						3.9	1.0	10	250m
1N5675.A	S			Z						4.3	1.0	10	250m
1N5676.A	S			Z						4.7	1.0	10	250m
1N5677.A	S			Z						5.1	1.0	10	250m
1N5678.A	S			Z						5.6	1.0	10	250m
1N5679	S			G	50	1.1	1.0	0.01	50				
1N5680	S			G	100	1.1	1.0	0.01	50				
1N5711	S			J									
thru													
1N5713	S			S	30	1.0	50m	500n	0.01				
1N5720	S			S	15	1.0	50m	500n	0.01				
1N5721	S			S	60	1.1	500m	200n	0.01				
1N5726	S			S									
1N5727	S			S	50	1.1	500m	100n	0.01				
1N5728B	S			Z						4.7	10	5.0	400m
1N5729B	S			Z						5.1	10	5.0	400m
1N5730B	S			Z						5.6	10	5.0	400m
1N5731B	S			Z						6.2	10	5.0	400m
1N5732B	S			Z						6.8	10	5.0	400m
1N5733B	S			Z						7.5	10	5.0	400m
1N5734B	S			Z						8.2	10	5.0	400m
1N5735B	S			Z						9.1	10	5.0	400m
1N5736B	S			Z						10	10	5.0	400m
1N5737B	S			Z						11	5.0	5.0	400m
1N5738B	S			Z						12	5.0	5.0	400m
1N5739B	S			Z						13	5.0	5.0	400m
1N5740B	S			Z						15	5.0	5.0	400m
1N5741B	S			Z						16	5.0	5.0	400m
1N5742B	S			Z						18	5.0	5.0	400m
1N5743B	S			Z						20	5.0	5.0	400m
1N5744B	S			Z						22	5.0	5.0	400m
1N5745B	S			Z						24	5.0	5.0	400m
1N5746B	S			Z						27	2.0	5.0	400m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{VRWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N5747B	S			Z						30	2.0	5.0	400m
1N5743B	S			Z						33	2.0	5.0	400m
1N5749B	S			Z						36	2.0	5.0	400m
1N5750B	S			Z						39	2.0	5.0	400m
1N5751B	S			Z						43	2.0	5.0	400m
1N5752B	S			Z						47	2.0	5.0	400m
1N5753B	S			Z						51	2.0	5.0	400m
1N5754B	S			Z						56	2.0	5.0	400m
1N5755B	S			Z						62	2.0	5.0	400m
1N5755B	S			Z						68	2.0	5.0	400m
1N5757B	S		Table 6	Z						75	2.0	5.0	400m
1N5758 thru 1N5762A 1N5763	S		Table 6	3 G	33	1.2	300	10	4500				
1N5764 1N5765 1N5766 1N5767 1N5768	S		Table 4 Table 5	M F S S A	110	1.75 1.0	30 100m	2.0* 1.0*	400n				
thru 1N5775 1N5779 thru 1N5793			Table 6 Table 6	A 4 4									
1N5794	S	1N4001	1N4001	G	50	1.0	1.0	30					
1N5795	S	1N4002	1N4001	G	100	1.0	1.0	30					
1N5796	S	1N4003	1N4001	G	200	1.0	1.0	30					
1N5797	S	1N4004	1N4001	G	400	1.0	1.0	30					
1N5798	S	1N4005	1N4001	G	600	1.0	1.0	30					
1N5799	S	1N4006	1N4001	G	800	1.0	1.0	30					
1N5800	S	1N4007	1N4001	G	1000	1.0	1.0	30					
1N5801	S			E									
1N5802	S	MR850	MR850	G	50	0.8	2.5	2.0	35				
1N5803	S	MR851	MR850	G	75	0.8	2.5	2.0	35				
1N5804	S	MR851	MR850	G	100	0.8	2.5	2.0	35				
1N5805	S	MR852	MR850	G	125	0.8	2.5	2.0	35				
1N5806	S	MR852	MR850	G	150	0.8	2.5	2.0	35				
1N5807	S	MR850	MR820	G	50	0.7	6.0	3.0	125				
1N5808	S	MR821	MR820	G	75	0.7	6.0	3.0	125				
1N5809	S	MR821	MR820	G	100	0.7	6.0	3.0	125				
1N5810	S	MR822	MR820	G	125	0.7	6.0	3.0	125				
1N5811	S	MR822	MR820	G	150	0.7	6.0	3.0	125				
1N5812	S	1N3899	1N3899	G	50	0.85	20	10	250				
1N5813	S	1N3900	1N3899	G	75	0.85	20	10	250				
1N5814	S	1N3900	1N3899	G	100	0.85	20	10	250				
1N5815	S	1N3901	1N3899	G	125	0.85	20	10	250				
1N5816	S	1N3901	1N3899	G	150	0.85	20	10	250				
★1N5817	S		1N5817	H	20	0.45	1.0	1.0	100				
★1N5818	S			H	30	0.55	1.0	1.0	100				
★1N5819	S			H	40	0.60	1.0	1.0	100				
★1N5820	S		1N5820	H	20	0.475	3.0	2.0	250				
★1N5821	S		1N5820	H	30	0.500	3.0	2.0	250				
★1N5822	S		1N5820	H	40	0.525	3.0	2.0	250				
★1N5823	S		1N5823	H	20	0.47	5.0	10	500				
★1N5824	S		1N5823	H	30	0.49	5.0	10	500				
★1N5825	S		1N5823	H	40	0.52	5.0	10	500				
★1N5826	S		1N5826	H	20	0.67	15	10	500				
★1N5827	S		1N5826	H	30	0.77	15	10	500				
★1N5828	S		1N5826	H	40	0.87	15	10	500				
★1N5829	S		1N5829	H	20	0.72	25	20	800				
★1N5830	S		1N5829	H	30	0.77	25	20	800				
★1N5831	S		1N5829	H	40	0.82	25	20	800				
★1N5832	S		1N5832	H	20	0.98	40	20	800				
★1N5833	S		1N5832	H	30	1.08	40	20	800				
★1N5834	S		1N5832	H	40	1.18	40	20	800				
1N5835	S			F	30	0.9	3.0	0.001	150				
1N5836	S			F	50	0.9	3.0	0.001	150				
1N5837A	S			Z						2.4	20	10	500m
1N5837B	S			Z						2.4	20	5.0	500m

1N5838A-1N5872B

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
1N5838A	S			Z						2.5	20	10	500m
1N5838B	S			Z						2.5	20	5.0	500m
1N5839A	S			Z						2.7	20	10	500m
1N5839B	S			Z						2.7	20	5.0	500m
1N5840A	S			Z						2.8	20	10	500m
1N5840B	S			Z						2.8	20	5.0	500m
1N5841A	S			Z						3.0	20	10	500m
1N5841B	S			Z						3.0	20	5.0	500m
1N5842A	S			Z						3.3	20	10	500m
1N5842B	S			Z						3.3	20	5.0	500m
1N5843A	S			Z						3.6	20	10	500m
1N5843B	S			Z						3.6	20	5.0	500m
1N5844A	S			Z						3.9	20	10	500m
1N5844B	S			Z						3.9	20	5.0	500m
1N5845A	S			Z						4.3	20	10	500m
1N5845B	S			Z						4.3	20	5.0	500m
1N5846A	S			Z						4.7	20	10	500m
1N5846B	S			Z						4.7	20	5.0	500m
1N5847A	S			Z						5.1	20	10	500m
1N5847B	S			Z						5.1	20	5.0	500m
1N5848A	S			Z						5.6	20	10	500m
1N5848B	S			Z						5.6	20	5.0	500m
1N5849A	S			Z						6.0	20	10	500m
1N5849B	S			Z						6.0	20	5.0	500m
1N5850A	S			Z						6.2	20	10	500m
1N5850B	S			Z						6.2	20	5.0	500m
1N5851A	S			Z						6.8	20	10	500m
1N5851B	S			Z						6.8	20	5.0	500m
1N5852A	S			Z						7.5	20	10	500m
1N5852B	S			Z						7.5	20	5.0	500m
1N5853A	S			Z						8.2	20	10	500m
1N5853B	S			Z						8.2	20	5.0	500m
1N5854A	S			Z						8.7	20	10	500m
1N5854B	S			Z						8.7	20	5.0	500m
1N5855A	S			Z						9.1	20	10	500m
1N5855B	S			Z						9.1	20	5.0	500m
1N5856A	S			Z						10	20	10	500m
1N5856B	S			Z						10	20	5.0	500m
1N5857A	S			Z						11	20	10	500m
1N5857B	S			Z						11	20	5.0	500m
1N5858A	S			Z						12	20	10	500m
1N5858B	S			Z						12	20	5.0	500m
1N5859A	S			Z						13	9.5	10	500m
1N5859B	S			Z						13	9.5	5.0	500m
1N5860A	S			Z						14	9.0	10	500m
1N5860B	S			Z						14	9.0	5.0	500m
1N5861A	S			Z						15	8.5	10	500m
1N5861B	S			Z						15	8.5	5.0	500m
1N5862A	S			Z						16	7.8	10	500m
1N5862B	S			Z						16	7.8	5.0	500m
1N5863A	S			Z						17	7.4	10	500m
1N5863B	S			Z						17	7.4	5.0	500m
1N5864A	S			Z						18	7.0	10	500m
1N5864B	S			Z						18	7.0	5.0	500m
1N5865A	S			Z						19	6.6	10	500m
1N5865B	S			Z						19	6.6	5.0	500m
1N5866A	S			Z						20	6.2	10	500m
1N5866B	S			Z						20	6.2	5.0	500m
1N5867A	S			Z						22	5.6	10	500m
1N5867B	S			Z						22	5.6	5.0	500m
1N5868A	S			Z						24	5.2	10	500m
1N5868B	S			Z						24	5.2	5.0	500m
1N5869A	S			Z						25	5.0	10	500m
1N5869B	S			Z						25	5.0	5.0	500m
1N5870A	S			Z						27	4.6	10	500m
1N5870B	S			Z						27	4.6	5.0	500m
1N5871A	S			Z						28	4.5	10	500m
1N5871B	S			Z						28	4.5	5.0	500m
1N5872A	S			Z						30	4.2	10	500m
1N5872B	S			Z						30	4.2	5.0	500m

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
1N5873A	S			Z						33	3.8	10	500m
1N5873B	S			Z						33	3.8	5.0	500m
1N5874A	S			Z						36	3.4	10	500m
1N5874B	S			Z						36	3.4	5.0	500m
1N5875A	S			Z						39	3.2	10	500m
1N5875B	S			Z						39	3.2	5.0	500m
1N5876A	S			Z						43	3.0	10	500m
1N5876B	S			Z						43	3.0	5.0	500m
1N5877A	S			Z						47	2.7	10	500m
1N5877B	S			Z						47	2.7	5.0	500m
1N5878A	S			Z						51	2.5	10	500m
1N5878B	S			Z						51	2.5	5.0	500m
1N5879A	S			Z						56	2.2	10	500m
1N5879B	S			Z						56	2.2	5.0	500m
1N5880A	S			Z						60	2.1	10	500m
1N5880B	S			Z						60	2.1	5.0	500m
1N5881A	S			Z						62	2.0	10	500m
1N5881B	S			Z						62	2.0	5.0	500m
1N5882A	S			Z						68	1.8	10	500m
1N5882B	S			Z						68	1.8	5.0	500m
1N5883A	S			Z						75	1.7	10	500m
1N5883B	S			Z						75	1.7	5.0	500m
1N5884A	S			Z						82	1.5	10	500m
1N5884B	S			Z						82	1.5	5.0	500m
1N5885A	S			Z						87	1.4	10	500m
1N5885B	S			Z						87	1.4	5.0	500m
1N5886A	S			Z						91	1.4	10	500m
1N5886B	S			Z						91	1.4	5.0	500m
1N5887A	S			Z						100	1.3	10	500m
1N5887B	S			Z						100	1.3	5.0	500m
1N5888A	S			Z						110	1.1	10	500m
1N5888B	S			Z						110	1.1	5.0	500m
1N5889A	S			Z						120	1.0	10	500m
1N5889B	S			Z						120	1.0	5.0	500m
1N5890A	S			Z						130	0.95	10	500m
1N5890B	S			Z						130	0.95	5.0	500m
1N5891A	S			Z						140	0.90	10	500m
1N5891B	S			Z						140	0.90	5.0	500m
1N5892A	S			Z						150	0.85	10	500m
1N5892B	S			Z						150	0.85	5.0	500m
1N5893A	S			Z						160	0.80	10	500m
1N5893B	S			Z						160	0.80	5.0	500m
1N5894A	S			Z						170	0.74	10	500m
1N5894B	S			Z						170	0.74	5.0	500m
1N5895A	S			Z						180	0.68	10	500m
1N5895B	S			Z						180	0.68	5.0	500m
1N5896A	S			Z						190	0.66	10	500m
1N5896B	S			Z						190	0.66	5.0	500m
1N5897A	S			Z						200	0.65	10	500m
1N5897B	S			Z						200	0.65	5.0	500m
1N5898	S			G	50	1.0	3.0	5.0	300				
1N5899	S			G	100	1.0	3.0	5.0	300				
1N5900	S			G	200	1.0	3.0	5.0	300				
1N5901	S			G	400	1.0	3.0	5.0	300				
1N5902	S			G	600	1.0	3.0	5.0	300				
1N5903	S			G	800	1.0	3.0	5.0	300				
1N5904	S			G	1000	1.0	3.0	5.0	300				
1N5905	S			G	1200	1.0	3.0	5.0	300				
1N5906	S		Table 4	M									
1N5907	S		Table 2	P									
1N5908	S		Table 2	P									
1N5909	S		Table 5	E									
1N5910	S		Table 5	E									
1N5911	S		Table 5	E									
1N5912	S		Table 5	E									
★1N5913	S		1N5913	Z						3.3	20		1.5W
★1N5913A	S		1N5913	Z						3.3	10		1.5W
★1N5913B	S		1N5913	Z						3.3	5.0		1.5W
★1N5913C	S		1N5913	Z						3.3	2.0		1.5W
★1N5913D	S		1N5913	Z						3.3	1.0		1.5W

1N5914-1N5927D

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F @ Volts	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C
★1N5914	S		1N5913	Z						3.6	20		1.5W
★1N5914A	S		1N5913	Z						3.6	10		1.5W
★1N5914B	S		1N5913	Z						3.6	5		1.5W
★1N5914C	S		1N5913	Z						3.6	2		1.5W
★1N5914D	S		1N5913	Z						3.6	1		1.5W
★1N5915	S		1N5913	Z						3.9	20		1.5W
★1N5915A	S		1N5913	Z						3.9	10		1.5W
★1N5915B	S		1N5913	Z						3.9	5		1.5W
★1N5915C	S		1N5913	Z						3.9	2.0		1.5W
★1N5915D	S		1N5913	Z						3.9	1.0		1.5W
★1N5916	S		1N5913	Z						4.3	20		1.5W
★1N5916A	S		1N5913	Z						4.3	10		1.5W
★1N5916B	S		1N5913	Z						4.3	5.0		1.5W
★1N5916C	S		1N5913	Z						4.3	2.0		1.5W
★1N5916D	S		1N5913	Z						4.3	1.0		1.5W
★1N5917	S		1N5913	Z						4.7	20		1.5W
★1N5917A	S		1N5913	Z						4.7	10		1.5W
★1N5917B	S		1N5913	Z						4.7	5.0		1.5W
★1N5917C	S		1N5913	Z						4.7	2.0		1.5W
★1N5917D	S		1N5913	Z						4.7	1.0		1.5W
★1N5918	S		1N5913	Z						5.1	20		1.5W
★1N5918A	S		1N5913	Z						5.1	10		1.5W
★1N5918B	S		1N5913	Z						5.1	5.0		1.5W
★1N5918C	S		1N5913	Z						5.1	2.0		1.5W
★1N5918D	S		1N5913	Z						5.1	1.0		1.5W
★1N5919	S		1N5913	Z						5.6	20		1.5W
★1N5919A	S		1N5913	Z						5.6	10		1.5W
★1N5919B	S		1N5913	Z						5.6	5.0		1.5W
★1N5919C	S		1N5913	Z						5.6	2.0		1.5W
★1N5919D	S		1N5913	Z						5.6	1.0		1.5W
★1N5920	S		1N5913	Z						6.2	20		1.5W
★1N5920A	S		1N5913	Z						6.2	10		1.5W
★1N5920B	S		1N5913	Z						6.2	5.0		1.5W
★1N5920C	S		1N5913	Z						6.2	2.0		1.5W
★1N5920D	S		1N5913	Z						6.2	1.0		1.5W
★1N5921	S		1N5913	Z						6.8	20		1.5W
★1N5921A	S		1N5913	Z						6.8	10		1.5W
★1N5921B	S		1N5913	Z						6.8	5.0		1.5W
★1N5921C	S		1N5913	Z						6.8	2.0		1.5W
★1N5921D	S		1N5913	Z						6.8	1.0		1.5W
★1N5922	S		1N5913	Z						7.5	20		1.5W
★1N5922A	S		1N5913	Z						7.5	10		1.5W
★1N5922B	S		1N5913	Z						7.5	5.0		1.5W
★1N5922C	S		1N5913	Z						7.5	2.0		1.5W
★1N5922D	S		1N5913	Z						7.5	1.0		1.5W
★1N5923	S		1N5913	Z						8.2	20		1.5W
★1N5923A	S		1N5913	Z						8.2	10		1.5W
★1N5923B	S		1N5913	Z						8.2	5.0		1.5W
★1N5923C	S		1N5913	Z						8.2	2.0		1.5W
★1N5923D	S		1N5913	Z						8.2	1.0		1.5W
★1N5924	S		1N5913	Z						9.1	20		1.5W
★1N5924A	S		1N5913	Z						9.1	10		1.5W
★1N5924B	S		1N5913	Z						9.1	5.0		1.5W
★1N5924C	S		1N5913	Z						9.1	2.0		1.5W
★1N5924D	S		1N5913	Z						9.1	1.0		1.5W
★1N5925	S		1N5913	Z						10	20		1.5W
★1N5925A	S		1N5913	Z						10	10		1.5W
★1N5925B	S		1N5913	Z						10	5.0		1.5W
★1N5925C	S		1N5913	Z						10	2.0		1.5W
★1N5925D	S		1N5913	Z						10	1.0		1.5W
★1N5926	S		1N5913	Z						11	20		1.5W
★1N5926A	S		1N5913	Z						11	10		1.5W
★1N5926B	S		1N5913	Z						11	5.0		1.5W
★1N5926C	S		1N5913	Z						11	2.0		1.5W
★1N5926D	S		1N5913	Z						11	1.0		1.5W
★1N5927	S		1N5913	Z						12	20		1.5W
★1N5927A	S		1N5913	Z						12	10		1.5W
★1N5927B	S		1N5913	Z						12	5.0		1.5W
★1N5927C	S		1N5913	Z						12	2.0		1.5W
★1N5927D	S		1N5913	Z						12	1.0		1.5W

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N5928	S		1N5913	Z						13	20		1.5W
★1N5928A	S		1N5913	Z						13	10		1.5W
★1N5928B	S		1N5913	Z						13	5.0		1.5W
★1N5928C	S		1N5913	Z						13	2.0		1.5W
★1N5928D	S		1N5913	Z						13	1.0		1.5W
★1N5929	S		1N5913	Z						15	20		1.5W
★1N5929A	S		1N5913	Z						15	10		1.5W
★1N5929B	S		1N5913	Z						15	5.0		1.5W
★1N5929C	S		1N5913	Z						15	2.0		1.5W
★1N5929D	S		1N5913	Z						15	1.0		1.5W
★1N5930	S		1N5913	Z						16	20		1.5W
★1N5930A	S		1N5913	Z						16	10		1.5W
★1N5930B	S		1N5913	Z						16	5.0		1.5W
★1N5930C	S		1N5913	Z						16	2.0		1.5W
★1N5930D	S		1N5913	Z						16	1.0		1.5W
★1N5931	S		1N5913	Z						18	20		1.5W
★1N5931A	S		1N5913	Z						18	10		1.5W
★1N5931B	S		1N5913	Z						18	5.0		1.5W
★1N5931C	S		1N5913	Z						18	2.0		1.5W
★1N5931D	S		1N5913	Z						18	1.0		1.5W
★1N5932	S		1N5913	Z						20	20		1.5W
★1N5932A	S		1N5913	Z						20	10		1.5W
★1N5932B	S		1N5913	Z						20	5.0		1.5W
★1N5932C	S		1N5913	Z						20	2.0		1.5W
★1N5932D	S		1N5913	Z						20	1.0		1.5W
★1N5933	S		1N5913	Z						22	20		1.5W
★1N5933A	S		1N5913	Z						22	10		1.5W
★1N5933B	S		1N5913	Z						22	5.0		1.5W
★1N5933C	S		1N5913	Z						22	2.0		1.5W
★1N5933D	S		1N5913	Z						22	1.0		1.5W
★1N5934	S		1N5913	Z						24	20		1.5W
★1N5934A	S		1N5913	Z						24	10		1.5W
★1N5934B	S		1N5913	Z						24	5.0		1.5W
★1N5934C	S		1N5913	Z						24	2.0		1.5W
★1N5934D	S		1N5913	Z						24	1.0		1.5W
★1N5935	S		1N5913	Z						27	20		1.5W
★1N5935A	S		1N5913	Z						27	10		1.5W
★1N5935B	S		1N5913	Z						27	5.0		1.5W
★1N5935C	S		1N5913	Z						27	2.0		1.5W
★1N5935D	S		1N5913	Z						27	1.0		1.5W
★1N5936	S		1N5913	Z						30	20		1.5W
★1N5936A	S		1N5913	Z						30	10		1.5W
★1N5936B	S		1N5913	Z						30	5.0		1.5W
★1N5936C	S		1N5913	Z						30	2.0		1.5W
★1N5936D	S		1N5913	Z						30	1.0		1.5W
★1N5937	S		1N5913	Z						33	20		1.5W
★1N5937A	S		1N5913	Z						33	10		1.5W
★1N5937B	S		1N5913	Z						33	5.0		1.5W
★1N5937C	S		1N5913	Z						33	2.0		1.5W
★1N5937D	S		1N5913	Z						33	1.0		1.5W
★1N5938	S		1N5913	Z						36	20		1.5W
★1N5938A	S		1N5913	Z						36	10		1.5W
★1N5938B	S		1N5913	Z						36	5.0		1.5W
★1N5938C	S		1N5913	Z						36	2.0		1.5W
★1N5938D	S		1N5913	Z						36	1.0		1.5W
★1N5939	S		1N5913	Z						39	20		1.5W
★1N5939A	S		1N5913	Z						39	10		1.5W
★1N5939B	S		1N5913	Z						39	5.0		1.5W
★1N5939C	S		1N5913	Z						39	2.0		1.5W
★1N5939D	S		1N5913	Z						39	1.0		1.5W
★1N5940	S		1N5913	Z						43	20		1.5W
★1N5940A	S		1N5913	Z						43	10		1.5W
★1N5940B	S		1N5913	Z						43	5.0		1.5W
★1N5940C	S		1N5913	Z						43	2.0		1.5W
★1N5940D	S		1N5913	Z						43	1.0		1.5W
★1N5941	S		1N5913	Z						47	20		1.5W
★1N5941A	S		1N5913	Z						47	10		1.5W
★1N5941B	S		1N5913	Z						47	5.0		1.5W
★1N5941C	S		1N5913	Z						47	2.0		1.5W
★1N5941D	S		1N5913	Z						47	1.0		1.5W

1N5942-1N59550

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_{RWM} Volts	V_F Volts	I_O Amp	I_R mA	I_{FSM} Amp	V_Z Nom Volts	I_{ZT} mA	$V_Z \pm \%$	P_D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V_F Volts @	I_F	I_R	t_{rr} μs	V_Z Nom Volts	T_C %/°C	I_{ZT} mA	Temp Range °C					
★1N5942	S		1N5913	Z						51	20		1.5W
★1N5942A	S		1N5913	Z						51	10		1.5W
★1N5942B	S		1N5913	Z						51	5.0		1.5W
★1N5942C	S		1N5913	Z						51	2.0		1.5W
★1N5942D	S		1N5913	Z						51	1.0		1.5W
★1N5943	S		1N5913	Z						56	20		1.5W
★1N5943A	S		1N5913	Z						56	10		1.5W
★1N5943B	S		1N5913	Z						56	5.0		1.5W
★1N5943C	S		1N5913	Z						56	2.0		1.5W
★1N5943D	S		1N5913	Z						56	1.0		1.5W
★1N5944	S		1N5913	Z						62	20		1.5W
★1N5944A	S		1N5913	Z						62	10		1.5W
★1N5944B	S		1N5913	Z						62	5.0		1.5W
★1N5944C	S		1N5913	Z						62	2.0		1.5W
★1N5944D	S		1N5913	Z						62	1.0		1.5W
★1N5945	S		1N5913	Z						68	20		1.5W
★1N5945A	S		1N5913	Z						68	10		1.5W
★1N5945B	S		1N5913	Z						68	5.0		1.5W
★1N5945C	S		1N5913	Z						68	2.0		1.5W
★1N5945D	S		1N5913	Z						68	1.0		1.5W
★1N5946	S		1N5913	Z						75	20		1.5W
★1N5946A	S		1N5913	Z						75	10		1.5W
★1N5946B	S		1N5913	Z						75	5.0		1.5W
★1N5946C	S		1N5913	Z						75	2.0		1.5W
★1N5946D	S		1N5913	Z						75	1.0		1.5W
★1N5947	S		1N5913	Z						82	20		1.5W
★1N5947A	S		1N5913	Z						82	10		1.5W
★1N5947B	S		1N5913	Z						82	5.0		1.5W
★1N5947C	S		1N5913	Z						82	2.0		1.5W
★1N5947D	S		1N5913	Z						82	1.0		1.5W
★1N5948	S		1N5913	Z						91	20		1.5W
★1N5948A	S		1N5913	Z						91	10		1.5W
★1N5948B	S		1N5913	Z						91	5.0		1.5W
★1N5948C	S		1N5913	Z						91	2.0		1.5W
★1N5948D	S		1N5913	Z						91	1.0		1.5W
★1N5949	S		1N5913	Z						100	20		1.5W
★1N5949A	S		1N5913	Z						100	10		1.5W
★1N5949B	S		1N5913	Z						100	5.0		1.5W
★1N5949C	S		1N5913	Z						100	2.0		1.5W
★1N5949D	S		1N5913	Z						100	1.0		1.5W
★1N5950	S		1N5913	Z						110	20		1.5W
★1N5950A	S		1N5913	Z						110	10		1.5W
★1N5950B	S		1N5913	Z						110	5.0		1.5W
★1N5950C	S		1N5913	Z						110	2.0		1.5W
★1N5950D	S		1N5913	Z						110	1.0		1.5W
★1N5951	S		1N5913	Z						120	20		1.5W
★1N5951A	S		1N5913	Z						120	10		1.5W
★1N5951B	S		1N5913	Z						120	5.0		1.5W
★1N5951C	S		1N5913	Z						120	2.0		1.5W
★1N5951D	S		1N5913	Z						120	1.0		1.5W
★1N5952	S		1N5913	Z						130	20		1.5W
★1N5952A	S		1N5913	Z						130	10		1.5W
★1N5952B	S		1N5913	Z						130	5.0		1.5W
★1N5952C	S		1N5913	Z						130	2.0		1.5W
★1N5952D	S		1N5913	Z						130	1.0		1.5W
★1N5953	S		1N5913	Z						150	20		1.5W
★1N5953A	S		1N5913	Z						150	10		1.5W
★1N5953B	S		1N5913	Z						150	5.0		1.5W
★1N5953C	S		1N5913	Z						150	2.0		1.5W
★1N5953D	S		1N5913	Z						150	1.0		1.5W
★1N5954	S		1N5913	Z						160	20		1.5W
★1N5954A	S		1N5913	Z						160	10		1.5W
★1N5954B	S		1N5913	Z						160	5.0		1.5W
★1N5954C	S		1N5913	Z						160	2.0		1.5W
★1N5954D	S		1N5913	Z						160	1.0		1.5W
★1N5955	S		1N5913	Z						180	20		1.5W
★1N5955A	S		1N5913	Z						180	10		1.5W
★1N5955B	S		1N5913	Z						180	5.0		1.5W
★1N5955C	S		1N5913	Z						180	2.0		1.5W
★1N5955D	S		1N5913	Z						180	1.0		1.5W

1N5956-1N5957

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D
					SIGNAL DIODES					REFERENCE DIODES			
					PRV Volts	V _F Volts @ I _F	i _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C	
★1N5956	S		1N5913	Z						200	20		1.5W
★1N5956A	S		1N5913	Z						200	10		1.5W
★1N5956B	S		1N5913	Z						200	5.0		1.5W
★1N5956C	S		1N5913	Z						200	2.0		1.5W
★1N5956D	S		1N5913	Z						200	1.0		1.5W
1N5957	S		Table 4	S									



3N39-MCLTC6010

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z %	P _D
					SIGNAL DIODES					REFERENCE DIODES			
PRV Volts	V _F Volts	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C					
★3N39				Q						9.0	0.005	5.0	-/71
★3N40				Q						9.0	0.003	5.0	-/71
★3N41				Q						9.0	0.002	5.0	-/71
★3N42				Q						9.0	0.005	5.0	-/100
★3N43				Q						9.0	0.003	5.0	-/100
★3N44				Q						9.0	0.002	5.0	-/100
★3N44A				Q						9.0	0.001	5.0	-/150
★MBR320M	S		MBR320M	H	20		15	10	500				
★MBR330M	S		MBR320M	H	30		15	10	500				
★MBR340M	S		MBR320M	H	40		15	10	500				
★MBR1520	S		MBR1520	H	20		5	10	500				
★MBR1530	S		MBR1520	H	30		5	10	500				
★MBR1540	S		MBR1520	H	40		5	10	500				
★MBR2520	S		MBR2520	H	20		25	20	800				
★MBR2530	S		MBR2520	H	30		25	20	800				
★MBR2540	S		MBR2540	H	40		25	20	800				
★MBR4020	S		MBR4020	H	20		40	20	800				
★MBR4020PF	S		MBR4020PF	H	20	0.63	40	20	800				
★MBR4030	S		MBR4020	H	30		40	20	800				
★MBR4030PF	S		MBR4020PF	H	30	0.63	40	20	800				
★MBR4040	S		MBR4020	H	40		40	20	800				
★MCA1911				Q						6.8	0.051	5.0	0/75
★MCA1912				Q						6.8	0.025	5.0	0/75
★MCA1913				Q						6.8	0.010	5.0	0/75
★MCA1914				Q						6.8	0.005	5.0	0/75
★MCA1921				Q						6.8	0.105	5.0	-55/100
★MCA1922				Q						6.8	0.052	5.0	-55/100
★MCA1923				Q						6.8	0.020	5.0	-55/100
★MCA1924				Q						6.8	0.010	5.0	-55/100
★MCA1931				Q						6.8	0.139	5.0	-55/150
★MCA1932				Q						6.8	0.069	5.0	-55/150
★MCA1933				Q						6.8	0.026	5.0	-55/150
★MCA1934				Q						6.8	0.013	5.0	-55/150
★MCA2011				Q						8.6	0.060	5.0	0/75
★MCA2012				Q						8.6	0.030	5.0	0/75
★MCA2013				Q						8.6	0.012	5.0	0/75
★MCA2014				Q						8.6	0.006	5.0	0/75
★MCA2021				Q						8.6	0.124	5.0	-55/100
★MCA2022				Q						8.6	0.062	5.0	-55/100
★MCA2023				Q						8.6	0.024	5.0	-55/100
★MCA2024				Q						8.6	0.012	5.0	-55/100
★MCA2031				Q						8.6	0.164	5.0	-55/150
★MCA2032				Q						8.6	0.082	5.0	-55/150
★MCA2033				Q						8.6	0.032	5.0	-55/150
★MCA2034				Q						8.6	0.016	5.0	-55/150
★MCA2111				Q						9.5	0.071	5.0	0/75
★MCA2112				Q						9.5	0.035	5.0	0/75
★MCA2113				Q						9.5	0.014	5.0	0/75
★MCA2114				Q						9.5	0.007	5.0	0/75
★MCA2121				Q						9.5	0.147	5.0	-55/100
★MCA2122				Q						9.5	0.073	5.0	-55/100
★MCA2123				Q						9.5	0.028	5.0	-55/100
★MCA2124				Q						9.5	0.014	5.0	-55/100
★MCA2131				Q						9.5	0.194	5.0	-55/150
★MCA2132				Q						9.5	0.097	5.0	-55/150
★MCA2133				Q						9.5	0.038	5.0	-55/150
★MCA2134				Q						9.5	0.019	5.0	-55/150
★MCA2211				Q						11.0	0.082	5.0	0/75
★MCA2212				Q						11.0	0.041	5.0	0/75
★MCA2213				Q						11.0	0.016	5.0	0/75
★MCA2214				Q						11.0	0.008	5.0	0/75
★MCA2221				Q						11.0	0.170	5.0	-55/100
★MCA2222				Q						11.0	0.085	5.0	-55/100
★MCA2223				Q						11.0	0.034	5.0	-55/100
★MCA2224				Q						11.0	0.017	5.0	-55/100
★MCA2231				Q						11.0	0.225	5.0	-55/150
★MCA2232				Q						11.0	0.112	5.0	-55/150
★MCA2233				Q						11.0	0.044	5.0	-55/150
★MCA2234				Q						11.0	0.022	5.0	-55/150
★MCLTC6010	S		MCLTC6010	R						6.4	0.01	†	-55/100

† Built-in FET Current Source.

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V _{RWM}	V _F	I _O	I _R	I _{FSM}	V _Z Nom	I _{ZT}	Tol	P _D
					Volts	Volts	Amp	mA	Amp	Volts	mA	V _Z ±%	
					SIGNAL DIODES					REFERENCE DIODES			
PRV	V _F	I _F	I _R	t _{rr}	V _Z Nom	T _C	I _{ZT}	Temp					
Volts	Volts @			μs	Volts	%/°C	mA	Range °C					
★MCLTC6025	S		MCLTC6010	R						6.4	0.025	†	-55/100
★MCLTC6050	S		MCLTC6010	R						6.4	0.05	†	-55/100
★MCLTC6100	S		MCLTC6010	R						6.4	0.1	†	-55/100
★MDA60-1	S		MDA960	A	50		2.5						
★MDA60-2	S		MDA960	A	100								
★MDA60-3	S		MDA960	A	200								
★MDA62-1	S		MDA960	A	50		1.0		250				
★MDA62-2	S		MDA942	A	100		1.0		250				
★MDA62-3	S		MDA942	A	200		1.0		250				
★MDA62-4	S		MDA942	A	300		1.0		250				
★MDA62-5	S		MDA942	A	400		1.0		250				
★MDA100	S			A	50	1.05	1.5	0.01	45				
★MDA101	S			A	100	1.05	1.5	0.01	45				
★MDA102	S			A	200	1.05	1.5	0.01	45				
★MDA104	S			A	400	1.05	1.5	0.01	45				
★MDA106	S			A	600	1.05	1.5	0.01	45				
★MDA108	S			A	800	1.05	1.5	0.01	45				
★MDA110	S			A	1000	1.05	1.5	0.01	45				
★MDA920-1	S		MDA920	A	25		1.0		32				
★MDA920-2	S		MDA920	A	50		1.0		32				
★MDA920-3	S		MDA920	A	100		1.0		32				
★MDA920-4	S		MDA920	A	200		1.0		32				
★MDA920-5	S		MDA920	A	300		1.0		32				
★MDA920-6	S		MDA920	A	400		1.0		32				
★MDA920-7	S		MDA920	A	600		1.0		32				
★MDA922-1	S		MDA922-1	A	25		1.8		60				
★MDA922-2	S		MDA922-1	A	50		1.8		60				
★MDA922-3	S		MDA922-1	A	100		1.8		60				
★MDA922-4	S		MDA922-1	A	200		1.8		60				
★MDA922-5	S		MDA922-1	A	300		1.8		60				
★MDA922-6	S		MDA922-1	A	400		1.8		60				
★MDA922-7	S		MDA922-1	A	600		1.8		60				
★MDA922-8	S		MDA922-1	A	800		1.8		60				
★MDA922-9	S		MDA922-1	A	1000		1.8		60				
★MDA930-1	S		MDA920	A	25		0.5		32				
★MDA930-2	S		MDA920	A	50		0.5		32				
★MDA930-3	S		MDA920	A	100		0.5		32				
★MDA930-4	S		MDA920	A	200		0.5		32				
★MDA930-5	S		MDA920	A	300		0.5		32				
★MDA930-6	S		MDA920	A	400		0.5		32				
★MDA930-7	S		MDA920	A	600		0.5		32				
★MDA940-1	S		MDA920	A	25		1.0		32				
★MDA940-2	S		MDA920	A	50		1.0		32				
★MDA940-3	S		MDA920	A	100		1.0		32				
★MDA940-4	S		MDA920	A	200		1.0		32				
★MDA940-5	S		MDA920	A	300		1.0		32				
★MDA940-6	S		MDA920	A	400		1.0		32				
★MDA940-7	S		MDA920	A	600		1.0		32				
★MDA942-1	S		MDA942	A	50		1.5		25				
★MDA942-2	S		MDA942	A	100		1.5		25				
★MDA942-3	S		MDA942	A	200		1.5		25				
★MDA942-4	S		MDA942	A	300		1.5		25				
★MDA942-5	S		MDA942	A	400		1.5		25				
★MDA942-6	S		MDA942	A	600		1.5		25				
★MDA950-1	S		MDA920	A	25		1.0		32				
★MDA950-2	S		MDA920	A	50		1.0		32				
★MDA950-3	S		MDA920	A	100		1.0		32				
★MDA950-4	S		MDA920	A	200		1.0		32				
★MDA950-5	S		MDA920	A	300		1.0		32				
★MDA950-6	S		MDA920	A	400		1.0		32				
★MDA950-7	S		MDA920	A	600		1.0		32				
★MDA952-1	S		MDA942	A	50		6.0		150				
★MDA952-2	S		MDA942	A	100		6.0		150				
★MDA952-3	S		MDA942	A	200		6.0		150				
★MDA952-4	S		MDA942	A	300		6.0		150				
★MDA952-5	S		MDA942	A	400		6.0		150				
★MDA952-6	S		MDA942	A	600		6.0		150				
★MDA952FR-1	S		MDA952FR-1	A	50		6.0		150				
★MDA952FR-2	S		MDA952FR-1	A	100		6.0		150				
★MDA952FR-3	S		MDA952FR-1	A	200		6.0		150				

† Built-in FET Current Source.

MDA952FR-4-MR2525

TYPE NO.	MATERIAL	REPLACEMENT	REFERENCE	IDENTIFICATION	RECTIFIERS					ZENER DIODES				
					V _{RWM} Volts	V _F Volts	I _O Amp	I _R mA	I _{FSM} Amp	V _Z Nom Volts	I _{ZT} mA	Tol V _Z ±%	P _D	
					SIGNAL DIODES					REFERENCE DIODES				
PRV Volts	V _F Volts @	I _F	I _R	t _{rr} μs	V _Z Nom Volts	T _C %/°C	I _{ZT} mA	Temp Range °C						
★MDA952FR-4	S		MDA952FR-1	A	300			6.0		150				
★MDA952FR-5	S		MDA952FR-1	A	400			6.0		150				
★MDA970-1	S		MDA960	A	50			4.0		150				
★MDA970-2	S		MDA960	A	100			4.0		150				
★MDA970-3	S		MDA960	A	200			4.0		150				
★MDA972-1	S		MDA942	A	35			16		250				
★MDA972-2	S		MDA942	A	70			16		250				
★MDA972-3	S		MDA942	A	140			16		250				
★MDA972-4	S		MDA942	A	210			16		250				
★MDA972-5	S		MDA942	A	280			16		250				
★MDA980-1	S		MDA980-1	A	50			12		300				
★MDA980-2	S		MDA980-1	A	100			12		300				
★MDA980-3	S		MDA980-1	A	200			12		300				
★MDA980-4	S		MDA980-1	A	300			12		300				
★MDA980-5	S		MDA980-1	A	400			12		300				
★MDA980-6	S		MDA980-1	A	600			12		300				
★MDA990-1	S		MDA980-1	A				27		300				
★MDA990-2	S		MDA980-1	A				27		300				
★MDA990-3	S		MDA980-1	A				27		300				
★MDA990-4	S		MDA980-1	A				27		300				
★MDA990-5	S		MDA980-1	A				27		300				
★MDA990-6	S		MDA980-1	A				27		300				
★MDA1330H	S		MDA1330H	A				1.0		25				
★MDA1331H	S		MDA1330H	A	5000			1.0		25				
★MDA1332H	S		MDA1330H	A	10000			1.0		25				
★MDA1333H	S		MDA1330H	A	5000			2.5		250				
★MDA1333H	S		MDA1330H	A	10000			2.5		250				
★MDA1491-1	S		MDA942	A	50			1.5		25				
★MDA1491-2	S		MDA942	A	100			1.5		25				
★MDA1491-3	S		MDA942	A	200			1.5		25				
★MDA1491-4	S		MDA942	A	300			1.5		25				
★MDA1491-5	S		MDA942	A	400			1.5		25				
★MDA1491-6	S		MDA942	A	600			1.5		25				
★MDA1505-1	S		MDA942	A	50			8.0		200				
★MDA1505-2	S		MDA942	A	100			8.0		200				
★MDA1505-3	S		MDA942	A	200			8.0		200				
★MDA1505-4	S		MDA942	A	300			8.0		200				
★MDA1505-5	S		MDA942	A	400			8.0		200				
★MDA1505-6	S		MDA942	A	600			8.0		200				
★MDA1591-1	S		MDA942	A	50			4.0		100				
★MDA1591-2	S		MDA942	A	100			4.0		100				
★MDA1591-3	S		MDA942	A	200			4.0		100				
★MDA1591-4	S		MDA942	A	300			4.0		100				
★MDA1591-5	S		MDA942	A	400			4.0		100				
★MDA1591-6	S		MDA942	A	600			4.0		100				
★MMD70	S		MMD70	S	50	0.75	100m	0.1*		0.15				
★MMD6050	S		MMD6050	S	70	0.55	100m	0.1*		0.05				
★MMD6100	S		MMD6100	S	70	0.55	100m	0.1*		0.05				
★MMD6150	S		MMD6150	S	70	0.55	100m	0.1*		0.05				
★MMD7000	S		MMD7000	S	70	0.55	100m	0.1*		0.05				
★MMD7001	S		MMD7001	S	40	0.55	100m	0.1*		0.03*				
★MR2525	S		MR2525	G	23	1.1	25	0.05		600				



TABLE 2 - TRANSIENT SUPPRESSORS

Short-form specifications for zener diodes characterized as transient suppressors.

KEY

TYPE	MATERIAL	REPLACEMENT	REFERENCE	$V_{(BR)R}$ @ I_R		V_{RWM} Volts	V_R (surge) Volts	I_R [†] (surge) Amp	TC %/°C
				Min					
Numerical Listing of Registered Type Numbers.									
S - Silicon									
Type number of recommended replacement or of nearest electrical equivalent									
First type number on data sheet where the EIA type or replacement part is located.									
Breakdown Voltage									
Reverse Current									
Reverse Voltage (working) @ $T_A = 25^\circ C$									
Peak Reverse Voltage during Reverse Surge									
Maximum Surge Current									
Temperature Coefficient of Breakdown Voltage									

TRANSIENT SUPPRESSOR DIODES INDEX

1N5555-1N5637

TYPE	MATERIAL	REPLACEMENT	REFERENCE	$V_{(BR)R}$ @ I_R		V_{RWM} Volts	V_R (surge) Volts	I_R [†] (surge) Amp	TC %/°C
				Min					
1N5555	S	M25555	M25555	33	1.0	30.5	47.5	32	
1N5556	S	M25556	M25555	43.7	1.0	40.3	63.5	24	
1N5557	S	M25557	M25555	54	1.0	49	78.5	19	
1N5558	S	M25558	M25555	191	1.0	175	265	5.7	
1N5610	S	1N2991B	1N2970	33	1.0	30.5	47.5	32	0.1
1N5611	S	1N2995B	1N2970	43.7	1.0	40.3	63.5	24	0.1
1N5612	S	1N2997B	1N2970	54	1.0	49	78.5	19	0.1
1N5613	S	1N3015B	1N2970	191	1.0	175	265	5.7	0.1
1N5629	S	1N2970A	1N2970	6.12	10	5.5	10.8	139	0.057
1N5629A	S	1N2970B	1N2970	6.45	10	5.8	10.5	143	0.057
1N5630	S	1N2971A	1N2970	6.75	10	6.05	11.7	128	0.061
1N5630A	S	1N2971B	1N2970	7.13	10	6.40	11.3	132	0.061
1N5631	S	1N2972A	1N2970	7.38	10	6.63	12.5	120	0.065
1N5631A	S	1N2972B	1N2970	7.79	10	7.02	12.1	124	0.065
1N5632	S	1N2973A	1N2970	8.19	1.0	7.37	13.8	109	0.068
1N5632A	S	1N2973B	1N2970	8.65	1.0	7.78	13.4	112	0.068
1N5633	S	1N2974A	1N2970	9.0	1.0	8.10	15	100	0.073
1N5633A	S	1N2974B	1N2970	9.5	1.0	8.55	14.5	103	0.073
1N5634	S	1N2975A	1N2970	9.9	1.0	8.92	16.2	93	0.075
1N5634A	S	1N2975B	1N2970	10.5	1.0	9.40	15.6	96	0.075
1N5635	S	1N2976A	1N2970	10.8	1.0	9.72	17.3	87	0.078
1N5635A	S	1N2976B	1N2970	11.4	1.0	10	16.7	90	0.078
1N5636	S	1N2977A	1N2970	11.7	1.0	10.5	19	79	0.081
1N5636A	S	1N2977B	1N2970	12.4	1.0	11.1	18.2	82	0.081
1N5637	S	1N2979A	1N2970	13.5	1.0	12.1	22	68	0.084

† Surge Current, $I_R = \frac{I_{R(MAX)}}{2}$ @ 1MS, exponential decay.

TYPE	MATERIAL	REPLACEMENT	REFERENCE	$V_{(BR)R}$ @ I_R		V_{RWM} Volts	V_R (surge) Volts	I_R † (surge) Amp	TC %/°C
				Volts	mA				
				Min					
1N5637A	S	1N2979B	1N2970	14.3	1.0	12.8	21.2	71	0.084
1N5638	S	1N2980A	1N2970	14.4	1.0	12.9	23.5	64	0.086
1N5638A	S	1N2980B	1N2970	15.2	1.0	13.6	22.5	67	0.086
1N5639	S	1N2982A	1N2970	16.2	1.0	14.5	26.5	56.5	0.088
1N5639A	S	1N2982B	1N2970	17.1	1.0	15.3	25.2	59.5	0.088
1N5640	S	1N2984A	1N2970	18	1.0	16.2	29.1	51.5	0.090
1N5640A	S	1N2984B	1N2970	19	1.0	17.1	27.7	54	0.090
1N5641	S	1N2985A	1N2970	19.8	1.0	17.8	31.9	47	0.092
1N5641A	S	1N2985B	1N2970	20.9	1.0	18.8	30.6	49	0.092
1N5642	S	1N2986A	1N2970	21.6	1.0	19.4	34.7	43	0.094
1N5642A	S	1N2986B	1N2970	22.8	1.0	20.5	33.2	45	0.094
1N5643	S	1N2988A	1N2970	24.3	1.0	21.8	39.1	38.5	0.096
1N5643A	S	1N2988B	1N2970	25.7	1.0	23.1	37.5	40	0.096
1N5644	S	1N2989A	1N2970	27	1.0	24.3	43.5	34.5	0.097
1N5644A	S	1N2989B	1N2970	28.5	1.0	25.6	41.4	36	0.097
1N5645	S	1N2990A	1N2970	29.7	1.0	26.8	47.7	31.5	0.098
1N5645A	S	1N2990B	1N2970	31.4	1.0	28.2	45.7	33	0.098
1N5646	S	1N2991A	1N2970	32.4	1.0	29.1	52	29	0.099
1N5646A	S	1N2991B	1N2970	34.2	1.0	30.8	49.9	30	0.099
1N5647	S	1N2992A	1N2970	35.1	1.0	31.6	56.4	26.5	0.100
1N5647A	S	1N2992B	1N2970	37.1	1.0	33.3	53.9	28	0.100
1N5648	S	1N2993A	1N2970	38.7	1.0	34.8	61.9	24	0.101
1N5648A	S	1N2993B	1N2970	40.9	1.0	36.8	59.3	25.3	0.101
1N5649	S	1N2995A	1N2970	42.3	1.0	38.1	67.8	22.2	0.101
1N5649A	S	1N2995B	1N2970	44.7	1.0	40.2	64.8	23.2	0.101
1N5650	S	1N2997A	1N2970	45.9	1.0	41.3	73.5	20.4	0.102
1N5650A	S	1N2997B	1N2970	48.5	1.0	43.6	70.1	21.4	0.102
1N5651	S	1N2999A	1N2970	50.4	1.0	45.4	80.5	18.6	0.103
1N5651A	S	1N2999B	1N2970	53.2	1.0	47.8	77	19.5	0.103
1N5652	S	1N3000A	1N2970	55.8	1.0	50.2	89	16.9	0.104
1N5652A	S	1N3000B	1N2970	58.9	1.0	53	85	17.7	0.104
1N5653	S	1N3001A	1N2970	61.2	1.0	55.1	98	15.3	0.104
1N5653A	S	1N3001B	1N2970	64.6	1.0	58.1	92	16.3	0.104
1N5654	S	1N3002A	1N2970	67.5	1.0	60.7	108	13.9	0.105
1N5654A	S	1N3002B	1N2970	71.3	1.0	64.1	103	14.6	0.105
1N5655	S	1N3003A	1N2970	73.8	1.0	66.4	118	12.7	0.105
1N5655A	S	1N3003B	1N2970	77.9	1.0	70.1	113	13.3	0.105
1N5656	S	1N3004A	1N2970	81.9	1.0	73.7	131	11.4	0.106
1N5656A	S	1N3004B	1N2970	86.5	1.0	77.8	125	12	0.106
1N5657	S	1N3005A	1N2970	90	1.0	81	144	10.4	0.106
1N5657A	S	1N3005B	1N2970	95	1.0	85.5	137	11	0.106
1N5658	S	1N3007A	1N2970	99	1.0	89.2	158	9.5	0.107
1N5658A	S	1N3007B	1N2970	105	1.0	94	152	9.9	0.107
1N5659	S	1N3008A	1N2970	108	1.0	97.2	173	8.7	0.107
1N5659A	S	1N3008B	1N2970	114	1.0	102	165	9.1	0.107
1N5660	S	1N3009A	1N2970	117	1.0	105	187	8.0	0.107
1N5660A	S	1N3009B	1N2970	124	1.0	111	179	8.4	0.107
1N5661	S	1N3011A	1N2970	135	1.0	121	215	7.0	0.108
1N5661A	S	1N3011B	1N2970	143	1.0	128	207	7.2	0.108
1N5662	S	1N3012A	1N2970	144	1.0	130	230	6.5	0.108
1N5662A	S	1N3012B	1N2970	152	1.0	136	219	6.8	0.108
1N5663	S	1N3013A	1N2970	153	1.0	138	244	6.2	0.108
1N5663A	S	1N2974B	1N2970	9.5	1.0	8.55	14.5	103	0.073
1N5664	S	1N3014A	1N2970	162	1.0	146	258	5.8	0.108
1N5664A	S	1N3014B	1N2970	171	1.0	154	246	6.1	0.108
1N5665	S	1N3015A	1N2970	180	1.0	162	287	5.2	0.108
1N5665A	S	1N3015B	1N2970	190	1.0	171	274	5.5	0.108
1N5907	S			6.0	1.0	5.0	8.6	165	
1N5908	S			6.0	1.0	5.0	8.6	165	
MPZ5-1GA	S		MPZ6-16A	16	400	14	24	200	
MPZ5-16B	S		MPZ5-16A	16	400	14	20	200	
MPZ5-32A	S		MPZ5-16A	32	200	28	50	100	
MPZ5-32B	S		MPZ5-16A	32	200	28	45	100	
MPZ5-32C	S		MPZ5-16A	32	200	28	40	100	
MPZ5-180A	S		MPZ5-16A	180	30	165	250	20	
MPZ5-180B	S		MPZ5-16A	180	30	165	225	20	
MPZ5-180C	S		MPZ5-16A	180	30	165	205	20	
MZ5555	S		MZ5555	33	1.0	30.5	47.5	32	0.093
MZ5556	S		MZ5555	43.7	1.0	40.3	63.5	24	0.095
MZ5557	S		MZ5555	54	1.0	49	78.5	19	0.099
MZ5558	S		MZ5555	191	1.0	1	265	5.7	0.110

† Surge Current, $I_R = I_{R(MAX)}$ @ 1MS, exponential decay.

TABLE 3 - VARACTORS

Short-form specifications for Varactor Diodes characterized for both tuning and frequency multiplication applications.

TYPE NO.	REPLACEMENT	REFERENCE	ID	PD Watts	REF. POINT	V _R Max	C _T pF nom	@ V _R Volts	Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η %	Q P _{out} Watts Min.	f	PACKAGE To- Case No. No.
<p>Alphanumeric listing of type numbers ★ Available from Motorola</p> <p>Type number of recommended replacement or of nearest electrical equivalent</p> <p>First type number on data sheet where the EIA type or replacement part is located.</p> <p>Identification Code 1st Letter- V-Varactor 2nd Letter- G-Germanium S-Silicon 3rd Letter- P-Power Multiplier T-Tuning Diode</p> <p>Power Dissipation. Normally specified at 25°C, but occasionally specified at higher temperatures</p> <p>A-Ambient Temperature C-Case Temperature</p> <p>Reverse Voltage Rating</p>															
<p>Total Capacitance</p> <p>Test Voltage for C_T</p> <p>Tolerance of C_T</p> <p>Capacitance Ratio for Tuning Diodes Ratio of input to output frequency for Power Multipliers</p> <p>V₁/V₂-Test Voltages for C₁-C₂ for Tuning Diodes η-Efficiency for Power Multipliers</p> <p>Q-Figure of Merit for tuning diodes P_{out} — Power Output for power multipliers</p> <p>Test frequency for Q or P_{out}. M-MHz G-GHz</p> <p>JEDEC Outline/Motorola Package Outline</p>															

1N836-1N3677

TYPE NO.	REPLACEMENT	REFERENCE	ID	PD Watts	REF. POINT	V _R Max	C _T pF nom	@ V _R Volts	Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η %	Q P _{out} Watts Min.	f	PACKAGE To- Case No. No.
1N836	.	.	VGT	.125 A		5	3.0	0	33	-	-	-	8	1000 M	7/-
1N894	.	.	VGT	.125 A		5	2.75	0	25	-	-	-	10	1000 M	7/-
1N895	.	.	VGT	.125 A		5	2.5	0	20	-	-	-	14	1000 M	7/-
1N896	.	.	VGT	.125 A		5	2.2	0	10	-	-	-	18	1000 M	7/-
1N950	.	.	VST	0.25 A		130	35	4.0	20	2.5	4.0	130	7.0	50 M	7/-
1N951	.	.	VST	0.25 A		80	50	4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N952	.	.	VST	0.25 A		60	70	4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N953	.	.	VST	0.25 A		25	100	4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N954	.	.	VST	0.25 A		25		4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N955	.	.	VST	0.25 A		25		4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N956	.	.	VST	0.25 A		25		4.0	20	2.4	1.0	10	7.0	50 M	7/-
1N2386	.	.	VGT	0.20 A		5	3.0	0	33	-	-	-	8	1000 M	7/-
1N2627	.	.	VST	0.2 A		5	2.75	0	27	1.75	0	5.0	10	1000 M	NS/-
1N2628	.	.	VST	0.2 A		5	2.5	0	20	1.5	0	5.0	14	1000 M	NS/-
1N2629	.	.	VGT	0.20 A		5	2.2	0	10	-	-	-	18	1000 M	7/-
1N3182	.	.	VST	.163 A		20	33	4.0	30	0.7	4.0	10	65	50 M	7/-
1N3488	.	.	VST	0.5 A		15	56	4.0	10	2.5	0.1	7.0	50	50 M	14/-
1N3551	1N5472A	1N5461A	VST	0.15 A		11	50	4.0	6.0	1.35	4.0	8.0	30	50 M	7/-
1N3552	1N5447A	1N5441A	VST	0.15 A		22	21.5	4.0	6.0	1.35	4.0	8.0	25	50 M	7/-
1N3554	1N5141A	1N5139	VST	0.5 A		100	12	4.0	20	4.5	2.0	80	60	50 M	14/-
1N3555	1N5144	1N5139	VST	0.5 A		100	20	4.0	20	4.5	2.0	80	60	50 M	14/-
1N3556	1N5148	1N5139	VST	0.5 A		100	47	4.0	10	5.0	2	100	100	100 M	14/-
1N3557	1N5144	1N5139	VST	0.5 A		210	24	8.0	20	5.0	4	200	75	50 M	14/-
1N3628	1N5452A	1N5441A	VST	0.25 A		20	50	4.0	6.0	2.5	4.0	20	30	50 M	7/-
1N3677	.	.	VST	0.25 A		20	21.3	4.0	6.0	2.45	4.0	20	25	50 M	7/-

TYPE NO.	REPLACEMENT	REFERENCE	ID	P _D Watts	REF. POINT	V _R Max	C _T pF @ V _R		Tolerance %	C ₁ / C ₂ <i>f</i> _{out} / <i>f</i> _{in}	V ₁ Volts	V ₂ Volts	Q <i>P</i> _{out} Watts Min.	f	PACKAGE To-Case No. No.
							nom	Volts							
1N4797D	1N5453D	1N5441A	VST	0.50 A		15	56	4.0	1.0	1.81	4.0	15	15	50 M	14/-
1N4798	1N5454A	1N5441A	VST	0.50 A		15	68	4.0	20	1.81	4.0	15	15	50 M	14/-
1N4798A	1N5454A	1N5441A	VST	0.50 A		15	68	4.0	10	1.81	4.0	15	15	50 M	14/-
1N4798B	1N5454B	1N5441A	VST	0.50 A		15	68	4.0	5.0	1.81	4.0	15	15	50 M	14/-
1N4798C	1N5454C	1N5441A	VST	0.50 A		15	68	4.0	2.0	1.81	4.0	15	15	50 M	14/-
1N4798D	1N5454D	1N5441A	VST	0.50 A		15	68	4.0	1.0	1.81	4.0	15	15	50 M	14/-
1N4799	1N5455A	1N5441A	VST	0.50 A		15	82	4.0	20	1.82	4.0	15	15	50 M	14/-
1N4799A	1N5455A	1N5441A	VST	0.50 A		15	82	4.0	10	1.82	4.0	15	15	50 M	14/-
1N4799B	1N5455B	1N5441A	VST	0.50 A		15	82	4.0	5.0	1.82	4.0	15	15	50 M	14/-
1N4799C	1N5455C	1N5441A	VST	0.50 A		15	82	4.0	2.0	1.82	4.0	15	15	50 M	14/-
1N4799D	1N5455D	1N5441A	VST	0.50 A		15	82	4.0	1.0	1.82	4.0	15	15	50 M	14/-
1N4800	1N5456A	1N5441A	VST	0.50 A		15	100	4.0	20	1.83	4.0	15	15	50 M	14/-
1N4800A	1N5456A	1N5441A	VST	0.50 A		15	100	4.0	2.0	1.83	4.0	15	15	50 M	14/-
1N4800B	1N5456B	1N5441A	VST	0.50 A		15	100	4.0	5.0	1.83	4.0	15	15	50 M	14/-
1N4800C	1N5456C	1N5441A	VST	0.50 A		15	100	4.0	2.0	1.83	4.0	15	15	50 M	14/-
1N4800D	1N5456D	1N5441A	VST	0.50 A		15	100	4.0	1.0	1.83	4.0	15	15	50 M	14/-
1N4801	1N5139	1N5139	VST	0.50 A		100	6.8	4.0	20	3.84	4.0	100	15	50 M	14/-
1N4801A	1N5139A	1N5139	VST	0.50 A		100	6.8	4.0	10	3.84	4.0	100	15	50 M	14/-
1N4801B	1N5139B	1N5139	VST	0.50 A		100	6.8	4.0	5.0	3.84	4.0	100	15	50 M	14/-
1N4801C	1N5139C	1N5139	VST	0.50 A		100	6.8	4.0	2.0	3.84	4.0	100	15	50 M	14/-
1N4801D	1N5139D	1N5139	VST	0.50 A		100	6.8	4.0	1.0	3.84	4.0	100	15	50 M	14/-
1N4802	1N5462A	1N5461A	VST	0.50 A		100	8.2	4.0	20	3.79	4.0	100	15	50 M	14/-
1N4802A	1N5462A	1N5461A	VST	0.50 A		100	8.2	4.0	10	3.79	4.0	100	15	50 M	14/-
1N4802B	1N5462B	1N5461A	VST	0.50 A		100	8.2	4.0	5.0	3.79	4.0	100	15	50 M	14/-
1N4802C	1N5462C	1N5461A	VST	0.50 A		100	8.2	4.0	2.0	3.79	4.0	100	15	50 M	14/-
1N4802D	1N5140D	1N5439	VST	0.50 A		100	8.2	4.0	1.0	3.79	4.0	100	15	50 M	14/-
1N4803	1N5140A	1N5439	VST	0.50 A		100	10	4.0	20	4.13	4.0	100	15	50 M	14/-
1N4803A	1N5140A	1N5439	VST	0.50 A		100	10	4.0	10	4.13	4.0	100	15	50 M	14/-
1N4803B	1N5140B	1N5439	VST	0.50 A		100	10	4.0	5.0	4.13	4.0	100	15	50 M	14/-
1N4803C	1N5140C	1N5439	VST	0.50 A		100	10	4.0	2.0	4.13	4.0	100	15	50 M	14/-
1N4803D	1N5140D	1N5439	VST	0.50 A		100	10	4.0	1.0	4.13	4.0	100	15	50 M	14/-
1N4804	1N5141	1N5139	VST	0.50 A		100	12	4.0	20	4.15	4.0	100	15	50 M	14/-
1N4804A	1N5141A	1N5139	VST	0.50 A		100	12	4.0	10	4.15	4.0	100	15	50 M	14/-
1N4804B	1N5141B	1N5139	VST	0.50 A		100	12	4.0	5.0	4.15	4.0	100	15	50 M	14/-
1N4804C	1N5141C	1N5139	VST	0.50 A		100	12	4.0	2.0	4.15	4.0	100	15	50 M	14/-
1N4804D	1N5141D	1N5139	VST	0.50 A		100	12	4.0	1.0	4.15	4.0	100	15	50 M	14/-
1N4805	1N5142	1N5139	VST	0.50 A		100	15	4.0	20	4.15	4.0	100	15	50 M	14/-
1N4805A	1N5142A	1N5139	VST	0.50 A		100	15	4.0	10	4.15	4.0	100	15	50 M	14/-
1N4805B	1N5142B	1N5139	VST	0.50 A		100	15	4.0	5.0	4.15	4.0	100	15	50 M	14/-
1N4805C	1N5142C	1N5139	VST	0.50 A		100	15	4.0	2.0	4.15	4.0	100	15	50 M	14/-
1N4805D	1N5142D	1N5139	VST	0.50 A		100	15	4.0	1.0	4.15	4.0	100	15	50 M	14/-
1N4806	1N5143	1N5139	VST	0.50 A		90	18	4.0	20	4.15	4.0	90	15	50 M	14/-
1N4806A	1N5143A	1N5139	VST	0.50 A		90	18	4.0	10	4.15	4.0	90	15	50 M	14/-
1N4806B	1N5143B	1N5139	VST	0.50 A		90	18	4.0	5.0	4.15	4.0	90	15	50 M	14/-
1N4806C	1N5143C	1N5139	VST	0.50 A		90	18	4.0	2.0	4.15	4.0	90	15	50 M	14/-
1N4806D	1N5143D	1N5139	VST	0.50 A		90	18	4.0	1.0	4.15	4.0	90	15	50 M	14/-
1N4807	1N5144	1N5139	VST	0.50 A		90	22	4.0	20	4.15	4.0	90	15	50 M	14/-
1N4807A	1N5144A	1N5139	VST	0.50 A		90	22	4.0	10	4.15	4.0	90	15	50 M	14/-
1N4807B	1N5144B	1N5139	VST	0.50 A		90	22	4.0	5.0	4.15	4.0	90	15	50 M	14/-
1N4807C	1N5144C	1N5139	VST	0.50 A		90	22	4.0	2.0	4.15	4.0	90	15	50 M	14/-
1N4807D	1N5144D	1N5139	VST	0.50 A		90	22	4.0	1.0	4.15	4.0	90	15	50 M	14/-
1N4808	1N5145	1N5139	VST	0.50 A		65	27	4.0	20	3.62	4.0	65	15	50 M	14/-
1N4808A	1N5145A	1N5139	VST	0.50 A		65	27	4.0	10	3.62	4.0	65	15	50 M	14/-
1N4808B	1N5145B		VST	0.50 A		65	27	4.0	5.0	3.62	4.0	65	15	50 M	14/-
1N4808C	1N5145C		VST	0.50 A		65	27	4.0	2.0	3.62	4.0	65	15	50 M	14/-
1N4808D	1N5145D		VST	0.50 A		65	27	4.0	1.0	3.62	4.0	65	15	50 M	14/-
1N4809	1N5146	1N5139	VST	0.50 A		65	33	4.0	20	3.48	4.0	60	15	50 M	14/-
1N4809A	1N5146A	1N5139	VST	0.50 A		65	33	4.0	10	3.48	4.0	60	15	50 M	14/-
1N4809B	1N5146B		VST	0.50 A		65	33	4.0	5.0	3.48	4.0	60	15	50 M	14/-
1N4809C	1N5146C		VST	0.50 A		65	33	4.0	2.0	3.48	4.0	60	15	50 M	14/-
1N4809D	1N5146D		VST	0.50 A		65	33	4.0	1.0	3.48	4.0	60	15	50 M	14/-
1N4810	1N5147	1N5139	VST	0.50 A		55	39	4.0	20	3.33	4.0	55	15	50 M	14/-
1N4810A	1N5147A	1N5139	VST	0.50 A		55	39	4.0	10	3.33	4.0	55	15	50 M	14/-
1N4810B	1N5147B		VST	0.50 A		55	39	4.0	5.0	3.33	4.0	55	15	50 M	14/-
1N4810C	1N5147C		VST	0.50 A		55	39	4.0	2.0	3.33	4.0	55	15	50 M	14/-
1N4810D	1N5147D		VST	0.50 A		55	39	4.0	1.0	3.33	4.0	55	15	50 M	14/-
1N4811	1N5148	1N5139	VST	0.50 A		50	47	4.0	20	3.19	4.0	50	15	50 M	14/-
1N4811A	1N5148A	1N5139	VST	0.50 A		50	47	4.0	10	3.19	4.0	50	15	50 M	14/-
1N4811B	1N5148B		VST	0.50 A		50	47	4.0	5.0	3.19	4.0	50	15	50 M	14/-
1N4811C	1N5148C		VST	0.50 A		50	47	4.0	2.0	3.19	4.0	50	15	50 M	14/-

TYPE NO.	REPLACEMENT	REFERENCE	ID	PD Watts	REF. POINT	V _R Max	C _T pF @ V _R		Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η	Q P _{out} Watts Min.	f	PACKAGE To-Case No. No.
							nom	Volts							
1N4811D 1N4812 1N4812A 1N4812B 1N4812C	1N5148D 1N5148 1N5148A 1N5148B 1N5148C	1N5139 1N5139	VST VST VST VST VST	0.50 A 0.50 A 0.50 A 0.50 A 0.50 A		50 40 40 40 40	47 56 56 56 56	4.0 4.0 4.0 4.0 4.0	1.0 2.0 5.0 10.0 2.0	3.19 2.86 2.86 2.86 2.86	4.0 4.0 4.0 4.0 4.0	50 40 40 40 40	15 15 15 15 15	50 M 50 M 50 M 50 M 50 M	14/- 14/- 14/- 14/- 146-34
1N4812D 1N4813 1N4813A 1N4813B 1N4813C	1N5148D 1N5454A 1N5454A 1N5454B 1N5454C	1N5441A 1N5441A 1N5441A 1N5441A	VST VST VST VST VST	0.50 A 0.50 A 0.50 A 0.50 A 0.50 A		40 30 30 30 30	56 68 68 68 68	4.0 4.0 4.0 5.0 4.0	1.0 2.0 10 5.0 2.0	2.86 2.51 2.51 2.51 2.51	4.0 4.0 4.0 4.0 4.0	40 30 30 30 30	15 15 15 15 15	50 M 50 M 50 M 50 M 50 M	14/- 14/- 14/- 14/- 14/-
1N4813D 1N4814 1N4814A 1N4814B 1N4814C	1N5454D		VST VST VST VST VST	0.50 A 0.50 A 0.50 A 0.50 A 0.50 A		30 20 20 20 20	68 82 82 82 82	4.0 4.0 4.0 4.0 4.0	1.0 2.0 2.0 5.0 2.0	2.51 2.09 2.09 2.09 2.09	4.0 4.0 4.0 4.0 4.0	30 20 20 20 20	15 15 15 15 15	50 M 50 M 50 M 50 M 50 M	14/- 14/- 14/- 14/- 14/-
1N4814D 1N4815 1N4815A 1N4815B 1N4815C			VST VST VST VST VST	0.50 A 0.50 A 0.50 A 0.50 A 0.50 A		20 20 20 20 20	82 100 100 100 100	4.0 4.0 4.0 5.0 4.0	1.0 2.0 10 5.0 2.0	2.09 2.09 2.09 2.09 2.09	4.0 4.0 4.0 4.0 4.0	20 20 20 20 20	15 15 15 15 15	50 M 50 M 50 M 50 M 50 M	14/- 14/- 14/- 14/- 14/-
1N4815D ★1N4885 ★1N4886 1N4941 1N5136			VST VSP VSP VST VST	0.50 A 20 C 20 C 0.1 A 0.4 A		20 150 150 60 60	100 33 33 0.3 1.0	4.0 6.0 6.0 33 20	1.0 3 3	2.09 4.0	4.0	20 55 22 60 2000	15 450 M 450 M 1000 M 50 M	50 M 4/- 4/- -/- 7/-	14/- 4/- 4/- -/- 7/-
1N5136A 1N5137 1N5137A 1N5138 1N5138A			VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		60 60 60 60 60	1.0 2.2 2.2 3.3 3.3	1.0 2.0 2.0 2.0 2.0	10 20 10 20 10	2.0 2.0 2.0 2.2 2.2	4.0 4.0 4.0 4.0 4.0	60 60 60 60 60	350 350 350 350 350	50 M 50 M 50 M 50 M 50 M	7/- 7/- 7/- 7/- 7/-
★1N5139 ★1N5139A ★1N5140 ★1N5140A ★1N5141		1N5139 1N5139A 1N5140 1N5140A 1N5141	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		60 60 60 60 60	6.8 6.8 10 10 12	4.0 5.0 10 5.0 10	2.7 2.7 2.8 2.8 2.8	4.0 4.0 4.0 4.0 4.0	60 60 60 60 60	350 350 300 300 300	50 M 50 M 50 M 50 M 50 M	7/- 7/- 7/- 7/- 7/-	7/- 7/- 7/- 7/- 7/-
★1N5141A ★1N5142 ★1N5142A ★1N5143 ★1N5143A		1N5141A 1N5142 1N5142A 1N5143 1N5143A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		60 60 60 60 60	12 15 15 18 18	5.0 10 10 5.0 5.0	2.8 2.8 2.8 2.8 2.8	4.0 4.0 4.0 4.0 4.0	60 60 60 60 60	300 250 250 250 250	50 M 50 M 50 M 50 M 50 M	7/- 7/- 7/- 7/- 7/-	7/- 7/- 7/- 7/- 7/-
★1N5144 ★1N5144A ★1N5145 ★1N5145A ★1N5146		1N5144 1N5144A 1N5145 1N5145A 1N5146	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		60 60 60 60 60	22 22 27 27 33	10 5.0 10 5.0 10	3.2 3.2 3.2 3.2 3.2	4.0 4.0 4.0 4.0 4.0	60 60 60 60 60	200 200 200 200 200	50 M 50 M 50 M 50 M 50 M	7/- 7/- 7/- 7/- 7/-	7/- 7/- 7/- 7/- 7/-
★1N5146A ★1N5147 ★1N5147A ★1N5148 ★1N5148A		1N5146A 1N5147 1N5147A 1N5148 1N5148A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		60 60 60 60 60	33 39 39 47 47	5.0 5.0 5.0 10 5.0	3.2 3.2 3.2 3.2 3.2	4.0 4.0 4.0 4.0 4.0	60 60 60 60 60	200 200 200 200 200	50 M 50 M 50 M 50 M 50 M	7/- 7/- 7/- 7/- 7/-	7/- 7/- 7/- 7/- 7/-
★1N5149 ★1N5150 ★1N5150A ★1N5151 ★1N5152		1N5149 1N5149 1N5150A 1N5151 1N5151	VSP VSP VSP VSP VSP	14 C 19 C 29 C 7.5 C 7.5 C		80 80 80 75 75	12.5 12.5 12 6.3 6.3	6.0 6.0 6.0 6.0 6.0	60 60 10 19 19	2 2		55 65 68 50 50	11 6 24 6 6	1000 M 1000 M 1000 M 200 M 200 M	-/47 -/47 -/47 -/48 -/46
★1N5152A ★1N5153 ★1N5153A ★1N5154 ★1N5155		1N5150A 1N5151 1N5150A 1N5154 1N5154	VSP VSP VSP VSP VSP	11.7 C 7.5 C 11.7 C 5 C 5 C		75 75 75 35 35	6.0 6.3 6.0 2.0 2.0	6.0 6.0 6.0 6.0 5.0	10 19 10 50 3	2 2 2		60 50 60 40 40	7.2 6 7.2 2 2	2000 M 200 M 2000 M 6000 M 6000 M	-/46 -/47 -/47 -/48 -/46
★1N5155A ★1N5156 ★1N5157 1N5421 1N5422		1N5150A 1N5156 1N5156	VSP VSP VSP VST VST	8.8 C 4.5 C 4.5 C 0.25 A 0.25 A		35 20 20 210 210	1.9 0.8 0.8 210 340	6.0 6.0 6.0 4.0 4.0	10 25 25 20 20	3 2 2		40 38.5 38.5	2.0	6000 M 10 G 10 G 25 M 25 M	-/46 -/48 -/46 -/- -/-
1N5423 1N5424 1N5425 1N5439 1N5439A			VST VST VST VST VST	0.25 A 0.25 A 0.25 A 0.4 A 0.4 A		210 115 115 30 30	680 680 1370 3.3 3.3	4.0 4.0 4.0 4.0 4.0	20 20 20 10 10	4.1 4.2 4.2 2.3 2.3	4.0 4.0 4.0 2.0 2.0	100 100 100 30 450	150 300 300 50 M 50 M	25 M 10 M 10 M 7/51 7/51	-/- -/- -/- 7/51 7/51

1N5439B-1N5453A

TYPE NO.	REPLACEMENT	REFERENCE	ID	P _D Watts	V _R Max	C _T pF @	V _R Volts	Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η	Q P _{out} Watts Min.	f	PACKAGE To-Case No. No.
1N5439B 1N5439C 1N5439D 1N5440 1N5440A			VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	3.3 3.3 3.3 4.0 4.0	4.0 4.0 4.0 2.0 4.0	5.0 2.0 1.0 2.0 1.0	2.3 2.3 2.3 2.4 2.4	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	450 450 450 450 450	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
1N5440B 1N5440C 1N5440D ★1N5441 ★1N5441A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	4.7 4.7 4.7 6.8 6.8	4.0 4.0 4.0 2.0 4.0	5.0 2.0 1.0 2.5 1.0	2.4 2.4 2.4 2.5 2.5	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	450 450 450 450 450	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5441B ★1N5441C ★1N5441D 1N5442 ★1N5442A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	6.8 6.8 6.8 8.2 8.2	4.0 4.0 4.0 2.0 4.0	5.0 2.5 1.0 2.5 2.5	2.5 2.0 2.0 2.5 2.0	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	450 450 450 450 450	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5442B ★1N5442C ★1N5442D 1N5443 ★1N5443A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	8.2 8.2 8.2 10 10	4.0 4.0 1.0 4.0 2.6	5.0 2.5 1.0 2.6 2.6	2.5 2.0 2.5 2.6 2.0	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	450 450 450 400 400	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5443B ★1N5443C ★1N5443D 1N5444 ★1N5444A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	10 10 10 12 12	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 2.6	2.6 2.0 2.6 2.0 2.0	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	400 400 400 400 400	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5444B ★1N5444C ★1N5444D ★1N5445 ★1N5445A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	12 12 12 15 15	4.0 4.0 4.0 4.0 4.0	5.0 2.0 1.0 2.6 2.6	2.6 2.0 2.6 2.0 2.0	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	400 400 400 400 400	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5445B ★1N5445C ★1N5445D ★1N5446 ★1N5446A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	15 15 15 18 18	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	400 400 400 350 350	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5446B ★1N5446C ★1N5446D ★1N5447 ★1N5447A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	18 18 18 20 20	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	350 350 350 350 350	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5447B ★1N5447C ★1N5447D ★1N5448 ★1N5448A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	20 20 20 22 22	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	350 350 350 350 350	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5448B ★1N5448C ★1N5448D ★1N5449 ★1N5449A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	22 22 22 27 27	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	350 350 350 350 350	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5449B ★1N5449C ★1N5449D ★1N5450 ★1N5450A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	27 27 27 33 33	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	350 350 350 350 350	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5450B ★1N5450C ★1N5450D ★1N5451 ★1N5451A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	33 33 33 39 39	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	350 350 350 300 300	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5451B ★1N5451C ★1N5451D ★1N5452 ★1N5452A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	39 39 39 47 47	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	300 300 300 250 250	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51
★1N5452B ★1N5452C ★1N5452D ★1N5453 ★1N5453A		1N5441A	VST VST VST VST VST	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	30 30 30 30 30	47 47 47 56 56	4.0 4.0 1.0 2.6 4.0	5.0 2.0 1.0 2.6 1.0	2.6 2.0 2.6 2.0 2.6	2.0 2.0 2.0 2.0 2.0	30 30 30 30 30	250 250 250 200 200	50 M 50 M 50 M 50 M 50 M	7/51 7/51 7/51 7/51 7/51

TYPE NO.	REPLACEMENT	REFERENCE	ID	P _D Watts	REF. POINT	V _R Max	C _T pF @ V _R		Tolerance %	C ₁ / C ₂	V ₁ Volts	V ₂ Volts	Q	f	PACKAGE To-Case No. No.
							nom	Volts								t_{out}/ t_{in}	η	P_{out} Watts Min.
★1N5453B		1N5441A	VST	0.4 A		30	56	4.0	5.0	2.6	2.0	30	200	50 M	7/51
★1N5453C		1N5441A	VST	0.4 A		30	56	4.0	2.0	2.6	2.0	30	200	50 M	7/51
★1N5453D		1N5441A	VST	0.4 A		30	56	4.0	1.0	2.6	2.0	30	200	50 M	7/51
★1N5454			VST	0.4 A		30	68	4.0	20	2.7	2.0	30	175	50 M	7/51
★1N5454A		1N5441A	VST	0.4 A		30	68	4.0	10	2.7	2.0	30	175	50 M	7/51
★1N5454B		1N5441A	VST	0.4 A		30	68	4.0	5.0	2.7	2.0	30	175	50 M	7/51
★1N5454C		1N5441A	VST	0.4 A		30	68	4.0	2.0	2.7	2.0	30	175	50 M	7/51
★1N5454D		1N5441A	VST	0.4 A		30	68	4.0	1.0	2.7	2.0	30	175	50 M	7/51
★1N5455			VST	0.4 A		30	82	4.0	20	2.7	2.0	30	175	50 M	7/51
★1N5455A		1N5441A	VST	0.4 A		30	82	4.0	10	2.7	2.0	30	175	50 M	7/51
★1N5455B		1N5441A	VST	0.4 A		30	82	4.0	5.0	2.7	2.0	30	175	50 M	7/51
★1N5455C		1N5441A	VST	0.4 A		30	82	4.0	2.0	2.7	2.0	30	175	50 M	7/51
★1N5455D		1N5441A	VST	0.4 A		30	82	4.0	1.0	2.7	2.0	30	175	50 M	7/51
★1N5456			VST	0.4 A		30	100	4.0	20	2.7	2.0	30	175	50 M	7/51
★1N5456A		1N5441A	VST	0.4 A		30	100	4.0	10	2.7	2.0	30	175	50 M	7/51
★1N5456B		1N5441A	VST	0.4 A		30	100	4.0	5.0	2.7	2.0	30	175	50 M	7/51
★1N5456C		1N5441A	VST	0.4 A		30	100	4.0	2.0	2.7	2.0	30	175	50 M	7/51
★1N5456D		1N5441A	VST	0.4 A		30	100	4.0	1.0	2.7	2.0	30	175	50 M	7/51
★1N5457			VST	0.4 A		30	120	4.0	20	2.7	2.0	30	150	50 M	7/51
★1N5457A			VST	0.4 A		30	120	4.0	10	2.7	2.0	30	150	50 M	7/51
★1N5457B			VST	0.4 A		30	120	4.0	5.0	2.7	2.0	30	150	50 M	7/51
1N5457C			VST	0.4 A		30	120	4.0	2.0	2.7	2.0	30	150	50 M	7/51
1N5457D			VST	0.4 A		30	120	4.0	1.0	2.7	2.0	30	150	50 M	7/51
1N5458			VST	0.4 A		30	3.9	4.0	20	2.5	2.0	30	600	50 M	7/51
1N5458A			VST	0.4 A		30	3.9	4.0	10	2.5	2.0	30	600	50 M	7/51
1N5458B			VST	0.4 A		30	3.9	4.0	5.0	2.5	2.0	30	600	50 M	7/51
1N5458C			VST	0.4 A		30	3.9	4.0	2.0	2.5	2.0	30	600	50 M	7/51
1N5458D			VST	0.4 A		30	3.9	4.0	1.0	2.5	2.0	30	600	50 M	7/51
1N5459			VST	0.4 A		30	4.7	4.0	20	2.6	2.0	30	600	50 M	7/51
1N5459A			VST	0.4 A		30	4.7	4.0	10	2.6	2.0	30	600	50 M	7/51
1N5459B			VST	0.4 A		30	4.7	4.0	5.0	2.6	2.0	30	600	50 M	7/51
1N5459C			VST	0.4 A		30	4.7	4.0	2.0	2.6	2.0	30	600	50 M	7/51
1N5459D			VST	0.4 A		30	4.7	4.0	1.0	2.6	2.0	30	600	50 M	7/51
1N5460			VST	0.4 A		30	5.6	4.0	20	2.6	2.0	30	600	50 M	7/51
1N5460A			VST	0.4 A		30	5.6	4.0	10	2.6	2.0	30	600	50 M	7/51
1N5460B			VST	0.4 A		30	5.6	4.0	5.0	2.6	2.0	30	600	50 M	7/51
1N5460C			VST	0.4 A		30	5.6	4.0	2.0	2.6	2.0	30	600	50 M	7/51
1N5460D			VST	0.4 A		30	5.6	4.0	1.0	2.6	2.0	30	600	50 M	7/51
1N5461			VST	0.4 A		30	6.8	4.0	20	2.7	2.0	30	600	50 M	7/51
★1N5461A		1N5461A	VST	0.4 A		30	6.8	4.0	10	2.7	2.0	30	600	50 M	7/51
★1N5461B		1N5461A	VST	0.4 A		30	6.8	4.0	5.0	2.7	2.0	30	600	50 M	7/51
★1N5461C		1N5461A	VST	0.4 A		30	6.8	4.0	2.0	2.7	2.0	30	600	50 M	7/51
★1N5461D		1N5461A	VST	0.4 A		30	6.8	4.0	1.0	2.7	2.0	30	600	50 M	7/51
★1N5462			VST	0.4 A		30	8.2	4.0	20	2.8	2.0	30	600	50 M	7/51
★1N5462A		1N5461A	VST	0.4 A		30	8.2	4.0	10	2.8	2.0	30	600	50 M	7/51
★1N5462B		1N5461A	VST	0.4 A		30	8.2	4.0	5.0	2.8	2.0	30	600	50 M	7/51
★1N5462C		1N5461A	VST	0.4 A		30	8.2	4.0	2.0	2.8	2.0	30	600	50 M	7/51
★1N5462D		1N5461A	VST	0.4 A		30	8.2	4.0	1.0	2.8	2.0	30	600	50 M	7/51
★1N5463			VST	0.4 A		30	10	4.0	20	2.8	2.0	30	550	50 M	7/51
★1N5463A		1N5461A	VST	0.4 A		30	10	4.0	10	2.8	2.0	30	550	50 M	7/51
★1N5463B		1N5461A	VST	0.4 A		30	10	4.0	5.0	2.8	2.0	30	550	50 M	7/51
★1N5463C		1N5461A	VST	0.4 A		30	10	4.0	2.0	2.8	2.0	30	550	50 M	7/51
★1N5463D		1N5461A	VST	0.4 A		30	10	4.0	1.0	2.8	2.0	30	550	50 M	7/51
★1N5464			VST	0.4 A		30	12	4.0	20	2.8	2.0	30	550	50 M	7/51
★1N5464A		1N5461A	VST	0.4 A		30	12	4.0	10	2.8	2.0	30	550	50 M	7/51
★1N5464B		1N5461A	VST	0.4 A		30	12	4.0	5.0	2.8	2.0	30	550	50 M	7/51
★1N5464C		1N5461A	VST	0.4 A		30	12	4.0	2.0	2.8	2.0	30	550	50 M	7/51
★1N5464D		1N5461A	VST	0.4 A		30	12	4.0	1.0	2.8	2.0	30	550	50 M	7/51
★1N5465			VST	0.4 A		30	15	4.0	20	2.8	2.0	30	550	50 M	7/51
★1N5465A		1N5461A	VST	0.4 A		30	15	4.0	10	2.8	2.0	30	550	50 M	7/51
★1N5465B		1N5461A	VST	0.4 A		30	15	4.0	5.0	2.8	2.0	30	550	50 M	7/51
★1N5465C		1N5461A	VST	0.4 A		30	15	4.0	2.0	2.8	2.0	30	550	50 M	7/51
★1N5465D		1N5461A	VST	0.4 A		30	15	4.0	1.0	2.8	2.0	30	550	50 M	7/51
★1N5466			VST	0.4 A		30	18	4.0	20	2.9	2.0	30	500	50 M	7/51
★1N5466A		1N5461A	VST	0.4 A		30	18	4.0	10	2.9	2.0	30	500	50 M	7/51
★1N5466B		1N5461A	VST	0.4 A		30	18	4.0	5.0	2.9	2.0	30	500	50 M	7/51
★1N5466C		1N5461A	VST	0.4 A		30	18	4.0	2.0	2.9	2.0	30	500	50 M	7/51
★1N5466D		1N5461A	VST	0.4 A		30	18	4.0	1.0	2.9	2.0	30	500	50 M	7/51
★1N5467			VST	0.4 A		30	20	4.0	20	2.9	2.0	30	500	50 M	7/51
★1N5467A		1N5461A	VST	0.4 A		30	20	4.0	10	2.9	2.0	30	500	50 M	7/51

1N5467B-1N5688

TYPE NO.	REPLACEMENT	REFERENCE	ID	Pd Watts	VR Max	CT pF @ VR	Tolerance %	C1 / C2 t _{out} / t _{in}	V1 Volts	V2 Volts	Q P _{out} Watts Min.	f	PACKAGE To- Case No. No.	
														REF. POINT
★1N5467B		1N5461A	VST	0.4 A	30	20	4.0	5.0	2.9	2.0	30	500	50 M	7/51
★1N5467C		1N5461A	VST	0.4 A	30	20	4.0	2.0	2.9	2.0	30	500	50 M	7/51
★1N5467D		1N5461A	VST	0.4 A	30	20	4.0	1.0	2.9	2.0	30	500	50 M	7/51
1N5468			VST	0.4 A	30	22	4.0	20	2.9	2.0	30	500	50 M	7/51
★1N5468A		1N5461A	VST	0.4 A	30	22	4.0	10	2.9	2.0	30	500	50 M	7/51
★1N5468B		1N5461A	VST	0.4 A	30	22	4.0	5.0	2.9	2.0	30	500	50 M	7/51
★1N5468C		1N5461A	VST	0.4 A	30	22	4.0	2.0	2.9	2.0	30	500	50 M	7/51
★1N5468D		1N5461A	VST	0.4 A	30	22	4.0	1.0	2.9	2.0	30	500	50 M	7/51
★1N5469			VST	0.4 A	30	27	4.0	20	2.9	2.0	30	500	50 M	7/51
★1N5469A		1N5461A	VST	0.4 A	30	27	4.0	10	2.9	2.0	30	500	50 M	7/51
★1N5469B		1N5461A	VST	0.4 A	30	27	4.0	5.0	2.9	2.0	30	500	50 M	7/51
★1N5469C		1N5461A	VST	0.4 A	30	27	4.0	2.0	2.9	2.0	30	500	50 M	7/51
★1N5469D		1N5461A	VST	0.4 A	30	27	4.0	1.0	2.9	2.0	30	500	50 M	7/51
★1N5470			VST	0.4 A	30	33	4.0	20	2.9	2.0	30	500	50 M	7/51
★1N5470A		1N5461A	VST	0.4 A	30	33	4.0	10	2.9	2.0	30	500	50 M	7/51
★1N5470B		1N5461A	VST	0.4 A	30	33	4.0	5.0	2.9	2.0	30	500	50 M	7/51
★1N5470C		1N5461A	VST	0.4 A	30	33	4.0	2.0	2.9	2.0	30	500	50 M	7/51
★1N5470D		1N5461A	VST	0.4 A	30	33	4.0	1.0	2.9	2.0	30	500	50 M	7/51
★1N5471			VST	0.4 A	30	39	4.0	20	2.9	2.0	30	450	50 M	7/51
★1N5471A		1N5461A	VST	0.4 A	30	39	4.0	10	2.9	2.0	30	450	50 M	7/51
★1N5471B		1N5461A	VST	0.4 A	30	39	4.0	5.0	2.9	2.0	30	450	50 M	7/51
★1N5471C		1N5461A	VST	0.4 A	30	39	4.0	2.0	2.9	2.0	30	450	50 M	7/51
★1N5471D		1N5461A	VST	0.4 A	30	39	4.0	1.0	2.9	2.0	30	450	50 M	7/51
★1N5472			VST	0.4 A	30	47	4.0	20	2.9	2.0	30	400	50 M	7/51
★1N5472A		1N5461A	VST	0.4 A	30	47	4.0	10	2.9	2.0	30	400	50 M	7/51
★1N5472B		1N5461A	VST	0.4 A	30	47	4.0	5.0	2.9	2.0	30	400	50 M	7/51
★1N5472C		1N5461A	VST	0.4 A	30	47	4.0	2.0	2.9	2.0	30	400	50 M	7/51
★1N5472D		1N5461A	VST	0.4 A	30	47	4.0	1.0	2.9	2.0	30	400	50 M	7/51
★1N5473			VST	0.4 A	30	56	4.0	20	2.9	2.0	30	300	50 M	7/51
★1N5473A		1N5461A	VST	0.4 A	30	56	4.0	10	2.9	2.0	30	300	50 M	7/51
★1N5473B		1N5461A	VST	0.4 A	30	56	4.0	5.0	2.9	2.0	30	300	50 M	7/51
★1N5473C		1N5461A	VST	0.4 A	30	56	4.0	2.0	2.9	2.0	30	300	50 M	7/51
★1N5473D		1N5461A	VST	0.4 A	30	56	4.0	1.0	2.9	2.0	30	300	50 M	7/51
★1N5474			VST	0.4 A	30	68	4.0	20	2.9	2.0	30	250	50 M	7/51
★1N5474A		1N5461A	VST	0.4 A	30	68	4.0	10	2.9	2.0	30	250	50 M	7/51
★1N5474B		1N5461A	VST	0.4 A	30	68	4.0	5.0	2.9	2.0	30	250	50 M	7/51
★1N5474C		1N5461A	VST	0.4 A	30	68	4.0	2.0	2.9	2.0	30	250	50 M	7/51
★1N5474D		1N5461A	VST	0.4 A	30	68	4.0	1.0	2.9	2.0	30	250	50 M	7/51
★1N5475			VST	0.4 A	30	82	4.0	20	2.9	2.0	30	225	50 M	7/51
★1N5475A		1N5461A	VST	0.4 A	30	82	4.0	10	2.9	2.0	30	225	50 M	7/51
★1N5475B		1N5461A	VST	0.4 A	30	82	4.0	5.0	2.9	2.0	30	225	50 M	7/51
★1N5475C		1N5461A	VST	0.4 A	30	82	4.0	2.0	2.9	2.0	30	225	50 M	7/51
★1N5475D		1N5461A	VST	0.4 A	30	82	4.0	1.0	2.9	2.0	30	225	50 M	7/51
1N5476			VST	0.4 A	30	100	4.0	20	2.9	2.0	30	200	50 M	7/51
★1N5476A		1N5461A	VST	0.4 A	30	100	4.0	10	2.9	2.0	30	200	50 M	7/51
★1N5476B		1N5461A	VST	0.4 A	30	100	4.0	5.0	2.9	2.0	30	200	50 M	7/51
★1N5476C		1N5461A	VST	0.4 A	30	100	4.0	2.0	2.9	2.0	30	200	50 M	7/51
★1N5476D		1N5461A	VST	0.4 A	30	100	4.0	1.0	2.9	2.0	30	200	50 M	7/51
1N5681	1N5461A	1N5461A	VST	0.4 A	45	6.8	4.0	20	3.1	4.0	40	600	50 M	7/51
1N5681A	1N5461A	1N5461A	VST	0.4 A	45	6.8	4.0	10	3.1	4.0	40	600	50 M	7/51
1N5681B	1N5461B	1N5461A	VST	0.4 A	45	6.8	4.0	5.0	3.1	4.0	40	600	50 M	7/51
1N5682	1N5462A	1N5461A	VST	0.4 A	45	8.2	4.0	20	3.1	4.0	40	600	50 M	7/51
1N5682A	1N5462A	1N5461A	VST	0.4 A	45	8.2	4.0	10	3.1	4.0	40	600	50 M	7/51
1N5682B	1N5462B	1N5461A	VST	0.4 A	45	8.2	4.0	5.0	3.1	4.0	40	600	50 M	7/51
1N5683	1N5463A	1N5461A	VST	0.4 A	45	10	4.0	20	3.2	4.0	40	550	50 M	7/51
1N5683A	1N5463A	1N5461A	VST	0.4 A	45	10	4.0	10	3.2	4.0	40	550	50 M	7/51
1N5683B	1N5463B	1N5461A	VST	0.4 A	45	10	4.0	5.0	3.2	4.0	40	550	50 M	7/51
1N5684	1N5464A	1N5461A	VST	0.4 A	45	12	4.0	20	3.2	4.0	40	550	50 M	7/51
1N5684A	1N5464A	1N5461A	VST	0.4 A	45	12	4.0	10	3.2	4.0	40	550	50 M	7/51
1N5684B	1N5464B	1N5461A	VST	0.4 A	45	12	4.0	5.0	3.2	4.0	40	550	50 M	7/51
1N5685	1N5465A	1N5461A	VST	0.4 A	45	15	4.0	20	3.2	4.0	40	550	50 M	7/51
1N5685A	1N5465A	1N5461A	VST	0.4 A	45	15	4.0	10	3.2	4.0	40	550	50 M	7/51
1N5685B	1N5465B	1N5461A	VST	0.4 A	45	15	4.0	5.0	3.2	4.0	40	550	50 M	7/51
1N5686			VST	0.4 A	45	18	4.0	20	3.2	4.0	40	500	50 M	7/51
1N5686A			VST	0.4 A	45	18	4.0	10	3.2	4.0	40	500	50 M	7/51
1N5686B			VST	0.4 A	45	18	4.0	5.0	3.2	4.0	40	500	50 M	7/51
1N5687			VST	0.4 A	45	22	4.0	20	3.3	4.0	40	500	50 M	7/51
1N5687A			VST	0.4 A	45	22	4.0	10	3.3	4.0	40	500	50 M	7/51
1N5687B			VST	0.4 A	45	22	4.0	5.0	3.3	4.0	40	500	50 M	7/51
1N5688	1N5469A	1N5461A	VST	0.4 A	45	27	4.0	20	3.3	4.0	40	500	50 M	7/51

TYPE NO.	REPLACEMENT	REFERENCE	ID	P _D Watts	V _R Max	C _T pF @ V _R	Tolerance %	C ₁ / C ₂ <i>f</i> _{out} / <i>f</i> _{in}	V ₁ Volts	V ₂ Volts η	Q P _{out} Watts Min.	f	PACKAGE To-Case No. No.	
1N5688A	1N5469A	1N5461A	VST	0.4 A	45	27	4.0	10	3.3	4.0	40	50 M	7/-	
1N5688B	1N5469B	1N5461A	VST	0.4 A	45	27	4.0	5.0	3.3	4.0	500	50 M	7/-	
1N5689	1N5470A	1N5461A	VST	0.4 A	45	33	4.0	20	3.3	4.0	40	50 M	7/-	
1N5689A	1N5470A	1N5461A	VST	0.4 A	45	33	4.0	10	3.3	4.0	500	50 M	7/-	
1N5689B	1N5470B	1N5461A	VST	0.4 A	45	33	4.0	5.0	3.3	4.0	500	50 M	7/-	
1N5690	1N5471A	1N5461A	VST	0.4 A	45	39	4.0	20	3.3	4.0	40	50 M	7/-	
1N5690A	1N5471A	1N5461A	VST	0.4 A	45	39	4.0	10	3.3	4.0	450	50 M	7/-	
1N5690B	1N5471B	1N5461A	VST	0.4 A	45	39	4.0	5.0	3.3	4.0	450	50 M	7/-	
1N5691	1N5472A	1N5461A	VST	0.4 A	45	47	4.0	20	3.3	4.0	400	50 M	7/-	
1N5691A	1N5472A	1N5461A	VST	0.4 A	45	47	4.0	10	3.3	4.0	400	50 M	7/-	
1N5691B	1N5472B	1N5461A	VST	0.4 A	45	47	4.0	5.0	3.3	4.0	400	50 M	7/-	
1N5692	1N5473A	1N5461A	VST	0.4 A	45	56	4.0	20	3.3	4.0	300	50 M	7/-	
1N5692A	1N5473A	1N5461A	VST	0.4 A	45	56	4.0	10	3.3	4.0	400	50 M	7/-	
1N5692B	1N5473B	1N5461A	VST	0.4 A	45	56	4.0	5.0	3.3	4.0	400	50 M	7/-	
1N5693	1N5474A	1N5461A	VST	0.4 A	45	68	4.0	20	3.3	4.0	250	50 M	7/-	
1N5693A	1N5474A	1N5461A	VST	0.4 A	45	68	4.0	10	3.3	4.0	250	50 M	7/-	
1N5693B	1N5474B	1N5461A	VST	0.4 A	45	68	4.0	5.0	3.3	4.0	250	50 M	7/-	
1N5694	1N5475A	1N5461A	VST	0.4 A	45	82	4.0	20	3.3	4.0	225	50 M	7/-	
1N5694A	1N5475A	1N5461A	VST	0.4 A	45	82	4.0	10	3.3	4.0	225	50 M	7/-	
1N5694B	1N5475B	1N5461A	VST	0.4 A	45	82	4.0	5.0	3.3	4.0	225	50 M	7/-	
1N5695	1N5476A	1N5461A	VST	0.4 A	45	100	4.0	20	3.3	4.0	200	50 M	7/-	
1N5695A	1N5476A	1N5461A	VST	0.4 A	45	100	4.0	10	3.3	4.0	200	50 M	7/-	
1N5695B	1N5476B	1N5461A	VST	0.4 A	45	100	4.0	5.0	3.3	4.0	200	50 M	7/-	
1N5696	1N5461A	1N5461A	VST	0.4 A	65	6.8	4.0	20	2.7	2.0	60	450	50 M	7/-
1N5696A	1N5461A	1N5461A	VST	0.4 A	65	6.8	4.0	10	2.7	2.0	60	450	50 M	7/-
1N5696B	1N5461B	1N5461A	VST	0.4 A	65	6.8	4.0	5.0	2.7	2.0	60	450	50 M	7/-
1N5697	1N5462A	1N5461A	VST	0.4 A	65	8.2	4.0	20	2.7	2.0	60	450	50 M	7/-
1N5697A	1N5462A	1N5461A	VST	0.4 A	65	8.2	4.0	10	2.7	2.0	60	450	50 M	7/-
1N5697B	1N5462B	1N5461A	VST	0.4 A	65	8.2	4.0	5.0	2.7	2.0	60	400	50 M	7/-
1N5698	1N5463A	1N5461A	VST	0.4 A	65	10	4.0	20	2.8	2.0	60	400	50 M	7/-
1N5698A	1N5463A	1N5461A	VST	0.4 A	65	10	4.0	10	2.8	2.0	60	400	50 M	7/-
1N5698B	1N5463B	1N5461A	VST	0.4 A	65	10	4.0	5.0	2.8	2.0	60	400	50 M	7/-
1N5699	1N5464A	1N5461A	VST	0.4 A	65	12	4.0	20	2.8	2.0	60	400	50 M	7/-
1N5699A	1N5464A	1N5461A	VST	0.4 A	65	12	4.0	10	2.8	2.0	60	400	50 M	7/-
1N5699B	1N5464B	1N5461A	VST	0.4 A	65	12	4.0	5.0	2.8	2.0	60	400	50 M	7/-
1N5700	1N5465A	1N5461A	VST	0.4 A	65	15	4.0	20	2.8	2.0	60	400	50 M	7/-
1N5700A	1N5465A	1N5461A	VST	0.4 A	65	15	4.0	10	2.8	2.0	60	400	50 M	7/-
1N5700B	1N5465B	1N5461A	VST	0.4 A	65	15	4.0	5.0	2.8	2.0	60	400	50 M	7/-
1N5701	1N5467A	1N5461A	VST	0.4 A	65	18	4.0	20	2.8	2.0	60	375	50 M	7/-
1N5701A	1N5467A	1N5461A	VST	0.4 A	65	18	4.0	10	2.8	2.0	60	375	50 M	7/-
1N5701B	1N5467B	1N5461A	VST	0.4 A	65	18	4.0	5.0	2.8	2.0	60	375	50 M	7/-
1N5702	1N5468A	1N5461A	VST	0.4 A	65	22	4.0	20	3.2	2.0	60	375	50 M	7/-
1N5702A	1N5468A	1N5461A	VST	0.4 A	65	22	4.0	10	3.2	2.0	50	375	50 M	7/-
1N5702B	1N5468B	1N5461A	VST	0.4 A	65	22	4.0	5.0	3.2	2.0	60	375	50 M	7/-
1N5703	1N5469A	1N5461A	VST	0.4 A	65	27	4.0	20	3.2	2.0	60	350	50 M	7/-
1N5703A	1N5469A	1N5461A	VST	0.4 A	65	27	4.0	10	3.2	2.0	60	350	50 M	7/-
1N5703B	1N5469B	1N5461A	VST	0.4 A	65	27	4.0	5.0	3.2	2.0	60	350	50 M	7/-
1N5704	1N5470A	1N5461A	VST	0.4 A	65	33	4.0	20	3.2	2.0	60	350	50 M	7/-
1N5704A	1N5470A	1N5461A	VST	0.4 A	65	33	4.0	10	3.2	2.0	60	350	50 M	7/-
1N5704B	1N5470B	1N5461A	VST	0.4 A	65	33	4.0	5.0	3.2	2.0	60	350	50 M	7/-
1N5705	1N5471A	1N5461A	VST	0.4 A	65	39	4.0	20	3.2	2.0	60	325	50 M	7/-
1N5705A	1N5471A	1N5461A	VST	0.4 A	65	39	4.0	10	3.2	2.0	60	325	50 M	7/-
1N5705B	1N5471B	1N5461A	VST	0.4 A	65	39	4.0	5.0	3.2	2.0	60	325	50 M	7/-
1N5706	1N5472A	1N5461A	VST	0.4 A	65	47	4.0	20	3.2	2.0	60	300	50 M	7/-
1N5706A	1N5472A	1N5461A	VST	0.4 A	65	47	4.0	10	3.2	2.0	60	300	50 M	7/-
1N5706B	1N5472B	1N5461A	VST	0.4 A	65	47	4.0	5.0	3.2	2.0	60	300	50 M	7/-
1N5707	1N5473A	1N5461A	VST	0.4 A	65	56	4.0	20	3.2	2.0	60	225	50 M	7/-
1N5707A	1N5473A	1N5461A	VST	0.4 A	65	56	4.0	10	3.2	2.0	60	225	50 M	7/-
1N5707B	1N5473B	1N5461A	VST	0.4 A	65	56	4.0	5.0	3.2	2.0	60	225	50 M	7/-
1N5708	1N5474A	1N5461A	VST	0.4 A	65	68	4.0	20	3.2	2.0	60	175	50 M	7/-
1N5708A	1N5474A	1N5461A	VST	0.4 A	65	68	4.0	10	3.2	2.0	60	175	50 M	7/-
1N5708B	1N5474B	1N5461A	VST	0.4 A	65	68	4.0	5.0	3.2	2.0	60	175	50 M	7/-
1N5709	1N5475A	1N5461A	VST	0.4 A	65	82	4.0	20	3.2	2.0	60	150	50 M	7/-
1N5709A	1N5475A	1N5461A	VST	0.4 A	65	82	4.0	10	3.2	2.0	60	150	50 M	7/-
1N5709B	1N5475B	1N5461A	VST	0.4 A	65	82	4.0	5.0	3.2	2.0	60	150	50 M	7/-
1N5710	1N5476A	1N5461A	VST	0.4 A	65	100	4.0	20	3.2	2.0	60	150	50 M	7/-
1N5710A	1N5476A	1N5461A	VST	0.4 A	65	100	4.0	10	3.2	2.0	60	150	50 M	7/-
1N5710B	1N5476B	1N5461A	VST	0.4 A	65	100	4.0	5.0	3.2	2.0	60	150	50 M	7/-
★BB105A		BB105A	VST	0.4 A	30	2.6	4.0	10	4.0	3.0	25	100 M	-/226	
★BB105B		BB105A	VST	0.4 A	30	2.2	25	7	4.5	3.0	25	100 M	-/226	

BB105G-MV1810A

TYPE NO.	REPLACEMENT	REFERENCE	ID	Pd Watts	REF. POINT	V _R Max	C _T pF	V _R @ Volts	Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η	Q P _{out} Watts Min.	f	PACKAGE To-Case No. No.
★BB105G		BB105A	VST	0.4 A		30	2.3	25	22	4.0	3.0	25	150	100 M	~/226
★MV104		MV104	VST	0.28 A		32	40	25	6	2.5	3.0	30	100 M	100 M	~/29
★MV109		MV109	VST	0.4 A		30	29	30	10	5.0	3.0	25	280	50 M	~/226
★MV209		MV209	VST	0.28 A		30	29	30	10	1.8	3.0	25	200	50 M	~/182
★MV830		MV830	VST	0.4 A		30	15	30	10	1.8	4.0	25	30	50 M	7/51
★MV831		MV830	VST	0.4 A		30	18	4.0	10	1.8	4.0	25	25	50 M	7/51
★MV832		MV830	VST	0.4 A		30	22	4.0	10	1.9	4.0	25	25	50 M	7/51
★MV833		MV830	VST	0.4 A		30	27	4.0	10	1.9	4.0	25	25	50 M	7/51
★MV834		MV830	VST	0.4 A		30	33	4.0	10	1.9	4.0	25	20	50 M	7/51
★MV835		MV830	VST	0.4 A		30	39	4.0	10	1.9	4.0	25	20	50 M	7/51
★MV836		MV830	VST	0.4 A		30	47	4.0	10	2.0	4.0	25	15	50 M	7/51
★MV837		MV830	VST	0.4 A		30	56	4.0	10	2.0	4.0	25	15	50 M	7/51
★MV838		MV830	VST	0.4 A		30	68	4.0	10	2.0	4.0	25	15	50 M	7/51
★MV839		MV830	VST	0.4 A		30	82	4.0	10	2.0	4.0	25	10	50 M	7/51
★MV840		MV830	VST	0.4 A		30	100	4.0	10	2.0	4.0	25	10	50 M	7/51
★MV1401		MV1401	VST	0.4 A		12	550	1.0	15	14	1.0	10	200	100 M	14/146
★MV1403		MV1401	VST	0.4 A		12	175	2.0	20	10	2.0	10	200	100 M	7/51
★MV1404		MV1401	VST	0.4 A		12	120	2.0	10	10	2.0	10	200	100 M	7/51
★MV1405		MV1401	VST	0.4 A		12	250	2.0	20	10	2.0	10	200	100 M	7/51
★MV1620		MV1620	VST	0.4 A		20	6.8	4.0	10	2.0	4.0	20	300	50 M	7/51
★MV1622		MV1620	VST	0.4 A		20	8.2	4.0	10	2.0	2.0	20	300	50 M	7/51
★MV1624		MV1620	VST	0.4 A		20	10	4.0	10	2.0	2.0	20	300	50 M	7/51
★MV1626		MV1620	VST	0.4 A		20	12	4.0	10	2.0	2.0	20	300	50 M	7/51
★MV1628		MV1620	VST	0.4 A		20	15	4.0	10	2.0	2.0	20	250	50 M	7/51
★MV1630		MV1620	VST	0.4 A		20	18	4.0	10	2.0	2.0	20	250	50 M	7/51
★MV1632		MV1620	VST	0.4 A		20	20	4.0	10	2.0	2.0	20	250	50 M	7/51
★MV1634		MV1620	VST	0.4 A		20	22	4.0	10	2.0	2.0	20	250	50 M	7/51
★MV1636		MV1620	VST	0.4 A		20	27	4.0	10	2.0	2.0	20	200	50 M	7/51
★MV1638		MV1620	VST	0.4 A		20	33	4.0	10	2.0	2.0	20	200	50 M	7/51
★MV1640		MV1620	VST	0.4 A		20	39	4.0	10	2.0	2.0	20	200	50 M	7/51
★MV1642		MV1620	VST	0.4 A		20	47	4.0	10	2.0	2.0	20	200	50 M	7/51
★MV1644		MV1620	VST	0.4 A		20	56	4.0	10	2.0	2.0	20	150	50 M	7/51
★MV1646		MV1620	VST	0.4 A		20	68	4.0	10	2.0	2.0	20	150	50 M	7/51
★MV1648		MV1620	VST	0.4 A		20	82	4.0	10	2.0	2.0	20	150	50 M	7/51
★MV1650		MV1620	VST	0.4 A		20	100	4.0	10	2.0	2.0	20	150	50 M	7/51
★MV1652		MV1652	VST	0.4 A		20	120	4.0	10	2.6*	2.0	20	350	20 M	14/146
★MV1654		MV1652	VST	0.4 A		20	150	4.0	10	2.6*	2.0	20	250	20 M	14/146
★MV1656		MV1652	VST	0.4 A		20	180	4.0	10	2.6*	2.0	20	200	20 M	14/146
★MV1658		MV1652	VST	0.4 A		20	200	4.0	10	2.6*	2.0	20	200	20 M	14/146
★MV1660		MV1652	VST	0.4 A		20	220	4.0	10	2.6*	2.0	20	150	20 M	14/146
★MV1662		MV1652	VST	0.4 A		15	250	4.0	10	2.3*	2.0	15	150	20 M	14/146
★MV1664		MV1652	VST	0.4 A		15	270	4.0	10	2.3*	2.0	15	100	20 M	14/146
★MV1666		MV1652	VST	5.0 A		15	330	4.0	10	2.3*	2.0	15	100	20 M	14/146
★MV1804		IN4387	VSP	20 C		150	25		40	3		50	15	450	4/44
★MV1804C		IN4387	VSP	20 C		150	25		40	3		38	15	450	~/47
★MV1804J	IN4387	IN4387	VSP	20 C		80	25	6.0	20	3		50	15	450	4/44
★MV1805C		MV1805	VSP	18 C						3		65	26	750	~/47
★MV1805J			VSP							3		50	26	750	4/44
★MV1806	IN4388	IN4388	VSP	10 C		100	10	100	2	2		55	11	1000	4/44
★MV1806C	IN5149	IN5149	VSP	10 C		80	12.5	60	2	2		55	11	1000	~/47
★MV1806J	IN4388		VSP							2		55	11	1000	4/44
★MV1807C	IN5150		VSP	14 C		80	12.5		60	2		65	24	1000	~/47
★MV1807C1	IN5150	IN5150A	VSP	29.2 C		80	12.0	6.0	10	2		67	25	1000	~/47
★MV1807C2			VSP							2		67	25	1000	~/47
★MV1807C3			VSP							2		67	25	1000	~/47
★MV1807J			VSP							2		64	24	1000	4/44
★MV1807J1			VSP							2		67	25	1000	4/44
★MV1808A	IN5151	IN5151	VSP	7.5 C						2		50	6.0	2000	~/48
★MV1808A1			VSP							2		60	7.2	2000	~/48
★MV1808B	IN5152	IN5151	VSP	7.5 C						2		60	6.0	2000	~/46
★MV1808B1	IN5152A	IN5050A	VSP	11.7 C		75	6.0	6.0	10	2		60	7.2	2000	~/46
★MV1808C	IN5153	IN5151	VSP	7.5 C						2		58	14.5	2000	~/47
★MV1808C1	IN5153A	IN5150A	VSP	11.7 C		75	6.0	6.0	10	2		67	7.2	2000	~/47
★MV1808J			VSP							2		50	6.0	2000	4/44
★MV1808J1			VSP							2		60	7.2	2000	4/44
★MV1809C		MV1809C	VSP	9.0 C		75	12	6.0	20	2		52	10	2000	~/47
★MV1809C1		MV1809C	VSP	14 C		75	12		10	2		58	14.5	2000	~/47
★MV1809J			VSP							2		50	10	2000	4/44
★MV1809J1			VSP							2		58	14.5	2000	4/44
★MV1810A	IN5154	IN5154	VSP	3.5 C		35	2.0		50	3		40	2.0	6000	~/48

TYPE NO.	REPLACEMENT	REFERENCE	ID	PD Watts	REF. POINT	V _R Max	CT pF @ V _R		Tolerance %	C ₁ / C ₂ f _{out} / f _{in}	V ₁ Volts	V ₂ Volts η %	Q P _{out} Watts Min.	f	PACKAGE To- No. Case No.				
							nom	Volts											
★MV1810A1	IN5155 IN5155A	IN5154 IN5150A	VSP	35 C		35	2.0	6.0	50	3	40	2.0	6000		-/48				
★MV1810B			VSP													40	2.0	6000	-/46
★MV1810B1			VSP													40	2.0	6000	-/46
★MV1810B2			VSP													40	2.0	6000	-/46
★MV1810B3			VSP													40	2.0	6000	-/46
★MV1810D			VSP							2	50	5.0	4000		-/48				
★MV1811A			VSP													60	7.2	4000	-/48
★MV1811A1			VSP													60	7.2	4000	-/46
★MV1811B			VSP													60	7.2	4000	-/46
★MV1811B1			VSP													60	7.2	4000	-/46
★MV1811C			VSP							2	50	5.0	4000		-/47				
★MV1811C1			VSP													60	7.2	4000	-/47
★MV1811D			VSP																
★MV1811J			VSP													50	5.0	4000 M	4/44
★MV1811J1			VSP													60	7.2	4000 M	4/44
★MV1812A			VSP	3.25 C	20	0.8		25	2	39	5.0	4000 M	-/48						
★MV1812B			VSP	3.25 C	20	0.8		25	2	39	5.0	4000 M	-/46						
★MV1816A			VSP	7.5 C	75	3.1	6.0	10	8	20	5.0	4000 M	-/48						
★MV1816A1			VSP	11.5 C	75	3.1	6.0	10	8	25	0.75	2400 M	-/48						
★MV1816B			VSP	7.5 C	75	3.0	6.0	20	8	20	0.6	2400 M	-/46						
★MV1816B1			VSP	11.5 C	75	3.0	6.0	10	8	25	7.2	2000 M	-/46						
★MV1816D	VSP																		
★MV1817A			VSP	5.0 C	35	1.1	6.0	20	8	20	0.2	6400 M	-/48						
★MV1817A1			VSP	7.0 C	35	1.1	6.0	10	8	25	0.25	6400 M	-/48						
★MV1817B			VSP	5.0 C	35	1.0	6.0	20	8	20	0.2	6400 M	-/46						
★MV1817B1			VSP	7.0 C	35	1.0	6.0	10	8	25	0.25	6400 M	-/46						
★MV1817D	MV1858D		VSP																
★MV1858D			VST	5.0 A	60	1.0	4.0	30	2.1	4.0	60	350	100 M	-/45					
★MV1860D			VST	5.0 A	60	2.2	4.0	20	2.5	4.0	60	350	100 M	-/45					
★MV1862D			VST	5.0 A	60	3.3	4.0	10	2.6	4.0	60	300	100 M	-/45					
★MV1863D	MV1858D		VST	5.0 A	60	4.7	4.0	10	2.6	4.0	60	300	100 M	-/45					
★MV1864D			VST	5.0 A	60	6.8	4.0	10	2.7	4.0	60	300	100 M	-/45					
★MV1865D			VST	5.0 A	60	8.2	4.0	10	2.7	4.0	60	300	100 M	-/45					
★MV1866			VST	2.0 A	60	10	4.0	10	3.0	4.0	60	500	50 M	7/51					
★MV1866D			VST	5.0 A	60	10	4.0	10	2.8	4.0	60	250	100 M	/45					
★MV1868			VST	2.0 A	60	12	4.0	10	3.0	4.0	60	500	50 M	7/51					
★MV1868D			VST	5.0 A	60	12	4.0	10	2.8	4.0	60	200	100 M	/45					
★MV1870			VST	2.0 A	60	15	4.0	10	3.0	4.0	60	400	50 M	7/51					
★MV187DD	VST	5.0 A	60	15	4.0	10	2.8	4.0	60	200	100 M	/45							
★MV1871	VST	2.0 A	60	18	4.0	10	3.0	4.0	60	400	50 M	7/51							
★MV1872	MV1866		VST	2.0 A	60	22	4.0	10	3.2	4.0	60	400	50 M	7/51					
★MV1874			VST	2.0 A	60	27	4.0	10	3.2	4.0	60	300	50 M	7/51					
★MV1876			VST	2.0 A	60	33	4.0	10	3.2	4.0	60	300	50 M	7/51					
★MV1877			VST	2.0 A	60	39	4.0	10	3.2	4.0	60	300	50 M	7/51					
★MV1878			VST	2.0 A	60	47	4.0	10	3.2	4.0	60	300	50 M	7/51					
★MV2D97			MV2907		VST	0.28 A	30	1.0	4.0	10	2.0	2.0	30	325	100 M	-/166			
★MV2098	VST	0.28 A			30	2.2	4.0	10	2.0	2.0	30	325	100 M	-/166					
★MV2099	VST	0.28 A			30	3.3	4.0	10	2.2	2.0	30	300	100 M	-/166					
★MV2100	VST	0.28 A			30	4.7	4.0	10	2.4	2.0	30	300	100 M	-/166					
★MV2101	VST	0.28 A			30	6.8	4.0	10	2.5	2.0	30	450	50 M	-/182					
★MV2102	MV2101				VST	0.28 A	30	8.2	4.0	10	2.5	2.0	30	450	50 M	-/			
★MV2103			VST	0.28 A	30	10	4.0	10	2.5	2.0	30	400	50 M	-/					
★MV2104			VST	0.28 A	30	12	4.0	10	2.5	2.0	30	400	50 M	-/					
★MV2105			VST	0.28 A	30	15	4.0	10	2.5	2.0	30	400	50 M	-/					
★MV2106			VST	0.28 A	30	18	4.0	10	2.5	2.0	30	350	50 M	-/					
★MV2107			MV2101		VST	0.4 A	30	22	4.0	10	2.5	2.0	30	350	50 M	/182			
★MV2108	VST	0.4 A			30	27	4.0	10	2.5	2.0	30	300	50 M	/182					
★MV2109	VST	0.4 A			30	33	4.0	10	2.5	2.0	30	200	50 M	/182					
★MV3102	VST	0.4 A			30	22	3.0	13	4.5	3.0	25	300	100 M	/226					
★MV3103	VST	0.4 A			30	22	3.0	18	4.0	3.0	25	200	100 M	/226					
★MV3140	MV3140				VST	0.4 A	30	2.3*	3.0	0	4.5	3.0	25	150	100 M	/226			
★MV3141			VST	0.4 A	30	3.2*	3.0	0	4.0	3.0	25	150	100 M	/226					
★MV3142			VST	0.4 A	30	3.2*	3.0	0	3.5	3.0	25	50	100 M	/226					
★MV3501			VST	0.4 A	30	6.8	4.0	10	2.7	2.0	30	225	100 M	-/226					
★MV3502			VST	0.4 A	30	8.2	4.0	10	2.8	2.0	30	225	100 M	-/226					
★MV3503			MV3501		VST	0.4 A	30	10	4.0	10	2.8	2.0	30	200	100 M	-/226			
★MV3504	VST	0.4 A			30	12	4.0	10	2.8	2.0	30	200	100 M	-/226					
★MV3505	VST	0.4 A			30	15	4.0	10	2.9	2.0	30	200	100 M	-/226					
★MV3506	VST	0.4 A			30	18	4.0	10	2.9	2.0	30	175	100 M	-/226					
★MV3507	VST	0.4 A			30	22	4.0	10	2.9	2.0	30	175	100 M	-/226					

TABLE 4 - MICROWAVE AND UHF DIODES

Short-form specifications for diodes characterized for various UHF and Microwave applications are shown. Included are point-contact, hot-carrier, and p-i-n diodes characterized as mixers and switches.

TYPE NO.	REPLACEMENT	ID	PD Watts	REF. POINT	V _R Volts	E _B Ergs	I _R μA Max	V _F Volts Max	I _F UNIT	I _F Amp Max	C _T pF Max	τ or t _{rr} ns Max	FREQ. BAND	L _C dB R _S Ω Max	NF dB Max	f	UNIT	PKG. To-Case No. No.																	
Alphanumerical listing of type numbers		Type number of recommended replacement or of nearest electrical equivalent		Identification Code 1st Letter D-Diode 2nd Letter G-Germanium S-Silicon 3rd Letter D-Detector S-Switch X-Mixer Z-Variable Impedance		Power Dissipation-Normally specified at 25°C, but occasionally specified at higher temperatures		A-Ambient Temperature C-Case Temperature		Reverse Voltage Rating		Burnout Energy		Reverse Current		Forward Voltage @ Forward Current		Units for Forward Current: u-uA m-mA A-ampere		Forward Current Rating		Total Capacitance		τ-Lifetime t _{rr} -Reverse Recovery Time		Operating Frequency Band		L _C -Conversion loss for mixers R _S Dynamic Series Resistance for Switching Diodes		Noise Figure		Test Frequency Frequency Units M-MHz G-GHz		JEDEC Outline Motorola Package Outline	

1N21G-1N78B

TYPE NO.	REPLACEMENT	ID	PD Watts	REF. POINT	V _R Volts	E _B Ergs	I _R μA Max	V _F Volts Max	I _F UNIT	I _F Amp Max	C _T pF Max	τ or t _{rr} ns Max	FREQ. BAND	L _C dB R _S Ω Max	NF dB Max	f	UNIT	PKG. To-Case No. No.
1N21G		DSX	0.5	A	-	5	-	-	-	-	-	-	-	-	5.5	3060	M	22/
1N23E		DSX	-	-	-	-	-	-	-	-	-	-	X	-	7.5	937.5	M	-
1N23F		DSX	0.25	A	-	10	-	-	-	-	-	-	X	-	7.0	937.5	M	-
1N23G		-	0.325	A	-	2.0	-	-	0.01	-	-	-	-	-	6.5	937.5	M	-
1N23H		DSX	-	-	-	5.0	-	-	-	-	-	-	X	-	6.0	937.5	M	-
1N26B		DSX	-	-	-	0.3	-	-	-	-	-	-	-	7.5	11	24	G	-
1N53		DSX	-	-	-	0.15	-	-	-	-	-	-	Ka	8.5	13	34.9	G	-
1N53A		DSX	-	-	-	-	-	-	-	-	-	-	Ka	8.5	13	34.9	G	-
1N53B		DSX	-	-	-	0.3	-	-	-	-	-	-	Ka	-	13	34.9	G	-
1N53C		DSX	-	-	-	0.3	-	-	-	-	-	-	Ka	6.5	9.0	34.9	G	-
1N76		DSD	-	-	-	-	-	-	-	-	-	-	X	-	-	937.5	M	-
1N76A		DSD	-	-	-	-	-	-	-	-	-	-	X	-	-	937.5	M	-
1N78		DSX	-	-	-	0.3	-	-	-	-	-	-	Ku	7.5	12	6	G	-
1N78A		DSX	-	-	-	0.3	-	-	-	-	-	-	Ku	7.0	12	6	G	-
1N78B		DSX	-	-	-	-	-	-	-	-	-	-	Ku	-	10	6	G	-



TYPE NO.	REPLACEMENT	IO	P _D Watts	REF. POINT	V _R Volts	E _B Ergs	I _R μA Max	V _F Volts Max	I _F UNIT	I _F Amp Max	C _T pF Max	τ or t _{rr} ns Max	FREQ. BAND	L _C dB R _S Ω Max	NF dB Max	f	UNIT	PKG. Fo-Case No. No.	
1N78C 1N78D 1N78E 1N78F 1N79	DSX DSX DSX DSX D-X		0.25			0.6 1.0 3.0							Ku Ku Ku Ku	6.0 6.0 6.0	12 8.8 8.0	16 16 16 16 3.0	G G G G G		
1N82 1N82A 1N82AG 1N82G 1N105	DSX DSX DSX DSX DSS				5 5								UHF UHF		16 14 16 16	700 700 1.0 1.0	M M G G		
1N110 1N124 1N124A 1N134 1N147	DGX DGX DGX D-D DGX				2 2				.025 .025				UHF UHF UHF UHF		10 10 8 10	750 500 500 0.4 0.9	M G G G G		
1N147A 1N149 1N150 1N155 1N155A	DGX DSX DSX DSD DSD												UHF X X C		9 8.3 9.8	0.9 9.0 6.8 9.0 9.0	G G G G G		
1N156 1N160 1N173A 1N259 1N263	DSX DSX DSX DSX DGX				2 1.3				.025				X C UHF X X		11 13 7.5	9.0 7.0 1000 9375 9375	G G M M M		
1N264 1N269 1N285 1N286 1N286A	DSX DGX DGX DSX DSX				0.02			0.32	1.0 M				X S-X UHF X-K X-K		6.0 7.5 12 8.5 7.5	9375 9375 870 9375 9375	M M M M M		
1N311 1N358 1N369.A 1N415B 1N415C	DSX DSX DSX DSX DSX					1.0 1.0							L-X S-X X X X		10 12 6.5 6.0	12 6750 6750 9375 9375	G M M M M		
1N415D 1N415E 1N415F 1N415G 1N415H	DSX DSX DSX DSX DSX		5.0 E			1.0							X X X X X		5.0 11 11 11 6.0	9375	M		
1N416B 1N416C 1N416D 1N416E 1N416F	DSX DSX DSX DSX DSX												S S S S S		10 10 10 10 10				
1N416G 1N446 1N630 1N830 1N831	DSX DSD DSD DSD DSX		0.2		2				.025				S K-KA L-X UHF S		10 - - 5.5	6750 100 3060	M M G		
1N831A 1N831B 1N832 1N832A 1N832B	DSX DSX DSX DSX DSX		0.25			10							S S X X X		5.5 5.5 6.0 7.5 9.5	3060 3060 9375 9375	M M M M	7/ 7/ 7/	
1N832D 1N833 1N833A 1N918 1N1132	DSX DSD DSD DSX DSX		0.25 A			10							X X X Ku S-X		6.0 7.5 9.5	9375 9375 9375 12.4	M M M G G	7/ 7/	
1N1610 1N1611 1N1611A 1N1611B 1N1838	DSD DSD DSD DSD DGX		0.25 A 0.25 A		1	10 10							S-X C-X C-X C-X X-Ku		7.0	32	9000 9000 13.5	M M G	
1N2102 1N2127 1N2127A 1N2509 1N2510	DSD DSD DSD DSX DSX		0.5 A 0.2 A			20 10							L-S L-X L-X C X		7.5 9.5	3295 10	M G		

TYPE NO.	REPLACEMENT	ID	PD Watts	REF. POINT	V _R Volts	E _B Ergs	I _R μA Max	V _F Volts Max	I _F UNIT	I _F Amp Max	C _T pF Max	τ of trr ns Max	FREQ. BAND	LC dB R _S Ω Max	NF dB Max	f	UNIT	PKG. To. Case No. No.	
1N2771 1N2792 1N2802 1N2926 1N2926A	DSD DSX DSD DSD		0.25 0.01	A A		10							X X-K	10 6.0	17 7.5	750 69.8 9375	M G M G		
1N3093 1N3096R 1N3143 1N3481 1N3482	DGS DAX DGD DGS DGS		0.50 0.01 0.25 0.10 1.25	A A A A A						0.1 0.1			X C-X RF RF	7.5	11	9000 24 9375 9.0 9.0	G G M G G		
1N3655 1N3655A 1N3655B 1N3733 1N3745	DSX DSX DSX DSX DSX		0.375 0.375	A A		10 10							S S S S X	5.5	8.3 8.3	3030 3050	M M		
1N3746 1N3747 1N3777 1N3778 1N4294	DSX DSX DSX DSD DSX		.325 .325 0.2 0.25 .375	A A A A A		5.0 5.0 40 10 10		1.0	10 M		1.5		X X C-X S	8.5 7.5 5.5	9375 9375	M M M M			
1N4379 1N4600 1N4601 1N4602 1N4603	DSD DSX DSX DSX DSX												S		9.5 8.8 8.0 9.5	13 13 13 16	G G G G		
1N4604 1N4605 1N4939 1N4940 1N5165	DSX DSX DGX DGX DSX			0.1 0.2	1 2	5.0 10				005 005			Ka Ka	6.5 5.0	8.8 8.0 10 6.5	16 16 34.9 9375	G G G M		
1N5166 1N5167 1N5168 1N5169 1N5436	DSX DSX DSX DSX DJX					10									6.5 7.0 7.5	2.0 2.0 16	G G G		
1N5437 1N5438 1N5464 1N5906 1N5957	DJX DJX D-X D-X DSS		0.25 0.25 A A 0.25	A A A A A		10 10	0.25							5.0 3.5	7.0 6.5 7.0 7.0	16 16 16 16	G G G G	37/	
MBD101 MBD102 MBD103 MBD501 MBD502	DJX DJX DJX DJS DJD		0.28 0.40 0.28 0.50 0.40	A A A A A	4 4 4 50 50		25 * 25 * 25 * 20 * 20 *	0.6 0.6 0.6 1.2 1.2	10 M 10 M 10 M 10 M 10 M		1.0 1.0 1.0 1.0 1.0			7.0	7.0 7.0 7.0 7.0	1.0 1.0 1.0	G G G G G	-/182 -/226 -/045 -/182 -/226	
MBD701 MBD702 MBI1D1 MPI3401 MPN3201	DJD DJD DJX DSS DSS		0.50 0.40 0.20 0.20 3.0	A A A A C	70 70 4 35 150		20 * 20 * 25 * 0.1 * 0.1	1.2 1.2 0.6 0.1	10 M 10 M 10 M		1.0 1.0 1.0 1.0 1.0			0.7 1.0 1.0	7.0	1.0	G G G	-/182 -/226 -/166 -/166 -/046	
MPN3202 MPN3208 MPN3209 MPN3401 MPN3402	DSS DSS DSS DSS DSS		3.0	C	200 800 900					1.0	0.40 4.0 4.0	150*		1.0 0.4 0.4				G	-/046 -/ -/ -/226 -/226
MPN3411 MPN3412 MPN3601	DSS DSS DSS		0.40 0.40 0.40	A A A	25 25 35		0.1 * 0.1 * 0.1 *				0.45 0.45 1.0			10 15 0.7			G	-/226 -/226 /045	

TABLE 5 - LIGHT-EMITTING DIODES

Short-form specifications for light-emitting diodes

KEY

TYPE	MATERIAL	USE	MAXIMUM RATINGS					ELECTRICAL/OPTICAL CHARACTERISTICS					
			P _D @ 25°C Watts	Ref. Point	T °C	Ref. Point	V _R Volts	I _F mA	LIGHT OUTPUT			λ _P Å	V _F Volts
									B Brightness f _L @ I _F mA	CP Candle Power mcd @ I _F mA	P _O Radiated μW @ I _F mA		
Alpha-numerical Listing													
GA - Gallium Arsenide GAP - Gallium Arsenide Phosphide GP - Gallium Phosphide													
VLED - Visible Light-Emitting Diode ILED - Infrared Light-Emitting Diode													
Power Dissipation @ 25°C Ref. Point: A - Ambient													
Maximum Temperature Ref. Point: J - Junction													
Reverse Voltage													
Forward Current - Continuous													
B - Brightness in Footlamberts													
CP - Candelpower in Millicandela													
P _O - Power Output Radiated in Microwatts													
Peak Emission Wavelength-9,000 Infrared-6600 Red-5750 Yellow-5600 Green													
Forward Voltage													

TYPE	MATERIAL	USE	MAXIMUM RATINGS					ELECTRICAL/OPTICAL CHARACTERISTICS							
			P _D @ 25°C Watts	Ref. Point	T °C	Ref. Point	V _R Volts	I _F mA	LIGHT OUTPUT			λ _P Å	V _F Volts		
									B Brightness f _L @ I _F mA	CP Candle Power mcd @ I _F mA	P _O Radiated μW @ I _F mA				
1N5909	GAP	VLED	.075	A	100	J	4.0	35							
1N5910	GAP	VLED	.075	A	100	J	4.0	60							
1N5911	GP	VLED	.125	A	100	J	4.0	35							
1N5912	GP	VLED	.125	A	100	J	4.0	35							
MLED50	GAP	VLED	0.12	A	85	J	3.0	50	750	20					
MLED55	GAP	VLED	0.12	A	85	J	3.0	50							
MLED60	GA	ILED	0.12	A	85	J	3.0	80			550	50	9000	1.2	
MLED90	GA	ILED	0.12	A	85	J	3.0	80			350	50	9000	1.2	
MLED92	GA	ILED	.215	A	65	J	3.0	100			150	50	9000	1.2	
MLED445	GAP	VLED	0.06	A	85	J	4.0	30			0.8	20	6600	2.0	
MLED450	GAP	VLED	0.06	A	65	J	4.0	30					6600	1.6	
MLED500	GAP	VLED	.215	A	65	J	4.0	100					6600	2.0	
MLED600	GAP	VLED	0.12	A	40	J	4.0	50					6600	2.0	
MLED610	GAP	VLED	0.35	A	125	J	4.0	75	1100	50			6600	1.6	
MLED640	GAP	VLED	0.1	A	40	J	4.0	60					6600	2.0	
MLED655	GAP	VLED	0.1	A	40	J	4.0	60					6600	2.0	
MLED750	GP	VLED	0.1	A	85	J	4.0	30					6600	2.0	
MLED900	GA	ILED	0.12	A	85	J	3.0	80			550	50	9000	1.2	
MLED910	GA	ILED	0.35	A	125	J	3.0	150			150	50	9000	1.2	
MLED930	GA	ILED	0.25	A	125	J	3.0	150			650	100	9000	1.2	

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Index

Diode Thyristors –
Bidirectional Sw
Triode Thyristors –
Gate-Controlled

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TABLE 6 - THYRISTORS

Short-form specifications for Thyristors are shown. Included are diodes—four-layer, unilateral and bilateral switches—and triodes—SCR's and Triacs. Thyristors having special features such as gate turn-off characteristics, dual gates, or light sensitivity are indicated.

TYPE NO.	VOL.	ID	I_F (dc) or I_T (RMS) Max	V_S Volts Min	V_S Volts Max	I_S μA Max	V_F or V_T Volts	I_F @ I_T	UNIT	I_{FM} or I_{FSM} Amp	@ tw	V_O Volts Min	t_{on} μs Max	t_{off} μs Max	I_H mA Min	I_H mA Max	PACKAGE To- Case No. No.			
				V_{DRM} Volts Max	I_{GT} mA Max															
Alphanumerical listing of type numbers ★Available from Motorola																				
Data Library Volume where complete specifications are located.																				
<p>Identification Code</p> <p>1st Letter Y-Thyristor</p> <p>2nd Letter K-Gate Turn-off Triode L-Light Activated Q-Dual Gate (Tetrode) X-Diode Y-Standard Triode</p> <p>3rd Letter B-Bilateral Switch (Triac, SBS, etc.) R-Rectifier (SCR, 4-layer diode, etc.)</p>									<p>On - State Voltage @ Test Current</p> <p>Test Current Units: m-mA A-Ampere K-KA</p>			<p>Surge Current Rating @ Pulse Width</p>								
Current Rating																				
Switching Voltage for Diodes												<p>V_O-Output Voltage Pulse</p> <p>t_{on}-turn-on time t_{off}-turn-off time * Typical</p>								
V_S -Switching voltage for Diodes																				
V_{DRM} -Blocking Voltage Rating for Triodes															Holding Current — * Typical					
I_S -Switching Current																				
I_{GT} -Gate Trigger Current															JEDEC Outline/Motorola Package Outline					

TYPE NO.	VOL.	ID	IF(dc) or IT(RMS) Max	VS Volts Min	VS Volts VDRM Max	IS μA IGT mA Max	VF or VT @ IT Volts	IF or IT UNIT	IFM or IFSM Amp	@ tw	VO		IH		PACKAGE To- No. Case No.
											Volts Min	— toff μs Max	mA Min	mA Max	
1N3299		YXR		36	44	125				10	10	/1.5	1	15	
1N3300A		YXR		16.2	19.8		4.0	1.0	50	0.25	/0.2	1	15		
1N3301A		YXR		19.8	24.2		3.5	1.0	50	0.25	/0.2	1	15		
1N3302A		YXR		24.3	29.7		3.5	1.0	50	0.25	/0.2	5	20		
1N3303A		YXR		29.7	36.3		3.0	1.0	50	0.25	/0.1	5	20		
1N3304A		YXR		35.1	42.9		3.0	1.0	50	0.25	/0.1	5	20		
1N3489		YXR		16	24	125			10	10		1	6		
1N3489A		YXR		16	24	125			10	10		1	6		
1N3490		YXR		16	24	125			10	10		14	45		
1N3771		YXR		170			1.2	0.1	10			4			
1N3772		YXR		15	25	400	1.2	0.1	10			1.5	50		
1N3831		YXR		16	24	125	2.7	5.0	10	10	/5.0	0.5	15	1/	
1N3832		YXR		21	29	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3833		YXR		26	34	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3834		YXR		31	39	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3835		YXR		36	44	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3836		YXR		41	49	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3837		YXR		46	54	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3838		YXR		90	110	125	2.7	5.0	10	10	/5.0	0.5	15		
1N3839		YXR		16	24	125	2.7	5.0	10	10	/5.0	14	50	1/	
1N3840		YXR		21	29	125	2.7	5.0	10	10	/5.0	14	50		
1N3841		YXR		26	34	125	2.7	5.0	10	10	/5.0	14	50		
1N3842		YXR		31	39	125	2.7	5.0	10	10	/5.0	14	50		
1N3843		YXR		36	44	125	2.7	5.0	10	10	/5.0	14	50		
1N3844		YXR		41	49	125	2.7	5.0	10	10	/5.0	14	50		
1N3845		YXR		46	54	125	2.7	5.0	10	10	/5.0	14	50		
1N3846		YXR		90	110	125	2.7	5.0	10	10	/5.0	14	50		
1N3935		YXR		26	34		1.2	0.1	10	10	18.5/	14	45		
1N3936		YXR		16	24	125			10	10		5	11		
1N3937		YXR		90	110	125			10	10		1	6		
1N5158		YXR		8	10	50	1.5	.15	10	50		1	20	7/	
★ 1N5159		YXR		9	11	50	1.5	.15	10	50		1	20	7/51	
★ 1N5160		YXR		10	12	50	1.5	.15	10	50		1	20	7/51	
★ 1N5758		YXB		16	24	100			2.0	30	3.0/			/182	
★ 1N5758A		YXB		18	22	25			2.0	30	3.0/			/182	
★ 1N5759		YXB		20	28	100			2.0	30	3.0/			/182	
★ 1N5759A		YXB		22	26	25			2.0	30	3.0/			/182	
★ 1N5760		YXB		24	32	100			2.0	30	5.0/			/182	
★ 1N5760A		YXB		26	30	25			2.0	30	5.0/			/182	
★ 1N5761		YXB		28	36	100			2.0	30	5.0/			/182	
★ 1N5761A		YXB		30	34	25			2.0	30	5.0/			/182	
★ 1N5762		YXB		32	40	100			2.0	30	5.0/			/182	
★ 1N5762A		YXB		34	38	25			2.0	30	5.0/			/182	
★ 1N5779		YXR		13	13	50	1.5	.15				1.0	20	7/51	
★ 1N5780		YXR		12	14	50	1.5	.15				1.0	20	7/51	
★ 1N5781		YXR		13	15	50	1.5	.15				1.0	20	7/51	
★ 1N5782		YXR		8.0	10	100	1.5	.15				10	50	7/51	
★ 1N5783		YXR		9.0	11	100	1.5	.15				10	50	7/51	
★ 1N5784		YXR		10	12	100	1.5	.15				10	50	7/51	
★ 1N5785		YXR		11	13	100	1.5	.15				10	50	7/51	
★ 1N5786		YXR		12	14	100	1.5	.15				10	50	7/51	
★ 1N5787		YXR		13	15	100	1.5	.15				10	50	7/51	
★ 1N5788		YXR		8.0	10	100	1.5	.15				0.1	2.0	7/51	
★ 1N5789		YXR		9.0	11	100	1.5	.15				0.1	2.0	7/51	
★ 1N5790		YXR		10	12	100	1.5	.15				0.1	2.0	7/51	
★ 1N5791		YXR		11	13	100	1.5	.15				0.1	2.0	7/51	
★ 1N5792		YXR		12	14	100	1.5	.15				0.1	2.0	7/51	
★ 1N5793		YXR		13	15	100	1.5	.15				0.1	2.0	1/51	
★ 2N681	1	YXR		25	80	2.0	50 A		150					48/	
★ 2N681A	1	YXR	16	18	25	40	2.1	56 A	250			50		48/	
★ 2N682	1	YXR	16	18	50	80	2.0	50 A	150					48/	
★ 2N682A	1	YXR	18	20	50	40	2.1	56 A	250			50		48/	
★ 2N683	1	YXR	16	18	100	80	.20	50 A	150					48/	
2N683A		YXR	18	20	100	40	2.1	56 A	200					48/	
2N683AS		YXR	25	25	100	40	1.7	30 A	200		1.4*/12*	50		48/	
2N683S		YXR	25	25	100	40	1.7	30 A	200		1.4*/12*	50		48/	
★ 2N684	1	YXR	16	18	150	80	2.0	50 A	150					48/	
★ 2N684A	1	YXR	18	20	150	40	2.1	56 A	250			50		48/	
★ 2N685	1	YXR	16	18	200	80	2.0	50 A	150					48/	
★ 2N685A	1	YXR	18	20	200	40	2.1	56 A	250			50		48/	



2N685AS-2N1597

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts	I _S μA	V _F or V _T @ V _T	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	P _{tw}	V _O Volts Min	I _{on} μs Max	I _{off} μs Max	I _H mA Max	PACKAGE To-Case No. No.
2N685AS		Y2R	25		200	40	1.7	30 A	200		1.4*/12*			50	48/
2N685S		Y2R	25		200	40	1.7	30 A	200		1.4*/12*			50	48/
★ 2N686	1	Y2R	16		250	80	2.0	50 A	150						48/263
2N686A		Y2R	18		250	40	2.1	56 A	250					50	48/
★ 2N687	1	Y2R	16		300	80	2.0	50 A	150						48/263
2N687A		Y2R	18		300	40	2.1	56 A	250					50	48/
★ 2N688	1	Y2R	16		400	80	2.0	50 A	150						48/263
2N688A		Y2R	18		400	40	2.1	56 A	250					50	48/
2N688AS		Y2R	25		400	40	1.7	30 A	200		1.4*/12*			50	48/
2N688S		Y2R	25		400	40	1.7	30 A	200		1.4*/12*			50	48/
★ 2N689	1	Y2R	16		500	80	2.0	50 A	150						48/263
2N689A		Y2R	18		500	40	2.1	56 A	250					50	48/
2N689AS		Y2R	25		500	40	1.7	30 A	200		1.4*/12*			50	48/
2N689S		Y2R	25		500	40	1.7	30 A	200		1.4*/12*			50	48/
★ 2N690		Y2R	16		600	80	2.0	50 A	150						48/
2N690A		Y2R	16		600	80	2.0	16 A	150		/25*				48/
2N690AS		Y2R	25		600	40	1.7	30 A	200		1.4*/12*			50	48/
2N690S		Y2R	25		600	40	1.7	30 A	200		1.4*/12*			50	48/
2N691		Y2R	16		700	80	2.0	50 A	150						48/
2N691A		Y2R	25		700	40	2.0	50 A	150		1.4*/20*			50	48/
2N691AS		Y2R	25		700	40	1.7	30 A	200		1.4*/12*			50	48/
2N691S		Y2R	25		700	40	1.7	30 A	200		1.4*/12*			50	48/
2N692		Y2R	16		800	80	2.5	50 A	150						48/
2N692A		Y2R	25		800	40	2.0	50 A	150		1.4*/20*			50	48/
2N692AS		Y2R	25		800	40	1.7	30 A	200		1.4*/12*			50	48/
2N764		Y2R	0.39		15	1.0	30							5.0	18/
2N765		Y2R	0.20		60	1.0	1.5							5.0	18/
2N766		Y2R	0.20		100	1.0	1.5							5.0	18/
2N767		Y2R	0.20		200	1.0	1.5							5.0	18/
2N766		Y2R	0.35		15	0.2	1.5	200 m	20					5.0	18/
2N877		Y2R	0.35		30	0.20	1.5	0.2 A	20					5.0	18/
2N878		Y2R	0.35		60	0.02	1.5	0.2 A	20					1.0	18/
2N879		Y2R	0.35		100	0.20	1.5	0.2 A	20					5.0	18/
2N880		Y2R	0.35		150	0.20	1.5	0.2 A	20					5.0	18/
2N881		Y2R	0.35		200	0.2	1.5	0.2 A	20					5.0	18/
2N882		Y2R	0.35		300	0.2	1.5	0.2 A	20					5.0	18/
2N883		Y2R	0.35		400	0.2	1.5	200 m	20					5.0	18/
2N884		Y2R	0.35		15	0.2	1.5	200 m	20					1.0	18/
2N884A		Y2R	0.25		15	0.50	1.5	20 A	10		1.2*/3.2*			1.0	18/
2N885		Y2R	0.35		30	0.02	1.5	200 m	20					1.0	18/
2N885A		Y2R	0.25		30	0.05	1.5	200 m	10		1.2*/3.2*			1.0	18/
2N886		Y2R	0.35		60	0.02	1.5	200 m	20					1.0	18/
2N886A		Y2R	0.25		60	0.05	1.5	200 m	10		1.2*/3.2*			1.0	18/
2N887		Y2R	0.35		100	0.02	1.5	200 m	20					1.0	18/
2N887A		Y2R	0.25		100	0.05	1.5	200 m	10		1.2*/3.2*			1.0	18/
2N888		Y2R	0.35		150	0.02	1.5	200 m	20					1.0	18/
2N888A		Y2R	0.25		150	0.05	1.5	200 m	10		1.2*/3.2*			1.0	18/
2N889		Y2R	0.35		200	0.02	1.5	200 m	20					1.0	18/
2N889A		Y2R	0.25		200	0.05	1.5	200 m	10		1.2*/3.2*			1.0	18/
2N890		Y2R	0.35		300	0.02	1.5	0.2 A	20					1.0	18/
2N891		Y2R	0.35		400	0.02	1.5	200 m	20					1.0	18/
2N892		Y2R	0.25		15	0.05	2.0		20		/15			1.0	18/
2N893		Y2R	0.25		15	0.05	2.0		20		/50			1.0	18/
2N894		Y2R	0.25		15	0.05	2.0		20		/15			1.0	18/
2N895		Y2R	0.25		15	0.05	2.0		20		/15			1.0	18/
2N896		Y2R	0.25		60	0.05	2.0		20		/15			1.0	18/
2N897		Y2R	0.25		60	0.05	2.0		20		/50			1.0	18/
2N898		Y2R	0.25		100	0.05	2.0		20		/15			1.0	18/
2N899		Y2R	0.25		100	0.05	2.0		20		/50			1.0	18/
2N900		Y2R	0.25		200	0.05	2.0		20		/15			1.0	18/
2N901		Y2R	0.25		200	0.05	2.0		20		/50			1.0	18/
2N948		Y2R	0.26		30	0.02	2.0	0.2 A	10					1.0	18/
2N949		Y2R	0.26		60	0.02	2.0	0.2 A	10					1.0	18/
2N950		Y2R	0.26		100	0.02	2.0	0.2 A	10					1.0	18/
2N951		Y2R	0.26		200	0.02	2.0	0.2 A	10					1.0	18/
★ 2N1595	1	Y2R	1.0		50	10	2.0	3.0 A	15						5/
2N1595A		Y2R	1.0		50	2.0	2.0	1.0 A	15					5.0	5/
★ 2N1596	1	Y2R	1.0		100	10	2.0	3.0 A	15						5/
2N1596A		Y2R	1.0		100	2.0	2.0	1.0 A	15					5.0	5/
★ 2N1597	1	Y2R	1.0		200	10	2.0	3.0 A	15						5/

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T @ Volts	I _F or I _T UNIT	I _{FM} or I _{FSM} @ Amp	t _w	V _O Volts Min t _{on} μs Max	t _{off} μs Max	I _H mA Min	I _H mA Max	PACKAGE To-Case No. No.
2N1597A		YR	1.0		200	2.0	2.0	1.0 A	15					5.0	5/ 5/31
★ 2N1598	1	YR	1.0		300	1.0	2.0	3.0 A	15					5.0	5/ 5/31
2N1598A		YR	1.0		300	2.0	2.0	1.0 A	15						5/
★ 2N1599	1	YR	1.0		400	1.0	2.0	3.0 A	15					5.0	5/
2N1599A		YR	1.0		400	2.0	2.0	1.0 A	15						5/
2N1600		YR	3.0		50	1.0	2.0	3.0 A	25						64/
2N1601		YR	3.0		100	1.0	2.0	3.0 A	25						64/
2N1602		YR	3.0		200	1.0	2.0	3.0 A	25						64/
2N1603		YR	3.0		200	1.0	2.0	3.0 A	25						64/
2N1604		YR	3.0		400	1.0	2.0	3.0 A	25						64/
2N1686		YKR	0.5		30	1.0	2.0						5.0	5/	
2N1687		YKR	0.5		60	1.0	2.0						5.0	5/	
2N1688		YKR	0.5		100	1.0	2.0		5.0				5.0	5/	
2N1689		YKR	0.5		200	1.0	2.0						5.0	5/	
2N1770		YR	4.7		25	3.0	1.8	14 A	60				80	64/	
2N1771		YR	4.7		50	3.0	1.8	14 A	60				80	64/	
2N1771A		YR	4.7		50	3.0	1.8	14 A	60				80	64/	
2N1772		YR	4.7		100	3.0	1.8	14 A	60				80	64/	
2N1772A		YR	4.7		100	3.0	1.8	14 A	60				80	64/	
2N1773		YR	4.7		150	3.0	1.8	14 A	60				80	64/	
2N1773A		YR	4.7		150	3.0	1.8	14 A	60				80	64/	
2N1774		YR	4.7		200	3.0	1.8	14 A	60				80	64/	
2N1774A		YR	4.7		200	3.0	1.8	14 A	60				80	64/	
2N1775		YR	4.7		250	3.0	1.8	14 A	60				80	64/	
2N1775A		YR	4.7		250	3.0	1.8	14 A	60				80	64/	
2N1776		YR	4.7		300	3.0	1.8	14 A	60				80	64/	
2N1776A		YR	4.7		300	3.0	1.8	14 A	60				80	64/	
2N1777		YR	4.7		400	3.0	1.8	14 A	60				80	64/	
2N1777A		YR	4.7		400	3.0	1.8	14 A	60				80	64/	
2N1778		YR	4.7		500	3.0	1.8	14 A	60				80	64/	
2N1778A		YR	7.0		500	6.0	1.9	4.7 A	60						83/
★ 2N1792		YR	70		60	0.13	1.8	219 A	1000						83/
★ 2N1793		YR	70		120	1.30	1.8	219 A	1000						83/
★ 2N1794		YR	70		180	1.30	1.8	219 A	1000						83/
★ 2N1795		YR	70		240	1.30	1.8	219 A	1000						83/
★ 2N1796		YR	70		300	1.30	1.8	219 A	1000						83/
★ 2N1797		YR	70		360	1.30	1.8	219 A	1000						83/
★ 2N1798		YR	70		480	1.30	1.8	219 A	1000						83/
★ 2N1799		YR	70		600	1.30	1.8	219 A	1000						83/
★ 2N1800		YR	70		720	1.30	1.8	219 A	1000						83/220
★ 2N1801		YR	70		700	1.30	1.7	219 A	1000						83/
★ 2N1802		YR	70		800	1.30	1.7	219 A	1000						83/
★ 2N1803		YR	70		900	2.00	2.0	219 A	1000						83/
2N1804		YR	70		1000	2.00	2.0	219 A	1000						83/
★ 2N1805		YR	70		500	1.30	1.8	219 A	1000						49/
★ 2N1806		YR	70		600	1.30	1.8	219 A	1000						49/
★ 2N1807		YR	70		700	1.30	1.8	219 A	1000						49/
★ 2N1842	1	YR	10		25	150	2.5	31 A	125						48/
★ 2N1842A	1	YR	10		25	150	2.5	31 A	125						48/
2N1842B		YR	13		25	75	1.8	40 A	150						48/
★ 2N1843	1	YR	10		50	150	2.5	31 A	125						48/
★ 2N1843A	1	YR	10		50	150	2.5	31 A	125						48/
2N1843B		YR	13		50	75	1.8	40 A	150						48/
★ 2N1844	1	YR	10		100	150	2.5	31 A	125						48/
★ 2N1844A	1	YR	10		100	150	2.5	31 A	125						48/
2N1844B		YR	13		100	75	1.8	40 A	150						48/
★ 2N1845	1	YR	10		150	150	2.5	31 A	125						48/
★ 2N1845A	1	YR	10		150	150	2.5	31 A	125						48/
2N1845B		YR	13		150	75	1.8	40 A	150						48/
★ 2N1846	1	YR	10		200	150	2.5	31 A	125						48/
★ 2N1846A	1	YR	10		200	150	2.5	31 A	125						48/
2N1846B		YR	13		200	75	1.8	41 A	150						48/263
★ 2N1847	1	YR	10		250	150	2.5	31 A	125						48/263
★ 2N1847A	1	YR	10		250	150	2.5	31 A	125						48/
2N1847B		YR	13		250	75	1.8	40 A	150						48/
★ 2N1848	1	YR	10		300	150	2.5	31 A	125						48/263
★ 2N1848A	1	YR	10		300	150	2.5	31 A	125						48/263
2N1848B		YR	13		300	75	1.8	40 A	150						48/
★ 2N1849	1	YR	10		400	150	2.5	31 A	125						48/263
★ 2N1849A	1	YR	10		400	150	2.5	31 A	125						48/263

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts Max	I _S μA GT mA Max	V _F or V _T @ V _T Volts	I _F or I _T LIMIT A	I _{FM} or I _{FSM} @ t _w Amp	V _O Volts Min t _{on} μs Max	V _O Volts Max t _{off} μs Max	I _H mA Min	I _H mA Max	PACKAGE To- No.	Case No.
2N1849B ★ 2N1850 ★ 2N1850A 2N1850B 2N1869	1 1	Y Y Y Y	13 10 10 13 1.25		400 500 500 500 15	75 150 150 75 0.20	1.8 2.5 2.5 1.8 2.5	40 31 31 40 2.0	150 125 125 150 20					5.0	48/ 48/263 48/263 48/ 9/
2N1870 2N1870A 2N1871 2N1871A 2N1872		Y Y Y Y Y	1.25 1.25 1.25 1.25 1.25		30 30 60 60 100	0.2 0.2 0.20 0.20 0.20	2.5 2.5 2.5 2.5 2.5	2.0 2.0 2.0 2.0 2.0	20 20 20 20 20					5.0 5.0 5.0 5.0 5.0	9/ 9/ 9/ 9/ 9/
2N1872A 2N1873 2N1873A 2N1874 2N1874A		Y Y Y Y Y	1.25 1.25 1.25 1.25 1.25		100 150 150 200 200	0.20 0.2 0.2 0.2 0.2	2.5 2.5 2.5 2.5 2.5	2.0 2.0 2.0 2.0 2.0	20 20 20 20 20					5.0 5.0 5.0 5.0 5.0	9/ 9/ 9/ 9/ 9/
2N1875 2N1875A 2N1876 2N1876A 2N1877		Y Y Y Y Y	1.25 1.25 1.25 1.25 1.25		15 15 30 30 60	0.02 .02 0.02 0.02 0.02	2.5 2.5 2.5 2.5 2.5	2.0 2.0 2.0 2.0 2.0	20 5.0 20 5.0 20		0.1*/0.5*			3.0 3.0 3.0 3.0 3.0	9/ 9/ 9/ 9/ 9/
2N1877A 2N1878 2N1878A 2N1879 2N1879A		Y Y Y Y Y	1.25 1.25 1.25 1.25 1.25		60 100 100 150 150	0.02 0.02 0.02 0.02 0.02	2.5 2.5 2.5 2.5 2.5	2.0 2.0 2.0 2.0 2.0	20 20 5.0 20 20		0.1*/0.5* 0.1*/ 0.1*/			3.0 3.0 3.0 3.0 3.0	9/ 9/ 9/ 9/ 9/
2N1880 2N1880A 2N1881 2N1882 2N1883		Y Y Y Y Y	1.25 1.25 1.0 1.0 1.0		200 200 30 60 100	0.02 0.02 2.0 2.0 2.0	2.5 2.5 2.0 2.0 2.0	2.0 2.0 1.0 1.0 1.0	20 5.0 20 20 20		0.1*/0.5*			3.0 3.0	9/ 9/ 9/ 9/ 9/
2N1884 2N1885 ★ 2N1909 ★ 2N1910 ★ 2N1911		Y Y Y Y Y	1.0 1.0 70 70 70		150 200 25 50 100	2.0 2.0 130 130 130	2.0 2.0 1.8 1.8 1.8	1.0 1.0 219 219 219	20 20 1000 1000 1000						9/ 9/ 49/ 49/ 49/
★ 2N1912 ★ 2N1913 ★ 2N1914 ★ 2N1915 ★ 2N1916		Y Y Y Y Y	70 70 70 70 70		150 200 250 300 400	130 130 130 130 130	1.8 1.8 1.8 1.8 1.8	219 219 219 219 219	1000 1000 1000 1000 1000						49/ 49/ 49/ 49/ 49/
2N1929 2N1930 2N1931 2N1932 2N1933		Y Y Y Y Y	.75 0.75 0.75 0.75 0.75		25 50 100 150 200	30 30 30 30 30	1.4 1.4 1.4 1.4 1.4	.75 .75 .75 .75 .75	30 30 30 30 30					80 80 80 80 80	
2N1934 2N1935 2N1966 2N1967 2N1968		Y Y Y Y Y	0.75 0.75 0.2 0.2 0.2		250 300 15 15 18	30 30 0.5 0.5 0.3	1.4 1.4 0.5 0.5 0.3	.75 .75 A A A	30 30 A A A			15		80 80 20 80 5.0	5/ 5/ 5/ 5/ 5/
2N2009 2N2010 2N2011 2N2012 2N2013		Y Y Y Y Y	1.3 1.3 1.3 1.3 1.3		25 50 100 200 300	0.20 0.2 0.20 0.2 0.2	1.2 1.2 1.2 1.2 1.2	1.0 1.0 1.0 1.0 1.0	15 15 15 15 15					5.0 5.0 5.0 5.0 5.0	5/ 5/ 5/ 5/ 5/
2N2014 ★ 2N2023 ★ 2N2024 ★ 2N2025 ★ 2N2026		Y Y Y Y Y	1.3 70 70 70 70		400 25 50 100 150	0.2 150 150 150 150	1.2 1.9 1.9 1.9 1.9	1.0 219 219 219 219	15 1000 1000 1000 1000					5.0	5/ 49/ 49/ 49/ 49/
★ 2N2027 ★ 2N2028 ★ 2N2029 ★ 2N2030 2N2031		Y Y Y Y Y	70 70 70 70 70		200 250 300 400 50	150 150 150 150 130	1.9 1.9 1.9 1.9 1.8	219 219 219 219 219	1000 1000 1000 1000 1000						49/ 49/ 49/ 49/ 49/
★ 2N2322 2N2322A ★ 2N2323 2N2323A ★ 2N2324	1 1	Y Y Y Y Y	1.6 1.6 1.6 1.6 1.6		25 25 50 50 100	0.35 .075 0.35 .075 0.35	1.5 1.5 1.5 1.5 1.5	1.6 1.6 1.6 1.6 1.6	15 15 15 15 15					3.0 3.0 3.0 3.0 3.0	5/ 5/ 5/ 5/ 5/

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T Volts	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	@ t _W	V _O Volts		I _H mA		PACKAGE To- No. Case No.
											Min	t _{on} μs Max	t _{off} μs Max	Min		Max
2N3006		Y _{YR}	0.25		60	0.02	1.2	350 m	6.0					5.0	18/
2N3007		Y _{YR}	0.25		100	0.20	1.2	350 m	6.0					5.0	18/
2N3008		Y _{YR}	0.25		200	0.2	1.2	350 m	6.0					5.0	18/
2N3027		Y _{YR}	0.5		30	1.2	1.5	1.0 A	5.0		0.2*/2.0*			10	18/
2N3028		Y _{YR}	0.5		60	1.2	1.5	1.0 A	5.0		0.2*/2.0*			10	18/
2N3029		Y _{YR}	0.5		100	1.2	1.5	1.0 A	5.0		0.2*/2.0*			10	18/
2N3030		Y _{YR}	0.5		30	0.02	1.3	500 m	5.0		0.1*/2.0*			4.0	18/
2N3031		Y _{YR}	0.5		60	0.02	1.3	500 m	5.0		0.1*/2.0*			4.0	18/
2N3032		Y _{YR}	0.5		100	0.02	1.3	500 m	5.0		0.1*/2.0*			4.0	18/
2N3091		Y _{YR}	70		600	200	1.9	70 A	1000						49/
2N3092		Y _{YR}	70		700	200	1.9	70 A	1000						49/
2N3093		Y _{YR}	70		800	200	1.9	70 A	1000						49/
2N3094		Y _{YR}	70		900	200	1.9	70 A	1000						49/
2N3095		Y _{YR}	70		1000	200	1.9	70 A	1000						49/
2N3096		Y _{YR}	70		1100	200	1.9	70 A	1000						49/
2N3097		Y _{YR}	70		1200	200	1.9	70 A	1000						49/
2N3098		Y _{YR}	70		1300	200	1.9	70 A	1000				200		49/
2N3099		Y _{YR}	70		600	200	1.9	70 A	1000						49/
2N3100		Y _{YR}	70		700	200	1.9	70 A	1000						49/
2N3101		Y _{YR}	70		800	200	1.9	70 A	1000						49/
2N3102		Y _{YR}	70		900	200	1.9	70 A	1000						49/
2N3103		Y _{YR}	70		1000	200	1.9	70 A	1000						49/
2N3104		Y _{YR}	70		1100	200	1.9	70 A	1000						49/
2N3105		Y _{YR}	70		1200	200	1.9	70 A	1000						49/
2N3106		Y _{YR}	70		1300	200	1.9	70 A	1000				200		49/
2N3228		Y _{YR}	3.2		200	15	1.5	3.2 A	60						66/
2N3254		Y _{YR}	0.25		15	0.02	1.2	250 m	1.0		.15*/2.5*			2.0	46/
2N3255		Y _{YR}	0.25		30	0.02	1.2	250 m	1.0		.15*/2.5*			2.0	46/
2N3256		Y _{YR}	0.25		60	0.02	1.2	250 m	1.0		.15*/2.5*			2.0	46/
2N3257		Y _{YR}	0.25		15	0.2	1.2	250 m	1.0		.15*/3.5*			3.0	46/
2N3258		Y _{YR}	0.25		30	0.20	1.2	250 m	1.0		.15*/3.5*			3.0	46/
2N3259		Y _{YR}	0.25		60	0.02	1.2	250 m	1.0		.15*/3.5*			3.0	46/
2N3269		Y _{YR}	6.0		100	0.2	1.2	1.0 A	60		3.0*/22*			2.0	59/
2N3270		Y _{YR}	6.0		200	0.2	1.2	1.0 A	60		3.0*/22*			2.0	59/
2N3271		Y _{YR}	6.0		300	0.2	1.2	1.0 A	60		3.0*/22*			2.0	59/
2N3272		Y _{YR}	6.0		400	0.2	1.2	1.0 A	60		3.0*/22*			2.0	59/
2N3273		Y _{YR}	2.2		100	0.2	1.8	2.2 A	15		3.0*/22*			2.0	5/
2N3274		Y _{YR}	2.2		200	0.2	1.8	2.2 A	15		3.0*/22*			2.0	5/
2N3275		Y _{YR}	2.2		300	0.2	1.8	2.2 A	15		3.0*/22*			2.0	5/
2N3276		Y _{YR}	2.2		400	0.2	1.8	2.2 A	15		3.0*/22*			2.0	5/
2N3353		Y _{YR}	250		50	400	1.9	785 A	5000					200	108/
2N3354		Y _{YR}	250		100	400	1.9	785 A	5000					200	108/
2N3355		Y _{YR}	250		200	400	1.9	785 A	5000					200	108/
2N3356		Y _{YR}	250		300	400	1.9	785 A	5000					200	108/
2N3357		Y _{YR}	250		400	400	1.9	785 A	5000					200	108/
2N3358		Y _{YR}	250		500	400	1.9	785 A	5000					200	108/
2N3359		Y _{YR}	250		600	400	1.9	785 A	5000					200	108/
2N3360		Y _{YR}	250		700	400	1.9	785 A	5000					200	108/220
2N3361		Y _{YR}	250		800	400	1.9	785 A	5000					200	108/
2N3362		Y _{YR}	250		900	400	1.9	785 A	5000					200	108/
2N3363		Y _{YR}	250		1000	400	1.9	785 A	5000					200	108/
2N3364		Y _{YR}	250		1200	400	1.9	785 A	5000					200	108/
2N3525		Y _{YR}	3.2		400	15	1.5	3.2 A	60						66/
2N3528		Y _{YR}	1.3		200	15	1.3	1.3 A	60						8/
2N3529		Y _{YR}	1.3		400	15	1.3	1.3 A	60						8/
2N3530		Y _{YR}	250		50	400	1.9	250 A	5000						
2N3531		Y _{YR}	250		100	400	1.9	250 A	5000						
2N3532		Y _{YR}	250		200	400	1.9	250 A	5000						
2N3533		Y _{YR}	250		300	400	1.9	250 A	5000						
2N3534		Y _{YR}	250		400	400	1.9	250 A	5000						
2N3535		Y _{YR}	250		500	400	1.9	250 A	5000						
2N3536		Y _{YR}	250		600	400	1.9	250 A	5000						
2N3537		Y _{YR}	250		700	400	1.9	250 A	5000						
2N3538		Y _{YR}	250		800	400	1.9	250 A	5000						
2N3539		Y _{YR}	250		900	400	1.9	250 A	5000						
2N3540		Y _{YR}	250		1000	400	1.9	250 A	5000						
2N3541		Y _{YR}	250		1200	400	1.9	250 A	5000						
2N3555		Y _{YR}	1.6		30	0.02	1.4	1.6 A	18					3.0	5/
2N3556		Y _{YR}	1.6		60	0.02	1.4	1.6 A	18					3.0	5/
2N3557		Y _{YR}	1.6		100	0.02	1.4	1.6 A	18					3.0	5/

TYPE NO.	VOL.	ID	IF(dc) or IT(RMS) Max	VS Volts Min	VS Volts V _{DRM} Max	IS μA IGT mA Max	VF or VT Volts	IF or IT UNIT	IFM or IFSM Amp	@ tw	VO Volts Min	VO μs Max	VO t _{off} μs Max	IH mA Min	IH mA Max	PACKAGE	
																To- No.	Case No.
2N3558		Y	1.6		200	0.02	1.4	1.6 A	18					3.0	5/		
2N3559		Y	1.6		30	0.2	1.4	1.6 A	18					5.0	5/		
2N3560		Y	1.6		60	0.20	1.4	1.6 A	18					5.0	5/		
2N3561		Y	1.6		100	0.2	1.4	1.6 A	18					5.0	5/		
2N3562		Y	1.6		200	0.2	1.4	1.6 A	18					5.0	5/		
2N3649		Y	16		50	500	2.0	25 A	180		/15*			350	48/		
2N3650		Y	16		100	500	2.0	25 A	180		/15*			350	48/		
2N3651		Y	16		200	500	2.0	25 A	180		/15*			350	48/		
2N3652		Y	16		300	180	2.0	25 A	180					350	48/		
2N3653		Y	16		400	500	2.0	25 A	180		/15*			350	48/		
2N3654		Y	16		50	500	2.0	25 A	180		/10*			350	48/		
2N3655		Y	16		100	500	2.0	25 A	180		/10*			350	48/		
2N3656		Y	16		200	500	2.0	25 A	180		/10*			350	48/		
2N3657		Y	16		300	180	2.0	25 A	180		/10*			350	48/		
2N3658		Y	16		400	500	2.0	25 A	180		/10*			350	48/		
2N3668		Y	8.0		100	80	1.8	25 A	200							3/	
2N3669		Y	8.0		200	80	1.8	25 A	200							3/	
2N3690		Y	8.0		400	80	1.8	25 A	200							3/	
2N3753		Y	7.5		50	200	2.3	70 A	250		/75*			200	48/		
2N3754		Y	7.5		100	200	2.3	70 A	250		/75*			200	48/		
2N3755		Y	7.5		200	200	2.3	70 A	250		/75*			200	48/		
2N3756		Y	7.5		300	200	2.3	70 A	250		/75*			200	48/		
2N3757		Y	7.5		400	200	2.3	70 A	250		/75*			200	48/		
2N3758		Y	9.5		500	200	2.3	70 A	250		/75*			200	48/		
2N3759		Y	7.5		600	200	2.3	70 A	250		/75*			200	48/		
2N3760		Y	7.5		700	200	2.3	70 A	250		/75*			200	48/		
2N3761		Y	7.5		800	200	2.3	70 A	250		/75*			200	48/		
★ 2N3870	1	Y	22		100	80	1.8	69 A	350								
★ 2N3871	1	Y	22		200	80	1.8	69 A	350								/174
★ 2N3872	1	Y	22		300	80	1.8	69 A	350								/174
★ 2N3873	1	Y	22		400	80	1.8	69 A	350								/174
2N3884		Y	175		50	400	1.8	175 A	4500		/50			200	93/		
2N3885		Y	175		100	400	1.8	175 A	4500					200	93/		
2N3886		Y	175		200	400	1.8	175 A	4500					200	93/		
2N3887		Y	175		300	400	1.8	175 A	4500					200	93/		
2N3888		Y	175		400	400	1.8	175 A	4500					200	93/		
2N3889		Y	175		500	400	1.8	175 A	4500					200	93/		
2N3890		Y	175		600	400	1.8	175 A	4500					200	93/		
2N3891		Y	175		700	400	1.8	175 A	4500					200	9/		
2N3892		Y	175		800	400	1.8	175 A	4500					200	93/		
2N3893		Y	175		900	400	1.8	175 A	4500					200	93/		
2N3894		Y	175		1000	400	1.8	175 A	4500					200	93/		
2N3895		Y	175		1200	400	1.8	175 A	4500					200	93/		
★ 2N3896	1	Y	22		100	80	1.8	69 A	350								
★ 2N3897	1	Y	22		200	80	1.8	69 A	350								/175
★ 2N3898	1	Y	22		300	80	1.8	69 A	350								/175
★ 2N3899	1	Y	22		400	80	1.8	69 A	350								/175
2N3936		Y	7.0		100	60	2.3	70 A	100		3.0*/8.0*			110	64/		
2N3937		Y	7.0		200	60	2.3	70 A	100		3.0*/8.0*			110	64/		
2N3938		Y	7.0		300	60	2.3	70 A	100		3.0*/8.0*			110	64/		
2N3939		Y	7.0		400	60	2.3	70 A	100		3.0*/8.0*			110	64/		
2N3940		Y	7.0		500	60	2.3	70 A	100		3.0*/8.0*			110	64/		
2N3986		Y	70		500	200	2.9	220 A	1000		/50*				94/		
2N3987		Y	70		600	200	2.9	220 A	1000		/50*				94/		
2N3988		Y	70		700	200	2.9	220 A	1000		/50*				94/		
2N3989		Y	70		800	200	2.9	220 A	1000		/50*				94/		
2N3990		Y	70		900	200	2.9	220 A	1000		/50*				94/		
2N3991		Y	70		1000	200	2.9	220 A	1000		/50*				94/		
2N3992		Y	70		1100	200	2.9	220 A	1000		/50*				94/		
2N4096		Y	1.0		50	0.20	1.6	50 A	4.0		1.5*/15*			2.0	46/		
2N4097		Y	1.0		100	0.20	1.6	0.5 A	4.0		1.5*/15*			2.0	46/		
2N4098		Y	1.0		200	0.2	1.6	0.5 A	4.0		1.5*/15*			2.0	46/		
2N4101		Y	3.2		600	30	2.0	10 A	60						66/		
2N4102		Y	1.3		600	30	1.6	4.1 A	60						8/		
2N4103		Y	8.0		600	80	1.8	25 A	200						3/		
2N4108		Y	0.18		50	0.2	1.6	500 m	4.0		1.5*/15*			2.0	18/		
2N4109		Y	0.18		100	0.2	1.6	500 m	4.0		1.5*/15*			2.0	18/		
2N4110		Y	0.18		200	0.2	1.6	500 m	4.0		1.5*/15*			2.0	18/		
2N4144		Y	0.25		15	1.0	2.5	800 m	8.0					5.0			
2N4145		Y	0.25		30	1.0	2.5	800 m	8.0					5.0			



2N4146-2N4322

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T Volts	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	@ t _w	V _O Volts Min	t _{on} μs Max	t _{off} μs Max	I _H mA Min	I _H mA Max	PACKAGE To- No.	Case No.
2N4146		Y Y R	0.25		60	1.0	2.5	800 m	8.0						5.0		
2N4147		Y Y R	0.25		100	1.0	2.5	800 m	8.0						5.0		
2N4148		Y Y R	0.25		150	1.0	2.5	800 m	8.0						5.0		
2N4149		Y Y R	0.25		200	1.0	2.5	800 m	8.0						5.0		
2N4151		Y Y R	5.0		25	60	2.0	15 A	100						60		
2N4152		Y Y R	5.0		50	60	2.0	15 A	100						60		
2N4153		Y Y R	5.0		100	60	2.0	15 A	100						60		
2N4154		Y Y R	5.0		200	60	2.0	15 A	100						60		
2N4155		Y Y R	5.0		300	60	2.0	15 A	100						60		
2N4156		Y Y R	5.0		400	60	2.0	15 A	100						60		
2N4157		Y Y R	5.0		500	60	2.0	15 A	100						60		
2N4158		Y Y R	5.0		600	60	2.0	15 A	100						60		
2N4159		Y Y R	5.0		25	60	2.0	15 A	100						60		
2N4160		Y Y R	5.0		50	60	2.0	15 A	100						60		
2N4161		Y Y R	5.0		100	60	2.0	15 A	100						60		
2N4162		Y Y R	5.0		200	60	2.0	15 A	100						60		
2N4163		Y Y R	5.0		300	60	2.0	15 A	100						60		
2N4164		Y Y R	5.0		400	60	2.0	15 A	100						60		
2N4165		Y Y R	5.0		500	60	2.0	15 A	100						60		
2N4166		Y Y R	5.0		600	60	2.0	15 A	100						60		
★ 2N4167	1	Y Y R	5.0		25	60	2.0	15 A	100						60		
★ 2N4168	1	Y Y R	5.0		50	60	2.0	15 A	100						60		
★ 2N4169	1	Y Y R	5.0		100	60	2.0	15 A	100						60		
★ 2N4170	1	Y Y R	5.0		200	60	2.0	15 A	100						60		
★ 2N4171	1	Y Y R	5.0		300	60	2.0	15 A	100						60		/86
★ 2N4172	1	Y Y R	5.0		400	60	2.0	15 A	100						60		/86
★ 2N4173	1	Y Y R	5.0		500	60	2.0	15 A	100						60		/86
★ 2N4174	1	Y Y R	5.0		600	60	2.0	15 A	100						60		86/
★ 2N4175	1	Y Y R	5.0		25	60	2.0	15 A	100						60		
★ 2N4176	1	Y Y R	5.0		50	60	2.0	15 A	100						60		
★ 2N4177	1	Y Y R	5.0		100	60	2.0	15 A	100						60		
★ 2N4178	1	Y Y R	5.0		200	60	2.0	15 A	100						60		
★ 2N4179	1	Y Y R	5.0		300	60	2.0	15 A	100						60		/866
★ 2N4180	1	Y Y R	5.0		400	60	2.0	15 A	100						60		/866
★ 2N4181	1	Y Y R	5.0		500	60	2.0	100 A	100						60		/86L
★ 2N4182	1	Y Y R	5.0		600	60	2.0	15 A	100						60		/866
★ 2N4183	1	Y Y R	5.0		25	60	2.0	15 A	100						60		
★ 2N4184	1	Y Y R	5.0		50	60	2.0	15 A	100						60		
★ 2N4185	1	Y Y R	5.0		100	60	2.0	15 A	100						60		
★ 2N4186	1	Y Y R	5.0		200	60	2.0	15 A	100						60		
★ 2N4187	1	Y Y R	5.0		300	60	2.0	15 A	100						60		/876
★ 2N4188	1	Y Y R	5.0		400	60	2.0	15 A	100						60		/876
★ 2N4189	1	Y Y R	5.0		500	60	2.0	15 A	100						60		/87L
★ 2N4190	1	Y Y R	5.0		600	60	2.0	15 A	100						60		/866
2N4191		Y Y R	5.0		25	60	2.0	15 A	100						60		
2N4192	1	Y Y R	5.0		50	60	2.0	15 A	100						60		
2N4193	1	Y Y R	5.0		100	60	2.0	15 A	100						60		
2N4194	1	Y Y R	5.0		200	60	2.0	15 A	100						60		
2N4195	1	Y Y R	5.0		300	60	2.0	15 A	100						60		
2N4196	1	Y Y R	5.0		400	60	2.0	15 A	100						60		
2N4197	1	Y Y R	5.0		500	60	2.0	15 A	100						60		
2N4198	1	Y Y R	5.0		600	60	2.0	15 A	100						60		
★ 2N4199	1	Y Y R	2.0		300	100	1.5	2.0 A	100	10	0.4/20				3.0		/63
★ 2N4200	1	Y Y R	2.0		400	100	1.5	2.0 A	15		0.2*/20*				3.0		/63
★ 2N4201	1	Y Y R	2.0		500	100	1.5	2.0 A	15		0.2*/20*				3.0		
★ 2N4202	1	Y Y R	2.0		600	100	1.5	2.0 A	15		0.2*/20*				3.0		
★ 2N4203	1	Y Y R	2.0		700	100	1.5	2.0 A	15		0.2*/20*				3.0		
★ 2N4204	1	Y Y R	2.0		800	100	1.5	2.0 A	15		0.2*/20*				3.0		
2N4205		Y Y R	2.0		900	100	1.5	2.0 A	15		0.2*/20*				3.0		
★ 2N4212	1	Y Y R	1.0		25	0.30	2.0	3.1 A	15						7.0		5/
★ 2N4213	1	Y Y R	1.0		50	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4214		Y Y R	1.0		100	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4215	1	Y Y R	1.0		150	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4216	1	Y Y R	1.0		200	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4217		Y Y R	1.0		250	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4218		Y Y R	1.0		300	0.3	2.0	3.1 A	15						7.0		5/
★ 2N4219		Y Y R	1.0		400	0.3	2.0	3.1 A	15						7.0		5/
2N4320		Y K R			30		2.0		5.0						3.0		52/
2N4321		Y K R			60		2.0		5.0						3.0		52/
2N4322		Y K R			100		2.0		5.0						3.0		52/

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Max	I _S μA I _{GT} Max	V _F or V _T @ UNIT	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	@ t _w	V _O Volts Min t _{on} μs Max	t _{off} μs Max	I _H mA Min Max	PACKAGE To- Case No. No.
2N4323		YKR			150		2.0		5.0				2.0	52/
2N4324		YKR			200		2.0		5.0				3.0	52/
2N4325		YKR			250		2.0		5.0				3.0	52/
2N4326		YKR			30		2.0		5.0				3.0	52/
2N4327		YKR			60		2.0		5.0				3.0	52/
2N4328		YKR			100		2.0		5.0				3.0	52/
2N4329		YKR			150		2.0		5.0				3.0	52/
2N4330		YKR			200		2.0		5.0				3.0	52/
2N4331		YKR			250		2.0		5.0				3.0	52/
2N4332		YKR	0.39		30	0.01	1.5	0.8 A	8.0		/10*		1.0	52/
2N4333		YKR	0.39		60	0.01	1.5	0.8 A	8.0		/10		1.0	52/
★ 2N4334		YKR	0.39		100	0.01	1.5	0.8 A	8.0		/10*		1.0	52/
2N4335		YKR	0.39		150	0.01	1.5	0.8 A	8.0		/10*		1.0	52/
2N4336		YKR	0.39		200	0.01	1.5	0.8 A	8.0		/10*		1.0	52/
2N4337		YKR	0.39		250	0.01	1.5	0.8 A	8.0		/10*		1.0	52/
★ 2N4361	1	YKR	70		100	250	2.0	70 A	1600				200	94/
★ 2N4362	1	YKR	70		200	250	2.0	70 A	1600				200	94/219
★ 2N4363	1	YKR	70		400	250	2.0	70 A	1600				200	94/219
★ 2N4364	1	YKR	70		600	250	2.0	70 A	1600				200	94/219
★ 2N4365	1	YKR	70		800	250	2.0	70 A	1600				200	94/219
★ 2N4366	1	YKR	70		1000	250	2.9	70 A	1600				200	94/219
★ 2N4367	1	YKR	70		1200	250	2.0	70 A	1600				200	94/219
★ 2N4368		YKR	70		1400	250	2.0	70 A	1600				200	94/219
2N4369		YKR	70		1600	250	2.0	70 A	1600				200	94/
2N4370		YKR	70		1800	250	2.0	70 A	1600				200	94/
★ 2N4371	1	YKR	70		100	250	2.0	70 A	1600				200	83/
★ 2N4372	1	YKR	70		200	250	2.0	70 A	1600				200	83/246
★ 2N4373	1	YKR	70		400	250	2.0	70 A	1600				200	83/246
★ 2N4374	1	YKR	70		600	250	2.0	70 A	1600				200	83/246
★ 2N4375	1	YKR	70		800	250	2.0	70 A	1600				200	83/246
★ 2N4376	1	YKR	70		1000	250	2.0	70 A	1600				200	83/246
★ 2N4377	1	YKR	70		1200	250	2.0	70 A	1600				200	83/246
★ 2N4378	1	YKR	70		1400	250	2.0	70 A	1600				200	83/246
2N4379		YKR	70		1600	250	2.0	70 A	1600				200	83/
2N4380		YKR	70		1800	250	2.0	70 A	1600				200	83/
★ 2N4441	1	YKR	5.0		50	60	2.0	15 A					70	
★ 2N4442	1	YKR	5.0		200	60	2.0	15 A					70	
★ 2N4443	1	YKR	5.0		400	60	2.0	15 A					70	/90
★ 2N4444	1	YKR	5.0		600	60	2.0	15 A					70	/90
2N4983		YKR		6.0	10	500	1.5	.18	1.0	10	3.5/25.0		1.5	18/
2N4984		YKR		7.5	9.0	150	1.5	0.2	1.0	10	3.5/25.0	.05	0.5	18/
2N4985		YKR		7.5	8.2	300	1.5	0.2	1.0	10	3.5/25.0	.05	1.0	18/
2N4986		YKR		7.0	9.0	200	1.5	.18	1.0	10	3.5/25.0		.75	18/
★ 2N4987		YKR		6.0	10	500	1.5	0.2	1.0	10	3.5/25.0		1.5	98/
★ 2N4988		YKR		7.5	9.0	150	1.5	0.2	1.0	10	3.5/25.0	.05	0.5	98/
2N4989		YKR		7.5	8.2	300	1.5	0.2	1.0	10	3.5/25.0	.05	1.0	98/
2N4990		YKR		7.0	9.0	200	1.5		1.0	10	3.5/25.0		.75	98/
★ 2N4991	1	YXB		6.0	10	500	1.7	.18	1.0	10	3.5/			98*/
★ 2N4992		YXB		7.5	9.0	120	1.7	0.2	1.0	10	3.5/			98*/
★ 2N4993	1	YXB		6.0	10	500	1.7	2.0	1.0	10	3.5/		1.5	18*/22
★ 2N5060	2	YKR	.255		30	0.35	1.7	1.2 A	6.0				10	92/
★ 2N5061	2	YKR	.255		60	0.35	1.7	1.2 A	6.0				10	92/
★ 2N5062	2	YKR	.255		100	0.35	1.7	1.2 A	6.0				10	92/
★ 2N5063	2	YKR	.225		150	0.35	1.7	1.2 A	6.0				10	92/
★ 2N5064	2	YKR	.255		200	0.35	1.7	1.2 A	6.0				10	92/
★ 2N5164	2	YKR	7.0		50	75	1.7	41 A	240				90	
★ 2N5165	2	YKR	7.0		200	75	1.7	41 A	240				90	
★ 2N5166	2	YKR	7.0		400	75	1.7	41 A	240				90	/174
★ 2N5167		YKR	7.0		600	75	1.7	41 A	240				90	/174
★ 2N5168	2	YKR	7.0		50	75	1.7	41 A	240				90	
★ 2N5169	2	YKR	7.0		200	75	1.7	41 A	240				90	
★ 2N5170	2	YKR	7.0		400	75	1.7	41 A	240				90	/174
★ 2N5171	2	YKR	7.0		600	75	1.7	41 A	240				90	/174
2N5200		YKR	22		1000	80	2.3	70 A	100				200	48/
2N5204		YKR	22		600	80	2.3	70 A	300				0.2	48/
2N5205		YKR	22		800	80	2.5	125 A	300				0.2	48/
2N5207		YKR	22		1200	80	2.3	70 A	300				200	48/
2N5257		YKB	200		400	800	2.1	889 A	1300				850	93/
2N5258		YKB	200		600	800	2.1	889 A	1300				850	93/
2N5259		YKB	200		800	800	2.1	889 A	1300				850	93/221

2

2N5260-2N6147

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S	I _S	V _F	I _F	I _{FM} or I _{FSM} Amp	V _O Volts Min t _{on} μs Max	I _{off} μs Max	I _H mA Min	I _H mA Max	PACKAGE To- No.	Case No.
					V _{DRM} Volts Max	I _{GT} mA Max	V _T Volts	I _T mA								UNIT	t_{off} μs Max
2N5260		YYB	200		1000	800	2.1	889 A	1300				850	93/	
2N5261		YYB	200		1200	800	2.1	889 A	1300				850	93/	
2N5273		YYB	25		200	150	1.7	109 A	400				100	48/	
2N5274		YYB	25		400	150	1.7	109 A	400				100	48/	
2N5275		YYB	25		600	150	1.7	109 A	400				100	48/	
★ 2N5441	2	YYB	40		200	240	1.8	40 A	300				100	/237	
★ 2N5442		YYB	40		400	240	1.8	40 A	300				100	/237	
★ 2N5443	2	YYB	40		600	240	1.8	40 A	300				100	/237	
★ 2N5444	2	YYB	40		200	240	1.8	40 A	300				100	/238	
★ 2N5445	2	YYB	40		400	240	1.8	40 A	300				100	/238	
★ 2N5446	2	YYB	40		600	240	1.8	40 A	300				100	/238	
★ 2N5567		YYB	10		200	150	1.6	10 A	100				200		
★ 2N5568		YYB	10		400	150	1.6	10 A	100				200		
★ 2N5569		YYB	10		200	150	1.6	10 A	100				200		
★ 2N5570		YYB	10		400	150	1.6	10 A	100	2.0*/			200		
★ 2N5571	2	YYB	15		200	200	1.8	15 A	100				300	/174	
★ 2N5572	2	YYB	15		400	200	1.8	15 A	100				200	/174	
★ 2N5573	2	YYB	15		200	200	1.8	15 A	100				300	/175	
★ 2N5574	2	YYB	15		400	200	1.8	15 A	100				300	/174	
2N5719		YYR	0.20		60	0.20	1.4	400 m	5.0	/30*			2.0	18/	
2N5720		YYR	0.2		100	0.02	1.4	400 m	5.0	/30*			2.0	18/	
2N5721		YYR	0.2		200	0.02	1.4	400 m	5.0	/30*			2.0	18/	
2N5722		YYR	0.2		300	0.02	1.4	400 m	5.0	/50*			2.0	18/	
2N5723		YYR	0.2		400	0.02	1.4	400 m	5.0	/50*			2.0	18/	
2N5724		YYR	0.39		60	0.02	1.5	780 m	8.0	/30			2.0	5/	
2N5725		YYR	0.39		100	0.02	1.5	780 m	8.0	/30*			2.0	5/	
2N5726		YYR	0.39		200	0.02	1.5	780 m	8.0	/30*			2.0	5/	
2N5727		YYR	0.39		300	0.02	1.5	780 m	8.0	/50*			2.0	5/	
2N5728		YYR	0.39		400	0.02	1.5	780 m	8.0	/50*			2.0	5/	
2N5754		YYB	2.5		100	110	1.8	2.5 A	25				82		
2N5755		YYB	2.5		200	110	1.8	2.5 A	25				82		
2N5756		YYB	2.5		400	110	1.8	2.5 A	25				82		
2N5757		YYB	2.5		600	110	1.8	2.5 A	25				82		
★ 2N5787		YYR	0.24		30	0.35	1.2	240 m	4.0				10	106/	
★ 2N5788		YYR	0.24		60	0.35	1.2	240 m	4.0				10	106/	
★ 2N5789		YYR	0.24		100	0.35	1.2	240 m	4.0				10	106/	
★ 2N5790		YYR	0.24		200	0.35	1.2	240 m	4.0				10	106/	
★ 2N6068	2	YYB	4.0		25	60	2.0	6.0 A	30				70	/77	
★ 2N6068A		YYB	2.0		25	20	2.0	6.0 A	30				30	/77	
★ 2N6068B	2	YYB	2.0		25	15	2.0	6.0 A	30				30	/77	
★ 2N6069	2	YYB	4.0		50	60	2.0	6.0 A	30				70	/77	
★ 2N6069A	2	YYB	2.0		50	20	2.0	6.0 A	30				30	/77	
★ 2N6069B	2	YYB	2.0		50	15	2.0	6.0 A	30				30	/77	
★ 2N6070	2	YYB	4.0		100	60	2.0	6.0 A	30				70	/77	
★ 2N6070A	2	YYB	2.0		100	20	2.0	6.0 A	30				30	/77	
★ 2N6070B	2	YYB	2.0		100	15	2.0	6.0 A	30				30	/77	
★ 2N6071	2	YYB	4.0		200	60	2.0	6.0 A	30				70	/77	
★ 2N6071A	2	YYB	2.0		200	20	2.0	6.0 A	30				30	/77	
★ 2N6071B	2	YYB	2.0		200	15	2.0	6.0 A	30				30	/77	
★ 2N6072	2	YYB	4.0		300	60	2.0	6.0 A	30				70	/77	
★ 2N6072A	2	YYB	2.0		300	20	2.0	6.0 A	30				30	/77	
★ 2N6072B	2	YYB	2.0		300	15	2.0	6.0 A	30				30	/77	
★ 2N6073	2	YYB	4.0		400	60	2.0	6.0 A	30				70	/77	
★ 2N6073A	2	YYB	2.0		400	20	2.0	6.0 A	30				30	/77	
★ 2N6073B	2	YYB	2.0		400	15	2.0	6.0 A	30				30	/77	
★ 2N6074	2	YYB	4.0		500	60	2.0	6.0 A	30				70	/77	
★ 2N6074A	2	YYB	2.0		500	20	2.0	6.0 A	30				30	/77	
★ 2N6074B	2	YYB	2.0		500	15	2.0	6.0 A	30				30	/77	
★ 2N6075	2	YYB	4.0		600	60	2.0	6.0 A	30				70	/77	
★ 2N6075A	2	YYB	2.0		600	20	2.0	6.0 A	30				30	/77	
★ 2N6075B	2	YYB	2.0		600	15	2.0	6.0 A	30				30	/77	
★ 2N6139	2	YYB	10		200	150	1.8	14 A	100	2.0*/			150	/86	
★ 2N6140	2	YYB	10		400	150	1.8	14 A	100	2.0*/			150	/86	
★ 2N6141	2	YYB	10		600	150	1.8	14 A	100	2.0*/			150	/86	
★ 2N6142	2	YYB	10		200	150	1.8	14 A	100	2.0*/			150	/250	
★ 2N6143	2	YYB	10		400	150	1.8	14 A	100	2.0*/			150	/250	
★ 2N6144	2	YYB	10		600	150	1.8	14 A	100	2.0*/			150	/250	
★ 2N6145	2	YYB	15		200	200	1.8	21 A	100	2.0*/			300	/175	
★ 2N6146	2	YYB	15		400	200	1.8	21 A	100	2.0*/			300	/175	
★ 2N6147	2	YYB	15		600	200	1.8	21 A	100	2.0*/			300	/175	

TYPE NO.	VOL.	ID	IF(dc) or IT(RMS) Max	VS Volts Min	VS Volts Max	IS μA IGT mA Max	VF or VT Volts @ IT	IF or IT UNIT	IFM or IFSM Amp	@ tw	VO Volts		IH mA Min	IH mA Max	PACKAGE To- No. Case No.
											t _{on} μs Max	t _{off} μs Max			
★ 2N6148	2	YYB	10		200	150	1.8	14 A	100		2.0*/		150	-/876	
★ 2N6149	2	YYB	10		400	150	1.8	14 A	100		2.0*/		150	-/876	
★ 2N6150	2	YYB	10		600	150	1.8	14 A	100		2.0*/		150	-/876	
★ 2N6151	2	YYB	10		200	125	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6152	2	YYB	10		400	125	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6153	2	YYB	10		600	125	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6154	2	YYB	10		200	100	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6155	2	YYB	10		400	100	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6156	2	YYB	10		600	100	1.8	14 A	100		2.0*/		75	-/90	
★ 2N6157	2	YYB	30		200	250	2.0	42 A	250		2.0*/		200	203AA/174	
★ 2N6158	2	YYB	30		400	250	2.0	42 A	250		2.0*/		200	203AA/174	
★ 2N6159	2	YYB	30		600	250	2.0	42 A	250		2.0*/		200	203AA/174	
★ 2N6160	2	YYB	30		200	250	2.0	42 A	250		2.0*/		200	203AA/175	
★ 2N6161	2	YYB	30		400	250	2.0	42 A	250		2.0*/		200	-/175	
★ 2N6162	2	YYB	30		600	250	2.0	42 A	250		2.0*/		200	-/175	
★ 2N6163	2	YYB	30		200	250	2.0	42 A	250		2.0*/		200	-/235	
★ 2N6164	2	YYB	30		400	250	2.0	42 A	250		2.0*/		200	-/235	
★ 2N6165	2	YYB	30		600	250	2.0	42 A	250		2.0*/		200	-/235	
★ 2N6167	2	YYR	13		100	75	1.7	41 A	240		1.0*/		90	-	
★ 2N6168	2	YYR	13		200	75	1.7	41 A	240		1.0*/		90	-	
★ 2N6169	2	YYR	13		400	75	1.7	41 A	240		1.0*/		90	-/235	
★ 2N6170	2	YYR	13		600	75	1.7	41 A	240		1.0*/		90	-/235	
★ 2N6171	1	YYR	22		100	80	1.8	69 A	350		1.5*/		90	-	
★ 2N6172	2	YYR	22		200	80	1.8	69 A	350		1.5*/		90	-/235	
★ 2N6173	2	YYR	22		400	80	1.8	69 A	350		1.5*/		90	-/235	
★ 2N6174	1	YYR	22		600	80	1.8	69 A	350		1.5*/		90	-/235	
★ 2N6236	2	YYR	2.6		30	0.5	2.2	8.2 A	25		2.0*/		10	-	
★ 2N6237	2	YYR	2.6		50	0.5	2.2	8.2 A	25		2.0*/		10	-	
★ 2N6238	2	YYR	2.6		100	0.5	2.2	8.2 A	25		2.0*/		10	-	
★ 2N6239	2	YYR	2.6		200	0.5	2.2	8.2 A	25		2.0*/		10	-	
★ 2N6240	2	YYR	2.6		400	0.5	2.2	8.2 A	25		2.0*/		10	-/77	
★ 2N6241	2	YYR	2.6		600	0.5	2.2	8.2 A	25		2.0*/		10	-/77	
2N6332		YYR	2.0		30	0.2	2.5	3.9 A	20		2.0*/		5.0	39/	
2N6333		YYR	2.0		50	0.2	2.5	3.9 A	20		2.0*/		5.0	39/	
2N6334		YYR	2.0		100	0.2	2.5	3.9 A	20		2.0*/		5.0	39/	
★ 2N6335		YYR	2.0		200	0.2	2.5	3.9 A	20		2.0*/		5.0	39/	
2N6336	2	YYR	2.0		300	0.2	2.5	3.9 A	20		2.0*/3.9*		5.0	39/	
2N6337		YYR	2.0		400	0.2	2.5	3.9 A	20		2.0*/		5.0	39/	
★ 2N6342	2	YYB	8.0		200	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6342A	2	YYB	12		200	125	1.75	17 A	120		2.0*/		75	220AB/221	
★ 2N6343	2	YYB	8.0		400	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6343A	2	YYB	12		400	125	1.75	17 A	120		2.0*/		75	220AB/221	
★ 2N6344	2	YYB	8.0		600	125	1.5	32 A	100		2.0*/		75	220AB/221	
★ 2N6344A	2	YYB	12		600	125	1.75	17 A	120		2.0*/		75	220AB/221	
★ 2N6345	2	YYB	8.0		800	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6345A	2	YYB	12		800	125	1.7	17 A	120		2.0*/		75	220AB/221	
★ 2N6346	2	YYB	8.0		200	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6346A	2	YYB	12		200	125	1.75	17 A	120		2.0*/		75	220AB/221	
★ 2N6347		YYB	8.0		400	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6347A	2	YYB	12		400	125	1.75	17 A	120		2.0*/		75	220AB/221	
★ 2N6348	2	YYB	8.0		600	125	1.5	32 A	100		2.0*/		75	220AB/221	
★ 2N6348A	2	YYB	12		600	125	1.7	17 A	120		2.0*/		75	220AB/221	
★ 2N6349	2	YYB	8.0		800	125	1.55	11 A	100		2.0*/		75	220AB/221	
★ 2N6349A	2	YYB	12		800	125	1.7	17 A	120		2.0*/		75	220AB/221	
2N6925		YYR	25		800	40	1.7	30 A	200		1.4*/12*		50	48/	
3N80		YQR	0.2		40	.001	2.0	0.2	1.0	100	-/15		1.5	72/-	
3N81		YQR	0.2		65	.001	2.0	0.2	1.0	100	-/15		1.5	72/-	
3N82		YQR	0.2		100	.001	2.0	0.2	1.0	100	-/15		1.5	72/-	
3N83		YQR	0.05		70	0.15	1.4	0.5	0.1	100	-/8		4.0	72/-	
3N84		YQR	.175		40	0.01	1.9	.18	0.5	100	-/15		2.0	72/-	
3N85		YQR	.175		100	0.01	1.9	.18	0.5	100	-/15		1.0	72/-	
3N86		YQR	0.2		65	.001	2.0	0.2	1.0	100	-/15		0.8	72/-	
3N221		YYR	1400		1200	200	1.9	1.7 K	7000		13/		600	-/	
3N222		YYR	1200		1700	200	1.9	1.7 K	7000		13/		600	-/	
★ MAC5-1	3	YYB	10		25	50	1.8	14 A	100		1.5*/		50	-/86	
★ MAC5-2	3	YYB	10		50	50	1.8	14 A	100		1.5*/		50	-/86	
★ MAC5-3	3	YYB	10		100	50	1.8	14 A	100		1.5*/		50	-/86	
★ MAC5-4	3	YYB	10		200	50	1.8	14 A	100		1.5*/		50	-/86	
★ MAC5-5	3	YYB	10		300	50	1.8	14 A	100		1.5*/		50	-/86	
★ MAC5-6	3	YYB	10		400	50	1.8	14 A	100		1.5*/		50	-/86	

MAC5-7-MAC93A4

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{ORM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T @ V _T	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	@ t _W	V _O Volts		I _H		PACKAGE To- No.	Case No.
											t _{on} μs Max	t _{off} μs Max	mA Min	mA Max		
★ MAC5-7	3	YYB	10		500	50	1.8	14 A	100		1.5*/			50	-/86	
★ MAC5-8	3	YYB	10		600	50	1.8	14 A	100		1.5*/			50	-/86	
★ MAC6-1	3	YYB	10		25	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-2	3	YYB	10		50	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-3	3	YYB	10		100	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-4	3	YYB	10		200	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-5	3	YYB	10		300	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-6	3	YYB	10		400	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-7	3	YYB	10		500	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC6-8	3	YYB	10		600	50	1.8	14 A	100		1.5*/			50	-/876	
★ MAC10-1	3	YYB	10		25	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-2	3	YYB	10		50	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-3	3	YYB	10		100	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-4	3	YYB	10		200	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-5	3	YYB	10		300	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-6	3	YYB	10		400	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-7	3	YYB	10		500	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC10-8	3	YYB	10		600	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-1	3	YYB	10		25	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-2	3	YYB	10		50	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-3	3	YYB	10		100	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-4	3	YYB	10		200	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-5	3	YYB	10		300	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-6	3	YYB	10		400	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-7	3	YYB	10		500	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC11-8	3	YYB	10		600	50	1.8	14 A	100		1.5*/			50	-/90	
★ MAC35-1		YYB	25		25	75	1.5	35 A	225		1.0*/			75	-/174	
★ MAC35-2		YYB	25		50	75	1.5	35 A	100		1.0*/			75	-/174	
★ MAC35-3		YYB	25		100	75	1.5	35 A	100		1.0*/			75	-/174	
★ MAC35-4		YYB	25		200	75	1.5	35 A	225		1.0*/			75	-/174	
★ MAC35-6		YYB	25		400	75	1.5	35 A	225		1.0*/			75	-/174	
★ MAC36-1		YYB	25		25	75	1.5	35 A	225		1.0*/			75	-/175	
★ MAC36-2		YYB	25		50	75	1.5	35 A	100		1.0*/			75	-/175	
★ MAC36-3		YYB	25		100	75	1.5	35 A	100		1.0*/			75	-/175	
★ MAC36-4		YYB	25		200	75	1.5	35 A	225		1.0*/			75	-/175	
★ MAC36-6		YYB	25		400	75	1.5	35 A	225		1.0*/			75	-/175	
★ MAC37-1	3	YYB	25		25	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-2	3	YYB	25		50	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-3	3	YYB	25		100	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-4	3	YYB	25		200	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-5	3	YYB	25		300	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-6	3	YYB	25		400	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC37-7	3	YYB	25		500	75	1.9	35 A	225		1.0*/		10*	75	203/174	
★ MAC38-1	3	YYB	25		25	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-2	3	YYB	25		50	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-3	3	YYB	25		100	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-4	3	YYB	25		200	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-5	3	YYB	25		300	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-6	3	YYB	25		400	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC38-7	3	YYB	25		500	75	1.9	35 A	225		1.0*/		10*	75	203/175	
★ MAC92-1	3	YYB	0.45		30	5.0	1.7	700 m	6.0		-			10	92/29	
★ MAC92-2		YYB	0.45		60	5.0	1.7	700 m	6.0		-			10	92/29	
★ MAC92-3		YYB	0.45		100	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92-4		YYB	0.45		200	5.0	1.7	700 m	6.0		-			10	92/29	
★ MAC92-5		YYB	0.45		300	5.0	1.7	700 m	6.0		-			10	92/29	
★ MAC92-6		YYB	0.45		400	5.0	1.7	700 m	6.0		-			10	92/29	
★ MAC92A1		YYB	0.45		30	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92A2		YYB	0.45		60	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92A3		YYB	0.45		100	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92A4		YYB	0.45		200	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92A5		YYB	0.45		300	15	1.7	700 m	6.0		-			10	92/29	
★ MAC92A6		YYB	0.45		400	15	1.7	700 m	6.0		-			10	92/29	
★ MAC93-1	3	YYB	0.65		30	5.0	1.8	920 m	6.0		-			10	92/29	
★ MAC93-2		YYB	0.65		60	5.0	1.8	920 m	6.0		-			10	92/29	
★ MAC93-3		YYB	0.65		100	5.0	1.8	920 m	6.0		-			10	92/29	
★ MAC93-4		YYB	0.65		200	5.0	1.8	920 m	6.0		-			10	92/29	
★ MAC93A1		YYB	0.65		30	12	1.8	920 m	6.0		-			10	92/29	
★ MAC93A2		YYB	0.65		60	12	1.8	920 m	6.0		-			10	92/29	
★ MAC93A3		YYB	0.65		100	12	1.8	920 m	6.0		-			10	92/29	
★ MAC93A4		YYB	0.65		200	12	1.8	920 m	6.0		-			10	92/29	

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S	V _S	I _S	V _F	I _F	I _{FM}	V _O	I _H	PACKAGE To-Case No. Case No.
				Volts Min	Volts V _{DRM} Volts Max	μA --- /GT mA Max	or VT @ Volts	or I _T UNIT	or IFSM Amp	— Min — Max	mA Min mA Max	
									μs on / μs Max			
★ MAC94-1	3	YYB	0.80		30	5.0	1.5	1.1 A	6.0			10 92/29
★ MAC94-2		YYB	0.80		60	5.0	1.5	1.1 A	6.0			10 92/29
★ MAC94-3		YYB	0.8		100	5.0	1.5	1.1 A	6.0			10 92/29
★ MAC94-4		YYB	0.8		200	5.0	1.5	1.1 A	6.0			10 92/29
★ MAC94A1		YYB	0.80		30	10	1.5	1.1 A	6.0			10 92/29
★ MAC94A2		YYB	0.80		60	10	1.5	1.1 A	6.0			10 92/29
★ MAC94A3		YYB	0.8		100	10	1.5	1.1 A	6.0			10 92/29
★ MAC94A4		YYB	0.8		200	10	1.5	1.1 A	6.0			10 92/29
★ MAC800-02	3	YYB	4.0		25	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-05	3	YYB	4.0		50	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-10	3	YYB	4.0		100	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-20	3	YYB	4.0		200	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-40	3	YYB	4.0		400	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-60	3	YYB	4.0		600	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800-80	3	YYB	4.0		800	30	2.0	6.0 A	40	2.0/		30 39/79
★ MAC800A-02		YYB	4.0		25	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-05		YYB	4.0		50	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-10		YYB	4.0		100	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-20		YYB	4.0		200	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-40		YYB	4.0		400	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-60		YYB	4.0		600	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800A-80		YYB	4.0		800	5.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-02		YYB	4.0		25	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-05		YYB	4.0		50	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-10		YYB	4.0		100	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-20		YYB	4.0		200	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-40		YYB	4.0		400	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-60		YYB	4.0		600	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC800B-80		YYB	4.0		800	3.0	2.0	6.0 A	40	2.0/		15 39/79
★ MAC40688	2	YYB	40		200	70	1.8	56 A	300	2.0*		70 -/237
★ MAC40690	2	YYB	40		600	70	1.8	56 A	300	2.0*		70 -/237
★ MAC40797	2	YYB	10		600	50	1.8	14 A	100	2.0*		75 203AA/174
★ MAC40798	2	YYB	10		600	50	1.8	14 A	100	2.0*		75 -/174
★ MBS100	3	YXB		3.0	5.0	400	2.0	18	6.0	10		1.0 92/29
★ MBS4991	3	YXB		6.0	10.0	350						1.5 /92
★ MBS4992	3	YXB		7.5	9.0	120						0.5 /92
★ MCR32-05	3	YXR	7.0		50	20	2.6	30 A	80	--		20 39/79
★ MCR32-20	3	YXR	7.0		200	20	2.6	30 A	80	--		20 39/79
★ MCR32-30	3	YXR	7.0		300	20	2.6	30 A	80	--		20 39/79
★ MCR32-40	3	YXR	7.0		400	20	2.6	30 A	80	--		20 39/79
★ MCR32-50	3	YXR	7.0		500	20	2.6	30 A	80	--		20 39/79
★ MCR32-60	3	YXR	7.0		600	20	2.6	30 A	80	--		20 39/79
★ MCR39-05	3	YXR	7.0		50	15	3.5	50 A	180	0.5*/		1.0 39/79
★ MCR39-20	3	YXR	7.0		200	15	3.5	50 A	180	0.5*/		1.0 39/79
★ MCR39-30	3	YXR	7.0		300	15	3.5	50 A	180	0.5*/		1.0 39/79
★ MCR39-40	3	YXR	7.0		400	15	3.5	50 A	180	0.5*/		1.0 39/79
★ MCR39-50	3	YXR	7.0		500	15	3.5	50 A	180	0.5*/	1.0	39/79
★ MCR39-60	3	YXR	7.0		600	15	3.5	50 A	180	0.5*/	1.0	39/79
★ MCR45-10		YXR	55		100	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-20		YXR	55		200	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-30		YXR	55		300	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-40		YXR	55		400	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-50		YXR	55		500	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-60		YXR	55		600	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-70		YXR	55		700	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-80		YXR	55		800	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-90		YXR	55		900	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-100		YXR	55		1000	70	3.0	500 A	1200	-/30*		500 83/
★ MCR45-110		YXR	55		1100	70	3.0	500 A	1200	-/30*		100 83/
★ MCR45-120		YXR	55		1200	70	3.0	500 A	1200	-/30*		100 83/
★ MCR46-10		YXR	55		100	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-20		YXR	55		200	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-30		YXR	55		300	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-40		YXR	55		400	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-50		YXR	55		500	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-60		YXR	55		600	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-70		YXR	55		700	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-80		YXR	55		800	70	3.0	500 A	1200	-/30*		100 94/
★ MCR46-90		YXR	55		900	70	3.0	500 A	1200	-/30*		100 94/

MCR46-100-MCR102

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T Volts	I _F @ I _T LIMIT	I _{FM} or I _{FSM} Amp	@ t _W	V _O		I _H mA Min	I _H mA Max	PACKAGE To- No.	PACKAGE Case No.
											Min	t _{off} μs Max				
★ MCR46-100		Y _{YR}	55		1000	70	3.0	500 A	1200		-/30*		500	94/		
★ MCR46-110		Y _{YR}	55		1100	70	3.0	500 A	1200		-/30*		100	94/		
★ MCR46-120		Y _{YR}	55		1200	70	3.0	500 A	1200		-/30*		100	94/		
★ MCR50-10		Y _{YR}	110		100	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-20		Y _{YR}	110		200	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-30		Y _{YR}	110		300	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-40		Y _{YR}	110		400	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-50		Y _{YR}	110		500	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-60		Y _{YR}	110		600	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-70		Y _{YR}	110		700	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-80		Y _{YR}	110		800	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR50-90		Y _{YR}	110		900	75	2.5	500 A	1000		-/30*		100	94/		
★ MCR52		Y _{YR}	0.25		30	0.20	1.3	250 m	6.0		-/30*		5.0	-/28		
★ MCR52-10		Y _{YR}	110		100	75	2.5	500 A	1000		-/30*		100	83/78		
★ MCR52-20		Y _{YR}	110		200	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-30		Y _{YR}	110		300	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-40		Y _{YR}	110		400	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-50		Y _{YR}	110		500	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-60		Y _{YR}	110		600	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-70		Y _{YR}	110		700	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-80		Y _{YR}	110		800	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR52-90		Y _{YR}	110		900	75	2.5	500 A	1000		-/30*		100	83/28		
★ MCR53		Y _{YR}	0.25		60	0.20	1.3	250 m	6.0		-/30*		5.0	-/78		
★ MCR54		Y _{YR}	0.25		100	0.20	1.3	250 m	6.0		-/30*		5.0	-/28		
★ MCR60-10		Y _{YR}	110		100	75	1.5	50 A	1000		-/30*		20	94/		
★ MCR60-20		Y _{YR}	110		200	75	1.5	50 A	1000		-/30*		20	94/		
★ MCR60-30		Y _{YR}	110		300	75	1.5	50 A	1000		-/30*		20	94/		
★ MCR60-40		Y _{YR}	110		400	75	1.5	50 A	1000		-/30*		20	94/		
★ MCR60-50		Y _{YR}	110		500	75	1.5	50 A	1000		-/30*		20	94/		
★ MCR62-10		Y _{YR}	110		100	75	1.5	50 A	1000		-/30*		20	83/		
★ MCR62-20		Y _{YR}	110		200	75	1.5	50 A	1000		-/30*		20	83/		
★ MCR62-30		Y _{YR}	110		300	75	1.5	50 A	1000		-/30*		20	83/		
★ MCR62-40		Y _{YR}	110		400	75	1.5	50 A	1000		-/30*		20	83/		
★ MCR62-50		Y _{YR}	110		500	75	1.5	50 A	1000		-/30*		20	83/		
★ MCR80-0.5	3	Y _{YR}	50		50	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-05		Y _{YR}	80		50	70	1.55	160 A	1000		-/70*		70	-/287		
★ MCR80-10	3	Y _{YR}	50		100	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-20	3	Y _{YR}	50		200	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-30	3	Y _{YR}	50		300	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-40	3	Y _{YR}	50		400	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-50	3	Y _{YR}	50		500	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-60	3	Y _{YR}	50		600	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-70	3	Y _{YR}	50		700	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR80-80	3	Y _{YR}	50		800	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR81-0.5	3	Y _{YR}	50		50	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-05		Y _{YR}	80		50	70	1.55	160 A	1000		-/70*		70	-/288		
★ MCR81-10	3	Y _{YR}	50		100	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-20	3	Y _{YR}	50		200	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-30	3	Y _{YR}	50		300	70	1.5	160 A	1000		-/70*		70	-/287		
★ MCR81-40	3	Y _{YR}	50		400	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-50	3	Y _{YR}	50		500	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-60	3	Y _{YR}	50		600	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-70	3	Y _{YR}	50		700	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR81-80	3	Y _{YR}	50		800	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR82-0.5	3	Y _{YR}	50		50	70	1.5	160 A	1000		-/70*		70	-/289		
★ MCR82-05		Y _{YR}	80		50	70	1.55	160 A	1000		-/70*		70	-/291		
★ MCR82-10	3	Y _{YR}	50		100	70	1.5	160 A	1000		-/70*		70	-/289		
★ MCR82-20	3	Y _{YR}	50		200	70	1.5	160 A	1000		-/70*		70	-/289		
★ MCR82-30	3	Y _{YR}	50		300	70	1.5	160 A	1000		-/70*		70	-/288		
★ MCR82-40	3	Y _{YR}	50		400	70	1.5	160 A	1000		-/70*		70	-/291		
★ MCR82-50	3	Y _{YR}	50		500	70	1.5	160 A	1000		-/70*		70	-/291		
★ MCR82-60	3	Y _{YR}	50		600	70	1.5	160 A	1000		-/70*		70	-/291		
★ MCR82-70	3	Y _{YR}	50		700	70	1.5	160 A	1000		-/70*		70	-/291		
★ MCR82-80	3	Y _{YR}	50		800	70	1.5	160 A	1000		-/70*		70	-/291		
★ MCR051	3	Y _{YR}	0.25		15	0.2	1.3	250 m	6.0		-/70*		5.0	-/28		
★ MCR052	3	Y _{YR}	0.25		30	0.2	1.3	250 m	6.0		-/70*		5.0	-/28		
★ MCR053	3	Y _{YR}	0.25		60	0.2	1.3	250 m	6.0		-/70*		5.0	-/28		
★ MCR054	3	Y _{YR}	0.25		100	0.2	1.3	250 m	6.0		-/70*		5.0	-/28		
★ MCR101	3	Y _{YR}	.8		15	0.2	1.7	1.0 A	6.0		-/70*		5.0	92/29		
★ MCR102	3	Y _{YR}	0.8		30	0.2	1.7	1.0 A	6.0		-/70*		5.0	92/29		

TYPE NO.	VOL	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T @ Volts	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	t _w @	V _O Volts Min	t _{on} μs Max	t _{off} μs Max	I _H mA Min	mA Max	PACKAGE	
																To-Case No.	Case No.
★ MCR103	3	Y Y R	0.8		60	0.2	1.7	1.0 A	6.0		..				5.0	92/29	
★ MCR104	3	Y Y R	0.8		100	0.20	1.7	1.0 A	6.0		..				5.0	92/29	
★ MCR106-1	3	Y Y R	4.0		30	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR106-2	3	Y Y R	4.0		60	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR106-3	3	Y Y R	4.0		100	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR106-4	3	Y Y R	4.0		200	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR106-6	3	Y Y R	4.0		400	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR106-8	3	Y Y R	4.0		600	0.2	2.0	4.0 A	25		..				5.0	-/77	
★ MCR107-1	3	Y Y R	4.0		30	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-2	3	Y Y R	4.0		60	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-3	3	Y Y R	4.0		100	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-4	3	Y Y R	4.0		200	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-5	3	Y Y R	4.0		300	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-6	3	Y Y R	4.0		400	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-7	3	Y Y R	4.0		500	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR107-8	3	Y Y R	4.0		600	0.2	2.0	4.0 A	25		..				20	-/77	
★ MCR115	3	Y Y R	0.8		150	0.2	1.7	1.0 A	6.0		..				5.0	92/29	
★ MCR120	3	Y Y R	0.8		200	0.2	1.7	1.0 A	6.0		..				5.0	92/29	
★ MCR150-10		Y Y R	110		100	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-20		Y Y R	110		200	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-30		Y Y R	110		300	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-40		Y Y R	110		400	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-50		Y Y R	110		500	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-60		Y Y R	110		600	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-70		Y Y R	110		700	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-80		Y Y R	110		800	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-90		Y Y R	110		900	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-100		Y Y R	110		1000	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-110		Y Y R	110		1100	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-120		Y Y R	110		1200	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR150-130		Y Y R	110		1300	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-140		Y Y R	110		1400	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR150-150		Y Y R	110		1500	150	2.6	500 A	1500		-/60*				500	94/	
★ MCR152-10		Y Y R	110		100	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-20		Y Y R	110		200	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-30		Y Y R	110		300	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-40		Y Y R	110		400	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-50		Y Y R	110		500	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-60		Y Y R	110		600	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-72		Y Y R	110		700	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-80		Y Y R	110		800	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-90		Y Y R	110		900	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-100		Y Y R	110		1000	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-110		Y Y R	110		1100	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-120		Y Y R	110		1200	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-130		Y Y R	110		1300	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-140		Y Y R	110		1400	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR152-150		Y Y R	110		1500	150	2.6	500 A	1500		-/60*				500	83/	
★ MCR154-10	3	Y Y R	70		100	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR154-20	3	Y Y R	70		200	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR154-30	3	Y Y R	70		300	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR154-40	3	Y Y R	70		400	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR154-50	3	Y Y R	70		500	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR154-60	3	Y Y R	70		600	150	3.0	500 A	1800		-/10*				200	94/219	
★ MCR155-10	3	Y Y R	70		100	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR155-20		Y Y R	70		200	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR155-30	3	Y Y R	70		300	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR155-40	3	Y Y R	70		400	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR155-50	3	Y Y R	70		500	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR155-60	3	Y Y R	70		600	150	3.0	500 A	1800		-/20*				200	94/219	
★ MCR156-10	3	Y Y R	70		100	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR156-20	3	Y Y R	70		200	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR156-30	3	Y Y R	70		300	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR156-40	3	Y Y R	70		400	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR156-50	3	Y Y R	70		500	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR156-60	3	Y Y R	70		600	150	3.0	500 A	1800		-/10*				200	83/246	
★ MCR157-10	3	Y Y R	70		100	150	3.0	500 A	1800		-/20*				200	83/246	
★ MCR157-20	3	Y Y R	70		200	150	3.0	500 A	1800		-/20*				200	83/246	
★ MCR157-30	3	Y Y R	70		300	150	3.0	500 A	1800		-/20*				200	83/246	
★ MCR157-40	3	Y Y R	70		400	150	3.0	500 A	1800		-/20*				200	83/246	

MCR157-50-MCR251B-70

TYPE NO.	VOL.	ID	IF(dc) or IF(RMS) Max	VS Volts Min	VS Volts V _{DRM} Max	IS μA IGT mA Max	VF or VT Volts	IF or IT UNIT	IFM or IFSM Amp	IFM or IFSM @ tw	VO Volts Min ton μs Max	VO Volts Max toff μs Max	H mA Min	H mA Max	PACKAGE To- Case No. No.
★ MCR157-50	3	YR	70		500	150	3.0	500 A	1800		-20*		200	83/246	
★ MCR157-60	3	YR	70		600	150	3.0	500 A	1800		-20*		200	83/246	
★ MCR158-50	3	YR	70		500	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-60	3	YR	70		600	150	3.0	500 A	1800		2.0*/30		500	94/219	
★ MCR158-70	3	YR	70		700	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-80	3	YR	70		800	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-90	3	YR	70		900	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-100	3	YR	70		1000	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-110	3	YR	70		1100	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR158-120	3	YR	70		1200	150	3.0	500 A	1600		2.0*/30		500	94/219	
★ MCR159-50		YR	70		500	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-60		YR	70		600	150	3.0	500 A	1800		2.0*/30		500	83/246	
★ MCR159-70		YR	70		700	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-80		YR	70		800	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-90		YR	70		900	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-100		YR	70		1000	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-110		YR	70		1100	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR159-120		YR	70		1200	150	3.0	500 A	1600		2.0*/30		500	83/246	
★ MCR201	3	YR	0.5		15	0.2	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR202	3	YR	0.5		30	0.2	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR203	3	YR	0.5		60	0.2	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR204	3	YR	0.5		100	0.20	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR205	3	YR	0.5		150	0.2	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR206	3	YR	0.5		200	0.2	1.7	1.2 A	6.0		..		5.0	18/22	
★ MCR235-10	3	YR	150		100	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-20	3	YR	150		200	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-30	3	YR	150		300	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-40	3	YR	150		400	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-50	3	YR	150		500	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-60	3	YR	150		600	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-70	3	YR	150		700	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-80	3	YR	150		800	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-90	3	YR	150		900	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-100	3	YR	150		1000	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-110	3	YR	150		1100	150	1.6	200 A	1800		2.0*/-		500	-/220	
★ MCR235-120	3	YR	150		1200	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-130	3	YR	150		1300	150	1.6	200 A	1800		2.0*/-		500	-/220	
★ MCR235-140	3	YR	150		1400	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235-150	3	YR	150		1500	150	1.6	220 A	1800		2.0*/-		500	-/220	
★ MCR235A-10	3	YR	150		100	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235A-20	3	YR	150		200	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235A-30	3	YR	150		300	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235A-40	3	YR	150		400	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235A-50	3	YR	150		500	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235A-60	3	YR	150		600	150	1.8	220 A	1600		-/10*		500	-/220	
★ MCR235B-10	3	YR	150		100	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-20	3	YR	150		200	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-30	3	YR	150		300	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-40	3	YR	150		400	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-50	3	YR	150		500	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-60	3	YR	150		600	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-70	3	YR	150		700	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-80	3	YR	150		800	150	1.8	220 A	1600		-/15*		500	-/220	
★ MCR235B-10	3	YR	150		100	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-10	3	YR	150		100	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-20	3	YR	150		200	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-30	3	YR	150		300	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-40	3	YR	150		400	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-50	3	YR	150		500	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-60	3	YR	150		600	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-70	3	YR	150		700	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-80	3	YR	150		800	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C-90	3	YR	150		900	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR235C100		YR	150		1000	150	1.8	220 A	1600		-/20*		500	-/220	
★ MCR251B-10		YR	63		100	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-20		YR	63		200	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-30		YR	63		300	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-40		YR	63		400	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-50		YR	63		500	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-60		YR	63		600	100	1.7	50 A	1200		-/60*		50	94/	
★ MCR251B-70		YR	63		700	100	1.7	50 A	1200		-/60*		50	94/	

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T Volts @ I _T	I _F or I _T UNIT	I _{FM} or I _{FSM} Amp	@ t _w	V _O Volts		I _H mA		PACKAGE To-Case No. Case No.
											Min	Max	Min	Max	
★ MCR251B-80		YYR	63		800	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B-90		YYR	63		900	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B100		YYR	63		1000	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B110		YYR	63		1100	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B120		YYR	63		1200	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B130		YYR	63		1300	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B140		YYR	63		1400	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251B150		YYR	63		1500	100	1.7	50 A	1200		-/60*	50	94/		
★ MCR251L-10		YYR	63		100	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-20		YYR	63		200	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-30		YYR	63		300	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-40		YYR	63		400	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-50		YYR	63		500	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-60		YYR	63		600	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-70		YYR	63		700	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-80		YYR	63		800	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L-90		YYR	63		900	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L100		YYR	63		1000	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L110		YYR	63		1100	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L120		YYR	63		1200	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L130		YYR	63		1300	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L140		YYR	63		1400	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR251L150		YYR	63		1500	100	1.7	50 A	1200		-/60*	50	83/		
★ MCR320-1	3	YYR	7.0		25	20	2.6	30 A	80		..	1.0	39/79		
★ MCR320-2	3	YYR	7.0		50	20	2.6	30 A	80		..	20	39/79		
★ MCR320-3	3	YYR	7.0		100	20	2.6	30 A	80		..	20	39/79		
★ MCR320-4	3	YYR	7.0		200	20	2.6	30 A	80		..	20	39/79		
★ MCR320-5	3	YYR	7.0		300	20	2.6	30 A	80		..	20	39/79		
★ MCR320-6	3	YYR	7.0		400	20	2.6	30 A	80		..	20	39/79		
★ MCR320-7	3	YYR	7.0		500	20	2.6	30 A	80		..	20	39/79		
★ MCR320-8	3	YYR	7.0		600	20	2.6	30 A	80		..	20	39/79		
★ MCR380-10	3	YYR	250		100	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-20	3	YYR	250		200	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-30	3	YYR	250		300	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-40	3	YYR	250		400	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-50	3	YYR	250		500	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-60	3	YYR	250		600	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-70	3	YYR	250		700	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-80	3	YYR	250		800	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-90	3	YYR	250		900	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-100	3	YYR	250		1000	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-110	3	YYR	250		1100	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-120	3	YYR	250		1200	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-130	3	YYR	250		1300	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-140	3	YYR	250		1400	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380-150	3	YYR	250		1500	150	2.4	1.0 K	3500		2.0*/-	500	-/220		
★ MCR380B-10	3	YYR	250		100	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-20	3	YYR	250		200	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-30	3	YYR	250		300	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-40	3	YYR	250		400	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-50	3	YYR	250		500	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-60	3	YYR	250		600	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-70	3	YYR	250		700	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380B-80	3	YYR	250		800	150	2.6	1.0 K	3500		-/15*	500	-/220		
★ MCR380C-10	3	YYR	250		100	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-20	3	YYR	250		200	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-30	3	YYR	250		300	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-40	3	YYR	250		400	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-50	3	YYR	250		500	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-60	3	YYR	250		600	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-70	3	YYR	250		700	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-80	3	YYR	250		800	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C-90	3	YYR	250		900	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380C100	3	YYR	250		1000	150	2.6	1.0 K	3500		-/20*	500	-/220		
★ MCR380D-10	3	YYR	250		100	150	2.6	1.0 K	3500		-/30*	500	-/220		
★ MCR380D-20	3	YYR	250		200	150	2.6	1.0 K	3500		-/30*	500	-/220		
★ MCR380D-30	3	YYR	250		300	150	2.6	1.0 K	3500		-/30*	500	-/220		
★ MCR380D-40	3	YYR	250		400	150	2.6	1.0 K	3500		-/30*	500	-/220		
★ MCR380D-50	3	YYR	250		500	150	2.6	1.0 K	3500		-/30*	500	-/220		
★ MCR380D-60	3	YYR	250		600	150	2.6	1.0 K	3500		-/30*	500	-/220		

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MCR380D-70-MCR550D-10

TYPE NO.	VOL.	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts Max	I _S μA Max	V _F or V _T @ I _T Volts	I _F or I _T LIMIT	I _{FM} or I _{FSM} Amp	@ t _w	V _O Volts Min t _{on} μs Max	— t _{off} μs Max	I _H mA Min	mA Max	PACKAGE To- No.	Case No.
★ MCR380D-70	3	Y Y R	250		700	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR380D-80	3	Y Y R	250		800	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR380D-90	3	Y Y R	250		900	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR380D100		Y Y R	250		1000	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR380D110		Y Y R	250		1100	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR380D120		Y Y R	250		1200	150	2.6	1.0 K	3500		-30*			500	-1220	
★ MCR406-1	3	Y Y R	4.0		30	0.2	2.2	4.0 A	30		--			3.0	-190	
★ MCR406-2	3	Y Y R	4.0		60	0.2	2.2	4.0 A	30		--			3.0	-190	
★ MCR406-3	3	Y Y R	4.0		100	0.2	2.2	4.0 A	30		--			3.0	-190	
★ MCR406-4	3	Y Y R	4.0		200	0.2	2.2	4.0 A	10		--			3.0	-190	
★ MCR407-1	3	Y Y R	4.0		30	0.5	2.6	4.0 A	20		--			5.0	-190	
★ MCR407-2	3	Y Y R	4.0		60	0.5	2.6	4.0 A	20		--			5.0	-190	
★ MCR407-3	3	Y Y R	4.0		100	0.5	2.6	4.0 A	20		--			5.0	-190	
★ MCR407-4	3	Y Y R	4.0		200	0.5	2.6	4.0 A	20		--			5.0	-190	
★ MCR470-10	3	Y Y R	300		100	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-100	3	Y Y R	300		1000	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-110	3	Y Y R	300		1100	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-120	3	Y Y R	300		1200	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-130	3	Y Y R	300		1300	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-140	3	Y Y R	300		1400	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-150	3	Y Y R	300		1500	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-20	3	Y Y R	300		200	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-30	3	Y Y R	300		300	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-40	3	Y Y R	300		400	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-50	3	Y Y R	300		500	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-60	3	Y Y R	300		600	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-70	3	Y Y R	300		700	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-80	3	Y Y R	300		800	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470-90	3	Y Y R	300		900	150	1.9	1.0 K	5500		2.0*/			500	-1220	
★ MCR470C-10	3	Y Y R	300		100	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-20	3	Y Y R	300		200	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-30	3	Y Y R	300		300	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-40	3	Y Y R	300		400	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-50	3	Y Y R	300		500	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-60	3	Y Y R	300		600	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-70	3	Y Y R	300		700	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470C-80	3	Y Y R	300		800	150	2.3	1.0 K	4500		-120*			500	-1220	
★ MCR470D-10	3	Y Y R	300		100	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-20	3	Y Y R	300		200	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-30	3	Y Y R	300		300	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-40	3	Y Y R	300		400	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-50	3	Y Y R	300		500	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-60	3	Y Y R	300		600	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-70	3	Y Y R	300		700	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-80	3	Y Y R	300		800	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D-90	3	Y Y R	300		900	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR470D100		Y Y R	300		1000	150	2.3	1.0 K	4500		--			500	-1220	
★ MCR470E-10	3	Y Y R	300		100	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-20	3	Y Y R	300		200	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-30	3	Y Y R	300		300	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-40	3	Y Y R	300		400	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-50	3	Y Y R	300		500	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-60	3	Y Y R	300		600	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-70	3	Y Y R	300		700	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-80	3	Y Y R	300		800	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E-90	3	Y Y R	300		900	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E100		Y Y R	300		1000	150	2.3	1.0 K	4500		--			500	-1220	
★ MCR470E110		Y Y R	300		1100	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR470E120		Y Y R	300		1200	150	2.3	1.0 K	4500		-140*			500	-1220	
★ MCR490D-60		Y Y R	300		600	150	2.3	1.0 K	4500		-130*			500	-1220	
★ MCR550C-10	3	Y Y R	350		100	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-20	3	Y Y R	350		200	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-30	3	Y Y R	350		300	150	2.4	1.0 K	5500		-120*		50*	500	-1220	
★ MCR550C-40	3	Y Y R	350		400	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-50	3	Y Y R	350		500	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-60	3	Y Y R	350		600	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-70	3	Y Y R	350		700	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-80	3	Y Y R	350		800	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C-90	3	Y Y R	350		900	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550C100		Y Y R	350		1000	150	2.4	1.0 K	5500		-120		50*	500	-1220	
★ MCR550D-10	3	Y Y R	350		100	150	2.4	1.0 K	5500		-130		50*	500	-1220	

TYPE NO.	VOL	ID	I _F (dc) or I _T (RMS) Max	V _S Volts Min	V _S Volts V _{DRM} Volts Max	I _S μA I _{GT} mA Max	V _F or V _T @ I _T Volts	I _F or I _T LIMIT	I _{FM} or I _{FSM} Amp	@ t _w	V _O Volts Min t _{on} μs Max	— I _{off} μs Max	I _H mA Min	I _H mA Max	PACKAGE To- Case No. No.
★ MCR550D-20	3	Y Y R	350		200	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D-30	3	Y Y R	350		300	150	2.4	1.0 K	5500		/30*		50*	500	-/220
★ MCR550D-40	3	Y Y R	550		400	150	2.4	1.0 K	5500		/30		50*	500	-/220
★ MCR550D-50	3	Y Y R	350		500	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D-60	3	Y Y R	350		600	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D-70	3	Y Y R	350		700	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D-80	3	Y Y R	350		800	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D-90	3	Y Y R	350		900	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D100	3	Y Y R	350		1000	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D110	3	Y Y R	350		1100	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR550D120	3	Y Y R	350		1200	150	2.4	1.0 K	5500		-/30		50*	500	-/220
★ MCR649-1	3	Y Y R	20		25	80	0.7	13 A	260		..				41/61
★ MCR649-2	3	Y Y R	20		50	80	7.0	13 A	260		..				41/61
★ MCR649-3	3	Y Y R	20		100	80	0.7	13 A	260		..				41/61
★ MCR649-4	3	Y Y R	20		200	80	0.7	13 A	260		..				41/61
★ MCR649-5	3	Y Y R	20		300	80	0.7	13 A	260		..				41/61
★ MCR649-6	3	Y Y R	20		400	80	0.7	13 A	260		..				41/61
★ MCR649-7	3	Y Y R	20		500	80	0.7	13 A	260		..				41/
★ MCR729-10	3	Y Y R	2.0		800	50	1.5	2.0 A	100		0.2*/		15		-/63
★ MCR729-5	3	Y Y R	2.0		300	50	1.5	2.0 A	100	10	0.4/20		15		-/63
★ MCR729-6	3	Y Y R	2.0		400	50	1.5	2.0 A	100		0.4/20		15		-/63
★ MCR729-7	3	Y Y R	2.0		500	50	1.5	2.0 A	100		0.2*/		15		-/63
★ MCR729-8	3	Y Y R	2.0		600	50	1.5	2.0 A	100		0.2*/		15		-/63
★ MCR729-9	3	Y Y R	2.0		700	50	1.5	2.0 A	100		0.2*/		15		-/63
★ MCR800-10	3	Y Y R	500		100	150	1.5	1.0 K	7000		4.0*/		500		-/220
★ MCR800-20	3	Y Y R	500		200	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-30	3	Y Y R	500		300	150	1.5	1.0 K	7000		4.0*/		500		-/220
★ MCR800-40	3	Y Y R	800		400	150	1.55	1.0 K	7000		4.0*/		500		-/220
★ MCR800-50	3	Y Y R	500		500	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-60	3	Y Y R	500		600	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-70	3	Y Y R	500		700	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-80	3	Y Y R	500		800	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-90	3	Y Y R	500		900	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-100	3	Y Y R	500		1000	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-110	3	Y Y R	500		1100	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-120	3	Y Y R	500		1200	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-130	3	Y Y R	500		1300	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-140	3	Y Y R	500		1400	150	1.5	1.0 K	7000		..		500		-/220
★ MCR800-150	3	Y Y R	500		1500	150	1.5	1.0 K	7000		..		500		-/220
★ MCR846-1	3	Y Y R	2.0		25	50	1.6	2.0 A	30		50*/4.0*		25		-/63
★ MCR846-2	3	Y Y R	2.0		50	50	1.6	2.0 A	30		0.5*/4.0*		20		-/63
★ MCR846-3	3	Y Y R	2.0		100	50	1.6	2.0 A	30		0.5*/4.0*		25		-/63
★ MCR846-4	3	Y Y R	2.0		200	50	1.6	2.0 A	30		0.5*/4.0*		25		-/63
★ MCR914-1	3	Y Y R	1.6		25	8.0	1.4	1.0 A	15		..				5/
★ MCR914-2	3	Y Y R	1.6		50	8.0	1.4	1.0 A	15		0.7*/10*				5/
★ MCR914-3	3	Y Y R	1.6		100	8.0	1.4	1.0 A	15		0.7*/10*				5/
★ MCR914-4	3	Y Y R	1.6		200	8.0	1.4	1.0 A	15		0.7*/10*				5/
★ MCR914-5	3	Y Y R	1.6		300	8.0	1.4	1.0 A	15		0.7*/10*				5/
★ MCR914-6	3	Y Y R	1.6		400	8.0	1.4	1.0 A	15		0.7*/10*				5/
★ MCR1336-5	3	Y Y R	6.0		300	40	2.0	1.0 A	100	30	0.15/7.0*	1.0	50	50	-/63
★ MCR1336-6	3	Y Y R	300		400	40	2.0	1.0 A	100	30	0.15/7.0*		50	50	-/63
★ MCR1336-7	3	Y Y R	300		500	40	2.0	1.0 A	100		-/7.0*		50	50	-/63
★ MCR1336-8	3	Y Y R	300		600	40	2.0	1.0 A	100		-/7.0*		50	50	-/63
★ MCR1336-9	3	Y Y R	300		700	40	2.0	1.0 A	100		-/7.0*		50	50	-/220
★ MCR1336-10	3	Y Y R	300		800	40	2.0	1.0 A	100		-/7.0*		50	50	-/63
★ MCR1718-5	3	Y Y R	25		300	50	1.3	25 A	100		..		60		48/64
★ MCR1718-6	3	Y Y R	25		400	50	1.3	25 A	100		..		60		48/64
★ MCR1718-7	3	Y Y R	25		500	50	1.3	25 A	100		..				48/64
★ MCR1718-8	3	Y Y R	25		600	50	1.3	25 A	100		..				48/64
★ MCR1906-1	3	Y Y R	1.6		25	1.0	1.7	1.0 A	15		..		5.0		5/31
★ MCR1906-2	3	Y Y R	1.6		50	1.0	1.7	1.0 A	15		..		5.0		5/31
★ MCR1906-3	3	Y Y R	1.6		100	1.0	1.7	1.0 A	15		..		5.0		5/31
★ MCR1906-4	3	Y Y R	1.6		200	1.0	1.7	1.0 A	15		..		5.0		5/31
★ MCR1907-1	3	Y Y R	25		25	30	1.7	20 A	150		50*/12		12	48/64	48/64
D MCR1907-2	3	Y Y R	25		50	30	1.7	20 A	150		0.5*/12		12	48/64	48/64
★ MCR1907-3	3	Y Y R	25		100	30	1.7	20 A	150		0.5*/12		12	48/64	48/64
★ MCR1907-4	3	Y Y R	25		200	30	1.7	20 A	150		0.5*/12		12	48/64	48/64
★ MCR1907-5	3	Y Y R	25		300	30	1.7	20 A	150		0.5*/12		12	48/64	48/64
★ MCR1907-6	3	Y Y R	25		400	30	1.7	20 A	150		0.5*/12		12	48/64	48/64
★ MCR2315-1	3	Y Y R	8.0		25	40	1.6	5.0 A	80		1.0*/15*		50		-/86



MCR2315-2-M4L3054

TYPE NO.	VOL.	ID	IF(dc) or IT(RMS) Max	VS Volts Min	VS Volts Max	IS μA Max	VF or VT @ V Max	IF or IT UNIT	IFM or IFSM Amp	@ tW	VO Volts		IH		PACKAGE To- Case No. No.
											t _{on} μs Max	t _{off} μs Max	mA Min	mA Max	
★ MCR2315-2	3	YYR	8.0		50	40	1.6	5.0 A	80		1.0*/15*		50	-/86	
★ MCR2315-3	3	YYR	8.0		100	40	1.6	5.0 A	80		1.0*/15*		50	-/86	
★ MCR2315-4	3	YYR	8.0		200	40	1.6	5.0 A	80		1.0*/15*		50	-/86	
★ MCR2315-5	3	YYR	8.0		300	40	1.6	5.0 A	80		1.0*/15*		50	-/86	
★ MCR2315-6	3	YYR	8.0		400	40	1.6	5.0 A	80		1.0*/15*		50	-/86	
★ MCR2604-1		YYR	8.0		25	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2604-2		YYR	8.0		50	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2604-3		YYR	8.0		100	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2604-4		YYR	8.0		200	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2604-5		YYR	8.0		300	20	1.3	5.0 A	50		1.0*/12*		25	-	
★ MCR2604-6		YYR	8.0		400	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2604-7		YYR	5.0		500	50	-	-	100		1.0*/15*		60	-	
★ MCR2604-8		YYR	5.0		600	50	-	-	100		1.0*/15*		60	-	
★ MCR2605-1		YYR	8.0		25	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2605-2		YYR	8.0		50	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2605-3		YYR	8.0		100	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2605-4		YYR	8.0		200	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2605-5		YYR	8.0		300	20	1.3	5.0 A	50		1.0*/12*		25	-	
★ MCR2605-6		YYR	8.0		400	20	1.3	5.0 A	100		1.0*/12*		25	-	
★ MCR2605-7		YYR	5.0		500	50	-	-	100		1.0*/15*		60	-	
★ MCR2605-8		YYR	5.0		600	50	-	-	100		1.0*/15*		60	-	
★ MCR2614L1		YYR	8.0		25	40	1.6	5.0 A	80		1.0*/15*		60	-/87L	
★ MCR2614L2		YYR	8.0		50	40	1.6	5.0 A	80		1.0*/15*		60	-/87L	
★ MCR2614L3		YYR	8.0		100	40	1.6	5.0 A	80		1.0*/15*		60	-/87L	
★ MCR2614L4		YYR	8.0		200	40	1.6	5.0 A	80		1.0*/15*		50	-/876	
★ MCR2614L5		YYR	8.0		300	40	1.6	5.0 A	80		1.0*/15*		50	-/876	
★ MCR2614L6		YYR	8.0		400	40	1.6	5.0 A	80		1.0*/15*		50	-/876	
★ MCR3735-3		YYR	35		100	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3818-1	3	YYR	16		25	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-2	3	YYR	16		50	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-3	3	YYR	16		100	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-4	3	YYR	16		200	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-5	3	YYR	16		300	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-6	3	YYR	16		400	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-7	3	YYR	16		500	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3818-8	3	YYR	16		600	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3835-1	3	YYR	35		25	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-2	3	YYR	35		50	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-3	3	YYR	35		100	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-4	3	YYR	35		200	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-5	3	YYR	35		400	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-6	3	YYR	35		500	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-7	3	YYR	35		600	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3835-8	3	YYR	25		600	40	1.2	35 A	325		1.0*/15*		50	-/174	
★ MCR3918-1	3	YYR	16		25	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-2	3	YYR	16		50	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-3	3	YYR	16		100	40	1.2	20 A	240		1.0*/15*		50	-/174	
★ MCR3918-4	3	YYR	16		200	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-5	3	YYR	16		300	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-6	3	YYR	16		400	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-7	3	YYR	16		500	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3918-8	3	YYR	16		600	40	1.2	20 A	240		1.0*/15*		50	-/175	
★ MCR3935-1	3	YYR	35		25	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-2	3	YYR	35		50	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-3	3	YYR	35		200	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-4	3	YYR	35		400	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-5	3	YYR	35		600	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-6	3	YYR	35		800	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-7	3	YYR	35		1000	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MCR3935-8	3	YYR	25		600	40	1.2	35 A	325		1.0*/15*		50	-/175	
★ MPT20	3	YXB		16	24	100								/182	
★ MPT28	3	YXB		24	32	50								/182	
★ MPT32	3	YXB		28	36	50								/182	
★ MUS4987	3	YXR		6.0	10.0	500	1.5		6.0	10			1.5	92/29	
★ MUS4988	3	YXR		7.5	9.0	150	1.5		6.0	10			0.5	92/29	
★ M4L3052		YXR		8.0	10								1.0	7/51	
★ M4L3053		YXR		9.0	11								1.0	7/51	
★ M4L3054		YXR		10	12		1.5	.15					1.0	7/51	

2N...3N...and 4N...JEDEC Registered Devices and Motorola Non-Registered Devices



Index

Master 2N... Number Index and Short-form Specifications
(also 3N... and 4N... numbers)

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TABLE 7 - JUNCTION TRANSISTORS

A master numerical index for all registered 2N. . . , 3N. . . , and 4N. . . , type numbers. In addition, short-form specifications for both registered and Motorola non-registered junction (bipolar) transistors are provided. Specifications for other discrete semiconductor devices are shown in other tables. See the complete index on Page 3-1.

In this table, to facilitate comparison, non-conforming specifications have been converted to conform to those chosen. Conversion methods and preference of characteristics are indicated in the key. Some columns show 2 different types of data indicated by either **bold** or *italic* typefaces. See key and headings.

TYPE NO.	REPLACEMENT VOL.	ID	PD Watts	VCE-Volts Ref. Point	IC Amp Subscript Max	hFE @ IC Min	IC Unit	fT MHz Min	Sub	Cob pF Max	Pout Watts Min Max	ΔVBE mV Min Max	Gp dB Min Max	NF dB Min Max	f @ IC & IC dB Min Max	PACKAGE To-Case No. Case No.
Alphanumeric listing type numbers ★Available from Motorola D-Discontinued type not available from any manufacturer																JEDEC Outline/ Motorola Package Outline
Type number of recommended replacement or of nearest electrical equivalent																
Data Library Volume where complete specifications are located.																
<p>Identification Code</p> <p>1st Letter: Material G—Germanium S—Silicon</p> <p>2nd Letter: Polarity C—both types in multiple device N—NPN P—PNP</p> <p>3rd Letter: Use A—General Purpose Amplifier C—Chopper E—Low Noise Audio Amplifier F—Low Noise RF Amplifier G—General Purpose Amplifier and Switch H—Tuned RF/IF Amplifier I—Current Mode Switch L—Light Sensitive M—Differential Amplifier O—Oscillator P—Power Amplifier, Tuned RF S—High Speed Switch V—Avalanche Mode Switch X—Mixer</p> <p>Other Codes FET—Field-Effect Transistor OPT—Optoelectronic Device R-A—Reference Amplifier UJT—Unijunction Transistor</p> <p>ID Codes for multiple devices are shown in bold face type.</p>																
Power Dissipation—Normally specified at 25°C but occasionally specified at higher temps. Multiple devices show a single die rating. Ref. Point: A—Ambient temperature C—Case temperature																
Common-emitter DC Current Gain. When not specified hfe (ac gain) is shown or hFE is calculated from: hFB, common base dc gain, hfb, common base ac gain, or from the IC and IB values used for a saturation voltage test. Units for test current: A—ampere m—mA u—µA																
Current-Gain-Bandwidth Product. When specified, indicated by T. When fT is not specified, the actual specification is indicated by a letter code and fT is computed as follows: B: fab, fT = fab x 0.8 E: fae, fT = fae x (hFE or hfe) min M: fmax is shown as specified																
Continuous (DC) Collector Current																
Rated maximum Collector-Emitter Voltage. Subscript letter identifies base termination listed below in order of preference. SUBSCRIPT: O—VCEO, open R—VCER, resistance only X—VCEX, reverse bias and resistance V—VCEV, reverse bias only S—VCES, shorted U—VCE, unidentified B—VCBO, Collector-Base Voltage, emitter open																
<p>Output Capacitance, common-base. Shown without distinction: Ccb — Collector-Base Capacitance Cre — Common-Emitter Reverse Transfer Capacitance</p>																
<p>Frequency Units: H—Hertz K—kHz M—MHz G—GHz</p> <p>VCE(sat) — Collector-Emitter Saturation Voltage IC — Test Current Current Units: u—µA m—mA A—Amp</p> <p>Pout — Output Power — RF Power Amplifiers ΔVBE — Differential Base Voltage (VBE1 — VBE2) — Differential Amplifiers ton — turn-on time toff — turn-off time</p>																

* Denotes Typical

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp	hFE Min	I _C Unit	f _T MHz	Sub	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	Gp dB	NF @ f dB	Unit	PACKAGE To-Case No. No.
D 2N21			GPA	0.12 A	100 B		0.02											
D 2N22			GPA	0.145 A	100 O		0.02											
D 2N23			GPA	0.105 A	50 O		0.04											
D 2N24			GPA	0.145 A	30 O		0.02											
O 2N25			GPA	0.2 A	50 O		0.02				2.4 B							
D 2N26			GPA	0.09 A	40 O		0.04											
D 2N27			GNE	0.05 A	35 B			19	1.0 m		0.8 B					30		
D 2N28			GNE	0.05 A	30 B			16	0.5 m		0.4 B					30		
D 2N29			GNE	0.05 A	35 B			24	1.0 m		0.8 B					30		
D 2N30			GPA	0.1 A	35 B		0.07											
D 2N31			GPA	0.1 A	35 B		0.07				2.4 B							
D 2N32			GPA	0.05 A	40 B		0.08				2.2 B					21		
D 2N32A			GPA	0.05 A	40 B													
D 2N33			GPA	0.03 A	8 B		0.07											
D 2N34	2N1191		GPA	0.05 A	25 B		0.08											
2N34A			GPA	0.05 A	25 B		0.08											
2N35			GPA	0.05 A	25 B		0.08											
2N35A			GNA															
2N36	2N1191		GPA	0.05 A	20 V										40			
2N37	2N1191		GPA	0.05 A	20 V										36			
2N38	2N1191		GPA	0.05 A	20 V										32			
O 2N38A			GPA	0.05 A	20		0.08								34			
2N43A	2N525		GPE	240 A	30 O	0.3		34	20 m		0.4 B				20	1000 H		
2N44	2N524		GPE	240 A	30 O	0.3		18	20 m		0.4 B				15	1000 H		
2N45	2N524		GPA	240 A	30 O	0.3		18	20 m		0.4 B					1000 H		
D 2N46			GPA	0.05 A	25 B													
D 2N47	2N1191		GPE	0.05 A	35 B		0.02	39	1.0 m							25	1000 H	
D 2N48			GPE	0.05 A	35 B		0.02	32	1.0 m							25	1000 H	
D 2N49	2N1191		GPE	0.05 A	35 B		0.02	39								15	1000 H	
O 2N50			GA	0.05 A	15 B		0.01								20			
D 2N51			GA	0.1 A	50 B		0.08								20			
D 2N52			GA	0.12 A	50 B		0.08								20			
D 2N53			GA	0.1 A	50 B		0.08								20			
D 2N54	2N1191		GPA	0.2 A	45 B		0.01	19	1.0 m									
D 2N55	2N1191		GPA	0.2 A	45 B		0.01	12	1.0 m									
D 2N56	2N1191		GPA	0.2 A	45 B		0.01	9	1.0 m									
D 2N57			GPA	20 C	60 B		0.8											
2N59	2N1193		GPA	180 A	25 O	0.2									30			
2N59A	2N1193		GPA	180 A	40 C	0.2									30			
2N59B	2N1193		GPA	180 A	50 O	0.2									30			
2N59C	2N1193		GPA	180 A	60 O	0.2									30			
2N60	2N1193		GPA	180 A	25 O	0.2									28			
2N60A	2N1193		GPA	180 A	40 O	0.2									28			
2N60B	2N1193		GPA	180 A	50 O	0.2									28			
2N60C	2N1193		GPA	180 A	60 O	0.2									28			
2N61	2N1192		GPA	180 A	25 O	0.2									26			
2N61A	2N1191		GPA	180 A	40 O	0.2									26			
2N61B	2N1191		GPA	180 A	50 O	0.2									26			
2N61C	2N1191		GPA	180 A	60 O	0.2									26			
D 2N62	2N1191		GPA	0.050	35 B		0.02											
2N63	2N1191		GPA	102 A	44 S	0.01												
2N64	2N1191		GPA	102 A	30 S	0.01												
2N65	2N1193		GPA	102 A	24 S	0.01												
D 2N66			GPA	27.5 C	40	0.8									22	1000 H		
D 2N67			GCA	0.1 A	50 B										20	1000 H		
D 2N68			GPA	2.0 A	25 B													
D 2N71			GPA	1.0 A	50 U		0.25											
D 2N72			GPA	0.50 A	40 B													
D 2N73			GPC	0.2 A	50 U		0.15											
D 2N74			GPA	0.2 A	50 U		0.05											
D 2N75			GPA	0.2 A	20 U													
D 2N76	2N319		GPA	0.05 J	20 B		0.01				0.4 B							
2N77	2N1191		GPA	0.35 A	25 B		0.15											
2N78			GNA	0.65 A	15 O	0.02		45	1.0 m		4.0 B				29	1000 H		
2N78A			GNA	0.65 A	15 O	0.02		45	1.0 m		4.0 B							
D 2N79	2N1191		GPA	0.35 A	35 B													
D 2N80			GPA	0.05 A	25 U		0.08											
D 2N81	2N1191		GPE	0.05 A	20 O		0.15	20	1.0 m							25		
D 2N82	2N1191		GPE	0.05 A	20 O		0.15	20	1.0 m							25		
2N94			GNA	0.03 A	20 B		0.05	20	1.0 m		1.6 B							



2N94A-2N156

TYPE NO.	REPLACEMENT	VOL.	ID	PD		VCE- Rel. Point	Subscript	IC Amp Max	hFE @ IC		fT MHz Min	Sub	Cob pF Max	Pout		ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.				
				Watts	A				Min	Max				Min	Max						Min	Max	Min	Max	ns	ns	VCE (sat) Volts @ IB	IC & IC
D 2N94A 2N95 2N96 2N97 2N97A			GNA GNA GPA GNE GNE	0.03 2.5 .050 .050 .050	A A A A A	20 25 30 30 40	B B B B B	.005 1.5 0.02 0.01 0.01	20	1.0	m									1000 H				
D 2N98 2N98A 2N99 D 2N100 D 2N101			GNE GNE GNE GNE GPA	.050 .050 .050 .025 1.0	A A A A A	40 40 40 25 25	B B B B B	0.01 0.01 0.01 .005 1.5	19 24 19 99	1.0 1.0 1.0 1.0	m m m m			25 25 20 20	200/300 200/300 200/300 200/300			20 25 25 30						
D 2N102 2N103 2N104 2N105 2N106	2N650		GNA GNE GPE GPA GPE	1.0 .050 150 .035 102	A A A A A	25 35 30 30 6	B B B B U	1.5 1.5 0.05 .015 0.01												22 12				
2N107 2N108 2N109 D 2N110 2N111	2N464 2N1192		GPA GPA GPA GPA GPE	.050 0.05 165 0.2 150	A A A A A	6 0 25 50 15	B B D B B	0.01 0.15 0.15 0.04 0.2		65	50	m					15 25			50 18	m m	40/		
2N111A 2N112 2N112A 2N113 2N114			GPA GPE GPA GPA GPA	150 150 150 0.96 0.96	A A A A A	15 15 15 10 10	B B B B B	0.2 0.2 .215 0.005 0.005	15 15	1.0 1.0 1.0	m m m							25						
D 2N115 2N117 2N118 2N118A 2N119			GPA SNA SNA SNA SNA	.50 150 150 150 150	C C C C C	32 30 30 45 30	R B B B B	.125 0.25 0.25 0.25 0.25			30	m									0.8 1.6 1.6	B B B		
2N120 2N122 2N123 2N124 2N125			SNA SNA GPA GNA GNA	.150 8.75 0.05 0.05 0.05	C C C A A	45 120 15 10 10	B B B B B	.125 0.08 0.08 0.008 0.008	76 3	100	m											4.0 0.3 5.0 5.0	B T T T	
D 2N126 2N127 2N128 2N129 2N130	2N1191		GNA GNE GPE GPE GPA	0.05 0.05 0.03 0.03 0.85	A A A A A	10 10 10 44 44	B B B B B	.008 0.008 0.005 0.005 0.01	48 100	5.0 5.0	m m											5.0 5.0 45 30	T T M M	
2N130A 2N131 2N131A 2N132 2N132A	2N650 2N1192 2N651 2N1192 2N651		GPA GPA GPA GPA GPA	0.1 0.85 0.1 0.85 0.1	A A A A A	40 30 30 24 20	B B B B B	0.1 0.01 0.2 0.01																
2N133 2N133A 2N135 2N136 2N137	2N1192 2N651		GPA GPA GPA GPA GPA	0.85 0.1 0.1 0.1 0.1	A A A A A	30 20 12 12 6	B B R R R	0.01														3.6 5.2 8.0	B B B	
D 2N138 D 2N138A D 2N138B 2N139 2N140			GPA GPA GPA GPA GPA	0.05 0.15 0.1 0.35 0.35	A A A A A	24 30 30 16 16	B B D B B	0.02 0.1 0.1 .015 .015	10	50	m													
D 2N141 D 2N142 D 2N143 D 2N144 2N145			GPA GNA GPA GNA GNA	1.5 1.5 1.0 1.0 0.65	A A A A A	30 30 30 30 20	B B B B U	0.8 0.8 0.8 0.8 0.005	11	25	A													
2N146 2N147 D 2N148 D 2N148A D 2N149			GNA GNA GNA GNA GNA	.065 .065 .065 .065 .065	A A A A A	20 20 16 32 16	U U U U U	.005 .005 .005 .005 .005																
D 2N149A D 2N150 D 2N150A 2N155 2N156	2N3611 2N3611		GNA GNA GNA GPA GPA	.065 .065 .065 .85 8.5	A A A A A	32 16 32 30 30	U U U B B	.005 .005 .005 3.0 3.0	24 24	0.5 0.5	A A											65 .6		
																							.5 1.0	A A

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE-Volts	Subscript	IC Amp Max	hFE Min	IC @	Unit	ft MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To- Case No. No.
D 2N157 D 2N157A 2N158 2N158A 2N160	2N3615 2N3616 2N3615 2N2141		GPA GPA GPA GPA SNA	1.5 A 1.5 A 8.5 A 1.5 A 0.15 A	60 B 90 B 60 B 60 B 40 B	3.0 3.0 3.0 3.0 .025		20 20 21 21 9	0.5 A 0.5 A 0.5 A 0.5 A	0.08 B 0.08 B 0.116 B 0.084 E							.75 .75		1.0 A 1.0 A	3/ 3/
2N160A 2N161 2N161A 2N162 2N162A	2N2221 2N2221		SNA SNA SNA SNA SNA	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	40 B 40 B 40 B 40 B 40 B	.025 .025 .025 .025 .025		9 19 19 19 19												
2N163 2N163A 2N166 2N167 2N167A	2N2221 2N2221		SNA SNA GNA GNA GNA	0.15 A 0.15 A 0.25 A 0.75 A 0.75 A	40 B 40 B 6.0 O 30 O 30 O	.025 .025 0.02 0.75 0.75		39 39			4.0 B 4.0 B									
2N168 2N168A 2N169 2N169A 2N170			GNA GNA GNA GNA GNA	0.55 A 0.65 A 0.55 A 0.55 A 0.25 A	15 O 15 O 15 O 25 O 6 D	0.02 0.02 0.02 0.02 0.02											28 28 21 25			
★ 2N172 ★ 2N173 ★ 2N174 2N174A 2N175	2N1192	1 1	GNA GPG GPG GPG GPA	0.65 A 170 C 100 C 100 C 0.05 A	16 U 50 S 70 S 70 S 10 B	.005 15 0.02		35 25 40	5.0 A 5.0 A 1.2 A	0.08 B				15K/15K 152/15K 15K/15K		1.0 .9 .7		12 A 12 A 12 A	36/5 36/5	
★ 2N176 ★ 2N178 D 2N179 2N180 2N181	2N3611 2N1192 2N1192	1 1	GPA GPA GPA GPA GPA	90 C 10 C 0.3 C 0.15 A 0.25 A	30 R 30 R 30 B 30 B 30 B	3.0 3.0 0.06		25 15	0.5 A 0.5 A	0.1 E 0.175 E							34 28 32		1000 H 1000 H	3/
2N182 2N183 2N184 2N185 2N186	2N650 2N1191		GNA GNA GNA GPA GPA	0.1 A 0.1 A 0.1 A 150 A 0.75 A	25 B 25 B 25 B 20 B 25 R	.150 0.2					0.64 B									
2N186A 2N187 2N187A 2N188 2N188A	2N1191 2N1191 2N1191 2N1191 2N1191		GPA GPA GPA GPA GPA	0.18 A 0.75 A 0.18 A 0.75 A 0.18 A	25 R 25 R 25 R 25 R 25 R	0.2 0.2 0.2 0.2 0.2					0.64 B 0.8 B 0.8 B 0.96 B 0.96 B									
2N189 2N190 2N191 2N192 2N193	2N1191 2N1191 2N1192 2N1192 2N1193		GPA GPA GPA GPA GNA	0.75 A 0.75 A 0.75 A 0.75 A 0.15 A	25 R 25 R 25 R 25 R 18 R	0.05 0.05 0.05 0.05 0.1		10	1.0 m		1.6 B 1.6 B				15		1.0		1.0 A	22/
2N194 2N194A 2N206 2N207 2N207A	2N1191 2N1193		GNE GNA GPA GPE GPE	0.05 A 0.05 A 0.75 A 0.05 A 0.05 A	15 R 20 R 30 B 12 V 12 V	0.02 0.02					1.6 B 1.6 B						15 15 10	20		
2N207B 2N211 2N211U 2N212 2N213	2N1190 2N5631		GPE GNA SNG GNA GNA	0.05 A 0.05 A 250 C 0.15 A 0.05 A	12 V 10 R 150 V 18 R 25 R	0.02 0.1		10 10 80	10 A 1.0 m 1.0 m	2.0M E 3.2 B 2.4 B				20K/25K			6		100 m	22/
2N213A 2N214 2N215 2N216 2N217	2N1189 2N1192		GNA GNA GPA GNA GPA	0.18 A 0.125 A 0.15 A 0.05 A 0.15 A	25 R 40 B 30 B 15 U 25 D	0.1		50	35 m	0.48 B 1.6 B				10		1.0		100 m		
2N218 2N219 2N220 2N223 2N224	2N1189 2N1193 2N1192		GPA GPA GPA GPA GPA	0.35 A 0.35 A 0.02 A 0.1 A 0.25 A	16 B 16 B 10 B 18 V 25 B	.015 .015 .002 0.15 0.15		60	100 m								.25		100 m	
2N225 2N226 2N227 2N228 2N229	2N1193 2N1192 2N1192		GPA GPA GPA GPA GNA	0.25 A 0.25 A 0.25 A 0.05 A 0.05 A	25 B 30 B 30 B 25 U 12 U	0.15 0.15 0.15 0.04		60 35 35 50	100 m 100 m 100 m 35 m		0.48 B 0.44 B					.25 .25 .25		100 m 100 m 100 m		



2N230-2N291

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Substr.	IC Amp Max	hFE Min	IC Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	f MHz Max	Unit	PACKAGE To- Case No. No.
D 2N230 2N231			GPA	15 C	30 U		2.0	60	0.5 A	0.72 E					8			2.0 A	
D 2N232 2N233 2N233A			GPA GNA GNA	.009 A 0.05 A 0.05 A	4 V 10 B 10 B					30M M 20M M									
D 2N234 2N234A	2N3611		GPA	25 C	25 R		3.0												
D 2N235 2N235A 2N235B	2N3611		GPA GPA GPA	25 C 25 C 30 C	40 U 40 U 35 R		3.0 3.0 3.0								8 8 8		1.0 A 1.0 A 1.0 A		
D 2N236 2N236A 2N236B	2N3612		GPA GPA	25 C 35	35 R 35 R		3.0 0.02	40	75 A						1.0 1.0 1.0		3.0 A 3.0 A 3.0 A		
2N237 2N238	2N1192		GPE GPA	0.15 A 0.05 A	45 B 20 B					0.05 E 0.4 B					42	10	1000 H		
2N240 2N241 2N241A	2N321		GPA GPA GPA	.025 A 0.1 A 0.18 A	6 S 25 R 25 R		.015 0.2 0.2			25 T 1.04 B 1.04 B					1		80 m		
★ 2N242 2N243	2N321	1	GPA SNA	2.0 C 0.75 C	45 R 60 B		5.0	30	500 m	0.15 E									3/
D 2N244 2N247			SNA GPA	0.75 C 0.08 A	60 B 40 B														
D 2N248 2N249 2N250	2N3611		GPA GPA	0.35 A 12 C	25 B 30 B		0.2 2.0	30	500 m	0.24 E									
2N250A 2N251 2N251A	2N3611 2N3612		GPA GPA	90 C 12 C	35 V 60 B		7.0 2.0	25 30	3.0 A 500 m	0.2 T 0.24 E									3/
2N252 2N253	2N3616		GPA GNA	90 C .065 C	55 V 16 O		7.0 .005	25	3.0 A	0.2 T									3/
2N254 2N255 2N255A			GNA GPA	.065 C 1.5 A	20 O 15 B		3.0 4.0												3/
2N256 2N256A	2N3611 2N178		GPA GPA	1.5 A 20 C	30 B 25 R		3.0 4.0												3/
D 2N257 2N258			GPA SPE	25 C 0.25 A	40 B 30 O		0.05 0.05												
D 2N259 2N260 2N260A			SPE SPA SPA	0.25 A 0.2 A 0.2 A	30 O 10 B 30 B		0.05 0.05 0.05					40 40			25 25		1000 H 1000 H		
D 2N261 2N262			SPA SPA	0.2 A 0.2 A	75 B 10 B		0.05 0.05												
D 2N262A 2N263 2N264			SPA SNA SNA	0.2 A 0.15 A .125 A	30 B 30 D 30 O		0.05 0.02 0.02	45 20	10 m 10 m	16 B 8.0 B				1.5 1.5		10 m 10 m			
D 2N265 2N266	2N1175		GPA GPA	0.75 A 0.75 A	25 R 18 R		0.05 0.2			1.2 B 0.64 B									
D 2N267 2N268 2N268A	2N3615		GPA GPA GPA	0.08 A 25 C 10 C	85 B 85 B 60 V			20	2.0 A										
2N269 2N270 2N271 2N271A 2N272	2N1193		GPA GPA GPA GPA GPA	0.12 A 0.15 A 0.15 A 0.15 A 0.15 A	24 O 25 B 10 O 10 O 24 D		0.1 .075 0.2 0.2 0.1												
2N273 2N274			GPA GPA	0.15 A 0.12 A	25 S 40 D		0.1 0.1	30 20	50 m 15 m										
★ 2N277 ★ 2N278 2N279	2N650	1	GPA GPA GPA	70 C 70 C .125 A	40 S 45 S 20 O		0.01 0.01 0.01	35 35	5.0 A 5.0 A					1.0		12 A		36/5 36/5	
2N280 2N281 2N282 2N283 2N284	2N650 2N651 2N651 2N650		GPA GPA GPA GPA GPA	125 A 167 C .167 C 125 A 125 A	20 D 16 R 16 R 20 B 32 B		0.01 0.05 0.05 0.01 .125	45 15		0.28 B 0.28 B									
D 2N284A 2N285 2N285A	2N3617		GPA GPA GPA	125 A 25 C 25 C	60 B 35 R 35 R		.125	15		0.28 B					5		1.0 A		
D 2N290 2N291	2N1191		GPA GPA	55 C 180 A	70 B 25 B		12												

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	Vce Volts	Ic Amp	hFE @ Min	Ic Unit	fT MHz	Sub.	Cob pf	Pout Watts	ΔVBE mV	Gp dB	NF @ dB	f	Unit	PACKAGE To-Case No. No.
2N292 2N293 2N296 2N297 ★ 2N297A	2N3615 2N297A	1	GNA GNA GPA GPA GPA	065 A 065 A 20 C 35 C 35 C	15 0 15 0 60 B 50 S 50 S	0.02 0.02 2.0 5.0 5.0	6 6 19 40 40							1.0 1.0 1.0		1.0 A 2.0 A 2.0 A		3/
D 2N299 D 2N300 2N301 2N301A 2N302			GPA GPA GPA GPA GPA	0.02 A 0.02 A 11 C 11 C 0.15 A	4 V 4 V 40 B 60 B 10 D			70 70	1.0 A 1.0 A		90 M 85 M							3/ 3/
★ 2N303 ★ 2N306 ★ 2N307 ★ 2N307A 2N308		1 1	GPA GNA GPA GPA GPA	0.15 A 0.05 A 25 C 25 C 0.03 A	10 0 15 R 35 R 35 R 20 0		1.0 2.0	20 20	0.2 A 0.2 A					5 1.0 8		.1 A .2 A 1.0 A		3/ 3/
2N309 2N311 2N312 2N315			GPA GPA GNA GPA	0.03 A 0.75 A 0.75 A 0.1 A	20 0 15 0 15 0 15 0			25 25 15	10 m 10 m 100 m					.07 .07 .15		10 m 10 m 100 m		
D 2N315A 2N315B 2N316 2N316A 2N317			GPA GPS GPA GPS GPA	0.15 A 0.15 A 0.1 A 0.15 A 0.1 A	20 0 20 0 10 0 15 0 6 0	0.5 0.5 0.5 0.5		20 20 20 20	100 m 100 m 200 m 200 m 400 m		1.2/1.6 0.7/0.15			.15 .18 .18 .2		100 m 200 m 200 m 400 m		5/ 5/ 5/
★ 2N317A ★ 2N318 ★ 2N319 ★ 2N320 ★ 2N321 ★ 2N322		1 1 1 1 1	GPS OPT GPA GPA GPA GPA	0.15 A Table 10 225 A 225 A 225 A 0.14 A	10 0 20 R 20 R 20 R 18 R		0.5 0.5 0.5 0.5	25 34 53 34	20 m 20 m 20 m 20 m			35 35 35 35		0.6/0.12		400 m		5/ 5/31 5/31 5/31 5/31
★ 2N323 ★ 2N324 D 2N325 2N326 D 2N327	2N3611 2N2906	1 1	GPA GPA GPA GNA SPA	0.14 A 0.14 A 12 C 7.0 C 0.35 A	18 R 18 R 35 S 35 S 50 B	0.5 0.5		53 72 30 30	20 m 20 m 500 m 500 m	1.2 B 1.6 B 0.12 B 0.12 B	35 35			6 6		500 m 500 m		5/31 5/31
2N327A 2N327B D 2N328 2N328A 2N328B	2N2906 2N2906		SPA SPA SPA SPA SPA	385 A 385 A 0.35 A 385 A 385 A	40 0 40 D 35 B 35 0 35 0	0.1 0.05		9 9 18 18	3.0 m 3.0 m 3.0 m 3.0 m					.3 .3 .5 .5		5.0 m 5.0 m 10 m 10 m		
D 2N329 2N329A 2N329B D 2N330 2N330A	2N2906		SPA SPA SPA SPA SPA	0.35 A 385 A 385 A 0.35 A 385 A	30 B 30 0 30 D 45 B 30 0	0.05 0.1 0.05		36 36	3.0 m 3.0 m					.6 .6		15 m 15 m		
★ 2N331 2N332 2N332A 2N333 2N333A	2N2221 2N2218 2N2221 2N2221	1	GPE SNA SNE SNA SNE	0.2 A 0.15 A 0.5 A 0.15 A 0.5 A	40 0 45 B 45 D 45 B 45 D	0.01 0.25		20 9 18	1.5 m		50			11 11	20 30 30	1000 H 5000 H 5000 H		5/31 5/ 5/
2N334 2N334A 2N334B 2N335 2N335A	2N2221 2N2218 2N2218 2N2221 2N2218		SNA SNE SNE SNA SNE	0.15 A 0.5 A 0.5 A 0.15 A 0.5 A	45 B 45 D 60 0 45 B 45 D	0.25 0.25		18 15 36		1.0 m	15 15			12 12	30 30	5000 H		5/ 5/ 5/
2N335B 2N336 2N336A 2N337 2N337A	2N2218 2N2221 2N2218 2N2221 2N2218		SNA SNA SNE SNA SNA	0.5 A 0.15 A 0.5 A 125 C 0.5 A	60 0 45 B 45 0 45 B 45 B	0.25 0.02		28 76 20 20	1.0 m 1.0 m	2.0 B 2.0 B 8.0 B 12 B	15 15		12 12	30 30			5/ 5/ 5/ 5/	
2N338 2N338A 2N339 2N339A 2N340	2N2221 2N2218		SNA SNA SNA SNA SNA	125 C 0.5 A 1.0 C 3.0 A 1.0 C	45 B 45 B 55 0 60 0 85 D	0.02 0.15		45 45 20	10 m 10 m	16 B 20 B								5/ 11/
2N340A 2N341 2N341A 2N342 2N342A			SNA SNA SNA SNA SNA	3.0 A 1.0 C 3.0 A 1.0 C 1.0 C	85 D 85 0 125 D 60 0 85 0	0.15 0.06 0.05 0.06		20 9 9	1.5 m 5 m	10 T 10 T	50 50							11/ 11/ 11/ 11/

2N342B-2N400

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	hFE Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ dB	f MHz	Unit	PACKAGE To-Case No. No.
2N342B 2N343 2N343A 2N343B 2N344			SNA SNA SNA SNA GPA	1.0 C 1.0 C 1.0 C 1.0 C 0.02 A	85 O 60 O 60 O 65 O 5 V	0.06 0.06 0.06 0.06 0.005	28 28	m 5 m 5 m									11/ 11/ 11/ 11/ 11/
2N345 2N346 2N350 2N350A 2N351		1	GPA GPA GPA GPA GPA	0.02 A 0.02 A 10 C 90 C 10 C	5 V 5 V 30 S 40 S 30 S	0.005 0.005 3.0 4.0 3.0	20 20 20 25	700 m 0.7 A 700 m					30	1000 H			3/
2N351A 2N352 2N353 2N354 2N355	2N3615 2N3615 2N2906 2N2906	1	GPA GPA GPA SPA SPA	90 C 25 C 30 C 0.15 A 0.15 A	40 S 40 R 40 R 25 U 10 U	2.0 2.0 2.0 0.05 0.05	25 30 40	0.7 A 1.0 A 1.0 A	0.125 E 0.3 E 0.28 E 8.0 M 8.0 M				32	1000 H			3/
2N356 2N356A 2N357 2N357A 2N358			GNA GNG GNA GNG GNA	0.1 A 0.15 A 0.1 A 0.15 A 0.1 A	18 O 20 O 15 O 20 O 12 O	0.5 0.5	20 20 20 25 20	100 m 100 m 200 m 200 m 300 m		2.1K/1.7K 0.8K/14K		2 2 2 2 2	100 m 100 m 200 m 200 m 300 m				5/ 5/ 5/ 5/ 5/
2N358A 2N359 2N360 2N361 2N362	2N1192 2N1191 2N1192		GNG GPA GPA GPA GPA	0.15 A 0.17 A 0.17 A 0.17 A 0.17 A	15 O 18 R 30 R 30 R 18 O	0.4 0.4 0.4 0.2	25 100 50 25	300 m 50 m 50 m 50 m		0.8K/14K		2	300 m				5/ 5/ 5/ 5/ 5/
2N363 2N364 2N365 2N366 2N367	2N1192 2N1191		GPA GNA GNA GNA GPA	0.17 A 0.15 A 0.15 A 0.15 A 0.1 A	28 O 30 B 30 B 30 B 30 B	0.2							0.8 B 0.8 B 0.8 B 0.24 B				5/
2N368 2N369 2N370 2N371 2N372	2N1191 2N1191 2N3324 2N3324 2N3324		GPA GPA GPA GPA GPA	0.1 A 0.1 A 0.08 A 0.08 A 0.08 A	30 B 30 B 24 B 24 B 24 B								0.32 B 0.4 B				
2N373 2N374 2N375 2N376 2N376A	2N3325	1 1 1 1	GPA GPA GPA GPA GPA	0.08 A 0.08 A 58 C 10 A 90 C	25 B 25 B 60 S 40 O 40 S	3.0 3.0	35 35 35	1.0 A 700 m 0.7 A	0.245 E 0.175 E				1.0 34	2.0 A 1000 H			3/11 3/11
2N377 2N377A 2N378 2N379 2N380		1 1 1 1	GNA GNA GPA GPA GPA	0.15 A 0.15 A 50 C 50 C 50 C	20 V 40 V 20 B 40 B 30 B	0.2 5.0 5.0 5.0	20 20 40 20 30	30 m 30 m 2.0 A 2.0 A 2.0 A	4.0 B 0.2 E 0.1 E 0.150 E				5 1.0 1.0 1.0	200 m 2.0 A 2.0 A 2.0 A			5/ 3/ 3/ 3/
2N381 2N382 2N383 2N384 2N385	2N3325	1 1 1	GPA GPA GPA GPA GNA	0.2 A 0.2 A 0.2 A 0.12 A 0.15 A	25 R 25 R 25 R 40 O 25 R	0.4 0.4 0.4	35 60 75	20 m 20 m 20 m									5/31 5/31 5/31
2N385A 2N386 2N387 2N388 2N388A			GNA GPA GPA GNA GNA	0.15 A 0.5 C 0.5 C 0.15 A 0.15 A	40 V 60 V 80 V 20 R 40 V	0.2 3.0 3.0 0.2	30 20 70 60 60	30 m 30 m 2.5 A 30 m 30 m	3.2 B 0.14 E 0.12 E 4.0 B 4.0 B	20							5/
2N389 2N389A 2N392 2N393 2N394	2N5068 2N5068 2N3614 2N967		SNA SNA GPA GPA GPA	85 C 85 C 48 C 6 S 6.5 A	60 R 60 R 40 R 6 S 10 O	3.0 5.0 0.5 0.2	12 12 60 20 20	1.0 A 1.0 A 3.0 A 50 m 10 m	1.0 T 1.0 T 25 T 3.2 B				5 0.7	3.0 A 8.0 m			
2N394A 2N395 2N396 2N396A 2N397			GPA GPA GPA GPA GPA	0.15 A 0.2 A 0.2 A 0.2 A 0.2 A	30 O 15 R 20 R 20 O 15 R	0.2 0.2 0.2 0.2 0.2	30 20 30 30 40	10 m 10 m 10 m 10 m 10 m	3.2 B 2.4 B 4.0 B 4.0 B 8.0 B	20 20			2 2 2 2	50 m 50 m 50 m 50 m			5/ 5/ 5/
2N398 2N398A 2N398B 2N399 2N400	2N2043 2N1536 2N1536	1 1	GPA GPA GPA GPA GPA	0.05 A 0.15 A 0.25 A 25 C 25 C	105 S 105 S 105 S 35 R 20 O	0.2 0.2 0.2 3.0	20 20 70 40	5.0 m 5.0 m 5.0 m 0.8 B 0.5 A					1.0 8	1.2 A 1.0 A			5/31 5/31 5/31 3/

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	hFE @		I _C Unit	f _T MHz	Sub	C _{ob} pF Max	P _{out} Watts	ΔV _{BE} mV Max	Gp dB Min	NF @ f _{dB} Max	f	Unit	PACKAGE To-Case No. No.
								Min	Max											
2N401 2N402 2N403 2N404 2N404A	2N3611 2N1191 2N1191		GPA GPA GPA GPA GPA	25 C 0.18 A 0.18 A 0.15 A 0.15 A	35 R 20 O 20 O 25 B 35 O		0.2 0.01		30	12 m	3.2 B		20			1.0		1.2 A		92/ 92/
2N405 2N406 2N407 2N408 2N409	2N322 2N322 2N324 2N324 2N324		GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 0.15 A 0.08 A	71 B 71 B 71 B 71 B 71 B		.035 .035 0.07 0.07 0.15													
2N410 2N411 2N412 2N413 2N413A			GPA GPA GPA GPA GPA	0.08 A 0.08 A 0.08 A 0.15 A 0.15 A	71 B 71 B 71 B 18 O 15 O		.015 0.2													
2N414 2N414A 2N414B 2N414C 2N415			GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.2 A 0.2 A 0.15 A	15 O 15 O 24 V 24 V 10 O		0.2 0.4 0.2				3.2 B 3.2 B		14							5/31
2N415A 2N416 2N417 2N418 2N419		2N3616	GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 25 C 35 C	10 O 12 O 10 O 75 R 20 O		0.2 0.2 0.2 3.0	40 50	4.0 A 0.5 A						2.0 8			4.0 A 1.5 A		
2N420 2N420A 2N422 2N422A 2N424	2N3612 2N3616 2N651 2N5069 2N5069		GPA GPA GPA GPE SNA	25 C 25 C 0.15 A 175 A 85 C	40 R 65 R 20 O 20 O 80 R		0.2 0.2	40 40	4.0 A 4.0 A						2.0 2.0		6.0	4.0 A 4.0 A 10 K	3/ 5/	
2N424A 2N425 2N426 2N427 2N428			SNA GPA GPA GPA GPA	85 C 175 A 175 A 175 A 175 A	80 R 20 O 10 O 15 O 12 O		3.0 0.4 0.4 0.4 0.4	12 20 30 40 60	1.0 A		1.0 T 2.0 B 2.4 B 4.0 B 8.0 B				.32 .32 .32 .32			100 m 100 m 150 m 200 m		
2N428A 2N438 2N438A 2N439 2N439A			GPS GNA GNA GNA GNA	0.15 A 0.1 A 0.15 A 0.1 A 0.15 A	18 O 25 O 25 O 20 O 20 O			80 20 20 30 30	8.0 B 50 m 50 m 50 m 50 m		8.0 B 2.0 B 2.0 B 4.0 B 4.0 B		20	0.85/1.10	.32			.2 A	5/ 9/ 9/ 9/ 9/	
2N440 2N440A ★ 2N441 ★ 2N442 ★ 2N443		1 1 1	GNA GNA GPA GPA GPA	0.1 A 0.15 A 70 C 70 C 70 C	15 O 15 O 40 S 45 S 50 S		15 15 15	40 40 20 20	50 m 50 m 5.0 A 5.0 A 5.0 A		8.0 B 8.0 B				1.0			12 A	5/ 36/5 36/5	
2N444 2N444A 2N445 2N445A 2N446			GNA GNA GNA GNA GNA	0.1 A 0.15 A 0.1 A 0.15 A 0.1 A	15 O 25 O 12 O 18 O 10 O			20 40	20 m 20 m		0.4 B 0.4 B 0.4 B 1.6 B 4.0 B								36/5 5/ 5/	
2N446A 2N447 2N447A 2N447B 2N448		1	GNA GNA GNA GNA GNA	0.15 A 0.1 A 0.15 A 0.15 A 0.65 A	15 O 6 O 12 O 12 O 15 O			60 80 80 80	20 m 20 m 20 m 20 m 1.0 m		4.0 B 4.0 B 7.2 B 7.2 B								5/ 5/ 5/	
2N449 2N450 2N456 2N456B 2N457		2N456A	GNA GPA GPA GPA GPA	0.65 A 0.15 A 50 C 50 C 50 C	15 O 12 O 40 X 30 O 60 X		7.0	34 30 30	1.0 m 10 m 5.0 A		4.0 B				.2 1.0 5 1.0			10 m 5.0 A 5.0 A 5.0 A	3/ 3/ 3/	
★ 2N457A 2N457B 2N458 ★ 2N458A 2N458B		1 1 1	GPA GPA GPA GPA GPA	50 C 50 C 50 C 50 C 50 C	30 O 40 O 80 X 40 O 45 O		7.0 7.0 5.0 7.0 7.0	30 30 30 30	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A		0.2 T 0.2 T 0.2 T 0.2 T			.5 5 1.0 5 5			5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	3/ 3/ 3/ 3/ 3/		
★ 2N459 ★ 2N459A 2N460 ★ 2N461 D 2N462		1 1 1 1	GPA GPA GPA GPA GPA	50 C 106 C 0.2 A 0.2 A 0.15 A	60 B 60 O 35 R 35 R 40 B		5.0 5.0 0.4 0.4 0.2	20 40 16 32 20	2.0 A 2.0 A		0.1 E 0.2 E		2.0 20		1.0 .3			2.0 A 2.0 A	3/ 3/ 5/31 5/31	

2N463-2N518

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	hFE @ Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ dB	f Unit	PACKAGE To-Case No. No.
D 2N463 ★ 2N464 ★ 2N465 ★ 2N466 ★ 2N467	2N1551	1 1 1 1	GPA GPE GPE GPE	37.5 C 0.15 A 0.15 A 0.15 A	60 B 40 R 30 R 20 R	0.2 0.2 2 0.2	20	2.0 A	0.08 E					22 22 22 22	1000 H 1000 H 1000 H 1000 H	5/31 5/31 5/31 5/31
2N469 2N469A 2N470 2N471 2N471A	THRU 2N2221 2N2221 2N2221		OPT OPT SNA SNA SNE	Table 10 Table 10 0.2 A 0.2 A 0.2 A	15 0 30 0 30 0 30 0	0.025 0.025 0.025 0.025			8.0 T 8.0 T 8.0 T	10 10 8.0		1.5 1.5		5.0 m 5.0 m 1000 H	5/ 5/ 5/	
2N472 2N472A 2N473 2N474 2N474A	2N2221 2N2221 2N2221 2N2221 2N2221		SNA SNE SNA SNA SNE	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	45 0 45 0 15 0 30 0 30 0	0.025 0.025 0.025 0.025 0.025	10		8.0 T 8.0 T 8.0 T 8.0 T 8.0 T	10 8.0 8.0 8.0 8.0		1.5 1.5 1.5	30	5.0 m 1000 H 5.0 m 5.0 m 1000 H	5/ 5/ 5/ 5/ 5/	
2N475 2N475A 2N476 2N477 2N478	2N2221 2N2221 2N2221 2N2221 2N2221		SNA SNE SNA SNA SNA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	45 0 45 0 15 0 30 0 15 0	0.025 0.025 0.025 0.025 0.025	10		8.0 T 8.0 T 12 T 12 T 20 T	8.0 8.0 10 10		1.5 1.5 1.5 1.5	30	5.0 m 1000 H 5.0 m 5.0 m 5.0 m	5/ 5/ 5/ 5/ 5/	
2N479 2N479A 2N480 2N480A 2N481	2N2221 2N2221 2N2221 2N2221		SNA SNE SNA SNE GPA	0.2 A 0.2 A 0.2 A 0.2 A 0.15 A	30 0 30 0 45 0 45 0 12 0	0.025 0.025 0.5 0.5	10 20 35	100 u 100 u	20 T 20 T 20 T	8.0 8.0	0.8/10 0.8/5	1.5 1.5	30 8.0 30	5.0 m 1000 H 1000 H 1000 H	5/ 5/ 5/ 5/	
2N482 2N483 2N484 2N485 2N486			GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	12 0 12 0 12 0 12 0 12 0											
2N487 2N489 2N494C 2N495 2N496	THRU		GPA UJT UJT SPA SPA	0.1 A Table 8 Table 8 0.15 A 0.15 A	18 R 10 U 10 U	0.025 0.05 0.05	20 15	1.0 m 15 m	10 T 7.2 T	14			.15	5.0 m	5/	
2N497 2N497A 2N498 2N498A ★ 2N499	2N4238 2N4238 2N5681 2N5681	1	SNA SNA SNA SNA GPA	4.0 C 5.0 C 4.0 C 5.0 C 0.03 A	60 0 60 0 100 0 100 0 18 0	0.5 0.5 0.5 0.5	12 12 12 12	200 m 200 m 200 m 200 m	120 T	2.5					5/31 1/149	
★ 2N499A 2N500 2N501 2N501A ★ 2N502	2N3323	1	GPA GPA GPA GPA GPA	0.06 A 0.05 A 0.06 A 0.06 A 0.06 A	18 0 15 12 S 12 S 20 S	0.05 0.05 0.05 0.05	20 30	10 m 10 m	90 T 90 T 220 T	2.5		.2		10 m	30/ 30/ 9/	
★ 2N502A ★ 2N502B 2N503 2N504 2N506	2N3284 2N3323	1 1	GPE GPF GPA GPA GPA	0.75 A 0.75 A 0.025 A 0.03 A 0.05 A	30 S 30 S 20 S 25 S 40 B	0.05 0.05 0.05 0.05 0.1	20 25	10 m 50 m	168 T 50 M 0.48 B	1.6 1.6		10 11	7.0 7.0	200 M	5/31 9/ 9/ 1/	
2N507 ★ 2N508 ★ 2N508A D 2N509 2N511		1 1	GNA GPA GPE GPA GPA	0.05 A 0.2 A 0.2 A 0.25 A 150 C	40 B 18 R 30 S 30 B 30 0	0.05 0.5 0.2 0.2 25	25 99 100	50 m 20 m 20 m	0.48 B 2.0 B 2.0 B 400 T	35 35		2.0	5.0	3.0 A 1000 H	5/31 5/31	
2N511A 2N511B 2N512 2N512A 2N512B	2N1164 2N1166 2N1164 2N1164 2N1166		GPA GPA GPA GPA GPA	150 C 150 C 150 C 150 C 150 C	40 0 45 0 30 0 40 0 45 0	25 25 25 25 25	20 20 20 20 20	10 A 10 A 15 A 15 A 15 A	0.26 T 0.26 T 0.28 T 0.28 T 0.28 T			5 5 .75 .75 5		10 A 10 A 15 A 15 A 10 A		
2N513 2N513A 2N513B 2N514 2N514A	2N1163 2N1165 2N1167 2N1163 2N1165		GPA GPA GPA GPA GPA	150 C 150 C 150 C 80 C 80 C	30 0 40 0 45 0 30 0 40 0	25 25 25 25 25	20 20 20 20 20	20 A 20 A 20 A 25 A 25 A	0.3 T 0.3 T 0.3 T 0.43 T 0.43 T			1.2 1.2 5 1.2 1.2		20 A 20 A 10 A 25 A 25 A		
2N514B 2N515 2N516 2N517 2N518	2N1167		GPA GNA GNA GNA GPA	80 C 0.05 A 0.05 A 0.05 A 0.15 A	45 0 18 R 18 R 18 R 12 0	25 0.01 0.01 0.01 0.125	20 60	25 A 10 m	0.43 T 1.6 B 1.6 B 1.6 B 8.0 B			1.2		25 A		

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	hFE @ Min	I _C Unit	f _T MHz	Sub.	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	Gp dB	NF @ f	Unit	PACKAGE To-Case No. No.
2N519 2N519A 2N520 2N520A 2N521			GPA GPA GPA GPA GPA	0.1 A 0.15 A 0.1 A 0.15 A 0.1 A	15 0 18 0 12 0 15 0 10 0		20	20 m	0.4 B 0.4 B 2.4 B 1.6 B 6.4 B								5/31 5/31
2N521A 2N522 2N522A 2N523 2N523A			GPA GPA GPA GPA GPA	0.15 A 0.1 A 0.15 A 0.1 A 0.15 A	12 0 8.0 0 10 0 6.0 0 6.0 0		60	20 m	6.4 B 12 B 12 B 16.8 B 16.8 B								5/31 5/31 5/31 5/
★ 2N524 2N524A ★ 2N525 2N525A ★ 2N526		1	GPE GPE GPE GPE GPE	225 A 225 A 225 A 225 A 225 A	30 R 30 R 30 R 30 R 30 R	0.5 0.5 0.5 0.5 0.5	25	20 m	4.0 B 4.0 B 4.4 B 4.4 B 5.2 B	40 40 40 40 40			15 15 15 15 15	1000 H 1000 H 1000 H 1000 H 1000 H			5/31 5/ 5/31 5/ 5/31
★ 2N526A 2N527 2N527A D 2N528 2N529		1	GPE GPE GPA GPA GPA	225 A 225 A 225 A 2.5 C 0.1 A	30 R 30 R 30 R 40 15 0	0.5 0.5 0.5 1.0	53	20 m	5.2 B 7.2 B 7.2 B 0.5 A	40 40 40 40			15	1000 H 1000 H 1000 H			5/ 5/31 5/ 5/
2N530 2N531 2N532 2N533 D 2N534			GPA GPA GPA GPA GPA	0.1 A 0.1 A 0.1 A 0.1 A 0.25 A	15 0 15 0 15 0 15 0 50 U			0.25									
2N535 2N535A 2N535B 2N536 D 2N537	2N1192 2N1192 2N1193		GPA GPA GPA GPA GPA	0.05 A 0.05 A 0.05 A 0.05 A	20 U 20 U 20 U 20 U 30 B	0.02 0.02 0.02 0.03	100	30 m	0.8 B				10 5.0		1.3	10 m	
2N538 2N538A 2N539 2N539A 2N540	2N2140 2N2140 2N3616 2N3616 2N1551		GPA GPA GPA GPA GPA	34 C 34 C 34 C 11 C 34 C	60 60 55 55 55		20	2.0 A	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A				6 6 6 6 6		2.0 A 2.0 A 2.0 A 2.0 A 2.0 A		
2N540A 2N541 D 2N541A 2N542 2N542A	2N1551		GPA SNA SNA SNA SNE	34 C 0.2 A 0.2 A 0.2 A 0.2 A	55 15 U 15 0 30 U 30 0	0.25 0.25 0.25 0.25	45	2.0 A	2.0 A 10 T 8.0 T 10 T 10 T	20 20 20 20 8.0			6 1.5 1.5	30	2.0 A 5.0 m 5.0 m 1000 H	5/ 5/ 5/ 5/	
2N543 2N543A D 2N544 2N545 2N546	2N4238 2N4237		SNA SNE GPA SNA SNA	0.2 A 0.2 A 0.08 A 5 C 5 C	50 U 45 0 34 B 30 D 30 0	0.25 0.25 0.1 0.8 0.8	20	0.5 A 0.5 A	10 T 10 T	20 8.0			1.5 30	30	5.0 m 1000 H 5 A	5/ 5/ 5/	
2N547 2N548 2N549 2N550 2N551	2N4238 2N4237 2N4238 2N4237		SNA SNA SNA SNA SNA	5 C 5 C 5 C 5 C 5 C	60 0 30 0 60 0 30 0 60 0	0.8 0.8 0.8 0.8 0.2	20	0.5 A 0.5 A 0.2 A 0.2 A 50 m	4.0 T 4.0 T 4.0 T 4.0 T 3.0 T	100 100 100 100 100			3.0 4.0 4.0 4.0 2.0		5.0 m 2 A 2 A 2 A 50 m	5/ 5/ 5/ 5/ 5/	
★ 2N552 2N553 ★ 2N554 ★ 2N555 2N556		1	SNA GPA GPA GPA GNA	5 C 35 C 40 C 10 C 0.1 A	30 0 80 B 40 C 40 B 20 X	0.2 4.0 3.0 3.0 0.2	20	50 m 500 m	50 m 3.0 T	100			2.0 9 20 25 5		5.0 m 3.0 A 1000 H 1000 H 200 m	5/ 3/ 3/	
2N557 2N558 D 2N559 2N560 2N561			GNA GNA GPA SNA GPA	0.1 A 0.1 A 0.15 A 0.5 A 50 A	20 X 15 X 15 S 60 S 50 0	0.2 0.2 0.1 0.1 5.0	20	1.0 m 1.0 m 100 m 4.0 A					.5 .75 .3 .5		200 m 200 m 10 m 10 m		
2N563 2N564 2N565 2N566 2N567	2N650 2N650 2N651 2N651 2N651		GPA GPA GPA GPA GPA	0.15 A 0.12 A 0.15 A 0.12 A 0.15 A	25 0 25 0 25 0 25 0 25 0		10										
2N568 2N569 2N570 2N571 2N572	2N651 2N1193 2N1192 2N1193 2N1193		GPA GPA GPA GPA GPA	0.12 A 0.15 A 0.12 A 0.15 A 0.12 A	25 0 20 0 20 0 10 D 10 0		50 70 70 100 100										

2N573-2N637

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	h _{FE} Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ dB	f MHz	Unit	PACKAGE To-Case No. No.
2N573			GPA	0.2 A	25 0	0.25	30	50 m									5/
2N574	2N3316		GPA	180 C	55 0	10	9.0	10 A					2		10 A		
2N574A	2N1551		GPA	180 C	60 0	10	9.0	10 A					2		10 A		
2N575	2N2153		GPA	180 C	50 0	25	19	10 A					5		25 A		
2N575A	2N2154		GPA	180 C	55 0	25	19	10 A					5		25 A		
2N576			GNA	0.2 A	20 R	0.4	20	400 m	1.6 B				4		400 m		
2N576A			GNA	0.2 A	20 R	0.4	20	400 m	4.0 B				4		400 m		
D 2N577			GPA	0.25 A	25 B												
2N578			GPG	0.12 A	20 B	0.4	10	400 m	2.4 B		900/600		3		400 m		
2N579			GPG	0.12 A	20 B	0.4	20	400 m	4.0 B		400/500		3		400 m		
2N580			GPG	0.12 A	20 B	0.4	30	400 m	8.0 B		200/400		3		400 m		
2N581			GPA	0.08 A	18 B	0.1	20	20 m	3.2 B								
2N582			GPA	0.12 A	25 B	0.1	40	20 m	11.2 B				3		100 m		
2N583			GPA	0.08 A	18 B	0.1	20	20 m	3.2 B								
2N584			GPA	0.12 A	25 B	0.1	40	20 m	11.2 B				3		100 m		
2N585			GPA	0.12 A	25 B	0.2	20	20 m	2.4 B				2		20 m		
2N586	2N1191		GPA	0.25 A	45 B		35	250 m					5		250 m		
2N587			GNA	0.15 A	20 R	0.2	20	200 m					5		200 m		
2N588	2N3324		GPA	0.03 A	15 S	0.05			200 M								
D 2N588A			GPF	0.06 A	15 S	0.05	30	10 m	200 M					15	10 M	30/1/	
2N589	2N1532		GPA	90 C	75 S		20	30 A	0.1 E			1.5		3.0 A			
2N591	2N1192		GPA	0.05 A	32 0												
2N592			GPA	125 A	20 0		20										
2N593			GPA	125 A	30 0		30										
2N594			GNA	0.1 A	20 0		20		30 E								
2N595			GNA	0.1 A	15 0		35		105 E								
2N596			GNA	0.1 A	10 0		50		250 E								
2N597	2N3427		GPA	0.25 A	40 S	0.5	40	100 m	2.4 B	20			2		10 m	5/	
2N598	2N3427		GPA	0.25 A	35 S	0.5	70	100 m	5.6 T	20			2		10 m	5/	
2N599	2N3428		GPA	0.25 A	20 S	0.4	100	100 m	10 T				2		10 m	9/	
2N600	2N3427		GPA	0.75 C	35 S	0.4	70	100 m	5.6 T				2		10 m		
2N601	2N3428		GPA	0.75 C	20 S	0.4	100	100 m	10 T				2		10 m	31/	
2N602			GPA	0.12 A	20 0		20		10 T				.25		10 m		
2N603			GPA	0.12 A	20 0		30		30 T				.25		15 m		
2N604			GPA	0.12 A	20 0		40		50 T				.25		20 m		
D 2N605			GPA	0.12 A	15 0												
D 2N606			GPA	0.912 A	15 0												
D 2N607			GPA	0.12 A	15 0												
D 2N608			GPA	0.12 A	15 0												
2N609	2N1193		GPA	0.18 A	15 0	0.2											
2N610	2N1193		GPA	0.18 A	15 0	0.2											
2N611	2N1192		GPA	0.18 A	15 0	0.2											
2N612	2N1191		GPA	0.18 A	15 0	0.15											
2N613	2N1191		GPA	0.18 A	15 0	0.2											
2N614			GPA	0.18 A	15 0	0.15										9/	
2N615			GPA	0.18 A	15 0	0.15										9/	
2N616			GPA	0.18 A	12 0	0.15										9/	
2N617			GPA	0.18 A	12 0	0.15										9/	
★ 2N618		1	GPA	90 C	60 S	3.0	60	1.0 A	0.3 E			8		2.0 A	3/		
2N619			SNA	175 A	40 0	0.05	9.0	5.0 m	0.16 B	22		5		8.0 m	5/		
2N620			SNA	175 A	35 0	0.05	18	5.0 m	0.2 B	22		4		8.0 m	5/		
2N621			SNA	175 A	30 0	0.05	36	5.0 m	0.24 B	22		3		8.0 m	5/		
2N622			SNA	385 A	30 0	0.05			0.24 B	70							
D 2N624			GPA	0.1 A	20 S				20 E				15				
D 2N625			GNA	1.5 C	30 S		20	500 m				1.0		500 m			
D 2N626			GPA														
2N627			GPA	90 C	30 S	10	10	10 A	0.05 E			1.0		10 A	41/		
2N628			GPA	90 C	45 S	10	10	10 A	0.05 E			1.0		10 A	41/		
2N629			GPA	90 C	60 S	10	10	10 A	0.05 E			1.0		10 A	41/		
2N630			GPA	90 C	75 S	10	10	10 A	0.05 E			1.0		10 A	41/		
2N631	2N1194		GPA	167 A	20 R	0.1											
2N632	2N1193		GPA	167 A	20 R	0.1											
2N633	2N1192		GPA	167 A	30 R	0.1											
2N634			GNA	0.15 A	15 0	0.3	15	200 m	6.4 B							9/	
2N634A			GNA	0.15 A	20 R	0.3	40	10 m	6.4 B	20						5/	
2N635			GNA	0.15 A	15 0	0.3	25	200 m	9.6 B			2		10 m	9/		
2N635A			GNA	0.15 A	20 R	0.3	80	10 m	10 B	20		2		10 m	5/		
2N636			GNA	0.15 A	15 0	0.3	35	200 m	14 B								
2N636A			GNA	0.15 A	15 R	0.3	100	10 m	14 B	20						5/	
2N637			GPA	60 C	35 R	5.0	30	3.0 A				1.5		3.0 A			

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Subscript	Ic Amp Max	hFE @		Ic Unit	ft MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE		
								Min	Max										To- No.	Case No.	
2N637A 2N637B 2N638 2N638A 2N638B			GPA GPA GPA GPA GPA	60 C 60 C 60 C 60 C 60 C	65 R 75 R 35 R 65 R 75 R		5.0 5.0	30 30	3.0 A 3.0 A							1.5 1.5 2.0 2.0 2.0	3.0 A 3.0 A 3.0 A 3.0 A 3.0 A				
2N639 2N639A 2N633B			GPA GPA GPA	37 C 37 C 37 C	35 R 65 R 75 R			15 15 15	3.0 A 3.0 A 3.0 A							2.5 2.5 2.5	3.0 A 3.0 A 3.0 A				
D 2N640 D 2N641			GPA GPA	0.08 A 0.08 A	34 B 34 B		0.01 0.01												7/ 7/		
D 2N642 D 2N643 D 2N644 D 2N645 D 2N646	2N2955 2N2955 2N2955		GPA GPA GPA GPA GNA	0.08 A 0.12 A 0.12 A 0.12 A 0.1 A	34 B 30 B 30 B 30 B 25 O		0.01 0.1 0.1 0.1 0.05	20 20 20 20 50	10 m 10 m 10 m 10 m 30 m		20 T 20 T 20 T		5.0 5.0 5.0						7/ 9/ 9/ 9/ 40/		
★ 2N647 ★ 2N649 ★ 2N650 ★ 2N650A ★ 2N651		1 1 1 1	GNA GNA GPE GPE GPE	0.1 A 0.1 A 0.2 A 0.2 A 0.2 A	25 O 18 D 30 R 30 R 30 R		0.05 0.05 0.5 0.5 0.5	30 33 45	10 m 10 m 10 m		0.6 B 0.6 B 0.8 B		25 25 25			54 54 54	15 15 15	1000 H 1000 H 1000 H		1/ 1/ 5/31 5/31 5/31	
★ 2N651A ★ 2N652 ★ 2N652A ★ 2N653 ★ 2N654		1 1 1 1 1	GPE GPE GPE GPA GPA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	30 R 30 R 30 R 25 R 25 R		0.5 0.5 0.5 0.25 0.25	45 80 80 20 40	10 m 10 m 10 m 10 m 10 m		0.8 B 1.0 B 1.0 B		25 25 25			15 15 15	1000 H 1000 H 1000 H		5/31 5/31 5/31 5/31 5/31		
★ 2N655 ★ 2N656 2N656A ★ 2N657 2N657A	2N4238 2N4238 2N5681 2N5681	1	GPA SNA SNA SNA SNA	0.2 A 4.0 C 5.0 C 4.0 C 5.0 C	25 R 60 O 60 O 100 O 100 D		0.25 0.5 0.5 0.5	70 30 30 30 30	10 m 200 m 200 m 200 m 200 m										5/31 5/31 5/ 5/31 5/		
2N658 2N659 2N660 2N661 2N662			GPA GPA GPA GPA GPA	167 A 167 A 167 A 167 A 167 A	16 D 14 O 11 D 9.0 O 11 D		1.0 1.0 1.0 1.0	25 40 60 80 30		2.0 B 4.0 B 8.0 B 12.0 B 3.2 B			20 20			3.4 3.5 3.5 3.5 3.4	150 m 250 m 400 m 550 m 180 m				
★ 2N663 ★ 2N665 ★ 2N669 2N670 2N671	2N3428 2N3428	1	GPA GPA GPA GPA GPA	35 C 35 C 62.5 C 0.3 A 0.8 C	25 O 40 O 30 S 40 V 40 V		4.0 3.0 3.0 2.0 2.0	25 40 75 40 40	500 m 500 m 0.5 A 1.0 A 1.0 A		0.375 E 0.4 E 0.375 E 0.4 B 0.4 B					1.0 .9 .35 .35	3.0 A 3.0 A 1.0 A 1.0 A		3/ 3/		
2N672 2N673 2N674 2N675 2N677	2N3428 2N3428 2N3428 2N3428 2N3428		GPA GPA GPA GPA GPA	0.3 A 0.8 C 0.3 A 0.8 C 90 C	25 S 25 S 75 V 75 V 30 S		2.0 2.0 2.0 2.0 15	40 40 40 40 20	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A		0.32 B 0.32 B					.2 .2 .35 .35 1.0	400 m 400 m 1.0 A 1.0 A 1.0 A		26/ 3/		
2N677A 2N677B 2N677C 2N678 2N678			GPA GPA GPA GPA GNA	90 C 90 C 90 C 90 C 0.15 A	40 S 70 S 80 S 20 O 20 X		15 15 15 15	20 20 20 50 20	1.0 A 1.0 A 1.0 A 1.0 A 30 m		1.6 B					1.0 1.0 1.0 1.0	1.0 A 1.0 A 1.0 A 1.0 A		3/ 3/ 3/ 41/		
2N678A 2N678B 2N678C 2N680 D 2N681	2N1191 THRU		GPA GPA GPA GPA THY	90 C 90 C 90 C 0.15 A Table 6	30 O 60 O 70 O 20 S		15 15 15 0.15	50 50 50 18	1.0 A 1.0 A 1.0 A 50 m							.75	50 m		41/ 41/ 41/		
D 2N692AS D 2N694 D 2N695 ★ 2N696 2N696A	2N705 2N2218		THY GPF GPG SNA SNA	Table 6 0.1 A .075 A 0.6 A 0.8 A	15 O 15 S 40 R 35 O		D.05 0.05	10 25 20 20	2.0 m 10 m 150 m 150 m		340 T		2.5		75/200	18 1.0 1.5 1.5	12 50 m 150 m 150 m		5/31		
★ 2N697 2N697A 2N698 ★ 2N699 2N699A	2N2218 2N3498	1	SNA SNA SNA SNA SNA	0.6 A 0.8 A 0.8 A 2.0 C 2.0 C	40 R 35 O 80 R 80 R 80 R		1.0	40 40 40 40 40	150 m 150 m 150 m 150 m 150 m		40 T 50 T 40 T 50 T 50 T		35 35 15 20 20			1.5 1.5 1.2 5.0 5.0	150 m 150 m 50 m 150 m 150 m		5/31 5/31 5/ 5/ 39/79		
2N699B 2N700 2N700A ★ 2N702 ★ 2N703	2N3498	1 1 1	SNA GPF GPF SNA SNA	0.87 A 0.75 A 0.75 A 0.3 A 0.3 A	100 R 20 D 25 O 25 O 25 O		0.05 0.05	40 15 1.5 20 40	150 m 2.0 m 2.0 m 10 m 10 m		60 T 500 T 1000 T 70 T 70 T		15 1.5 1.4 6.0 6.0			1.2 2.0 2.2 .5 .5	10 70 M 70 M 10 m 10 m		5/ 17/ 17/ 18/22		



2N705-2N756A

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE- Volts	IC Amp Max	hFE Min	IC Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ dB Max	f Unit	PACKAGE To- Case No. No.
				Rel. Point	Subscript						t _{on} ns Max	t _{off} ns Max	VCE (sat) Volts	IC & IB		
★ 2N705		1	GPS	0.3 C	15 S	0.05	25	10 m			75/200		3		10 m	18/22
2N705A			GPA	0.15 A	15 S	0.1	25	10 m					3		10 m	
★ 2N706		1	SNG	0.3 A	20 R	0.05	20	10 m	200 T	8.0	40/75		6		10 m	18/22
2N706A		1	SNG	0.3 A	20 R	0.05	20	10 m	200 T	5.0	40/75		6		10 m	18/22
★ 2N706B		1	SNG	0.3 A	15 O	0.05	20	10 m	200 T	5.0	40/75		4		10 m	18/22
2N706C	2N835		SNG	0.36 A	20 R	0.05	20	10 m	200 T	5.0	40/75		4		10 m	18/
★ 2N707		1	SNA	1.0 C	28 R	0.1	9.0	10 m	70 T	10			6		10 m	18/
★ 2N707A			SNA	1.2 C	40 O	0.1	9.0	10 m	70 T	6.0			6		10 m	18/
★ 2N708		1	SNA	0.36 A	20 R		30	10 m	300 T	6.0			4		10 m	18/22
2N708A	2N834		SNA	0.36 A	30 R		40	10 m	300 T				15		10 m	18/
2N709			SNA	0.3 A	6.0 O		20	10 m	600 T				3	3.0 n	18/	
2N709A			SNS	0.3 A	6.0 O		30	10 m	800 T	3.0	15/15		3	3.0 n	18/	
2N710	2N705		GPA	0.3 C	15 S	0.05	25	10 u					5		10 m	
2N710A			GPB	0.15 A	15 S	0.05	25	10 m		8.0	75/125		5		10 m	18/
★ 2N711			GPA	0.15 A	12 S	0.05	20	10 m	150 T				5		10 m	18/22
★ 2N711A		1	GPB	0.15 A	7.0 O	0.1	25	10 m	150 T	6.0	200/150		.55		50 n	18/22
★ 2N711B		1	GPB	0.15 A	7.0 O	0.1	30	10 m	150 T	6.0	100/240		25		10 n	18/22
2N715	2N2221		SNA	0.5 A	35 O	0.1	10	15 m	700 E	6.0			1.2		15 m	18/
2N716	2N2221		SNA	0.5 A	40 O		10	15 m	700 E				1.2		15 m	18/
2N717	2N2221	1	SNA	0.4 A	40 R		20	150 m	40 T	35			1.5		150 n	18/
★ 2N718		1	SNA	0.4 A	40 R		40	150 m	50 T	35			1.5	12	150 n	18/22
★ 2N718A		1	SNE	0.5 A	50 R		40	150 m	60 T	25			5.0	1000 H	150 n	18/
2N719	2N3498		SNA	0.4 A	80 R	1.0	20	150 m	40 T	85			1.2		50 m	18/
2N719A	2N3498		SNA	0.5 A	80 R		20	150 m	40 T	15			5.0		150 m	18/
2N720	2N3498		SNA	0.4 A	80 R		40	150 m	50 T	85			5.0		150 m	18/
★ 2N720A		1	SNA	0.5 A	100 R		40	150 m	50 T	15			5.0		150 m	18/22
2N721			SPA	0.4 A	50 R		20	150 m	50 T	45			1.5		150 m	18/
2N721A	2N2905		SPA	0.5 A	50 R		20	150 m	50 T	40			5		150 m	18/
2N722			SPA	0.4 A	50 R		30	150 m	60 T	45			1.5		150 m	18/
2N722A	2N2837		SPA	0.5 A	50 R		30	150 m	60 T				5		150 m	18/
D 2N725			GPA	0.15 A	12 S	0.05	20	10 m					6		10 n	18/
2N726	2N727		SPA	0.3 A	20 O	0.05	15	10 m	140 T	5.0			6		10 n	18/22
★ 2N727		1	SPA	0.3 A	20 O	0.05	30	10 m	140 T	5.0			6		10 n	18/
D 2N728	2N2539		SNA	0.4 A	15 O	0.1	20	10 m	100 T	12			7		10 n	18/
D 2N729	2N2539		SNA	0.4 A	30 O	0.1	20	10 m	100 T	12			7		10 n	18/
2N730	2N2218		SNA	0.5 A	40 R	1.0	20	150 m	40 T	35			1.5		150 n	18/
★ 2N731			SNA	0.5 A	40 R	1.0	40	150 m	25 T	35			1.5		150 n	18/
2N734	2N2221		SNA	0.5 A	60 O	0.05	15	50 m		10			1.0		10 n	18/
2N734A	2N2218A		SNA	0.5 A	60 O	0.05	15	50 m	30 T	6.0			5		10 n	18/
★ 2N735			SNA	0.5 A	60 O	0.05	30	50 m		10			1.0		10 n	18/
2N735A	2N2218A		SNA	0.5 A	60 O	0.05	30	50 m	60 T	6.0			5		10 n	18/
★ 2N736	2N2222	1	SNA	0.5 A	60 O	0.05	60	50 m		10			1.0		10 n	18/
2N736A	2N2222		SNA	0.5 A	60 O	0.1	60	50 m	100 T				6		10 n	18/
2N736B	2N2896		SNA	0.5 A	60 O	0.1	60	50 m	100 T	6.0			5		10 n	18/
2N738	2N2896		SNA	0.5 A	80 O	0.05	15	50 m					1.0		10 n	18/
2N738A	2N2896		SNA	0.5 A	80 O	0.05	15	50 m	30 T	6.0			5		10 n	18/
★ 2N739		1	SNA	0.5 A	80 O	0.05	30	50 m		10			1.0		10 n	18/
2N739A	2N2896		SNA	0.5 A	80 O	0.05	30	50 m	60 T	6.0			5		10 n	18/
★ 2N740		1	SNA	0.5 A	80 O	0.05	60	50 m		10					10 n	18/
2N740A	2N2896		SNA	0.5 A	80 O	0.05	60	50 m	100 T	6.0					18/	
★ 2N741		1	GPA	0.15 A	15 S	0.1	10	50 m		10					18/	
★ 2N741A			GPA	0.15 A	20 S	0.1	10	50 m	300 T						18/	
2N742	2N2218		SNG	0.5 A	60 O	0.1	25	10 m		8.0	50/250		5		10 m	18/
2N742A	2N2218		SNG	0.5 A	60 O	0.1	25	10 m		8.0	50/250		5		10 m	18/
★ 2N743			SNS	0.3 A	12 O	0.2	20	10 m	200 T	5.0	16/24		.35		10 m	18/
2N743A	2N2369		SNA	0.36 A	15 O	0.2	20	10 m	500 T	4.0					18/	
★ 2N744		1	SNS	0.3 A	12 O	0.2	40	10 m	300 T	5.0	16/24		.35		10 m	18/
2N744A	2N2369		SNA	0.36 A	15 O	0.2	40	10 m	500 T	4.0					18/	
D 2N745	2N2221		SNG	0.15 A	30 O	0.02	20	10 m	8.0 T	3.0	350/400				18/	
D 2N746	2N2221		SNG	0.15 A	30 O	0.02	45	10 m	8.0 T		350/700				18/	
D 2N747	2N2221		SNA	0.2 A	25 O	0.05	30	10 m		8.0			6		5.0 m	
D 2N748	2N2221		SNA	0.2 A	30 O	0.05	20	10 m		8.0			5		5.0 m	
D 2N749	2N2221		SNE	0.2 A	25 O	0.05	15	10 m	40 T	10				30	1000 H	
D 2N751	2N2221		SNE	0.2 A	20 O	0.05	30	10 m	16 T	10				40	1000 H	
2N752	2N2221		SNA	0.5 A	45 O	0.1			200 T	5.0			1.2		15 n	18/
★ 2N753		1	SNG	0.3 A	20 R	0.05	40	10 m	200 T	5.0	40/75		6		10 n	18/
2N754			SNA	0.3 A	60 R	0.05	20	50 m	30 T	10			.8		10 n	18/
2N755			SNA	0.3 A	80 R	0.05	20	50 m	30 T	10			.8		10 n	18/
2N756	2N2218		SNA	0.5 A	45 O	0.1			40 B	8.0			1.0		10 n	18/
2N756A			SNA	0.5 A	60 O	0.1			40 B				1.0		10 n	18/

2N995A-2N1042

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	hFE @ Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	Gp dB	NF @ dB	f Unit	PACKAGE To-Case No. No.	IC & IC
2N995A 2N996 2N997 ★ 2N998 2N999	2N3250 2N720A	1	SPG SPA SNA SNE SNA	0.36 A 0.36 A 0.5 A 0.5 A 0.5 A	15 0 12 0 40 0 60 0 60 0	0.3 0.5 0.5 0.5	35 35 35 1600	20 m 20 u 100 u 10 m	100 T 100 T	6.0 10	60/90	2 3 1.6 1.6	20 m 60 m 100 m 1000 H 100 m	18/ 18/ 18/ 72/20			
D 2N1000 D 2N1003 D 2N1004 D 2N1005 D 2N1006	2N2242 2N2242		GNG GPA GPA SNA SNA	0.15 A 0.12 A 0.12 A 0.15 A 0.15 A	25 0 20 U 20 U 15 0 15 D	0.025 0.025	40 10 25	10 m 10 m 10 m	5.6 B	20 5.0 5.0	700/1000	.25 6 6	100 m 10 m 10 m	5/ 5/ 5/			
★ 2N1007 ★ 2N1008 ★ 2N1008A ★ 2N1008B D 2N1009		1 1 1 1	GPA GPA GPA GPA GPA	35 C 0.3 C 0.3 C 0.3 C 0.4 C	20 0 15 R 35 R 55 R 35 R	0.3 0.3 0.3	50 40 40 40	1.0 A	0.060 T			1.0 .25 .25 .25 .25	2.0 A .1 A .1 A .1 A .1 A	3/ 5/31 5/31 5/31			
★ 2N1010 ★ 2N1011 D 2N1012 D 2N1014 D 2N1015	2N3713	1	GNA GPA GNG GPA SNA	0.02 A 35 C 0.15 A 50 C 150 C	10 0 80 S 22 0 65 0 30 V	0.002 5.0	30 40 20 10	3.0 A 100 m 4.0 A 2.0 A	0.15 E 120 E 0.4 B	20	150/200	1.5 2 8 1.5	3.0 A 100 m 4.0 A 2.0 A	3/ 5/			
2N1015A 2N1015B 2N1015C 2N1015D 2N1015E	2N3713 2N5758 2N5760 MJ410 MJ411		SNA SNA SNA SNA SNA	150 C 150 C 150 C 150 C 150 C	60 V 100 V 150 V 200 V 250 V	7.5 7.5 7.5 7.5 7.5	10 10 10 10 10	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A				1.5 1.5 1.5 1.5 1.5	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A				
2N1015F 2N1016 2N1016A 2N1016B 2N1016C	MJ411 2N3713 2N3713 2N3713 2N5758		SNA SNA SNA SNA SNA	150 C 150 C 150 C 150 C 150 C	300 V 30 V 60 V 100 V 150 V	7.5 7.5 7.5 7.5 7.5	10 10 10 10 10	2.0 A 5.0 A 5.0 A 5.0 A 5.0 A				1.5 2.5 2.5 2.5 2.5	2.0 A 5.0 A 5.0 A 5.0 A 5.0 A				
2N1016D 2N1016E 2N1016F 2N1017 2N1018	2N5760 MJ3430 MJ3430		SNA SNA SNA GPA GPA	150 C 150 C 150 C 0.15 A 0.2 A	200 V 250 V 300 V 10 0 6 0	7.5 7.5 7.5 0.4 0.4	10 10 10 70 70	5.0 A 5.0 A 5.0 A 20 m 70 m		12 B 16 B	20	2.5 2.5 2.5 2.6 2.6	5.0 A 5.0 A 5.0 A 200 m 200 m	9/			
★ 2N1021 2N1021A ★ 2N1022 2N1022A D 2N1023	2N3323	1 1	GPA GPA GPA GPA GPA	50 C 150 C 50 C 150 C 0.12 A	100 X 50 0 120 X 55 0 40 0	5.0 7.0 5.0 7.0 0.01	23 30 23 30 20	1.0 A 5.0 A 5.0 A 5.0 A 1.5 m	0.2 T 0.2 T	96 T	3D	1.0 5 1.0 5 18	5.0 A 5.0 A 5.0 A 5.0 A	5/ 3/ 3/			
2N1024 2N1025 2N1026 2N1027 2N1028	2N3250 2N3250 2N3250 2N3250		SPE SPE SPE SPE SPE	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	15 U 35 U 35 U 15 U 10 U	0.1 0.1 0.1 0.1	0.8 B 0.8 B 1.6 B 3.2 B 7.2	7D 7D 7D 7D				0.25 25 25 25 25	5/ 5/ 5/ 5/ 5/				
D 2N1029 D 2N1029A D 2N1029B D 2N1029C D 2N1030	2N1553 2N1554 2N1555 2N1556 2N1557		GPA GPA GPA GPA GPA	90 C 90 C 90 C 90 C 90 C	20 0 30 0 60 0 70 0 20 0	15 15 15 15 15	20 20 20 20 50	10 A 10 A 10 A 10 A 10 A				1.0 1.0 1.0 1.0 1.0	10 A 10 A 10 A 10 A 10 A				
D 2N1030A D 2N1030B D 2N1030C 2N1031 2N1031A	2N1558 2N1559 2N1560 2N1553 2N1554		GPA GPA GPA GPA GPA	90 C 90 C 90 C 90 C 90 C	30 0 60 0 70 0 30 S 40 S	15 15 15 15 15	50 50 50 20 20	10 A 10 A 10 A 10 A 10 A	0.04 E 0.04 E			1.0 1.0 1.0 1.0 1.0	10 A 10 A 10 A 10 A 10 A	41/ 41/ 41/ 41/ 41/			
2N1031B 2N1031C 2N1032 2N1032A 2N1032B	2N1555 2N1556		GPA GPA GPA GPA GPA	90 C 90 C 90 C 90 C 90 C	70 S 80 S 30 S 40 S 70 S	15 15 15 15 15	20 20 50 50 50	10 A 10 A 10 A 10 A 10 A	0.04 E 0.04 E 0.1 E 0.1 E 0.1 E			1.0 1.0 1.0 1.0 1.0	10 A 10 A 10 A 10 A 10 A	41/ 41/ 41/ 41/ 41/			
2N1032C 2N1034 2N1035 2N1036 2N1037			GPA SPA SPA SPA SPA	90 C 0.25 A 0.25 A 0.25 A 0.25 A	80 S 40 0 35 0 30 0 35 0	15 0.05 0.05 0.05 0.05	50 0.12 B 0.16 B 0.24 B 0.12 B	1D A	0.1 E 0.16 B 0.24 B			1.0 5 4 3 5	10 A 8.0 m 8.0 m 8.0 m 8.0 m	41/ 5/ 5/ 5/ 5/			
★ 2N1038 ★ 2N1039 ★ 2N1040 ★ 2N1041 ★ 2N1042		1 1 1 1 1	GPA GPA GPA GPA GPA	20 C 20 C 20 C 20 C 20 C	40 V 60 V 80 V 100 V 40 V	3.0 3.0 3.0 3.0 3.5	20 20 20 20 20	1.0 A 1.0 A 1.0 A 1.0 A 3.0 A	D.16 E 0.16 E 0.16 E 0.16 E 0.25 T			.25 25 .25 .25 25	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	1/180 1/180 1/180 1/180 1/184			

2N1108-2N1159

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp Max	hFE Min	I _C Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF@ dB Max	f Unit	PACKAGE To- Case No. No.
2N1108 2N1109 2N1110 2N1111 2N1114			GPA GPA GPA GPA GNA	0.03 C 0.03 C 0.03 C 0.03 C 0.15 A	16 B 16 B 16 B 20 B 15 R	.005 .005 .005 .005 0.2	40	20 m	28 B 28 B 28 B 28 B 5.6 B							22/ 22/ 22/ 22/ 5/
D 2N1115 2N1115A 2N1116 2N1117 2N1118	MM3005 MM3005 2N3250		GPA GPA SNA SNA SPA	0.15 A 0.15 A 0.6 C 0.6 C 0.15 A	15 O 15 O 60 O 60 O 25 U	.125 .125 0.8 0.8 0.05	40	0.5 A	4.0 B 4.0 B 6.0 T 4.0 T 8.0 M	20 20 100 100 12		.35 .35 5.0 4.0		6C m 6C m .5 A .2 A		5/ 5/ 5/ 5/
2N1118A 2N1119 ★ 2N1120 2N1121 2N1122	2N3250 2N3546 2N961	1	SPA SPA GPA GNA GPA	0.15 A 0.15 A 45 C 0.65 C 0.25 A	25 U 10 U 70 S 15 O 11 S	0.05 0.05 15 15 0.05	15	15 m	7.2 T 7.2 T 0.06 E 1.0 m 10 m	12 12 12 12 6.0		.15 1.0 1.0		5.0 m 10 A 8.0 m		5/ 5/ 41/ 24/
2N1122A 2N1123 2N1124 2N1125 D 2N1126	2N960 2N3427 2N651 2N651 2N651		GPA GPA GPA GPA GPA	0.25 A 0.01 C 0.3 A 0.3 A 1.0 C	14 S 40 S 35 V 40 V 35 V	0.05 0.4 0.15 0.15 0.15	25	10 m	4.0 T 100 m 2.4 B 0.32 B 0.8 B 0.32 B	6.0 6.0 6.0 6.0 6.0		1 2 2 3 2		8.0 m 10 m 100 m 500 m 100 m		24/ 24/
D 2N1127 2N1128 2N1129 2N1130 ★ 2N1131	2N3428 2N1192 2N3427 2N1193		GPA GPA GPA GPA SPA	1.0 C 0.15 A 0.15 A 0.15 A 0.6 A	40 V 18 S 25 V 30 B 35 O	0.15 0.15 0.15 0.15 0.6	50	500 m	0.8 B 100 m 100 m 100 m 150 m			3 25 25 1.5		500 m 100 m 100 m 150 m		5/
★ 2N1131A ★ 2N1132 ★ 2N1132A 2N1132B D 2N1135	2N1132A 2N2369	1	SPS SPS SPS SPS SPA	0.6 A 0.6 A 0.6 A 0.6 A 0.1 A	40 O 35 O 40 O 45 O 12 O	0.6 0.6 0.6 0.6 0.05	20	15 A	50 T 5.0 m 60 T 60 T 15 A 5.6 T	30 45 30 30	35/35 45/35 45/35 45/35	1.5 1.5 1.5 1.5	10 10	15 A 150 m 150 m 15 A		39/79 39/79 5/ 5/
D 2N1135A 2N1136 2N1136A 2N1136B 2N1137	2N2369		SPA GPA GPA GPA GPA	0.1 A 50 C 50 C 50 50	12 O 30 O 55 O 65 O 30 O	0.05 6.0 6.0 6.0 6.0	50	3.0 A	5.6 T 0.2 E 0.2 E 0.2 E 0.2 E			1.0 1.0 1.0 1.0		3.0 A 3.0 A 3.0 A 3.0 A		5/ 3/ 3/ 3/ 3/
2N1137A 2N1137B 2N1138 2N1138A 2N1138B			GPA GPA GPA GPA GPA	50 50 35 35 35	55 O 65 O 30 O 55 O 65 O	6.0 6.0 6.0 6.0 6.0	75	3.0 A	0.2 E 0.2 E 0.2 E 0.2 E 0.2 E			1.0 1.0 1.0 1.0 1.0		3.0 A 3.0 A 3.0 A 3.0 A 3.0 A		3/ 3/ 3/ 3/ 3/
2N1139 ★ 2N1141 2N1141A ★ 2N1142 2N1142A	2N742	1	SNA GPA GPA GPA GPA	0.5 A 0.75 C 0.75 C 0.75 C 0.75 C	15 O 35 B 25 S 30 B 25 S	0.1 0.1 0.1 0.1 0.1	20	10 m	100 T 10 m 500 T 480 B 400 T	12 15		7 2.0 2.0 2.0 2.0		10 m 50 m 50 m 50 m 50 m		5/ 5/31 5/31
★ 2N1143 2N1143A 2N1144 2N1145 2N1146	2N321 2N1414	1	GPA GPA GPA GPA GPA	0.75 C 0.75 C 1.75 A 1.75 A 87 C	25 B 25 S 16 R 16 R 20 O	0.1 0.1 0.2 0.2 0.15	10	10 m	384 B 400 T 20 m 20 m 5.0 A 9.0 E	60 60		2.0 2.0 1.0		50 m 50 m 15 A		5/31 3/
2N1146A 2N1146B 2N1146C 2N1147 2N1147A			GPA GPA GPA GPA GPA	87 C 87 C 87 C 87 C 87 C	30 O 40 O 50 O 20 O 30 O	0.15 0.15 0.15 0.15 0.15	60	5.0 A	9.0 E 9.0 E 9.0 E 9.0 E 9.0 E			1.0 1.0 1.0 1.0 1.0		15 A 15 A 15 A 15 A 15 A		3/ 3/ 3/ 3/ 3/
2N1147B 2N1147C 2N1149 2N1150 2N1151	2N2221 2N2221 2N2221		GPA GPA SNA SNA SNA	87 C 87 C 0.15 A 0.15 A 0.15 A	40 O 50 O 45 B 45 B 45 B	0.15 0.15 0.25 0.25 0.25	60	5.0 A	9.0 E 9.0 E 3.2 B 4.0 B 6.4 B			1.0 1.0		15 A 15 A		3/ 3/
2N1152 2N1153 2N1154 2N1155 2N1156	2N2221 2N2221 2N2221 2N2221 2N2221		SNA SNA SNA SNA SNA	0.15 A 0.15 A 0.75 C 0.75 C 0.75 C	45 B 45 B 50 B 80 B 120 B	0.25 0.25 0.06 0.05 0.04	36	25 m	4.8 B 5.6 B							
2N1157 2N1157A 2N1158 2N1158A 2N1159	MP501 MP502 2N1143 2N1142 2N3616		GPA GPA GPA GPA GPA	187 C 187 C 0.06 A 0.75 A 35 C	45 O 50 O 20 S 20 S 60 O	0.04 0.04 0.1 0.1 5.0	38	10 A	0.075 T 0.075 T 3 m 3 m 3.0 A			.8 .8		40 A 40 A		9/ 9/

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Ref. Point Volts	Substr.	I _C Amp Max	hFE @ I _C		f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To- Case No. No.		
								Min	Unit										t _{on} ns Max	t _{off} ns Max	V_{CE} (sat) Volts @ I_{B}	I_{C} & I_{C}
★ 2N1160 ★ 2N1162 ★ 2N1162A ★ 2N1163 ★ 2N1163A	2N3616	1 1 1 1	GPA GPA GPA GPA	35 C 90 C 90 C 90 C	60 0 35 S 35 S 35 S		7.0 25 25 25	20 15 15 15	5.0 A 25 A 25 A 25 A							1.0 .8 .8 .8	5.0 A 25 A 25 A 25 A	3/ 3/ 41/ 41/		
★ 2N1164 ★ 2N1164A ★ 2N1165 ★ 2N1165A ★ 2N1166		1 1 1 1 1	GPA GPA GPA GPA GPA	90 C 90 C 90 C 90 C 90 C	60 S 60 S 60 S 60 S 75 S		25 25 25 25 25	15 15 15 15 15	25 A 25 A 25 A 25 A 25 A							.8 .8 .8 .8 .8	25 A 25 A 25 A 25 A 25 A	3/ 3/ 41/ 41/ 3/		
★ 2N1166A ★ 2N1167 ★ 2N1167A 2N1168 2N1169	2N3614	1 1 1 1 1	GPA GPA GPA GPA GNA	90 C 90 C 90 C 45 C 0.12 A	75 S 75 S 75 S 30 R 20 0		25 25 25 5.0 0.4	15 15 15	25 A 25 A 25 A							.8 .8 .8	25 A 25 A 25 A	3/ 41/ 41/		
2N1170 2N1171 2N1172 D 2N1173 D 2N1174	2N2137		GNA GPA GPA GNE GPE	0.12 A 0.17 A 5.0 C 0.25 A 0.25 A	20 0 12 0 30 0 20 0 20 0		0.4 0.4 1.5 0.2 0.2	20 30 30 50 50	200 m 30 m 100 m 10 m 10 m			20 25 25					.3 3.0 8.0 8.0	200 m 200 m 1000 H 1000 H	5/ 5/ 5/ 37/ 29/	
★ 2N1175 ★ 2N1176 2N1176A 2N1176B D 2N1177	2N1189	1	GPA GPA GPA GPA GPA	0.2 A 0.3 A 0.3 A 0.3 A 0.08 A	25 R 35 R 40 0 60 0 30 B		0.2 0.3 0.3 0.3 0.01	70 20 20 20	20 m 10 m 10 m 10 m	1.2 B		40					.3	1 A	29/ 5/31 5/ 5/ 45/	
D 2N1178 D 2N1179 D 2N1180 2N1182 2N1183	2N2955 2N2956 2N2956 2N3616 2N3616		GPA GPA GPA GPA GPA	0.08 A 0.08 A 0.08 A 106 C 7.5 C	30 B 30 B 30 B 60 0 20 0		0.01 0.01 0.01 5.0 0.003												45/ 45/ 45/ 3/ 8/	
2N1183A 2N1183B 2N1184 2N1184A 2N1184B	2N2140 2N2141 2N2144 2N2145 2N2146		GPA GPA GPA GPA GPA	7.5 C 7.5 C 7.5 C 7.5 C 7.5 C	30 0 40 0 20 0 30 0 30 0		.003 .003 .003 .003 .003	20 20 40 40 40	400 m 400 m 400 m 400 m 400 m								.5 .5 .5 .5 .5	400 m 400 m 400 m 400 m 400 m	8/ 8/ 8/ 8/ 8/	
★ 2N1185 ★ 2N1186 ★ 2N1187 ★ 2N1188 ★ 2N1189		1 1 1 1 1	GPE GPE GPE GPE GPE	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	30 R 45 R 45 R 45 R 30 R		0.5 0.5 0.5 0.5 0.5	130 33 45 80 60	10 m 10 m 10 m 10 m 10 m	1.36 B 0.6 B 0.8 B 0.96 B 1.36 B		25 25 25 25 25						15 15 15 15 15	1000 H 1000 H 1000 H 1000 H 1000 H	5/31 5/31 5/31 5/31 5/31
★ 2N1190 ★ 2N1191 ★ 2N1192 ★ 2N1193 ★ 2N1194		1 1 1 1 1	GPE GPA GPA GPA GPA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	30 R 25 R 25 R 25 R 25 R		0.5 0.2 0.2 0.2 0.2	100 20 40 70 125	10 m 10 m 10 m 10 m 10 m	1.76 B		25						15	1000 H	5/31 5/31 5/31 5/31 5/31
★ 2N1195 2N1196 2N1197 2N1198 2N1199	2N835	1	GPA SPA SPA GNA SNA	225 A 0.35 A 0.35 A 0.65 A 0.15 A	30 B 70 0 70 0 25 0 15 0		0.04 0.1 0.1 0.75 0.1	5.0 5.0 17 12	2.0 m 2.0 m 8.0 m 20 m	400 T 4.0 B 75 T		4.0 40						.25	10 m	5/31 5/ 5/
D 2N1199A D 2N1200 D 2N1201 2N1202 2N1203	2N835 2N2145 2N2146		SNA SNE SNE GPA GPA	0.15 A 0.1 A 0.1 A 34 C 34 C	15 0 15 0 15 0 60 0 70 0		0.1 0.1 0.1 0.0 0.0	12 7.0 7.0 40 25	20 m 1.5 m 1.5 m 500 m 2.0 A	75 T 3.5 3.5 0.2 T 0.2 T		3.5 3.5					.25 15 15	10 m 10 m 500 m 2.0 A	9/ 9/ 9/ 9/	
★ 2N1204 ★ 2N1204A 2N1206 2N1207 2N1208	2N302D 2N3500 2N5477	1 1	GPA GPA SNA SNA SNA	0.2 A 0.2 A 3.0 A 3.0 A 45 C	15 0 15 0 60 0 125 0 60 0		0.5 0.5 .015 .015 5.0	15 25 20 20 15	400 m 200 m 10 T 10 T 2.0 A	220 T 220 T 50 50		8.0 6.5 50 50					.5 4 5.0	200 m 200 m 2.0 A	9/ 5/31 5/ 5/	
2N1209 2N1210 2N1211 2N1212 2N1217	2N5477 2N4232 2N4233 2N5477		SNA SNA SNA SNA GNA	45 C 30 C 30 C 45 C 0.75 A	45 0 60 0 80 V 60 D 20 D		5.0 5.0 5.0 5.0 0.25	20 15 15 12 40	2.0 A 2.0 A 2.0 A 1.0 A 500 u	3.0 T 3.0 T 3.0 T 3.0 T 4.8 B							5.0 2.0 2.0 2.0 5.0	2.0 A 2.0 A 2.0 A 1.0 A		
2N1218 2N1219 2N1220 2N1221 2N1222	2N3250 2N3250 2N3250 2N3250		GNA SPE SPE SPE SPE	20 C 0.25 A 0.25 A 0.25 A 0.25 A	45 R 25 0 25 D 25 0 25 0		3.0 0.1 0.1 0.1 0.1	30 18 9.0	1.0 A 5.0 m 5.0 m	0.21 E 4.0 B 1.6 B 4.0 B 1.6 B		15 18 15 18					1.0 25 25 25 25	1.0 A 1000 H 1000 H 1000 H 1000 H	3/ 5/ 5/ 5/ 5/	

TYPE NO.	REPLACEMENT	VOL.	ID	P _D Watts	V _{CE} Volts	I _C Amp	hFE Min	I _C @	Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ f	Unit	PACKAGE To-Case No. No.
2N1223 2N1224 2N1225 2N1226 2N1227	2N3250 2N3611		SPE GPA GPA GPA GPA	0.25 A 0.12 A 0.12 A 0.12 A 0.50 C	40 O 40 R 40 R 60 R 20 O	0.1 0.01 0.01 0.01 3.0				1.5 m 1.5 m 1.5 m 0.5 A					25	1000 H	5/ 12/ 12/ 33/ 3/
2N1228 2N1229 2N1230 2N1231 2N1232	2N2904 2N2904 2N2904 2N2904 2N2905A		SPE SPE SPE SPE SPE	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	15 O 15 O 35 O 35 O 60 O					10 m 10 m 10 m 10 m 10 m					10 10 10 10 10	1.5 A	5/ 5/ 5/ 5/ 5/
2N1233 2N1234 2N1235 D 2N1238 D 2N1239	2N2905A 2N3495 2N5759 2N3467 2N3467		SPE SPE SNA SPE SPE	0.4 A 0.4 A 85 C 1.0 A 1.0 A	60 O 110 O 120 R 15 O 15 O		2.0	12		10 m 10 m 1.0 A 10 m 10 m				5.0	1.0 A	5/ 5/ 53/	
D 2N1240 D 2N1241 D 2N1242 D 2N1243 D 2N1244	2N3467 2N3467 2N3763 2N3763 2N3467		SPE SPE SPE SPE SPA	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	35 C 35 O 60 O 60 O 110 O					10 m 10 m 10 m 10 m 10 m					2 2	10 m 10 m	
D 2N1245 D 2N1246 2N1247 2N1248 2N1249	 2N2222 2N2222 2N2222		GPA GPA SNA SNA SNA	20 C 20 C 0.03 A 0.03 A 0.03 A	25 R 25 R 6 D 6 D 6 D	4.0 4.0 0.05 0.05 0.05	50 50 15 15 20	0.5 A 0.5 A 5.0 u 20 u 30 u									3/ 3/ 5/ 5/
2N1250 2N1251 2N1252 D 2N1252A 2N1253	2N4914 2N4237 2N2537 2N4237		SNA GNA SNA SNA SNA	85 C 0.15 A 0.6 A 0.8 A 0.6 A	60 O 15 R 20 R 30 O 20 R	5.0 0.1 1.0 1.0	15 15 15 15	2.0 A 1.0 m 150 m 150 m 150 m		0.6 B 40 T 40 T 50 T							3/ 3/ 5/ 5/ 5/
D 2N1253A 2N1254 2N1255 2N1256 2N1257	2N2537 MM869B MM869B		SNA SPS SPG SPS SPG	0.8 A 275 A 275 A 275 A 275 A	30 D 30 D 30 O 40 D 40 D	1.0 0.1 0.1 0.1 0.1	30 25 40 25 40	150 m 10 m 10 m 10 m 10 m	50 T 30 T 50 T 30 T 50 T	45 10 10 10 10		25/40 25/60 25/40 25/60	1.5 .3 .3 .3 .3	150 m 10 m 10 m 10 m 10 m	5/ 5/ 5/ 5/ 5/		
2N1258 2N1259 2N1260 2N1261 2N1262	MM869B 2N5479 2N1531 2N1531		SPG SPG SNA GPA GPA	275 A 275 A 85 C 34 C 34 C	30 O 50 D 120 R 45 45 D	0.1 0.1 2.0 3.5 3.5	75 25 12 20 30	10 m 10 m 1.0 A 2.0 A 2.0 A	50 T 40 T 0.6 E 0.2 T 0.2 T	10 10 10 10 10		25/60 25/60	.6 .3 10 .6 .6	10 m 10 m 1.0 A 2.0 A 2.0 A	5/ 5/ 53/		
2N1263 D 2N1264 2N1265 2N1266 2N1267	2N3617 2N1191 2N1192 2N1191 2N2481		GPA GPA GPA GPA SNA	34 C 0.05 A 0.1 A 0.08 A 0.15 A	45 O 20 B 10 R 10 O 15 D	3.5 15 1 50 0.1	45 15 50 1.0 4.0	2.0 A 1.0 m 1.0 m 1.5 m	0.2 T 0.8 B	0.2 T 25			6 5	2.0 A 100 m	5/ 22/ 9/		
2N1268 2N1269 2N1270 2N1271 2N1272	2N2481 2N2481 2N2481 2N2481 2N2481		SNA SNA SNA SNA SNA	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	15 D 15 O 15 O 15 O 15 O	0.1 0.1 0.1 0.1 0.1	7.0 2.0 4.0 7.0 2.0	1.5 m 1.5 m 1.5 m 1.5 m 1.5 m								9/ 9/ 9/ 9/ 9/	
2N1273 2N1274 2N1275 2N1276 2N1277	 2N2501 2N2501		GPA GPA SPA SNA SNA	0.25 A 0.25 A 0.25 A 0.15 A 0.15 A	15 R 25 R 80 O 30 D 30 O	0.2 0.2 0.05 0.25 0.25	27 27 90	50 m 50 m 1.0 m		12 B 12 B 12 B	110 5.0 5.0		1.0 1.0 .3 1.0 1.0	100 m 100 m 5.0 m 5.0 m 5.0 m	5/ 5/ 5/ 5/ 5/		
2N1278 2N1279 2N1280 2N1281 2N1282	2N2501 2N2501		SNA SNA GPA GPA GPA	0.15 A 0.15 A 0.2 A 0.2 A 0.2 A	30 O 30 O 16 O 12 O 6 D	0.25 0.25 0.4 0.4 0.4	40 60 70	10 m 1.5 m 20 m 20 m	4.0 B	12 B 12 B 4.0 B 5.6 B 8.0 B	5.0 5.0 20 20 20		1.0 1.0	5.0 m 5.0 m	5/ 5/ 5/ 5/ 5/		
2N1284 D 2N1285 D 2N1287 D 2N1287A D 2N1288	 2N651 2N652		GPA GPA GPA GPA GNG	0.15 A 0.24 A 0.3 C 0.3 C 0.75 A	15 D 40 V 25 R 25 R 10 R	0.01 0.3 0.3 0.5	30 30 40 50	10 m 1.5 m 10 m	4.0 B	12 B 12 B 4.0 B	5.0 5.0		2 5 5	10 m 20 m 20 m	33/ 5/ 5/ 39/		
D 2N1289 2N1291 2N1292 2N1293 2N1294	2N1529 2N1531		GNA GPA GNA GNA GNA	0.75 A 20 C 25 C 20 C 25 C	15 D 30 S 30 S 60 S 45 S	0.05 3.0 3.0 3.0 3.0	50 40 30 30 30	10 m 0.5 A 0.5 A 0.5 A 0.5 A	32 B	10	100/400		3 1.0 1.0 1.0	10 m 1.0 A 1.0 A 1.0 A	39/ 3/ 3/ 3/ 3/		

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	P _{Ref} Point	VCE Volts	Subscript	I _C Amp Max	hFE Min	I _C @	Unit	f _T MHz Min	Sub	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF dB Max	f	Unit	PACKAGE To- No.	Case No.
2N1295 2N1296 2N1297 2N1298 2N1299	2N1532 2N1533		GPA GNA GPA GNA GNA	200 C 25 C 20 C 25 C 0.15 A	80 S 60 S 100 S 80 S 20 R	3.0 3.0 3.0 3.0 0.2		40 30 40 30 35	0.5 A 0.5 A 0.5 A 0.5 A 50 m													3/ 3/ 3/ 3/ 5/
2N1300 2N1301 2N1302 2N1303 2N1304			GPA GPA GNA GPA GNA	0.15 A 1.5 A 1.5 A 1.5 A 1.5 A	12 O 12 O 25 B 30 B 25 B	0.1 1 3 3 3		30 10 20 20 40	10 m 10 m 10 m 10 m 10 m		25 T 35 T 2.4 B 2.4 B 4.0 B											5/ 5/ 5/ 5/ 5/
2N1305 2N1306 2N1307 2N1308 2N1309			GPA GNA GPA GNA GPA	1.5 A 1.5 A 1.5 A 1.5 A 1.5 A	30 B 25 B 30 B 25 B 30 B	3 3 3 3 3		40 60 60 80 80	10 m 10 m 10 m 10 m 10 m		4.0 B 8.0 B 8.0 B 12 B 12 B	20 20 20 20 20										5/ 5/ 5/ 5/ 5/
2N1309A 2N1310 2N1311 2N1312 2N1313			GPA GNA SNA GNA GPA	1.5 A 1.2 A 1.2 A 1.2 A 1.8 A	15 O 90 B 75 B 50 B 15 O	3 3 3 3 4		80 20 15 20 40	10 m 5.0 m 5.0 m 20 m 20 m		12 B 5.0 m 5.0 m 20 m 8 B	20 20 20 20 20										5/ 9/ 5/ 5/ 5/
2N1314 2N1315 2N1316 2N1317 2N1318	2N3611 2N3611		GPA GPA GPA GPA GPA	125 C 125 C 2 A 2 A 2 A	40 R 16 15 O 12 O 6 O	3.5 3.5 4 4 4		20 45 50 45 40	1.0 A 1.0 A 4 4 4				8.0 B 8.0 B 8.0 B	20 20 20								3/ 3/ 5/ 5/ 5/
2N1319 2N1320 2N1321 2N1322 2N1323			GPA GPA GNA GPA GNA	1.2 A 2.0 C 2.5 C 2.0 C 2.5 C	20 V 30 S 30 S 60 S 45 S	4 3.0 3.0 3.0 3.0		15 40 30 40 30	4 A 5 A 5 A 5 A 5 A		3.0 T 5 A 5 A 5 A 5 A											5/ 10/ 10/ 10/ 10/
2N1324 2N1325 2N1326 2N1327 2N1328			GPA GNA GPA GNA GPA	20 C 25 C 20 C 25 C 20 C	80 S 60 S 100 S 80 S 30 S	3.0 3.0 3.0 3.0 3.0		40 30 40 30 40	5 A 5 A 5 A 5 A 5 A													10/ 10/ 10/ 10/ 13/
2N1329 2N1330 2N1331 2N1332 2N1333			GNA GNA GPA GNA GPA	25 C 25 C 20 C 25 C 20 C	30 S 45 S 80 S 60 S 100 S	3.0 3.0 3.0 3.0 3.0		30 30 40 30 40	5 A 5 A 5 A 5 A 5 A													13/ 13/ 13/ 13/ 13/
2N1334 2N1335 2N1336 2N1337 2N1338	2N3019 2N3019 2N3019 2N2193		GNA SNA SNA SNA SNA	25 C 8 A 8 A 8 A 8 A	80 S 45 O 45 O 45 O 25 O	3.0 3 3 3 3		30 10 10 10 10	5 A 30 m 30 m 30 m 30 m		5 A 70 T 70 T 70 T 70 T	8.0 8.0 8.0 8.0 10										13/ 5/ 5/ 5/ 5/
2N1339 2N1340 2N1341 2N1342 2N1343	2N3019 2N3019 2N3019 2N3019		SNA SNA SNA SNA GPA	0.8 A 0.8 A 0.8 A 0.8 A 0.15 A	50 O 50 O 50 O 65 O 16 O	0.3 0.3 3 0.3 0.4		10 10 10 10 15	30 m 30 m 30 m 30 m 50 m		70 T 70 T 70 T 70 T 3.2 B	8.0 8.0 8.0 8.0 20										5/ 5/ 5/ 5/ 5/
2N1344 2N1345 2N1346 2N1347 2N1352			GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	10 O 8 O 10 O 12 O 20 O	0.4 0.4 0.4 0.4 0.2		60 30 40 30 40	20 m 0.4 A 35 m 10 m 40		5.6 B 8.0 B 8.0 B 8.0 B	20										5/ 5/ 5/ 5/ 5/
2N1353 2N1354 2N1355 2N1356 2N1357			GPA GPA GPA GPA GPA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	10 O 15 O 20 O 20 O 15 O	0.2 0.2 0.2 0.2 0.2		25 25 30 40 40	10 m 10 m 10 m 10 m 10 m		1.76 B 2.4 B 4.0 B 4.0 B 8.0 B	35 20										5/ 5/ 5/ 5/ 5/
★ 2N1358 ★ 2N1358A ★ 2N1359 ★ 2N1360 D 2N1361		1 1 1 1	GPA PGP GPA GPA GPA	90 C 150 C 90 C 90 C 0.15 A	40 O 60 O 40 S 40 S 20 O	3.0 15 3.0 3.0 3.0		40 40 35 60 40	1.2 A 1.2 A 1.0 A 1.0 A 25 m		0.08 B 0.08 B 1.75 E 3.0 E 3.2 B	3.0		30K/60K								36/5 36/5 3/ 3/ 3/
D 2N1361A ★ 2N1362 2N1363 ★ 2N1364 ★ 2N1365		1 1 1 1	GPA GPA GPA GPA GPA	0.2 A 90 C 90 C 90 C 90 C	20 O 75 S 75 S 100 S 100 S	3.0 3.0 3.0 3.0 3.0		40 35 60 35 60	257 m 1.0 A 1.0 A 1.0 A 1.0 A		3.2 B 1.75 E 3.0 E 1.75 E 3.0 E											3/ 3/ 3/ 3/ 3/



2N1366-2N1434

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	Vce Volts	Subscript	Ic Amp Max	hFE Min	Ic Unit	fT MHz	Cob pF	Pout Watts	ΔVBE mV	Gp dB	NF@ f dB	Unit	PACKAGE To- Case No. No.
2N1366 2N1367 2N1370 2N1371 2N1372			GNA GNA GPA GPA	0.1 A 0.1 A 0.25 A 0.25 A	18 R 18 R 25 R 25 R	R R R R	.025 .025 0.2 0.2	20 10 45 45	1.0 m 1.0 m 50 m 50 m	2.0 B 2.0 B	18 14			1.0 1.0 1.0	100 m 100 m 100 m	5/ 5/ 5/ 5/	
2N1373 2N1374 2N1375 2N1376 2N1377			GPA GPA GPA GPA GPA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 R 25 R 45 R 25 R 45 R	R R R R R	0.2 0.2 0.2 0.2 0.2	27 45 45 67 67	50 m 50 m 50 m 50 m 50 m					1.0 1.0 1.0 1.0 1.0	100 m 100 m 100 m 100 m 100 m	5/ 5/ 5/ 5/ 5/	
2N1378 2N1379 2N1380 2N1381 2N1382			GPA GPA GPA GPA GPA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	12 R 25 R 12 R 25 R 25 R	R R R R R	0.2 0.2 0.2 0.2 0.2	85 85 27 27 45	50 m 50 m 50 m 50 m 50 m					1.0 1.0 1.0 1.0 1.0	100 m 100 m 100 m 100 m 100 m	5/ 5/ 5/ 5/ 5/	
2N1383 2N1384 2N1385 2N1386 2N1387	2N2222 2N2222		GPA GPA GPA SNA SNA	0.25 A 0.24 A 0.75 A 0.3 A 0.3 A	25 R 30 O 10 D 25 D 30 O	R O D D O	0.2 0.5 0.1 0.05 0.05	27 20 10 30 20	50 m 200 m 10 m 10 m 10 m	20 T 250 T	2.5			1.0 6 5	100 m 5.0 m 5.0 m	5/ 11/ 5/ 5/	
2N1388 2N1389 2N1390 2N1391 2N1392	2N2222 2N2222 2N2222 THRU		SNE SNF SNE GNA DPT	0.3 A 0.3 A 0.3 A 0.15 A Table 10	25 O 50 O 20 D 18 O	O O D O	0.05 0.05 0.05 0.05	15 30 35	10 m 10 m 10 m	24 T 16 B 2.4 T	10 6.0			30 15 40	1000 I 1 M 1000 H	5/ 5/ 5/	
2N1394 2N1395 2N1396 2N1397 2N1398	2N2955 2N3323 2N3323		OPT GPA GPA GPA GPA	Table 10 0.12 A 0.12 A 0.12 A 0.05 A	40 O 40 O 40 O 20 D	O O O D	0.01 0.01 0.01 0.01	50 50 50 10	15 m 15 m 15 m 0.5 m	24 B 24 B 96 B 140 T	3.0 3.0 3.0 3.0			15 18 7.5		5/ 5/ 5/	
2N1399 2N1400 2N1401 2N1402 2N1403			GPA GPA GPA GPA GPA	0.05 A 0.05 A 0.05 A 0.05 A 0.25 A	20 D 20 O 20 O 20 O 12 O	D O O O O	0.01 0.01 0.01 0.01 0.1	3.5 5.0 5.0 3.5 25	0.5 m 0.5 m 0.5 m 1.5 m 7.0 m	140 T 100 T 120 T 100 T 200 T	3.0 3.0 3.0 3.0			.75 .75 .75 .75 .75	10 m 10 m 10 m 10 m	5/ 5/ 5/ 5/	
2N1404 2N1404A 2N1405 2N1406 2N1407 2N1408			GPA GPA GPF GPF GPF	0.15 A 0.15 A 0.75 A 0.75 A 0.75 A	25 B 15 O 20 O 20 O 20 O	B O O O O	0.3 0.05 0.05 0.05	30 10 10 10	12 m 2.0 m 2.0 m 2.0 m	32 B 3.0 T 250 T 250 T 200 T	20 3.0 3.0 3.0			15 15 5.0 8.0 10	12 m 12 m 200 M 200 M 200 M	5/ 12/ 12/ 12/	
2N1408 2N1409 2N1409A 2N1410 2N1410A	2N2537 2N2537 2N2537 2N2537	1	GPA SNA SNA SNA SNA	0.15 A 0.6 A 0.8 A 0.6 A 0.8 A	5 S 25 D 25 O 30 O 30 O	S D O O O		10 15 15 39 30	50 S 150 m 150 m 150 m 150 m	200 T 200 T 200 T 130 T 130 T						5/31	
2N1411 2N1412 2N1413 2N1414 2N1415	2N962	1 1 1 1	GPA GPA GPA GPA	0.25 A 70 C 0.2 A 0.2 A 0.2 A	5 S 65 D 25 R 25 R 25 R	S D R R R	0.05 0.2 0.2 0.2	20 25 25 34 53	50 m 5.0 A 20 m 20 m 20 m	25 T 6.4 B 0.8 B 1.04 B	6.0 40 40 40			45 7	10 m 12 f	24/ 36/5 5/31 5/31 5/31	
2N1416 2N1417 2N1418 2N1419 2N1420	2N1193 2N1164 2N2219S		GPA SNA SNA GPA SNA	0.1 A 0.15 A 0.15 A 87 C 0.6 A	18 U 15 D 30 D 40 D 30 R	U D D D R	0.05 0.05 0.05 1.0	40 100	25 A 150 m	50 T	35			.7 1.5	25 f 150 m	5/ 5/ 3/ 5/	
2N1420A 2N1421 2N1422 2N1423 2N1424	2N2219 2N5477 2N5477 2N5477 2N5477		SNA SNA SNA SNA SNA	0.8 A 30 C 30 C 60 C 60 C	40 R 60 S 60 S 60 S 60 S	R S S S S	1.0 3.0 3.0 3.0 3.0	100 20 20 20 20	150 m 1.0 A 1.0 A 2.0 A 2.0 A	60 T 10 T 10 T 10 T 10 T	25			1.5 3.0 3.0 5.0 5.0	150 m 1.0 f 1.0 f 2.0 A 2.0 A	5/ 3/ 3/	
2N1425 2N1426 2N1427 2N1428 2N1429	2N962 2N869 2N869		GPA GPA GPA SPA SPA	0.08 A 0.08 A 0.25 A 0.1 A 0.1 A	0.08 A 6.0 S 6.0 O 6.0 O 6.0 O	A S O O O	0.01 0.05 0.05 0.05	20 12 12	50 m 5.0 m 5.0 m	50 T 16 T 16 T	3.7 3.7 14 14			2 1 1	50 m 5.0 m 5.0 m	7/ 7/ 24/ 1/ 5/	
2N1430 2N1431 2N1432 2N1433 2N1434			GPA GNA GPA GPA GPA	70 C 0.18 A 0.1 A	100 D 15 R 45 R 50 O 50 O	D R R O O	0.1 0.1 0.01 3.5 3.5	30 75 20 20 45	5.0 A 35 m 2.0 A 2.0 A	0.6 T 0.75 E	3.0			.4 1.5 1.0	10 A 2.0 A 2.0 A	10/ 10/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE Volts	IC Subscript	IC Amp Max	hFE Min	IC @	Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ dB Max	f	Unit	PACKAGE To-Case No. No.
0 2N1435 2N1436 2N1437 2N1438 2N1439	2N2907A		GPA GPG GPA GPA SPA	0.05 A 23 C 23 C 0.4 A	50 O 12 S 90 S 90 S 50 O	3.5 0.05 3.0 3.0 0.1		30 20 20 20	2.0 10 0.5 0.5 1.0	A m m m m	0.15 0.08 0.08 0.08	E		5.0	70/100	6 2 1.0 1.0 .25		2.0 10 1.0 1.0 5.0	A m m m m	10/ 9/ 13/ 10/ 5/	
2N1440 2N1441 2N1442 2N1443 D 2N1444	2N2907A 2N2907A 2N2907A 2N2907 2N2410		SPA SPA SPA SPA SNG	0.4 A 0.4 A 0.4 A 0.4 A 0.5 A	50 O 35 O 30 O 15 O 20 O	0.1 0.1 0.1 0.1 0.25			1.0 1.0 1.0 1.0 .25	m m m m A	0.8 0.8 0.8 0.8	B B B B			250/250		25 .25 .25 .25 1.5		5.0 5.0 5.0 5.0 2.5	m m m m A	5/ 5/ 5/ 5/ 29/
2N1445 2N1446 2N1447 2N1448 2N1449	2N5682 2N1191 2N1191 2N1192 2N1189		SNA GPA GPA GPA GPA	4.0 C 0.2 A 0.2 A 0.2 A 0.2 A	120 O 25 O 25 O 25 O 25 O	0.75 0.4 0.4 0.4 0.4		20 16 35 50 70	200 20 20 20 20	m m m m m	1.5 0.64 1.2 1.6 2.0	E B B B B					4.0		200	m	5/ 5/ 5/ 5/ 5/
2N1450 2N1451 2N1452 D 2N1453 D 2N1454	2N2955 2N464 2N1191		GPA GPA GPA GPA GPA	0.12 A 0.2 A 0.2 A	20 C 20 O 20 O 20 O 20 O	0.1 0.4 0.4 0.4 0.4		20 20 30 40 70	10 20 20 1.0 1.0	m m m A A		0.2 0.35	E E				.25		10	m	5/ 5/ 13/ 13/
D 2N1455 D 2N1456 D 2N1457 D 2N1458 D 2N1461			GPA GPA GPA GPA GPA		40 O 40 D 60 D 60 D 20 O	5.0 5.0 5.0 5.0 5.0		40 40 40 70 40	1.0 1.0 1.0 1.0 1.0	A A A A A	0.2 0.35 0.2 0.35 0.2	E E E E E					1.0 1.0 1.0 1.0 1.0		3.0 3.0 3.0 3.0 3.0	A A A A A	13/ 13/ 13/ 13/ 10/
D 2N1462 D 2N1463 D 2N1464 2N1465 2N1466			GPA GPA GPA GPA GPA		20 C 40 D 40 O 70 D 20 C	5.0 5.0 5.0 3.0 3.0		70 40 70 20 20	1.0 1.0 1.0 0.5 0.5	A A A A A	0.35 0.2 0.35 0.08 0.08	E E E E E					1.0 1.0 1.0 .75 .75		3.0 3.0 3.0 1.0 1.0	A A A A A	10/ 10/ 10/ 13/ 10/
2N1469 2N1470 2N1471 2N1472 2N1473	2N2906 2N5068 2N834		SPE SNA GPA SNA GNA	0.25 A 55 C 0.2 A 0.15 A 1.67 A	35 U 60 S 15 R 25 D 20 D	0.1 3.0 1.5 0.4		15 20 25	1.0 10 400	A m m	1.6 2.4 7.5 3.2	B B T B	7.0 3.5 2.0				25 3.0 .25		1.0 10	A m	5/ 3/ 9/ 5/
2N1474 2N1474A 2N1475 2N1476 2N1477	2N2906A 2N2906A 2N2906A 2N4928 2N4928		SPE SPE SPE SPE SPE	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	60 U 60 U 60 U 100 U 100 U	0.1 0.1 0.1 0.1 0.1					0.8 1.6 0.8 0.8 0.8	B B B B B	7.0 7.0 7.0 7.0				25 25 25 25 25		5.0 5.0 5.0 5.0 5.0	m m m m m	5/ 5/ 5/ 5/ 5/
2N1478 2N1479 2N1480 2N1481 2N1482	2N3427 2N4237 2N4238 2N4237 2N4238		GPA SNA SNA SNA SNA	0.25 A 5.0 C 5.0 C 5.0 C 5.0 C	20 S 60 V 100 V 60 V 100 V	0.4 1.5 1.5 1.5 1.5		40 20 20 35 35	100 200 200 200 200	m m m m m	2.4	B					2 1.4 1.4 1.4 1.4		10 200 200 200 200	m m m m m	9/ 5/ 5/ 5/ 5/
2N1483 2N1484 2N1485 2N1486 2N1487	2N4231 2N4232 2N4231 2N4232 2N4913		SNA SNA SNA SNA SNA	25 C 25 C 25 C 25 C 75 C	60 V 100 V 60 V 100 V 60 V	3.0 3.0 3.0 3.0 6.0		20 20 35 35 15	750 750 750 750 200	m m m m m							2.0 2.0 .75 .75 3.0		750 750 750 750 1.5	m m m m A	8/ 8/ 8/ 8/ 3/
2N1488 2N1489 2N1490 2N1491 2N1492	2N4914 2N4913 2N4914 2N2218 2N2192		SNA SNA SNA SNH SNH	75 C 75 C 75 C 3.0 C 3.0 C	100 V 60 V 100 V 30 V 60 V	6.0 6.0 6.0 0.1 0.1		15 25 25	200 1.5 1.5	m A A				5.0 5.0			3.0 1.0 1.0 13 13		1.5 1.5 1.5 70 70	A A A M M	3/ 3/ 3/ 39/ 39/
★ 2N1493 ★ 2N1494 ★ 2N1494A ★ 2N1495 D 2N1495A	2N3500	1	SNH GPA GPA GPA GPA	3.0 C 0.4 A 0.4 A 0.3 A 0.25 A	100 V 15 O 15 O 25 O 25 D	0.1 0.5 0.5 0.5 0.5		4 25 25 25	10 400 200 200 0.2	m m m m A	5.0 8.0 8.0 6.5 6.5	T T T T T					10 5 4 3 3		70 200 200 200 2	M m m m A	39/ 31/ 31/ 5/31 9/
★ 2N1496 2N1499 2N1499A 2N1499B 2N1500			GPA GPA GPA GPA GPA	0.5 A 0.25 A 0.60 A 0.75 A 0.60 A	25 D 15 S 20 S 20 D 12 S	0.5 0.05 0.05 0.1 0.05		25 20 30 40 20	200 10 10 10 10	m m m m m	150 150 150 150 120	T T T T T	6.5 3.0 3.0				3 2 2 2 .2		200 10 10 10 10	m m m m m	3/ 9/ 9/ 9/ 9/
D 2N1501 2N1502 2N1504 2N1505 2N1506	2N2144 2N2143 2N2219A 2N4237		GPA GPA GPA SNA SNP	27 C 27 C 25 C 0.8 A 0.8 A	40 O 40 O 60 D 20 O 20 D	3.5 3.5 3.0 0.5 0.5		25 25 21 7.0 10	2.0 2.0 0.5 0.1 0.1	A A A A A	0.2 0.2 0.084 7.0 140	T T T T T		20 12			6 6 .75 2.0 2.0		2.0 2.0 1.0 .15 70	A A A A M	5/ 5/ 5/ 5/ 5/



TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE Subscript	IC Amp Max	hFE @ Min	IC Unit	fT MHz Min	Sub	Cob pF Max	Pout Watts Min	t _{on} ns Max	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	IC & IC @ IB	Unit	PACKAGE To- Case No. No.
★ 2N1555A		1	GPA	90 C	40 0	15	30	10 A	0.09 E							5		10 A	3/	
★ 2N1556		1	GPA	90 C	75 S	15	30	10 A	0.03 E							5		10 A	3/	
★ 2N1556A		1	GPA	90 C	50 0	15	30	10 A	0.09 E							5		10 A	3/	
★ 2N1557		1	GPA	90 C	30 S	15	50	10 A	0.05 E							4		10 A	3/	
★ 2N1557A		1	GPA	90 C	20 0	15	50	10 A	0.15 E							5		10 A	3/	
★ 2N1558		1	GPA	90 C	45 S	15	50	10 A	0.05 E							4		10 A	3/	
★ 2N1558A		1	GPA	90 C	30 0	15	50	10 A	0.15 E							5		10 A	3/	
★ 2N1559		1	GPA	90 C	60 S	15	50	10 A	0.05 E							4		10 A	3/	
★ 2N1559A		1	GPA	90 C	40 0	15	50	10 A	0.15 E							5		10 A	3/	
★ 2N1560		1	GPA	90 C	75 S	15	50	10 A	0.05 E							4		10 A	3/	
★ 2N1560A		1	GPA	90 C	50 0	15	50	10 A	0.15 E							5		10 A	3/	
★ 2N1561			GPH	0.25 A	15 0	0.25						10				6.0		160 M	5/	
★ 2N1562			GPH	0.25 A	15 0	0.25						10						160 M	5/	
2N1564	2N2218		SNA	0.6 A	60 0	0.05	15	50 m							1.0		10 m	5/		
2N1565	2N2218		SNA	0.6 A	60 0	0.05	30	50 m							1.0		10 m	5/		
2N1566	2N2219		SNA	0.6 A	60 0	0.05	60	50 m							1.0		10 m	5/		
2N1566A	2N2219		SNA	0.6 A	60 0	0.1	60	50 m	100 T						.95		10 m	5/		
2N1572	2N3020		SNA	0.6 A	80 0	0.05	15	50 m							1.0		10 m	5/		
2N1573	2N3020		SNA	0.6 A	80 0	0.05	30	50 m							1.0		10 m	5/		
2N1574	2N3019		SNA	0.6 A	80 0	0.05	60	50 m							1.0		10 m	5/		
0 2N1585			GNA	0.75 A	10 0	0.1	20	10 m				2.7								
2N1586	2N706A		SNE	125 A	10 0	0.25	50	1.0 m		4.0 B					1.5	50	5.0 m			
2N1587	2N2501		SNE	125 A	20 0	0.25	50	1.0 m		4.0 B					1.5	50	5.0 m			
2N1588	2N2221		SNE	125 A	40 0	0.25	50	1.0 m		4.0 B					1.5	50	5.0 m			
2N1589	2N835		SNE	125 A	10 0	0.25	20	1.0 m		4.0 B					1.5	50	5.0 m			
2N1590	2N2501		SNE	125 A	20 0	0.25	20	1.0 m		4.0 B					1.5	50	5.0 m			
2N1591	2N2221		SNE	125 A	40 0	0.25	20	1.0 m		4.0 B					1.5	50	5.0 m			
2N1592	2N2222		SNE	125 A	10 0	0.25	40	1.0 m		4.0 B					1.5	50	5.0 m			
2N1593	2N2222		SNE	125 A	20 0	0.25	40	1.0 m		4.0 B					1.5	50	5.0 m			
2N1594	2N2222		SNE	125 A	40 0	0.25	40	1.0 m		4.0 B					1.5	50	5.0 m			
2N1595	1THRU		THY	Table 6																
2N1604			THY	Table 6																
2N1605			GNA	0.15 A	24 0	0.1	40	20 m		3.2 B		20			.15		12 m	5/		
2N1605A			GNA	0.2 A	40 U	0.1	40	20 m		3.2 B		20			.15		12 m	5/		
D 2N1606	2N3546		SNA	0.1 A	10 S	0.05	60	15 m		7.2 T					.15		5.0 m	5/		
D 2N1607	2N3546		SPA	0.1 A	10 S	0.05	60	15 m		10 T					.15		5.0 m	5/		
D 2N1608	2N3546		SPA	0.1 A	10 S	0.05	60	15 m		25 T					.15		5.0 m	5/		
D 2N1609	2N2140		GPA	4.5 C	60 D		30	100 m							1.0		500 m	37/		
D 2N1610	2N2145		GPA	4.5 C	60 0		50	100 m							.6		500 m	37/		
D 2N1611	2N2138		GPA	4.5 C	40 0		30	100 m							1.0		500 m	37/		
D 2N1612	2N2143		GPA	4.5 C	40 D		50	100 m							.6		500 m	37/		
★ 2N1613			SNE	0.8 A	50 R		40	150 m		60 T					1.0	8.0	1000 H	5/31		
2N1613A	2N2218		SNA	1.0 A	50 R		40	150 m		60 T					1.0	12	1000 H	5/31		
2N1613B	2N3019		SNE	1.0 A	55 R		40	150 m		60 T		10			.13	20	150 m	5/		
2N1614	2N1924		GPE	0.24 A	40 R	0.3	18	20 m		0.4 B		60			.13		20 m	5/		
2N1615	2N3500		SNA	0D55 A	100 0		25	5.0 m		2.0 T					5.0		5.0 m	5/		
2N1616	2N5477		SNA	60 C	60 0	5.0	15	2.0 A		3.0 T					2.0		2.0 A	5/		
2N1616A	2N5477		SNA	85 C	60 0	7.5	20	2.0 A		3.0 T					1.0		2.0 A	5/		
2N1617	2N5477		SNA	60 C	80 V	5.0	15	2.0 A		3.0 T					2.0		2.0 A	5/		
2N1617A	2N5477		SNA	85 C	70 0	7.5	20	2.0 A		3.0 T					1.0		2.0 A	5/		
2N1618	2N5479		SNA	60 C	100 V	5.0	15	2.0 A		3.0 T					2.0		2.0 A	5/		
2N1618A	2N5477		SNA	85 C	80 0	7.5	20	2.0 A		3.0 T					1.0		2.0 A	5/		
2N1620	2N5458		SNA	60 C	100 V	5.0	15	2.0 A		3.0 T										
D 2N1622			GNA	0.12 A	90 S		40	5.0 m										5/		
2N1623	2N2906		SPA	D.25 A	20 0	0.05	9.0	1.0 m		0.08 B					.3		5.0 m	9/		
2N1624			GNA	D.15 A	20 R		60	30 m		4.0 B								40/		
D 2N1631	2N3325		GPA	D.08 A														1/		
2N1632	2N3325		GPA	D.08 A														40/		
D 2N1633			GPA	D.08 A														1/		
D 2N1634			GPA	D.08 A														40/		
D 2N1635			GPA	D.08 A														1/		
D 2N1636			GPA	D.08 A														1/		
2N1637	2N3325		GPA	D.08 A														1/		
2N1638	2N3325		GPA	D.08 A														1/		
2N1639	2N3325		GPA	D.08 A														1/		
2N1640	2N5230		SPC	0.25 A	20 U	0.05	6.0	100 u										1/		
2N1641	2N5230		SPC	0.25 A	10 U	0.05	10	100 u										5/		
2N1642			SPC	0.25 A	60 U	0.05	15	100 u										5/		
2N1643			SPA	0.25 A	25 U	0.05	10	100 u										5/		
2N1644	2N2218		SNA	2.0 C	40 R		40	150 m			50 T				1.5		150 m	5/		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp Max	hFE Min	I _C Unit	f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF @ dB Max	f kHz	Unit	PACKAGE To-Case No. No.
2N1719 2N1720 2N1721 2N1722 2N1722A	2N3767 2N3766 2N3767 2N5427 2N1724		SNA SNA SNA SNA SNA	20 C 20 C 20 C 50 C 50 C	100 0 60 0 100 0 80 0 120 0	0.75 0.75 0.75 5.0 5.0	20 40 40 20 30	200 m 200 m 200 m 2.0 A 2.0 A	16 T 16 T 16 T 10 T 10 T		50 50 50 550			2.0 2.0 2.0 1.0 1.0		200 m 200 m 200 m 2.0 A 2.0 A		
★ 2N1723 2N1724 2N1724A ★ 2N1725 2N1726	2N1724 2N1724A 2N3323	1 1	SNA SNA SNA GPA	50 C 50 C 50 C 0.06 A	80 0 80 0 120 0 20 S	5.0 5.0 5.0 0.05	50 30 30 50 50	2.0 A 2.0 A 2.0 A 2.0 A 1.0 m	10 T 10 T 10 T 10 T 100 T		550 550			1.0 1.0 1.0 1.0		2.0 A 2.0 A 2.0 A 2.0 A	53/ 61/9 61/9 9/	
2N1727 2N1728 2N1729 2N1730 2N1731	2N3324 2N3324		GPA GPA GPG GNG GPA	0.06 A 0.06 A 0.15 A 0.15 A 0.15 A	20 S 20 S 15 X 15 X 30 X	0.05 0.05 0.3 0.3 0.3	20 20 30 30 40	1.0 m 1.0 m 100 m 100 m 10 m	100 T 100 T		20 20 20 20	300/600 300/600	.35 .35		200 m 200 m		9/ 9/ 5/ 5/ 5/	
★ 2N1732 2N1742 2N1743 2N1744 2N1745	2N3284 2N3284 2N3285		GNA GPE GPE GPA GPA	0.15 A 0.06 A 0.06 A 0.06 A 0.06 A	30 X 20 S 20 S 20 S 20 S	0.3 0.05 0.05 0.05 0.05	40 10 10 10 10	10 m 2.0 m 2.0 m 2.0 m 2.0 m	4.0 B		20 1.5 1.5 1.5			5.5 12	1000 H 1000 H		5/ 9/ 9/ 9/ 9/	
2N1746 2N1747 2N1748 2N1748A 2N1749	2N3323 2N3324 2N3324 2N3323 2N3323		GPA GPA GPA GPA GPA	0.06 A 0.06 A 0.06 A 0.06 A 0.75 A	20 S 20 S 25 S 25 S 40 S	0.05 0.05 0.05 0.05 0.01	10 10	1.0 m 1.0 m	100 T 80 T 100 T 80 T	3.0								9/ 9/ 9/ 9/ 9/
D 2N1750 2N1751 2N1752 D 2N1753 2N1754	2N3325	1	GPA GPA GPA GPA GPA	0.15 A 80 S 0.06 A 0.03 A 0.05 A	6 S 80 S 12 S 18 0 13 S	.005 25 0.05 0.05 0.1	18 30 50 20	500 u 20 A 100 u 10 m	30 M 1.2 B 50 M	6.0 3.0 2.5			5		20 A		24/ 3/ 9/ 1/ 9/	
2N1755 2N1756 2N1757 2N1758 2N1759	2N2137 2N2138 2N2139 2N2140 2N2142		GPA GPA GPA GPA GPA	28 C 28 C 28 C 28 C 28 C	35 S 50 S 65 S 75 S 35 S	3.0 3.0 3.0 3.0 3.0	30 30 30 30 60	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	0.45 E 0.45 E 0.45 E 0.9 E				.7 7 6 7 5		3.0 A 3.0 A 3.0 A 3.0 A 3.0 A			
2N1760 2N1761 2N1762 D 2N1763 D 2N1764	2N2143 2N2144 2N2145 2N3269A		GPA GPA GPA SNG SNG	28 C 28 C 28 C 0.3 A 0.3 A	50 S 65 S 75 S 25 0 15 0	3.0 3.0 3.0 0.05 0.05	60 60 60	0.5 A 0.5 A 0.5 A	0.9 E 0.9 E 0.9 E				32/58 32/58	1.5 1.5	10 m 10 m		51/ 51/	
2N1768 D 2N1769 D 2N1770 D 2N1778A D 2N1779	2N4231 2N4233 THRU THY Table 6 THY Table 6 GPA		SNA SNA THY THY GPA	40 C 40 C 0.1 A 0.1 A	40 0 55 0 20 R	3.0 3.0	35 35	750 m 750 m	0.48 B 0.48 B					.75 .75	750 m 750 m			
D 2N1780 D 2N1781 D 2N1782 D 2N1783 D 2N1784	2N3798		SPA GPA GPA GPA GPA	0.1 A 0.1 A 0.1 A 0.1 A 0.1 A	25 R 25 X 20 X 15 0 20 0		30 40 30 20 20	30 m 20 m 10 m 10 m 10 m	3.2 B 3.2 B 4.0 B 4.0 B 8.0 B				.15 .20 .32 .32		12 m 50 m 200 m 200 m			
2N1785 2N1786 2N1787 2N1788 2N1789	2N3324 2N3323 2N3324 2N3324 2N3325		GPA GPA GPA GPA GPA	0.45 A 0.45 A 0.45 A 0.05 A 0.06 A	10 S 10 S 15 S 35 S 35 S	0.05 0.05 0.05 0.05 0.05	40 15 20 40 15	1.0 m 1.0 m 1.0 m 1.0 m 1.0 m	50 T 50 T 50 T 100 T 100 T	3.0 3.0 3.0 2.5 2.5							9/ 9/ 9/ 9/ 9/	
2N1790 2N1792 2N1807 2N1808 2N1809	2N3323 THRU THY Table 6 GNA SNA		GPA THY THY GNA SNA	0.06 A Table 6 Table 6 0.15 A 250 C	35 S 20 R	0.05 0.3	25	1.0 m	100 T	2.5				.15 1.5	12 m 10 A		5/	
2N1810 2N1811 2N1812 2N1813 2N1814	2N5629 2N5629		SNA SNA SNA SNA SNA	250 C 250 C 250 C 250 C 250 C	100 V 150 V 200 V 250 V 300 V		10 10 10 10 10	10 A 10 A 10 A 10 A 10 A					1.5 1.5 1.5 1.5 1.5		10 A 10 A 10 A 10 A 10 A			
2N1816 2N1817 2N1818 2N1819 2N1820	2N5302 2N5302		SNA SNA SNA SNA SNG	250 C 250 C 250 C 250 C 250 C	50 V 100 V 150 V 200 V 250 V		10 10 10 10 10	15 A 15 A 15 A 15 A 15 A				20K/25K	1.5		15 A 15 A 15 A 15 A			

3

2N1821-2N1936

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE Volts	Subscript	Ic Amp Max	hFE Min	Ic @	Unit	ft MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ dB Max	f	Unit	PACKAGE To- No.	Case No.
D 2N1821 2N1823 2N1824 2N1825 2N1826	2N5685 2N5686		SNG SNA SNA SNA SNA	250 C 250 C 250 C 250 C 250 C	300 V 50 V 100 V 150 V 200 V		30	10 10 10 10 10	15 A 20 A 20 A 20 A 20 A						20K/25K		1.5 1.5 1.5 1.5 1.5		15 A 20 A 20 A 20 A 20 A			
D 2N1827 2N1828 2N1830 2N1831 2N1832	2N5685 2N5686		SNG SNA SNA SNA SNA	250 C 250 C 250 C 250 C 250 C	250 V 300 V 50 V 100 V 150 V		30 30	10 10 10 10 10	20 A 20 A 25 A 25 A 25 A						20K/25K 20K/25K		1.5 1.5 1.5 1.5 1.5		20 A 20 A 25 A 25 A 25 A			
D 2N1833 2N1834 D 2N1835 2N1837 2N1837A	2N2218 2N2218		SNA SNG SNG SNG SNG	250 C 250 C 250 C 0.8 A 0.8 A	200 V 250 V 300 V 30 O 30 O		30 30 30 0.5 0.5	10 10 10 40 40	25 A 25 A 25 A 150 m .15 A			140 T 140 T		18 18	20K/25K 20K/25K 200/500 200/500		1.5 1.5 1.5 8 8		25 A 25 A 25 A 150 m .15 A		5/ 5/	
D 2N1837B 2N1838 2N1839 2N1840 D 2N1841	2N2218 2N2218 2N2218 2N2218 2N5334		SNA SNG SNG SNA SNA	0.8 A 0.6 A 0.6 A 0.6 A 2.0 A	30 O 20 O 20 O 15 O 50 O		30 0.5 0.5 0.5 2.0	40 40 12 10 15	.15 A 0.1 A 0.1 A .15 A .15 m			140 T 90 T 90 T 90 T 900 E		27 27 27 27 40	200/800 200/600		8 1.4 1.4 1.4 1.0		.15 A .1 A .15 A .15 A 1.0 A		5/ 5/ 5/ 5/	
2N1842 2N1850B 2N1853 2N1854 2N1864	THRU 2N3324		THY THY GPG GPG GPG	Table 6 Table 6 0.15 A 0.15 A 0.06 A	6 O 6 O 20 S		0.1 0.1	30 40 10	6.0 m 20 m 1.0 m			40 T 20 m 50 T		12 3.0 3.0	800/900 60/80 /80		2 2		6.0 m 20 m		5/ 5/ 9/ 9/	
2N1865 2N1866 2N1867 2N1868 2N1869	2N3325 2N3323 2N3324 2N3325 THRU		GPA GPA GPA GPA THY	0.06 A 0.06 A 0.06 A 0.06 A Table 6	20 S 35 S 35 S 20 S		0.05 0.05 0.05 0.05	25 25 10 10	1.0 m 1.0 m 1.0 m 2.0 m					3.0 2.5 1.5							9/ 9/ 9/ 9/	
2N1885 2N1886 2N1889 ★ 2N1890 2N1891	2N4911 2N3498 2N3499		THY SNA SNA SNA GNA	Table 6 20 C 0.8 A 0.8 A 0.15 A	60 D 80 R 80 R 15 O		3.0 0.3	20 40 100 25	0.5 A 150 m 150 m 100 m			2.0 T 50 T 60 T 4.0 B		15 15 15 20			5.0 5.0 5.0 .15		1.0 A 150 m 150 m 100 m		5/ 5/ 5/ 5/	
★ 2N1892 2N1893 2N1893A D 2N1894 D 2N1895	2N3498 2N4238 2N4239		GPA SNA SNA SNA SNA	0.15 A 0.8 A 0.8 A 0.8 A 0.8 A	15 O 100 R 80 D 60 R 80 R		0.3 0.5 0.5 2.0 2.0	40 40 40 12 12	10 m 150 m 15 A 1.0 A 1.0 A			4.0 B 50 T 100 T		20 15 8.0			2 5.0 2.0 5.0 10		10 m 150 m .15 A 1.0 A 1.0 A		5/ 5/31 5/	
D 2N1896 D 2N1897 D 2N1898 2N1899 2N1900	2N5336 2N5336 2N5338		SNA SNA SNA SNG SNG	60 R 80 R 100 R 125 C 125 C	2.0 2.0 2.0 50 O 50 O		10 10 10 10 10	45 45 45 10 8.0	1.0 A 1.0 A 1.0 A 10 A 10 A			25 T 25 T 25 T 50 T 50 T		1000 1000 1000	1000/3500 500/3500		4.0 4.0 4.0 1.0 2.0		1.0 A 1.0 A 1.0 A 10 A 10 A			
2N1901 2N1902 2N1903 2N1904 2N1905	2N2832		SNG SNA SNA SNG GPA	125 C 125 C 125 C 125 C 30 C	50 O 50 O 50 O 50 D 50 O		10 10 10 10 6.0	20 10 8.0 20 50	10 A 10 A 10 A 10 A 1.0 A			50 T 50 T 50 T 50 T		1000 1000 1000	1000/3500 500/3500		1.0 1.0 2.0 1.0 1.0		10 A 10 A 10 A 10 A 5.0 A		3/ 3/	
2N1906 2N1907 D 2N1907A 2N1908 D 2N1908A	2N2832		GPA GPA GPA GPA GPA	30 C 60 C 60 C 60 C 60 C	60 O 40 O 40 O 40 O 50 O		6.0 20 20 20 20	75 30 30	1.0 A 10 A 10 A			10 T 10 T					5.0 7 1.0 7		5.0 A 15 A 10 A 10 A		3/ 3/ 3/ 3/	
2N1909 2N1916 2N1917 2N1918 2N1919	THRU		THY THY SPC SPC SPC	Table 6 Table 6 0.25 A 0.25 A 0.25 A	6 O 8 O 8 O 18 O		0.05 0.05 0.05					16 T 10 T 0.08 B		14 14 14			25 25 25		1000 H 1000 H 1000 H		5/ 5/ 5/	
2N1920 2N1921 2N1922 D 2N1923 ★ 2N1924	2N3498		SPC SPC SPC SNA GPE	0.25 A 0.25 A 0.25 A 0.75 A .225 A	18 O 50 O 80 O 85 O 40 R		0.05 0.05 0.05 0.06 0.5	4.0 34	20 m 20 m			0.08 B 0.08 B 0.08 B 0.08 B 0.08 B		14 14 14 15 30			30 25		1000 H 1000 H 1000 H 10 K 1000 H		5/ 5/ 5/ 11/ 5/31	
★ 2N1925 ★ 2N1926 2N1929 2N1935 2N1936	THRU MJ7000		GPA GPA THY THY SNA	225 A 225 A Table 6 Table 6 150 C	40 R 40 R 60 O		0.5 0.5	53 72 7.0	20 m 20 m 10 A			1.04 B 1.2 B 4.0 T		30 30			11 11 .75		20 m 20 m 10 A		5/31 5/31	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Substr	Ic Amp Max	hFE @ Min	Ic Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ dB Max	f Unit	PACKAGE To-Case No. No.	IC & IC
2N1937 D 2N1940 2N1941 D 2N1942 2N1943	MJ7000 2N2219A 2N3020		SNA GPP SNA GPA SNA	150 C 35 C 0.6 A 0.2 A 0.8 A	80 O 15 O 30 R 10 O 60 O		0.25 1.0 0.5	7.0 5.0 3.0 2.0 3.0	10 A 40 m 10 m 0.2 A 200 m	4.0 T 60 T 60 T 4.0 B 200 m		12 35 20		.75 10 1.5 5.0		10 A 70 M 50 m 200 m		5/ 5/ 5/ 5/ 5/	
2N1944 2N1945 2N1946 2N1947 2N1948	2N2219A 2N2219A 2N2219A		SNA SNA SNA SNA SNA	0.6 A 0.6 A 0.6 A 0.6 A 0.6 A	20 R 30 R 40 R 20 R 30 R		1.0 1.0 1.0 1.0 1.0	150 150 150 500 500	1.0 m 1.0 m 1.0 m 0.1 A 0.1 A	60 T 60 T 60 T 60 T 60 T		40 40 40 40 40						5/ 5/ 5/ 5/ 5/	
2N1949 2N1950 2N1951 2N1952 2N1953	2N2218		SNA SNA SNA SNA SNA	0.6 A 0.6 A 0.6 A 0.6 A 0.6 A	40 R 20 R 30 R 40 R 20 S		1.0 1.0 1.0 1.0 1.0	500 250 250 250 15	0.1 A 0.1 A 0.1 A 0.1 A 10 m	60 T 60 T 60 T 60 T 40 T		40 40 40 40 35						5/ 5/ 5/ 5/ 5/	
2N1954 2N1955 2N1956 2N1957 2N1958	2N651 2N1190 2N651 2N1187 2N2537		GPG GPG GPG GPG SNA	0.2 A 0.2 A 0.2 A 0.2 A 0.6 A	20 O 18 O 16 O 16 O 40 R		0.2 0.2 0.2 0.2 0.5	30 50 30 30 20	20 m 20 m 20 m 20 m 150 m	100 T	18	2750/6250 2750/6250 2750/6250 2750/6250		.3 .17 .17 .17 .45		20 m 20 m 20 m 20 m 150 m		5/ 5/ 5/ 5/ 5/	
2N1958A 2N1959 2N1959A D 2N1960 D 2N1961	2N2537 2N5859 2N2537		SNA SNA SNA GPA GPA	0.6 A 0.6 A 0.6 A 0.15 A 0.15 A	40 R 40 R 40 R 15 12		1.0 0.5 1.0 0.2 0.2	20 40 40 25 20	150 m 150 m 150 m 10 m 10 m	100 T	14 18 14		.45 .45 .45 .16 .20		150 m 150 m 150 m 10 m 10 m		5/ 5/ 5/ 5/ 5/		
D 2N1962 D 2N1963 D 2N1964 D 2N1965 2N1966	2N2537 2N2537 2N2539 2N2539 THRU		SNA SNA SNA SNA THY	0.4 A 0.4 A 0.4 A 0.4 A	20 R 15 R 40 R 40 R		0.2 0.2 0.4 0.5	20 25 20 40	10 m 10 m 150 m 15 A	200 T 200 T 100 T 100 T	3.0 3.5 18 18		.25 .16 .45 .45		10 m 10 m 150 m 15 A		5/ 5/ 5/ 5/ 5/		
2N1968 2N1969 ★ 2N1970 2N1971 2N1972	1 2N3616 2N2219		THY GPA GPA GPA SNA	Table 6 0.15 A 150 C 40 O 0.6 A	15 O 50 B 40 O 30 R		0.4 15 15 110	50 17 25 110	200 v 5.0 A 0.5 A 50 m	8.0 B 0.085 E 0.375 E 50 T	20 35		1.0 .9 2.0		12 A 3.0 A 50 m		5/ 36/5 36/		
2N1973 2N1974 2N1975 D 2N1978 ★ 2N1980	2N2219 2N3498 2N3498		SNA SNA SNA SNA GPA	0.8 A 0.8 A 0.8 A 30 C 170 C	80 R 80 R 80 R 40 R 30 O		15 15 15 15	75 35 15 20 50	10 m 10 m 10 m 500 m 5.0 A	60 T 50 T 40 T 40 T 0.15 E	15 85		1.2 1.2 1.2 1.5 .5		50 m 50 m 50 m 1.0 A 5.0 A		5/ 5/ 5/ 5/ 5/		
★ 2N1981 ★ 2N1982 2N1983 2N1984 2N1985	1 1 2N2218S 2N2219S 2N2218		GPA GPA SNA SNA SNA	170 C 170 C 0.6 A 0.6 A 0.6 A	40 O 50 O 25 O 25 O 25 O		15 15 1.0 1.0	50 50	5.0 A 5.0 A	0.15 E 0.15 E 40 T 40 T 40 T	45 45 45		.5 .5		5.0 A 5.0 A		36/5 36/5 36/5 5/ 5/		
2N1986 2N1987 2N1988 2N1989 ★ 2N1990	2N2219 2N2218 2N2218A 2N2218A		SNA SNA SNA SNA SNA	0.6 A 0.6 A 0.6 A 0.6 A 0.6 A	25 O 25 O 45 O 45 O 100 B		1.0	60 20 35 20 20	150 m 150 m 30 m 30 m 30 m	40 T 40 T 40 T 40 T	20		1.5 1.5 2.0 2.0 .5		150 m 150 m 30 m 30 m 2.0 m		5/ 5/ 5/ 5/ 39/79		
★ 2N1991 D 2N1992 2N1993 2N1994 2N1995	2N2221		SPA SNA GNA GNG GNG	0.6 A 0.35 A 0.15 A 0.15 A 0.15 A	20 O 15 O 18 O 15 O 15 O		0.6 0.05 0.3 0.3 0.3	15 30 50 15 25	150 m 10 m 10 m 10 m 10 m	40 T 300 T 2.4 B 2.4 B 4.0 B	45 6.0 20 20 20	1500/1800 1300/1800		1.5 .25 .2 .25 .25		150 m 10 m 10 m 200 m 200 m		5/31 18/ 5/ 5/ 5/	
2N1996 2N1997 2N1998 2N1999 2N2000			GNG GPG GPG GPG GPG	0.15 A 0.25 A 0.25 A 0.25 A 0.3 A	15 O 15 O 15 O 15 O 15 O		0.3 0.5 0.5 0.5 1.0	35 40 70 100 50	10 m 100 m 100 m 100 m 100 m	6.4 B 2.4 B 5.6 T 10 T 1.6 B	20 20 20 20 35	1100/1800 360/1150 310/1080 235/935 820/1400		.25 .2 .2 .2 .35		200 m 10 m 10 m 10 m 500 m		5/ 5/ 5/ 5/ 5/	
2N2001 2N2002 2N2003 2N2004 2N2005	2N5230 2N5230 2N5231 2N5231		GPG SPC SPC SPC SPC	0.3 A 0.25 A 0.25 A 0.25 A 0.25 A	15 O 5 O 5 O 15 O 15 O		1.0 0.1	100 12	100 m 10 m	4.8 B 0.4 B	35	700/1300		.2		100 m		5/ 5/ 5/ 5/	
2N2006 2N2007 2N2008 2N2009 2N2014	2N3500 THRU		SPC SPC SNA THY THY	0.25 A 0.25 A 0.8 A	35 O 35 O 110 O		0.5	30	10 m	40 T	15		2.5		25 m		5/		



2N2015-2N2091

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Subscript	Ic Amp Max	hFE Min	Ic Unit	fT MHz Min	Sub	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ dB Max	f Unit	PACKAGE To- Case No. No.
2N2015 2N2016 2N2017 2N2018 2N2019	2N5881 2N5882 2N2405 2N5051 2N5052		SNA SNA SNA SNA SNA	150 C 150 C 1.0 A 20 C 20 C	50 0 65 0 60 0 150 V 200 V		10 10 1.0 2.0 2.0	15 15 50 20 20	5.0 A 5.0 A 200 m 0.5 A 0.5 A	0.18 E 0.18 E m T T		400 400			1.2 1.2		5.0 A 5.0 A	36/ 36/
D 2N2020 2N2021 2N2022 2N2023 2N2031	2N5050 2N5051 THRU THY Table 6 THY Table 6		SNA SNA GPG THY	20 C 20 C 0.15 A Table 6	125 0 140 0 12 S		2.0 2.0 0.05	40 40 25	0.5 A 0.5 A 10 m	3.0 T 3.0 T 250 T		8.0	60/100		6.0 6.0 1.2		1.0 A 1.0 A 50 m	28/
2N2032 2N2033 2N2034 2N2035 2N2036	2N4232 2N4238 2N5334 2N4232 2N4232		SNA SNG SNG SNG SNG	45 C 5.0 C 14 C 17 C 17.5 C	45 0 60 0 60 0 60 0 60 0		5.0 3.0 3.0 3.0 3.0	20 20 20 20 20	2.0 A 500 m 1.0 A 1.5 A 2.0 A	3.0 T 1.0 T 1.0 T 1.0 T 1.0 T			1000/1500 1000/1500 1000/1500 1000/1500	5.0 4 3 45 1.0		2.0 A 500 m 1.0 A 1.5 A 2.0 A	5/ 5/ 8/ 37/	
2N2038 2N2039 2N2040 2N2041 ★ 2N2042,A	2N4237 2N4238 2N4237 2N4238		SNA SNA SNA SNA GPA	0.6 A 0.6 A 0.6 A 0.6 A 0.2 A	45 0 75 0 45 0 75 0 105 S		0.2 0.2 0.2 0.2 0.2	12 12 30 30 20	0.2 A 0.2 A 0.2 A 0.2 A 5.0 m	2.0 T 2.0 T 2.0 T 2.0 T 0.4 B		25		6.0 6.0 6.0 6.0 6.0		2 A 2 A 2 A 2 A	5/31	
★ 2N2043,A 2N2048 2N2048A 2N2049 D 2N2059	2N2955 2N2219A		GPA GPG GPG SNE GPS	0.2 A 0.15 A 0.15 A 0.8 A 0.06 A	105 S 15 0 20 0 50 R 8 S		0.2 0.1 0.1 0.5 0.05	40 50 50 100 20	5.0 m 10 m 10 m 150 m 10 m	0.6 B 1.0 T 0.375 E 50 T 50 T		25 3.0 3.0 2.5 2.5	60/60 35/145	1.4 1.4	3.0	10 m 10 m 1000 H 10 m	5/31 9/ 9/ 5/ 1/	
★ 2N2060 ★ 2N2060A 2N2060B 2N2061 2N2061A		1 1	SNM SNM SNE GPA GPA	0.5 A 0.5 A 100 B 40 C 90 C	60 0 60 0 100 B 10 0 15 0		0.5 0.5 0.5 3.0 3.0	30 30 10 20	100 u 100 u 0.5 A 0.5 A 2.0 A	60 T 60 T E E E		15 15	/15 /3.0	6 8.0	1000 H 1000 H 1000 H	78/654 78/654		
2N2062 2N2062A 2N2063 2N2063A 2N2064			GPA GPA GPA GPA GPA	40 C 90 C 35 C 90 C 35 C	10 0 15 0 15 0 20 0 15 0		3.0 5.0 3.0 5.0 3.0	20 50 10 20 20	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	0.04 E 0.05 E 0.02 E 0.1 E 0.04 E				1.0 7 2.0 1.0 1.0		2.0 A 5.0 A 2.0 A 5.0 A 2.0 A	3/ 3/ 3/ 3/ 3/	
2N2064A 2N2065 2N2065A 2N2066 2N2066A			GPA GPA GPA GPA GPA	90 C 35 C 90 C 35 C 90 C	20 0 25 0 40 0 25 0 40 0		5.0 3.0 5.0 3.0 5.0	50 10 20 20 50	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	0.05 E 0.02 E 0.1 E 0.04 E 0.05 E		0.1		7 2.0 1.0 1.0 7		5.0 A 2.0 A 5.0 A 2.0 A 5.0 A	3/ 3/ 3/ 3/ 3/	
D 2N2067 2N2068 D 2N2069 D 2N2070 D 2N2071	2N1536 2N1531 2N1539 2N1541 MP1539		GPH GPA GPA GPA GPA	28 C 28 C 70 C 70 C 70 C	25 0 55 0 30 S 60 S 30 S		3.0 3.0 12 12 12	20 20 30 30 30	0.5 A 0.5 A 5.0 A 5.0 A 5.0 A	0.14 E 0.14 E 0.045 E 0.045 E 0.045 E				28 28 15 15 15		8 M 1.0 A 12 A 12 A 12 A	3/ 3/ 3/ 3/	
D 2N2072 ★ 2N2075 ★ 2N2075A ★ 2N2076 ★ 2N2076A	MP1541	1 1 1 1 1	GPA GPA GPA GPA GPA	70 C 170 C 170 C 170 C 170 C	60 S 80 S 80 S 70 S 70 S		12 15 15 15 15	30 20 20 20 20	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	0.045 E 0.1 E 0.1 E 0.1 E 0.1 E				1.5 7 7 7 7		12 A 12 A 12 A 12 A 12 A	3/ 36/5 36/5 36/5 36/5	
★ 2N2077 ★ 2N2077A ★ 2N2078 ★ 2N2078A ★ 2N2079		1 1 1 1 1	GPA GPA GPA GPA GPA	170 C 170 C 170 C 170 C 170 C	50 S 50 S 40 S 40 S 80 S		15 15 15 15 15	20 20 20 20 35	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	0.1 E 0.1 E 0.1 E 0.1 E 0.175 E				9 9 9 9 7		12 A 12 A 12 A 12 A 12 A	36/5 36/5 36/5 36/5 36/5	
★ 2N2079A ★ 2N2080 ★ 2N2080A ★ 2N2081 ★ 2N2081A		1 1 1 1 1	GPA GPA GPA GPA GPA	170 C 170 C 170 C 170 C 170 C	80 S 70 S 70 S 50 S 50 S		15 15 15 15 15	35 35 35 35 35	5.0 A 5.9 A 5.0 A 5.0 A 5.0 A	0.175 E 0.175 E 0.175 E 0.175 E 0.175 E				7 7 7 7 9		12 A 12 A 12 A 12 A 12 A	36/5 36/5 36/5 36/5 36/5	
★ 2N2082 ★ 2N2082A D 2N2083 2N2084 2N2085		1 1	GPA GPA GPA GPH GNA	170 C 170 C 0.06 A 125 A 0.15 A	40 S 40 S 30 B 20 0 23 X		15 15 0.01 0.01	35 35 25 40 50	5.0 A 5.0 A 1.0 m 1.0 m 10 m	0.175 E 0.175 E 30 T 40 T 4 T		3.2 4.0		9 12		12 A 12 A 100 M	36/5 36/5 7/ 33/ 5/	
2N2086 2N2087 2N2089 2N2090 2N2091	2N3020 2N3020		SNA SNG GPF GPA GPF	0.6 A 0.6 A 0.1 A 0.1 A 0.1 A	80 R 80 R 20 R 20 R 20 R		0.5 0.5 0.11 0.11 0.11	20 40 40 40 40	150 m 150 m 1.0 m 1.0 m 1.0 m	150 T 150 T 44 T 44 T 44 T		12 12 4.0 4.0	85/155		9.5	100 M	5/ 5/ 7/ 7/ 7/	
															27	4.5	10 M	7/

3

2N2155A-2N2217

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Substr	I _C Amp	hFE Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ dB	f Unit	PACKAGE To-Case No. No.
★ 2N2155A 2N2156 2N2156A ★ 2N2157 2N2157A		1	GPA GPA GPA GPA GPA	170 C 170 C 170 C 170 C 170 C	65 O 45 S 30 O 60 S 45 O	30 30 30 30 30	50 80 80 80 80	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	0.1 E 0.16 E 0.16 E 0.16 E 0.16 E					1 1 1 1 1		5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	36/ 36/5 36/ 36/5 36/
★ 2N2158 2N2158A 2N2159 D 2N2160 D 2N2161	2N2222	1	GPA GPA GPA UJT SNG	170 C 170 C 170 C Table 8 0.2 A	75 S 60 O 90 S 30 35 O	30 30 30 30 0.05	80 80 80 80 60	5.0 A 5.0 A 5.0 A 5.0 A 10 m	0.16 E 0.16 E 0.16 E 0.16 E 25 T		3.0	350/700	1.5			10 m	5/31
2N2162 2N2163 2N2164 2N2165 2N2166	2N2946 2N2945 2N2944 2N2946 2N2945		SPC SPC SPC SPC SPC	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	30 O 15 O 8 D 30 O 15 O	0.05 0.05 0.05 0.05 0.05				14 T 14 T 24 T 10 T 10 T	10 10 10 10 10						5/31 5/31 5/31 5/31 5/31
2N2167 2N2168 2N2169 2N2170 ★ 2N2171	2N2944	1	SPC GPS GPS GPS GPA	0.15 A 0.06 A 0.06 A 0.06 A 0.2 A	8 O 15 O 15 O 10 R 25 R	0.05 0.01 0.1 0.1 0.4	50 40 40 40 110	10 m 10 m 10 m 10 m 20 m		16 T	10 2.5 2.5 3.0	18/18 18/18 20/20	12 15 18		10 m 10 m 10 m	5/31 9/ 9/ 9/ 5/31	
2N2172 2N2173 2N2175 2N2176 2N2177			GPA GPG SPA SPA SPE	0.2 A 0.24 A 0.1 A 0.1 A 0.1 A	15 O 15 O 6 O 6 O 6 O	0.4 0.75 0.05 0.05 0.05	30 30 30 30 15	10 m 200 m 20 u 20 u 5.0 u	4.0 B 200 m 10 T 10 T 6.4 B		6.0	60/180	2 4		10 m 200 m	5/ 39/ 5/ 18/ 5/	
D 2N2178 2N2180 2N2181 2N2182 D 2N2183	2N2945 2N2945 2N2944		SPE GPA SPC SPC	0.1 A 0.05 A 0.15 A 0.15 A	6 O 6 O 25 O 25 O	0.05 0.05 0.05 0.05	15 100 10 10	5.0 u 10 m 5.0 m 5.0 m	6.4 B 6.0 T 6.0 T 6.0 T	14 12 12 12			08	15	1000 H 10 n	18/ 24/ 1/ 1/ 1/	
D 2N2184 2N2185 2N2186 2N2187 2N2188	2N2944 2N2946 2N2946 2N2946 2N3323		SPC SPC SPC SPC GPA	0.15 A 0.15 A 0.15 A 0.15 A 1.25 A	10 O 30 O 30 O 30 O 25 O	0.05 0.05 0.05 0.05 0.03	10 40	5.0 m 1.5 m	6.0 T 6.5 T 6.5 T 6.5 T 6.0 T	12 9.0 9.0 9.0 2.5						1/ 18/ 18/ 18/ 58/	
2N2189 2N2190 2N2191 2N2192 2N2192A	2N3323 2N3323 2N3323 2N2193A 2N2193A		GPA GPA GPA SNG SNG	1.25 A 1.25 A 1.25 A 0.8 A 0.8 A	25 O 25 O 25 O 40 O 40 O	0.03 0.03 0.03 1.0 1.0	60 40 60 100 100	1.5 m 1.5 m 1.5 m 150 m 150 m	102 T 60 T 102 T 150 m 150 m	2.5 2.5 2.5 2.5 2.5		70/200 70/200	35 25		150 m 150 m	5/31 5/31 5/31 5/31 5/31	
2N2192B 2N2193 ★ 2N2193A 2N2193B 2N2194	2N2193A 2N2193A 2N2193A 2N2193A 2N2193A		SNG SNG SNG SNG SNG	0.8 A 0.8 A 0.8 A 0.8 A 0.8 A	40 D 50 O 50 O 50 O 40 O	1.0 1.0 1.0 1.0 1.0	100 40 40 40 40	150 m 150 m 150 m 150 m 150 m	150 m 150 m 150 m 150 m 150 m	20 20 20 20 20		70/200 70/200 70/200 70/200 70/200	18 35 25 18 35		150 m 150 m 150 m 150 m 150 m	5/31 5/31 5/31 5/31 5/31	
2N2194A 2N2194B 2N2195 2N2195A 2N2195B	2N2193A 2N2193A 2N2193A 2N2193A 2N2193A		SNG SNG SNG SNA SNA	0.8 A 0.8 A 0.8 A 0.8 A 0.8 A	40 O 40 O 25 D 25 O 25 O	1.0 1.0 1.0 1.0 1.0	20 20 20 20 20	150 m 150 m 150 m 150 m 150 m	150 m 150 m 150 m 150 m 150 m	20 20 20 20 20		70/200 70/200 70/200	25 18 35 25 18		150 m 150 m 150 m 150 m 150 m	5/31 5/31 5/31 5/31 5/	
2N2196 2N2197 2N2198 2N2199 2N2200	2N3766 2N3766		SNA SNA SNA GPA GPA	2.0 A 2.0 A 0.05 A 0.75 A 0.75 A	60 R 60 R 80 O 10 O 10 O	1.0 1.0 0.1 0.1 0.1	30 75 35 90 90	0.2 A 0.2 A 0.1 A 3.0 m 3.0 m	10 T 10 T 4.0 T 120 T 120 T		2.8		2.0 2.0 6.0		2 A 2 A 2 A	9/	
2N2201 2N2202 2N2203 2N2204 2N2205	2N5681 2N5681 2N5681 2N5681 2N835		SNA SNA SNA SNA SNS	1.0 C 1.0 C 1.0 C 1.0 C 1.0 C	100 O 100 O 100 O 100 O 12 O	1.0 1.0 1.0 1.0 0.2	25 25 25 25 20	200 m 200 m 200 m 200 m 10 m	10 T 10 T 10 T 10 T 10 m	75 75 75 75 6.0		40/75	1.7 1.7 1.7 1.7 2.2		200 m 200 m 200 m 200 m 10 m	18/	
★ 2N2206 2N2207 D 2N2208 D 2N2209 D 2N2210	2N835 2N2075	1	SNS GPA GPF GPA GPA	1.0 C 0.26 A 0.12 A 0.15 A 75 C	12 D 50 R 10 O 12 O 65	0.2 0.05 0.01 0.1 0.1	40 36 15 50 25	10 m 10 m 1.5 m 24 m 5.0 A	10 T 10 T 1.5 m 4.8 B 0.125 E		6.0	40/75	2.2	10	10 m 12 m 12 A	46/ 7/ 44/ 5/	
D 2N2211 ★ 2N2212 D 2N2214 D 2N2216 2N2217	2N835 2N3498 2N2218S	1	GPA GPA SNA SPA SNA	90 C 60 C 0.25 C 3.0 C 0.8 A	60 S 60 O 15 O 100 O 30 O	5.0 10 0.2 0.25 0.8	60 50 25 25 20	1.0 A 5.0 A 10 m 50 m 150 m	0.3 E 0.45 T 200 T 50 T 250 T		7.0 15 8.0		8 1.0 2 5.0 4		2.0 A 5.0 A 10 m 50 m 150 m	3/ 41/4 5/ 5/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts Ref. Point	Subscript	Ic Amp Max	hFE @ Ic		fT MHz Unit	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.
								Min	Max								
D 2N2363 2N2364 2N2364A ★ 2N2368 ★ 2N2369	2N3020	1	GPF SNG SNG SNS SNS	0.75 A 0.4 A 0.4 A 0.36 A 0.36 A	20 O 80 O 80 O 40 S 40 S	0.05 1.0 1.0 0.5 0.2	10 40 40 20 40	2.0 150 150 10 10	m m m m m	800 T 50 T 50 T 400 T 500 T	3.0 15 15 4.0 4.0		570/150 570/150 12/15 12/18	35 25 25 25	5.5 200 M 150 m 150 m 10 m 10 m	46/ 46/ 18/22 18/22	
★ 2N2369A 2N2370 2N2371 2N2372 2N2373		1	SNS SPE SPE SPE SPE	0.36 A 0.2 A 0.2 A 0.15 A 0.15 A	40 S 15 O 15 O 15 O 15 O			15 25 25 15 20	10 25 25 25 25	500 T 15 15 15 15		12/18	.2	10 m 5000 H 5000 H 5000 H 5000 H	18/22 5/31 5/31 18/22 18/22		
2N2374 2N2375 2N2376 2N2377 2N2378	2N1193 2N3250		GPA GPA GPA SPA SPA	0.25 A 0.25 A 0.25 A 0.15 A 0.15 A	35 S 35 S 35 S 25 O 10 O		100 35 35 10 15	100 100 100 5.0 15	m m m m m							18/22 18/22	
D 2N2379 2N2380 2N2380A ★ 2N2381 ★ 2N2382	2N2193 2N2193	1	GPG SNG SNG GPS GPS	150 C 0.6 A 0.6 A 0.3 A 0.3 A	80 S 40 D 40 O 15 O 20 O	15 0.5 0.5 0.5 0.5	25 20 20 40 40	5.0 150 150 200 200	m m m m m	0.1 E 100 T 100 T 300 T 300 T		30K/60K 125/195 125/195 22/45 22/45	1.0 1.3 1.3 4.0 4.0	15 A 150 m 150 m 200 m 200 m	5/ 5/ 5/31 5/31		
2N2383 2N2384 2N2386 A 2N2388 2N2389	2N4914 2N4914		SNA SNA FET SNE SNE	85 C 85 C Table 9 0.3 A 0.45 A	60 O 60 O 45 O 50 R	5.0 5.0 0.03 0.5	20 20 100 40	1.5 1.5 10 150	A A m m	0.6 E 0.6 E 30 T 60 T			1.0 1.0 3.0 12	1.5 A 1.5 A AUD 1000 H	53/		
D 2N2390 2N2391 D 2N2392 2N2393 2N2394	2N3019 2N3250 2N3250 2N2905 2N2905		SNE SPA SPA SPA SPA	0.45 A 0.3 A 0.3 A 0.45 A 0.45 A	50 R 20 D 20 O 35 O 35 O	0.5 0.5 0.05 0.3 0.3	100 15 30 20 30	150 10 10 150 150	m m m m m	70 T 140 T 140 T 50 T 60 T			6 1.5 1.5	1000 H 10 m 150 m 150 m			
D 2N2395 2N2396 D 2N2397 2N2398 2N2399	2N2219 2N2219 2N2369A 2N3284 2N3284		SNA SNA SNS GPF GPF	0.45 A 0.45 A 0.3 A 0.06 A 0.06 A	40 C 40 O 15 O 20 S 20 S		20 40 25 10 10	150 150 10 2.0 2.0	m m m m m	40 T 50 T 200 T	2.5	25/45	1.0 1.0 30	150 m 150 m 10 m 200 M 200 M	51/ 12/ 12/		
D 2N2400 2N2401 2N2402 D 2N2403 D 2N2404	2N964 2N964 2N2956		GPG GPG GPG SNS SNS	0.15 A 0.15 A 0.15 A 1.0 A 1.0 A	7 O 10 D 12 O 60 O 60 O	0.1 0.1 0.1 1.0 1.0	30 50 60 20 40	10 10 10 0.6 0.6	m m m A A	150 T 200 T 250 T 147 T 147 T	4.0 4.0 4.0 2.5 2.5	75/270 75/230 75/200 25/25 25/25	.22 .2 .2 1.5 1.5	10 m 10 m 10 m 6 A 6 A	18/ 18/ 18/ 5/ 5/		
★ 2N2405 2N2410 2N2411 2N2412 2N2413	2N5859 2N2221		SNA SNG SPG SPG SNA	5.0 C 0.8 A 0.3 A 0.3 A 0.3 A	90 D 30 O 20 O 20 O 18 O	1.0 0.8 0.1 0.1 0.2	60 30 20 40 30	150 10 10 10 10	m m m m m	15 11 140 T 140 T 300 T		65/65 25/100 25/100	.5 .2 .2 .4	150 m 10 m 10 m 10 m	5/31 5/31 18/ 18/ 18/		
★ 2N2414 ★ 2N2415 ★ 2N2416 2N2417 2N2422B	THRU		SNA GPF GPF UJT UJT	0.5 A 0.75 A 0.75 A Table 8 Table 8	40 R 10 O 10 O	0.5 0.02 0.02	50 10 8.0	10 2.0 2.0	m m m	50 T 500 T 400 T	2.5 2.0 2.0		1.2 3.0 4.0	50 m 200 M 200 M	72/20 72/20		
D 2N2423 2N2424 2N2425 2N2426 2N2427	2N3250 2N3250A		GPG SPG SPA GNA SNA	90 C 3.75 A 3.75 A 0.15 A 0.5 A	80 V 5 O 10 O 25 R 40 O	5.0 0.05 0.05 2.0 0.05	20 30 25 20	2.0 5.0 5.0 10	A m m m m	0.6 E 12 B 8.0 B 50 T		45K/35K 300/500	1.5 .3 .3 35	5.0 A 15 m 15 m 1000 H	3/ 5/ 5/31 5/ 18/22		
2N2428 2N2429 2N2430 2N2431 2N2432	2N652 2N652		GPA GPA GNA GPA SNC	0.5 A 0.5 A 0.28 A 0.55 A 0.3 A	32 S 32 S 32 R 32 R 30 O	0.1 0.1 0.3 1.0 0.1	50 65 60 60 50	2.0 2.0 0.1 A 0.3 A 1.0 m	m m m m m	0.5 E 0.65 E 0.6 E 0.6 E 20 T	80 12		.15	10 m	18/22		
2N2432A 2N2433 2N2434 2N2435 2N2436	2N2193 2N3020 2N3019		SNC SNE SNE SNE SNE	0.3 A 0.5 A 0.5 A 0.5 A 0.5 A	45 O 45 O 45 O 80 D 80 O	0.1 1.0 1.0 0.5 0.5	50 40 100 40 100	1.0 150 150 150 150	m m m m m	20 T 80 T 90 T 80 T 90 T	12 20 20 15 15		6.0 6.0 6.0 6.0	1000 H 1000 H 1000 H 1000 H	18/ 46/ 46/ 46/ 46/		
2N2437 2N2438 2N2439 2N2440 2N2443	2N3020 2N5859 2N3019 2N3019 2N3500		SNE SNE SNE SNE SNE	0.5 A 0.5 A 0.5 A 0.3 A 0.8 A	75 O 75 O 75 O 80 O 100 O	0.5 0.5 0.5 0.5 0.5	15 35 75 100 50	10 10 10 150 50	m m m m m	70 T 80 T 90 T 90 T 50 T	15 15 15 15 15	76.0	6.0 6.0 6.0 6.0 15	1000 H 1000 H 1000 H 1000 H 1000 H	46/ 46/ 46/ 46/ 5/31		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	hFE Min	I _C @ Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF dB Max	f @ Unit	PACKAGE To- Case No. No.
0 2N2444 0 2N2445 0 2N2446 0 2N2447 D 2N2448	2N1187 2N1187		GPA GPA GPG GPA GPA	85 C 90 C 90 C 075 A 075 A	80 0 50 0 50 S 24 0 24 D	10 15 7.0 0.1 0.1	90 30 15	3.0 A 10 A 5.0 A	4.5 T 0.1 T 0.045 E			30K/35K		1.0 1.0 1.5		5.0 A 10 A 7.0 A	3/ 4/ 3/
D 2N2449 D 2N2450 ★ 2N2452 ★ 2N2453 ★ 2N2453A	2N652 2N652		GPA GPA OPT SNM SNM	075 A 075 A Table 10 0.5 A 0.5 A	20 0 20 0 10 30 0 50 0	0.1 0.1 0.2 0.2	80 80	10 u 10 u	60 T 60 T	8.0	/3.0 /3.0					1000 H 1000 H	78/654 78/654
D 2N2454 D 2N2456 D 2N2459 D 2N2460 D 2N2461			THY GPG SNA SNA SNA	Table 6 0.15 A 0.4 A 0.4 A 0.4 A	6 15 S 60 D 60 D 60 D	0.2 0.05 0.05 0.05	20 10 10 40	2.0 m 0.1 m 0.1 m 0.1 m	1000 T 100 T 120 T 140 T	3.0 5.0 5.0 5.0	15/65		19 .3 .3 .3		10 m 10 m 10 m 10 m	18/22 46/ 46/ 46/	
D 2N2463 D 2N2464 D 2N2465 D 2N2466 D 2N2467			SNA SNA SNA SNA GPA	0.5 A 0.5 A 0.5 A 0.5 A 5.0 C	60 D 60 D 60 0 60 0 30 0	0.05 0.05 0.05 0.05 3.0	10 20 40 60 30	0.1 m 0.1 m 0.1 m 0.1 m 0.5 A	100 T 120 T 140 T 160 T 20 T	5.0 5.0 5.0 5.0			.3 .3 .3 .3 .4		10 m 10 m 10 m 10 m 1.0 A	18/22 18/22 18/22 18/22	
D 2N2468 D 2N2469 D 2N2472 D 2N2473 D 2N2474	2N3500 2N3500		GPA GPA SNA SNA SPA	5.0 C 5.0 C 1.0 A 1.0 A 1.0 A	60 D 100 D 100 0 100 0 15 0	3.0 3.0 1.0 1.0 0.05	30 30 30 30 8.0	0.5 A 0.5 A 0.2 A 0.2 A 100 u	20 T 20 T 10 T 10 T	75 75			4 4 1.7 1.7 1.2		1.0 A 1.0 A 2 A 2 A 10 m	5/31	
D 2N2475 D 2N2476 D 2N2477 D 2N2478 D 2N2479	2N835 2N5859 2N5859 2N2218 2N2218	1 1	SNS SNS SNS SNG SNG	0.3 A 2.0 C 2.0 C 0.6 A 0.6 A	6 0 0 20 0 20 0 40 0 40 0	0.5 0.5 0.5 0.5	20 20 40 30 30	50 m 150 m 150 m 150 m 150 m	600 T 250 T 250 T 200 T 150 T	3.0 10 10 12 14	20/15 25/45 25/45 80/185 100/185		4 4 7 .85		150 m 150 m 150 m 150 m	5/31 5/31 5/31 5/31	
★ 2N2480 ★ 2N2480A ★ 2N2481 D 2N2482 ★ 2N2483	MM2483	1 1 1	SNM SNM SNS GNA SNE	0.3 A 0.3 A 1.2 C 0.15 A 0.36 A	40 D 40 0 15 0 15 S 60 D	0.5 0.5 0.5 0.5 0.05	30 50 40 25 40	1.0 m 1.0 m 10 m 2.0 m 10 u	50 T 50 T 300 T 600 T 12 T	20 18 5.0 4.5 6.0	40/55		1.3 .25		50 m 1000 H 10 m	78/654 78/654 18/22 18/22	
★ 2N2484 D 2N2484A D 2N2485 D 2N2486 D 2N2487	MM2484	1	SNE SNE SNA SNA GPA	0.36 A 0.36 A 8.8 C 8.8 C 0.06 A	60 D 60 0 120 0 140 0 10 0	0.05 0.05 1.0 1.0 0.1	100 100 10 10 20	10 u 10 u 0.5 A 0.5 A 10 m	15 T 60 T 100 T 100 T 360 T	6.0 6.0 12 12 3.0			.17		40 m	18/22	
D 2N2488 D 2N2489 ★ 2N2490 ★ 2N2491 ★ 2N2492		1	GPA GPA GPS GPS GPS	0.06 A 0.06 A 170 C 170 C 170 C	10 0 15 0 60 S 60 S 70 S	0.1 0.1 15 15 15	20 20 20 35 25	50 m 50 m 5.0 A 5.0 A 5.0 A	360 T 300 T 0.1 E 0.175 E 0.125 E	3.0 3.0	25/15 25/15 25/15		.17 18 7 7 5		15 m 10 m 12 A 12 A 12 A	18/22 18/22 36/5 36/5 36/5	
★ 2N2493 D 2N2494 D 2N2495 D 2N2496 D 2N2497		1	GPS GPF GPF GPF FET	170 C 083 A 125 A 0.1 A Table 9	85 S 20 V 40 S 20 V	15 0.01 0.01 0.01	25 25 25 25	5.0 A 1.0 m 1.0 m 1.0 m	0.125 E	2.0 200 2.0	25/15		.5 10 10 10	7.5 7.5 7.5	12 A 200 M 200 M 200 M	36/5 7/ 12/ 12/	
★ 2N2500 ★ 2N2501 2N2503 2N2508 2N2509	THRU	1	FET SNA THY THY SNE	Table 9 0.36 A Table 6 Table 6 1.2 C	20 0	0.2	25	10 u	45 T	6.0			.2		10 m	18/22	
D 2N2511 D 2N2512 D 2N2514 D 2N2515 D 2N2516			SNA GPA SNA SNA SNA	1.2 C 0.15 A 0.4 A 0.4 A 0.4 A	50 0 70 R 60 0 60 0 60 0	0.2 0.03 0.1 0.1 0.1	240 20 15 30 60	10 m 1.0 m 5.0 m 5.0 m 5.0 m	45 T 140 T 30 T 60 T 100 T	6.0 5.0 6.0 6.0 6.0			1.0 .5 .5 .5 .5		5.0 m 10 m 10 m 10 m	18/22 33/ 46/ 46/ 46/	
D 2N2517 D 2N2518 D 2N2519 D 2N2520 D 2N2521			SNA SNA SNA SNA SNA	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	80 D 80 0 80 0 60 0 60 0	0.05 0.05 0.05 0.1 0.1	15 30 60 12 25	5.0 m 5.0 m 5.0 m 1.0 m 1.0 m	30 T 60 T 100 T 40 B 40 B	6.0 6.0 6.0 6.0 6.0			.5 .5 .5 .5 .5		10 m 10 m 10 m 10 m 10 m	46/ 46/ 46/ 46/ 46/	
D 2N2522 D 2N2523 D 2N2524 D 2N2525 ★ 2N2526		1	SNA SNE SNE SNA GPG	0.4 A 0.4 A 0.4 A 25 C 85 C	60 0 45 0 45 0 80 0 80 0	0.1 0.03 0.03 1.0 1.0	50 40 100 10 20	1.0 m 10 u 10 u 35 A 3.0 A	40 B 45 T 45 T 56 T 0.03 T	6.0 6.0 6.0 25	11K/9K		.5 4.0 3.0 8 8		10 m 10 K 10 K 1.0 A 10 A	46/ 46/ 46/ 3/ 3/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	IC Amp Max	hFE @ IC		ft MHz	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To- Case No. No.
							Min	Max								
★ 2N2527	2N929	1	GPG	85 C	120 0	10	20	3.0 A	0.03 T							3/ 184
★ 2N2528			GPG	85 C	160 0	10	20	3.0 A	0.03 T							18/22
D 2N2529			SNE	0.15 A	40 0	0.25	10	1.0 m	4.8 B	3.0						18/
D 2N2530			SNE	0.15 A	40 0	0.25	12	1.0 m	8.0 B	3.0						18/
D 2N2531			SNE	0.15 A	40 0	0.25	20	1.0 m	9.6 B	3.0						18/
D 2N2532	2N929	1	SNE	0.15 A	40 0	0.25	45	1.0 m	12.8 B	3.0					18/	
D 2N2533			SNE	0.15 A	40 0	0.25	20	1.0 m	8.0 B	3.0					18/	
D 2N2534			SNE	0.15 A	40 0	0.25	45	1.0 m	16 B	3.0					18/	
D 2N2535			GPA	10 C	30 0	0.4	40	0.4 A	0.32 E							1.0 A
D 2N2536	GPA	10 C	40 D	40 D	40	0.4 A	0.32 E							1.0 A		
★ 2N2537	2N5859	1	SNS	0.8 A	30 0	0.8	50	150 m	250 T	8.0					5/31	
★ 2N2538			SNS	0.8 A	30 0	0.8	100	150 m	250 T	8.0					5/31	
★ 2N2539			SNS	0.5 A	30 0	0.8	50	150 m	250 T	8.0					18/22	
★ 2N2540			SNS	0.5 A	30 0	0.8	100	150 m	250 T	8.0					18/22	
★ 2N2541			GPA	215 A	14 0	1.0	60	50 m	8.0 B	20					5/	
2N2542	THRU	1	THY	Table 6												
2N2550			THY	Table 6												
★ 2N2551			SPE	0.4 A	150 0		15	0.1 A							6.0	1000 H
★ 2N2552	1	GPA	20 C	40 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2553		GPA	20 C	60 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2554	1	GPA	20 C	80 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2555		GPA	20 C	100 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2556		GPA	20 C	40 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2557		GPA	20 C	60 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2558		GPA	20 C	80 V	3.0	20	1.0 A	0.225 T						1.0 A		
★ 2N2559		1	GPA	20 C	100 V	3.0	20	1.0 A	0.225 T						1 A	
★ 2N2560			GPA	20 C	40 V	3.5	20	3.0 A	0.25 T						3.0 A	
★ 2N2561			GPA	20 C	60 V	3.5	20	3.0 A	0.25 T						3.0 A	
★ 2N2562	GPA		20 C	80 V	3.5	20	3.0 A	0.25 T						3.0 A		
★ 2N2563	GPA	20 C	100 V	3.5	20	3.0 A	0.25 T						3.0 A			
★ 2N2564	1	GPA	20 C	40 V	3.5	20	3.0 A	0.25 T						3.0 A		
★ 2N2565		GPA	20 C	60 V	3.5	20	3.0 A	0.25 T						3.0 A		
★ 2N2566		GPA	20 C	80 V	3.5	20	3.0 A	0.25 T						3.0 A		
★ 2N2567		GPA	20 C	100 V	3.5	20	3.0 A	0.25 T						3.0 A		
D 2N2568		GNP	1.0 C	32 S	0.1	10	40 m	600 T	3.0					400 M		
2N2569		THRU	1	SNC	0.3 A	5 0	0.5	50	100 u	100 T	10					18/
2N2570	SNC			0.3 A	5 0	0.5	50	100 u	100 T	10					18/	
D 2N2571	SNC			0.3 A	15 0	0.5	50	100 m	100 T	10					18/	
D 2N2572	SNC			0.3 A	15 D	0.5	50	100 m	100 T	10					18/	
2N2573	THY			Table 6												
2N2579	1	THY	Table 6													
2N2580		SNG	150 C	400 0	10	10	5.0 A	2.0 T						5.0 A		
2N2581		SNG	150 C	400 0	10	25	5.0 A	2.0 T						10 A		
2N2582		SNG	150 C	500 0	10	10	5.0 A	2.0 T						5.0 A		
2N2583		SNG	150 C	500 0	10	25	5.0 A	2.0 T						10 A		
2N2584	1	SNA	150 C	600 D		10	5.0 A	0.3 E						5.0 A		
2N2585		SNA	150 C	600 0		25	5.0 A	0.75 E						10 A		
2N2586		SNA	0.3 A	45 D		120	10 u							10 m		
D 2N2587		GPF	0.15 A	30 S	0.1	15	8.0 m	1000 T	3.0					6.0		
D 2N2588	GPF	0.15 A	20 0	0.03	50	1.5 m	75 T	2.5					13			
D 2N2589	1	SNG	150 C	150 0	7.0	17	7.0 A	0.25 T						7.0 A		
2N2590		SPA	0.4 A	60 0	0.05	10	0.1 m	50 T	5.0					10 m		
2N2591		SPA	0.4 A	60 0	0.05	20	0.1 m	70 T	5.0					10 m		
2N2592		SPA	0.4 A	60 0	0.05	40	0.1 m	90 T	5.0					10 m		
2N2593		SPA	0.4 A	60 D	0.05	60	0.1 m	110 T	5.0					10 m		
2N2594	2N5336	1	SNA	5.0 C	90 R	1.0	50	100 m	40 T	6.0				200 m		
2N2595			SPA	0.4 A	60 D	0.05	15	5.0 m	30 T	2.0				10 m		
2N2597			SPA	0.4 A	60 D	0.05	60	5.0 m	60 T	6.0				10 m		
2N2598	2N3497	1	THY	Table 6												
2N2599			SPA	0.4 A	80 D	0.05	30	5.0 m	40 T	6.0				10 m		
2N2599A	2N3497	1	SPA	0.4 A	100 0	0.05	30	5.0 m	40 T	6.0				10 m		
2N2600			SPA	0.4 A	80 0	0.05	60	5.0 m	60 T	6.0				10 m		
2N2600A	2N3497	1	SPA	0.4 A	100 0	0.05	60	5.0 m	60 T	6.0				10 m		
2N2601			SPA	0.4 A	60 0	0.05	12	1.0 m	20 T	6.0				10 m		
2N2602			SPA	0.4 A	60 0	0.05	25	1.0 m	40 T	6.0				10 m		
2N2603	2N3799	1	SPA	0.4 A	60 0	0.05	50	1.0 m	60 T	6.0				10 m		
2N2604			SPA	0.4 A	45 0	0.03	40	10 u	30 T	6.0				10 m		
2N2605			SPA	0.4 A	45 0	0.03	100	10 u	30 T	6.0				10 m		
2N2605A			SPA	0.4 A	45 0	0.03	50	1.0 u	45 T	6.0				10 m		
2N2606			FET	Table 9												

TYPE NO.	REPLACEMENT	VOL.	ID	P _D Watts	V _{CE} Volts	I _C Amp	hFE Min	I _C Unit	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ dB	f Unit	PACKAGE To-Case No. No.
2N2609 2N2610 2N2611 2N2612 2N2613	2N929 2N3766 2N1559 2N1193		FET SNA SNA GPA GPE	Table 9 0.15 A 2.0 A 75 C 0.12 A	40 O 100 O 65 V 25 R	1.0 15 0.05	7.0 85	0.2 A 10 A	40 T 3.2 B	75			1.0 1.7 1.0		5.0 m .2 A 10 A 1000 H	3/ 1/
2N2615A 2N2616 2N2617 2N2618 2N2619	2N1559 2N3250 2N2219		THY SNF SPF SNA THY	Table 6 3.0 A 0.25 A 0.6 A	15 O 40 O	0.05 0.1 0.75	20 15 25	3.0 m 20 10 m	600 T 2.8		2.8		15 15	6.0 6.0	200 M 200 M	18/ 18/ 5/
2N2620 2N2621 2N2622 2N2623 2N2624			FET GPA GPA GPA GPA	Table 9 0.15 A 0.15 A 0.15 A 0.15 A	15 S 24 S 32 S 15 S	0.1 0.1 0.1 0.1	15 15 20 20	1.0 m 1.0 m 1.0 m 1.0 m	13 T 15 T 16 T 13 T	3.5 3.5 3.5 3.5						5/ 5/ 5/ 5/
2N2626 2N2627 2N2628 2N2629 2N2630			GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 0.15 A 0.3 A	32 S 15 S 24 S 32 S 10 O	0.1 0.1 0.1 0.1 0.1	20 15 15 10 25	1.0 m 1.0 m 1.0 m 1.0 m 100 m	16 T 13 T 13 T 16 T 300 T	3.5 3.5 3.5 3.5 4.0					45 100 m	5/ 5/ 5/ 5/ 18/
2N2631 2N2632 2N2633 2N2634 2N2635	2N3553 2N5477 2N5477 2N5479	1	SNA SNS SNS SNS GPG	8.75 C 40 C 40 C 40 C 0.15 A	80 V 60 O 80 O 100 O 12 O	1.5 5.0 5.0 5.0 0.1	8.0 40 40 40 45	200 m 1.0 A 1.0 A 1.0 A 50 m	20 20 T 150 20 T 150	20 150 150 150 5.0			80/140 80/140 80/140 80/140 50/250	.25 .25 .25 .25 2	1.0 A 1.0 A 1.0 A 1.0 A 10 m	18/22
2N2636 2N2637 2N2638 2N2639 2N2640		1	GPG GPG GPG SNM SNM	100 C 100 C 100 C 0.3 A 0.3 A	60 O 60 O 60 O 45 O 45 O	25 25 25 0.03 0.03	20 20 20 50 50	25 A 25 A 25 A 10 u 10 u	0.6 T 0.6 T 0.6 T 35 T 35 T	8.0 8.0 8.0 8.0 8.0			700/7500 700/7500 700/7000 /10 /20	.65 .65 .65 AUD AUD	25 A 25 A 25 A AUD AUD	41/ 41/ 41/ 78/654 78/654
2N2641 2N2642 2N2643 2N2644 2N2645		1 1 1 1	SNA SNM SNA SNA SNA	0.3 A 0.3 A 0.3 A 0.3 A 0.5 A	45 O 45 O 45 O 45 O 50 R	0.03 0.03 0.03 0.03 0.03	50 100 100 100 100	10 u 10 u 10 u 10 u 150 m	35 T 35 T 35 T 35 T 50 T	8.0 8.0 8.0 8.0 25			/10 0.8/20	4.0 4.0 4.0 4.0 2.5	AUD AUD AUD AUD 10 K	78/654 8/654 78/654 78/654 18/
2N2646 2N2647 2N2648 2N2649 2N2650			UJT UJT GPG SNA SNA	Table 8 Table 8 5.0 C 8.7 C 8.7 G	10 O 65 O 140 O	1.0 1.0 1.0	80 10 10	1.0 A 0.5 A 0.5 A	10 T 100 T 100 T				300/1400	.4	1.0 A	5/ 5/ 5/
2N2651 2N2652 2N2652A 2N2653 2N2655		1 1 1	SNE SNM SNM SNM THY SNA	0.36 A 0.3 A 0.3 A 0.3 A Table 6 15 C	20 O 60 O 60 O 60 O	0.5 0.5 0.5 0.5	25 50 50 50	1.0 m 1.0 m 1.0 m	350 T 15 60 T 15	4.0 15 15			35/75 /10	1.2	80 1000 H 50 m 1000 H	18/ 78/654 78/654
2N2656 2N2656S 2N2657 2N2657S 2N2658	2N2222 2N2222 2N5336 2N5336 2N5336		SNH SNH SNG SNG SNG	0.36 A 0.36 A 1.25 A 1.25 A 1.25 A	15 O 15 O 60 O 60 O 80 O	0.5 0.2 5.0 5.0 5.0	40 40 40 40 40	0.1 m 0.1 m 1.0 A 1.0 A 1.0 A	250 T 250 T 20 T 20 T 20 T	5.0 5.0			100/1500 100/1500 100/1500	.5 .5 .5 .5 .5	1.0 A 1.0 A 1.0 A 1.0 A	18/ 18/ 5/ 39/ 5/
2N2659 2N2660 2N2661 2N2662 2N2663			GPA GPA GPA GPA GPA	15 C 15 C 15 C 15 C 15 C	50 V 70 V 90 V 50 V 70 V	3.0 3.0 3.0 3.0 3.0	30 30 30 30 30	500 m 500 m 500 m 500 m 500 m	0.28 T 0.28 T 0.28 T 0.28 T 0.28 T				.5 .5 .5 .5 .5	500 m 500 m 500 m 500 m 500 m		
2N2664 2N2665 2N2666 2N2667 2N2668			GPA GPA GPA GPA GPA	15 C 15 C 15 C 15 C 15 C	90 V 50 V 70 V 90 V 50 V	3.0 3.0 3.0 3.0 3.0	30 50 50 50 50	500 m 500 m 500 m 500 m 500 m	0.28 T 0.3 T 0.3 T 0.3 T 0.3 T				.5 .5 .5 .5 .5	500 m 500 m 500 m 500 m 500 m		
2N2669 2N2670 2N2671 2N2672 2N2672A			GPA GPA GPA GPA GPA	15 C 15 C 0.1 A 0.1 A 0.1 A	70 V 70 V 25 B 25 B 32 S	3.0 3.0 0.01 0.01 0.01	50 50 40 40 40	500 m 500 m 1.0 m 1.0 m 1.0 m	0.3 T 0.3 T 200 T 18 T		2.5 2.5		.5 .5	500 m 500 m	12/ 39/ 39/	
2N2673 2N2674 2N2675 2N2676 2N2677	2N2222A 2N2222A 2N2222A 2N2222A 2N2221A		SNE SNE SNE SNE SNE	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 O 45 O 45 O 45 O 35 O	0.25 0.25 0.25 0.25 0.25	8.0 12 22 45 20	1.0 m 1.0 m 1.0 m 1.0 m 1.0 m	2.0 B 4.0 B 8.0 B 8.0 B 8.0 B	4.0 4.0 4.0 4.0 4.0			1.5 30 30 30 30	30 1000 H 1000 H 1000 H 1000 H	46/ 46/ 46/ 46/ 46/	

TYPE NO.	REPLACEMENT	VOL.	ID	P D Watts	VCE Volts Ref Point	Subsupt	IC Amp Max	hFE @ IC		f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.
								Min	Unit										t_{on} ns Max	t_{off} ns Max	VCE (sat) Volts Max	IC & IC @ IB
D 2N2678 2N2679 2N2690 2N2691 2N2691A	2N2221A THRU		SNE THY THY GPA GPA	0.25 A Table 6 Table 6 100 C 170 C	35 O 6 6 80 C 80 C	0.25 0.3 A 30 O 20 O 0.05	45 90 40 20 30	1.0 m 100 u 10 u 20 A 20 m	16 B 42 T 42 T 6.0 T	3.0								46/ 41/
2N2692 2N2693 2N2694 2N2695 2N2696	2N929 2N929 2N929 2N3673 2N2907		SNE SNG SNG SPG SPG	0.3 A 0.3 A 0.3 A 0.36 A 0.36 A	30 O 30 O 20 O 25 O 25 O	0.05 0.03 0.03 0.5 0.5	90 40 20 30 30	100 u 10 u 10 u 50 m 50 m	42 T 42 T 42 T 100 T 100 T	5.0 5.0 5.0 20 20		700/1900 1200/3100 75/170 75/170	.12 .12 .25 .25					18/ 18/ 18/ 46/ 18/22
2N2697 2N2698 D 2N2699 2N2706 2N2707	2N5478 2N5478 2N964		SNG SNG GPG GPA GA	18 C 18 C 0.15 A 0.5 A	60 O 80 O 8 C 32 S	5.0 5.0 0.1 0.2	40 40 40 65	1.0 A 1.0 A 10 m 20 m	20 T 20 T 300 T 1.04 B	3.5		100/1500 100/1500 45/80	.5 .5 .18					1.0 A 1.0 A 10 m 1/
D 2N2708 2N2709 2N2710 2N2711 2N2712	2N2800 2N3014 MPS2711 MPS2712	1 1	SNF SPE SNS SNA SNA	0.2 A 0.24 A 0.36 A 0.2 A 0.2 A	20 O 35 O 20 O 18 O 18 O	0.05 0.5 0.5 0.1 0.1	30 40 30 75	2.0 m 0.2 m 10 m 20 m	700 T 0.16 B 500 T	1.5 110 4.0 4.5 4.5		20/35		15 7.5 30	200 M 1000 H 10 m		20/ 5/ 18/22 92/ 92/	
2N2713 2N2714 2N2715 2N2716 2N2717	MPS2713 MPS2714		SNA SNA SNA SNA GPG	0.2 A 0.2 A 0.2 A 0.2 A 0.1 A	18 O 18 O 18 O 18 O 15 O	0.2 0.2 0.05 0.05 0.03	30 75 30 75 50	2.0 m 2.0 m 2.0 m 2.0 m 30 m		5.0 5.0 5.0 5.0		75/115	.3 3 3		50 m 50 m 10 m		92/ 92/ 92/ 92/ 18/	
D 2N2718 D 2N2719 ★ 2N2720 ★ 2N2721 ★ 2N2722		1	GPG SNA SNM SNA SNA	0.24 A 0.3 A 0.3 A 0.3 A 0.3 A	12 O 8 O 60 O 60 O 45 O	0.4 0.2 0.04 0.04 0.04	25 30 30 50	170 m 60 m 0.1 m 0.1 m 10 u	150 T 200 T 80 T 80 T 100 T	10 6.0 6.0 6.0 6.0		100/250 /5.0 /10 0.9/5.0	.27 40 1.0 1.0 1.0		150 m 60 m 10 m 10 m 10 m		5/ 18/22 78/654 78/654 78/654	
★ 2N2723 2N2724 2N2725 2N2726 2N2727	2N2723 2N2723 2N3440	1	SNE SNA SNE SNA SNA	0.5 A 0.5 A 0.5 A 1.0 A 1.0 A	60 O 60 O 45 O 200 R 200 R	0.04 0.04 0.03 0.5 0.5	2K 7K 2K 30	10 m 10 m 0.1 m 0.2 A 0.2 A	100 T 100 T 100 f 15 T 15 T	10 10 10 15 15				10 6.0	1000 H 10 m 1000 H 2 A 2 A		72/20 5/ 72/20 5/ 5/	
2N2728 2N2729 2N2730 2N2731 2N2732	MP506 2N2221 MP504	1	GPA SNH GPA GPA GPA	170 C 0.3 A 170 C 170 C 170 C	5 O 15 O 60 O 45 O 30 O	0.05 0.05 0.65 0.65 0.65	40 20 30 30	20 A 30 m 25 A 25 A 25 A	0.12 E 600 T 0.2 T 0.2 T 0.2 T	2.8			.1 15 .25 .25 .25		50 A 200 M 25 A 25 A 25 A		36/7 46/ 36/ 36/ 36/	
D 2N2733 2N2734 2N2735 ★ 2N2736 2N2737	MP506 MP505 2N720A MP506 MP505		GPA GPA GPA GPA GPA	140 C 140 C 140 C 140 C 140 C	60 O 45 O 30 O 60 O 45 O	0.65 0.65 0.65 0.65 0.65	30 30 30 30	25 A 25 A 25 A 25 A 25 A	0.2 T 0.2 T 0.2 T 0.2 T 0.2 T				.25 .25 .25 .25 .25		25 A 25 A 25 A 25 A 25 A		36/ 36/ 36/ 36/ 36/	
2N2738 2N2739 ★ 2N2740 2N2741 2N2742	MP504 2N740 2N5629 2N5631		GPA SNG SNG SNG SNG	140 C 200 C 200 C 200 C 200 C	30 O 50 V 100 V 150 V 200 V	0.65 0.20 0.20 0.20 0.20	30 10 10 10 10	25 A 10 A 10 A 10 A 10 A	0.2 T			10K/20K 10K/20K 10K/20K 10K/20K	.25 1.5 1.5 1.5 1.5		25 A 10 A 10 A 10 A 10 A		36/ 10 A 10 A 10 A 10 A	
2N2743 2N2744 2N2745 2N2746 2N2747	2N706 2N5885 2N5886		SNG SNG SNG SNG SNG	200 C 200 C 200 C 200 C 200 C	250 V 350 V 50 V 100 V 150 V	0.20 0.20 0.20 0.20 0.20	10 10 10 10 10	10 A 10 A 15 A 15 A 15 A				10K/20K 10K/20K 12K/21K 12K/21K 12K/21K	1.5 1.5 1.5 1.5 1.5		10 A 10 A 15 A 15 A 15 A		10 A 10 A 10 A 10 A 10 A	
2N2748 2N2749 2N2750 2N2751 2N2752	2N5685 2N5686		SNG SNG SNG SNG SNG	200 C 200 C 200 C 200 C 200 C	200 V 250 V 300 V 50 V 100 V	0.20 0.20 0.20 0.20 0.20	10 10 10 10 10	15 A 15 A 15 A 20 A 20 A				12K/21K 12K/21K 12K/21K 13K/22K 13K/22K	1.5 1.5 1.5 1.5 1.5		15 A 15 A 15 A 20 A 20 A		10 A 10 A 10 A 20 A 20 A	
★ 2N2753 2N2754 2N2755 2N2756 2N2757			SNG SNG SNG SNG SNG	200 C 200 C 200 C 200 C 200 C	150 V 200 V 250 V 300 V 50 V	0.20 0.20 0.20 0.20 0.30	10 10 10 10 10	20 A 20 A 20 A 20 A 10 A				13K/22K 13K/22K 13K/22K 13K/22K 10K/20K	1.5 1.5 1.5 1.5 1.5		20 A 20 A 20 A 20 A 10 A		20 A 20 A 20 A 20 A 10 A	
2N2758 2N2759 2N2760 2N2761 2N2762			SNG SNG SNG SNG SNG	200 C 200 C 200 C 200 C 200 C	100 V 150 V 200 V 250 V 300 V	0.30 0.30 0.30 0.30 0.30	10 10 10 10 10	10 A 10 A 10 A 10 A 10 A				10K/20K 10K/20K 10K/20K 10K/20K 10K/20K	1.5 1.5 1.5 1.5 1.5		10 A 10 A 10 A 70 A 10 A		10 A 10 A 10 A 70 A 10 A	

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp Max	h _{FE} Min	I _C @	f _T MHz	Cob pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF @ dB Max	f Unit	PACKAGE To-Case No. No.
2N2828 2N2829 2N2831 ★ 2N2832 ★ 2N2833	2N5477 2N2221	1	SNG SNA GPG GPG	40 C 40 C 0.36 A 85 C 85 C	60 0 60 0 12 0 50 0 75 0	3.0 3.0 0.2 20 20	20 25 25 25 25	0.5 A 1.0 A 10 m 10 A 10 A	10 T 10 T 250 T 10 T 10 T	5.0	1500/5000 1500/5000 4000/3100 4000/3100	4 3 5 5	4 1.0 A 10 m 20 A 20 A	5 A 1.0 A 10 m 20 A 20 A		18/ 3/ 3/
★ 2N2834 2N2835 2N2836 2N2837 2N2838	2N706A 2N3612 2N2907 2N2907	1	GPG GPA SPG SPG	85 C 16 C 37.5 C 0.5 A 0.5 A	100 0 32 R 55 R 35 0 35 0	20 1.0 3.5 0.8 0.8	25 30 30 30 75	10 A 1.0 A 30 150 m 150 m	0.24 T 0.2 T 120 T 120 T		4000/3100 60/270 60/270	5 4 4	5 1.0 A 150 m 150 m	20 A 1.0 A 150 m 150 m		3/ 3/
★ 2N2840 2N2841 ★ 2N2844 ★ 2N2845 2N2847	THRU 2N2845	1 1	UJT FET FET SNS SNS	Table 8 Table 9 Table 9 0.36 A 0.36 A	30 D 20 0		30 40	150 m 150 m	250 T 250 T	8.0 8.0	40/40 25/40	4 4	150 m 150 m	18/22 18/22		
2N2848 2N2849 2N2850 2N2851 2N2852	2N5859 2N5337 2N5336 2N5336 2N5335		SNS SNG SNG SNG SNG	0.8 A 0.85 A 0.85 A 0.85 A 0.85 A	20 0 80 0 80 0 80 0 80 0		40 100 40 40 20	150 m 1.0 A 1.0 A 1.0 A 1.0 A	250 T 30 T 30 T 30 T 30 T	8.0 125 125 125 125	25/40 175/475 175/575 175/575 175/575	4 4 25 4 4	150 m 1.0 A 1.0 A 1.0 A 1.0 A		5/ 1.0 A 1.0 A 1.0 A 1.0 A	
★ 2N2853 2N2854 2N2855 2N2856 ★ 2N2857	2N5336 2N5337 2N5336 2N5334	1	SNG SNG SNG SNG SNF	0.85 A 0.85 A 0.85 A 0.85 A 0.2 A	40 0 40 0 40 0 40 0 15 0	3.0 3.0 3.0 3.0 0.04	40 100 40 20 30	1.0 A 1.0 A 1.0 A 1.0 A 3.0 m	30 T 30 T 30 T 30 T 1000 T	125 125 125 125	175/575 175/475 175/575 175/575	1.5 4 4 4 12	5.0 A 1.0 A 1.0 A 1.0 A 450 M	72/20		
2N2858 2N2859 2N2860 2N2861 2N2862	2N5335 2N5338 2N3798 2N3798		SNG SNG GPA SPA SPA	0.6 C 0.6 C 0.15 A 0.3 A 0.3 A	80 D 100 0 7 D 20 0 20 D	3.0 3.0 0.15 30 12	20 20 40 30 10	1.0 A 1.0 A 40 m 10 u 10 u	1.0 T 1.0 T 250 T 60 T 45 T	4.0	2000/5000 2000/5000	3 3 4 2	1.0 A 1.0 A 36 m 10 m	5/ 5/ 18/ 10 m		
2N2863 2N2864 2N2865 2N2866 2N2867	2N2219 2N2219 2N5477 2N5478		SNH SNH SNF SNA SNA	0.8 A 0.8 A 0.2 A 40 C 40 C	25 0 25 0 13 0 80 0 80 0	1.0 1.0 0.05 3.0 3.0	30 20 20 20 40	200 m 200 m 4.0 m 0.5 A 0.5 A	150 T 150 T 600 T 10 T 10 T	13 13 2.5 200 200		10 8.0 4.5 75 75	100 M 100 M 200 M 1.0 A 1.0 A	5/ 5/ 200 M 1.0 A 1.0 A		
2N2868 2N2869 2N2870 D 2N2871 D 2N2872	2N3252 2N3250 MP2016		SNA GPA GPA SPC SPC	0.8 A 30 C 30 C 0.4 A 0.4 A	40 0 50 0 50 0 60 0 110 0	1.0 1.0 1.0 1.5 1.5	40 50 50 15 15	15 A 1.0 A 1.0 A 1.0 m 1.0 m	50 T 0.2 T 0.2 T 0.2 T 0.2 T	20 20 70 70		25 75 5	15 A 10 A 10 A	5/ 3/ 3/		
D 2N2873 2N2874 2N2875 2N2876 2N2877	2N6182 2N5477		GPA SNA SPP SNA SNS	115 A 2.0 A 20 C 175 C 53 C	35 V 40 0 50 0 60 0 60 0	0.01 7.5 2.0 2.5 5.0	40 15 50 20 20	1.0 m 35 A 1.5 A 2.5 A 1.0 A	300 T 140 T 25 T 150 T 30 T	0.7 40 20 150 150	120/140	5.0 10 1.0 25	1.0 A 70 M 2.5 A 1.0 A	8/ 111/ 111/ 111/ 111/		
2N2878 2N2879 2N2880 2N2881 2N2882	2N5478 2N5477 2N5478 2N4235 2N4236		SNS SNS SNS SPA SPA	53 C 53 C 53 C 8.5 C 8.5 C	60 0 80 0 80 0 60 0 100 0	5.0 5.0 5.0 1.5 1.5	40 20 20 20 20	1.0 A 1.0 A 1.0 A 0.5 A 0.5 A	50 T 30 T 50 T 0.5 E 0.5 E	150 150 150	80/140 120/140 80/140	25 25 25 4 4	1.0 A 1.0 A 1.0 A 5 A 5 A	111/ 111/ 111/ 5/ 5/		
2N2883 2N2884 2N2885 D 2N2886 2N2887	2N3553 2N3553 2N2219		SNA SNA SNA SNF SNA	0.8 A 0.8 A 0.15 A 0.8 A 25 C	20 0 20 0 15 0 40 0 80 0	0.3 0.3 0.05 0.5 1.2	20 20 30 22 15	100 m 100 m 10 m 5.0 m 35 A	400 T 400 T 300 T 5.0 m 140 T	10 10 6.0 30		5 5 4 12 1.2	100 m 100 m 10 m 1000 M 1.0 A	5/ 5/ 51/ 5/ 5/		
2N2888 2N2889 2N2890 2N2891 2N2892	2N3507 2N3507 2N5477		THY THY SNG SNG SNG	Table 6 Table 6 0.8 A 0.8 A 30 C	80 0 80 0 80 0		30 50 30	1.0 A 1.0 A 1.0 A	30 T 30 T 30 T	70 70 70	300/1500 300/1500 300/1500	5 5 5	1.0 A 1.0 A 1.0 A	5/ 5/		
★ 2N2893 ★ 2N2894 ★ 2N2894A ★ 2N2895 ★ 2N2896	2N5478 MM2894A	1 1 1 1	SNG SPG SPS SNE SNE	0.36 C 0.36 A 0.36 A 0.5 A 0.5 A	80 D 12 0 12 S 65 0 90 0	5.0 0.2 0.2 1.0 1.0	50 40 30 40 60	1.0 A 30 m 30 m 150 m 150 m	30 T 400 T 800 T 120 T 120 T	70 6.0 4.5 15 15	300/1500 60/90 60/35	5 15	1.0 A 10 m	18/22 18/ 18/22 18/22		
★ 2N2897 2N2898 2N2899 2N2900 2N2901		1	SNE SNE SNE SNE SNC	0.5 A 0.5 A 0.5 A 0.5 A 0.36 A	45 0 65 0 90 0 45 0 10 0	1.0 1.0 1.0 1.0 0.02	50 40 60 50 30	150 m 150 m 150 m 150 m 10 m	120 T 120 T 120 T 120 T 300 T	15 15 15 15 5.0	1500/	.15	1000 H 1000 H 1000 H 1000 H 10 m	18/22 46/ 46/ 46/ 46/		

2N2902-2N2956

TYPE NO.	REPLACEMENT	VOL.	ID	PD Watts	VCE Volts	Subscript	IC Amp Max	hFE Min	IC Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ dB Max	f MHz	Unit	PACKAGE To-Case No. No.
D 2N2902 ★ 2N2903 ★ 2N2903A ★ 2N2904 ★ 2N2904A	2N5430	1	SNA SNM SNM	0.4 C 0.6 C 0.6 C	120 O 30 O 30 O	0 0 0	0.75 0.05 0.05	30 125 125	500 m 1.0 m 1.0 m	2.0 T 60 T 60 T	8.0 8.0 8.0			7.5		500 m 1000 H 1000 H		78/654 78/654
★ 2N2904A ★ 2N2904AS ★ 2N2904A ★ 2N2905 ★ 2N2905A ★ 2N2905S			SPS SPS SPS SPS SPS SPS	3.0 C 3.0 C 3.0 C 3.0 C 3.0 C 3.0 C	60 O 40 O 40 O 40 O 60 O 40 O	0 0 0 0 0 0	0.6 0.6 0.6 0.6 0.6 0.6	40 40 100 100 100 100	150 m 150 m 150 m 150 m 150 m 150 m	200 T 200 T 200 T 200 T 200 T 200 T	8.0 8.0 8.0 8.0 8.0 8.0	45/100 45/100 45/100 45/100 45/100 45/100	4 4 4 4 4 4		150 m 150 m 150 m 150 m 150 m 150 m		39/31 39/31 5/31 5/31 5/31 39/31	
★ 2N2906 ★ 2N2906A ★ 2N2907 ★ 2N2907A D 2N2908		1 1 1 1	SPS SPS SPS SNA	1.8 C 1.8 C 1.8 C 0.75 C	40 O 60 O 40 O 60 O	0 0 0 R	0.6 0.6 0.6 0.6	40 40 100 100	150 m 150 m 150 m 150 m	200 T 200 T 200 T 1.2 E	8.0 8.0 8.0 8.0	45/100 45/100 45/100 45/100	4 4 4 4		150 m 150 m 150 m 150 m		18/22 18/22 18/22 18/22	
2N2909 2N2910 2N2911 ★ 2N2912 ★ 2N2913	2N2221A 2N3409 2N5682	1 1 1 1 1	SNA SNA SNG GPG SNA	0.4 A 0.3 A 5.0 C 75 C 0.3 A	40 O 25 O 125 O 6 O 45 O	0 0 3.0 0 0	1.0 0.03 3.0 25 0.03	40 70 20 75 60	15 A 0.1 m 1.0 A 10 A 10 u	50 T 1.1 T 1.0 T 20 T 60 T	20 12 2000/3000 200/2000 6.0		25 3 5	10	15 A 1000 H 1.0 A 25 A		53/ 46/ 5/ 78	
★ 2N2914 ★ 2N2915 ★ 2N2915A ★ 2N2916 ★ 2N2916A		1 1 1 1 1	SNA SNM SNE SNM SNE	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	45 O 45 O 45 O 45 O 45 O	0 0 0 0 0	0.03 0.03 0.03 0.03 0.03	150 60	10 u 10 u 10 u 10 u 10 u	60 T 60 T 60 T 60 T 60 T	6.0 6.0 6.0 6.0 6.0	/5.0 /5.0	3.0 4.0 4.0	AUD AUD 1.0 K 1.0 K		/654 /654 /654 /654		
★ 2N2917 ★ 2N2918 ★ 2N2919 ★ 2N2919A ★ 2N2920		1 1 1 1 1	SNM SNM SNM SNE SNM	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	45 O 45 O 60 O 60 O 60 O	0 0 0 0 0	0.03 0.03 0.03 0.03 0.03	60 150 60	10 u 10 u 10 u 10 u 10 u	60 T 60 T 60 T 60 T 60 T	6.0 6.0 6.0 6.0 6.0	/10 /10 /5.0		AUD AUD AUD 1.0 K AUD		/654 /654 /654		
2N2920A 2N2921 2N2922 2N2923 2N2924	MPS6512 MPS2923 MPS2924		SNA SNA SNA SNA	0.3 A 0.2 A 0.2 A 0.2 A	60 O 25 O 25 O 25 O	0 0 0 0	0.03 0.1 0.1 0.1			60 T	12 12 12 12							92/ 92/
2N2925 2N2926 2N2927 D 2N2928 ★ 2N2929	MPS2925 MPS2926 2N2904S		SNA SNA SPA GPF GPA	0.2 A 0.2 A 0.8 A 0.15 A 0.75 C	25 O 18 O 25 O 13 O 10 O	0 0 0 0 0	0.1 0.1 0.5 0.1 0.1	30 0.8 10	50 m 2.0 m 10 m	100 T 400 T 800 T	12 12 2.5 2.5		25 5	7.5	50 m 200 M 50 m		92/ 92/ 5/ 5/31 5/	
D 2N2930 D 2N2931 D 2N2932 D 2N2933 D 2N2934	2N3427		GPA SNE SNE SNE SNE	0.25 A 0.05 A 0.05 A 0.05 A 0.05 A	12 O 5 O 5 O 5 O 30 O	0 0 0 0 0	0.5 0.05 0.05 0.05 0.05	60 30 70 50 50	10 m 200 u 50 m 50 m 50 m	3.2 T 20 T 20 T 20 T 20 T	12 12 12 12 11		25	14 14 5.0 14	AUD AUD AUD AUD		100 m	
D 2N2935 2N2936 2N2937 2N2938 2N2939	2N930A 2N930A 2N2369A 2N2193		SNE SNA SNA SNS SNP	0.05 A 0.3 A 0.3 A 0.3 A 0.8 A	30 O 55 O 55 O 13 O 60 O	0 0 0 0 0	0.05 0.03 0.03 0.03 1.0	70 100 100 30 60	50 m 10 u 10 u 50 m 15 A	20 T 30 T 30 T 500 T 150 T	11 8.0 8.0 4.0 12	30/30	3 3 4 10	14	AUD 2.0 m 2.0 m 50 m 50 M		18/ 5/	
D 2N2940 D 2N2941 D 2N2942 D 2N2943 ★ 2N2944	2N3019 2N3501		SNP SNP GPG GPG SPC	0.8 A 0.8 A 0.15 A 0.15 A 0.40 A	80 O 100 O 25 O 15 O 15 O	0 0 0 0 0	1.0 1.0 0.1 0.1 0.1	60 60 50 30 6.0	15 A 15 A 10 m 10 m 200 u	150 T 150 T 150 T 120 T 10 T	12 12 12 12 10	35/145 45/175	10 15 2 0.3		50 M 50 M 10 m 10 m 200 u		5/ 5/ 9/ 5/31 46/26	
★ 2N2944A ★ 2N2945 ★ 2N2945A ★ 2N2946 ★ 2N2946A	2N2944	1 1 1 1 1	SPC SPC SPC SPC SPC	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	10 O 25 O 20 O 40 O 35 O	0 0 0 0 0	0.1 0.1 0.1 0.1 0.1	100 40 30 3.0 20	1.0 m 200 u 200 u 200 u 200 u	15 T 50 T 10 T 30 T 5.0 T	10 10 10 10 10		0.5 0.5 0.8 0.8	0	200 u 200 u 200 u 200 u		46/ 46/26 46/26 46/26 46/26	
★ 2N2947 ★ 2N2948 ★ 2N2949 ★ 2N2950 ★ 2N2951		1 1 1 1 1	SNP SNP SNP SNP SNA	25 C 25 C 6.0 C 6.0 C 3.0 C	60 S 40 S 60 S 60 S 60 S	0 0 0 0 0	1.5 1.5 0.7 0.7 0.25	60 2.5 50 70 20	400 m 400 m 40 m 40 m 10 m	100 T 100 T 100 T 100 T 20 T	60 60 20 20 8.0	15/ 15/ 3.5/ 3.5/	7.0 10 10 4		50 M 30 M 50 M 50 M 1.0 A		3/1 3/1 107/23 102/24 5/31	
D 2N2952 D 2N2953 D 2N2954 ★ 2N2955 ★ 2N2956	2N1718 2N1194 2N834	1 1 1 1 1	SNA GPA SNF GPG GPG	1.8 C 0.12 A 0.2 A 0.15 A 0.15 A	60 S 25 R 20 O 40 B 40 B	0 0 0 0 0	0.25 0.15 0.5 0.1 0.1	20 100 25 20 40	10 m 50 m 50 m 50 m 50 m	200 T 300 T 300 T 200 T 250 T	8.0 3.8 4.0 4.0 4.0		5 2 18	15	15 A 100 M 10 m 10 m		18/22 1/ 18/22 18/22	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Ic Amp	hFE @ Min	Ic Unit	fT MHz	Cob pF	Pout Watts	ΔVBE mV	Gp dB	NF @ dB	f _{max} MHz	Unit	PACKAGE To-Case No. No.
* 2N2957 2N2958 * 2N2959 2N2960 2N2961	2N2219S 2N2219A 2N2219A		GPG SNS SNS SNS SNS	0.15 A 3.0 C 3.0 C 3.0 C 3.0 C	40 B 20 0 20 0 30 0 30 0	0.1 0.6 0.6 0.6 0.6	60 100 100 100 100	10 m 150 m 150 m 150 m 150 m	300 T 250 T 250 T 250 T 250 T	4.0 8.0 8.0 8.0 8.0	40/95 95/500 95/500 95/500 95/500	15 5 5 5 5		10 m 150 m 150 m 150 m 150 m			18/22 5/ 5/31 5/ 5/
D 2N2962 D 2N2963 D 2N2964 D 2N2965 D 2N2966	2N3283		GPA GPA GPA GPA GPF	0.35 A 0.35 A 0.35 A 0.35 A 0.06 A	18 0 18 0 15 0 15 0 20 0	0.3 0.3 0.3 0.3 0.1	8.0	3.0 m					8.0	9.0	800 M		
D 2N2967 2N2968 2N2969 2N2970 2N2971	2N929 2N3250 2N3250 2N3250 2N3250		SNS SPA SPA SPA SPA	0.3 A 0.15 A 0.15 A 0.15 A 0.15 A	6 0 10 0 10 0 20 0 20 0	6 0 0.05 0.05 0.05 0.05	20 15 15 10 10	10 m 100 u 100 u 100 u 100 u	400 T 8.0 T 8.0 T 4.0 T 4.0 T	3.0 6.0 6.0 6.0 6.0	15/15	3 6 6 8 8		3.0 m 10 m 10 m 10 m 10 m		18/ 5/ 18/ 5/ 18/	
2N2972 2N2973 2N2974 2N2975 2N2976	2N2913 2N2914 2N2915 2N2916 2N2917		SNM SNM SNM SNM SNM	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 0 45 0 45 0 45 0 45 0	0.03 0.03 0.03 0.03 0.03	60 150 60 150 60	10 u 10 u 10 u 10 u 10 u	60 T 60 T 60 T 60 T 60 T	6.0 6.0 6.0 6.0 6.0				AUD AUD AUD AUD AUD			
2N2977 2N2978 2N2979 2N2980 2N2981	2N2918 2N2906 2N2920 2N2060A 2N2223		SNM SNM SNM SNA SNA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 0 60 0 60 0 60 0 60 0	0.03 0.03 0.03 0.5 0.5	150 60 150 25 50	10 u 10 u 10 u 10 u 10 m	60 T 60 T 60 T 60 T 50 T	6.0 6.0 6.0 15 15			8.0	1000 H 50 m			
2N2982 2N2983 2N2984 2N2985 2N2986	2N2223A 2N5335 2N5682 2N5338 2N5338		SNA SNA SNA SNA SNA	0.25 A 1.0 A 1.0 A 1.0 A 1.0 A	60 0 80 0 120 0 80 0 120 0	0.5 0.5 0.5 0.5 0.5	50 20 20 40 40	10 m 500 m 500 m 500 m 500 m	50 T 60 T 60 T 60 T 60 T	15 15 8 8 8		1.2		50 m 1.0 A 200 m 200 m 200 m			
2N2987 2N2988 2N2989 2N2990 2N2991	2N4238 2N5681 2N5337 2N5339 2N5447		SNA SNA SNA SNA SNA	1.0 A 1.0 A 1.0 A 1.0 A 2.0 A	80 0 100 0 80 0 100 0 80 0	1.0 1.0 1.0 1.0 1.0	25 25 60 60 25	200 m 200 m 200 m 200 m 200 m	30 T 30 T 30 T 30 T 30 T	8 8 8 8 8				200 m 200 m 200 m 200 m 200 m		5/ 5/ 5/ 5/ 5/	
2N2992 2N2993 2N2994 2N2995 2N2996	2N5479 2N5478 2N5480 2N3251 2N869A		SNA SNA SNA SNA GPF	2.0 A 2.0 A 2.0 A 1.5 A 0.75 A	100 0 80 0 100 0 100 0 10 0	1.0 1.0 1.0 1.0 0.05	20 60 60 25 25	1.0 m 200 m 200 m 0.2 A 4.0 m	30 T 30 T 30 T 10 T 400 T	8 8 8 75 3.0		1.7	5.0	200 m 200 m 200 m 2 A 200 M			
2N2997 2N2998 2N2999 * 2N3001 * 2N3008	2N998 2N998 2N998 THRU THRU		GPF GPF GPF THY THY	0.75 A 0.75 A 0.75 A Table 6 Table 6	15 0 12 0 10 0	0.05 0.02 0.02	40 15 10	4.0 m 3.0 m 3.0 m	400 T 600 T 1400 T	1.8 1.7 1.7			4.5 8.0 7.0	200 M 1000 M 1000 M			
* 2N3009 2N3010 * 2N3011 * 2N3012 * 2N3013	MM1505	1 1 1 1 1	SNS SNS SNS SPG SNS	0.36 A 0.3 A 0.36 A 0.36 A 0.36 A	15 0 6 0 12 0 12 0 15 0	0.2 0.05 0.2 0.2 0.2	30 25 30 30 30	30 m 10 m 10 m 30 m 30 m	350 T 600 T 400 T 400 T 350 T	5.0 3.0 4.0 6.0 5.0	15/25 12/12 15/20 60/75 15/25	1.8 25 2 15 1.8	10	30 m 10 m 10 m 1.0 m 30 m		52/27 18/22 18/22 18/22 52/27	
* 2N3014 2N3015 2N3016 2N3017 2N3018	2N5859 2N5337 2N5478 2N5478	1	SNS SNA SNA SNA SNA	0.36 A 0.8 A 3.33 C 3.33 C 25 C	20 0 30 0 50 25 50 50 50 10	0.2 0.2 2.5 5.0 1.0	30 30 60 60 60	30 m 150 m 1.0 A 1.0 A 1.0 A	350 T 250 T 200 T 200 T 200 T	5.0 5.0 50 50 50	16/25	1.8 4 75 75 75		10 m 150 m 1.0 A 5.0 A 5.0 A		52/27 5/ 5/	
* 2N3019 * 2N3019S * 2N3020 * 2N3020S * 2N3021			SNE SNE SNE SNE SPS	0.8 A 0.8 A 0.8 A 0.8 A 25 C	80 0 80 0 80 0 80 0 30 0	1.0 1.0 1.0 1.0 3.0	100 100 40 40 20	15 A 15 A 15 A 15 A 1.0 A	100 T 100 T 100 T 100 T 60 T	12 12 12 12			4.0 4.0 4.0 4.0	1000 H 1000 H 1000 H 1000 H 3.0 A		5/ 39/ 5/ 5/ 3/11	
* 2N3022 * 2N3023 * 2N3024 * 2N3025 * 2N3026		1 1 1 1 1	SPS SPS SPS SPS SPS	25 C 25 C 25 C 25 C 25 C	45 0 60 0 30 0 45 0 60 0	3.0 3.0 3.0 3.0 3.0	20 20 50 50 50	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	60 T 60 T 60 T 60 T 60 T	100/175 100/175 100/175 100/175 100/175	1.5 1.5 1.0 1.0 1.0			3.0 A 3.0 A 3.0 A 3.0 A 3.0 A		3/11 3/11 3/11 3/11 3/11	
2N3027 2N3032 2N3033 2N3034 2N3035	THRU		THY THY SNV SNV SNV	Table 6 Table 6 0.3 A 0.3 A 0.3 A													18/ 18/ 18/ 18/

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2N3036-2N3125

TYPE NO.	REPLACEMENT	VOL	ID	Pd Watts	VCE Ref. Point	Subscript	Ic Amp Max	hFE Min	Ic @	Unit	fT MHz	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Ic @	Ic	Unit	PACKAGE To-Case No. No.
2N3036 2N3037 2N3038 2N3039 2N3040	2N3053S 2N3036		SNG SNG SNG SPG SPG	0.8 A 0.36 A 0.36 A 0.36 A 0.36 A	80 Ω 70 Ω 60 Ω 35 Ω 30 Ω	0 0 0 0 0	1.2 0.5 0.5 0.5 0.5	50 80 40 20 20	150 m 150 m 150 m 150 m 150 m	u m m T T	50 50 50 50 50	T T T T T	15 15 15 40 40	180/1200 180/1200 180/1200 150/650 150/650		25 .2 .2		150 m 10 m 10 m 10 m			5/
★ 2N3043 ★ 2N3044 ★ 2N3045 ★ 2N3046 ★ 2N3047		1 1 1 1 1	SNA SNA SNE SNA SNA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 Ω 45 Ω 45 Ω 45 Ω 45 Ω	0 0 0 0 0	0.03 0.03 0.03 0.03 0.03	100 100 100 100 50	10 u 10 u 10 u 10 u 10 u	u T T T T	30 30 30 30 30	T T T T T	8.0 8.0 8.0 8.0 8.0				5.0 5.0 5.0 5.0 5.0	AUD AUD AUD AUD AUD	/610 /610 /610 /610 /610		
★ 2N3048 2N3049 2N3050 2N3051 2N3052		1	SNE SPA SPA SPE SNG	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	45 Ω 20 Ω 20 Ω 20 Ω 15 Ω	0 0 0 0 0	0.03 0.1 0.1 0.1 0.2	50 20 20 20 25	10 u 10 u 10 u 10 u 10 m	u T T T T	30 60 60 60 200	T T T T T	8.0 8.0 8.0 8.0 8.0	35/150 62/55	25		5.0 6.0 6.0 6.0	AUD AUD AUD AUD	/610		
★ 2N3053 D 2N3053A D 2N3053AS ★ 2N3053S ★ 2N3054A			SNA SNA SNA SNA SNA	5.0 C 5.0 C 5.0 C 5.0 C 75 C	40 Ω 60 Ω 60 Ω 60 Ω 60 R	0 0 0 0 0	0.7 0.7 0.7 0.7 4.0	50 50 50 50 25	15 A 150 m 150 m 15 A 0.5 A	T T T T E	100 100 100 100 0.75	T T T T T	15 15 15 15 15		1.4 .3 .3 1.4 1.0		.15 A 150 m 150 m .15 A .5 A			5/31 5/31 39/31 39/31 66/80	
★ 2N3055A 2N3056 2N3056A 2N3057 2N3057A			SNA SNA SNA SNE SNA	115 C 0.4 A 0.4 A 0.4 A 0.4 A	70 R 60 Ω 80 Ω 60 Ω 80 Ω	15 0 0 0 0	20 1.0 1.0 1.0 1.0	20 40 40 100 100	4.0 A .15 A .15 A .15 A .15 A	E T T T T	0.4 80 80 100 100	E T T T T	12 12 12 12 12		25 .2	4.0	.15 A .15 A 1 K			3/ 46/ 46/ 46/ 46/	
2N3058 2N3059 2N3060 2N3061 2N3062			SPA SPA SPA SPA SPA	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A	6 Ω 10 Ω 60 Ω 60 Ω 80 Ω	0 0 0 0 0	0.1 0.1 0.1 0.1 0.1	40 100 30 60 20	10 u 10 m 1.0 m 1.0 m 1.0 m	u m m m m	10 10 10 10 10									46/ 46/ 46/ 46/ 46/	
2N3063 2N3065 2N3066A ★ 2N3071 ★ 2N3072	THRU		SPA SPA FET FET SPE	0.4 A 0.4 A Table 9 Table 9 0.8 A	80 Ω 100 Ω Table 9 Table 9 60 Ω	0 0 0 0 0	0.1 0.1 0.1 0.1 0.5	50 30 30 30 30	1.0 m 1.0 m m m m	m m m m m	10 10 10 10 130	T T T T T	10 10 10 10 10	40/100 40/100	25		50 m			39/79	
★ 2N3073 2N3074 2N3075 2N3076 2N3077	MJ7000	1	SPG GPA GPA SNG SNA	0.36 A 0.14 A 0.14 A 125 C 0.36 A	60 Ω 25 S 25 S 50 Ω 60 Ω	0 0 0 0 0	0.5 0.02 0.02 0.05 0.05	30 25 20 30 100	50 m 3.5 m 3.0 m 7.0 u 10 u	m m m u u	130 30 20 50 15	T T T T T	10 30 30 60 60	40/100 500/3500	25 1.0 35		50 m 10 A 10 m			18/22 12/ 12/ 18/	
2N3078 2N3079 2N3080 2N3081 D 2N3082	2N5241 2N2904S		SNA SNA SNA SPG SNC	0.36 A 178 C 178 C 0.6 A 0.5 A	60 Ω 200 Ω 300 Ω 50 Ω 7 Ω	0 0 0 0 0	0.05 0.05 0.05 0.6 0.1	40 7.0 7.0 20 100	10 u 5.0 A 5.0 A 500 m 25 m	u T T T T	15 2.1 2.1 150 100	T T T T T	60 60 60 13 80	60/175	.35 .7 .7 .3		1.0 m 5.0 A 5.0 A 150 m			18/ 5/31	
D 2N3083 2N3084 2N3089A 2N3091 2N3106	THRU		SNC FET FET THY THY	0.5 A Table 9 Table 9 Table 6 Table 6	7 Ω Table 9 Table 9 Table 6 Table 6	0 0 0 0 0	0.1 0.1 0.1 0.1 0.1	100 100 100 100 100	25 m m m m m	m m m m m	100 100 100 100 100	T T T T T	80 80 80 80 80								
2N3107 2N3108 2N3109 2N3110 2N3110S	2N2193		SNA SNG SNA SNG SNG	0.8 A 0.8 A 0.8 A 0.8 A 0.8 A	60 Ω 60 Ω 40 Ω 40 Ω 40 Ω	0 0 0 0 0	1.0 1.0 1.0 1.0 1.0	100 40 100 40 40	15 A 150 m .15 A 150 m 150 m	T T T T T	70 60 70 60 60	T T T T T	20 25 25 25 25	200/600 200/600 200/600	1.0 .25 1.0 1.0 25		1.0 A 150 m 1.0 A 150 m 150 m			5/ 5/ 39/	
★ 2N3112 ★ 2N3113 ★ 2N3114 ★ 2N3114S 2N3115	2N2221		FET FET SNA SNA SNG	Table 9 Table 9 0.8 A 0.8 A 0.4 A	Table 9 Table 9 150 Ω 150 Ω 20 Ω	0 0 0 0 0	0.2 0.2 0.2 0.2 0.6	30 30 30 30 40	30 m 30 m 30 m 30 m .15 A	m m m m m	40 40 40 40 250	T T T T T	9.0 9.0 9.0 9.0 8.0		1.0 1.0 1.0 1.0 .5		50 m 50 m 50 m 50 m .15 A			5/31 39/31 18/22	
2N3116 2N3117 2N3118 2N3119 2N3120	2N2222 2N930A 2N3500 2N2904S	1	SNG SNE SNA SNA SPG	0.4 A 0.36 A 1.0 A 1.0 A 0.8 A	20 Ω 60 Ω 60 Ω 80 Ω 45 Ω	0 0 0 0 0	0.6 0.05 0.05 0.05 0.5	100 250 50 30 50	15 A 10 u 25 m 100 m 50 m	T u m m m	70 60 250 250 130	T T T T T	8.0 4.5 6.0 6.0 10	95/500 20/ 40/100	.5 .5 25	4.0	.15 A 100 H 5/ 100 m 50 m			18/22 18/ 5/ 39/79	
D 2N3121 2N3122 2N3123 2N3124 2N3125	2N2907 2N2219A 2N2219A		SPG SNA SNA GPA GPA	0.36 A 0.8 A 0.8 A 90 C 90 C	45 Ω 30 Ω 30 Ω 30 S 80 S	0 0 0 0 0	0.5 0.5 0.8 15 3.3	30 25 100 50 30	50 m 300 m .15 A 10 A 3.0 A	m m m E E	130 60 400 0.125 0.15	T T T T T	10 25 80 15 15	40/100	.25 1.5 4 5 1.5		50 m 300 m .15 A 10 A 3.0 A			18/ 5/ 5/ 41/ 41/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Ic Amp	hFE @ Ic		ft MHz	Sub.	Cob pF	Pout Watts	ΔVBE mV	Gp dB	NF @ dB	f Unit	PACKAGE To-Case No. No.
							Min	Max									
★ 2N3126 D 2N3127 2N3128 2N3129 D 2N3130			GPA GPF SNA SNA SNA	90 C 0.1 A 0.15 A 0.15 A 0.15 A	75 S 20 O 20 O 45 O 60 O	15 0.05 0.1 0.1 0.1	10 20 50 100 80	10 A 3.0 m 0.1 m	0.06 E 400 T 60 T 60 T 60 T		1.2 6.0 6.0 6.0		1.0 23 25 25 25	4.5	10 A 200 M 1.0 m 1.0 m 1.0 m	41/ 72/20	
D 2N3131 D 2N3132 ★ 2N3133 ★ 2N3133S 2N3134			SNG GPG SPG SPG SPG	0.15 A 90 C 0.6 A 0.6 A 0.6 A	15 O 70 S 35 O 35 O 35 O	0.1 5.0 0.6 0.6 0.6	30 40 40 40 100	10 m 2.0 A 15 A .15 A .15 A	250 T 0.003 T 200 T 200 T 200 T		4.0 10 10 10	35/75 20K/20K 75/150 75/150 75/150	.25 1.5 6 6 6		10 m 5.0 A .15 A .15 A .15 A	3/ 5/31 39/31 5/	
★ 2N3135 2N3136 ★ 2N3137 2N3138 2N3139	2N3905S	1	SPG SPG SNP SNA SNA	0.4 A 0.4 A 2.0 C 20 C 20 C	35 O 35 O 40 O 65 O 140 O	0.6 0.6 150 2.0 2.0	40 100 20 20 10	.15 A .15 A 50 m 1.0 A 1.0 A	200 T 200 T 500 T 100 T 100 T		3.5* 3.5*	0.4/ 0.4/	6 6 6.0		.15 A .15 A 250 M	18/22 18/ 5/31	
2N3140 2N3141 2N3142 2N3143 2N3144	2N5477		SNA SNA SNA SNA SNA	20 C 20 C 25 C 25 C 25 C	65 O 140 O 65 O 140 O 65 O	2.0 2.0 2.0 2.0 2.0	10 10 10 10 10	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	100 T 100 T 100 T 100 T 100 T		30 30 30 30 30						
2N3145 2N3146 2N3147 D 2N3148 2N3149	2N3616 2N3616		SNA GPA GPA GPA SNG	25 C 150 C 150 C A 300 C	140 O 140 V 160 V 6 O 80 O	2.0 15 15 0.05 70	10 30 30 70 10	1.0 A 5.0 A 5.0 A 20 m 50 A	100 T 0.2 T 0.2 T 25 T 0.1 T		30 6.0		4 2 4 1.5		5.0 A 5.0 A 50 m 50 A	3/ 3/ 24/	
2N3150 2N3151 2N3152 2N3153 2N3154			SNG SNG SNA SNC GPG	300 C 300 C 0.25 C 0.3 A 3.75 C	100 O 150 O 120 O 15 I 25 O	70 70 0.1 0.1 3.0	10 10 40 20 2.0	50 A 50 A 30 m 1.0 m 0.5 A	0.1 T 0.1 T 200 T 30 T 0.9 E		10 8.0		10K/20K 10K/20K 750 1.1	1.5 1.5	50 A 50 A 1.0 m 3.0 A	18/	
2N3155 2N3156 2N3157 2N3158 2N3159			GPG GPG GPG GPG GPG	3.75 C 3.75 C 3.75 C 3.75 C 3.75 C	40 O 55 O 65 D 25 O 40 O	3.0 3.0 3.0 3.0 3.0	60 60 60 30 30	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	0.9 E 0.9 E 0.9 E 0.3 E 0.3 E				10K/20K 10K/20K 10K/20K 10K/20K 10K/20K	1.1 1.1 1.1 1.4 1.4	3.0 A 3.0 A 3.0 A 3.0 A 3.0 A		
D 2N3160 2N3161 2N3162 2N3163 2N3164	2N3411		GPG GPG SNA SPA SPA	3.75 C 3.75 C 0.3 A 85 C 85 C	55 O 65 O 25 O 40 O 60 O	3.0 3.0 25 O 3.0 3.0	30 50 12 12 12	0.5 A 0.5 A 10 m 1.0 A 1.0 A	0.3 E 0.3 E 300 T 1.0 T 1.0 T		6.0		10K/20K 10K/20K 1.4 1.4	1.4 1.4	3.0 A 3.0 A 1.0 A 1.0 A	12 AUD	
2N3165 2N3166 2N3167 2N3168 2N3169	2N4901 2N4902 2N4903		SPA SPA SPA SPA SPA	85 C 85 C 85 C 85 C 85 C	80 O 100 O 40 O 60 O 80 O	3.0 3.0 3.0 3.0 3.0	12 12 12 12 12	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				.75 .75 .75 .75 .75		1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	53/ 53/ 53/	
2N3170 2N3171 2N3172 2N3173 2N3174			SPA SPA SPA SPA SPA	85 C 75 C 75 C 75 C 75 C	100 O 40 O 60 O 80 D 100 O	3.0 3.0 3.0 3.0 3.0	12 12 12 12 12	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				.75 .75 .75 .75 .75		1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	53/ 3/ 3/ 3/ 3/	
2N3175 2N3176 2N3177 2N3178 2N3179	2N6182 2N6182 2N6182 2N6184 2N4910		SPA SPA SPA SPA SPA	85 C 85 C 85 C 85 C 85 C	40 O 60 O 80 O 100 O 40 O	5.0 5.0 5.0 5.0 5.0	10 10 10 10 10	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				1.0 1.0 1.0 1.0 1.0		2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	53/	
2N3180 2N3181 2N3182 2N3183 2N3184	2N4911 2N4912 2N3790		SPA SPA SPA SPA SPA	85 C 85 C 85 C 75 C 75 C	60 O 80 O 100 O 40 O 60 O	5.0 5.0 5.0 5.0 5.0	10 10 10 10 10	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				1.0 1.0 1.0 1.0 1.0		2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	53/ 53/ 53/ 3/ 3/	
2N3185 2N3186 2N3187 2N3188 2N3189	2N6182 2N6182 2N6182		SPA SPA SPA SPA SPA	75 C 75 C 85 C 85 C 85 C	80 O 100 O 40 O 60 O 80 O	5.0 5.0 5.0 5.0 5.0	10 10 10 10 10	2.0 A 2.0 A 3.0 A 3.0 A 3.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				1.0 1.0 .9 .9 .9		2.0 A 2.0 A 3.0 A 3.0 A 3.0 A	3/ 3/	
2N3190 2N3191 2N3192 2N3193 2N3194	2N6184 2N4910 2N4911 2N4912 2N6226		SPA SPA SPA SPA SPA	85 C 85 C 85 C 85 C 85 C	100 O 40 O 60 O 80 O 100 O	5.0 5.0 5.0 5.0 5.0	10 10 10 10 10	3.0 A 3.0 A 3.0 A 3.0 A 3.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T				.9 .9 .9 .9 .9		3.0 A 3.0 A 3.0 A 3.0 A 3.0 A	53/ 53/ 53/ 53/	



2N3195-2N3266

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE Subscript	IC Amp Max	hFE Min	IC @	Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	@ f	Unit	PACKAGE To- Case No. No.
2N3195 2N3196 2N3197 2N3198 2N3199	2N6192		SPA	75 C	40 0	5 0	10	3.0 A	1.0 T										3/ 3/ 3/ 3/ 3/
2N3200 2N3201 2N3202 2N3203 2N3204	2N6192		SPA	40 C	60 0	3.0	20	1.0 A	1.0 T										5/ 5/ 5/
2N3205 2N3206 2N3207 2N3208 2N3209	2N6182		SPA	40 C	40 0	2.0	20	0.5 A	1.0 T										5/ 18/
2N3210 2N3211 2N3212 2N3213 2N3214	2N708 2N3013	1 1	SNS SNA	0.36 A	15 0	0.5	30	10 m	300 T	6.0	40/40	7.5	2	10 m	2	10 m	2	18/22	
2N3215 2N3216 2N3217 2N3218 2N3219	2N2944 2N2945		GPG SPC	14 C	80 0	5.0	30	3.0 A	1.0 T	14	6000/9000 50/350	5	5	5.0 A	37/	37/	37/	46/ 46/	
2N3220 2N3221 2N3222 2N3223 2N3224	2N5477 2N5477 2N5477 2N5479 2N3498		SNA	6.0 C	80 0	2.0	20	1.0 A	10 T	180		1.2		1.0 A				5/	
2N3225 2N3226 ★ 2N3227 2N3228 D 2N3230	2N3498 2N5873	1	SPA SNA SNS THY SNG	0.7 A 7.5 C 0.36 A Table 6 25 C	100 0 35 0 20 D	5.0 0.5	40 100	50 m 2.0 A 10 m	80 T 30 T 500 T	20 4.0	12/18	1.2 2.5	2.7 A 10 m	5/ 3/ 18/22					
D 2N3231 ★ 2N3232 2N3233 2N3234 ★ 2N3235			SNG SNA SNA SNA SNA	25 C 117 C 117 C 117 C 117 C	80 0 60 0 100 0 160 D 55 D	7.0 7.5 7.5 7.5 15	2K 18 18 18 20	2.0 A 3.0 A 3.0 A 3.0 A 4.0 A	40 T 0.36 E 0.36 E 0.36 E 20 E	60 350/2150	1.4	2.0 A 3.0 A 3.0 A 4.0 A 4.0 A	/1 /1						
2N3236 2N3237 2N3238 2N3239 2N3240	2N5882 2N5631		SNA SNA SNA SNA SNA	150 C 200 C 150 C 150 C 150 C	90 0 75 0 80 0 80 0 160 0	15 0.1	17 12	5.0 A 10 A	17 E 12 E	30 20		1.1 2.0 3.0 1.0 1.0	5.0 A 10 A 10 A 10 A 10 A						
2N3241 2N3241A 2N3242 2N3242A ★ 2N3244	2N2219		SNA SNE SNE SNE SPG	0.5 A 0.5 A 0.5 A 0.5 A 1.0 A	25 0 25 0 25 0 40 0 40 0	0.1 0.2 0.2 0.3 1.0	50 75	10 m 10 m	50 T 100 T 50 T 100 T 175 T	30 20 20 30 25	50/185	3	10 6.0 6.0 15 A	1000 H 1000 H	5/31				
★ 2N3245 2N3246 2N3247 2N3248 ★ 2N3249	2N930A 2N930A 2N869A	1 1 1	SPG SNE SNE SPG SPG	1.0 A 0.35 A 0.15 A 0.36 A 0.36 A	50 D 45 D 45 0 12 0 12 0	1.0 0.05 0.05 0.2 0.2	30 200 200 50 100	0.5 A 10 u 10 m 0.1 m 0.1 m	150 T 60 T 60 T 250 T 300 T	25 5.0 5.0 8.0 8.0	55/165	35 12 12	15 A 10 m 10 m	5/31 18/ 18/22 18/22					
★ 2N3250 ★ 2N3250A ★ 2N3251 ★ 2N3251A ★ 2N3252		1 1 1 1	SPE SPE SPE SPG SNG	0.36 A 0.36 A 0.36 A 1.0 A 1.0 A	40 D 60 0 40 0 60 0 30 D	0.2 0.2 0.2 0.2 1.0	50 50 100 100 30	10 m 10 m 10 m 300 T 0.5 A	250 T 250 T 300 T 300 T 200 T	6.0 6.0 6.0 6.0 12	70/225 70/225 70/250 70/250 45/70	6.0 6.0 25 3 2.5	18/22 18/22 18/22 18/22 5/31						
★ 2N3253 2N3254 2N3259 2N3260 2N3261	THRU		SNG THY THY SNG SNS	1.0 A Table 6 Table 6 200 C 0.3 A	40 0 15 0	1.0	25	375 m	175 T	12	50/90	35	15 A 1 A	5/31 52/					
2N3262 2N3263 2N3264 2N3265 2N3266	M17000 M17000		SNS SNG SNG SNG SNG	8.75 C 75 C 75 C 125 C 125 C	80 D 90 0 60 0 90 0 60 0	1.5 25 25 25 25	40 20 20 20 20	0.5 A 15 A 15 A 15 A 15 A	150 T 20 T 20 T 20 T 20 T	20	40/750 500/2000 500/2000 500/2000 500/2000	.6 1.0 1.6 1.0 1.6	1.0 A 20 A 20 A 20 A 20 A	39/					

TYPE NO.	REPLACEMENT	VOL	ID	Pd Watts	V _{CE} Ref. Point Volts	Subscript	I _C Amp Max	hFE @ I _C		f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF @ f		Unit	PACKAGE To-Case No. No.
								Min	Max						dB	Max		
2N3267 2N3268 2N3269 2N3276 ★ 2N3277	1HRU		GPF SNE THY THY FET	0.75 A 0.15 A Table 6 Table 6 Table 9	8 0 45 0	0.02 0.25	10 12	3.0 10	m m	900 T 20 T	1.7				8.0 30	1000 1000	M H	5/
★ 2N3278 ★ 2N3279 ★ 2N3280 ★ 2N3281 ★ 2N3282			FET GPF GPF GPF GPF	Table 9 0.1 A 0.1 A 0.1 A 0.1 A	20 0 20 0 15 0 15 0	0.05 0.05 0.05 0.05	10 10 10 10	3.0 3.0 3.0 3.0	m m m m	600 T 600 T 550 T 550 T				17 17 16 16	3.5 3.5 5.0 5.0	200 M 200 M 200 M 200 M		
★ 2N3283 ★ 2N3284 ★ 2N3285 ★ 2N3286 ★ 2N3287		1 1 1 1 1	GPF GPF GPH GPH SNF	0.1 A 0.1 A 0.1 A 0.1 A 0.2 A	25 0 25 0 20 0 20 0 20 0	0.05 0.05 0.05 0.05 0.05	10 10 5.0 5.0 15	3.0 3.0 3.0 3.0 2.0	m m m m m	250 T 250 T 250 T 250 T 350 T	1.5 1.5 1.5 1.5 1.1			16 16 14 14 17	5.0 6.0 6.0 6.0 6.0	200 M 200 M 200 M 200 M 200 M		72/20 72/20 72/20 72/20 72/20
2N3288 2N3289 2N3290 ★ 2N3291 ★ 2N3292			SNF SNF SNF SNF SNF	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	20 0 15 0 15 0 25 0 25 0	0.05 0.05 0.05 0.05 0.05	15 10 10 10 10	2.0 2.0 2.0 2.0 2.0	m m m m m	350 T 300 T 300 T 250 T 250 T	1.5 1.5 1.5 2.0 2.0			17 17 17 16 16	6.0 7.0 7.0 8.0 9.0	200 M 200 M 200 M 200 M 200 M		72/20 72/20 72/20 72/20 72/20
2N3293 ★ 2N3294 ★ 2N3295 ★ 2N3296 ★ 2N3297		1 1 1 1 1	SNA SNF SNP SNP SNP	0.2 A 0.2 A 0.8 A 0.7 A 25 C	20 0 20 0 60 S 60 S 60 S	0.05 0.05 0.25 0.7 1.5	10 10 20 5.0 6.0	2.0 2.0 10 40 0.4	m m m m A	250 T 250 T 200 T 100 T 100 T	2.0 2.0 8.0 2.0 60		3.0/ 12/	16 14 16 10	8.0	200 M 30 M 30 M 30 M		72/20 5/31 102/24 3/1
2N3298 ★ 2N3299 ★ 2N3300 ★ 2N3301 ★ 2N3302	2N2369	1 1 1 1 1	SNA SNG SNG SNG SNG	1.0 C 0.8 A 0.8 A 0.36 A 0.36 A	15 0 30 0 30 0 30 0 30 0	0.1 0.5 0.5 0.5 0.5	80 15 100 40 100	10 15 15 15 15	m A A A A	200 T 250 T 250 T 250 T 250 T	6.0 8.0 8.0 8.0 8.0			60/150 60/150 60/150 60/150 60/150	.22 .22 .22 .22 .22	15 A 15 A 15 A 15 A 15 A		18/22 5/31 5/31 18/22 18/22
★ 2N3303 2N3304 2N3305 2N3306 ★ 2N3307		1 1 1 1 1	SNS SPG SPE SPE SPF	0.6 A 0.3 A 0.6 A 0.6 A 0.2 A	12 0 6 0 40 0 40 0 35 0	1.0 6 0 0 0.05	30 30 40 100 100	0.3 10 0.1 0.1 2.0	A m m m m	450 T 500 T 20 T 20 T 300 T	15 3.5 30 30 1.3	15/25 60/60	33 16	4.0 4.0 4.0	3 A 10 m 1000 H 1000 H 200 M		794 18/22 5/ 5/ 72/20	
2N3308 2N3309 0 2N3309A D 2N3310 ★ 2N3311	2N3307 2N3553 2N3553	1 1 1 1 1	SPF SNP SNP SNP GPA	0.2 A 35 C 5.0 C 0.3 A 170 C	25 0 50 S 60 S 15 0 30 S	0.05 0.5 0.5 0.2 5.0	25 5.0 8.0 10 60	2.0 30 50 20 3.0	m m m m A	300 T 300 T 300 T 300 T 0.06 E	1.6 10 6.0 3.0		7.0 7.4 10 10	5.0	200 M 250 M 250 M 250 M 3.0 A		72/20 39/ 39/ 250 M 36/5	
★ 2N3312 ★ 2N3313 ★ 2N3314 ★ 2N3315 ★ 2N3316		1 1 1 1 1	GPA GPA GPA GPA GPA	170 C 170 C 170 C 170 C 170 C	45 S 60 S 30 S 45 S 60 S	5.0 5.0 5.0 5.0 5.0	60 50 100 100 100	3.0 3.0 3.0 3.0 3.0	A A A A A	0.06 E 0.06 E 0.1 E 0.1 E 0.1 E			.1 .1 .1 .1 .1		3.0 A 3.0 A 3.0 A 3.0 A 3.0 A		36/5 36/5 36/5 36/5 36/5	
2N3317 2N3318 2N3319 2N3320 2N3321			SPC SPC SPC GPS GPS	0.15 A 0.15 A 0.15 A 0.06 A 0.06 A	30 0 15 0 6 0 10 0 7 0	0.05 0.05 0.05 0.1 0.1	30 15 6 50 100	0 0 0 20 10	m m m m m	6.4 T 7.6 T 12 T 600 T 600 T	9.0 9.0 10 3.0 3.5		20/35 20/35	.19 .12	40 m 10 m		18/ 18/	
2N3322 ★ 2N3323 ★ 2N3324 ★ 2N3325 2N3326		1 1 1 1 1	GPS GPF GPF GPA SNG	0.06 A 0.15 A 0.15 A 0.15 A 0.8 A	7 0 35 S 35 S 35 S 45 0	0.1 0.1 0.1 0.1 0.8	30 30 30 30 40	40 3.0 3.0 3.0 15	m m m m A	600 T 200 T 200 T 200 T 250 T	3.5 3.0 3.0 3.0 8.0		20/35	.25	20 m 100 M 10 M 15 A		18/ 18/22 18/22 18/22 5/31	
2N3328 2N3336 2N3337 2N3338 2N3339	THRU 2N3287 2N3289 2N3288		FET FET SNF SNF SNF	Table 9 Table 9 0.3 A 0.3 A 0.3 A	40 0 40 0 40 0 40 0	0.05 0.05 0.05 0.05	30 30 30 30	4.0 4.0 4.0	m m m	400 T 400 T 400 T	1.6 1.6 1.6			30 30 30	5.5 5.5 5.5	60 M 60 M 200 M		
2N3340 2N3341 2N3342 2N3343 2N3344			SNA SPA SPG SPC SPC	0.4 A 0.4 A 0.25 A 0.25 A 0.25 A	20 0 20 0 8 0 8 0 30 0	0.03 0.03 0.05 0.05 0.05	40 40 30 20 25	10 10 5.0 2.5 1.0	u u m m m	70 T 50 T 10 2.0 T 2.0 T	6.0 6.0 10 25 25		150/280	.1	10 u 10 u 5.0 m		46/ 46/ 5/ 5/ 5/	
2N3345 2N3346 2N3347 2N3348 2N3349			SPC SPC SPM SPM SPM	0.25 A 0.25 A 0.3 A 0.3 A 0.3 A	50 0 50 0 45 0 45 0 45 0	0.05 0.05 0.03 0.03 0.03	15 25 40 40 40	1.0 1.0 10 10 10	m m u u u	2.0 T 2.0 T 60 T 60 T 60 T	25 25 6.0 6.0 6.0			.2 .25 .1		AUD AUD AUD AUD AUD		5/ 5/ 5/ 5/ 5/



2N3350-2N3450

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Rel. Point Volts	Subscript	Ic Amp Max	hFE @ Ic		fT MHz Min	Sub	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	f kHz	Unit	PACKAGE To-Case No. No.
								Min	Max										
2N3350 2N3351 2N3352 2N3353 2N3364	2N3726 2N3726 2N3726 THRU THRU		SPM SPM SPM THY THY	0.3 A 0.3 A 0.3 A Table 6 Table 6	45 0 45 0 45 0	0.03 0.03 0.03	100 100 100	10 u 10 u 10 u	60 T 60 T 60 T		6.0 6.0 6.0							AUD AUD AUD	
2N3365 2N3370 2N3374 ★ 2N3375 D 2N3376	THRU 2N3500 THRU	1	FET FET SNA SNP FET	Table 9 Table 9 5.0 C 11.6 C Table 9	80 0 40 0	0.5 1.5	10 10	.17 A .25 A	230 T 400 T		10 10			.3 875		.15 A 100 M		5/ 60/36	
2N3387 2N3389 2N3390 2N3391 2N3391A	MPS6521 MPS6515 MPS6520 MPS3392		FET SNG SNA SNA SNE	Table 9 0.6 A 0.2 A 0.2 A 0.2 A	160 0 25 0 25 0 25 0	0.07 0.1 0.1 0.1	60 400 250 250	7.0 m 2.0 m 2.0 m 2.0 m	36 T		35 2.0 2.0 1.0	1200/1600	1.0		7.0 m		5/ 92/ 92/ 92/ 92/		
2N3392 2N3393 2N3394 2N3395 2N3396	MPS3393 MPS3393 MPS3394 MPS3395 MPS3396		SNA SNA SNA SNA SNA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	25 0 25 0 25 0 25 0 25 0	0.1 0.1 0.1 0.1 0.1	150 90 55 150 90	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m			2.0 4.5 4.5 4.5 4.5			5.0	AUD		92/ 92/ 92/ 92/ 92/		
2N3397 2N3398 2N3399 D 2N3400 2N3401	MPS3397 MPS3398 GPA GPG SPC		SNA SNA GPA GPG SPC	0.2 A 0.2 A 0.08 A 0.15 A 0.25 A	25 0 25 0 0.07 20 0 25 0	0.1 0.1 0.07 0.1 0.1	55 55 10 50	2.0 m 2.0 m 1.5 m 10 m	400 T 150 T 0.08 T		4.5 4.5 2.0 3.0 1.5	60/260	.15 .25		10 m 5.0 m		9/ 5/		
2N3402 2N3403 2N3405 D 2N3406 D 2N3407	MPS6513 MPS6515		SNA SNA SNA UJT SNF	0.56 A 0.56 A 0.56 A Table 8 0.2 A	25 0 25 0 50 0	0.5 0.5 0.5	75 180 180	2.0 m 2.0 m 2.0 m					.3 .3 .3		50 m 50 m 50 m				
D 2N3408 2N3409 2N3410 2N3411 2N3412	MD3406 MD3410 MD3410		SPF SNM SNM SNM GPA	4.0 A 0.5 A 0.5 A 0.5 A 0.06 A	25 0 30 0 30 D 30 0 20 S	0.5 0.5 0.5 0.5 0.1	10 30 20 20 30	40 m 0.1 m 10 u 10 u 10 m	200 T 250 T 250 T 250 T 100 T		10 8.0 8.0 8.0 3.0			7.0	30 M 1000 H 1000 H 1000 H 10 m		5/		
2N3413 2N3414 2N3415 2N3416 2N3417	MPS6513 MPS6515 MPS6515 MPS6515		SPE SNA SNA SNA SNA	0.4 A 0.36 A 0.36 A 0.36 A 0.36 A	150 D 25 0 25 0 50 0 50 0	0.5 0.5 0.5 0.5	10 75 180 75 180	50 m 2.0 m 2.0 m 2.0 m 2.0 m	0.25 T	60				.3 .3 .3 .3	6.0	10 K 50 m 50 m 50 m 50 m	5/		
2N3418 2N3419 2N3420 2N3421 2N3423	2N5334 2N5335 2N5336 2N5336 MD918		SNG SNG SNG SNG SNM	0.8 A 0.8 A 0.8 A 0.8 A 0.3 A	60 0 80 0 60 0 80 0 15 D	3.0 3.0 3.0 3.0 0.05	20 20 40 40 20	1.0 A 1.0 A 1.0 A 1.0 A 3.0 m	40 T 40 T 40 T 40 T 600 T		130 130 130 130 1.7	300/1200 300/1200 300/1200 300/1200	.25 .25 .25 .25 4		1.0 A 1.0 A 1.0 A 1.0 A 10 m		5/ 5/ 5/ 5/		
★ 2N3424 2N3425 2N3426 ★ 2N3427 ★ 2N3428	MD918	1	SNM SNG SNS GPE GPE	0.3 A 0.3 A 0.6 A 0.2 A 0.2 A	15 0 15 0 12 0 30 R 30 R	0.05 1.0 1.0 0.5 0.5	20 30 30 100 150	3.0 m 10 m 0.3 A 0.1 A 0.1 A	600 T 300 T 450 T 4.0 T 5.0 T		1.7 6.0 15 20 20		4 4 .33		10 10 1000 H 1000 H		78/654 5/31 5/31		
2N3429 2N3430 2N3431 2N3432 2N3433	2N5877 2N5632 2N5634		SNG SNG SNG SNG SNG	150 C 150 C 150 C 150 C 150 C	50 0 100 0 150 0 200 0 250 0	5.0 5.0 5.0 5.0 5.0	10 10 10 10 10	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	0.2 E 0.2 E 0.2 E 0.2 E 0.2 E			5K/12K 5K/12K 5K/12K 5K/12K 5K/12K	1.0 1.0 1.0 1.0		5.0 A 5.0 A 5.0 A 5.0 A 5.0 A				
D 2N3435 2N3436 ★ 2N3438 ★ 2N3439 ★ 2N3440	THRU	1	SNP FET FET SNA SNA	1.0 A Table 9 Table 9 1.0 A 1.0 A	60 0	0.25	50 40 40	10 m 20 m 20 m	140 T 15 T 15 T		5.0 10 10			10	70 M		5/ 5/31 5/31		
2N3441 2N3442 D 2N3443 ★ 2N3444 ★ 2N3445		1	SNA SNA GPA SNG SNG	25 C 100 C 0.3 A 1.0 A 1.15 C	140 0 140 0 15 0 50 0 60 0	3.0 10 0.1 7.5	20 20 20 20	0.5 A 3.0 A 10 m 0.5 A 3.0 A	0.2 T 80 T 750 T 150 T 10 T		2.5 12 400	50/70 350/2350	.35 1.5		15 A 3.0 A		5/31 3/11		
★ 2N3446 ★ 2N3447 ★ 2N3448 2N3449 D 2N3450		1	SNG SNG SNG GPG SNG	115 C 115 C 115 C 0.15 A 0.6 A	80 0 60 0 80 0 6 0 60 0	7.5 7.5 7.5 0.1 0.8	20 40 40 20 40	3.0 A 5.0 A 5.0 A 10 m 15 A	10 T 10 T 10 T 300 T 100 T		400 400 400 5.0 15	350/2350 350/2350 350/2350 55/120 200/235	1.5 1.5 1.5 2 5		3.0 A 5.0 A 5.0 A 2.0 m .15 A		3/11 3/11 3/11 18/ 5/		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	Subscript	Ic Amp Max	hFE @ Min	Ic @ Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	IC @ f IC & IB	Unit	PACKAGE To- Case No. No.
2N3452 2N3460 2N3461 D 2N3462 D 2N3463	THRU		FET FET GPA SNE SNE	Table 9 Table 9 5.0 C 0.3 A 0.3 A			30 0 3.0 0.03 45 0	90 100 120	0.5 A 10 u 10 u	0.9 E 10 T 45 T					4 6.0	1.0 A 2000 H		18/ 18/	
2N3464 ★ 2N3465 ★ 2N3466 ★ 2N3467 ★ 2N3468	2N5334		SNA FET FET SPG SPG	Table 9 Table 9 Table 9 1.0 A 1.0 A			4G 0 5.0 1.0 40 0 50 0	35 40 25	0.2 A 0.5 A 0.5 A	30 T 175 T 150 T				10/90 10/90	.3 .35	.15 A 15 A		5/31 5/31	
2N3469 2N3470 2N3471 2N3472 2N3473	2N5337 2N6057 2N6059		SNA SNA SNA SNA SNA	1.25 A 150 C 150 C 150 C 150 C			25 0 50 0 100 0 150 0 200 0	5.0 10 10 10 10	100 9.0 A 9.0 A 9.0 A 9.0 A	0.5 A 0.7 E 0.7 E 0.7 E 0.7 E	20 T 150 T 150 T 150 T 150 T				.5 3.5 3.5 3.5 3.5	1.0 A 9.0 A 9.0 A 9.0 A 9.0 A		5/	
2N3474 2N3475 2N3476 2N3477 2N3478	2N6055		SNA SNA SNA SNA SNF	150 C 150 C 150 C 150 C 0.2 A			50 0 100 0 150 0 200 0 15 0	7.0 10 10 10 25	700 700 700 700 2.0 m	4.0 A 4.0 A 4.0 A 4.0 A 750 T					3.5 3.5 3.5 3.5 11	9.0 A 9.0 A 9.0 A 9.0 A 200 M			
★ 2N3479 ★ 2N3484 ★ 2N3485 ★ 2N3485A ★ 2N3486	THRU		UJT UJT SPS SPS SPS	Table 8 Table 8 2.0 C 2.0 C 2.0 C			40 0 40 0 40 0 40 0	0.6 0.6 0.6 0.6	40 40 100	.15 A .15 A .15 A .15 A	200 T 200 T 200 T 200 T			45/100 45/100 45/100	.4 .4 .4	.15 A .15 A .15 A		46/26 46/26 46/26	
★ 2N3486A ★ 2N3487 ★ 2N3488 ★ 2N3489 ★ 2N3490			SPS SNG SNG SNG SNG	2.0 C 115 C 115 C 115 C 115 C			60 0 60 0 80 0 100 0 60 0	0.6 7.5 7.5 7.5 7.5	100 20 30 10 40	.15 A 3.0 A 3.0 A 3.0 A 5.0 A	200 T 10 T 10 T 10 T 10 T			45/100 350/2350 350/2350 350/2350 350/2350	.4 .3 .3 .3 .3	.15 A 1.0 A 1.0 A 1.0 A		46/26 61/9 61/9 61/9 61/9	
★ 2N3491 ★ 2N3492 2N3493 ★ 2N3494 ★ 2N3495			SNG SNG SNA SPG SPG	115 C 115 C 0.15 A 0.6 A 0.6 A			80 0 100 0 8 0 80 0 120 0	7.5 7.5 0.25 0.1 0.1	40 30 40 35 35	5.0 A 5.0 A 0.5 m 0.1 A 0.1 m	10 T 10 T 400 T 200 T 150 T			350/2350 350/2350 0.7 300/1000 300/1000	.3 .3 .15 .3 .35	1.0 A 1.0 A 10 u 10 m 10 m		61/9 61/9 5/31 5/31	
★ 2N3496 ★ 2N3497 ★ 2N3498 ★ 2N3499 ★ 2N3500			SPG SPG SNA SNA SNA	0.4 A 0.4 A 1.0 A 1.0 A 1.0 A			80 D 120 0 100 0 100 0 150 0	0.1 0.1 0.5 0.5 0.3	35 35 100 100 40	0.1 A 0.1 m .15 A .15 A .15 A	200 T 150 T 150 T 150 T 150 T			300/1000 300/1000 10 10 8.0	.3 .35 .2 .2 .2	10 m 10 m 10 m 10 m 10 m		18/22 18/22 5/31 5/31 5/31	
★ 2N3501 2N3502 2N3503 2N3504 2N3505	2N2905S 2N2905AS 2N2907 2N2907A		SNA SPE SPE SPE SPE	1.0 A 0.7 A 0.7 A 0.4 A 0.4 A			150 0 45 0 60 0 45 0 60 0	0.3 0.6 0.6 0.6 0.6	100 115 115 50 m 50 m	.15 A 50 m 200 T 200 T 200 T	150 T 8.0 8.0 8.0 8.0			40/100 40/100 40/100 40/100	.2 4.0 4.0 4.0	10 m 2000 H 2000 H 2000 H 2000 H		5/31 5/ 18/ 18/	
★ 2N3506 ★ 2N3507 ★ 2N3508 ★ 2N3509 ★ 2N3510			SNG SNG SNS SNS SNS	1.0 A 1.0 A 0.4 A 0.4 A 0.36 A			10 0 50 0 20 0 20 0 10 0	3.0 3.0 0.5 0.5 0.5	40 30 40 100 15	1.5 A 1.5 A 10 m 10 m .15 A	60 T 60 T 500 T 500 T 350 T			45/90 45/90 12/18 12/18 20/25	1.0 1.0 25 25 4.0	1.5 A 1.5 A 10 m 10 m 10 m		5/31 5/31 46/26 46/26 52/27	
★ 2N3511 2N3512 2N3513 D 2N3514 D 2N3515	2N5859 2N2480A 2N2480A MD2219AF		SNS SNS SNA SNA SNM	0.36 A 0.8 A 0.25 A 0.25 A 0.25 A			15 0 35 0 40 D 40 0 40 0	0.5 10 0.5 0.5 0.5	30 10 50 50 50	.15 A 0.5 A 1.0 m 1.0 m 1.0 m	450 T 250 T 50 T 50 T 50 T			16/18 30/45	.25 1.0	10 m 5 A 1.0 K 1.0 K 1.0 K		52/27 5/ 18/ 18/ 18/	
D 2N3516 D 2N3517 D 2N3518 D 2N3519 D 2N3520	MD2219AF		SNA SNA SNM SNA SNA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A			60 0 60 0 60 0 30 0 30 0	0.5 0.5 0.5 0.05 0.05	50 50 50 150 150	1.0 m 1.0 m 1.0 m 1.0 m 1.0 m	60 T 60 T 60 T 60 T 60 T				8.0 8.0 7.0 7.0	1.0 K 1.0 K 1.0 K 2000 H 2000 H			
D 2N3521 D 2N3523 D 2N3524 2N3525 2N3526	2N3501		SNA SNA SNA THY SNA	0.3 A 0.25 A 0.25 A Table 6 0.8 A			55 0 55 0 55 0 120 0	0.05 0.05 0.05	100 100 100	10 u 10 u 10 u	30 T 30 T 30 T				7.0 7.0 7.0	2000 H 2000 H 2000 H		5/	
2N3527 2N3528 2N3541 2N3543 ★ 2N3544	THRU		SPA THY THY SNA SNA	Table 6 Table 6 Table 6 60 C 0.3 A			30 0 60 0 25 S	0.1 5.0 0.1	25 10 25	0.1 m 4.5 A 10 m	5.0 T 150 T 600 T				1.0	4.5 A		46/ 3/ 18/22	



2N3545-2N3623

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Substr	Ic Amp Max	hFE Min	Ic @	Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	f @	Unit	PACKAGE To- No. Case No.
2N3545 ★ 2N3546 2N3547 ★ 2N3548 2N3548		1	SPG SPS SPE SNS SPE	0.36 A 0.36 A 0.36 A 0.4 A 0.4 A	20 0 12 0 60 0 15 0 45 0	0.2 0.1 0.2 0.5 0.1	40 30 100 30 100	10 m 10 m 10 m 15 A 10 u	250 T 700 T 45 T 450 T 60 T		8.0 6.0 8.0 4.0 8.0	60/90 40/30		2 15		10 m 10 m 1000 H 1000 H		18/ 18/22 18/ 46/26 18/	
2N3549 2N3550 2N3551 2N3552 ★ 2N3553		1	SPE SPE SNG SNG SNP	0.4 A 0.4 A 40 C 40 C 7.0 C	60 0 45 0 60 0 80 0 40 0	0.1 0.1 12 12 1.0	100 200 20 20 10	10 u u 10 A 10 A 25 A	60 T 60 T 40 T 40 T 400 T		8.0 8.0 850 850 10	300/2500 300/2500 2.5/		4.0 4.0 1.0 1.0 10		1000 H 1000 H 10 A 10 A 175 M		18/ 18/ 39/79	
2N3554 2N3555 2N3562 2N3563 2N3564	THRU		SNG THY THY SNH SNA	0.8 A Table 6 Table 6 0.2 A 0.2 A	30 0 0.05 0.05 12 0 15 0	1.2 0.05 0.05 0.05 0.1	25 20 20	.75 A 8.0 m 15 m	150 T 600 T 400 T		25 1.7 3.5	50/105		.7 14 3		.75 A 200 M 20 m		5/ 92/	
2N3565 2N3566 2N3567 2N3568 2N3569	MPS6514 MPS6514 MPS6530 MPS6531		SNA SNA SNA SNA SNA	0.2 A 0.3 A 0.3 A 0.3 A 0.3 A	25 0 30 0 40 0 60 0 40 0	0.5 0.02 0.5 0.5 0.5	150 150 40 40 100	1.0 m 10 m 15 A 15 A .15 A	40 T 40 T 60 T 60 T 60 T		4.0 25 20 20 20			1.0 .25 .25 .25 .25		.1 A 15 A 15 A 15 A 15 A		105/ 105/ 105/	
2N3570 2N3572 2N3573 2N3576 D 2N3577		2N3251	SNE SNF FET SPS SNA	0.2 A 0.2 A Table 9 0.36 A 85 C	15 0 15 0 15 0 15 0 80 0	0.05 0.05 0.05 2.0	20 20 40 40 12	5.0 m 5.0 m 10 m 10 A 1.0 A	1500 T 1000 T 400 T 10 T			30/50		450 7.0 6.0		450 M		18/ 53/	
2N3578 2N3579 2N3581 2N3582 ★ 2N3583	2N3799 2N3799 2N3799	1	FET SPE SPE SPE SNA	Table 9 0.4 A 0.4 A 0.4 A 35 C	60 0 40 0 40 0 0.03 175 0	0.03 0.03 0.03 1.0	30 50 100 40	1.0 m 0.1 m 0.1 m 0.5 A	80 T 30 T 30 T 10 T		6.0 6.0 6.0 120			4.0 3.0 3.0 5.0		AUD AUD AUD 1.0 A		46/ 46/ 46/ 66/80	
★ 2N3584 ★ 2N3585 D 2N3586 2N3587 2N3588		1	SNG SNG SPC SNA GPA	35 C 35 C 125 A 0.3 A 0.1 A	250 D 300 0 45 0 45 0 25 B	2.0 2.0 0.1 0.5 0.1	80 80	1.0 A 1.0 A 0.1 T 1.0 m	10 T 10 T 18 80 T 200 T		120 120 18 8.0	3000/7000 3000/7000		.75 .75		1.0 A 1.0 A		66/80 66/80	
2N3589 2N3590 2N3591 2N3592 2N3593	2N3738 2N6233		SNA SNA SNA SNA SNA	2.0 A 2.0 A 1.0 A 1.0 A 1.0 A	200 R 200 R 200 R 200 R 200 R	0.5 0.5 0.5 0.5 0.5	30 75 30 75 30	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	15 T 15 T 15 T 15 T 15 T					2.0 2.0 2.0 2.0 2.0		.2 A .2 A .2 A .2 A .2 A			
2N3594 2N3595 2N3596 2N3597 2N3598	MJ7000 MJ7000		SNA SNA SNA SNG SNG	1.0 A 1.5 A 1.5 A 100 C 100 C	200 R 200 R 200 R 40 0 60 0	0.5 0.5 0.5 20 20	75 30 75 40 40	0.2 A 0.2 A 0.2 A 10 A 10 A	15 T 15 T 15 T 30 T 30 T			700 700	700/2700 700/2700		2.0 2.0 2.0 5 5		.2 A .2 A .2 A 1.0 A 1.0 A		63/ 63/
2N3599 2N3600 D 2N3601 D 2N3602 2N3603	MJ7000		SNG SNF GPG GPG GPG	100 C 0.2 A 286 C 286 C 286 C	80 0 15 0 40 0 40 0 55 0	20 3.5 3.5 3.5	40 20 60 60 60	1.0 A 30 m 1.0 A 1.0 A 1.0 A	20 T 850 T 20 T 20 T 20 T		700 700	700/2700 1300/2700 1300/2700 1300/2700		5 17 2 2 2	4.5	1.0 A 20C M 1 A 1 A 1 A		63/ 72/	
D 2N3604 2N3605 2N3605A 2N3606 2N3606A	MPS3646 MPS3646		GPG SNS SNS SNG SNG	286 C 0.2 A 0.32 A 0.2 A 0.32 A	55 0 14 0 15 0 14 0 15 0	3.5 0.2 0.2 0.2 0.2	60 30 30 30 30	1.0 A 10 m 10 m 10 m 10 m	20 T 300 T 300 T 300 T 300 T		6.0 6.0 6.0 6.0	1300/2700 35/45 35/45 40/60 40/60		2 .25 .25 .25 .25		1 A 1C m 1C m 1C m 1C m		98/ 98/	
D 2N3608 ★ 2N3610 ★ 2N3611 ★ 2N3612 ★ 2N3613	THRU	1	FET FET GPA GPA GPA	Table 9 Table 9 85 C 85 C 85 C	7.0 7.0 30 S 45 S 30 S	7.0 7.0 7.0 7.0 7.0	35 35 60	3.0 A 3.0 A 3.0 A	0.3 T 0.3 T 0.3 T					25 25 25		3.0 A 3.0 A 3.0 A		3/11 3/11 3/11	
★ 2N3614 ★ 2N3615 ★ 2N3616 ★ 2N3617 ★ 2N3618		1	GPA GPA GPA GPA GPA	85 C 85 C 85 C 85 C 85 C	45 S 60 S 75 S 60 S 75 S	7.0 7.0 7.0 7.0 7.0	60 30 30 45 45	3.0 A 3.0 A 3.0 A 3.0 A 3.0 A	0.3 T 0.3 T 0.3 T 0.3 T 0.3 T					25 25 25 25 25		3.0 A 3.0 A 3.0 A 3.0 A 3.0 A		3/11 3/11 3/11 3/11 3/11	
2N3619 2N3620 2N3621 2N3622 2N3623			SNP SNP SNP SNP SNP	7.5 C 7.5 C 30 C 30 C 7.5 C	40 0 40 0 40 0 40 0 40 0	2.5 5.0 5.0 5.0 2.5	40 40 40 40 40	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	200 T 200 T 200 T 200 T 200 T		50 50 50 50 50			7.5 7.5 6.0 6.0 7.5		50 M 50 M 50 M 50 M 50 M		61/ 61/	

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Subscript	Ic Amp Max	hFE @ Min	Ic Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.	
																		Ref. Point	IC & IB
2N3624 2N3625 2N3626 2N3627 2N3628			SNP SNP SNP SNP SNP	7.5 C 30 C 30 C 7.5 C 7.5 C	40 0 40 0 40 0 50 0 50 0		5.0 5.0 5.0 2.5 5.0	40 40 40 40 40	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	200 T 200 T 200 T 200 T 200 T	50 50 50 50 50			7.5 6.0 6.0 7.5 7.5		50 M 50 M 50 M 50 M 50 M	61/ 61/	
2N3630 ★ 2N3631 ★ 2N3632 2N3633 ★ 2N3634			SNP FET SNP SNP SPG	30 C Table 9 23 C 0.3 A 1.0 A	50 0 40 0 40 0 6 0 140 0		5.0 3.0 0.05 1.0	40 25 A 50 50	1.0 A 250 T 10 m 50 m	200 T 250 T 1300 T 150 T	50 25 2.5 10			6.0 5.8 .21		50 M 175 M 30 m 1000 H	61/ 60/36 18/	
★ 2N3635 ★ 2N3636 ★ 2N3637 2N3638 2N3638A			SPG SPG SPG SPG SPG	1.0 A 1.0 A 1.0 A 0.3 A 0.3 A	140 0 175 0 175 0 25 0 25 0		1.0 1.0 1.0 0.5 0.5	100 50 100 100 100	50 m 50 m 50 m 50 m 50 m	200 T 150 T 200 T 100 T 150 T	10 10 10 20 10			400/600 400/600 400/600 75/170 75/170		1000 H 1000 H 1000 H 50 m 50 m	5/31 5/31 5/31 92/ 92/	
2N3639 2N3640 2N3641 2N3642 2N3643	MPS3639 MPS3640 MPS6530 MPS6531		SPG SPG SNP SNP SNP	0.2 A 0.2 A 0.35 A 0.35 A 0.35 A	6 0 12 0 30 0 45 0 30 0		0.08 0.08 0.5 0.5 0.5	30 30 40 40 100	10 m 10 m 15 A 15 A 15 A	500 T 500 T 150 T 150 T 250 T	3.5 3.5 8.0 8.0 8.0			25/60 25/60 40/100 40/100 18/28 20/25		16 .2 10 10 10 10	10 m 10 m 30 M 30 M 30 M 30 M	92/ 92/ 92/ 92/
2N3644 2N3645 2N3646 ★ 2N3647 2N3649		MPS3646	SPG SPG SNS SNS THY	0.3 A 0.3 A 0.2 A 0.4 A Table 6	45 0 60 0 15 0 10 0		0.5 0.5 0.2 0.5	80 80 30 25	50 m 50 m 30 m .15 A	200 T 200 T 350 T 350 T	8.0 8.0 5.0 4.0			40/100 40/100 18/28 20/25		50 m 50 m 30 m 10 m	92/ 92/ 92/ 46/26	
2N3658 2N3659 2N3660 2N3661 2N3662		2N37:9 2N37:20	THY SNA SPA SPA SNF	4.0 C 5.0 C 5.0 C 0.2 A	40 C 30 0 30 0 12 0		0.5 1.5 1.5 0.25	20 25 25 20	10 m 0.5 A 0.5 A 8.0 m	50 T 25 T 25 T 700 T	6.0 275 275 17			1.2 1.2		5 A 5 A 60 M	5/ 5/ 5/	
2N3663 2N3664 2N3665 2N3666 2N3667		2N5335 2N5881	SNF SNP SNA SNA SNA	0.2 A 5.0 C 5.0 C 5.0 C 117 C	12 0 60 S 60 S 80 0 50 0		0.25 0.5 1.0 1.0 15	20 8.0 40 100 15	8.0 m 50 m 15 A 15 A 8.0 A	700 T 300 T 60 T 60 T 0.5 T	1.7 60 12 12			60/12		6.5 7.4 5 5 1.5	6.5 250 M .15 A .15 A 8.0 A	5/ 5/ 5/
2N3668 2N3669 2N3671 2N3672 ★ 2N3673		2N2905S	THY THY SPG SPG SPG	Table 6 Table 6 0.6 A 0.4 A 0.35 A	50 0 50 0 50 0		0.6 0.6 0.6	75 75 75	15 A 15 A 15 A	200 T 200 T 200 T	9.0 9.0 9.0			45/100 45/100 45/100		4 4 4	.15 A .15 A .15 A	5/ 18/ 46/
2N3675 2N3676 ★ 2N3677 2N3678 2N3679		2N4238 2N4239 2N30:19	SNG SNG SPA SNG UJT	8.8 C 8.8 C 0.4 A 0.8 A Table 8	55 0 90 0 20 0 55 0		3.0 3.0 0.1 0.8	12 12 40	1.0 A 1.0 A .15 A	1.0 T 1.0 T 250 T	10 10 8.0			5K/10K 5K/10K		8 8 4	1.0 A 1.0 A .15 A	5/ 5/ 46/
2N3681 2N3683 2N3684,A 2N3687,A 2N3688			SNA SNF FET FET SNH	0.2 A 0.2 A Table 9 Table 9 0.2 A	7 0 12 0		0.03	20 20	2.0 m 8.0 m	1000 T 1000 T				.37 17	4.0	4.0 m 200 M	72/	
2N3689 2N3690 2N3691 2N3692 2N3693		MPS6512 MPS6513	SNH THY SNA SNA SNA	0.2 A Table 6 0.2 A 0.2 A 0.2 A	40 0 40 0 20 0 20 0 45 0		0.03 0.03 0.03 0.03	30 30 100 100 40	4.0 m 4.0 m 10 m 10 m 10 m	400 T 400 T 200 T 200 T 200 T	1.6 1.6 3.5 3.5 6.0			29 29 .7 .7		45 M 45 M 10 m 10 m	92/	
2N3695 2N3698 2N3700 2N3701 2N3702		2N2896 2N3019 2N3250	FET FET SNE SNA SPA	Table 9 Table 9 0.5 A 0.5 A 0.3 A	80 0 80 0 25 0		1.0 1.0 0.2	100 40 60	.15 A 15 A 50 m	100 T 80 T 100 T	12 12 12			.2 .25	4.0	1000 H .15 A 50 m	18/ 18/ 92/	
2N3704 2N3705 2N3706 2N3707 2N3708		2N2222A 2N2222A 2N930	SNA SNA SNA SNE SNA	0.36 A 0.36 A 0.36 A 0.25 A 0.25 A	30 0 30 0 20 0 30 0 30 0		0.8 0.8 0.8 0.03 0.03	100 50 30 100 45	50 m 50 m 50 m 0.1 m 1.0 m	100 T 100 T 100 T	12 12 12			.6 .8 1.0 1.0		.1 A .1 A .1 A 5.0 AUD 10 m	92/ 92/ 92/ 92/ 92/	
2N3709 2N3710 2N3711 ★ 2N3712 ★ 2N3713			SNA SNA SNA SNA SNA	0.25 A 0.25 A 0.25 A 0.8 A 150 C	30 0 30 0 30 0 150 0 60 0		0.03 0.03 0.03 0.2 10	45 90 180 30 25	1.0 m 1.0 m 1.0 m 30 m 1.0 A	40 T 9.0	9.0			1.0 1.0 1.0 2.0 1.0		10 m 10 m 10 m 50 m 5.0 A	92/ 92/ 92/ 5/31 3/11	



TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	Subscript	Ic Amp Max	hFE @ Min	Ic @ Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.	
																		t _{on} ns Max	t_{off} ns Max	VCE (sat) Volts @ IB Max	IC & IC
* 2N3785 2N3788			GPF SNA	0.15 A 100 C	12 0 325 0	0.02 1.0	15 3.0	3.0 m 50 A	700 T 5.0 T	1.2 400					2.9	200 M	72/	
* 2N3789 * 2N3790 * 2N3791			1 SPA	150 C 150 C 150 C	60 0 80 0 60 0	10 10 10	25 25 50	1.0 A 1.0 A 1.0 A	0.75 E 0.75 E 1.5 E					1.0 1.0 1.0	5.0 A 5.0 A 5.0 A	3/11 3/11 3/11		
* 2N3792 2N3793 2N3794 2N3795 * 2N3796	MPS6530 MPS6531		1 SPA	150 C SNA SNA SPG	80 0 0.25 A 0.25 A 5.0 C	10 20 0 20 0 120 0	10 0.5 0.5 1.0	50 20 100	1.0 A 10 m 10 m 10 m	1.5 E 100 T 100 T 0.5 T	10 10			1.0 4 4 2	5.0 A 10 m 10 m 10 m	3/11 5/		
* 2N3797 * 2N3798 2N3798A * 2N3799 2N3799A		1	FET SPE SPE	Table 9 0.36 A 0.36 A	60 0 90 0 60 0	0.05 0.05 0.05	150 300 150	500 u 500 u 500 u	30 T 30 T 30 T	4.0 4.0 4.0				2 2 2	100 u 100 u 100 u	18/22 18/22 18/22		
* 2N3799A	2N3799	1	SPE	0.36 A	90 0	0.05	300	500 u	30 T	4.0				2	100 u	18/22		
2N3800 2N3801 2N3802 2N3803 2N3804	2N3806 2N3807 2N3808 2N3809 2N3810		SPE SPE SPM SPM SPM	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	60 0 60 0 60 0 60 0 60 0	0.05 0.05 0.05 0.05 0.05	150 300 150 300 150	0.1 m 0.1 m 0.1 m 0.1 m 0.1 m	100 T 100 T 100 T 100 T 100 T	4.0 4.0 4.0 4.0 4.0		/5.0 /5.0 /3.0			7.0 4.0	100 H 100 H 100 H 100 H 100 H	18/22 71/ 71/ 71/ 71/	
2N3804A 2N3805 2N3805A * 2N3806 * 2N3807	2N381.1A 2N381.1 2N381.1A		SPM SPM SPM SPA SPA	0.25 C 0.25 A 0.25 C 0.5 A 0.5 A	60 0 60 0 60 0 60 0 60 0	0.05 0.05 0.05 0.05 0.05	150 300 300 150 300	100 u 0.1 m 100 u 0.1 m 0.1 m	30 T 100 T 30 T 100 T 100 T	4.0 4.0 4.0 4.0 4.0		/3.0			2 2	7.0 4.0	100 H 100 H 100 H 100 H 100 H	71/ 71/ 71/ /654 /654
* 2N3808 * 2N3809 * 2N3810 * 2N3810A * 2N3811 * 2N3811A * 2N3812 * 2N3813 * 2N3814 * 2N3815			SPM SPM SPM SPM SPM SPA SPM SPM SPM	0.5 A 0.5 A 0.5 A 0.50 A 0.5 A 0.50 A 0.35 A 0.35 A 0.35 A 0.35 A	60 0 60 0 60 0 60 0 60 0 60 0 60 0 60 0 60 0	0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05	150 300 150 150 300	100 u 0.1 m 0.1 m 100 u 0.1 m	100 T 100 T 100 T 30 T 100 T	4.0 4.0 4.0 4.0 4.0		/5.0 /5.0 /3.0		2 2 2	100 H 100 H 100 H	/654 /654 /654		
* 2N3810A * 2N3811 * 2N3811A * 2N3812 * 2N3813 * 2N3814 * 2N3815			SPM SPM SPM SPA SPM SPM	0.50 A 0.5 A 0.50 A 0.35 A 0.35 A 0.35 A	60 0 60 0 60 0 60 0 60 0 60 0	0.05 0.05 0.05 0.05 0.05 0.05	300 150 150 300 150 300	100 u 0.1 m 0.1 m 0.1 m 0.1 m	100 T 100 T 100 T 100 T 100 T	4.0 4.0 4.0 4.0 4.0		/3.0		2	100 u AUD AUD 100 H 100 H	/654 /610 /610 /610 /610		
* 2N3816 * 2N3816A * 2N3817 * 2N3817A * 2N3818			SPM SPM SPM SPM SNS	0.35 A 0.25 C 0.35 A 0.25 C 20 C	60 0 60 0 60 0 60 0 60 S	0.05 0.05 0.05 0.05 2.0	150 150 300 300 5.0	0.1 m 100 u 0.1 m 100 u 0.4 A	100 T 30 T 100 T 30 T 150 T	4.0 4.0 4.0 4.0 4.0		/3.0 /1.5 /3.0 /1.5 15/		6.0	100 H 100 H 100 H 100 H 100 M	/610 /610 /610 /610 60/36		
2N3819 2N3824 2N3825 2N3826 2N3828	THRU MPS6565		FET FET SNF SNA SNA	Table 9 Table 9 0.25 A 0.2 A 0.3 A	15 0 45 0 40 0	0.1 0.03 0.1	20 40 30	2.0 m 10 m 12 m	200 T 200 T 360 T	3.5 3.5 5.0				5.5	1 M			
2N3829 2N3830 2N3831 2N3832 2N3833	2N3250 2N2193 2N2193		SPG SNG SNG SNS SNA	0.36 A 1.0 A 1.0 A 0.2 A 1.0 C	20 D 50 0 40 0 6 0 15 D	0.2 1.2 1.2 0.35 0.1	30 30 35 25 20	3.0 m 15 A 15 A 2.0 m 30 m	350 T 200 T 200 T 800 T	6.0 12 12 0.85	25/65 60/70 60/70 35/30	18 3 3 4		10 m 15 A 15 A 10 m	52/ 5/ 5/ 			
2N3834 2N3835 2N3836 2N3837 * 2N3838			SNA SNA SNG SNG SNE	1.0 C 1.0 C 1.0 A 1.0 A 0.25 A	15 D 15 0 60 0 80 0 40 0	0.1 0.1 7.0 7.0 0.6	20 20 2K 2K 100	30 m 30 m 2.0 A 2.0 A 15 A	30 T 40 T 40 T 200 T	60 60 60 8.0	500/1000 500/1000 50/340	1.8 1.8		5.0 A 5.0 A 1000 H	/610			
* 2N3839 2N3840 2N3841 2N3842 2N3843	MPS6512		1 SNF SPC SPC SPC SNH	0.2 A 0.4 A 0.3 A 0.3 A 0.2 A	15 0 50 0 100 0 120 0 30 0	0.04 0.1 0.1 0.1 0.1	30 30 15 10 20	3.0 m 0.2 m 0.2 m 1.0 m 2.0 m	2000 T 6.0 T 1.5 T 1.0 T 60 T	1.0 9.0 9.0 9.0 4.0				3.9 15 10	450 M 5.0 m 5.0 m 2 M	72/20 46/ 18/ 18/		
2N3843A 2N3844 2N3844A 2N3845 2N3845A	MPS6512 MPS6512 MPS6512 MPS6512 MPS6513		SNF SNH SNF SNH SNF	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	30 0 30 0 30 0 40 0 30 0	0.1 0.1 0.1 0.1 0.1	20 35 35 60 60	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m	60 T 90 T 90 T 126 T 126 T	4.0 4.0 4.0 4.0 4.0				8.5 10 8.5 10 8.5	2 M 2 M 2 M 2 M 2 M			
2N3846 2N3847 2N3848 2N3849 2N3850			SNA SNA SNA SNA SNS	4.0 A 4.0 A 4.0 A 4.0 A 30 C	200 0 300 0 300 0 300 0 80 0	20 20 20 20 5.0	10 10 10 10 50	10 A 10 A 15 A 15 A 1.0 A	10 T 10 T 10 T 10 T	750 750 750 750 125				.75 .75 1.0 1.0 25	10 A 10 A 15 A 15 A 1.0 A	63/ 63/ 63/ 63/ 59/		



2N3851-2N3932

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	hFE Min	I _C Unit	f _T MHz	C _{ob} pF Max	P _{out} Watts	ΔVBE mV Max	G _p dB Min	NF @ dB Max	f	Unit	PACKAGE To-Case No. No.
2N3851 2N3852 2N3853 2N3854 2N3854A	MPS6512 MPS6512		SNS SNS SNS SNA SNA	30 C 30 C 30 C 0.2 A 0.2 A	80 0 40 0 40 0 18 0 30 0		5.0 5.0 5.0 0.1 0.1	30 50 30 35 35	1.0 A 1.0 A 1.0 A 2.0 in 2.0 m	20 T 20 T 20 T 100 T 100 T	125 125 125 3.5 3.5	200/900 200/900 200/900		25 25 25		1.0 A 1.0 A 1.0 A	59/ 59/ 59/	
2N3855 2N3855A 2N3856 2N3856A 2N3857	MPS6512 MPS6512 MPS6513 MPS6513		SNA SNA SNA SNA SPA	0.2 A 0.2 A 0.2 A 0.2 A 0.6 A	18 0 30 0 18 0 30 0 45 0		0.1 0.1 0.1 0.1 0.5	60 60 100 100 50	2.0 m 2.0 m 2.0 m 2.0 m 1.0 m	60 T 130 T 140 T 140 T 4.0 T	3.5 3.5 3.5 3.5 10				1	10 m	5/ 98/ 98/	
2N3858 2N3858A 2N3859 2N3859A 2N3860	MPS6512 MPS6566 MPS6513 MPS6566 MPS6514		SNA SNA SNA SNA SNA	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	30 0 60 0 30 0 60 0 30 0		0.1 0.1 0.1 0.1 0.1	60 45 100 75 150	2.0 m 1.0 m 2.0 m 1.0 m 2.0 m	90 T 90 T 90 T 90 T 90 T	4.0 4.0 4.0 4.0 4.0						98/ 98/	
2N3861 2N3862 2N3863 2N3864 2N3865		2N3716 2N5758	SNA SNA SNS SNS SNS	2.0 A 0.36 A 117 C 117 C 117 C	530 V 20 0 50 0 90 0 150 0	.025 0.2 7.5 7.5 7.5	30 50 30 30 30	25 m 10 m 3.0 A 3.0 A 3.0 A	50 T 600 T 0.5 T 0.5 T 0.5 T		55		1.5 25 1.0 1.0 1.0		25 m 10 m 3.0 A 3.0 A 3.0 A	18/ 3/ 3/ 3/ 3/		
★ 2N3866 ★ 2N3866A 2N3867 2N3868 2N3869			1 SNP 1 SNP SPG 1 SPG SNA	5.0 C 5.0 C 1.0 A 1.0 A 2.5 C	30 0 30 0 40 0 60 0 20 0	0.4 0.4 3.0 3.0 0.5	10 25 40 30 20	0.5 A 50 m 1.5 A 1.5 A 30 m	500 T 800 T 60 T 60 T 400 T	3.0 3.0 120 120 10	1.0 1.0 85/250 85/250		10 10 75 75 7		400 M 400 M 1.5 A 1.5 A 45 A	39/79 39/79 5/ 5/ 5/		
2N3870 2N3873 2N3876 2N3877 2N3877A	THRU	2N4410 2N4410	THY THY SNA SNA SNA	Table 6 Table 6 150 C 0.2 A 0.2 A		10 0.05 0.05	25 20 20	1.0 A 2.0 m 2.0 m	50 T 1000				1.0		1.0 A	81/		
2N3878 2N3879 2N3880 ★ 2N3882 ★ 2N3883	2N5428 2N5427		SNA SNG SNF FET GPG	35 C 35 C 0.2 A Table 9 0.3 A	50 0 75 0 15 0 15 0	4.0 7.0	40 12 30 30	0.5 A 4.0 A 3.0 m	40 T 40 T 1200 T	175 175 0.75	500/1250		2.0 1.2 14	3.5	4.0 A 4.0 A 450 M	66/ 66/ 72/		
2N3884 2N3889 2N3900 2N3900A 2N3901	THRU	2N5088 2N5088 2N5088	THY THY SNA SNE SNE	Table 6 Table 6 0.2 A 0.2 A 0.2 A		0.1 0.1 0.1	250 250 350	2.0 m 2.0 m 2.0 m		12 12			5.0 5.0	AUD AUD				
★ 2N3902 ★ 2N3903 ★ 2N3904 ★ 2N3905 ★ 2N3906			1 SNA SNE 1 SNE 1 SPE 1 SPE	100 C 0.31 A 0.31 A 0.31 A 0.31 A	400 0 40 0 40 0 40 0 40 0	2.5 0.2 0.2 0.2 0.2	20 50 100 50 100	1.0 A 10 m 10 m 10 m 10 m	0.8 E 250 T 300 T 200 T 250 T	4.0 4.0 4.5 4.5	70/225 70/250 70/250 70/260		2.5 6.0 5.0 5.0 4.0		2.5 A AUD AUD AUD AUD	3/11 92/29 92/29 92/29 92/29		
2N3907 2N3908 2N3909A 2N3910 2N3912	2N2919		SNA SNM FET SPC SPC	0.3 A 0.3 A Table 9 0.5 A 0.5 A	45 0 60 0 50 0 30 0	0.03 0.03	60 100 40 90	10 u 10 u 1.0 m 1.0 m	60 T 60 T 4.0 T 1.0 T	6.0 6.0 8.0 8.0			35 3		1000 H 1.0 m 10 m 10 m	46/ 46/		
2N3913 2N3914 2N3915 2N3916 2N3917			SPC SPC SPC SNA SNA	0.4 A 0.4 A 0.4 A 5.0 C 2.0 C	50 0 40 0 30 0 150 0 40 0	0.2 0.2 0.2 0.15 2.0	40 60 90 40 30	1.0 m 1.0 m 1.0 m 1.5 A 1.0 A	4.0 T 8.0 T 10 T 50 T 50 T	8.0 8.0 8.0 30 80	250/450 200/500 200/500		3 3 3 5.0 1.2		10 m 10 m 10 m 15 A 1.0 A	18/ 18/ 18/ 18/ 3/		
2N3918 2N3919 2N3920 2N3921 2N3922			SNA SNA SNA FET FET	2.0 C 15 C 15 C Table 9 Table 9	40 0 60 0 60 0	2.0 2.0 10	100 40 100	1.0 A 1.0 A 2.0 A	50 T 80 T 80 T	80 80 80			1.2 1.2 1.2		1.0 A 1.0 A 1.0 A	3/ 3/ 3/		
★ 2N3923 ★ 2N3924 ★ 2N3925 ★ 2N3926 ★ 2N3927			1 SNA 1 SNP 1 SNP 1 SNP 1 SNP	0.8 A 7.0 C 10 C 11.6 C 23.2 C	150 0 18 0 18 0 19 0 18 0	0.1 0.5 1.0 1.5 3.0	30 250 250 250 200	25 m 10 m 10 m 10 m 10 m	40 T 250 T 250 T 250 T 250 T	3.5 20 20 20 45		4.0/ 5.0/ 7.0/ 12/	1.0 6.0 5.8 5.4 4.8		25 m 175 M 175 M 175 M 175 M	5/ 39/79 102/24 60/36 60/36		
2N3928 2N3929 2N3930 2N3931 2N3932	2N5337 2N5477		SNA SNA SPE SPE SNF	7.5 C 30 C 0.4 A 0.7 A 0.2 A	40 0 40 0 180 0 180 0 20 0	3.0 3.0 0.1 0.1	20 20 80 80 40	1.5 A 1.5 A 10 m 10 m 2.0 m	200 T 200 T 40 T 40 T 750 T	25 25 5.0 5.0 0.55			5.0 5.0		1.5 A 1.5 A 10 K 10 K 200 M	59/ 18/ 5/		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Subscript	IC Amp Max	hFE @ Min	IC Unit	ft MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ dB Max	f Unit	PACKAGE To-Case No. No.
2N3933 2N3934 2N3935 D 2N3936 D 2N3940	THRU		SNF FET FET THY THY	0.2 A Table 9 Table 9 Table 6 Table 6		30 0		60	2.0 m	750 T					14	4.0	200 M	
D 2N3941 D 2N3942 D 2N3943 D 2N3944 2N3945	2N5334		SNA SNA SNA SNA SNA	0.75 C D.75 C 0.5 C 0.5 C 5.0 C		45 0 45 0 45 0 45 0 50 0	0.05 0.05 0.05 0.05 1.0	400 400 400 400 40	10 u 10 u 10 u 10 u 15 A	200 T 200 T 200 T 200 T 60 T		6.0 6.0 6.0 6.0 12			5		.15 A	78/ 78/ 71/ 71/ 5/
★ 2N3946 ★ 2N3947 ★ 2N3948 ★ 2N3950 2N3953		1 1 1 1	SNE SNE SNP SNP SNF	0.36 A 0.36 A 1.0 A 70 C 0.2 A		40 D 40 D 20 D 35 D 12 0	0.2 0.2 0.4 3.3 0.03	50 100 15 150 30	10 m 10 m 50 m 150 2.0 m	250 T 300 T 700 T 120 1300 T		4.0 4.0 4.5 120 1.8	335/375 335/450 1.0/ 50/		5.0 5.0 6.0 8.0 15	10 H 10 H 400 M 50 M 450 M	18/22 18/22 39/79 60/36 72/	
2N3954 ★ 2N3958 ★ 2N3959 ★ 2N3960 ★ 2N3961	THRU		FET FET SNI SNI SNP	Table 9 Table 9 0.4 A 0.4 A 10 C				40 40	10 m 10 m	1300 T 1600 T 400 T		25 2.5 10	24/16 24/16 7.5/	.3 .3 8.8	10 10	30 m 30 m 100 M	18/22 18/22 102/24	
2N3962 2N3963 2N3964 2N3965 2N3966			SPA SPA SPA SPA FET	0.36 A 0.36 A 0.36 A 0.36 A Table 9		60 0 80 0 45 0 60 D Table 9	0.2 0.2 0.2 0.2	100 100 250 250	10 u 10 u 10 u 10 u	40 T 40 T 50 T 50 T		6.0 6.0 6.0 6.0		.25 .25 .25 .25		10 m 10 m 10 m 10 m	18/ 18/ 18/ 18/	
2N3972 2N3973 2N3974 2N3975 2N3977	2N4400 2N4401 2N4400 2N2944		FET SNG SNG SNG SPC	Table 9 0.36 A 0.36 A 0.36 A 0.4 A		30 D 30 0 30 D 10 0	0.4 0.4 0.4 0.1	35 55 35 40	10 m 10 m 10 m 5.0 m	200 T 200 T 200 T 1.0 T		7.0 7.0 7.0 14	60/110 60/110 60/200	.3 .3 .3 1		.15 A .15 A .15 A 5.0 m	46/	
★ 2N3978 D 2N3980 D 2N3981 D 2N3982 2N3983	2N2219 2N2218	1	SPC UJT SNS SNS SNA	0.4 A Table 8 0.8 A 0.8 A 0.2 A		20 0 30 D 20 D 12 0	0.1 1.0 1.0 0.03	30 30 40 30	5.0 m .15 A .15 A 4.0 m	1.0 T 250 T 250 T 500 T		14 8.0 8.0			.15 5 5	5.0 m .15 A .15 A 100 M	46/ 5/ 5/ 92/	
2N3984 2N3985 2N3986 2N3992 2N3993	THRU		SNA SNA THY THY FET	0.2 A 0.2 A Table 6 Table 6 Table 9		12 D 12 D	0.03 0.03	20 20	4.0 m 4.0 m	400 T 300 T						100 M 100 M	92/ 92/	
2N3994 2N3995 2N3996 2N3997 2N3998	2N2929 2N5346 2N5346 2N5477		FET GPA SNG SNG SNG	Table 9 0.3 A 2.0 A 2.0 A 2.0 A		12 0 80 0 80 0 80 D		40 80 80 40	2.0 m 1.0 A 1.0 A 1.0 A	600 T 40 T 40 T 40 T		150 150 150	300/1500 300/2000 300/1500	.25 .25 .25		1.0 A 1.0 A 1.0 A		
2N3999 2N4000 2N4001 2N4002 2N4003	2N5478 2N5336 2N5339 MJ7000 MJ7000		SNG SNA SNA SNG SNG	2.0 A 1.0 A 1.0 A 4.0 A 0.4 A		80 0 80 D 100 D 80 D 100 0	5.0 1.0 1.0 30 30	80 30 40 20 20	1.0 A 0.5 A 0.5 A 15 A 15 A	40 T 40 T 40 T 30 T 30 T		150 60 60	300/2000 1000/3000 1000/3000	.25 .3 .3 1.2 1.2	7.5 7.5	1.0 A 5 A 5 A 30 A 30 A	63/ 63/	
2N4004 2N4005 2N4006 2N4007 2N4008			SNG SNG SPG SPG SPG	1.2 A 1.2 A 0.4 A 0.4 A 0.4 A		80 D 100 D 6 D 15 D 30 D	20 20 0.1 0.1 0.1	30 30	10 A 10 A	30 T 30 T 20 T 15 T 15 T			1000/4000 180/440 180/440 180/440	1.6 1.6	5.0	20 A 20 A	46/ 46/ 46/	
★ 2N4012 ★ 2N4013 ★ 2N4014 ★ 2N4015 ★ 2N4016		1 1 1 1 1	SNA SNS SNS SPM SPM	11.6 C 0.36 A 0.36 A 0.4 A 0.4 A		40 D 40 D 50 D 60 D 60 D	1.5 1.0 1.0 0.3 0.3	4.0 100 m 100 m 135 135	1.0 A 300 T 300 T 1.0 m 1.0 m	350 300 T 300 T 200 T 200 T		10 12 10 8.0 8.0	2.5/25 20/50 20/50		4.0	28 1000 H 1000 H	60/36 18/22 18/22 /654 /654	
2N4017 2N4018 2N4019 2N4020 2N4021			SPE SPE SPE SPA SPA	0.4 A 0.4 A 0.4 A 0.4 A 0.4 A		80 D 60 D 45 D 45 D 60 D	0.2 0.2 0.2 0.2 0.2	100 100 250 250 100	10 u 10 u 10 u 10 u 10 u	40 T 7.0 E 50 T 50 T 40 T		6.0 6.0 6.0 6.0 6.0			10 4.0 2.0 2.0	100 H 100 H 1 K 1 K		
2N4022 2N4023 2N4024 2N4025 2N4026			SPA SPA SPA SPA SPG	0.4 A 0.4 A 0.4 A 0.4 A 0.5 A		60 D 45 0 60 D 60 D 60 D	0.2 0.2 0.2 0.2 1.0	250 250 100 250 40	10 u 10 u 10 u 10 u 0.1 A	50 T 50 T 40 T 50 T 100 T		6.0 6.0 6.0 6.0			2.0 2.0 2.0 2.0	1 K 1 K 1 K 1 K 1.0 A	18/	



TYPE NO.	REPLACEMENT	VOL.	ID	PD Watts	V _{CE} Ref. Point	V _{CE} Volts	I _C Amp Max	h _{FE} Min	I _C @	Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF @ dB Max	f	Unit	PACKAGE To-Case No. No.
2N4112 2N4113 2N4114 2N4115 2N4116	2N3716 2N5428		SNA SNA SNA SNA SNA	30 C 30 C 3.0 A 37 C 37 C	60 0 80 0 80 0 80 0 80 0	5.0 5.0 5.0 5.0 5.0	100 40 100 40 100	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	80 T 70 T 8000 E 2800 E 8000 E	120 120 120 120 120									3/ 3/ 3/
2N4117A 2N4120A 2N4121 ★ 2N4123 ★ 2N4124	THRU 2N3905	1 1	FET SFF SNE SNE	Table 9 Table 9 0.2 A 0.31 A 0.31 A	40 0 30 0 25 0	0.1 0.2 0.2	70 50 120	10 m 2.0 m 2.0 m	400 T 250 T 300 T		4.0 4.0	40/150			6.0 6.0 5.0	100 M AUD AUD			92/29 92/29
★ 2N4125 ★ 2N4126 2N4127 2N4128 ★ 2N4130	 2N5869	1 1 1	SPE SPE SNA SNA SNP	0.31 A 0.31 A 25 C 40 C 120 C	30 0 25 0 40 0 40 0 65 0	0.2 0.2 2.0 4.0 1.0	50 120 10 10 10	2.0 m 2.0 m 0.2 A 0.2 A 2.0 A	200 T 250 T 300 T 200 T 125 T	4.5 4.5 25 45 200		50/	8.0		70 M			3/1	
2N4131 2N4132 2N4133 2N4134 2N4135			SNA SNA SNA SNF SNF	60 C 7.5 C 3.0 C 0.2 A 0.2 A	80 0 80 0 80 0 0.03 0.03	5.0 0.6 0.6 0.03 0.03	10 10 10 25 25	1.0 A 0.2 A 0.2 A 4.0 m 4.0 m	1500 E 200 T 200 T 350 T 425 T	110 15 15 1.2 1.2				5 5 20 20	2.5 2.5	.6 A .6 A 60 M 60 M			37/ 37/ 5/ 72/ 72/
2N4137 2N4139 2N4140 2N4141 2N4142	2N4400 2N4401 2N4402		SNS FET SNG SNG SPG	0.36 A Table 9 0.3 A 0.3 A 0.3 A	40 0 30 0 30 0 40 0	0.2 0.2 0.2 0.2	40	10 m	500 T			12/12							18/
2N4143 2N4144 2N4149 2N4150 2N4151	2N4403 THRU 2N5337 THRU		SPG THY THY SNA THY	0.3 A Table 6 Table 6 5.0 C Table 6	40 0 80 0	0.2 5.0	40	150 m 5.0 A	200 T 15 T	8.0 8.0 8.0	50/310 50/310 50/110								5/
2N4205 2N4207 2N4208 2N4209 2N4210	MJ7000		THY SPS SPS SPS SNA	Table 6 0.3 A 0.3 A 0.3 A 100 C	6 0 12 0 15 0 60 0	0.05 0.05 0.05 2.0	50 30 50 20	10 m 10 m 10 m 10 A	650 T 700 T 850 T 10 T	3.0 3.0 3.0 850	15/15 15/20 15/20								18/ 18/ 18/ 63/
2N4211 2N4212 2N4219 2N4220A 2N4224A	MJ7000 THRU THRU		SNA THY THY FET FET	100 C Table 6 Table 6 Table 9 Table 9	80 0 20	20	20	10 A	10 T	850									63/
2N4226 2N4227 ★ 2N4228 ★ 2N4231 ★ 2N4231A	2N5334 2N4400 2N4402	1	SNS SNG SPG SNA SNA	5.0 C 0.3 A 0.3 A 35 C 75 C	60 0 30 0 40 0 40 0 5.0	3.0 0.2 0.2 3.0 5.0	40 25 25	1.0 A 150 m 150 m 1.5 A 1.5 A	150 T 250 T 200 T 1.0 T 4.0 T	25 8.0 8.0 200 300	35/75 50/310 50/110		7 7	1.5 A 1.5 A 1.5 A				66/80 66/80	
★ 2N4232 ★ 2N4232A ★ 2N4233 ★ 2N4233A ★ 2N4234		1 1 1 1 1	SNA SNA SNA SNA SPA	35 C 75 C 35 C 75 C 1.0 A	60 0 60 0 80 0 80 0 40 0	3.0 5.0 3.0 5.0 1.0	25 25 25 25 30	1.5 A 1.5 A 1.5 A 1.5 A 250 m	1.0 T 4.0 T 1.0 T 4.0 T 3.0 T	200 300 200 300 100			.7 7 7 7 6	1.5 A 1.5 A 1.5 A 1.5 A 1.0 A				66/80 66/80 66/80 66/80 5/31	
★ 2N4235 ★ 2N4236 ★ 2N4237 ★ 2N4238 ★ 2N4239		1 1 1 1 1	SPA SPA SNA SNA SNA	1.0 A 1.0 A 5.0 C 5.0 C 5.0 C	60 0 80 0 40 0 60 0 60 0	1.0 1.0 1.0 1.0 1.0	30 30 40 40 40	250 m 250 m 500 m 500 m 500 m	3.0 T 3.0 T 10 T 2.0 T 2.0 T	100 100 100 100 100			.6 6 2.5 2.5 2.5	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A				5/31 5/31 5/31 5/31 5/31	
2N4240 2N4241 2N4242 2N4243 2N4244	2N3739	1	SNG GPA GPA GPA GPA	35 C 37.5 C 10 A 10 A 10 A	300 0 20 0 70 S 55 S 40 S	2.0 5.0 10 10 10	30 60 40 40 40	.75 A 300 m 5.0 A 5.0 A 5.0 A	2.0 T 0.5 T 0.5 T 0.5 T 0.5 T	120	500/9000		.35	5.0 A				66/80 3/ 3/ 3/ 3/	
2N4245 2N4246 2N4247 2N4248 2N4249	2N5086 2N5086		GPA GPA GPA SPA SPE	10 A 10 A 10 A 0.2 A 0.2 A	70 S 55 S 40 S 40 0 60 0	10 10 10 0.1 0.1	60 60 60	5.0 A 5.0 A 5.0 A	0.5 T 0.5 T 0.5 T 40 T 40 T	6.0 6.0				3.0	AUD			3/ 3/ 3/	
2N4250 2N4251 2N4252 2N4253 2N4254	2N5087 MPS6547		SPE SNG SNA SNA SNA	0.2 A 0.25 A 0.2 A 0.2 A 0.2 A	40 0 10 0 18 0 18 0 18 0	0.1 0.1 0.05 0.05 0.05	100 50 30	10 m 2.0 m 2.0 m	40 T 1300 T 600 T 600 T 600 T	6.0 2.0	20/60			2.0	AUD			46/ 72/ 72/ 92/	



2N4255-2N4357

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	h _{FE} Min	I _C @ Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF _@ dB Max	f Unit	PACKAGE To-Case No. No.
2N4255 2N4256 2N4257 2N4257A 2N4258	MPS6547 2N3904		SNA SNG SPS SPS SPS	0.2 A 0.2 A 0.2 A 0.5 C 0.2 A	18 0 30 S 6 0 6 0 12 0	0.05 0.1 0.05 0.05 0.05	30 100 30 30 30	2.0 m 2.0 m 10 m 10 m 10 m	600 T 500 T 500 T 500 T 700 T			180/3500 15/15 15/15 15/20					92/ 98/
2N4258A 2N4259 ★ 2N4260 ★ 2N4261 D 2N4262		1 1	SPS SNF SPS SPS SNA	0.5 C 1.75 A 0.2 A 0.2 A 1.5 C	12 0 30 0 15 0 15 0 10 0	0.05 0.03 0.03 0.03 0.2	30 60 30 30 75	10 m 20 m 10 m 15 A 0.3 A	500 T 750 T 1500 T 2000 T 600 T	2.5 2.5		15/18 1.2/1.2 1.2/1.2	11 15 15	5.0 10 m 10 m	450 M 10 m 10 m	72/20 72/20 102/	
D 2N4263 ★ 2N4264 ★ 2N4265 2N4267 2N4268		1 1 1	SNA SNS SPS FET FET	1.5 C 0.31 A 0.31 A Table 9 Table 9	10 0 15 0 12 0	0.2 0.2 0.2	75 40 100	0.3 A 10 m 15 A	800 T 300 T 300 T	4.0 4.0		25/35 25/35	.22	10 m		102/ 92/29 92/29	
2N4269 2N4270 2N4271 2N4272 2N4273	2N5682 2N5682		SNA SNA SNA SNA SNA	0.36 A 0.58 A 5.0 C 5.0 C 25 C	140 0 140 0 140 0 140 0 140 0	0.03 0.03 1.0 2.5 2.5		10 m 10 m 0.2 A 1.0 A 1.0 A		5.0 5.0 25 75 75						18/ 5/ 5/ 5/ 66/	
2N4274 2N4275 ★ 2N4276 ★ 2N4277 ★ 2N4278 ★ 2N4279 ★ 2N4280 ★ 2N4281 ★ 2N4282 ★ 2N4283		1 1 1 1 1 1 1 1	SNS SNS GPC GPC GPC GPC GPC GPC	0.28 A 0.28 A 170 C 170 C 170 C 170 C 170 C 170 C	12 0 15 0 20 0 20 0 30 0 30 0 45 0 45 0 60 0 60 0	0.1 0.1 60 60 60 60 60 60	18 18 60 80 60 80 60 80	100 m 100 m 15 A 15 A 15 A 15 A 15 A 15 A	400 T 400 T 0.12 E 0.16 E 0.12 E 0.16 E 0.12 E 0.16 E			12/12 12/12 20K/70K 20K/70K 20K/70K 20K/70K 20K/70K 20K/70K	.15 .15 .15 .15 .15 .15 .15 .15	15 A 15 A 15 A 15 A 15 A 15 A 15 A 15 A	3/ 3/ 3/ 3/ 3/ 3/ 3/ 3/		
D 2N4284 2N4285 2N4286 2N4287 2N4288	MPS6515 MPS6566 MPS6518		SPA SPA SNA SNE SPA	0.25 A 0.25 A 0.25 A 0.25 A 0.25 A	25 0 35 0 25 0 45 0 25 0	0.05 0.05 0.1 0.1 0.1	35 35 150 150 150	1.0 m 1.0 m 1.0 m 1.0 m 1.0 m	7.0 7.0 40 T 40 T 40 T	10 6.0 6.0 8.0				5.0	AUD		
2N4289 2N4290 2N4291 2N4292 2N4293	2N5086 MPS6533 MPS6534 MPS918 MPS918		SPE SPA SPA SNF SNF	0.25 A 0.25 A 0.25 A 0.2 A 0.2 A	45 0 20 0 30 0 15 0 15 0	0.1 0.6 0.6 0.05 0.05	150 50 100 20 20	1.0 m 100 m 100 m 3.0 m 3.0 m	40 T 100 T 100 T 600 T 600 T	8.0 10 10 2.2 2.2				12 14	6.0 6.0	200 M 200 M	
2N4294 2N4295 2N4296 2N4297 2N4298	2N4264 2N4264 2N3738 2N3738 2N3739		SNS SNS SNG SNG SNG	0.2 A 0.2 A 20 C 20 C 20 C	12 0 15 0 250 0 250 0 350 0	0.2 0.2 1.0 1.0 1.0	30 40 50 75 25	10 m 10 m 0.5 A 0.5 A 0.5 A	400 T 500 T 20 T 20 T 20 T	4.0		15/20 12/15 7K/10K 7K/10K 7K/10K				66/ 66/ 66/	
2N4299 2N4300 2N4302 2N4304 2N4305	2N3739 2N5336 THRU FET FET 2N5337		SNG SNA FET FET SNG	20 C 15 C Table 9 Table 9 1.5 A	350 0 80 0	1.0 2.0	50 30	0.5 A 1.0 A	400 T 30 T			7K/10K				66/ 5/	
2N4306 2N4307 2N4308 2N4309 2N4310	2N5337 2N5337 2N5337		SNG SNG SNG SNG SNG	4.0 A 1.5 A 4.0 A 1.5 A 4.0 A	80 0 60 0 60 0 80 0 80 0	5.0 5.0 5.0 5.0 5.0	50 50 50 50 40	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	100 T 100 T 100 T 100 T 100 T	100 100 100 100 100		140/400 140/400 140/400 140/400 140/400				5/ 5/ 5/	
2N4311 2N4312 2N4313 2N4314 2N4320	2N5337 THRU	1	SNG SNG SPC SPA THY	1.5 A 4.0 A 0.2 A 1.0 A Table 6	60 0 60 0 12 0 65 0	5.0 5.0 0.1 1.0	40 40 30 50	1.0 A 1.0 A 30 m 15 A	100 T 100 T 700 T 60 T	100 100		140/400 140/400 20/25				5/ 5/	
2N4337 2N4338 2N4343 ★ 2N4347 ★ 2N4348	THRU		THY FET FET SNA SNA	Table 6 Table 9 Table 9 100 C 120 C		5.0 10	15 15	2.0 A 5.0 A	0.2 T 0.2 T							3/ /11	
2N4350 2N4352 2N4355 2N4356 2N4357			SNA FET SPG SPE SPE	7.0 C Table 9 0.35 A 0.35 A 0.4 A	40 0 350	3.50 0.5 0.5 0.1	10 60 25 80	.35 A 0.1 m 0.1 m 10 m	300 T 100 T 100 T 40 T	10 30 30 7.0		100/400 100/400		3.0 3.0	1.0 K 1000 H	5/31 18/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	h _{FE} Min	I _C @	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF @ f	Unit	PACKAGE To-Case No. No.
2N4358 ★ 2N4359 2N4360 2N4361 2N4380	THRU		SPE SPE FET THY THY	0.7 A 0.36 A Table 9 Table 6 Table 6	240 0 45 0	0.1 0.05	80 50	10 m 1.0 m	40 T 20 T	7.0 6.0				3.0 4.0	1000 H 1.0 K	39/ 18/
2N4381 2N4382 2N4383 2N4384 2N4385			FET FET SNE SNE SNE	Table 9 Table 9 0.8 A 0.5 A 0.8 A	30 0 30 0 30 0	0.8 0.8 0.8	100 100 40	10 u 10 u 10 u	300 T 300 T 300 T	8.0 8.0 8.0			2.0 2.0 3.0	AUD AUD AUD	5/ 18/ 5/	
2N4386 2N4387 2N4388 2N4389 2N4390	2N3740 2N3740		SNE SPA SPA SPG SNG	0.5 A 20 A 20 A 0.2 A 0.5 A	30 0 40 0 40 0 12 0 120 0	0.8 2.0 2.0 0.1 0.1	40 25 25 30 20	10 u 500 m 500 m 10 m 2.0 m	300 T 25 T 25 T 400 T 50 T	8.0 275 275 6.0	20/90	15		10 m	18/ 66/ 66/ 104/	
2N4391 2N4393 2N4395 2N4396 ★ 2N4398	THRU 2N3716 2N3716		FET FET SNG SNG SPG	Table 9 Table 9 62.5 C 62.5 C 200 C	40 0 40 0 60 0 60 0 40 0	5.0 5.0 5.0 3.0	50 40 15	2.0 A 2.0 A 15 A	4.0 T 4.0 T 4.0 T		800/1500 1000/2000 400/2100		1.0	15 A	3/ 3/ 12/	
★ 2N4399 ★ 2N4400 ★ 2N4401 ★ 2N4402 ★ 2N4403		1	SPG SNA SPA SPA	200 C 0.31 A 0.31 A 0.31 A	60 0 40 0 40 0 40 0	3.0 0.6 0.6 0.6	15 100 50 100	15 A 150 m 150 m 150 m	4.0 T 200 T 250 T 150 T 200 T		400/2100	1.0	15 A 150 m 150 m 150 m 150 m	12/ 92/29 92/29 92/29 92/29		
★ 2N4404 ★ 2N4405 ★ 2N4406 ★ 2N4407 ★ 2N4409		1	SPA SPA SPA SPA SNA	5.0 C 5.0 C 5.0 C 5.0 C 0.31 A	80 0 80 0 80 0 80 0 80 0	0.5 0.5 0.15 0.15 0.25	40 100 30 80 60	150 m 150 m 500 m 500 m 1.0 m	200 T 200 T 150 T 150 T 60 T			1.5 1.5 2.2 2.2 2.2	10 m 10 m 150 m 150 m 1.0 m	39/79 39/79 39/79 39/79 92/29		
★ 2N4410 D 2N4411 2N4412 2N4412A 2N4413		1	SNA SPA SNE SPE SPE	0.31 A 0.15 A 0.6 A 0.6 A 0.4 A	80 0 12 0 30 0 60 0 30 0	0.25 0.25 0.6 0.6 0.6	60 40 100 100 100	1.0 m 0.5 m 10 u 10 u 10 u	60 T 400 T 100 T 20 T 20 T	0.7 10 10 10			2.0 2.0 2.0	AUD AUD AUD AUD	92/29 72/ 5/ 5/ 18/	
2N4413A 2N4414 2N4414A 2N4415 2N4415A			SPE SPE SPE SPE SPE	0.4 A 0.6 A 0.6 A 0.4 A 0.4 A	60 0 30 0 60 0 30 0 60 0	0.6 0.6 0.6 0.6 0.6	100 40	10 u 10 u 10 u 100 T 10 u	20 T 100 T 20 T 100 T 20 T	10 10 10 10 10			2.0 3.0 3.0 3.0 3.0	AUD AUD AUD AUD AUD	18/ 5/ 5/ 18/ 18/	
2N4416A 2N4418 2N4419 2N4420 2N4421	2N4264 2N4264 MPS3646 MPS3646		FET SNS SNS SNS SNS	Table 9 0.25 A 0.25 A 0.25 A 0.25 A	40 S 30 S 40 S 30 S	0.2 0.2 0.2 0.2	40 30 30 25	10 m 10 m 30 m 30 m	500 T 400 T 350 T 300 T		20/22 22/28 16/20 18/24					
2N4423 2N4424 2N4425 ★ 2N4427 ★ 2N4428	MPS3640 MPS3711 MPS3711		SNS SNA SNA SNP SNP	0.25 A 0.36 A 0.56 A 3.5 C 3.5 C	12 S 40 0 40 0 36 S 35 0	0.2 0.5 0.5 0.4 4.25	40 180 180 10 20	30 m 2.0 m 2.0 m 0.1 A 50 m	400 T 200 T 200 T 500 T 700 T		40/50		10 10	175 M 500 M	39/79 39/79	
2N4429 2N4430 2N4431 2N4432 2N4432A			SNA SNA SNA SNE SNE	5.0 C 10 C 18 C 0.6 A 0.6 A	35 0 40 0 40 0 30 0 30 0	0.25 1.0 2.0 0.2 0.2	20 20 20 40 80	0.5 A 0.1 A 0.1 A 6.0 m 6.0 m	700 T 600 T 600 T 65 T 70 T	3.5 5.0 10 4.2 10		20 20	1000 H 1000 H	5/ 5/		
2N4436 2N4437 2N4438 2N4439			SNP SNP SNA SNA	0.2 A 0.2 A 1.0 A 1.0 A	30 0 30 0 300 0 300 0	0.5 0.5 0.2 0.2	40 100 40 100	150 m 150 m 50 m 50 m	250 T 250 T 30 T 30 T	8.0 8.0 20 20	60/ 60/		10 10 1.0 1.0	30 M 30 M 100 m 100 m	39/	
2N4441 2N4444 2N4445 ★ 2N4448 ★ 2N4449 ★ 2N4450	THRU THRU		THY THY FET FET SNA SNA	Table 6 Table 6 Table 9 Table 9 0.3 A 0.3 C	40 0 40 0 30 0	0.2 0.5	40 75	10 m 10 m	500 T 250 T			.18 .22	10 m 150 m	46/ 46/		
D 2N4451 2N4452 D 2N4453 2N4576 ★ 2N4851	2N3716 THRU	1	SPA SPA SPG SNA UJT	0.3 A 0.3 A 0.3 A 150 C Table 8	12 0 45 0 18 0 80 0	0.1 0.6 0.2	115 40 50	30 m 50 m 30 m 1.0 A	400 T 200 T 400 T 1.5 E		75/170		.25 .4 .25 8	30 m 15 m 30 m 5.0 A	46/ 46/ 46/	

3

TYPE NO.	REPLACEMENT	VOL	ID	Pd Watts	VCE- Volts	Subscript	Ic Amp Max	hFE Min	Ic @	Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ f dB Max	Unit	PACKAGE To- Case No. No.
★ 2N4853 ★ 2N4854 ★ 2N4855 2N4856 2N4861	THRU	1	UJT SCE SCE FET	Table 8 0.3 A 0.3 A Table 9 Table 9	40 0 40 0		0.6 0.6	50 25	1.0 m 1.0 m	200 T 200 T		60/350 60/350			8.0 8.0	1000 H 1000 H	/654 /654	
2N4863 2N4864 2N4865 2N4866 ★ 2N4867.A	2N5334 2N5430		SNA SNA SNA SNA FET	Table 8 350 C 350 C 350 C Table 9	120 0 120 0 80 0 120 0		2.0 2.0 90 90	50 50 10 10	0.5 A 0.5 A 70 A 70 A	50 T 50 T 10 T 10 T	50 50			.2 .2 1.5	.5 A .5 A 50 A 50 A	5/ 66/		
D 2N4870 D 2N4871 D 2N4872 2N4873 2N4874			UJT UJT SPS SNS SNH	Table 8 Table 8 0.7 C 0.36 A 0.72 A	12 0 15 0 20 0		0.05 0.2 0.2	50 110	10 m 10 m			3.0 4.0	15/20 12/13	.13 .2 10	1.0 m 1.0 m 400 M	18/ 18/ 39/		
2N4875 2N4876 ★ 2N4877 2N4878 2N4879		1	SNH SNH SNG SNA SNA	0.72 A 0.72 A 10 C 0.3 C 0.3 C	25 0 30 0 60 0 60 0 55 0		0.2 0.2 4.0 0.01 0.01	20 200 150	4.0 A 10 u 10 u	800 T 650 T 4.0 T 200 T 150 T		100/6500		9.5 8.5 1.0	400 M 400 M 4.0 A 1000 H 1000 H	39/ 39/ 39/ 71/ 71/		
2N4880 2N4881 2N4886 2N4889 ★ 2N4890	THRU		SNA FET FET SPE SPG	Table 9 Table 9 Table 9 0.3 A 1.0 A	45 0 150 0 40 0		0.01 0.1 0.5	80 80 50	10 u 10 m 150 m	150 T 40 T 100 T	4.0 15	100/270		3.0 3.0 1.4	10 K 150 m	5/		
2N4891 2N4894 2N4895 2N4896 2N4897	THRU 2N5337		UJT UJT SNS SNS SNS	Table 8 Table 8 4.0 C 4.0 C 4.0 C	60 0 60 0 80 0		5.0 5.0 5.0	40 100 40	2.0 A 2.0 A 2.0 A	50 T 80 T 50 T	80 80 80	350/650 350/650 350/650		1.0 1.0 1.0	50 A 50 A 50 A	39/ 39/ 39/		
★ 2N4898 ★ 2N4899 ★ 2N490B ★ 2N4900 ★ 2N4901 ★ 2N4902		1 1 1 1 1 1	SPA SPA UJT SPA SPA SPA	Table 8 25 C 25 C Table 8 25 C 87.5 C 87.5 C	40 0 60 0 80 0 40 0 60 0 60 0		1.0 1.0 1.0 5.0 5.0	20 20 20 20	0.5 A 0.5 A 1.0 A 1.0 A 1.0 A	3.0 T 3.0 T 4.0 T 4.0 T 4.0 T	100 100			6 6 6 4 4	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	66/80 66/80 66/80 3/11 3/11		
★ 2N4903 ★ 2N4904 ★ 2N4905 ★ 2N4906 2N4907		1 1 1 1	SPA SPA SPA SPA SPA	87.5 C 87.5 C 87.5 C 87.5 C 150 C	80 0 40 0 60 0 80 0 40 0		5.0 5.0 5.0 5.0	20 25 25 25 20	1.0 A 2.5 A 2.5 A 2.5 A 4.0 A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T	600			4 1.0 1.0 1.0 .75	1.0 A 2.5 A 2.5 A 2.5 A 4.0 A	3/11 3/11 3/11 3/11 3/		
2N4909 ★ 2N4910 ★ 2N4911 ★ 2N4912		1 1 1 1	SPA SNA SNA SNA	150 C 25 C 25 C 25 C	80 0 40 0 60 0 80 0		1.0 1.0 1.0	20 20 20	4.0 A 0.5 A 0.5 A 0.5 A	4.0 T 3.0 T 3.0 T 3.0 T	600 100 100 100			.75 .6 .6 .6	4.0 A 1.0 A 1.0 A 1.0 A	3/ 66/80 66/80 66/80		
★ 2N4913 ★ 2N4914 ★ 2N4915 2N4916 2N4917		1 1 1	SNA SNA SNA SPF SPF	87.5 C 87.5 C 87.5 C 0.5 C 0.5 C	40 0 60 0 80 0 30 0 30 0		5.0 5.0 5.0 0.1 0.1	25 25 25 70 150	2.5 A 2.5 A 2.5 A 10 m 10 m	4.0 T 4.0 T 4.0 T 400 T 450 T		40/150 40/150		1.0 1.0 1.0 6.0 6.0	2.5 A 2.5 A 2.5 A 100 M 100 M	3/11 3/11 3/11		
★ 2N4918 ★ 2N4919 ★ 2N4920 ★ 2N4921 ★ 2N4922		1 1 1 1 1	SPA SPA SPA SNA SNA	30 C 30 C 30 C 30 C 30 C	40 0 60 0 80 0 40 0 60 0		1.0 1.0 1.0 1.0	20 20 20 20	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	3.0 T 3.0 T 3.0 T 3.0 T 3.0 T	100 100 100 100 100			6 6 6 6 6	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	/77 /77 /77 /77 /77		
★ 2I4923 ★ 2N4924 ★ 2N4925 ★ 2N4926 ★ 2N4927		1 1 1 1 1	SNA SNA SNA SNA SNA	30 C 1.0 A 1.0 A 5.0 A 5.0 A	80 0 100 0 150 0 200 0 250 0		1.0 0.2 0.2 0.05 0.05	20 40 40 20 20	0.5 A 150 m 150 m 30 m 30 m	3.0 T 100 T 100 T 300 T 300 T	100			6 4 4 2.0 2.0	1.0 A 50 m 50 m 30 m 50 m	/77 39/79 39/79 39/79 39/79		
★ 2N4928 ★ 2N4929 ★ 2N4930 ★ 2N4931 2N4932	2N5477		SPA SPA SPA SPA SNA	3.0 C 5.0 C 5.0 C 5.0 C 70 C	100 0 150 0 200 0 250 0 25 0		0.1 0.5 0.5 0.5 3.3	25 25 20 20 10	10 m 10 m 10 m 10 m 1.0 A	100 T 100 T 20 T 20 T 100 T	120			5 5 5.0 5.0	10 m 10 m 10 m 10 m	39/79 39/79 39/79 39/79 60/		
2N4933 2N4934 2N4935 2N4936 ★ 2N4937	2N5477	1	SNA SNF SNF SNF SPM	70 C 0.2 A 0.2 A 0.2 A 0.6 A	35 0 30 0 40 0 40 0 40 0		3.3 0.05	10 40 60 60 50	1.0 A 2.0 m 2.0 m 2.0 m 1.0 m	100 T 700 T 700 T 700 T 300 T	85			18 21 18	3.5 3.6 4.5	200 M 200 M 450 M	60/ 104/ 104/ 104/ /654	

2N5023-2N5100

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Ref. Point	V _{CE} Volts	Subscript	I _C Amp Max	hFE Min	I _C @	Unit	f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	@ f	Unit	PACKAGE To- Case No. No.
2N5023 2N5024 2N5025 2N5026 2N5027			SPG SNA SNP SNP SNA	1.0 A 0.2 A 45 C 45 C 0.32 A	30 0 10 0 75 0 90 0 30 0	0.5 0.15 5.0 5.0 0.35		40 25 40 20 50	500 m 20 m 2.0 A 2.0 A 150 m	m m A A m	2000 T 1300 T 150 T 150 T 250 T		25	45/90		.17 7.5 10 45		100 m 50 M 80 M 150 m	m M M m	39/ 72/ 60/ 60/ 98/	
2N5028 2N5029 2N5030 ★ 2N5031 ★ 2N5032			SNA SNA SNA SNF SNF	0.32 A 0.32 A 0.32 A 0.2 A 0.2 A	30 0 15 0 12 0 10 0 10 0	0.35 0.2 0.2 0.02 0.02		100 40 30 25 25	150 m 10 m 10 m 1.0 m 1.0 m	m m m m m	250 T 500 T 400 T 1000 T 1000 T					45 .25 .25 14 14		150 m 10 m 10 m 450 M 450 M	m m m m m	98/ 98/ 98/ 72/20 72/20	
2N5033 2N5034 2N5035 2N5036 2N5037	2N5877 2N5877 2N5877 2N5877		FET SNA SNA SNA SNA	Table 9 83 C 83 C 83 C 83 C	9 45 R 45 R 60 R 60 R	9 6.0 6.0 8.0 8.0		20 20 20 20 20	2.5 A 3.0 A 3.0 A 3.0 A 3.0 A	A A A A A						2.5 3.0 2.5 3.0		6.0 A 8.0 A 6.0 A 8.0 A	A A A A		
2N5039 2N5040 2N5041 2N5042 2N5043			SNG SPA SPA SPA GPF	140 C 0.3 A 0.3 A 0.8 A 0.03 A	120 V 25 0 40 0 40 0 7.0 0	20 1.0 1.0 1.0 0.03		20 30 40 40 3.0	10 A 150 m 150 m 150 m 3.0 m	A m m m m	60 T 100 T 80 T 100 T 1400 T			500/2000		2.5 1.0 1.0 1.1		20 A .5 A .5 A .5 A 400 M	A A A A M	3/ 72/	
2N5044 2N5045 2N5047 ★ 2N5050 ★ 2N5051	THRU		GPF FET FET SNG SNG	0.03 A Table 9 Table 9 40 C 40 C	7.0 0 Table 9 Table 9 120 0 150 0	0.03 Table 9 Table 9 2.0 2.0		35 35	0.5 A 0.5 A	A A	20 T 20 T		250 250	300/4700 300/4700		.9 9		.5 A .5 A	A A	66/80 66/80	
★ 2N5052 2N5053 2N5054 2N5055 2N5056		2	SNG SNF SNF SPS SPS	40 C 0.2 A 0.2 A 0.2 A 0.36 A	200 0 15 0 15 0 12 0 15 0	2.0 0.25 0.25 0.1 0.1		35 25 25 30 30	0.5 A 2.0 m 2.0 m 30 m 30 m	A m m m m	20 T 1300 T 1000 T 550 T 600 T		250	300/4700		.9 3.5 3.5		.5 A 200 M 200 M 1.0 m 1.0 m	A M M m m	66/80 72/ 72/ 18/ 18/	
2N5057 2N5058 2N5059 2N5060 2N5064	THRU		SPS SNA SNA SNA THY THY	0.36 A 1.0 C 1.0 C 1.0 C Table 6 Table 6	15 0 300 0 250 0 250 0 Table 6 Table 6	0.1 0.15 0.15		40 35 30 30	30 m 30 m 30 m 30 m	m m m m	800 T 30 T 30 T 30 T			20/35		.13		1.0 m	m	5/ 5/	
2N5065 2N5066 ★ 2N5067 ★ 2N5068 ★ 2N5069		2	SNS SNC SNA SNA SNA	2.5 C 0.4 A 87.5 C 87.5 C 87.5 C	15 0 20 0 40 0 60 0 80 0	0.5 0.1 5.0 5.0 5.0		50 20 20 20 20	300 m 1.0 A 1.0 A 1.0 A 1.0 A	m A A A A	550 T 5.0 T 4.0 T 4.0 T 4.0 T		10	15/35		23 4 4 4		100 m 1.0 A 1.0 A 1.0 A	m A A A	46/ 3/11 3/11 3/11	
★ 2N5070 2N5071 2N5072 2N5073 2N5074		2	SNP SNA SNA SNA SNA	70 C 70 C 125 C 0.6 A 70 C	65 S 30 0 100 R 120 0 200 0	3.3 3.3 1.0 0.4 3.0		10 10 15 30 30	0.1 m 0.1 m 3.0 A 200 m 0.5 A	m m A m m	100 T 100 T 40 T 40 T 40 T		85 85 600 25	25/		13 1.0 2.0		30 M 10 A 3.0 A	M A A	60/36 60/ 5/31 59/	
2N5075 2N5076 2N5078 2N5079 2N5080			SNA SNA FET SNE SNE	70 C 70 C Table 9 1.8 C 1.8 C	200 0 250 0 Table 9 30 0 30 0	3.0 3.0 Table 9 1.0 1.0		90 30 100 200	0.5 A 0.5 A 150 m 150 m	A A m m	40 T 40 T 400 T 500 T		7.0 7.0			4.0 4.0		200 H 200 H	H H	18/ 18/	
2N5081 2N5082 2N5083 2N5084 2N5085			SNE SNE SNA SNA SNA	1.2 C 1.2 C 35 C 35 C 35 C	50 0 30 0 60 0 60 0 80 0			100 100 40 100 40	1.0 m 1.0 m 2.0 A 2.0 A 2.0 A	m m A A A	600 T 600 T 50 T 80 T 50 T					4.0 4.0 1.0 1.0 1.0		1.0 K 1.0 K 10 A 10 A 10 A	K K A A A	18/ 18/ 59/ 59/ 59/	
★ 2N5086 ★ 2N5087 ★ 2N5088 ★ 2N5089 ★ 2N5090		2	SPE SPE SNE SNE SNP	0.31 A 0.31 A 0.31 A 0.31 A 5.0 C	50 0 50 0 30 0 25 0 35 0	0.05 0.05 0.05 0.05 0.4		150 250 300 400 10	0.1 m 0.1 m 0.1 m 0.1 m 50 m	m m m m m	40 T 40 T 50 T 50 T 500 T		4.0 4.0			3.0 3.0 3.0 2.0		1000 H 1000 H 10 A 10 A 400 M	H H A A M	92/29 92/29 92/29 92/29 60/36	
2N5091 2N5092 2N5093 2N5094 2N5095			SPA SNA SPA SPA SNA	2.0 2.0 2.0 2.0 2.0	300 0 350 0 350 0 400 0 400 0	1.0 1.0 1.0 1.0 1.0		40 50 40 40 50	25 m 25 m 25 m 25 m 25 m	m m m m m	20 T 50 T 20 T 20 T 20 T		20 15 20 20 15			3.0 .5 3.0 3.0 .5		25 m 25 m 25 m 25 m 25 m	m m m m m	5/ 5/ 5/ 5/ 5/	
2N5096 2N5097 2N5098 2N5099 2N5100		2	SPA SNA SNA SNA SPA	2.0 2.0 2.0 2.0 10	450 0 450 0 500 0 550 0 400 0	1.0 1.0 1.0 1.0 1.0		40 50 50 50 40	25 m 25 m 25 m 25 m 25 m	m m m m m	20 T 50 T 50 T 50 T 20 T		20 15 15 15 20			3.0 .5 .5 .5 3.0		25 m 25 m 25 m 25 m 25 m	m m m m m	5/ 5/ 5/ 5/ 5/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	Substr.	Ic Amp Max	hFE @ Ic		Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	IC & IC	Unit	PACKAGE To-Case No. No.
								Min	Max											
2N5101 2N5102 2N5103 2N5105 2N5107	THRU		SNA SNA FET FET SNS	10 70 C Table 9 Table 9 1.8 C	400 0 50 R 30 0	1.0 3.3 0.5	50 10 100	25 m 500 m 150 m		50 T 150 T 250 T				65/550		.22	150 m		60/ 18/	
★ 2N5108 ★ 2N5109 2N5110 2N5111 2N5112		2 2 2	SNP SNP SPA SPA SPA	3.5 C 2.5 C 5.0 C 5.0 C 34 C	40 0 40 0 80 0 40 0	0.4 0.4 1.0 1.0 1.0	15 40 15 15	100 m 50 m 500 m 500 m 500 m		1200 T 1200 T 10 T 10 T 10 T		3.0 3.5 500 500 500	1.0/ .001/	5.0 11 .9 .9 .9		1.0 G 200 M 500 m 500 m 500 m		39/79 39/79 5/ 5/ 59/		
2N5113 2N5114 2N5116 2N5117 2N5119	THRU		SPA FET FET SPA SPA	34 C Table 9 Table 9 0.4 C 0.4 C	80 0 45 0 45 0	1.0 0.01 0.01	15 100 50	500 m 010 m 010 m		10 T 100 T 100 T		500		.9		500 m		69/ 78/ 78/		
2N5120 2N5121 2N5122 2N5123 2N5124			SPA SPA SPA SPA SPA	0.3 C 0.3 C 0.3 C 0.4 C 0.4 C	45 0 45 0 45 0 45 0 45 0	0.01 0.01 0.01 0.01 0.01	100 100 50 100 100	010 m 010 m 010 m 010 m 010 m		100 T 100 T 100 T 100 T 100 T						4.0 4.0 4.0 4.0 4.0	1000 H 1000 H 1000 H 1000 H 1000 H	71/ 71/ 71/ 71/ 71/		
2N5125 2N5126 2N5127 2N5128 2N5129	MFS6539 MFS918 2N5220 2N5220		SPA SNA SNA SNA SNA	0.4 C 0.2 A 0.2 A 0.2 A 0.3 A	45 0 20 0 12 0 12 0 12 0	0.01 0.03 0.1 0.5 0.5	50 20 15 35 35	010 m 4 m 2 m 50 m 50 m		100 T 4 m 150 T 200 T 200 T				2.0 3 .25 .25		4.0 10 m 10 m 150 m 150 m		106/ 106/ 105/ 106/		
2N5130 2N5131 2N5132 2N5133 2N5134	MFS3563 2N5223 MFS6539 MFS2714 2N5224		SNA SNA SNA SNA SNS	0.2 A 0.2 A 0.2 A 0.2 A 0.2 A	12 0 15 0 20 0 18 0 10 0	0.05 0.2 0.03 0.05 0.1	15 30 30 60 20	8 m 10 m 10 m 10 m 10 m		450 T 30 T 30 T 10 T 250 T			18/18		6 1.0 2.0 4 2		10 m 10 m 10 m 10 m 10 m	106/ 106/ 106/ 106/ 106/		
2N5135 2N5136 2N5137 2N5138 2N5139	2N5225 MPS3706 MPS6560 MPS6516 MPS6516		SNA SNA SNA SPA SPC	0.3 A 0.22 A 0.3 A 0.2 A 0.2 A	25 0 20 0 20 0 30 0 20 0	0.2 0.5 0.5 0.1 0.1	50 20 20 50 40	10 m 150 m 150 m 100 u 1.0 m		40 T 40 T 40 T 300 T			50/200		1.0 .25 .25 .3 .15		100 m 150 m 150 m 10 m 1.0 m	105/ 105/ 106/ 106/ 106/		
2N5140 2N5141 2N5142 2N5143 2N5144	MPS6518		SPS SPG SPG SPG SNS	0.2 A 0.2 A 0.3 A 0.2 A 1.2 C	50 0 6 0 20 0 20 0 30 0	0.05 0.1 0.5 0.5 0.5	20 30 30 30 60	10 m 30 m 50 m 50 m 100 m		400 T 300 T 100 T 100 T 300 T			20/20 90/150 100/200 100/200 25/40		.2 .5 .5 .2		10 m 50 m 50 m 100 m	106/ 106/ 105/ 106/ 18/		
★ 2N5145 ★ 2N5146 2N5147 2N5148 2N5149	2N6190 2N5336 2N6191	2	SNS SPA SPA SNA SPA	3.5 C 0.4 A 1.0 A 1.0 A 1.0 A	30 0 40 0 80 0 80 0 80 0	0.5 1.5 2.0 2.0 2.0	60 20 30 30 70	100 m 10 A 10 A 10 A 10 A		300 T 150 T 50 T 50 T 60 T			25/40		.2 1.0 5.0 5.0 5.0		100 m 1.0 A 3.0 A 3.0 A 3.0 A	39/ 86/6D7 39/ 39/ 39/		
2N5150 2N5151 2N5152 2N5153 2N5154	2N5337 2N6190 2N5336 2N6191 2N5337		SNA SPA SNA SPA SNA	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	80 0 80 0 80 0 80 0 80 0	2.0 5.0 2.0 5.0 2.0	70 30 30 70 70	1.0 A 2.5 A 2.5 A 2.5 A 2.5 A		60 T 60 T 60 T 70 T 70 T				5.0 1.5 1.5 1.5 1.5		3.0 A 5.0 A 5.0 A 5.0 A 5.0 A	39/ 39/ 39/ 39/ 39/			
★ 2N5155 2N5156 ★ 2N5157 ★ 2N5158 ★ 2N5159	2N5157	1	GPA GPS GPG FET FET	93 C 100 C Table 9 Table 9	120 0 60 D 500 0	15 10 3.5	25 25 30	80 A 50 A 10 A		0.1 T 0.15 T 2.8 T		150	200/650 800/1700		.9 1.0 2.5		25 A 10 A 3.5 A	3/11 3/		
★ 2N5160 ★ 2N5161 ★ 2N5162 ★ 2N5163 2N5164	THRU	2 2 2	SNP SNP SNP FET THY	5.0 C 20 C 50 C Table 9 Table 6	40 0 40 0 40 0	0.4 1.5 5.0	10 10 10	50 m 250 m 2.0 A		500 T 500* T		40 15 60	1.0/ 7.5/ 30/		8.0 8.8 6.0		400 M 175 M 175 M	39/79 60/36 60/36		
2N5171 2N5172 2N5174 2N5175 2N5176			THY SNA SNA SNA SNA	Table 6 0.2 A 0.2 A 0.2 A 0.2 A	25 0 75 0 100 0 100 0	0.1 .025 .025 .025	100 40 55 140	10 m 10 m 10 m 10 m						.25 .95 .95 .95		10 m 10 m 10 m 10 m	92/ 98/ 98/ 98/			
2N5177 2N5178 ★ 2N5179 2N5180 2N5181		2	SNA SNA SNF SNH SNA	40 C 70 C 0.2 A 0.18 A 0.18 A	35 0 35 0 12 0 15 0 45 B	4.0 8.0 0.05 0.05	10 25 20 27	100 m 200 m 30 m 20 m 1.0 m		200 T 200 T 900 T 650 T 400 T		30 60			15 12	4.5	200 M 200 M	72/20 104/ 104/		



TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	h _{FE} Min	I _C @	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	G _p dB	NF _@ dB	f	Unit	PACKAGE To-Case No. No.
2N5182 2N5183 2N5184 2N5185 2N5186			SNA SNA SNA SNA SNS	0.18 A 0.5 A 0.5 A 1.0 A 0.3 A	35 B 18 0 120 0 120 0 5 S	0.4 1.0 0.05 0.05 0.3	27 75 10 10 25	1.0 m 10 m 50 m 50 m 10 m	400 T 62.5 T 10 T 50 T 400 T						10 m		104/ 104/ 104/
2N5187 2N5188 2N5189			SNS SNS SNG	1.0 A 0.8 A 0.8 A	25 S 55 S 55 S	0.5 1.0 2.0	30 25 15	10 m 150 m 1.0 m	400 T 10 m 10 m		25/25 18/21 35/50 40/70				3 .25 .5 1.0	10 m 10 m 150 m 1.0 A	52/ 52/ 39/
★ 2N5190 ★ 2N5191		2	SNA SNA	40 C 40 C	40 0 60 0	4.0 4.0	25 25	1.5 A 1.5 A	2.0 T 2.0 T						1.4 1.4	4.0 A 4.0 A	177 177
★ 2N5192 ★ 2N5193 ★ 2N5194 ★ 2N5195 2N5196	THRU	2 2 2 2	SNA SPA SPA SPA FET	40 C 40 C 40 C 40 C	80 0 40 0 60 0 80 0	4.0 4.0 4.0 4.0	20 25 25 20	1.5 A 1.5 A 1.5 A 1.5 A	2.0 T 2.0 T 2.0 T 2.0 T						1.4 1.4 1.4 1.4	4.0 A 4.0 A 4.0 A 4.0 A	177 177 177 177
2N5199 2N5200 2N5202 2N5204 2N5205	2N5427		FET THY SNG THY THY	Table 9 Table 6 35 C Table 6 Table 6		75 V 4.0	10	4.0 A	60 T		400/1600				1.2	4.0 A	66/
★ 2N5207 ★ 2N5208 ★ 2N5209 ★ 2N5210 D 2N5211		2 2	THY SPF SNE SNE SNA	Table 6 0.31 A 0.31 A 0.31 A 3.0 C	25 0 50 0 50 0 50 0	0.05 0.05 0.05 0.6	20 100 200 10	2.0 m 0.1 m 0.1 m 0.2 A	300 T 30 T 30 T 200 T			4.0 4.0 12	22 3.0 3.0	100 M 1000 H 1000 H	92/29 92/29 92/29 37/		
2N5213 2N5214 2N5215 2N5216 2N5217			SNA SNA SNA SNA SNA	7.5 C 60 C 23 C 25 C 7.5 C	40 0 95 S 70 0 80 0 80 0	0.5 5.0 1.0 1.5 0.5	10 10 10 10	0.2 A 1.0 A 0.5 A 0.5 A 0.2 A	350 T 150 T 400 T 350 T 350 T	15 100 25 30 12		.5 1.5 1.0 1.2 5	.5 A 4.5 A 1.0 A 1.5 A 5 A	37/ 60/			
★ 2N5218 ★ 2N5219 ★ 2N5220 ★ 2N5221 ★ 2N5222		2 2 2 2	SNG SNA SNA SPA SNA	50 C 0.31 A 0.31 A 0.31 A 0.31 A	200 0 15 0 15 0 15 0 15 0	10 0.1 0.5 0.5 0.05	15 35 30 30 20	5.0 A 2.0 m 50 m 50 m 40 m	40 T 150 T 100 T 100 T 450 T	200	600/5500	.6 .4 .5 .5 1.0	5.0 A 10 m 150 m 150 m 4.0 m	61/ 92/29 92/29 92/29 92/29			
★ 2N5223 ★ 2N5224 ★ 2N5225 ★ 2N5226 ★ 2N5227		2 2 2 2 2	SNA SNA SNA SPA SPA	0.31 A 0.31 A 0.31 A 0.31 A 0.31 A	20 0 12 0 25 0 25 0 30 0	0.1 0.1 0.5 0.5 0.05	50 40 30 30 50	2.0 m 10 m 50 m 50 m 2.0 m	150 T 250 T 50 T 50 T 100 T			.7 .35 .8 1.0 .4	10 m 10 m 100 m 100 m 10 m	92/29 92/29 92/29 92/29 92/29			
★ 2N5228 ★ 2N5229 ★ 2N5230 ★ 2N5231 ★ 2N5232		2 2 2 2	SPA SPC SPC SPC SNA	0.31 A 2.0 C 2.0 C 2.0 C 0.33 A	5 0 10 0 20 0 30 0 50 0	0.05 0.05 0.05 0.05 0.1	30 50 50 50 250	10 m 100 u 100 u 100 u 2.0 m	300 T 100 u 100 u 100 u			.4	10 m	92/29 46/26 46/26 46/26			
2N5233 2N5234 2N5235 2N5236 2N5237	2N5337		SNA SNA SNA SNH SNG	0.33 A 0.33 A 0.33 A 1.0 C 5.0 C	60 0 60 0 60 0 20 0 120 0	0.1 0.1 0.1 0.15 5.0	100 250 400 30 40	10 m 10 m 10 m 500 T 25 T			500/2000	.12 .12 .12 6.0 6	10 m 10 m 10 m 250 M 5.0 A	98/ 98/ 98/ 39/ 5/			
2N5238 2N5239 2N5240 ★ 2N5241 D 2N5242		2	SNG SNA SNA SNG SPG	5.0 C 100 C 100 C 125 C 0.5 A	170 0 225 0 300 0 400 0 20 0	5.0 5.0 5.0 5.0 0.5	40 20 20 15 25	5.0 A 2.0 A 2.0 A 2.5 A 500 m	25 T 5.0 T 5.0 T 2.5 T 170 T		500/2000 800/1700 40/90	.6 5.0 5.0 2.5 .38	5.0 A 4.5 A 4.5 A 5.0 A 500 m	5/ 3/ 3/ 3/11 105/			
2N5243 2N5244 2N5245 2N5248 2N5249	THRU		SPG SPS FET FET SNA	0.5 A 1.0 C Table 9 Table 9 0.33 A	30 0 40 0 Table 9 Table 9 50 0	0.5 0.1 Table 9 Table 9 0.1	25 150 400	500 m 10 m 2.0 m	170 T		40/90 40/200	.38 .12	500 m 10 m	105/ 18/			
2N5250 2N5251 2N5252 2N5253 2N5254			SNG SNG SNA SNA SPE	350 C 350 C 7.0 C 7.0 C 0.8 C	100 0 150 0 300 0 300 0 40 0	90 90 1.0 1.0 0.05	10 10 40 80 50	70 A 70 A 100 m 100 m 0.1 m	10 T 10 T 30 T 30 T 40 T		2000/2000 2000/2000	1.0 1.0	200 m 200 m 1000 H	39/ 39/			
2N5255 2N5256 2N5257 2N5261 2N5262	THRU		SPA SPA THY THY SNS	0.8 C 0.8 C Table 6 Table 6 4.0 C	40 0 40 0 Table 6 Table 6 50 0	0.05 0.05 Table 6 Table 6 2.0	150 150	10 m 10 m	40 T 40 T		30/60	.8	1000 H 1000 H	1.0 A			

TYPE NO.	REPLACEMENT	VOL.	ID	PD Watts	VCE Volts	Ic Amp Max	hFE Min	Ic @ Unit	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ f dB Max	f Unit	PACKAGE To- No. Case No.
2N5264 2N5265 ★ 2N5270 ★ 2N5271 D 2N5273	2N6189 THRU	2	SNG FET FET SNS THY	87 C Table 9 0.6 A Table 6	180 0	10	30	1.0 A	50 T		1500/4000		1.2		7.0 A	3/ 39/79
D 2N5275 D 2N5276 2N5277 2N5278 2N5279			THY SNG FET FET SNA	Table 6 0.36 A Table 9 Table 9	15 0	0.1	30	1.0 m	600 T		20/86		2		20 m	18/ 5/
2N5280 2N5281 2N5282 2N5284 2N5285			SNA SPA SPA SNA SNA	15 C 200 C 200 C 50 C 50 C	300 0 150 0 300 0 80 0 80 0	1.0 1.0 1.0 5.0 5.0	40 20 20 30 70	20 m 1.0 m 1.0 m 2.5 A 2.5 A	15 T 20 T 20 T 60 T 70 T	10 20 20 60 70		5 2.0 2.0 .75 .75		50 m 10 m 10 m 2.5 A 2.5 A	5/ 59/ 59/	
2N5286 2N5287 2N5288 2N5289 2N5290	2N6188 2N5349		SPA SPA SNA SNA SPA	50 C 50 C 100 C 100 C 100 C	100 0 100 0 100 0 100 0 100 0	5.0 5.0 10 10 10	30 70 30 70 30	2.5 A 2.5 A 5.0 A 5.0 A 5.0 A	60 T 70 T 30 T 40 T 30 T			.5 .75 .75 .9 .9 .9		5.0 A 2.5 A 5.0 A 5.0 A 5.0 A	59/ 59/ 59/ 59/	
D 2N5291 2N5292 2N5293 2N5294 2N5295			SPA SPS SNA SNA SNA	100 C 1.0 C 36 C 36 C 36 C	100 0 12 S 75 R 75 R 50 R	10 0.1 4.0 4.0 4.0	70 40 30 30 30	5.0 A 30 m 0.5 A 0.5 A 1.0 A	40 T 800 T 80 T 80 T 80 T		15/35	.9 1.2 2.0 2.0 2.0		5.0 A 10 m 3.6 A 3.6 A 3.6 A	18/ 220AA/ 220AB/ 220AA/	
2N5296 2N5297 2N5298 ★ 2N5301 ★ 2N5302	2N5190 2N4233 2N4233 2N5303	2	SNA SNA SNA SNS SNS	36 C 36 C 36 C 200 C 200 C	50 R 70 R 70 R 40 0 60 0	4.0 4.0 4.0 30 30	30 20 20 15 15	1.0 A 1.5 A 1.5 A 15 A 15 A	80 T 80 T 80 T 2.0 T 2.0 T		100/300 100/300	.75 .75 .75 1.0 1.4		3.6 A 3.6 A 3.6 A 10 A 10 A	220AB/ 220AA/ 220AB/ /12 /12	
★ 2N5303 ★ 2N5304 2N5305 2N5306 2N5306A		2	SNS SNA SNA SNA SNA	200 C 25 C 0.45 A 0.4 A 0.4 A	80 0 40 0 25 0 25 0 25 0	20 10 0.2 0.2 0.3	15 30 2K 7K 7K	10 A 2.0 A 2.0 m 2.0 m 2.0 m	2.0 T 10 T 60 T 60 T 60 T	300	100/300	1.0 1.4 1.4 1.4 1.4		10 A 2.0 A 200 m 200 m 200 m	/12 61/9 98/ 98/ 98/	
2N5307 2N5308 2N5308A 2N5309 2N5310			SNA SNA SNA SNA SNA	0.4 A 0.4 A 0.4 A 0.33 A 0.33 A	40 0 40 0 40 0 50 0 50 0	0.2 0.2 0.3 0.1 0.1	2K 7K 7K 60 100	2.0 m 2.0 m 2.0 m 10 u 10 u	60 T 60 T 60 T 10 u 10 u			1.4 1.4 1.4 1.2 1.2		200 m 200 m 200 m 10 m 10 m	98/ 98/ 98/ 98/ 98/	
2N5311 2N5312 2N5313 2N5314 2N5315			SNA SPG SNG SPG SNG	0.33 A 50 C 50 C 50 C 50 C	50 0 80 0 80 0 100 0 100 0	0.1 10 10 10 10	250 30 30 30 30	10 u 10 A 10 A 10 A 10 A		500 500 500 500 500	500/1250 500/1500 500/1250 500/1500 500/1500	.12 1.5 1.5 1.5 1.5		10 m 10 A 10 A 10 A 10 A	98/ 61/ 61/ 61/ 61/	
2N5316 2N5317 2N5318 2N5319 2N5320			SPG SNG SPG SNG SNS	50 C 50 C 50 C 50 C 10 C	80 0 80 0 100 0 100 0 75 0	10 10 10 10 2.0	30 30 30 30 30	5.0 A 5.0 A 5.0 A 5.0 A 500 m	50 T 30 T 30 T 30 T 50 T	500 500 500 500	200/1200 400/1600 200/1200 400/1600 80/800	.6 .6 .6 .6 .5		5.0 A 5.0 A 5.0 A 5.0 A 500 m	61/ 61/ 61/ 61/ 5/	
2N5321 2N5322 2N5323 ★ 2N5324 ★ 2N5325	2N6190 2N6190	2	SNS SPS SPS GPS GPS	10 C 10 C 10 C 56 C 56 C	10 0 75 0 50 0 150 0 200 0	2.0 2.0 2.0 10 10	40 500 m 40 20 20	500 m 500 m 500 m 5.0 A 5.0 A	50 T 50 T 50 T 0.1 T 0.1 T		80/800 100/1000 100/1000 150/170 150/170	.8 .7 1.2 .5 .5		500 m 500 m 500 m 10 A 10 A	5/ 5/ 5/ 3/11 3/11	
2N5326 2N5327 2N5328 2N5329 2N5330	2N5347 MJ7000		SNS SNS SNS SNG SNG	20 C 50 C 30 C 65 C 80 C	80 0 80 0 80 0 90 0 90 0	5.0 10 10 20 30	50 100 100 40 40	1.0 A 1.0 A 1.0 A 10 A 10 A	80 T 100 T 100 T 80 T 80 T		150/400 200/900 200/900 350/1100 350/1250	1.0 .3 .6 1.8 .6		5.0 A 3.0 A 5.0 A 20 A 10 A	59/ 5/ 59/ 61/ 61/	
2N5331 2N5332 2N5333 ★ 2N5334 ★ 2N5335	MJ7000 2N3868		SNG SPG SPA SNG SNG	100 C 0.36 A 1.0 A 6.0 C 6.0 C	90 0 12 0 80 0 60 0 60 0	0.3 0.1 2.0 3.0 3.0	40 20 30 30 30	10 A 1.0 m 1.0 A 1.0 A 1.0 A	80 T 600 T 30 T 40 T 40 T		350/1250 20/86	.6 .2 1.0 .7 .7		10 A 20 m 2.0 A 2.0 A 2.0 A	63/ 46/ 5/ 39/79 39/79	
★ 2N5336 ★ 2N5337 ★ 2N5338 ★ 2N5339 ★ 2N5344		2	SNS SNS SNS SNS SPS	6.0 C 6.0 C 6.0 C 6.0 C 40 C	80 0 80 0 100 0 100 0 250 0	5.0 5.0 5.0 5.0 1.0	30 60 30 60 25	2.0 A 2.0 A 2.0 A 2.0 A 500 m	30 T 30 T 30 T 30 T 60 T	250 250 250 250 200	200/400 200/400 200/400 200/400 100/700	.7 .7 .7 .7 3.0		2.0 A 2.0 A 2.0 A 2.0 A 1.0 A	39/79 39/79 39/79 39/79 66/80	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp Max	h _{FE} Min	I _C @ Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF @ f dB Max	Unit	PACKAGE To- No. Case No.
★ 2N5433	THRU		FET	Table 9												
★ 2N5434			FET	Table 9												
★ 2N5435		2	GPG	120 C	60 0	60	20	25 A			1200/2200	.75		60 A	3/3	
★ 2N5436		2	GPG	120 C	90 0	60	20	25 A			1200/2200	.75		60 A	3/3	
★ 2N5437		2	GPG	120 C	120 0	60	20	25 A			1200/2200	.75		60 A	3/3	
★ 2N5438			GPG	120 C	60 0	60	40	25 A			1200/2200	.50		60 A	3/3	
★ 2N5439		2	GPG	120 C	90 0	60	40	25 A			1200/2200	.50		60 A	3/3	
★ 2N5440		2	THY	120 C	120 0	60	40	25 A			1200/2200	.50		60 A	3/3	
2N5441	THRU		GPG	Table 6												
2N5446			THY	Table 6												
2N5447			SNA	0.36 A	25 0	0.2	60	50 m	100 T			.25		50 m		
2N5448			SNA	0.36 A	30 0	0.2	30	50 m	100 T			.25		50 m		
2N5450			SNA	0.36 A	30 0	0.8	50	50 m	100 T			.8		100 m		
2N5451			SNA	0.36 A	20 0	0.8	30	50 m	100 T			1.0		100 m		
2N5452	THRU		FET	Table 9												
2N5454			FET	Table 9												
2N5456			SPS	0.34 A	25 0	0.3	30	30 m	450 T		20/30	.55		300 m	52/	
2N5457	THRU		FET	Table 9												
2N5465			FET	Table 9												
2N5466	MJ431		SNA	40	400 0	3.0	15	3.0 A	2.5 T	200		.5		3.0 A	3/	
2N5467	MJ431		SNA	40	400 0	3.0	15	3.0 A	2.5 T	200		.5		3.0 A	3/	
2N5468	MJ431		SNA	40	400 0	3.0	15	3.0 A	2.5 T	200		.5		3.0 A	66/	
2N5469	MJ431		SNA	40	400 0	3.0	15	3.0 A	2.5 T	200		.5		3.0 A	66/	
2N5470			SNH	3.5 C	55 R	0.2								2000 M		
2N5471	THRU		FET	Table 9												
★ 2N5476			FET	Table 9												
★ 2N5477			SNS	60 C	80 0	7.0	30	2.0 A	30 T	250	200/400	.7		2.0 A	59/160	
★ 2N5478			SNS	60 C	80 0	7.0	60	2.0 A	30 T	250	200/400	.7		2.0 A	59/160	
★ 2N5479			SNS	60 C	100 0	7.0	30	2.0 A	30 T	250	200/400	.7		2.0 A	59/160	
★ 2N5480			SNS	60 C	100 0	7.0	60	2.0 A	30 T	250	200/400	.7		2.0 A	59/160	
★ 2N5481			SNP	5.0 C	30 0	0.2	20	50 m				6.0		2000 M		
2N5484	THRU		FET	Table 9												
2N5486			FET	Table 9												
2N5487			SNS	15 C	80 0	5.0	100	1.0 A	40 T	75	125/450	.25		1.0 A		
2N5488			SNS	15 C	100 0	5.0	40	1.0 A	40 T	75	125/550	.25		1.0 A		
2N5489	MJ7201		SNA	300 C	100 0	40	15	40 A	0.5 T			1.5		40 A	114/	
2N5490	2N5873		SNA	50 C	50 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5491	2N5873		SNA	50 C	50 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5492	2N5873		SNA	50 C	65 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5493	2N5873		SNA	50 C	65 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5494	2N5877		SNA	50 C	50 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5495	2N5877		SNA	50 C	50 R	7.0	20	2.0 A	0.8 T			2.0		6.5 A		
2N5496	2N5878		SNA	50 C	80 R	7.0	20	2.0 A	0.8 T			2.0		7.0 A		
2N5497	2N5878		SNA	50 C	80 R	7.0	20	2.0 A	0.8 T			2.0		7.0 A		
2N5498	2N5631		SNA	200 C	130 0	15	10	15 A	1.0 T			1.5		15 A		
D 2N5505			FET	Table 9												
2N5514	THRU		FET	Table 9												
2N5524			FET	Table 9												
2N5525			SNA	0.36 A	30 0	0.2	5000	10 m	200 T	10		1.0		50 m		
2N5526			SNA	0.36 A	30 0	0.2	1000	10 m	200 T	10		1.0		50 m		
2N5527			SNA	5.0 C	40 0	5.0	40	3.0 A	200 T	75		1.2		3.0 A		
2N5528			SNA	35 C	40 0	10	40	3.0 A	200 T	75		1.2		3.0 A	59/	
2N5529			SNA	35 C	40 0	10	40	3.0 A	200 T	75		1.2		3.0 A	61/	
2N5530			SNA	35 C	40 0	10	40	3.0 A	200 T	75		1.2		3.0 A	61/	
2N5531			SNA	5.0 C	75 0	5.0	30	3.0 A	200 T	75		1.2		3.0 A		
2N5532			SNA	35 C	75 0	10	30	3.0 A	200 T	75		1.2		3.0 A	59/	
2N5533			SNA	35 C	75 0	10	30	3.0 A	200 T	75		1.2		3.0 A	61/	
2N5534			SNA	35 C	75 0	10	30	3.0 A	200 T	75		1.2		3.0 A	61/	
2N5535			SNS	50 C	50 0	20	30	10 A	150 T	100	225/600	1.2		5.0 A		
2N5536			SNS	50 C	50 0	20	30	10 A	150 T	100	225/600	1.2		5.0 A		
2N5537			SNS	50 C	75 0	20	20	10 A	150 T	100	225/600	1.2		5.0 A	61/	
2N5538			SNS	50 C	75 0	20	20	10 A	150 T	100	225/600	1.2		5.0 A	61/	
2N5539	MJ7000		SNG	100	130 0	20	25	10 A	20 T		500/2000	3.0		20 A	63/	
2N5540			SNG	50	300 0	10	20	5.0 A	20 T		1500/3000	2.5		10 A	61/	
2N5541			SNG	5.0	130 0	5.0	30	5.0 A	20 T		500/2000	2.5		10 A	5/	
2N5543	THRU		FET	Table 9												
★ 2N5549		2	FET	Table 9												
★ 2N5550		2	SNE	0.35	140 0	0.6	60	10 m	100 T	6.0			10		92/29	
★ 2N5551		2	SNE	0.35	160 0	0.6	80	10 m	100 T	6.0			10		92/29	
2N5552			SNS	15 C	80 0	10	50	5.0 A	30 T	150	100/700	.5		5.0 A		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	VCE Volts	Subscript	Ic Amp Max	hFE Min	Ic @	Unit	ft MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ dB Max	f	Unit	PACKAGE To- Case No. No.
2N5555 2N5558 2N5559 2N5561 ★ 2N5566	THRU 2N5633 THRU		FET FET SNS FET	Table 9 Table 9 100 C Table 9		120 X		10	20	4.0 A					600/800		.75			4.0 A	3/
2N5567 2N5574 2N5575 D 2N5576 D 2N5577	THRU		THY THY SNS SNS SNS	Table 6 Table 6 150 C 150 C 150 C		70 X 70 X 70 X		80 80 80	10 10 10	60 A 60 A 60 A		0.4 T 0.4 T 0.4 T			150/150 150/150 150/150						
D 2N5578 D 2N5579 D 2N5580 ★ 2N5581 ★ 2N5582			SNS SNS SNS SNS SNS	150 C 150 C 150 C 2.0 C 2.0 C		90 X 90 X 90 X 40 D 40 D		60 60 60 0.8 0.8	10 10 10 40 100	40 A 40 A 40 A 150 m 150 m		0.4 T 0.4 T 0.4 T 250 T 300 T			100/100 100/100 100/100 35/285 35/285		.3 .3		150 m 150 m	46/26 46/26	
★ 2N5583 2N5584 2N5587 2N5588 ★ 2N5589		2	SNA SNA SNA SNA SNP	5.0 C 100 C 300 C 300 C 15 C		30 D 180 O 120 D 160 O 36 S		0.5 30 80 80 0.6	25 40 10 10 5.0	100 m 10 A 80 A 80 A 100 m	1000 T	70 T 70 T 0.5 T 0.5 T	5.0	350/1250	.8 1.8	3*	200 M 20 A		72/20 63/188 114/ 114/ /144		
★ 2N5590 ★ 2N5591 2N5592 2N5594 2N5595	THRU	2 2	SNP SNP FET FET SNH	30 C 70 C Table 9 Table 9 30 C		36 S 36 S 30 O 30 O		2.0 4.0 1.25	5.0 5.0 20	250 m 200 m 50 m	200 T 200 T 1500 T	70 T 120 T	10/ 25/		5.2		175 M 175 M		/145 /145		
2N5597 2N5598 2N5599 2N5600 2N5601	2N5428		SPA SNA SPA SNA SPA	20 C 20 C 20 C 20 C 20 C		60 D 60 D 80 O 80 D 80 D		2.0 2.0 2.0 2.0 2.0	70 40 30 30 70	1.0 A 1.0 A 1.0 A 1.0 A 1.0 A	60 T 60 T 50 T 50 T 60 T			.46 .46 .46 .46 .46		1.0 A 1.0 A 1.0 A 1.0 A 1.0 A		66/ 66/ 66/ 66/ 66/			
2N5602 2N5603 2N5604 2N5605 2N5606	2N5428 2N5344 2N5428 2N5428 2N5428		SNA SPA SNA SPA SNA	20 C 20 C 20 C 25 C 25 C		80 D 100 D 100 D 60 D 60 D		2.0 2.0 2.0 5.0 5.0	70 30 30 70 70	1.0 A 1.0 A 1.0 A 2.5 A 2.5 A	60 T 50 T 50 T 70 T 70 T			.46 .46 .46 .75 .75		1.0 A 1.0 A 1.0 A 2.5 A 2.5 A		66/ 66/ 66/ 66/ 66/			
2N5607 2N5608 2N5609 2N5610 2N5611	2N5477 2N5428		SPA SNA SPA SNA SPA	25 C 25 C 25 C 25 C 25 C		80 O 80 D 80 D 80 O 100 O		5.0 5.0 5.0 5.0 5.0	30 30 30 30 70	2.5 A 2.5 A 2.5 A 2.5 A 2.5 A	60 T 60 T 70 T 70 T 60 T			.75 .75 .75 .75 1.4		2.5 A 2.5 A 2.5 A 2.5 A 2.5 A		66/ 66/ 66/ 66/ 66/			
2N5612 2N5613 2N5614 2N5615 2N5616	2N5429 2N5876 2N5878		SNA SPA SNA SPA SNA	25 C 50 C 50 C 50 C 50 C		100 D 60 D 60 D 80 O 80 D		5.0 5.0 5.0 5.0 5.0	30 70 70 30 30	2.5 A 2.5 A 2.5 A 2.5 A 2.5 A	60 T 70 T 70 T 60 T 60 T			.75 .75 .75 .75 .75		2.5 A 2.5 A 2.5 A 2.5 A 2.5 A		66/ 3/ 3/ 3/ 3/			
2N5617 2N5618 2N5619 2N5620 2N5621	2N6229 2N5632		SPA SNA SPA SNA SPA	50 C 50 C 100 O 50 C 100 C		50 C 80 O 100 O 100 D 60 O		5.0 5.0 5.0 5.0 10	70 70 30 30 70	2.5 A 2.5 A 2.5 A 2.5 A 5.0 A	70 T 70 T 60 T 60 T 40 T			.75 .75 .75 .75 .9		2.5 A 2.5 A 2.5 A 2.5 A 5.0 A		3/ 3/ 3/ 3/ 3/			
2N5622 2N5623 2N5624 2N5625	2N5880 2N5882		SNA SPA SNA SPA	100 C 100 C 100 C 100 C		60 O 80 O 80 D 80 D		10 10 10 10	70 30 30 70	5.0 A 5.0 A 5.0 A 5.0 A	40 T 30 T 30 T 40 T			.9 .9 .9 .9		5.0 A 5.0 A 5.0 A 5.0 A		3/ 3/ 3/ 3/			
2N5627 2N5628 ★ 2N5629 ★ 2N5630 ★ 2N5631	2N6229 2N5632		SPA SNA SNA SNA SNA	100 C 100 C 200 C 200 C 200 C		100 D 100 O 100 O 120 O 140 D		10 10 16 16 16	30 30 25 80 15	5.0 A 5.0 A 8.0 A 8.0 A 8.0 A	30 T 30 T 1.0 T 1.0 T 1.0 T		500 500 500		.9 .9 2.0 2.0 2.0		5.0 A 5.0 A 16 A 16 A 16 A		3/ 3/ 3/11 3/11 3/11		
★ 2N5632 ★ 2N5633 ★ 2N5634 ★ 2N5635 ★ 2N5636		2 2 2 2	SNA SNA SNA SNP SNP	150 C 150 C 150 C 7.5 C 15 C		100 O 120 O 140 O 60 S 60 S		10 10 10 1.0 1.5	25 20 15 5.0 5.0	5.0 A 5.0 A 5.0 A 100 m 200 m	1.0 T 1.0 T 1.0 T 500 T 450 T	300 300 300 10 20	2.5/ 7.5/		2.0 2.0 2.0 6.2 5.7		15 A 16 A 16 A 400 M 400 M		/144 /144 /144 /144 /144		
★ 2N5637 2N5638 ★ 2N5640 ★ 2N5641 ★ 2N5642 ★ 2N5643	THRU	2 2 2	SNP FET FET SNP SNP SNP	30 C Table 9 Table 9 15 C 30 C 60 C		60 S 30 C 30 C 65 S 65 S 65 S		3.0 5.0 5.0	5.0 500 m 5.0	500 m 200 m 500 m	400 T 30 T 250 T	30 15 35 65	20/ 7.0/ 20/ 40/		400 M 175 M 175 M 175 M		400 M 175 M 175 M 175 M		/145 /144 /145 /145 /145		

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts Ref. Point	VCE Subscript	Ic Amp Max	hFE @ Ic		ft MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE	
								Min	Unit								To- No.	Case No.
★ 2N5644 ★ 2N5645 ★ 2N5646 2N5647 2N5649	THRU	2	SNP SNH SNH FET FET	3.5 C 12 C 30 C Table 9 Table 9	36 S 18 0 18 0 Table 9 Table 9	0.25 1.0 2.0	15 15 15	100 m 500 m 1.0 A	400 T 400 T 400 T	8.0	1.0/	7.0 6.0				470 M 470 M 470 M	/145 /145 /145	
2N5651 2N5652 ★ 2N5653 2N5654 ★ 2N5655	2N3739	2	SNF SNF FET FET SNA	0.15 A 0.15 A Table 9 Table 9 20 C	15 0 15 0	0.03 0.03	30 30	3.0 m 3.0 m	2000 T 2000 T				20 20	2.0 2.5		500 M 500 M	72/ 72/	
★ 2N5656 ★ 2N5657 2N5658 2N5659 2N5660	2N3739 2N3739 2N5233	2	SNA SNA SNS SNS SNS	20 C 20 C 30 C 30 C 20 C	300 0 350 0 80 0 80 0 200 0	0.5 0.5 10 10 1.0	30 30 50 50 40	100 m 100 m 5.0 A 5.0 A 500 m	10 T 10 T 30 T 30 T 20 T	25 25 150 150 60		1.0 1.0 1.0 1.0 4				100 m 100 m 100 m 1.0 A 1.0 A 1.0 A	/77 /77 /77 59/160 111/ 66/	
2N5661 2N5662 2N5663 2N5664 2N5665	2N5234 2N5233 2N5234		SNG SNS SNG SNG SNG	20 C 15 C 15 C 30 C 30 C	300 0 200 0 300 0 200 0 300 0	1.0 1.0 1.0 3.0 3.0	40 40 40 40 40	500 m 500 m 500 m 1.0 A 1.0 A	20 T 20 T 20 T 20 T 20 T	60 60 60 125 125		4 4 4 4 4				1.0 A 1.0 A 1.0 A 3.0 A 3.0 A	66/ 5/ 5/ 66/ 66/	
2N5666 2N5667 2N5668 2N5670 2N5672	THRU		SNG SNG FET FET SNG	15 C 15 C Table 9 Table 9 80 C	200 0 300 0	3.0 3.0	40 40	1.0 A 1.0 A	20 T 20 T	125 125		4 4				3.0 A 3.0 A	5/ 5/	
2N5675 2N5676 2N5677 2N5678 ★ 2N5679		2	SPA SPA SPG SPG SPG	1.0 A 2.0 A 50 C 100 C 10 C	100 0 100 0 100 0 100 0 100 0	2.0 2.0 10 20 1.0	50 50 30 25 40	0.5 A 0.5 A 5.0 A 10 A 250 m	50 T 50 T 20 T 20 T 30 T	80 80		2.0 2.0 2.5 3.0 6				2.0 A 2.0 A 10 A 20 A 250 m	5/ 66/ 61/ 63/ 5/31	
★ 2N5680 ★ 2N5681 ★ 2N5682 ★ 2N5683 ★ 2N5684		2	SPA SNA SNA SPA SPA	10 C 10 C 10 C 300 C 300 C	120 0 100 0 120 0 60 0 80 0	1.0 1.0 1.0 50 50	40 40 40 15 15	250 m 250 m 250 m 25 A 25 A	30 T 30 T 30 T 2.0 T 2.0 T	50 50 50 2000 2000		6 6 6 5.0 5.0				250 m 250 m 250 m 50 A 50 A	5/31 5/31 5/31 /197 /197	
★ 2N5685 ★ 2N5686 2N5687 2N5688 2N5689		2	SNA SNA SNH SNH SNH	300 C 300 C 5.0 C 10 C 25 C	60 0 80 0 20 0 20 0 40 0	50 50 0.5 0.5 3.0	15 15 15 15 15	25 A 25 A 50 m 50 m 100 m	2.0 T 2.0 T	1200 1200		5.0 5.0 12 13 10				50 A 50 A 50 m 50 m 50 m	/197 /197 39/ 117/ 117/	
2N5690 2N5691 ★ 2N5692 ★ 2N5693 ★ 2N5694		2	SNH SNH GPG GPG GPG	50 C 88 C 120 C 120 C 120 C	30 0 30 0 30 0 60 0 80 0	5.0 8.0 40 40 40	10 10 20 20 20	100 m 100 m 25 A 25 A 25 A		50 160		10 8.0 .75 .75				50 m 50 m 60 A 60 A	128/ 128/ 3/ 3/ 3/	
★ 2N5695 ★ 2N5696 2N5697 2N5698 2N5699		2	GPG GPG SNH SNH SNH	120 C 120 C 35 C 5.0 C 10 C	100 0 120 0 18 0 18 0 18 0	40 40 0.5 0.5 1.0	20 20 30 30 15	25 A 25 A 40 m 40 m 50 m	200 T 200 T			.75 .75 7.0 6.0 5.5				60 A 60 A 470 M 470 M 470 M	3/ 3/ 39/79 131/ 129/	
2N5700 2N5701 2N5702 2N5703 2N5704			SNH SNH SNH SNH SNH	35 C 35 C 0.88 C 10 C 25 C	18 0 18 0 18 0 18 0 18 C	3.0 3.0 0.5 0.75 2.0	30 30 15 15 15	50 m 50 m 50 m 50 m 50 m		30 40 20 15 35		6.0 8.0				470 M 470 M 175 M 175 M 175 M	129/ 129/ 39/ 117/ 117/	
2N5705 2N5706 2N5707 2N5708 2N5709			SNH SNH SNH SNH SNA	44 C 80 C 70 S 100 S 140 S	18 0 18 0 50 0 50 0 50 0	4.0 7.0 4.0 6.0 12	15 15 5.0 5.0 5.0	100 m 100 m 100 m 100 m 200 m		55 100 60 90 50E		14 13				175 M 175 M 28 M 28 M	128/ 128/ 128/ 128/	
2N5710 2N5711 2N5712 2N5713 2N5714			SNH SNH SNH SNH SNH	3.5 C 10 C 25 C 45 C 70 C	20 0 36 0 40 0 40 0 40 0	0.5 0.75 2.0 5.0 8.0	20 20 10 10 10	10 m 50 m 100 m 10 m 10 m		6.0 6.0 40 80 160		11 10 6.0				150 M 150 M 150 M 150 M 150 M	39/ 117/ 117/ 128/ 128/	
2N5715 2N5716 2N5718 2N5719 2N5728	THRU		SNH FET FET THY THY	6.0 S Table 9 Table 9 Table 6 Table 6	3 0	0.2	20	50 m	3500 T			9.0				2000 M		



2N5729-2N5824

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	h _{FE} Min	I _C @	Unit	f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF dB Max	f @	Unit	PACKAGE To- Case No. No.
2N5729 2N5730 2N5731 2N5732 2N5733	2N5336 2N5346 2N5347 SNS MJ7000		SNS	10 C 45 C 75 C 75 C 150 C	80 0 80 0 80 0 80 0 80 0		5.0 10 20 20 30	30	2.0 A 2.0 A 5.0 A 5.0 A 1.0 A	30 T 30 T 30 T 30 T 30 T			150 150 350 350 750	200/800 200/800 300/900 300/900 700/400	1.5 1.2 1.5 1.2 1.2		5.0 A 5.0 A 10 A 10 A 20 A		5/ 59/ 61/ 3/ 63/	
D 2N5734 2N5735 2N5736 2N5737 2N5738	2N5886 SNG SNG 2N5875 2N6229		SNS SNG SNG SPA SPA	150 C 0.36 A 0.36 A 50 C 50 C	80 0 30 0 30 0 60 0 100 0		30 0.3 0.3 10 10	30	1.0 A 150 m 150 m 5.0 A 5.0 A	30 T 200 T 200 T 10 T 10 T			750 750 250 250	700/400 60/325 60/325	1.2 4 4 5 5		20 A 150 m 150 m 5.0 A 5.0 A		3/ 122/ 122/ 3/ 3/	
2N5739 2N5740 2N5741 2N5742 2N5743	2N5875 SPA 2N5883 2N6029 2N5883		SPA SPA SPA SPA SPA	20 C 20 C 65 C 65 C 25 C	60 0 100 0 60 D 100 0 60 0		10 10 20 20 20	20	5.0 A 5.0 A 10 A 10 A 10 A	10 T 10 T 10 T 10 T 10 T			250 250 500 500 500		5 5 1.5 1.5 1.5		5.0 A 5.0 A 10 A 10 A 10 A		66/ 66/ 3/ 3/ 66/	
2N5744 2N5745 ★ 2N5754 ★ 2N5757 ★ 2N5758	2N5884 THRU		SPA THY THY SNA	25 C 200 C Table 6 Table 6 150 C	100 0 80 0		20 20	10 A	10 T 10 A 2.0 T	10 T 10 T 2.0 T			500 100/300		1.5 1.0		10 A 10 A		66/	
★ 2N5759 ★ 2N5760 2N5761 2N5762 2N5763	2N2907A	2	SNA SNA SNF SNF SPG	150 C 150 C 0.25 A 0.4 A 0.3 A	120 0 140 0 15 0 15 0 60 0		6.0 6.0 0.03 0.4 0.6	20 15 30 30 70	3.0 A 3.0 A 10 m 15 m 10 m	1.0 T 1.0 T 3000 T 2500 T 200 T			300 300 50/200		1.0 1.0 7.0 5.0	8.5	3.0 A 3.0 A 4000 m 2000 m 150 m		3/11 3/11 18/22	
2N5764 2N5765 2N5766 2N5767 2N5768			SNH SNH SNH SNH SNH	10 S 19 S 5.0 S 10 S 20 S	25 0 25 0 25 0 25 0 25 0		0.75 1.5 0.2 0.35 0.7	20 20 20 20 20	1.0 A 1.0 A 0.5 A 1.0 A 1.0 A			6.0 12 5.0 10		6.0 6.0 8.0 8.0 6.0		1000 m 1000 m 2000 m 2000 m 2000 m				
2N5769 2N5770 2N5771 2N5772 2N5773			SNS SNO SPS SNS SNH	.625 A 0.7 A .625 A .625 A 5.0 C	15 0 30 B 15 0 15 0 35 0		0.2 0.5 0.05 0.2 0.5	40 50 50 30 20	10 m 8.0 m 10 m 30 m 0.5 A	500 T 900 T 850 T 350 T		4.0 1.1 3.0 5.0 4.5	12/18 0.03/ 15/20 18/28		0.5 0.6 0.5 1.1	10	100 m 500 m 50 m 300 m 400 m		92/ 92/ 92/ 92/	
2N5774 2N5775 2N5776 2N5777 ★ 2N5780	THRU		SNH SNH SNH OPT OPT	18 C 40 C 70 C Table 10 Table 10	35 0 35 0 35 0		1.5 3.5 6.0	20 10	0.1 A 0.1 A 0.2 A			14 26 50		9.0 6.0		400 m 400 m 400 m		129/		
2N5781 2N5782 2N5783 2N5784 2N5785	2N3720 2N3720 2N3867 2N5335 2N5334		SPA SPA SPA SNA SNA	10 C 10 C 10 C 10 C 10 C	80 R 65 R 45 R 80 R 65 R		3.5 3.5 3.5 3.5 3.5	4.0	3.2 A 3.2 A 3.2 A 3.2 A 3.2 A	8.0 T 8.0 T 8.0 T 1.0 T 1.0 T					2.0 2.0 2.0 2.0 2.0		3.2 A 3.2 A 3.2 A 3.2 A 3.2 A		5/ 5/ 5/ 5/ 5/	
★ 2N5786 ★ 2N5787 ★ 2N5790 ★ 2N5793 ★ 2N5794	2N5336 THRU	2	SNA THY THY SNG SNG	10 C Table 6 Table 6 0.5 A 0.5 A	45 R 3.5		4.0	3.2 A	1.0 T						2.0		3.2 A		5/	
★ 2N5795 ★ 2N5796 D 2N5797 2N5803 2N5804	THRU	2	SNG SNG FET FET SNG	0.5 A 0.5 A Table 9 Table 9 62 C	60 0 60 0		0.6 0.6	40 100	150 m 150 m	200 T 200 T				45/310 45/310		.9 1.6		300 m 300 m 500 m 500 m		/654 /654 /654
2N5810 2N5811 2N5812 2N5813 2N5814			SNA SNA SNA SPA SNA	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	25 0 25 0 25 0 25 0 40 0		0.75 0.75 0.75 0.75 0.75	60 60 150 150 60	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m					.75 .75 .75 .75 .75		500 m 500 m 500 m 500 m 500 m				
2N5815 2N5816 2N5817 2N5818 2N5819			SPA SNA SPA SNA SPA	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	40 0 40 0 40 0 40 0 40 0		0.75 0.75 0.75 0.75 0.75	60 100 100 150 150	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m					.75 .75 .75 .75 .75		500 m 500 m 500 m 500 m 500 m				
2N5820 2N5821 2N5822 2N5823 2N5824			SNA SPA SNA SPA SNA	0.5 A 0.5 A 0.5 A 0.5 A 0.36 A	60 0 60 0 60 0 60 0 40 0		0.75 0.5 0.5 0.75 0.1	60 60 100 100 60	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m					.75 .75 .75 .75 .12		500 m 500 m 500 m 500 m 10 m				

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Ic Amp Max	hFE @ Ic		fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To-Case No. No.
							Min	Max									
2N5825 2N5826 2N5827A 2N5828A ★ 2N5829		1	SNA SNA SNE SNE SPF	0.36 A 0.36 A 0.36 A 0.36 A 0.2 A	40 0 40 0 40 0 40 0 30 0	0.1 0.1 0.1 0.1 0.03	100 150 250 400 20	2.0 2.0 2.0 2.0 2.0	m m m m m		1200 M	0.8				10 m	
2N5830 2N5831 2N5832 2N5833 2N5834			SNA SNA SNA SNA SPH	625 A 625 A 625 A 625 A 5.0 A	100 0 140 0 140 0 180 0 40 0	0.6 0.6 0.6 0.6 1.0	80 80 175 50 20	10 10 10 10 250	m m m m m	100 T 100 T 100 T 100 T			.25 .25 .25 .25 10		50 m 50 m 50 m 50 m 175 M	106/ 106/ 106/ 106/ 39/	
★ 2N5835 ★ 2N5836 ★ 2N5837 2N5838 2N5839		2	SNI SNI SNI SNG SNG	0.2 A 2.0 C 2.0 C 57 C 57 C	5 0 10 0 5.0 0 275 X 300 X	0.15 0.2 0.3 3.0 3.0	25 25 25 8.0 10	10 50 100 3.0 A 2.0 A	m m m A A	2500 T 2000 T 1700 T 5.0 T 5.0 T	0.8	.25* 3.5/32* 5.0/65* 1500/4500 1500/5250		1.0 1.5	3.0 A 2.0 A	72/20 46/46 46/46 3/ 3/	
2N5840 ★ 2N5841 ★ 2N5842 2N5843 2N5844	MD3250A MD3251A	2	SNG SNI SNS SPA SPA	57 C 0.35 C 0.35 C 0.5 A 0.5 A	375 X 10 0 10 0 0.5 A 40 0	3.0 0.1 0.1 0.05 0.05	10 25 25 25 100	2.0 25 25 0.1 0.1	A m m m m	5.0 T 2200 T 1700 T 200 T 250 T	1.5 1.5	1750/4500 0.6*/0.5* 0.6*/0.5*		2.0 A	72/20 72/20 78/654 78/654		
★ 2N5845 ★ 2N5845A ★ 2N5846 ★ 2N5847 ★ 2N5848		2	SNS SNS SNP SNP SNP	1.2 C 1.2 C 10 C 20 C 50 C	40 0 40 0 36 S 36 S 48 S	0.6 0.6 1.0 2.0 3.5	25 35 5.0 5.0 30	500 500 250 0.5 A 1.2 A	m m m A A	200 T 250 T	9.0	40/60 30/50 3.5/ 8.0/ 20/	.6 .5 10 10 8	500 m 500 m 50 M 50 M 50 M	92/29 92/29 102/24 /145 /145		
★ 2N5849 2N5851 2N5852 2N5853 2N5854		2	SNP SNF SNF SPA SNA	100 C 0.5 C 0.5 C 66 C 66 C	48 S 15 0 15 0 80 0 80 0	7.0 0.1 0.1 10 10	30 40 40 30 30	2.4 10 10 5.0 A 5.0 A	A m m A A	800 T 1100 T 15 T 20 T	230	40/ 7.5	3* 3*	50 M 200 M 200 M 50 A 50 A	/145 72/20 72/20 61/ 61/		
2N5855 2N5856 2N5857 2N5858 ★ 2N5859		2	SPA SNA SPA SNA SNS	0.75 A 0.75 A 0.75 A 0.75 A 5.0 C	60 0 60 0 80 0 80 0 40 0	1.0 1.0 1.0 1.0 1.0	50 50 50 50 15	150 150 150 150 1.0 A	m m m m A	100 T 100 T 100 T 100 T 250 T	15 15 15 15		4 4 4 4	150 m 150 m 150 m 150 m	105/ 105/ 105/ 105/ 39/79		
2N5860 ★ 2N5861 ★ 2N5862 2N5864 2N5865	2N3725 2N4404 2N4406	2	SNS SNS SNP SPA SPG	5.0 C 5.0 C 80 C 1.25 A 1.25 A	45 0 50 0 35 0 70 0 50 0	2.0 2.0 8.0 1.5 1.0	15 25 5.0 50 40	1.0 0.5 A 3.0 A 150 m 150 m	A A A m m	250 T 200 T 50 T 100 T	130	25/60 25/60 75/ 120/500	7.0 .9 1.2	150 M 300 m 500 m	/145 39/79 39/79		
★ 2N5867 ★ 2N5868 ★ 2N5869 ★ 2N5870 ★ 2N5871		2	SPG SPG SPG SPG SPG	87.5 C 87.5 C 87.5 C 87.5 C 100 C	60 0 80 0 60 0 80 0 60 0	5.0 5.0 5.0 5.0 7.0	20 20 20 20 20	1.5 1.5 1.5 1.5 2.5 A	A A A A A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T	200 200 150 150 300	700/1800 700/1800 700/1800 700/1800 700/1800	2.0 2.0 2.0 2.0 2.0	5.0 A 5.0 A 5.0 A 5.0 A 7.0 A	3/11 3/11 3/11 3/11 3/11		
★ 2N5872 ★ 2N5873 ★ 2N5874 ★ 2N5875 ★ 2N5876		2	SPG SNG SNG SPG SPG	100 C 100 C 100 C 150 C 150 C	80 0 60 0 80 0 60 0 80 0	7.0 7.0 7.0 10 10	20 20 20 20 20	2.5 2.5 2.5 4.0 A 4.0 A	A A A A A	4.0 T 4.0 T 4.0 T 4.0 T 500	300 250 250 500 500	700/1800 700/1800 700/1800 700/1800 700/1800	2.0 2.0 2.0 3.0 3.0	7.0 A 7.0 A 7.0 A 10 A 10 A	3/11 3/11 3/11 3/11 3/11		
★ 2N5877 ★ 2N5878 ★ 2N5879 ★ 2N5880 ★ 2N5881		2	SNG SNG SPG SPG SNG	150 C 150 C 160 C 160 C 160 C	60 0 80 0 60 0 80 0 60 0	10 10 15 15 15	20 20 6.0 A 6.0 A 6.0 A	4.0 4.0 4.0 4.0 4.0	A A A A A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T	300 300 600 600 400	700/1800 700/1800 700/1800 700/1800 700/1800	4.0 3.0 4.0 4.0 4.0	10 A 10 A 12 A 12 A 12 A	3/11 3/11 3/11 3/11 3/11		
★ 2N5882 ★ 2N5883 ★ 2N5884 ★ 2N5885 ★ 2N5886		2	SNG SPG SPC SNG SNG	160 C 200 C 200 C 200 C 200 C	80 0 60 0 80 0 60 0 80 0	15 25 25 25 25	20 10 A 10 A 20 10 A	4.0 4.0 4.0 4.0 4.0	A A A A A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T	400 1000 1000 500 500	700/1800 700/1800 700/1800 700/1800 700/1800	4.0 4.0 4.0 4.0 4.0	12 A 20 A 20 A 20 A 20 A	3/11 3/11 3/11 3/11 3/11		
★ 2N5887 ★ 2N5888 ★ 2N5889 ★ 2N5890 ★ 2N5891		2	GPA GPA GPA GPA GPA	57 C 57 C 57 C 57 C 57 C	15 0 25 0 25 0 35 0 45 0	7.0 7.0 7.0 7.0 7.0	15 15 30 30 30	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	A A A A A	0.25 T 0.25 T 0.25 T 0.25 T 0.25 T			.35 .35 .35 .35 .35	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	66/80 66/80 66/80 66/80 66/80		
★ 2N5892 ★ 2N5893 ★ 2N5894 ★ 2N5895 ★ 2N5896		2	GPA GPA GPA GPA GPA	57 C 57 C 57 C 57 C 57 C	60 0 25 0 35 0 45 0 60 0	5.0 5.0 5.0 5.0 5.0	30 60 60 60 60	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A	A A A A A	0.25 T 0.25 T 0.25 T 0.25 T 0.25 T			.35 .35 .35 .35 .35	5.0 A 5.0 A 5.0 A 5.0 A 5.0 A	66/80 66/80 66/80 66/80 66/80		



2N6059-2N6165

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	h _{FE} Min	I _C @ Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF _@ dB Max	f Unit	PACKAGE To- Case No. No.
★ 2N6059 2N6060 2N6061 2N6062 2N6063	MJ7000	2	SNA SNS SPS SNS SPS	150 C 150 C 150 C 150 C 150 C	100 0 100 0 100 0 100 0 100 0		12 50 50 50 50	750 25 25 25 25	6.0 A 20 A 20 A 20 A 20 A	4.0 T 10 10 10 10	300 850 1325 850 1325	500/1000 500/1000 500/1000 500/1000 500/1000	2.0 2.6 2.6 2.6 2.6	2.0 7.1 7.1 7.1 7.1	6.0 A 50 A 50 A 50 A 50 A	3/11 63/ 63/ 63/ 63/	
★ 2N6064 ★ 2N6065 ★ 2N6066 ★ 2N6067 2N6068	THRU	2 2 2 2	GPS GPS GPS SPG THY	56 C 56 C 56 C 625 A Table 6	80 0 120 0 160 0 40 0 Table 6		10 10 10 1.0 1.0	20 20 20 50	3.0 A 3.0 A 3.0 A 100 m	300 T 301 T 300 T 150 T		100/150 100/150 100/150 40/80	.8 .8 .8 3		10 A 10 A 10 A 100 m	/8 /8 /8 92/29	
2N6075B 2N6076 2N6077 2N6078 2N6079	MPS6519		THY SPA SNG SNG SNG	Table 6 360M A 25.7 C 25.7 C 25.7 C	25 0 300 X 275 X 375 X		100 12 12 12	10 m 1.2 A 1.2 A 1.2 A		1.0 T 1.0 T 1.0 T		750/5750 750/5750 750/5750	.25 5 5 5		10 m 1.2 A 1.2 A 1.2 A	66/80 66/80 66/80	
★ 2N6080 ★ 2N6081 ★ 2N6082 ★ 2N6083 ★ 2N6084		2 2 2 2 2	SNP SNP SNP SNP SNP	12 C 31 C 50 C 50 C 75 C	36 S 36 S 36 S 36 S 36 S		1.0 2.5 4.0 4.0 6.0	5.0 5 5.0 5.0 5.0	.25 A 500 m 1.0 A 1.0 A 1.0 A		20 85 130 130 200	4.0/ 15/ 25/ 30/ 40/	12 6.3 6.2 5.7		175 M 175 M 175 M 175 M 175 M	/145 /145 /145 /145 /145	
D 2N6085 D 2N6086 D 2N6087 D 2N6088 D 2N6089			SNE SNE SNE SNE SNE	0.75 C 0.75 C 0.75 C 0.75 C 0.75 C	45 0 45 0 45 0 45 0 45 0			60 150 60 150 60	10 u 10 u 10 u 10 u 10 u	60 T 60 T 60 T 60 T 60 T				4.0 3.0 4.0 3.0 4.0	1000 H 1000 H 1000 H 1000 H 1000 H	78/ 78/ 78/ 78/ 78/	
D 2N6090 D 2N6091 D 2N6092 2N6093 ★ 2N6094			SNE SNE SNE SNH SNP	0.75 C 0.75 C 0.75 C 83.3 C 80.0 C	45 0 60 0 60 0 35 0 18 0		1.0	150 60 150 20 5.0	10 u 10 u 10 u 5.0 A 25 A	60 T 60 T 60 T 100 T		20 250	13 12		1000 H 1000 H 1000 H 30 M 175 M	78/ 78/ 78/ /211	
★ 2N6095 ★ 2N6096 ★ 2N6097 2N6098 2N6099	2N5877 2N5983	2 2 2	SNP SNP SNP SNA SNA	20 C 40 C 60 C 75 C 75 C	18 0 18 0 18 0 60 0 60 0		2.5 4.0 6.0 10 10	15 15 15 20 20	0.5 A 0.5 A 0.5 A 4.0 A 4.0 A		120 190 400	15/ 30/ 40/	6.3 5.7 4.5		175 M 175 M 175 M 10 A 10 A	/211 /211 /211 220AA/ 220AB/	
2N6100 2N6101 2N6102 2N6103 2N6104	2N5878 2N5991 MJ2801		SNA SNA SNA SNA SNH	75 C 75 C 75 C 75 C 36 C	70 0 70 0 40 0 40 0 30 0		10 10 16 16 4.5	20 20 15 15	5.0 A 5.0 A 8.0 A 8.0 A	0.8 T 0.8 T 0.8 T 0.8 T			2.5 2.5 2.5 2.5		10 A 10 A 16 A 16 A 400 M	220AA/ 220AB/ 220AA/ 220AB/ 220AB/	
2N6105 2N6106 2N6107 2N6108 2N6109	2N5872 2N5871		SNH SPA SPA SPA SPA	36 C 40 C 40 C 40 C 40 C	30 0 70 0 70 0 50 0 50 0	4.5		30 30 30 30	2.0 A 2.0 A 2.5 A 2.5 A	10 T 10 T 10 T 10 T	3.5 250 250 250 250		3.5 3.5 3.5 3.5	2.3 2.3 2.3 2.3	7.0 A 7.0 A 7.0 A 7.0 A 7.0 A	220AB/ 220AA/ 220AA/ 220AB/ 220AB/	
2N6110 2N6111 2N6112 2N6114 2N6118	2N4904 THRU		SPA SPA SNA UJT UJT	40 C 40 C 0.36 C Table 8 Table 8	30 0 30 0 30 0 Table 8 Table 8			30 30 185	3.0 A 3.0 A 2.0 m	10 T 10 T 160 T	250 250 10		3.5 3.5 3	2.3 2.3	7.0 A 7.0 A 10 m	220AA/ 220AB/ 220AB/	
2N6120 2N6122 2N6123 D 2N6124 D 2N6125			UJT SNA SNA SPA SPA	Table 8 40 C 40 C 40 C 40 C	60 0 80 0 45 0 60 0		4.0 4.0 4.0 4.0	25 25 25 25	1.5 A 1.5 A 1.5 A 1.5 A	2.5 T 2.5 T 2.5 T 2.5 T			6 6 6 6		1.5 A 1.5 A 1.5 A 1.5 A	220AB/ 220AB/ 220AB/ 220AB/	
D 2N6126 2N6127 2N6128 2N6129 2N6130			SPA SPA SNA SNA SNA	40 C 67 C 67 C 50 C 50 C	80 0 80 0 80 0 40 0 60 0	4.0		20 30 30 20 20	1.5 A 5.0 A 5.0 A 2.5 A 2.5 A	2.5 T 40 T 50 T 2.5 T 2.5 T	500 275		6 2.2 2.2 1.4 1.4		1.5 A 10 A 10 A 7.0 A 7.0 A	220AB/ 61/ 61/ 220AB/ 220AB/	
2N6131 2N6132 2N6133 2N6134 D 2N6135			SNA SPA SPA SPA SNF	50 C 50 C 50 C 50 C 5.0 C	40 D 40 0 60 0 80 0 25 0		7.0 7.0 7.0 7.0 0.25	20 20 20 20 25	2.5 A 2.5 A 2.5 A 2.5 A 80 m	2.5 T 2.5 T 2.5 T 2.5 T 1100 T			2.0 1.4 1.4 1.8 10		7.0 A 7.0 A 7.0 A 7.0 A 250 M	220AB/ 220AB/ 220AB/ 220AB/ /145	
★ 2N6136 ★ 2N6137 ★ 2N6138 ★ 2N6139 ★ 2N6165	THRU		SNP UJT UJT THY THY	60 C Table 8 Table 8 Table 6 Table 5	18 0 Table 8 Table 8 Table 6 Table 5		6.0	20	1.0 A		70	25/	4.0		470 M	/145	

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	VCE Subscript	IC Amp Max	hFE Min	IC @ Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	f @ Unit	PACKAGE To- Case No. No.
★ 2N6166 2N6167 2N6174 2N6175 2N6176	THRU	2	SNP THY THY SNA SNA	117 C Table 6 Table 6 20 C 20 C	35 0 350 0 250 0 300 0		9.0 1.0 1.0	5.0 30 30	500 m 20 m 20 m			130 8.5 8.5	60/				150 M	/211
2N6177 2N6178 2N6179 2N6180 2N6181			SNA SNS SNS SPS SPS	20 C 10 C 10 C 10 C 10 C	350 0 75 X 50 X 75 X 50 X		1.0	30 40 30 40	50 m 0.5 A 0.5 A 0.5 A 0.5 A	21 T 50 T 50 T 50 T 50 T		8.5	80/800 80/800 100/1000 100/1000	5 8 7 1.2		.5 A 5 A 5 A 5 A		
★ 2N6182 ★ 2N6183 ★ 2N6184 ★ 2N6185 ★ 2N6186		2	SPS SPS SPS SPS SPG	60 C 60 C 60 C 60 C 60 C	80 0 80 0 100 0 100 0 80 0		10 10 10 10	30 60 30 60 30	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	30 T 30 T 30 T 30 T 30 T		300 300 300 300 300	200/400 200/400 200/400 200/400 200/2200	.7 .7 .7 .7		2.0 A 2.0 A 2.0 A 2.0 A	59/160 59/160 59/160 59/160	
★ 2N6187 ★ 2N6188 ★ 2N6189 ★ 2N6190 ★ 2N6191		2	SPG SPG SPG SPG SPG	60 C 60 C 60 C 10 C 10 C	80 0 100 0 100 0 80 0 80 0		10 10 10 5.0 5.0	60 60 60 30 60	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	30 T 30 T 30 T 30 T 30 T		300 300 300 300 300	200/2200 200/2200 200/2200 200/2200 200/2200					59/ 59/ 59/ 39/79 39/79
★ 2N6192 ★ 2N6193 2N6197 2N6198 2N6199		2	SPG SPG SNP SNP SNP	10 C 10 C 10 C 25 C 50 C	100 0 100 0 35 0 35 0 35 0		5.0 5.0	30 60	2.0 A 2.0 A	30 T 30 T		300 300	200/2200 200/2200			7500 M 175 M 175 M	39/79 39/79	
2N6200 2N6201 2N6202 2N6203 2N6204			SNP SNP SNP SNP SNP	85 C 140 C 10 C 20 C 40 C	35 0 35 0 33 0 33 0 33 0							150 250 12 20 40		8.2 5.4 10 6.8 6.2		175 M 175 M 400 M 400 M 400 M		
2N6205 2N6206 2N6207 2N6208 2N6211			SNP SNP SNP SNP SPG	80 C 10 C 20 C 40 C 20 C	33 0 30 0 30 0 30 0 275 X			10	1.0 A	20 T		80 12 20 40		5.2 7.0 5.2		400 M 1000 M 1000 M 1000 M		66/80
2N6212 2N6213 2N6214 2N6215 2N6216			SPG SPG SPA SNA SNA	20 C 20 C 20 C 135 C 71.4 C	350 X 400 X 450 X 80 X 200 0		50	10 10 10 25 20	1.0 A 1.0 A 1.0 A 2.5 A 5.0 A	20 T 20 T 20 T 20 T 20 T		600/3100 600/3100	1.6 2.0 2.5 8 5		1.0 A 1.0 A 1.0 A 2.5 A 5.0 A	66/80 66/80	63/ 3/	
2N6217 2N6218 2N6219 2N6220 2N6221			SNA SNG SNG SNG SNG	71.4 C 0.5 A 0.5 A 0.5 A 0.5 A	80 0 300 0 250 0 200 0 150 0		0.05 0.05 0.05 0.05	20 20 20 20 20	5.0 A 20 m 20 m 20 m 20 m	20 T 50 T 50 T 50 T 50 T		250 5.0 5.0 5.0 5.0	500/5000 500/5000 500/5000 500/5000	5 1.0 1.0 2.0 2.3	10 10 10 10 10	5.0 A 10 m 10 m 20 m 20 m	3/	
2N6222 2N6223 2N6224 2N6225 ★ 2N6226		2	SNA SPA SNA SPA SPA	0.36 A 0.36 A 0.36 A 0.36 A 150 C	60 0 60 0 60 0 60 0 100 0		0.1 0.1 0.1 0.1 6.0	75 75 150 150 25	2.0 m 2.0 m 2.0 m 2.0 m 3.0 A	4.0 4.0 4.0 4.0 1.0 T		450		1.2 .25 .12 .25 1.0	10 10 10 10 3.0 A	10 m 10 m 10 m 10 m 3.0 A	3/11	
★ 2N6227 ★ 2N6228 ★ 2N6229 ★ 2N6230 ★ 2N6231		2	SPA SPA SPA SPA SPA	150 C 150 C 150 C 150 C 150 C	120 0 140 0 100 0 120 0 140 0		6.0 6.0 10 10 10	20 15 25 20 15	3.0 A 3.0 A 5.0 A 5.0 A 5.0 A	1.0 T 1.0 T 1.0 T 1.0 T 1.0 T		450 450 600 600 600		1.0 1.0 1.0 1.0 1.0	3.0 A 3.0 A 7.5 A 7.5 A 7.5 A	3/11 3/11 3/11 3/11 3/11		
★ 2N6233 ★ 2N6234 ★ 2N6235 2N6236 2N6241	THRU	2	SNS SNS SNS THY THY	50 C 50 C 50 C Table 6 Table 6	225 0 275 0 325 0		5.0 5.0 5.0	25 25 25	1.0 A 1.0 A 1.0 A	20 T 20 T 20 T		250 250 250	500/400 500/400 500/400	5 5 5		1.0 A 1.0 A 1.0 A	66/80 66/80 66/80	
2N6246 2N6247 2N6248 2N6249 2N6250			SPA SPA SPA SNS SNS	125 C 125 C 125 C 100 C 100 C	105 R 85 R 65 R 225 X 300 X			20 20 20 10 8.0	7.0 A 6.0 A 5.0 A 10 A 10 A	10 10 10 2.5 T 2.5 T			200/45 200/45	2.5 3.5 3.5 1.5 1.5		15 A 15 A 15 A 10 A 10 A	3/ 3/ 3/	
2N6251 ★ 2N6253 ★ 2N6254 ★ 2N6255 ★ 2N6256		2	SNS SNA SNA SNP SNP	100 C 115 C 150 C 5.0 C 2.0 C	375 X 45 0 80 0 36 S 36 S		15 15	6.0 20 20 5.0 20	10 A 3.0 A 5.0 A 250 m .05 A	2.5 T 0.8 T 0.8 T		20 8.0	200/45 3.0/ 0.5/	1.5 4.0 4.0 7.8 10		10 A 15 A 15 A 175 M 470 M	3/1 3/1 39/79 /249	



TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subscript	I _C Amp Max	hFE Min	I _C @ Unit	f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	f @ Unit	PACKAGE To- Case No. No.
★ 2N6257 2N6258 2N6259 2N6260 2N6261			SNA SNA SNA SNA SNA	150 C 250 C 250 C 29 C 50 C	40 0 80 0 150 0 40 0 80 0		20	15 20 15 20 25	8.0 A 15 A 8.0 A 1.5 A 1.5 A	0.2 T 0.4 T 0.2 T 0.8 T 0.8 T					1.5 .75 1.0 1.5 .5		8.0 A 15 A 8.0 A 1.5 A 1.5 A	/1 3/ 3/ 66/ 66/
★ 2N6262 2N6263 2N6264 2N6265 2N6266	2N5051		SNA SNA SNA SNP SNP	150 C 20 C 50 C 7.5 C 14.8 C	150 0 120 0 150 0 50 R 50 R		10	20 20 20	3.0 A 0.5 A 1.0 A	0.8 T 3.2 T 0.8 T		5.0 11			.5 1.2 .5 8.2 7.0		3.0 A 5 A 1.0 A 2000 M 2000 M	3/ 66/ 66/ 66/ 66/
2N6267 2N6268 2N6269 2N6270 2N6271			SNP SPA SNA SNA SNA	21 C 6.25 C SNA 150 C 150 C	50 R 45 R 45 R 80 0 100 0			30 20 20	15 A 15 A			13 5.5 5.5			7.0		2000 M	3/ 3/
2N6272 2N6273 ★ 2N6274 ★ 2N6275 ★ 2N6276		2	SNA SNA SNA SNA SNA	150 C 150 C 250 C 250 C 250 C	80 0 100 0 100 0 120 0 140 0			30 20 30 50 30	15 A 15 A 20 A 20 A 20 A					1.0 1.0 1.0		20 A 20 A 20 A 20 A	63/ 63/ /197 /197 /197	
★ 2N6277 ★ 2N6278 ★ 2N6279 ★ 2N6280 ★ 2N6281		2	SNA SNA SNA SNA SNA	250 C 250 C 250 C 250 C 250 C	150 0 100 0 120 0 140 0 150 0			50 30 30 30 50	20 A 20 A 20 A 20 A 20 A	30 T 30 T 30 T 30 T 30 T				1.0 1.2 1.2 1.2 1.2		20 A 20 A 20 A 20 A 20 A	/197 /188 /188 /188 /188	
★ 2N6282 ★ 2N6283 ★ 2N6284 ★ 2N6285 ★ 2N6286		2	SNA SNA SNA SPA SPA	160 C 160 C 160 C 160 C 160 C	60 0 80 0 100 0 60 0 80 0			20 20 20 20 20	750 750 750 750 750	10 A 10 A 10 A 10 A 10 A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T			2.0 2.0 2.0 2.0 2.0		10 A 10 A 10 A 10 A 10 A	/11 /11 /11 /11 /11	
★ 2N6287 2N6288 2N6289 2N6290 2N6291		2	SPA SNA SNA SNA SNA	160 C 16 C 16 C 16 C 16 C	100 0 40 0 40 0 60 0 60 0			20 30 30 7.0 30	750 3.0 A 3.0 A 2.5 A 2.5 A	4.0 T				2.0 3.5 3.5 3.5 3.5	2.3	10 A 7.0 A 7.0 A 7.0 A 7.0 A	/11 220AB/ 220AA/ 220AB/ 220AB/	
2N6292 2N6293 ★ 2N6294 ★ 2N6295 ★ 2N6296		2	SNA SNA SNA SNA SPA	16 C 16 C 50 C 50 C 50 C	80 0 80 0 60 0 80 0 60 0			7.0 30 4.0 4.0 4.0	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A					2.0 2.0 2.0 2.0		10 A 7.0 A 2.0 A 2.0 A 2.0 A	220AB/ 220AA/ 66/80 66/80 66/80	
★ 2N6297 ★ 2N6298 ★ 2N6299 ★ 2N6300 ★ 2N6301		2	SPA SPA SPA SNA SNA	50 C 75 C 75 C 75 C 75 C	80 0 60 0 80 0 60 0 80 0			4.0 8.0 8.0 8.0 8.0	750 750 750 750 750	2.0 A 4.0 A 4.0 A 4.0 A 4.0 A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T			2.0 2.0 2.0 2.0 2.0		2.0 A 4.0 A 4.0 A 4.0 A 4.0 A	66/80 66/80 66/80 66/80 66/80	
★ 2N6302 ★ 2N6303 ★ 2N6304 ★ 2N6305 ★ 2N6306		1 2 2 2	SNA SPA SNF SNF SNA	150 C 1.0 C 0.2 C 0.2 C 125 C	120 0 80 0 15 0 15 0 300 0			16 3.0 .05 .05 8.0	8.0 A 1.5 A 2.0 m 2.0 m 3.0 A	0.2 T 60 T 1400 T 1200 T 5.0 T				1.4 .75 15 12 8	4.5	8.0 A 1.5 A 450 M 450 M 3.0 A	/1 5/31 72/20 72/20 /11	
★ 2N6307 ★ 2N6308 ★ 2N6309 ★ 2N6310 ★ 2N6311		2	SNA SNA SNG SNG SNG	125 C 125 C 400 C 400 C 400 C	300 0 350 0 100 0 120 0 140 0			8.0 12 90 40 90	15 3.0 A 25 A 25 A 25 A	5.0 T 5.0 T 30 T 30 T 30 T				1.0 1.5 3.7 3.7 3.7	10	3.0 A 3.0 A 90 A 90 A 90 A	/11 /11 114/177 114/177 114/177	
★ 2N6312 ★ 2N6313 ★ 2N6314 ★ 2N6315 ★ 2N6316		1 1 2 2	SPA SPA SPA SNA SNA	75 C 75 C 75 C 90 C 90 C	40 0 60 0 80 0 60 0 80 0			5.0 25 25 7.0 7.0	1.5 A 1.5 A 1.5 A 7.0 A 7.0 A	4.0 T 4.0 T 4.0 T 4.0 T 4.0 T				.7 .7 .7 2.0 2.0		1.5 A 1.5 A 1.5 A 7.0 A 7.0 A	66/80 66/80 66/80 66/80 66/80	
★ 2N6317 ★ 2N6318 ★ 2N6319 ★ 2N6320 ★ 2N6321		2	SPA SPA SNG SNG SNG	90 C 90 C 300 C 300 C 300 C	60 0 80 0 100 0 120 0 140 0			7.0 7.0 80 80 80	4.0 7.0 A 25 A 25 A 25 A	7.0 A 7.0 A 30 T 30 T 30 T				2.0 2.0 3.2 3.2 3.2	10	7.0 A 7.0 A 80 A 80 A 80 A	66/80 66/80 3/ 3/ 3/	
2N6322 2N6323 2N6324 2N6325 2N6326			SNA SNA SNA SNA SNA	200 C 200 C 200 C 200 C 114 C	200 0 300 0 200 0 300 0 60 0			30 30 30 30 30	6.0 6.0 6.0 6.0 6.0	30 A 30 A 30 A 30 A 30 A	10 T 10 T 10 T 10 T 3.0 T			3.0 3.0 3.0 3.0 3.0		30 A 30 A 30 A 30 A 30 A	3/ 3/ 3/ 3/ 3/	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Ic Amp Max	hFE Min	Ic @	fT MHz Min	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF@ f dB Max	Unit	PACKAGE To- Case No. No.
2N6327 2N6328 2N6329 2N6330 2N6331			SNA SNA SPA SPA SPA	114 C 114 C 114 C 114 C 114 C	80 0 100 0 60 0 80 0 100 0	30 30 30 30 30	6.0 6.0 6.0 6.0 6.0	30 A 30 A 30 A 30 A 30 A	3.0 T 3.0 T 3.0 T 3.0 T 3.0 T				3.0 3.0 3.0 3.0 3.0		30 A 30 A 30 A 30 A 30 A	3/ 3/ 3/ 3/ 3/
★ 2N6332 ★ 2N6337 ★ 2N6338 ★ 2N6339 ★ 2N6340	THRU	2 2 2 2 2	THY SNA SNA SNA SNA	Table 6 Table 6 200 C 200 C 200 C	100 0 120 0 140 0	25 25 25	30 30 30	10 A 10 A 10 A	40 T 40 T 40 T	300 300 300		1.0 1.0 1.0		10 A 10 A 10 A	3/11 3/11 3/11	
★ 2N6341 2N6342 2N6349A 2N6350 2N6351	THRU	2	SNA THY THY SNA SNA	200 C Table 6 Table 6 5.0 C 5.0 C	150 0	25	30	10 A	40 T	300		1.0		10 A	3/11	
2N6352 2N6353 2N6354 ★ 2N6355 ★ 2N6356			SNA SNA SNA SNA SNA	5.0 C 5.0 C 80 C 150 C 150 C	80 R 150 R 130 X 40 0 40 0	5.0 10 10 20 20	2000 1000 20 500 1500	5.0 A 5.0 A 5.0 A 4.0 A 4.0 A	50 T 50 T 80 T 0.004 T 0.004 T	40 40 600 600		1.8 1.8 1.8		5.0 A 4.0 A 4.0 A	33/ 33/ 3/ /1 /1	
★ 2N6357 ★ 2N6358 ★ 2N6359 ★ 2N6360 2N6361			SNA SNA SNA SNA SNA	150 C 150 C 150 C 150 C 50 C	60 0 60 0 80 0 100 0 33 0	20 20 16 12	500 1500 15 15 6.0	4.0 A 4.0 A 8.0 A 6.0 A	0.004 T 0.004 T 4.0 T 4.0 T	600 600		1.8 1.8 1.4 1.0		4.0 A 4.0 A 8.0 A 6.0 A	/1 /1 /11 /11	
2N6362 2N6363 2N6364 2N6365 2N6365A			SNA SNA SNA GPH GPH	100 C 175 C 175 C 0.15 A 0.15 A	33 0 33 0 33 0 10 0 10 0		20 20	0.1 m 0.1 m	200 T 200 T	70 190 190		25 25		10 M 10 M	18/ 18/	
★ 2N6366 ★ 2N6367 ★ 2N6368 2N6369 ★ 2N6370		2 2 2 2	SNP SNP SNP SNA SNA	10 C 20 C 140 C 220 C 20 C	36 S 36 S 40 S 35 0 65 S	1.0 2.0 8.0	5.0 5.0	.25 A 0.5 A 1.0 A 0.5 A	50 T 50 T 50 T 50 T	20 90 350 225 40	2.5/ 9.0/ 40/	17 14 10		30 M 30 M 30 M	102/24 /211 /211	
2N6371 2N6372 2N6373 2N6374 D 2N6377			SNA SNA SNA SNA SPG	66.7 C 22.8 C 22.8 C 22.8 C 250 C	50 X 90 X 70 X 50 X 80 0	16 6.0 6.0 6.0 50	15 20 20 20 30	8.0 A 2.0 A 2.5 A 3.0 A 2.0 A		1500	350/1050	4.0 2.0 2.0 2.0 1.0		16 A 6.0 A 6.0 A 6.0 A 20 A	66/ 66/ 66/ 66/ 66/	
D 2N6378 D 2N6379 D 2N6380 D 2N6381 D 2N6382		2 2 2 2 2	SPG SPG SPG SPG SPG	250 C 250 C 250 C 250 C 250 C	100 0 120 0 80 0 100 0 120 0	50 50 30 50 50	30 30 30 30 30	20 A 20 A 20 A 20 A 20 A	30 T 30 T 30 T 30 T 30 T	1500 1500 1500 1500 1500	350/1050 350/1050 350/1050 350/1050 350/1650	1.0 1.0 1.2 1.2 1.2		20 A 20 A 20 A 20 A 20 A	63/ 63/ 63/	
2N6383 2N6384 2N6385 2N6386 2N6387			SNA SNA SNA SNA SNA	100 C 100 C 100 C 40 C 40 C	40 X 60 X 80 X 40 X 80 X	10 10 10 8.0 10	1000 1000 1000 1000 1000	5.0 A 5.0 A 5.0 A 3.0 A 5.0 A	20 T 20 T 20 T 20 T 20 T	200 200 200 200 200		2.0 2.0 2.0 2.0 2.0		5.0 A 5.0 A 5.0 A 3.0 A 5.0 A	3/ 3/ 3/ 220AB/ 220AB/	
2N6388 2N6389 2N6390 2N6391 2N6392			SNA SNA SNH SNH SNH	40 C 0.2 A 8.34 C 8.34 C 8.34 C	80 X 12 0 50 R 50 R 50 R	10 0.04 1.0 1.5 4.0	1000 25 20 20 20	5.0 A 3.0 m 50 m 50 m 50 m	20 T 1000 T	200 50 9.0 11		8.0 7.0 3.5	2.3 7.0 A	5.0 A 2000 M 7.0 A	220AB/ 72/20	
2N6393 ★ 2N6406 ★ 2N6407 ★ 2N6408 ★ 2N6409		2 2 2 2 2	SNH SPA SPA SPA SNA	8.34 C 12.5 C 12.5 C 12.5 C 12.5 C	50 R 60 0 80 0 60 0 800 0	4.0 2.0 2.0 2.0 2.0	20 12 12 12 12	50 m 1.5 A 1.5 A 1.5 A 1.5 A	50 T 50 T 50 T 50 T	11 50 50 30 30		3.5 2.0 2.0 2.0 2.0	2.3 5.0 5.0 5.0 5.0	7.0 A 2.0 A 2.0 A 2.0 A 2.0 A	/77 /77 /77 /77	
★ 2N6410 ★ 2N6411 ★ 2N6412 ★ 2N6413 ★ 2N6414		2 2 2 2 2	SNA SPA SNA SNA SPA	15 C 15 C 15 C 15 C 15 C	25 0 25 0 40 0 60 0 40 0	4.0 4.0 4.0 4.0 4.0	45 45 20 20 20	2.0 A 2.0 A 2.0 A 2.0 A 2.0 A	50 T 50 T 50 T 50 T 50 T	80 120 50 50 70		1.5 1.5 2.5 2.5 2.5	5.0 10 5.0 5.0 5.0	4.0 A 4.0 A 4.0 A 4.0 A 4.0 A	/77 /77 /77 /77 /77	
★ 2N6415 ★ 2N6416 ★ 2N6417 ★ 2N6418 ★ 2N6419		2 2 2 2 2	SPA SNA SNA SPA SPA	15 C 15 C 15 C 15 C 15 C	60 0 80 0 100 0 80 0 100 0	4.0 3.0 3.0 3.0 3.0	20 20 20 20 20	2.0 A 1.0 A 1.0 A 1.0 A 1.0 A	50 T 70 40 T 40 T 40 T	70 50 50 70		2.5 2.5 2.5 2.5 2.5	5.0 10 10 10 10	4.0 A 2.0 A 2.0 A 2.0 A 2.0 A	/77 /77 /77 /77 /77	



TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Ref. Point	Subscript	I _C Amp Max	hFE Min	I _C @	Unit	f _T MHz Min	Sub.	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF dB Max	f @	Unit	PACKAGE To-Case No. Case No.
★ 2N6420 ★ 2N6421 ★ 2N6422 ★ 2N6423 ★ 2N6424		2	SPA SPG SPG SPA	35 C 35 C 35 C 20 C	175 0 250 0 300 0 225 0		1.0 2.0 2.0 0.25	40 8 8 40	500 m 1.0 A 1.0 A 100 m	m T T T	10 10 10 10			3000/7000 3000/7000 500/9000		5.0 .75 .75 2.5	8.0 8 8 10	1.0 1.0 1.0 250 m	A A A m	66/80 66/80 66/80 66/80
★ 2N6425 ★ 2N6426 ★ 2N6427 ★ 2N6436 ★ 2N6437		2	SPA SNE SNE SPG SPG	20 C .625 A .625 A 200 C 200 C	300 0 40 0 40 0 80 0 100 0		0.25 0.5 0.5 25 25	40 30K 30K 20 20	100 m 100 m 100 m 10 A 10 A	m T T T T	20 150 150 40 40			700 7.0 7.0 300/1250 700		2.5 10 10 10	250 250 m AUD AUD	m m AUD AUD	66/80 92/29 92/29 3/ 3/	
2N6438 2N6439 ★ 2N6441 ★ 2N6442 ★ 2N6443		2	SPG SNP SNM SNM SNM	200 C 140 C 0.55 A 0.55 A 0.55 A	120 0 60 S 45 0 45 0 45 0		25 60 0.05 0.05 0.05	20 60 120 60	10 A 10 U 10 U 10 U	T T T T	40 160 160 160			300/1250 700 1.5 1.5 1.5		7.8 60/ /10 /10 /5		400 m 10 K 10 K 10 K		3/ 78/654 78/654
★ 2N6444 ★ 2N6445 ★ 2N6446 ★ 2N6447 ★ 2N6448		2	SNM SNM SNM SNM SNM	0.55 A 0.55 A 0.55 A 0.55 A 0.55 A	45 0 45 0 45 0 45 0 45 0		0.05 0.05 0.05 0.05 0.05	120 60 120 60 120	10 U 10 U 10 U 10 U 10 U	T T T T T	160 160 160 160 160			1.5 1.5 1.5 1.5 1.5		/5 /3 /3 /3 /3		10 K 10 K 10 K 10 K 10 K		78/654 78/654 78/654 78/654 78/654
★ 2N6449 ★ 2N6455 ★ 2N6456 ★ 2N6457 ★ 2N6458 ★ 2N6459			FET SNP SNP SNP SNP SNP	Table 9 60 C 75 C 140 C 75 C 120 C	45 S 45 S 45 S 45 S 45 S		7.0 12 20 7.0 12	10 10 10 10 10	2.0 A 4.0 A 4.0 A 2.0 A 4.0 A	T T T T T	75 60 50 75 60			90 180 360 90 180		20/ 45/ 75/ 20/ 45/		15 14 13 15 14	30 m 30 m 30 m 30 m 30 m	
★ 2N6460 2N6461 2N6463 2N6464			SNP SNA SNA SNA	140 C 1.0 A 1.0 A 1.0 A	45 S 300 0 250 0 250 0		0.1 0.1 0.1 100	10 30 20 100	4.0 A 20 m 20 m 20 m	T T T T	50 20 20 20			360 70 70 70		75/ 70 70 70		30 m		39/ 39/ 39/
★ 2N6467 ★ 2N6468 ★ 2N6469 ★ 2N6470 ★ 2N6471			SPA SPA SPA SNA SNA	23.2 C 23.2 C 71.5 C 71.5 C 71.5 C	100 0 120 0 40 0 40 0 60 0		4.0 4.0 15 15 15	15 15 20 20 20	1.5 A 1.5 A 5.0 A 5.0 A 5.0 A	T T T T T	5.0 5.0 10 10 10					4.0 4.0 3.5 3.5 3.5	5.0 5.0 3.0 3.0 3.0	4.0 A 4.0 A 15 A 15 A 15 A		66/ 66/ 3/ 3/ 3/
★ 2N6472 2N6473 2N6474 2N6475 2N6476			SNA SNA SNA SPA SPA	71.5 C 16 C 16 C 16 C 16 C	80 0 100 0 120 0 100 0 120 0		15 4.0 4.0 4.0 4.0	20 15 15 15 15	5.0 A 1.5 A 1.5 A 1.5 A 1.5 A	T T T T T	5.0 4.0 4.0 10 10					3.5 2.5 2.5 2.5 2.5	3.0 2.0 2.0 2.0 2.0	15 A 4.0 A 4.0 A 4.0 A 4.0 A		3/ 220AB/ 220AB/ 220AB/ 220AB/
2N6477 2N6478 2N6479 2N6480 2N6481			SNA SNA SNG SNG SNG	20 C 20 C 50 C 50 C 67 C	120 0 140 0 60 0 80 0 60 0		2.5 2.5 12 12 12	25 25 20 20 20	1.0 A 1.0 A 12 A 12 A 12 A	T T T T T	0.2 0.2 100 100 100			400/1000 400/1000 400/1000		2.0 2.0 .75 .75 .75	5.0 5.0 10 10 10	2.5 A 2.5 A 12 A 12 A 12 A		220AB/ 220AB/
2N6482 2N6483 2N6485 2N6486 2N6487	THRU		SNG FET FET SNA SNA	67 C Table 9 Table 9 30 C 30 C	80 0 40 0 40 0 60 0 60 0		12 15 15 15 15	20 20 20 20 20	12 A 5.0 A 5.0 A 5.0 A 5.0 A	T T T T T	100 5.0 5.0 5.0 5.0			400/1000		.75 3.5 3.5	10 3.0 3.0	12 A 15 A 15 A		220AB/ 220AB/
2N6488 2N6489 2N6490 2N6491 ★ 2N6492			SNA SPA SPA SPA SNA	30 C 30 C 30 C 30 C 100 C	80 0 40 0 60 0 80 0 45 0		15 15 15 15 15	10 20 20 20 100	5.0 A 5.0 A 5.0 A 5.0 A 10 A	T T T T T	5.0 5.0 5.0 5.0 0.4					3.5 3.5 3.5 3.5 3.5	3.0 3.0 3.0 3.0 50	15 A 15 A 15 A 15 A 10 A		220AB/ 220AB/ 220AB/ 220AB/ 3/1
★ 2N6493 ★ 2N6494 ★ 2N6495 2N6496 ★ 2N6497			SNA SNA SNS SNG SNG	100 C 100 C 70 C 80 C 80 C	70 0 80 0 80 0 110 0 250 0		15 15 10 12 5.0	100 100 10 12 10	10 A 10 A 10 A 8.0 A 2.5 A	T T T T T	0.4 0.4 25 60 5.0			350/350 500/2000 800/2600		3.5 3.5 1.5 1.0 1.0	50 50 10 10 2.5	10 A 10 A 10 A 8.0 A 5.0 A		3/1 3/1 66/80 3/ /199
★ 2N6498 ★ 2N6499 2N6925 3N22 3N25		2	SNG SNG THY NA FET	80 C 80 C Table 6 Table 9	300 0 350 0 15 B		5.0 5.0	10 10	2.5 A 2.5 A	T T	5.0 5.0			800/2600 800/2600		5.0 5.0	2.5 2.5	5.0 A 5.0 A		/199 /199
3N25A 3N34 3N35 3N35A ★ 3N39	THRU		FET SNA SNA SNE RA	Table 9 125 125 125	30 B 30 0 30 0															12/

TYPE NO.	REPLACEMENT	VOL.	ID	PD		VCE	Subscript	IC Amp Max	hFE Min	IC		fT MHz Min	Sub.	Cob pF Max	Pout Watts		ΔVBE mv Max	Gp dB Min	NF@dB Max	f Unit	PACKAGE To- Case No. No.
				Watts	Rel. Point					Volts	Min				@	Unit						Min	Max	t on ns Max	t off ns Max	VCE (sat) Volts @ / B	IC & IC
*3N44A 3N45 3N46 3N47 3N48	TABLE 1		RA GPA	75 C 75 C	35 50				30 20	50 A 50 A	0.6 T 0.3 T										15/ 15/
3N49 3N50 3N51 3N52 3N62			GPA GPA GPA GPA SNC	94 C 94 C 94 C 94 C 0.1 A	35 50 25 40 6 I				30 20 30 20	50 A 50 A 50 A 50 A	0.6 T 0.3 T 0.5 T 0.3 T			5.0	250/250		0.2		2.0 m		72/
3N63 3N64 3N65 3N66 3N67			SNC SNC SNC SNC SNC	0.1 A 0.1 A 0.1 A 0.1 A 0.1 A	6 I 6 I 6 I 6 I 6 I		0.01 0.01 0.01 0.01 0.01							5.0 5.0 5.0 5.0 5.0	250/250 250/250 250/250 250/250 250/250		0.1 .05 0.2 0.1 .05	2.0 m 2.0 m 2.0 m 2.0 m 2.0 m		1/ 72/ 72/ 72/ 72/	
3N68 3N68A 3N69 3N70 3N71			SNC SNA SNC SNC SNC	0.1 A 0.1 A 0.1 A 0.1 A 0.1	6 I 10 B 6 I 6 I 80 O		0.01 0.01 0.01 0.01		40	2.0 m	100 T			5.0 5.0	250/250 250/250		0.1 .05	2.0 m 2.0 m		72/ 72/	
3N72 3N73 3N74 3N75 3N76			SNC SNC SNC SNC SNC	0.1 0.1 0.3 0.3 0.3	80 O 80 O 50 B 50 B 50 B			40 40	2.0 m 2.0 m	100 T 100 T											
3N77 3N78 3N79 3N80 3N86	THRU		SNC SNC SNC THY THY	0.3 0.2 0.3 Table 6 Table 6	40 B 40 B 40 B						30 T 30 T 30 T										
3N87 3N88 3N89 3N91 3N92			SNC SNC FET SPC SPC	0.2 A 0.2 A Table 9 0.3 A 0.3 A	10 O 10 O			5.0 5.0	0.5 m 0.5 m	100 T 100 T											
3N93 3N94 3N95 3N100 3N101			SPC SPC SPC SPC SPC	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	50 B 50 B 50 B 20 B 30 B						6.0 T 6.0 T 6.0 T										
3N102 3N103 3N104 3N105 3N106			SPC SPC SPC SPC SPC	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	40 B 50 B 60 B 20 B 40 B																
3N107 3N108 3N109 3N110 3N111			SPC SPC SPC SPC SPC	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	60 B 50 B 50 B 50 B 50 B						12 T 12 T 12 T 12 T										
3N112 3N113 3N114 3N115 3N116			SPC SPC SPC SPC SPC	0.2 A 0.2 A 0.3 A 0.3 A 0.3 A	50 B 50 B 30 B 30 B 30 B						12 T 12 T 12 T 12 T										
3N117 3N118 3N119 3N120 3N121			SPC SPC SPC SNC SNC	0.3 A 0.3 A 0.3 A 0.2 A 0.2 A	50 B 50 B 50 B 30 B 30 B						12 T 12 T 12 T										
3N123 3N124 3N126 3N129 3N130	THRU		SPC FET FET SPC SPC	0.1 A Table 9 Table 9 0.3 A 0.3 A	30 B						6.0M E										72/ /72
3N131 3N132 3N133 3N134 3N135			SPC SPC SPC SPC SPC	0.3 A 0.3 A 0.3 A 0.3 A 0.3 A	40 B 50 B 60 B 20 B 40 B		0.02 0.02 0.02 0.02				2.0M E 2.0M E 2.0M E 2.0M E 2.0M E			10 10 10 12 12							72/ 72/ 72/ 72/ 72/

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TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	Subscript	IC Amp Max	hFE Min	IC @ Unit	fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF dB Max	f @ Max	Unit	PACKAGE To- Case No. No.	
																				t _{on} ns Max	t_{off} ns Max	VCE (sat) Volts @ IB	IC & IC
3N136 3N138 3N143 3N145 3N186	THRU THRU		SPC FET FET FET FET	0.3 A Table 9 Table 9 Table 9 Table 9	60 B		0.02					2.0M E	12							72/
3N188 3N191 3N193 3N203A 3N206	THRU		FET FET FET FET FET	Table 9 Table 9 Table 9 Table 9 Table 9																
3N211 3N213 3N214 3N218 3N219			FET FET FET FET OPT	Table 9 Table 9 Table 9 Table 9 Table 10																
3N220 3N221 3N222 ★ 4N22 ★ 4N32	THRU		OPT THY THY OPT OPT	Table 10 Table 6 Table 6 Table 10 Table 10																
★ BU105 ★ BU108 ★ MA200 ★ MA201 ★ MA202		3	SNA SNA GPA GPA GPA	10 C 56 C 0.15 A 0.15 A 0.15 A	750 R 750 O 105 O 105 O 105 O		2.5 5.0 0.2 0.2 0.2		20 20 20 40	5.0 m 5.0 m 5.0 m 5.0 m		7.5 * 7.5 *	65* 125*		5.0		2.5 A		/11 /11	
★ MA203 ★ MA204 ★ MA205 ★ MA206 ★ MA909		3	GPA GPA GPA GPA GPA	0.15 A 0.15 A 0.15 A 0.15 A 0.15 C	105 O 90 O 75 O 60 O 75 O		0.2 0.2 0.2 0.2 0.2		40 20 20 20 20	5.0 m 5.0 m 5.0 m 5.0 m 5.0 m					.35 .35 .35 .35		5.0 m 5.0 m 5.0 m 5.0 m		5/31 5/31 5/31 5/31 5/31	
★ MA910 ★ MA4404 ★ MA4404A ★ MD708 ★ MD708A		3	GPA GPG GPA SNG SNM	0.15 C 0.2 A 2 A 0.55 A 0.55 A	90 O 24 S 35 S 15 O 15 O		0.2 0.35 0.35 0.2 0.2		20 30 30 40 40	5.0 m 12 m 12 m 10 m 10 m			25 25 25	530/1700					5/31 5/31 5/31 /654 /654	
★ MD708AF ★ MD708B ★ MD708BF ★ MD708F ★ MD918		3	SNM SNM SNM SNG SNA	0.35 A 0.55 A 0.35 A 0.35 A 0.55 A	15 O 15 O 15 O 15 O 15 O		0.2 0.2 0.2 0.2 0.05		40 40 40 40 50	10 m 10 m 10 m 10 m 3.0 m			5.0 5.0 5.0 5.0 1.7	35/75 /10	.20 .20 .20 .20	10 10 10 10	10 m 10 m 10 m 10 m 6.0		/610 /654 /610 /610 /654	
★ MD918A ★ MD918AF ★ MD918B D MD918BF ★ MD918F		3	SNM SNM SNM SNM SNA	0.55 A 0.35 A 0.55 A 0.35 A 0.35 A	15 O 15 O 15 O 15 O 15 O		0.05 0.05 0.05 0.05 0.05		50 50 50 50 50	3.0 m 3.0 m 3.0 m 3.0 m 3.0 m			600 T 600 T 600 T 600 T 600 T	1.7 1.7 1.7 1.7 1.7	/10 /20 /20 /20 /20		6.0	60 M 60 M 60 M 60 M 60 M	/654 /610 /654 /610 /610	
★ MD982 ★ MD982F ★ MD984 ★ MD985 ★ MD985F		3	SPA SPA SPA SCG SCG	0.6 A 0.35 A .575 A .575 A 0.35 A	50 O 50 O 20 O 30 O 30 O		0.6 0.6 0.2 0.5 0.5		40 40 25 40 40	150 m 150 m 10 m 150 m 150 m			200 T 200 T 250 T 200 T 200 T	8.0 8.0 8.0 8.0 8.0	25/75 25/75	0.5 0.5 0.5 0.5	10 10 150 m 150 m	150 m 150 m 50 m 150 m 150 m	/654 /610 /654 /654 /610	
★ MD986 ★ MD986F ★ MD1120 ★ MD1120F ★ MD1121		3	SCA SCA SNM SNA SNM	0.55 A 0.35 A .575 A 0.35 A 0.575 A	15 D 15 O 30 O 30 O 30 O		0.2 0.2 0.5 0.5 0.5		25 25 50 50 50	10 m 10 m 10 m 10 m 10 m			200 T 200 T 200 T 200 T 200 T	4.0 4.0 8.0 8.0 8.0	/10 /10	10 10 10 10 10	10 m 10 m 10 m 10 m 10 m		/654 /610 /654 /610 /654	
★ MD1122 ★ MD1123 ★ MD1129 ★ MD1129F ★ MD1130		3	SNM SPM SNM SNA SPM	.575 A .575 A .575 A 0.35 A 0.575 A	30 O 40 O 30 O 30 O 40 O		0.5 0.2 0.5 0.5 0.2		50 30 100 100 100	10 m 100 u 10 m 10 m 100 u			200 T 250 T 200 T 200 T 200 T	8.0 8.0 8.0 8.0 4.0	/5.0 /10 /5.0	10 25 1 15 25	10 10 10 10 10	10 m 10 m 10 m 10 m 10 m	/654 /654 /654 /610 /654	
★ MD1130F ★ MD1132 ★ MD2218 ★ MD2218A ★ MD2218AF		3	SPM SNM SNA SNA SNA	0.35 A 0.35 A .575 A .575 A 0.35 A	40 D 15 O 30 O 30 O 30 O		0.2 0.05 0.5 0.5 0.5		100 50 40 40 40	100 u 1.0 m 150 m 150 m 150 m			200 T 200 T 200 T 200 T 200 T	4.0 1.7 8.0 8.0 8.0	/5.0 /10	.25 .4 .4 .3 .4	10 10 10 150 m 150 m	10 m 10 m 10 m 150 m 150 m	/610 /654 /654 /654 /610	
★ MD2218F ★ MD2219 ★ MD2219A ★ MD2219AF ★ MD2219F		3	SNA SNA SNA SNA SNA	0.35 A .575 A .575 A 0.35 A 0.35 A	30 O 30 O 30 O 30 O 30 O		0.5 0.5 0.5 0.5 0.5		40 100 100 100 100	150 m 150 m 150 m 150 m 150 m			200 T 200 T 200 T 200 T 200 T	8.0 8.0 8.0 8.0 8.0	60/340 60/340 45/310 45/310 60/340	.4 .4 .4 .3 .4	10 10 10 10 10	150 m 150 m 150 m 150 m 150 m	/610 /654 /654 /610 /610	

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	Subsct	I _C Amp Max	hFE Min	I _C Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF @ f dB Max	Unit	PACKAGE To- Case No. No.
★ MD2369		3	SNS	0.55 A	15 0	0.5	40	10 m	500 T	4.0	15/20	.25	10	10 m	/654		
★ MD2369A		3	SNM	0.55 A	15 0	0.5	40	10 m	500 T	4.0	/5.0	.25	10	10 m	/654		
★ MD2369AF		3	SNM	0.35 A	15 0	0.5	40	10 m	500 T	4.0	/5.0	.25	10	10 m	/610		
★ MD2369B		3	SNM	0.55 A	15 0	0.5	40	10 m	500 T	4.0	/10	.25	10	10 m	/654		
★ MD2369BF		3	SNM	0.35 A	15 0	0.5	40	10 m	500 T	4.0	/10	.25	10	10 m	/610		
★ MD2369F		3	SNS	0.35 A	15 0	0.5	40	10 m	500 T	4.0	15/20	.25	10	10 m	/610		
★ MD2904		3	SPG	575 A	40 0	0.6	40	150 m	200 T	8.0	45/130	.4		150 m	/654		
★ MD2904A		3	SPG	575 A	60 0	0.6	40	150 m	200 T	8.0	45/130	.4		150 m	/654		
★ MD2904AF		3	SPG	350 A	60 0	0.6	40	150 m	200 T	8.0	45/130	.4		150 m	/610		
★ MD2904F		3	SPG	350 A	40 0	0.6	40	150 m	200 T	8.0	45/130	.4		150 m	/610		
★ MD2905		3	SPG	575 A	40 0	0.6	100	150 m	200 T	8.0	45/130	.4		150 m			
★ MD2905A		3	SPG	575 A	60 0	0.6	100	150 m	200 T	8.0	45/130	.4		150 m			
★ MD2905AF		3	SPG	0.35 A	60 0	0.6	100	150 m	200 T	8.0	45/130	.4		150 m			
★ MD2905F		3	SPG	0.35 A	40 0	0.6	100	150 m	200 T	8.0	45/130	.4		150 m			
★ MD3250		3	SPA	575 A	40 0	0.05	50	1.0 m	200 T	6.0		.25	10	10 m	/654		
★ MD3250A		3	SPM	575 A	40 0	0.05	50	1.0 m	200 T	6.0	/1.0	.25	10	10 m	/654		
★ MD3250AF		3	SPM	0.35 A	40 0	0.05	50	1.0 m	200 T	6.0	/1.0	.25	10	10 m	/610		
★ MD3250F		3	SPA	0.35 A	40 0	0.05	50	1.0 m	200 T	6.0		.25	10	10 m	/610		
★ MD3251		3	SPA	575 A	40 0	0.05	100	1.0 m	250 T	6.0		.25	10	10 m	/654		
★ MD3251A		3	SPM	575 A	40 0	0.05	100	1.0 m	250 T	6.0	/1.0	.25	10	10 m	/654		
★ MD3251AF		3	SPA	0.35 A	40 0	0.05	100	1.0 m	250 T	6.0		.25	10	10 m	/610		
★ MD3251F		3	SPA	0.35 A	40 0	0.05	100	1.0 m	250 T	6.0		.25	10	10 m	/610		
★ MD3409		3	SNA	575 A	30 0	0.5	50	10 m	200 T	8.0		.15		10 m	/654		
★ MD3410		3	SNA	575 A	30 0	0.5	50	10 m	200 T	8.0		.15		10 m	/654		
★ MD3467		3	SPG	0.60 A	40 0	1.5	20	500 m	150 T	20	40/110	0.5	10	500 m	/654		
★ MD3467F		3	SPG	0.35 A	40 0	1.5	20	500 m	150 T	20	40/110	0.5	10	500 m	/610		
★ MD3725		3	SNG	0.60 A	40 0	1.0	50	100 m	200 T	10	45/75	.26	10	100 m	/654		
★ MD3725F		3	SNG	0.35 A	40 0	1.0	50	100 m	200 T	10	45/75	.26	10	100 m	/610		
★ MD3762		3	SPG	0.60 A	40 0	1.5	20	1.0 A	150 T	20	40/110	1.0	10	1.0 A	/654		
★ MD3762F		3	SPG	0.35 A	40 0	1.5	20	1.0 A	150 T	20	40/110	1.0	10	1.0 A	/610		
★ MD4957		3	SPA	0.2 A	30 0	0.03	20	2.0 m	1.0			18	2.6	450 M	/654		
★ MD5000		3	SPA	0.3 A	15 0	0.05	20	3.0 m	600 T	1.7		.4		10 m	/654		
★ MD5000A		3	SPA	0.3 A	15 0	0.05	20	3.0 m	600 T	1.7		.4		10 m	/654		
★ MD5000B		3	SPA	0.3 A	15 0	0.05	20	3.0 m	600 T	1.7		15	6.0	200 M	/654		
★ MD6001		3	SCG	575 A	30 0	0.5	40	150 m	200 T	8.0	60/350	0.4	10	150 m	/654		
★ MD6001F		3	SCG	0.35 A	30 0	0.5	40	150 m	200 T	8.0	60/350	0.4	10	150 m	/610		
★ MD6002		3	SCG	575 A	30 0	0.5	100	150 m	200 T	8.0	60/350	0.4	10	150 m	/654		
★ MD6002F		3	SCG	0.35 A	30 0	0.5	100	150 m	200 T	8.0	60/350	0.4	10	150 m	/610		
★ MD6003		3	SCG	575 A	30 0	0.5	70	150 m	200 T	8.0	60/350	0.4	10	150 m	/654		
★ MD6003F		3	SCG	0.35 A	30 0	0.5	70	150 m	200 T	8.0	60/350	0.4	10	150 m	/610		
★ MD6100		3	SCA	0.5 A	45 0	0.05	100	0.1 m	30 T	4.0		4.0	AUD		/654		
★ MD7000		3	SNA	575 A	30 0	0.5	70	150 m	200 T	8.0				10 m	/654		
★ MD7001		3	SPA	0.6 A	30 0	0.6	70	150 m	200 T	8.0				10 m	/654		
★ MD7001F		3	SPA	350 A	30 0	0.6	70	150 m	200 T	8.0				10 m	/610		
★ MD7002		3	SNA	575 A	40 0	0.03	40	100 u	200 T	6.0		.35	10	10 m	/654		
★ MD7002A		3	SNM	575 A	40 0	0.03	40	100 u	200 T	6.0	/25	.35		10 m	/654		
★ MD7002B		3	SNM	575 A	40 0	0.03	40	100 u	200 T	6.0	/15	.35		10 m	/654		
★ MD7003		3	SNA	0.55 A	40 0	0.05	50	10 m	200 T	6.0		.35	10	1.0 m	/654		
★ MD7003A		3	SNM	0.55 A	40 0	0.05	50	10 m	200 T	6.0	/25	.35		1.0 m	/654		
★ MD7003AF		3	SNM	0.35 A	40 0	0.05	50	10 m	200 T	6.0	/25	.35		1.0 m	/610		
★ MD7003B		3	SNM	0.55 A	40 0	0.05	50	10 m	200 T	6.0	/15	.35		1.0 m	/654		
★ MD7003F		3	SNA	0.35 A	40 0	0.05	50	10 m	200 T	6.0		.35	10	1.0 m	/610		
★ MD7004		3	SNA	0.55 A	13 0	0.2	30	10 m	675* T	4.0		0.4	10	10 m	/654		
★ MD7004F		3	SNA	0.35 A	13 0	0.2	30	10 m	675* T	4.0		0.4	10	10 m	/610		
★ MD7005		3	SPE	0.55 A	12 0	0.05	30	3.0 m	650 T	3.0		.4	10	10 m	/32		
★ MD7007		3	SNA	575 A	40 0	0.2	30	1.0 m	300 T	8.0		1.0	10	50 m	/654		
★ MD7007A		3	SNM	575 A	40 0	0.2	30	1.0 m	300 T	8.0	/20	1.0	10	50 m	/654		
★ MD7007B		3	SNM	575 A	40 0	0.2	30	1.0 m	300 T	8.0	/10	1.0	10	50 m	/654		
★ MD7007BF		3	SNA	0.35 A	40 0	0.2	30	1.0 m	300 T	8.0		1.0	10	50 m	/610		
★ MD7007F		3	SNA	0.35 A	40 0	0.2	30	1.0 m	300 T	8.0		1.0	10	50 m	/610		
★ MD7021		3	SCG	0.55 A	40 0	0.05	50	10 m	200 T	6.0	28*/72*	.35	10	10 m	/654		
★ MD7021F		3	SCG	0.35 A	40 0	0.05	50	10 m	200 T	6.0	28*/72*	.35	10	10 m	/610		
★ MD8001		3	SNM	575 A	40 0	0.03	100	1.0 m	260* T	2.6*	/15			10 m	/654		
★ MD8002		3	SNM	575 A	50 0	0.03	100	1.0 m	260* T	2.6*	/15			10 m	/654		
★ MD8003		3	SNM	575 A	60 0	0.03	100	1.0 m	260* T	2.6*	/15			10 m	/654		
★ MHQ918		3	SNF	0.65 A	15 0	0.05	20	3.0 m	600 T	1.7			2.5	60 M	116/632		
★ MHQ2221		3	SNG	0.65 A	40 0	0.5	40	150 m	200 T	8.0		.4		150 m	116/632		
★ MHQ2222		3	SNG	0.65 A	40 0	0.5	100	150 m	200 T	8.0	25/250	.4		150 m	116/632		
★ MHQ2369		3	SNA	0.5 A	15 0	0.5	40	10 m	450 T	4.0		.25		10 m	116/632		
★ MHQ2483		3	SNA	0.6 A	40 0	0.05	150	1.0 m	50 T					3.0	AUD	116/632	

MJE4918-MJ2500

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	Substrat	IC Amp Max	hFE Min	IC @ Unit	fT MHz Min	Cob pF Max	P _{out}	ΔVBE	Gp	NF @ f	Unit	PACKAGE To- Case No. No.
												Watts Min	mV Max	dB Min	dB Max			VCE (sat) Volts @ I_{C} & I_{B}	I_{C} & I_{B}	I_{on} ns Max	I_{off} ns Max
★ MJE4918		1	SPA	40 C	40 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE4919		1	SPA	40 C	60 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE4920		1	SPA	40 C	80 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE4921		1	SNA	40 C	40 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE4922		1	SNA	40 C	60 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE4923		1	SNA	40 C	80 0		1.0	10	1.0 A	3.0 T	100						/199
★ MJE5190		2	SNA	60 C	40 0		4.0	25	1.5 A	2.0 T							/199
★ MJE5191		2	SNA	60 C	60 0		4.0	25	1.5 A	2.0 T							/199
★ MJE5192		2	SNA	60 C	80 0		4.0	20	1.5 A	2.0 T							/199
★ MJE5193		2	SPA	60 C	40 0		4.0	25	1.5 A	2.0 T							/199
★ MJE5194		2	SPA	60 C	60 0		4.0	25	1.5 A	2.0 T							/199
★ MJE5195		2	SPA	60 C	80 0		4.0	20	1.5 A	2.0 T							/199
★ MJE5655		2	SNA	30 C	250 0		0.5	30	100 m	10 T	25						/199
★ MJE5656		2	SNA	30 C	300 0		0.5	30	100 m	10 T	25						/199
★ MJE5657		2	SNA	30 C	350 0		0.5	30	100 m	10 T	25						/199
★ MJE5974		2	SPA	75 C	40 0		5.0	20	2.5 A	2.0 T	300						/199
★ MJE5975		2	SPA	75 C	60 0		5.0	20	2.5 A	2.0 T	300						/199
★ MJE5976		2	SPA	75 C	80 0		5.0	20	2.5 A	2.0 T	300						/199
★ MJE5977		2	SNA	75 C	40 0		5.0	20	2.5 A	2.0 T	200						/199
★ MJE5978		2	SNA	75 C	60 0		5.0	20	2.5 A	2.0 T	200						/199
★ MJE5979		2	SNA	75 C	80 0		5.0	20	2.5 A	2.0 T	200						/199
★ MJE5980		2	SPA	90 C	40 0		8.0	20	4.0 A	2.0 T	350						/199
★ MJE5981		2	SPA	90 C	60 0		8.0	20	4.0 A	2.0 T	350						/199
★ MJE5982		2	SPA	90 C	80 0		8.0	20	4.0 A	2.0 T	350						/199
★ MJE5983		2	SNA	90 C	40 0		8.0	20	4.0 A	2.0 T	250						/199
★ MJE5984		2	SNA	90 C	60 0		8.0	20	4.0 A	2.0 T	250						/199
★ MJE5985		2	SNA	90 C	80 0		8.0	20	4.0 A	2.0 T	250						/199
★ MJE6040		2	SPA	75 C	60 0		8.0	1000	4.0 A	4.0 T	300						/90
★ MJE6041		2	SPA	75 C	80 0		8.0	1000	4.0 A	4.0 T	300						/90
★ MJE6042		2	SPA	75 C	100 0		8.0	1000	3.0 A	4.0 T	300						/90
★ MJE6043		2	SNA	75 C	60 0		8.0	1000	4.0 A	4.0 T	200						/90
★ MJE6044		2	SNA	75 C	80 0		8.0	1000	4.0 A	4.0 T	200						/90
★ MJ6045		2	SNA	75 C	100 0		8.0	1000	3.0 A	4.0 T	200						/90
★ MJ105		3	SNA	10 C	750 R		2.5			7.5 *	65 *			5.0	2.5 A		/11
★ MJ400		3	SNA	6.67 C	325 0		0.25	30	50 m	15 T	10*			5.0	50 m	66/80	
★ MJ410		3	SNA	100 C	200 0		5.0	30	1.0 A	2.5 T				8	1.0 A		/11
★ MJ411		3	SNA	100 C	300 0		5.0	30	1.0 A	2.5 T				8	1.0 A		/11
★ MJ413		3	SNA	125 C	400 X		10	20	500 m	2.5 T				8	500 m		/11
★ MJ420			SNA	2.5 C	250 0		0.1	25	30 m	15 T	12			5.0	30 m		5/31
★ MJ421			SNA	2.5 C	325 0		0.1	25	30 m	15 T	12			5.0	30 m		5/31
★ MJ423		3	SNA	125 C	400 X		10	30	1.0 A	2.5 T				8	1.0 A		/11
★ MJ424		3	SNA	100 C	350 0		5.0	30	1.0 A	2.5 T				8	1.0 A		/11
★ MJ425		3	SNA	100 C	400 0		5.0	30	1.0 A	2.5 T				8	1.0 A		/11
★ MJ431		3	SNA	125 C	400 X		10	15	2.5 A	2.5 T				7	2.5 A		/11
★ MJ450		3	SPA	150 C	40 0		3.0	20	1.0 A	2.0 T				1.0	1.0 A		/12
★ MJ480		3	SNA	87.5 C	40 0		4.0	30	1.0 A	4.0 T	200			1.0	1.0 A		/11
★ MJ481		3	SNA	87.5 C	60 0		4.0	30	1.0 A	4.0 T	200			1.0	1.0 A		/11
★ MJ490		3	SPA	87.5 C	40 0		4.0	30	1.0 A	4.0 T	200			4	1.0 A		/11
★ MJ491		3	SPA	87.5 C	60 0		4.0	30	1.0 A	4.0 T	200			4	1.0 A		/11
★ MJ500			SPS	60 C	60 0		7.0	25	2.0 A	3.0 T	300	200/250		7	2.0 A		59/160
★ MJ501			SPS	60 C	80 0		7.0	25	2.0 A	3.0 T	300	200/250		7	2.0 A		59/160
★ MJ802		3	SNA	200 C	100 R		3.0	25	7.5 A	2.0 T				8	7.5 A		/11
★ MJ900		3	SPA	90 C	60 0		8.0	1000	3.0 A					2.0	3.0 A		/11
★ MJ901		3	SPA	90 C	80 0		8.0	1000	3.0 A					2.0	3.0 A		/11
★ MJ920		3	SPA	120 C	60 0		8.0	750	4.0 A	4.0 T	300			2.0	4.0 A		/253
★ MJ921		3	SPA	120 C	80 0		8.0	750	4.0 A	4.0 T	300			2.0	4.0 A		/253
★ MJ1000		3	SNA	90 C	60 0		8.0	1000	3.0 A					2.0	3.0 A		/11
★ MJ1001		3	SNA	90 C	80 0		8.0	1000	3.0 A					2.0	3.0 A		/11
★ MJ1200		3	SNA	120 C	60 0		8.0	750	4.0 A	4.0 T	200			2.0	4.0 A		/253
★ MJ1201		3	SNA	120 C	80 0		8.0	750	4.0 A	4.0 T	200			2.0	4.0 A		/253
★ MJ1800		3	SPA	100 C	250 0		5.0	40	400 m								/11
★ MJ2249		3	SPA	20 C	60 0		2.0	25	500 m	10 T				1.0	500 m		66/80
★ MJ2250		3	SPA	20 C	80 0		2.0	25	500 m	10 T				1.0	500 m		66/80
★ MJ2251		3	SNA	10 C	225 0		0.5	25	50 m	10 T							66/80
★ MJ2252		3	SNA	10 C	300 0		0.5	25	50 m	10 T							66/80
★ MJ2253		3	SPA	25 C	60 0		3.0	20	250 m	3.0 T				3	500 m		66/80
★ MJ2254		3	SPA	25 C	80 0		3.0	20	250 m	3.0 T				3	500 m		66/80
★ MJ2267		3	SPA	150 C	40 0		5.0	20	4.0 A	3.0 T				1.0	4.0 A		/11
★ MJ2268		3	SPA	150 C	55 0		5.0	20	4.0 A	3.0 T				1.0	4.0 A		/11
★ MJ2500		3	SPA	150 C	60 0		10	1000	5.0 A					2.0	5.0 A		/11

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Ref. Point	Subscript	IC Amp Max	hFE @ IC		fT MHz Min	Sub.	Cob pF Max	Pout Watts Min	ΔVBE mV Max	Gp dB Min	NF @ dB Max	f Unit	PACKAGE To- Case No. No.
								Min	Max									
* MJ2501		3	SPA	150 C	80 0	10	1000	5.0 A							2.0		5.0 A	/11
* MJ2801		3	SNA	115 C	40 0	15	15	8.0 A		1.0 T					1.5		8.0 A	/11
* MJ2840		3	SNA	150 C	60 0	10	20	3.0 A		2.0 T								/11
* MJ2841		3	SNA	150 C	80 0	10	20	4.0 A		2.0 T								/11
* MJ2901		3	SPA	115 C	40 0	15	15	8.0 A		1.0 T					1.5		8.0 A	/11
* MJ2940		3	SPA	150 C	60 0	10	20	3.0 A		4.0 T								/11
* MJ2941		3	SPA	150 C	80 0	10	20	4.0 A		4.0 T								/11
* MJ2955		3	SPA	150 C	70 R	15	20	4.0 A		4.0 T								/11
* MJ3000		3	SNA	150 C	60 0	10	1000	5.0 A							2.0		5.0 A	/11
* MJ3001		3	SNA	150 C	80 0	10	1000	5.0 A							2.0		5.0 A	/11
* MJ3026		3	SNA	80 C	275 0	2.0	25	250 m										/11
* MJ3027		3	SNA	80 C	300 0	2.0	25	250 m										/11
* MJ3028		3	SNA	100 C	300 0	3.5	25	0.3 A										/11
* MJ3029		3	SNA	125 C	250 0	5.0	25	0.3 A							2.0		3.0 A	/11
* MJ3030		3	SNA	125 C	325 0	5.0	30	0.4 A							2.0		3.0 A	/11
* MJ3040		3	SNA	100 C	300 0	7.0	100	2.5 A							2.2		2.5 A	/11
* MJ3041		3	SNA	100 C	300 0	7.0	250	2.5 A							2.2		2.5 A	/11
* MJ3042		3	SNA	100 C	350 0	7.0	250	2.5 A							2.2		2.5 A	/11
* MJ3101		3	SNA	20 C	40 0	2.0	25	0.5 A		10 T					1.0		500 m	66/80
* MJ3201		3	SNA	15 C	225 0	0.1	30	50 m		15 T					5.0		50 m	66/80
* MJ3202		3	SNA	15 C	300 0	0.1	30	50 m		15 T					5.0		50 m	66/80
* MJ3260		3	SNA	80 C	750 R	6.0				7.5 *	180				6.0		5.5 A	/11
* MJ3430		3	SPA	125 C	300 0	5.0	15	2.5 A		2.5 T					.9		2.5 A	/11
* MJ3480		3	SNA	56 C	700 0	5.0				7.5 *	125*							/11
* MJ3520		3	SNA	150 C	40 0	15	500	4.0 A		2.0 T	600				2.5		4.0 A	3/1
* MJ3521		1	SNA	150 C	80 0	15	500	4.0 A		2.0 T	600				1.8		4.0 A	3/1
* MJ3583		1	SPA	35 C	175 0	1.0	10	1.0 A		10 T	120							66/80
* MJ3584		1	SPS	35 C	250 0	2.0	25	1.9 A		10 T	120							66/80
* MJ3585		1	SPS	35 C	300 0	2.0	25	3 A		10 T	120							66/80
* MJ3701		3	SNA	25 C	40 0	3.0	20	50 m		3.0 T					.3		500 m	66/80
* MJ3738			SPA	20 C	225 0	0.25	40	100 m		10 T	20							66/80
* MJ3739			SPA	20 C	300 0	0.25	40	100 m		10 T	20							66/80
* MJ3760		3	SNS	80 C	550 0	6.0				7.5* T	150*				5.0	2.4	6.0 A	3/11
* MJ3761		3	SNS	80 C	550 0	6.0				7.5* T	150*				5.0	2.7	8.0 A	3/11
* MJ3771		3	SNG	200 C	50 X	30	15	15 A		2.0 T					1.0		15 A	/11
* MJ3772		3	SNG	200 C	80 X	20	15	15 A		2.0 T					700/1800		15 A	/11
* MJ3773		3	SNG	200 C	160 X	16	15	8.0 A		1.0 T					1500/3800		8.0 A	/11
* MJ4000			SNA	75 C	60 0	4.0	1000	1.5 A							2.0		1.5 A	/11
* MJ4001			SNA	75 C	80 0	4.0	1000	1.5 A							2.0		1.5 A	/11
* MJ4010			SPA	75 C	60 0	4.0	1000	1.5 A							2.0		1.5 A	/11
* MJ4011			SPA	75 C	80 0	4.0	1000	1.5 A							2.0		1.5 A	/11
* MJ4030		3	SPA	150 C	60 0	16	1000	10 A							2.5		10 A	/11
* MJ4031		3	SPA	150 C	80 0	16	1000	10 A							2.5		10 A	/11
* MJ4032		3	SPA	150 C	100 0	16	1000	10 A							2.5		10 A	/11
* MJ4033		3	SNA	150 C	60 0	16	1000	10 A							2.5		10 A	/11
* MJ4034		3	SNA	150 C	80 0	16	1000	10 A							2.5		10 A	/11
* MJ4035		3	SNA	150 C	100 0	16	1000	10 A							2.5		10 A	/11
* MJ4200		3	SNA	60 C	60 0	4.0	750	2.0 A		4.0 T	120				2.0		2.0 A	/253
* MJ4201		3	SNA	60 C	80 0	4.0	750	2.0 A		4.0 T	120				2.0		2.0 A	/253
* MJ4210		3	SPA	60 C	60 0	4.0	750	2.0 A		4.0 T	200				2.0		2.0 A	/253
* MJ4211		3	SPA	60 C	80 0	4.0	750	2.0 A		4.0 T	200				2.0		2.0 A	/253
* MJ4240		1	SPS	35 C	300 0	2.0	10	.75 A		15 T	120				500/900			66/80
* MJ4502		3	SPA	200 C	100 R	30	25	7.5 A		2.0 T					.8		7.5 A	/12
* MJ4645		3	SPS	5.0 C	200 0	0.5	20	500 m		40 T	80				1.0		500 m	39/79
* MJ4646		3	SPS	5.0 C	300 0	0.5	20	500 m		40 T	60				1.2		500 m	39/79
* MJ4647		3	SPS	5.0 C	400 0	0.5	20	500 m		30 T	60				200/720			39/79
* MJ4648		3	SPS	5.0 C	350 0	0.5	20	500 m		30 T	60				1.5		500 m	39/79
* MJ5415		1	SPA	1.0 C	200 0	1.0	30	50 m		15 T	25							39/79
* MJ5416		1	SPA	1.0 C	300 0	1.0	30	50 m		15 T	25							39/79
* MJ6257		3	SNG	200 C	50 X	20	15	15 A		2.0 T					700/1800		15 A	/11
* MJ6302		3	SNG	200 C	160 X	16	15	8.0 A		1.0 T					1500/3800		8.0 A	/11
* MJ6700		3	SPG	60 C	60 0	7.0	25	2.0 A		30 T	300				200/1150		2.0 A	59/160
* MJ6701		3	SPG	60 C	80 0	7.0	25	2.0 A		30 T	300				200/1150		2.0 A	59/160
* MJ7000		3	SNA	150 C	100 0	30	20	10 A		30 T	600				1.0		10 A	63/188
* MJ7160		3	SNA	140 C	300 0	8.0	10	8.0 A		30 T	150				200/2300		8.0 A	3/11
* MJ7161		3	SNG	140 C	400 0	8.0	5	8.0 A		30 T	150				200/2300		3.0	2.5
* MJ7200		3	SNA	300 C	80 0	60	20	20 A		20 T	1200				1.0		20 A	114/177
* MJ7201		3	SNA	300 C	100 0	60	20	20 A		20 T	1200				1.0		20 A	114/177
* MJ7260		3	SNG	175 C	300 0	15	5	15 A		30 T	175				200/2300		15 A	3/11
* MJ7261		3	SNG	175 C	400 0	15	5	15 A		30 T	175				200/2300		15 A	3/11

3

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp Max	hFE Min	I _C Unit	f _T MHz Min	C _{ob} pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	G _p dB Min	NF@ dB Max	f _c MHz	Unit	PACKAGE To- Case No. No.
★ MM3019			SNA	1.0 A	80 0	1.0	100	150 m	80 T	12			.2		150 m	39/79	
★ MM3020			SNA	1.0 A	80 0	1.0	40	150 m	80 T	12			.6		150 m	39/79	
★ MM3053		3	SNA	1.0 A	50 0	1.0	40	150 m	100 T	10			.2		150 m	39/79	
★ MM3220			SNS	1.0 A	30 0	1.0	25	150 m	200 T	3.0	30/45		.2	10	150 m	39/79	
★ MM3375			SNA	1.16 C	35 0	1.5				18					60/36		
★ MM3375A			SNA	1.16 C	35 0	1.5				10					60/36		
★ MM3726		3	SPG	1.0 A	50 0	1.5	30	500 m	200 T		30/90	.6		150 m	5/31		
★ MM3734		3	SNG	1.0 A	30 0	1.5	25	1.0 A	200 T	15	35/60	.25	10	10 m	39/79		
★ MM3735		3	SNG	1.0 A	50 0	1.5	25	1.0 A	200 T	15	35/60	.25	10	10 m	39/79		
★ MM3736		3	SNS	2.0 C	30 0	1.5	30	1.0 A	200 T	9.0	45/65	.9		1.0 A	46/26		
★ MM3737		3	SNS	2.0 C	50 0	1.5	20	1.0 A	200 T	9.0	45/65	.9		1.0 A	46/26		
★ MM3903		3	SNE	0.36 A	40 0	0.2	50	10 m	250 T	5.0	70/220		6.0	AUD	52/27		
★ MM3904		3	SNE	0.36 A	40 0	0.2	100	10 m	300 T	5.0	70/250		5.0	AUD	52/27		
★ MM3905		3	SPE	0.36 A	40 0	0.2	50	10 m	200 T	5.0	70/260		5.0	AUD	52/27		
★ MM3906		3	SPE	0.36 A	40 0	0.2	100	10 m	250 T	5.0	70/300		4.0	AUD	52/27		
★ MM4000		3	SPA	0.6 A	100 0	0.1	20	10 m		6.0		.6		10 m	39/79		
★ MM4001		3	SPA	1.0 A	150 0	0.5	20	10 m		10		.6		10 m	39/79		
★ MM4002		3	SPA	1.0 A	200 0	0.5	20	10 m		20		5.0		10 m	39/79		
★ MM4003		3	SPA	1.0 A	250 0	0.5	20	10 m		20		5.0		10 m	39/79		
★ MM4005		3	SPA	1.0 A	60 0	1.0	40	1.0 A	50 T	15					39/79		
★ MM4006		3	SPA	1.0 A	80 0	1.0	40	1.0 A	50 T	15					39/79		
★ MM4007		3	SPA	1.0 A	100 0	1.0	40	1.0 A	50 T	15					39/79		
★ MM4008		3	SPA	1.0 A	60 0	0.1	75	10 m							39/79		
★ MM4009		3	SPA	1.0 A	80 0	0.1	75	10 m							39/79		
★ MM4010		3	SPA	1.0 A	100 0	0.1	75	10 m							39/79		
★ MM4018		3	SPP	5.0 C	20 0	0.4	10	50 m	900* T	3.5	0.5/				39/79		
★ MM4030		3	SPG	1.0 A	60 0	1.0	40	100 m	400 T	20	100/350	.15	10	150 m	/79		
★ MM4031		3	SPG	1.0 A	80 0	1.0	100	100 m	400 T	20	100/350	.15	10	150 m	/79		
★ MM4032		3	SPG	1.0 A	60 0	1.0	40	100 m	500 T	20	100/350	.15	10	150 m	/79		
★ MM4033		3	SPG	1.0 A	80 0	1.0	100	100 m	500 T	20	100/350	.15	10	150 m	/79		
★ MM4036		3	SPG	5 A	65 0	1.0	20	150 m	60 T		75/175	.65	10	150 m	39/79		
★ MM4037		3	SPG	1.0 A	40 0	1.0	15	1.0 m	60 T		75/175	1.4	10	150 m	72/20		
★ MM4049		3	SPI	0.2 A	10 0	0.03	20	25 m	4000 T	1.25					46/26		
★ MM4052		3	SPC	0.5 A	30 0	0.5	20	10 m		10					18/22		
★ MM4208		3	SPS	0.36 A	12 0	0.2	30	10 m	850 T	3.0	15/20	.18		10 m	18/22		
★ MM4208A		3	SPS	0.36 A	15 0	0.2	30	10 m	850 T	3.0	15/20	.18		10 m	18/22		
★ MM4209		3	SPS	0.36 A	12 0	0.2	50	10 m	850 T	3.0	15/20	.18		10 m	18/22		
★ MM4209A		3	SPS	0.36 A	15 0	0.2	50	10 m	850 T	3.0	15/20	.18		10 m	18/22		
★ MM4257		3	SPS	0.36 A	6 0	0.08	30	10 m	500 T		15/15				18/22		
★ MM4258		3	SPS	0.36 A	12 0	0.08	30	10 m	700 T		15/20				18/22		
★ MM4261H		3	SPS	0.2 A	15 0	0.03	30	10 m	1500 T	2.5	3.0/3	.15	10	1.0 m	/20		
★ MM4404			GPA	0.15 A	24 S	0.25	30	12 m		20	190/300*				18/22		
★ MM4404A			GPA	0.15 A	35 S	0.25	30	12 m		20					18/22		
★ MM5005		3	SPA	1.5 A	60 0	2.0	50	150 m	30 T	20		.5		150 m	39/79		
★ MM5006		3	SPA	1.5 A	80 0	2.0	50	200 m	30 T	20		.5		150 m	39/79		
★ MM5007		3	SPA	1.5 A	100 0	2.0	50	250 m	30 T	20		.5		150 m	39/79		
★ MM5189		3	SNG	1.0 A	40 0	2.0	20	1.0 A	350* T	7.3*	40/70	1.0	10	1.0 A	39/79		
★ MM5262		3	SNG	1.0 A	50 0	2.0	35	100 m	350* T	7.3*	30/60	0.8	10	1.0 A	39/79		
★ MM6427		3	SNA	.375 A	40 0	0.3	5000	10 m	125 T	8.0		1.5	1K	100 m	18/22		
★ MM8000		3	SNA	3.5 C	30 0	0.4	30	50 m	550 T	3.5					39/79		
★ MM8001		3	SNF	3.5 C	30 0	0.4	30	50 m	700 T	3.5		11	2.7	200 M	39/79		
★ MM8002		3	SNF	3.5 C	30 0	0.4	30	50 m	1000 T	3.5		11	2.7	200 M	39/79		
★ MM8003			SNF	5.0 C	30 0	0.4	30	50 m	1000 T	4.0		11	2.7	200 M	/144		
★ MM8006		3	SNF	0.2 A	10 0	0.02	25	1.0 m	1000 T			14	3.8	450 M	72/20		
★ MM8007		3	SNF	0.2 A	10 0	0.02	25	1.0 m	1000 T			12	5.0	450 M	72/20		
★ MM8008		3	SNO	3.5 C	30 0	0.1			1100* T	3.0	0.3/	.5		20 G	107/23		
★ MM8009		3	SNP	3.5 C	50 0	0.4	20	100 m	170* T	3.0	0.9/	.3		1.0 G	107/79		
★ MM8010		3	SNO	3.5 C	30 0	0.1			1100* T	3.0	0.2/	.3		20 G	107/23		
★ MM8011		3	SNA	3.5 C	30 0	0.1			1100 *	3.0		.3		100 m	107/23		
D MPMS006	MPS3363	3	SNA	0.31 A	40 0	0.1	30	4.0 m		1.6		2.0		10 m	92/29		
★ MPQ918		3	SNA	.625 A	15 0	0.05	20	3.0 m	600 T	1.7			6.0	60 M	/646		
★ MPQ1000		3	SNA	0.65 A	20 0	0.5	50	10 m	175 T	8.0		0.5	10	150 m	116/646		
★ MPQ1050		3	SNS	0.75 A	30 0	1.0	40	100 m	200 T	10	35/45	.45	10	500 M	116/646		
★ MPQ2221		3	SNA	0.65 A	40 0	0.5	40	150 m	200 T	8.0		.4		150 m	/646		
★ MPQ2222		3	SNA	0.65 A	40 0	0.5	100	150 m	200 T	8.0		.4		150 m	/646		
★ MPQ2369		3	SNA	0.5 A	15 0	0.5	40	10 m	450 T	4.0		.25		10 m	/646		
★ MPQ2483		3	SNA	.625 A	40 0	0.05	150	1.0 m	50 T			3.0	AUD	/646	/646		
★ MPQ2484		3	SNA	.625 A	40 0	0.05	300	1.0 m	50 T			2.0	AUD	/646	/646		
★ MPQ2906		3	SPA	0.65 A	40 0	0.6	40	150 m	200 T	8.0	30/100*	.4		150 m	/646		
★ MPQ2907		3	SPA	0.65 A	40 0	0.6	100	150 m	200 T	8.0	30/100*	.4		150 m	/646		

TYPE NO.	REPLACEMENT	VOL.	ID	PD Watts	P _{out} V _{CE} @ Ref. Load	V _{CE} Volts	Substrate	I _C Amp Max	h _{FE} Min	I _C @ Unit	ft MHz Min	Cob pF Max	P _{out} Watts Min	ΔV _{BE} mV Max	Gp dB Min	NF dB Max	f kHz	Unit	PACKAGE To-Case No. No.
★ MP2060		3	GPA	85 C	25 0	7.0	30	3.0 A	600K *						.25		3.0 A	/11A	
★ MP2061		3	GPA	85 C	35 0	7.0	30	3.0 A	600K *						.25		3.0 A	/11A	
★ MP2062		3	GPA	85 C	50 0	7.0	30	3.0 A	600K *						.25		3.0 A	/11	
★ MP2063		3	GPG	85 C	60 0	7.0	30	3.0 A	600K *						.25		3.0 A	/11	
★ MP2100A		3	GPA	106 C	60 0	2.5	25	8.0 A	430K *				1100/2100		.25		25 A	/11A	
★ MP2200A		3	GPG	106 C	80 0	25	25	8.0 A	430K *				1100/2100		.6		25 A	/11A	
★ MP2300A		3	GPG	106 C	100 0	25	25	8.0 A	430K *				1100/2100		.6		25 A	/11A	
★ MP2400A		3	GPG	106 C	120 0	25	25	8.0 A	430K *				1100/2100		.6		25 A	/11A	
★ MP3730		3	GPA	56 C	200 S	5.0	10	50 m	1.0 T						.5		50 m	/11A	
★ MP3731		3	GPA	56 C	320 S	1.0	15	6.0 A	1.0 T						.5		50 m	/11A	
★ MQ930		3	SNA	0.4 A	45 0	0.03	100	10 U	260* T	6.0					.35	10	1.0	/607	
★ MQ982		3	SPA	0.4 A	50 0	0.6	40	150 m	200 T	8.0								/607	
★ MQ1120		3	SPA	0.4 A	30 0	0.5	50	10 m	200 T	8.0								/607	
★ MQ1129		3	SNA	0.4 A	30 0	0.5	100	10 m	200 T	8.0								/607	
★ MQ2218		3	SNA	0.4 A	30 0	0.5	40	150 m	200 T	8.0						.4	150 m	/607	
★ MQ2218A		3	SNA	0.4 A	30 0	0.5	40	150 m	200 T	8.0								/607	
★ MQ2219		3	SNA	0.4 A	30 0	0.5	100	150 m	200 T	8.0								/607	
★ MQ2219A		3	SNA	0.4 A	30 0	0.5	100	150 m	200 T	8.0								/607	
★ MQ2369		3	SNS	0.40 A	15 0	0.5	40	10 m	500 T	4.0			15/20		.25	10	10 m	/607	
★ MQ2484		3	SNE	0.4 A	60 0	0.03	100	10 U	260* T	6.0						3.0	AUD	/607	
★ MQ2904		3	SPG	0.4 A	40 0	0.6	40	150 m	200 T	8.0			45/130		.4		150 m	/607	
★ MQ2905A		3	SPG	0.4 A	60 0	0.6	100	150 m	200 T	8.0			45/130		.4		150 m	/607	
★ MQ3251		3	SPA	0.40 A	40 0	0.05	100	1.0 m	300 T	6.0					.25	10	10 m	/607	
★ MQ3467		3	SPG	0.40 A	40 0	1.5	20	500 m	150 T	20			40/110		0.5	10	500 m	/607	
★ MQ3725		3	SPG	0.40 A	40 0	1.0	50	100 m	200 T	10			45/75		.26	10	100 m	/607	
★ MQ3762		3	SPG	0.40 A	40 0	1.5	20	1.0 A	150 T	20			40/110		1.0	10	1.0 A	/607	
★ MQ3798		3	SPA	0.40 A	60 0	0.50	150	100 u	450* T	4.0					0.2	10	100 u	/607	
★ MQ3799		3	SPA	0.40 A	60 0	0.50	300	100 u	450* T	4.0					0.2	10	100 u	/607	
★ MQ3799A		3	SPM	0.40 A	60 0	0.05	300	100 u	450* T	4.0					0.2	10	100 u	/607	
★ MQ6001	MQ3798	3	SCG	0.40 A	30 0	0.5	40	150 m	200 T	8.0			/10		0.4	10	150 m	/607	
★ MQ6002		3	SCG	0.40 A	30 0	0.5	100	150 m	200 T	8.0			60/350		0.4	10	150 m	/607	
★ MQ7001		3	SPA	0.4 A	30 0	0.6	70	150 m	200 T	8.0								/607	
★ MQ7003		3	SNA	0.40 A	40 0	0.05	50	10 m	200 T	6.0					.35	10	1.0 m	/607	
★ MQ7004		3	SNA	0.40 A	13 0	0.2	30	10 m	675* T	4.0					0.4	10	10 m	/607	
★ MQ7007		3	SNA	0.4 A	40 0	0.2	30	1.0 m	300 T	8.0					1.0	10	50 m	/607	
★ MQ7021		3	SCG	0.40 A	40 0	0.05	50	10 m	200 T	6.0			28*/72*		.35	10	10 m	/607	
★ MRF207		3	SNP	3.5 C	36 S	0.4	5.0	100 m					1.0/		8.2		225 M	39/79	
★ MRF208		3	SNP	37.5 C	36 S	2.0	5.0	250 m					10/		7.5		225 M	/145	
★ MRF209		3	SNP	50 C	36 S	4.0	5.0	500 m					25/		8.2		225 M	/145	
★ MRF215		3	SNP	31 C	36 S	2.5	5.0	500 m			85		20/		8.2		175 M	/278	
★ MRF216		3	SNP	75 C	36 S	6.0	5.0	1.0 A			200		40/		6.7		175 M	/278	
★ MRF221		2	SNP	31 C	36 S	2.5	5	500 m			85		15/		6.3		175 M	/211	
★ MRF225		3	SNP	35 C	36 S	0.25	15	100 m			8.0		1.5/		9.0		225 M	39/79	
★ MRF226		3	SNP	45 C	36 S	2.5	5	250 m					13/		9.0		225 M	/145	
★ MRF227		3	SNP	36 S	36 S								3.0/		13		225 M	39/	
★ MRF230		3	SNP	50 C	36 S	0.5	5	250 m			25		1.5/		10		90 M	39/79	
★ MRF231		3	SNP	10 C	36 S	1.0	5	250 m			25		3.5/		10		90 M	/145	
★ MRF232		3	SNP	36 S	36 S								7.5/		9		90 M	/145	
★ MRF233		3	SNP	50 C	36 S	3.5	5	1.0 A			120		15/		10		90 M	/145	
★ MRF234		3	SNP	70 C	36 S	4.0	5	1.0 A			120		25/		9.5		90 M	/145	
★ MRF304		3	SNP	30 C	60 S	2.0	10	500 m			25		10/		9.0		400 M	/278	
★ MRF305		3	SNP	70 C	60 S						45		30/		8.0		400 M	/278	
★ MRF306		3	SNP	60 S	60 S								50/		5.2		400 M	/278	
★ MRF307		3	SNP	60 S	60 S								50/		5.2		400 M	/293	
★ MRF401		3	SNP	50 C	60 S	3.3	10	1.0 A			85		25/		13		30 M	/145	
★ MRF501		3	SNF	0.2 A	15 0	0.05	30	1.0 m	1000 T						15	4.5	200 M	72/20	
★ MRF502		3	SNF	0.2 A	15 0	0.05	40	1.0 m	1200 T						17	4.0	200 M	72/20	
★ MRF509		3	SNP	2.0 C	30 0	0.4	30	50 m	500 T				1.0/		10		400 M	/207	
★ MRF511		3	SNF	5.0 C	25 0	0.25	25	80 m	1500 T		3.0		4.5		10	10	200 M	/144	
★ MRF603		3	SNP	30 C	36 S	2.0	50	500 m			85		10/		10		175 M	/145	
★ MRF607		3	SNP	3.5 C	36 S	0.33	20	50 A			15		1.75/		12		175 M	39/79	
★ MRF618		3	SNP	45 C	36 S	2.5	30	1.0 A			80		15/		6.0		470 M	/278	
★ MRF619		3	SNP	115 C	36 S	6.0	30	4.0 A			95		25/		5.2		470 M	/278	
★ MRF620		3	SNP	115 C	36 S	8.0	30	4.0 A			95		35/				470 M	/278	
★ MRF621		3	SNP	146 C	36 S	11	10	5.0 A			130		45/				470 M	/278	
★ MRF628		3	SNP	3.0 A	36 S	0.2	20	100 m			10		0.5/		10		470 M	/249	
★ MRF816		3	SNP	2.0 C	36 S	1.75	5	50 m			5.0		0.75/		10		900 M	/249	
★ MRF817		3	SNP	5 C	36 S	0.4	40	100 m			15		2.5/		6.2		900 M	/244	
★ MRF818		3	SNP	15 C	36 S	1.5	40	200 m			25		8.0/		8.0		900 M	/244	
★ MRF823		3	SNP	36 S	36 S								4.0/		8.0		900 M	/278	

MRF824-MRF8004

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	V _{CE} Volts	I _C Amp	hFE Min	f _T MHz	C _{ob} pF	P _{out} Watts	ΔV _{BE} mV	Gp dB	NF dB	f Unit	PACKAGE To-Case No. No.
★ MRF824			SNP		36 S						13/	5.5		900 M	/278
★ MRF825			SNP		36 S						25/			900 M	/278
★ MRF5174		3	SNP	5.0 A	60 S	0.5	10	100 m		8.0	2.0/	12		400 M	/244
★ MRF5175		3	SNP	12 A	60 S	1.0	10	250 m		15	5.0/	11		400 M	/244
★ MRF5176		3	SNP	30 A	60 S	2.0	10	500 m		25	15/	10		400 M	/244
★ MRF5177		3	SNP	58 C	60 S	4.0	10	100 m		50	30/	6.0		400 M	/215
★ MRF8004		3	SNH	5.0 C	30 O	1.0	10	400 m		70		10		27 Ni	

TABLE 8 - UNIUNCTION TRANSISTORS

Short-form specifications for standard and programmable unijunction transistors.

TYPE NO.	REPLACEMENT VOL.	ID	V _{GKF} Volts Max V _{BB} Volts Max	I _T Amp Max I _E Amp Max	η		I _p μA Max	I _v mA Min	R _G UNIT	I _{GAO} UNIT I _{EO}	I _T @ Pulse Amp Max	t _w μs	V _F @ I _F Volts Max V _{EB1} @ I _E Volts Max	PACKAGE To Case No. No.
					Min	Max								
Numerical Listing of JEDEC Registered Type Numbers ★ Available from Motorola Type number of recommended replacement or of nearest electrical equivalent Data Library Volume where complete specifications are located. Identification Code 1st Letter - U - Unijunction Transistor 2nd Letter - Polarity N - N-type Base P - P-type (Complementary) 3rd Letter - S - Standard P - Programmable V _{GKF} - Gate-to-Cathode Forward Blocking Voltage Rating V _{BB} - Interbase Voltage Rating Current Rating			Intrinsic Standoff Ratio (Standard UJTs) Peak-Point Current Valley Point Current External Gate Resistance used for I _p and I _v specs on programmable UJTs. Resistance Units K - k Ω M - M Ω				JEDEC Outline/Motorola Package Outline * Typical V _F - Forward Voltage V _{EB1} - Saturation Voltage I _F - Forward Current I _E - Emitter Current Current Units: m, m - mA u, u - μA I _T - Pulse Current Rating t _w - Pulse Width Gate-to-Anode Leakage Current Emitter Reverse Current: Current Units: n, n - nA u, u - μA							

2N6028-MU4894

TYPE NO.	REPLACEMENT	VOL.	ID	V _{GKF}	I _T	η		I _p	I _v	R _G	UNIT	I _{GAO}	UNIT	I _T @	I _w	V _F @ I _F		UNIT	PACKAGE To-Case No. No.
				Volts Max	Amp Max	Min	Max	μA Max	mA Min			UNIT		Pulse Amp Max		μs	Volts Max			mA	Volts	mA
2N6028		2	UNP	4															
2N6114		2	UNS	30	0.15	0.58/0.62		5.0	1.0			100 n		2.0		1.5	50 m		18/22A
★ 2N6115		2	UPS	30	0.15	0.58/0.62		15	1.0			10 n				1.5	50 m		18/22A
★ 2N6116		2	UNP	40	0.2			5.0				5.0 n		2.0	20	1.5	50 m		18/22
★ 2N6117		2	UNP	40	0.2			2.0				10 K		2.0	20	1.5	50 m		18/22
★ 2N6118		2	UNP	40	0.2			1.0				10 K		2.0	20	1.5	50 m		18/22
2N6120		2	UNP	40	.3			1.0	.025			10 K			8.0	10	1.0	1.0	50/1
2N6137		2	UNP	40	.3			1.0	.07			10 K		8.0	10	1.0	50 m		
2N6138		2	UNP	100	0.3			5.0	.07			10 K		8.0	10	1.0	50 m		
★ MPU131		3	UNP	40	0.2			5.0	0.07			10 K		2.0	20	1.5	50 m		/29
★ MPU132		3	UNP	40	0.2			2.0	0.05			10 K		2.0	20	1.5	50 m		/29
★ MPU133		3	UNP	40	0.2			1.0	0.05			10 K		2.0	20	1.5	50 m		/29
★ MPU231	2N6116	3	UNP	40	0.2			5.0	0.07			10 K		2.0	20	1.5	50 m		
★ MPU232	2N6116	3	UNP	40	0.2			2.0	0.05			10 K		2.0	20	1.5	50 m		
★ MPU233	2N6116	3	UNP	40	0.2			1.0	0.05			10 K		2.0	20	1.5	50 m		
★ MU10		3	UNS	35	0.05	0.50/0.85		5.0	1.0			1.0 u		1.0		2*	50 m		92/29
★ MU20		3	UNS	35	0.05	0.56/0.85		2.0	1.0			200 n		1.0		2*	50 m		18/22A
★ MU851		3	UNS	28	0.05	0.56/0.75		2.0	2.0			100 n		1.5		3*	50 m		/28
★ MU852		3	UNS	28	0.05	0.70/0.85		2.0	4.0			100 n		1.5		3*	50 m		/28
★ MU853		3	UNS	28	0.05	0.70/0.85		0.4	4.0			50 n		1.5		3*	50 m		/28
★ MU2646		3	UNS	35	0.05	0.56/0.75		5.0	4.0			12 u		2.0		4*	50 m		18/22
★ MU2646M		3	UNS	35	0.05	0.56/0.75		5.0	2.0			12 u		2.0		4*	50 m		18/22
★ MU4891		3	UNS	30	0.05	0.55/0.82		5.0	2.0			10 n		1.0		4.0	50 m		/28
★ MU4892		3	UNS	30	0.05	0.51/0.69		2.0	2.0			10 n		1.0		4.0	50 m		/28
★ MU4893		3	UNS	30	0.05	0.55/0.82		2.0	2.0			10 n		1.0		4.0	50 m		/28
★ MU4894		3	UNS	30	0.05	0.74/0.86		1.0	2.0			10 n		1.0		4.0	50 m		

TABLE 9 - FIELD-EFFECT TRANSISTORS

Short-form specifications for junction and MOS field-effect transistors.

KEY

TYPE	POLARITY	CONST.	NEAREST EQUIVALENT	REFERENCE	I_{DSS}		Breakdown Voltage		y_{fs}		C_{ISS} pF	NF @ f $\frac{dB}{\mu V/\sqrt{Hz}}$	Units	NOTE D - Dual MP - Matched Pair
					Min mA	Max mA	$V_{(BR)}$ Volts	Sub- script	Min $\mu mhos$	Max $\mu mhos$				
					* nA				* mmhos					
Numerical Listing of Registered Type Numbers *Available from Motorola					Minimum and Maximum Drain Current with gate connected to source							Noise Figure in dB or * $\mu V/\sqrt{Hz}$ at a specified frequency		
N - n-channel P - p-channel					Maximum Gate Current (Leakage) with drain connected to source *Maximum leakage from drain to gate with source open							frequency units: H - Hz K - kHz M - MHz		
J - Junction FET M - MDS FET												Maximum Input Capacitance		
Type number of recommended replacement or nearest electrical equivalent												Minimum and Maximum Forward Transadmittance		
First type number on data sheet where the EIA type or replacement part is located.												Minimum Breakdown Voltage (Subscript defines conditions) GS - Gate to source, drain connection not specified GSS - Gate to source, drain connected to source GD - Gate to drain, source connection not specified GDS - Gate to drain, source connected to drain DGO - Drain to gate, source open DGS - Drain to gate, source connected to drain DS - Drain to source, gate connection not specified DSX - Drain to source, gate biased to cutoff or beyond		

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{loss}		I _{loss} DGO*	Breakdown Voltage		Y _{fs}		C _{ISS} pF	NF @ f		NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos		dB μV* √Hz	Units	
					* nA		* mmhos								
2N2386	P	J	2N3330	2N3330			10	20	GS	1000		50			
2N2386A	P	J	2N5267	2N5265	1.0	15	10	20	DGO	2200		10			
2N2497	P	J	2N5267	2N5265	1.0	5.0	10	20	GD	1000	2000	32		1.0k	
2N2498	P	J	2N3330	2N3330	2.0	6.0	10	20	GD	1500	3000	32	3.0	1.0k	
2N2499	P	J	2N3909A	2N3330	5.0	15	10	20	GD	2000	4000	32	4.0	1.0k	
2N2500	P	J	2N5267	2N5265	1.0	6.0	10	20	GS	1000	2000	32	1.0	1.0k	
2N2606	P	J	2N5473	2N5471	0.1	0.5	1.0	30	GDS	110		6.0	3.0	1.0k	
2N2607	P	J	2N5475	2N5471	0.3	1.5	3.0	30	GDS	330		10	3.0	1.0k	
2N2608	P	J	2N3330	2N3330	0.9	4.5	1.0	30	GDS	1000		17	3.0	1.0k	
2N2609	P	J	2N3330	2N3330	2.0	10	30	30	GDS	2500		30	3.0	1.0k	
2N2620	N	J					100	50	DGO						
2N2794	P	J			1.5	5.0	10	20	DGO						
2N2841	P	J	2N5471	2N5471	0.025	0.125	1.0			60	6.0	10	3.0	1.0k	
2N2842	P	J	2N5472	2N5471	0.065	0.325	3.0			180	10	10	3.0	1.0k	
2N2843	P	J	2N5265	2N5265	0.2	1.0	10			540	17	17	3.0	1.0k	
2N2844	P	J	2N5265	2N5265	1.0	2.2	30			1400	30	30	3.0	1.0k	
2N3066	N	J	MFE2095	MFE2093	0.8	4.0	1.0	50	DGO	400	1000	10	3.0	1.0k	
2N3066A	N	J			0.8	4.0	1.0	50	DGO	400	1000	10	0.25	1.0k	
2N3067	N	J	MFE2093	MFE2093	0.2	1.0	1.0	50	DGD	400		18	3.0	1.0k	
2N3067A	N	J			0.2	1.0	1.0	50	DGO	300	1000	10	0.25	1.0k	
2N3068	N	J	MFE2093	MFE2093	0.05	0.25	1.0	50	DGO	200		18	3.0	1.0k	
2N3068A	N	J	MFE2093	MFE2093	0.05	0.25	1.0	50	DGD	200	1000	10	0.25	1.0k	
2N3069	N	J	2N4220	2N4220	2.0	10	1.0	50	DGO	1000		15	3.0	1.0k	
2N3069A	N	J			2.0	10	1.0	50	DGO	1000	2500	15	0.25	1.0k	
2N3070	N	J	2N4220A	2N4220	0.5	2.5	1.0	50	DGO	750		15	3.0	1.0k	
2N3070A	N	J			0.5	2.5	1.0	50	DGO	750	2500	15	0.25	1.0k	
2N3071	N	J	2N4220A	2N4220	0.1	0.6	1.0	50	DGO	500	2500	15	3.0	1.0k	
2N3084	N	J	MFE2095	MFE2093	0.8	3.0	0.1	15	DGO	400	2000	14			
2N3085	N	J	MFE2095	MFE2093	0.8	3.0	0.1	15	DGO	400	2000	14			
2N3086	N	J	MFE2095	MFE2093	0.8	3.0	1.0	30	DGS	400	2000	14			
2N3087	N	J	MFE2095	MFE2093	0.8	3.0	1.0	30	DGS	400	2000	14			
2N3088	N	J	MFE2094	MFE2093	0.5	2.0	1.0	10	DGS	300	2000	14			
2N3088A	N	J	MFE2094	MFE2093	0.5	2.0	1.0	10	DGS	300	2000	14	0.5	10H	
2N3089	N	J	MFE2094	MFE2093	0.5	2.0	1.0	10	DGS	300	2000	14	3.0	10H	
2N3089A	N	J	MFE2094	MFE2093	0.5	2.0	1.0	10	DGS	300	2000	14	0.5	10H	
2N3112	P	J	2N5471	2N5471	0.035	0.175	0.05	20	GDS	50	115	3.5			
2N3113	P	J	2N5471	2N5471	0.035	0.175	0.05	20	GDS	50	115	2.0			
2N3277	P	J	2N5473	2N5471	0.15	0.5	0.4	25	DGO	100		3.0			
2N3278	P	J	2N5475	2N5471	0.4	0.9	0.4	25	DGO	150		3.0			
2N3328	P	J	2N5473	2N5471	1.0		1.0	20	GSS	100		3.0	3.0		
2N3329	P	J	2N5266	2N5265	1.0	3.0	10	20	GSS	1000	2000	20	3.0		
★2N3330	P	J	2N3330	2N3330	2.0	6.0	10	20	GSS	1500	3000	20	3.0		
2N3331	P	J	2N3330	2N3330	5.0	15	10	20	GSS	2000	4000	20	4.0		
2N3332	P	J	2N5267	2N5265	1.0	6.0	10	20	GSS	1000	2200	20	1.0		
2N3333	P	J			0.3	1.0	10	20	GSS	600	1800	30			Dual
2N3334	P	J			0.3	1.0	10	20	GSS	600	1800	30			Dual
2N3335	P	J			0.3	1.0	10	20	GSS	600	1800	30			Dual
2N3336	P	J			0.3	1.0	10	20	GSS	600	1800	30			Dual
2N3365	N	J			0.8	4.0	5.0	40	DGO	250	1000	15			
2N3366	N	J	2N4091		0.2	1.0	5.0	40	DGO	250	1000	15			
2N3367	N	J	2N4091		0.005	0.25	5.0	40	DGO	100	1000	15			
2N3368	N	J	2N4221	2N4220	2.0	12	5.0	40	DGO	1000	4000	20			
2N3369	N	J	2N4220A	2N4220	0.5	2.5	5.0	40	DGO	600	2500	20			
2N3370	N	J	MFE2093	MFE2093	0.1	0.6	5.0	40	DGD	300	2500	20			
2N3376	P	J	2N3330	2N3330	0.6	6.0	3.0		DGS						
2N3377	P	J	2N3330	2N3330	0.6	6.0	3.0	30	DGS	800	2300	4.0			
2N3378	P	J	2N3330	2N3330	3.0	6.0	3.0	30	DGS	1500	2300	5.0			
2N3379	P	J	2N3330	2N3330	3.0	6.0	3.0	30	DGS	1500	2300	4.0			
2N3380	P	J	2N5268	2N5265	3.0	20	3.0	30	DGS	1500	3000	4.0			
2N3381	P	J	2N5268	2N5265	3.0	20	3.0	30	DGS	1500	3000	4.0			
2N3382	P	J	2N3994	2N3993	3.0	30	15	30	DGS	4500	12500				
2N3383	P	J	2N3994	2N3993	3.0	30	15	30	DGS	4500	12500				
2N3384	P	J	2N3993	2N3993	15	30	15	30	DGS	7500	12500				
2N3385	P	J	2N3993	2N3993	15	30	15	30	DGS	7500	12500				
2N3386	P	J	2N3993	2N3993	13	50	15	30	DGS	7500	12500				
2N3387	P	J	2N3993	2N3993	13	50	15	30	DGS	5000	10000				
2N3436	N	J	2N4222A	2N4220	3.0	15	0.5	50	DGO	2500	10000	18	2.0		
2N3437	N	J	2N4220A	2N4220	0.8	4.0	0.5	50	DGO	1500	6000	18	2.0		
2N3438	N	J	2N4222A	2N4220	0.2	1.0	0.5	50	DGO	800	4500	18	2.0		
2N3452	N	J	MFE2095	MFE2093	0.8	4.0	0.1	50	DGD	200	1200	6.0	2.0		



2N3453-2N4082

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{DSS}		I _{GSS} I _{DGO} *	Breakdown Voltage		Y _{fs}		C _{iss} pF	NF dB μV*/ √Hz	@ f Units	NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos				
					* nA				* mmhos						
2N3453	N	J	MFE2094	MFE2093	0.2	1.0	0.1	50	DGO	150	900	6.0	2.0		
2N3454	N	J	MFE2093	MFE2093	0.05	0.25	0.1	50	DGO	100	600	6.0	2.0		
2N3455	N	J	MFE2095	MFE2093	0.8	4.0	0.04	50	DGO	400	1200	5.0	4.0		
2N3456	N	J	MFE2094	MFE2093	0.2	1.0	0.04	50	DGO	300	900	5.0	4.0		
2N3457	N	J	MFE2093	MFE2093	0.05	0.25	0.04	50	DGO	150	600	5.0	4.0		
2N2358	N	J	2N4222A	2N4220	3.0	15	0.25	50	DGO	2500	10000	18	6.0		
2N3459	N	J	2N4220A	2N4220	0.8	4.0	0.25	50	DGD	1500	6000	18	4.0		
2N3460	N	J	2N4220A	2N4220	0.2	1.0	0.25	50	DGO	800	4500	18	4.0		
2N3465	N	J	MFE2095	MFE2093	1.0	5.0	1.0	40	DGO	400	1200	15	5.0		
2N3466	N	J	MFE2095	MFE2093	1.0	5.0	1.0	40	DGO	400	1200	15	5.0		
2N3573	P	J	2N5471	2N5471	0.02	0.1	0.6	25	GSS	100	300	6.0	3.0		
2N3574	P	J	2N5472	2N5471	0.075	0.375	0.6	25	GSS	200	600	6.0	3.0		
2N3575	P	J	2N5474	2N5471	0.2	1.0	0.6	25	GSS	300	900	6.0	3.0		
2N3578	P	J	2N5476	2N5471	0.9	4.5	15	20	GSS	1200	3500	65			
2N3608	P	M	2N4352	2N4352	3.0	0.025									
2N3609	P	M	MFE3020	MFE3020	35	0.02									
2N3610	P	M	2N4352	2N4352	10	0.02									
2N3631	N	M	2N3797	2N3796	2.0	10		20	DSX	1400	2800	7.5			
2N3684	N	J	2N4221A	2N4221	2.5	7.5	0.1	50	GS	2000	3000	4.0	0.5		
2N3684A	N	J			2.5	7.5	0.1	50	GSS			4.0	0.5	100H	
2N3685	N	J	2N4220A	2N4221	1.0	3.0	0.1	50	GS	1500	2500	4.0	0.5		
2N3685A	N	J			1.0	3.0	0.1	50	GSS			4.0	0.5	100H	
2N3686	N	J	2N4220A	2N4221	0.4	1.2	0.1	50	GS	1000	2000	4.0	0.5		
2N3686A	N	J			0.4	1.2	0.1	50	GSS			4.0	0.5	100H	
2N3687	N	J	2N4220A	2N4221	0.1	0.5	0.1	50	GS	500	1500	4.0	15*		
2N3687A	N	J			0.1	0.5	0.1	50	GSS			4.0	0.5	100H	
2N3695	P	J	2N5267	2N5265	1.25	3.75	0.1	30	GS	1000	1750	5.0	0.2*		
2N3696	P	J	2N5266	2N5265	0.5	1.5	0.1	30	GS	750	1250	5.0	0.2*		
2N3697	P	J	2N5265	2N5265	0.2	0.6	0.1	30	GS	500	1000	5.0	0.2*		
2N3698	P	J	2N5265	2N5265	0.05	0.25	0.1	30	GS	250	750	5.0	0.2*		
2N3796	N	M	2N3796	2N3796	0.5	3.0	0.001	25	DSX	900	1800	6.0	4.0		
2N3797	N	M	2N3797	2N3796	2.0	6.0	0.001	20	DSX	1500	3000	8.0	4.0		
2N3819	N	J	MPF108	MPF108	2.0	20	2.0	25	GSS	2000	6500	8.0			
2N3820	P	J	2N5460	2N5460	0.3	15	20	20	GSS	800	5000	32			
2N3821	N	J		2N3821	0.5	2.5	0.1	50	GSS	1500	4500	6.0	5.0	10H	
★2N3822	N	J		2N3821	2.0	10	0.1	50	GSS	3000	6500	6.0	5.0	10H	
★2N3823	N	J		2N3823	4.0	20	0.5	30	DGS	3500	6500	6.0	2.5	100M	
★2N3824	N	J		2N3821			0.1	50	GSS			6.0			
2N3882	P	M	MFE3003	MFE3003	0.25		0.1	30	DS	1000	2400	4.0	3.0		
2N3909	P	J	2N5460	2N5460	0.3	15	10	20	DGS	1000	5000	32			
2N3909A	P	J	2N5460	2N5460	1.0	15	10	20	GSS	2000	900				
2N3921	N	J			1.0	10	0.25	50	GSS	1500	7500	18	2.0	1.0k	Dual
2N3922	N	J			1.0	10	0.25	50	GSS	1500	7500	18	2.0	1.0k	Dual
2N3934	N	J			0.25	1.3	0.1	50	GSS	300	900	7.0	2.0	100H	Dual
2N3935	N	J			0.25	1.3	0.1	50	GSS	300	900	7.0	2.0	100H	Dual
2N3954	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3954A	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3955	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3955A	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3956	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3957	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3958	N	J			0.5	5.0	0.1	50	GSS	1000		4.0	0.5	100H	Dual
2N3966	N	J	2N4221	2N4220	2.0		0.1	30	DGS			6.0			
2N3967	N	J	2N4221A	2N4220	2.5	10	0.1	30	DGS	1600	2400	5.0			
2N3967A	N	J	2N4221A	2N4220	2.5	10	0.1	30	GSS	1600	2400	5.0	1.5	100H	
2N3968	N	J	2N4221A	2N4220	1.0	5.0	0.1	30	DGS	1400	2000	5.0			
2N3968A	N	J	2N4221A	2N4220	1.0	5.0	0.1	30	GSS	1400	2000	5.0	1.5	100H	
2N3969	N	J	2N4220A	2N4220	0.4	2.0	0.1	30	DGS	950	1450	5.0			
2N3969A	N	J	2N4220A	2N4220	0.4	2.0	0.1	30	GSS	950	1450	5.0	1.5	100H	
★2N3970	N	J		2N3970	50	150	0.25*	40	DGS			25			
★2N3971	N	J		2N3970	25	75	0.25*	40	DGS			25			
★2N3972	N	J		2N3970	5.0	30	0.25*	40	DGS			25			
★2N3993	P	J		2N3993	10		1.2*	25	GSS	6000	12000	16			
★2N3994	P	J		2N3993	2.0		1.2*	25	GSS	4000	10000	16			
2N4038	N	M	2N3796	2N3796		0.1		15	DSX						
2N4039	N	M	2N3796	2N3796	0.1	1.5	0.0025	15	DSX			4.5			
2N4065	P	M	2N4352	2N4352		0.005	0.0025	25	GSS			7.0			
★2N4066	P	M		2N4066				25	GSS			7.0			
★2N4067	P	M		2N4066		1.0*		30	DSS	2500		7.0			
2N4082	N	J			0.25	1.3	0.1	50		300					Dual

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I_{DSS}		I_{DSS}^{*} DGO*	Breakdown Voltage		Y_F		C_{ISS} pF	NF @ f		NOTE
					Min mA	Max mA		$V_{(BR)}$ Volts	Sub- script	Min μ mhos	Max μ mhos		dB $\frac{\mu V^*}{\sqrt{Hz}}$	Units	
					* nA		* mmhos								
2N4083	N	J			0.25	1.3	0.1	50		300		7.0			Dual Dual Dual
2N4084	N	J			1.0	10	0.25	50		1500		18			
2N4085	N	J			1.0	10	0.25	50		1500		18			
2N4088	P	J	MPF161	MPF161	5.0	15	0.1	30	GSS	1000	1600	10	1.5	1.0k	
2N4089	P	J	MPF161	MPF161	2.0	8.0	0.1	30	GSS	800	1300	10	1.5	1.0k	
2N4090	P	J	MPF161	MPF161	0.4	2.5	0.1	30	GSS	500	900	10	1.5	1.0k	
2N4091	N	J			30		0.2	40	DGO			16			
2N4091A	N	J	2N4091	2N4091	30		0.04	50	GSS			16			
2N4092	N	J			15		0.2	40	DGD			16			
2N4092A	N	J	2N4092	2N4091	15		0.04	50	GSS			16			
2N4093	N	J			8.0		0.2	40	DGO			16			
2N4093A	N	J	2N4093	2N4091	8.0		0.04	50	GSS			16			
2N4094	N	J	2N4091	2N4091	75			40	GSS			32			
2N4095	N	J	2N4092	2N4091	20			40	GSS			32			
2N4117	N	J	MFE2093	MFE2093	0.03	0.09	0.01	40	GSS	70	210	3.0			
2N4117A	N	J	MFE2093	MFE2093	0.03	0.09	0.001	40	DGO			3.0			
2N4118	N	J	MFE2093	MFE2093	0.08	0.24	0.01	40	GSS	80	250	3.0			
2N4118A	N	J	MFE2093	MFE2093	0.08	0.24	0.001	40	DGD			3.0			
2N4119	N	J	MFE2093	MFE2093	0.2	0.6	0.01	40	GSS	100	330	3.0			
2N4119A	N	J	MFE2093	MFE2093	0.2	0.6	0.001	40	DGO			3.0			
2N4120	P	M	2N4352	2N4352		500*	0.0025	30	DSS	700		0.7			
2N4139	N	J	2N4222A	2N4221	8.0	11	1.0	50	DGO			18			
*2N4220	N	J			0.5	3.0	0.1	30	GSS	1000	4000	6.0	2.5	1.0H	
*2N4220A	N	J			0.5	3.0	0.1	30	GSS	2000	4000	6.0			
*2N4221	N	J			2.0	6.0	0.1	30	GSS	1000	5000	6.0			
*2N4221A	N	J			2.0	6.0	0.1	30	GSS	2000	5000	6.0	2.5	1.0H	
*2N4222	N	J			5.0	15	0.1	30	GSS	2500	6000	6.0			
*2N4222A	N	J			5.0	15	0.1	30	GSS	2500	6000	6.0	2.5	1.0H	
*2N4223	N	J			3.0	18	0.25	30	GSS	3000	7000	6.0	5.0	200M	
*2N4224	N	J			2.0	20	0.5	30	GSS	2000	7500	6.0			
2N4267	P	M	2N4352	2N4352		0.001	0.005	30	GSS			15			
2N4268	P	M	MFE3003	MFE3003		0.001	0.005	30	GSS			15			
2N4302	N	J	2N5457	2N5457		5.0	1.0	30	DGD			6.0			
2N4303	N	J	2N5458	2N5457		10	1.0	30	DGO			6.0			
2N4304	N	J	2N5457	2N5457		15	1.0	30	DGO			6.0			
2N4338	N	J	2N4220A	2N4220	0.2	0.6	0.1	50	DGO			6.0			
2N4339	N	J	2N4220A	2N4220	0.5	1.5	0.1	50	DGO			6.0			
2N4340	N	J	2N4220A	2N4220	1.2	3.6	0.1	50	DGO			6.0			
2N4341	N	J	2N4221A	2N4220	3.0	9.0	0.1	50	DGO			6.0			
2N4342	P	J		2N4342	4.0	12	10	25	DGO			5.0			
2N4343	P	J		2N4342	10	30	10	25	DGO			5.0			
*2N4351	N	M		2N4351		0.01	0.01	25	DSS	1000		5.5			
*2N4352	P	M		2N4352		0.005	0.01	25	DSS	1000		6.5			
2N4353	P	M	2N4352	2N4352				3.0	GSS	1000	4000	12			
*2N4360	P	J		2N4360	3.0	30	10	20	GSS	2000	8000	20	5.0	100H	
2N4382	P	J	2N3994	2N3993	10	30	1.0	25	GSS			5.0			
*2N4391	N	J		2N4391	50	100	0.1	40	GSS						
*2N4392	N	J		2N4391	25	75	0.1	40	GSS						
*2N4393	N	J		2N4391	5.0	30	0.1	40	GSS						
2N4416	N	J		2N4916	5.0	15	0.1	30	GSS	4500	7500	4.0	4.0	400M	
2N4416A	N	J	2N4416	2N4416	5.0	15	0.1	35	GSS	4500	7500	4.0	4.0	400M	
2N4417	N	J	2N4416	2N4416	5.0	15		30	GSS			3.5			
2N4445	N	J	MFE2012	MFE2010			3.0	25	GSS			50			
2N4446	N	J	MFE2012	MFE2010				30	GSS			50			
2N4447	N	J	MFE2012	MFE2010			3.0	20	GSS			50			
2N4448	N	J	MFE2012	MFE2010			3.0	20	GSS			50			
*2N4856	N	J		2N4856	50		0.25	40	GSS			18			
*2N4856A	N	J		2N4856	50		0.25	40	GSS			18			
*2N4857	N	J		2N4856	20	100	0.25	40	GSS			10			
*2N4857A	N	J		2N4856	20	100	0.25	40	GSS			10			
*2N4858	N	J		2N4856	8.0	80	0.25	40	GSS			18			
*2N4858A	N	J		2N4856	8.0	80	0.25	40	GSS			18			
*2N4859	N	J		2N4856	50		0.25	30	GSS			18			
*2N4859A	N	J		2N4856	50		0.25	30	GSS			10			
*2N4860	N	J		2N4856	20	100	0.25	30	GSS			18			
*2N486DA	N	J		2N4856	20	100	0.25	30	GSS			10			
*2N4861	N	J		2N4856	8.0	80	0.25	30	GSS			15			
*2N4861A	N	J		2N4856	8.0	80	0.25	30	GSS			10			
2N4867	N	J	2N4220A	2N4220	0.4	1.2	0.25	40	GSS	700	2000	25	1.0	1.0k	
2N4867A	N	J	2N4220A	2N4220	0.4	1.2	0.25	40	GSS	700	2000	25	1.0	1.0k	

2N4868-2N5458

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{DSS}		I _{GSS} I _{DGO} *	Breakdown Voltage		Y _f		C _{ISS} pF	NF @ f		NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos		dB μV ² √Hz	Units	
					* nA				* mmhos						
2N4868	N	J	2N4220A	2N4220	1.0	3.0	0.25	40	GSS	1000	3000	25	1.0	1.0k	
2N4868A	N	J	2N4220A	2N4220	1.0	3.0	0.25	40	GSS	1000	3000	25	1.0	1.0k	
2N4869	N	J	2N4221A	2N4220	2.5	7.5	0.25	40	GSS	1300	4000	25	1.0	1.0k	
2N4869A	N	J	2N4221A	2N4220	2.5	7.5	0.25	40	GSS	1300	4000	25	1.0	1.0k	
2N4881	N	J	2N3365	2N3365	0.4	2.0	2.0	100	GSS			15			
2N4882	N	J	2N3365	2N3365	1.5	7.5	2.0	100	GSS			15			
2N4883	N	J	2N3365	2N3365	0.4	2.0	1.0	100	GSS			15			
2N4884	N	J	2N3365	2N3365	1.5	7.5	1.0	100	GSS			15			
2N4885	N	J	2N3365	2N3365	0.4	2.0	1.0	75	GSS			15			
2N4886	N	J	2N3365	2N3365	1.5	7.5	1.0	75	GSS			15			
2N4977	N	J	MFE2009	MFE2007	50		0.5	30	GSS			35			
2N4978	N	J	MFE2008	MFE2007	15		0.5	30	GSS			35			
2N4979	N	J	MFE2007	MFE2007	7.5		0.5	30	GSS			35			
2N5018	P	J	2N3993	2N3993	10		2.0	30	GSS			45			
2N5019	P	J	2N3993	2N3993	5.0		2.0	30	GSS			45			
2N5020	P	J	2N5265	2N5265	0.3	1.2	1.0	25	GSS			25			
2N5021	P	J	2N5266	2N5265	1.0	3.5	1.0	25	GSS			25			
2N5033	P	J	2N5265	2N5265	0.3	3.5	1.0	20	GSS	1000	5000	25	2.0	1.0k	
2N5045	N	J			0.5	8.0	0.25					8.0			
2N5046	N	J			0.5	8.0	0.25					8.0			
2N5047	N	J			0.5	8.0	0.25					8.0			
2N5078	N	J	2N4416	2N4416	4.0	25	0.25	30	GSS	4500	10000	6.0	3.0	200M	
2N5103	N	J	2N3823	2N3823	1.0	8.0	0.1	25	GSS	2000	8000	5.0	1.5	100H	
2N5104	N	J	2N3823	2N3823	2.0	6.0	0.1	25	GSS	3500	7500	5.0	1.5	100H	
2N5105	N	J	2N3823	2N3823	5.0	15	0.1	25	GSS	5000	10000	5.0	1.5	100H	
2N5114	P	J	2N3993	2N3993	30	90	0.5	30	GSS			25			
2N5115	P	J	2N3993	2N3993	15	60	0.5	30	GSS			25			
2N5116	P	J	2N3993	2N3993	5.0	25	0.5	30	GSS			25			
2N5158	N	J	MFE2012	MFE2010			1.0	40	GSS			50			
2N5159	N	J	MFE2012	MFE2010			1.0	40	GSS			50			
2N5163	N	J	MPF102	MPF102	1.0	40	1.0	25	GSS	2000	9000	12			
2N5196	N	J	MMF1	MMF1	0.7	7.0	0.025	50	GSS	1000	4000	6.0	1.0	100H	
2N5197	N	J			0.7	7.0	0.025	50	GSS	1000	4000	6.0	1.0	100H	
2N5198	N	J			0.7	7.0	0.025	50	GSS	1000	4000	6.0	1.0	100H	
2N5199	N	J			0.7	7.0	0.025	50	GSS	1000	4000	6.0	1.0	100H	
2N5245	N	J	2N5486	2N5484	5.0	15	1.0	30	GSS	4500	7500	4.5	2.0	100M	
2N5246	N	J	2N5485	2N5484	1.5	7.0	1.0	30	GSS	3000	6000	4.5			
2N5247	N	J	2N5486	2N5484	8.0	24	1.0	30	GSS	4500	8000	4.5			
2N5248	N	J	MPF102	MPF102	4.0	20	5.0	30	GSS	3500	6500	6.0			
★2N5265	P	J		2N5265	0.5	1.0	2.0	60	GSS	900	2700	7.0	2.5	100H	
★2N5266	P	J		2N5265	0.8	1.6	2.0	60	GSS	1000	3000	7.0	2.5	100H	
★2N5267	P	J		2N5265	1.5	3.0	2.0	60	GSS	1500	3500	7.0	2.5	100H	
★2N5268	P	J		2N5265	2.5	5.0	2.0	60	GSS	2000	4000	7.0	2.5	100H	
★2N5269	P	J		2N5265	4.0	8.0	2.0	60	GSS	2200	4500	7.0	2.5	100H	
★2N5270	P	J		2N5265	7.0	14.0	2.0	60	GSS	2500	5000	7.0	2.5	100H	
2N5277	N	J	2N3822	2N3821	2.5	12.5	5.0	150	GSS	2000	5000	25	3.0	1.0k	
2N5278	N	J	2N5364	2N5358	10	25	5.0	150	GSS	3000	6000	25	3.0	1.0k	
★2N5358	N	J		2N5358	0.5	1.0	0.1	40	GSS	1000	3000	6.0	2.5	100H	
★2N5359	N	J		2N5358	0.8	1.6	0.1	40	GSS	1200	3600	6.0	2.5	100H	
★2N5360	N	J		2N5358	1.5	3.0	0.1	40	GSS	1400	4200	6.0	2.5	100H	
★2N5361	N	J		2N5358	2.5	5.0	0.1	40	GSS	1500	4500	6.0	2.5	100H	
★2N5362	N	J		2N5358	4.0	8.0	0.1	40	GSS	2000	5500	6.0	2.5	100H	
★2N5363	N	J		2N5358	7.0	14	0.1	40	GSS	2500	6000	6.0	2.5	100H	
★2N5364	N	J		2N5358	9.0	18	0.1	40	GSS	2700	6500	6.0	2.5	100H	
2N5391	N	J	2N5358	2N5358	0.5	1.5	0.2	70	GSS	1500	4500	18	1.0	100H	
2N5392	N	J	2N5360	2N5358	1.0	3.0	0.2	70	GSS	2000	6000	18	1.0	100H	
2N5393	N	J	2N5360	2N5358	2.5	4.5	0.2	70	GSS	3000	6500	18	1.0	100H	
2N5394	N	J	2N5361	2N5358	4.0	6.0	0.2	70	GSS	4000	7000	18	1.0	100H	
2N5395	N	J	2N5362	2N5358	5.5	8.0	0.2	70	GSS	4500	7000	18	1.0	100H	
2N5396	N	J	2N5362	2N5358	7.5	10	0.2	70	GSS	4500	7500	18	1.0	100H	
2N5397	N	J	MFE2001	MFE2000	10	30	0.1	25	GSS	6000	10000	5.0	3.5	450M	
2N5398	N	J	MFE2001	MFE2000	5.0	40	0.1	25	GSS	5500	10000	5.5			
2N5432	N	J	MFE2012	MFE2012	150		0.2	25	GSS			30			
2N5433	N	J	MFE2012	MFE2012	100		0.2	25	GSS			30			
2N5434	N	J	MFE2012	MFE2012	30		0.2	25	GSS			30			
2N5452	N	J			0.5	5.0	0.1	50	GSS	1000	3000	4.0	0.2*	1.0k	
2N5453	N	J			0.5	5.0	0.1	50	GSS	1000	3000	4.0	0.2*	1.0k	
2N5454	N	J			0.5	5.0	0.1	50	GSS	1000	3000	4.0	0.2*	1.0k	
★2N5457	N	J		2N5457	1.0	5.0	1.0	25	GSS	1000	5000	7.0			
★2N5458	N	J		2N5457	2.0	8.0	1.0	25	GSS	1500	5500	7.0			

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{DSS}		I _{GSS} I _{DGO} * nA	Breakdown Voltage		Y _F		C _{ISS} pF	NF dB μV* √Hz	@ f Units	NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos				
					* nA		* mmhos								
★2N5459	N	J		2N5457	4.0	16	1.0	25	GSS	2000	6000	7.0			
★2N5460	P	J		2N5460	1.0	5.0	5.0	40	GSS	1000	4000	7.0	2.5	100H	
★2N5461	P	J		2N5460	2.0	9.0	5.0	40	GSS	1500	5000	7.0	2.5	100H	
★2N5462	P	J		2N5460	4.0	16	5.0	40	GSS	2000	6000	7.0	2.5	100H	
★2N5463	P	J		2N5460	1.0	5.0	5.0	60	GSS	1000	4000	7.0	2.5	100H	
★2N5464	P	J		2N5460	2.0	9.0	5.0	60	GSS	1500	5000	7.0	2.5	100H	
★2N5465	P	J		2N5460	4.0	16	5.0	60	GSS	2000	6000	7.0	2.5	100H	
★2N5471	P	J		2N5471	0.02	0.06	0.5	40	GSS	60	180	5.0	2.5	1.0k	
★2N5472	P	J		2N5471	0.05	0.12	0.5	40	GSS	90	225	5.0	2.5	1.0k	
★2N5473	P	J		2N5471	0.10	0.25	0.5	40	GSS	120	300	5.0	2.5	1.0k	
★2N5474	P	J		2N5471	0.20	0.50	0.5	40	GSS	160	400	5.0	2.5	1.0k	
★2N5475	P	J		2N5471	0.40	1.0	0.5	40	GSS	200	500	5.0	2.5	1.0k	
★2N5476	P	J		2N5471	0.80	2.0	0.5	40	GSS	260	650	5.0	2.5	1.0k	
★2N5484	N	J		2N5484	1.0	5.0	1.0	25	GSS	3000	6000	5.0	3.0	100M	
★2N5485	N	J		2N5484	4.0	10	1.0	25	GSS	3500	7000	5.0	2.0	100M	
★2N5486	N	J		2N5484	8.0	20	1.0	25	GSS	4000	8000	5.0	2.0	100M	
2N5505	P	J					0.25	30	GSS	1000	3500	16	2.0	1.0k	Dual
2N5506	P	J					0.25	30	GSS	1000	3500	16	2.0	1.0k	Dual
2N5507	P	J					0.25	30	GSS	1000	3500	16	2.0	1.0k	Dual
2N5508	P	J					0.25	30	GSS	1000	3500	16	2.0	1.0k	Dual
2N5509	P	J					0.25	30	GSS	1000	3500	16	2.0	1.0k	Dual
2N5510	P	J					0.25	30	GSS	500	3000	16	2.0	1.0k	Dual
2N5511	P	J					0.25	30	GSS	500	3000	16	2.0	1.0k	Dual
2N5512	P	J					0.25	30	GSS	500	3000	16	2.0	1.0k	Dual
2N5513	P	J					0.25	30	GSS	500	3000	16	2.0	1.0k	Dual
2N5514	P	J					0.5	40	GSS	500	3000	16	2.0	1.0k	Dual
2N5515	N	J					0.5	40	GSS	1000	4000	25	2.0	1.0H	Dual
2N5516	N	J					0.5	40	GSS	1000	4000	25	2.0	1.0H	Dual
2N5517	N	J					0.5	40	GSS	1000	4000	25	2.0	1.0H	Dual
2N5518	N	J					0.5	40	GSS	1000	4000	25	2.0	1.0H	Dual
2N5519	N	J					0.5	40	GSS	1000	4000	25	2.0	1.0H	Dual
2N5520	N	J					0.5	40	GSS	1000	4000	25	1.0	1.0H	Dual
2N5521	N	J					0.5	40	GSS	1000	4000	25	1.0	1.0H	Dual
2N5522	N	J					0.5	40	GSS	1000	4000	25	1.0	1.0H	Dual
2N5523	N	J					0.5	40	GSS	1000	4000	25	1.0	1.0H	Dual
2N5524	N	J					0.5	40	GSS	1000	4000	25	1.0	1.0H	Dual
2N5543	N	J	2N3822	2N3819	2.0	10	1000			750	3000	10			
2N5544	N	J	2N3822	2N3819	2.0	10	1000			750	3000	10			
2N5545	N	J	MMF1	MMF1	0.5	8.0	0.1			1500	6000	6.0	3.5	10H	Dual
2N5546	N	J	MMF1	MMF1	0.5	8.0	0.1			1500	6000	6.0	5.0	10H	Dual
2N5547	N	J	MMF1	MMF1	0.5	8.0	0.1			1500	6000	6.0			Dual
2N5548	P	M	MFE3003	MFE3001	10	10*	0.05			3500	6500	10			
2N5549	N	J	2N4093	2N4088	10	60	0.25	40	GSS	6000	15000	8.0			
★2N5555	N	J		2N5555	15		1.0	25	GSS			5.0			
★2N5556	N	J		2N5556	0.5	2.5	0.1	30	GSS	1500	6500	6.0	1.0	10H	
★2N5557	N	J		2N5556	2.0	5.0	0.1	30	GSS	1500	6500	6.0	1.0	10H	
★2N5558	N	J		2N5556	4.0	10	0.1	30	GSS	1500	6500	6.0	1.0	10H	
2N5561	N	J			1.0	10	0.1	50	GSS			7.0	1.0	10H	MP
2N5562	N	J			1.0	10	0.1	50	GSS			7.0	1.0	10H	MP
2N5563	N	J			1.0	10	0.1	50	GSS			7.0	1.0	10H	MP
2N5564	N	J			5.0	30	0.1	40	GSS			12	1.0	10H	MP
2N5565	N	J			5.0	30	0.1	40	GSS			12	1.0	10H	MP
2N5566	N	J			5.0	30	0.1	40	GSS			12	1.0	10H	MP
2N5592	N	J			1.0	10	0.25	50	GSS			20	2.6	10H	
2N5593	N	J			1.0	10	0.25	50	GSS			20	6.0	10H	
2N5594	N	J			1.0	10	0.25	50	GSS			20	10	10H	
2N5638	N	J				50	1.0	30	GSS				10		
2N5639	N	J				25	1.0	30	GSS				10		
2N5640	N	J				5.0	1.0	30	GSS				10		
2N5647	N	J	2N5556	2N5555	0.3	0.6	0.01	50	GSS			3.0	1.0	1.0k	
2N5648	N	J	2N5556	2N5555	0.5	1.0	0.01	50	GSS			3.0	1.0	1.0k	
2N5649	N	J	2N5556	2N5555	0.8	1.6	0.01	50	GSS			3.0	1.0	1.0k	
2N5653	N	J	2N5556	2N5555	40		1.0	30	GSS			10	2.5		
2N5654	N	J			15		1.0	30	GSS			10	2.5		
★2N5668	N	J		2N5668	1.0	5.0	2.0	25	GSS			7.0	2.5	100M	
★2N5669	N	J		2N5668	4.0	10	2.0	25	GSS			7.0	2.5	100M	
★2N5670	N	J		2N5668	8.0	20	2.0	25	GSS			7.0	2.5	100M	
★2N5797	P	J		2N5797	0.02	0.10	3.0	40	GSS	60*	225*	5.0			MP
★2N5798	P	J		2N5797	0.08	0.40	3.0	40	GSS	100*	440*	5.0			MP
★2N5799	P	J		2N5797	0.25	1.00	3.0	40	GSS	160*	500*	5.0			MP



2N5800-3N165

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{BSS}		I _{GSS} I _{DGO} * nA	Breakdown Voltage		Y _h		C _{ISS} pF	NF dB μV* √Hz	@ f Units	NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos				
					* nA					* mmhos					
★2N5800	P	J		2N5797	0.70	2.00	3.0	40	GSS	250*	700*	5.0			MP
2N5801	N	J			2.0	15	0.1	-40	GSS			15	1.0	100H	MP
2N5802	N	J			10	40	0.1	-40	GSS			15	1.0	100H	MP
2N5803	N	J			30	80	0.1	-40	GSS			15	1.0	100H	MP
2N5902	N	J			0.03	0.5	0.005	-40	GSS	70	250	3.0	3.0	100H	MP
2N5903	N	J			0.03	0.5	0.005	-40	GSS	70	250	3.0	3.0	100H	MP
2N5904	N	J			0.03	0.5	0.005	-40	GSS	70	250	3.0	3.0	100H	MP
2N5905	N	J			0.03	0.5	0.005	-40	GSS	70	250	3.0	3.0	100H	MP
2N5906	N	J			0.03	0.5	0.002	-40	GSS	70	250	3.0	1.0	100H	MP
2N5907	N	J			0.03	0.5	0.002	-40	GSS	70	250	3.0	1.0	100H	MP
2N5908	N	J			0.03	0.5	0.002	-40	GSS	70	250	3.0	1.0	100H	MP
2N5909	N	J			0.03	0.5	0.002	-40	GSS	70	250	3.0	1.0	100H	MP
2N5949	N	M	2N5638	2N5638	12	18	-1.0	30	GSS	3.0	7.5	6.0	2.0	1.0k	
2N5950	N	M	2N5639	2N5638	10	15	-1.0	30	GSS	3.0	7.5	6.0	2.0	1.0k	
2N5951	N	M	2N5640	2N5638	7.0	13	-1.0	30	GSS	3.0	6.5	6.0	2.0	1.0k	
2N5952	N	M	2N5640	2N5638	4.0	8.0	-1.0	30	GSS	1.0	6.5	6.0	2.0	1.0k	
2N5953	N	M	2N5640	2N5638	2.5	5.0	-1.0	30	GSS	1.0	6.5	6.0	2.0	1.0k	
2N6449	S	N			2.0	10	10	300	GSS	0.5*	3.0*	10			
2N6450	S	N			2.0	10	10	200	GSS	0.5*	3.0*	10			
2N6451	S	N			5.0	20	0.1	20	GSS	15*	30*	25	1.5	10H	
2N6452	S	N			5.0	20	0.5	25	GSS	15*	30*	25	2.5	10H	
2N6453	S	N			15	50	0.1	20	GSS	20*	40*	25	1.5	10H	
2N6454	S	N			15	50	0.5	25	GSS	20*	40*	25	2.5	10H	
2N6483	N	J			0.5	7.5	0.2	50	GSS	1000	4000	20	25	10 H	MP
2N6484	N	J			0.5	7.5	0.2	50	GSS	1000	4000	20	25	10 H	MP
2N6485	N	J			0.5	7.5	0.2	50	GSS	1000	4000	20	25	10 H	MP
3N89	P	J			0.5	2.5	5.0	30		450	1300	3.0			
3N96	P	J			0.5	2.5	5.0	30		450	1300	4.0			
3N97	P	J			0.5	2.5	5.0	30		450	1300	4.0			
3N98	N	M	MFE3004	MFE3004	3.5	7.7	0.05	32		1000	3000	7.0			
3N99	N	M	MFE3004	MFE3004	5.0	10.5	0.05	32		1000	4500	7.0			
★3N124	N	J		3N124	0.2	2.0	0.25	50	GSS	500	2000	14	4.0	1.0k	
★3N125	N	J		3N124	1.5	4.5	0.25	50	GSS	800	2400	14	4.0	1.0k	
★3N126	N	J		3N124	3.0	9.0	0.25	50	GSS	1200	3600	14	4.0	1.0k	
★3N128	N	M			5.0	25	5.0			5000	12000	7.0	5.0	200M	
3N138	N	M	MFE3004	MFE3004			0.010	45	GD			5.0			
3N139	N	M	MFE3004	MFE3004	5.0	25	1.0	45	GD	3000	7500	7.0			
★3N140	N	M	MFE3004	MFE3004	5.0	30	1.0	20	DS			7.0	4.5	200M	
3N141	N	M	MFE3006	MFE3006	5.0	30	1.0	20	DS			7.0			
3N142	N	M	MFE3004	MFE3004	5.0	50	5.0	20	DS			10			
3N143	N	M	MFE3004	MFE3004	10	50	1.0					7.0			
3N145	P	M	2N4352	2N4352				30	DB						
3N146	P	M	3N157A	3N157				30	DB						
3N147	P	M						30	DB						
3N148	P	M						30	DB						
3N149	P	M	3N157A	3N157				30	DB						
3N150	P	M	3N157A	3N157				30	DB						
3N151	P	M			-5.0*							12	10	100H	
3N152	N	M	MFE3004	MFE3004	5.0	30	1.0					8.0	3.5	200M	
3N153	N	M	MFE3004	MFE3004			0.05								
3N154	N	M	MFE3004	MFE3004	10	25	0.05						5.0	200M	
★3N155	P	M		3N155	1.0	1.0	1.0	35	DSS	1000	4000	5.0			
★3N155A	P	M		3N155	0.25	1.0	1.0	35	DSS	1000	4000	5.0			
★3N156	P	M		3N155	1.0	1.0	1.0	35	DSS	1000	4000	5.0			
★3N156A	P	M		3N155	0.25	1.0	1.0	35	DSS	1000	4000	5.0			
★3N157	P	M		3N157	1.0	0.010	1.0	35	DSS	1000	4000	5.0			
★3N157A	P	M		3N157	0.25	0.010	0.010	50	DSS	1000	4000	5.0			
★3N158	P	M		3N157	1.0	0.010	0.010	35	DSS	1000	4000	5.0			
★3N158A	P	M		3N157	0.25	0.010	0.010	50	DSS	1000	4000	5.0			
3N159	N	M	MFE3007	MFE3007	5.0	30	1.0			7000	18000	7.0	3.5	200M	
3N160	P	M	MFE3003	MFE3001			1.0*	0.01		3500	6500	10			
3N161	P	M	MFE3003	MFE3001			10*	0.01		3500	6500	10			
3N162	P	M	MFE3003	MFE3001			150*	0.01				20			
3N163	P	M	MFE3003	MFE3001			0.2*	0.01				2.5			
3N164	P	M					0.4*	0.01				2.5			
3N165	P	M					0.2*	0.01				3.0			

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{DSS}		I _{GSS} μGO*	Breakdown Voltage		Y _F		C _{ISS} pF	NF @ f		NOTE
					Min mA	Max mA		V _(BR) Volts	Sub- script	Min μmhos	Max μmhos		dB μV*	Units	
					* nA					* mmhos					
3N166	P	M				0.2*	0.01					3.0			
3N167	P	M				0.5*						35			
3N168	P	M				1.0*						35			
★3N169	N	M		3N169		10*						5.0			
★3N170	N	M		3N169		10*						5.0			
★3N171	N	M		3N169		10*						5.0			
3N172	P	M				0.4*						3.5			
3N173	P	M				10*						3.5			
3N174	P	M	2N4352	2N4352		50*	0.025					4.0			
3N175	N	M				50*	0.2					5.0			
3N176	N	M				10*	0.2					5.0			
3N177	N	M				25*	0.2					7.0			
3N178	P	M				0.5*	0.2					3.5			
3N179	P	M				1.0*						4.5			
3N180	P	M				1.0*						5.0			
3N181	P	M				0.5*						25			
3N182	P	M				2.5*						25			
3N183	P	M				10*						30			
3N184	P	M				20*						9.0			
3N185	P	M				5.0*						10			
3N186	P	M				10*						11			
3N188	P	M				0.2*						4.5			
3N189	P	M				0.2*						4.5			
3N190	P	M				0.2*	0.01					4.5			
3N191	P	M				0.2*	0.01					4.5			
3N192	N	M				3.0	30	-1.0	-6.0	GSSR	8000	24000	6.0		
3N193	N	M				1.0	20	-1.0	-6.0	GSSR	6000	22000	7.0		
3N200	N	J				0.5	12	50	6.5	GSS					
3N201	N	J				6.0	30	-10	6.0	GSS	8.0	20	4.5		
3N202	N	J				6.0	30	-10	6.0	GSS	8.0	20	4.5	200M	Dual
3N203	N	J				3.0	15	-10	6.0	GSS	7.0	15	6.0	45M	Dual
3N203A	N	M				3.0	15	10	20	DS	7000	15000	4.0	200M	TETR
3N204	N	S				6.0	30	10	30	GSS	10*	22*	3.5		
3N205	N	S				6.0	30	10	30	GSS	10*	22*			
3N206	N	S				3.0	15	10	30	GSS	7	17*	4.0		
3N207	P	S				10*	200					4.0			
3N208	P	S				10*	1.0	30	GSS			7.0			
★3N209	N	M		3N209		5.0	30	20	25	DS	10000	20000	6.0	500	TETR
★3N210	N	M		3N209		5.0	30	20	25	DS	10000	20000	7.0	500	TETR
3N211	N	S				6.0	40	10	-6.0	GSS	17*	40*	3.5	45M	Dual
3N212	N	S				6.0	40	10	-6.0	GSS	17*	40*	3.5	45M	Dual
3N213	N	S						10	-6.0	GSS					
3N214	S	N						10	7.0	GSS		6.0			
3N215	S	N						10	7.0	GSS		6.0			
3N216	S	N						10	7.0	GSS		6.0			
3N217	S	N						10	7.0	GSS		6.0			
3N218	P	M				20*						50			
3N225	N	M				1.0	20	10	20	DS	6000	15000	7.0	900M	TETR
3N225A	N	M				1.0	15	10	20	DSX	7500	15000	5.5	900M	TETR
MFE120	N	M				2.0	18	20	25	DSX	8000	18000	7.0	150M	
MFE121	N	M				5.0	30	20	25	DSX	10000	20000	6.0	60M	
MFE122	N	M				2.0	20	20	25	DSX	8000	18000	7.0	200M	
MFE130	N	M				3.0	30	20	25	DSX	8000	20000	7.0	105M	Dual
MFE131	N	M				3.0	30	20	25	DSX	8000	20000	7.0	60M	Dual
MFE132	N	M				3.0	30	20	25	DSX	8000	20000	7.0	200M	Dual
★MFE590	N	M				1000*	50	25	25	DSS	10000	20000	3.0	6.0	900M
★MFE591	N	M				1000*	50	25	25	DSS	8000	20000	3.5	8.0	900M
★MFE823	P	M				20*	0.001	25	25	DSS	1000		6.0		
★MFE824	N	M				1.0	15	0.001	20	DSX	1000	4000	4.0		
MFE2000	N	J				4.0	10	-200	-25	GSS	2500	6000	5.0	2.0	100M
MFE2001	N	J				8.0	20	-200	-25	GSS	4000	8000	5.0	2.0	100M
MFE2004	N	J				8.0		0.2	30	GSS			16		
MFE2005	N	J				15		0.2	30	GSS			16		
MFE2006	N	J				30		0.2	30	GSS			16		
MFE2007	N	J				8.0		2.0	25	GSS			30		
MFE2008	N	J				20		2.0	25	GSS			30		
MFE2009	N	J				50		2.0	25	GSS			30		
MFE2010	N	J				15		3.0	25	GSS			50		
MFE2011	N	J				40		3.0	25	GSS			50		

MFE2012-MPF4393

TYPE	POLARITY	CONST.	REPLACEMENT	REFERENCE	I _{DSS}		I _{GSS} I _{DG0} *	Breakdown Voltage		Y _f		C _{ISS} pF	NF @ f		NOTE
					Min mA	Max mA		V _{BR1} Volts	Sub- script	Min μmhos	Max μmhos		dB μV* √Hz	Units	
					* mA		* mmhos								
MFE2012	N	J			100		3.0	25	GSS			50			
MFE2093	N	J			0.1	0.7	-0.1	-50	GSS	250	500	6.0			
MFE2094	N	J			0.4	1.4	-0.1	-50	GSS	350	700	6.0			
MFE2095	N	J			1.0	3.0	-0.1	-50	GSS	400	800	6.0			
MFE3001	N	J			0.5	6.0	0.01	20	DSX	700	3500	5.0			
MFE3002	N	M				10*	0.1	15	DSS			5.0			
MFE3003	P	M				10*	0.1	-15	DSS						
MFE3004	N	M			2.0	10	0.05	20	DSX	2000		4.5	4.5	200M	
MFE3005	N	M			2.0	10	0.05	20	DSX	2000		4.5	4.5	400M	
MFE3006	N	M			2.0	18	10	25	DSX	8000	18000	6.0	4.0	100M	
MFE3007	N	M			5.0	20	10	25	DSX	10000	18000	5.5	4.0	200M	
MFE3008	N	M			2.0	20	10	25	DSX	8000	18000	6.0			
MFE3020	P	M				10*	0.01	-25	DSS			7.0			
MFE3021	P	M				10*	0.01	-25	DSS			7.0			
MFE4007	P	J			0.5	1.0	2.0	40	GSS	900	2700	7.0	2.5	100H	
MFE4008	P	J			0.8	1.6	2.0	40	GSS	1000	3000	7.0	2.5	100H	
MFE4009	P	J			1.5	3.0	2.0	40	GSS	1500	3500	7.0	2.5	100H	
MFE4010	P	J			2.5	5.0	2.0	40	GSS	2000	4000	7.0	2.5	100H	
MFE4011	P	J			4.0	8.0	2.0	40	GSS	2200	4500	7.0	2.5	100H	
MFE4012	P	J			7.0	14	2.0	40	GSS	2500	5000	7.0	2.5	100H	
MFE5000	P	M			1.0*	10*	1.0	25	DSS	2000	8000	6.0			Quad
MMF1	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMF2	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMF3	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMF4	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMF5	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMF6	N	J			0.5	10	0.05	30	GSS	1500	6500	6.0	2.5	100H	
MMT3823	N	J			5.0	20	-1.0	-30	GSS	3000	8000	4.0	2.0	10M	
MPF102	N	J			2.0	20	-2.0	-25	GSS	2000	7500	7.0			
MPF108	N	J			1.5	24	1.0	-25	GSS	2000	7500	6.5	2.5	1.0k	
MPF109	N	J			0.5	24	-1.0	-25	GSS	800	1600	7.0	2.5	1.0k	
MPF111	N	J			0.5	20	100	-20	GSS	500		4.5*			
MPF112	N	J			1.0	25	100	-25	GSS	1000	7500	8.0*			
MPF120	N	M			2.0	7.0	20	25	DSX	8000	18000	7.0	5.0	1C5M	Dual
MPF121	N	M			5.0	10	20	25	DSX	10000	20000	6.0	5.0	60M	Dual
MPF122	N	M			2.0	9.0	20	25	DSX	8000	18000	7.0	5.0	200M	Dual
MPF130	N	M			3.0	30	20	25	DSX	8000	20000	7.0	5.0	105M	Dual
MPF131	N	M			3.0	30	20	25	DSX	8000	20000	7.0	5.0	60M	Dual
MPF132	N	M			3.0	30	20	25	DSX	8000	20000	7.0	5.0	200M	Dual
MPF161	P	J			0.5	14	10	40	GSS	800	6000	7.0	2.5	1.0k	
MPF256	N	J			3.0(1)	7.0(1)	5.0	25	GSS	6.0*		3.0	2.0		
MPF820	S	J			10		5.0	25	GSS	20*typ	15*	4.0			
MPF970	S	J			15	60	1.0	30	GSS			12			
MPF971	S	J			2.0	30	1.0	30	GSS			12			
MPF4391	N	J			60	130	1.0	30	GSS			10			
MPF4392	N	J			25	75	1.0	30	GSS			10			
MPF4393	N	J			5.0	30	1.0	30	GSS			10			

TABLE 10 - OPTOELECTRONIC DETECTORS AND COUPLERS

Short-form specifications for photo detectors and optically coupled pairs.

TYPE NO.	REPLACEMENT VOL.	ID	PD Watts	VCE Volts	Subscript	I _F IC Amp Max	I _C /I _F @ I _F		VISO Volts Min	Unit	t _{on} ns	t _{off} Max	VCE@I _C /I _F &I _C (sat) Volts Max	I _C /I _F or I _C /H & I _C	UNIT	PACKAGE To-Case No. Case No.
							S _R mA/mW	H mW/cm ²								
Alphanumeric listing of type numbers ★ Available from Motorola							I _F — Continuous dc current rating of diode in optocoupled pairs									JEDEC Outline/Motorola Package Outline
Type number of recommended replacement or of nearest electrical equivalent							I _C — Continuous dc current rating of detectors.									
Data Library Volume where complete specifications are located							Rated maximum Collector-Emitter Voltage. Subscript letter identifies base termination listed below in order of preference.									Collector Saturation Voltage @ ratio of I _C /I _F or I _C /H I _C - Test Current Test Current Units: A-Ampere m-mA u-uA * Typical
Identification Code							SUBSCRIPT: O—V _{CEO} , open R—V _{CER} , resistance only X—V _{CER} , reverse bias and resistance V—V _{CEV} , reverse bias only S—V _{CES} , shorted U—V _{CE} , unidentified B—V _{CBO} , Collector-Base Voltage, emitter open								Switching Times t _{on} — turn-on time t _{off} — turn-off time * Typical	
1st Letter: D—Diode O—Opto Couplers G—Germanium Transistor S—Silicon Transistor							Power Dissipation—Normally specified at 25°C, but occasionally specified at higher temperatures.									
2nd Letter: S—Silicon (Diode) N—NPN P—PNP							REF. PDINT: A—Ambient temperature C—Case temperature									I _C /I _F —Current Transfer Ratio (Couplers) I _F —Forward Current - m-mA ----- S _R —Radiation Sensitivity (Detectors) H—Radiation Flux Density
3rd Letter: L—Light Detector A—Amplifier G—General Purpose Switch and Amplifier																

TYPE NO.	REPLACEMENT	VOL.	ID	Pd Watts	VCE Volts	IC Subscript	If Amp Max	IC/If @		Unit	VISO Volts Min	Unit	ton ns Max	toff ns Max	VCE@ (sat) Volts Max	IC/If & IC		UNIT	PACKAGE To- Case No. No.	
								SR mA/mW cm ²	H mW cm ²							IC/H & IC	IC/H & IC			
																				Min	Max
1N77B 2N318 2N469 2N469A 2N986			DGL GPL GPL GPL SNL	0.04 A 0.05 A 0.05 A 0.05 A 0.5 A	50 12 U 15 R 15 R 60 0		0.01 0.02	.002 0.05												
2N1392 2N1393 2N1394 2N2452 ★ 2N5777		2	GPL GPL GPL SNL SNL	0.05 A 0.05 A 0.05 A 0.5 A 2 A	20 R 20 R 6 R 60 0 25 0			0.06 0.3 0.3 0.05 0.5	0.14 0.25 0.25 0.2					3000/5000 350/5150						92/82
★ 2N5778 ★ 2N5779 ★ 2N5780 3N219 3N220		2 2 2	SNL SNL SNL ONG ONG	2 A 2 A 2 A 0.15 A 0.15 A	40 0 25 0 40 0 35 0 35 0		0.25 0.25 0.25 0.05 0.05	0.5 2.0 2.0 .033 0.11	2.0 2.0 2.0 15 m 15 m		1000 V 1000 V			350/5150 350/5150 350/5150 15K/15K 15K/15K	0.3 0.3 0.3 0.3 0.3	.01 .01	125 * 125 *			92/82 92/82 92/82
4N22 4N23 4N24 ★ 4N25 ★ 4N26			ONG ONG ONG ONG ONG	0.3 A 0.3 A 0.3 A 0.15 A 0.15 A											0.3 0.3 0.3 0.5 0.5	.04 .04	2.0 m 2.0 m	/673 /673		
★ 4N27 ★ 4N28 ★ 4N29 ★ 4N30 ★ 4N31		2 2 2 2 2	ONG ONG ONG ONG ONG	0.15 A 0.15 A 0.15 A 0.15 A 0.15 A	30 0 30 0 30 0 30 0 30 0		0.08 0.08 0.08 0.08 0.08	0.1 0.1 1.0 1.0 0.5	10 m 10 m 10 m 10 m 10 m		1500 V 500 V 2500 V 1500 V 1500 V			2K*/5K* 2K*/5K* 5.0K/40K 5.0K/40K 5.0K/40K	0.5 0.5 1.0 1.0 1.2	.04 .25 .25 .25 .25	2.0 m 8.0 m 8.0 m 8.0 m 8.0 m	/673 /673 /673 /673 /673		
★ 4N32 ★ MRD148 ★ MRD120 ★ MRD121 ★ MRD150		2 2 3 3	ONG SNL SNL SNL SNL	0.15 A 0.2 A 1.25 A 1.25 A 0.05 A	30 0 12 0 40 0 40 0 40 0		0.08	5.0	10 m		2500 V			5.0K/100K 4K*/6K* 4K*/6K* 2500/4000	1.0	.25	8.0 m	/673 / /279 /279 /173		
★ MRD200 ★ MRD221 ★ MRD250 ★ MRD300 ★ MRD310			DSL DSL SNL SNL SNL	0.05 A 0.05 A 0.05 A 0.25 A 0.25 A	50 0 50 0 50 0 50 0 50 0			0.25 0.05 0.10 0.8 0.2	5.0 5.0 5.0 5.0 5.0					2500/4000 2500/4000 2500/4000 2500/4000 2500/4000					31/81 31/81 /81A 18/82 18/82	
★ MRD360 ★ MRD370 ★ MRD450 ★ MRD500 ★ MRD510		3 3 3 3 3	SNL SNL SNL DSL DSL	0.25 A 0.25 A 0.05 A 0.1 A 0.1 A	40 0 40 0 40 0 0 50 0		.25 .25	24 24 0.2 0.01 5.0	5.0 5.0 5.0 5.0 5.0					100K/150K 100K/150K 2500/4000 1.0*/1.0* 1.0*/1.0*					18/82 18/82 /171 /209 /210	
★ MRD600 ★ MRD601 ★ MRD602 ★ MRD603 ★ MRD604		3 3 3 3 3	SNL SNL SNL SNL SNL	0.05 A 0.05 A 0.05 A 0.05 A 0.05 A	50 0 50 0 50 50 50 0			.04 .025 0.1 0.2 0.35	20 20 20 20 20					2K*/15K* 2K*/15K* 2K*/15K* 2K*/15K* 2K*/15K*					/81A /81A /81A /81A /81A	
★ MRD810 ★ MRD3050 ★ MRD3051 ★ MRD3052 ★ MRD3053		3 3 3 3 3	SNL SNL SNL SNL SNL	0.5 A 4 A 4 A 4 A 4 A	35 0 30 0 30 0 30 0 30 0			0.2 .02 .04 .02 .05						5000/6000 2K*/4K* 2K*/4K* 2K*/4K* 2K*/4K*					/210 /82 /82 /82 /82	
★ MRD3054 ★ MRD3055 ★ MRD3056 ★ MRD6039D ★ MRD6039T		3 3 3 3 3	SNL SNL SNL DSL DSL	4 A 4 A 4 A 2 A 2 A	30 0 30 0 30 0 0 6.0 0			.125 3 4 .014 3	5 5 5 5 5					2K*/4K* 2K*/4K* 2K*/4K*					/82 /82 /82 /621 /621	

TABLE 11. RF HYBRID CIRCUITS

Hybrid Circuits

Index	Table No.	Page No.
RF Hybrid Circuits (Wideband Amplifiers)	11	4-2
Power Hybrid Circuits (Voltage Regulators)	12	4-3

TABLE 11 - RF HYBRID CIRCUITS

The following table contains an alphanumerical listing and short-form specifications for Motorola non-registered wideband amplifiers and UHF power modules.

TYPE	VOL.	Frequency Range MHz	P _{out} Watts Min	Z _{in} dB Min <i>VSWR Max</i>	G _p dB Min	η % Min	NF dB Max	Output Level dB/mV Channel	IMD dB Max
Alpha-Numerical Listing					Power Gain				
Data Library Volume where the part number is located					Efficiency				
Operating Frequency Range					Noise Figure				
Output Power					Output Level @ -57dB Cross Modulation Distortion				
Input Impedance or VSWR					Intermodulation Distortion				

TYPE	VOL.	Frequency Range MHz	P _{out} Watts Min	Z _{in} dB Min <i>VSWR Max</i>	G _p dB Min	η % Min	NF dB Max	Output Level dB/mV Channel	IMD dB Max
MHW401	3	400-470	1.5	2:1	15	40	-	-	-
MHW559	3	40-300	-	18	15.5	-	8.5	-54	21
MHW560	3	40-300	-	16	15.5	-	8.5	-51	21
MHW561	3	40-300	-	16	15.5	-	12	-54	21
MHW562	3	40-300	-	18	15.5	-	10	-57	21
MHW601		146-174	13	2.0:1	21	40	-	-	-
MHW602		146-174	20	2.0:1	20.6	40	-	-	-
MHW709	3	400-470	7.5	2:1	18.8	35	-	-	-
MHW710	3	400-470	13	2:1	19.4	35	-	-	-

**TABLE 12 - POWER HYBRID CIRCUITS
(Voltage Regulators)**

The following table contains an alphanumerical listing and short-form specifications for Motorola non-registered silicon power voltage regulators.

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TYPE	VOL.	V _O Volts		V _{in} -V _O Volts		V _{in} Volts		I _{IB} mA Max	Reg _{in} %V _O /V _{in} Max	Reg _L %V _O Max	P _D Watts Max
		Min	Max	Min	Max	Min	Max				
Alpha-numerical Listing	First type number on data sheet where the part number is located										Internal Power Dissipation
											Load Regulation
Output Voltage Range											Line Regulation
Input-Output Voltage Differential											
Input Voltage Range											Standby Current Drain

TYPE	VOL.	V _O Volts		|V _{in} -V _O| Volts		V _{in} Volts		I _{IB} mA Max	Reg _{in} %V _O /V _{in} Max	Reg _L %V _O Max	P _D Watts Max
		Min	Max	Min	Max	Min	Max				
MPC900	-	4.0	30	2.5	30	9.0	35	-	0.1	0.1	100
MPC1000	3	2.0	35	3.0	60	9.5	40	50	0.5	0.6	100

Integrated Circuits

This section includes an alphabetical index and description of the following integrated circuit types:

Index

LINEAR

LSI

McMOS

MDTL

MECL

MEMORIES

MHTL

MOS

MRTL

MTTL

PLL

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MC400-MC515

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC400	MTTL	CF	Dual 4-Input NAND Gate
MC401	MTTL	CF	Expandable 4-Wide 2-2-2-3-Input AND-OR-INVERT Gate
MC402	MTTL	CF	8-Input NAND Gate
MC403	MTTL	CF	2-Wide 3-Input AND-OR-INVERT Gate with Gated Complement
MC404	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC405	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC406	MTTL	CF	Expandable 8-Input NAND Gate
MC407	MTTL	CF	Line Driver
MC408	MTTL	CF	Quad 2-Input NAND Gate
MC409	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC410	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC411	MTTL	CF	Dual 4-Input Expander for NAND Gates
MC412	MTTL	CF	Triple 3-Input NAND Gate
MC413	MTTL	CF	R-S Flip-Flop
MC414	MTTL	CF	Gated R-S Flip-Flop
MC415	MTTL	CF	AND J-K Flip-Flop
MC416	MTTL	CF	OR J-K Flip-Flop
MC419	MTTL	CF	Triple 2-Input Bus Driver
MC420	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC421	MTTL	CF	AC Coupled R-S Flip-Flop
MC422	MTTL	CF	Dual Type D Flip-Flop
MC423	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC424	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC426	MTTL	CF	Dual 3-Input Pulse Shaper/Delay AND Gate
MC427	MTTL	CF	OR Expandable Dual 4-Input AND Gate
MC428	MTTL	CF	Dual 2-Wide 2-3 Input OR Expander
MC429	MTTL	CF	Hex Inverter
MC450	MTTL	CF	Dual 4-Input NAND Gate
MC451	MTTL	CF	Expandable 4-Wide 2-2-2-3-Input AND-OR-INVERT Gate
MC452	MTTL	CF	8-Input NAND Gate
MC453	MTTL	CF	2-Wide 3-Input AND-OR-INVERT Gate with Gated Complement
MC454	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC455	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC456	MTTL	CF	Expandable 8-Input NAND Gate
MC457	MTTL	CF	Line Driver
MC458	MTTL	CF	Quad 2-Input NAND Gate
MC459	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC460	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC461	MTTL	CF	Dual 4-Input Expander for NAND Gates
MC462	MTTL	CF	Triple 3-Input NAND Gate
MC463	MTTL	CF	R-S Flip-Flop
MC464	MTTL	CF	Gated R-S Flip-Flop
MC465	MTTL	CF	AND J-K Flip-Flop
MC466	MTTL	CF	OR J-K Flip-Flop
MC469	MTTL	CF	Triple 2-Input Bus Driver
MC470	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC471	MTTL	CF	AC Coupled R-S Flip-Flop
MC472	MTTL	CF	Dual Type D Flip-Flop
MC473	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC474	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC476	MTTL	CF	Dual 3-Input Pulse Shaper/Delay AND Gate
MC477	MTTL	CF	OR Expandable Dual 4-Input AND Gate
MC478	MTTL	CF	Dual 2-Wide 2-3 Input OR Expander
MC479	MTTL	CF	Hex Inverter
MC500	MTTL	CF	Dual 4-Input NAND Gate
MC501	MTTL	CF	Expandable 4-Wide 2-2-2-3-Input AND-OR-INVERT Gate
MC502	MTTL	CF	8-Input NAND Gate
MC503	MTTL	CF	2-Wide 3-Input AND-OR-INVERT Gate with Gated Complement
MC504	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC505	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC506	MTTL	CF	Expandable 8-Input NAND Gate
MC507	MTTL	CF	Line Driver
MC508	MTTL	CF	Quad 2-Input NAND Gate
MC509	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC510	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC511	MTTL	CF	Dual 4-Input Expander for NAND Gates
MC512	MTTL	CF	Triple 3-Input NAND Gate
MC513	MTTL	CF	R-S Flip-Flop
MC514	MTTL	CF	Gated R-S Flip-Flop
MC515	MTTL	CF	AND J-K Flip-Flop

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC516	MTTL	CF	OR J-K Flip-Flop
MC519	MTTL	CF	Triple 2-Input Bus Driver
MC520	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC521	MTTL	CF	AC Coupled R-S Flip-Flop
MC522	MTTL	CF	Dual Type D Flip-Flop
MC523	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC524	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC526	MTTL	CF	Dual 3-Input Pulse Shaper/Delay AND Gate
MC527	MTTL	CF	OR Expandable Dual 4-Input AND Gate
MC528	MTTL	CF	Dual 2-Wide 2-3 Input OR Expander
MC529	MTTL	CF	Hex Inverter
MC550	MTTL	CF	Dual 4-Input NAND Gate
MC551	MTTL	CF	Expandable 4-Wide 2-2-2-3-Input AND-OR-INVERT Gate
MC552	MTTL	CF	8-Input NAND Gate
MC553	MTTL	CF	2-Wide 3-Input AND-OR-INVERT Gate with Gated Complement
MC554	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC555	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC556	MTTL	CF	Expandable 8-Input NAND Gate
MC557	MTTL	CF	Line Driver
MC558	MTTL	CF	Quad 2-Input NAND Gate
MC559	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC560	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC561	MTTL	CF	Dual 4-Input Expander for NAND Gates
MC562	MTTL	CF	Triple 3-Input NAND Gate
MC563	MTTL	CF	R-S Flip-Flop
MC564	MTTL	CF	Gated R-S Flip-Flop
MC565	MTTL	CF	AND J-K Flip-Flop
MC566	MTTL	CF	OR J-K Flip-Flop
MC569	MTTL	CF	Triple 2-Input Bus Driver
MC570	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC571	MTTL	CF	AC Coupled R-S Flip-Flop
MC572	MTTL	CF	Dual Type D Flip-Flop
MC573	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC574	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC576	MTTL	CF	Dual 3-Input Pulse Shaper/Delay AND Gate
MC577	MTTL	CF	OR Expandable Dual 4-Input AND Gate
MC578	MTTL	CF	Dual 2-Wide 2-3 Input OR Expander
MC579	MTTL	CF	Hex Inverter
MC660	MHTL	DS	Expandable Dual 4-Input NAND Gate (active pullup)
MC661	MHTL	DS	Expandable Dual 4-Input NAND Gate (passive pullup)
MC662	MHTL	DS	Expandable Dual 4-Input Line Driver (NAND)
MC663	MHTL	DS	Dual J-K Flip-Flop
MC664	MHTL	DS	Master-Slave R-S Flip-Flop
MC665	MHTL	DS	Triple Level Translator
MC666	MHTL	DS	Triple Level Translator
MC667	MHTL	DS	Dual Monostable Multivibrator
MC668	MHTL	DS	Quad 2-Input NAND Gate (passive pullup)
MC669	MHTL	DS	Dual 4-Input Expander
MC670	MHTL	DS	Triple 3-Input NAND Gate (passive pullup)
MC671	MHTL	DS	Triple 3-Input NAND Gate (active pullup)
MC672	MHTL	DS	Quad 2-Input NAND Gate (active pullup)
MC673	MHTL	DS	Dual 2-Input AND-OR-INVERT Gate (active pullup)
MC674	MHTL	DS	Dual 2-Input AND-OR-INVERT Gate (passive pullup)
MC675	MHTL	DS	Dual Pulse Stretcher
MC676	MHTL	DS	BCD-To-Decimal Decoder-Driver
MC677	MHTL	DS	Hex Inverter With Strobe (active pullup)
MC678	MHTL	DS	Hex Inverter With Strobe (without output resistors)
MC679.B	MHTL	DS	Dual Lamp/Line Driver
MC680	MHTL	DS	Hex Inverter (active pullup)
MC681	MHTL	DS	Hex Inverter (open collector)
MC682	MHTL	DS	Quad Latch
MC683	MHTL	DS	Quad 2-Input Exclusive OR Gate
MC684	MHTL	DS	Decade Counter
MC685	MHTL	DS	Binary Counter
MC686	MHTL	DS	4-Bit Shift Register
MC688	MHTL	DS	Dual J-K Flip-Flop
MC689	MHTL	DS	Hex Inverter (high voltage)
MC690	MHTL	DS	Hex inverter (active pullup)
MC691	MHTL	DS	Hex Inverter/Interface Element
MC696	MHTL	DS	Dual Interface Element, Line Driver/Receiver

MC700G,F-MC790P

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC700G.F MC701G MC702G MC703G.F MC704G.F	MRTL	CF	Buffer Counter Adapter R-S Flip-Flop 3-Input NOR Gate Half Adder
MC705G.F MC706G.F MC707G.F MC708G.F MC709G.F	MRTL	CF	Half-Shift Register Half-Shift Register (w/o inverter) 4-Input NOR Gate Half Adder 2-Input Buffer
MC710G.F MC711G.F MC712G.F MC713G.F MC714G.F	mW MRTL	CF	Dual 2-Input NOR Gate 4-Input OR/NOR Gate Half Adder Type D Flip-Flop Dual 2-Input NOR Gate
MC715G.F MC715P MC717F MC717P MC718G.F	MRTL	CF	Dual 3-Input NOR Gate Dual 3-Input NOR Gate Quad 2-Input NOR Gate Quad 2-Input NOR Gate Dual 3-Input NOR Gate
MC718P MC719F MC719P MC720G.F MC721G.F	mW MRTL	DS	Dual 3-Input NOR Gate Dual 4-Input NOR Gate Dual 4-Input NOR Gate J-K Flip-Flop Dual 2-Input Gate Expander
MC722G.F MC722P MC723G.F MC723P MC724F	mW MRTL	CF	J-K Flip-Flop J-K Flip-Flop J-K Flip-Flop J-K Flip-Flop Quad 2-Input NOR Gate
MC724P.AP MC725F MC725P MC726G.F MC726P	MRTL	DS	Quad 2-Input NOR Gate Dual 4-Input NOR Gate Dual 4-Input NOR Gate J-K Flip-Flop J-K Flip-Flop
MC727G.F MC728G.F MC729G.F MC764P MC767P.AP	MRTL	CF	Quad Inverter 5-Input NOR Gate 5-Input NOR Gate Dual Exclusive OR/NOR Gate Quad Latch
MC77DP MC771F MC771P MC774G MC775F	mW MRTL	DS	BCD-To-Decimal Decoder Quad Exclusive OR Gate Quad Exclusive OR Gate J-K Flip-Flop Dual Half-Adder
MC775P MC776F MC776P MC777P MC778F	MRTL	DS	Dual Half-Adder Dual J-K Flip-Flop Dual J-K Flip-Flop Binary Up Counter Dual Type D Flip-Flop
MC778P MC779P MC780P MC781G MC782G	mW MRTL	DS	Dual Type D Flip-Flop 1 J-K Flip-Flop, 1 Expander, 2 Buffers Decade Up Counter Dual Buffer J-K Flip-Flop
MC783F MC783P MC784F MC784P MC785F	MRTL	CF	Dual Half-Shift Register Dual Half-Shift Register Dual Half-Shift Register (w/inverter) Dual Half-Shift Register (w/inverter) Quad 2-Input Expander
MC785P.AP MC786F MC786P MC787P MC788F	MRTL	DS	Quad 2-Input Expander Dual 4-Input Expander Dual 4-Input Expander 1 J-K Flip-Flop, 1 Inverter, 2 Buffers Dual 3-Input Buffer, non-inverting
MC788P MC789F MC789P.AP MC790F MC790P	MRTL	DS	Dual 3-Input Buffer, non-inverting Hex Inverter Hex Inverter Dual J-K Flip-Flop Dual J-K Flip-Flop

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TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-VOLUME 4 CF-Consult Factory	FUNCTION
MC791F	MRTL	CF	Dual J-K Flip-Flop
MC791P	MRTL	DS	Dual J-K Flip-Flop
MC792F	MRTL	CF	Triple 3-Input NOR Gate
MC792P	MRTL	DS	Triple 3-Input NOR Gate
MC793F	mW MRTL	CF	Triple 3-Input NOR Gate
MC793P	mW MRTL	DS	Triple 3-Input NOR Gate
MC794P	MRTL	DS	Serial-Parallel Shift Register
MC796F	MRTL	CF	Dual Full Adder
MC796P	MRTL	DS	Dual Full Adder
MC797F	MRTL	CF	Dual Full Subtractor
MC797P	MRTL	DS	Dual Full Subtractor
MC798F	mW MRTL	CF	Dual 2-Input Buffer
MC798P	mW MRTL	DS	Dual 2-Input Buffer
MC799G,F	MRTL	CF	Dual Buffer
MC799P	MRTL	DS	Dual Buffer
MC800G,F	MRTL	CF	Buffer
MC801G	MRTL	CF	Counter Adapter
MC802G	MRTL	CF	R-S Flip-Flop
MC803G,F	MRTL	CF	3-Input NOR Gate
MC804G,F	MRTL	CF	Half Adder
MC805G,F	MRTL	CF	Half-Shift Register
MC806G,F	MRTL	CF	Half-Shift Register (w/o inverter)
MC807G,F	MRTL	CF	4-Input NOR Gate
MC808G,F	mW MRTL	CF	Half Adder
MC809G,F	mW MRTL	CF	2-Input Buffer
MC810G,F	mW MRTL	CF	Dual 2-Input NOR Gate
MC811G,F	mW MRTL	CF	4-Input OR/NOR Gate
MC812G,F	mW MRTL	CF	Half Adder
MC813G,F	mW MRTL	CF	Type D Flip-Flop
MC814G,F	MRTL	CF	Dual 2-Input NOR Gate
MC815G,F	MRTL	CF	Dual 3-Input NOR Gate
MC815P	MRTL	OS	Dual 3-Input NOR Gate
MC816G,F	MRTL	CF	J-K Flip-Flop
MC816P	MRTL	CF	J-K Flip-Flop
MC817F	mW MRTL	CF	Quad 2-Input NOR Gate
MC817P	mW MRTL	DS	Quad 2-Input NOR Gate
MC818G,F	mW MRTL	CF	Dual 3-Input NOR Gate
MC818P	mW MRTL	DS	Dual 3-Input NOR Gate
MC819F	mW MRTL	CF	Dual 4-Input NOR Gate
MC819P	mW MRTL	DS	Dual 4-Input NOR Gate
MC820G,F	mW MRTL	CF	J-K Flip-Flop
MC821G,F	mW MRTL	CF	Dual 2-Input Gate Expander
MC822G,F	mW MRTL	CF	J-K Flip-Flop
MC822P	mW MRTL	DS	J-K Flip-Flop
MC824F	MRTL	CF	Quad 2-Input NOR Gate
MC824P,AP	MRTL	DS	Quad 2-Input NOR Gate
MC825F	MRTL	CF	Dual 4-Input NOR Gate
MC825P	MRTL	CF	Dual 4-Input NOR Gate
MC826G,F	MRTL	CF	J-K Flip-Flop
MC826P	MRTL	DS	J-K Flip-Flop
MC827G,F	MRTL	CF	Quad Inverter
MC828G,F	mW MRTL	CF	5-Input NOR Gate
MC829G,F	MRTL	CF	5-Input NOR Gate
MC830F,L,P	MDTL	DS	Expandable Dual 4-Input NAND Gate
MC830G	MDTL	DS	Expandable Dual 3-2 Input NAND Gate
MC832F,L,P	MDTL	DS	Expandable Dual 4-Input Buffer
MC832G	MDTL	DS	Expandable Dual 3-2 Input Buffer
MC833F,L,P	MDTL	DS	Dual 4-Input Expander
MC833G	MDTL	DS	Dual 4-3 Input Expander
MC834	MDTL	DS	Hex Inverter
MC835	MDTL	DS	Hex Inverter (without output resistors)
MC836	MDTL	DS	Hex Inverter
MC837	MDTL	DS	Hex Inverter
MC838	MDTL	DS	Decade Counter
MC839	MDTL	DS	Divide-by-Sixteen Counter
MC840	MDTL	DS	Hex Inverter (without input diodes)
MC841	MDTL	DS	Hex Inverter (without output resistors and input diodes)
MC843G	MDTL	DS	4-Input AND Driver with NOR Strobe
MC844F,L,P	MDTL	DS	Expandable Dual 4-Input Power Gate
MC844G	MOTL	DS	Expandable Dual 3-2 Input Power Gate Clocked Flip-Flop

MC845G-MC901G

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC845G	MDTL	DS	Clocked Flip-Flop
MC846F.L.P	MDTL	DS	Quad 2-Input NAND Gate
MC846G	MDTL	DS	Quad Inverter
MC847	MDTL	DS	Quad 2-Input Gate Expander
MC848G	MDTL	DS	Clocked Flip-Flop
MC849F.L.P	MDTL	DS	Quad 2-Input NAND Gate (2k pullup resistor)
MC849G	MDTL	DS	Quad Inverter (2k pullup resistor)
MC850G	MDTL	DS	Pulse Triggered Binary
MC851G	MDTL	DS	Monostable Multivibrator
MC852	MDTL	DS	Dual J-K Flip-Flop (common clock and CD, separate SD)
MC853	MDTL	DS	Dual J-K Flip-Flop (separate clock and SD, no CD)
MC855	MDTL	DS	Dual J-K Flip-Flop (common C and CD, sep SD, 2k pullup)
MC856	MDTL	DS	Dual J-K Flip-Flop (separate C and SD, no CD, 2k pullup)
MC857	MDTL	DS	Quad 2-Input Buffer
MC858	MDTL	DS	Quad 2-Input NAND Power Gate
MC861F.L.P	MDTL	DS	Expandable Dual 4-Input NAND Gate (2k pullup resistor)
MC861G	MDTL	DS	Expandable Dual 3-2 Input NAND Gate (2k pullup)
MC862F.L.P	MDTL	DS	Triple 3-Input NAND Gate
MC862G	MDTL	DS	Dual 2-Input NAND Gate plus Inverter
MC863F.L.P	MDTL	DS	Triple 3-Input NAND Gate (2k pullup resistor)
MC863G	MDTL	DS	Dual 2-Input NAND Gate plus Inverter (2k pullup)
MC864P	mW MRTL	DS	Dual Exclusive OR/NDR Gate
MC867P.AP	mW MRTL	DS	Quad Latch
MC870P	mW MRTL	DS	BCD-To-Decimal Decoder
MC871F	MRTL	CF	Quad Exclusive OR Gate
MC871P	MRTL	DS	Quad Exclusive OR Gate
MC874G	MRTL	CF	J-K Flip-Flop
MC875F	MRTL	CF	Dual Half-Adder
MC875P	MRTL	DS	Dual Half-Adder
MC876F	mW MRTL	CF	Dual J-K Flip-Flop
MC876P	mW MRTL	DS	Dual J-K Flip-Flop
MC877P	MRTL	DS	Binary Up Counter
MC878F	mW MRTL	CF	Dual Type D Flip-Flop
MC878P	mW MRTL	DS	Dual Type D Flip-Flop
MC879P	MRTL	DS	1 J-K Flip-Flop, 1 Expander, 2 Buffers
MC880P	MRTL	DS	Decade Up Counter
MC881G	mW MRTL	CF	Dual Buffer
MC882G	mW MRTL	CF	J-K Flip-Flop
MC883F	MRTL	CF	Dual Half-Shift Register
MC883P	MRTL	DS	Dual Half-Shift Register
MC884F	MRTL	CF	Dual Half-Shift Register (w/inverter)
MC884P	MRTL	DS	Dual Half-Shift Register (w/inverter)
MC885F	MRTL	CF	Quad 2-Input Expander
MC885P.AP	MRTL	DS	Quad 2-Input Expander
MC886F	MRTL	CF	Dual 4-Input Expander
MC886P	MRTL	DS	Dual 4-Input Expander
MC887P	MRTL	DS	1 J-K Flip-Flop, 1 Inverter, 2 Buffers
MC888F	MRTL	CF	Dual 3-Input Buffer, non-inverting
MC888P	MRTL	DS	Dual 3-Input Buffer, non-inverting
MC889F	MRTL	CF	Hex Inverter
MC889P.AP	MRTL	DS	Hex Inverter
MC890F	MRTL	CF	Dual J-K Flip-Flop
MC890P	MRTL	DS	Dual J-K Flip-Flop
MC891F	MRTL	CF	Dual J-K Flip-Flop
MC891P	MRTL	DS	Dual J-K Flip-Flop
MC892F	MRTL	CF	Triple 3-Input NOR Gate
MC892P	MRTL	DS	Triple 3-Input NOR Gate
MC893F	mW MRTL	CF	Triple 3-Input NOR Gate
MC893P	mW MRTL	DS	Triple 3-Input NOR Gate
MC894P	MRTL	DS	Serial Parallel Shift Register
MC896F	MRTL	CF	Dual Full Adder
MC896P	MRTL	DS	Dual Full Adder
MC897F	MRTL	CF	Dual Full Subtractor
MC897P	MRTL	DS	Dual Full Subtractor
MC898F	mW MRTL	CF	Dual 2-Input Buffer
MC898P	mW MRTL	DS	Dual 2-Input Buffer
MC899G.F	MRTL	CF	Dual Buffer
MC899P	MRTL	DS	Dual Buffer
MC900G.F	MRTL	CF	Buffer
MC901G	MRTL	CF	Counter Adapter

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC902G	MRTL	CF	R-S Flip-Flop
MC903G.F	MRTL	CF	3-Input NOR Gate
MC904G.F	MRTL	CF	Half Adder
MC905G.F	MRTL	CF	Half-Shift Register
MC906G.F	MRTL	CF	Half-Shift Register (w/o inverter)
MC907G.F	MRTL	CF	4-Input NOR Gate
MC908G.F	mW MRTL	CF	Half Adder
MC909G.F	mW MRTL	CF	2-Input Buffer
MC910G.F	mW MRTL	CF	Dual 2-Input NOR Gate
MC911G.F	mW MRTL	CF	4-Input OR/NDR Gate
MC912G.F	mW MRTL	CF	Half Adder
MC913G.F	mW MRTL	CF	Type D Flip-Flop
MC914G.F	MRTL	CF	Dual 2-Input NOR Gate
MC915G.F	MRTL	CF	Dual 3-Input NOR Gate
MC916G.F	MRTL	CF	J-K Flip-Flop
MC917F	mW MRTL	CF	Quad 2-Input NOR Gate
MC918G.F	mW MRTL	CF	Dual 3-Input NOR Gate
MC919F	mW MRTL	CF	Dual 4-Input NDR Gate
MC920G.F	mW MRTL	CF	J-K Flip-Flop
MC921G.F	mW MRTL	CF	Dual 2-Input Gate Expander
MC922G.F	mW MRTL	CF	J-K Flip-Flop
MC924F	MRTL	CF	Quad 2-Input NOR Gate
MC925F	MRTL	CF	Dual 4-Input NOR Gate
MC926G.F	MRTL	CF	J-K Flip-Flop
MC927G.F	MRTL	CF	Quad Inverter
MC928G.F	mW MRTL	CF	5-Input NOR Gate
MC929G.F	MRTL	CF	5-Input NOR Gate
MC930F.L	MDTL	DS	Expandable Dual 4-Input NAND Gate
MC930G	MDTL	DS	Expandable Dual 3-2 Input NAND Gate
MC932F.L	MDTL	DS	Expandable Dual 4-Input Buffer
MC932G	MDTL	DS	Expandable Dual 3-2 Input Buffer
MC933F.L	MDTL	DS	Dual 4-Input Expander
MC933G	MDTL	DS	Dual 4-3 input Expander
MC934	MDTL	DS	Hex Inverter
MC935	MDTL	DS	Hex Inverter (without output resistors)
MC936	MDTL	DS	Hex Inverter
MC937	MDTL	DS	Hex Inverter
MC938	MDTL	DS	Decade Counter
MC939	MDTL	DS	Divide-by-Sixteen Counter
MC940	MDTL	DS	Hex Inverter (without input diodes)
MC941	MDTL	DS	Hex Inverter (without output resistors and input diodes)
MC943G	MDTL	DS	4-Input AND Driver with NOR Strobe
MC944F.L	MDTL	DS	Expandable Dual 4-Input Power Gate
MC944G	MDTL	DS	Expandable Dual 3-2 Input Power Gate Clocked Flip-Flop
MC945G	MDTL	DS	Clocked Flip-Flop
MC946F.L	MDTL	DS	Quad 2-Input NAND Gate
MC946G	MDTL	DS	Quad Inverter
MC947	MDTL	DS	Quad 2-Input Gate Expander
MC948G	MDTL	DS	Clocked Flip-Flop
MC949F.L	MDTL	DS	Quad 2-Input NAND Gate (2k pullup resistor)
MC949G	MDTL	DS	Quad Inverter (2k pullup resistor)
MC950G	MDTL	DS	Pulse Triggered Binary
MC951G	MDTL	DS	Monostable Multiwibrator
MC952	MDTL	DS	Dual J-K Flip-Flop (common clock and CD, separate SD)
MC953	MDTL	DS	Dual J-K Flip-Flop (separate clock and SD, no CD)
MC955	MDTL	DS	Dual J-K Flip-Flop (common C and CD, sep SD, 2k pullup)
MC956	MDTL	DS	Dual J-K Flip-Flop (separate C and SD, no CD, 2k pullup)
MC957	MDTL	DS	Quad 2-Input Buffer
MC958	MDTL	DS	Quad 2-Input NAND Power Gate
MC961F.L	MDTL	DS	Expandable Dual 4-Input NAND Gate (2k pullup resistor)
MC961G	MDTL	DS	Expandable Dual 3-2 Input NAND Gate (2k pullup)
MC962F.L	MDTL	DS	Triple 3-Input NAND Gate
MC962G	MDTL	DS	Dual 2-Input NAND Gate plus Inverter
MC963F.L	MDTL	DS	Triple 3-Input NAND Gate (2k pullup resistor)
MC963G	MDTL	DS	Dual 2-Input NAND Gate plus Inverter (2k pullup)
MC971F	MRTL	CF	Quad Exclusive OR Gate
MC974G	MRTL	CF	J-K Flip-Flop
MC975F	MRTL	CF	Dual Half-Adder
MC976F	mW MRTL	CF	Dual J-K Flip-Flop
MC978F	mW MRTL	CF	Dual Type D Flip-Flop

MC981G-MC1439

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC981G	mW MRTL	CF	Dual Buffer
MC982G	mW MRTL	CF	J-K Flip-Flop
MC983F	MRTL	CF	Dual Half-Shift Register
MC984F	MRTL	CF	Dual Half-Shift Register (w/inverter)
MC985F	MRTL	CF	Quad 2-Input Expander
MC986F	MRTL	CF	Dual 4-Input Expander
MC988F	MRTL	CF	Dual 3-Input Buffer, non-inverting
MC989F	MRTL	CF	Hex Inverter
MC990F	MRTL	CF	Dual J-K Flip-Flop
MC991F	MRTL	CF	Dual J-K Flip-Flop
MC992F	MRTL	CF	Triple 3-Input NDR Gate
MC993F	mW MRTL	CF	Triple 3-Input NOR Gate
MC996F	MRTL	CF	Dual Full Adder
MC997F	MRTL	CF	Dual Full Subtractor
MC998F	mW MRTL	CF	Dual 2-Input Buffer
MC999G,F	MRTL	CF	Dual Buffer
MC1303	Linear	D3	Dual Stereo Preamplifier
MC1304	Linear	D3	FM Multiplex Stereo Demodulator
MC1305	Linear	D3	FM Multiplex Stereo Demodulator
MC1306	Linear	D3	1/2-Watt Audio Amplifier
MC1307	Linear	D3	FM Multiplex Stereo Demodulator
MC1310	Linear	D3	FM Stereo Demodulator
MC1312	Linear	D3	Four-Channel SQ* Decoder
MC1313	Linear	D3	Four-Channel SQ* Decoder
MC1314	Linear	D3	Four-Channel Audio Voltage-Controlled Amplifier
MC1315	Linear	D3	Four-Channel Audio Logic Circuit
MC1324	Linear	D3	Dual Doubly Balanced Chroma Demodulator
MC1326	Linear	D3	Dual Doubly Balanced Chroma Demodulator
MC1327	Linear	D3	Dual Doubly Balanced Chroma Demodulator
MC1328	Linear	D3	Dual Doubly Balanced Chroma Demodulator
MC1329	Linear	D3	Dual Doubly Balanced Chroma Demodulator
MC1330	Linear	D3	Low-Level Video Detector
MC1339	Linear	D3	Dual Low-Noise Stereo Preamplifier
MC1344	Linear	D3	TV Signal Processor
MC1349	Linear	D3	IF Amplifier
MC1350	Linear	D3	IF Amplifier
MC1351	Linear	D3	TV Sound Circuit
MC1352	Linear	D3	TV Video IF Amplifier
MC1353	Linear	D3	TV Video IF Amplifier
MC1355	Linear	D3	Limiting FM IF Amplifier
MC1356	Linear	D3	FM Detector/Limiter
MC1357	Linear	D3	IF Amplifier and Quadrature Detector
MC1358	Linear	D3	TV Sound IF Amplifier
MC1359	Linear	D3	TV Sound System
MC1364	Linear	D3	Automatic Frequency Control
MC1370	Linear	D3	TV Chroma Subcarrier Regenerator
MC1371	Linear	D3	TV Chroma IF Amplifier
MC1375	Linear	D3	FM IF Circuit
MC1385	Linear	D3	Class B Audio Driver
MC1391	Linear	D3	TV Horizontal Processor
MC1394	Linear	D3	TV Horizontal Processor
MC1395	Linear	D3	PAL Chroma
MC1396	Linear	D3	PAL Luma
MC1398	Linear	D3	TV Color Processing Circuit
MC1405	Linear	DS	Analog-to-Digital Converter Subsystem
MC1406	Linear	D3	Six-Bit Multiplying Digital-to-Analog Converter
MC1408	Linear	D3	Eight-Bit Multiplying Digital-to-Analog Converter
MC1410	Linear	D3	Video Amplifier
MC1414	Linear	D3	Dual Differential Comparator
MC1420	Linear	D3	Operational Amplifier
MC1430	Linear	D3	Operational Amplifier
MC1431	Linear	D3	Operational Amplifier
MC1433	Linear	D3	Operational Amplifier
MC1435	Linear	D3	Dual Operational Amplifier
MC1436	Linear	D3	Operational Amplifier
MC1436C	Linear	D3	Operational Amplifier
MC1437	Linear	D3	Operational Amplifier
MC1438	Linear	D3	Power Booster
MC1439	Linear	D3	Operational Amplifier

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TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC1440	Linear	DB	Core-Memory Sense Amplifier
MC1441	Linear	DB	Sense Amplifier
MC1444	Linear	DB	AC-Coupled 4-Channel Sense Amplifier
MC1445	Linear	DB	Wideband Amplifier
MC1454	Linear	DB	1-Watt Power Amplifier
MC1455	Linear	DB	Timing Circuit
MC1456	Linear	DB	Operational Amplifier
MC1456C	Linear	DB	Operational Amplifier
MC1458	Linear	DB	Dual Operational Amplifier
MC1458C	Linear	DB	Dual Operational Amplifier
MC1460	Linear	DB	Positive Voltage Regulator
MC1461	Linear	DB	Positive Voltage Regulator
MC1463	Linear	DB	Negative Voltage Regulator
MC1466	Linear	DB	Voltage and Current Regulator
MC1468	Linear	DB	Dual \pm 15-Volt Tracking Regulator
MC1469	Linear	DB	Positive Voltage Regulator
MC1488	Linear	DB	Quad MDTL Line Driver
MC1489	Linear	DB	Quad MDTL Line Receiver
MC1489A	Linear	DB	Quad MDTL Line Receiver
MC1494	Linear	DB	Four-Quadrant Multiplier
MC1495	Linear	DB	Four-Quadrant Multiplier
MC1496	Linear	DB	Balanced Modulator-Demodulator
MC1505	Linear	DS	Analog-to-Digital Converter Subsystem
MC1506	Linear	DB	Six-Bit Multiplying Digital-to-Analog Converter
MC1508	Linear	DB	Eight-Bit Multiplying Digital-to-Analog Converter
MC1510	Linear	DB	Video Amplifier
MC1514	Linear	DB	Dual Differential Comparator
MC1520	Linear	DB	Operational Amplifier
MC1530	Linear	DB	Operational Amplifier
MC1531	Linear	DB	Operational Amplifier
MC1533	Linear	DB	Operational Amplifier
MC1535	Linear	DB	Dual Operational Amplifier
MC1536	Linear	DB	Operational Amplifier
MC1537	Linear	DB	Operational Amplifier
MC1538	Linear	DB	Power Booster
MC1539	Linear	DB	Operational Amplifier
MC1540	Linear	DB	Core-Memory Sense Amplifier
MC1541	Linear	DB	Sense Amplifier
MC1543	Linear	DB	Dual Sense Amplifier
MC1544	Linear	DB	AC-Coupled 4-Channel Sense Amplifier
MC1545	Linear	DB	Wideband Amplifier
MC1550	Linear	DB	RF-IF Amplifier
MC1552	Linear	DB	Video Amplifier
MC1553	Linear	DB	Video Amplifier
MC1554	Linear	DB	1-Watt Power Amplifier
MC1555	Linear	DB	Timing Circuit
MC1556	Linear	DB	Operational Amplifier
MC1558	Linear	DB	Dual Operational Amplifier
MC1560	Linear	DB	Positive Voltage Regulator
MC1561	Linear	DB	Positive Voltage Regulator
MC1563	Linear	DB	Negative Voltage Regulator
MC1566	Linear	DB	Voltage and Current Regulator
MC1568	Linear	DB	Dual \pm 15-Volt Tracking Regulator
MC1569	Linear	DB	Positive Voltage Regulator
MC1590	Linear	DB	Wideband Amplifier with AGC
MC1594	Linear	DB	Four-Quadrant Multiplier
MC1595	Linear	DB	Four-Quadrant Multiplier
MC1596	Linear	DB	Balanced Modulator-Demodulator
MC1648	MECL	V4	Voltage Controlled Oscillator
MC1650	MECL	V4	Dual A/D Comparator
MC1651	MECL	V4	Dual A/D Comparator
MC1654	MECL	V4	Binary Counter
MC1658	MECL	V4	Voltage-Controlled Multivibrator
MC1660	MECL	V4	Dual 4-Input OR/NOR Gate
MC1662	MECL	V4	Quad 2-Input NOR Gate
MC1664	MECL	V4	Quad 2-Input OR Gate
MC1666	MECL	V4	Dual Clocked R-S Flip-Flop
MC1668	MECL	V4	Dual Clocked Latch
MC1670	MECL	V4	Master-Slave Type D Flip-Flop

MC1672-MC2002

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC1672	MECL	V4	Triple 2-Input Exclusive OR Gate
MC1674	MECL	V4	Triple 2-Input Exclusive NOR Gate
MC1678	MECL	V4	Bi-Quinary Counter
MC1688	MECL	V4	Dual 4-5-Input DR/NDR Gate
MC1690	MECL	V4	UHF Prescaler Type D Flip-Flop
MC1692	MECL	V4	Quad Line Receiver
MC1694	MECL	V4	4-Bit Shift Register
MC1696	MECL	DS	1 GHz Divide-By-Ten Counter
MC1709	Linear	DB	Operational Amplifier
MC1709A	Linear	DS	Operational Amplifier
MC1709C	Linear	DB	Operational Amplifier
MC1710	Linear	DB	Differential Comparator
MC1710C	Linear	DB	Differential Comparator
MC1711	Linear	DB	Dual Differential Comparator
MC1711C	Linear	DB	Dual Differential Comparator
MC1712	Linear	DB	Wideband DC Amplifier
MC1712C	Linear	DB	Wideband DC Amplifier
MC1723	Linear	DB	Positive Voltage Regulator
MC1723C	Linear	DB	Positive Voltage Regulator
MC1733	Linear	DB	Differential Video Amplifier
MC1733C	Linear	DB	Differential Video Amplifier
MC1741	Linear	DB	Operational Amplifier
MC1741C	Linear	DB	Operational Amplifier
MC1741S	Linear	DB	High-Slew-Rate Operational Amplifier
MC1741SC	Linear	DB	High-Slew-Rate Operational Amplifier
MC1747	Linear	DB	Dual Operational Amplifier
MC1747C	Linear	DB	Dual Operational Amplifier
MC1748	Linear	DB	Operational Amplifier
MC1748C	Linear	DB	Operational Amplifier
MC1776	Linear	DB	Programmable Operational Amplifier
MC1776C	Linear	DB	Programmable Operational Amplifier
MC1800	MDTL	DS	Dual 6-Input NAND Gate
MC1801	MDTL	DS	Dual 5-Input NAND Gate (2k pullup resistor)
MC1802	MDTL	DS	Expandable 8-Input NAND Gate
MC1803	MDTL	DS	Expandable 8-Input NAND Gate (2k pullup resistor)
MC1804	MDTL	DS	10-Input NAND Gate
MC1805	MDTL	DS	10-Input NAND Gate (2k pullup resistor)
MC1806	MDTL	DS	Quad 2-Input AND Gate
MC1807	MDTL	DS	Quad 2-Input AND Gate (2k pullup resistor)
MC1808	MDTL	DS	Quad 2-Input OR Gate
MC1809	MDTL	DS	Quad 2-Input OR Gate (2k pullup resistor)
MC1810	MDTL	DS	Quad 2-Input NOR Gate
MC1811	MDTL	DS	Quad 2-Input NOR Gate (2k pullup resistor)
MC1812	MDTL	DS	Quad 2-Input Exclusive OR Gate
MC1813	MDTL	DS	Quad Latch
MC1814	MDTL	DS	Quad Latch
MC1815	MDTL	DS	Parallel Gated Clocked Flip-Flop
MC1816	MDTL	DS	Parallel Gated Clocked Flip-Flop
MC1818	MDTL	DS	Quad 2-Input NAND Gate (without output resistor)
MC1820	MDTL	DS	High Voltage Hex Inverter
MC1900	MDTL	DS	Dual 6-Input NAND Gate
MC1901	MDTL	DS	Dual 5-Input NAND Gate (2k pullup resistor)
MC1902	MDTL	DS	Expandable 8-Input NAND Gate
MC1903	MDTL	DS	Expandable 8-Input NAND Gate (2k pullup resistor)
MC1904	MDTL	DS	10-Input NAND Gate
MC1905	MDTL	DS	10-Input NAND Gate (2k pullup resistor)
MC1906	MDTL	DS	Quad 2-Input AND Gate
MC1907	MDTL	DS	Quad 2-Input AND Gate (2k pullup resistor)
MC1908	MDTL	DS	Quad 2-Input OR Gate
MC1909	MDTL	DS	Quad 2-Input OR Gate (2k pullup resistor)
MC1910	MDTL	DS	Quad 2-Input NOR Gate
MC1911	MDTL	DS	Quad 2-Input NOR Gate (2k pullup resistor)
MC1912	MDTL	DS	Quad 2-Input Exclusive OR Gate
MC1914	MDTL	DS	Quad Latch
MC1915	MDTL	DS	Parallel Gated Clocked Flip-Flop
MC1916	MDTL	DS	Parallel Gated Clocked Flip-Flop
MC1918	MDTL	DS	Quad 2-Input NAND Gate (without output resistor)
MC2000	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC2001	MTTL	CF	Quad 2-Input NAND Gate
MC2002	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC2003	MTTL	CF	Dual 4-Input NAND Gate
MC2004	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC2005	MTTL	CF	8-Input NAND Gate
MC2006	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC2007	MTTL	CF	Triple 3-Input NAND Gate
MC2011	MTTL	CF	Expandable 8-Input NAND Gate
MC2012	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC2013	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC2016	MTTL	CF	Hex Inverter
MC2023	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC2024	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC2025	MTTL	CF	AND J-K Flip-Flop
MC2026	MTTL	CF	OR J-K Flip-Flop
MC2028	MTTL	CF	OR J-K Flip-Flop
MC2050	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC2051	MTTL	CF	Quad 2-Input NAND Gate
MC2052	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC2053	MTTL	CF	Dual 4-Input NAND Gate
MC2054	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC2055	MTTL	CF	8-Input NAND Gate
MC2056	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC2057	MTTL	CF	Triple 3-Input NAND Gate
MC2061	MTTL	CF	Expandable 8-Input NAND Gate
MC2062	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC2063	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC2065	MTTL	CF	Quad 2-Input Lamp/Line Driver
MC2066	MTTL	CF	Hex Inverter
MC2073	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC2074	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC2075	MTTL	CF	AND J-K Flip-Flop
MC2076	MTTL	CF	OR J-K Flip-Flop
MC2078	MTTL	CF	OR J-K Flip-Flop
MC2100	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC2101	MTTL	CF	Quad 2-Input NAND Gate
MC2102	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC2103	MTTL	CF	Dual 4-Input NAND Gate
MC2104	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC2105	MTTL	CF	8-Input NAND Gate
MC2106	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC2107	MTTL	CF	Triple 3-Input NAND Gate
MC2111	MTTL	CF	Expandable 8-Input NAND Gate
MC2112	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC2113	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC2116	MTTL	CF	Hex Inverter
MC2123	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC2124	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC2125	MTTL	CF	AND J-K Flip-Flop
MC2126	MTTL	CF	OR J-K Flip-Flop
MC2128	MTTL	CF	OR J-K Flip-Flop
MC2150	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC2151	MTTL	CF	Quad 2-Input NAND Gate
MC2152	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC2153	MTTL	CF	Dual 4-Input NAND Gate
MC2154	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC2155	MTTL	CF	8-Input NAND Gate
MC2156	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC2157	MTTL	CF	Triple 3-Input NAND Gate
MC2161	MTTL	CF	Expandable 8-Input NAND Gate
MC2162	MTTL	CF	Expandable 3-Wide 3-Input AND-OR-INVERT Gate
MC2163	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC2165	MTTL	CF	Quad 2-Input Lamp/Line Driver
MC2166	MTTL	CF	Hex Inverter
MC2173	MTTL	CF	Dual J-K Flip-Flop (separate clock)
MC2174	MTTL	CF	Dual J-K Flip-Flop (common clock)
MC2175	MTTL	CF	AND J-K Flip-Flop
MC2176	MTTL	CF	OR J-K Flip-Flop
MC2178	MTTL	CF	OR J-K Flip-Flop
MC2257	MOS	DS	Terminal Transmitter
MC2259	MOS	DS	Terminal Receiver
MC2260	MOS	DS	Terminal Transmitter

MC3000-MC3132

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC3000	MTTL	CF	Quad 2-Input NAND Gate
MC3001	MTTL	CF	Quad 2-Input AND Gate
MC3002	MTTL	CF	Quad 2-Input NOR Gate
MC3003	MTTL	CF	Quad 2-Input OR Gate
MC3004	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC3005	MTTL	CF	Triple 3-Input NAND Gate
MC3006	MTTL	CF	Triple 3-Input AND Gate
MC3007	MTTL	CF	Triple 3-Input NAND Gate (Open Collector)
MC3008	MTTL	CF	Hex Inverter
MC3009	MTTL	CF	Hex Inverter
MC3010	MTTL	CF	Dual 4-Input NAND Gate
MC3011	MTTL	CF	Dual 4-Input AND Gate
MC3012	MTTL	CF	Dual 4-Input NAND Gate (Open Collector)
MC3015	MTTL	CF	8-Input NAND Gate
MC3016	MTTL	CF	8-Input NAND Gate
MC3018	MTTL	CF	4-Wide 3-2-2-3 Input Expander For AND-OR-INVERT Gates
MC3019	MTTL	CF	Triple 3-Input Expander For AND-OR Gates
MC3020	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC3021	MTTL	CF	Quad 2-Input Exclusive OR Gate
MC3022	MTTL	CF	Quad 2-Input Exclusive NOR Gate
MC3023	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC3024	MTTL	CF	Dual 4-Input NAND Buffer Gate
MC3025	MTTL	CF	Dual 4-Input NAND Power Gate
MC3026	MTTL	CF	Dual 4-Input AND Power Gate
MC3028	MTTL	CF	Dual 3-Input 3-Output AND Series Terminated Line Driver
MC3029	MTTL	CF	Dual 3-Input 3-Output NAND Series Terminated Line Driver
MC3030	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC3031	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR Gate
MC3032	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC3033	MTTL	CF	4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC3034	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC3050	MTTL	CF	AND J-K Flip-Flop
MC3051	MTTL	CF	AND Input J-K Flip-Flop
MC3052	MTTL	CF	AND Input J-K Flip-Flop
MC3053	MTTL	CF	Double-Edge-Triggered Master-Slave Type D Flip-Flop
MC3054	MTTL	CF	OR Input J-K Flip-Flop
MC3055	MTTL	CF	AND Input J-K Flip-Flop
MC3060	MTTL	CF	Dual Type D Flip-Flop
MC3061	MTTL	CF	Dual J-K Flip-Flop
MC3062	MTTL	CF	Dual J-K Flip-Flop
MC3063	MTTL	CF	Dual J-K Flip-Flop
MC3100	MTTL	CF	Quad 2-Input NAND Gate
MC3101	MTTL	CF	Quad 2-Input AND Gate
MC3102	MTTL	CF	Quad 2-Input NOR Gate
MC3103	MTTL	CF	Quad 2-Input OR Gate
MC3104	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC3105	MTTL	CF	Triple 3-Input NAND Gate
MC3106	MTTL	CF	Triple 3-Input AND Gate
MC3107	MTTL	CF	Triple 3-Input NAND Gate (Open Collector)
MC3108	MTTL	CF	Hex Inverter
MC3109	MTTL	CF	Hex Inverter
MC3110	MTTL	CF	Dual 4-Input NAND Gate
MC3111	MTTL	CF	Dual 4-Input AND Gate
MC3112	MTTL	CF	Dual 4-Input NAND Gate (Open Collector)
MC3115	MTTL	CF	8-Input NAND Gate
MC3116	MTTL	CF	8-Input NAND Gate
MC3118	MTTL	CF	4-Wide 3-2-2-3 Input Expander For AND-OR-INVERT Gates
MC3119	MTTL	CF	Triple 3-Input Expander For AND-OR Gates
MC3120	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC3121	MTTL	CF	Quad 2-Input Exclusive OR Gate
MC3122	MTTL	CF	Quad 2-Input Exclusive NOR Gate
MC3123	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC3124	MTTL	CF	Dual 4-Input NAND Buffer Gate
MC3125	MTTL	CF	Dual 4-Input NAND Power Gate
MC3126	MTTL	CF	Dual 4-Input AND Power Gate
MC3128	MTTL	CF	Dual 3-Input 3-Output AND Series Terminated Line Driver
MC3129	MTTL	CF	Dual 3-Input 3-Output NAND Series Terminated Line Driver
MC3130	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC3131	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR Gate
MC3132	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC3133	MTTL	CF	4-Wide 2-2-2-3 Input AND-DR-INVERT Gate
MC3134	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC3150	MTTL	CF	AND J-K Flip-Flop
MC3151	MTTL	CF	AND Input J-K Flip-Flop
MC3152	MTTL	CF	AND Input J-K Flip-Flop
MC3153	MTTL	CF	Double-Edge-Triggered Master-Slave Type D Flip-Flop
MC3154	MTTL	CF	DR Input J-K Flip-Flop
MC3155	MTTL	CF	AND Input J-K Flip-Flop
MC3160	MTTL	CF	Dual Type D Flip-Flop
MC3161	MTTL	CF	Dual J-K Flip-Flop
MC3162	MTTL	CF	Dual J-K Flip-Flop
MC3163	MTTL	CF	Dual J-K Flip-Flop
MC3301	Linear	DB	Quad Operational Amplifier
MC3302	Linear	DB	Quad Comparator
MC3401	Linear	DB	Quad Operational Amplifier
MC3403	Linear	DS	Quad Operational Amplifier
MC3430	Linear	DB	High-Speed Quad Comparator
MC3431	Linear	DB	High-Speed Quad Comparator
MC3432	Linear	DB	High-Speed Quad Comparator
MC3433	Linear	DB	High-Speed Quad Comparator
MC3437	Linear	DS	Hex Unified Bus Receiver
MC3438	Linear	DS	Quad Unified Bus Transceiver
MC3440	Linear	DS	Quad Interface Bus Transceiver
MC3441	Linear	DS	Quad Interface Bus Transceiver
MC3443	Linear	DS	Quad Interface Bus Transceiver
MC3450	Linear	DB	Quad Line Receiver
MC3452	Linear	DB	Quad Line Receiver
MC3453	Linear	DB	Quad Line Driver
MC3459	Linear	DB	Quad NMOS Memory Driver
MC3460	Linear	DB	Quad NMOS Memory Driver
MC3462	Linear	DB	Quad MECL Line Receiver
MC3463	Linear	DB	Quad MECL Line Driver
MC3476	Linear	DS	Operational Amplifier
MC3503	Linear	DS	Quad Operational Amplifier
MC3570	Linear	DB	High-Slew Operational Amplifier
MC4000	MTTL	CF	Dual 4-Channel Data Selector
MC4001	MTTL	CF	BCD-to-Binary/Binary-to-BCD Number Converter
MC4002	MTTL	CF	Dual Data Distributor
MC4004	MTTL	CF	16-Bit Scratch Pad Memory Cell
MC4005	MTTL	CF	16-Bit Scratch Pad Memory Cell
MC4006	MTTL	CF	Binary to One-of-Eight Line Decoder
MC4007	MTTL	CF	Dual Binary to One-of-Four Line Decoder
MC4008	MTTL	CF	8-Bit Parity Tree
MC4010	MTTL	CF	Dual 4-Bit Parity Tree
MC4012	MTTL	CF	4-Bit Shift Register
MC4015	MTTL	CF	Quad Type D Flip-Flop
MC4016	MTTL	CF	Programmable Modulo-N Decade Counter
MC4018	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC4021	MTTL	CF	Dual 4-Bit Comparator (Open Collector)
MC4022	MTTL	CF	Dual 4-Bit Comparator
MC4023	MTTL	CF	4-Bit Universal Counter
MC4024	MTTL	CF	Dual Voltage-Controlled Multivibrator
MC4026	MTTL	CF	Full Adder
MC4027	MTTL	CF	Full Adder
MC4028	MTTL	CF	Adder (Dependent Carry)
MC4029	MTTL	CF	Adder (Dependent Carry)
MC4030	MTTL	CF	Adder (Independent Carry)
MC4031	MTTL	CF	Adder (Independent Carry)
MC4032	MTTL	CF	Carry Decoder
MC4035	MTTL	CF	Quad Latch (Open Collector)
MC4037	MTTL	CF	Quad Latch
MC4038	MTTL	CF	Inverting/Non-Inverting One-of-Eight Decoder
MC4040	MTTL	CF	Binary to Two-of-Eight Decoder
MC4041	MTTL	CF	Single-Error Hamming Code Detector and Generator
MC4042	MTTL	CF	Quad Predriver
MC4043	MTTL	CF	Dual Line Selector
MC4044	MTTL	CF	Phase-Frequency Detector
MC4048	MTTL	CF	Non-Inverting One-of-Eight Decoder

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC4050	MTTL	CF	Counter-Latch Decoder
MC4051	MTTL	CF	Counter-Latch Decoder
MC4062	MTTL	CF	Dual Majority Logic Gate
MC4300	MTTL	CF	Dual 4-Channel Data Selector
MC4304	MTTL	CF	16-Bit Scratch Pad Memory Cell
MC4305	MTTL	CF	16-Bit Scratch Pad Memory Cell
MC4306	MTTL	CF	Binary to One-of-Eight Line Decoder
MC4307	MTTL	CF	Dual Binary to One-of-Four Line Decoder
MC4308	MTTL	CF	8-Bit Parity Tree
MC4309	MTTL	CF	Seven-Segment Character Generator
MC4310	MTTL	CF	Dual 4-Bit Parity Tree
MC4316	MTTL	CF	Programmable Modulo-N Decade Counter
MC4318	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC4324	MTTL	CF	Dual Voltage-Controlled Multivibrator
MC4326	MTTL	CF	Full Adder
MC4327	MTTL	CF	Full Adder
MC4328	MTTL	CF	Adder (Dependent Carry)
MC4329	MTTL	CF	Adder (Dependent Carry)
MC4330	MTTL	CF	Adder (Independent Carry)
MC4331	MTTL	CF	Adder (Independent Carry)
MC4332	MTTL	CF	Carry Decoder
MC4335	MTTL	CF	Quad Latch (Open Collector)
MC4337	MTTL	CF	Quad Latch
MC4344	MTTL	CF	Phase-Frequency Detector
MC4350	MTTL	CF	Counter-Latch Decoder
MC5400	MTTL	CF	Quad 2-Input NAND Gate
MC5401	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC5402	MTTL	CF	Quad 2-Input NDR Gate
MC5403	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC5404	MTTL	CF	Hex Inverter
MC5405	MTTL	CF	Hex Inverter
MC5406	MTTL	CF	Hex Inverter Buffer/Driver (Open Collector)
MC5407	MTTL	CF	Hex Buffer/Driver (Open Collector)
MC5408	MTTL	CF	Quad 2-Input AND Gate
MC5409	MTTL	CF	Quad 2-Input AND Gate (Open Collector)
MC5410	MTTL	CF	Triple 3-Input NAND Gate
MC5416	MTTL	CF	Hex Inverter Buffer/Driver (Open Collector)
MC5417	MTTL	CF	Hex Buffer/Driver
MC5420	MTTL	CF	Dual 4-Input NAND Gate
MC5426	MTTL	CF	Quad 2-Input Interface NAND Gate
MC5430	MTTL	CF	8-Input NAND Gate
MC5437	MTTL	CF	Quad 2-Input Positive NAND Buffer
MC5438	MTTL	CF	Quad 2-Input Positive NAND Buffer (Open Collector)
MC5440	MTTL	CF	Dual 4-Input NAND Buffer
MC5442	MTTL	CF	BCD-to-Decimal Decoder
MC5443	MTTL	CF	Excess Three-to-Decimal Decoder
MC5444	MTTL	CF	Excess Three Gray-to Decimal Decoder
MC5445	MTTL	CF	BCD to One-of-Ten Decoder/Driver
MC5446	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC5447	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC5448	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC5449	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC5450	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC5451	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC5453	MTTL	CF	Expandable 4-Wide 2-Input AND-OR-INVERT Gate
MC5454	MTTL	CF	4-Wide 2-Input AND-OR-INVERT Gate
MC5460	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gate
MC5470	MTTL	CF	J-K Flip-Flop
MC5472	MTTL	CF	J-K Flip-Flop
MC5473	MTTL	CF	Dual J-K Flip-Flop
MC5475	MTTL	CF	Quad Latch
MC5477	MTTL	CF	Quad Latch
MC5479	MTTL	CF	Dual Type D Flip-Flop
MC5480	MTTL	CF	Gated Full Adder
MC5483	MTTL	CF	4-Bit Binary Full Adder
MC5484	MTTL	CF	16-Bit Scratch Pad Memory Cell With Gated Inputs
MC5486	MTTL	CF	Quadruple 2-Input Exclusive OR Gate
MC5490	MTTL	CF	Decade Counter
MC5491A	MTTL	CF	8-Bit Shift Register
MC5492	MTTL	CF	Divide-by-Twelve Counter

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC5493	MTTL	CF	4-Bit Binary Counter
MC5494	MTTL	CF	4-Bit Shift Register
MC5495	MTTL	CF	4-Bit Shift Register
MC5496	MTTL	CF	5-Bit Shift Register
MC54H00	MTTL	CF	Quad 2-Input NAND Gate
MC54H01	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC54H02	MTTL	CF	Quad 2-Input NOR Gate
MC54H04	MTTL	CF	Hex Inverter
MC54H05	MTTL	CF	Hex Inverter
MC54H08	MTTL	CF	Quad 2-Input AND Gate
MC54H10	MTTL	CF	Triple 3-Input NAND Gate
MC54H11	MTTL	CF	Triple 3-Input AND Gate
MC54H12	MTTL	CF	Triple 3-Input NAND Gate (Open Collector)
MC54H20	MTTL	CF	Dual 4-Input NAND Gate
MC54H21	MTTL	CF	Dual 4-Input AND Gate
MC54H22	MTTL	CF	Dual 4-Input NAND Gate (Open Collector)
MC54H28	MTTL	CF	Dual 3-Input 3-Output AND Series Terminated Line Driver
MC54H29	MTTL	CF	Dual 3-Input 3-Output NAND Series Terminated Line Driver
MC54H30	MTTL	CF	8-Input NAND Gate
MC54h31	MTTL	CF	8-Input NAND Gate
MC54H32	MTTL	CF	Quad 2-Input OR Gate
MC54H36	MTTL	CF	Dual 4-Input NAND Power Gate
MC54H39	MTTL	CF	Dual 4-Input AND Power Gate
MC54H40	MTTL	CF	Dual 4-Input NAND Buffer Gate
MC54H50	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-Invert Gate
MC54H51	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC54H52	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-DR Gate
MC54H53	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC54H54	MTTL	CF	4-Wide 2-2-2-3 Input AND-DR-INVERT Gate
MC54H55	MTTL	CF	Expandable 2-Wide 4-Input AND-OR-INVERT Gate
MC54H60	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC54H61	MTTL	CF	Triple 3-Input Expander for AND-OR Gates
MC54H62	MTTL	CF	4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates
MC54H71	MTTL	CF	OR Input J-K Flip-Flop
MC54H72	MTTL	CF	AND Input J-K Flip-Flop
MC54H73	MTTL	CF	Dual J-K Flip-Flop
MC54H74A	MTTL	CF	Edge-Triggered Dual Type D Flip-Flop
MC54H79	MTTL	CF	Dual Type D Flip-Flop
MC54H86	MTTL	CF	Quad 2-Input Exclusive OR Gate
MC54H89	MTTL	CF	Quad 2-Input Exclusive NOR Gate
MC54H115	MTTL	CF	AND J-K Flip-Flop
MC54H116	MTTL	CF	AND Input J-K Flip-Flop
MC54H117	MTTL	CF	AND Input J-K Flip-Flop
MC54H118	MTTL	CF	Double-Edge-Triggered Master-Slave Type D Flip-Flop
MC54H119	MTTL	CF	Dual J-K Flip-Flop
MC54H120	MTTL	CF	Dual J-K Flip-Flop
MC5522	Linear	DS	Sense Amplifier
MC5523	Linear	DS	Sense Amplifier
MC5524	Linear	DS	Sense Amplifier
MC5525	Linear	DS	Sense Amplifier
MC5528	Linear	DB	Dual High-Speed Sense Amplifier with Preampl Test Points
MC5529	Linear	DB	Dual High-Speed Sense Amplifier with Preampl Test Points
MC5534	Linear	DB	Dual Sense Amplifier with Inverted Outputs
MC5535	Linear	DB	Dual Sense Amplifier with Inverted Outputs
MC5538	Linear	DB	Sense Amplifier with Preampl Test Points
MC5539	Linear	DB	Sense Amplifier with Preampl Test Points
MC7241	MTTL	CF	Quad Exclusive OR Gate
MC7242	MTTL	CF	Quad Exclusive NOR Gate (Open Collector)
MC7250	MTTL	CF	Binary to One-of-Eight Decoder
MC7251	MTTL	CF	Binary to One-of-Ten Decoder
MC7260	MTTL	CF	Arithmetic Logic Element
MC7261	MTTL	CF	Fast Carry Extender
MC7266	MTTL	CF	2-Input, 4-Bit Data Selector
MC7267	MTTL	CF	2-Input, 4-Bit Data Selector (Open Collector)
MC7270	MTTL	CF	4-Bit Shift Register
MC7271	MTTL	CF	4-Bit Shift Register
MC7280	MTTL	CF	Presetable Decade Counter
MC7281	MTTL	CF	Presetable Binary Counter
MC7400	MTTL	CF	Quad 2-Input NAND Gate
MC7401	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)

MC7402-MC74H50

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC7402	MTTL	CF	Quad 2-Input NOR Gate
MC7403	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC7404	MTTL	CF	Hex Inverter
MC7405	MTTL	CF	Hex Inverter
MC7406	MTTL	CF	Hex Inverter Buffer/Driver (Open Collector)
MC7407	MTTL	CF	Hex Buffer/Driver (Open Collector)
MC7408	MTTL	CF	Quad 2-Input AND Gate
MC7409	MTTL	CF	Quad 2-Input AND Gate (Open Collector)
MC7410	MTTL	CF	Triple 3-Input NAND Gate
MC7416	MTTL	CF	Hex Inverter Buffer/Driver (Open Collector)
MC7417	MTTL	CF	Hex Buffer/Driver
MC7420	MTTL	CF	Dual 4-Input NAND Gate
MC7426	MTTL	CF	Quad 2-Input Interface NAND Gate
MC7430	MTTL	CF	8-Input NAND Gate
MC7437	MTTL	CF	Quad 2-Input Positive NAND Buffer
MC7438	MTTL	CF	Quad 2-Input Positive NAND Buffer (Open Collector)
MC7440	MTTL	CF	Dual 4-Input NAND Buffer
MC7441A	MTTL	CF	BCD-to-Decimal Decoder and High-Level Driver
MC7442	MTTL	CF	BCD-to-Decimal Decoder
MC7443	MTTL	CF	Excess Three-to-Decimal Decoder
MC7444	MTTL	CF	Excess Three Gray to Decimal Decoder
MC7445	MTTL	CF	BCD to One-of-Ten Decoder/Driver
MC7446	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC7447	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC7448	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC7449	MTTL	CF	BCD-to-Seven Segment Decoder/Driver
MC7450	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC7451	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MC7453	MTTL	CF	Expandable 4-Wide 2-Input AND-OR-INVERT Gate
MC7454	MTTL	CF	4-Wide 2-Input AND-OR-INVERT Gate
MC7460	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gate
MC7470	MTTL	CF	J-K Flip-Flop
MC7472	MTTL	CF	J-K Flip-Flop
MC7473	MTTL	CF	Dual J-K Flip-Flop
MC7475	MTTL	CF	Quad Latch
MC7476	MTTL	CF	Dual J-K Flip-Flop
MC7477	MTTL	CF	Quad Latch
MC7479	MTTL	CF	Dual Type D Flip-Flop
MC7480	MTTL	CF	Gated Full Adder
MC7483	MTTL	CF	4-Bit Binary Full Adder
MC7484	MTTL	CF	16 Bit Scratch Pad Memory Cell With Gated Inputs
MC7486	MTTL	CF	Quadruple 2-Input Exclusive OR Gate
MC7490	MTTL	CF	Decade Counter
MC7491A	MTTL	CF	8-Bit Shift Register
MC7492	MTTL	CF	Divide-by-Twelve Counter
MC7493	MTTL	CF	4-Bit Binary Counter
MC7494	MTTL	CF	4-Bit Shift Register
MC7495	MTTL	CF	4-Bit Shift Register
MC7496	MTTL	CF	5 Bit Shift Register
MC74H00	MTTL	CF	Quad 2-Input NAND Gate
MC74H01	MTTL	CF	Quad 2-Input NAND Gate (Open Collector)
MC74H02	MTTL	CF	Quad 2-Input NOR Gate
MC74H04	MTTL	CF	Hex Inverter
MC74H05	MTTL	CF	Hex Inverter
MC74H08	MTTL	CF	Quad 2-Input AND Gate
MC74H10	MTTL	CF	Triple 3-Input NAND Gate
MC74H11	MTTL	CF	Triple 3-Input AND Gate
MC74H12	MTTL	CF	Triple 3-Input NAND Gate (Open Collector)
MC74H20	MTTL	CF	Dual 4-Input NAND Gate
MC74H21	MTTL	CF	Dual 4-Input AND Gate
MC74H22	MTTL	CF	Dual 4-Input NAND Gate (Open Collector)
MC74H28	MTTL	CF	Dual 3-Input 3-Output AND Series Terminated Line Driver
MC74H29	MTTL	CF	Dual 3-Input 3-Output NAND Series Terminated Line Driver
MC74H30	MTTL	CF	8-Input NAND Gate
MC74H31	MTTL	CF	8-Input NAND Gate
MC74H32	MTTL	CF	Quad 2-Input OR Gate
MC74H36	MTTL	CF	Dual 4-Input NAND Power Gate
MC74H39	MTTL	CF	Dual 4-Input AND Power Gate
MC74H40	MTTL	CF	Dual 4-Input NAND Buffer Gate
MC74H50	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC74H51	MTTL	CF	Dual 2-Wide 2-Input AND-DR-INVERT Gate
MC74H52	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR Gate
MC74H53	MTTL	CF	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC74H54	MTTL	CF	4-Wide 2-2-2-3 Input AND-OR-INVERT Gate
MC74H55	MTTL	CF	Expandable 2-Wide 4-Input AND-DR-INVERT Gate
MC74H60	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gates
MC74H61	MTTL	CF	Triple 3-Input Expander For AND-OR Gates
MC74H62	MTTL	CF	4-Wide 3-2-2-3 Input Expander For AND-OR-INVERT Gates
MC74H71	MTTL	CF	OR Input J-K Flip-Flop
MC74H72	MTTL	CF	AND Input J-K Flip-Flop
MC74H73	MTTL	CF	Dual J-K Flip-Flop
MC74H74A	MTTL	CF	Edge-Triggered Dual Type D Flip-Flop
MC74H79	MTTL	CF	Dual Type D Flip-Flop
MC74H86	MTTL	CF	Quad 2-Input Exclusive OR Gate
MC74H89	MTTL	CF	Quad 2-Input Exclusive NDR Gate
MC74H115	MTTL	CF	AND J-K Flip-Flop
MC74H116	MTTL	CF	AND Input J-K Flip-Flop
MC74H117	MTTL	CF	AND Input JJ-KK Flip-Flop
MC74H118	MTTL	CF	Double-Edge-Triggered Master-Slave Type D Flip-Flop
MC74H119	MTTL	CF	Dual J-K Flip-Flop
MC74H120	MTTL	CF	Dual J-K Flip-Flop
MC7520	Linear	DB	Dual Sense Amplifier
MC7521	Linear	DB	Dual Sense Amplifier
MC7522	Linear	DB	Dual Sense Amplifier
MC7523	Linear	DB	Dual Sense Amplifier
MC7524	Linear	DB	Dual Sense Amplifier
MC7525	Linear	DB	Dual Sense Amplifier
MC7528	Linear	DB	Dual High-Speed Sense Amplifier with Preampl Test Points
MC7529	Linear	DB	Dual High-Speed Sense Amplifier with Preampl Test Points
MC7534	Linear	DB	Dual Sense Amplifier with Inverted Outputs
MC7535	Linear	DB	Dual Sense Amplifier with Inverted Outputs
MC7538	Linear	DB	Sense Amplifier with Preampl Test Points
MC7539	Linear	DB	Sense Amplifier with Preampl Test Points
MC7705C	Linear	DB	Positive Voltage Regulator
MC7706C	Linear	DB	Positive Voltage Regulator
MC7708C	Linear	DB	Positive Voltage Regulator
MC7712C	Linear	DB	Positive Voltage Regulator
MC7715C	Linear	DB	Positive Voltage Regulator
MC7718C	Linear	DB	Positive Voltage Regulator
MC7720C	Linear	DB	Positive Voltage Regulator
MC7724C	Linear	DB	Positive Voltage Regulator
MC7805C	Linear	DB	Positive Voltage Regulator
MC7806C	Linear	DB	Positive Voltage Regulator
MC7808C	Linear	DB	Positive Voltage Regulator
MC7812C	Linear	DB	Positive Voltage Regulator
MC7815C	Linear	DB	Positive Voltage Regulator
MC7818C	Linear	DB	Positive Voltage Regulator
MC7824C	Linear	DB	Positive Voltage Regulator
MC78M05	Linear	DS	Positive Voltage Regulator
MC78M06	Linear	DS	Positive Voltage Regulator
MC78M08	Linear	DS	Positive Voltage Regulator
MC78M12	Linear	DS	Positive Voltage Regulator
MC78M15	Linear	DS	Positive Voltage Regulator
MC78M18	Linear	DS	Positive Voltage Regulator
MC78M20	Linear	DS	Positive Voltage Regulator
MC78M24	Linear	DS	Positive Voltage Regulator
MC7902C	Linear	DB	Negative Voltage Regulator
MC7905C	Linear	DB	Negative Voltage Regulator
MC7905, 2C	Linear	DB	Negative Voltage Regulator
MC7906C	Linear	DB	Negative Voltage Regulator
MC7908C	Linear	DB	Negative Voltage Regulator
MC7912C	Linear	DB	Negative Voltage Regulator
MC7915C	Linear	DB	Negative Voltage Regulator
MC7918C	Linear	DB	Negative Voltage Regulator
MC7924C	Linear	DB	Negative Voltage Regulator
MC8241	MTTL	CF	Quad Exclusive DR Gate
MC8242	MTTL	CF	Quad Exclusive NDR Gate (Open Collector)
MC8250	MTTL	CF	Binary to One-of-Eight Decoder
MC8251	MTTL	CF	Binary to One-of-Ten Decoder
MC8260	MTTL	CF	Arithmetic Logic Element

MC8261-MC9719F

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC8261	MTTL	CF	Fast Carry Extender
MC8266	MTTL	CF	2-Input, 4-Bit Data Selector
MC8267	MTTL	CF	2-Input, 4-Bit Data Selector (Open Collector)
MC8270	MTTL	CF	4-Bit Shift Register
MC8271	MTTL	CF	4-Bit Shift Register
MC8280	MTTL	CF	Presetable Decade Counter
MC8281	MTTL	CF	Presetable Binary Counter
MC8300	MTTL	CF	Universal 4-Bit Shift Register
MC8301	MTTL	CF	BCD-to-Decimal Decoder
MC8304	MTTL	CF	Dual Full Adder
MC8306	MTTL	CF	Presetable Decade Up/Down Counter
MC8307	MTTL	CF	BCD-to-Seven Segment Decoder
MC8308	MTTL	CF	Dual 4-Bit Latch
MC8309	MTTL	CF	Dual 4-Channel Data Selector
MC8310	MTTL	CF	Presetable Decade Counter
MC8311	MTTL	CF	One of 16 Decoder
MC8312	MTTL	CF	8-Channel Data Selector
MC8314	MTTL	CF	Quad Latch
MC8316	MTTL	CF	Presetable 4-Bit Binary Counter
MC8318	MTTL	CF	8-Input Priority Encoder
MC8322	MTTL	CF	Quad 2-Input Data Selector/Multiplexer
MC8324	MTTL	CF	5-Bit Comparator
MC8328	MTTL	CF	Dual 8-Bit Shift Register
MC8375	MTTL	CF	Quad Latch
MC8377	MTTL	CF	Quad Latch
MC8383	MTTL	CF	4-Bit Binary Full Adder
MC8500P	LSI	DS	CRCC Generator
MC8501P	LSI	DS	Error Pattern Register
MC8502P	LSI	DS	LRCC/Data Register
MC8503P	LSI	DS	Universal Polynomial Generator
MC8520L	LSI	DS	Deskew/Queue Register
MC8601	MTTL	CF	Retriggerable Monostable Multivibrator
MC8602	MTTL	CF	Dual Retriggerable Resetable Monostable Multivibrator
MC8603	MTTL	CF	Monostable Multivibrator
MC8T13	Linear	DS	Dual Line Driver
MC8T14	Linear	DS	Triple Line Receiver
MC8T23	Linear	DS	Dual Line Driver
MC8T24	Linear	DS	Triple Line Receiver
MC9300	MTTL	CF	Universal 4-Bit Shift Register
MC9301	MTTL	CF	BCD-to-Decimal Decoder
MC9304	MTTL	CF	Dual Full Adder
MC9306	MTTL	CF	Presetable Decade Up/Down Counter
MC9307	MTTL	CF	BCD-to-Seven Segment Decoder
MC9308	MTTL	CF	Dual 4-Bit Latch
MC9309	MTTL	CF	Dual 4-Channel Data Selector
MC9310	MTTL	CF	Presetable Decade Counter
MC9311	MTTL	CF	One of 16 Decoder
MC9312	MTTL	CF	8-Channel Data Selector
MC9314	MTTL	CF	Quad Latch
MC9316	MTTL	CF	Presetable 4-Bit Binary Counter
MC9318	MTTL	CF	8-Input Priority Encoder
MC9322	MTTL	CF	Quad 2-Input Data Selector/Multiplexer
MC9324	MTTL	CF	5-Bit Comparator
MC9328	MTTL	CF	Dual 8-Bit Shift Register
MC9375	MTTL	CF	Quad Latch
MC9377	MTTL	CF	Quad Latch
MC9383	MTTL	CF	4-Bit Binary Full Adder
MC9601	MTTL	CF	Retriggerable Monostable Multivibrator
MC9602	MTTL	CF	Dual Retriggerable Resetable Monostable Multivibrator
MC9603	MTTL	CF	Monostable Multivibrator
MC9701P	MRTL	DS	Dual 4-Channel Data Selector
MC9702P	MRTL	DS	Dual J-K Flip-Flop
MC9704P	MRTL	DS	4-Bit Parallel Full Adder
MC9707P	MRTL	DS	Dual 4-Channel Data Distributor
MC9709P	MRTL	DS	Quad Schmitt Trigger
MC9713P	MRTL	DS	Quad 2-Input AND Gate
MC9714P	MRTL	DS	Quad 2-Input NAND Gate
MC9715P	MRTL	DS	Quad 2-Input OR Gate
MC9718P	mW MRTL	DS	Hex Inverter
MC9719F	MRTL	CF	Hex Expander

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC9719P,AP	MRTL	DS	Hex Expander
MC9720P	mW MRTL	DS	Hex Expander
MC9721F	mW MRTL	CF	Quad 2-Input Expander
MC9721P	mW MRTL	DS	Quad 2-Input Expander
MC9722P	mW MRTL	DS	Dual J-K Flip-Flop
MC9723P	mW MRTL	DS	Quad 2-Input AND Gate
MC9724P	mW MRTL	DS	Quad 2-Input NAND Gate
MC9725P	mW MRTL	DS	Quad 2-Input OR Gate
MC9801P	MRTL	DS	Dual 4-Channel Data Selector
MC9802P	MRTL	DS	Dual J-K Flip-Flop
MC9804P	MRTL	DS	4-Bit Parallel Full Adder
MC9807P	MRTL	DS	Dual 4-Channel Data Distributor
MC9809P	MRTL	DS	Quad Schmitt Trigger
MC9813P	MRTL	DS	Quad 2-Input AND Gate
MC9814P	MRTL	DS	Quad 2-Input NAND Gate
MC9815P	MRTL	DS	Quad 2-Input OR Gate
MC9818P	mW MRTL	DS	Hex Inverter
MC9819F	MRTL	CF	Hex Expander
MC9819P,AP	MRTL	DS	Hex Expander
MC9820P	mW MRTL	DS	Hex Expander
MC9821F	mW MRTL	CF	Quad 2-Input Expander
MC9821P	mW MRTL	DS	Quad 2-Input Expander
MC9822P	mW MRTL	DS	Dual J-K Flip-Flop
MC9823P	mW MRTL	DS	Quad 2-Input AND Gate
MC9824P	mW MRTL	DS	Quad 2-Input NAND Gate
MC9825P	mW MRTL	DS	Quad 2-Input OR Gate
MC9919F	MRTL	CF	Hex Expander
MC9921F	mW MRTL	CF	Quad 2-Input Expander
MC10100	MECL	V4	Quad 2-Input NOR Gate With Strobe
MC10101	MECL	V4	Quad OR/NOR Gate
MC10102	MECL	V4	Quad 2-Input NOR Gate
MC10103	MECL	V4	Quad 2-Input OR Gate
MC10104	MECL	V4	Quad 2-Input AND Gate
MC10105	MECL	V4	Triple 2-3-2-Input OR/NOR Gate
MC10106	MECL	V4	Triple 4-3-3-Input NOR Gate
MC10107	MECL	V4	Triple 2-Input Exclusive OR/Exclusive NOR
MC10109	MECL	V4	Dual 4-5-Input OR/NOR Gate
MC10110	MECL	V4	Dual 3-Input 3-Output OR Gate
MC10111	MECL	V4	Dual 3-Input 3-Output NOR Gate
MC10113	MECL	V4	Quad Exclusive OR Gate
MC10114	MECL	V4	Triple Line Receiver
MC10115	MECL	V4	Quad Line Receiver
MC10116	MECL	V4	Triple Line Receiver
MC10117	MECL	V4	Dual 2-Wide 2-3-Input OR-AND/OR-AND-INVERT Gate
MC10118	MECL	V4	Dual 2-Wide 3-Input OR-AND Gate
MC10119	MECL	V4	4-Wide 4-3-3-Input OR-AND Gate
MC10121	MECL	V4	4-Wide OR-AND/OR-AND-INVERT Gate
MC10123	MECL	V4	Triple 4-3-3-Input Bus Driver
MC10124	MECL	V4	Quad MTTL to MECL Translator
MC10125	MECL	V4	Quad MECL to MTTL Translator
MC10127	MECL	V4	Dual MECL to MOS Translator
MC10128	MECL	V4	Bus Driver
MC10129	MECL	V4	Quad Bus Receiver
MC10130	MECL	V4	Dual Latch
MC10131	MECL	V4	Dual Type D Master-Slave Flip-Flop
MC10132	MECL	V4	Dual Multiplexer With Latch and Common Reset
MC10133	MECL	V4	Quad Latch
MC10134	MECL	V4	Multiplexer with Latch
MC10135	MECL	V4	Dual J-K Master-Slave Flip Flop
MC10136	MECL	V4	Universal Hexadecimal Counter
MC10137	MECL	V4	Universal Decade Counter
MC10138	MECL	V4	Bi-Quinary Counter
MC10141	MECL	V4	Four-Bit Universal Shift Register
MC10153	MECL	V4	Quad Latch
MC10160	MECL	V4	12-Bit Parity Generator-Checker
MC10161	MECL	V4	Binary to 1-8 Decoder (Low)
MC10162	MECL	V4	Binary to 1-8 Decoder (High)
MC10163	MECL	V4	Error Detection-Correction Circuit
MC10164	MECL	V4	8-Line Multiplexer
MC10165	MECL	V4	8-Input Priority Encoder

MC10166-MC14009

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC10166 MC10168 MC10171 MC10174 MC10175	MECL	V4	5-Bit Magnitude Comparator Quad Latch Dual Binary To 1-4 Decoder (Low) Dual 4 To 1 Multiplexer Quint Latch
MC10176 MC10177 MC10178 MC10179 MC10180	MECL	V4	Hex "D" Master-Slave Flip-Flop Triple MECL to NMOS Translator Binary Counter Look-Ahead Carry Block Dual High Speed Adder/Subtractor
MC10181 MC10182 MC10193 MC10195 MC10197	MECL	V4	4-Bit Arithmetic Logic Unit/Function Generator 2-Bit Arithmetic Logic Unit/Function Generator Error Detection-Correction Circuit Hex Inverter/Buffer Hex AND Gate
MC10210 MC10211 MC10212 MC10216 MC10231	MECL	V4	High Speed Dual 3-Input 3-Output OR Gate High Speed Dual 3-Input 3-Output NOR Gate High Speed Dual 3-Input 3-Output OR/NOR Gate High Speed Triple Line Receiver High Speed Dual Type D Master-Slave Flip-Flop
MC10287 MC10501 MC10502 MC10504 MC10505	MECL	V4	High Speed 2x1 Bit Array Multiplexer Block Quad OR/NOR Gate Quad 2-Input NOR Gate Quad 2-Input AND Gate Triple 2-3-2-Input OR/NOR Gate
MC10506 MC10507 MC10509 MC10514 MC10515	MECL	V4	Triple 4-3-3-Input NOR Gate Triple 2-Input Exclusive OR/Exclusive NOR Dual 4-5-Input OR/NOR Gate Triple Line Receiver Quad Line Receiver
MC10516 MC10517 MC10518 MC10519 MC10521	MECL	V4	Triple Line Receiver Dual 2-Wide 2-3-Input OR-AND/OR-AND-INVERT Gate Dual 2-Wide 3-Input OR-AND Gate 4-Wide 4-3-3-Input OR-AND Gate 4-Wide OR-AND/OR-AND-INVERT Gate
MC10524 MC10525 MC10530 MC10531 MC10533	MECL	V4	Quad MTTL to MECL Translator Quad MECL to MTTL Translator Dual Latch Dual Type D Master-Slave Flip-Flop Quad Latch
MC10535 MC10536 MC10537 MC10541 MC10560	MECL	V4	Dual J-K Master-Slave Flip-Flop Universal Hexadecimal Counter Universal Decade Counter Four-Bit Universal Shift Register 12-Bit Parity Generator-Checker
MC10561 MC10562 MC10564 MC10574 MC10575	MECL	V4	Binary to 1-8 Decoder (Low) Binary to 1-8 Decoder (High) 8-Line Multiplexer Dual 4 To 1 Multiplexer Quint Latch
MC10580 MC10581 MC10616 MC10631 MC12000	MECL	V4	Dual High Speed Adder/Subtractor 4-Bit Arithmetic Logic Unit/Function Generator High Speed Triple Line Receiver High Speed Dual Type D Master-Slave Flip-Flop Digital Mixer/Translator
MC12012 MC12014 MC12040 MC12060 MC12061	PLL	V4 DS V4 DS DS	Two-Modulus Prescaler Counter Control Logic Phase-Frequency Detector Crystal Oscillator Crystal Oscillator
MC12560 MC12561 MC13120 MC14000 MC14001	PLL Linear McMOS McMOS	DS DS DB DB DB	Crystal Oscillator Crystal Oscillator FM IF Amplifier Dual 3-Input NOR Gate/Inverter Quad 2-Input NOR Gate
MC14002 MC14006 MC14007 MC14008 MC14009	McMOS McMOS McMOS McMOS McMOS	DB DB DB DB DB	Dual 4-Input NOR Gate 18 Bit Static Shift Register Dual Complementary Pair Plus Inverter 4-Bit Full Adder Hex Inverter/Buffer

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC14010	McMOS	DB	Hex Noninverting Buffer
MC14011	McMOS	DB	Quad 2-Input NAND Gate
MC14012	McMDS	DB	Dual 4-Input NAND Gate
MC14013	McMOS	DB	Dual Type D Flip-Flop
MC14014	McMOS	DS	8-Bit Static Shift Register
MC14015	McMOS	DB	Dual 4-Bit Static Shift Register
MC14016	McMOS	DB	Quad Analog Switch/Quad Multiplexer
MC14017	McMDS	DB	Decade Counter/Divider
MC14020	McMOS	DB	14-Bit Binary Counter
MC14021	McMDS	DB	8-Bit Static Shift Register
MC14022	McMOS	DB	Octal Counter/Divider
MC14023	McMOS	DB	Triple 3-Input NAND Gate
MC14024	McMDS	DB	Seven-Stage Ripple Counter
MC14025	McMOS	DB	Triple 3-Input NOR Gate
MC14027	McMOS	DB	Dual J-K Flip-Flop
MC14028	McMOS	DB	BCD-To-Decimal Decoder/Binary-To-Octal Decoder
MC14032	McMOS	DB	Triple Serial Adder (Positive Logic)
MC14034	McMOS	DB	8-Bit Universal Bus Register
MC14035	McMOS	DB	4-Bit Parallel-In/Parallel-Out Shift Register
MC14038	McMOS	DB	Triple Serial Adder (Negative Logic)
MC14040	McMOS	DB	12-Bit Binary Counter
MC14042	McMOS	DB	Quad Latch
MC14049	McMOS	DB	Hex Inverter/Buffer
MC14050	McMDS	DB	Hex Buffer
MC14501	McMOS	DB	Triple Gate (Dual 4 Input NAND and 2-Input NOR/DR)
MC14502	McMOS	DB	Strobed Hex Inverter/Buffer
MC14506	McMOS	DB	Dual Expandable AND-OR-INVERT Gate
MC14507	McMOS	DB	Quad Exclusive OR Gate
MC14508	McMOS	DB	Dual 4-Bit Latch
MC14510	McMDS	DB	BCD Up/Down Counter
MC14511	McMOS	DB	BCD-To-Seven Segment Latch/Decoder/Driver
MC14512	McMOS	DB	8-Channel Data Selector
MC14514	McMOS	DB	4-Bit Latch/4 to 16 Line Decoder (High)
MC14515	McMOS	DB	4-Bit Latch/4 to 16 Line Decoder (Low)
MC14516	McMOS	DB	Binary Up/Down Counter
MC14517	McMOS	DB	Dual 64-Bit Static Shift Register
MC14518	McMOS	DB	Dual BCD Up Counter
MC14519	McMOS	DB	4-Bit AND/OR Selector
MC14520	McMOS	DB	Dual Binary Up Counter
MC14521	McMOS	DB	24-State Frequency Divider
MC14522	McMOS	DB	Programmable Divide-By-N-4-Bit Counter (BCD)
MC14526	McMOS	DB	Programmable Divide-By-N-4-Bit Counter (Binary)
MC14527	McMOS	DB	BCD Rate Multiplier
MC14528	McMOS	DB	Dual Retriggerable/Resetable Monostable Multivibrator
MC14529	McMOS	DB	Dual 4-Channel Analog Data Selector
MC14530	McMOS	DB	Dual 5-Input Majority Logic Gate
MC14531	McMOS	DB	12-Bit Parity Tree
MC14532	McMOS	DB	8-Bit Priority Encoder
MC14534	McMOS	DS	Real Time 5-Decade Counter
MC14536	McMOS	DS	Programmable Timer
MC14539	McMOS	DB	Dual 4-Channel Data Selector/Multiplexer
MC14543	McMOS	DB	BCD-To-Seven Segment Latch/Decoder/Driver
MC14549	McMOS	DB	Successive Approximation Register
MC14553	McMOS	DS	Three-Digit BCD Counter
MC14554	McMOS	DB	2 x 2-Bit Parallel Binary Multiplier
MC14555	McMOS	DB	Dual Binary to 1 of 4 Decoder/Demultiplexer
MC14556	McMOS	DB	Dual Binary to 1 of 4 Decoder/Demultiplexer (Inverting)
MC14559	McMOS	DB	Successive Approximation Register
MC14562	McMOS	DS	128-Bit Static Shift Register
MC14566	McMOS	DS	Industrial Time Base Generator
MC14570	McMOS	DB	Quad 2-Input DR Gate
MC14571	McMOS	DS	Quad 2-Input AND Gate
MC14572	McMOS	DS	Hex Gate
MC14580	McMOS	DS	4 x 4 Multiport Register
MC14581	McMOS	DB	4-Bit Arithmetic Logic Unit
MC14582	McMOS	DB	Look-Ahead Carry Block
MC14583	McMOS	DB	Dual Schmitt Trigger
MC14585	McMOS	DB	4-Bit Magnitude Comparator
MC14582	MTTL	CF	2-Bit Full Adder
MC17482	MTTL	CF	2-Bit Full Adder

MC19172-MC74452

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC19172	MECL	V4	Dual Binary To 1-4 Decoder (High)
MC19173	MECL	V4	Quad 2-Input Multiplexer/Latch
MC25482	MTTL	CF	2-Bit Full Adder
MC27482	MTTL	CF	2-Bit Full Adder
MC54100	MTTL	CF	Dual 4-Bit Latch
MC54107	MTTL	CF	Dual J-K Flip-Flop
MC54121	MTTL	CF	Monostable Multivibrator
MC54145	MTTL	CF	BCD to One-of-Ten Decoder/Driver
MC54150	MTTL	CF	16-Channel Data Selector
MC54151	MTTL	CF	8-Channel Data Selector
MC54152	MTTL	CF	8 Channel Data Selector/Multiplexer
MC54153	MTTL	CF	Dual 4 Channel Data Selector/Multiplexer
MC54155	MTTL	CF	Dual 2-to-4 Line Decoder/1-to-4 Line Demultiplexer
MC54156	MTTL	CF	Dual 2-to-4 Line Decoder/1-to-4 Line Demultiplexer
MC54157	MTTL	CF	Quad 2-Input Data Selector/Multiplexer
MC54164A	MTTL	CF	8 Bit Parallel Out Serial Shift Register
MC54165	MTTL	CF	Parallel-Load 8-Bit Shift Register
MC54176	MTTL	CF	Presetable Decade and Binary Counters/Latches
MC54177	MTTL	CF	Presetable Decade and Binary Counters/Latches
MC54180	MTTL	CF	8-Bit Odd/Even Generator/Checker
MC54181	MTTL	CF	4-Bit Arithmetic Logic Unit/Function Generator
MC54182	MTTL	CF	Look-Ahead Carry Generator
MC54192	MTTL	CF	Presetable Decade Up/Down Counter
MC54193	MTTL	CF	Presetable 4-Bit Binary Up/Down Counter
MC54195	MTTL	CF	4-Bit Parallel-Access Shift Register
MC54406	MTTL	CF	Binary to One-of-Eight Line Decoder
MC54408	MTTL	CF	8-Bit Parity Tree
MC54416	MTTL	CF	Programmable Modulo-N Decade Counter
MC54417	MTTL	CF	Programmable Modulo-N Decade Counter
MC54418	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC54419	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC54450	MTTL	CF	Counter Latch Decoder
MC54452	MTTL	CF	Dual Decade Counter
MC54453	MTTL	CF	Dual Hexadecimal Counter
MC54454	MTTL	CF	Dual Decade Up/Down Counter
MC54455	MTTL	CF	Dual Binary Up/Down Counter
MC54456	MTTL	CF	NBCD Adder
MC54460	MTTL	CF	Bus Transfer Switch
MC54468	MTTL	CF	Dual MOS-to-TTL Level Translator With Three-State Output
MC55107	Linear	DB	Dual Line Receiver
MC55108	Linear	DB	Dual Line Receiver
MC55325	Linear	DB	Dual Memory Driver
MC74164A	MTTL	CF	8-Bit Parallel Out Serial Shift Register
MC74100	MTTL	CF	Dual 4-Bit Latch
MC74107	MTTL	CF	Dual J-K Flip-Flop
MC74121	MTTL	CF	Monostable Multivibrator
MC74145	MTTL	CF	BCD to One-of-Ten Decoder/Driver
MC74150	MTTL	CF	16-Channel Data Selector
MC74151	MTTL	CF	8-Channel Data Selector
MC74152	MTTL	CF	8-Channel Data Selector/Multiplexer
MC74153	MTTL	CF	Dual 4 Channel Data Selector/Multiplexer
MC74155	MTTL	CF	Dual 2-to-4 Line Decoder/1-to-4 Line Demultiplexer
MC74156	MTTL	CF	Dual 2-to-4 Line Decoder/1-to-4 Line Demultiplexer
MC74157	MTTL	CF	Quad 2-Input Data Selector/Multiplexer
MC74165	MTTL	CF	Parallel-Load 8-Bit Shift Register
MC74176	MTTL	CF	Presetable Decade and Binary Counters/Latches
MC74177	MTTL	CF	Presetable Decade and Binary Counters/Latches
MC74180	MTTL	CF	8-Bit Odd/Even Generator/Checker
MC74181	MTTL	CF	4-Bit Arithmetic Logic Unit/Function Generator
MC74182	MTTL	CF	Look-Ahead Carry Generator
MC74192	MTTL	CF	Presetable Decade Up/Down Counter
MC74195	MTTL	CF	4-Bit Parallel-Access Shift Register
MC74406	MTTL	CF	Binary to One-of-Eight Line Decoder
MC74408	MTTL	CF	8-Bit Parity Tree
MC74416	MTTL	CF	Programmable Modulo-N Decade Counter
MC74417	MTTL	CF	Programmable Modulo-N Decade Counter
MC74418	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC74450	MTTL	CF	Counter Latch Decoder
MC74450	MTTL	CF	Programmable Modulo-N Hexadecimal Counter
MC74452	MTTL	CF	Dual Decade Counter

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MC74453	MTTL	CF	Dual Hexadecimal Counter
MC74454	MTTL	CF	Dual Decade Up/Down Counter
MC74455	MTTL	CF	Dual Binary Up/Down Counter
MC74456	MTTL	CF	NBCD Adder
MC74460	MTTL	CF	Bus Transfer Switch
MC74468	MTTL	CF	Dual MOS-to-TTL Level Translator With Three-State Output
MC74913	MTTL	CF	Presetable 4-Bit Binary Up/Down Counter
MC75107	Linear	DB	Dual Line Receiver
MC75108	Linear	DB	Dual Line Receiver
MC75109	Linear	DB	Dual Line Driver
MC75110	Linear	DB	Dual Line Driver
MC75140	Linear	DB	Dual Line Receiver
MC75325	Linear	DB	Dual Memory Driver
MC75450	Linear	DB	Dual Peripheral Driver, Positive AND
MC75451	Linear	DB	Dual Peripheral Driver, Positive AND
MC75452	Linear	DB	Dual Peripheral Driver, Positive NAND
MC75453	Linear	DB	Dual Peripheral Driver, Positive OR
MC75454	Linear	DB	Dual Peripheral Driver, Positive NOR
MC75461	Linear	DS	High Voltage Peripheral Driver
MC75462	Linear	DS	High Voltage Peripheral Driver
MC75463	Linear	DS	High Voltage Peripheral Driver
MC75464	Linear	DS	High Voltage Peripheral Driver
MC75491	Linear	DB	Quad Light-Emitting Diode (LED) Driver
MC75492	Linear	DB	Hex Light-Emitting Diode (LED) Driver
MC83151	MTTL	CF	8-Channel Data Selector
MC83152	MTTL	CF	8-Channel Data Selector/Multiplexer
MC83153	MTTL	CF	Dual 4-Channel Data Selector/Multiplexer
MC93151	MTTL	CF	8-Channel Data Selector
MC93152	MTTL	CF	8-Channel Data Selector/Multiplexer
MC93153	MTTL	CF	Dual 4-Channel Data Selector/Multiplexer
MCB1709	Linear	DB	Operational Amplifier (encapsulated Beam-Lead)
MCB1710	Linear	DB	Differential Comparator (encapsulated Beam-Lead)
MCB1723	Linear	DB	Voltage Regulator (encapsulated Beam-Lead)
MCB1741	Linear	DB	Operational Amplifier (encapsulated Beam-Lead)
MCB1748	Linear	DB	Operational Amplifier (encapsulated Beam-Lead)
MCBC1709	Linear	DB	Operational Amplifier (non-encapsulated Beam-Lead)
MCBC1710	Linear	DB	Differential Comparator (non-encapsulated Beam-Lead)
MCBC1723	Linear	DB	Voltage Regulator (non-encapsulated Beam-Lead)
MCBC1741	Linear	DB	Operational Amplifier (non-encapsulated Beam-Lead)
MCBC1748	Linear	DB	Operational Amplifier (non-encapsulated Beam-Lead)
MCBC5400	MTTL	CF	Quad 2-Input NAND Gate
MCBC5401	MTTL	CF	Quad 2-Input NAND Gate (Open Collector Output)
MCBC5402	MTTL	CF	Quad 2-Input NOR Gate
MCBC5404	MTTL	CF	Hex Inverter
MCBC5405	MTTL	CF	Hex Inverter (Open Collector)
MCBC5410	MTTL	CF	Triple 3-Input NAND Gate
MCBC5420	MTTL	CF	Dual 4-Input NAND Gate
MCBC5430	MTTL	CF	8-Input NAND Gate
MCBC5440	MTTL	CF	Dual 4-Input NAND Buffer
MCBC5450	MTTL	CF	Expandable Dual 2-Wide 2-Input AND-DR-INVERT Gate
MCBC5451	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MCBC5453	MTTL	CF	Expandable 4-Wide 2-Input AND-OR-INVERT Gate
MCBC5454	MTTL	CF	Expandable 4-Wide 2-Input AND-OR-INVERT Gate
MCBC5460	MTTL	CF	Dual 4-Input Expander for AND-OR-INVERT Gate
MCBC5472	MTTL	CF	J-K Flip-Flop
MCBC5473	MTTL	CF	Dual J-K Flip-Flop
MCBC5479	MTTL	CF	Dual Type D Flip-Flop
MCC1436	Linear	DB	Operational Amplifier (Chip)
MCC1439	Linear	DB	Operational Amplifier (Chip)
MCC1458	Linear	DB	Dual Operational Amplifier (Chip)
MCC1463	Linear	DB	Negative Voltage Regulator (Chip)
MCC1469	Linear	DB	Positive Voltage Regulator (Chip)
MCC1495	Linear	DB	Four-Quadrant Multiplier (Chip)
MCC1536	Linear	DB	Operational Amplifier (Chip)
MCC1539	Linear	DB	Operational Amplifier (Chip)
MCC1558	Linear	DB	Dual Operational Amplifier (Chip)
MCC1563	Linear	DB	Negative Voltage Regulator (Chip)
MCC1569	Linear	DB	Positive Voltage Regulator (Chip)
MCC1595	Linear	DB	Four-Quadrant Multiplier (Chip)
MCC1709	Linear	DB	Operational Amplifier (Chip)

MCC1709C-MCM6580

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MCC1709C	Linear	DB	Operational Amplifier (Chip)
MCC1710	Linear	DB	Differential Comparator (Chip)
MCC1710C	Linear	DB	Differential Comparator (Chip)
MCC1711	Linear	DB	Dual Differential Comparator (Chip)
MCC1711C	Linear	DB	Dual Differential Comparator (Chip)
MCC1723	Linear	DB	Positive Voltage Regulator (Chip)
MCC1723C	Linear	DB	Positive Voltage Regulator (Chip)
MCC1741	Linear	DB	Operational Amplifier (Chip)
MCC1741C	Linear	DB	Operational Amplifier (Chip)
MCC1748	Linear	DB	Operational Amplifier (Chip)
MCC1748C	Linear	DB	Operational Amplifier (Chip)
MCCF1458	Linear	DB	Dual Operational Amplifier (Flip-Chip)
MCCF1558	Linear	DB	Dual Operational Amplifier (Flip-Chip)
MCCF1709	Linear	DB	Operational Amplifier (Flip-Chip)
MCCF1709C	Linear	DB	Operational Amplifier (Flip-Chip)
MCCF1741	Linear	DB	Operational Amplifier (Flip-Chip)
MCCF1741C	Linear	DB	Operational Amplifier (Flip-Chip)
MCE930	MDTL	DS	Expandable Dual 4-Input NAND Gate
MCE932	MDTL	DS	Expandable Dual 4-Input Buffer
MCE933	MDTL	DS	Dual 4-Input Expander
MCE936	MDTL	DS	Hex Inverter
MCE944	MDTL	DS	Expandable Dual 4-Input NAND Power Gate
MCE945	MDTL	DS	Clocked Flip-Flop
MCE946	MDTL	DS	Quad 2-Input NAND Gate
MCE948	MDTL	DS	Clocked Flip-Flop
MCE962	MDTL	DS	Triple 3-Input NAND Gate
MCE54H00	MTTL	CF	Quad 2-Input NAND Gate
MCE54H01	MTTL	CF	Quad 2-Input NAND Gate (Open Collector Output)
MCE54H04	MTTL	CF	Hex Inverter
MCE54H10	MTTL	CF	Triple 3-Input NAND Gate
MCE54H20	MTTL	CF	Dual 4-Input NAND Gate
MCE54H31	MTTL	CF	11-Input NAND Gate
MCE54H40	MTTL	CF	Dual 4-Input NAND Power Gate
MCE54H51	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MCE54H54A	MTTL	CF	4-Wide 2-Input AND-OR-INVERT Gate
MCE54H56	MTTL	CF	Dual 2-Wide 2-3-Input AND-OR-INVERT Gate
MCE54H57	MTTL	CF	4-Wide 3-3-2-3-Input AND-OR-INVERT Gate
MCE54H79	MTTL	CF	Dual Type D Flip-Flop
MCE54H146	MTTL	CF	Binary To One-Of-Eight Line Decoder
MCE7003	Network	DS	Seven-Diode Array
MCE7005	Network	DS	Diode-Resistor Network
MCE7006	Network	DS	Sixteen-Diode Array
MCE7007	Network	DS	Twelve-Resistor Network
MCE74H00	MTTL	CF	Quad 2-Input NAND Gate
MCE74H01	MTTL	CF	Quad 2-Input NAND Gate (Open Collector Output)
MCE74H04	MTTL	CF	Hex Inverter
MCE74H10	MTTL	CF	Triple 3-Input NAND Gate
MCE74H20	MTTL	CF	Dual 4-Input NAND Gate
MCE74H31	MTTL	CF	11-Input NAND Gate
MCE74H40	MTTL	CF	Dual 4-Input NAND Power Gate
MCE74H51	MTTL	CF	Dual 2-Wide 2-Input AND-OR-INVERT Gate
MCE74H54A	MTTL	CF	4-Wide 2-Input AND-OR-INVERT Gate
MCE74H56	MTTL	CF	Dual 2-Wide 2-3-Input AND-OR-INVERT Gate
MCE74H57	MTTL	CF	4-Wide 3-3-2-3-Input AND-OR-INVERT Gate
MCE74H79	MTTL	CF	Dual Type D Flip-Flop
MCE74H146	MTTL	CF	Binary To One-Of-Eight Line Decoder
MCE54103	MTTL	CF	Dual J-K Flip-Flop
MCE74103	MTTL	CF	Dual J-K Flip-Flop
MCM4064	MTTL	CF	64-Bit Random Access Memory
MCM4067	MTTL	CF	Binary to BCD Number Converter
MCM4068	MTTL	CF	Binary to BCD Number Converter
MCM4069	MTTL	CF	Hollerith to ASCII Converter
MCM4070	MTTL	CF	Hollerith to ASCII Converter
MCM4364	MTTL	CF	64-Bit Random Access Memory
MCM6560	MOS	DS	8192-Bit Binary Addressable Read Only Memory
MCM6561	MOS	DS	8192-Bit Binary Addressable Read Only Memory
MCM6570	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6571	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6572	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6573	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6580	MOS	DS	8192-Bit Read Only Memory Character Generator

TYPE NO.	FAMILY	REFERENCE CODES: DB-Data Book DS-Data Sheet V4-Volume 4 CF-Consult Factory	FUNCTION
MCM6581	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6583	MOS	DS	8192-Bit Read Only Memory Character Generator
MCM6605L	MOS	DS	4096-Bit Dynamic Random Access Memory
MCM6605L-1	MOS	DS	4096-Bit Dynamic Random Access Memory
MCM7001L	MOS	DS	1024-Bit Static Random Access Memory
MCM7001L-1	MOS	DS	1024-Bit Static Random Access Memory
MCM10140	MECL	V4	64-Bit Random Access Memory (90 Ohm)
MCM10142	MECL	V4	64-Bit Random Access Memory (50 Ohm)
MCM10143	MECL	V4	8 x 2 Multiport Register File (RAM)
MCM10144	MECL	V4	256-Bit Random Access Memory
MCM10145	MECL	V4	64-Bit Register File (RAM)
MCM10147	MECL	V4	128-Bit Random Access Memory
MCM10148	MECL	V4	64-Bit Random Access Memory (50 Ohm)
MCM10150	MECL	V4	1024-Bit Programmable Read Only Memory
MCM14505	McMOS	DB	64-Bit Static Random Access Memory
MCM14524	McMOS	DB	1024-Bit Read Only Memory
MCM14537	McMOS	DB	256-Bit Static Random Access Memory
MFC4000B	Linear	DB	1/4-Watt Audio Amplifier
MFC4010A	Linear	DB	Wideband Amplifier
MFC4040	Linear	DB	Single Toggle Flip-Flop
MFC4050	Linear	DB	Audio Driver
MFC4060A	Linear	DB	Voltage Regulator
MFC4062A	Linear	DB	Voltage Regulator
MFC4063A	Linear	DB	Voltage Regulator
MFC4064A	Linear	DB	Voltage Regulator
MFC6010	Linear	DB	FM IF Amplifier
MFC6020	Linear	DB	Dual Toggle Flip-Flop
MFC6030A	Linear	DB	Voltage Regulator
MFC6032A	Linear	DB	Voltage Regulator
MFC6033A	Linear	DB	Voltage Regulator
MFC6034A	Linear	DB	Voltage Regulator
MFC6040	Linear	DB	Electronic Attenuator
MFC6050	Linear	DB	Dual Toggle Flip-Flop with Reset
MFC6070	Linear	DB	Audio Power Amplifier
MFC8020A	Linear	DB	Class B Audio Driver
MFC8021A	Linear	DB	Class B Audio Driver
MFC8022A	Linear	DB	Class B Audio Driver
MFC8030	Linear	DB	Differential Cascode Amplifier
MFC8040	Linear	DB	Audio Preamplifier
MFC8070	Linear	DB	Zero Voltage Switch
MLM101A	Linear	DB	Operational Amplifier
MLM104	Linear	DB	Negative Voltage Regulator
MLM105	Linear	DB	Positive Voltage Regulator
MLM107	Linear	DB	Operational Amplifier
MLM109	Linear	DB	Positive Voltage Regulator
MLM110	Linear	DB	Operational Amplifier
MLM111	Linear	DB	Voltage Comparator
MLM201A	Linear	DB	Operational Amplifier
MLM204	Linear	DB	Negative Voltage Regulator
MLM205	Linear	DB	Positive Voltage Regulator
MLM207	Linear	DB	Operational Amplifier
MLM209	Linear	DB	Positive Voltage Regulator
MLM210	Linear	DB	Operational Amplifier
MLM211	Linear	DB	Voltage Comparator
MLM301A	Linear	DB	Operational Amplifier
MLM304	Linear	DB	Negative Voltage Regulator
MLM305	Linear	DB	Positive Voltage Regulator
MLM307	Linear	DB	Operational Amplifier
MLM309	Linear	DB	Positive Voltage Regulator
MLM310	Linear	DB	Operational Amplifier
MLM311	Linear	DB	Voltage Comparator
MMH0026	Linear	DB	Dual MOS Clock Driver
MMH0026C	Linear	DB	Dual MOS Clock Driver

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DEVICES FOR MILITARY APPLICATIONS

SILICON ZENER DIODES ±5% SERIES

MIL-S-19500/127

1N746A JAN,JTX,JTXV thru
1N759A JAN,JTX,JTXV

MIL-S-19500/117

1N962B JAN,JTX,JTXV thru
1N992B JAN,JTX,JTXV

*MIL-S-19500/114

1N2804B JAN,JTX thru
1N2811B JAN,JTX
1N2813B JAN,JTX
1N2814B JAN,JTX
1N2816B JAN,JTX
1N2818B JAN,JTX thru
1N2820B JAN,JTX
1N2822B JAN,JTX thru
1N2827B JAN,JTX
1N2829B JAN,JTX
1N2831B JAN,JTX thru
1N2838B JAN,JTX
1N2840B JAN,JTX thru
1N2846 JAN,JTX

*MIL-S-19500/124

1N2970B JAN,JTX thru
1N2977B JAN,JTX
1N2979B JAN,JTX
1N2980B JAN,JTX
1N2982B JAN,JTX
1N2984B JAN,JTX thru
1N2986B JAN,JTX
1N2988B JAN,JTX thru
1N2993B JAN,JTX
1N2995B JAN,JTX
1N2997B JAN,JTX
1N2999B JAN,JTX thru
1N3005B JAN,JTX
1N3007B JAN,JTX thru
1N3009B JAN,JTX
1N3011B JAN,JTX
1N3012B JAN,JTX
1N3014B JAN,JTX
1N3015B JAN,JTX

MIL-S-19500/115

1N3016B JAN,JTX,JTXV thru
1N3051B JAN,JTX,JTXV

*MIL-S-19500/358

1N3305B JAN,JTX thru
1N3312B JAN,JTX
1N3314B JAN,JTX
1N3315B JAN,JTX
1N3317B JAN,JTX
1N3319B JAN,JTX thru
1N3312B JAN,JTX
1N3323B JAN,JTX thru
1N3328B JAN,JTX
1N3330B JAN,JTX
1N3332B JAN,JTX
1N3334B JAN,JTX thru
1N3340B JAN,JTX
1N3342B JAN,JTX thru
1N3344B JAN,JTX
1N3346B JAN,JTX
1N3347B JAN,JTX
1N3349B JAN,JTX
1N3350B JAN,JTX

1N. . . Device Numbers

ASSEMBLIES
DIODES
Reference
Zener
RECTIFIERS

The following tables list devices that appear in QPL-19500 (Qualified Products List) as of 15 August 1974 and are available in the JAN, JANTX, and JANTXV versions as specified. Check with your local Motorola sales office or franchised distributor for current qualification status and availability.

SILICON ZENER DIODES ±5% SERIES (Cont.)

MIL-S-19500/115

1N3821A JAN,JTX,JTXV thru
1N3828A JAN,JTX,JTXV

**MIL-S-19500/272

1N3993A JAN,JTX thru
1N4000A JAN,JTX

MIL-S-19500/435

1N4099 JAN,JTX,JTXV thru
1N4135 JAN,JTX,JTXV

MIL-S-19500/127

1N4370A JAN,JTX,JTXV thru
1N4372A JAN,JTX,JTXV

*MIL-S-19500/358

1N4549B JAN,JTX thru
1N4554B JAN,JTX

MIL-S-19500/435

1N4614 JAN,JTX,JTXV thru
1N4627 JAN,JTX,JTXV

* Reverse Polarities (Suffix RB) are available.
** Reverse Polarities (Suffix RA) are available.

DEVICES FOR MILITARY APPLICATIONS (continued)

1N. . .DEVICE NUMBERS (continued)

TC REFERENCE

DIODES

MIL-S-19500

1N429 JAN	...../299
1N821 JAN,JTX,JTXV	...../159
1N823 JAN,JTX,JTXV	...../159
1N825 JAN,JTX,JTXV	...../159
1N827 JAN,JTX,JTXV	...../159
1N829 JAN,JTX,JTXV	...../159
1N935B JAN,JTX,JTXV	...../156
1N937B JAN,JTX,JTXV	...../156
1N938B JAN,JTX,JTXV	...../156
1N939B JAN,JTX,JTXV	...../156
1N941B JAN,JTX	...../157
1N943B JAN,JTX	...../157
1N944B JAN,JTX	...../157
1N945B JAN,JTX	...../157
1N3154 JAN,JTX	...../158
1N3155 JAN,JTX	...../158
1N3156 JAN,JTX	...../158
1N3157 JAN,JTX	...../158

RECTIFIERS

MIL-S-19500/304

1N3890 JAN,JTX,JTXV	.....
1N3890R JAN,JTX,JTXV	.....
1N3891 JAN,JTX,JTXV	.....
1N3891R JAN,JTX,JTXV	.....
1N3893 JAN,JTX,JTXV	.....
1N3893R JAN,JTX,JTXV	.....

MIL-S-19500/308

1N3910 JAN,JTX	.....
1N3911 JAN,JTX	.....
1N3912 JAN,JTX	.....
1N3913 JAN,JTX	.....

DIODE

ASSEMBLIES

MIL-S-19500

1N1530A JAN	...../320
1N1742A JAN	...../298

CURRENT REGULATORS

MIL-S-19500/463

1N5285 JAN,JTX,JTXV	.....	1N5300 JAN,JTX,JTXV	.....
1N5286 JAN,JTX,JTXV	.....	1N5301 JAN,JTX,JTXV	.....
1N5287 JAN,JTX,JTXV	.....	1N5302 JAN,JTX,JTXV	.....
1N5288 JAN,JTX,JTXV	.....	1N5303 JAN,JTX,JTXV	.....
1N5289 JAN,JTX,JTXV	.....	1N5304 JAN,JTX,JTXV	.....
1N5290 JAN,JTX,JTXV	.....	1N5305 JAN,JTX,JTXV	.....
1N5291 JAN,JTX,JTXV	.....	1N5306 JAN,JTX,JTXV	.....
1N5292 JAN,JTX,JTXV	.....	1N5307 JAN,JTX,JTXV	.....
1N5293 JAN,JTX,JTXV	.....	1N5308 JAN,JTX,JTXV	.....
1N5294 JAN,JTX,JTXV	.....	1N5309 JAN,JTX,JTXV	.....
1N5295 JAN,JTX,JTXV	.....	1N5310 JAN,JTX,JTXV	.....
1N5296 JAN,JTX,JTXV	.....	1N5311 JAN,JTX,JTXV	.....
1N5297 JAN,JTX,JTXV	.....	1N5312 JAN,JTX,JTXV	.....
1N5298 JAN,JTX,JTXV	.....	1N5313 JAN,JTX,JTXV	.....
1N5299 JAN,JTX,JTXV	.....	1N5314 JAN,JTX,JTXV	.....

DEVICES FOR MILITARY APPLICATIONS (continued)

2N. . . Device Numbers

TRANSISTORS

Field Effect, High Frequency, Milliwatt,
Multiple Device, Power, RF Power,
Switching and Unijunction

THYRISTORS

The following tables list devices that appear in QPL-19500 (Qualified Products List) as of 15 August 1974 and are available in the JAN, JANTX, and JANTXV versions as specified. Check with your local Motorola sales office or franchised distributor for current qualification status and availability.

SWITCHING AND HIGH FREQUENCY TRANSISTORS

MIL-S-19500					
2N393 JAN	/77	2N2219A JAN,JTX,JTXV	/251	2N3486A JAN,JTX	/392
2N499 JAN	/72	2N2221 JAN,JTX,JTXV	/255	2N3498 JAN,JTX,JTXV	/366
2N499A JAN	/72	2N2221A JAN,JTX,JTXV	/255	2N3499 JAN,JTX,JTXV	/366
2N501A JAN	/62	2N2222 JAN,JTX,JTXV	/255	2N3500 JAN,JTX,JTXV	/366
2N502A JAN	/112	2N2222A JAN,JTX,JTXV	/255	2N3501 JAN,JTX,JTXV	/366
2N502B JAN	/112	2N2369A JAN,JTX,JTXV	/317	2N3506 JAN,JTX,JTXV	/349
2N559 JAN,JTX	/152	2N2481 JAN,JTX	/268	2N3507 JAN,JTX,JTXV	/349
2N703 JAN	/153	2N2857 JAN,JTX,JTXV	/343	2N3634 JAN,JTX,JTXV	/357
2N705 JAN	/86	2N2904 JAN,JTX,JTXV	/290	2N3635 JAN,JTX,JTXV	/357
2N706 JAN	/120	2N2904A JAN,JTX,JTXV	/290	2N3636 JAN,JTX,JTXV	/357
2N708 JAN,JTX	/312	2N2905 JAN,JTX,JTXV	/290	2N3637 JAN,JTX,JTXV	/357
2N718A JAN,JTX,JTXV	/181	2N2905A JAN,JTX,JTXV	/290	2N3743 JAN,JTX,JTXV	/397
2N869A JAN,JTX	/283	2N2906 JAN,JTX,JTXV	/291	2N3763 JAN,JTX	/396
2N914 JAN,JTX	/373	2N2906A JAN,JTX,JTXV	/291	2N3765 JAN,JTX	/396
2N916 JAN	/271	2N2907 JAN,JTX,JTXV	/291	2N3959 JAN,JTX	/399
2N929 JAN,JTX	/253	2N2907A JAN,JTX,JTXV	/291	2N3960 JAN,JTX	/399
2N930 JAN,JTX	/253	2N3013 JAN,JTX	/287	2N4449 JAN,JTX,JTXV	/317
2N962 JAN	/258	2N3250A JAN,JTX,JTXV	/323	2N4453 JAN,JTX	/283
2N964 JAN	/258	2N3251A JAN,JTX,JTXV	/323	2N4930 JAN,JTX,JTXV	/397
2N1131 JAN	/177	2N3253 JAN	/347	2N4931 JAN,JTX,JTXV	/397
2N1132 JAN	/177	2N3444 JAN	/347	2N4957 JAN,JTX	/426
2N1613 JAN,JTX	/181	2N3449 JAN	/338	2N5581 JAN,JTX	/423
2N2218 JAN,JTX,JTXV	/251	2N3467 JAN,JTX,JTXV	/348	2N5582 JAN,JTX	/423
2N2218A JAN,JTX,JTXV	/251	2N3468 JAN,JTX,JTXV	/348	2N6365 JAN	/471
2N2219 JAN,JTX,JTXV	/251	2N3485A JAN,JTX	/392	2N6365A JAN	/471

POWER TRANSISTORS

MIL-S-19500					
2N297A JAN	/36	2N1652 JAN	/219	2N3792 JAN,JTX	/379
2N665 JAN	/58	2N1653 JAN	/219	2N3867 JAN,JTX,JTXV	/350
2N1120 JAN	/68	2N2079A JAN	/340	2N3868 JAN,JTX,JTXV	/350
2N1165 JAN	/178	2N2528 JAN	/309	2N3902 JAN,JTX	/371
2N1358 JAN	/122	2N3715 JAN,JTX	/408	2N4399 JAN,JTX	/433
2N1549A JAN	/332	2N3716 JAN,JTX	/408	2N5302 JAN,JTX	/456
2N1550A JAN	/332	2N3739 JAN,JTX	/402	2N5303 JAN,JTX	/456
2N1551A JAN	/332	2N3740 JAN,JTX	/441	2N5685 JAN,JTX	/464
2N1552A JAN	/332	2N3741 JAN,JTX	/441	2N5686 JAN,JTX	/464
2N1560A JAN	/330	2N3791 JAN,JTX	/379		
2N1651 JAN	/219				

SILICON CONTROLLED RECTIFIERS

MIL-S-19500	
2N4199 JAN	...../372
2N4200 JAN	...../372
2N4201 JAN	...../372
2N4202 JAN	...../372
2N4203 JAN	...../372
2N4204 JAN	...../372

RF POWER TRANSISTORS

MIL-S-19500	
2N700A JAN	...../123
2N918 JAN,JTX,JTXV	...../301
2N1142 JAN	...../87
2N1195 JAN	...../71
2N2273 JAN	...../244
2N2708 JAN	...../302
2N3127 JAN	...../346
2N3375 JAN,JTX,JTXV	...../341
2N3553 JAN,JTX,JTXV	...../341
2N3866 JAN,JTX,JTXV	...../398
2N3866A JAN,JTX,JTXV	...../398

FIELD-EFFECT TRANSISTORS

MIL-S-19500	
2N3330 JAN,JTX	...../378
2N3821 JAN,JTX	...../375
2N3822 JAN,JTX	...../375
2N3823 JAN,JTX	...../375

MULTIPLE DEVICES

MIL-S-19500	
2N2060 JAN,JTX,JTXV	...../270
2N2639 JAN,JTX,JTXV	...../316
2N2642 JAN,JTX,JTXV	...../316
2N2919 JAN,JTX,JTXV	...../355
2N2920 JAN,JTX,JTXV	...../355
2N3810 JAN,JTX,JTXV	...../336
2N3811 JAN,JTX,JTXV	...../336
2N3838 JAN,JTX,JTXV	...../421
2N4854 JAN,JTX,JTXV	...../421

MILLIWATT TRANSISTORS

MIL-S-19500	
2N398A JAN	...../174
2N404 JAN	...../20
2N404A JAN	...../20
2N461 JAN	...../45
2N464 JAN	...../49
2N465 JAN	...../49
2N467 JAN	...../49
2N526 JAN	...../60
2N650A JAN	...../175
2N651A JAN	...../175
2N652A JAN	...../175
2N1008B JAN	...../196

UNIUNCTION

MIL-S-19500	
2N4948 JAN,JTX	...../388
2N4949 JAN,JTX	...../388
2N5431 JAN,JTX	...../425

The following tables list devices which are in the process of qualification for listing in QPL-19500 as of 15 August 1974. Check with your local Motorola sales office or franchised distributor for current qualification status and availability.

SWITCHING AND HIGH FREQUENCY TRANSISTORS

MIL-S-19500	
2N4405 JAN,JTX	...../488
2N5109 JAN,JTX	...../453

POWER TRANSISTORS

MIL-S-19500	
2N3439,40 JAN,JTX	...../368
2N5304 (JTXV Only)	...../499
2N5683,84 JAN,JTX	...../466
2N6306,08 JAN,JTX	...../498

UNIUNCTION (PUT)

MIL-S-19500	
2N6116 JAN,JTX	...../493(EL)
2N6117 JAN,JTX	...../493(EL)
2N6118 JAN,JTX	...../493(EL)

FIELD-EFFECT TRANSISTORS

MIL-S-19500	
2N4092 JAN,JTX	...../431
2N4093 JAN,JTX	...../431
2N4856,57,58 JAN,JTX	...../385

6

MOTOROLA MIL-M-38510 PROGRAM

— the ultimate
in quality assurance
for integrated circuits

Motorola is the industry's pioneer manufacturer of high-reliability integrated circuits, having been the first company to be qualified as a MIL-M-38510 approved facility by the Defense Electronics Supply Center of the Department of Defense early in 1971. Motorola's extensive experience in high-reliability military and manned spacecraft programs such as Apollo, Minuteman and Safeguard, coupled with an investment of millions of dollars for research and development, has resulted in the ultimate in quality assurance for integrated circuits: the MOTOROLA MIL-M-38510 PROGRAM.

This comprehensive program is structured to provide an environment in which proven methods of manufacturing, quality assurance, monitoring, screening and testing can thrive — to give you **the most reliable product on the market today** — and to give it to you **fast!**

The MOTOROLA MIL-M-38510 PROGRAM is designed to support a broad base of test and evaluation programs for micro-electronic devices: materials, workmanship, performance capabilities, identification and processing — applied to all Motorola standard integrated circuit product, with appropriate levels of reliability. This product can be ordered in accordance with MIL-M-38510 JAN-**Qualified** standards or to the lower-cost, but similar hi-rel specifications designated as MIL-M-38510 JAN-**Processing**. (See ordering information.)

The MOTOROLA MIL-M-38510 PROGRAM is designed to facilitate delivery and to minimize specification preparation time. Beginning with a nucleus of popular IC types from our high-volume lines, the program is continually adding more devices to the list of MIL-M-38510 JAN-**Qualified** products.

Because it is a "standard" hi-rel program, the MOTOROLA MIL-M-38510 PROGRAM aids in reducing the high costs and delivery delays normally associated with "custom" hi-rel programs in the past.

It is a functional, operating program, based on the Military's own long-range objective to improve and demonstrate integrated circuit reliability, and is designed to provide hi-rel customers with the finest in quality, reliability and performance — fast!

THE MOTOROLA MIL-M-38510 PROGRAM OFFERS YOU THESE BENEFITS:

1. Standardization of environmental and electrical test procedures
2. Less specification writing required
3. Less time required in negotiating specifications
4. Fast delivery
5. Lower costs

THE MOTOROLA MIL-M-38510 PROGRAM

Under this program, Motorola integrated circuits may be procured to the specifications of MIL-M-38510 and to four levels of processing which meet the screening requirements of MIL-STD-883.

MIL-M-38510 JAN-QUALIFIED PRODUCT

Class A

Class B

Class C

JAN-QUALIFIED DEVICE MARKINGS

JM38510/XXXXAXX

JM38510/XXXXBXX

JM38510/X(XXX)CXX

JAN QUALIFIED

1. G.S.I. (Government Source Inspection) provided upon request.
2. Must be manufactured in a Government-approved facility.
3. Product inventoried in distributor and OEM warehouses.

Examples of MIL-M-38510 JAN-Qualified markings:

	Linear	Digital
DEVICE:	MC1741BCBJ	MC5400BCBJ
ORDER:	MC1741BCBJ	MC5400BCBJ
MARKING:	JM38510/10101BCB	JM38510/0J104BCB

HOW TO ORDER MIL-M-38510 JAN-QUALIFIED PRODUCT

Basic Numbering Parameters — Example: JM38510/XXXXBCB

J M38510 /XXX XX B C B
(1) (2) (3) (4) (5) (6) (7)

- (1) = J — This indicates a qualified device.
- (2) = M38510 — The military designator.
- (3) = /XXX — This three digit number signifies the detail specification in which the device type is found. The detail specifications, also referred to as "slash specs," generally contain more than one device type and are written for various generic groupings (i.e., TTL NAND Gates, TTL NAND Buffers, TTL Flip-Flops, Op Amps, Voltage Regulators, etc.)
- (4) = XX — This two digit number identifies the device type within the detail specification.
- (5) = B — This is a single letter and specifies the device class per MIL-M-38510 and will be class A, B or C.
- (6) = Case Outline. (See listings in adjacent column).
- (7) = Lead finish. (See listings in adjacent column).

The Motorola equivalent of the JAN M38510 part number is as shown in the following example and should be referenced when ordering your specific device requirement.

MCXXXX BCB J
(1) (2) (3)

1. The MCXXXX designates the Motorola source device type.
2. The first three letters after the part type have the same meaning and order as in the JAN part numbering system. This will simplify your cross-referencing.
3. J, which is the last letter in the part number, designates a JAN-qualified device.

Case outline and lead finish designations are common to both JAN Qualified and JAN Processed devices:

QUALIFIED # (6) PROCESSED # (3)

C — This is a single letter and specifies the package or case outline. A list of the currently defined package types (the letters define the same case outline for all detail specifications) is shown below:

CASE OUTLINE DESIGNATOR

CASE OUTLINE

*A	— 1/4" x 1/4" flat pack, 14-pin
B	— 1/8" x 1/4" flat pack, 14-pin
C	— 1/4" x 3/4" dual-in-line, 14-pin
*D	— 1/4" x 3/8" flat pack, 14-pin
E	— 1/4" x 3/4" dual-in-line, 16-pin
F	— 1/4" x 3/8" flat pack, 16-pin
G	— 8-lead can
H	— 1/4" x 1/4" flat pack, 10-lead
I	— 10-lead can
J	— 1/2" x 1 1/4" dual-in-line, 24-pin
K	— 3/8" x 1/2" flat pack, 24-pin
Z	— 1/4" x 1/2" flat pack, 24-pin

* A and D outlines are interchangeable

MIL-M-38510 JAN-PROCESSED PRODUCT

Class A

Class B

Class C

Class D

JAN-PROCESSED DEVICE MARKINGS

MC38510/XXXXAXXM MC38510/XXXXBXXM MC38510/XXXXCXXM MC38510/XXXXDXXM
 MC38510/XXXXAXXS MC38510/XXXXBXXS MC38510/XXXXCXXS MC38510/XXXXDXXS

JAN PROCESSED

1. No G.S.I. provided.
 2. Government-approved facility not required.
 3. Product supplied with MIL-M-38510 electricals will be designated by an "M" suffix.
 4. Product supplied with Motorola standard data sheet electricals
- will be designated by an "S" suffix.
5. Devices will be manufactured using design and processing guidelines contained in MIL-M-38510.
 6. Inventories will be maintained prior to burn-in and final electrical tests.

Examples of MIL-M-38510 JAN **Processed** markings:

Linear

DEVICE: MC1741BCB (M or S)
ORDER: MC1741BCB (M or S)
MARKINGS: MC38510/1741BCB (M or S)

Digital

DEVICE: MC5400BCB (M or S)
ORDER: MC5400BCB (M or S)
MARKINGS: MC38510/5400BCB (M or S)

QUALIFIED # (7) PROCESSED # (4)

B — This is a single letter and specifies the finish to be used on the package leads. There are three types of lead finishes which are acceptable for JAN product. They are:

LEAD FINISH SYMBOL

- | LEAD FINISH SYMBOL | LEAD FINISH |
|--------------------|---|
| A | — Kovar or Alloy 42, with hot solder dip |
| B | — Kovar or Alloy 42, with bright acid tin plate |
| C | — Kovar or Alloy 42, with gold plate |

Note: For other Motorola standard packaging, not currently identified in MIL-M-38510, contact your Motorola representative.

HOW TO ORDER MIL-M-38510 JAN-PROCESSED PRODUCT

EXAMPLE: If you wish to enter an order for an MCXXX Class B device in a 14-pin, dual-in-line ceramic package with the lead finish to be tin plate and electrically tested to Motorola's standard data sheet electricals, the order would be entered as follows:

MCXXX	B	C	B	S
(1)	(2)	(3)	(4)	(5)

- (1) = Motorola device type.
- (2) = **B** — This is a single letter and specifies the device class per MIL-M-38510 for Classes A, B and C. Class D is an added Motorola JAN processing class and is the same as the MIL-M-38510 Class B except for the differences shown in the following screening procedures table.
- (3) = Case Outline. (See listings in adjacent column).
- (4) = Lead finish. (See listings in adjacent column).
- (5) = **S** — This is a single letter and specifies the electrical specifications to which the device is to be screened during electrical test and will be either an S or M. "S" specifies the use of Motorola standard data sheet electricals. "M" specifies the use of JAN slash-sheet electricals where they exist.

Electrical Test Symbols

Test Level

- | | |
|----------|--|
| S | — Motorola standard data sheet electricals |
| M | — JAN slash-sheet electricals |

SCREENING PROCEDURES

(To MIL-STD-883 Requirements)

This program establishes screening procedures for total lot screening of integrated circuits to assist in achieving levels of quality and reliability commensurate with the intended application. In recognition of the fact that the level of screening has a direct impact on the cost of the product as well as its quality and reliability, four standard levels of screening are provided to coincide with four device classes or levels of product assurance.

Flexibility is provided in the choice of conditions and stress levels to provide screens, tailored to a particular product or application. Selection of a level **better** than that required for the specific product and application will, of course, result in unnecessary expense. A level **less** than that required will result in an unwarranted risk that reliability and other requirements will not be met. For general hi-rel applications, the Class B screening level should be considered.

	CLASS A			CLASS B		CLASS C		CLASS D	
SCREEN	METHOD	RQMT	METHOD	RQMT	METHOD	RQMT	METHOD	RQMT	
Internal Visual (Precap)	2010 Cond A and 38510	100%	2010 Cond B and 38510	100%	2010 Cond B and 38510	100%	2010 Cond B and 38510	100%	
Stabilization Bake	1008 24 hrs min, test condition C	100%	1008, 24 hrs min, test condition C	100%	1008, 24 hrs min, test condition C	100%	1008, 24 hrs min, test condition C	100%	
Thermal Shock	1011, Cond A	100%	—	—	—	—	—	—	
Temperature Cycling	1010, Cond C	100%	1010, Cond C	100%	1010 Cond C	100%	1010, Cond C	100%	
Mechanical Shock	2002 Cond F One Shock in Y ₁ plane only or 5 shocks at Cond B in Y ₁ plane	100%	—	—	—	—	—	—	
Constant Acceleration	2001 Cond E (min) in Y ₁ plane then Y ₂ plane	100%	2001 Cond E (min) Y ₁ plane	100%	2001 Cond E (min) Y ₁ plane	100%	2001 Cond E (min) Y ₁ plane	100%	
Seal (a) Fine (b) Gross	1014	100%	1014	100%	1014	100%	1014	100%	
Interim Electrical Parameters	JAN slash sheet electrical specification unless otherwise designated	100%	JAN slash sheet electrical specifications unless otherwise designated	100%	—	—	Motorola stand. data sheet electrical specs unless otherwise indicated	100%	
Burn-in test	1015 240 hrs @ 125°C min	100%	1015 168 hrs @ 125°C min	100%	—	—	1015 168 hrs @ 125°C min	100%	
Interim Electricals	JAN slash sheet electrical specifications unless otherwise designated	100%	—	—	—	—	—	—	
Reverse Bias Burn-in	1015 Cond A or C 72 hrs at 150°C min	100%	—	—	—	—	—	—	
Final Electrical tests (a) Static tests (1) 25°C (Subgroup 1 table 1, 5005) (2) Max and min rated op. temperature (subgroups 2 and 3 table 1, 5005) (b) Dynamic tests and/or switching tests 25°C (subgroup 4 and 9 table 1, 5005) (c) Functional test 25°C (subgroup 7 table 1, 5005)	JAN slash sheet electrical specifications unless otherwise designated	100%	JAN slash sheet electrical specifications unless otherwise designated	100%	JAN slash sheet electrical specifications unless otherwise designated	100%	Motorola stand. data sheet electrical specs unless otherwise indicated	100%	
Radiographic	2012	100%	—	—	—	—	—	—	
Qualification or quality conformance inspection	5005 Class A	per 38510	5005 Class B	per 38510	5005 Class C	per 38510	5005 Class B	per 38510	
External Visual	2009	100%	2009	100%	2009	100%	2009	100%	

*Group A per 5005. Generic data available for groups B & C on devices produced to Class B, C, D for JAN processed (from JAN program)

INTEGRATED CIRCUITS

A typical military part number consists of the JAN prefix, the general specification number, the detail specification number, and a coded part number.

PART NUMBER DESCRIPTION

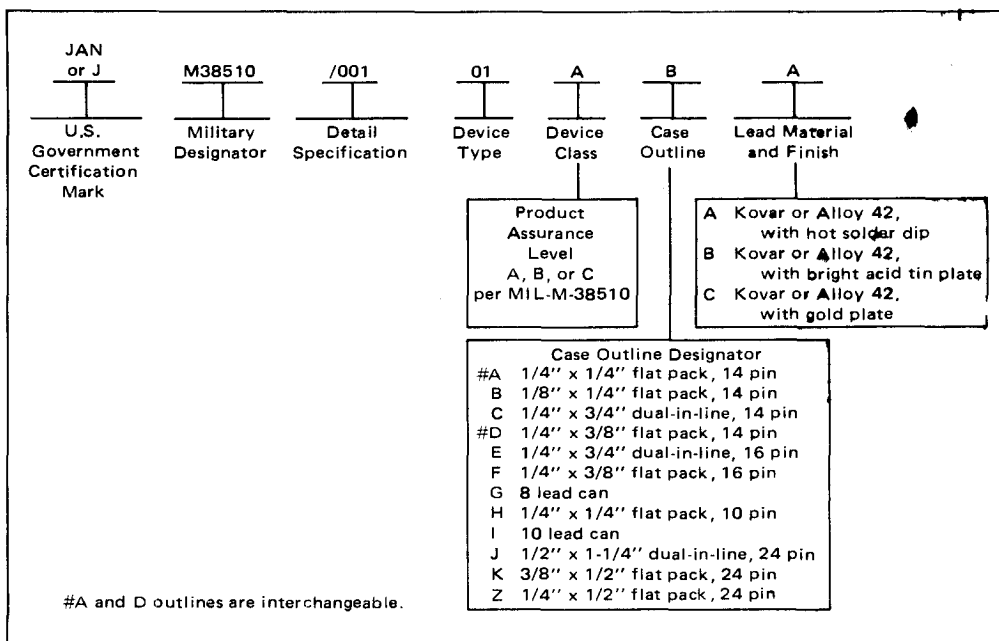


TABLE I - JAN PART NUMBER TO MOTOROLA PART NUMBER CROSS REFERENCE

Contact your local Motorola sales office or franchised distributor for current qualification status and availability.

MTL INTEGRATED CIRCUITS									
JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.		
MIL-M-38510/001 NAND Gates		MIL-M-38510/003 NAND Buffers		MIL-M-38510/006 Binary Full Adders		MIL-M-38510/009 Shift Registers			
01	MC5430	01	MC5440	01	MC15482	01	MC5495		
02	MC5420	02	MC5437	02	MC5483	02	MC5496		
03	MC5410	03	MC5438	MIL-M-38510/007 Exclusive OR Gate		03	MC54164A		
04	MC5400	MIL-M-38510/004 NOR Gates				04	MC54165		
05	MC5404			01	MC5402	05	MC54194		
06	MC5412 *	02	MC5423	MIL-M-38510/008 Hex Buffers/Drivers		06	MC54195		
07	MC5401	03	MC5425			01	MC5406	MIL-M-38510/010 Decoders	
08	MC5405	04	MC5427	02	MC5416	01	MC5442		
09	MC5403	MIL-M-38510/005 AND-OR-INVERT Gates		03	MC5407	02	MC5443		
MIL-M-38510/002 Flip-Flops				01	MC5450	04	MC5417	03	MC5444
				02	MC5472	02	MC5451	04	MC5445
				03	MC5473	03	MC5453	05	MC54145
		04	MC54107	04	MC5454	06	MC5446 *		
05	MC5476	01	MC5450	07	MC5447 *	07	MC5447 *		
06	MC5474 *	02	MC5451	08	MC5448	08	MC5448		
07	MC5479	03	MC5453	09	MC5449	09	MC5449		

* Not presently being manufactured or planned for immediate introduction.

** JAN type number must be completed as shown in the Part Number Description.

**TABLE I – JAN PART NUMBER TO MOTOROLA PART NUMBER
CROSS REFERENCE (continued)**

MTTL INTEGRATED CIRCUITS (continued)									
JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.	JAN Part No.**	Motorola Standard Part No.
MIL-M-38510/011 Arithmetic Logic Unit		MIL-M-38510/015 Bistable Latches		MIL-M-38510/022 High-Speed Flip-Flops		MIL-M-38510/027 Low-Power NOR Gate			
01	MC54181	01	MC5475	01	MC54H72	01	MC54L02*		
MIL-M-38510/012 Monostable Multivibrators		02	MC5477	02	MC54H73	MIL-M-38510/028 Low-Power Shift Registers			
01	MC54121	03	MC9308	03	MC54H74A	01	MC54L95*		
02	MC54122	04	MC9314	04	MC54H76*	02	MC54L164*		
03	MC54123	MIL-M-38510/016 AND Gates		05	MC54H101	MIL-M-38510/029 Low-Power Decoders			
MIL-M-38510/013 Counters		01	MC5408	MIL-M-38510/023 High-Speed NAND Gates		MIL-M-38510/029 Low-Power Decoders			
01	MC5492	02	MC5409	01	MC54H30	01	MC54L42*		
02	MC5493	MIL-M-38510/020 Low-Power NAND Gates		02	MC54H20	02	MC54L43*		
03	MC54160	01	MC54L30*	03	MC54H10	03	MC54L44*		
04	MC54163	02	MC54L20*	04	MC54H00	04	MC54L46*		
05	MC54162	03	MC54L10*	05	MC54H04	05	MC54L47*		
06	MC54161	04	MC54L00*	06	MC54H01	MIL-M-38510/040 High-Speed AND-OR-INVERT Gates			
07	MC5490	05	MC54L04*	07	MC54H22	MIL-M-38510/024 High-Speed NAND Buffer			
08	MC54192	06	MC54L03*	MIL-M-38510/021 Low-Power Flip-Flops		01	MC54H40		
09	MC54193	01	MC54L71*	01	MC54L71*	MIL-M-38510/025 Counters			
MIL-M-38510/014 Data Selectors/ Multiplexers		02	MC54L72*	02	MC54L72*	01	MC54L90*		
01	MC54150	03	MC54L73*	03	MC54L73*	02	MC54L93*		
02	MC9312	04	MC54L78*	04	MC54L78*	MIL-M-38510/026 Low-Power Exclusive OR Gate			
03	MC54153	05	MC54L74*	05	MC54L74*	01	MC54L86*		
04	MC9309					MIL-M-38510/041 Low-Power AND-OR-INVERT Gates			
05	MC9322					01	MC54L51*		
06	MC54151					02	MC54L54*		
MDTL INTEGRATED CIRCUITS									
JAN Part No.**	Motorola Standard Part No.								
MIL-M-38510/030 NAND Gates									
01	MC930								
02	MC935								
03	MC936								
04	MC946								
05	MC962								

*Not presently being manufactured or planned for immediate introduction.

**JAN type number must be completed as shown in the Part Number Description.

DEVICES FOR MILITARY APPLICATIONS (continued)

**TABLE I – JAN PART NUMBER TO MOTOROLA PART NUMBER
CROSS REFERENCE** (continued)

McMOS INTEGRATED CIRCUITS										
JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.
MIL-M-38510/050 NAND Gates			MIL-M-38510/052 NOR Gates			MIL-M-38510/055 Buffers/Converters			MIL-M-38510/057 Static Shift Registers	
01	MC14011A		01	MC14000A		01	MC14009A		01	MC14006A
02	MC14012A		02	MC14001A		02	MC14010A		02	MC14014A*
03	MC14023A		03	MC14002A		03	MC14049A		03	MC14015A
MIL-M-38510/051 Flip-Flops			MIL-M-38510/053 AND-OR-INVERT Gates			MIL-M-38510/056 Counters/Dividers			04	MC14021A
01	MC14013A		01	MC14007A		01	MC14017A		05	MC14031A*
02	MC14027A		02	MC14019A*		02	MC14018A*		MIL-M-38510/058 Quad Analog Switch	
			MIL-M-38510/054 4-Bit Full Adder			03	MC14020A		01	MC14016A
			01	MC14008A		04	MC14022A			
						05	MC14024A			
MECL 10,000 INTEGRATED CIRCUITS										
JAN Part No.**	Motorola Standard Part No.									
MIL-M-38510/060 NOR Gates										
01	MC10501									
02	MC10502									
03	MC10505									
04	MC10506									
05	MC10507									
06	MC10509									
LINEAR INTEGRATED CIRCUITS										
JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.		JAN Part No.**	Motorola Standard Part No.
MIL-M-38510/101 Operational Amplifiers			MIL-M-38510/102 Voltage Regulator			MIL-M-38510/104 Line Drivers and Receivers			MIL-M-38510/106 Voltage Follower Operational Amplifiers	
01	MC1741		01	MC1723		01	MC55107		01	MLM102*
02	MC1747		MIL-M-38510/103 Voltage Comparators			02	MC55108		02	MLM110
03	MLM101A		01	MC1710		03	MC9614*		MIL-M-38510/107 Voltage Regulator	
04	MLM108A		02	MC1711		04	MC9615*		01	MLM109
			03	MLM106*		05	MC55113*			
			04	MLM111*		MIL-M-38510/105 Video Amplifier				
						01	MC1733			
MEMORIES										
JAN Part No.**	Motorola Standard Part No.									
MIL-M-38510/201 Programmable Read Only Memories										
01	MCM5303									
02	MCM5304									

*Not presently being manufactured or planned for immediate introduction.

**JAN type number must be completed as shown in the Part Number Description.

DEVICES FOR MILITARY APPLICATIONS (continued)

TABLE II – MOTOROLA PART NUMBER TO JAN PART NUMBER
CROSS REFERENCE

MTTL INTEGRATED CIRCUITS		
Motorola Standard Part No.	Description	JAN Part No.**
MC15482	2-Bit Full Adder	/006 01
MC3121	Quad 2-Input Exclusive OR Gate	/007 01
MC5400	Quad 2-Input Positive NAND Gate	/001 04
MC5401	Quad 2-Input Positive NAND Gate (Open Collector Output)	/001 07
MC5402	Quad 2-Input Positive NOR Gate	/004 01
MC5403	Quad 2-Input Positive NAND Gate (Open Collector Output) (Pin connections different from MC5401)	/001 09
MC5404	Hex 1-Input Inverter Gate	/001 05
MC5405	Hex 1-Input Inverter Gate (Open Collector Output)	/001 08
MC5406	Hex Inverter Buffer/Driver (30-Volt Output)	/008 01
MC5407	Hex Buffer/Driver (30-Volt Output)	/008 03
MC5408	Quad 2-Input Positive AND Gate	/016 01
MC5409	Quad 2-Input Positive AND Gate (Open Collector Output)	/016 02
MC5410	Triple 3-Input Positive NAND Gate	/001 03
MC5412 *	Triple 3-Input Positive NAND Gate (Open Collector Output)	/001 06
MC5416	Hex Inverter Buffer/Driver (15-Volt Output)	/008 02
MC5417	Hex Buffer/Driver (15-Volt Output)	/008 04
MC5420	Dual 4-Input Positive NAND Gate	/001 02
MC5423	Dual 4-Input Positive NOR Gate with Strobe and Expandable Input	/004 02
MC5425	Dual 4-Input Positive NOR Gate with Strobe	/004 03
MC5427	Triple 3-Input Positive NOR Gate	/004 04
MC5430	Single 8-Input Positive NAND Gate	/001 01
MC5437	Quad 2-Input Positive NAND Buffer	/003 02
MC5438	Quad 2-Input Positive NAND Buffer (Open Collector Output)	/003 03
MC5440	Dual 4-Input Positive NAND Buffer	/003 01
MC5442	BCD-to-Decimal Decoder	/010 01
MC5443	Excess-3-to-Decimal Decoder	/010 02
MC5444	Excess-3-Gray-to-Decimal Decoder	/010 03
MC5445	BCD-to-Decimal Decoder/Driver (30-Volt, Open Collector Output)	/010 04
MC5446 *	BCD-to-Seven-Segment Decoder/Driver (30-Volt, Open Collector Output)	/010 06
MC5447 *	BCD-to-Seven-Segment Decoder/Driver (15-Volt, Open Collector Output)	/010 07
MC5448	BCD-to-Seven-Segment Decoder/Driver	/010 08
MC5449	BCD-to-Seven-Segment Decoder/Driver (5.5-Volt, Open Collector Output)	/010 09
MC5450	Expandable Dual 2-Wide, 2-Input AND-OR-INVERT Gate	/005 01
MC5451	Dual 2-Wide, 2-Input AND-OR-INVERT Gate	/005 02
MC5453	Expandable 4-Wide, 2-Input AND-OR-INVERT Gate	/005 03
MC5454	4-Wide, 2-Input AND-OR-INVERT Gate	/005 04
MC5470	Single Edge-Triggered J-K Flip-Flop	/002 06
MC5472	Single J-K Master-Slave Flip-Flop	/002 01
MC5473	Dual J-K Master-Slave Flip-Flop (No Preset)	/002 02
MC5474 *	Dual D-Type Edge-Triggered Flip-Flop	/002 05
MC5475	4-Bit Latch (Complementary Outputs)	/015 01
MC5476	Dual J-K Master-Slave Flip-Flop	/002 04
MC5477	4-Bit Latch	/015 02
MC5479	Dual D-Type Edge-Triggered Flip-Flop (Buffered Output)	/002 07
MC5483	4-Bit Full Adder	/006 02
MC5490	Decade Counter	/013 07
MC5492	Divide-by-12 Counter	/013 01
MC5493	4-Bit Binary Counter	/013 02
MC5495	4-Bit Right-Shift, Left-Shift Register	/009 01
MC5496	5-Bit Shift Register	/009 02
MC54107	Dual J-K Master-Slave Flip-Flop (No Preset)	/002 03
MC54121	Single Monostable Multivibrator	/012 01
MC54122	Single Retriggerable Monostable Multivibrator with Clear	/012 02
MC54123	Dual Retriggerable Monostable Multivibrator with Clear	/012 03
MC54145	BCD-to-Decimal Decoder/Driver (15-Volt, Open Collector Output)	/010 05
MC54150	16-Input Data Selector/Multiplexer, with Enable	/014 01
MC54151	8-Input Data Selector/Multiplexer, with Enable	/014 06
MC54153	Dual 4-Input Data Selector/Multiplexer, with Enable	/014 03
MC54160	Synchronous 4-Bit Decade Counter (Asynchronous Clear)	/013 03
MC54161	Synchronous 4-Bit Binary Counter (Asynchronous Clear)	/013 06

* Not presently being manufactured or planned for immediate introduction.

** JAN type number must be completed as shown in the Part Number Description.

TABLE II – MOTOROLA PART NUMBER TO JAN PART NUMBER
CROSS REFERENCE (continued)

MTTL INTEGRATED CIRCUITS (continued)		
Motorola Standard Part No.	Description	JAN Part No.**
MC54162	Synchronous 4-Bit Decade Counter (Synchronous Clear)	/013 05
MC54163	Synchronous 4-Bit Binary Counter (Synchronous Clear)	/013 04
MC54164A	8-Bit Parallel-Out Serial Shift Register	/009 03
MC54165	8-Bit Parallel-Load Shift Register	/009 04
MC54181	Arithmetic Logic Unit/Function Generator	/011 01
MC54192	Presetable Decade Up/Down Counter	/013 08
MC54193	Presetable 4-Bit Binary Up/Down Counter	/013 09
MC54194	4-Bit Bidirectional Shift Register	/009 05
MC54195	4-Bit Parallel-Access Shift Register	/009 06
MC54H00	Quad 2-Input Positive NAND Gate (High-Speed)	/023 04
MC54H01	Quad 2-Input Positive NAND Gate (High-Speed, Open Collector Output)	/023 06
MC54H04	Hex 1-Input Inverter Gate (High-Speed)	/023 05
MC54H10	Triple 3-Input Positive NAND Gate (High-Speed)	/023 03
MC54H20	Dual 4-Input Positive NAND Gate (High-Speed)	/023 02
MC54H22	Dual 4-Input Positive NAND Gate (High-Speed, Open Collector Output)	/023 07
MC54H30	Single 8-Input Positive NAND Gate (High-Speed)	/023 01
MC54H40	Dual 4-Input Positive NAND Buffer (High-Speed)	/024 01
MC54H50	Expandable Dual 2-Wide, 2-Input AND-OR-INVERT Gate (High-Speed)	/040 01
MC54H51	Dual 2-Wide, 2-Input AND-OR-INVERT Gate (High-Speed)	/040 02
MC54H53	Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate (High-Speed)	/040 03
MC54H54	4-Wide 2-2-2-3 Input AND-OR-INVERT Gate (High-Speed)	/040 04
MC54H55	Expandable 2-Wide, 4-Input AND-OR-INVERT Gate	/040 05
MC54H72	Single J-K Master-Slave Flip-Flop (High-Speed)	/022 01
MC54H73	Dual J-K Master-Slave Flip-Flop (High-Speed)	/002 02
MC54H74A	Dual D-Type Edge-Triggered Flip-Flop (High-Speed)	/022 03
MC54H76*	Dual J-K Flip-Flop (High-Speed)	/022 04
MC54H101	J-K Edge-Triggered Flip-Flop (High-Speed)	/022 05
MC54H103	Dual J-K Edge-Triggered Flip-Flop (High-Speed)	/022 06
MC54L00*	Quad 2-Input Positive NAND Gate (Low-Power)	/020 04
MC54L02*	Quad 2-Input Positive NOR Gate (Low-Power)	/027 01
MC54L03*	Quad 2-Input Positive NAND Gate (Low-Power, Open Collector Output)	/020 06
MC54L04*	Hex 1-Input Inverter Gate (Low-Power)	/020 05
MC54L10*	Triple 3-Input Positive NAND Gate (Low-Power)	/020 03
MC54L20*	Dual 4-Input Positive NAND Gate (Low-Power)	/020 02
MC54L30*	Single 8-Input Positive NAND Gate (Low-Power)	/020 01
MC54L42*	BCD-to-Decimal Decoder (Low-Power)	/029 01
MC54L43*	Excess-3-to-Decimal Decoder (Low-Power)	/029 02
MC54L44*	Excess-3-Gray-to-Decimal Decoder (Low-Power)	/029 03
MC54L46*	BCD-to-Seven-Segment Decoder/Driver (Low-Power, 30-Volt, Open Collector Output)	/029 04
MC54L47*	BCD-to-Seven-Segment Decoder/Driver (Low-Power, 15-Volt, Open Collector Output)	/029 05
MC54L51*	Dual 2-Wide AND-OR-INVERT Gate (Low-Power)	/041 01
MC54L54*	4-Wide, 3-2-2-3 Input AND-OR-INVERT Gate (Low-Power)	/041 02
MC54L55*	2-Wide, 4-Input AND-OR-INVERT Gate (Low-Power)	/041 03
MC54L71*	R-S Master-Slave Flip-Flop (Low-Power)	/021 01
MC54L72*	J-K Master-Slave Flip-Flop (Low-Power)	/021 02
MC54L73*	Dual J-K Master-Slave Flip-Flop (Low-Power)	/021 03
MC54L74*	Dual D-Type Edge-Triggered Flip-Flop (Low-Power)	/021 05
MC54L78*	Dual J-K Master-Slave Flip-Flop (Low-Power)	/021 04
MC54L86*	Quad 2-Input Exclusive OR Gate (Low-Power)	/026 01
MC54L90*	Decade Counter (Low-Power)	/025 01
MC54L93*	4-Bit Binary Counter (Low-Power)	/025 02
MC54L95*	4-Bit Right-Shift, Left-Shift Register (Low-Power)	/028 01
MC54L164*	8-Bit Parallel-Out Serial Shift Register (Low-Power)	/028 02
MC9308	Dual 4-Bit Latch	/015 03
MC9309	Dual 4-Input Data Selector/Multiplexer, without Enable	/014 04
MC9312	8-Input Data Selector/Multiplexer, with Enable	/014 02
MC9314	4-Bit Latch, with Master Reset	/015 04
MC9322	Quad 2-Input Data Selector/Multiplexer, with Enable	/014 05

*Not presently being manufactured or planned for immediate introduction.

**JAN type number must be completed as shown in the Part Number Description.

DEVICES FOR MILITARY APPLICATIONS (continued)

TABLE II – MOTOROLA PART NUMBER TO JAN PART NUMBER
CROSS REFERENCE (continued)

MDTL INTEGRATED CIRCUITS		
Motorola Standard Part No.	Description	JAN Part No.**
MC930	Expandable Dual 4-Input NAND Gate	/030 01
MC935	Hex Inverter, Without Output Resistors	/030 02
MC936	Hex Inverter	/030 03
MC946	Quad 2-Input NAND Gate	/030 04
MC962	Triple 3-Input NAND Gate	/030 05
McMOS INTEGRATED CIRCUITS		
Motorola Standard Part No.	Description	JAN Part No.**
MC14000A	Dual 3-Input NOR Gate plus Inverter	/052 01
MC14001A	Quad 2-Input NOR Gate	/052 02
MC14002A	Dual 4-Input NOR Gate	/052 03
MC14006A	Dual 4-Stage/Dual 5-Stage Static Shift Register	/057 01
MC14007A	Dual Complementary Pair plus Inverter	/053 01
MC14008A	4-Bit Full Adder	/054 01
MC14009A	Inverting Hex Buffer	/055 01
MC14010A	Non-Inverting Hex Buffer	/055 02
MC14011A	Quad 2-Input NAND Gate	/050 01
MC14012A	Dual 4-Input NAND Gate	/050 02
MC14013A	Dual D-Type Edge-Triggered Flip-Flop	/051 01
MC14014A*	8-Stage Synchronous Parallel or Serial Input/Serial Output Static Shift Register	/057 02
MC14015A	Dual 4-Stage Serial Input/Parallel Output Static Shift Register	/057 03
MC14016A	Quad Analog Switch/Quad Multiplexer	/058 01
MC14017A	Decade Counter/Divider	/056 01
MC14018A*	Presetable Divide-by-N Counter	/056 02
MC14019A*	Quad AND-OR-Select Gate	/053 02
MC14020A	14-Stage Ripple-Carry Binary Counter/Divider	/056 03
MC14021A	8-Stage Asynchronous Parallel Input/Serial Output or Synchronous Serial Input/Serial Output Static Shift Register	/057 04
MC14022A	Divide-by-8 Counter/Divider	/056 04
MC14023A	Triple 3-Input NAND Gate	/050 03
MC14024A	7-Stage Binary Counter	/056 05
MC14025A	Triple 3-Input NOR Gate	/052 04
MC14027A	Dual J-K Master-Slave Flip-Flop	/051 02
MC14031A*	64-Stage Static Shift Register with Delayed Clock Output and Recirculation Capability	/057 05
MC14049A	Hex Buffer	/055 03
MC14050A	Hex Buffer	/055 04
MECL 10,000 INTEGRATED CIRCUITS		
Motorola Standard Part No.	Description	JAN Part No.**
MC10501	Quad OR/NOR Gate with Strobe	/060 01
MC10502	Triple 2-Input NOR Gate Plus 2-Input OR/NOR Gate	/060 02
MC10505	Triple 2-3-2 Input OR/NOR Gate	/060 03
MC10506	Triple 4-3-3 Input NOR Gate	/060 04
MC10507	Triple Exclusive OR/NOR Gate	/060 05
MC10509	Dual 4-5 Input OR/NOR Gate	/060 06

DEVICES FOR MILITARY APPLICATIONS (continued)

TABLE II – MOTOROLA PART NUMBER TO JAN PART NUMBER
CROSS REFERENCE (continued)

LINEAR INTEGRATED CIRCUITS		
Motorola Standard Part No.	Description	JAN Part No.**
MC1710	Single Differential Voltage Comparator	/103 01
MC1711	Dual Channel Differential Voltage Comparator	/103 02
MC1723	Precision Voltage Regulator	/102 01
MC1741	Single Operational Amplifier (Internally Compensated)	/101 01
MC1747	Dual Operational Amplifier (Internally Compensated)	/101 02
MC9614*	Dual Differential Line Driver	/104 03
MC9615*	Dual Differential Line Receiver	/104 04
MC55107	Dual Line Receiver	/104 01
MC55108	Dual Line Receiver (Open Collector Output)	/104 02
MC55113*	Dual Differential Line Driver (3-State Output With High-Impedance Off-State)	/104 05
MLM101A	Single Operational Amplifier (Externally Compensated)	/101 03
MLM102*	Voltage Follower Operational Amplifier	/106 01
MLM106*	Single Voltage Comparator/Buffer	/103 03
MLM108A	Single Operational Amplifier (Externally Compensated)	/101 04
MLM109	Voltage Regulator	/107 01
MLM110	Voltage Follower Operational Amplifier	/106 02
MLM111*	Precision Voltage Comparator/Buffer	/103 04
MEMORIES		
Motorola Standard Part No.	Description	JAN Part No.**
MCM5303	64-Word/8-Bits-per-Word PROM (Open Collector Output)	/201 01
MCM5304	64-Word/8-Bits-per-Word PROM (Internal Pullup Resistor)	/201 02

*Not presently being manufactured or planned for immediate introduction.

**JAN type number must be completed as shown in the Part Number Description.

hybrid circuit
thousands of
its standard
these chips
size, geometry
in Motorola's new
Chips Data Book

a has made available to the
chip form, virtually all of the
and integrated circuit devices in
More detailed information on
inspection, packaging,
ization is presented

Major semiconductor
manufacturers' products are in
product catalog
including data sheets, test data, visual
and meta



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PACKAGING	
Lead Tape Packaging Standards for Axial-Lead Components	8-2
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MK126, MK127,	Mounting Hardware
MK128, MK167,	
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MK21	Mounting Hardware
	8-20

Packaging and Hardware

LEAD TAPE PACKAGING STANDARDS FOR AXIAL-LEAD COMPONENTS (continued)

TABLE 1 – PACKAGING

Component Type (Case)	Quantity Per Reel Min/Max	Ammunition Pack Qty. Min	Component Spacing A	Tape Spacing B	Reel Dimensions	
					C	D
Case 51 (DO-7) Case 59 (DO-41)	1000/3000	500	0.200 ± 0.015	2.00 ± 0.010	3.00	10.50
Case 17	1000/2000	500	0.200 ± 0.015	2.00 ± 0.010	3.00	10.50
Case 52 (DO-13)	500/1500	250	0.375 ± 0.015	2.375 ± 0.020	3.81	14.00
Case 267	500/900	250	0.375 ± 0.015	2.00 ± 0.010	3.00	10.50

FIGURE 1 – REEL PACKING

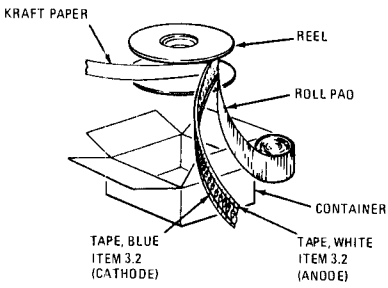


FIGURE 2 – COMPONENT SPACING

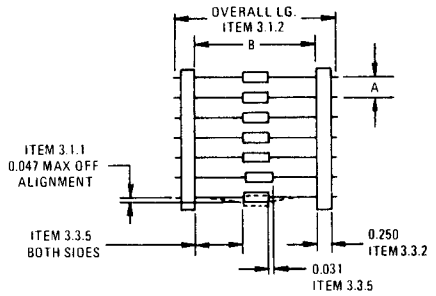


FIGURE 3 – REEL DIMENSIONS

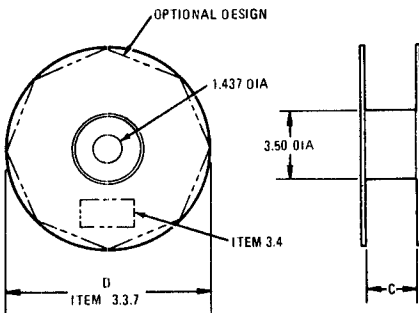
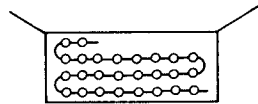
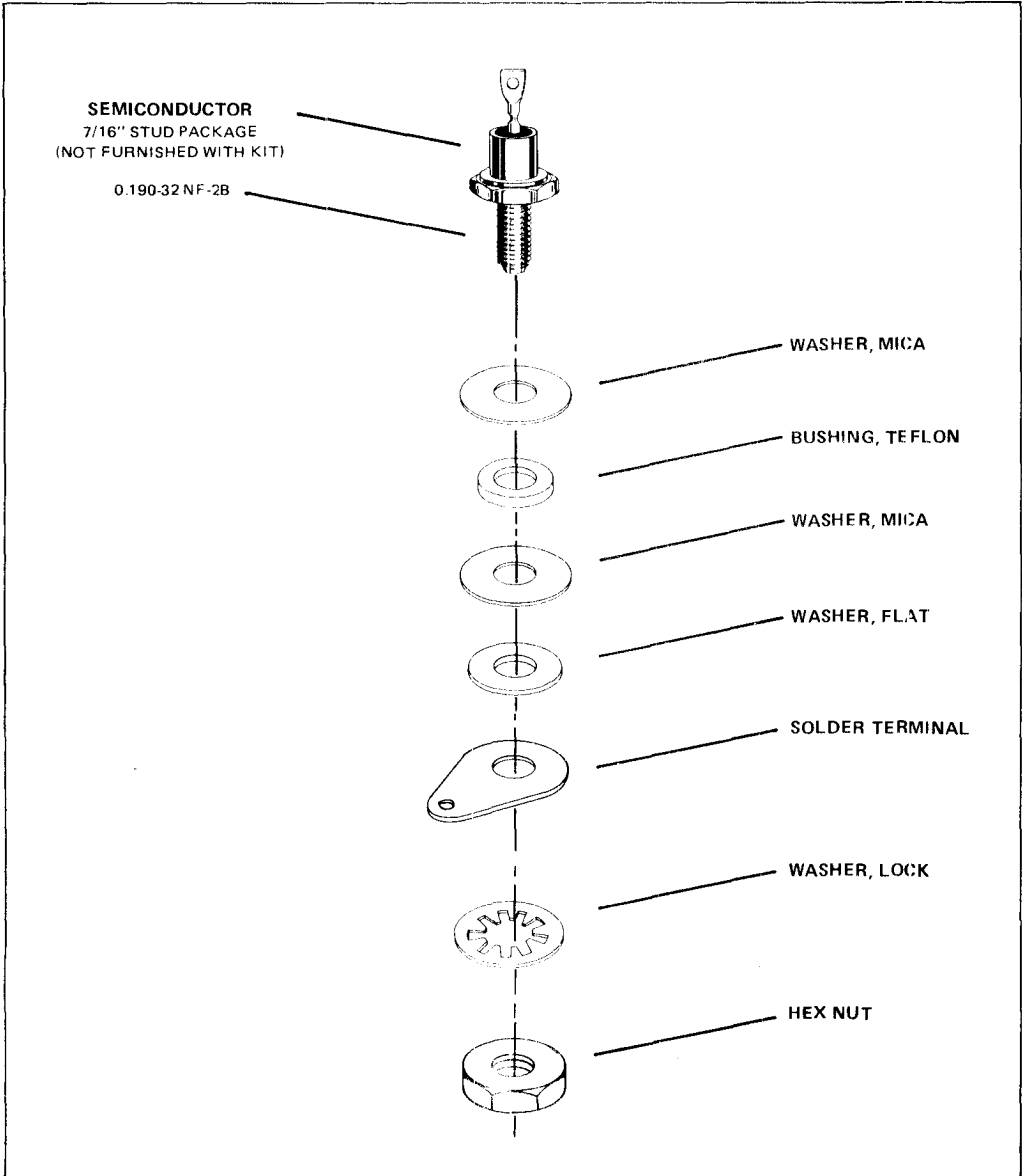


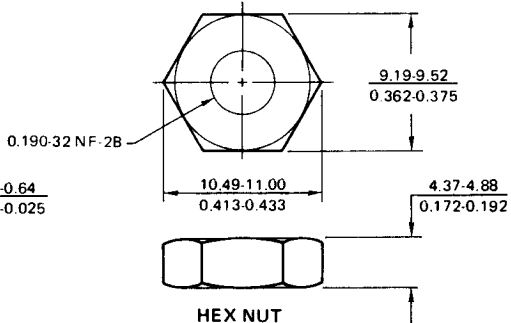
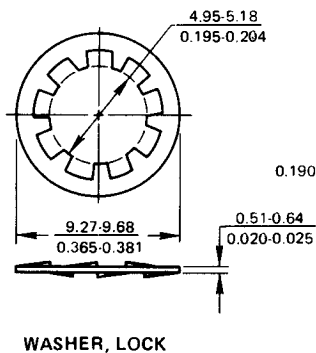
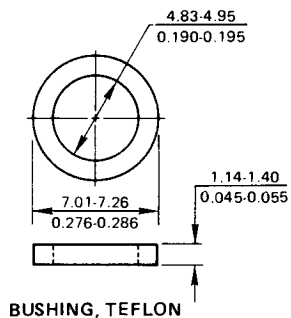
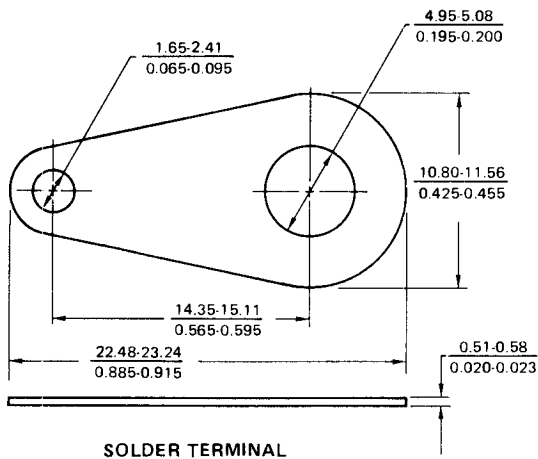
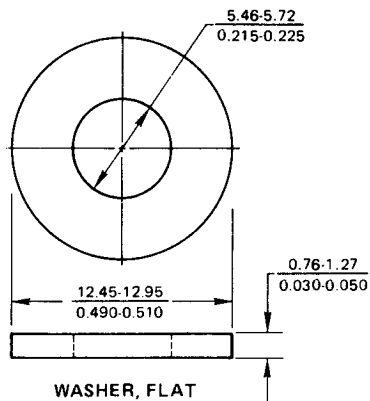
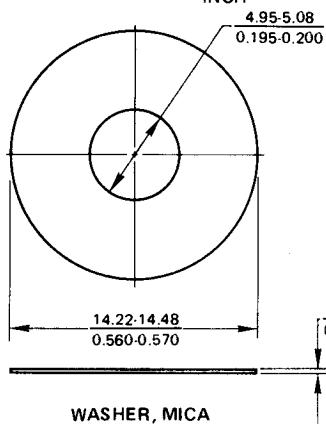
FIGURE 4 – AMMUNITION PACK



MOTOROLA MOUNTING KIT – 7/16" STUD PACKAGE



(DIMENSIONS — $\frac{\text{MILLIMETER}}{\text{INCH}}$)

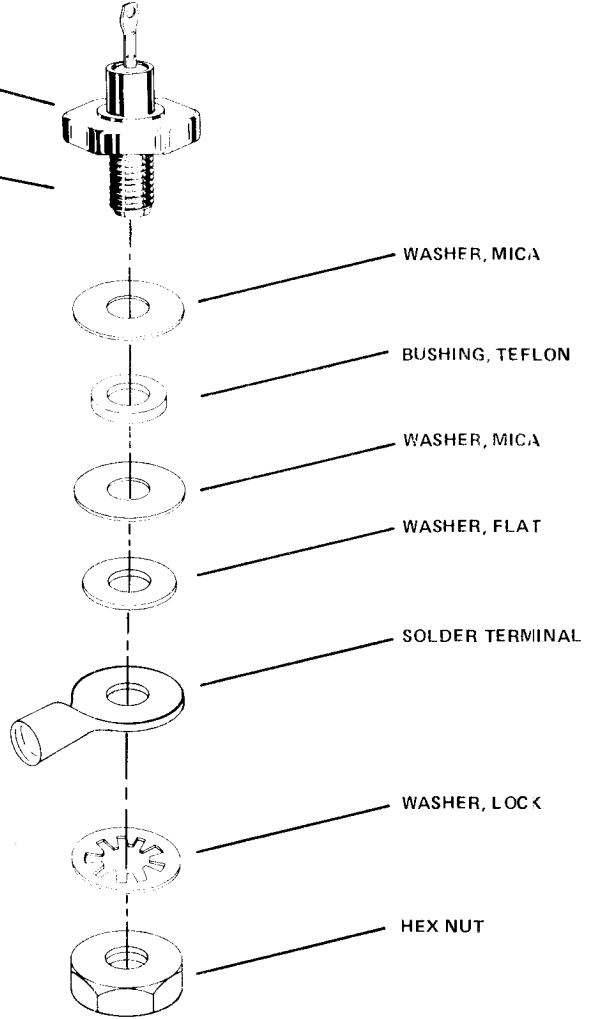


MH746

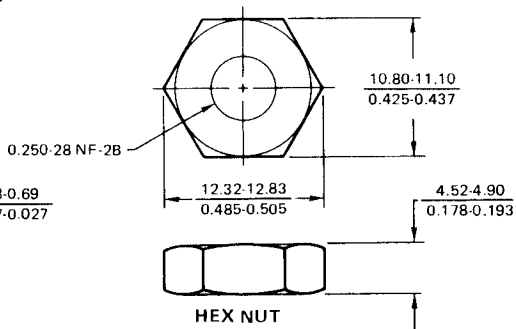
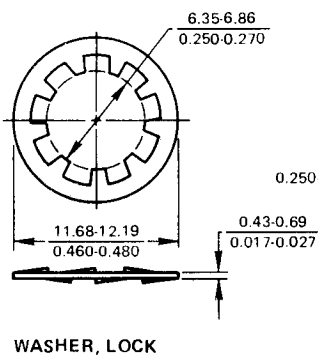
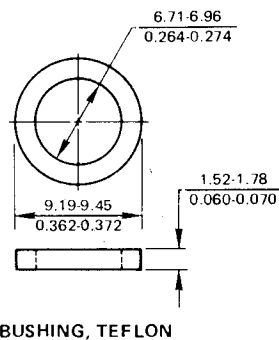
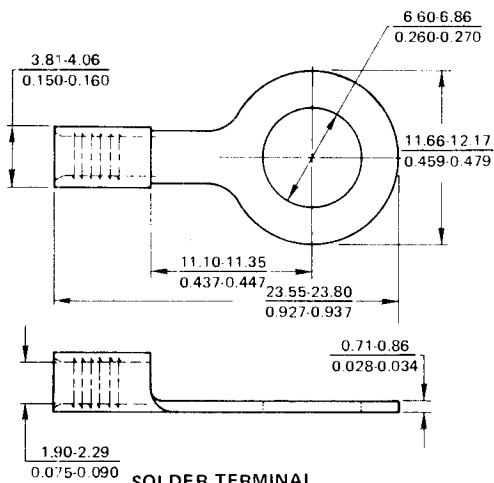
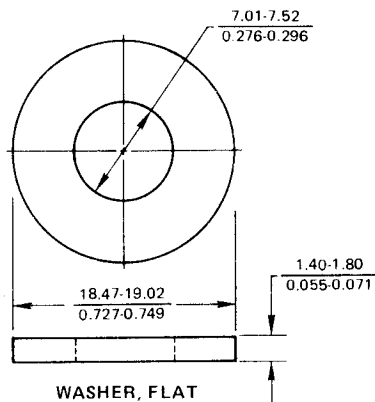
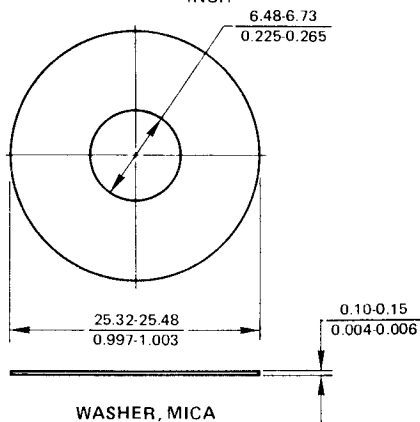
MOTOROLA MOUNTING KIT – 11/16" STUD PACKAGES

SEMICONDUCTOR
11/16" STUD PACKAGE
(NOT FURNISHED WITH KIT)

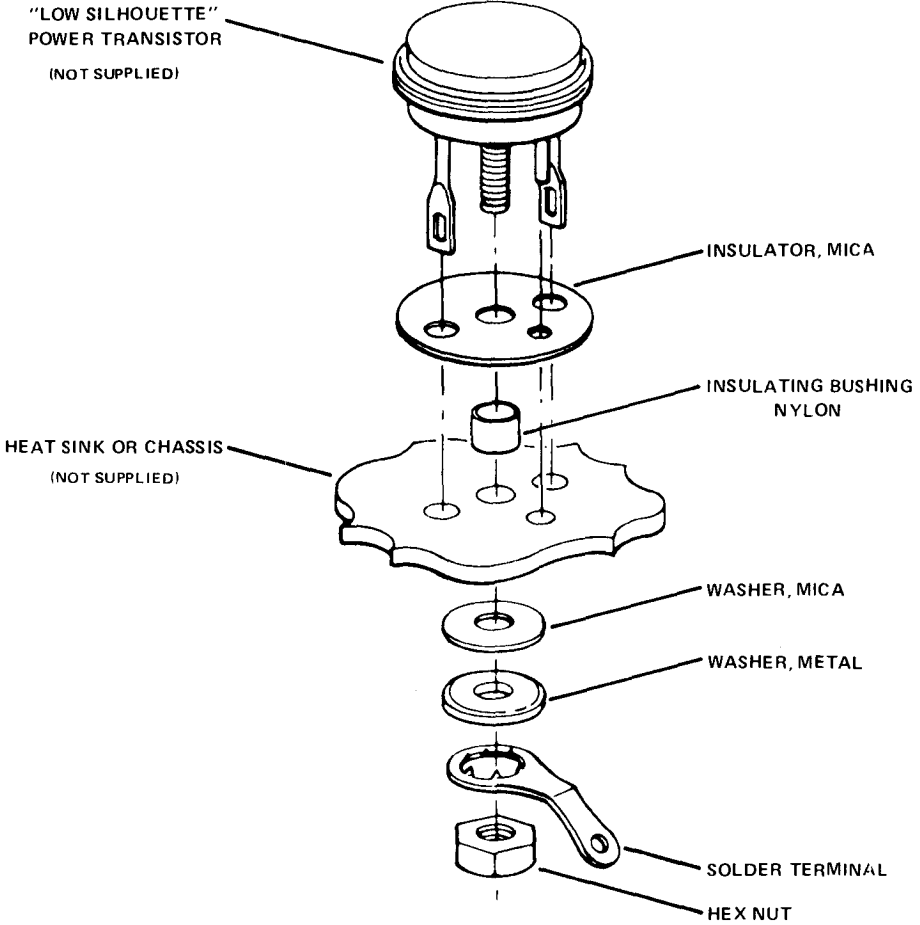
0.250-28 NF 2B



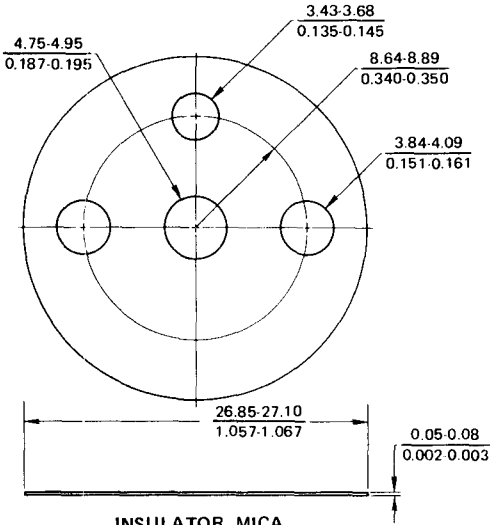
(DIMENSIONS — $\frac{\text{MILLIMETER}}{\text{INCH}}$)



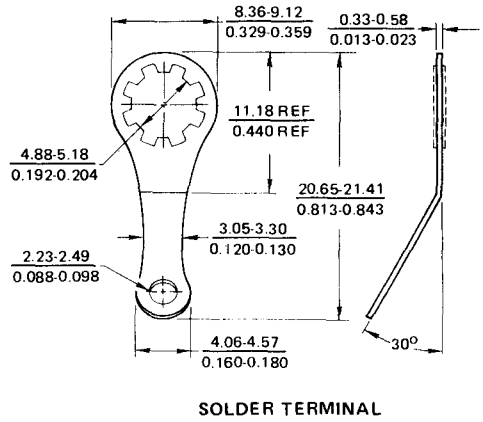
MOTOROLA MOUNTING KIT – CASE 5



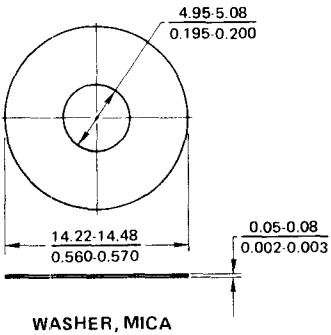
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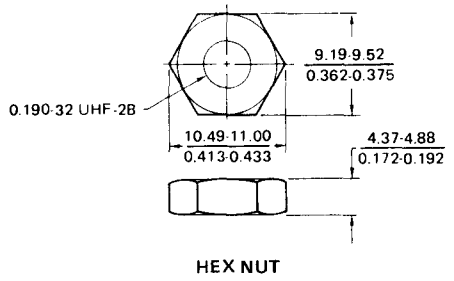
INSULATOR, MICA



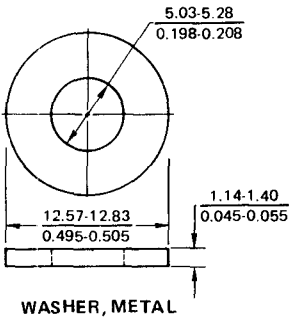
SOLDER TERMINAL



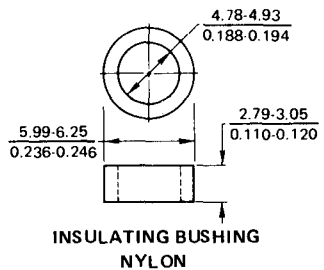
WASHER, MICA



HEX NUT



WASHER, METAL

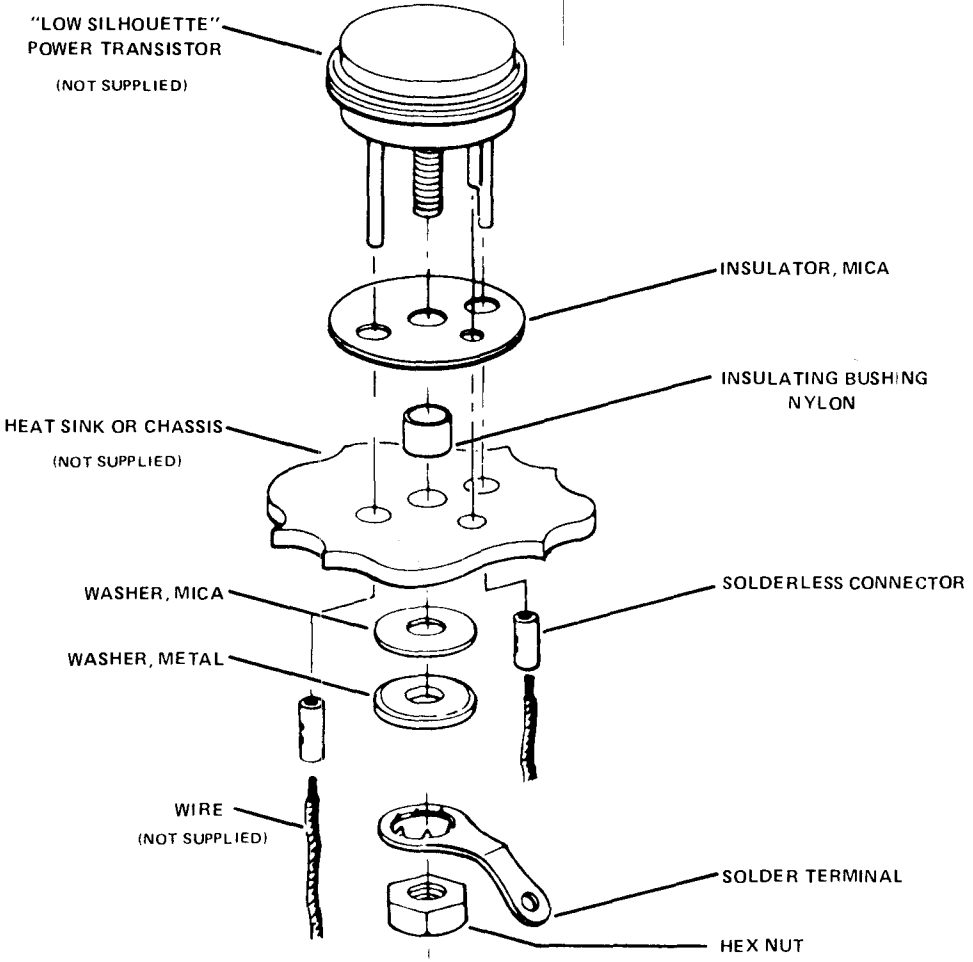


INSULATING BUSHING
NYLON

MK-35

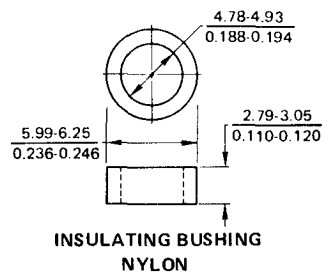
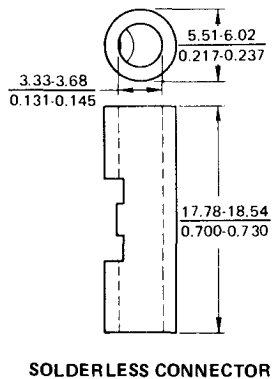
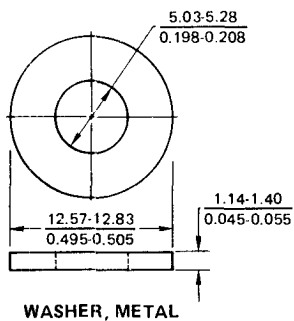
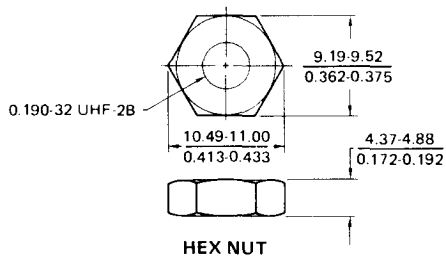
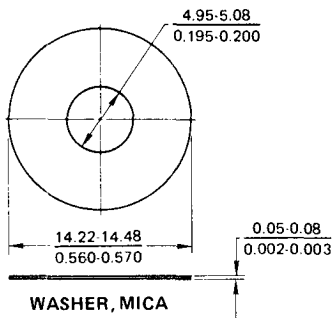
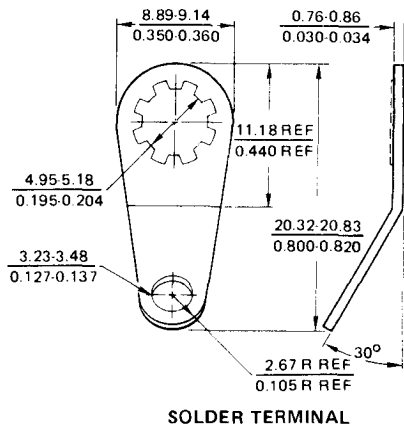
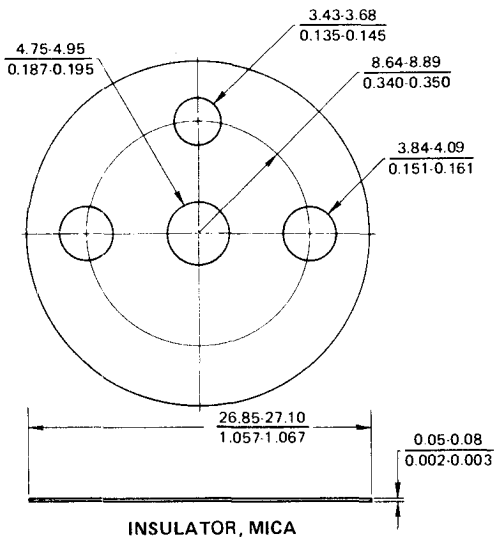
MOTOROLA MOUNTING KIT – CASE 6

MK-35



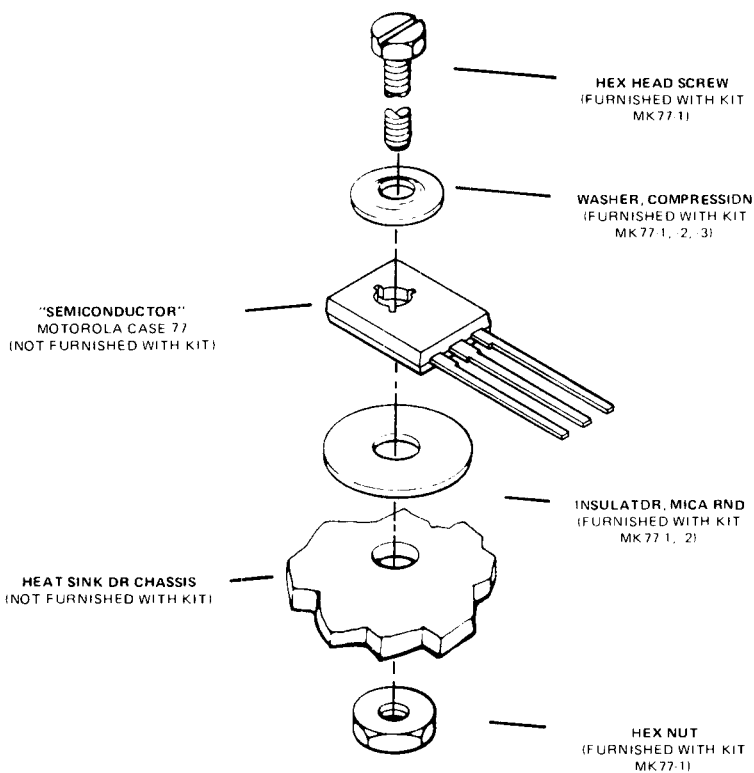
8

(DIMENSIONS — $\frac{\text{MILLIMETER}}{\text{INCH}}$)



MK77-1 thru MK77-3

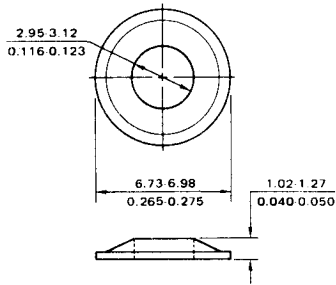
MOTOROLA MOUNTING KIT – CASE 77



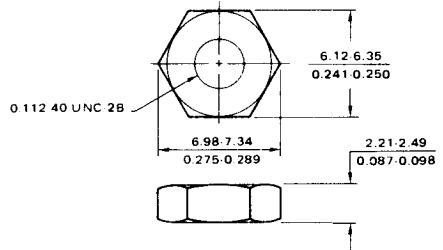
TORQUE REQUIREMENTS

MK 77-1
0.68 N-m (6 IN. LBS.)

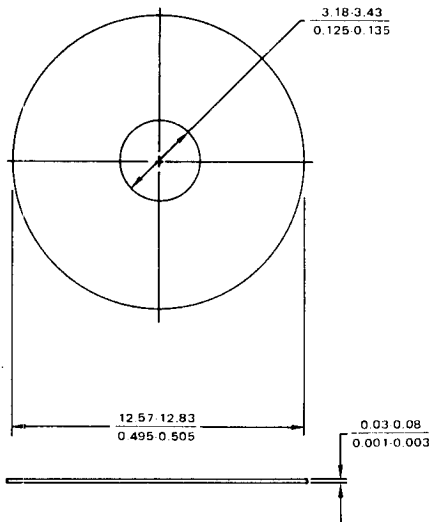
(DIMENSIONS — $\frac{\text{MILLIMETERS}}{\text{INCH}}$)



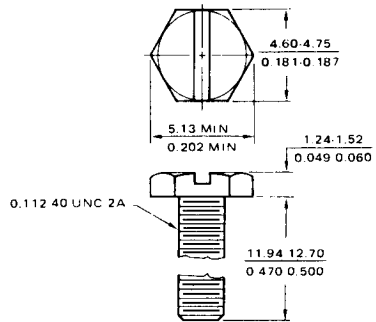
WASHER, COMPRESSION



HEX NUT
CARBON STEEL,
CADMIUM PLATED



INSULATOR, MICA
[ROUND]

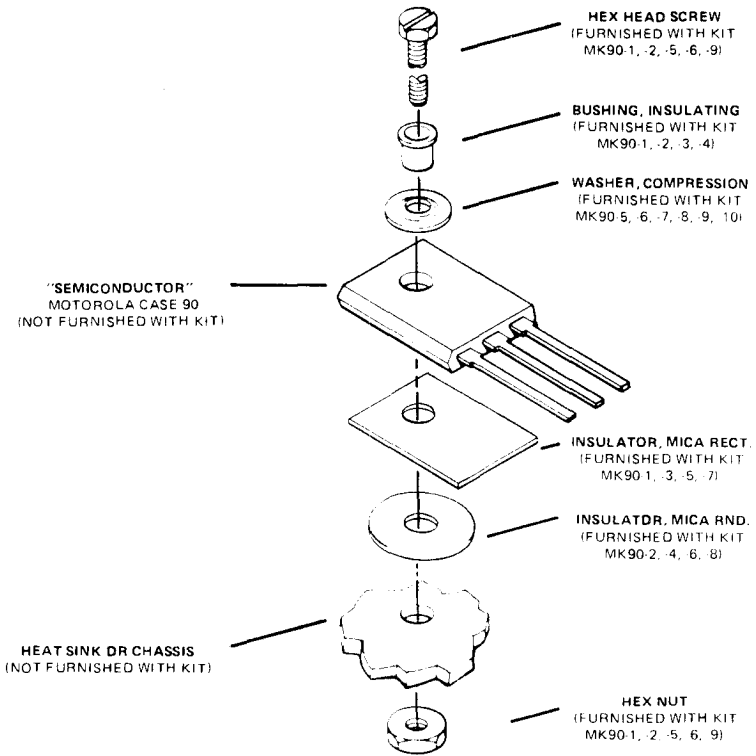


HEX HEAD SCREW
CARBON STEEL,
CADMIUM PLATED



MK90-1 thru MK90-10

MOTOROLA MOUNTING KIT – CASE 90

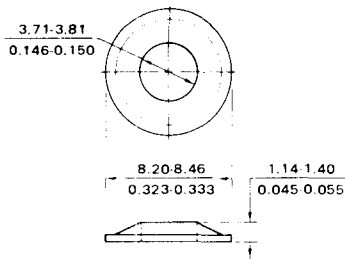


TORQUE REQUIREMENTS

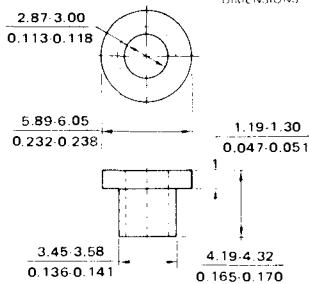
MK90-1, MK90-2
0.68 N-m (6 IN. LBS.) MAX

MK90-5, MK90-6, MK90-9
0.90 N-m (8 IN. LBS.) MAX

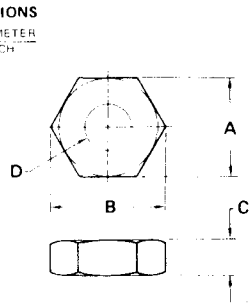
MK90-1 THRU MK90-10 (continued)



WASHER, COMPRESSION

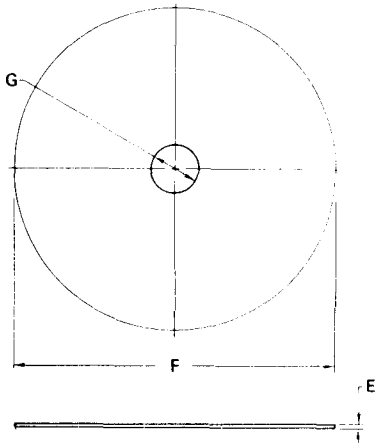


BUSHING, INSULATING

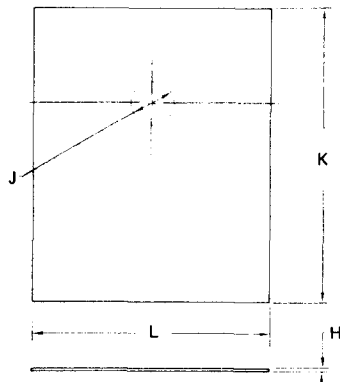


HEX NUT

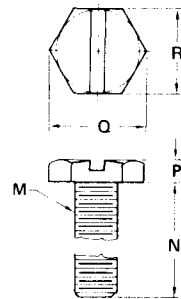
CARBON STEEL,
CADMIUM PLATED



INSULATOR, MICA
[ROUND]



INSULATOR, MICA
[RECT]



HEX HEAD SCREW
CARBON STEEL,
CADMIUM PLATED

DIMENSIONS - MILLIMETER (INCH)

HEX NUT				
KIT TYPE	DIM A	DIM B	DIM C	DIM D
MK90-1, MK90-2	6.12-6.35 (0.241-0.250)	6.98-7.34 (0.275-0.289)	2.21-2.49 (0.087-0.098)	2.84 NOM (0.112 NOM)
MK90-5, MK90-6, MK90-9	7.67-7.92 (0.302-0.312)	8.74-9.17 (0.344-0.361)	2.59-2.90 (0.102-0.114)	3.50 NOM (0.138 NOM)

INSULATOR, MICA (ROUND)			
KIT TYPE	DIM E	DIM F	DIM G
MK90-2, MK90-4	0.05-0.08 (0.002-0.003)	20.37-20.88 (0.802-0.822)	2.87-2.97 (0.113-0.117)
MK90-6, MK90-8	0.05-0.08 (0.002-0.003)	20.37-20.88 (0.802-0.822)	3.56-3.81 (0.140-0.150)

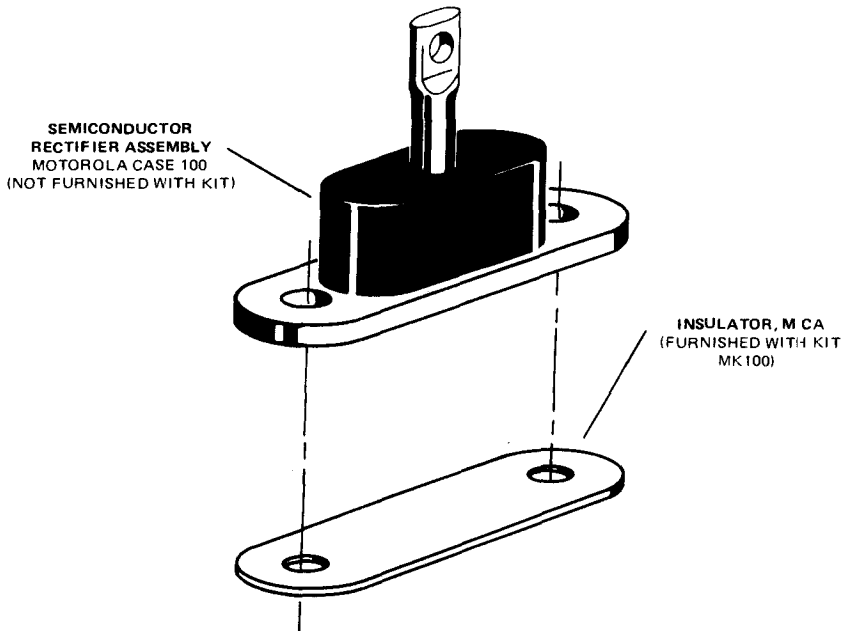
INSULATOR, MICA (RECT.)				
KIT TYPE	DIM H	DIM J	DIM K	DIM L
MK90-1, MK90-3	0.05-0.08 (0.002-0.003)	2.87-3.00 (0.113-0.118)	18.54-19.05 (0.730-0.750)	14.99-15.49 (0.590-0.610)
MK90-5, MK90-7	0.05-0.08 (0.002-0.003)	3.68-3.94 (0.145-0.155)	18.54-19.05 (0.730-0.750)	14.99-15.49 (0.590-0.610)

HEX HEAD SCREW					
KIT TYPE	DIM M	DIM N	DIM P	DIM Q	DIM R
MK90-1, MK90-2	0.112-0.40	11.94-12.70 (0.470-0.500)	1.24-1.52 (0.049-0.060)	5.13 MIN (0.202 MIN)	4.60-4.75 (0.181-0.187)
MK90-5, MK90-6, MK90-9	0.138-0.32	11.94-12.70 (0.470-0.500)	2.03-2.36 (0.080-0.093)	6.91 MIN (0.272 MIN)	6.20-6.35 (0.244-0.250)



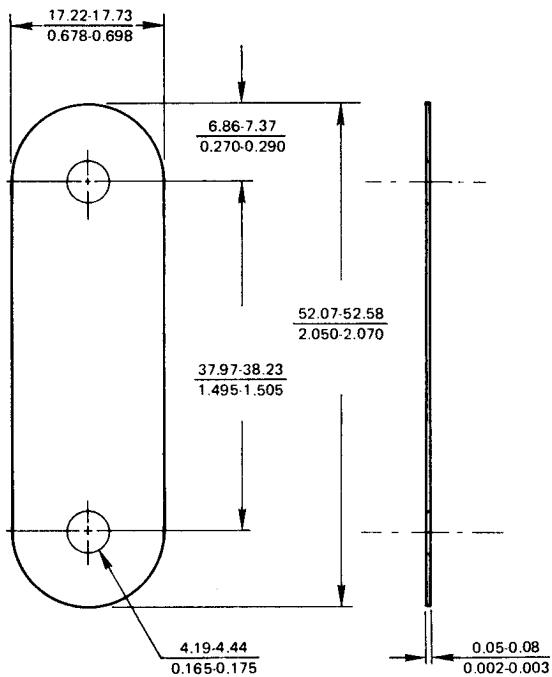
MK100

MOTOROLA MOUNTING KIT – RECTIFIER ASSEMBLY



OUTLINE DIMENSIONS

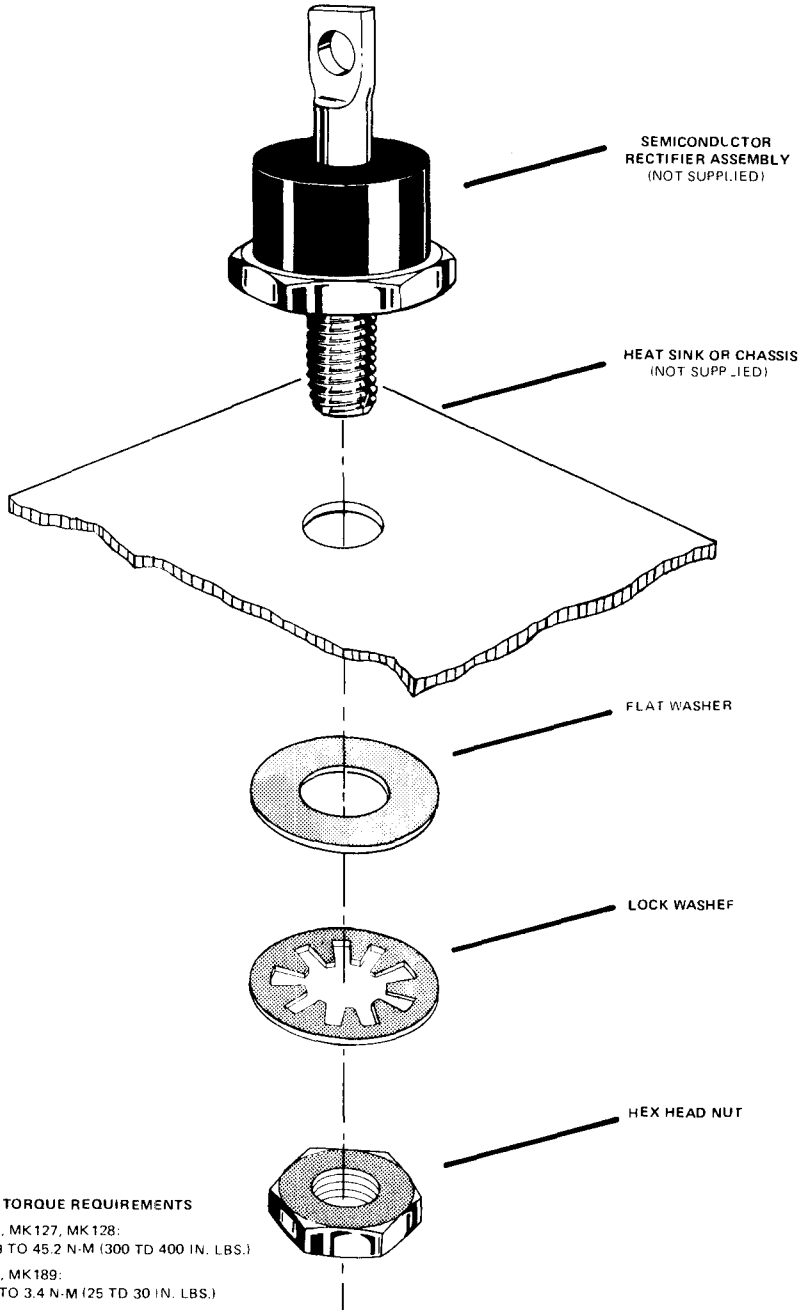
DIMENSIONS - $\frac{\text{MILLIMETER}}{\text{INCH}}$



INSULATOR, MICA

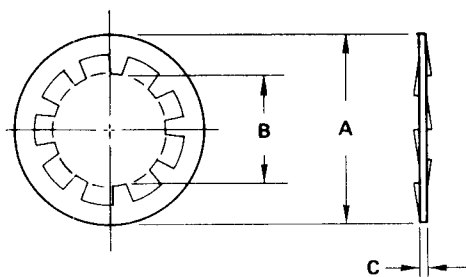
MK126, MK127, MK128, MK167, MK189

MOTOROLA MOUNTING KIT – RECTIFIER ASSEMBLIES

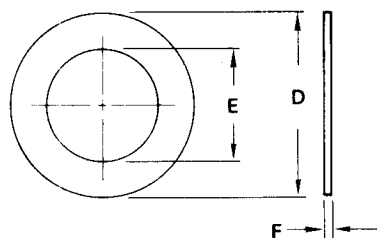


8

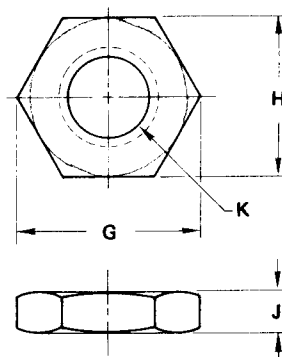
OUTLINE DIMENSIONS



LOCK WASHER



FLAT WASHER



HEX NUT

DIMENSIONS - MILLIMETER (INCH)

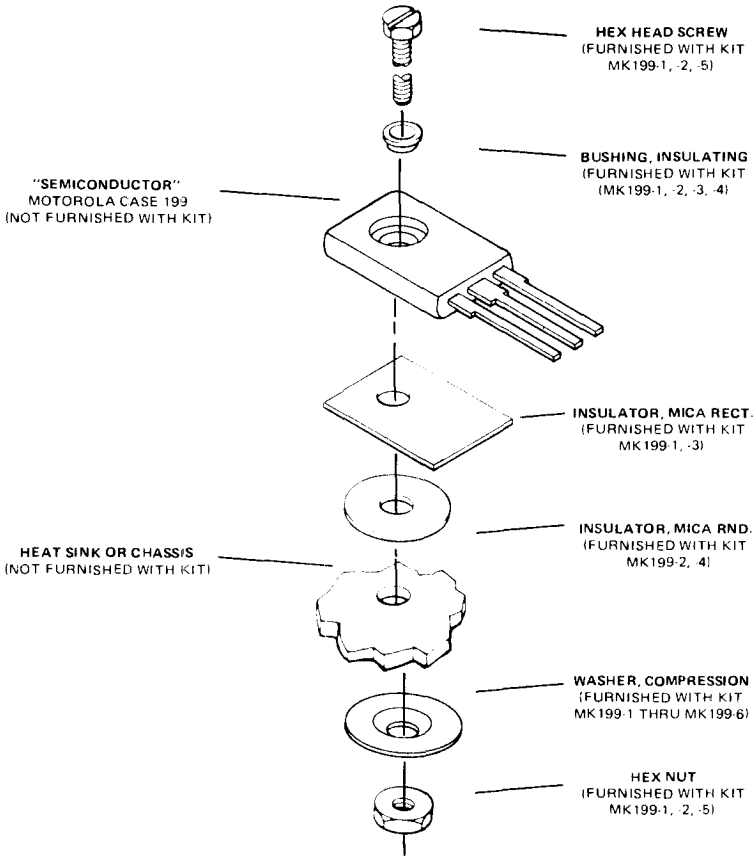
LOCK WASHER (STEEL)			
KIT TYPE	DIM A	DIM B	DIM C
MK 126, 127, 128	30.99-31.62 (1.220-1.245)	19.53-20.19 (0.769-0.795)	1.19-1.40 (0.047-0.055)
MK 167	9.27-9.68 (0.365-0.381)	4.95-5.18 (0.195-0.204)	0.51-0.64 (0.020-0.025)
MK 189	17.02-17.65 (0.670-0.695)	9.75-10.11 (0.384-0.398)	0.81-1.02 (0.032-0.040)

FLAT WASHER (STEEL)			
KIT TYPE	DIM D	DIM E	DIM F
MK 126, 127, 128	37.85-38.35 (1.490-1.510)	20.37-20.88 (0.802-0.822)	2.79-3.30 (0.110-0.130)
MK 167	12.45-12.95 (0.490-0.510)	5.46-5.72 (0.215-0.225)	0.76-1.27 (0.030-0.050)
MK 189	20.32-20.83 (0.800-0.820)	10.06-10.57 (0.396-0.416)	1.27-1.78 (0.050-0.070)

HEX NUT				
KIT TYPE	DIM G	DIM H	DIM J	DIM K
MK 126, 127, 128	31.50-32.99 (1.240-1.299)	27.64-28.58 (1.088-1.125)	10.11-11.33 (0.398-0.446)	0.750-16 NF 2B
MK 167	10.49-11.00 (0.413-0.433)	9.19-9.52 (0.362-0.375)	4.37-4.88 (0.172-0.192)	0.190-32 NF 2B
MK 189	15.95-16.51 (0.628-0.650)	14.00-14.27 (0.551-0.562)	5.11-6.02 (0.201-0.237)	0.375-24 NF 2B

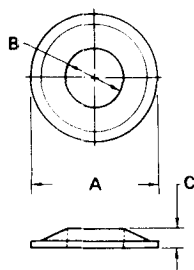
MK199-1 thru MK199-6

MOTOROLA MOUNTING KIT – CASE 199

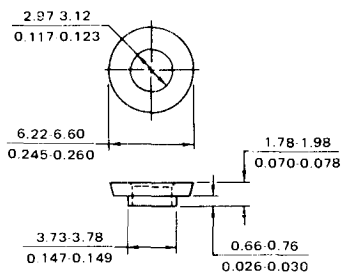


TORQUE REQUIREMENTS
MK199-1, MK199-2
0.68 N-m (6 IN. LBS.) MAX
MK199-5
0.90 N-m (8 IN. LBS.) MAX

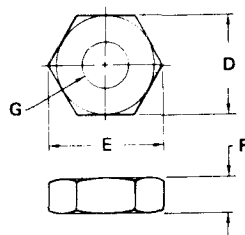
(DIMENSIONS — $\frac{\text{MILLIMETERS}}{\text{INCH}}$)



WASHER, COMPRESSION

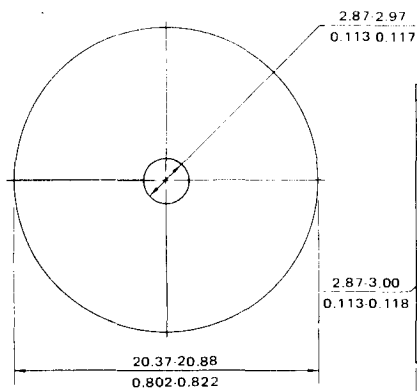


BUSHING, INSULATING

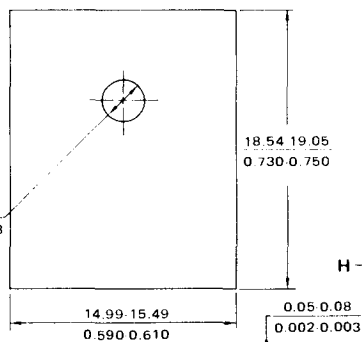


HEX NUT

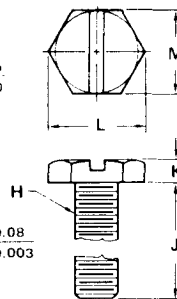
CARBON STEEL
CADMIUM PLATED



INSULATOR, MICA
[ROUND]



INSULATOR, MICA
[RECT]



HEX HEAD SCREW
CARBON STEEL
CADMIUM PLATED

DIMENSIONS — MILLIMETER (INCH)

WASHER, COMPRESSION			
KIT TYPE	DIM A	DIM B	DIM C
MK199-1 thru -4	6.73-6.98 (0.265-0.275)	2.95-3.12 (0.116-0.123)	1.02-1.27 (0.040-0.050)
MK199-5, MK199-6	8.20-8.46 (0.323-0.333)	3.71-3.81 (0.146-0.150)	1.41-1.40 (0.045-0.055)

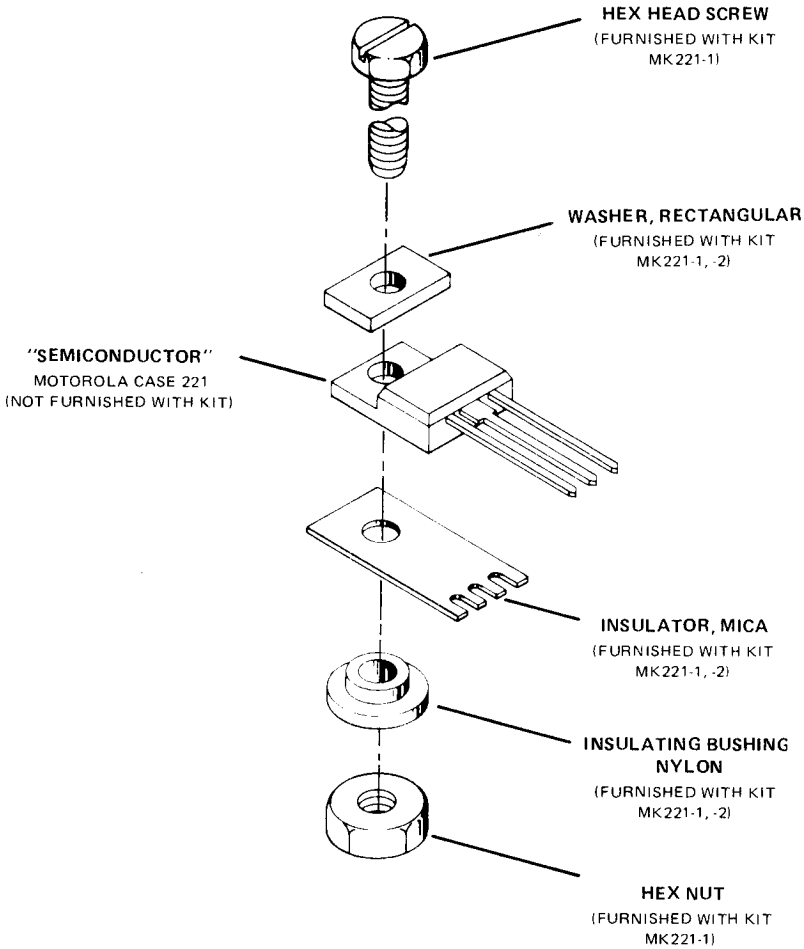
HEX NUT				
KIT TYPE	DIM D	DIM E	DIM F	DIM G
MK199-1, MK199-2	6.12-6.35 (0.241-0.250)	6.98-7.34 (0.275-0.289)	2.21-2.49 (0.087-0.098)	2.84 NOM (0.112 NOM)
MK199-5	7.67-7.92 (0.302-0.312)	8.74-9.17 (0.344-0.361)	2.59-2.90 (0.102-0.114)	3.50 NOM (0.138 NOM)

HEX HEAD SCREW					
KIT TYPE	DIM H	DIM J	DIM K	DIM L	DIM M
MK199-1, MK199-2	0.112-0.40	11.94-12.70 (0.470-0.500)	1.24-1.52 (0.049-0.060)	5.13 MIN (0.202 MIN)	4.60-4.75 (0.181-0.187)
MK199-5	0.138-0.32	11.94-12.70 (0.470-0.500)	2.03-2.36 (0.080-0.093)	6.91 MIN (0.272 MIN)	6.20-6.35 (0.244-0.250)

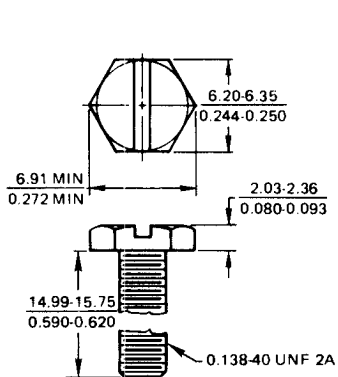
MK221-1, MK221-2

MOTOROLA MOUNTING KIT – CASE 221

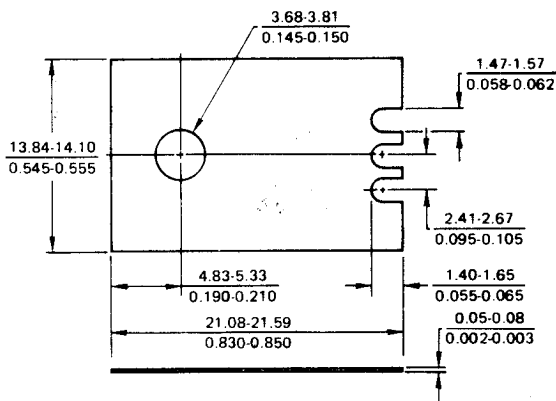
MK221-1, MK221-2



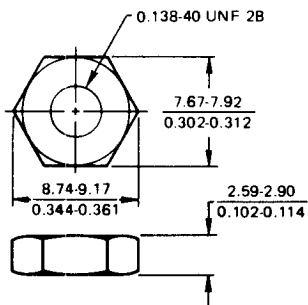
(DIMENSION — $\frac{\text{MILLIMETER}}{\text{INCH}}$)



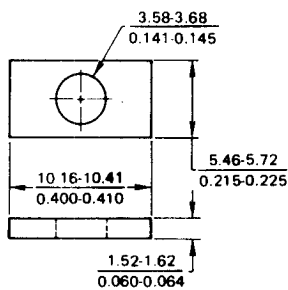
HEX HEAD SCREW



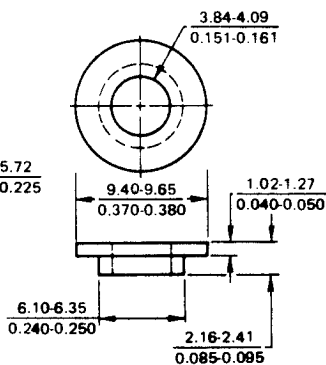
INSULATOR, MICA



HEX NUT



WASHER, RECTANGULAR



INSULATING BUSHING
NYLON

MOTOROLA CASE NUMBER CROSS REFERENCE

Case 1-03	TO-3	Case 51-02	DO-7	Case 116-02	--
Case 3-01	--	Case 52-03	DO-13	Case 117-01	--
Case 3-04	--	Case 53-01	--	Case 119-01	--
Case 4-04	--	Case 54-03	--	Case 126-01	--
Case 5-03	TO-36	Case 55-01	--	Case 127-01	--
Case 6-01	--	Case 56-02	DO-4	Case 128-01	--
Case 7-02	TO-68	Case 57-01	--	Case 130-01	--
Case 8-01	--	Case 58-01	--	Case 131-01	--
Case 9-01	TO-61	Case 59-01	DO-41	Case 132-01	--
Case 11-01	--	Case 59-02	--	Case 133-01	--
Case 11-03	--	Case 59-03	DO-41	Case 134-01	--
Case 11A-01	--	Case 60-01	--	Case 135-01	--
Case 12-01	--	Case 61-03	--	Case 136-01	--
Case 17-02	--	Case 63-02	--	Case 137-01	--
Case 20-03	TO-72	Case 70-01	--	Case 138-01	--
Case 21-02	TO-17	Case 77-03	--	Case 144B-03	--
Case 22-03	TO-18	Case 79-02	TO-39	Case 144C-02	--
Case 22A-01	--	Case 80-02	TO-66	Case 144D-04	--
Case 23-03	TO-107	Case 81A-05	--	Case 145A-05	--
Case 24-02	TO-102	Case 82-01	--	Case 145A-06	--
Case 26-03	TO-46	Case 85-01	--	Case 145C-01	--
Case 27-02	TO-52	Case 85L-02	--	Case 146-01	DO-14
Case 28-01	--	Case 86-01	--	Case 149-02	TO-1
Case 29-02	TO-92	Case 86L-02	--	Case 152-02	--
Case 29A-02	--	Case 87L-01	--	Case 154-01	--
Case 31-01	--	Case 88L-01	--	Case 155-01	--
Case 31-03	TO-5	Case 90-05	--	Case 155A-01	--
Case 31A-01	--	Case 100-01	--	Case 156-01	--
Case 34A-01	TO-12	Case 105-01	--	Case 156A-01	--
Case 36-03	TO-60	Case 106-01	--	Case 157-01	--
Case 41-01/10	--	Case 107-01	--	Case 157A-01	--
Case 42A-01	DO-5	Case 108-01	--	Case 159-02	--
Case 43-02	DO-21	Case 109-02	--	Case 160-03	TO-59
Case 43-04	--	Case 110-01	--	Case 161-01	--
Case 44-02	DO-4	Case 111-01	--	Case 166-02	--
Case 45-01	--	Case 112-03	--	Case 167-01	--
Case 46-01	--				
Case 47-01	--				
Case 48-01	--				

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MOTOROLA CASE NUMBER CROSS REFERENCE (continued)

Case 168-01	—	Case 249-04	—	Case 621	—
Case 171-01	—	Case 253-01	—	Case 623-01	—
Case 173-01	—	Case 257-01	DO-5	Case 626-03	—
Case 174-02	TO-203AA	Case 259-01	—	Case 627-02	—
Case 175-01	—	Case 262-02	—	Case 631-01	—
Case 176-01	—	Case 264-01	—	Case 632-02	TO-116
Case 179-01	—	Case 267-01	—	Case 632-03	—
Case 179-02	—	Case 270-02	—	Case 632-04	—
Case 180-01	—	Case 270A-01	—	Case 641A-02	—
Case 181-02	—	Case 271-02	—	Case 642-02	TO-76
Case 182-02	TO-92	Case 277-01	—	Case 643A-02	—
Case 182-03	—	Case 278-02	—	Case 644A-02	—
Case 183-01	—	Case 278-03	—	Case 645-02	—
Case 184-01	—	Case 278-04	—	Case 646-03	—
Case 188-01	TO-63	Case 279-01	—	Case 647-03	—
Case 189-01	—	Case 280-03	—	Case 648-03	—
Case 190-01	—	Case 281-03	—	Case 649-03	—
Case 193-03	—	Case 282-02	—	Case 650-02	—
Case 194-01	—	Case 283-01	—	Case 652-02	—
Case 197-01	—	Case 285-01	—	Case 654-07	—
Case 198-01	—	Case 287-01	—	Case 655-01	TO-71
Case 199-04	—	Case 288-01	—	Case 655-02	—
Case 205-01	—	Case 289-01	—	Case 662-01	—
Case 206-02	—	Case 290-01	—	Case 663-02	—
Case 206A-01	—	Case 291-01	—	Case 667-03	—
Case 207A-01	—	Case 292-01	—	Case 673-04	—
Case 209-01	—	Case 293-01	—	Case 675-02	—
Case 210-01	—	Case 296-03	—	Case 676-02	—
Case 211-03	—	Case 297-01	—	Case 677-03	—
Case 211-06	—	Case 298-01	—	Case 680-03	—
Case 212-01	—	Case 298-02	—	Case 683-01	—
Case 215-01	—	Case 601-04	—	Case 684-04	—
Case 216-01	—	Case 602A-03	—	Case 685-01	—
Case 219-01	TO-94	Case 602B-03	—	Case 686-01	—
Case 220-03	—	Case 603-04	TO-100	Case 687-03	—
Case 220-04	—	Case 606-04	TO-91	Case 688-04	—
Case 221-02	TO-220AB	Case 607-04	—	Case 690-03	—
Case 226-01	—	Case 607-05	—	Case 690-04	—
Case 234-03	—	Case 608-02	TO-90	Case 690-05	—
Case 235-01	—	Case 609-02	TO-85	Case 694-03	—
Case 237-01	—	Case 610A-03	—	Case 695-04	—
Case 238-01	—	Case 614-02	—	Case 699-03	—
Case 239-01	—	Case 617-04	—	Case 700-02	—
Case 244-03	—	Case 619-02	—	Case 702-01	—
Case 245-01	—	Case 620-02	—		
Case 246-01	TO-83	Case 620-04	—		
Case 247-01	—				

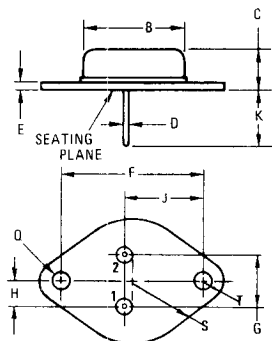


REGISTERED CASE NUMBER CROSS REFERENCE

DO-4	Case 44-02	TO-60	Case 36-03
	Case 56-02	TO-61	Case 9-01
DO-5	Case 42A-01	TO-63	Case 188-01
	Case 257-01	TO-66	Case 80-02
DO-7	Case 51-02	TO-68	Case 7-02
DO-13	Case 52-03	TO-71	Case 655-01
DO-14	Case 146-01	TO-72	Case 20-03
DO-21	Case 43-02	TO-76	Case 642-02
DO-41	Case 59-01	TO-83	Case 246-01
	Case 59-03	TO-85	Case 609-02
TO-1	Case 149-02	TO-90	Case 608-02
TO-3	Case 1-03	TO-91	Case 606-04
TO-5	Case 31-03	TO-92	Case 29-02
TO-12	Case 34A-01		Case 182-02
TO-17	Case 21-02	TO-94	Case 219-01
TO-18	Case 22-03	TO-100	Case 603-04
TO36	Case 5-03	TO-102	Case 24-02
TO-39	Case 79-02	TO107	Case 23-03
TO-41	Case 161	TO-116	Case 632-02
TO-46	Case 26-03	TO-203AA	Case 174-02
TO-52	Case 27-02	TO 220AB	Case 221-02
TO-59	Case 160-03		

CASE OUTLINE DIMENSIONS

CASE 1-03 TO - 3



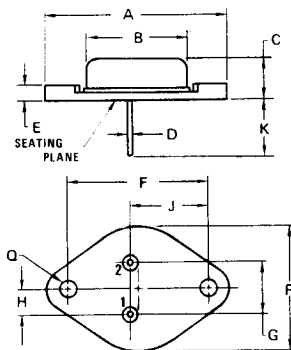
STYLE 1: PIN 1. BASE
2. EMITTER
CASE-COLLECTOR

STYLE 2: PIN 1. BASE
2. COLLECTOR
CASE-EMITTER

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
B	—	22.23	—	0.875
C	6.35	11.43	0.250	0.450
D	0.97	1.09	0.038	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.64	17.15	0.655	0.675
K	7.92	—	0.312	—
Q	3.84	4.09	0.151	0.161
S	—	13.34	—	0.525
T	—	4.78	—	0.188

All JEDEC dimensions and notes apply

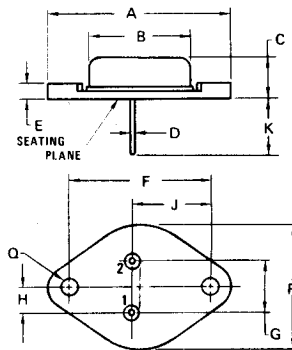
CASE 3-01



STYLE 1:
PIN 1. BASE
2. EMITTER
CASE - COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	38.86	39.37	1.530	1.550
B	20.57	21.08	0.810	0.830
C	—	9.14	—	0.360
D	1.22	1.32	0.048	0.052
E	3.18	3.43	0.125	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	8.13	10.67	0.320	0.420
Q	3.84	4.09	0.151	0.161
R	26.16	26.67	1.030	1.050

CASE 3-04

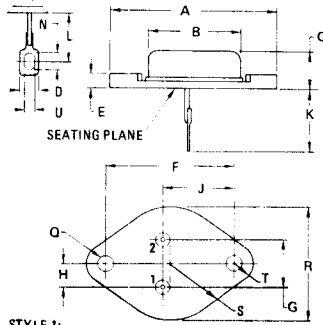


STYLE 1:
PIN 1. BASE
2. EMITTER
CASE. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	—	9.14	—	0.360
D	1.52	1.65	0.060	0.065
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	15.49	18.03	0.610	0.710
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050



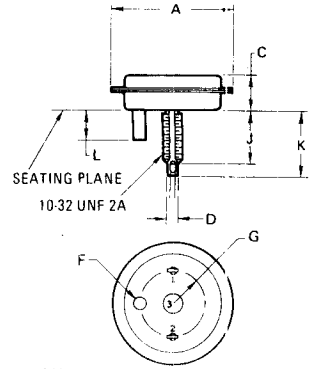
CASE 4-04



STYLE 1:
 PIN 1. BASE
 2. EMITTER
 CASE - COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	—	7.62	—	0.300
D	4.32	4.83	0.170	0.190
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	—	17.27	—	0.680
N	3.30	4.32	0.130	0.170
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050
U	2.03	3.05	0.080	0.120

CASE 5-03 TO-36

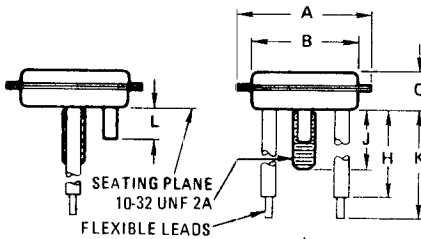


STYLE 1:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR
 (CONNECTED TO CASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	31.75	—	1.250
C	—	13.21	—	0.520
D	—	4.83	—	0.190
F	—	3.56	—	0.140
G	8.76 NDM	—	0.345 NDM	—
J	9.53	12.70	0.375	0.500
K	15.49	18.03	0.610	0.710
L	—	7.92	—	0.312

All JEDEC dimensions and notes apply

CASE 6-01



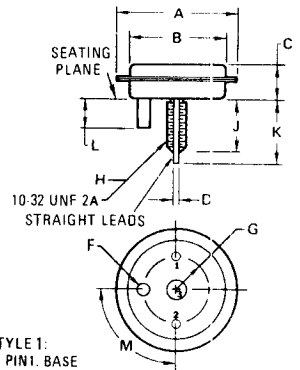
STYLE 1:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR
 (CONNECTED TO CASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	33.35	—	1.313
B	—	25.53	—	1.005
C	—	15.88	—	0.625
F	—	3.58	—	0.141
G	8.76 BSC	—	0.345 BSC	—
H	28.58	34.93	1.125	1.375
J	9.53	12.70	0.375	0.500
K	38.10	—	1.500	—
L	2.54	7.92	0.100	0.312
M	90°	BSC	90°	BSC

NOTES:

- "F" — INSULATED LOCATOR PIN.
- DIM "G" IS PIN CIRCLE RAD MEASURED AT THE SEATING PLANE
- PINS 1, 2 & "F" TO BE WITHIN 0.51 mm (0.020) DIA OF TRUE POSITION WITH RESPECT TO STUD (PIN 3) (MAJOR DIA).
- FLEXIBLE LEADS ARE MAX DIA OF 1.65 mm (0.065).

CASE 7-02 TO-68

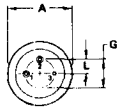
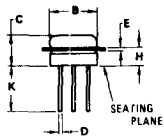


STYLE 1:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR
 (CONNECTED TO CASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	31.75	—	1.250
B	25.15	—	0.990	—
C	6.99	12.70	0.275	0.500
D	1.02	2.41	0.040	0.095
F	2.29	3.56	0.090	0.140
G	8.51	9.02	0.335	0.355
H	4.212	4.310	0.1658	0.1697
J	9.52	12.70	0.375	0.500
K	15.49	18.03	0.610	0.710
L	2.54	7.92	0.100	0.312
M	85°	90°	85°	95°

All JEDEC dimensions and notes apply.

CASE 8-01

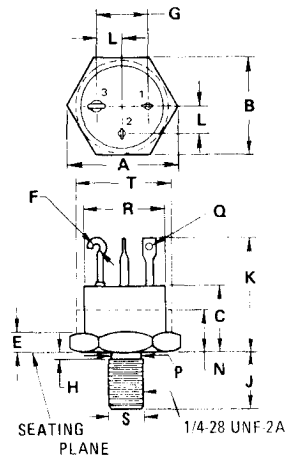


STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

NOTE:
 1. LEADS WITHIN 0.13 mm (0.005) RAD OF TRUE POSITION AT SEATING, AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.86	16.51	0.585	0.650
B	12.32	12.57	0.485	0.495
C	6.10	7.62	0.240	0.300
D	0.69	0.84	0.027	0.033
E	0.51	1.02	0.020	0.040
G	7.16 BSC		0.282 BSC	
H	4.19	4.70	0.165	0.185
K	9.14	11.18	0.360	0.440
L	3.58 BSC		0.141 BSC	

CASE 9-01 TO-61

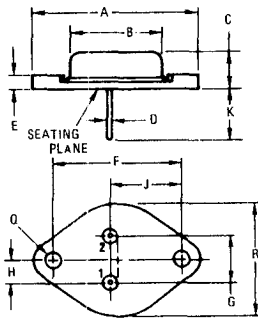


STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.30	20.07	0.760	0.790
B	16.94	17.45	0.667	0.687
C	8.26	11.68	0.325	0.460
E	2.29	3.81	0.090	0.150
F	1.17	1.96	0.046	0.077
G	8.64	10.54	0.340	0.415
H	—	2.29	—	0.090
J	10.72	11.56	0.422	0.455
K	16.26	22.23	0.640	0.875
L	4.32	5.41	0.170	0.213
N	—	6.86	—	0.270
P	5.59	6.32	0.220	0.249
Q	1.19	1.83	0.047	0.072
R	14.48	15.49	0.570	0.610
S	5.651	5.761	0.2225	0.2268
T	15.49	17.45	0.610	0.687

Collector connected to case
 All JEDEC dimensions and notes apply

CASE 11-01



STYLE 1:
 PIN 1. BASE
 2. EMITTER
 CASE: COLLECTOR

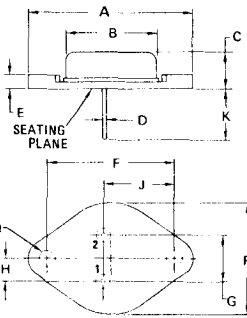
STYLE 2:
 PIN 1. EMITTER
 2. BASE
 CASE: COLLECTOR

NOTE:
 1. DIM "Q" IS DIA.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	6.35	7.62	0.250	0.300
D	0.99	1.09	0.039	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050

Collector connected to case.

CASE 11-03



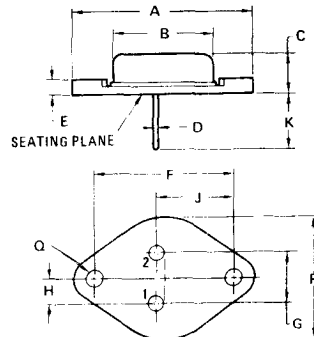
STYLE 1:
 PIN 1. BASE
 2. EMITTER
 CASE: COLLECTOR

STYLE 2:
 PIN 1. EMITTER
 2. BASE
 CASE: COLLECTOR

NOTE:
 1. DIM "Q" IS DIA.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	22.23	—	0.875
C	6.35	11.43	0.250	0.450
D	0.97	1.09	0.038	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050

CASE 11A-01



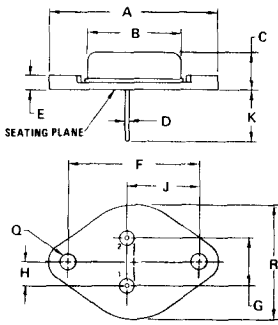
STYLE 1:
 PIN 1. BASE
 CASE: COLLECTOR

STYLE 2:
 PIN 1. EMITTER
 CASE: COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	—	7.62	—	0.300
D	1.22	1.32	0.048	0.052
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	8.13	10.67	0.320	0.420
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050

Collector connected to case

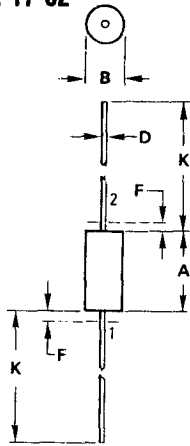
CASE 12-01



STYLE 1:
PIN 1. BASE
2. EMITTER
CASE - COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	39.37	-	1.550
B	-	21.08	-	0.830
C	-	7.62	-	0.300
D	1.22	1.32	0.048	0.052
E	-	3.43	-	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	-	26.67	-	1.050

CASE 17-02



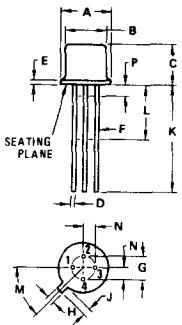
NOTE:
1. LEAD DIAMETER & FINISH NOT CONTROLLED WITHIN DIM "F"

STYLE 1:
PIN 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.38	8.89	0.330	0.350
B	3.30	3.68	0.130	0.145
D	0.94	1.09	0.037	0.043
F	-	1.27	-	0.050
K	25.40	31.75	1.000	1.250



CASE 20-03 TO-72



STYLE 1
PIN 1. SOURCE
2. DRAIN
3. GATE
4. CASE LEAD

STYLE 2
PIN 1. SOURCE
2. GATE
3. DRAIN
4. SUBSTRATE AND CASE LEAD

STYLE 3
PIN 1. DRAIN
2. SOURCE
3. GATE
4. CASE LEAD

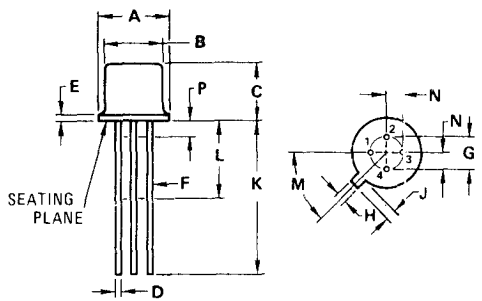
STYLE 4
PIN 1. SOURCE
2. GATE
3. DRAIN
4. GATE 2 SUBSTRATE AND CASE

STYLE 5
PIN 1. SOURCE
2. GATE 1
3. DRAIN
4. CASE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.41	0.53	0.016	0.021
E	-	0.76	-	0.030
F	0.41	0.48	0.016	0.019
G	2.54 BSC	-	0.100 BSC	-
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	-	0.500	-
L	6.35	-	0.250	-
M	45° BSC	-	45° BSC	-
N	1.27 BSC	-	0.050 BSC	-
P	-	1.27	-	0.050

ALL JEDEC dimensions and notes apply

CASE 21-02 TO-17



STYLE 6
PIN 1. DRAIN
2. SOURCE AND SUBSTRATE
3. GATE
4. SOURCE AND SUBSTRATE

STYLE 7
PIN 1. DRAIN
2. SOURCE
3. GATE
4. CASE AND SUBSTRATE

STYLE 8
PIN 1. EMITTER 2
BASE 1
2. COLLECTOR
4. EMITTER 1
BASE 2

STYLE 9
PIN 1. DRAIN
2. GATE 2
3. GATE 1
4. SOURCE SUBSTRATE AND CASE

STYLE 10
PIN 1. EMITTER
2. BASE
3. COLLECTOR
4. CASE

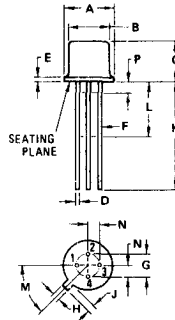
STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR
4. SHIELD

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.70	5.46	0.185	0.215
B	3.81	4.27	0.150	0.168
C	4.19	5.33	0.165	0.210
D	0.406	0.533	0.016	0.021
E	-	0.762	-	0.030
F	0.406	0.483	0.016	0.019
G	1.80 BSC	-	0.071 BSC	-
H	0.762	1.14	0.030	0.045
J	0.711	1.22	0.028	0.048
K	12.70	-	0.500	-
L	6.35	-	0.250	-
M	45° BSC	-	45° BSC	-
N	0.914 BSC	-	0.036 BSC	-
P	-	1.27	-	0.050

ALL JEDEC dimensions and notes apply



CASE 22-03 TO-18

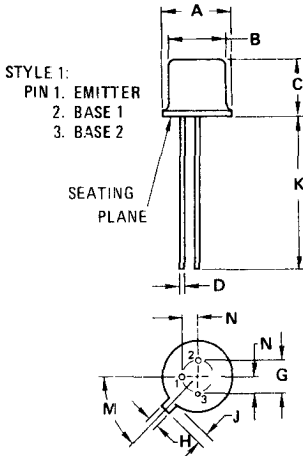


- STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR
- STYLE 2:
PIN 1. SOURCE, SUBSTRATE AND CASE
2. GATE
3. DRAIN
- STYLE 3:
PIN 1. SOURCE
2. DRAIN
3. GATE
- STYLE 4:
PIN 1. SOURCE
2. DRAIN
3. GATE & CASE
- STYLE 5:
PIN 1. EMITTER
2. BASE 1
3. BASE 2
- STYLE 6:
PIN 1. CATHODE
2. GATE
3. ANODE
- STYLE 7:
PIN 1. ANODE
2. BASE
3. CATHODE
- STYLE 8:
PIN 1. GATE
2. ANODE 1
3. ANODE 2
- STYLE 9:
PIN 1. ANODE 2
2. ANODE 1
3. GATE (CONNECTED TO CASE)
- STYLE 10:
PIN 1. BASE
2. EMITTER
3. BASE
- STYLE 11:
PIN 1. DRAIN
2. GATE
3. SOURCE, SUBSTRATE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.406	0.533	0.016	0.021
E	—	0.762	—	0.030
F	0.406	0.483	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.914	1.17	0.036	0.046
J	0.711	1.22	0.028	0.048
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	—	1.27	—	0.050

All JEDEC notes and dimensions apply.

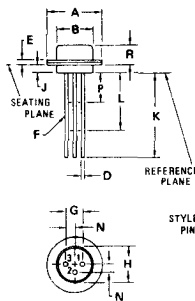
CASE 22A-01



- STYLE 1:
PIN 1. EMITTER
2. BASE 1
3. BASE 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.32	5.33	0.170	0.210
D	0.41	0.48	0.016	0.019
G	2.54 TYP		0.100 TYP	
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	—	0.500	—
M	45° TYP		45° TYP	
N	1.27 TYP		0.050 TYP	

CASE 23-03 TO-107

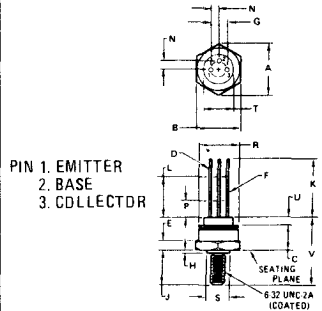


- STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.13	8.89	0.320	0.350
B	5.08	5.46	0.200	0.215
D	0.407	0.533	0.016	0.021
E	—	0.76	—	0.030
F	0.407	0.482	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	4.07	4.32	0.160	0.170
J	1.15	1.52	0.045	0.060
K	12.70	—	0.500	—
L	6.35	—	0.250	—
N	1.27 BSC		0.050 BSC	
P	—	1.27	—	0.050
R	2.67	3.42	0.105	0.135

All JEDEC dimensions and notes apply

CASE 24-02 TO-102



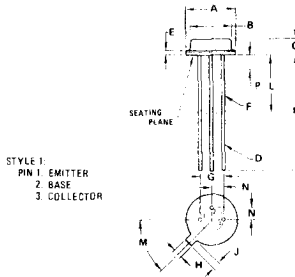
- PIN 1. EMITTER
2. BASE
3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.49	11.00	0.413	0.433
B	9.19	9.53	0.362	0.375
C	5.33	5.72	0.210	0.225
D	0.406	0.533	0.016	0.021
E	1.65	1.78	0.065	0.070
F	0.406	0.483	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.508	0.889	0.020	0.035
J	6.73	7.42	0.265	0.292
K	12.70	—	0.500	—
L	6.35	—	0.250	—
N	1.27 BSC		0.050 BSC	
P	—	1.27	—	0.050
R	8.89	9.14	0.350	0.360
S	4.45	4.83	0.175	0.190
T	4.11	4.29	0.162	0.169
U	1.14	1.52	0.045	0.060

All JEDEC dimensions and notes apply



CASE 26-03 T0-46

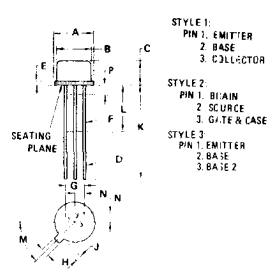


STYLE 1:
PIN 1: EMITTER
2: BASE
3: COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	1.65	2.16	0.065	0.085
D	0.406	0.533	0.016	0.021
E	—	1.02	—	0.040
F	0.305	0.483	0.012	0.019
G	2.54 BSC		0.100 BSC	
H	0.914	1.17	0.036	0.046
J	0.711	1.22	0.028	0.048
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	—	1.27	—	0.050

All JEDEC dimensions and notes apply

CASE 27-02 T0-52



STYLE 1:
PIN 1: EMITTER
2: BASE
3: COLLECTOR

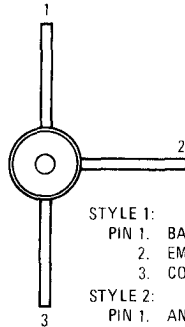
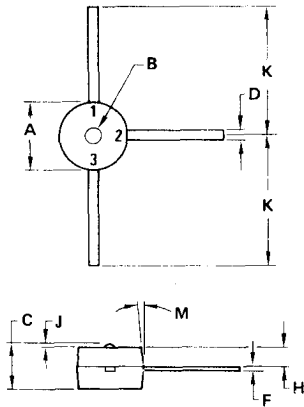
STYLE 2:
PIN 1: BIAS
2: SOURCE
3: GATE & CASE

STYLE 3:
PIN 1: EMITTER
2: BASE
3: BATE 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	2.92	3.81	0.115	0.150
D	—	0.533	—	0.021
E	—	0.762	—	0.030
F	0.406	0.483	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.914	1.17	0.036	0.046
J	0.711	1.22	0.028	0.048
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	—	1.27	—	0.050

All JEDEC dimensions and notes apply

CASE 28-01



STYLE 1:
PIN 1: BASE
2: EMITTER
3: COLLECTOR

STYLE 2:
PIN 1: ANODE 2
2: ANODE 1
3: CATHODE

STYLE 3:
PIN 1: CATHODE 2
2: CATHODE 1
3: ANODE

STYLE 4:
PIN 1: CATHODE
2: ANODE
3: COMMON
CATHODE
ANODE

STYLE 5:
PIN 1: DRAIN
2: SOURCE
3: GATE

STYLE 6:
PIN 1: EMITTER
2: COLLECTOR
3: BASE

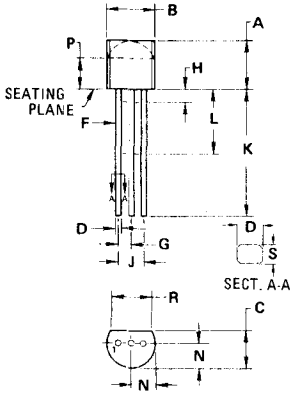
STYLE 7:
PIN 1: BASE 1
2: EMITTER
3: BASE 2

STYLE 8:
PIN 1: CATHODE
2: GATE
3: ANODE

STYLE 9:
PIN 1: SOURCE
2: GATE
3: DRAIN

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.98	2.34	0.078	0.092
B	0.38	0.64	0.015	0.025
C	1.24	1.55	0.049	0.061
D	0.25	0.41	0.010	0.016
F	0.10	0.15	0.004	0.006
H	0.51	0.76	0.020	0.030
J	0.03	0.08	0.001	0.003
K	4.19	4.45	0.165	0.175
M	3°	7°	3°	7°

CASE 29-02 TO-92



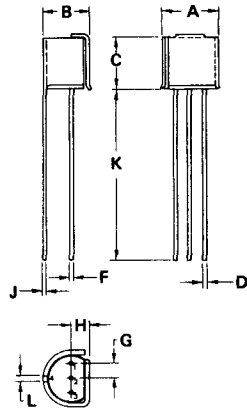
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	5.33	0.170	0.210
B	4.44	5.21	0.175	0.205
C	3.18	4.19	0.125	0.165
D	0.41	0.56	0.016	0.022
E	0.41	0.48	0.016	0.019
F	1.14	1.40	0.045	0.055
G	—	2.54	—	0.100
H	2.41	2.67	0.095	0.105
I	12.70	—	0.500	—
J	6.35	—	0.250	—
K	2.03	2.92	0.080	0.115
L	2.92	—	0.115	—
M	3.43	—	0.135	—
N	0.36	0.41	0.014	0.016

All JEDEC dimensions and notes apply.

- STYLE 1:
PIN 1: EMITTER
2: BASE
3: COLLECTOR
- STYLE 2:
PIN 1: BASE
2: EMITTER
3: COLLECTOR
- STYLE 3:
PIN 1: ANODE
2: ANODE
3: CATHODE
- STYLE 4:
PIN 1: CATHODE
2: CATHODE
3: ANODE
- STYLE 5:
PIN 1: ORAIN
2: SOURCE
3: GATE
- STYLE 6:
PIN 1: GATE
2: SOURCE & SUBSTRATE
3: ORAIN
- STYLE 7:
PIN 1: SOURCE
2: DRAIN
3: GATE
- STYLE 8:
PIN 1: ORAIN
2: GATE
3: SOURCE & SUBSTRATE
- STYLE 9:
PIN 1: BASE 1
2: EMITTER
3: BASE 2
- STYLE 10:
PIN 1: CATHODE
2: GATE
3: ANODE

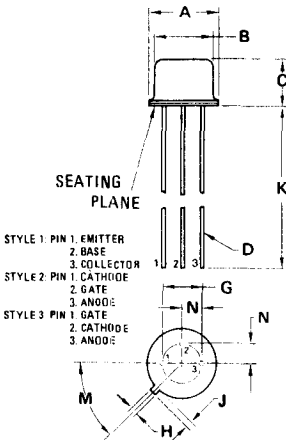
- STYLE 11:
PIN 1: ANODE
2: CATHODE & ANODE
3: CATHODE
- STYLE 12:
PIN 1: MAIN TERMINAL 1
2: GATE
3: MAIN TERMINAL 2
- STYLE 13:
PIN 1: ANODE 1
2: GATE
3: CATHODE 2
- STYLE 14:
PIN 1: EMITTER
2: COLLECTOR
3: BASE
- STYLE 15:
PIN 1: ANODE 1
2: CATHODE
3: ANODE 2
- STYLE 16:
PIN 1: ANODE
2: GATE
3: CATHODE
- STYLE 17:
PIN 1: COLLECTOR
2: BASE
3: EMITTER
- STYLE 18:
PIN 1: ANODE
2: CATHODE
3: NOT CONNECTED
- STYLE 19:
PIN 1: GATE
2: ANODE
3: CATHODE
- STYLE 20:
PIN 1: N.C.
2: CATHODE
3: ANODE

CASE 29A-02



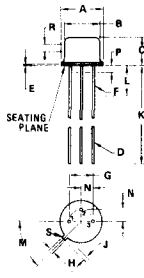
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.03	5.18	0.198	0.204
B	4.01	4.27	0.158	0.168
C	4.44	4.70	0.175	0.185
D	0.41	0.48	0.016	0.019
E	0.25	0.38	0.010	0.015
F	1.14	1.40	0.045	0.055
G	—	2.54	—	0.100
H	1.40	1.65	0.055	0.065
I	0.23	0.28	0.009	0.011
J	12.70	—	0.500	—
K	0.33	0.38	0.013	0.015

CASE 31-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	6.10	6.60	0.240	0.260
D	0.41	0.48	0.016	0.019
E	5.08 BSC	—	0.200 BSC	—
F	0.71	0.86	0.028	0.034
G	0.74	1.14	0.029	0.045
H	38.10	—	1.500	—
I	45° BSC	—	45° BSC	—
J	2.54 BSC	—	0.100 BSC	—

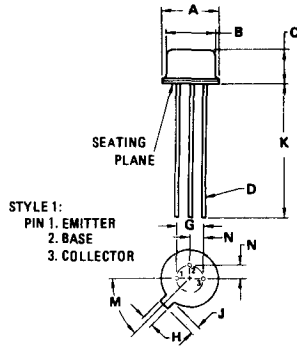
CASE 31-03 TO-5



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	0.318	0.009	0.125
F	0.406	0.483	0.016	0.019
G	5.08 BSC	—	0.200 BSC	—
H	0.711	0.864	0.028	0.034
I	0.734	1.14	0.029	0.045
J	38.10	—	1.500	—
K	6.35	—	0.250	—
L	—	45° BSC	—	45° BSC
M	2.54 BSC	—	0.100 BSC	—
N	—	1.27	—	0.050
O	2.54	—	0.100	—
P	—	0.179	—	0.007

All JEDEC dimensions and notes apply.

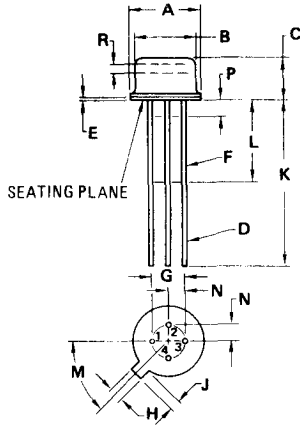
CASE 31A-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	3.81	4.57	0.150	0.180
D	0.41	0.48	0.016	0.019
E	5.08 BSC	—	0.200 BSC	—
F	0.71	0.86	0.028	0.034
G	0.74	1.14	0.029	0.045
H	38.10	—	1.500	—
I	45° BSC	—	45° BSC	—
J	2.54 BSC	—	0.100 BSC	—

NOTE:
1. LEADS WITHIN 0.36 mm (0.014) DIA OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

CASE 34A-01 TO - 12

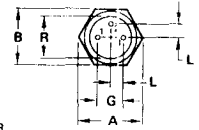


- STYLE 1:
 PIN 1. EMITTER 2
 2. BASE 1
 3. COLLECTOR 1
 COLLECTOR 2
 (CONNECTED TO CASE)
 4. EMITTER 1, BASE 2

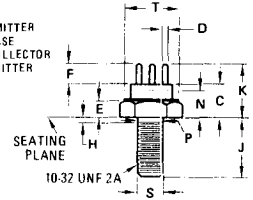
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.289	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	5.08 BSC		0.200 BSC	
H	0.711	0.864	0.028	0.034
J	0.737	1.14	0.029	0.045
K	12.70	-	0.500	-
L	6.35	-	0.250	-
M	45° BSC		45° BSC	
N	2.54 BSC		0.100 BSC	
P	-	1.27	-	0.050
R	2.54	-	0.100	-
S	-	0.178	-	0.007

All JEDEC dimensions and notes apply

CASE 36-03 TO-60



- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
 CASE ISOLATED

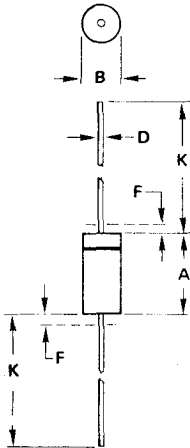


- STYLE 2:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
 CASE EMITTER

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.57	13.08	0.495	0.515
B	10.77	11.10	0.424	0.437
C	5.46	8.13	0.215	0.320
D	0.762	1.17	0.030	0.046
E	2.29	3.43	0.090	0.135
G	4.70	5.46	0.185	0.215
H	-	1.98	-	0.078
J	9.53	11.56	0.375	0.455
K	9.02	12.19	0.355	0.480
L	2.29	2.79	0.090	0.110
N	-	4.19	-	0.165
P	4.14	4.80	0.163	0.189
R	8.13	9.14	0.320	0.360
T	9.14	11.10	0.360	0.437

All JEDEC dimensions and notes apply

CASE 41-06



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	25.40	-	1.000
B	-	12.70	-	0.500
D	0.76	0.86	0.030	0.034
F	-	1.27	-	0.050
K	31.75	-	1.250	-

-01

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	26.16	-	1.030
B	-	9.60	-	0.378
D	0.76	0.86	0.030	0.034
F	-	1.27	-	0.050
K	31.75	-	1.250	-

-03

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	30.99	-	1.220
B	-	16.28	-	0.641
D	0.76	0.86	0.030	0.034
F	-	1.27	-	0.050
K	44.45	-	1.750	-

-04

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	16.64	-	0.655
B	-	16.28	-	0.641
D	0.76	0.86	0.030	0.034
F	-	1.27	-	0.050
K	31.75	-	1.250	-

-05

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	13.21	-	0.520
B	-	6.96	-	0.275
D	0.46	0.56	0.018	0.022
F	-	1.27	-	0.050
K	31.75	-	1.250	-

-06

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	13.21	-	0.520
B	6.10	6.60	0.240	0.260
D	0.71	0.81	0.028	0.032
F	-	1.27	-	0.050
K	25.40	-	1.000	-

-08

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	19.81	-	0.780
B	6.10	6.60	0.240	0.260
D	0.58	0.81	0.023	0.032
F	-	1.27	-	0.050
K	25.40	-	1.000	-

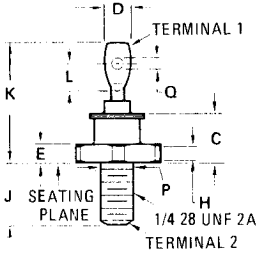
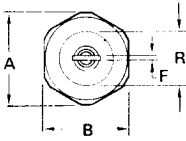
-09

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	29.34	-	1.155
B	7.70	8.20	0.303	0.323
D	0.71	0.81	0.028	0.032
F	-	1.27	-	0.050
K	25.40	-	1.000	-

-10

NOTE:
 1. LEAD FINISH & DIA UNCONTROLLED IN AREA "F".

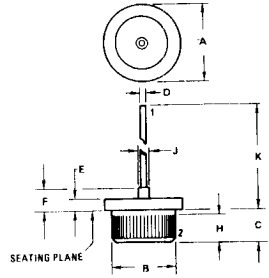
CASE 42A D0-5



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.04	20.29	0.789	0.799
B	16.94	17.45	0.667	0.687
C	—	11.43	—	0.450
D	—	9.53	—	0.375
E	2.92	5.08	0.115	0.200
F	—	2.03	—	0.080
H	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	25.40	—	1.000
L	3.96	—	0.156	—
P	5.59	6.32	0.220	0.249
Q	3.56	4.45	0.140	0.175
R	—	16.94	—	0.667

All JEDEC dimensions and notes apply

CASE 43-02 D0-21



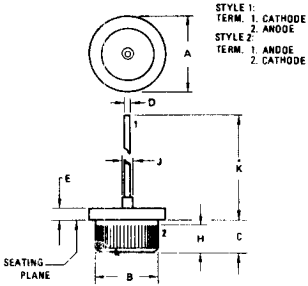
NOTES:
1. 50 TPI STRAIGHT KNURL
2. POLARITY, INK MARKED ON PACKAGE

STYLE 1:
TERM. 1. CATHODE
2. ANODE

STYLE 2:
TERM. 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	15.494	16.256	0.610	0.640
B	12.725	12.827	0.501	0.505
C	5.08	6.35	0.200	0.250
D	1.193	1.346	0.047	0.053
E	2.032	4.826	0.080	0.190
F	—	10.77	—	0.424
H	4.572	6.350	0.180	0.250
J	—	3.556	—	0.140
K	12.70	—	0.500	—

CASE 43-04



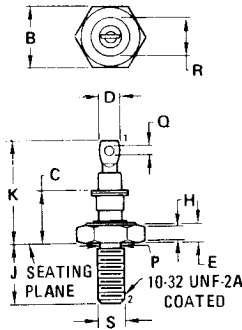
STYLE 1:
TERM. 1. CATHODE
2. ANODE

STYLE 2:
TERM. 1. ANODE
2. CATHODE

NOTES:
1. 50 TPI STRAIGHT KNURL
2. POLARITY, INK MARKED ON PACKAGE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	15.49	16.26	0.610	0.640
B	12.73	12.83	0.501	0.505
C	5.08	6.35	0.200	0.250
D	2.46	2.62	0.097	0.103
E	2.03	4.83	0.080	0.190
H	5.08	6.35	0.200	0.250
J	—	3.56	—	0.140
K	—	15.24	—	0.600

CASE 44-02 D0-4

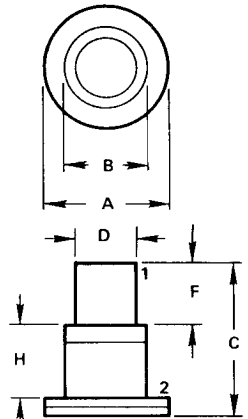


STYLE 1:
TERM. 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
B	10.77	11.10	0.424	0.437
C	—	10.29	—	0.405
D	—	6.35	—	0.250
E	1.91	4.45	0.075	0.175
H	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	20.32	—	0.800
Q	1.52	—	0.060	—
R	—	10.77	—	0.424
P	4.14	4.80	0.163	0.189
S	4.31	REF	0.1697	REF

All JEDEC dimensions and notes apply.

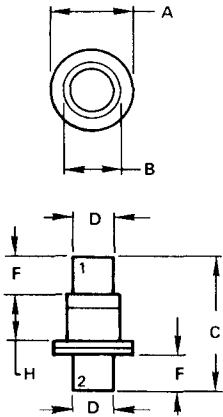
CASE 45-01



STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.97	3.30	0.117	0.130
B	1.96	2.21	0.077	0.087
C	3.78	4.09	0.149	0.161
D	1.52	1.68	0.060	0.066
F	1.50	1.65	0.059	0.065
H	1.78	1.93	0.070	0.076

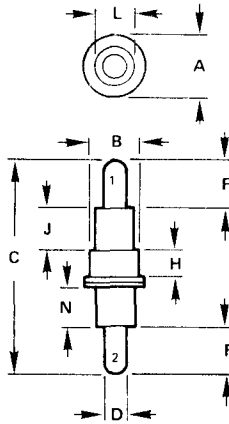
CASE 46-01



STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.97	3.30	0.117	0.130
B	1.96	2.21	0.077	0.087
C	5.21	5.72	0.205	0.225
D	1.52	1.68	0.060	0.066
F	1.50	1.65	0.059	0.065
H	1.78	1.93	0.070	0.076

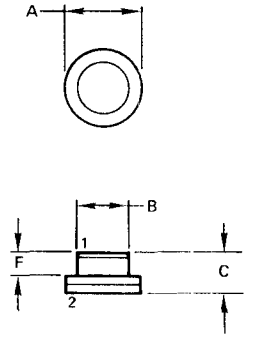
CASE 47-01



STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.72	6.22	0.225	0.245
B	4.70	4.95	0.185	0.195
C	19.18	20.19	0.755	0.795
D	2.24	2.49	0.088	0.098
F	4.57	4.83	0.180	0.190
H	2.29	2.54	0.090	0.100
J	3.68	4.06	0.145	0.160
L	3.94	4.19	0.155	0.165
N	3.18	3.43	0.125	0.135

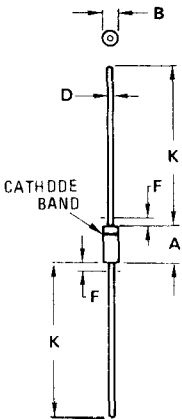
CASE 48-01



STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.97	3.30	0.117	0.130
B	1.96	2.11	0.077	0.083
C	1.27	1.78	0.050	0.070
F	0.33	0.69	0.013	0.027

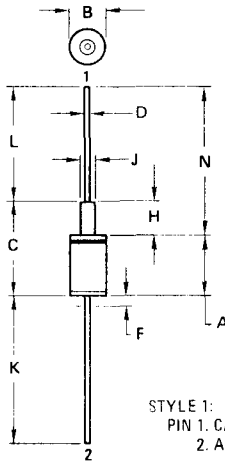
CASE 51-02 DO-7



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.84	7.62	0.230	0.300
B	2.16	2.72	0.085	0.107
D	0.46	0.56	0.018	0.022
F	-	1.27	-	0.050
K	25.40	-	1.000	-

All JEDEC dimensions and notes apply

CASE 52-03 DO-13

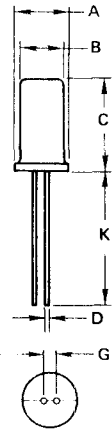


STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.44	9.07	0.293	0.357
B	5.46	5.97	0.215	0.235
C	-	14.48	-	0.570
D	0.64	0.89	0.025	0.035
F	-	4.78	-	0.188
J	1.14	2.54	0.045	0.100
K	25.40	41.28	1.000	1.625
L	25.40	41.28	1.009	1.625

All JEDEC dimensions and notes apply

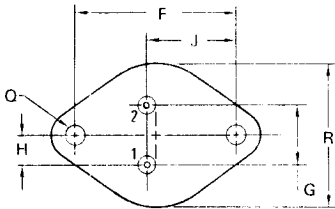
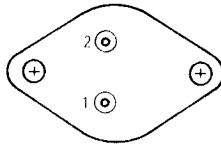
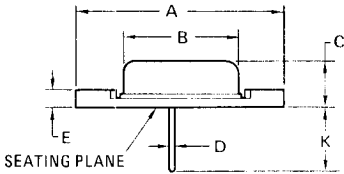
CASE 53-01



NOTE:
1. POLARITY INDICATED BY
CATHODE DOT ON BODY
ADJACENT TO CATHODE
LEAD.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.33	5.84	0.210	0.230
B	4.57	5.08	0.180	0.200
C	8.89	9.40	0.350	0.370
D	1.48	0.56	0.019	0.022
G	1.14	1.40	0.045	0.055
K	26.97	-	1.062	-

CASE 54-03



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	39.12	-	1.540
B	-	20.70	-	0.815
C	-	7.92	-	0.312
D	1.22	1.30	0.048	0.051
E	2.84	3.05	0.112	0.120
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.54	16.79	0.651	0.661
K	9.65	10.16	0.380	0.400
Q	3.84	4.09	0.151	0.161
R	-	26.16	-	1.030

STYLE 1: (THY)
PIN 1. ANODE
2. GATE
CASE: CATHODE

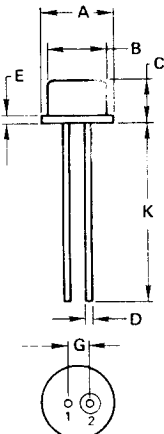
STYLE 2: (THY)
PIN 1. GATE
2. CATHODE
CASE: ANODE

STYLE 3: (ZENER)
PIN 1. CATHODE
2. CATHODE
CASE: ANODE

STYLE 4: (ZENER)
PIN 1. ANODE
2. ANODE
CASE: CATHODE



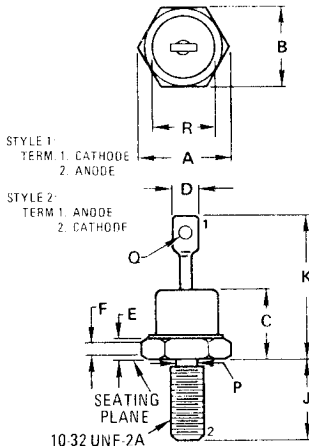
CASE 55-01



STYLE 1:
PIN 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	10.59	-	0.417
B	-	8.59	-	0.338
C	-	6.50	-	0.256
D	0.99	1.09	0.039	0.043
E	-	1.19	-	0.047
G	2.92	3.43	0.115	0.135
K	22.35	25.40	0.880	1.000

CASE 56-02 D0-4



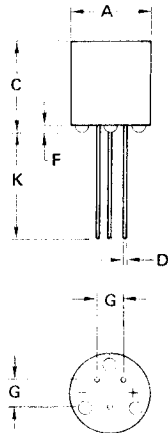
STYLE 1:
TERM 1. CATHODE
2. ANODE

STYLE 2:
TERM 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	11.94	12.83	0.470	0.505
B	10.77	11.10	0.424	0.437
C	-	10.29	-	0.405
D	-	6.35	-	0.250
E	1.91	4.45	0.075	0.175
F	1.52	-	0.060	-
J	10.72	11.51	0.422	0.453
K	-	20.32	-	0.800
P	4.14	4.80	0.163	0.189
Q	1.52	-	0.060	-
R	-	10.77	-	0.424

All JEDEC dimensions and notes apply

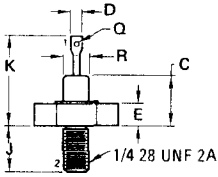
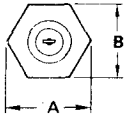
CASE 57-01



NOTE:
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION, WITH RESPECT TO DIA "A".

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	14.22	-	0.560
C	-	16.26	-	0.640
D	0.74	0.89	0.029	0.035
F	-	1.02	-	0.040
G	5.08 BSC	-	0.200 BSC	-
K	19.05	-	0.750	-

CASE 58-01

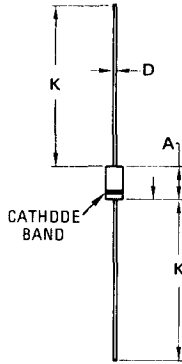


STYLE 1:
TERM. 1. CATHODE
2. ANODE

STYLE 2:
TERM. 1. ANODE
2. CATHODE

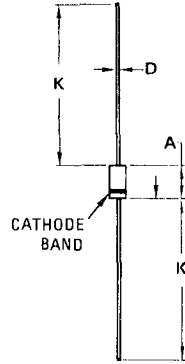
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.92	19.18	0.745	0.755
B	16.94	17.45	0.667	0.687
C	-	11.94	-	0.470
D	3.18	NDM	0.125	NOM
E	2.92	5.08	0.115	0.200
J	10.72	11.51	0.422	0.453
K	-	21.34	-	0.840
Q	1.78	NDM	0.070	NOM
R	-	7.11	-	0.280

CASE 59-01 CONFORMS TO D0-41



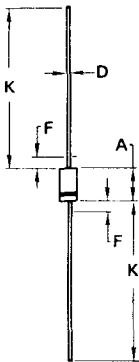
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.70	5.20	0.185	0.205
B	2.54	2.71	0.100	0.107
D	0.76	0.86	0.030	0.034
K	27.94	-	1.100	-

CASE 59-02



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.13	8.38	0.320	0.330
B	3.73	3.99	0.147	0.157
D	0.76	0.86	0.030	0.034
K	27.94	-	1.100	-

CASE 59-03 D0-41

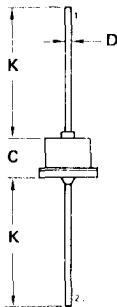
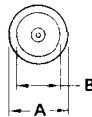


NOTE:
1. POLARITY DENOTED BY
CATHODE BAND

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.07	5.20	0.160	0.205
B	2.04	2.71	0.080	0.107
D	0.71	0.86	0.028	0.034
F	-	1.27	-	0.050
K	27.94	-	1.100	-

All JEDEC dimensions and notes apply.

CASE 60-01

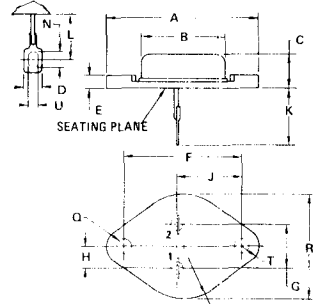


STYLE 1:
PIN 1. CATHODE
2. ANODE

STYLE 2:
PIN 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	11.43	-	0.450
B	-	8.89	-	0.350
C	-	7.62	-	0.300
D	1.17	1.42	0.046	0.056
K	24.89	-	0.980	-

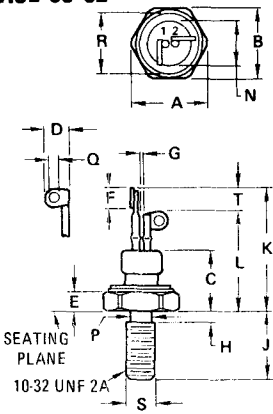
CASE 61-03



STYLE 1:
PIN 1. GATE
2. CATHODE
CASE: ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	38.23	39.12	1.505	1.540
B	20.32	20.70	0.800	0.815
C	6.99	7.92	0.275	0.312
D	4.83	5.33	0.190	0.210
E	2.84	3.05	0.112	0.120
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.54	16.79	0.651	0.661
K	16.51	17.27	0.650	0.680
N	3.30	4.32	0.130	0.170
Q	3.84	4.09	0.151	0.161
R	24.64	26.16	0.970	1.030
U	2.29	2.79	0.090	0.110

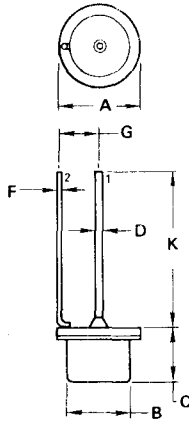
CASE 63-02



STYLE 1.
PIN 1. CATHODE
2. GATE
STUO - ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.57	12.83	0.495	0.505
B	10.77	11.10	0.424	0.437
C	-	10.80	-	0.425
D	3.94	4.70	0.155	0.185
E	-	3.56	-	0.140
J	10.16	11.51	0.400	0.453
K	-	21.72	-	0.855
L	-	17.78	-	0.700
N	-	7.11	-	0.280
Q	1.02	1.91	0.040	0.075

CASE 70-01

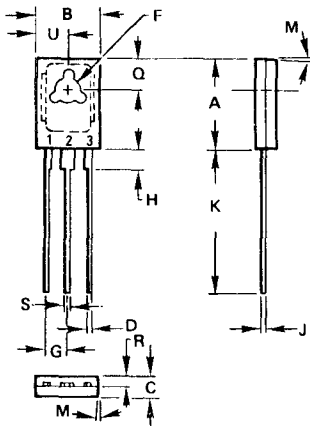


STYLE 2: PIN 1. CATHODE
2. ANODE
STYLE 1: PIN 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.16	12.70	0.400	0.500
B	7.62	8.89	0.300	0.350
C	6.60	8.89	0.260	0.350
D	1.17	1.42	0.046	0.056
F	0.69	0.94	0.027	0.037
G	4.70	5.46	0.185	0.215
K	22.86	-	0.900	-



CASE 77-03



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.80	11.05	0.425	0.435
B	7.49	7.75	0.295	0.305
C	2.41	2.67	0.095	0.105
D	0.51	0.66	0.020	0.026
F	2.92	3.00	0.115	0.118
G	2.31	2.46	0.091	0.097
H	2.16	2.41	0.085	0.095
J	0.38	0.64	0.015	0.025
K	15.38	16.64	0.605	0.655
M	3° TYP		3° TYP	
Q	3.76	4.01	0.148	0.158
R	1.14	1.40	0.045	0.055
S	0.64	0.89	0.025	0.035
U	3.68	3.94	0.145	0.155

STYLE 1
PIN 1. EMITTER
2. COLLECTOR
3. BASE

STYLE 2
PIN 1. CATHODE
2. ANODE
3. GATE

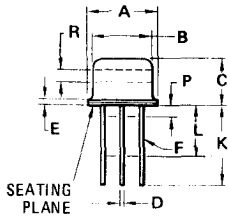
STYLE 3
PIN 1. BASE
2. COLLECTOR
3. EMITTER

STYLE 4
PIN 1. ANODE 1
2. ANODE 2
3. GATE

STYLE 5
PIN 1. MT1
2. MT2
3. GATE

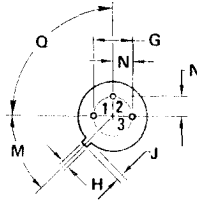
NOTE:
1. MT = MAIN TERMINAL

CASE 79-02 TO-39



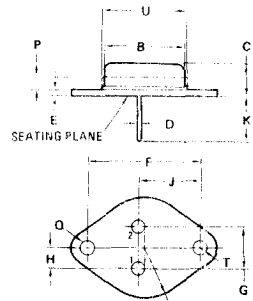
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° NDM	—	45° NDM	—
P	—	1.27	—	0.050
Q	90° NOM	—	90° NOM	—
R	2.54	—	0.100	—

All JEDEC dimensions and notes apply.



- STYLE 1
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
- STYLE 2
 PIN 1. DRAIN
 2. SOURCE
 3. GATE
- STYLE 3
 PIN 1. CATHODE
 2. GATE
 3. ANODE
- STYLE 4
 PIN 1. MAIN TERM. 1
 2. GATE
 3. MAIN TERM. 2
- STYLE 5
 PIN 1. COLLECTOR
 2. BASE
 3. EMITTER

CASE 80-02 TO-66

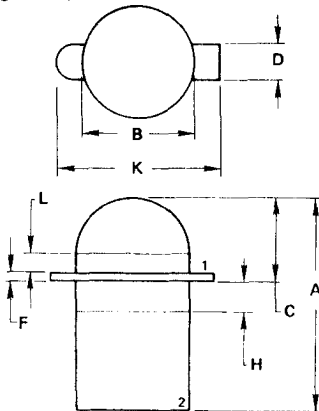


- STYLE 1:
 PIN 1. BASE
 2. EMITTER
 CASE. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
B	11.94	12.70	0.470	0.500
C	8.35	8.64	0.250	0.340
D	0.71	0.86	0.028	0.034
E	1.27	1.91	0.050	0.075
F	24.33	24.43	0.958	0.962
G	4.83	5.33	0.190	0.210
H	2.41	2.67	0.095	0.105
J	14.48	14.99	0.571	0.590
K	9.14	—	0.360	—
P	—	1.27	—	0.050
Q	3.61	3.86	0.141	0.152
S	—	8.89	—	0.350
T	—	3.68	—	0.145
U	—	15.75	—	0.620

All JEDEC Dimensions and Notes Apply.

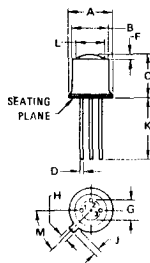
CASE 81A-05



- STYLE 1:
 TERM 1. EMITTER
 2. COLLECTOR
- STYLE 2:
 TERM 1. ANODE
 2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.79	3.30	0.100	0.130
B	1.47	1.57	0.058	0.062
C	0.71	1.02	0.028	0.040
D	0.41	0.61	0.016	0.024
F	0.13	0.25	0.005	0.010
H	0.48	0.53	0.019	0.021
K	2.11	2.36	0.083	0.093
L	0.20	0.30	0.008	0.012

CASE 82-01

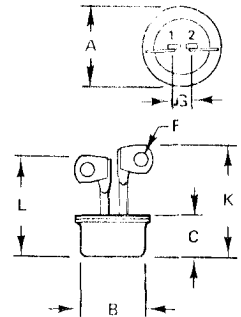


- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
- STYLE 2:
 PIN 1. CATHODE
 2. GATE
 3. ANODE

NOTES:
 1. LEADSWITHIN .13mm (005) RADIUS OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
 2. PIN 3 INTERNALLY CONNECTED TO CASE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	5.08	6.35	0.200	0.250
D	0.41	0.48	0.016	0.019
F	0.51	1.02	0.020	0.040
G	2.54 BSC	—	0.100 BSC	—
H	0.99	1.17	0.039	0.046
J	0.84	1.22	0.033	0.048
K	12.70	—	0.500	—
L	3.35	4.01	0.132	0.158
M	45° BSC	—	45° BSC	—

CASE 85-01

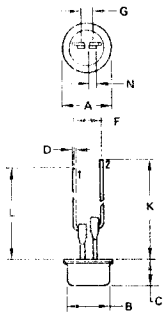


- STYLE 1:
 PIN 1. GATE
 2. CATHODE
 CAN. ANODE
- STYLE 2:
 PIN 1. GATE
 2. MAIN TERMINAL 1
 CAN. MAIN TERMINAL 2

NOTE:
 1. DIM "G" MEASURED AT CAN.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	10.92	—	0.430
B	—	8.89	—	0.350
C	—	5.97	—	0.235
F	1.78 TYP	—	0.070 TYP	—
G	2.29	2.79	0.09	0.110
K	—	14.73	—	0.580
L	—	13.46	—	0.530

CASE 85L-02



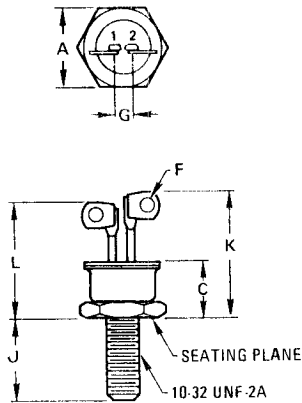
STYLE 1:
 PIN 1. GATE
 2. CATHODE
 CAN ANODE

STYLE 2:
 PIN 1. GATE
 2. MAIN TERMINAL 1
 CAN MAIN TERMINAL 2
 NEGLES.

1. DIM "G" MEASURED AT CAN

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	10.92	—	0.430
B	—	8.89	—	0.350
C	—	5.97	—	0.235
D	0.76	0.86	0.030	0.034
F	4.83	5.33	0.190	0.210
G	2.29	2.79	0.090	0.110
K	33.53	—	1.320	—
L	—	31.50 TYP	—	1.240 TYP
N	1.65	1.91	0.065	0.075

CASE 86-01



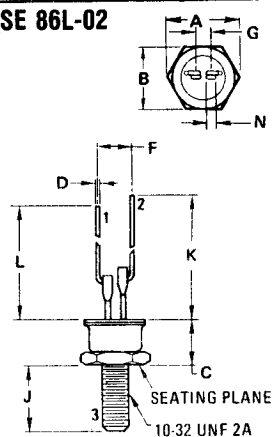
STYLE 1:
 PIN 1. GATE
 2. CATHODE
 STUD. ANODE

STYLE 2:
 PIN 1. GATE
 2. MAIN TERMINAL 1
 STUD. MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	11.10	—	0.437
C	—	7.87	—	0.310
F	1.78 TYP	—	0.070 TYP	—
G	2.29	2.79	0.090	0.110
J	10.72	11.48	0.422	0.452
K	—	16.76	—	0.660
L	—	15.49	—	0.610

NOTE:
 1. DIM "G" MEASURED AT CAN.

CASE 86L-02

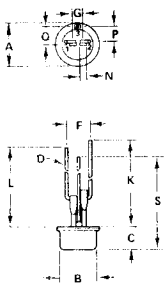


STYLE 1:
 TERM. 1. GATE
 2. CATHODE
 3. ANODE

STYLE 2:
 TERM. 1. GATE
 2. CATHODE
 3. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	12.82	—	0.505
B	—	11.10	—	0.437
C	—	7.87	—	0.310
D	0.76	0.86	0.030	0.034
F	4.83	5.33	0.190	0.210
G	2.29	2.79	0.090	0.110
J	10.72	11.48	0.422	0.452
K	33.53	—	1.320	—
L	—	31.50 TYP	—	1.240 TYP
N	1.65	1.91	0.065	0.075

CASE 87L-01



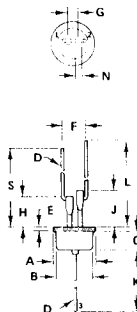
STYLE 1:
 PIN 1. GATE
 2. CATHODE
 3. ANODE

STYLE 2:
 PIN 1. GATE
 2. MAIN TERMINAL 1
 3. MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	10.92	—	0.430
B	—	8.89	—	0.350
C	—	5.97	—	0.235
D	0.76	0.86	0.030	0.034
F	4.83	5.33	0.190	0.210
G	2.29	2.79	0.090	0.110
K	33.53	—	1.320	—
L	—	31.50 TYP	—	1.240 TYP
N	1.65	1.91	0.065	0.075
P	3.43	3.68	0.135	0.145
Q	4.57	5.08	0.180	0.200
S	30.48	—	1.20	—

NOTES:
 1. DIM. "G" MEASURED AT CAN.
 2. LEAD NO. 3 ±7.5° DISPLACEMENT.

CASE 88L-01



STYLE 1:
 PIN 1. GATE
 2. CATHODE
 3. ANODE

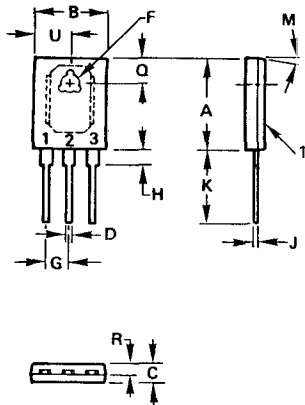
STYLE 2:
 PIN 1. GATE
 2. MAIN TERM 1
 3. MAIN TERM 2

NOTE:
 1. DIM "G" MEASURED AT CAN.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	10.92	—	0.430
B	—	8.89	—	0.350
C	—	4.70	—	0.185
D	0.76	0.86	0.030	0.034
E	0.76	1.27	0.030	0.050
F	4.83	5.33	0.190	0.210
G	2.29	2.79	0.090	0.110
H	—	6.86	—	0.270
J	—	8.13	—	0.320
K	22.86	—	0.900	—
L	33.53	—	1.320	—
N	1.65	1.91	0.065	0.075
S	31.50	—	1.240	—



CASE 90-05



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.13	16.38	0.635	0.645
B	12.57	12.83	0.495	0.505
C	3.18	3.43	0.125	0.135
D	1.09	1.24	0.043	0.049
F	3.51	3.76	0.138	0.148
G	4.22	BSC	0.166	BSC
H	2.67	2.92	0.105	0.115
J	0.813	0.864	0.032	0.034
K	15.11	16.38	0.595	0.645
M	90° TYP		90° TYP	
Q	4.70	4.95	0.185	0.195
R	1.91	2.16	0.075	0.085
U	6.22	6.48	0.245	0.255

STYLE 1:
 PIN 1. CATHODE
 2. ANODE
 3. GATE

STYLE 2:
 PIN 1. EMITTER
 2. COLLECTOR
 3. BASE

STYLE 3:
 PIN 1. CATHODE
 2. GATE
 3. ANODE

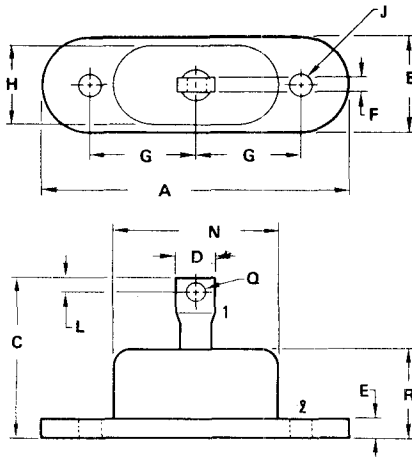
STYLE 4:
 PIN 1. MT 1
 2. MT 2
 3. GATE

MT = MAIN TERMINAL

NOTES:

- DIM "D" UNCONTROLLED IN ZONE "H"
- DIM "F" DIA THRU
- HEAT SINK CONTACT AREA (BDTDM)
- LEADS WITHIN 0.005" RAD OF TRUE POSITION (TP) AT MAXIMUM MATERIAL CONDITION.

CASE 100-01

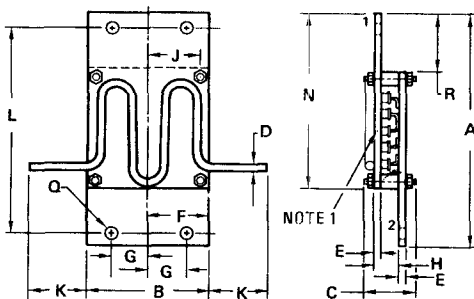


STYLE 1
 1. CATHODE
 2. ANODE

STYLE 2
 1. ANODE
 2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	55.88	—	2.200
B	—	16.51	—	0.650
C	29.21	NOM	1.150	NOM
D	6.60	NOM	0.260	NOM
E	—	3.43	—	0.135
F	2.03	NOM	0.080	NOM
G	18.80	19.30	0.740	0.760
H	—	15.24	—	0.600
J	4.39	NOM	0.173	NOM
L	2.62	—	0.103	—
N	—	30.48	—	1.200
Q	3.68	NOM	0.145	NOM
R	—	16.13	—	0.635

CASE 105-01



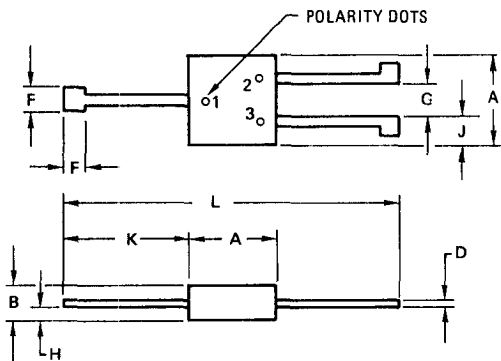
STYLE 1:
 TERM 1. CATHODE
 2. ANODE

STYLE 2:
 TERM. 1. ANODE
 2. CATHODE

NOTE:
 1. CASE TEMPERATURE REFERENCE POINT
 2. DIM "D" IS DIA OF COOLING TUBE.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	203.20	—	8.000
B	101.09	102.11	3.980	4.020
C	—	50.80	—	2.000
D	6.35	NOM	0.250	NOM
E	6.35	TYP	0.250	TYP
G	31.50	32.00	1.240	1.260
H	20.37	20.88	0.802	0.822
K	50.80	TYP	2.000	TYP
L	176.53	179.07	6.950	7.050
N	152.40	TYP	6.000	TYP
Q	10.31	NOM	0.406	NOM
R	50.80	TYP	2.000	TYP

CASE 106-01



NOTE:
1. LEAD TO BE TIN DIPPED
MINIMUM OF 3.18 mm (0.125)
ON ENDS.

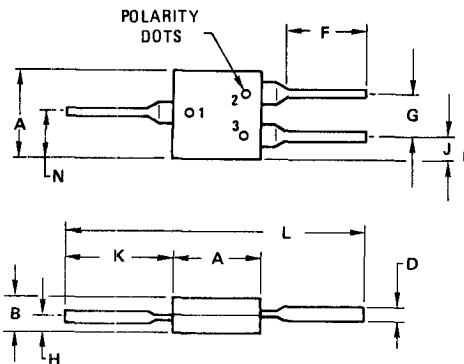
STYLE 1:
PIN 1. AC
2. +
3. -

STYLE 2:
PIN 1. +
2. AC
3. AC

STYLE 3:
PIN 1. -
2. AC
3. AC

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.73	0.240	0.265
B	2.29	2.79	0.090	0.110
D	0.23	0.53	0.009	0.021
F	-	2.29	-	0.090
G	2.67	3.05	0.105	0.120
H	1.02	1.14	0.040	0.045
J	1.73	1.83	0.068	0.072
K	8.89	10.16	0.350	0.400
L	23.88	27.05	0.940	1.065

CASE 107-01



NOTES:
1. DIM "D" IS TO BE MEASURED IN THE
PORTION OF THE LEAD DESIGNATED F.
2. LEADS ARE TO BE TIN DIPPED A MIN.
OF 3.18 mm (0.125) ON ENDS.
3. LEADS FORMED TO FIT INTO A HOLE
1.02 mm (0.040) MIN.

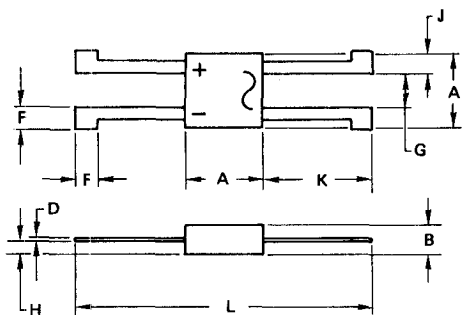
STYLE 1:
PIN 1. AC
2. +
3. -

STYLE 2:
PIN 1. +
2. AC
3. AC

STYLE 3:
PIN 1. -
2. AC
3. AC

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.73	0.240	0.265
B	2.29	2.79	0.090	0.110
D	0.51	0.89	0.020	0.035
F	3.81	8.64	0.150	0.340
G	3.68	3.94	0.145	0.155
H	0.76	-	0.030	-
J	1.22	1.40	0.048	0.055
K	6.60	8.64	0.260	0.340
L	19.30	24.00	0.760	0.945
N	3.05	3.35	0.120	0.132

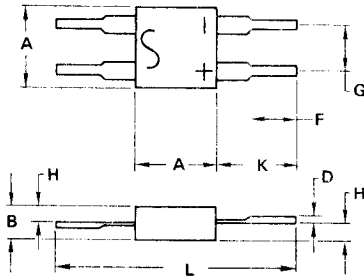
CASE 108-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.73	0.240	0.265
B	2.29	2.79	0.090	0.110
D	0.23	0.53	0.009	0.021
F	-	2.29	-	0.090
G	2.67	3.05	0.105	0.120
H	1.02	1.14	0.040	0.045
J	1.73	1.83	0.068	0.072
K	8.89	10.16	0.350	0.400
L	23.88	27.05	0.940	1.065



CASE 109-02

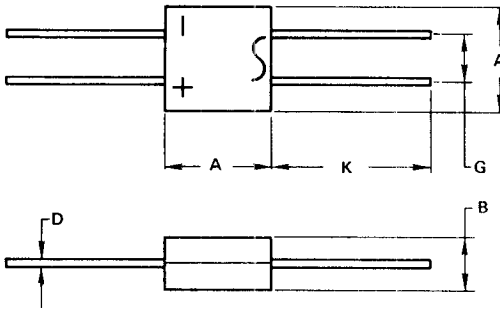


NOTES:

1. LEAD DIM "D" TO BE MEASURED WITHIN "F"
2. LEADS ARE TO BE TIN DIPPED WITHIN "F"
3. LEADS FORMED TO FIT INTO HOLE 0.94 mm (0.037) MIN.

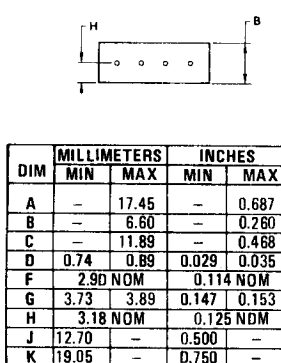
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.73	0.240	0.265
B	2.29	2.79	0.090	0.110
D	0.51	1.02	0.020	0.040
F	3.81	5.08	0.150	0.200
G	3.68	3.94	0.145	0.155
H	1.02	1.27	0.040	0.050
K	6.60	8.64	0.260	0.340
L	19.30	24.00	0.760	0.945

CASE 110-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	14.35	-	0.565
B	-	7.24	-	0.285
D	0.76	0.86	0.030	0.034
G	6.22	6.48	0.245	0.255
K	-	27.94	-	1.100

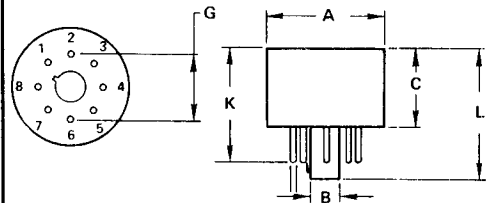
CASE 111-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	17.45	-	0.687
B	-	6.60	-	0.260
C	-	11.89	-	0.468
D	0.74	0.89	0.029	0.035
F	2.90 NOM		0.114 NOM	
G	3.73	3.89	0.147	0.153
H	3.18 NOM		0.125 NDM	
J	12.70	-	0.500	-
K	19.05	-	0.750	-

NOTE:
1. POLARITY INK MARKED ON CASE.

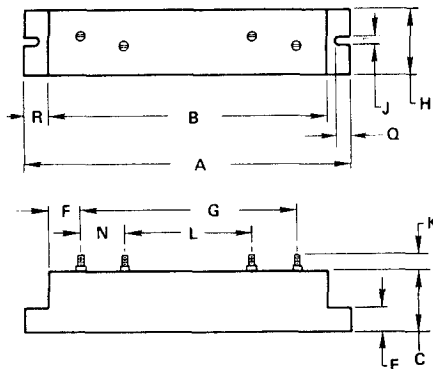
CASE 112-03



STYLE 1:
PIN 1, +
2. OPEN
3. AC
4. OPEN
5. -
6. OPEN
7. AC
8. OPEN
COLOR CODED

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	32.13	-	1.265
B	7.75	8.00	0.305	0.315
C	20.32	21.72	0.803	0.855
G	17.32	17.58	0.682	0.692
K	31.27	32.89	1.231	1.295
L	34.24	35.31	1.343	1.390

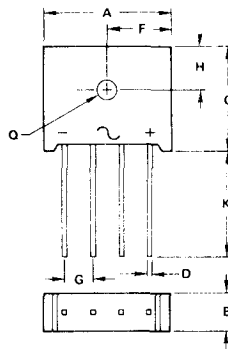
CASE 116-02



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	176.28	177.80	6.940	7.000
B	150.88	152.40	5.940	6.000
C	28.96	34.29	1.140	1.350
E	10.67	12.70	0.420	0.500
F	14.61	15.88	0.575	0.625
G	116.84	121.92	4.600	4.800
H	32.26	34.29	1.270	1.350
J	3.66 NOM		0.144 NOM	
K	7.11	8.13	0.280	0.320
L	66.04	68.58	2.600	2.700
N	25.40	26.67	1.000	1.050
Q	8.89	9.40	0.350	0.370
R	11.68	12.70	0.460	0.500

NOTES:
1. TERMINALS HAVE MILLED SLOTS
1.17 mm (0.046) WIDE AND 4.37 mm
(0.172) DEEP.

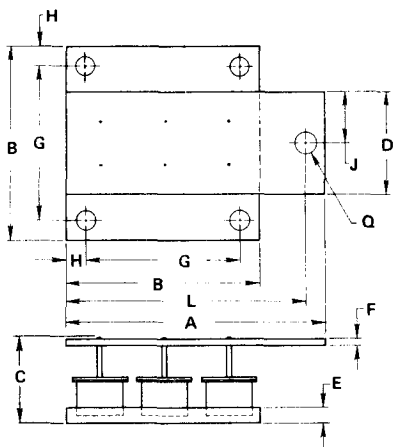
CASE 117-01



NOTE:
1. TERMINAL SYMBOLS
MOLDED INTO CASE.
2. LEADS ARE SQUARE &
CENTERED ON PACKAGE.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	22.35	23.37	0.880	0.920
B	6.10	7.11	0.240	0.280
C	18.16	19.18	0.715	0.755
D	0.89	1.14	0.035	0.045
F	11.18	11.68	0.440	0.460
G	4.57	5.59	0.180	0.220
H	7.24	7.75	0.285	0.305
K	19.05	-	0.750	-
Q	3.43	3.94	0.135	0.155

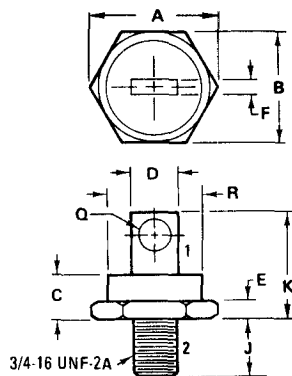
CASE 119-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	50.29	51.31	1.980	2.020
B	37.59	38.61	1.480	1.520
C	-	16.51	-	0.650
D	20.24	21.01	0.797	0.827
E	2.92	3.43	0.115	0.135
F	1.32	1.83	0.052	0.072
G	29.97	30.99	1.180	1.220
H	3.56	4.06	0.140	0.160
J	10.06	10.57	0.396	0.416
L	46.74	47.74	1.840	1.860
Q	3.30	3.81	0.130	0.150

NOTE: DIA "Q" 5 PLACES

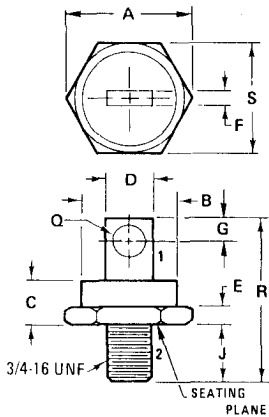
CASE 126-01



STYLE 1:
TERM. 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	51.08	51.59	2.011	2.031
B	44.32	44.58	1.745	1.755
C	-	27.94	-	1.100
D	18.80	19.30	0.740	0.760
E	9.40	9.91	0.370	0.390
F	6.10	6.60	0.240	0.260
J	20.32	25.65	0.800	1.010
K	-	50.55	-	1.990
Q	9.27	9.78	0.365	0.385
R	-	43.69	-	1.720

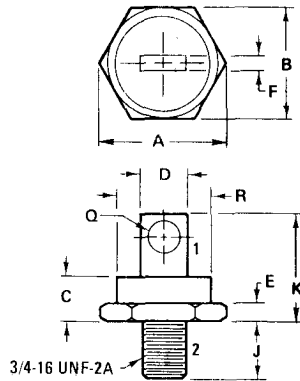
CASE 127-01



STYLE 1:
TERM. 1. ANODE
2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	58.27	59.05	2.294	2.325
B	—	49.28	—	1.946
C	—	27.94	—	1.100
D	25.15	27.94	0.990	1.100
E	9.14	9.91	0.360	0.390
F	5.84	6.86	0.230	0.270
G	10.67	11.68	0.420	0.460
H	25.02	25.78	0.985	1.015
J	14.02	14.53	0.552	0.572
R	—	88.90	—	3.500
S	50.42	51.18	1.985	2.015

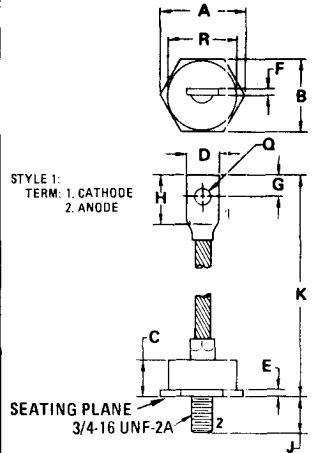
CASE 128-01



STYLE 1:
TERM. 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	65.79	66.29	2.590	2.610
B	57.02	57.28	2.245	2.255
C	—	27.94	—	1.100
D	25.15	27.94	0.990	1.100
E	9.40	9.65	0.370	0.380
F	7.67	8.18	0.302	0.322
J	25.15	25.65	0.990	1.010
K	—	68.83	—	2.710
Q	14.02	14.53	0.552	0.572
R	—	55.88	—	2.200

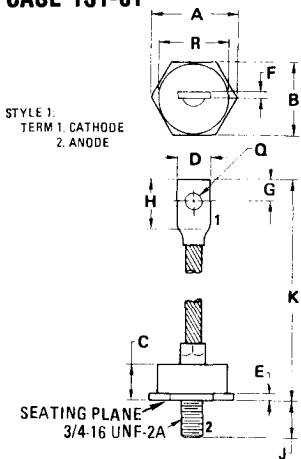
CASE 130-01



STYLE 1:
TERM. 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	56.90	57.40	2.240	2.260
B	44.20	44.70	1.740	1.760
C	—	27.94	—	1.100
D	15.49	16.26	0.610	0.640
E	9.40	9.91	0.370	0.390
F	3.17	3.94	0.125	0.155
G	7.01	7.26	0.276	0.286
H	15.87	—	0.625	—
J	20.32	25.65	0.800	1.010
K	173.99	180.34	6.850	7.100
Q	8.59	8.84	0.338	0.348
R	—	43.69	—	1.720

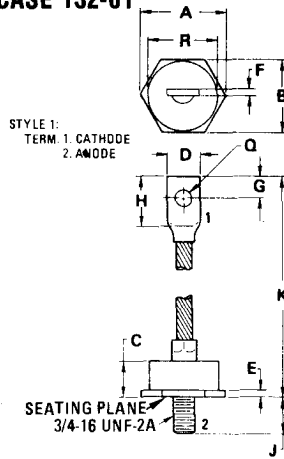
CASE 131-01



STYLE 1:
TERM. 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	57.84	58.34	2.277	2.297
B	50.67	50.93	1.995	2.005
C	—	27.94	—	1.100
D	23.88	25.40	0.940	1.000
E	9.40	9.65	0.370	0.380
F	4.57	5.08	0.180	0.200
G	10.92	11.43	0.430	0.450
H	22.25	23.77	0.876	0.936
J	25.27	25.53	0.995	1.005
K	173.99	180.34	6.850	7.100
Q	13.36	13.61	0.526	0.536
R	—	49.28	—	1.940

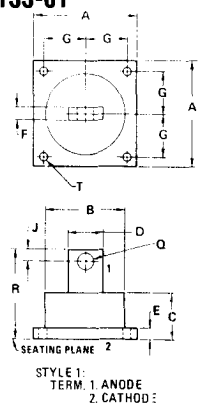
CASE 132-01



STYLE 1:
TERM. 1. CATHODE
2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	65.46	65.96	2.577	2.597
B	57.02	57.28	2.245	2.255
C	—	27.94	—	1.100
D	28.45	29.46	1.120	1.160
E	9.40	9.65	0.370	0.380
F	5.71	6.98	0.225	0.275
G	13.51	15.04	0.532	0.592
H	30.99	32.51	1.220	1.280
J	25.15	25.65	0.990	1.010
K	177.80	185.42	7.000	7.300
Q	13.51	15.04	0.532	0.592
R	—	55.88	—	2.200

CASE 133-01

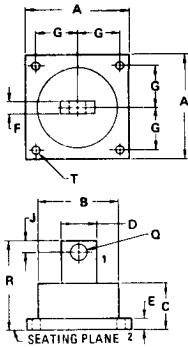


STYLE 1:
TERM. 1. ANODE
2. CATHODE

NOTE:
1. HOLES ("T") WITHIN .25 mm (0.010)
DIA OF TRUE POSITION WITH RESPECT
TO EACH OTHER AT MAXIMUM
MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	57.02	57.28	2.245	2.255
B	—	43.69	—	1.720
C	—	25.40	—	1.000
D	18.80	19.30	0.740	0.760
E	6.10	6.60	0.240	0.260
F	6.10	6.60	0.240	0.260
G	22.23	85C	0.875	85C
J	5.08	7.62	0.200	0.300
Q	9.40	9.65	0.370	0.380
R	—	48.26	—	1.900
T	5.03	5.28	0.198	0.208

CASE 134-01

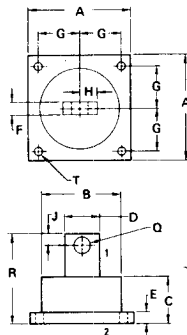


STYLE 1:
TERM. 1. ANODE
2. CATHODE

NOTE:
1. HOLES ("T") WITHIN 0.25 mm (0.010)
DIA. OF TRUE POSITION WITH RESPECT
TO EACH OTHER AT MAXIMUM MATERIAL
CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	76.07	76.33	2.995	3.005
B	—	53.34	—	2.100
C	—	25.40	—	1.000
D	25.15	27.94	0.990	1.100
E	6.10	6.60	0.240	0.260
F	6.10	6.60	0.240	0.260
G	31.75 BSC		1.250 BSC	
J	10.67	11.68	0.420	0.460
Q	14.15	14.40	0.557	0.567
R	—	63.50	—	2.500
T	7.01	7.26	0.276	0.286

CASE 135-01

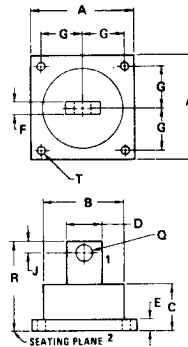


STYLE 1:
TERM. 1. CATHODE
2. ANODE

NOTE:
1. HOLES ("T") WITHIN 0.25 mm (0.010)
DIA. OF TRUE POSITION WITH RESPECT
TO EACH OTHER AT MAXIMUM MATERIAL
CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	75.95	76.45	2.990	3.010
B	—	55.88	—	2.200
C	—	25.40	—	1.000
D	25.15	27.94	0.990	1.100
E	6.10	6.60	0.240	0.260
F	7.80	8.05	0.307	0.317
G	31.75 BSC		1.250 BSC	
H	11.30	13.97	0.445	0.550
J	10.67	11.68	0.420	0.460
Q	14.15	14.40	0.557	0.567
R	50.80	60.33	2.000	2.375
T	7.01	7.26	0.276	0.286

CASE 136-01

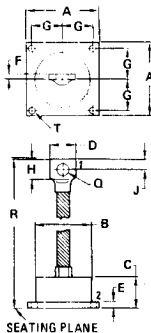


STYLE 1:
TERM. 1. ANODE
2. CATHODE

NOTE:
1. HOLES ("T") WITHIN 0.25 mm (0.010)
DIAMETER OF TRUE POSITION WITH
RESPECT TO EACH OTHER AT
MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	81.28	83.82	3.200	3.300
B	—	73.28	—	2.885
C	—	25.40	—	1.000
D	51.50	32.00	1.240	1.260
E	6.10	6.60	0.240	0.260
F	12.57	12.83	0.495	0.505
G	34.93 BSC		1.365 BSC	
J	9.52	11.94	0.375	0.470
Q	14.15	14.40	0.557	0.567
R	—	63.50	—	2.500
T	7.01	7.26	0.276	0.286

CASE 137-01

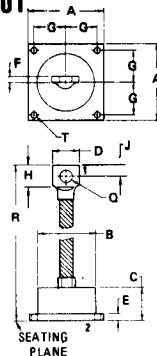


STYLE 1:
TERM. 1. CATHODE
2. ANODE

NOTE:
1. HOLES ("T") WITHIN 0.25 mm (0.010)
DIA. OF TRUE POSITION WITH
RESPECT TO EACH OTHER AT MAXIMUM
MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	56.90	57.40	2.240	2.260
B	—	43.69	—	1.720
C	—	25.40	—	1.000
D	15.49	16.26	0.610	0.640
E	6.10	6.60	0.240	0.260
F	3.18	3.94	0.125	0.155
G	22.23 BSC		0.875 BSC	
H	15.87	—	0.625	—
J	6.88	7.39	0.271	0.291
Q	8.58	8.84	0.338	0.348
R	—	180.34	—	7.100
T	5.03	5.28	0.198	0.208

CASE 138-01



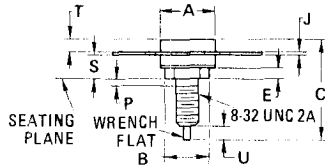
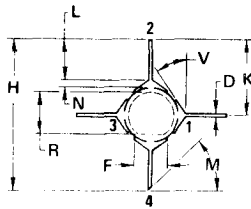
STYLE 1:
TERM. 1. CATHODE
2. ANODE

NOTE:
1. HOLES ("T") WITHIN 0.25 mm (0.010)
DIAMETER OF TRUE POSITION WITH
RESPECT TO EACH OTHER AT MAXIMUM
MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	75.95	76.45	2.990	3.010
B	—	53.34	—	2.100
C	—	25.40	—	1.000
D	23.88	25.40	0.940	1.000
E	6.10	6.60	0.240	0.260
F	4.57	5.08	0.180	0.200
G	31.75 BSC		1.250 BSC	
H	22.22	—	0.875	—
J	9.83	12.37	0.387	0.487
Q	13.36	13.61	0.526	0.536
R	—	175.26	—	6.900
T	7.01	7.26	0.276	0.286



CASE 144B-03



STYLE 1:

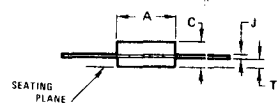
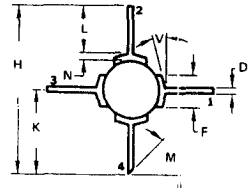
- PIN 1. EMITTER
- 2. BASE
- 3. EMITTER
- 4. COLLECTOR

NOTE:

- 1. DIM "N" IS FROM DIA "A" TO ANGLE "V"

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	9.78	0.370	0.385
B	8.13	8.38	0.320	0.330
C	17.63	19.46	0.694	0.766
D	0.64	0.89	0.025	0.035
E	1.78	2.03	0.070	0.080
F	5.59	5.84	0.220	0.230
H	26.16	27.69	1.030	1.090
J	0.10	0.15	0.004	0.006
K	13.08	13.84	0.515	0.545
L	7.11	7.37	0.280	0.290
M	40°	50°	40°	50°
N	1.27	1.52	0.050	0.060
P	—	1.27	—	0.050
R	7.59	7.80	0.299	0.307
S	4.01	4.52	0.158	0.178
T	2.16	2.41	0.085	0.095
U	2.54	3.30	0.100	0.130
V	10°	20°	10°	20°

CASE 144C-02



STYLE 1:

- PIN 1. EMITTER
- 2. BASE
- 3. EMITTER
- 4. COLLECTOR

NOTE:

- 1. DIM "N" IS FROM DIA "A" TO ANGLE "V"

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	9.78	0.370	0.385
C	4.06	4.32	0.160	0.170
D	0.64	0.89	0.025	0.035
F	5.59	5.84	0.220	0.230
H	26.67	27.18	1.050	1.070
J	0.10	0.15	0.004	0.006
K	13.34	13.59	0.525	0.535
L	7.11	7.37	0.280	0.290
M	40°	50°	40°	50°
N	1.27	1.52	0.050	0.060
T	1.65	1.91	0.065	0.075
V	10°	20°	10°	20°

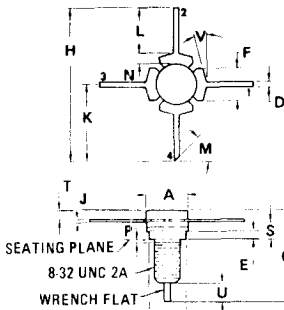
CASE 144D-04

STYLE 1:

- PIN 1. EMITTER
- 2. BASE
- 3. EMITTER
- 4. COLLECTOR

STYLE 2:

- PIN 1. BASE
- 2. EMITTER
- 3. BASE
- 4. COLLECTOR

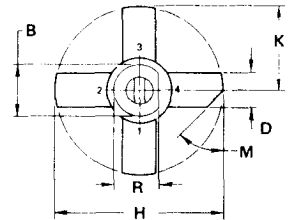
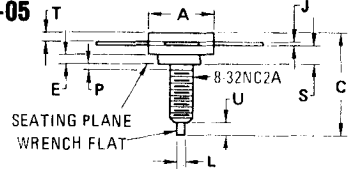


NOTES:

- 1. DIM "N" IS FROM DIA "A" TO ANGLE "V".
- 2. DIM "P" IS THREAD RELIEF.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.06	7.26	0.278	0.286
B	6.25	6.45	0.246	0.254
C	15.49	16.51	0.610	0.650
D	0.64	0.89	0.025	0.035
E	1.40	1.65	0.055	0.065
F	5.59	5.84	0.220	0.230
H	26.67	27.18	1.050	1.070
J	0.10	0.15	0.004	0.006
K	13.34	13.59	0.525	0.535
L	8.26	8.51	0.325	0.335
M	40°	50°	40°	50°
N	1.40	1.65	0.055	0.065
P	—	1.27	—	0.050
S	3.00	3.25	0.118	0.128
T	1.40	1.55	0.055	0.065
U	2.92	3.68	0.115	0.145
V	10°	20°	10°	20°

CASE 145A-05

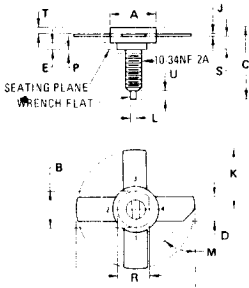


STYLE 1:

- PIN 1. EMITTER
- 2. BASE
- 3. EMITTER
- 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	9.78	0.370	0.385
B	8.13	8.38	0.320	0.330
C	17.02	20.07	0.670	0.790
D	5.46	5.97	0.215	0.235
E	1.78	2.03	0.070	0.080
H	22.10	23.62	0.870	0.930
J	0.10	0.15	0.004	0.006
K	11.05	11.81	0.435	0.465
L	1.40	1.65	0.055	0.065
M	45° NOM	45° NOM	—	—
P	—	1.27	—	0.050
R	7.59	7.80	0.299	0.307
S	4.01	4.52	0.158	0.178
T	2.11	2.46	0.083	0.097
U	2.49	3.35	0.098	0.132

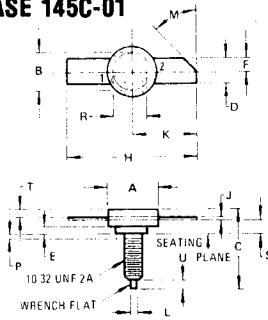
CASE 145A-06



- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.45	12.95	0.490	0.510
B	10.54	10.80	0.415	0.425
C	19.68	22.73	0.775	0.895
D	5.46	5.97	0.215	0.235
E	1.83	1.98	0.072	0.078
H	22.10	23.62	0.870	0.930
J	0.10	0.15	0.004	0.006
K	11.05	11.81	0.435	0.465
L	1.65	1.90	0.065	0.075
M	45° NDM		45° NOM	
P	—	1.27	—	0.050
R	9.73	10.06	0.383	0.396
S	3.84	4.50	0.151	0.177
T	2.11	2.46	0.083	0.097
U	2.49	3.35	0.098	0.132

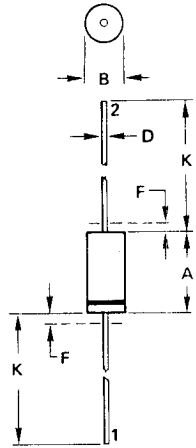
CASE 145C-01



- STYLE 1:
 PIN 1. BASE
 2. COLLECTOR
 STUD-EMITTER

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.45	12.95	0.490	0.510
B	10.41	10.92	0.410	0.430
C	21.21	21.46	0.835	0.845
D	8.51	8.76	0.335	0.345
E	1.78	2.03	0.070	0.080
F	4.19	4.45	0.165	0.175
H	22.86	23.62	0.900	0.930
J	0.10	0.15	0.004	0.006
K	11.43	11.81	0.450	0.465
L	1.65	1.91	0.065	0.075
M	40°	50°	40°	50°
P	—	1.27	—	0.050
R	9.78	10.03	0.385	0.395
S	4.11	4.42	0.162	0.174
T	2.16	2.41	0.085	0.095
U	2.54	3.30	0.100	0.130

CASE 146-01 DO-14

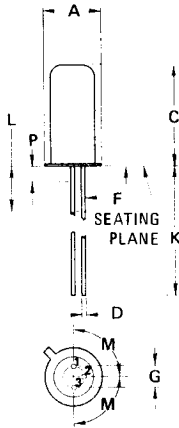


- STYLE 1:
 PIN 1. CATHODE
 2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.84	7.62	0.230	0.300
B	2.74	3.56	0.108	0.140
D	0.46	0.56	0.018	0.022
F	—	1.27	—	0.050
K	25.40	—	1.000	—

All JEDEC dimensions and notes apply.

CASE 149-02 TO-1



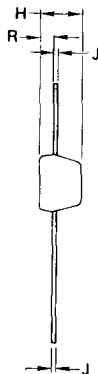
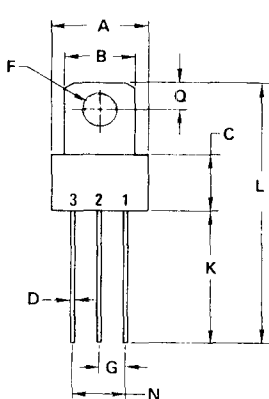
- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	6.10	—	0.240
C	—	10.41	—	0.410
D	—	0.53	—	0.021
F	0.406	0.483	0.016	0.019
G	1.55	2.06	0.061	0.081
K	38.10	—	1.500	—
L	6.35	—	0.250	—
M	90° NOM		90° NOM	
P	—	1.27	—	0.050

All JEDEC notes and dimensions apply.



CASE 152-02

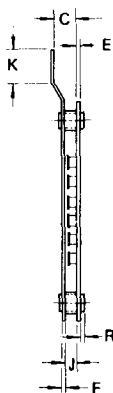
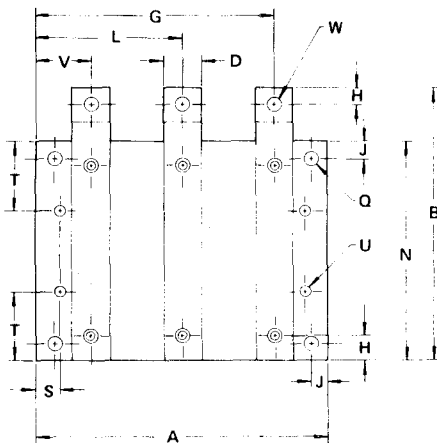


STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

NOTE:
 1. LEADS WITHIN 0.15 mm (0.006)
 TOTAL DF TRUE POSITION
 AT CASE, AT MAXIMUM
 MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.14	9.53	0.360	0.375
B	6.60	7.24	0.260	0.285
C	5.41	5.66	0.213	0.223
D	0.38	0.53	0.015	0.021
F	3.18	3.33	0.125	0.131
G	2.54 BSC		0.100 BSC	
H	3.94	4.19	0.155	0.165
J	0.36	0.41	0.014	0.016
K	12.07	12.70	0.475	0.500
L	25.02	25.53	0.985	1.005
N	5.08 BSC		0.200 BSC	
Q	2.39	2.69	0.094	0.106
R	1.14	1.40	0.045	0.055

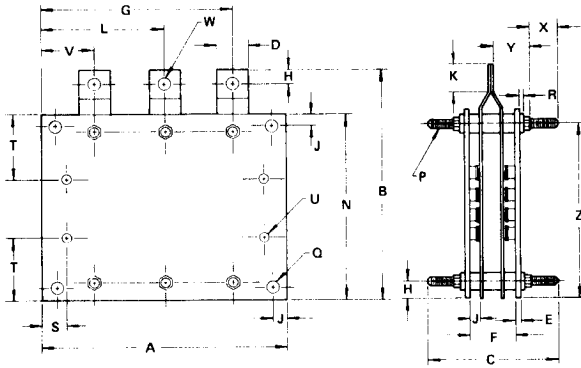
CASE 154-01



NOTE:
 1. WT ≈ 454 GR.
 (16 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	210.68	204.72	7.940	8.060
B	163.58	166.62	6.440	6.560
C	14.48	17.53	0.570	0.690
D	24.89	25.91	0.980	1.020
E	4.32	5.08	0.170	0.200
F	1.32	1.83	0.052	0.072
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
L	100.08	103.12	3.940	4.060
N	125.48	128.52	4.940	5.060
P	6.35	6.86	0.250	0.270
Q	8.33	9.09	0.328	0.358
R	2.92	3.68	0.115	0.145
S	14.22	15.75	0.560	0.620
T	42.93	44.45	1.690	1.750
U	5.18	5.94	0.204	0.234
V	42.93	45.97	1.690	1.810
W	9.93	10.69	0.391	0.421

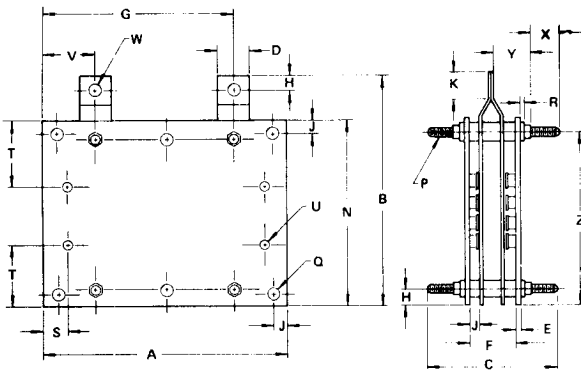
CASE 155-01



NOTE:
1. WT \approx 1.02 kg
(2 lb., 4 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.67	204.72	7.940	8.060
B	163.57	166.62	6.440	6.560
C	94.49	96.01	3.720	3.780
D	24.89	25.91	0.980	1.020
E	4.32	5.08	0.170	0.200
F	30.99	32.51	1.220	1.280
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
L	100.08	103.12	3.940	4.060
N	126.24	127.76	4.970	5.030
P	1/4-2 UNC-2A			
Q	8.33	9.09	0.328	0.358
R	2.92	3.68	0.115	0.145
S	14.22	17.02	0.560	0.670
T	42.93	44.45	1.690	1.750
U	5.18	5.94	0.204	0.234
V	42.93	45.97	1.690	1.810
W	9.93	10.70	0.391	0.421
X	15.24	16.76	0.600	0.660
Y	30.99	32.51	1.220	1.280
Z	113.54	115.06	4.470	4.530

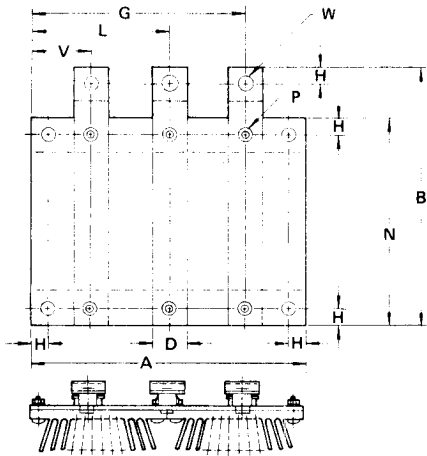
CASE 155A-01



NOTE:
1. WT \approx 0.87 kg
(1 lb., 15 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.67	204.72	7.940	8.060
B	163.57	166.62	6.440	6.560
C	94.49	96.01	3.720	3.780
D	24.89	25.91	0.980	1.020
E	4.32	5.08	0.170	0.200
F	30.99	32.51	1.220	1.280
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
L	126.24	127.76	4.970	5.030
N	1/4-20 UNC-2A			
Q	8.33	9.09	0.328	0.358
R	2.92	3.68	0.115	0.145
S	14.22	17.02	0.560	0.670
T	42.93	44.45	1.690	1.750
U	5.18	5.94	0.204	0.234
V	42.93	45.97	1.690	1.810
W	9.93	10.89	0.391	0.421
X	15.24	16.76	0.600	0.660
Y	30.99	32.51	1.220	1.280
Z	113.54	115.06	4.470	4.530

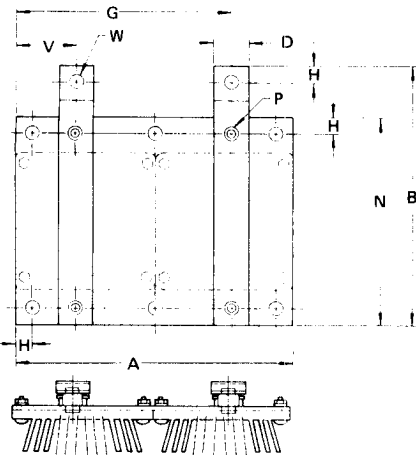
CASE 156-01



NOTE:
1. WT ≈ 1.56 kg
(3 lb., 7 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.68	204.72	7.940	8.060
B	188.98	192.02	7.440	7.560
C	14.48	17.53	0.570	0.690
D	24.89	25.91	0.980	1.020
E	2.79	3.56	0.110	0.140
F	1.32	1.83	0.052	0.072
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
L	100.08	103.12	3.940	4.060
N	150.88	153.92	5.940	6.060
P	6.35	6.86	0.250	0.270
R	29.39	30.96	1.157	1.219
T	24.89	25.91	0.980	1.020
Y	42.93	45.97	1.690	1.810
W	10.06	10.57	0.396	0.416
Z	100.08	103.12	3.940	4.060

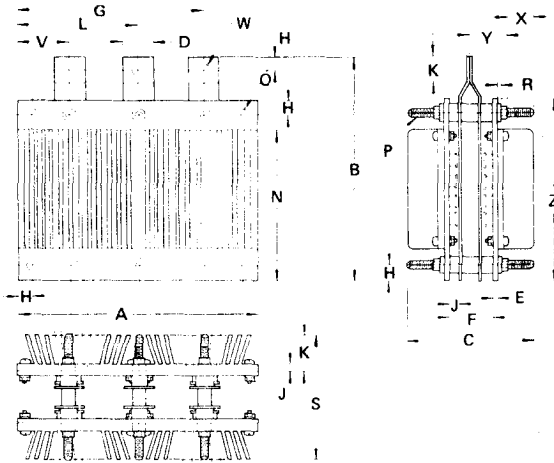
CASE 156A-01



NOTE:
1. WT ≈ 1.5 kg
(3 lb., 4 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.68	204.72	7.940	8.060
B	188.98	192.02	7.440	7.560
C	14.48	17.53	0.570	0.690
D	24.89	25.91	0.980	1.020
E	2.79	3.56	0.110	0.140
F	1.32	1.83	0.052	0.072
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
N	150.88	153.92	5.940	6.060
P	6.35	6.86	0.250	0.270
R	29.39	30.96	1.157	1.219
T	24.89	25.91	0.980	1.020
V	42.93	45.97	1.690	1.810
W	10.06	10.57	0.396	0.416
Z	100.08	103.12	3.940	4.060

CASE 157-01

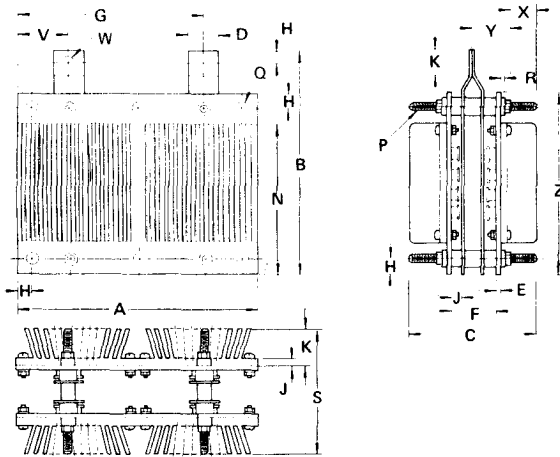


NOTE:

1. WT \approx 2.8 kg
(6 lb, 1 oz.)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.68	204.72	7.940	8.060
B	188.98	192.02	7.440	7.560
C	93.73	96.77	3.690	3.810
D	24.89	25.91	0.980	1.020
E	2.79	3.56	0.110	0.140
F	30.23	33.27	1.190	1.310
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
L	100.08	103.12	3.940	4.060
N	125.48	128.52	4.940	5.060
P	1/4-20 UNC-2A			
Q	9.93	10.69	0.391	0.421
R	4.45	5.21	0.175	0.205
S	97.03	100.08	3.820	3.940
V	42.93	45.97	1.690	1.810
W	9.93	10.69	0.391	0.421
X	16.76	18.29	0.660	0.720
Y	29.46	30.99	1.160	1.220
Z	150.87	153.92	5.940	6.060

CASE 157A-01

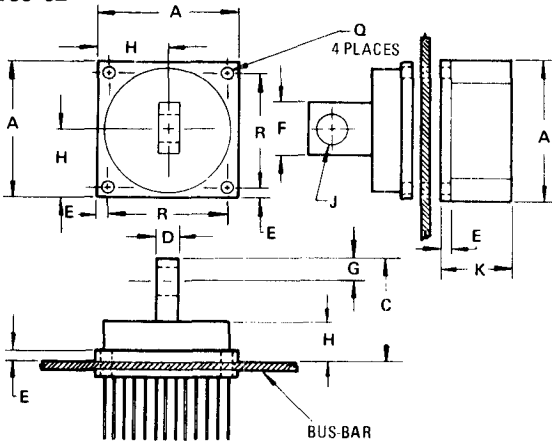


NOTE:

1. WT \approx 2.6 kg
(5 lb., 12 oz.)

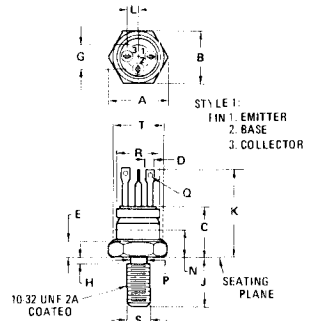
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	201.68	207.72	7.940	8.060
B	188.98	192.02	7.440	7.560
C	93.73	96.77	3.690	3.810
D	24.89	25.91	0.980	1.020
E	2.79	3.56	0.110	0.140
F	30.23	33.27	1.190	1.310
G	157.23	160.27	6.190	6.310
H	11.94	13.46	0.470	0.530
J	9.14	9.91	0.360	0.390
K	24.89	25.91	0.980	1.020
N	125.48	128.52	4.940	5.060
P	1/4-20 UNC-2A			
Q	9.93	10.69	0.391	0.421
R	4.45	5.21	0.175	0.205
S	97.03	100.08	3.820	3.940
V	42.93	45.97	1.690	1.810
W	9.93	10.69	0.391	0.421
X	16.76	18.29	0.660	0.720
Y	29.46	30.99	1.160	1.220
Z	150.87	153.92	5.940	6.060

CASE 159-02



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	78.74	86.36	3.100	3.400
C	57.40	61.47	2.260	2.420
D	8.89	16.51	0.350	0.650
E	5.08	6.35	0.200	0.250
F	27.94	33.56	1.100	1.400
G	7.62	8.89	0.300	0.350
H	20.32	23.11	0.800	0.910
J	14.02	14.53	0.552	0.572
K	53.34	60.96	2.100	2.400
Q	6.88	7.39	0.271	0.291
R	69.58	73.66	2.700	2.900

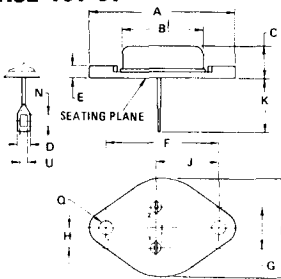
CASE 160-03 TO-59



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
B	10.77	11.10	0.424	0.437
C	8.13	11.89	0.321	0.468
E	2.29	3.81	0.091	0.150
G	4.70	5.46	0.185	0.215
H	—	1.98	—	0.078
J	10.16	11.56	0.401	0.455
K	14.48	19.38	0.571	0.763
L	2.29	2.79	0.091	0.110
N	—	6.35	—	0.250
P	4.14	4.80	0.163	0.189
Q	1.02	1.65	0.040	0.065
R	8.08	9.65	0.318	0.380
S	4.212	4.310	0.1658	0.1697
T	9.65	11.10	0.380	0.437

All JEDEC dimensions and notes apply
Collector isolated from case.

CASE 161-01

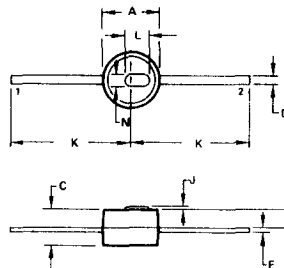


STYLE 1:
PIN 1: BASE
2: EMITTER
CASE: COLLECTOR

NOTE:
1. LEADS ARE MASHED & PIERCED.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	—	9.14	—	0.360
D	—	3.56	—	0.140
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	15.49	17.27	0.610	0.680
N	3.05	3.30	0.120	0.130
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050
U	1.83	—	0.072	—

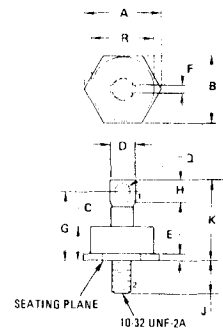
CASE 166-02



STYLE 1:
PIN 1: ANODE
2: CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.98	2.34	0.078	0.092
C	1.22	1.47	0.048	0.058
D	0.25	0.41	0.010	0.016
F	0.10	0.15	0.004	0.006
H	0.51	0.76	0.020	0.030
J	0.03	0.08	0.001	0.003
K	4.19	4.45	0.165	0.175
L	0.89	1.14	0.035	0.045
N	0.38	0.64	0.015	0.025

CASE 167-01



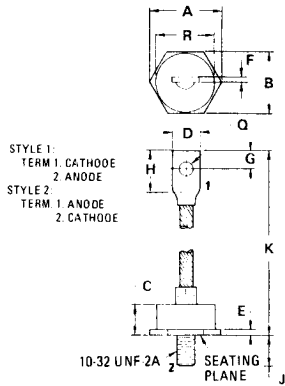
STYLE 1:
TERM. 1: CATHODE
2: ANODE

STYLE 2:
TERM. 1: ANODE
2: CATHODE

NOTES:
1. CRIMPED LUG
2. ANGULAR ORIENTATION OF LUG UNDEFINED.

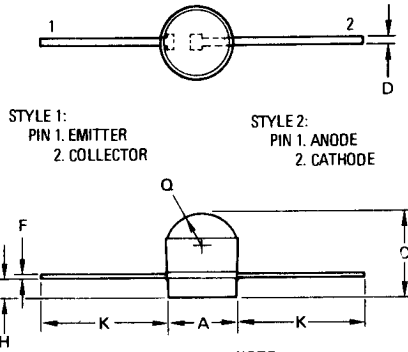
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	36.83	—	1.450
B	31.37	32.13	1.235	1.265
C	13.72	17.91	0.540	0.705
D	12.70	13.34	0.500	0.525
E	2.92	3.43	0.115	0.135
F	2.67	3.43	0.105	1.135
G	29.21	34.29	1.150	1.350
H	12.70	—	0.500	—
J	10.77	12.70	0.424	0.500
K	34.93	44.45	1.375	1.750
Q	6.10	6.60	0.240	0.260
R	—	30.48	—	1.200

CASE 168-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	36.83	—	1.450
B	31.37	32.13	1.235	1.265
C	13.72	17.91	0.540	0.705
D	13.00	15.54	0.512	0.612
E	2.92	3.43	0.115	0.135
F	1.52	3.30	0.060	0.130
G	8.71	10.34	0.343	0.407
H	19.05	—	0.750	—
J	10.77	12.70	0.424	0.500
K	127.00	146.05	5.000	5.750
Q	6.76	7.52	0.266	0.296
R	—	30.48	—	1.200

CASE 171-01



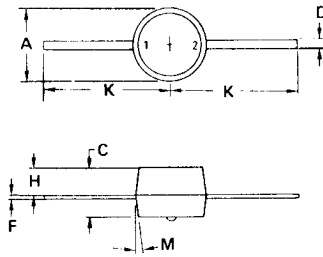
STYLE 1:
PIN 1. EMITTER
2. COLLECTOR

STYLE 2:
PIN 1. ANODE
2. CATHODE

NOTE:
1. LEAD IDENTIFICATION: SQUARE BONDING PAD OVER PIN 2.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.56	4.06	0.140	0.160
C	4.57	5.33	0.180	0.210
D	0.33	0.48	0.013	0.019
F	0.23	0.28	0.009	0.011
H	1.02	1.27	0.040	0.050
K	6.35	—	0.250	—
Q	1.91 NOM	—	0.075 NOM	—

CASE 173-01

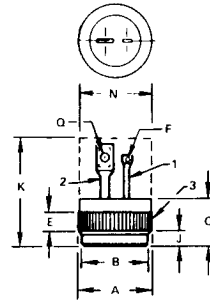


PIN 1. EMITTER
2. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.98	2.34	0.078	0.092
C	1.22	1.47	0.048	0.058
D	0.25	0.41	0.010	0.016
F	0.10	0.15	0.004	0.006
H	0.51	0.76	0.020	0.030
K	4.06	—	0.160	—
M	3 ⁰	7 ⁰	3 ⁰	7 ⁰

NOTE:
1. INDEX BUTTON ON PACKAGE
80TT 0M IS 0.25/0.51 mm (0.010/0.020)
DIA & 0.05/0.13 mm (0.002/0.005) OFF SURFACE.

CASE 174-02 TO-203AA



STYLE 1:
TERM. 1. GATE
2. CATHODE
3. ANODE

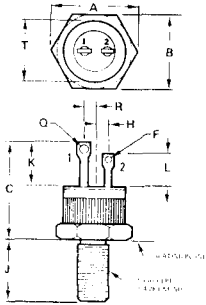
STYLE 2:
TERM. 1. GATE
2. ANODE
3. CATHODE

STYLE 3:
TERM. 1. GATE
2. MAIN TERMINAL 1
3. MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.726	12.827	0.501	0.505
B	11.811	12.065	0.465	0.475
C	8.39	9.65	0.330	0.380
E	2.54	—	0.100	—
F	0.89	1.72	0.035	0.068
J	2.04	2.46	0.080	0.097
K	—	20.32	—	0.800
N	—	12.95	—	0.510
Q	1.66	2.28	0.065	0.090

All JEDEC dimensions and notes apply

CASE 175-01

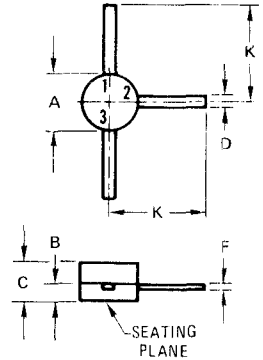


- STYLE 1:
TERM 1: CATHODE
2: GATE
STUD: ANODE
- STYLE 2:
TERM 1: ANODE
2: GATE
STUD: CATHODE
- STYLE 3:
TERM 1: MAIN TERMINAL 1
2: GATE
STUD: MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	15.34	15.60	0.604	0.614
B	14.00	14.20	0.551	0.559
C	20.70	24.13	0.815	0.950
F	1.40	1.65	0.055	0.065
H	2.29	REF	0.090	REF
J	10.67	11.56	0.420	0.455
K	9.78	10.54	0.385	0.415
L	6.99	7.75	0.275	0.305
Q	2.03	2.41	0.080	0.095
R	1.65	REF	0.065	REF
T	12.70	12.83	0.500	0.505

CASE 176-01

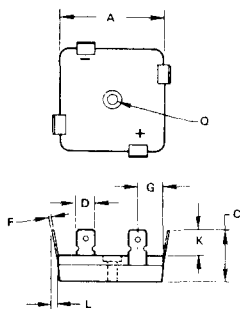
- STYLE 1:
PIN 1: BASE
2: EMITTER
3: COLLECTOR
- STYLE 2:
PIN 1: SOURCE
2: GATE
3: DRAIN
- STYLE 3:
PIN 1: DRAIN
2: SOURCE
3: GATE
- STYLE 4:
PIN 1: ANODE 2
2: ANODE 1
3: CATHODE
- STYLE 5:
PIN 1: CATHODE
2: NOT CONNECTED
3: ANODE
- STYLE 6:
PIN 1: CATHODE
2: ANODE
3: ANODE



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.03	2.67	0.080	0.105
B	0.51	0.76	0.020	0.030
C	1.27	2.03	0.050	0.080
D	0.25	0.41	0.010	0.016
F	0.08	0.15	0.003	0.006
K	4.06	4.57	0.160	0.180

NOTE:
A Tolerance of .25 mm (.010) must be allowed at point leads protrude from package for glass run over.

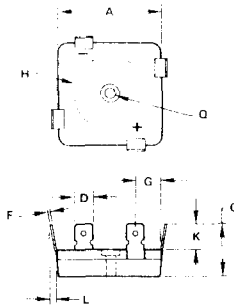
CASE 179-01



NOTE:
1. HOLE "Q" IS COUNTER SUNK FOR #6 SCREW, 7.37 mm (0.290) MAXIMUM DIA., 1.52/2.79 mm (0.060/0.110) DEEP

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	31.37	31.88	1.235	1.255
C	16.76	19.30	0.660	0.760
D	6.22	6.48	0.245	0.255
F	0.74	0.86	0.029	0.034
G	8.64	10.16	0.340	0.400
J	2.16	2.54	0.085	0.100
K	7.49	9.52	0.295	0.375
L	-	1.90	-	0.075
Q	3.56	3.94	0.140	0.155

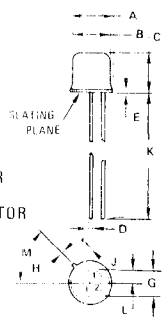
CASE 179-02



NOTE:
1. HOLE "Q" IS COUNTER SUNK FOR #6 SCREW, 7.37 mm (0.290) MAXIMUM DIA., 1.52/2.79 mm (0.060/0.110) DEEP.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	31.37	31.88	1.235	1.255
C	16.76	19.30	0.660	0.760
D	6.22	6.48	0.245	0.255
F	0.74	0.86	0.029	0.034
G	8.64	10.16	0.340	0.400
H	21.82	23.62	0.859	0.930
J	2.16	2.54	0.085	0.100
K	7.49	9.52	0.295	0.375
L	-	1.90	-	0.075
Q	3.56	3.94	0.140	0.155

CASE 180-01

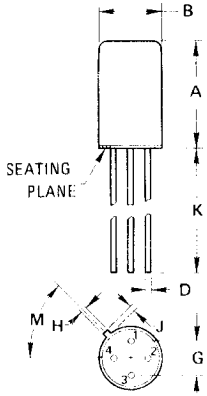


- STYLE 1:
PIN 1: EMITTER
2: BASE
3: COLLECTOR

NOTE:
1. LEADS WITHIN 0.13 mm (0.005) RAO OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.87	8.64	0.310	0.340
C	6.10	9.91	0.240	0.390
D	0.56	0.71	0.022	0.028
E	0.23	3.18	0.009	0.125
G	5.08	BSC	0.200	BSC
H	0.64	0.89	0.025	0.035
J	0.74	1.14	0.029	0.045
K	38.10	-	1.500	-
L	2.54	BSC	0.100	BSC
M	45°	BSC	45°	BSC

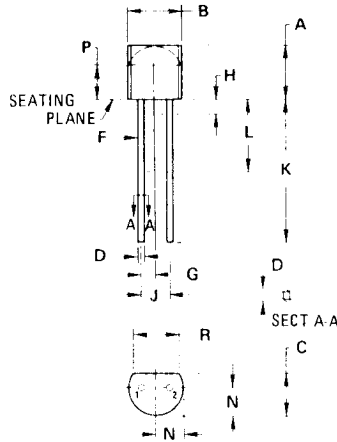
CASE 181-02



- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
 4. ZENER

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	17.02	—	0.670
B	9.14	9.78	0.360	0.385
D	0.41	0.48	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.71	0.86	0.028	0.034
J	0.51	—	0.020	—
K	38.10	—	1.500	—
M	42°	48°	42°	48°

CASE 182-02 TO-92

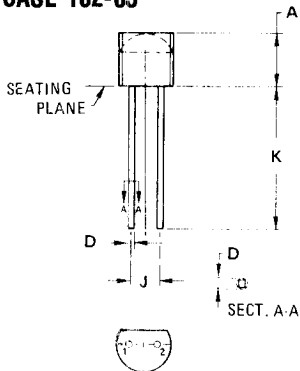


- STYLE 1:
 PIN 1. ANODE
 2. CATHODE
- STYLE 2:
 PIN 1. CATHODE
 2. ANODE
- STYLE 3:
 PIN 1. MAIN TERMINAL 1
 2. MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	5.33	0.170	0.210
B	4.45	5.21	0.175	0.205
C	3.18	4.19	0.125	0.165
D	0.356	0.533	0.014	0.021
F	0.407	0.482	0.016	0.019
G	1.27 BSC	—	0.050 BSC	—
H	—	1.27	—	0.050
J	—	2.54 BSC	—	0.100 BSC
K	12.70	—	0.500	—
L	6.35	—	0.250	—
N	2.03	2.66	0.080	0.105
P	2.93	—	0.115	—
R	3.43	—	0.135	—

All JEDEC dimensions and notes apply

CASE 182-03



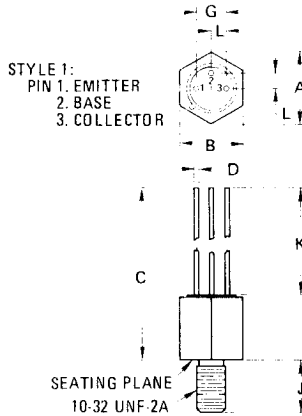
- STYLE 1:
 PIN 1. ANODE
 2. CATHODE

- STYLE 2:
 PIN 1. CATHODE
 2. ANODE

- STYLE 3:
 PIN 1. MAIN TERMINAL 1
 2. MAIN TERMINAL 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.45	4.70	0.175	0.185
D	0.41	0.48	0.016	0.019
J	2.29	2.79	0.090	0.110
K	12.70	—	0.500	—

CASE 183-01



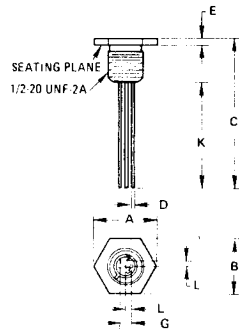
- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.45	12.95	0.490	0.510
B	10.85	11.35	0.427	0.447
C	49.35	—	1.943	—
D	0.56	0.71	0.022	0.028
G	4.83	5.33	0.190	0.210
J	8.76	9.27	0.345	0.365
K	38.10	—	1.500	—
L	2.41	2.67	0.095	0.105

NOTES:

- COLLECTOR CONNECTED TO CASE
- THE ORIENTATION OF THE LEADS IN RELATION TO THE HEX FLATS IS NOT CONTROLLED.

CASE 184-01



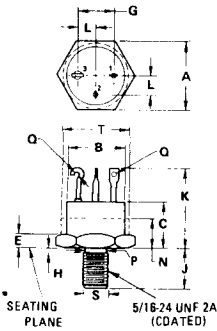
- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	22.23	—	0.875
B	18.80	19.30	0.740	0.760
C	52.53	—	2.068	—
D	0.56	0.71	0.022	0.028
E	2.11	2.62	0.083	0.103
G	4.57	5.59	0.180	0.220
K	38.10	—	1.500	—
L	2.29	2.79	0.090	0.110

NOTES:

- THE ORIENTATION OF THE LEAD IN RELATION TO THE HEX IS UNCONTROLLED.
- COLLECTOR CONNECTED TO CASE
- THREAD RELIEF IS 2.29 mm (0.090) MAX BY 10.92 mm (0.430) DIA NOMINAL.

CASE 188-01 TO-63



STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

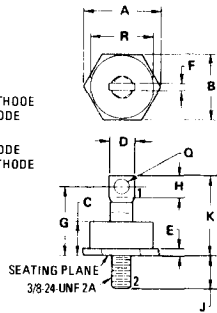
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	21.72	22.23	0.855	0.875
B	18.92	19.69	0.745	0.775
C	12.19	13.59	0.480	0.535
E	2.29	4.24	0.090	0.167
G	12.32	13.08	0.485	0.515
H	--	2.67	--	0.105
J	11.68	12.57	0.460	0.495
K	23.80	26.16	0.937	1.030
L	6.10	6.60	0.240	0.260
N	--	7.62	--	0.300
P	7.06	7.92	0.278	0.312
Q	1.52	2.67	0.060	0.105
S	7.127	7.249	0.2806	0.2854
T	19.69	22.23	0.775	0.875

All JEDEC notes and dimensions apply.

CASE 189-01

STYLE 1:
PIN 1. CATHODE
2. ANODE

STYLE 2:
PIN 1. ANODE
2. CATHODE



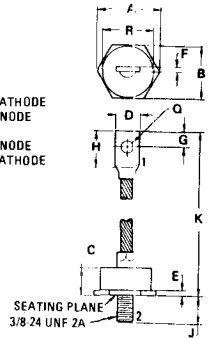
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	33.02	36.83	1.300	1.450
B	31.37	32.13	1.235	1.265
C	13.72	17.91	0.540	0.705
D	12.70	13.34	0.500	0.525
E	2.92	3.43	0.115	0.135
F	2.67	3.43	0.105	0.135
G	29.21	34.29	1.150	1.350
H	12.70	16.76	0.500	0.660
J	15.06	16.69	0.593	0.657
K	34.93	44.45	1.375	1.750
Q	6.10	6.60	0.240	0.260
R	--	30.48	--	1.200

NOTES:
1. TERM. 1 CRIMPED LUG.
2. ANGULAR ORIENTATION OF LUG UNDEFINED.
3. DIM "H" LUG FLAT ZONE.

CASE 190-01

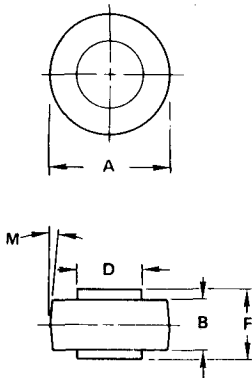
STYLE 1:
PIN 1. CATHODE
2. ANODE

STYLE 2:
PIN 1. ANODE
2. CATHODE



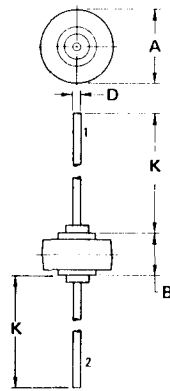
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	--	36.83	--	1.450
B	31.37	32.13	1.235	1.265
C	13.72	17.91	0.540	0.705
D	13.00	15.54	0.512	0.612
E	2.92	3.43	0.115	0.135
F	1.52	3.30	0.060	0.130
G	8.71	10.34	0.343	0.407
H	19.05	22.86	0.750	0.900
J	15.06	16.69	0.593	0.657
K	127.00	139.70	5.000	5.500
Q	6.76	7.52	0.266	0.296
R	--	30.48	--	1.200

CASE 193-03



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.03	10.29	0.395	0.405
B	4.19	4.45	0.165	0.175
D	5.54	5.64	0.218	0.222
F	5.94	6.25	0.234	0.246
M	5° NDM		5° NDM	

CASE 194-01

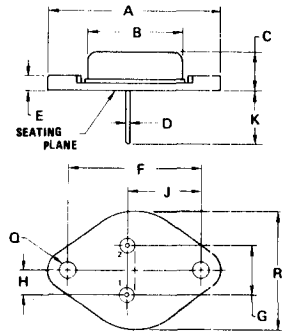


STYLE 1:
PIN 1. CATHODE
2. ANODE

NOTE:
1. CATHODE SYMBOL ON PKG.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.03	10.29	0.395	0.405
B	5.94	6.25	0.234	0.246
D	1.27	1.35	0.050	0.053
K	25.15	25.65	0.990	1.010

CASE 197-01

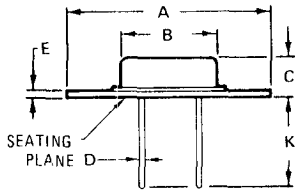
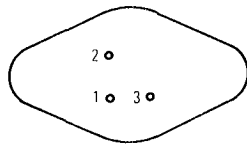


STYLE 1:
PIN 1. BASE
2. EMITTER
CASE. COLLECTOR

STYLE 2:
PIN 1. EMITTER
2. BASE
CASE. COLLECTOR

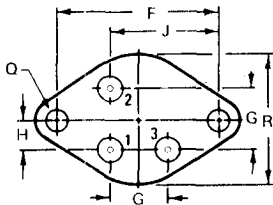
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	38.35	39.37	1.510	1.550
B	19.30	21.08	0.760	0.830
C	6.35	7.62	0.250	0.300
D	1.45	1.60	0.057	0.063
E	--	3.43	--	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.21	5.72	0.205	0.225
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	24.89	26.67	0.980	1.050

CASE 198-01



- STYLE 1:
 PIN 1. EMITTER
 2. BASE 1
 3. BASE 2
 CASE - COLLECTOR

- STYLE 2:
 PIN 1. BASE 1
 2. EMITTER
 3. BASE 2
 CASE - COLLECTOR



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	31.80	-	1.252
B	11.94	12.70	0.470	0.500
C	6.35	8.64	0.250	0.340
D	0.71	0.86	0.028	0.034
E	1.27	1.91	0.050	0.075
F	24.33	24.43	0.958	0.962
G	4.83	5.33	0.190	0.210
H	2.41	2.67	0.095	0.105
J	14.48	14.99	0.570	0.590
K	9.14	10.16	0.360	0.400
Q	3.61	3.86	0.142	0.152
R	-	18.16	-	0.715



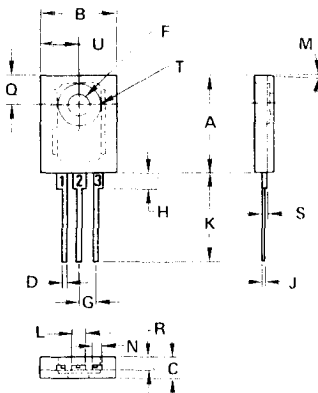
CASE 199-04

- STYLE 1:
 PIN 1. BASE
 2. COLLECTOR
 3. EMITTER

- STYLE 2:
 PIN 1. CATHODE
 2. ANODE
 3. GATE

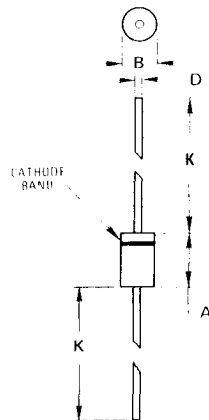
- STYLE 3:
 PIN 1. ANODE 1
 2. ANODE 2
 3. GATE

- NOTES:
 1. DIM "G" IS TO CENTER OF LEADS
 2. LEADS WITHIN 0.25 mm (0.010") TOTAL OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.
 3. LEADS MUST GO INTO 0.86 mm (0.034") DIA HOLE & NOT GO INTO 0.54 mm (0.025") DIA HOLE.



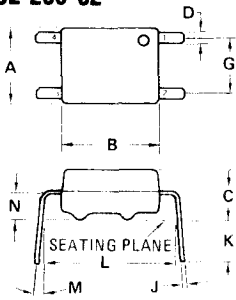
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.08	16.33	0.633	0.643
B	12.57	12.83	0.495	0.505
C	3.18	3.43	0.125	0.135
D	0.51	0.76	0.020	0.030
F	3.61	3.86	0.142	0.152
G	2.54 BSC		0.100 BSC	
H	2.67	2.92	0.105	0.115
J	0.43	0.69	0.017	0.027
K	14.73	14.99	0.580	0.590
L	2.16	2.41	0.085	0.095
M	30° TYP		30° TYP	
N	1.47	1.73	0.058	0.068
Q	4.78	5.03	0.188	0.198
R	1.91	2.16	0.075	0.085
S	0.81	0.86	0.032	0.034
T	6.99	7.24	0.275	0.285
U	6.22	6.48	0.245	0.255

CASE 205-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.54	3.81	0.100	0.150
B	2.34	2.64	0.092	0.104
D	0.48	0.53	0.019	0.021
K	27.51	-	1.083	-

CASE 206-02



STYLE 1: OBSOLETE

STYLE 2:

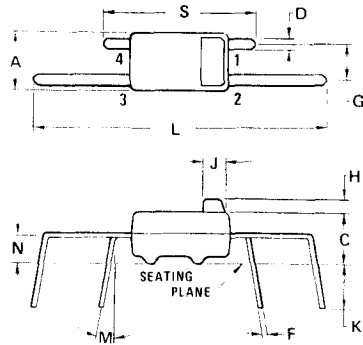
- PIN 1. CATHODE
- 2. ANODE 1
- 3. ANODE 2
- 4. ANODE 3

NOTES:

1. DIM "L" TO CENTER OF LEADS AT SEATING PLANE.

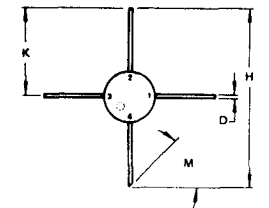
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.21	5.59	0.205	0.220
B	6.60	7.11	0.260	0.280
C	3.43	4.06	0.135	0.160
D	0.63	0.89	0.025	0.035
G	3.94	4.19	0.155	0.165
J	0.20	0.30	0.008	0.012
K	2.54	3.56	0.100	0.140
L	9.02	9.27	0.355	0.365
M	-	10°	-	10°
N	1.14	1.40	0.045	0.055

CASE 206A-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	3.81	0.130	0.150
C	3.43	3.94	0.135	0.155
D	0.64	0.89	0.025	0.035
F	0.20	0.30	0.008	0.012
G	1.88	2.18	0.074	0.086
H	0.64	0.89	0.025	0.035
J	1.50	1.75	0.059	0.069
K	2.92	3.18	0.115	0.125
L	15.75	16.76	0.620	0.660
M	-	10°	-	10°
N	1.78	2.03	0.070	0.080
S	8.64	9.65	0.340	0.380

CASE 207A-01

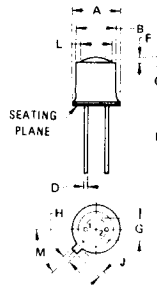


- STYLE 1:
- PIN 1. EMITTER
 - 2. BASE
 - 3. EMITTER
 - 4. COLLECTOR

NOTE:
1. BOTTOM SIDE METALLIZED PLATED

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.99	7.37	0.275	0.290
C	2.79	3.30	0.110	0.130
D	0.64	0.89	0.025	0.035
H	37.73	36.27	1.328	1.428
J	0.33	0.43	0.013	0.017
K	16.87	18.14	0.664	0.714
M	40°	50°	40°	50°
Q	0.69	0.84	0.027	0.033
S	1.40	1.65	0.055	0.065
T	1.40	1.65	0.055	0.065

CASE 209-01



STYLE 1:

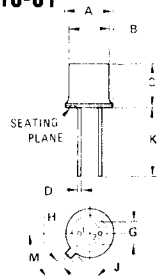
- PIN 1. ANODE
- PIN 2. CATHODE

NOTES:

1. PIN 2 INTERNALLY CONNECTED TO CASE
2. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	5.08	6.35	0.200	0.250
D	0.41	0.48	0.016	0.019
F	0.51	1.02	0.020	0.040
G	2.54 BSC	-	0.100 BSC	-
H	0.99	1.17	0.039	0.046
J	0.84	1.22	0.033	0.048
K	12.70	-	0.500	-
L	3.35	4.01	0.132	0.158
M	45°	BSC	45°	BSC

CASE 210-01



STYLE 1:

- PIN 1. ANODE
- 2. CATHODE

STYLE 2:

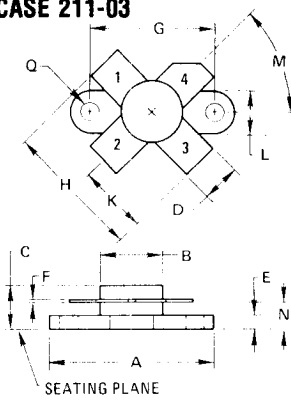
- PIN 1. EMITTER
- 2. COLLECTOR

NOTES:

1. PIN 2 INTERNALLY CONNECTED TO CASE
2. LEADS WITHIN 0.13 (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.57	5.33	0.180	0.210
D	0.41	0.48	0.016	0.019
G	2.54 BSC	-	0.100 BSC	-
H	0.99	1.17	0.039	0.046
J	0.84	1.22	0.033	0.048
K	12.70	-	0.500	-
M	45°	BSC	45°	BSC

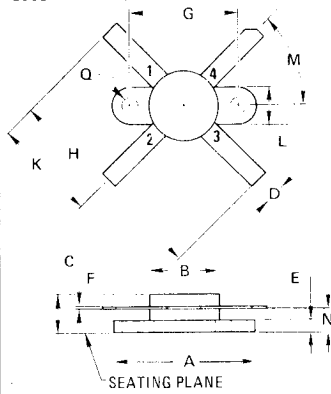
CASE 211-03



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.64	24.89	0.970	0.980
B	9.40	9.91	0.370	0.390
C	5.82	7.14	0.229	0.281
D	5.46	5.97	0.215	0.235
E	2.16	2.67	0.085	0.105
F	0.10	0.15	0.004	0.006
G	18.29	18.54	0.720	0.730
H	21.59	22.10	0.850	0.870
K	10.80	11.05	0.425	0.435
L	6.22	6.48	0.245	0.255
M	40 ⁰	50 ⁰	40 ⁰	50 ⁰
N	3.81	4.57	0.150	0.180
Q	2.87	3.30	0.113	0.130

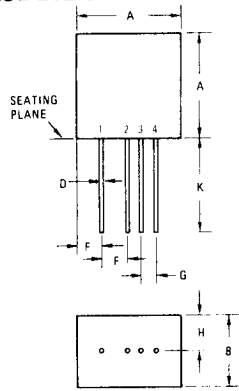
CASE 211-06



PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.64	24.89	0.970	0.980
B	11.81	12.95	0.465	0.510
C	5.82	6.98	0.229	0.275
D	2.16	3.94	0.085	0.155
E	2.13	2.54	0.084	0.100
F	0.10	0.15	0.004	0.006
G	18.29	18.54	0.720	0.730
H	35.56	38.10	1.400	1.500
K	17.78	19.05	0.700	0.750
L	6.22	6.48	0.245	0.255
M	40 ⁰	50 ⁰	40 ⁰	50 ⁰
N	3.66	4.52	0.144	0.178
Q	2.92	3.18	0.115	0.125

CASE 212-01



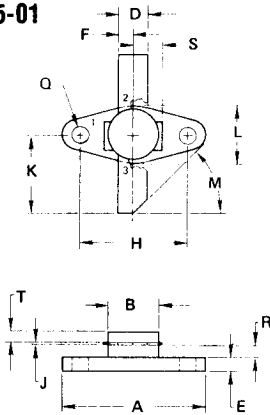
STYLE 1:
 PIN 1. ZENER
 2. EMITTER
 3. BASE
 4. COLLECTOR

NOTES:

- DIM "G" APPLIES BETWEEN LEADS 2 & 3
- DIM "F" & "G" TO BE MEASURED AT SEATING PLANE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.65	10.41	0.380	0.410
B	7.62	8.13	0.300	0.320
D	0.46	0.56	0.018	0.022
F	2.29	2.79	0.090	0.110
G	1.02	1.52	0.040	0.060
H	3.68	4.19	0.145	0.165
K	9.53	—	0.375	—

CASE 215-01



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

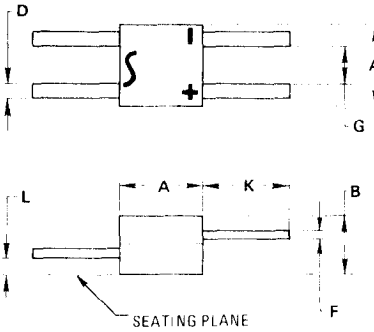
STYLE 2:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR

NOTE:
 1. DIM "Q" IS DIA.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	21.08	21.59	0.830	0.850
B	9.27	9.78	0.365	0.385
D	5.59	5.84	0.220	0.230
E	2.03	2.41	0.080	0.095
F	2.79	2.92	0.110	0.115
H	15.11	15.37	0.595	0.605
J	0.10	0.15	0.004	0.006
K	13.08	13.59	0.515	0.535
L	9.91	10.41	0.390	0.410
M	45 ⁰	NOM	45 ⁰	NOM
Q	2.92	3.18	0.115	0.125
R	1.52	2.03	0.060	0.080
S	—	5.38	—	0.212
T	2.03	2.54	0.080	0.100

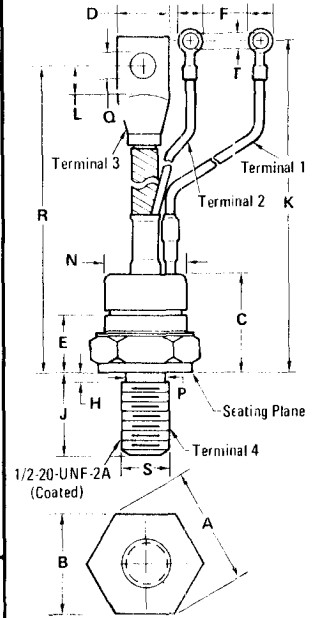


CASE 216-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.73	0.240	0.265
B	4.06	4.70	0.160	0.185
D	0.89	1.27	0.035	0.050
F	0.46	0.76	0.018	0.030
G	2.84 NOM		0.112 NOM	
K	6.60	7.11	0.260	0.280
L	1.27	1.78	0.050	0.070

CASE 219-01 TO-94

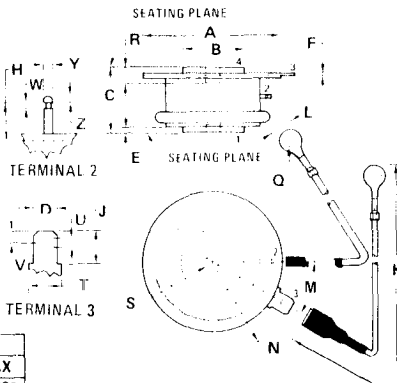


- STYLE 1:
 TERM 1. GATE
 2. CATHODE
 3. CATHODE
 4. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	31.16	—	1.227
B	26.19	27.00	1.031	1.063
C	—	63.50	—	2.500
D	11.10	16.50	0.437	0.650
E	4.40	12.70	0.173	0.500
F	5.46	7.62	0.215	0.300
H	—	3.17	—	0.125
J	20.25	21.00	0.797	0.827
K	174.0	190.5	6.850	7.500
L	6.35	—	0.250	—
N	—	26.18	—	1.031
P	10.80	12.67	0.425	0.499
Q	6.61	7.87	0.260	0.310
R	146.7	159.1	5.775	6.265
S	11.733	11.874	0.4619	0.4675
T	3.56	3.81	0.140	0.150

All JEDEC dimensions and notes apply

CASE 220-03



- STYLE 1:
 1. ANODE
 2. GATE
 3. CATHODE
 4. CATHODE

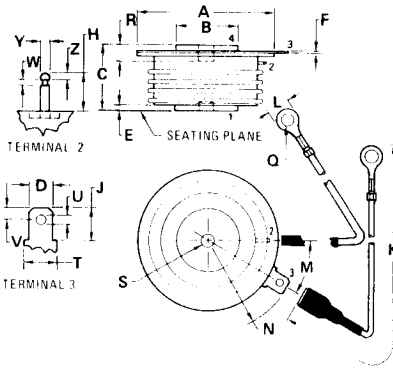
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	36.07	43.18	1.420	1.700
B	18.54	29.59	0.730	1.165
C	12.45	15.24	0.490	0.600
D	4.72	4.85	0.186	0.191
E	0.25	2.54	0.010	0.100
F	0.35	0.48	0.014	0.019
H	2.54	—	0.100	—
J	6.22	19.30	0.245	0.760
K	202.69	206.12	7.980	8.115
L	—	7.62	—	0.300
M	20°	50°	20°	50°
N	15.49	28.58	0.610	1.125
Q	3.48	3.89	0.137	0.153
R	1.27	3.18	0.050	0.125
S	3.12	3.68	0.123	0.145
T	4.72	7.92	0.186	0.312
U	1.27	1.78	0.050	0.070
V	2.92	3.56	0.115	0.140
W	0.25	0.51	0.010	0.020
Y	1.45	1.50	0.057	0.059
Z	0.64	1.65	0.025	0.065

NOTES:

1. SURFACES 1 & 4 FLAT WITHIN 0.0015 PER INCH
2. PACKAGE CONTOUR OPTIONAL BETWEEN TERM 1 & 2 AND BETWEEN TERM 2 & 3 WITHIN A. TERMINALS 2 AND 3 MUST BE LOCATED TO MAKE THE OUTLINE NON-SYMMETRICAL.
3. H MINIMUM IS FOR CONNECTOR CLEARANCE. MAY BE MEASURED TO BOTTOM OF A COUNTER BORE IN INSULATOR.
4. TERMINAL 2 IS ROUND TYPE, AND TERMINAL 3 IS TAB TYPE.
5. DIM "K" APPLIES TO BOTH LEADS.
6. DIMENSIONS TO DIA OF SURFACE 1 ALSO APPLY TO SURFACE 4.

CASE 220-04

- STYLE 1:
 1. ANODE
 2. GATE
 3. CATHODE
 4. CATHODE

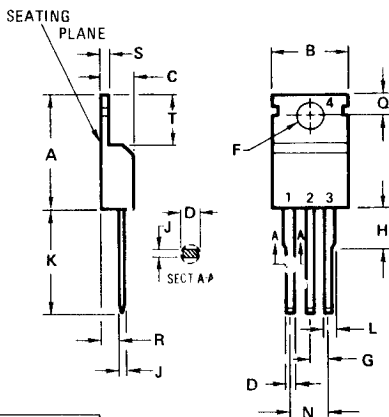


NOTES:

- SURFACES 1 & 4 FLAT WITHIN 0.0015 PER INCH
- PACKAGE CDNTOUR OPTIIONAL BETWEEN TERM 1 & 2 AND BETWEEN TERM 2 & 3 WITHIN A. TERMINALS 2 AND 3 MUST BE LOCATED TO MAKE THE OUTLINE NON-SYMMETRICAL.
- H MINIMUM IS FOR CDNNECTOR CLEARANCE. MAY BE MEASURED TO BDTTOM OF A CDUNTER-BDRE IN INSULATOR
- TERMINAL 2 IS ROUND TYPE, AND TERMINAL 3 IS TAB TYPE.
- DIM "K" APPLIES TO BOTH LEADS.
- DIMENSIONS TO DIA OF SURFACE 1 ALSO APPLY TO SURFACE 4.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	55.88	63.50	2.200	2.500
B	26.19	38.10	1.031	1.500
C	25.40	27.05	1.000	1.065
D	4.72	4.85	0.186	0.191
E	0.76	2.79	0.030	0.110
F	0.35	0.48	0.014	0.019
H	2.54	-	0.100	-
J	6.22	19.30	0.245	0.760
K	202.69	206.12	7.980	8.115
L	-	7.62	-	0.300
M	15 ⁰	50 ⁰	15 ⁰	50 ⁰
N	-	36.45	-	1.435
Q	3.48	3.89	0.137	0.153
R	1.27	4.06	0.050	0.160
S	3.12	3.68	0.123	0.145
T	4.72	7.92	0.186	0.312
U	1.27	1.78	0.050	0.070
V	2.92	3.56	0.115	0.140
W	0.25	0.51	0.010	0.020
Y	1.45	1.50	0.057	0.059
Z	0.64	1.65	0.025	0.065

CASE 221-02 TO-220AB



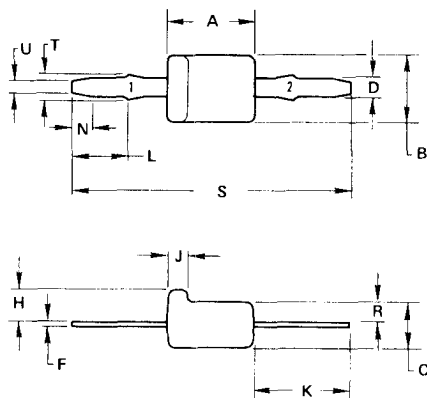
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.23	15.87	0.560	0.625
B	9.66	10.66	0.380	0.420
C	3.56	4.82	0.140	0.190
D	0.51	1.14	0.020	0.045
F	3.531	3.733	0.139	0.147
G	2.29	2.79	0.090	0.110
H	-	6.35	-	0.250
J	0.31	1.14	0.012	0.045
K	12.70	14.27	0.500	0.562
L	1.14	1.77	0.045	0.070
N	4.83	5.33	0.190	0.210
Q	2.54	3.04	0.100	0.120
R	2.04	2.92	0.080	0.115
S	0.51	1.39	0.020	0.055
T	5.85	6.85	0.230	0.270

- STYLE 1:
 PIN 1. CATHODE
 2. ANODE
 3. GATE
 4. ANODE
- STYLE 2:
 PIN 1. MAIN TERMINAL 1
 2. MAIN TERMINAL 2
 3. GATE
 4. MAIN TERMINAL 2
- STYLE 3:
 PIN 1. CATHODE
 2. ANODE
 3. GATE
 4. NEUTRAL
- STYLE 4:
 PIN 1. MAIN TERMINAL 1
 2. MAIN TERMINAL 2
 3. GATE
 4. NEUTRAL



All JEDEC dimensions and notes apply

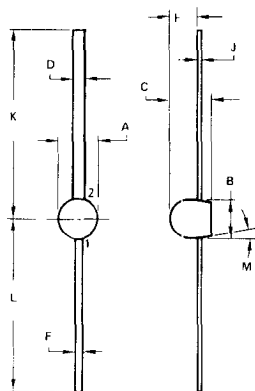
CASE 226-01



PIN 1 CATHODE
2 ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.86	4.11	0.152	0.162
B	2.92	3.18	0.115	0.125
C	1.91	2.16	0.075	0.085
D	0.64	0.89	0.025	0.035
F	0.08	0.18	0.003	0.007
H	1.30	1.55	0.051	0.061
J	0.64	0.89	0.025	0.035
K	4.06	4.32	0.160	0.170
L	2.36	2.62	0.093	0.103
N	1.12	1.37	0.044	0.054
R	0.79	1.04	0.031	0.041
S	11.99	12.75	0.472	0.502
T	1.14	1.40	0.045	0.055
U	0.43	0.69	0.017	0.027

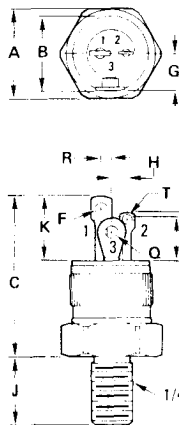
CASE 234-03



PIN 1 ANODE
2 CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.34	2.59	0.092	0.102
B	2.11	2.36	0.083	0.093
C	2.39	2.64	0.094	0.104
D	0.64	0.74	0.025	0.029
F	0.46	0.56	0.018	0.022
H	1.57	1.83	0.062	0.072
J	0.20	0.30	0.008	0.012
K	11.30	12.70	0.445	0.500
L	10.29	10.54	0.405	0.415
M	9 ⁰	11 ⁰	9 ⁰	11 ⁰

CASE 235-01

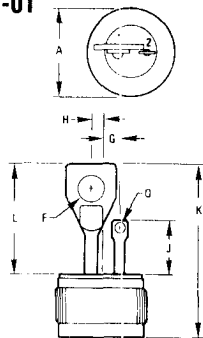


STYLE 1:
PIN 1 CATHODE
2 GATE
3 ANODE
STUD-ISOLATED
STYLE 2:
PIN 1 MAIN TERMINAL 1
2 GATE
3 MAIN TERMINAL 2
STUD-ISOLATED

NOTE:
1. DIM "H", "R" & "G" TO BE MEASURED AT CAN.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.00	14.20	0.551	0.559
B	12.73	12.83	0.501	0.505
C	26.16	-	1.030	-
F	2.03	2.41	0.080	0.095
G	-	6.48	-	0.255
H	2.16	2.41	0.085	0.095
J	10.67	11.56	0.420	0.455
K	9.78	10.54	0.385	0.415
L	6.99	7.75	0.275	0.305
N	6.48	6.99	0.255	0.275
O	3.43	3.81	0.135	0.150
R	1.52	1.78	0.060	0.070
T	1.40	1.65	0.055	0.065

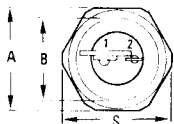
CASE 237-01



STYLE 1:
PIN 1 CATHODE
2 GATE
CASE ANODE
STYLE 2:
PIN 1 MAIN TERMINAL 1
2 GATE
CASE MAIN TERMINAL 2

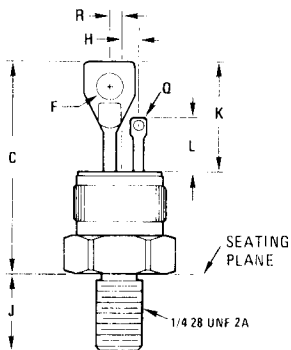
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.73	12.83	0.501	0.505
F	-	4.06	-	0.160
G	2.16	2.41	0.085	0.095
H	1.52	1.78	0.060	0.070
J	6.99	7.75	0.275	0.305
K	-	26.67	-	1.050
L	-	17.02	-	0.670
Q	1.40	1.65	0.055	0.065

NOTE:
1. DIM "G" & "H" TO BE MEASURED AT CAN.



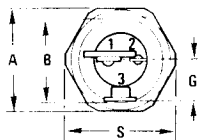
STYLE 1:
 PIN 1. CATHODE
 2. GATE
 STUD. ANODE

STYLE 2:
 PIN 1. MAIN TERMINAL 1
 2. GATE
 STUD. MAIN TERMINAL 2



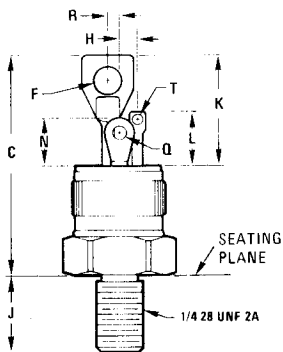
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.00	14.20	0.551	0.559
B	12.73	12.83	0.501	0.505
C	--	30.23	--	1.190
F	--	4.06	--	0.160
H	2.16	2.41	0.085	0.095
J	10.67	11.56	0.420	0.455
K	--	17.02	--	0.670
L	6.99	7.75	0.275	0.305
Q	1.40	1.65	0.055	0.065
R	1.52	1.78	0.060	0.070
S	15.34	15.60	0.604	0.614

NOTE:
 1. DIM "H" & "R" TO BE
 MEASURED AT CAN.



STYLE 1:
 PIN 1. CATHODE
 2. GATE
 3. ANODE
 STUD. ISOLATED

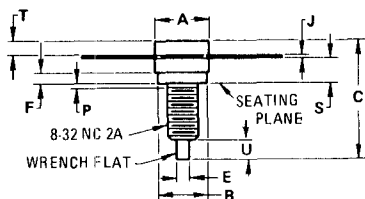
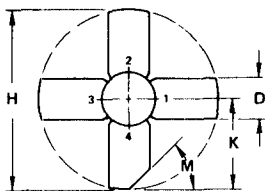
STYLE 2:
 PIN 1. MAIN TERMINAL 1
 2. GATE
 3. MAIN TERMINAL 2
 STUD. ISOLATED



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.00	14.20	0.551	0.559
B	12.73	12.83	0.501	0.505
C	--	32.51	--	1.280
F	--	4.06	--	0.160
G	--	6.48	--	0.255
H	2.16	2.41	0.085	0.095
J	10.67	11.56	0.420	0.455
K	--	17.02	--	0.670
L	6.99	7.75	0.275	0.305
N	6.48	6.99	0.255	0.275
Q	3.43	3.81	0.135	0.150
R	1.52	1.78	0.060	0.070
S	15.34	15.60	0.604	0.614
T	1.40	1.65	0.055	0.065

NOTE:
 1. DIM "G", "H" & "R" TO BE MEASURED AT CAN.

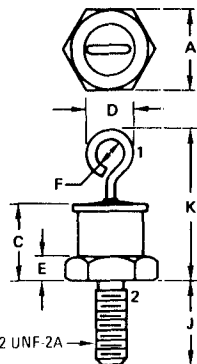
CASE 244-03



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.06	7.26	0.278	0.286
B	6.25	6.45	0.246	0.254
C	14.99	16.51	0.590	0.650
D	5.46	5.97	0.215	0.235
E	1.40	1.65	0.055	0.065
F	1.52	1.75	0.060	0.069
H	22.10	23.62	0.870	0.930
J	0.10	0.15	0.004	0.006
K	11.05	11.81	0.435	0.465
M	45° NOM		45° NDM	
P	—	1.27	—	0.050
S	3.00	3.25	0.118	0.128
T	1.40	1.65	0.055	0.065
U	2.92	3.68	0.115	0.145

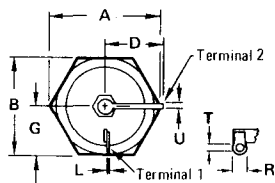
CASE 245-01



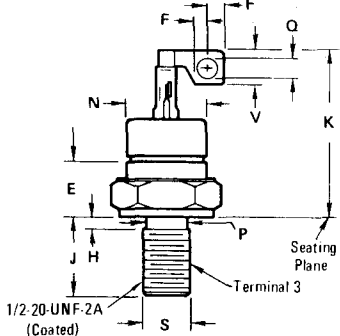
STYLE 1:
 1. CATHODE
 2. ANODE
 STYLE 2:
 1. ANODE
 2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.77	11.10	0.424	0.437
C	—	10.29	—	0.405
D	—	6.35	—	0.250
E	1.91	4.45	0.075	0.175
F	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	20.32	—	0.800

CASE 246-01 TO-83



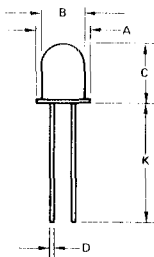
STYLE 1:
 TERMINAL 1. GATE
 2. CATHODE
 3. ANODE



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	31.16	—	1.227
B	26.19	27.00	1.031	1.063
D	—	16.51	—	0.650
E	4.4	12.70	0.170	0.500
F	4.58	—	0.180	—
G	—	14.60	—	0.575
H	—	3.17	—	0.125
J	20.25	21.00	0.797	0.827
K	—	45.97	—	1.810
L	0.31	1.27	0.012	0.050
N	—	26.18	—	1.031
P	10.80	12.67	0.425	0.499
Q	4.58	6.60	0.180	0.260
R	2.93	4.06	0.115	0.160
S	11.733	11.874	0.4619	0.4675
T	1.53	2.03	0.060	0.080
U	1.53	2.92	0.060	0.115
V	9.2	11.9	0.360	0.470

All JEDEC dimensions and notes apply

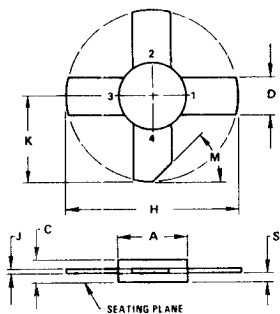
CASE 247-01



STYLE 1
 PIN 1. ANODE
 PIN 2. CATHODE
 NOTE:
 1. LEADS WITHIN θ 13 mm (0.075)
 OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.70	5.33	0.185	0.210
C	5.08	5.72	0.200	0.225
D	0.41	0.48	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	—	0.500	—
M	45° BSC		45° BSC	

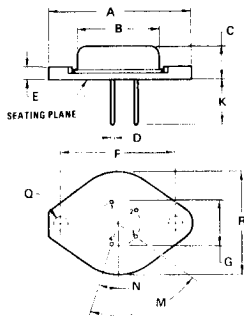
CASE 249-04



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. EMITTER
 4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.06	7.26	0.278	0.286
B	2.84	3.45	0.112	0.136
C	5.46	5.97	0.215	0.235
H	22.10	23.62	0.870	0.930
J	0.10	0.15	0.004	0.006
K	11.05	11.81	0.435	0.465
M	45° NOM		45° NOM	
S	1.40	1.65	0.055	0.085

CASE 253-01

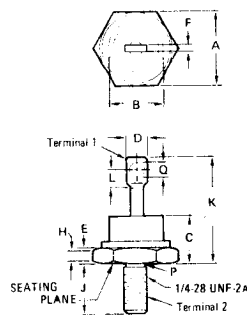


STYLE 1:
 PIN 1. EMITTER 2
 2. BASE 2
 3. BASE 1
 4. EMITTER 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	38.61	—	1.520
B	—	21.08	—	0.830
C	6.35	8.13	0.250	0.320
D	0.97	1.09	0.038	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	11.94 BSC		0.470 BSC	
K	7.11	8.13	0.280	0.320
M	72° BSC		72° BSC	
N	18° BSC		18° BSC	
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050

NOTE:
 1. LEADS WITHIN 0.13 mm (0.005) DIA OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

CASE 257-01 DO-5



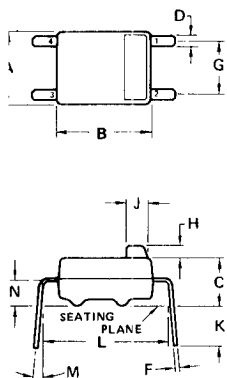
STYLE 1:
 TERM 1. CATHODE
 2. ANODE

STYLE 2:
 TERM 1. ANODE
 2. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.94	17.45	0.667	0.687
B	—	16.94	—	0.667
C	—	11.43	—	0.450
D	—	9.53	—	0.375
E	2.92	5.08	0.115	0.200
F	—	2.03	—	0.080
H	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	25.40	—	1.000
L	3.86	—	0.152	—
P	5.59	6.32	0.220	0.249
Q	3.56	4.45	0.140	0.175

NOTES:
 1. Dimension "P" is diameter.
 2. All JEDEC dimensions and notes apply.

CASE 259-01



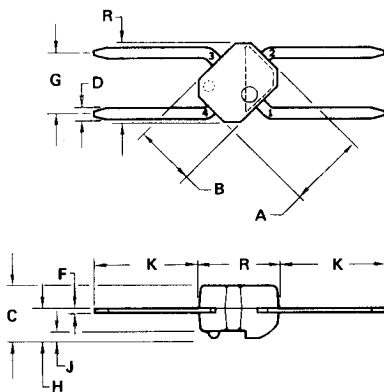
STYLE 1:
 PIN 1. SOURCE
 2. DRAIN
 3. GATE 2
 4. GATE 1

STYLE 2:
 PIN 1. POS
 2. A/C
 3. A/C
 4. NEG

STYLE 3:
 PIN 1. SOURCE
 2. GATE 1
 3. GATE 2
 4. DRAIN

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.21	5.59	0.205	0.220
B	6.60	7.11	0.260	0.280
C	3.43	4.06	0.135	0.160
D	0.63	0.89	0.025	0.035
F	1.50	1.75	0.059	0.069
G	3.94	4.19	0.155	0.165
H	0.64	0.89	0.025	0.035
J	0.20	0.30	0.008	0.012
K	2.54	3.56	0.100	0.140
L	9.02	9.27	0.355	0.365
M	—	10°	—	10°
N	1.14	1.40	0.045	0.055

CASE 262-02



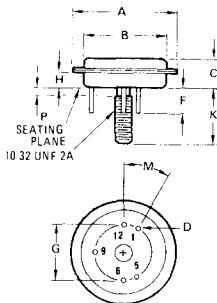
STYLE 1:
 PIN 1. SOURCE
 2. DRAIN
 3. GATE 2
 4. GATE 1

STYLE 2:
 PIN 1. COLLECTOR
 2. BASE
 3. EMITTER
 4. BASE

NOTES:
 1. LEADS WITHIN 0.13 mm (0.005) RAD OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.95	5.21	0.195	0.205
B	3.94	4.19	0.155	0.165
C	2.67	2.92	0.105	0.115
D	0.64	0.89	0.025	0.035
F	0.20	0.30	0.008	0.012
G	4.06 BSC		0.160 BSC	
H	1.57	1.83	0.062	0.072
J	0.51	0.76	0.020	0.030
K	6.35	7.62	0.250	0.300
R	5.21	5.46	0.205	0.215

CASE 264-01

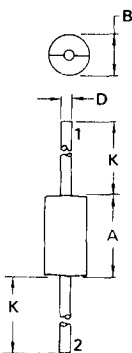


STYLE 1
 PIN 1 GROUND
 5 GROUND
 6 RF OUT
 9 B+
 12 RF IN
 STUD GROUND

NOTES:
 1. DIM "M" ALSO APPLIES BETWEEN LEADS 5 & 6.
 2. PINS 1, 5, 6, 9, & 12 TO BE WITHIN 0.51 (0.020)
 DIA OF TRUE POSITION WITH RESPECT TO STUD
 (MAJOR DIA)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	29.21	31.75	1.150	1.250
B	24.64	25.65	0.970	1.010
C	8.26	8.76	0.325	0.345
D	0.71	0.81	0.028	0.032
F	4.06	5.08	0.160	0.200
G	19.05 BSC		0.750 BSC	
H	4.32	4.83	0.170	0.190
K	10.92	11.94	0.430	0.470
M	30 ⁰ BSC		30 ⁰ BSC	
P	-	2.79	-	0.110

CASE 267-01

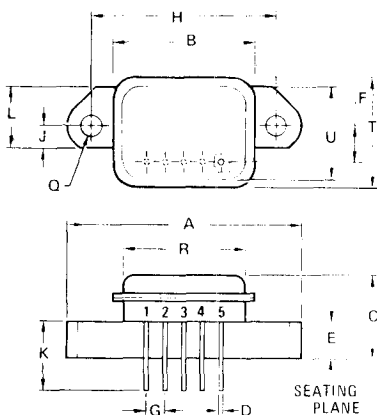


STYLE 1:
 PIN 1 CATHODE
 2 ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	9.65	0.370	0.380
B	4.83	5.33	0.190	0.210
D	1.22	1.32	0.048	0.052
K	26.97	27.23	1.062	1.072



CASE 270-02

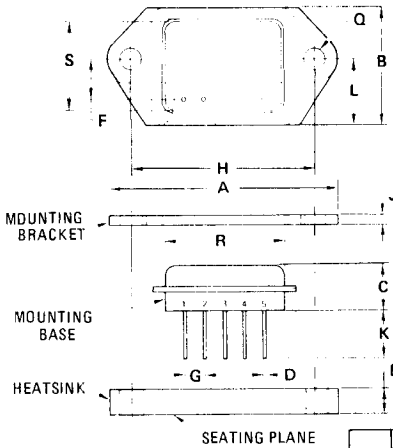


STYLE 1:
 PIN 1 RF IN
 2 DC & RF GROUND
 3 B+ INPUT
 4 DC & RF GROUND
 5 RF OUT

NOTE:
 1. LEADS WITHIN 0.13 mm (0.005)
 RADIUS OF TRUE POSITION AT
 SEATING PLANE AT MAXIMUM
 MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	46.99	48.01	1.850	1.890
B	29.46	30.48	1.160	1.200
C	14.35	15.11	0.565	0.595
D	0.69	0.84	0.027	0.033
E	4.95	5.46	0.195	0.215
F	7.62	8.26	0.300	0.325
G	4.06 BSC		0.160 BSC	
H	37.37	38.23	1.495	1.505
J	4.57	4.83	0.180	0.190
K	9.14	10.67	0.360	0.420
L	12.32	13.08	0.485	0.515
Q	3.99	4.24	0.157	0.167
R	24.94	25.20	0.982	0.992
T	23.11	24.13	0.910	0.950
U	18.47	18.72	0.727	0.737

CASE 270A-01



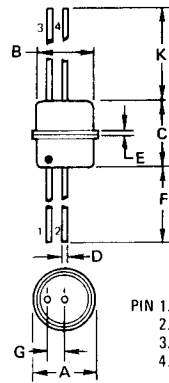
STYLE 1:
 PIN 1. RF IN
 2. DC & RF GROUND
 3. B+ INPUT
 4. DC & RF GROUND
 5. RF OUT

NOTES:

- LEADS WITHIN 0.25 mm (0.010) RAD OF TRUE POSITION AT GAUGING PLANE AT MAXIMUM MATERIAL CONDITION
- OVERALL ASSEMBLED DIMENSION OF 3 SEPARATE PARTS (HEATSINK, MOUNTING BASE AND MOUNTING BRACKET) FROM SEATING PLANE TO TOP OF PACKAGE 14.22/15.11 mm (0.560/0.595) REF.
- RECOMMENDED TORQUE $6.78 \times 10^{-1} \text{ N}\cdot\text{m}$ (6 LBS-IN) FOR A #6 SCREW.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	47.12	48.13	1.855	1.895
B	23.75	24.51	0.935	0.965
C	9.40	9.65	0.370	0.380
D	0.69	0.84	0.027	0.033
E	4.83	5.33	0.190	0.210
F	8.00 REF		0.315 REF	
G	4.06 BSC		0.160 BSC	
H	38.10 BSC		1.500 BSC	
J	1.85	2.49	0.073	0.098
K	9.14	10.67	0.360	0.420
L	12.95	13.97	0.510	0.550
Q	3.99	4.75	0.157	0.187
R	24.94	25.20	0.982	0.992
S	18.41	18.67	0.725	0.735

CASE 271-02



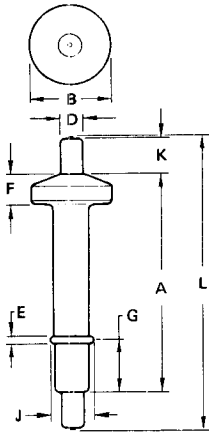
PIN 1. ANODE
 2. CATHODE
 3. COLLECTOR
 4. EMITTER

NOTES:

- LEADS WITHIN 0.13 (0.005") RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- POLARITY DOT ON PACKAGE DENOTES PIN 1.

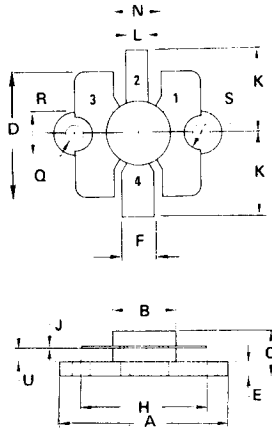
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.70	4.95	0.185	0.195
B	4.06	4.32	0.160	0.170
C	4.95	5.21	0.195	0.205
D	0.38	0.51	0.015	0.020
E	0.36	0.46	0.014	0.018
F	26.67	30.48	1.050	1.200
G	1.27 BSC		0.050 BSC	
K	20.32	24.13	0.800	0.950

CASE 277-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	71.37	72.39	2.810	2.850
B	29.46	30.48	1.160	1.200
D	9.02	9.27	0.355	0.365
E	3.02	3.28	0.119	0.129
F	9.65	10.67	0.380	0.420
G	18.54	19.56	0.730	0.770
J	14.86	15.62	0.585	0.615
K	11.94	13.97	0.470	0.550
L	-	101.60	-	4.000

CASE 278-02



STYLE 1:

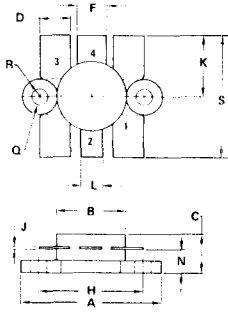
PIN 1. EMITTER
 2. COLLECTOR
 3. EMITTER
 4. BASE
 FLANGE ISOLATED

NOTE:

- DIM "Q" IS DIA
 DIM "S" IS RAD

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.51	25.15	0.965	0.990
B	9.47	9.73	0.373	0.383
C	5.97	7.62	0.235	0.300
D	18.29	19.30	0.720	0.760
E	2.16	2.67	0.085	0.105
F	4.32	4.57	0.170	0.180
H	18.29	18.54	0.720	0.730
J	0.10	0.15	0.004	0.006
K	12.19	12.70	0.480	0.500
L	3.05	3.30	0.120	0.130
N	6.86	7.11	0.270	0.280
Q	2.79	3.18	0.110	0.125
R	6.10	6.60	0.240	0.260
S	2.67	3.05	0.105	0.120
U	1.65	1.91	0.065	0.075

CASE 278-03

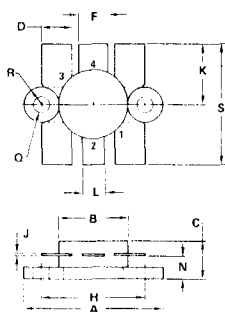


STYLE 1:
 PIN 1. EMITTER
 2. COLLECTOR
 3. EMITTER
 4. BASE
 FLANGE ISOLATED

NOTE:
 1. DIM "K" FROM CENTER OF "Q".

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.38	25.15	0.960	0.990
B	12.45	12.95	0.490	0.510
C	5.97	7.62	0.235	0.300
D	5.46 TYP		0.215 TYP	
F	5.08	5.33	0.200	0.210
H	18.29	18.54	0.720	0.730
J	0.10	0.15	0.004	0.006
K	10.67	10.92	0.420	0.430
L	3.81	4.06	0.150	0.160
N	3.81	4.32	0.150	0.170
Q	2.92	3.18	0.115	0.125
R	3.05	3.30	0.120	0.130
S	21.34	21.84	0.840	0.860

CASE 278-04

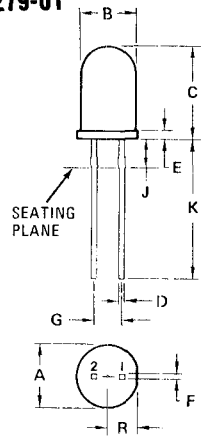


STYLE 1:
 PIN 1. EMITTER
 2. COLLECTOR
 3. EMITTER
 4. BASE
 FLANGE ISOLATED

NOTE:
 1. DIM "K" FROM CENTER OF "Q".

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.38	25.15	0.960	0.990
B	12.45	12.95	0.490	0.510
C	5.97	7.62	0.235	0.300
D	5.33	5.59	0.210	0.220
F	5.59	5.84	0.220	0.230
H	18.24	18.59	0.718	0.732
J	0.10	0.15	0.004	0.006
K	10.67	10.92	0.420	0.430
L	4.45	4.70	0.175	0.185
N	4.06	4.45	0.160	0.175
Q	2.92	3.18	0.115	0.125
R	3.05	3.30	0.120	0.130
S	21.34	21.84	0.840	0.860

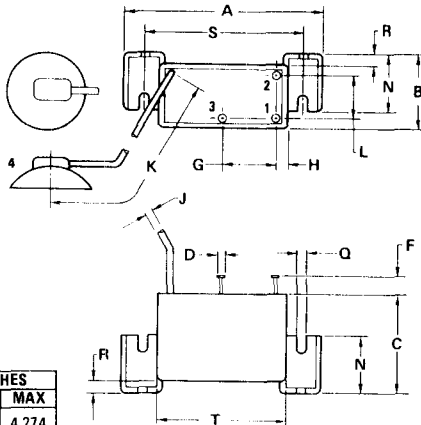
CASE 279-01



STYLE 1:
 PIN 1. CATHODE
 2. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.72	5.97	0.225	0.235
B	4.95	5.21	0.195	0.205
C	8.38	8.89	0.330	0.350
D	0.41	0.51	0.016	0.020
E	0.64	0.89	0.025	0.035
F	0.30	0.46	0.012	0.018
G	2.44	2.64	0.096	0.104
J	2.44	2.54	0.096	0.100
K	12.57	13.21	0.495	0.520
R	2.54	2.79	0.100	0.110

CASE 280-03

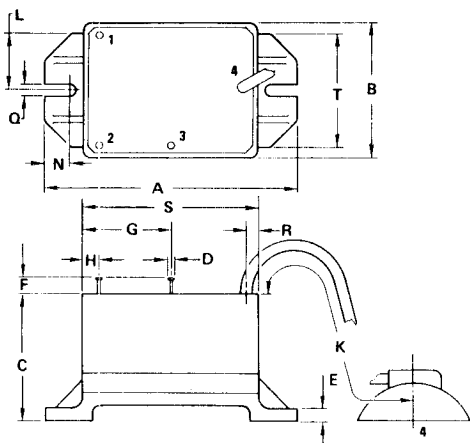


STYLE 1:
 TERM. 1. INPUT
 2. GROUND
 3. FOCUS
 4. OUTPUT

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	107.29	108.56	4.224	4.274
B	41.02	41.53	1.615	1.635
C	53.72	54.23	2.115	2.135
D	3.68	3.94	0.145	0.155
F	9.40	9.65	0.370	0.380
G	31.12	31.27	1.225	1.235
H	3.68	3.94	0.145	0.155
J	3.81	5.08	0.150	0.200
K	508.00	558.80	20.000	22.000
L	27.31	27.56	1.075	1.085
N	31.50	32.00	1.240	1.260
Q	4.70	4.95	0.185	0.195
R	6.10	6.60	0.240	0.260
S	85.60	85.85	3.370	3.380
T	69.85	70.10	2.750	2.760



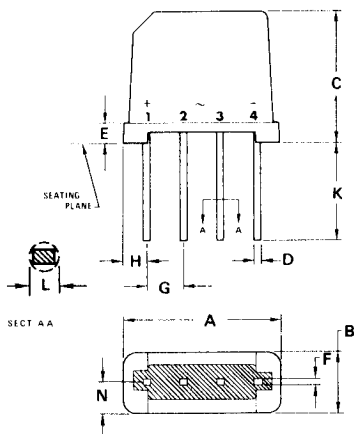
CASE 281-03



STYLE 1:
 TERM. 1. INPUT
 2. GROUND
 3. FOCUS
 4. OUTPUT

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	98.68	100.20	3.885	3.945
B	53.09	53.59	2.090	2.110
C	49.28	49.78	1.940	1.960
D	3.56	3.94	0.140	0.155
E	4.50	5.00	0.177	0.197
F	5.08	9.62	0.200	0.380
G	34.04	34.54	1.340	1.360
H	6.10	6.60	0.240	0.260
J	3.81	5.08	0.150	0.200
K	508.00	558.80	20.000	22.000
L	21.84	22.35	0.860	0.880
N	7.37	7.87	0.290	0.310
Q	4.70	4.95	0.185	0.195
R	4.83	5.33	0.190	0.210
S	68.71	69.22	2.705	2.725
T	43.94	44.45	1.730	1.750

CASE 282-02

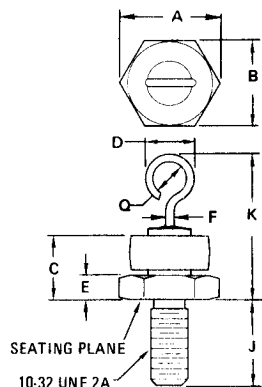


STYLE 1:
 PIN 1. POSITIVE OUTPUT
 2. A/C INPUT
 3. A/C INPUT
 4. NEGATIVE OUTPUT

NOTES:
 1. LEADS WITHIN 0.25 mm (0.010) OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
 2. "H" TO BE MEASURED 1.27 mm (0.050) BELOW SEATING PLANE.

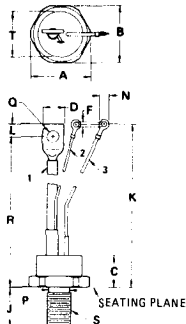
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.00	17.53	0.630	0.690
B	5.59	7.11	0.220	0.280
C	13.59	13.97	0.535	0.550
D	0.69	0.94	0.027	0.037
E	1.91	2.16	0.075	0.085
F	0.56	0.71	0.022	0.028
G	3.81 BSC		0.150 8SC	
H	2.29	3.05	0.090	0.120
K	7.62	12.70	0.300	0.500
L	0.89	1.14	0.035	0.045
N	2.79	3.56	0.110	0.140

CASE 283-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.12	12.70	0.477	0.500
B	10.77	11.10	0.424	0.437
C	-	10.29	-	0.405
D	-	6.35	-	0.250
E	1.91	4.45	0.075	0.175
F	1.19	1.35	0.047	0.053
J	10.72	11.51	0.422	0.453
K	-	20.32	-	0.800
Q	1.52	-	0.060	-

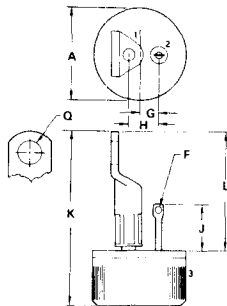
CASE 285-01



STYLE 1:
 TERM. 1. CATHODE
 2. CATHODE
 3. GATE
 STUD. ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	29.72	30.23	1.170	1.190
B	26.42	27.05	1.040	1.065
C	17.14	20.95	0.675	0.825
D	12.70	15.24	0.500	0.600
F	3.56	3.81	0.140	0.150
J	21.84	22.35	0.860	0.880
K	173.99	190.50	6.850	7.500
L	7.11	8.13	0.280	0.320
N	5.46	7.62	0.215	0.300
P	10.79	12.67	0.425	0.499
Q	6.60	7.87	0.260	0.310
R	146.68	159.13	5.775	6.265
S	1/2 - 20 UNF - 2A			
T	26.27	25.78	0.995	1.015

CASE 287-01

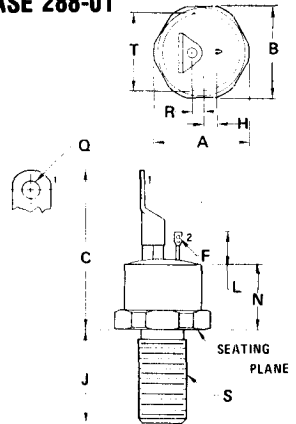


STYLE 1:
 TERM. 1. CATHODE
 2. GATE
 3. CASE, ANODE

STYLE 2:
 TERM. 1. MAIN TERM. 1
 2. GATE
 3. CASE, MAIN TERM. 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.30	0.750	0.760
F	1.27	1.65	0.050	0.065
G	3.68	3.94	0.145	0.155
H	5.97	6.22	0.235	0.245
J	9.27	9.53	0.365	0.375
K	36.20	37.47	1.425	1.475
L	25.40	26.67	1.000	1.050
Q	4.83	5.21	0.190	0.205

CASE 288-01

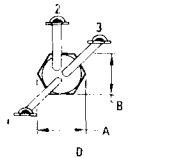


STYLE 1:
 TERM. 1. CATHODE
 2. GATE
 STUD. ANODE

STYLE 2:
 TERM. 1. MAIN TERM. 1
 2. GATE
 STUD. MAIN TERM. 2

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	29.72	30.23	1.170	1.190
B	26.42	27.05	1.040	1.065
C	40.64	43.18	1.600	1.700
F	1.27	1.65	0.050	0.065
H	3.68	3.94	0.145	0.155
J	21.59	22.48	0.850	0.885
L	5.08	9.52	0.200	0.375
N	17.14	20.95	0.675	0.825
Q	4.83	5.21	0.190	0.205
R	2.16	2.41	0.085	0.095
S	1/2 - 20 UNF - 2A			
T	25.27	25.78	0.995	1.015

CASE 289-01



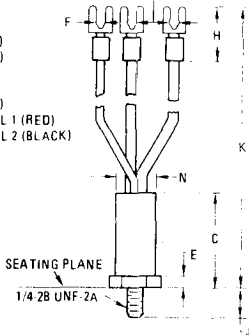
STYLE 1:
 TERM. 1. GATE (WHITE)
 2. CATHODE (RED)
 3. ANODE (BLACK)

STUD-ISOLATED

STYLE 2:

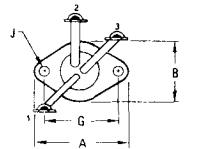
LEAD 1. GATE (YELLOW)
 2. MAIN TERMINAL 1 (RED)
 3. MAIN TERMINAL 2 (BLACK)

STUD-ISOLATED



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.43	19.56	0.765	0.770
B	17.20	17.35	0.677	0.683
C	35.31	36.07	1.390	1.420
D	4.62	5.03	0.182	0.198
E	4.95	5.21	0.195	0.205
F	3.96	4.37	0.156	0.172
H	21.34	23.01	0.840	0.906
J	10.85	11.35	0.427	0.447
K	203.20	228.60	8.000	9.000
N	15.75	16.00	0.620	0.630

CASE 290-01



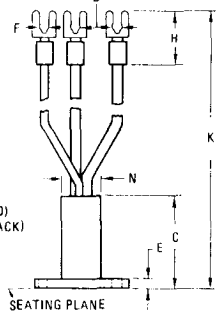
STYLE 1:
 LEAD 1. GATE (WHITE)
 2. CATHODE (RED)
 3. ANODE (BLACK)

BASE ISOLATED

STYLE 2:

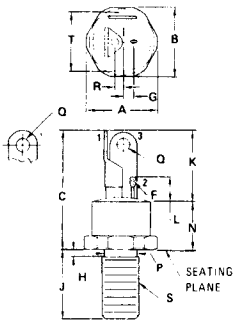
LEAD 1. GATE (YELLOW)
 2. MAIN TERMINAL 1 (RED)
 3. MAIN TERMINAL 2 (BLACK)

BASE ISOLATED



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	38.53	39.37	1.517	1.550
B	24.64	24.89	0.970	0.980
C	33.65	34.29	1.325	1.350
D	4.62	5.03	0.182	0.198
E	3.05	3.30	0.120	0.130
F	3.36	4.37	0.156	0.172
G	30.15 BSC		1.187 BSC	
H	21.34	23.06	0.841	0.908
J	3.96	4.04	0.156	0.159
K	203.20	228.60	8.000	9.000
N	15.75	16.00	0.620	0.630

CASE 291-01

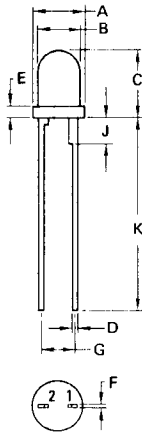


STYLE 1: PIN 1: CATHODE
 2: GATE
 3: ANODE
 STUD ISOLATED

STYLE 2: PIN 1: MAIN TERM. 1
 2: GATE
 3: MAIN TERM. 2
 STUD ISOLATED

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	29.72	30.23	1.170	1.190
B	26.42	27.05	1.040	1.065
C	45.72	48.26	1.800	1.900
F	1.27	1.65	0.050	0.065
G	3.68	3.94	0.145	0.155
H	2.29	2.79	0.090	0.110
J	21.59	22.48	0.850	0.885
K	22.86	27.94	0.900	1.100
L	5.08	9.53	0.200	0.375
N	22.10	23.11	0.870	0.910
P	11.43	11.94	0.450	0.470
Q	4.83	5.21	0.190	0.205
R	2.16	2.41	0.085	0.095
S	1/2 - 20 UNF - 2A			
T	25.27	25.78	0.995	1.015

CASE 292-01

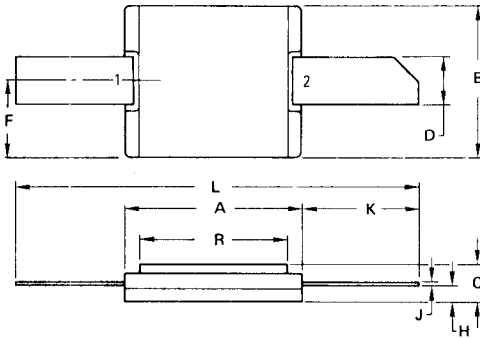


STYLE 1
 PIN 1: CATHODE
 2: ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.68	3.94	0.145	0.155
B	2.92	3.18	0.115	0.125
C	4.95	5.21	0.195	0.205
D	0.38	0.48	0.015	0.019
E	0.76	1.02	0.030	0.040
F	0.20	0.30	0.008	0.012
G	2.41	2.67	0.095	0.105
J	1.78	2.03	0.070	0.080
K	12.70	-	0.500	-



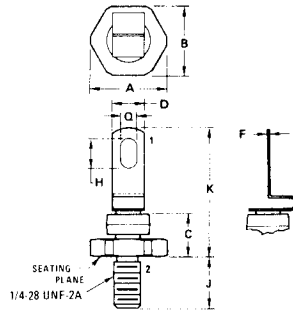
CASE 293-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	8.00	8.76	0.315	0.345
C	-	2.41	-	0.095
D	2.29	2.79	0.090	0.110
F	4.06	4.32	0.160	0.170
H	0.89	1.27	0.035	0.050
J	0.10	0.15	0.004	0.006
K	5.08	-	0.200	-
L	19.56	-	0.770	-
R	7.87	8.38	0.310	0.330

STYLE 1:
 PIN 1: BASE
 2: COLLECTOR

CASE 296-03



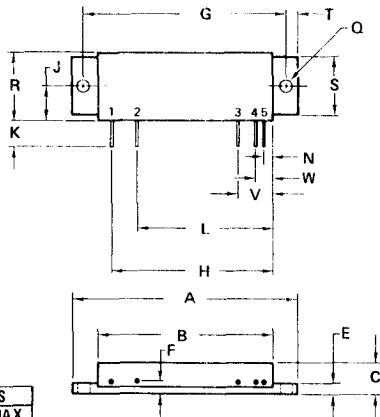
STYLE 1:
 TERMINAL 1: ANODE
 TERMINAL 2: CATHODE

STYLE 2:
 TERMINAL 1: CATHODE
 TERMINAL 2: ANODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.29	-	0.720	-
B	16.99	17.48	0.669	0.688
C	-	10.67	-	0.420
D	-	8.38	-	0.330
F	0.46	0.56	0.018	0.022
H	7.62	8.13	0.300	0.320
J	10.72	11.51	0.422	0.453
K	-	30.48	-	1.200
Q	4.44	4.70	0.175	0.185



CASE 297-01



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	67.06	67.56	2.640	2.660
B	52.32	52.83	2.060	2.080
C	8.51	8.89	0.335	0.350
E	2.54	2.79	0.100	0.110
F	2.67	2.92	0.105	0.115
G	61.09 BSC		2.405 BSC	
H	47.88	48.64	1.885	1.915
J	10.67	11.18	0.420	0.440
K	5.84	7.62	0.230	0.300
L	40.26	41.02	1.585	1.615
N	2.16	2.92	0.085	0.115
Q	3.45	3.71	0.136	0.146
R	20.32	20.57	0.800	0.810
S	17.02	17.53	0.670	0.690
T	2.98	3.24	0.1175	0.1275
V	9.78	10.54	0.385	0.415
W	4.70	5.46	0.185	0.215

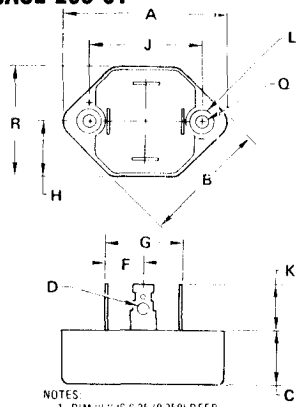
STYLE 1:

- PIN 1. RF OUTPUT
2. D.C. TERM.
3. D.C. GAIN
4. GROUND
5. RF INPUT

NOTE:

1. MOUNTING HOLES WITHIN ± 0.13 (0.005) DIA. OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

CASE 298-01

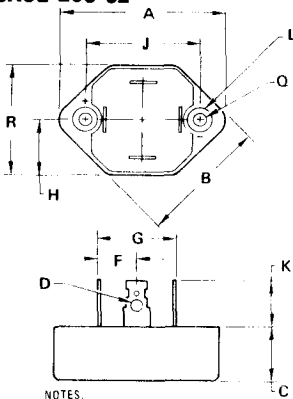


NOTES:

1. DIM "L" IS 6.35 (0.250) DEEP. DIM "Q" IS THRU HOLE.
2. MOUNTING HOLES WITHIN 0.25 mm (0.010) DIA OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	47.75	48.89	1.880	1.925
B	36.20	37.21	1.425	1.465
C	15.37	16.38	0.605	0.645
D	3.43	3.78	0.135	0.149
F	10.92	11.94	0.430	0.470
G	22.35	23.37	0.880	0.920
H	15.95	16.46	0.628	0.648
J	33.32 BSC		1.312 BSC	
K	12.88	13.89	0.507	0.547
L	7.24	7.49	0.285	0.295
Q	3.94	4.19	0.155	0.165
R	31.90	32.92	1.256	1.296

CASE 298-02

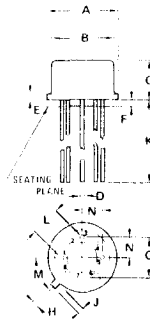


NOTES:

1. DIM "L" IS 6.35 (0.250) DEEP. DIM "Q" IS THRU HOLE.
2. MOUNTING HOLES WITHIN 0.25 mm (0.010) DIA OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	56.59	57.66	2.228	2.270
B	43.82	44.83	1.725	1.765
C	21.59	22.61	0.850	0.890
D	3.43	3.78	0.135	0.149
F	16.00	17.02	0.630	0.670
G	32.51	33.53	1.280	1.320
H	21.91	22.41	0.8625	0.8825
J	43.94 BSC		1.730 BSC	
K	12.88	13.89	0.507	0.547
L	7.24	7.49	0.285	0.295
Q	3.94	4.19	0.155	0.165
R	43.82	44.83	1.725	1.765

CASE 601-04

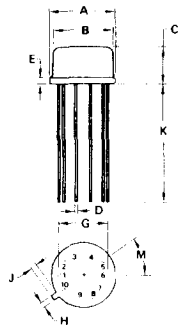


NOTE:

1. LEADS WITHIN 0.25 mm (0.010) DIA OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	4.19	4.70	0.165	0.185
D	0.41	0.48	0.016	0.019
E	0.25	1.02	0.010	0.040
F	0.25	1.02	0.010	0.040
G	5.08 BSC		0.200 BSC	
H	0.71	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	12.70	-	0.500	-
L	3.05	4.06	0.120	0.160
M	45° BSC		45° BSC	
N	2.41	2.67	0.095	0.105

CASE 602A-03

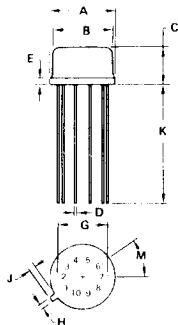


NOTE:

1. LEADS WITHIN 0.13 mm (0.005) RAD OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.39	0.335	0.370
B	7.75	8.50	0.305	0.335
C	-	4.57	-	0.180
D	0.41	0.48	0.016	0.019
E	-	1.02	-	0.040
G	5.84 BSC		0.230 BSC	
H	0.71	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	12.70	-	0.500	-
M	36° BSC		36° BSC	

CASE 602B-03

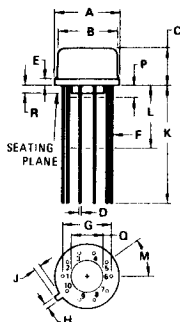


NOTE:

- LEADS WITHIN 0.13 mm (0.005) RAD OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.50	0.305	0.335
C	-	4.57	-	0.180
D	0.41	0.48	0.016	0.019
E	-	1.02	-	0.040
G	5.84 BSC		0.230 BSC	
H	0.71	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	19.05	-	0.750	-
M	36° BSC		36° BSC	

CASE 603-04 TO-100



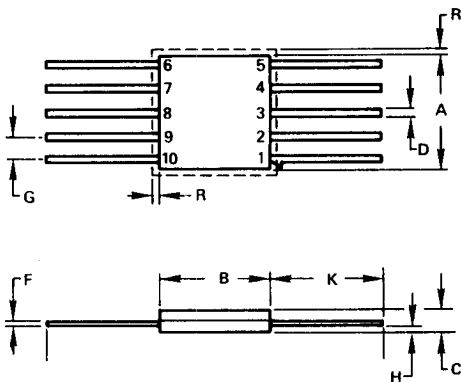
NOTE:
LEADS WITHIN 0.18 mm (0.007) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.39	0.335	0.370
B	7.75	8.51	0.305	0.335
C	4.19	4.70	0.165	0.185
D	0.407	0.533	0.016	0.021
E	-	1.02	-	0.040
F	0.406	0.483	0.016	0.019
G	5.84 BSC		0.230 BSC	
H	0.712	0.864	0.028	0.034
J	0.737	1.14	0.029	0.045
K	12.70	-	0.500	-
L	6.35	12.70	0.250	0.500
M	36° BSC		36° BSC	
P	-	1.27	-	0.050
Q	3.05	4.06	0.120	0.160
R	0.254	1.02	0.010	0.040

All JEDEC dimensions and notes apply



CASE 606-04 TO-91



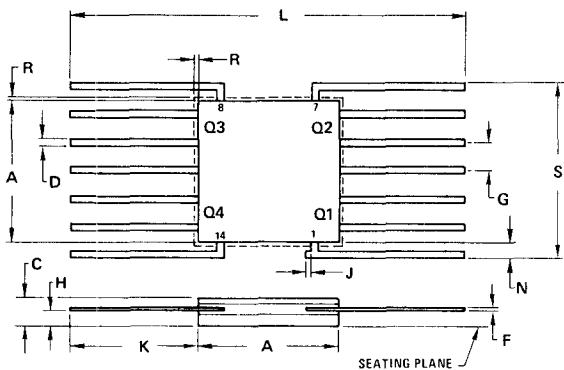
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	7.36	0.240	0.290
B	6.10	6.60	0.240	0.260
C	0.762	1.77	0.030	0.070
D	0.254	0.482	0.010	0.019
F	0.077	0.152	0.003	0.006
G	1.15	1.39	0.045	0.055
H	0.127	0.889	0.005	0.035
K	1.78	-	0.070	-
R	-	0.381	-	0.015

NOTE:

- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION (AT BODY)

All JEDEC dimensions and notes apply

CASE 607-04



STYLE 1:

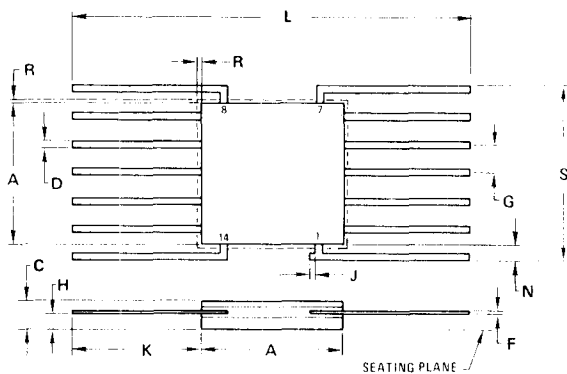
PIN	DESCRIPTION
Q1	1. COLLECTOR
	2. BASE
	3. EMITTER
	4. NOT CONNECTED
	5. EMITTER
Q2	6. BASE
	7. COLLECTOR
	8. COLLECTOR
Q3	9. BASE
	10. EMITTER
	11. NOT CONNECTED
	12. EMITTER
Q4	13. BASE
	14. COLLECTOR

NOTE:

1. LEADS WITHIN 0.13 mm (0.005)
TOTAL OF TRUE POSITION
RELATIVE TO "A" AT MAXIMUM
MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.99	0.240	0.275
C	0.76	2.03	0.030	0.080
D	0.25	0.48	0.010	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.13	0.89	0.005	0.035
J	-	0.38	-	0.015
K	6.35	-	0.250	-
L	18.80	-	0.740	-
N	0.25	-	0.010	-
R	-	0.38	-	0.015
S	7.62	8.38	0.300	0.330

CASE 607-05



STYLE 1:

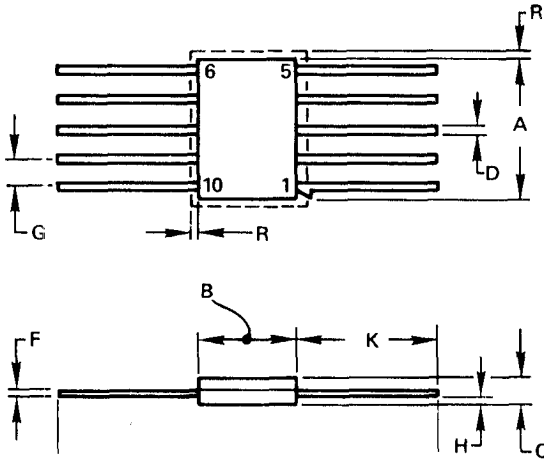
PIN	DESCRIPTION
Q1	1. COLLECTOR
	2. BASE
	3. EMITTER
	4. NOT CONNECTED
	5. EMITTER
	6. BASE
	7. COLLECTOR
	8. COLLECTOR
	9. BASE
	10. EMITTER
	11. NOT CONNECTED
	12. EMITTER
	13. BASE
	14. COLLECTOR

NOTE:

LEADS WITHIN 0.13 mm (0.005)
TOTAL OF TRUE POSITION
RELATIVE TO "A" AT MAXIMUM
MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.60	0.240	0.260
C	0.76	1.78	0.030	0.070
D	0.33	0.48	0.013	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.30	0.89	0.012	0.035
J	-	0.38	-	0.015
K	6.35	9.40	0.250	0.370
L	18.80	-	0.740	-
N	0.25	-	0.010	-
R	-	0.38	-	0.015
S	7.62	8.38	0.300	0.330

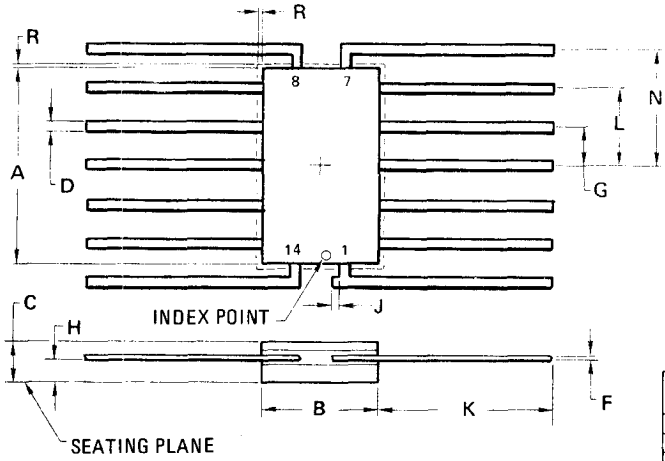
CASE 608-02 TO-90



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	7.36	0.240	0.290
B	4.07	4.69	0.160	0.185
C	0.762	1.77	0.030	0.070
D	0.254	0.482	0.010	0.019
F	0.077	0.152	0.003	0.006
G	1.15	1.39	0.045	0.055
H	0.127	0.889	0.005	0.035
K	1.78	—	0.070	—
R	—	0.381	—	0.015

All JEDEC dimensions and notes apply

CASE 609-02 TO-85



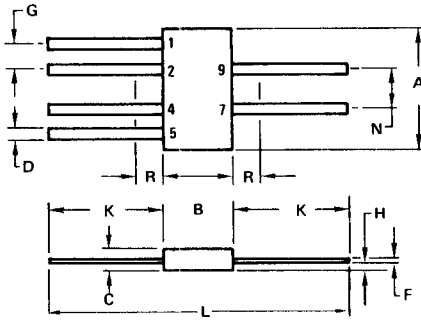
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.96	0.240	0.275
B	4.07	4.69	0.160	0.185
C	0.762	1.78	0.030	0.070
D	0.254	0.482	0.010	0.019
F	0.077	0.152	0.003	0.006
G	1.15	1.39	0.045	0.055
H	0.127	0.889	0.005	0.035
J	—	0.381	—	0.015
K	1.78	—	0.070	—
L	2.42	2.66	0.095	0.105
N	3.69	3.93	0.145	0.155
R	—	0.381	—	0.015

Lead 1 identified by color dot or by elbow on lead.

All JEDEC dimensions and notes apply



CASE 610A-03



STYLE 1:

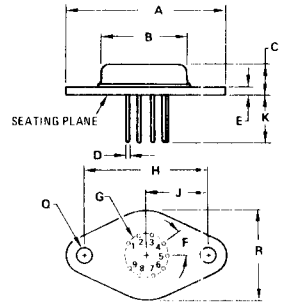
- PIN 1. BASE
- 2. EMITTER
- 4. EMITTER
- 5. BASE
- 7. COLLECTOR
- 9. COLLECTOR

NOTES:

1. DIM "D", "G" & "N" TO BE MEASURED IN ZONE "R"
2. LEADS WITHIN 0.13 mm (0.005) TOTAL OF TRUE POSITION WITHIN "R" AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	7.36	0.240	0.290
B	2.92	4.06	0.115	0.160
C	0.76	2.03	0.030	0.080
D	0.36	0.48	0.014	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	—	0.89	—	0.035
K	3.81	—	0.150	—
N	—	2.54 BSC	—	0.100 BSC
R	—	1.27	—	0.050

CASE 614-02

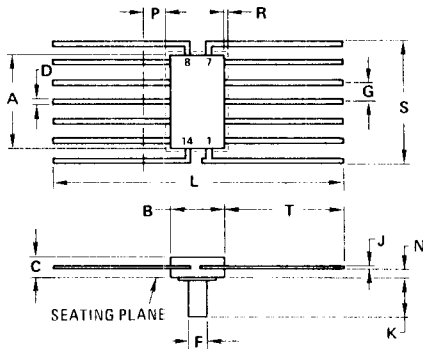


NOTE:

1. LEADS WITHIN 0.36 mm (0.014) DIA OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	31.80	—	1.252
B	11.94	12.70	0.470	0.500
C	6.35	8.64	0.250	0.340
D	0.71	0.81	0.028	0.032
E	1.27	1.90	0.050	0.075
F	36° BSC		36° BSC	
G	8.26 BSC		0.325 BSC	
H	24.33	24.43	0.958	0.962
J	12.17	12.22	0.479	0.481
K	9.14	—	0.360	—
Q	3.61	3.86	0.142	0.152
R	—	17.78	—	0.700

CASE 617-04

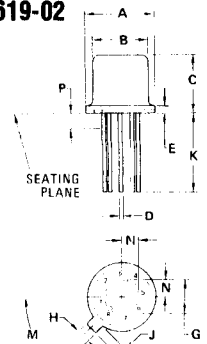


NOTES:

1. SOLDERABILITY DEFINED WITHIN "P"
2. LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION (TP) WITH RESPECT TO EACH OTHER AT MAXIMUM MATERIAL CONDITION.
3. LEADS WITHIN 0.64 mm (0.025) TOTAL OF TRUE POSITION (TP) WITH RESPECT TO STUD AT MAXIMUM MATERIAL CONDITION.
4. LEAD 1 TAB IDENTIFICATION OPTIONAL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	6.86	0.240	0.270
B	4.06	5.08	0.160	0.200
C	1.14	1.78	0.045	0.070
D	0.30	0.46	0.012	0.018
F	1.47	1.60	0.058	0.063
G	1.27 BSC		0.050 BSC	
H	0.08	0.15	0.003	0.006
K	2.41	2.79	0.095	0.110
L	16.76	20.32	0.660	0.800
N	0.38	0.76	0.015	0.030
P	—	1.52 BSC	—	0.060 BSC
R	—	0.38	—	0.015
S	7.65	8.31	0.301	0.327
T	6.35	—	0.250	—

CASE 619-02

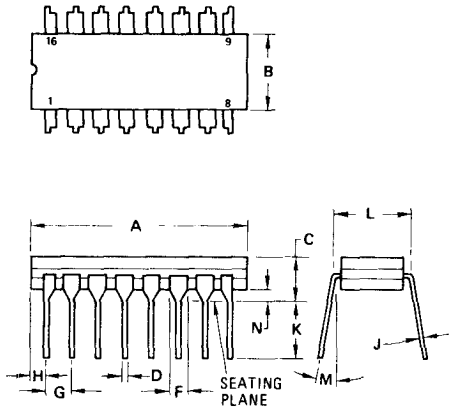


NOTES:

1. LEAD DIAMETERS ARE UNCONTROLLED BEYOND DIM "K" MIN.
2. LEADS, TRUE POSITIONED WITHIN 0.36 mm (0.014) DIA. TO DIM "A" & "H" AT MAXIMUM MATERIAL CONDITION & DIM "P".

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	4.19	4.70	0.165	0.185
D	0.41	0.53	0.016	0.021
E	0.38	1.02	0.015	0.040
G	5.08 BSC		0.200 BSC	
H	0.71	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	12.70	19.05	0.500	0.750
M	—	45° BSC	—	45° BSC
N	—	2.54 BSC	—	0.100 BSC
P	—	1.40	—	0.055

CASE 620-02

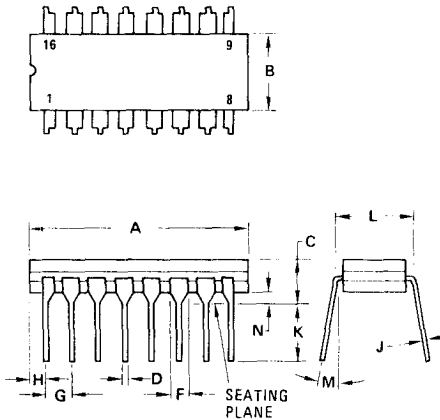


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.81	0.750	0.780
B	6.22	6.98	0.245	0.275
C	4.06	5.08	0.160	0.200
D	0.38	0.51	0.015	0.020
F	1.40	1.65	0.055	0.065
G	2.54 BSC		0.100 BSC	
H	0.51	1.14	0.020	0.045
J	0.20	0.30	0.008	0.012
K	3.18	4.06	0.125	0.160
L	7.37	7.87	0.290	0.310
M	-	15°	-	15°
N	0.51	1.02	0.020	0.040

- NOTES:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION
 - PKG. INDEX: NDTCH IN LEAD NDTCH IN CERAMIC OR INK DOT
 - DIM "L" TO CENTER OF LEADS WHEN FORMED PARALLEL



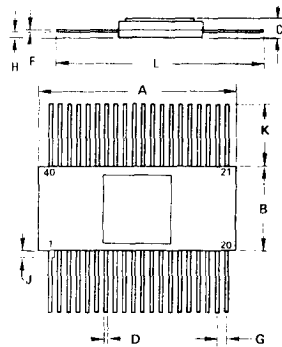
CASE 620-04



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.94	0.750	0.785
B	6.10	7.49	0.240	0.295
C	-	5.08	-	0.200
D	0.38	0.53	0.015	0.021
F	1.40	1.78	0.055	0.070
G	2.54 BSC		0.100 BSC	
H	0.51	1.14	0.020	0.045
J	0.20	0.30	0.008	0.012
K	2.54	-	0.100	-
L	7.49	8.89	0.295	0.350
M	-	15°	-	15°
N	0.51	1.02	0.020	0.040

- NOTES:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - PKG. INDEX: NDTCH IN LEAD NDTCH IN CERAMIC OR INK DOT.
 - DIM "A" AND "B" DO NOT INCLUDE GLASS RUN-OUT.
 - DIM "L" TO INSIDE OF LEADS (MEASURED 0.51 mm (0.020) BELOW BODY)

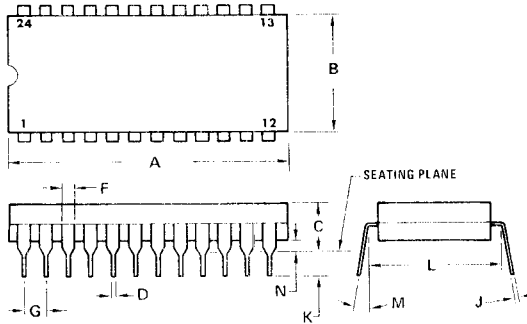
CASE 621-01



- NOTE:
- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT BODY, AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	25.40	26.41	1.000	1.040
B	10.16	10.67	0.400	0.420
C	1.52	2.54	0.060	0.100
D	0.33	0.43	0.013	0.017
F	0.10	0.15	0.004	0.006
G	1.27 BSC		0.050 BSC	
H	0.51	0.89	0.020	0.035
J	0.25	1.27	0.010	0.050
K	7.49	7.75	0.295	0.305
L	25.15	26.16	0.990	1.030

CASE 623-01

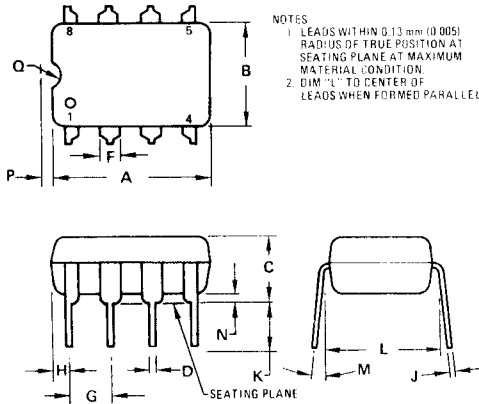


NOTES:

- DIM "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION. (WHEN FORMED PARALLEL)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	31.24	32.26	1.230	1.270
B	12.70	13.72	0.500	0.540
C	4.06	5.08	0.160	0.200
D	0.41	0.51	0.016	0.020
F	1.27	1.52	0.050	0.060
G	2.54 BSC		0.100 BSC	
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	15.37 BSC		0.605 BSC	
M	5 ⁰		5 ⁰	
N	0.51	0.76	0.020	0.030

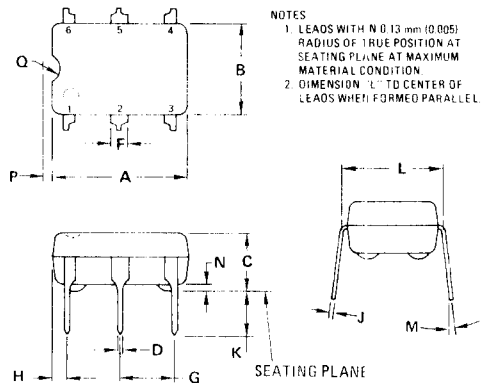
CASE 626-03



- NOTES:**
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - DIM "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	6.10	6.60	0.240	0.260
C	3.94	4.45	0.155	0.175
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	0.76	1.27	0.030	0.050
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	10 ⁰		10 ⁰	
N	0.51	0.76	0.020	0.030
P	0.13	0.38	0.005	0.015
Q	0.76	1.02	0.030	0.040

CASE 627-02



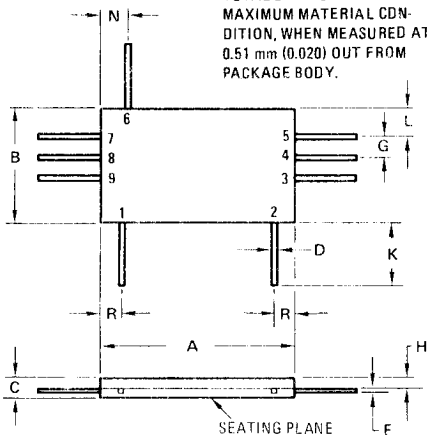
- NOTES:**
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	6.10	6.60	0.240	0.260
C	3.94	4.45	0.155	0.175
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	3.81 BSC		0.150 BSC	
H	0.76	1.27	0.030	0.050
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	10 ⁰		10 ⁰	
N	0.51	0.76	0.020	0.030
P	0.13	0.38	0.005	0.015
Q	0.76	1.02	0.030	0.040

CASE 631-01

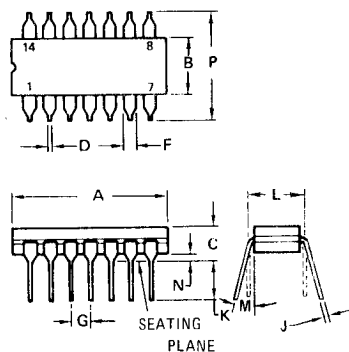
NOTE:

- LEADS WITHIN 0.25 mm (0.010) TOTAL DF TRUE POSITION AT MAXIMUM MATERIAL CONDITION, WHEN MEASURED AT 0.51 mm (0.020) OUT FROM PACKAGE BODY.



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	25.25	25.65	0.990	1.010
B	12.32	13.21	0.485	0.520
C	2.16	2.67	0.085	0.105
D	0.58	0.69	0.023	0.027
F	0.10	0.23	0.004	0.009
G	2.54 BSC		0.100 BSC	
H	1.65	1.91	0.065	0.075
K	8.00	8.51	0.315	0.335
L	3.56	4.06	0.140	0.160
N	3.48	3.73	0.137	0.147
R	2.59	2.84	0.102	0.112

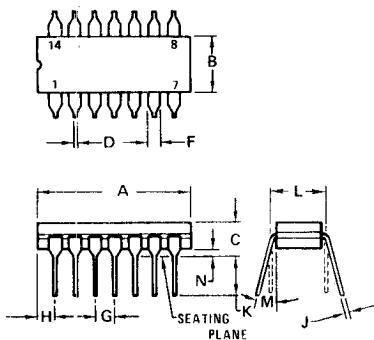
CASE 632-02 TO-116



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.8	19.9	0.660	0.785
B	5.59	7.11	0.220	0.280
C	-	5.08	-	0.200
D	0.381	0.584	0.015	0.023
F	0.77	1.77	0.030	0.070
G	2.54 BSC		0.100 BSC	
J	0.203	0.381	0.008	0.015
K	2.54	-	0.100	-
L	7.62 BSC		0.300 BSC	
M	-	15°	-	15°
N	0.51	0.76	0.020	0.030
P	-	8.25	-	0.325

All JEDEC dimensions and notes apply.

CASE 632-03

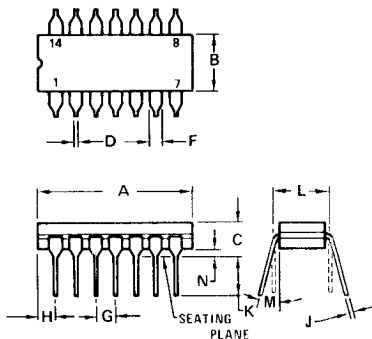


NOTE:

- DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.81	0.750	0.780
B	6.22	6.99	0.245	0.275
C	4.32	5.08	0.170	0.200
D	0.41	0.51	0.016	0.020
F	1.45	1.60	0.057	0.063
G	2.54 BSC		0.100 BSC	
H	1.91	2.29	0.075	0.090
J	0.20	0.30	0.008	0.012
K	3.18	4.06	0.125	0.160
L	7.62 BSC		0.300 BSC	
M	-	15°	-	15°
N	0.51	0.76	0.020	0.030

CASE 632-04

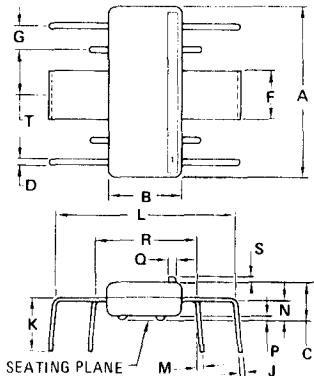


NOTES:

- DIM "A" AND "B" DO NOT INCLUDE GLASS RUN-OUT.
- DIM "L" TO INSIDE OF LEADS (MEASURED 0.51 mm (0.020) BELOW BODY)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.94	0.750	0.785
B	6.10	7.49	0.240	0.295
C	-	5.08	-	0.200
D	0.38	0.58	0.015	0.023
F	1.40	1.77	0.055	0.070
G	2.54 BSC		0.100 BSC	
H	1.91	2.29	0.075	0.090
J	0.20	0.38	0.008	0.015
K	2.54	-	0.100	-
L	7.49	8.89	0.295	0.350
M	-	15°	-	15°
N	0.51	1.02	0.020	0.040

CASE 641A-02

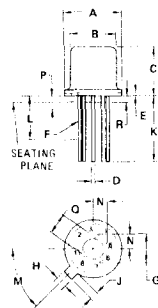


NOTES:

- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSIONS "L" AND "R" TO CENTER OF LEADS WHEN FORMED PARALLEL.
- 0.25 mm (0.010) MAX FLASH PERMITTED AT PARTING LINE (PERIMETER).

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.92	19.18	0.745	0.755
B	7.49	7.75	0.295	0.305
C	4.06	4.57	0.160	0.190
D	0.76	1.27	0.030	0.050
F	5.84	6.35	0.230	0.250
G	2.03 BSC		0.080 BSC	
J	0.33	0.43	0.013	0.017
K	4.45	5.33	0.175	0.210
L	18.80	19.30	0.740	0.760
M	10 ⁰		10 ⁰	
N	2.16	2.67	0.085	0.105
P	0.38	0.64	0.015	0.025
Q	1.52	1.78	0.060	0.070
R	11.68	12.19	0.460	0.480
S	0.64	0.89	0.025	0.035
T	5.08 BSC		0.200 BSC	

CASE 642-02 TO-76



NOTE:

- DIM "Q" & "R" - STAND-OFF

STYLE 1:

- PIN 1, DRAIN 1
- NOT USED
- GATE 1
- SUBSTRATE
- GATE 2
- NOT USED
- DRAIN 2
- SOURCE 1

STYLE 2:

- PIN 1, DRAIN 1
- SOURCE 1
- GATE 1
- CASE / SUBSTRATE
- GATE 2
- SOURCE 2
- DRAIN 2
- NO CONNECTION

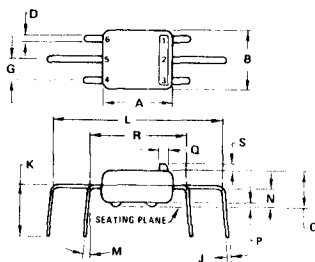
STYLE 3:

- PIN 1, SOURCE 1
- DRAIN 1
- GATE 1
- SUBSTRATE
- SOURCE 2
- DRAIN 2
- GATE 2
- OPEN

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	1.02		0.040	
F	0.406	0.483	0.016	0.019
G	5.08 BSC		0.200 BSC	
H	0.711	0.864	0.028	0.034
J	0.737	1.14	0.029	0.045
K	12.70	5.00		-
L	6.35	2.50		-
M	45 ⁰ BSC		45 ⁰ BSC	
N	2.54 BSC		0.100 BSC	
P	1.27		0.050	
Q	3.05	4.06	0.120	0.160
R	0.254	1.02	0.010	0.040

All JEDEC dimensions and notes apply

CASE 643A-02

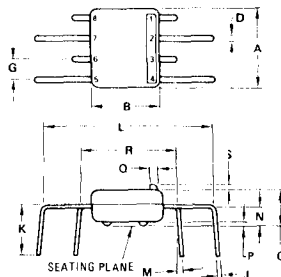


NOTES:

- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSIONS "L" AND "R" TO CENTER OF LEADS WHEN FORMED PARALLEL.
- 0.25 mm (0.010) MAX FLASH PERMITTED AT PARTING LINE (PERIMETER)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.60	7.11	0.260	0.280
B	5.33	5.84	0.210	0.230
C	3.43	4.06	0.135	0.160
D	0.64	0.89	0.025	0.035
G	2.03 BSC		0.080 BSC	
J	0.20	0.30	0.008	0.012
K	4.45	5.33	0.175	0.210
L	16.00	16.51	0.630	0.650
M	10 ⁰		10 ⁰	
N	1.65	2.03	0.065	0.080
P	0.51	0.76	0.020	0.030
Q	1.50	1.75	0.059	0.069
R	8.89	9.40	0.350	0.370
S	0.64	0.89	0.025	0.035

CASE 644A-02

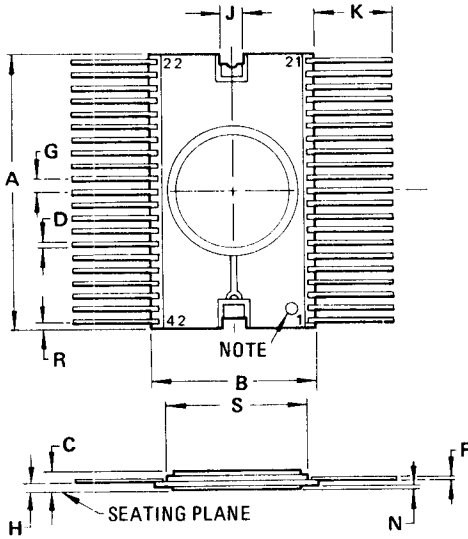


NOTES:

- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSIONS "L" AND "R" TO CENTER OF LEADS WHEN FORMED PARALLEL.
- 0.25 mm (0.010) MAX FLASH PERMITTED AT PARTING LINE (PERIMETER)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.37	7.87	0.290	0.310
B	6.60	6.86	0.260	0.270
C	3.43	4.06	0.135	0.160
D	0.64	0.89	0.025	0.035
G	2.03 BSC		0.080 BSC	
J	0.20	0.31	0.008	0.012
K	4.45	5.33	0.175	0.210
L	16.00	16.51	0.630	0.650
M	10 ⁰		10 ⁰	
N	1.65	2.03	0.065	0.080
P	0.51	0.76	0.020	0.030
Q	1.50	1.75	0.059	0.069
R	8.89	9.40	0.350	0.370
S	0.64	0.89	0.025	0.035

CASE 645-02

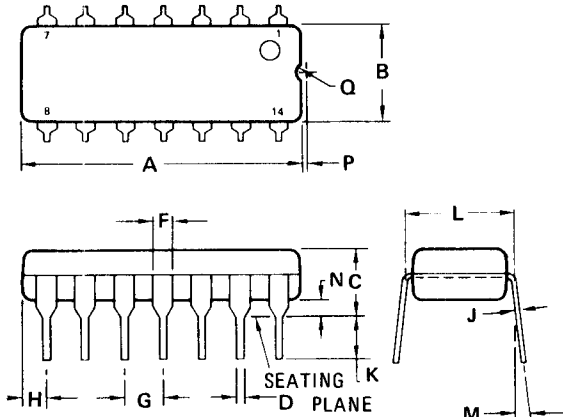


NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT BODY AT MAXIMUM MATERIAL CONDITION.
- IDENTIFICATION DOT ON CERAMIC DENOTES PIN 1.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	26.52	27.28	1.044	1.074
B	16.00	16.51	0.630	0.650
C	2.03	2.92	0.080	0.115
D	0.46	0.58	0.018	0.023
F	0.20	0.30	0.008	0.012
G	1.27 BSC		0.050 BSC	
H	0.76	1.14	0.030	0.045
J	2.03 REF		0.080 REF	
K	7.37	7.87	0.290	0.310
N	0.25	0.43	0.010	0.017
R	0.56	0.94	0.022	0.037
S	13.97 REF		0.550 REF	

CASE 646-03

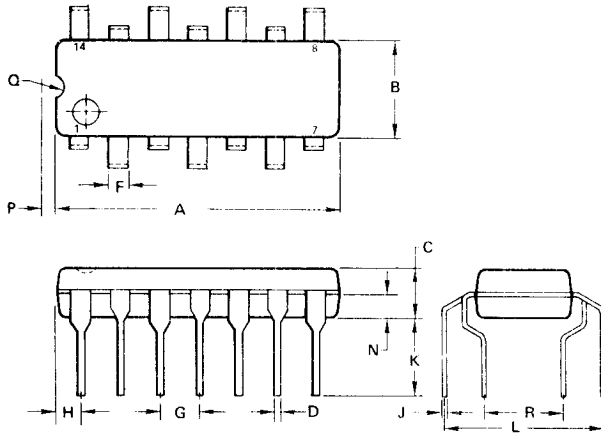


NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.16	18.80	0.715	0.740
B	6.10	6.60	0.240	0.260
C	4.06	4.57	0.160	0.180
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	1.32	1.83	0.052	0.072
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	10 ⁰		10 ⁰	
N	0.51	1.02	0.020	0.040
P	0.13	0.38	0.005	0.015
Q	0.51	0.76	0.020	0.030

CASE 647-03

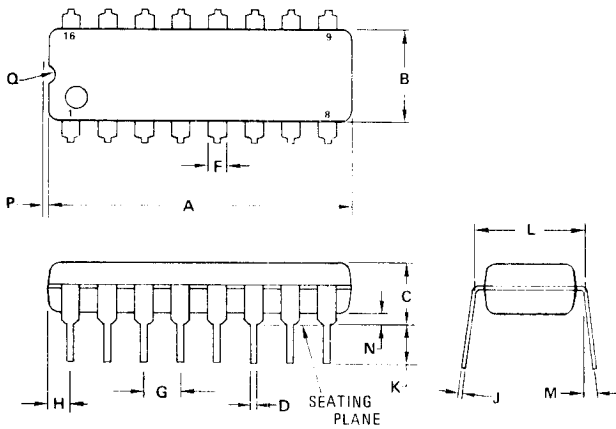


NOTE:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION
- DIMENSIONS "L" & "R" TO CENTER OF LEADS WHEN FORMED PARALLEL

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.16	18.80	0.715	0.740
B	6.10	6.60	0.240	0.260
C	3.30	3.81	0.130	0.150
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	1.32	1.83	0.052	0.072
J	0.20	0.30	0.008	0.012
K	3.81	-	0.150	-
L	9.52	10.92	0.375	0.430
N	1.02	1.52	0.040	0.060
P	0.13	0.38	0.005	0.015
Q	0.51	0.76	0.020	0.030
R	4.70	5.97	0.185	0.235

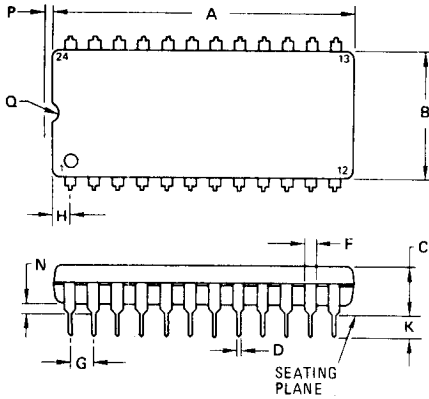
CASE 648-03



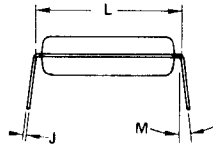
NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.70	21.34	0.815	0.840
B	6.10	6.60	0.240	0.260
C	4.06	4.57	0.160	0.180
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	1.32	1.83	0.052	0.072
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	-	10°	-	10°
N	0.51	1.02	0.020	0.040
P	0.13	0.38	0.005	0.015
Q	0.51	0.76	0.020	0.030

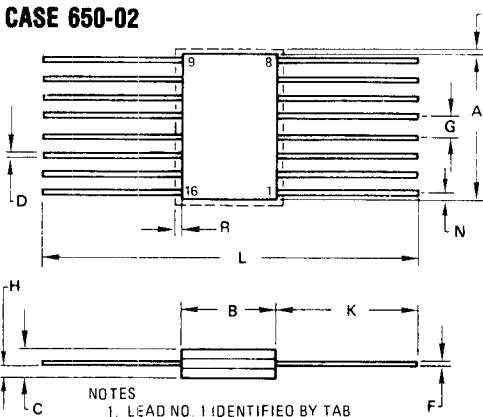


- NOTES:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	31.50	32.13	1.240	1.265
B	13.21	13.72	0.520	0.540
C	4.70	5.21	0.185	0.205
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	1.65	2.16	0.065	0.085
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	14.99	15.49	0.590	0.610
M	10°		10°	
N	0.51	1.02	0.020	0.040
P	0.13	0.38	0.005	0.015
Q	0.51	0.76	0.020	0.030

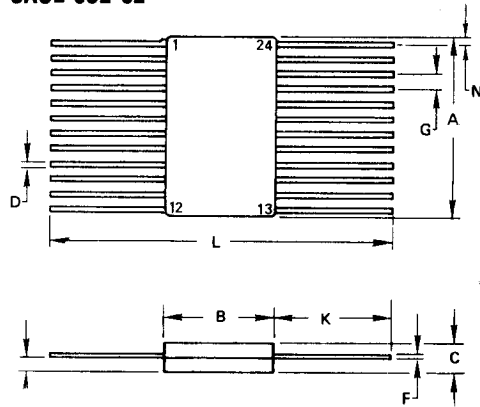
CASE 650-02



- NOTES:
- LEAD NO. 1 IDENTIFIED BY TAB ON LEAD OR DOT ON COVER.
 - LEADS WITHIN 0.13 mm (0.005) TOTAL OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	6.22	6.60	0.245	0.260
C	1.52	2.03	0.060	0.080
D	0.38	0.48	0.015	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.64	0.89	0.025	0.035
K	6.35	9.40	0.250	0.370
L	18.92	-	0.745	-
N	-	0.51	-	0.020
R	-	0.38	-	0.015

CASE 652-02



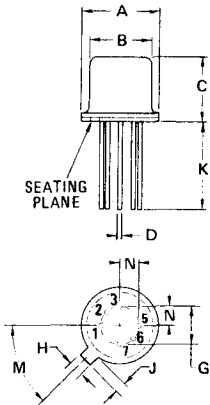
- NOTES:
- LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	14.99	15.49	0.590	0.610
B	9.27	9.91	0.365	0.390
C	1.27	2.03	0.050	0.080
D	0.38	0.48	0.015	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.69	1.02	0.027	0.040
K	6.35	9.40	0.250	0.370
L	21.97	-	0.865	-
N	0.25	0.63	0.010	0.025

CASE 654-07

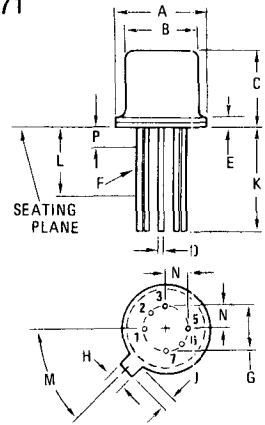
- STYLE 1:
 PIN 1. COLLECTOR
 2. BASE
 3. EMITTER
 4. OMITTED
 5. EMITTER
 6. BASE
 7. COLLECTOR
 8. OMITTED

- STYLE 2:
 PIN 1. COLLECTOR
 2. BASE
 3. EMITTER
 4. OMITTED
 5. SOURCE
 6. DRAIN
 7. GATE
 8. OMITTED



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	3.81	4.70	0.150	0.185
D	0.41	0.53	0.016	0.021
G	5.08 BSC		0.200 BSC	
H	0.71	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	12.70	--	0.500	--
M	45° BSC		45° BSC	
N	2.54 BSC		0.100 BSC	

CASE 655-01 TO-71

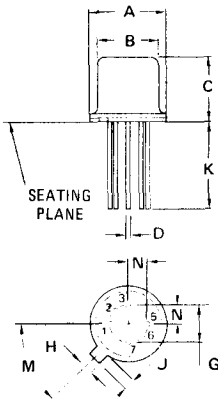


- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
 5. EMITTER
 6. BASE
 7. COLLECTOR

All JEDEC dimensions and notes apply.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.45	4.95	0.175	0.195
C	4.32	5.33	0.170	0.210
D	0.41	0.53	0.016	0.021
E	--	0.76	--	0.030
F	0.41	0.48	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	--	0.500	--
L	6.35	--	0.250	--
M	45° BSC		45° BSC	
N	1.27 BSC		0.050 BSC	
P	--	1.27	--	0.050

CASE 655-02

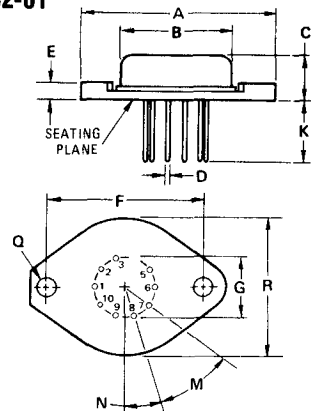


- NOTE:
 1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

- STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR
 5. EMITTER
 6. BASE
 7. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.45	4.95	0.175	0.195
C	4.32	5.33	0.170	0.210
D	0.41	0.48	0.016	0.019
G	2.54 BSC		0.100 BSC	
H	0.91	1.17	0.036	0.046
J	0.71	1.22	0.028	0.048
K	12.70	--	0.500	--
M	45° BSC		45° BSC	
N	1.72 BSC		0.050 BSC	

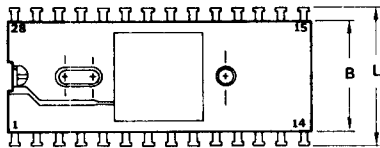
CASE 662-01



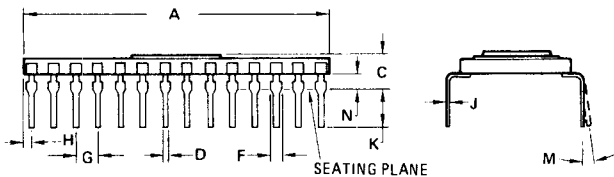
- NOTE:
 1. LEADS WITHIN 0.13 mm (0.005) DIA OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	--	38.61	--	1.520
B	--	21.03	--	0.830
C	6.35	8.13	0.250	0.320
D	0.97	1.09	0.038	0.043
E	--	3.43	--	0.135
F	29.90	30.40	1.177	1.197
G	11.94 BSC		0.470 BSC	
K	7.11	8.13	0.280	0.320
M	36° BSC		36° BSC	
N	18° BSC		18° BSC	
Q	3.84	4.09	0.151	0.161
R	--	26.67	--	1.050

CASE 663-02

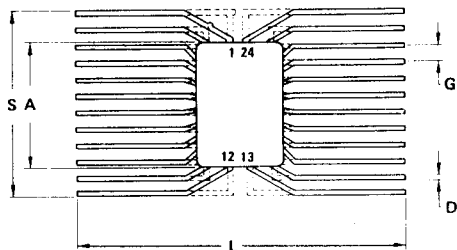


- NOTES:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

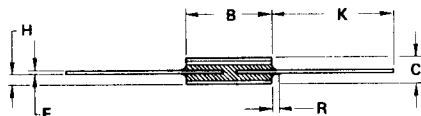


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	34.42	35.31	1.355	1.390
B	12.45	12.95	0.490	0.510
C	2.54	3.94	0.100	0.155
D	0.38	0.51	0.015	0.020
F	1.14	1.40	0.045	0.055
G	2.54 BSC		0.100 BSC	
H	0.69	1.14	0.027	0.045
J	0.23	0.33	0.009	0.013
K	2.67	3.94	0.105	0.155
L	14.99	15.49	0.590	0.610
M	—		7°	
N	1.02	1.78	0.040	0.070

CASE 667-03



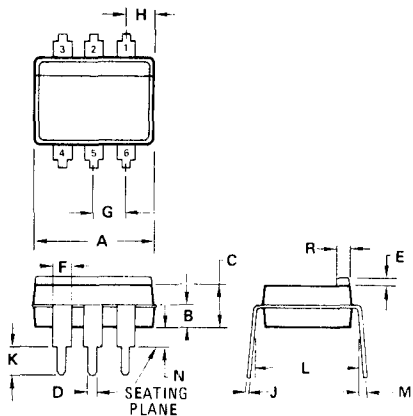
- NOTES:
- DIM "R" IS ALLOWABLE MENISCUS.
 - DIM "G" IS TO CENTER OF LEADS & LEADS TO BE WITHIN .13 mm (0.005") RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
 - DOTTED LEAD CNFIGURATION IS OPTIONAL.



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.53	9.91	0.375	0.390
B	6.10	6.86	0.240	0.270
C	—	2.03	—	0.080
D	0.31	0.46	0.012	0.018
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.51	1.02	0.020	0.040
K	6.73	9.40	0.265	0.370
L	19.56	—	0.770	—
R	—	0.25	—	0.010
S	14.27	14.43	0.562	0.568



CASE 673-04



NOTES:

1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
2. DDT OR INDEX FOR PIN NO. 1 ORIENT.

- STYLE 1:**
 PIN 1. ANODE
 2. CATHODE
 3. N.C.
 4. ANODE
 5. CATHODE
 6. N. C.

- STYLE 4:**
 PIN 1. ANODE
 2. CATHODE
 3. N.C.
 4. CATHODE
 5. ANODE
 6. GATE

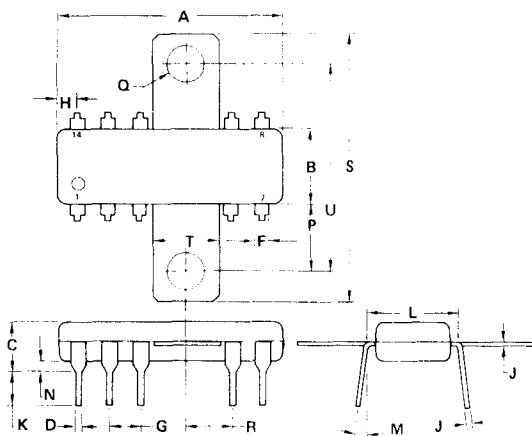
- STYLE 2:**
 PIN 1. ANODE
 2. CATHODE
 3. N.C.
 4. EMITTER
 5. COLLECTOR
 6. BASE

- STYLE 5:**
 PIN 1. ANODE
 2. CATHODE
 3. N.C.
 4. OUTPLT
 5. GROUND
 6 VCC

- STYLE 3:**
 PIN 1. ANODE
 2. CATHODE
 3. N.C.
 4. EMITTER
 5. COLLECTOR
 6. N.C.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.38	8.89	0.330	0.350
B	1.40	1.65	0.055	0.065
C	2.92	3.17	0.115	0.125
D	0.38	0.53	0.015	0.021
E	-	1.02	-	0.040
F	1.02	1.27	0.040	0.050
G	2.54 BSC	-	0.100 BSC	-
H	1.57	1.83	0.062	0.072
J	0.23	0.28	0.009	0.011
K	2.54	3.81	0.100	0.150
L	7.37	7.87	0.290	0.310
M	-	10°	-	10°
N	0.51	1.27	0.020	0.050
R	-	1.90	-	0.075

CASE 675-02

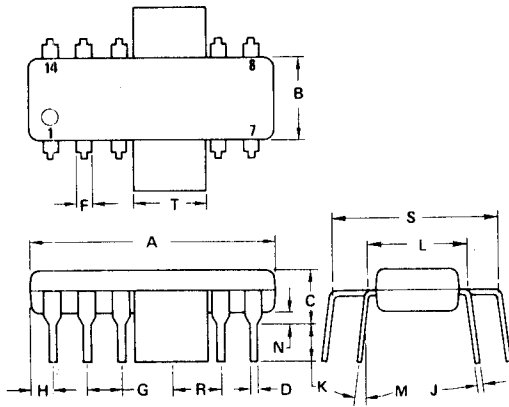


NOTES:

1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT GAGE PLANE
2. DIM "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.42	19.05	0.725	0.750
B	5.97	6.48	0.235	0.255
C	3.56	4.06	0.140	0.160
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC	-	0.100 BSC	-
H	1.47	1.98	0.058	0.078
J	0.33	0.46	0.013	0.018
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	-	10°	-	10°
N	0.51	1.02	0.020	0.040
P	5.33	5.97	0.210	0.235
Q	3.05	3.30	0.120	0.130
R	3.81 BSC	-	0.150 BSC	-
S	21.82	23.34	0.859	0.919
T	5.21	5.84	0.205	0.230
U	17.15	17.91	0.675	0.705

CASE 676-02

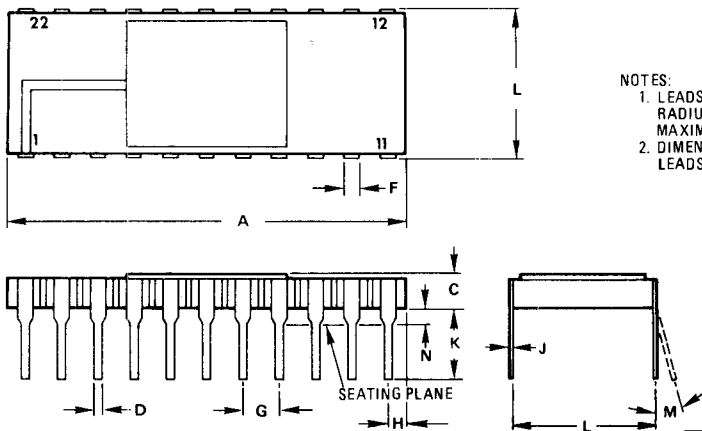


NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT GAGE PLANE.
- DIM "L" & "S" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.42	19.05	0.725	0.750
B	5.97	6.48	0.235	0.255
C	3.56	4.06	0.140	0.160
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	1.47	1.98	0.058	0.078
J	0.33	0.46	0.013	0.018
K	2.92	3.43	0.115	0.135
L	7.37	7.87	0.290	0.310
M	-	10°	-	10°
N	0.51	1.02	0.020	0.040
R	3.81 BSC		0.150 BSC	
S	12.45	12.95	0.490	0.510
T	5.21	5.84	0.205	0.230

CASE 677-03



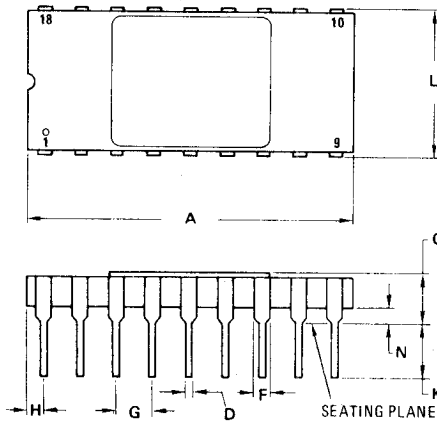
NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.
- DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	27.05	27.94	1.065	1.100
C	2.16	3.68	0.085	0.145
D	0.43	0.58	0.017	0.023
F	1.02 REF		0.040 REF	
G	2.54 BSC		0.100 BSC	
H	0.76	1.78	0.030	0.070
J	0.20	0.30	0.008	0.012
K	3.18	4.45	0.125	0.175
L	9.65	10.67	0.380	0.420
M	-	7°	-	7°
N	0.64	1.27	0.025	0.050

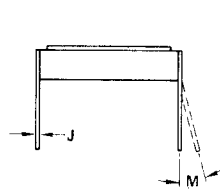


CASE 680-03



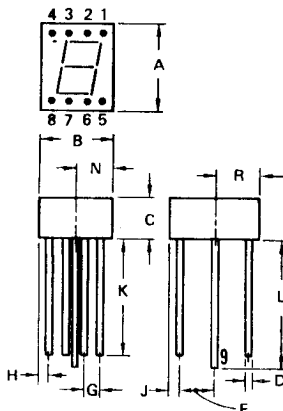
NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- NOMINAL DIM FROM CENTER OF LEADS PARALLEL TO DIM "L" IS 7.62 mm (0.300").



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	22.61	23.11	0.890	0.910
C	3.18	4.27	0.125	0.168
D	0.43	0.58	0.017	0.023
F	0.89	1.14	0.035	0.045
G	2.54 BSC		0.100 BSC	
H	1.14	1.40	0.045	0.055
J	0.20	0.30	0.008	0.012
K	3.56	3.68	0.140	0.145
L	7.82	7.92	0.308	0.312
M	-	10 ⁰	-	10 ⁰
N	1.02	1.52	0.040	0.060

CASE 683-01



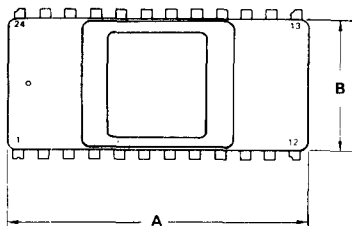
NOTE:

- LEADS WITHIN 0.13mm (0.005) RADIUS OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

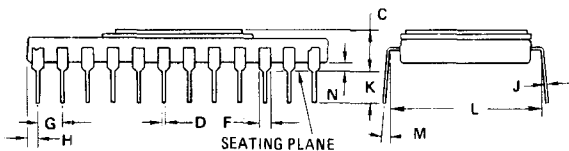


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.73	6.99	0.265	0.275
B	5.46	5.72	0.215	0.225
C	-	3.56	-	0.140
D	0.41	0.51	0.016	0.020
F	2.54 BSC		0.100 BSC	
G	1.27 BSC		0.050 BSC	
H	0.76	0.89	0.030	0.035
J	0.89	1.02	0.035	0.040
K	8.64	9.14	0.340	0.360
L	10.16	10.41	0.400	0.410
N	2.79 BSC		0.110 BSC	
R	3.43 BSC		0.135 BSC	

CASE 684-04

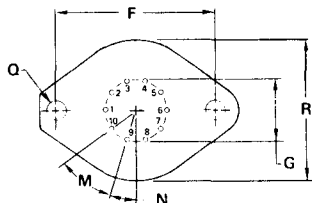
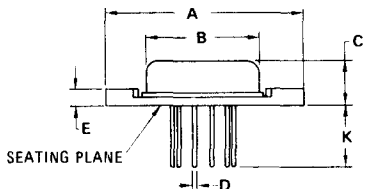


- NOTES:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE WITH MAXIMUM MATERIAL CONDITION.
 - LEAD NO. 1 CUT FOR IDENTIFICATION, OR BUMP ON TOP.
 - DIM "L" TD INSIDE OF LEADS. (MEASURED 0.51 mm (0.020) BELOW PKG BASE)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	29.34	30.86	1.155	1.215
B	12.70	14.22	0.500	0.560
C	3.05	3.94	0.120	0.155
D	0.38	0.51	0.015	0.020
F	0.89	1.40	0.035	0.055
G	2.54 BSC		0.100 BSC	
H	0.89	1.40	0.035	0.055
J	0.20	0.30	0.008	0.012
K	2.92	3.68	0.115	0.145
L	14.86	15.87	0.585	0.625
M	-	15°	-	15°
N	0.51	1.14	0.020	0.045

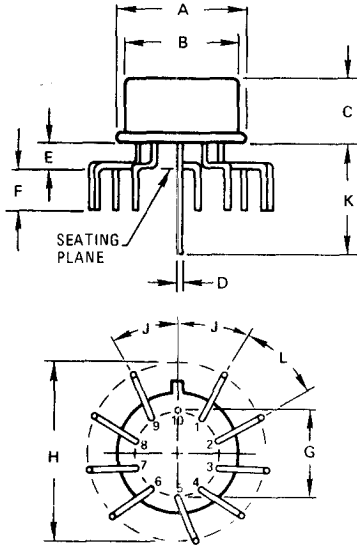
CASE 685-01



- NOTE:
- LEADS WITHIN 0.13 mm (0.005) DIA OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	38.61	-	1.520
B	-	21.08	-	0.830
C	6.35	8.13	0.250	0.320
D	0.97	1.09	0.038	0.043
E	-	3.43	-	0.135
F	29.90	30.40	1.177	1.197
G	11.94 BSC		0.470 BSC	
K	7.11	8.13	0.280	0.320
M	36° BSC		36° BSC	
N	18° BSC		18° BSC	
Q	3.84	4.09	0.151	0.161
R	-	26.67	-	1.050

CASE 686-01

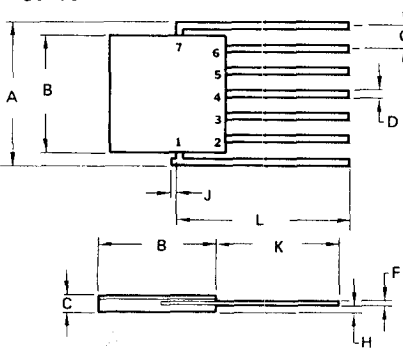


NOTES:

1. DIM "L" (7 PLACES) EXCEPT AT "J" & BETWEEN LEADS 5 & 6.
2. LEADS WITHIN 0.005" RADIUS DF TRUE POSITION AT SEATING PLANE WITH MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	-	4.57	-	0.180
D	0.406	0.483	0.016	0.019
E	1.78	2.54	0.070	0.100
F	3.05	3.81	0.120	0.150
G	5.84 TP		0.230 TP	
H	12.19 TP		0.480 TP	
J	31° TP		31° TP	
K	5.97	6.73	0.235	0.265
L	34° TP		31° TP	

CASE 687-03

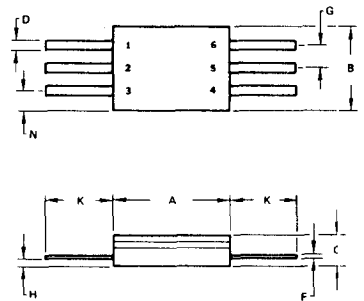


NOTES:

1. LEAD NO. 1 IDENTIFIED BY TAB ("J").
2. LEADS WITHIN 0.13 mm (0.005) RADIUS DF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.03	8.08	0.316	0.318
B	5.97	6.35	0.235	0.250
C	1.52	1.78	0.060	0.070
D	0.41	0.46	0.016	0.018
F	0.10	0.15	0.004	0.006
G	1.27 BSC		0.050 BSC	
H	-	0.64	-	0.025
J	-	0.38	-	0.015
K	1.78	-	0.070	-
L	-	12.45	-	0.490

CASE 688-04

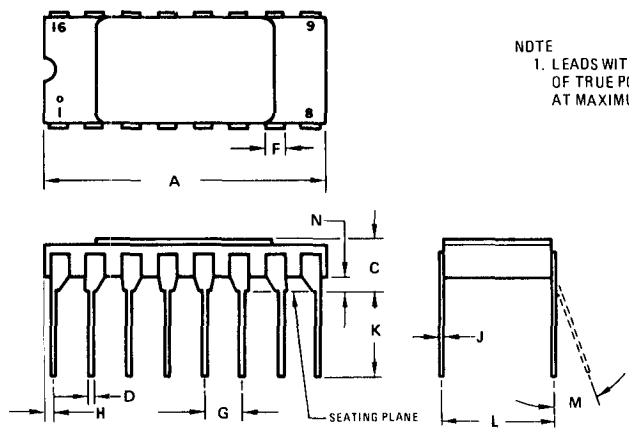


NOTES:

1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.97	6.73	0.235	0.265
B	4.32	5.33	0.170	0.210
C	1.17	1.91	0.045	0.075
D	0.25	0.48	0.010	0.019
F	0.08	0.15	0.003	0.006
G	1.27 BSC		0.050 BSC	
H	0.13	0.89	0.005	0.035
K	2.34	2.84	0.092	0.112
N	0.89	1.40	0.035	0.055

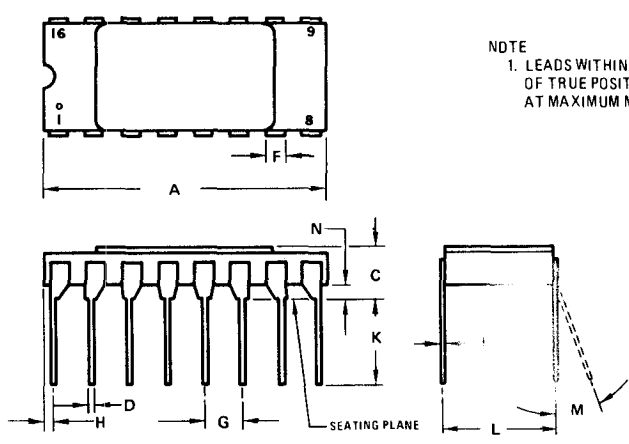
CASE 690-03



NOTE
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.80	19.23	0.740	0.757
C	2.82	4.80	0.111	0.189
D	0.43	0.58	0.017	0.023
F	1.14	1.52	0.045	0.060
G	2.54 BSC		0.100 BSC	
H	0.51	0.71	0.020	0.028
J	0.20	0.31	0.008	0.012
K	2.92	4.19	0.115	0.165
L	7.62 BSC		0.300 BSC	
M	-		10°	
N	0.51	-	0.020	-

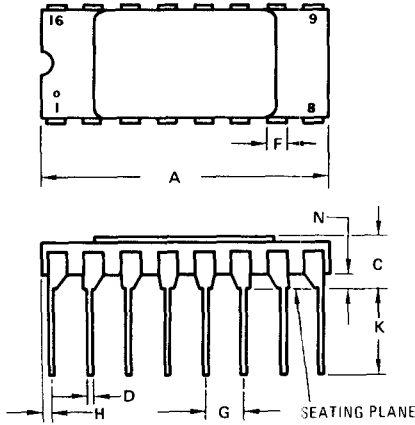
CASE 690-04



NOTE
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.07	20.57	0.790	0.810
C	-	3.10	-	0.122
D	0.38	0.53	0.015	0.021
F	1.14	1.40	0.045	0.055
G	2.54 BSC		0.100 BSC	
H	1.14	1.40	0.045	0.055
J	0.20	0.31	0.008	0.012
K	5.08	-	0.200	-
L	7.62 BSC		0.300 BSC	
M	-		10°	
N	1.07	1.32	0.042	0.052

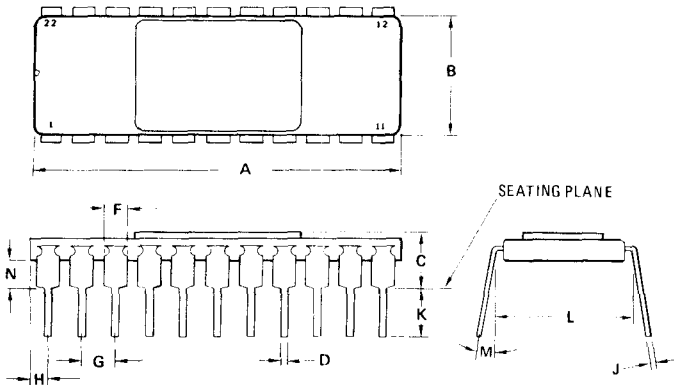
CASE 690-05



- NOTES:
 1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.80	19.23	0.740	0.757
C	2.79	3.81	0.110	0.150
D	0.41	0.51	0.016	0.020
F	1.14	1.52	0.045	0.060
G	2.54 BSC		0.100 BSC	
H	0.33	0.89	0.013	0.035
J	0.20	0.30	0.008	0.012
K	3.56	4.06	0.140	0.160
L	762 BSC		0.300 BSC	
M	-	10 ⁰	-	10 ⁰
N	0.76	1.14	0.030	0.045

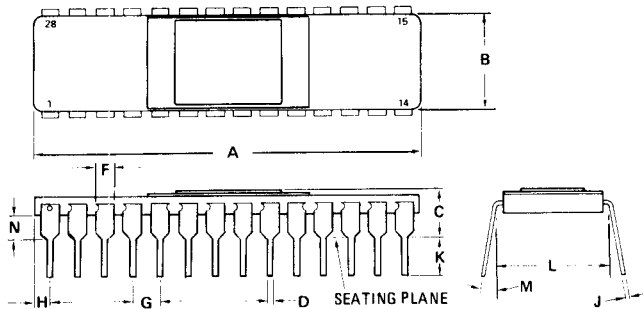
CASE 694-03



- NOTES:
 1. DIM "L" TO INSIDE OF LEADS (MEASURE 0.51 mm (0.020) FROM PACKAGE BASE)
 2. LEADS WITHIN 0.005 RADIUS OF TRUE POSITION (TP) AT SEATING PLANE WITH MAXIMUM MATERIAL CONDITION
 3. LEAD No. 1 IDENTIFIED BY NOTCH ON TDP.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	26.54	27.94	1.045	1.100
B	9.02	9.40	0.355	0.370
C	3.30	4.06	0.130	0.160
D	0.38	0.53	0.015	0.021
F	1.02	1.27	0.040	0.050
G	2.54 BSC		0.100 BSC	
H	0.89	1.40	0.035	0.055
J	0.20	0.30	0.008	0.012
K	2.92	3.68	0.115	0.145
L	9.78	10.79	0.385	0.425
M	-	15 ⁰	-	15 ⁰
N	0.51	1.52	0.020	0.060

CASE 695-04

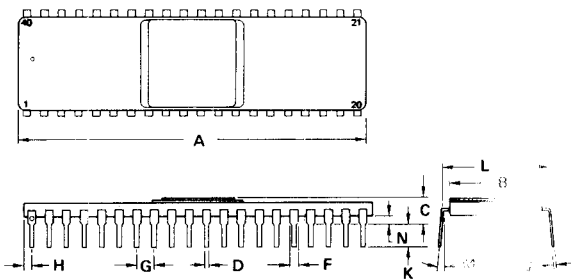


NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE WITH MAXIMUM MATERIAL CONDITION.
- DIM "L" TO INSIDE OF LEADS (MEASURED 0.51 mm (0.020) BELOW PACKAGE BASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	34.04	35.56	1.340	1.400
B	12.70	13.84	0.500	0.545
C	3.05	4.19	0.120	0.165
D	0.38	0.51	0.015	0.020
F	0.89	1.40	0.035	0.055
G	2.54 BSC		0.100 BSC	
H	0.89	1.40	0.035	0.055
J	0.20	0.30	0.008	0.011
K	2.92	3.68	0.115	0.145
L	14.86	15.87	0.585	0.625
M	— 15°		— 15°	
N	0.51	1.27	0.020	0.050

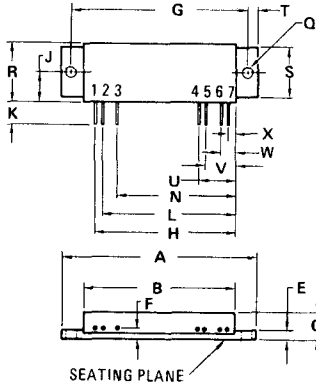
CASE 699-03



NOTES:

- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
- DIMENSION "L" TO INSIDE OF LEADS (MEASURED 0.51 mm (0.020) BELOW PACKAGE BASE)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	50.04	51.05	1.970	2.010
B	13.46	13.72	0.530	0.540
C	3.05	3.94	0.120	0.155
D	0.38	0.51	0.015	0.020
F	0.89	1.40	0.035	0.055
G	2.54 BSC		0.100 BSC	
H	0.89	1.40	0.035	0.055
J	0.20	0.28	0.008	0.011
K	3.05	3.68	0.120	0.145
L	14.86	15.87	0.585	0.625
M	— 15°		— 15°	
N	0.51	1.14	0.020	0.045



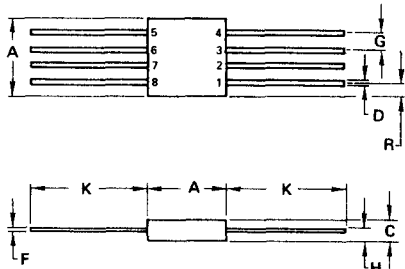
STYLE 1:

- PIN 1. RF OUTPUT
- 2. GROUND
- 3. D.C. TERMINAL
- 4. GROUND
- 5. D.C. GAIN
- 6. GROUND
- 7. RF INPUT

NOTE:

- 1. MOUNTING HOLES WITHIN 0.13 mm (0.005) DIA DF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	67.06	67.56	2.640	2.660
B	52.32	52.83	2.060	2.080
C	8.51	8.89	0.335	0.350
E	2.54	2.79	0.100	0.110
F	2.67	2.92	0.105	0.115
G	61.09 BSC		2.405 BSC	
H	47.88	48.64	1.885	1.915
J	10.67	11.18	0.420	0.440
K	5.84	7.62	0.230	0.300
L	45.34	46.10	1.785	1.815
N	40.26	41.02	1.585	1.615
Q	3.45	3.71	0.136	0.146
R	20.32	20.57	0.800	0.810
S	17.02	17.53	0.670	0.690
T	2.98	3.24	0.1175	0.1275
U	12.32	13.08	0.485	0.515
V	9.78	10.54	0.385	0.415
W	4.70	5.46	0.185	0.215
X	2.16	2.92	0.085	0.115



NOTE:

- 1. LEADS WITHIN 0.25 mm (0.010) TOTAL OF TRUE POSITION AT BODY AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.02	6.22	0.237	0.245
C	1.17	1.78	0.046	0.070
D	0.41	0.46	0.016	0.018
F	0.10	0.15	0.004	0.006
G	1.27 BSC		0.050 BSC	
H	0.38	0.76	0.015	0.030
K	6.35	6.86	0.250	0.270
R	1.09	1.22	0.043	0.048



LEADFORMS

FOR PLASTIC POWER SOCKETS

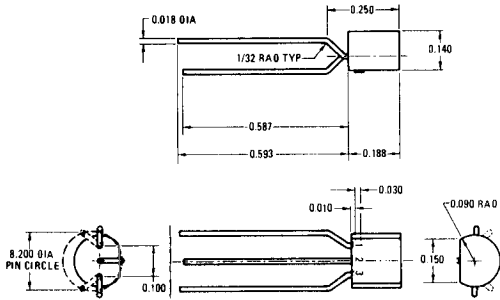
Plastic power transistors can be lead formed to a variety of configurations for insertion into sockets designed for metal-can devices. Leadform flexibility permits direct insertion into TO-66 and TO-5 sockets, or circuit-board mounting, either flat mount or flag mount.

A desired special leadform can be ordered as follows:

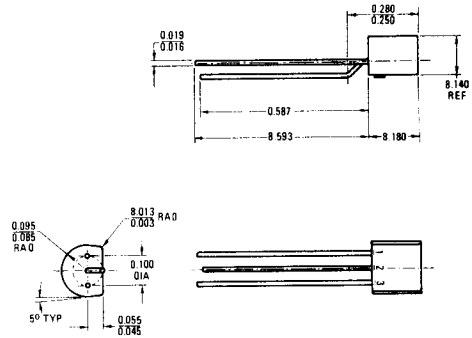
1. Select the desired transistor and case style, i.e., 2N5190 or MJE340.
2. Locate the selected case-style section in the leadform diagrams shown below.
3. Determine the leadform suffix letter (A, B, C, etc.) of the lead form required.
4. Add the lead form suffix letter to the transistor type number when placing your order. Example: 2N5190 lead form B; or MJE340 lead form A.

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

CASE 29 LEAD FORM "A" (TO-92 TO FIT TO-5)



CASE 29 LEAD FORM "B" (TO-92 TO FIT TO-18)



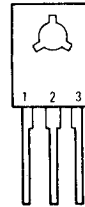
CASE 29 STYLES

-
- STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR
- STYLE 2:
PIN 1. BASE
2. EMITTER
3. COLLECTOR
- STYLE 3:
PIN 1. ANODE
2. ANODE
3. CATHODE
- STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. ANODE
- STYLE 5:
PIN 1. DRAIN
2. SOURCE
3. GATE
- STYLE 6:
PIN 1. GATE
2. SOURCE &
SUBSTRATE
3. DRAIN

- STYLE 7:
PIN 1. SOURCE
2. DRAIN
3. GATE
- STYLE 8:
PIN 1. DRAIN
2. GATE
3. SOURCE &
SUBSTRATE
- STYLE 9:
PIN 1. BASE 1
2. EMITTER
3. BASE 2
- STYLE 10:
PIN 1. CATHODE
2. GATE
3. ANODE
- STYLE 11:
PIN 1. ANODE
2. CATHODE &
ANODE
3. CATHODE
- STYLE 12:
PIN 1. MAIN TERMINAL 1
2. GATE
3. MAIN TERMINAL 2
- STYLE 13:
PIN 1. ANODE 1
2. GATE
3. CATHODE 2

- STYLE 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE
- STYLE 15:
PIN 1. ANODE 1
2. CATHODE
3. ANODE 2
- STYLE 16:
PIN 1. ANODE
2. GATE
3. CATHODE
- STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER
- STYLE 18:
PIN 1. ANODE
2. CATHODE
3. NOT
CONNECTED
- STYLE 19:
PIN 1. GATE
2. ANODE
3. CATHODE
- STYLE 20:
PIN 1. N.C.
2. CATHODE
3. ANODE

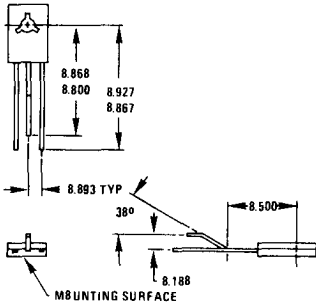
CASE 77 STYLES



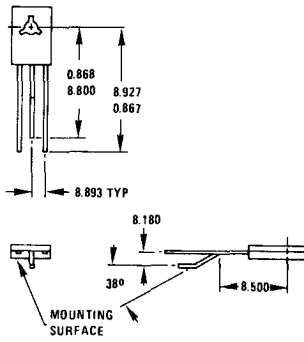
- STYLE 1:
PIN 1. EMITTER
2. COLLECTOR
3. BASE
- STYLE 2:
PIN 1. CATHODE
2. ANODE
3. GATE
- STYLE 3:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
- STYLE 4:
PIN 1. ANODE 1
2. ANODE 2
3. GATE
- STYLE 5:
PIN 1. MT1
2. MT2
3. GATE

NOTE:
1. MT = MAIN TERMINAL

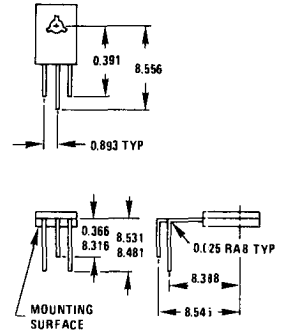
CASE 77 LEAD FORM "A"



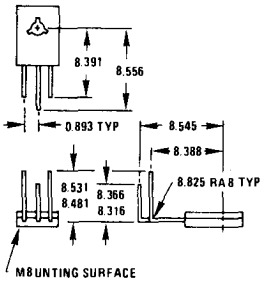
CASE 77 LEAD FORM "B"



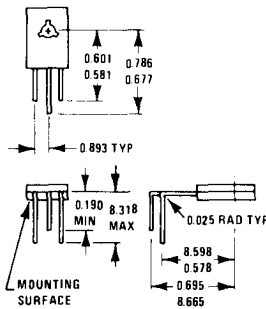
CASE 77 LEAD FORM "C"



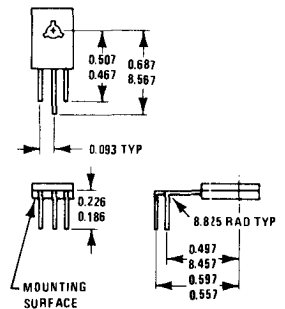
CASE 77 LEAD FORM "D"



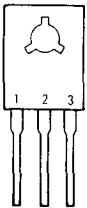
CASE 77 LEAD FORM "E"



CASE 77 LEAD FORM "F"

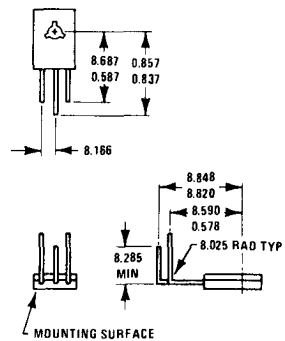


CASE 90 STYLES

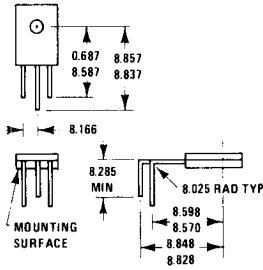


- STYLE 1
 - PIN 1. CATHODE
 - 2. ANODE
 - 3. GATE
- STYLE 2
 - PIN 1. EMITTER
 - 2. COLLECTOR
 - 3. BASE
- STYLE 3
 - PIN 1. CATHODE
 - 2. GATE
 - 3. ANODE
- STYLE 4
 - PIN 1. MT 1
 - 2. MT 2
 - 3. GATE

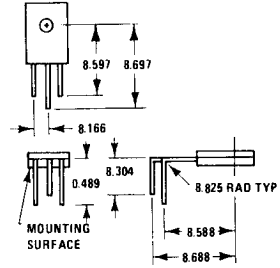
CASE 90 LEAD FORM "A"



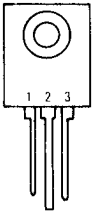
**CASE 90
LEAD FORM "B"**



**CASE 90
LEAD FORM "C"**

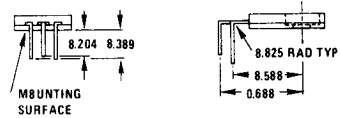
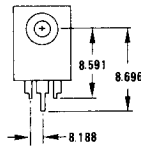


CASE 199 STYLES

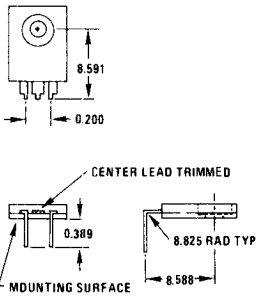


- STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
- STYLE 2:
PIN 1. CATHODE
2. ANODE
3. GATE
- STYLE 3:
PIN 1. ANODE 1
2. ANODE 2
3. GATE

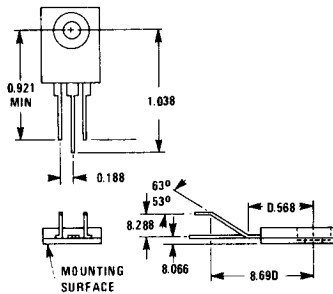
**CASE 199
LEAD FORM "A"**



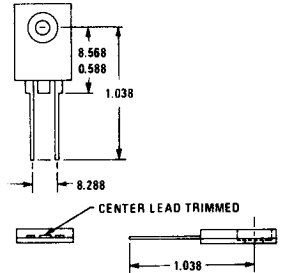
**CASE 199
LEAD FORM "B"**



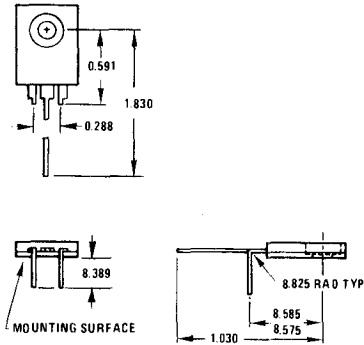
**CASE 199
LEAD FORM "C"**



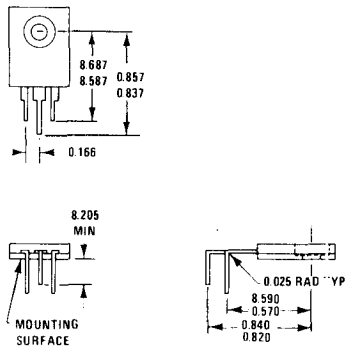
**CASE 199
LEAD FORM "D"**



CASE 199 LEAD FORM "E"



CASE 199 LEAD FORM "F"



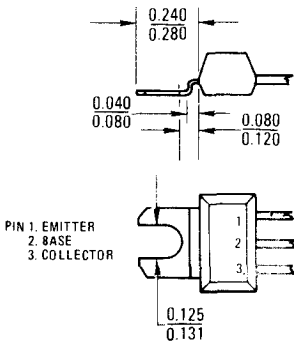
Uni watt Package (Case 152)

This package is designed with the collector mounted on a metal tab that extends out of the plastic. The tab can be attached to a heat sink to conduct heat away from the junction.

CASE 683

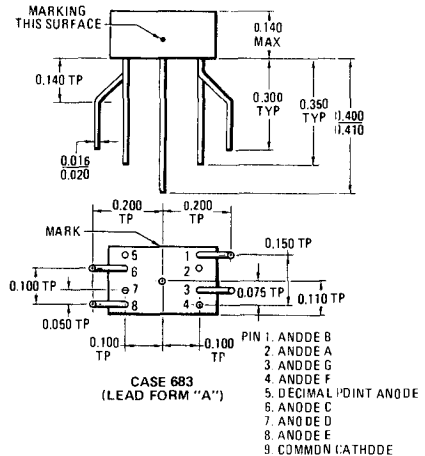
This package has lead forming to facilitate insertion into a P C board with leads on .100" centers.

CASE 152



Tab formed for flush mounting available on request.

CASE 683 LEAD FORM "A"



Motorola offers a wide variety of technical literature to assist you in the selection and application of semiconductors. Many publications are available, ranging from comprehensive data books and catalogs, to informative engineering bulletins, brochures and application notes. Most publications are available at no cost. Others may be purchased at prices which barely cover the costs of printing and distribution.

Check the listing that follows. Chances are there's a Motorola publication available right now that will furnish some of the design solutions you've been looking for. To obtain information write to Technical Information Center, Motorola Semiconductor Products Inc., P.O. Box 20912, Phoenix, Arizona 85036 and list publications by title and number.

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Data Books and Handbooks	10-2, 10-3
Brochures	10-4
Application Note Selector Guide	10-5
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DATA BOOKS

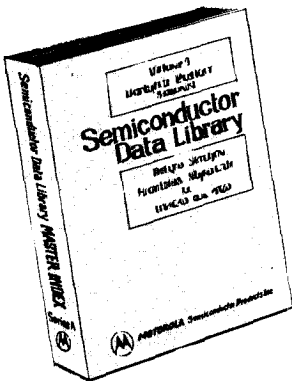
THE SEMICONDUCTOR DATA LIBRARY — Provides technical data on a wide variety of discrete devices, as well as digital and linear integrated circuits. This reference library is made up of the following volumes

Master Index — A self-contained compendium of semiconductor devices provides major electrical specifications for all EIA registered semiconductors, and for all Motorola house-numbered devices. This volume enables the user to locate and select devices for most any application of specific circuit .

Volume I — Includes complete data sheets for EIA registered type numbers available from Motorola up to 1N4999 and 2N4999 .

Volume II — Includes complete data sheets for EIA registered type numbers available from Motorola from 1N5000 and 2N5000 and up .

Volume III — Includes complete specifications for all Motorola discrete component non-registered device type numbers .



Semiconductor Chips Data Book — This comprehensive reference contains complete information and ordering procedures for standard Motorola active and passive component chips and wafers. Data covers conventional, flip-chip and beam-lead forms. Also included are geometries, metallization, chip dimensions, and handling information for Motorola's most popular devices, covering all product lines — both discrete and IC's .

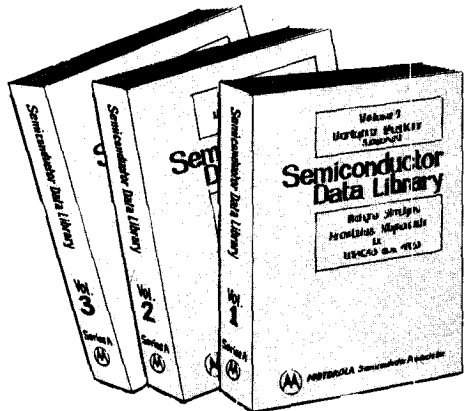
The MECL Data Book — Volume IV — Provides detailed specifications, plus family and systems characteristics of the entire MECL family of circuits and lists data on all currently available devices, including the popular MECL 10,000 family.

A general information section provides comparative data for all of the MECL lines .

The CMOS Data Book — This fact-packed reference volume contains detailed design information followed by abstracts of available Motorola application notes and other CMOS reference literature. Also included are a CMOS selector guide, a general characteristics section and complete data sheets on individual CMOS devices .

The Linear IC Data Book — Complete data sheets of Motorola's broad linear line including operational amplifiers, voltage regulators, high-frequency circuits, multipliers, modulators, detectors, radio-TV types, automotive types, linear-digital interface circuits, and a variety of special purpose devices. In addition, selection guides, package dimensions and application note references are also included.

Phase-Locked Loop Systems Data Book — Included are specifications covering various functions from a variety of logic families, allowing the designer a multitude of design variations to meet optimum design objectives. System trade-offs and advantages are discussed. Product data for phase-locked loops, oscillators-multivibrators, mixers and counters are detailed to simplify product selection .



HANDBOOKS

THE MECL SYSTEM DESIGN HANDBOOK — Comprised of ten chapters, the handbook includes over 200 illustrations providing circuit and waveform diagrams as well as numerical data. Wiring rules and system techniques are covered for MECL II, III and the popular, low-power, high-speed MECL 10,000.

SWITCHING TRANSISTOR HANDBOOK — A switching transistor manual that not only provides detailed design procedures for saturated-mode, current-mode (ECL) and avalanche-mode circuits, but also relates much needed device characterization and reliability data to practical worst-case circuit design.

ZENER DIODE HANDBOOK — Includes theory and practical "how-to-do-it", information for zener diodes, reference diodes, reference amplifiers, current regulators and more.

SILICON RECTIFIER HANDBOOK — Thirteen chapters devoted to Characteristics, Circuit Design, Cooling Techniques, and Specs & Ratings. It also presents thermal properties, filter systems, voltage multiplier circuits, transient protection, and power supply design.

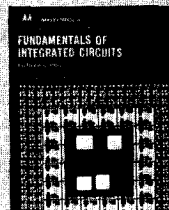
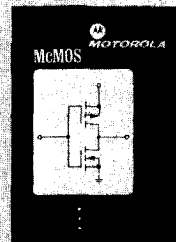
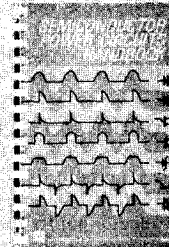
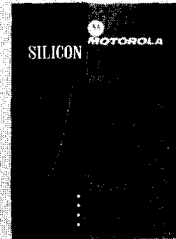
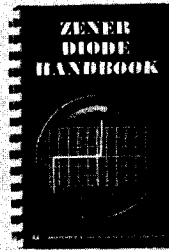
SEMICONDUCTOR POWER CIRCUITS HANDBOOK — This handbook details practical circuits using power transistors, thyristors, rectifiers and regulator diodes. Applications include speed controls, inverters, regulators, solid-state static switching of both ac and dc source voltages, servo and audio amplifiers (1 to 50 watts).

McMOS HANDBOOK — Discusses CMOS characteristics, fundamental logic configurations, and system design considerations for this popular low-power digital family. In addition, this handbook provides applications information, family data, and logic diagrams.

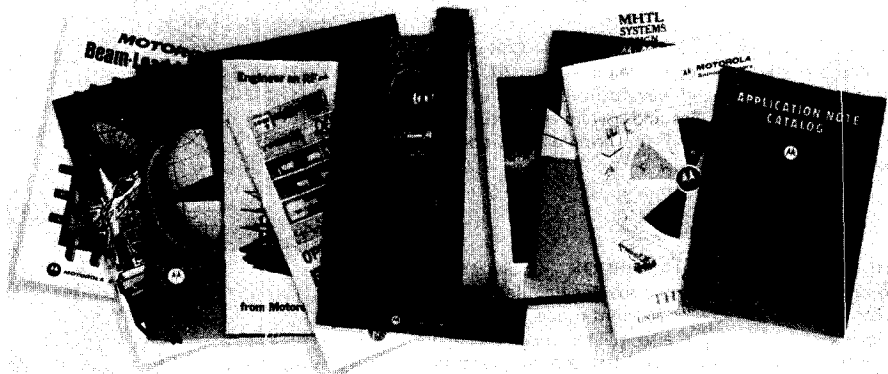
TEXTBOOK

FUNDAMENTALS OF INTEGRATED CIRCUITS

Although intended primarily as an introductory guide for IC engineers and electronic technicians, the book is written to be readily understandable by almost anyone with a good, basic semiconductor background. Among the many topics covered are integrated circuit theory, manufacture and applications — using a minimum of mathematics.



BROCHURES



APPLICATION NOTE CATALOG — Lists over 200 application notes covering the broad spectrum of discrete devices and integrated circuits.

GUIDE TO THYRISTORS — An overview of Motorola thyristors includes characteristics and ratings, definitions and symbols, uses and a product cross reference. Provides easy selection of the best device for many requirements.

MASTER SELECTION GUIDE — A guide to simplify selection of the "best" semiconductor device for new designs. Selection tables include popular discrete devices and integrated circuits arranged to highlight the prime selection criteria in easy-to-use order. A must for design engineers.

MHTL SYSTEMS DESIGN LIBRARY — A brochure of Motorola's family of high-threshold logic for control functions in high-noise industrial environments. This compendium contains a multiplicity of device types complete with data sheets and related application notes for designs requiring high-noise immunity.

MICROELECTRONICS CONDENSED CATALOG — A collection of selector guides and logic diagrams for all circuits in Motorola's digital lines — MECL, MOS, CMOS, MHTL, MTTL, MDTL, and MRTL. It also includes complete selector guides for a wide variety of linear integrated circuits for industrial consumer applications.

MOTOROLA SEMICONDUCTORS FOR CONSUMER ELECTRONICS — A 48-page selection guide of new and preferred solid-state devices for entertainment systems. It specifies trends, highlights, application note references for TV receivers, AM-FM receivers, and audio systems.

OPTOELECTRONICS SELECTOR GUIDE AND CROSS REFERENCE — A compendium of off-the-shelf light emitters, light sensors and optical couplers for advance equipment designs. Selector guides with basic specs plus a variety of packages. In addition a substitution guide cross references the Motorola replacement type number for many opto devices.

OPTO-COUPLEDERS AT WORK — A 20-page brochure presenting typical circuits and applications using optical couplers in control circuits, solid-state relays, and wire communications.

RF DESIGN GUIDE — RF device and power varactor data presented in selection guide format by design application. Includes functional system complements for equipment operating at a variety of power levels, in frequency ranges from 2 MHz to 1 GHz.

SELECTION AND USE OF FETS — An overview of a wide variety of junction FETs and MOS FETs with N- or P- channel polarity — both single and dual gates. Typical circuit applications, selector guides, packaging, and a cross reference provide valuable FET design information.

SMALL SIGNAL PLASTIC TRANSISTOR SELECTION GUIDE AND CROSS REFERENCE — This directory is designed to afford selection of the right silicon plastic transistor for specific applications. It presents a wide range of device types in four basic package configurations.

SEMICONDUCTORS FOR COMMUNICATIONS SYSTEMS — A cross-section of semiconductors in the context to their applications in two major sections:

Part I — Radio Transmission and Reception

Part II — Wire Communications

Easy to use selection guides for both discrete devices and integrated circuits provide important parameter data for electronic communication applications.

BEAM-LEAD FACT BOOK — An overview of beam-lead devices and beam-lead chips with basic specs and dimensioned drawings. In addition, separate sections dealing with beam-lead economics and technology are included for readers requiring this background information to help them determine the adaptability of beam-lead components to their applications.

APPLICATION NOTE SELECTOR GUIDE AND ABSTRACTS

SELECTOR GUIDE

The Applications Notes listed below and described in the subsequent section, have been prepared to acquaint the circuits and systems engineer with the broad line of Motorola Semiconductor Products and their applications.

To obtain copies of these notes, simply list the AN number or numbers and send your request on your company letter-head to: Technical Information Center, Motorola Semiconductor Products Inc., P.O. Box 20912, Phoenix, Arizona 85036.

APPLICATION NOTE NUMBER	TITLE
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AUDIO AMPLIFIERS

AN-182	A Method of Predicting Thermal Stability
AN-401	The MC1554 One-Watt Monolithic Integrated Circuit Power Amplifier
AN-426A	Low Power Audio Amplifiers Using Complementary Plastic Transistors
AN-483B	20 and 30 Watt Power Amplifiers Using Darlingtons Output Transistors
AN-484A	Medium Power Audio Amplifiers
AN-485	High-Power Audio Amplifiers with Short-Circuit Protection

COMPUTER

AN-245A	An Integrated Core Memory Sense Amplifier
AN-464	MTTL Designer's Note - The MC4004/MC4005, A 16-Bit Random Access Memory
AN-465	MTTL Designer's Note - The MC4006/MC4007 Decoders
AN-474	The MC1541 - A Gated Dual-Channel Sense Amplifier for Core Memories
AN-476	MTTL Designer's Note - The MC4000 Data Selector and the MC4002 Data Distributor
AN-487	A High-Speed Ripple-Through Arithmetic Processor
AN-488	High-Speed Addition Using Lookahead Carry Techniques
AN-496A	Error Detection and Correction Using Exclusive-OR Gates and Parity Trees
AN-505	The MC4012, an MTTL 4-Bit Shift Register
AN-506	Code Conversion with Semiconductor Read Only Memories
AN-530A	The MC7491A Eight-Bit Serial Shift Register and the MC7495 Four-Bit Shift Register
AN-533	Semiconductors for Plated-Wire Memories
AN-547	A High Speed Dual Differential Comparator, the MC1514
AN-550	Programming the MCM5003/5004 Programmable Read Only Memory

APPLICATION NOTE NUMBER	TITLE
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AN-573	Engineering Report: A Comparison Between MECL 10,000 and Schottky TTL Minicomputer Designs
AN-576	The Logical Design of Shift Counters
AN-700	Simulate MECL System Interconnections With a Computer Program
AN-711	The Recovery of Recorded Digital Information in Drum, Disk and Tape Systems.
AN-713	Binary D/A Converters can Provide BCD-Coded Conversion
AN-722	Replacing Sequential Logic with ROMS
AN-724	Operational Aspects of Motorola's Data Terminal
AN-726	Bussing with MECL 10,000 Integrated Circuits
AN-730	A High Speed FIFO Memory Using the MECL MC10143 Register File

DIGITAL LOGIC CIRCUITS

MDTL

AN-408	Problems and Solutions with MDTL and MRTL
AN-487	A High-Speed Ripple-Through Arithmetic Processor
AN-496A	Error Detection and Correction Using Exclusive-OR Gates and Parity Trees
AN-519	Using MDTL Logic Blocks
AN-707	Noise Immunity Comparison of CMOS Versus Popular Bipolar Logic Families

MECL

AN-194A	Designing Integrated Serial Counters
AN-270	Nanosecond Pulse Handling Techniques
AN-417	IC Crystal Controlled Oscillators
AN-418	High Speed Monostable Multivibrator Design with MECL Interface Circuits
AN-488	High-Speed Addition Using Lookahead Carry Techniques
AN-496A	Error Detection and Correction Using Exclusive-OR Gates and Parity Trees
AN-504	The MC1600 Series MECL III Gates
AN-532A	MTTL and MECL Avionics Digital Frequency Synthesizer

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APPLICATION NOTE SELECTION GUIDE (continued)

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AN-534	Commutating Filter Techniques	MTTL	
AN-536	Micro-T Packaged Transistors for High Speed Logic Systems	AN-270	Nanosecond Pulse Handling Techniques
AN-556	Interconnection Techniques for Motorola's MECL 10,000 Series Emitter Coupled Logic	AN-464	MTTL Designer's Note -- The MC4004/MC4005, A 16-Bit Random Access Memory
AN-565	Using Shift Registers as Pulse Delay Networks	AN-465	MTTL Designer's Note -- The MC4006/MC4007 Decoders
AN-566	High Speed Binary Multiplication Using The MC10181	AN-476	MTTL Designer's Note -- The MC4000 Data Selector and the MC4002 Data Distributor
AN-567	MECL Positive and Negative Logic	AN-488	High-Speed Addition Using Lookahead Carry Techniques
AN-572	Initial Reliability Report for MECL 10,000 Integrated Logic Circuits	AN-492	Operating Characteristics of Motorola MC3000/MC3100 Series Transistor-Transistor Logic Gates
AN-579	Testing MECL 10,000 Integrated Logic Circuits	AN-493	The MC3000/MC3100 Series Transistor-Transistor Logic Flip-Flops
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AN-583	A MECL 10,000 Main Frame Memory Employing Dynamic MOS RAMS	AN-505	The MC4012, an MTTL 4-Bit Shift Register
AN-584	Programmable Counters Using the MC10136 and MC10137 MECL 10,000 Universal Counters	AN-506	Code Conversion with Semiconductor Read Only Memories
AN-586	Measure Frequency and Propagation Delay With High Speed MECL Circuits	AN-528	Binary-to-BCD and BCD-to-Binary Conversion with Complex IC Functions
AN-592	AC Noise Immunity of MECL 10,000 Integrated Circuits	AN-530A	The MC7491A Eight-Bit Serial Shift Register and the MC7495 Four-Bit Shift Register
AN-700	Simulate MECL System Interconnections With a Computer Program	AN-532A	MTTL and MECL Avionics Digital Frequency Synthesizer
AN-701	Understanding MECL 10,000 DC and AC Data Sheet Specifications	AN-534	Commutating Filter Techniques
AN-709	MECL 10,000 Arithmetic Elements, MC10179, MC10180, MC10181	AN-537	The MC4032, an MTTL 4-Bit Universal Counter
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AN-298	Noise Immunity with High Threshold Logic	AN-578	UHF Microstrip Amplifiers Utilizing G-10 Epoxy-Glass Laminate
AN-414	Operations and Application of MHTL IC Flip-Flops	AN-581	An MSI 500 MHz Frequency Counter Using MECL and MTTL
AN-467	Using Motorola High Threshold Logic	AN-707	Noise Immunity Comparison of CMOS Versus Popular Bipolar Logic Families
AN-524	Converting Relay Control Systems to Digital ICs	MOS	
AN-707	Noise Immunity Comparison of CMOS Versus Popular Bipolar Logic Families	AN-538A	Motorola Complementary MOS Integrated Circuits
AN-712	Interface Techniques Between Industrial Logic and Power Devices	AN-562	MOS Dynamic RAMS in Memory Systems
MRTL		AN-574	CMOS: A New Logic Type for Control Systems
AN-251A	Decade Counters Using MRTL Integrated Circuits	AN-583	A MECL 10,000 Main Frame Memory System Employing Dynamic MOS RAMS
AN-408	Problems and Solutions with MDTL and MRTL	AN-591	Using CMOS in System Designs -- Those All-Important Details
AN-451	A Frequency Counter Using Motorola RTL Integrated Circuits		

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AN-707	Noise Immunity Comparison of CMOS Versus Popular Bipolar Families
AN-712	Interface Techniques Between Industrial Logic and Power Devices
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AN-715	Introduction to CMOS IC's With 3-State Outputs
AN-724	Operational Aspects of Motorola's Data Terminal FET
AN-211A	Field-Effect Transistors in Theory and Practice
AN-219	The Field-Effect Transistor in Digital Applications
AN-220	FET's in Chopper and Analog Switching Circuits
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AN-455	Using the FET Designers Data Sheet for Worst Case Amplifier Circuit Design
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AN-220	FET's in Chopper and Analog Switching Circuits
AN-221	4-Layer and Current-Limiter Diodes Reduce Circuit Cost and Complexity
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AN-470	Bipolar Chopper Transistors and Circuits
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AN-489	Analysis and Basic Operation of the MC1595
AN-510A	A Function Generator
AN-524	Converting Relay Control Systems to Digital ICs
AN-534	Commutating Filter Techniques
AN-540	A Synchronously Gated N-Decade Sweep Oscillator
AN-541	Medium Scale Integration in the Numerical Control Field
AN-552	The Control Engineer's Guide to IC Applications
AN-557	Analog-to-Digital Cyclic Converter
AN-559	Simple RAMP A/D Converter
AN-574	CMOS: A New Logic Type for Control Systems
AN-581	An MSI 500 MHz Frequency Counter Using MECL and MTTL
AN-586	Measure Frequency and Propagation Delay With High Speed MECL Circuits

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AN-407	A General Purpose IC Differential Output Operational Amplifier
AN-411	The MC1535 Monolithic Dual Op Amp
AN-439	MC1539 Op Amp and its Applications
AN-459	A Simple Technique for Extending Op Amp Power Bandwidth
AN-522	The MC1556 Operational Amplifier and its Applications
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AN-189	Solid-State Pulse Width Modulation DC Motor Control

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AN-268	Pulse Triggering of Radar Modulator SCR's	AN-2908	Mounting Procedure for, and Thermal Aspects of, Thermopad Plastic Power Devices
AN-295	Suppressing RFI in Thyristor Circuits	AN-415A	Avoiding Second Breakdown
AN-413	Unijunction Trigger Circuits for Gated Thyristors	AN-555	Mounting Stripline-Opposed-Emitter (SOE) Transistors
AN-436	Conventional and Soft-Start Dimming of Incandescent Lights	AN-599	Mounting Techniques for Metal Packaged Power Semiconductors
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AN-443	Directional and Speed Control of Series, Universal and Shunt Motors	AN-182	A Method of Predicting Thermal Stability
AN-445	Pulse-Width Modulation for DC-Motor Speed Control	AN-290B	Mounting Procedure for, and Thermal Aspects of, Thermopad Plastic Power Devices
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AN-518	Constant-Speed Motor Control Using Tachometer Feedback	AN-568	A Fuse-Thyristor Coordination Primer
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AN-499	Shutdown Techniques for the MC1560-61/69 Monolithic Voltage Regulators	AN-249	Designing Around the Tuning Diode Inductance
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AN-512	Applications of Fast-Recovery Rectifiers	AN-419	UHF Amplifier Design Using Data Sheet Design Curves
AN-517	Improving the Efficiency of Low-Voltage, High-Current Rectification	AN-421	Semiconductor Noise Figure Considerations
AN-529	Regulated Line Operated Inverter Uses High Voltage Power Transistors and Hot Carrier Rectifiers	AN-423	Field-Effect Transistor RF Amplifier Design Techniques
AN-588	A 20 kHz, 1 kW Line Operated Inverter	AN-478A	Small-Signal RF Design with Dual-Gate MDS-FETS
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AN-416	One-Step High Order Frequency Multipliers
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AN-546	Solid-State Linear Power Amplifier Design
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AN-512	Applications of Fast-Recovery Rectifiers
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AN-723	Measuring RF Spray Radiation from High Voltage Stick Rectifiers
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SENSE AMPLIFIERS

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AN-474	The MC1541 - A Gated Dual-Channel Sense Amplifier for Core Memories
AN-533	Semiconductors for Plated-Wire Memories
AN-547	A High Speed Dual Differential Comparator, The MC1514

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AN-422	Testers for Thyristors and Trigger Diodes
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AN-568	A Fuse-Thyristor Coordination Primer

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AN-544A	Printed Circuit VHF TV Tuners Using Tuning Diodes
AN-545	Television Video IF Amplifier Using Integrated Circuits
AN-549	A Vertical Deflection Circuit Using Complementary Transistors
AN-560	Designing Tuned Lines for UHF TV Tuners
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AN-294	Unijunction Transistor Timers and Oscillators
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AN-527	Theory, Characteristics and Applications of the Programmable Unijunction Transistor

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AN-404	A Wideband Monolithic Video Amplifier
AN-475	Using the MC1545 -- A Monolithic, Gated Video Amplifier
AN-491	Gated Video Amplifier Applications The MC1545

APPLICATION NOTE SELECTOR GUIDE AND ABSTRACTS

ABSTRACTS

AN-139A Understanding Transistor Response Parameters

This note explains high-frequency transistor response parameters and discusses their interdependence. Useful nomograms are given for determining h_{fe} , f_T , f_{ae} , f_{max} , and many other parameters.

AN-166 Using Linvill Techniques for RF Amplifiers

A design procedure, derived from theory developed by J. G. Linvill, simplifies the design of single stage small-signal RF amplifiers. A 200 MHz amplifier serves as an example of the technique.

AN-178A Epicap Tuning Diode Theory and Applications

General electronic-tuning considerations are discussed, including important parameters such as Q , tuning range, and temperature stability.

AN-182 A Method of Predicting Thermal Stability

Variations in DC bias current with temperature is an important consideration in the design of reliable transistor audio amplifiers. This note gives a useful method of predicting the thermal stability of biasing circuits.

AN-189 Solid-State Pulse Width Modulation DC Motor Control

Pulse-width modulation, an effective method of DC voltage control, provides motor speed regulation under varying torque conditions - ideal for traction drive vehicles.

AN-194A Designing Integrated Serial Counters

MECL monolithic integrated J-K flip-flops serve as building blocks for ultra-high-speed ripple counters. General design techniques for designing counters of any arbitrary count.

AN-204A The MC1530, MC1531 Integrated Operational Amplifiers

Two new high performance monolithic operational amplifiers feature exceptionally high input impedance and high open loop gain. This note describes the function of each stage in the circuit, methods of frequency compensating and DC biasing. Four applications are discussed: a summing circuit, an integrator, a DC comparator, and transfer function simulation.

AN-210 FM Modulation Capabilities of Epicap VVC's

The author shows by empirical methods that the frequency vs. voltage curve for Epicap voltage variable capacitors is linear for small (sufficient for most FM modulator applications) voltage variations.

A rigorous mathematical explanation of this linear interdependence follows the empirical demonstration.

AN-211A Field-Effect Transistors in Theory and Practice

The basic theory, construction, and application information for field-effect transistors (junction and MOS types) are given. Also included are some typical test circuits for checking FET parameters.

AN-215A RF Small-Signal Design Using 2-Port Parameters

Power gain and stability of high-frequency transistors may be completely described by two port parameters.

This paper presents a summary of the overall design solution for the small-signal RF amplifier using two-port parameters. Design considerations and relationships for both the stable and the potentially unstable transistor are presented together with a discussion of neutralized, unneutralized, matched, and mismatched amplifiers.

AN-219 The Field-Effect Transistor in Digital Applications

Field-effect transistors have definite advantages over junction transistors in many digital applications: high fan-out, direct coupled circuitry (lower component count), extremely low power dissipation, and low temperature coefficient circuits are among the most important.

This paper provides the designer with an up-to-date discussion of JFET and MOSFET switching characteristics and how they are used in the design of basic digital circuits. The final portion of this paper discusses a family of JFET logic circuits, a family of MOSFET, and future prospects.

AN-220 FET's in Chopper and Analog Switching Circuits

The author's discussion begins with elementary chopper and analog switch characteristics—explores fully the considerations required for conventional and FET chopper and analog switch design—and finishes with specific FET circuit examples.

AN-221 4-Layer and Current-Limiter Diodes Reduce Circuit Cost and Complexity

The authors present four simple circuits in which 4-layer diodes and current-limiter diodes are used to provide increased circuit performance: A Saw-tooth generator (two variations), a staircase generator and a ring counter.

A brief discussion of the electrical characteristics of 4-layer and field-effect diodes precedes the circuit examples.

AN-222 The ABCs of Solid-State DC to AC Inverters

The author provides a comprehensive examination of the entire field of DC to AC inverters. Among the topics discussed are: the proper inverter for a specific application; operation principles of different types of inverters; the problem of proper device selection in the design of inverters; an inverter design example.

AN-226 Thermal Measurements on Semiconductors

This note describes the techniques used by Motorola to obtain the thermal resistance of transistors, rectifiers, and thyristors.

AN-238 Transistor Mixer Design Using 2-Port Parameters

Mixer circuit design may be simplified by the use of small-signal admittance parameters. This note describes in detail the effective application of this design technique and the corresponding results. Several design examples are discussed.

AN-240 SCR Power Control Fundamentals

Relationships of control angle to peak voltage, average voltage, RMS voltage and power are presented in chart form. Time constant for relaxation oscillators are discussed for both DC and AC supplies. These basics form the heart of SCR control.

AN-245A An Integrated Core Memory Sense Amplifier

This application note discusses core memories and related design considerations for a sense amplifier. Performance and environmental specifications for the amplifier design are carefully established so that the circuit will work with any computer using core memories. The final circuit design is then analyzed and measured performance is discussed. The amplifier features a small uncertainty region (6 mV max), adjustable voltage gain, and fast cycle time (0.5 μ s).

AN-247A An Integrated Circuit RF-IF Amplifier

A new, versatile integrated circuit for RF-IF applications is introduced which offers high gain, extremely low internal feedback and wide AGC range. The circuit is a common-emitter, common-base pair (the cascade connection) with an AGC transistor and associated biasing circuitry. The amplifier is built on a very small die and is economically comparable to a single transistor, yet it offers performance advantages unobtainable with a single device. This application note describes the AC and DC operation of the circuit, a discussion of Y-parameters for calculating optimum power and voltage gain, and a variety of applications as an IF single-tuned amplifier, IF stagger-tuned amplifier, oscillator, video-audio amplifier and modulator. A discussion of noise figure is also included.

AN-248 The MC1533 Monolithic Operational Amplifier

This note introduces a high voltage monolithic operational amplifier featuring high open loop gain, large common mode input signal, and low drift. The function of each stage in the circuit is analyzed, and methods for frequency compensating the amplifier are discussed. DC biasing parameters are also examined. Four applications using the amplifier are discussed: a source follower, a twin tee filter and oscillator, a voltage regulator, and a high input impedance voltmeter.

AN-249 Designing Around the Tuning Diode Inductance

The effect of varactor inductance is described, and equations and graphs are presented in order to predict the inductance value and to determine when its effects on performance is significant.

In addition, a design example of a varactor-tuned capacity-loaded half-wave cavity from 470 MHz to 890 MHz, and derivations of design equations for varactor tuned quarter wave and half-wave cavities as well as for lumped series tuned circuits are shown.

AN-251A Decade Counters Using MRTL Integrated Circuits

This application note discusses the design and implementation of decade counters using the MRTL family of integrated logic. Ripple counters, shift counters, and parallel clocked counters are developed using BCD, 2'421, and excess 3 digital codes. Up and down counting techniques are discussed. Output decoding, problem areas and circuit limitations are covered for all counter types.

AN-261A Transistor Logarithmic Conversion Using an Operational Amplifier

The design of a log amplifier using a common base transistor configuration as the feedback element of an integrated circuit operational amplifier circuit is discussed in this application note. Six decades of logarithmic conversion are obtained with less than 1% error of output voltage. The possible causes of error are discussed followed by two applications: direct multiplication of two numbers, and solution of the equation $Z = X^n$.

AN-267 Matching Network Designs with Computer Solutions

Computer solutions for four networks commonly used in solid-state high frequency amplifiers have been tabulated.

AN-268 Pulse Triggering of Radar Modulator SCR's

Factors involved in dynamic gate triggering are examined and relations of gate triggering characteristics to variations of total current amplifications with gate current are shown.

AN-270 Nanosecond Pulse Handling Techniques In IC Interconnections

The rapid advancement in the field of high speed digital integrated circuits has brought into focus many problem areas in the methods of pulse measurement techniques and new concepts dealing with these problems. This paper is intended to discuss the more common, yet perhaps not well known, pitfalls of measurement systems, a method of detecting them and possible solutions.

AN-273A More Value out of Integrated Operational Amplifier Data Sheets

The operational amplifier is rapidly becoming a basic building block in present day solid state electronic systems. The purpose of this application note is to provide a better understanding of the open loop characteristics of the amplifier and their significance to overall circuit operation. Also, each parameter is defined and reviewed with respect to closed loop considerations. The importance of loop gain stability and bandwidth is discussed at length. Input offset circuits are also reviewed with respect to closed loop operation.

AN-282A Systemizing RF Power Amplifier Design

The design of high-power, Class C, RF transistor amplifiers can be greatly simplified through the use of large-signal device characterization. This note explains design procedures and furnishes large-signal impedance data for eight Motorola RF power transistors.

AN-290B Mounting Procedure for, and Thermal Aspects of, Thermopad Plastic Power Devices

Many Motorola power devices are now available in the Plastic Thermopad packages. Three package types are presently available. This application note provides information concerning the handling and mounting of these packages, as well as information on some thermal aspects.

AN-293 Theory and Characteristics of the Unijunction Transistor

This note discusses the theory of operation, the important characteristics and the behavior of the unijunction transistor under several operating conditions. In addition, a comparison is made between the different fabrication methods used to construct the UJT. Included is a table explaining UJT nomenclature.

AN-294 Unijunction Transistor Timers and Oscillators

Twelve different unijunction transistor circuits, complete with parts lists are given. Temperature stabilization of the peak-point voltage is examined and dynamic operation paths are discussed.

AN-295 Suppressing RFI in Thyristor Circuits

Measures taken to suppress RFI are shown. Design considerations and examples are explored as well as some solutions to the RFI problem.

AN-298 Noise Immunity with High Threshold Logic

A comparison of noise immunity characteristics is made between MHTL devices and standard saturated logic devices.

AN-299 An IC Wideband Video Amplifier with AGC

This application describes the use of the MC1550 as a wideband video amplifier with AGC. The analysis of a single stage amplifier with 28 dB of gain and 22 MHz bandwidth is given with the results extended to a 78 dB video amplifier with 10 MHz bandwidth.

AN-401 The MC1554 One-Watt Monolithic Integrated Circuit Power Amplifier

This application note discusses four different applications for the MC1554, along with a circuit description including DC characteristics, frequency response, and distortion. A section of the note is also devoted to package power dissipation calculations including the use of the curves on the power amplifier data sheet.

AN-403 Single Power Supply Operation of IC Op Amps

A split zener biasing technique that permits use of the MC1530/1531, MC1533, and MC1709 operational amplifiers and their restricted temperature counterparts MC1430/1431, MC1433 and MC1709C from a single power supply voltage is discussed in detail. General circuit considerations as well as specific AC and DC device considerations are outlined to minimize operating and design problems.

AN-404 A Wideband Monolithic Video Amplifier

This note describes the basic principles of AC and DC operation of the MC1552G and MC1553G, characteristics obtained as a function of the device operating modes, and typical circuit applications.

AN-407 A General Purpose IC Differential Output Operational Amplifier

This application note discusses four different applications for the MC1520 and a complete description of the device itself. The final sections of the note discuss such topics as operation from single and split power supplies, frequency compensation, and various feedback schemes.

AN-408 Problems and Solutions With MDTL and MRTL

Problems which may be encountered in using MRTL or MDTL integrated circuits in low or medium speed systems are examined in this report. Methods of shaping clock waveforms, restrictions on input and output terminals when interfacing with discrete components, and techniques for extending temperature range are discussed.

AN-411 The MC1535 Monolithic Dual Op Amp

This note discusses two dual operational amplifier applications and an input compensation scheme for fast slew rate for the MC1535. A complete AC and DC circuit analysis is presented in addition to many of the pertinent electrical characteristics and how they might affect the system performance.

AN-413 Unijunction Trigger Circuits for Gated Thyristors

This note describes the methods of supplying controlled pulse widths in synchronization with the AC power line to gated thyristors. The unijunction transistor provides a simple and convenient means of obtaining such pulses as well as including feedback with very little additional circuitry.

AN-414 Operation and Application of MHTL IC Flip-Flops

A master-slave R-S and a dual J-K are the initial flip-flop elements available in the Motorola High Threshold Logic (MHTL) family. This note describes operation and characteristics of each unit and illustrates several applications of these devices.

AN-415A Avoiding Second Breakdown

The use of safe-area data, the physical mechanism of second breakdown and applications to various circuits are presented. Also included is a short discussion of test procedures and a typical test circuit used to establish safe area curves.

AN-416 One-Step High Order Frequency Multipliers

The circuits described in this report include the use of lumped constants, coaxial cavities, and waveguides. The design of lumped constant, low order multipliers is discussed in Application Notes AN-147 and AN-151 and coaxial cavity multiplier design is treated in Note AN-159. Therefore, only a brief outline of the X2 and X3 multiplier circuits will be given.

AN-417A IC Crystal Controlled Oscillators

Crystal controlled square wave oscillators can be used as clock drivers, harmonic sources for frequency markers, in frequency synthesizers, frequency comparators, etc. It is difficult to obtain high frequency square waves due to the long propagation delays of the most integrated circuits. The MECL 10,000 circuits with 2 ns propagation delays eliminate this problem. This note describes square wave oscillator circuits with crystal control that are capable of output frequencies, inverted and non-inverted, up to 200 MHz.

AN-418 High Speed Monostable Multivibrator Design with MECL Integrated Circuits

This note describes two configurations of monostable multivibrators using the MC1023 clock driver and a delay element. Operating frequencies in excess of 70 MHz and pulse widths of 4 nanoseconds are possible. Methods of obtaining the predetermined delay are also discussed.

AN-419 UHF Amplifier Design Using Data Sheet Design Curves

This note describes the design of UHF narrow-band amplifiers using the device loading admittances taken directly from the device data sheet. A design example is given in the form of a 1 GHz microstrip amplifier. Predicted results are compared to actual measured values. Also included is a short discussion on practical microstrip construction techniques.

AN-421 Semiconductor Noise Figure Considerations

A summary of many of the important noise figure considerations related with the design of low noise amplifiers is presented. The basic fundamentals involving noise, noise figure, and noise figure-frequency characteristics are then discussed with the emphasis on characteristics common to all semiconductors. A brief introduction is made to various methods of data sheet presentation of noise figure and a summary is given for the various methods of measurement. A discussion of low noise circuit design, utilizing many of the previously discussed considerations, is included.

AN-423 Field-Effect Transistor RF Amplifier Design Techniques

Amplifier design theory utilizing the two port network model for an active device has been well developed and used extensively in bipolar transistor high frequency amplifier design.

This paper discusses some of the theoretical and practical considerations for using this popular method to design field effect transistor amplifiers.

AN-426A Low-Power Audio Amplifiers Using Complementary Plastic Transistors

The use of complementary-symmetry output transistors in low-power audio amplifiers enables the circuit designer to achieve maximum circuit performance at minimum component cost. This note describes several audio amplifier circuits suitable for power outputs of up to 2 watts with 8-, 16- and 40-ohm loads. Also described is a line-operated single-ended audio amplifier suitable for table-radio or television applications.

AN-432B A Monolithic Integrated FM Stereo Decoder System

This application note discusses the circuit approach that has been taken in the realization of the first monolithic integrated stereo multiplex decoder built for consumer usage, as well as some of the details concerning its incorporation in an FM stereo receiver.

AN-436 Conventional and Soft-Start Dimming of Incandescent Lights

This note describes two dimmers that provide wide-range control of incandescent light intensity by adjusting the angle of conduction in a series triac. One dimmer features simplicity for small size and low cost, while the other offers soft-start operation to limit inrush current and lengthen lamp life.

AN-437B Design Considerations and Performance of Motorola Temperature-Compensated Zener Reference Diodes

This application note defines Motorola temperature-compensated zener (reference) diodes, explains the device characteristics, describes electrical testing, discusses the advanced concepts of device reliability and quality assurance, and outlines device construction.

AN-439 MC1539 Op Amp and its Applications

This application note discusses the MC1539, a second generation operational amplifier. The general use and operation of the amplifier is discussed with special mention made of improved operation[®] over that of its first generation predecessor the 709 type amplifier.

In addition to the detailed discussion on the DC and AC operation of the device, considerable emphasis is placed on operational performance. Many applications are offered to demonstrate the device capability, including a high frequency feed-forward scheme, and a source follower application.

AN-440 Theory and Characteristics of Phototransistors

A brief history of the photo-electric effect is discussed, followed by a comprehensive analysis of the effect in bulk semiconductors, pn junctions and phototransistors. A model is presented for the phototransistor. Static and transient data for the MRD300 provide typical phototransistor characteristics. Appendices provide a discussion of the relationship of irradiation and illumination and define terms specifically related to phototransistors.

AN-441 SCR Slaving Circuits

This circuit makes use of a low-cost transistor to overcome the limitations of a conventional R-C discharge circuit in slave firing of an SCR. It is especially useful where zero-point switching techniques are employed to control large electrical loads.

AN-442 Designing DC-DC Converters for Capacitor Charging with Batteries

This paper outlines design considerations for converters used for charging energy-stored capacitors with low-voltage batteries. The ratio of capacitor voltage to battery voltage is chosen to be greater than 100.

A discussion of converter characteristics is presented here from the standpoint of efficiency, frequency of oscillation, rate of energy transfer from battery to capacitor, and peak battery current drain.

A complete circuit is included that is tolerant of semiconductor parameter variations and is thus suitable for economical mass production.

AN-443 Directional and Speed Control for Series, Universal and Shunt Motors

A simple circuit containing few components allows control of both speed and direction of rotation of DC motors. The use of thyristors provides continuous driver control through the speed range without compromising the torque characteristics of the motors.

AN-445 Pulse-Width Modulation for DC-Motor Speed Control

Feedback derived from a motor's armature and dependent on its speed can be used to counteract the reduction in speed that accompanies loading. This note describes two speed-control circuits which use different methods to obtain the feedback signal. One method uses voltage sensing, and the other an optical pickup.

AN-447 Fast Charging Systems for Ni-Cd Batteries

This note discusses the requirements and problems encountered in designing fast charging systems for nickel-cadmium (Ni-Cd) cells, including some cell characteristics affected by high-rate charging.

AN-450 Induction Motor Speed Control

A method of providing speed control above and below design speed for an induction motor is shown in this note. Such speed control increases the versatility of an induction motor and permits it to be used in fulfilling requirements formerly satisfied only by DC motors.

AN-451 A Frequency Counter Using Motorola RTL Integrated Circuits

A frequency-period counter with a total hardware cost under \$200.00, based on unit quantity prices, is described. The instrument measures the periods and frequencies of periodic waveforms, ranging in frequency from 10 Hz to 20 MHz, and counts random occurrences for selected gate times of one millisecond to 10 seconds. A four digit decimal readout is provided. The low cost is achieved by utilizing plastic MRTL devices in unique versions of a crystal controlled oscillator, a period selector, a one shot multivibrator, a pulse shaper, and a switch contact bounce eliminator circuit.

AN-453 Zero Point Switching Techniques

This note discusses two unique pulse-type thyristor triggering circuits which meet the exact timing requirements of zero-point switching. They dissipate very little power and can be used with either sensitive or "shorted" gate devices.

AN-454 AC Overcurrent Protective Circuit with Automatic Reset

A unique circuit that will protect AC resistive loads from both overvoltage and overcurrent is shown. One feature of this circuit is that the sensing element is not in series with the load when the load is turned on.

AN-455 Using the FET Designers Data Sheet for Worst Case Amplifier Circuit Design

Basic information for the use of field-effect transistors is provided, and is an aid to complete understanding of the Designers Data Sheet. This report discusses the advantages, disadvantages, types and modes of operation of FETs and presents a definitive discussion of key parameters with their relationship to circuit design, when applicable.

AN-459 A Simple Technique for Extending Op Amp Power Bandwidth

The design of fast response amplifiers is presented without the use of "tricky" compensation procedures.

AN-460 Using Transient Response to Determine Operational Amplifier Stability

Analysis and an example are given for a technique that evaluates the stability of any particular feedback amplifier configuration by analyzing its response to a step-function input.

AN-461 Transient Suppression with a Power Zener Diode

This note discusses sources of voltage transients and their detection, and describes transient suppression using power zener diodes designed for this purpose.

AN-462 FET Current Regulators—Circuits and Diodes

Included are numerous FET current sourcing circuits, along with an extensive treatment of the current regulating diode and its uses as a valuable component in circuit design.

AN-464 M TTL Designer's Note—The MC4004/MC4005, A 16-Bit Random Access Memory

Pertinent information for the design of high speed, non-destructive readout (NDRO) memory systems using the M TTL 16-bit memory chip is given. The topics discussed are: (1) operation of the 16-bit memory including typical read and write sequences, (2) typical DC and switching characteristics as a function of temperature, power supply, and output load, and (3) examples of memory system organization utilizing the 16-bit memory as the basic cell.

AN-465 M TTL Designer's Note—The MC4006/MC4007 Decoders

Operation and expansion capabilities and examples of the system use of the MC4006 Binary to One-of-Eight Decoder and the MC4007 Dual Binary to One-of-Four Decoder are discussed.

AN-466 Circuit Applications for the Triac

This note discusses the basic theory of operation of the triac with control methods and circuit applications. Among the applications included are basic switches, lamp dimmers, motor controls, a heater control, a flasher, a regulator, protective circuits and zero-point switching.

AN-467 Using Motorola High Threshold Logic

This application note explains operation of the Motorola High Threshold Logic (MHTL) family of integrated circuits. It briefly describes the members of the family and provides many of the characteristics of the units. Several examples are provided to aid the reader in the application of this unique logic family.

AN-469 Line Operated 15-kHz Inverter

The circuit shown in this note is a line-operated inverter. It makes use of high-voltage, high-frequency silicon power transistors to provide 120 Volts and 200 Watts at 15 KiloHertz. Because of the high frequency of operation, the components used can be small in size, resulting in a very compact inverter.

AN-470 Bipolar Chopper Transistors and Circuits

Bipolar transistor chopper circuits are used in many applications for low-drift amplification of DC and low-frequency AC signals. This note discusses the characteristics of transistors used as choppers and the circuits in which they can be used.

AN-471 Analog-to-Digital Conversion Techniques

The subject of analog-to-digital conversion and many of the techniques that can be used to accomplish it are discussed. The paper is written in general terms from a system point of view and is intended to assist the reader in determining which conversion technique is best suited for a given application.

AN-472 Mounting and Heat Sinking Uniwatt Plastic Transistors

The Uniwatt plastic package is now being used for several medium-power transistor types. This note describes several methods for mounting such devices, with emphasis on proper heat sinking for best thermal characteristics.

AN-473 A Monolithic High-Power Series Voltage Regulator

This note discusses MC1560/MC1561 voltage regulator in terms of internal operation, development of these circuits, and how they are advantageously used in supply fabrication.

AN-474 The MC1541—A Gated Dual-Channel Sense Amplifier for Core Memories

The MC1541 sense amplifier can provide many magnetic core memory systems with lower system cycle times and a lower package count than with previous sense amplifiers. Circuit operation, design considerations, interface problems and typical applications are discussed.

AN-475 Using the MC1545—A Monolithic, Gated-Video Amplifier

Because of the unique design of the MC1545, this amplifier can be used as a gated video amplifier, sense amplifier, amplitude modulator, frequency shift keyer, balanced modulator, pulse amplifier, and many other applications. This note describes the AC and DC operation of the circuit and presents applications of the device as a video switch, amplitude modulator, balanced modulator, pulse amplifier, and others.

AN-476 MTTL Designer's Note—The MC4000 Data Selector and the MC4002 Data Distributor

Two MTTL complex functions, the MC4002 four and two-channel data distributor, and the MC4000 dual four-channel data selector are discussed. Their basic modes of operation and expansion capabilities are described. Examples of the use of the data distributor and the data selector in various systems are presented.

AN-478A Small-Signal RF Design with Dual-Gate MOSFETS

The dual-gate MOSFET offers low noise, high gain, and excellent AGC, cross-modulation and overload characteristics in RF applications. Recent devices also feature silicon nitride passivation for ease of handling and reliability. This note discusses the characteristics of dual-gate MOSFETs, with emphasis on designing circuits, noise figure, AGC, bandwidth and detuning, cross-modulation and mixer operation.

AN-480 Regulators Using Operational Amplifiers

The theory of op amp voltage regulator design is discussed. The problem areas associated with such designs are also detailed. The MC1560 is used as a OTC voltage reference in the op amp regulator designs that are shown. It is shown that regulation from 0.01% to 0.001% is possible.

AN-481 A Broadband 4-Watt Aircraft Transmitter

This report describes a 4-Watt wideband AM aircraft transmitter intended for light aircraft. The frequency range is 118 to 136 MHz and no tuning is required when changing frequency. The RF circuitry can be operated from 12.5 Volts, or can be used with a series modulator described in the note from 26 Volts.

AN-482 Electronic Speed Control of Appliance Motors

This application note discusses the possibilities of controlling several types of induction motors, universal motors, and permanent-magnet motors, and includes circuit designs for each. By matching the motor to its electronic control, the designer can obtain a simple and efficient system.

AN-483B 20 and 30 Watt Power Amplifiers Using Darlington Output Transistors

Use of monolithic power Darlington output transistors can greatly simplify the design of high-fidelity amplifiers. Described herein is a 20-Watt amplifier which uses only three transistors, and a 30-Watt amplifier which uses four.

AN-484A Medium-Power Audio Amplifiers

This note describes a basic circuit design approach for audio complementary power amplifiers. Procedures are detailed for the selection of input, driver and output transistors. Both simple and Darlington transistor systems are included. Biasing, thermal considerations, overload protection and power supply information is given extensive treatment.

Design examples, including all circuit values, performance data and suggested P.C. board layouts, are given for simple transistor amplifiers at the 3, 5, 7, 10, 15, 20, 25, and 35 Watt levels. Also included are three amplifiers using Darlington output transistors at the 15, 20, and 25 Watt levels.

AN-485 High-Power Audio Amplifiers with Short-Circuit Protection

This application note describes a recommended circuit approach for high-performance audio amplifiers in the 35-Watt to 100-Watt RMS power range. Circuitry is included which enables the amplifier to operate safely continuously under any load condition including a short.

AN-487 A High-Speed Ripple-Through Arithmetic Processor

A simple, systematic building block approach for designing a high-speed, ripple-through arithmetic processor is described. Using only gates and full adders, ultra-high speed multiplication, division, square root extraction, addition, and subtraction may be performed. Several variations of an arithmetic processor design are detailed and comparisons of speed and package count using the MECL and MDTL logic in 14-pin, 16-pin, 24-pin, 32-pin, and 64-pin packages are given.

AN-488 High-Speed Addition Using Lookahead Carry Techniques

The use of the lookahead carry principle to increase the operating speed of adder systems is described. Several adders of different sizes using variations of lookahead carry are developed and the logical implementation of these using the M TTL III and MECL II and III logic families is given.

AN-489 Analysis and Basic Operation of the MC1595

The MC1595 monolithic linear four-quadrant multiplier is discussed. The equations for the analysis are given along with performance that is characteristic of the device. A few basic applications are given to assist the designer in system design.

AN-491 Gated Video Amplifier Applications The MC1545

This application note reviews the basic operation of the MC1545 and discusses some of the more popular applications for the MC1545. Included are several modulator types, temperature compensation of the active gate, AGC, gated oscillators, FSK systems, and single supply operation.

AN-493 The MC3000/MC3100 Series Transistor-Transistor Logic Flip-Flops

This application note explains the basic operation of the various flip-flops available in the MC3000/MC3100 series of transistor-transistor logic from Motorola. Typical operating characteristics are included so that operation under different conditions can be determined.

AN-496A Error Detection and Correction Using Exclusive-OR Gates and Parity Trees

The availability of Exclusive OR gates and parity trees allows digital system designers to use error detection and correction codes to improve their system reliability and maintainability without the major cost penalty that has existed in the past. Use of Exclusive-OR gates and parity trees available in the MRTL, M TTL, MDTL, and MECL families to design simple parity and single error Hamming parity detection and correction circuits is discussed.

AN-498 Voltage and Current Boost Techniques Using The MC1560-61

The stability requirements for the current boosted MC1560-61 are discussed. Both internal and external compensation techniques are shown, along with heat-sink design information and typical circuits, including a self-oscillating switching regulator, and a voltage boost circuit.

AN-499 Shutdown Techniques for the MC1560-61/69 Monolithic Voltage Regulators

This note discusses the many ways one can use the shutdown control for the MC1560 Monolithic Voltage Regulator. These include logic control, short circuit detection, over voltage detection, junction temperature control, and thermal feedback. Also discussed, are current foldback and methods of restarting automatically from the shutdown state. The techniques discussed apply equally to the MC1560, MC1561, and MC1569 positive voltage regulators.

AN-500 Development, Analysis, and Basic Operation of the MC1560-61 Monolithic Voltage Regulators

In this note, the analysis and basic operation of the MC1560 and the MC1561 voltage regulators are discussed. The tests and parameters used on the data sheet are considered, and the problems of specifying a monolithic voltage regulator are identified. The basic circuit configurations are shown with some insight for the typical performance one can expect.

AN-504 The MC1600 Series MECL III Gates

This application note explains the basic operation of the various gates available in the MECL III logic family. Typical operating characteristics are included as an aid to the designer of high-speed logic along with recommended layout, breadboarding, and testing procedures. This note will also provide the designer with some insight into the overall capabilities of this logic line as they apply to this application.

AN-505 The MC4012, A M TTL 4-Bit Shift Register

The MC4012 is a 4-bit shift register consisting of four D-type flip-flops operated in the synchronous mode and may be used for temporary storage of information. The MC4012 may be operated in either the parallel or serial mode input depending upon the logic state of the mode control. Circuit operation and various applications of the device are the subject of this application note.

AN-506 Code Conversion with Semiconductor Read Only Memories

In digital systems, data is manipulated and transmitted in coded form and frequently must be translated from one code into another. The use of ready only memories to perform the various code conversions is discussed in this note. In particular, methods for converting data from the binary code to the binary coded decimal representation, and vice versa, are detailed. Conversion from the Hollerith code to the common 8-bit codes, such as the RS-358, ASC II, and EBCDIC codes, as well as conversions between the 8-bit codes are also treated.

AN-507 A 13-Watt Broadband AM Aircraft Transmitter

This report describes a wideband AM aircraft transmitter with a typical carrier output level of 13 Watts. The frequency range is 118 to 136 MHz with no tuning required. The supply voltage for the transmitter is 13.6 Volts. A transformerless series modulator is also described, and with this system, a 27.2-Volt supply is required. Lower-power 2.5 and 7-Watt transmitters are also included.

AN-508 Applications of Phototransistors in Electro-Optic Systems

This note reviews phototransistor theory, characteristics and terminology, then discusses the design of electro-optic systems using device information and geometric considerations. It also includes several circuit designs that are suited to DC, low-frequency and high-frequency applications.

AN-509 True RMS Voltage Regulators

This note describes AC voltage regulators that are ideal for use with electronic and electrical equipment such as lamps and heaters that are highly sensitive to supply voltage. These regulators maintain constant RMS voltage levels for input or load changes.

AN-511 Low Frequency Applications of Field-Effect Transistors

Field-effect transistors enjoy usage in a wide range of applications at both high and low frequencies. This report discusses the low-frequency applications, with an emphasis on the lesser-known uses. General topics covered are switches and choppers, amplifiers, voltage-variable resistors, current limiters, and microwatt logic.

AN-512 Applications of Fast-Recovery Rectifiers

Many applications that use silicon rectifiers at high frequencies or repetition rates can be improved with fast-recovery diodes. This note discusses the characteristics of these diodes and describes typical applications in which they excel.

AN-513 A High Gain Integrated Circuit RF-IF Amplifier with Wide Range AGC

This note describes the operation and application of the MC1590G, a monolithic RF-IF amplifier. Included are several applications for IF amplifiers, a mixer, video amplifiers, single and two-stage RF amplifiers.

AN-517 Improving the Efficiency of Low-Voltage, High-Current Rectification

The efficiency of low-voltage, high-current rectification can be improved by using either barrier rectifier diodes or synchronous rectification. This note discusses both approaches and compares them to the use of conventional silicon rectifiers.

AN-518 Constant-Speed Motor Control Using Tachometer Feedback

A simple tachometer can provide feedback control for shaded-pole motors and better brush life for universal motors. This note describes pickups and circuits suitable for use in such equipment as home appliances and power tools.

AN-519 Using MDTL Logic Blocks

This application note discusses typical applications of basic MDTL components such as gates and flip-flops, with emphasis placed on the positive logic AND, OR, NOR, NAND, and Exclusive-OR functions. Methods of interfacing MDTL with other popular logic families are also discussed.

AN-521 Using Balanced Emitter Transistors in RF Applications

Motorola Balanced Emitter Transistors provide excellent performance and resistance to burnout under conditions of mismatching and detuning in high-frequency power amplifiers. This note describes the characteristics and typical applications of these transistors.

AN-522 The MC1556 Operational Amplifier and its Applications

This application note discusses the MC1556, a second generation, internally compensated monolithic operational amplifier. Particular emphasis is placed on its distinct advantages over the early 709-type amplifier and the more recent 741-type amplifier.

Along with a description of its operation this note presents a discussion on various applications of the MC1556, highlighting its capabilities, and points out its characteristics so the reader may make effective use of the device.

AN-524 Converting Relay Control Systems to Digital ICs

Basic Boolean Algebra and logic functions are defined and discussed. A method of converting relay diagrams to logic diagrams is then presented. Several examples and a system design illustrate the conversion method using MHTL.

AN-526 Theory, Characteristics and Applications of Silicon Unilateral and Bilateral Switches

The SUS/SBS are constructed as simple integrated circuits which perform as gated or voltage sensitive switches. Device theory and operation are explained plus circuit applications in the areas of power thyristor triggering and logic. Devices illustrated include the MUS4987-88 and the MBS4991-92.

AN-527 Theory, Characteristics and Applications of the Programmable Unijunction Transistor

This note discusses the characteristics of a programmable unijunction transistor (PUT) and offers comparisons with the Annular unijunction. Also included are several circuits showing the versatility of the PUT.

AN-529 Regulated Line Operated Inverter Uses High Voltage Power Transistors and Hot Carrier Rectifiers

This report describes a line operated 225 Watt preregulated power supply which offers considerable reductions in overall size and weight as compared to more conventional techniques of obtaining low voltages at high currents.

AN-530A The MC7491A Eight-Bit Serial Shift Register and the MC7495 Four-Bit Shift Register

Operation of the MC5491A/7491A 8-bit shift register and the MC5495/7495 4-bit universal shift register is discussed. Typical applications are covered for each device and use of the two devices in a data transmission system is illustrated.

AN-531 MC1596 Balanced Modulator

The MC1596 monolithic circuit is a highly versatile communications building block. In this note, both theoretical and practical information are given to aid the designer in the use of this part. Applications include modulators for AM, SSB, and suppressed carrier AM; demodulators for the previously mentioned modulation forms; frequency doublers and HF/VHF double balanced mixers.

AN-532A MTTL and MECL Avionics Digital Frequency Synthesizer

This application note discusses several approaches that illustrate applications of complex digital integrated circuits directed toward avionics frequency synthesizers. The techniques presented point out the simplicity with which both MTTL and MECL digital integrated circuits can be used to produce frequency synthesis for avionic communications.

AN-533 Semiconductors for Plated-Wire Memories

An introduction to the operation and electrical characteristics of plated-wire memories is provided in conjunction with the applications of semiconductors that interface with the plated-wire memories.

Devices discussed include drivers, sense amplifiers, and decoders. Memory organization and memory-related semiconductor applications are also mentioned.

AN-534 Commutating Filter Techniques

This note describes the design and construction of commutating (digital) filters using Motorola MECL II, MTTL III and MC7400 digital integrated circuits. A short section on commutating filter theory is included along with examples of filters and their responses.

AN-535 Phase-Locked Loop Design Fundamentals

The fundamental design concepts for phase-locked loops implemented with integrated circuits are outlined. The necessary equations required to evaluate the basic loop performance are given in conjunction with a brief design example.

AN-536 Micro-T Packaged Transistors for High Speed Logic Systems

Integrated circuits have become the first thought of most designers faced with a digital problem. For specialized needs such as extremely high speed, high speed with minimum power dissipation, or unusual logic functions, however, discrete transistors in the ultra-small Micro-T package may prove advantageous.

AN-538A Motorola Complementary MOS Integrated Circuits

This note discusses some of the properties of N-channel and P-channel MOSFETs and describes how they are used to construct complementary MOS integrated circuits. Some basic CMOS logic functions are then discussed and methods of cascading CMOS counters are given.

AN-540 A Synchronously Gated N-Decade Sweep Oscillator

This report describes a unique solid-state sweep oscillator system which hypothetically can be swept over any frequency range. The prototype discussed herein is swept over only five decades. Options are provided to preselect any one, two or five frequency decades between 10 Hz and 10 MHz, whether sequential or not.

AN-541 Medium Scale Integration in the Numerical Control Field

Since medium scale integration means complex functions, the logic design engineer must understand both the product and its end use in order that his design be optimized. Transistor-Transistor Logic has a number of devices such as programmable counters, phase detectors, voltage controlled multivibrators, comparators, etc., which are available today in integrated circuit form. The devices can be applied to the numerical controls field and are the subject of this paper.

AN-543 Integrated Circuit IF Amplifiers for AM/FM and FM Radios

This application note discusses the design and performance of four IF amplifiers using integrated circuits. The IF amplifiers discussed include a high performance circuit, a circuit utilizing a quadrature detector, a composite AM/FM circuit, and an economy model for use with an external discriminator.

AN-544A Printed Circuit VHF TV Tuners Using Tuning Diodes

Two printed circuit VHF varactor tuners were designed and built in the Motorola Applications Laboratory. Both designs were centered around tuning diodes, PIN band switching diodes, the dual-gate MOSFET, and a cascode mixer. One tuner uses a high capacitance tuning diode while the other uses a low capacitance device. This note describes the tuners, the design procedures, and the tuner performance.

AN-545 Television Video IF Amplifier Using Integrated Circuits

This applications note considers the requirements of the video IF amplifier section of a television receiver, and gives working circuit schematics using integrated circuits which have been specifically designed for consumer oriented products. The integrated circuits used are the MC1350, MC1352, MC1353 and the MC1330.

AN-546 Solid-State Linear Power Amplifier Design

Linear amplifier design techniques and new RF power transistors developed specifically for HF (2-30 MHz) linear amplifier service are discussed.

AN-547 A High-Speed Dual Differential Comparator, The MC1514

This application note discusses a few of the many uses for the MC1514 dual comparator. Many applications such as sense amplifiers, multivibrators, and peak level detectors are presented.

AN-548A Microstrip Design Techniques for UHF Amplifiers

The design and construction of a 25-Watt UHF power amplifier utilizing microstrip techniques for the 450 to 512 MHz band is discussed. The amplifier utilizes the 2N5945, 2N5946 and 2N6136 RF power transistors.

AN-549 A Vertical Deflection Circuit Using Complementary Transistors

A vertical deflection system for television sets is discussed which uses complementary transistors in the output stage to avoid the need for an output transformer. This system consists of two separate circuits—an oscillator and a power amplifier—either of which can be used separately or as part of a different system. The oscillator produces a sawtooth voltage waveform. The power amplifier converts a sawtooth voltage waveform into a sawtooth current waveform to drive the scan coils.

AN-550 Programming the MCM5003/5004 Programmable Read Only Memory

This note describes programming methods for the MCM5003/5004 512-bit (64x8) TTL Programmable Read Only Memory (PROM). These program methods can result in short design cycles for custom ROM circuits. Operation and circuit details of the MCM5003/5004 are given first. Then programming methods and circuitry are discussed. The simplest programmer uses only five ICs, while a more sophisticated programmer, using automatic sequencing, requires a total of 25 ICs.

AN-551 Tuning Diode Design Techniques

Epicap tuning diodes offer many advantages over air variable capacitors. However in some applications their capacitance drift with temperature changes must be overcome with suitable compensation techniques. This note discusses a number of considerations to be employed in designs using tuning diodes.

AN-552 The Control Engineer's Guide to IC Applications

This report is a guide to the use of integrated circuits, and as such provides practical solutions to a number of common problems encountered in circuits used for sensing and control which must operate in an industrial environment. The report is divided into two parts—digital ICs and linear ICs.

AN-553 A New Generation of Integrated Avionic Synthesizers

The need to generate signals of a multitude of different frequencies for avionic systems has resulted in complex solutions in the past. With the introduction of certain standard product integrated circuits, frequency synthesis using digital phase locked loop techniques presents a more practical solution. Several different types of servo phase locked loop systems are discussed and a practical design example is given. Results of design examples are presented along with possible applications.

AN-555 Mounting Stripline-Opposed-Emitter (SOE) Transistors

The basic construction of the Stripline-Opposed-Emitter package used for many RF power transistors is described. Methods of mounting and heat-sinking both stud and flange type packages which allow best utilization of the transistor's dynamic and thermal properties are discussed. These mounting methods prevent the possibility of device damage due to improper mounting techniques.

AN-556 Interconnection Techniques for Motorola's MECL 10,000 Series Emitter Coupled Logic

This application note describes some of the characteristics of high speed digital signal lines and gives wiring rules for MECL 10,000 emitter coupled logic. The note includes discussions of printed circuit board interconnects, board-to-board interconnects, and wirewrapping techniques.

AN-557 Analog-to-Digital Cyclic Converter

The A/D cyclic converter discussed in this note provides medium speed (1-5 μ s/ bit) and medium accuracy (7 or 8 bits) operation. A Cyclic converter uses the successive approximation technique in which an unknown analog input voltage is successively compared to a reference voltage to determine each bit of the digital output.

The cyclic converter offers continuous operation, automatic generation of the digital output in Gray-code form, and a building block structure. This structure uses a separate but identical circuit for each resolution bit. The cyclic converter finds use primarily in control and process applications.

AN-559 Simple RAMP A/D Converter

A simple single ramp A/D converter which incorporates a calibration cycle to insure an accuracy of 12 bits is discussed. The circuit uses standard ICs and requires only one precision part—the reference voltage used in the calibration. This converter is useful in a number of instrumentation and measurement applications.

AN-560 Designing Tuned Lines for UHF TV Tuners

Transmission line equations have been used to obtain graphs which show the relationships between line length, tuning capacitance ratio, characteristic resistance and capacitance magnitude in the 473 MHz to 887 MHz range. Graphs are also included for oscillator-tuned line design—517 MHz to 931 MHz.

AN-561 How to Use Photosensors and Light Sources

Practical methods are given for the design of light-sensing circuits using both semiconductors and incandescent light sources. A discussion on measuring light sources is also included.

AN-563 Hybrid Gain Modules for Use in CATV Trunk and Line Extender Amplifiers

This report describes three hybrid gain modules intended for CATV trunk line and line extender amplifiers. These modules are designed to operate from a +24 Vdc power supply and cover the 40–300 MHz frequency range.

AN-564 An ADF Frequency Synthesizer Utilizing Phase Locked-Loop Integrated Circuits

This application note describes an IC phase locked-loop frequency synthesizer suitable for the local oscillator function in aircraft Automatic Direction Finder (ADF) equipment.

AN-565 Using Shift Registers as Pulse Delay Networks

This note discusses a high-speed clocked shift register using MECL 10,000 flip-flops and employed as a digital incremental delay. The register may be clocked with a frequency division counter to accomplish delay with increments as small as 7.5 ns. The circuit, as developed, may be used for timing basic computer decisions or as an adjustable digital delay line for pulses.

AN-566 High Speed Binary Multiplication Using the MC10181

With a MECL 4-bit arithmetic unit you can reduce both package count and interconnections in a ripple multiplier and achieve very fast multiply times.

AN-567 MECL Positive and Negative Logic

Eight positive or negative logic assignments may prove convenient to the MECL system designer. This note describes the equivalences between the two approaches and provides guides for converting between them.

AN-568 A Fuse-Thyristor Coordination Primer

This report treats the considerations required for the use of fuses in protecting thyristors against short circuit fault currents. Basics of the mating philosophy are discussed and practical examples of coordination are given. Symbols, terms and their definitions are included.

AN-569 Transient Thermal Resistance—General Data and Its Use

Data illustrating the thermal response of a number of semiconductor die and package combinations are given. Its use, employing the concepts of transient thermal resistance and superposition, permit the circuit designer to predict semiconductor junction temperature at any point in time during application of a complex power pulse train.

AN-571 Isolation Techniques Using Optical Couplers

The material presented gives the basic considerations needed for using optical couplers. Although limited in example to the MOC1000 coupler, the information applies to other optical couplers where gallium arsenide diodes and silicon detectors are used.

AN-574 CMDS: A New Logic Type For Control Systems

Designing circuits that operate properly in high noise environments such as those commonly found in an industrial plant is often the bane of the control systems designer. CMOS circuits offer high noise immunity, plus the additional benefits of operation over a broad range of power supply levels and very low power dissipation. This article compares CMOS to other logic types and then describes how to interface it to them.

AN-575A Variable Speed Control System for Induction Motors

This report describes a method of controlling the speed of standard induction motors above and below their rated speeds. A unique variable frequency drive system is used to maintain the rated output torque at speeds below the nameplate rating.

AN-576 The Logical Design of Shift Counters

Two techniques are presented that aid in the design of shift-register counters. Results for "sequence tree" and "count multiplication" techniques for cycle lengths of 30 or less are given. Solutions for both "D" flip-flop and J-K flip-flop as input elements of the shift register are shown.

AN-577 Design Techniques for an 80 Watt, 175 MHz Transmitter for 12.5 Volt Operation

This report describes the design of a four stage power amplifier capable of providing 80 Watts continuous power output at 175 MHz when operating from a 12.5 Volt supply. Techniques for operating two devices in parallel for the output stage are presented. Performance data, high load VSWR information, and thermal design considerations are also included.

AN-578 UHF Microstrip Amplifiers Utilizing G-10 Epoxy-Glass Laminate

This note discusses the use of G-10 epoxy-glass laminate as a microstrip substrate. Two UHF power amplifiers are designed and used to evaluate the overall performance of the laminate.

AN-579 Testing MECL 10,000 Integrated Logic Circuits

Circuit testing techniques become increasingly important as circuit speeds approach and exceed the 2 ns range. With MECL 10,000 and MECL III circuits it is possible to exploit their 50-Ohm output drive capability to obtain highly accurate test data. This application note describes techniques for testing MECL 10,000 circuits for laboratory evaluation, and discusses key parameters which should be measured during incoming inspection rapid testing.

AN-580 Thermal Runaway in High Power Thyristors

The temperature dependence of reverse biased junction current may cause thermal runaway if an adequate heat dissipator is not used. Dissipator thermal resistance can be found from the presented curves. The mathematical derivation of the design equations based upon semiconductor theory is given and its examples illustrate use of the curves.

AN-581 An MSI 500-MHz Frequency Counter Using MECL and MTTL

The design of a MSI 8-digit LED readout 500 MHz counter using MECL III, MECL 10,000 and TTL is discussed. Described are two prescalers using MECL, along with the designs for two input amplifiers. A unique time-base controller is also shown for providing a multiphase clock to the counter.

AN-583 A MECL 10,000 Main Frame Memory System Employing Dynamic MOS RAMS

This application note describes the construction of a dynamic MOS random access memory system that employs MECL 10,000 for the memory control logic. Considered in detail are the memory organization, layout rules, interfacing, and generation of the needed control signals.

AN-584 Programmable Counters Using the MC10136 and MC10137 MECL 10,000 Universal Counters

This application note describes operation of two MECL 10,000 universal counters and their use in high speed programmable counters. Circuit diagrams and waveform traces are included.

AN-585 VHF Power Amplifiers Using Paralleled Output Transistors

This report provides schematic diagrams, test results and construction information for two 80 Watt amplifiers designed for 12.5 Volt operation. These amplifiers are suitable for use as power amplifier stages in new VHF, FM transmitter designs and as ADD-ON outboard amplifiers to boost the power of existing transmitters. Detailed design procedures for similar amplifiers are given in AN-577.

AN-586 Measure Frequency and Propagation Delay with High Speed MECL Circuits

This application note describes an ECL frequency counter useful to 160 MHz, along with a propagation delay measuring circuit capable of 100 picosecond resolution.

AN-587 Analysis and Design of the Op Amp Current Source

A voltage controlled current source utilizing an operational amplifier is discussed. Expressions for the transfer function and output impedances are developed using both the ideal and non-ideal op amp models. A section on analysis of the effects of op amp parameters and temperature variations on circuit performance is presented.

AN-588 A 20 kHz, 1kW Line Operated Inverter

This report describes a 1 kilowatt ultrasonic inverter for use in 208-volt, line-operated, computer main-frame power supply systems. This particular design has an output capability of 5 Volts at 200 Amperes.

AN-589 Generate Custom Waveforms Digitally

A method of generating custom waveforms using IC counters, a read-only memory, and a new monolithic D/A Converter is described. Performance of a prototype model is noted as well as possible applications.

AN-590 Servo Motor Drive Amplifiers

The design of transformerless, AC servo amplifiers using power darlington transistors and IC op amps are discussed. Two types of power amplifiers are illustrated, one using single +28 Volt power supply, the second using high voltage transistors in complementary configuration for operating directly off the line.

Four different op amp preamplifiers and 90 phase shifters are also described.

AN-591 Using CMOS in System Designs - Those All-Important Details

While much of the available literature has focused on introducing the CMOS technology and describing its potential, this discussion proceeds one step further and explores how to use CMOS devices most efficiently. There are important interrelationships behind the device features and performance specs, the parameter sensitivities and the operating subtleties, which are sometimes ignored. The correct approach to CMOS design, wherein such interrelationships are taken into account, can do a great deal to optimize a system design.

AN-592 AC Noise Immunity of MECL 10,000 Integrated Circuits

This application note discusses AC noise immunity as it relates to MECL systems. Test circuits for measuring AC noise immunity are shown, and results to be expected for typical MECL 10,000 circuits are presented.

AN-593 Broadband Linear Power Amplifiers Using Push-Pull Transistors

Two solid-state linear power amplifiers are discussed. One provides 160 Watts while operating from a 28 Volt supply and the other provides 80 Watts from a 12.5 Volt supply. Both utilize push-pull output configuration for low harmonic distortion and transmission-line type transformers for broadband coupling.

AN-594 A Frequency Synthesizer for Aircraft Automatic Direction Finding Systems

This report describes a phase locked loop frequency synthesizer suitable as the local oscillator in an ADF system. The synthesizer is designed for receivers using a 455 kHz IF system. Motorola application note AN-564 describes a similar system for receivers using a 10.7 MHz IF.

AN-595 25-Watt and 10-Watt VHF Marine Band Transmitters

Design, performance and construction information are provided in this report for two power amplifiers suitable for VHF marine band (156-162 MHz) applications. Rated power output levels are 25 watts and 10 watts. Methods of meeting the FCC low power output (one watt or less) requirement are discussed in detail. Both amplifiers can be tuned to cover 144-175 MHz and performance data is provided for this frequency range.

AN-596 A Class D Citizen's Band Transmitter Using Low-Cost Plastic Transistors

This note describes the design and construction of an economical class D Citizens Band transmitter. The transmitter features a novel high-level collector modulation method using two diodes. A double-pi output matching network is employed for good harmonic suppression.

AN-597 Power Control Using the Zero Voltage Switch

This application note discusses the advantages of zero-voltage switching using the Motorola MFC8070. A temperature control circuit is shown which demonstrates the design flexibility of CMOS and optical-coupler combinations.

AN-598A Four Terminal, Optically Isolated Zero Crossing AC Relay

This application describes a solid state relay for ac control. The output is isolated from the input by means of photon coupling. To minimize EMI, relay actuation is permitted only during the zero voltage crossing of the ac line.

AN-599 Mounting Techniques for Metal Packaged Power Semiconductors

For cooler, more reliable operation, proper mounting procedures must be followed if the interface thermal resistance between the semiconductor package and heat sink is to be minimized. Discussed are aspects of preparing the mounting surface, using thermal compounds, and fastening techniques. Typical interface thermal resistance is given for a number of packages.

AN-700 Simulate MECL System Interconnections With A Computer Program

Circuit interconnections are an important part of system design when using high speed logic circuits. The design of interconnecting paths affects both system speed and system accuracy. This application note describes the use of a computer program to simulate interconnections for high speed digital systems.

AN-701 Understanding MECL 10,000 DC and AC Data Sheet Specifications

The dc and ac specifications for emitter-coupled logic are somewhat different than those for saturated logic. This application note describes the specifications found on a MECL 10,000 data sheet and provides information for understanding these specifications for persons unfamiliar with emitter-coupled logic.

AN-702 High Speed Digital-To-Analog and Analog-To-Digital Techniques

A brief overview of some of the more popular techniques for accomplishing D/A and A/D techniques. In particular those techniques which lead themselves to high speed conversion.

AN-703 Designing Digitally-Controlled Power Supplies

This application note shows two design approaches; a basic low voltage supply using an inexpensive MC1723 voltage regulator and a high current, high voltage, supply using the MC1466 floating regulator with optoelectronic isolation. Various circuit options are shown to allow the designer maximum flexibility in an application.

AN-704 Broadband Network Design for UHF Amplifiers

A practical method to synthesize bread-board matching networks for UHF power amplifier using only a set of filter design tables and a standard smith chart is developed. The amplifiers used as illustrative vehicles utilize two of Motorola's new line of "Controlled Q" RF power transistors, the MRF618 and the MRF620.

AN-705 Pulse Width Modulation for Small DC Motor Control

This application note explains the use of modern pulse width modulation techniques as an efficient and economical solution to small DC motor control. Several practical circuit design approaches using discrete, operational amplifier and integrated circuit devices are described and illustrated.

AN-706 A CRT Display System Using NMOS Memories

New NMOS Memory devices used for both storage and character generation are demonstrated in a typical CRT display system. The 128-character system design features full TTL compatibility of the NMOS memories and design simplicity.

AN-707 Noise Immunity Comparison of CMOS Versus Popular Bipolar Logic Families

This application note compares the noise immunities of the four major logic families used today in industrial logic systems designs: TTL, DTL, HTL, and CMOS. Also included are general discussions of common noise sources, precautions against noise, noise specifications, and standard noise tests.

AN-708 Line Driver and Receiver Considerations

This report discusses many line driver and receiver design considerations such as system description, definition of terms, important parameter measurements, design procedures and application examples. An extensive line of devices is available from Motorola to provide the designer with the tools to implement the data transmission requirements necessary for almost every type of transmission system.

AN-709 MECL 10,000 Arithmetic Elements MC10179, MC10180, MC10181

The MECL 10,000 arithmetic functions include a 4-bit arithmetic unit, a dual adder/subtractor, and a lookahead carry block. This application note describes the devices and shows their operation in large system configurations.

AN-710 Communication System Transmission Losses

This report shows the derivation of the equations used to calculate the insertion loss associated with various component parts of a communications channel. The combinations of components form a system whose overall loss may not be equal to the sum of the losses of the various parts.

AN-711 The Recovery of Recorded Digital Information in Drum, Disk and Tape Systems

The use of magnetic recording techniques has long been an important means of sorting digital information, as evidenced by the wide variety of equipment currently in use. Representative systems utilize drums, disks and tape as the recording medium.

All three techniques share the common problem of recovering the recorded digital information. The analog signal obtained by passing the recording medium by a magnetic sensor (Read Head) must be converted to a suitable digital format.

This application note reviews the general problem and discusses a number of specific circuit approaches.

AN-712 Interface Techniques Between Industrial Logic and Power Devices

This application note presents worst case design approaches to illustrate the methods of interfacing CMOS and MHTL logic to various power load levels, both ac and dc. Interface devices vary from small-signal transistors to power transistors and thyristors, using direct coupling/level translation and optoelectronic coupling techniques.

AN-713 Binary D/A Converters can Provide BCD-Coded Conversion

This note describes the application and use of integrated circuit D/A converters for use in providing a BCD-coded conversion. The technique is illustrated using a 2-1/2 digit digital voltmeter.

AN-714 A Personalized Heart-Rate Monitor with Digital Readout

Using the micropower operational amplifier MC1776 and CMOS digital integrated circuits, entirely self-contained portable electro-medical monitoring equipment can be built. This note details the construction of a heart-rate monitor giving a digital indication, beat-by-beat.

AN-715 Introduction to CMOS IC's with 3-State Outputs

This note describes a wide variety of standard CMOS integrated circuits incorporating transmission gates with standard logic. Design rules and applications of these devices include the areas of analog switching and multiplexing, digital multiplexing, and data transmission.

**AN-716 A/D Conversion Series - Part V
Successive Approximation A/D Conversion**

Recent advances in integrated circuit design and technology have resulted in reduced cost of high performance successive approximation analog to digital converters. This note describes and illustrates two examples of how modern IC components have changed this well known technique.

AN-717 Battery Powered 5-MHz Frequency Counter

This application note describes a battery-powered 5-MHz frequency counter using the CMOS logic family for low-power operation. The basic counter is optimized, at a 12-volt supply for maximum performance with a linear input-signal conditioner. Several options are discussed which optimize the basic counter for minimum power dissipation. These options include a CMOS input signal-conditioner and multiplexed LED displays.

AN-718A Industrial Clock/Timer Featuring Back-Up Power Supply Operation

This note describes the design and operation of a clock timer with digital readout for industrial control applications. The clock timer reference is a crystal controlled oscillator with low powered CMOS logic comprising the clock reference divider chain and digital portions. A battery powered back-up power supply is included to power the logic portion during power outages. To conserve battery power, digital displays are line powered during normal operation and are OFF during power failure. Digital comparators are used in the control section which is also designed to allow expansion for any size and type of device control.

AN-719 A New Approach to Switching Regulators

This article describes a 24-Volt, 3-Ampere switching mode supply. It operates at 20 kHz from a 120 Vac line with an overall efficiency of 70%. New techniques are used to shape the load line. The control portion uses a quad comparator and an opto coupler and features short circuit protection.

AN-720 Interfacing with MECL 10,000

This article describes some of the MECL circuits used to interface with signals not meeting MECL input or output requirements. The characteristics of these circuits such as: input impedance, output drive, gain, and bandwidth allow the system designer to use these parts to optimize his system. MECL interface circuits overcome a problem area of many system designs, which is the efficient coupling on non-compatible signals.

**AN-721 Impedance Matching Networks Applied to RF
AN-312 Power Transistors
(European)**

This note covers the basics of interstage and output impedance matching of RF power transistors. Graphical and numerical methods of solution are clearly described, along with sample problems. Photos, schematics and charts are generously provided throughout.

***AN-722 Replacing Sequential Logic with ROMs**

As ROM sizes increase the cost per bit continues drop resulting in new uses for ROMs previously thought not practical or too costly. This note discusses how to use ROMs to replace random logic with feedback loops. The advantage of using ROMs is reduced package count and a more cost effective system. These design examples are given to show the implementation techniques involved in achieving a reliable design without pitfalls. The techniques shown will hopefully inspire others to use these techniques in present designs and to develop new innovative techniques for using ROMs.

AN-723 Measuring RF Spray Radiation from High Voltage Stick Rectifiers

Commonly used methods of assessing the amount of radiation from high voltage stick rectifiers are discussed. A test circuit which significantly improves the repeatability of this difficult measurement is proposed.

AN-724 Operational Aspects of Motorola's Data Terminal

The MC2257, MC2259, and MC2260 are special MOS SSI devices that perform various functions relating to the transmission of digital data information in data terminal applications. This application note provides an in depth discussion of the operation of these parts.

*Available Soon.

AN-725 A Low-Cost 80 V-1.5 A Color TV Power Supply

A full-wave SCR power supply is proposed for application in line operated color television receivers. Economy of design is maintained while providing good regulation against line, load and temperature changes.

AN-726 Bussing with MECL 10,000 Integrated Circuits

High speed data bus lines are an important part of modern computer systems. Features of the MECL 10,000 family allow construction of data busses in a transmission line environment. This application note describes some of the guidelines to consider when designing high speed bus lines and shows how the MC10123 can be used for maximum bus performance.

AN-727 Television Horizontal APC/AFC Loops: The Last 10 Percent

A discussion of some common problems that may be encountered with the design of Horizontal APC/AFC loops and methods to avoid or overcome them.

AN-728 13-Watt Microstrip Amplifier for 220-225 MHz Operation

Design, performance and construction information are provided for a 12.5 volt, FM Transmitter power amplifier and low pass filter. MRF225 and MRF226 RF power transistors are utilized in the two-stage amplifier to achieve 13 watts of power output to the filter from approximately 125 mW of drive at 225 MHz. Economical dipped-mica capacitors, microstrip lines and eyelet construction have been employed.

AN-729 A Medium Cost PLL Varactor Tuning System Utilizing Off-the-Shelf Logic

A unique frequency domain tuning scheme for varactor TV tuners. The purpose of a frequency domain tuning system is to control a TV varactor tuner complement so that the proper local oscillator frequency is obtained for the channel number selected.

AN-730 A High Speed FIFO Memory Using the MECL MC10143 Register File

First in/first out memories are commonly used to store information in digital processing systems. However, these memories can also be designed to interface subsystems operating asynchronously or at different data rates. This application note describes a high speed first in/first out memory design based on the MECL MC10143 8 x 2 Multiport Register File.

ENGINEERING BULLETINS

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| EB-1 | Sensitive Gate Triacs Form IC Alliance -- Operate Loads to 4A -- 600 V |
| EB-2 | Solid-State Relays State-of-the-Art Signal to Alert Industrials |
| EB-3 | Display It Digitally |
| EB-4 | Sensing and Signal Conditioning Circuits for Industrial Controls |
| EB-5 | An Automatic Nulling Circuit Using a Digital Sample and Hold Techniques |
| EB-6 | 220 MHz Broadband Design |
| EB-7 | Inverse/Parallel SCR Configurations Overcome Triac Limitations |
| EB-8 | How to Apply the MHW709/MHW710 UHF Power Modules |
| EB-10 | Vertical Amplifier for a 5-Inch CRT |
| EB-11 | Sweep Circuit for a 5-Inch CRT |
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| EB-16 | VHF Design Aid |
| EB-17 | Simple VHF Broadband Design Uses CQ Transistor Lineup |
| EB-18 | "CQ", Modular Techniques Make 45 Watt UHF Amplifier Practical |
| EB-19 | Controlled-Q RF Technology -- What It Means, How It's Done |
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