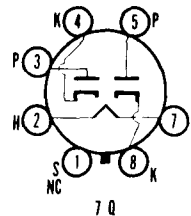


**SYLVANIA TYPE 6H6
6H6GT**
DUO DIODE



MECHANICAL DATA

	6H6	6H6GT
Bulb.....	Metal, Outline 8-5	T-9, Outline 9-11
Base.....	Small Wafer Octal 7-Pin	Intermediate Octal 7-Pin
Basing.....	7Q	7Q
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

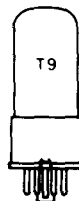
Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma

TYPICAL OPERATION

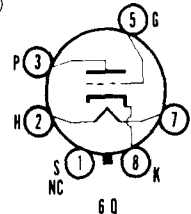
A C Voltage per Plate (R M S).....	150 Volts Max
D C Output Current.....	8 Ma Max

TYPE 6J4

(See Condensed Data Section)



**SYLVANIA TYPE 6J5
6J5GT**
MEDIUM-MU TRIODE



MECHANICAL DATA

	6J5	6J5GT
Bulb.....	Metal, Outline 8-3	T-9, Outline 9-12
Base.....	Small Wafer Octal 6-Pin	Small Wafer Octal 6-Pin
Basing.....	6Q	6Q
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

DIRECT INTERELECTRODE CAPACITANCES¹

	6J5	6J5GT
Grid to Plate.....	3.4	3.8 $\mu\mu\text{f}$
Input.....	3.4	4.2 $\mu\mu\text{f}$
Output.....	3.6	5.0 $\mu\mu\text{f}$

TYPICAL OPERATION

Class A Amplifier

Plate Voltage.....	90	250 Volts
Grid Voltage ²	0	-8 Volts
Plate Current.....	10.0	9.0 Ma
Transconductance (approx.).....	3000	2600 μmhos
Amplification Factor.....	20	20
Plate Resistance (approx.).....	6700	7700 Ohms

NOTES:

1. Type 6J5GT with standard shield and Type 6J5 with shell connected to cathode.
2. The D C Grid Circuit Resistance should not exceed 1.0 megohm.

APPLICATION

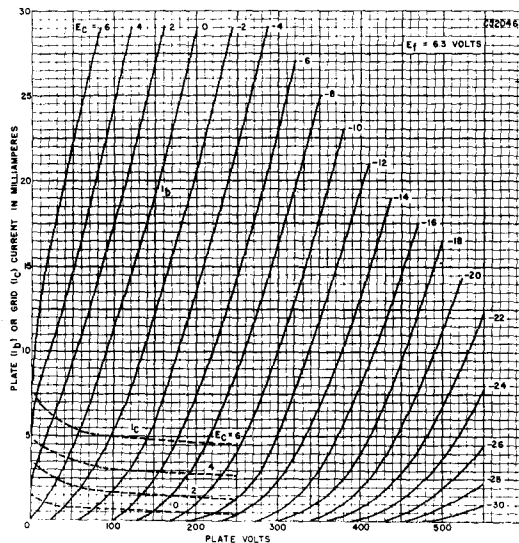
Type 6J5GT is similar to one section of a Type 6SN7GTA and is identical to this type in application and operating conditions. Characteristics curves for Type 6SN7GTA also apply to Type 6J5GT. It is also similar to Type 7A4. Resistance Coupled Amplifier Circuit data may be found in the Appendix.

6J5, 6J5GT (Cont'd)

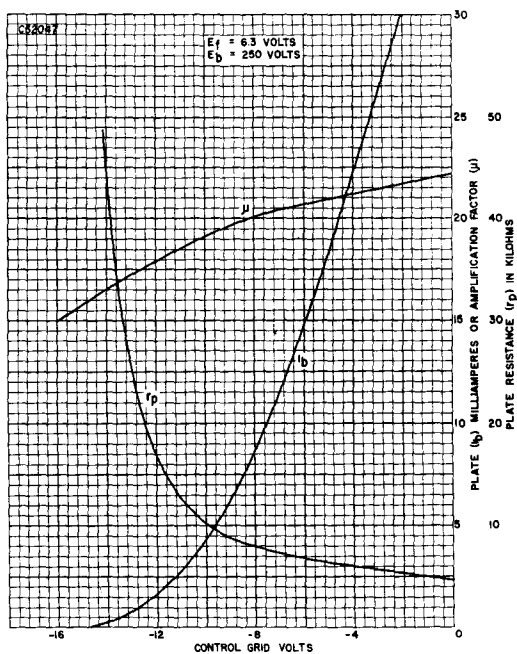
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	4	36	W
219/220	6.3	2	7S	28	7	5Y	3	8

AVERAGE PLATE CHARACTERISTICS



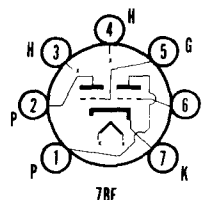
AVERAGE TRANSFER CHARACTERISTICS





SYLVANIA TYPE 6J6

DUO TRIODE



MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	7BF
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	450 Ma
Maximum Peak Heater-Cathode Voltage.....	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate.....	1.6 μmf
Grid to Cathode.....	2.2 μmf
Plate to Cathode.....	0.4 μmf

MAXIMUM RATINGS (Design Center Values—Each Section)

Plate Voltage.....	300 Volts
Plate Dissipation.....	1.5 Watts
Plate Current.....	15 Ma
Grid Voltage.....	-40 Volts
Grid Current.....	8.0 Ma

CHARACTERISTICS AND TYPICAL OPERATION

(Each Section—Except as Noted)

Class A₁ Amplifier

Plate Voltage.....	100 Volts
Self Bias Resistor (Notes 1 & 2).....	50 Ohms
Plate Current.....	8.5 Ma
Transconductance.....	5300 μmhos
Amplification Factor.....	38
Plate Resistance.....	7100 Ohms

Class C Oscillator or R F Amplifier (Push-Pull)

Plate Voltage.....	150 Volts
Grid Voltage ³	-10 Volts
Plate Current.....	30 Ma
Grid Current.....	16 Ma
Driving Power.....	0.35 Watt
Power Output.....	3.5 Watts

Mixer Service

Plate Voltage.....	150 Volts
Cathode Bias Resistor ²	820 Ohms
Oscillator Peak Voltage.....	3 Volts
Plate Current.....	4.8 Ma
Plate Resistance.....	10000 Ohms
Conversion Transconductance.....	1900 μmhos

NOTES:

- Value is for both sections operating as specified.
- Under rated maximum conditions, total grid circuit resistance should not exceed 0.5 megohm. Fixed bias operation is not recommended.
- Obtained by a grid resistor of 625 ohms or a cathode resistor of 220 ohms.

APPLICATION

Sylvania Type 6J6 is a miniature double triode employing a common uni-potential cathode. It is intended for service as a high frequency oscillator, amplifier or mixer.

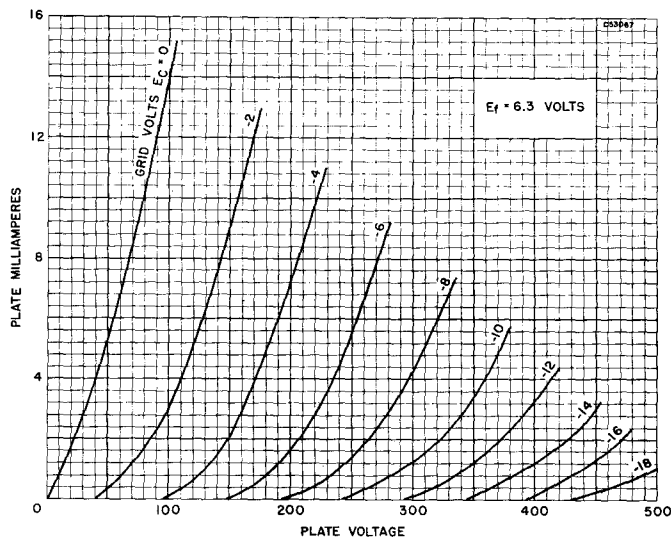
When operated as a Class C amplifier at moderate frequencies, power outputs in the order of 3.5 watts may be obtained.

SYLVANIA TUBE TESTER SETTINGS

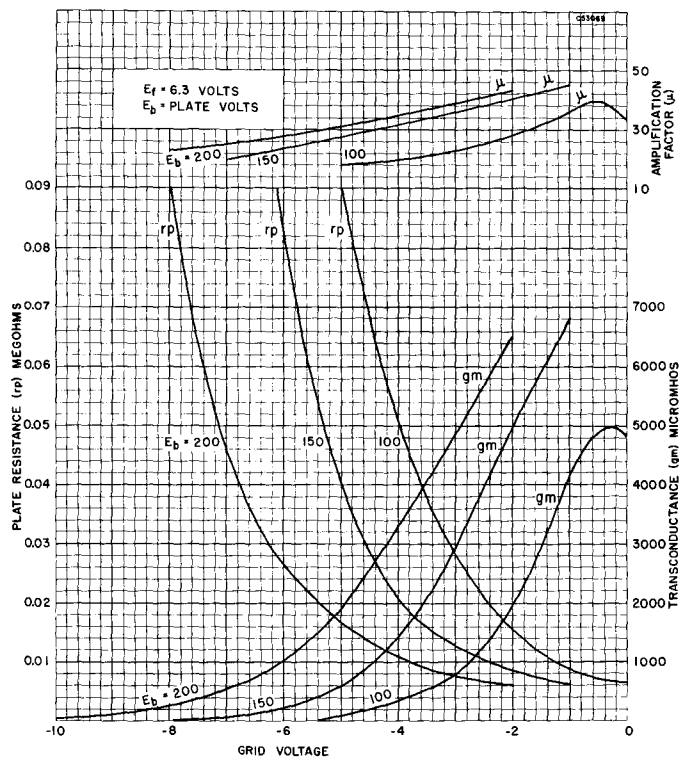
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	2	6	42	U
	6.3	0	—	0	1	5	42	U
219/220	6.3	3	4S	41	4	6X	1	7
	6.3	3	4S	41	4	5X	2	7

6J6 (Cont'd)

AVERAGE PLATE CHARACTERISTICS EACH SECTION

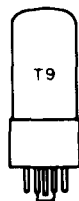


AVERAGE TRANSFER CHARACTERISTICS EACH SECTION

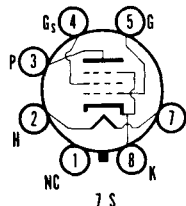


TYPES 6J7G, GT, 6J8G, 6K4, 6K5GT, G

(See Condensed Data Section)



SYLVANIA TYPE 6K6GT POWER OUTPUT PENTODE



MECHANICAL DATA

Bulb	T-9, Outline 9-11
Base	Intermediate Shell Octal 7-Pin
Basing	7S
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	400 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid No. 1 to Plate	0.5 $\mu\mu\text{f}$
Input	5.5 $\mu\mu\text{f}$
Output	6.0 $\mu\mu\text{f}$

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	315 Volts
Plate Dissipation	8.5 Watts
Grid No. 2 Voltage	285 Volts
Grid No. 2 Dissipation	2.8 Watts
Positive Grid No. 1 Voltage	0 Volts
Grid No. 1 Circuit Resistance	
Fixed Bias	0.1 Megohm
Cathode Bias	0.5 Megohm

CHARACTERISTICS AND TYPICAL OPERATION

Plate Voltage	100	250	315 Volts
Grid No. 2 Voltage	100	250	250 Volts
Grid No. 1 Bias Voltage	-7	-18	-21 Volts
Peak A F Grid Voltage	7	18	21 Volts
Plate Current (Zero Signal)	9	32	25.5 Ma
Grid No. 2 Current (Zero Signal)	1.6	5.5	4.0 Ma
Plate Current (Maximum Signal)	9.5	33	28 Ma
Grid No. 2 Current (Maximum Signal)	3	10	9 Ma
Transconductance	1500	2300	2100 μmhos
Plate Resistance (approx.)	104000	90000	110000 Ohms
Load Resistance	12000	7600	9000 Ohms
Power Output	0.35	3.4	4.5 Watts
Total Harmonic Distortion	11	11	15 Percent

Push-Pull Class A₁ Amplifier (Values for Two Tubes)

	Fixed Bias	Self Bias
Plate Voltage	285	285 Volts
Grid No. 2 Voltage	285	285 Volts
Grid No. 1 Bias Voltage	-25.5	Volts
Cathode Bias Resistor		400 Ohms
Peak A F Grid to Grid Voltage	51	51 Volts
Plate Current (Zero Signal)	55	55 Ma
Grid No. 2 Current (Zero Signal)	9	9 Ma
Plate Current (Maximum Signal)	72	61 Ma
Grid No. 2 Current (Maximum Signal)	17	13 Ma
Load Resistance (Plate to Plate)	12000	12000 Ohms
Maximum Signal Power Output	10.5	9.8 Watts
Total Harmonic Distortion	6	4 Percent

APPLICATION

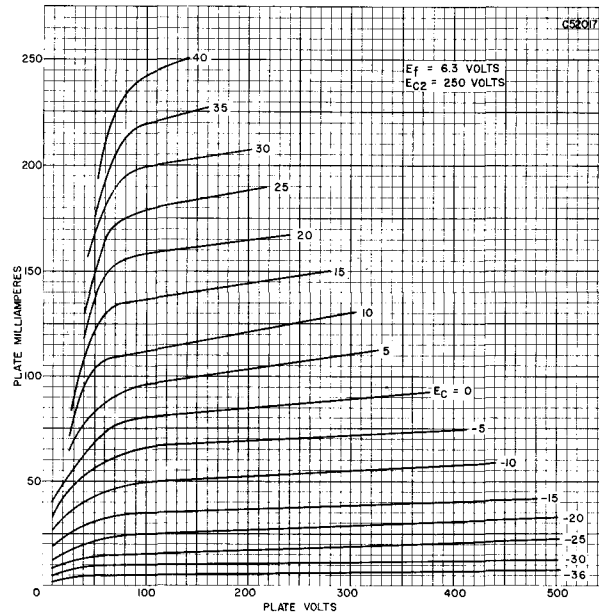
Sylvania Type 6K6GT is a high efficiency pentode power amplifier designed for service at audio frequencies.

6K6GT (Cont'd)

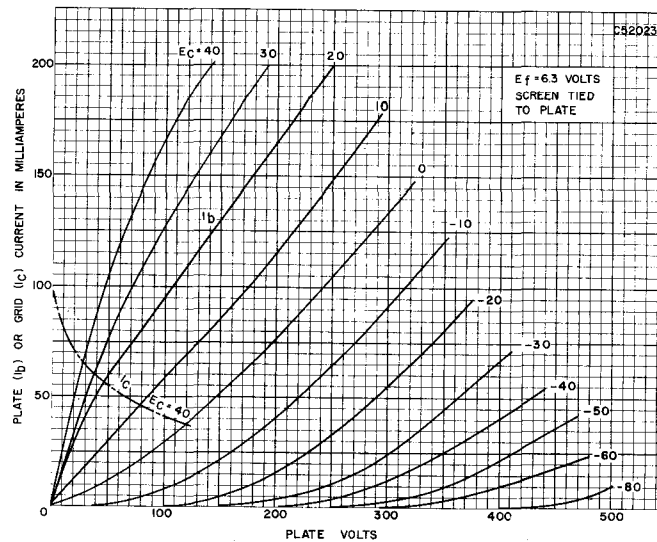
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	034	50	Y
219/220	6.3	2	7	16	7	045Y	3	8

AVERAGE PLATE CHARACTERISTICS



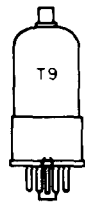
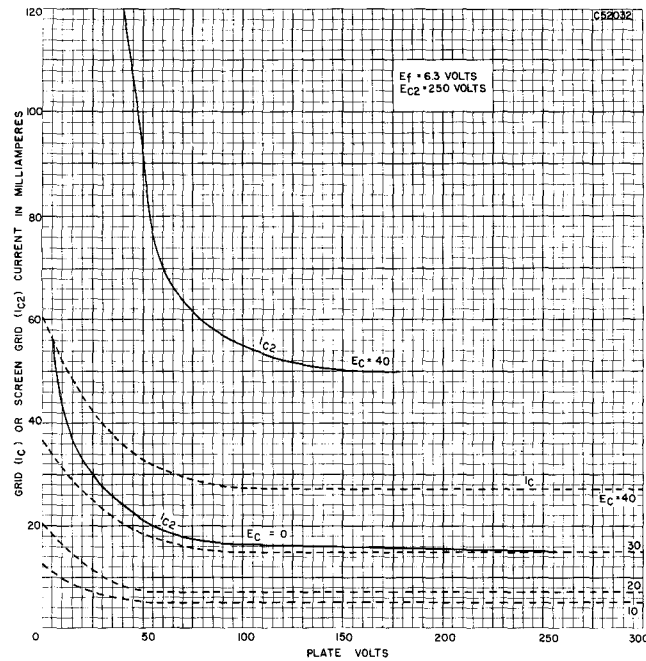
AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTED



SYLVANIA ELECTRONIC TUBES

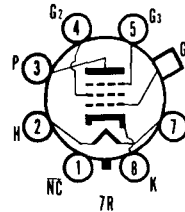
6K6GT (Cont'd)

AVERAGE CHARACTERISTICS



SYLVANIA TYPE **6K7**
6K7G
6K7GT

REMOTE CUTOFF R F PENTODE



MECHANICAL DATA

	6K7	6K7G	6K7GT
Bulb.....	Metal	ST-12	T-9
Outline.....	8-4	12-8	9-18
Base.....	Small Wafer Octal	Small Octal	Small Wafer Octal
Basing.....	7R	7R	7R
Top Cap.....	Miniature	Miniature	Miniature
Mounting Position.....	Any	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

6K7, 6K7G, 6K7GT (Cont'd)

MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	300 Volts
Plate Dissipation.....	2.75 Watts
Grid No. 2 Voltage.....	125 Volts
Grid No. 2 Supply Voltage.....	300 Volts
Grid No. 2 Dissipation.....	.35 Watt
Positive Grid No. 1 Voltage.....	0 Volts

TYPICAL OPERATION

Class A₁ Amplifier

Plate Voltage.....	100	250	250	Volts
Grid No. 2 Voltage.....	100	100	125	Volts
Grid No. 1 Voltage.....	-1.0	-3.0	-3.0	Volts
Grid No. 3 Voltage.....	Tie to Cathode			
Plate Current.....	9.5	7.0	10.5	Ma
Grid No. 2 Current.....	2.7	1.7	2.6	Ma
Transconductance.....	1650	1450	1650	μmhos
Plate Resistance.....	0.15	0.8	0.6	Megohm
Control Grid Bias for $g_m = 2 \mu\text{mhos}$	-38.5	-42.5	-52.5	Volts

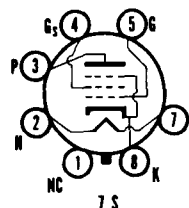
TYPES 6K8, G, GT, 6L5G

(See Condensed Data Section)



SYLVANIA TYPE 6L6
6L6G
6L6GA

BEAM POWER AMPLIFIER



MECHANICAL DATA

	6L6	6L6G	6L6GA
Bulb.....	Metal	ST-16	ST-14
Base.....	Small Wafer Octal	Medium Octal	Medium Octal
Outline.....	10-1	16-3	14-3
Basing.....	7S	7S	7S
Mounting Position.....	Any	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	900 Ma
Maximum Heater-Cathode Voltage.....	180 Volts

MAXIMUM RATINGS (Design Center Values)

	Triode Connection	Pentode Connection
Plate Voltage.....	275	360 Volts
Grid No. 2 Voltage.....		270 Volts
Plate Dissipation.....	19	19 Watts
Grid No. 2 Dissipation.....		2.5 Watts
Grid No. 1 Circuit Resistance		
Fixed Bias.....	0.1	0.1 Megohm
Cathode Bias.....	0.5	0.5 Megohm

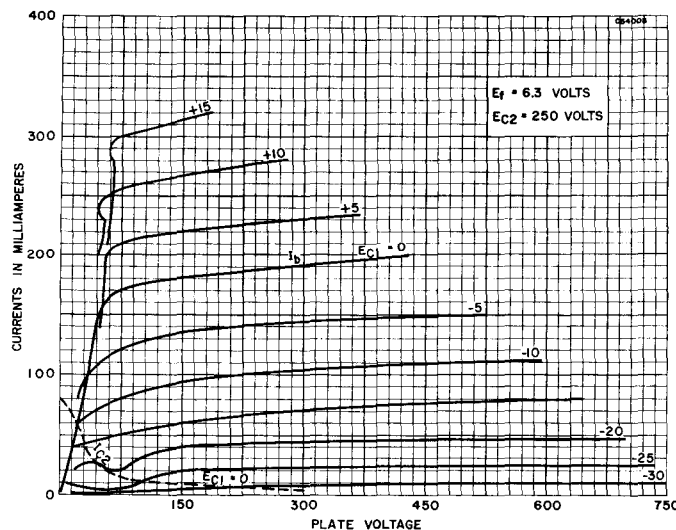
6L6, 6L6G, 6L6GA (Cont'd)

CHARACTERISTICS AND TYPICAL OPERATION

Class A ₁ Amplifier (Single Tube)	Triode Connection	Pentode Connection		
Plate Voltage.....	250	250	300	350 Volts
Grid No. 2 Voltage.....	250	250	200	250 Volts
Grid No. 1 Voltage.....	-20	-14	-12.5	-18 Volts
Peak A F Signal Voltage.....	20	14	12.5	18 Volts
Plate Current (Zero Signal)....	40	72	48	54 Ma
Plate Current (Max. Signal)....	44	79	55	66 Ma
Grid No. 2 Current (Zero Signal)		5.0	2.5	2.5 Ma
Grid No. 2 Current (Max. Signal)		7.3	4.7	7.0 Ma
Transconductance.....	4700	6000	5300	5200 μ mhos
Plate Resistance.....	1700	22500	35000	33000 Ohms
Load Resistance.....	5000	2500	4500	4200 Ohms
Power Output.....	1.4	6.5	6.5	10.8 Watts
Total Harmonic Distortion.....	5	10	11	15 Percent

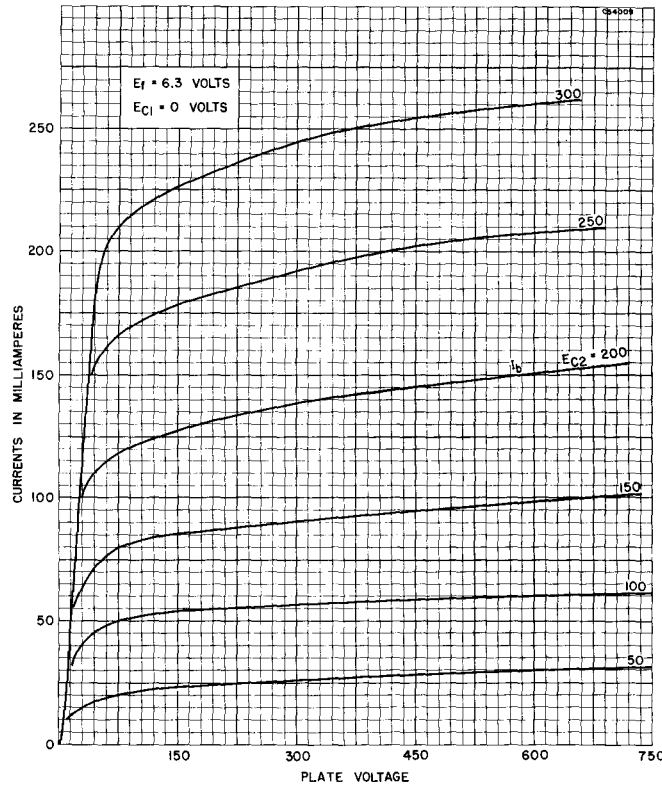
Push-Pull Amplifier	Class A ₁		Class AB ₁		Class AB ₂	
Plate Voltage.....	250	270	360	360	360	360 Volts
Grid No. 2 Voltage.....	250	270	270	270	225	270 Volts
Grid No. 1 Voltage.....	-16	-17.5	-22.5	-22.5	-18	-22.5 Volts
Peak A F Grid to Grid Voltage.....	32	35	45	45	52	72 Volts
Plate Current (Zero Signal)....	120	134	88	88	78	88 Ma
Plate Current (Max. Signal)....	140	155	132	140	142	205 Ma
Grid No. 2 Current (Zero Signal)....	10	11	5	5	3.5	5 Ma
Grid No. 2 Current (Max. Signal)....	16	17	15	11	11	16 Ma
Transconductance (Each Tube)....	5500	5700				μ mhos
Plate Resistance (Each Tube)....	24500	23500				Ohms
Load Resistance... ..	5000	5000	6600	3800	6000	3800 Ohms
Power Output.....	14.5	17.5	26.5	18	31	47 Watts
Total Harmonic Distortion.....	2	2	2	2	2	2 Percent

AVERAGE PLATE CHARACTERISTICS

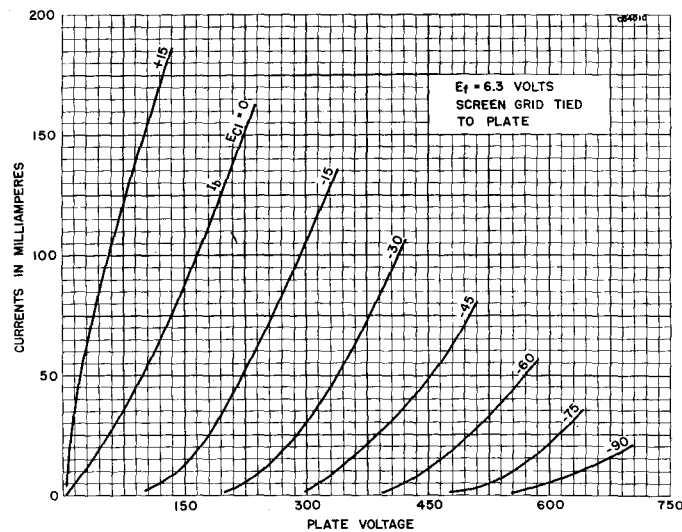


6L6, 6L6G, 6L6GA (Cont'd)

AVERAGE PLATE CHARACTERISTICS

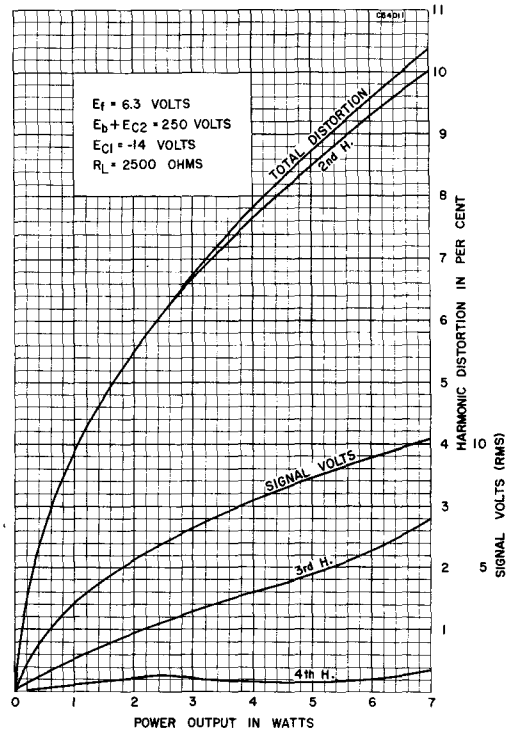


AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTED

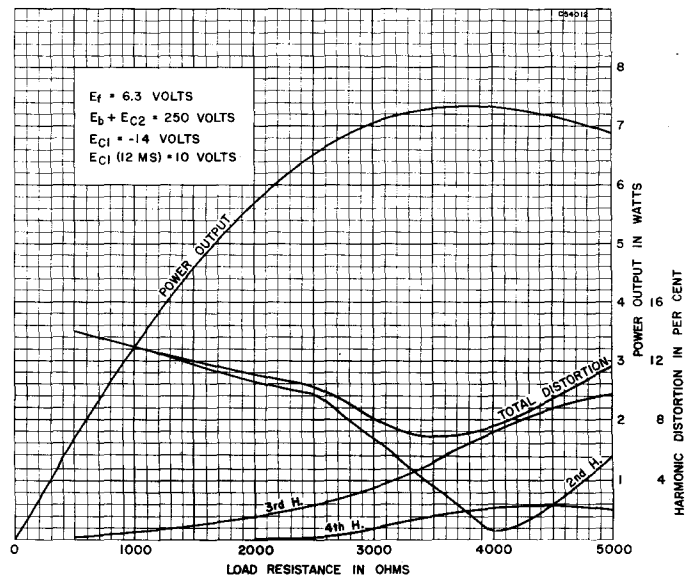


6L6, 6L6G, 6L6GA (Cont'd)

AVERAGE OPERATION CHARACTERISTICS



AVERAGE OPERATION CHARACTERISTICS



SYLVANIA TYPE 6L6GB

BEAM POWER PENTODE

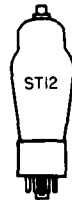
MECHANICAL DATA

Bulb..... T-12, Outline 12-102
 Base..... Med. or Short Med. Shell Octal
 Basing..... 7S
 Mounting Position..... Any

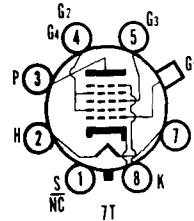
The Sylvania Type 6L6GB is identical to Type 6L6 except for bulb size.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	034	27	Y
219/220	6.3	2	7	19	7	045Z	3	8



SYLVANIA TYPE 6L7
 6L7G
 HEPTODE CONVERTER OR AMPLIFIER



MECHANICAL DATA

	6L7	6L7G
Bulb.....	Metal, Outline 8-4	ST-12, Outline 12-8
Base.....	Small Wafer Octal	Small Octal
Basing.....	7T	7T
Top Cap.....	Miniature	Miniature
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

TYPICAL OPERATION

Mixer

Plate Voltage.....	250	250 Volts
Grids No. 2 and 4 Voltage.....	100	150 Volts
Grid No. 1 Voltage (R F Input Grid).....	-3.0	-6.0 Volts
Grid No. 3 Voltage (Oscillator Input Grid).....	-10	-15 Volts
Peak Oscillator Voltage Applied to Grid No. 3.....	12	18 Volts
Plate Current.....	2.4	3.3 Ma
Grids No. 2 and 4 Current.....	7.1	9.2 Ma
Conversion Transconductance.....	375	350 μ mhos
Plate Resistance.....	>1.0	>1.0 Megohm
Grid No. 1 Bias for $G_c = 5 \mu$ mhos.....	-30	-45 Volts

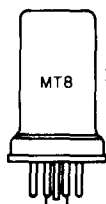
Class A₁ Amplifier

Plate Voltage.....	250 Volts
Grids No. 2 and 4 Voltage.....	100 Volts
Grid No. 1 Voltage.....	-3 Volts
Grid No. 3 Voltage.....	-3 Volts
Plate Current.....	5.3 Ma
Grid No. 2 Current.....	6.5 Ma
Transconductance.....	1100 μ mhos
Amplification Factor.....	670
Plate Resistance.....	0.6 Megohm
Grids No. 1 and 3 Bias for $g_c = 475 \mu$ mhos.....	-6 Volts
$g_c = 75 \mu$ mhos.....	-10 Volts
$g_c = 5 \mu$ mhos.....	-15 Volts

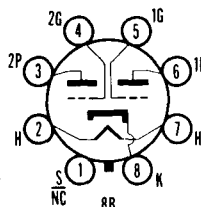
(approx.)

TYPES 6N4, 6N6G

(See Condensed Data Section)



SYLVANIA TYPE **6N7**
6N7GT
DUO TRIODE POWER AMPLIFIER



MECHANICAL DATA

	6N7	6N7GT
Bulb.....	Metal, Outline 8-6	T-9, Outline 9-11
Base.....	Small Wafer Octal 8-Pin	Intermediate Octal 8-Pin
Basing.....	8B	8B
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	800 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	300 Volts
Plate Dissipation (Per Plate).....	5.5 Watts
Dynamic Peak Plate Current (Per Plate).....	125 Ma

TYPICAL OPERATION

Class AB₂ Power Amplifier (Both Sections—Except as Noted)

Grid Impedance at 400 Cycles.....	0	516 ¹ Ohms
Plate Supply Impedance.....	0	1000 Ohms
Zero Signal Plate Voltage.....	300	300 Volts
D C Grid Voltage.....	0	0 Volts
Peak Signal Voltage (Per Grid).....	29	41 Volts
Zero Signal Plate Current (Per Plate).....	17.5	17.5 Ma
Maximum Signal Plate Current (Per Plate).....	35	35 Ma
Maximum Signal Peak Grid Current (Per Grid).....	20	22 Ma
Load Resistance (Plate to Plate).....	8000	8000 Ohms
Power Output.....	10	10 Watts
Total Harmonic Distortion.....	4	8 Percent

Class A Driver (Triodes Parallel Connected)

Plate Voltage.....	250	294 Volts
Grid Voltage.....	-5	-6 Volts
Plate Current.....	6	7 Ma
Plate Resistance.....	11300	11000 Ohms
Transconductance.....	3100	3200 μ hmos
Amplification Factor.....	35	35

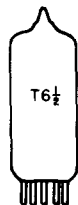
NOTE:

1. The 516 ohms impedance shown consists of 500 ohms resistance and 50 mh inductance.

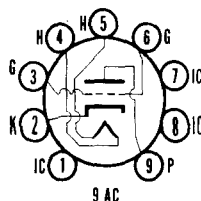
Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.

TYPES **6P5GT, 6P7G, 6Q6,**
6Q6G, 6Q6G/6T7G,
6Q7, G, GT, 6R6G,
6R7, GT, G, 6R8

(See Condensed Data Section)



SYLVANIA TYPE 6S4 MEDIUM-MU TRIODE



MECHANICAL DATA

Bulb	T-6 1/2, Outline 6-3
Base	Small Button 9-Pin
Basing	9AC
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	600 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	2.6 $\mu\mu\text{f}$
Input	4.2 $\mu\mu\text{f}$
Output	0.9 $\mu\mu\text{f}$

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Vertical Deflection Amplifier¹

Plate Voltage	500 Volts
Peak Positive Plate Voltage (Abs. Max.)	2200 Volts
Plate Dissipation ²	7.5 Watts
Peak Negative Grid Voltage	250 Volts
Average Cathode Current	30 Ma
Peak Cathode Current	105 Ma
Grid Circuit Resistance—Cathode Bias	2.2 Megohms

CHARACTERISTICS

Plate Voltage	250 Volts
Grid Voltage	-8 Volts
Plate Current	26 Ma
Transconductance	4500 μmhos
Amplification Factor	16
Plate Resistance	3600 Ohms
Plate Current at $E_c = -15\text{ V}$	4.5 Ma
Grid Voltage for $I_b = 50\ \mu\text{a}$	-23 Volts

Vertical Deflection Amplifier

70° Picture Tube—15 kv 2nd Anode Voltage

Plate Supply Voltage	435 Volts
Plate Output Voltage	
Peak to Peak	900 Volts
Sawtooth Component	320 Volts
Grid Input Voltage	
Peak to Peak	60 Volts
Sawtooth Component	40 Volts
Average Cathode Current	16 Ma
Peak Cathode Current	40 Ma
Cathode Resistor	1200 Ohms

NOTES:

- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
- In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

APPLICATION

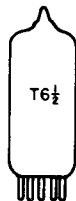
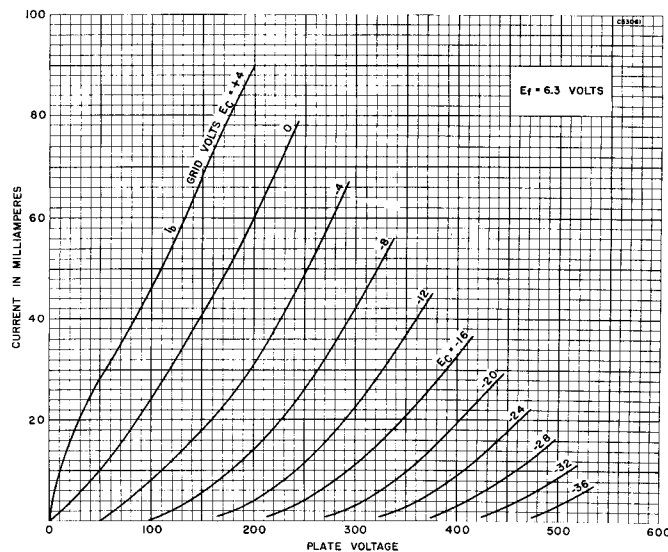
The Sylvania Type 6S4 is a miniature medium mu triode designed for use as a vertical deflection amplifier in television receivers.

SYLVANIA TUBE TESTER SETTINGS

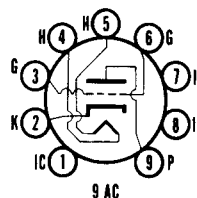
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	2679	0	4	4	39	Y
219/220	6.3	4	13578	27	5	6Z	9	2

6S4 (Cont'd)

AVERAGE PLATE CHARACTERISTICS



SYLVANIA TYPE 6S4A MEDIUM MU TRIODE



ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

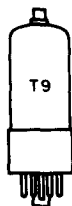
For other rating, operation, and application data, refer to corresponding Type 6S4, which is identical except for heater ratings.

APPLICATION

The Sylvania Type 6S4A is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

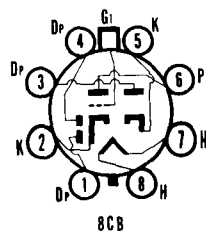
TYPES 6S7, G

(See Condensed Data Section)



SYLVANIA TYPE 6S8GT

TRIPLE DIODE TRIODE



MECHANICAL DATA

Bulb	T-9, Outline 9-23
Base	Intermediate Octal 8-Pin
Basing	8CB
Top Cap	Miniature
Mounting Position	Any

ELECTRICAL DATA

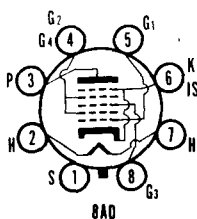
HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

TYPICAL OPERATION

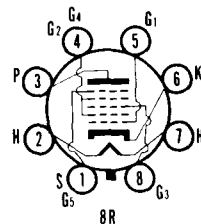
Plate Voltage	100	250	Volts
Grid Voltage	-1.0	-2.0	Volts
Plate Current	0.4	0.9	Ma
Transconductance	900	1100	μ mhos
Amplification Factor	100	100	
Plate Resistance	0.11	0.091	Megohm
Average Diode Current with 10 Volts Applied (Each Diode)	2.5	2.5	Ma

Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.



SYLVANIA TYPE 6SA7 6SA7GT

HEPTODE CONVERTER



MECHANICAL DATA

	6SA7	6SA7GT
Bulb	Metal, Outline 8-1	T-9, Outline 9-11
Base	Small Wafer Octal 8-Pin	Intermediate Octal 8-Pin
Basing	8R	8AD
Mounting Position	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

	6SA7 ¹	6SA7GT ²
Grid No. 3 to All (Signal Input)	9.5	9.5 μ f
Plate to All (Mixer Output)	9.5	9.5 μ f
Grid No. 1 to All (Oscillator Input)	7.5	8.0 μ f
Cathode to All Except Grid No. 1	5.0	μ f
Grid No. 1 to All Except Cathode	4.4	μ f
Grid No. 3 to Plate	0.25	0.5 μ f Max
Grid No. 3 to Grid No. 1	0.15	0.4 μ f Max
Grid No. 1 to Plate	0.06	μ f Max
Grid No. 1 to Cathode	2.6	μ f

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	1.0 Watt
Grids No. 2 and 4 Voltage	100 Volts
Grid No. 2 Supply Voltage	300 Volts
Grids No. 2 and 4 Dissipation	1.0 Watt
Positive D C Grid No. 3 Voltage	0 Volts
Negative D C Grid No. 3 Voltage	50 Volts
D C Cathode Current	14 Ma

6SA7, 6SA7GT (Cont'd)

TYPICAL OPERATION

	Self Excitation ³		Separate Excitation	
Plate Voltage.....	100	250	100	250 Volts
Grids No. 2 and 4 Voltage.....	100	100	100	100 Volts
Grid No. 3 Voltage.....	0	0	-2	-2 Volts
Grid No. 5 and Shell.....	0	0	0	0 Volts
Grid No. 1 Resistor (Oscillator Grid).....	20000	20000	20000	20000 Ohms
Plate Current.....	3.2	3.4	3.3	3.5 Ma
Grid No. 2 and 4 Current.....	8.0	8.0	8.5	8.5 Ma
Grid No. 1 Current.....	0.5	0.5	0.5	0.5 Ma
Conversion Transconductance.....	425	450	425	450 μ mhos
Plate Resistance (approx.).....	0.5	0.8	0.5	1.0 Megohm
Grid No. 3 Bias for $g_c = 2 \mu$ mhos	-35	-35	-35	-35 Volts

NOTES:

1. With Pin 1 connected to Pin 6.
2. With shield No. 308 connected to Pin 6.
3. Values shown are approximate and are for a Hartley circuit with a feedback of approximately 2 volts peak in the cathode circuit.

APPLICATION

Sylvania Type 6SA7 is a heptode converter similar in characteristics and application to Types 6BE6 and 7Q7.

SYLVANIA TUBE TESTER SETTINGS

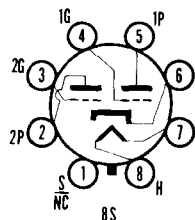
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	037	85	W
	6.3	0	—	0	2	4	26	W
219/220	6.3	2	7S	76	7	048Y	3	6
	6.3	2	7	30	7	5X	4	6

TYPE 6SB7Y

(See Condensed Data Section)



SYLVANIA TYPE 6SC7
HIGH-MU DUO TRIODE



MECHANICAL DATA

Bulb.....	Metal, Outline 8-1
Base.....	Small Wafer Octal 8-Pin
Basing.....	8S
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

6SC7 (Cont'd)

TYPICAL OPERATION

Class A Amplifier (Each Section)

Plate Voltage	250 Volts
Grid Voltage	-2.0 Volts
Plate Current	2.0 Ma
Transconductance	1325 μ mhos
Amplification Factor	70
Plate Resistance (approx.)	53000 Ohms

Phase Inverter

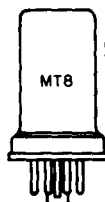
Plate Supply Voltage	90	300 Volts
Self Bias Resistor	3750	1675 Ohms
Plate Current (Per Section)	0.15	0.65 Ma
Plate Load Resistor (Per Plate)	0.25	0.25 Megohm
Grid Resistor for Following Tubes	0.5	0.5 Megohm
Amplification at 5 Volts R M S Output	30	42
Maximum Signal Peak Output Voltage (R M S)	18	110 Volts

APPLICATION

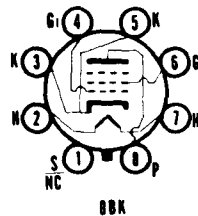
Sylvania Type 6SC7 is a high mu double triode suitable for audio amplifier or phase inverter service. Data for use in Resistance Coupled Amplifier service is given in the Appendix.

TYPES 6SD7GT, 6SE7GT, 6SF5, GT, 6SF7

(See Condensed Data Section)



SYLVANIA TYPE 6SG7
6SG7GT
SEMI-REMOTE CUTOFF R F PENTODE



MECHANICAL DATA

	6SG7	6SG7GT
Bulb	Metal, Outline 8-1	T-9, Outline 9-12
Base	Small Wafer Octal 8-Pin	Small Wafer Octal 8-Pin
Basing	8BK	8BK
Mounting Position	Any	Any

ELECTRICAL DATA

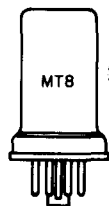
HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

TYPICAL OPERATION

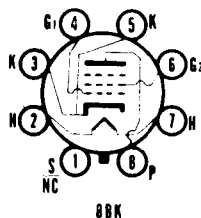
Class A₁ Amplifier

Plate Voltage	100	250	250 Volts
Grid No. 2 Voltage	100	125	150 Volts
Grid No. 1 Voltage	-1.0	-1.0	-2.5 Volts
Self Bias Resistor	90	60	190 Ohms
Plate Current	8.2	11.8	9.2 Ma
Grid No. 2 Current	3.2	4.4	3.4 Ma
Transconductance	4100	4700	4000 μ mhos
Plate Resistance (approx.)	0.25	0.9	>1.0 Megohm
Grid No. 1 Bias for $g_m = 40 \mu$ mhos	-11.5	-14.0	-17.5 Volts



**SYLVANIA TYPE 6SH7
6SH7GT**

SHARP CUTOFF R F PENTODE



MECHANICAL DATA

	6SH7	6SH7GT
Bulb.....	Metal, Outline 8-1	T-9, Outline 9-12
Base.....	Small Wafer Octal 8-Pin	Small Wafer Octal 8-Pin
Basing.....	8BK	8BK
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

MAXIMUM RATINGS (Design Center Values)

Plate Voltage, D C.....	300 Volts
Plate Dissipation.....	3.0 Watts
Grid No. 2 Voltage.....	150 Volts
Grid No. 2 Supply Voltage.....	300 Volts
Grid No. 2 Dissipation.....	0.7 Watt
Positive Grid No. 1 Voltage.....	0 Volts

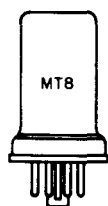
TYPICAL OPERATION

Class A₁ Amplifier

Plate Voltage.....	100	250 Volts
Grid No. 2 Voltage.....	100	150 Volts
Grid No. 1 Voltage.....	-1	-1 Volts
Self Bias Resistor.....	135	65 Ohms
Plate Current.....	5.3	10.8 Ma
Grid No. 2 Current.....	2.1	4.1 Ma
Transconductance.....	4000	4900 μ mhos
Plate Resistance (approx.).....	0.35	0.9 Megohm
Grid No. 1 Bias for $g_m = 10 \mu$ mhos.....	-4.0	-5.5 Volts

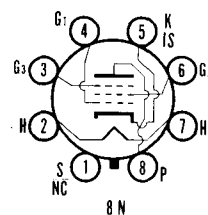
NOTES:

1. With shell connected to cathode.
2. Shield No. 308 connected to cathode.



**SYLVANIA TYPE 6SJ7
6SJ7GT**

SHARP CUTOFF R F PENTODE



MECHANICAL DATA

	6SJ7	6SJ7GT
Bulb.....	Metal, Outline 8-1	T-9, Outline 9-12
Base.....	Small Wafer Octal 8-Pin	Small Wafer Octal 8-Pin
Basing.....	8N	8N
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

	6SJ7 ¹	6SJ7GT ²
Grid to Plate.....	0.005	0.005 μ uf Max
Input.....	6.0	7.0 μ uf
Output.....	7.0	7.0 μ uf

6SJ7, 6SJGT (Cont'd)

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	2.5 Watts
Grid No. 2 Voltage	125 Volts
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Dissipation	0.7 Watt
Positive Grid No. 1 Voltage	0 Volts

TYPICAL OPERATION

Class A₁ Amplifier—Pentode Connected

Plate Voltage	100	250 Volts
Grid No. 2 Voltage	100	100 Volts
Grid No. 1 Voltage	-3.0	-3.0 Volts
Grid No. 3 Voltage	Tie to Cathode	
Plate Current	2.9	3.0 Ma
Grid No. 2 Current	0.9	0.8 Ma
Transconductance	1575	1650 μ mhos
Plate Resistance (approx.)	0.7	>1.0 Megohm

Triode Connected

Plate Voltage	180	250 Volts
Grids No. 2 and 3 Voltage	Connected to Plate	
Grid No. 1 Voltage	-6.0	-8.5 Volts
Plate Current	6.0	9.2 Ma
Transconductance	2300	2500 μ mhos
Amplification Factor	19	19
Plate Resistance	8200	7600 Ohms

NOTES:

1. Shell connected to cathode.
2. Shield No. 308 connected to cathode.

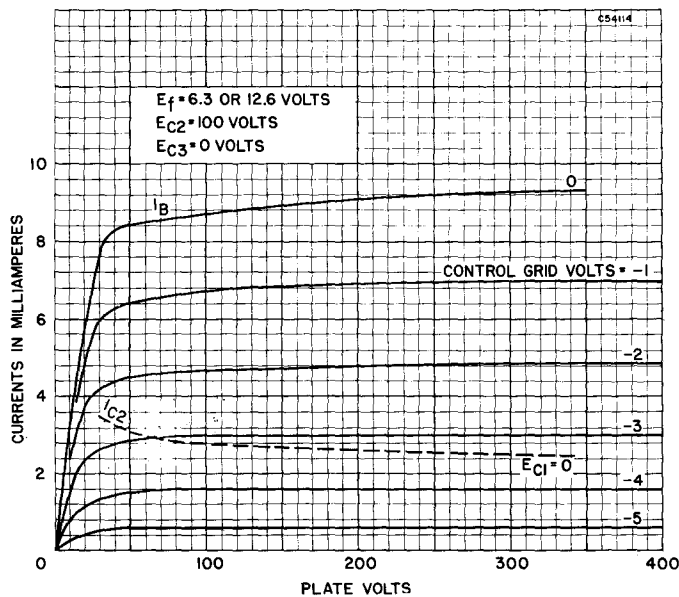
APPLICATION

A sharp cutoff pentode having similar, but not identical, characteristics to Type 6J7 and 7C7. Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.

SYLVANIA TUBE TESTER SETTINGS

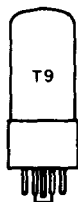
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	6	36	48	W
219/220	6.3	2	7S	54	7	46Y	8	5

AVERAGE PLATE CHARACTERISTICS



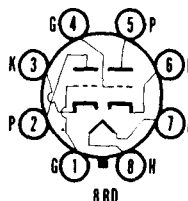
TYPES 6SK7, GT

(See Condensed Data Section)



SYLVANIA TYPE 6SL7GT

HIGH-MU DUO TRIODE



MECHANICAL DATA

Bulb.....	T-9, Outline 9-11
Base.....	Intermediate Shell Octal 8-Pin
Basing.....	8BD
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

DIRECT INTERELECTRODE CAPACITANCES¹

	Section 1 ²	Section 2
Grid to Plate.....	2.8	2.8 $\mu\mu\text{f}$
Grid to Cathode.....	3.0	3.4 $\mu\mu\text{f}$
Plate to Cathode.....	3.8	3.2 $\mu\mu\text{f}$
Plate to Plate.....		0.4 $\mu\mu\text{f}$
Grid to Grid.....		0.65 $\mu\mu\text{f}$
Grid Section 2 to Plate Section 1.....	0.13	$\mu\mu\text{f}$

MAXIMUM RATINGS (Design Center Values—Each Section)

Plate Voltage.....	250 Volts
Plate Dissipation.....	1.0 Watt
Positive Grid Voltage.....	0 Volts

CHARACTERISTICS AND TYPICAL OPERATION

Class A Amplifier (Each Section)

Plate Voltage.....	250 Volts
Grid Voltage.....	-2 Volts
Cathode Bias Resistor.....	870 Ohms
Plate Current.....	2.3 Ma
Transconductance.....	1600 μmhos
Amplification Factor.....	70
Plate Resistance.....	44000 Ohms

NOTES:

- Shield No. 308 connected to cathode.
- Section No. 1 connects to pins 4, 5 and 6. Section No. 2 connects to pins 1, 2 and 3.

APPLICATION

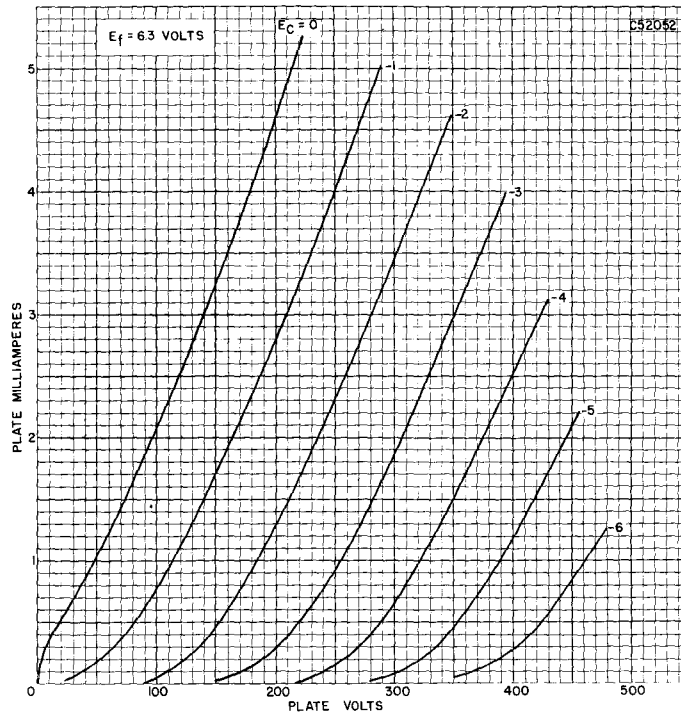
The Sylvania Type 6SL7GT is a high-mu duo triode designed for service as a resistance coupled amplifier or phase inverter. Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.

SYLVANIA TUBE TESTER SETTINGS

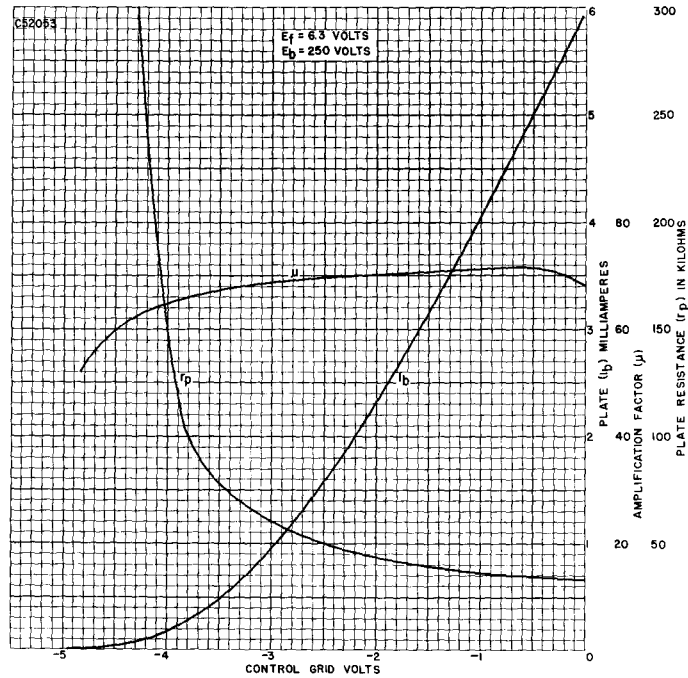
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	78	1	7	5	70	W
	6.3	0	78	1	3	3	70	W
219/220	6.3	7	68S	18	8	1U	2	3
	6.3	7	38S	18	8	4U	5	6

6SL7GT (Cont'd)

AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



SYLVANIA TYPE 6SN7GT

DUO TRIODE

The Sylvania Type 6SN7GT is identical to Type 6SN7GTA except for lower plate voltage and plate dissipation ratings.

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Plate Voltage, D.C.	300 Volts
Peak Positive Plate Voltage as Vertical Deflection Amplifier (Abs. Max.)	1200 Volts
Plate Dissipation ¹	
Each Plate	3.5 Watts
Both Plates	5.0 Watts

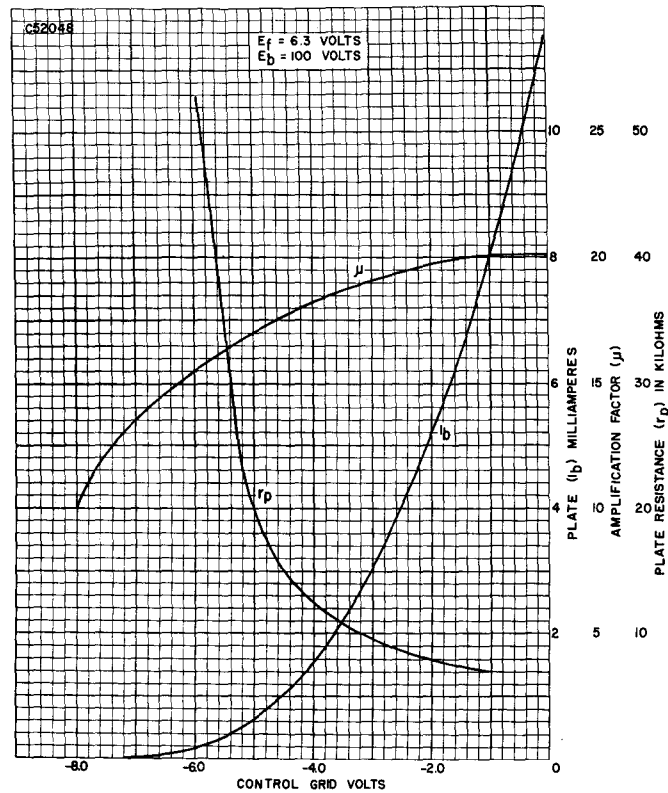
NOTES:

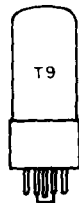
- In stages operating with grid leak bias, a cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	678	1	7	5	36	W
	6.3	0	278	1	3	3	36	W
219/220	6.3	7	68	39	8	1V	2	3
	6.3	7	38	39	8	4V	5	6

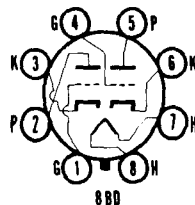
AVERAGE TRANSFER CHARACTERISTICS





SYLVANIA TYPE 6SN7GTA

MEDIUM-MU DUO TRIODE



MECHANICAL DATA

Bulb.....	T-9, Outline 9-11 or 9-41
Base.....	Intermediate Shell Octal 8-Pin or Short Intermediate Shell Octal 8-Pin
Basing.....	8BD
Mounting Position.....	Any

ELECTRICAL DATA¹

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	600 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

DIRECT INTERELECTRODE CAPACITANCES—Unshielded (Approx.)

	Section 1 ²	Section 2
Grid to Plate.....	4.0	3.8 $\mu\mu\text{f}$
Input.....	2.2	2.6 $\mu\mu\text{f}$
Output.....	0.7	0.7 $\mu\mu\text{f}$

MAXIMUM RATINGS (Design Center Values—Except as Noted)

	Class A ¹ Amplifier	Vertical ³ Deflection Amplifier
Plate Voltage.....	450	450 Volts
Peak Positive Plate Voltage (Abs. Max.).....		1500 Volts
Plate Dissipation		
Each Plate.....	5.0	5.0 Watts
Both Plates.....	7.5	7.5 Watts
Peak Negative Grid Voltage.....		250 Volts
Cathode Current.....	20	20 Ma
Peak Cathode Current.....		70 Ma
Grid Circuit Resistance		
Fixed Bias.....	1.0	2.2 Megohms
Cathode Bias.....	1.0	2.2 Megohms
	Vertical ³ Deflection Oscillator	Horizontal ³ Deflection Oscillator
Plate Voltage.....	450	450 Volts
Plate Dissipation		
Each Plate.....	5.0	5.0 Watts
Both Plates.....	7.5	7.5 Watts
Peak Negative Grid Voltage.....	400	600 Volts
Average Cathode Current.....	20	20 Ma
Peak Cathode Current.....	70	300 Ma
Grid Circuit Resistance.....	2.2	2.2 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

Class A₁ Amplifier

Plate Voltage.....	90	250 Volts
Grid Voltage.....	0	-8.0 Volts
Plate Current.....	10	9.0 Ma
Plate Resistance (approx.).....	6700	7700 Ohms
Transconductance.....	3000	2600 μmhos
Amplification Factor.....	20	20
Grid Voltage for $I_b=1.3$ Ma.....		-12.5 Volts
Grid Voltage for $I_b=10\mu\text{a}$ (approx.).....	-7.0	-18 Volts

NOTES:

- All ratings, operating conditions and characteristics are for each section except where otherwise stated.
- Section No. 1 connects to pins 4, 5 and 6. Section No. 2 connects to pins 1, 2 and 3.
- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

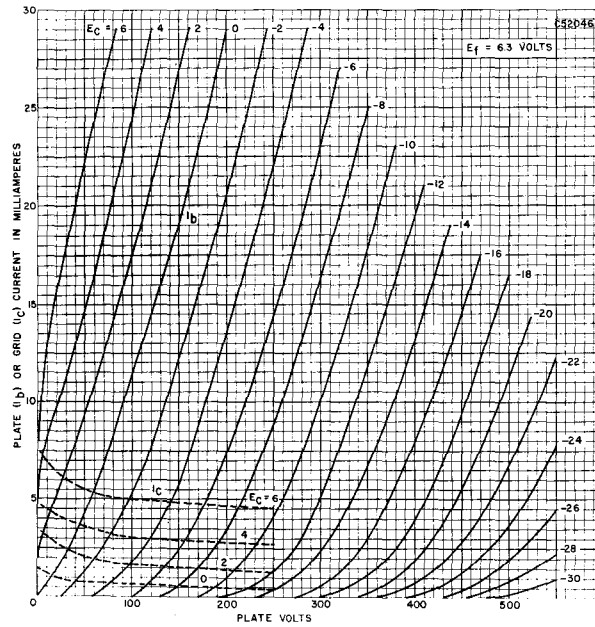
APPLICATION

The 6SN7GTA is a medium mu duo triode. It may be used as a combined vertical oscillator and vertical deflection amplifier in television receivers or in audio amplifier service. It is electrically equivalent to the 6SN7GT except for higher voltage and dissipation ratings.

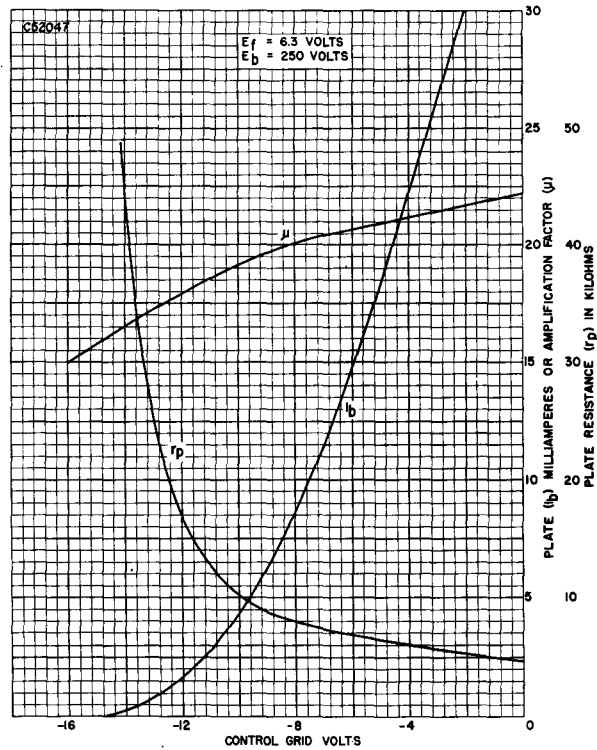
Data for use in Resistance Coupled Amplifiers is given in the Appendix.

6SN7GTA (Cont'd)

AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



SYLVANIA TYPE 6SN7GTB

MEDIUM-MU DUO TRIODE

ELECTRICAL DATA

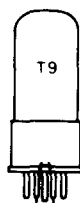
HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

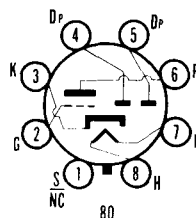
For other rating, operation, and application data, refer to corresponding Type 6SN7GTA, which is identical except for heater ratings.

APPLICATION

The Sylvania Type 6SN7GTB is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series operation refer to the SERIES STRING HEATERS section of the Appendix.



SYLVANIA TYPE 6SQ7
6SQ7GT
DUO DIODE HIGH-MU TRIODE



MECHANICAL DATA

	6SQ7	6SQ7GT
Bulb.....	Metal, Outline 8-1	T-9, Outline 9-12
Base.....	Small Wafer Octal 8-Pin	Small Wafer Octal 8-Pin
Basing.....	8Q	8Q
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

CHARACTERISTICS AND TYPICAL OPERATION

Class A Amplifier

Plate Voltage.....	100	250 Volts
Grid Voltage.....	-1	-2 Volts
Plate Current.....	0.5	1.1 Ma
Transconductance.....	925	1175 μ mhos
Amplification Factor.....	100	100
Plate Resistance.....	0.11	.085 Megohm

Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.

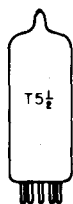
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	7	1	5	8	55	T
	6.3	0	7	1	2	—	55	T
	6.3	0	7	1	3	—	55	T
219/220	6.3	7	8	36	8	2T	6	3
	6.3	7	8	40	8	T	4*	3
	6.3	7	8	40	8	T	5*	3

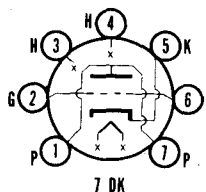
* Diode gas test does not apply.

TYPES 6SR7GT, 6SS7, 6ST7, 6SV7, 6SZ7

(See Condensed Data Section)



SYLVANIA TYPE 6T4 U H F TRIODE



MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-1
Base.....	Miniature Button 7-Pin
Basing.....	7DK
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	225 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	50 Volts
D C, Heater Positive with Respect to Cathode.....	25 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded ¹	Unshielded
Grid to Plate.....	1.7	1.7 μf
Input.....	3.3	2.6 μf
Output.....	2.0	0.4 μf
Heater to Cathode ²	3.0	3.0 μf
Grid to Cathode ²	2.4	2.4 μf
Plate to Cathode ²22	.24 μf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	200 Volts
Plate Dissipation.....	3.5 Watts
Grid Current.....	8 Ma
Cathode Current.....	30 Ma

CHARACTERISTICS

Plate Voltage.....	80 Volts
Cathode Bias Resistor.....	150 Ohms
Plate Current.....	18 Ma
Transconductance.....	7000 μmhos
Amplification Factor.....	13
Plate Resistance.....	1860 Ohms
Grid Voltage for 50 μa Plate Current.....	-15 Volts

TYPICAL OPERATION

Oscillator at 950 Mc

Plate Voltage.....	80 Volts
Grid Voltage (Self Bias).....	-4 Volts
Grid Resistor.....	10000 Ohms
Plate Current.....	18 Ma
Grid Current (approx.).....	400 μa

NOTES:

- Shield No. 316.
- Measured between specified elements only. When external shield is used, it shall be grounded.

APPLICATION

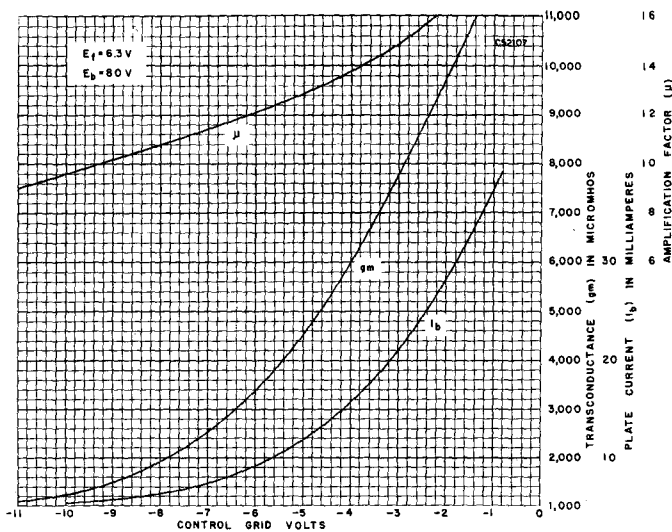
The Sylvania Type 6T4 is a miniature low-mu triode designed for service as a u h f oscillator.

SYLVANIA TUBE TESTER SETTINGS

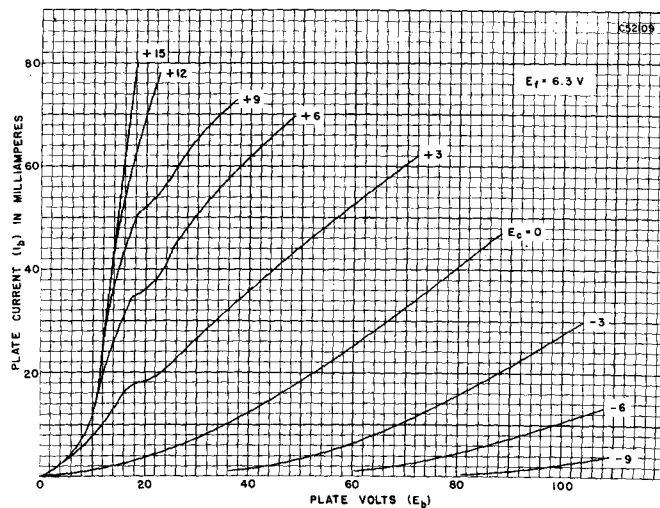
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	46	0	2	2	30	U
	6.3	0	23	0	3	6	30	U
219/220	6.3	3	467	24	4	2X	1	5
	6.3	3	124	24	4	6X	7	5

6T4 (Cont'd)

AVERAGE TRANSFER CHARACTERISTICS

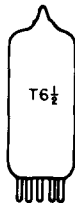


AVERAGE PLATE CHARACTERISTICS



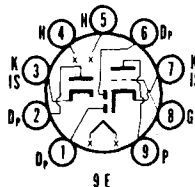
TYPES 6T5, 6T7G, 6T7G/6Q6G

(See Condensed Data Section)



SYLVANIA TYPE 6T8

TRIPLE-DIODE TRIODE



MECHANICAL DATA

Bulb	T-6 1/2, Outline 6-2
Base	Small Button 9-Pin
Basing	9E
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Each Diode Plate	0.035 μ f
Diode Input (Pins 1 or 6)	3.8 μ f
Diode Input (Pin 2)	4.5 μ f

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	1.0 Watt
Maximum Diode Current (Each Plate)	5.0 Ma

TYPICAL OPERATION

Class A₁ Amplifier

Plate Voltage	100	250 Volts
Grid Voltage	-1.0	-3.0 Volts
Plate Current	0.8	1.0 Ma
Transconductance	1300	1200 μ mhos
Amplification Factor	70	70 Ohms
Plate Resistance	54000	58000 Ohms

APPLICATION

A miniature triple-diode triode designed for use in a m/fm receivers. The triode section is similar to the Types 6AQ6 and 6Q7GT. Data for use in Resistance Coupled Amplifier Circuits is given in the Appendix.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	4	9	50	T
	6.3	0	—	0	3	—	50	T
	6.3	0	—	0	2	—	50	T
	6.3	0	—	0	1	—	50	T
219/220	6.3	4	53	35	5	8T	9	7
	6.3	4	53	35	5	T	1*	7
	6.3	4	57	35	5	T	2*	3
	6.3	4	53	35	5	T	6*	7

* Diode gas test does not apply.

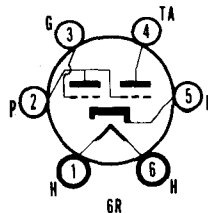
TYPE 6U4GT

(See Condensed Data Section)



SYLVANIA TYPE 6U5

ELECTRON RAY INDICATOR TUBE



MECHANICAL DATA

Bulb.....	T-9, Outline 9-26
Base.....	Small 6-Pin
Basing.....	6R
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	300 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

MAXIMUM RATINGS (Design Center Values)

Maximum Plate Supply Voltage.....	285 Volts
Maximum Target Voltage.....	285 Volts
Minimum Recommended Target Voltage.....	125 Volts

TYPICAL OPERATION

Plate Supply Voltage.....	100	200	250	Volts
Target Supply Voltage.....	100	200	250	Volts
Plate Current (Triode Unit) ¹	0.19	0.19	0.24	Ma Max
Target Current (approx.) ¹	1.0	3.0	4.0	Ma
Grid Voltage (Triode Unit) (approx.) ²	0	0	0	Volts
Grid Voltage (Triode Unit) (approx.) ³	-8.0	-18.5	-22.0	Volts
Triode Plate Resistor.....	0.5	1.0	1.0	Megohm

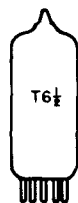
NOTES:

1. With triode grid voltage of zero volts.
2. For shadow angle of 90 degrees.
3. For shadow angle of 0 degrees.

The 6U5 should be used as a replacement for tube Types 6T5, 6H5 and 6G5.

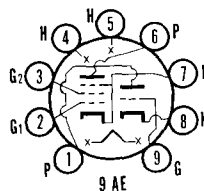
TYPES 6U6GT, 6U7G

(See Condensed Data Section)



SYLVANIA TYPE 6U8

H F TRIODE PENTODE



MECHANICAL DATA

Bulb.....	T-6 1/2, Outline 6-2
Base.....	Small Button 9-Pin
Basing.....	9AE
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	450 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

6U8 (Cont'd)

DIRECT INTERELECTRODE CAPACITANCES

Pentode	Shielded ¹	Unshielded
Grid No. 1 to Plate.....	0.006	0.01 μf Max
Input.....	5.0	5.0 μf
Output.....	3.5	2.6 μf
Triode		
Grid to Plate.....	1.8	1.8 μf
Grid to Cathode.....	2.5	2.5 μf
Plate to Cathode.....	1.0	0.4 μf
Cathode to Heater (Each Section).....	3.0	3.0 μf

MAXIMUM RATINGS (Design Center Values)

	Triode	Pentode
Plate Voltage.....	330	300 Volts
Plate Dissipation.....	2.7	2.8 Watts
Grid No. 2 Voltage.....		300 Volts
Grid No. 2 Dissipation.....		0.5 Watt
Positive Grid No. 1 Voltage.....	0	0 Volts

CHARACTERISTICS AND TYPICAL OPERATION

	Triode	Pentode
Plate Voltage.....	150	250 Volts
Grid No. 2 Voltage.....		110 Volts
Cathode Resistor.....	56	68 Ohms
Plate Current.....	18	10 Ma
Grid No. 2 Current.....		3.5 Ma
Transconductance.....	8500	5200 μmhos
Amplification Factor.....	40	
Plate Resistance (approx.).....	0.005	0.4 Megohm
Grid No. 1 Voltage for Plate Current of 10 μa	-12	-10 Volts

NOTE:

- Shield No. 315.

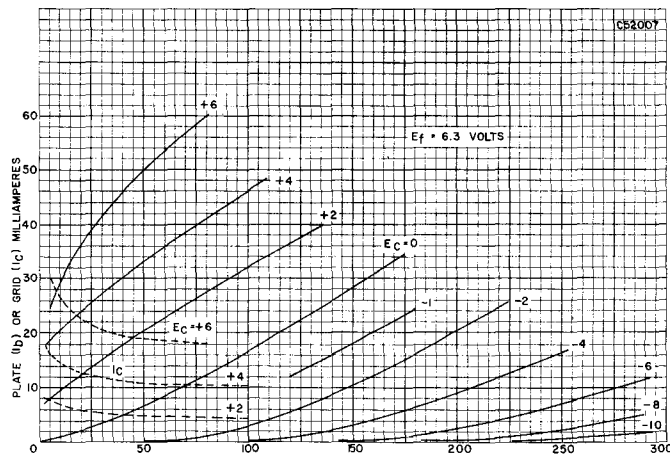
APPLICATION

A triode pentode designed for use as a local oscillator-pentode mixer and other combined functions in fm and tv receivers.

SYLVANIA TUBE TESTER SETTINGS

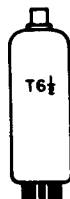
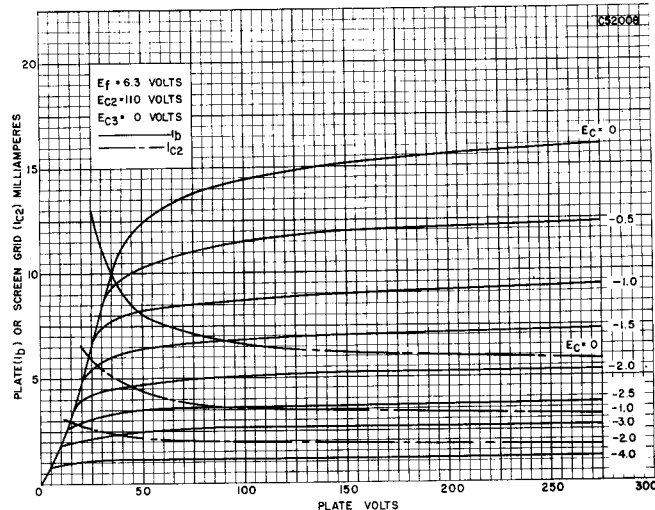
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	3	36	83	Y
	6.3	0	—	0	1	5	20	W
219/220	6.3	4	58S	69	5	23Z	6	7
	6.3	4	57S	17	5	9Y	1	8

AVERAGE PLATE CHARACTERISTICS PENTODE SECTION—TRIODE CONNECTED AND TRIODE SECTION

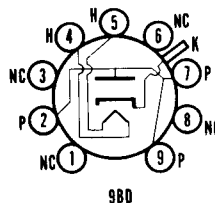


6U8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS PENTODE SECTION



SYLVANIA TYPE 6V3A
DAMPER DIODE



MECHANICAL DATA

Bulb	T-6 1/2
Base	Small Button 9-Pin
Basing	9BD
Maximum Overall Length	3 1/16 Inches
Maximum Seated Height	2 3/4 Inches
Cap	Skirted Miniature
Cathode	Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	1.75 Amperes
Maximum Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	300 Volts
Heater Negative with Respect to Cathode (Abs. Max. Values) ¹	
D C	750 Volts
Total D C and Peak	6750 Volts

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Damper Service²	
Peak Inverse Plate Voltage (Abs. Max.) ¹	6000 Volts
Plate Dissipation	2.7 Watts
Steady State Peak Plate Current	800 Ma
D C Output Current	135 Ma

CHARACTERISTICS

Tube Voltage Drop	
I _b = 250 Ma D C	19 Volts

6V3A (Cont'd)

NOTES:

1. Should not be exceeded under any condition of high line voltage or misadjustment.
2. For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% or one scanning cycle. Operation of this tube as a power rectifier is not recommended.

APPLICATION

Indirectly heated half-wave rectifier designed for service as a damping diode in television receiver direct drive sweep circuits. The cathode is connected to the top cap.

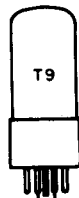
Except for bulb length, the Type 6V3A is identical to the Type 6V3. The 6V3A should be considered as the replacement for the Type 6V3.

SYLVANIA TUBE TESTER SETTINGS

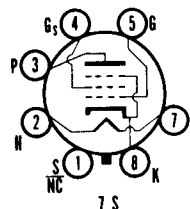
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	75	0	2	—	19	Y
	6.3	0	35	0	6	—	19	Y
	6.3	0	37	0	4	—	19	Y
219/220	6.3	4	579	10	5	Z	2*	1
	6.3	4	259	10	5	Z	7*	1
	6.3	4	257	10	5	Z	9*	1

USE EXTERNAL ADAPTER

* Diode gas test does not apply.



SYLVANIA TYPE 6V6 6V6GT BEAM POWER AMPLIFIER



MECHANICAL DATA

	6V6	6V6GT
Bulb	Metal, Outline 8-6	T-9, Outline 9-11 or 9-41
Base	Small Wafer Octal	Intermediate or Short Int. Octal
Basing	7S	7S
Mounting Position	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	0.7 $\mu\mu\text{f}$
Input	9.0 $\mu\mu\text{f}$
Output	7.5 $\mu\mu\text{f}$

6V6, 6V6GT (Cont'd)

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Class A₁ Amplifier

Plate Voltage.....	315 Volts
Grid No. 2 Voltage.....	285 Volts
Plate Dissipation.....	12 Watts
Grid No. 2 Dissipation.....	2 Watts
Grid No. 1 Circuit Resistance	
Fixed Bias.....	0.1 Megohm
Cathode Bias.....	0.5 Megohm

Vertical Deflection Amplifier—Triode Connected¹

Plate Voltage.....	315 Volts
Peak Positive Plate Voltage (Abs. Max.).....	1200 Volts
Plate Dissipation.....	9 Watts
Peak Negative Grid Voltage.....	250 Volts
Average Cathode Current.....	35 Ma
Peak Cathode Current.....	105 Ma
Grid Circuit Resistance Cathode Bias.....	2.2 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

Class A₁ Amplifier (Single Tube)

Plate Voltage.....	180	250	315 Volts
Grid No. 2 Voltage.....	180	250	225 Volts
Grid No. 1 Voltage.....	-8.5	-12.5	-13.0 Volts
Peak A F Grid No. 1 Voltage.....	8.5	12.5	13.0 Volts
Plate Current (Zero Signal).....	29	45	34 Ma
Plate Current (Maximum Signal).....	30	47	35 Ma
Grid No. 2 Current (Zero Signal).....	3	4.5	2.2 Ma
Grid No. 2 Current (Maximum Signal).....	4	7.0	6 Ma
Plate Resistance (approx.).....	50000	50000	80000 Ohms
Transconductance.....	3700	4100	3750 μmhos
Load Resistance.....	5500	5000	8500 Ohms
Maximum Signal Power Output.....	2.0	4.5	5.5 Watts
Total Harmonic Distortion (approx.).....	8	8	12 Percent

Class AB₁ Amplifier (Two Tubes in Push-Pull)

Plate Voltage.....	250	285 Volts
Grid No. 2 Voltage.....	250	285 Volts
Grid No. 1 Voltage.....	-15	-19 Volts
Peak A F Grid to Grid Voltage.....	30	38 Volts
Plate Current (Zero Signal).....	70	70 Ma
Plate Current (Maximum Signal).....	79	92 Ma
Grid No. 2 Current (Zero Signal).....	5.0	4.0 Ma
Grid No. 2 Current (Maximum Signal).....	13	13.5 Ma
Effective Load Resistance (Plate-to-Plate).....	10000	8000 Ohms
Total Harmonic Distortion.....	5.0	3.5 Percent
Maximum Signal Power Output.....	10	14 Watts

Triode Connected Characteristics

Plate Voltage.....	250 Volts
Grid Voltage.....	-12.5 Volts
Plate Current.....	49.5 Ma
Transconductance.....	5000 μmhos
Amplification Factor.....	9.8
Plate Resistance.....	1960 Ohms
Grid Voltage for I _b = 0.5 Ma (approx.).....	-36 Volts

NOTES:

- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
- In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

APPLICATION

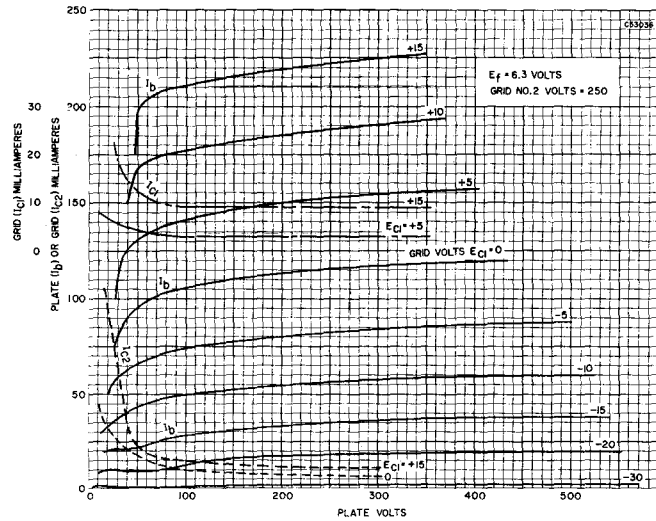
The Types 6V6 and 6V6GT are beam power pentodes intended for service as a general purpose audio power amplifier or vertical deflection amplifier in television receiver sweep circuits. They are similar to lock-in Type 7C5 and miniature Type 6CM6.

SYLVANIA TUBE TESTER SETTINGS

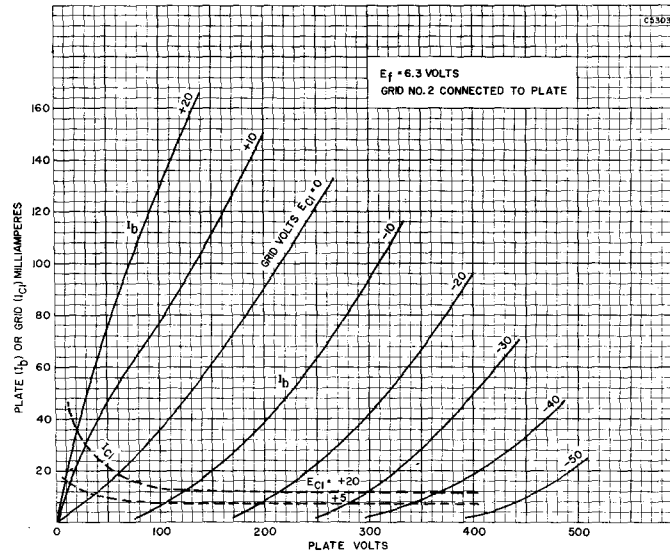
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	034	37	Y
219/220	6.3	2	7	24	7	045Z	3	8

6V6, 6V6GT (Cont'd)

AVERAGE PLATE CHARACTERISTICS

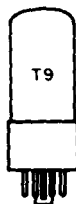


AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTED

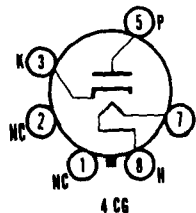


TYPES 6V7G, 6V8

(See Condensed Data Section)



SYLVANIA TYPE 6W4GT
HALF-WAVE RECTIFIER



MECHANICAL DATA

Bulb..... T-9, Outline 9-11
 Base..... Intermediate Octal 6-Pin
 Basing..... 4CG
 Mounting Position..... Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage..... 6.3 Volts
 Heater Current..... 1.2 Amperes
 Maximum Heater-Cathode Voltage
 Heater Positive with Respect to Cathode
 D C..... 100 Volts
 Total D C and Peak..... 300 Volts
 Heater Negative with Respect to Cathode (Abs. Max.)
 D C..... 500 Volts
 Total D C and Peak..... 2300 Volts

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Damper Service²
 Peak Inverse Plate Voltage (Abs. Max.)..... 3850 Volts
 Plate Dissipation..... 3.5 Watts
 Steady State Peak Plate Current..... 750 Ma
 D C Output Current..... 125 Ma

CHARACTERISTICS

Tube Voltage Drop at 250 Ma D C..... 21 Volts

NOTES:

1. Socket terminals 1, 2, 4 and 6 should not be used as tie points.
2. For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle. Operation as a power rectifier is not recommended.

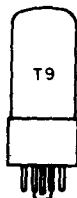
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	57	1	3	—	15	X
219/220	6.3	7	18	9	8	V	5*	3

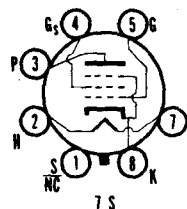
* Diode gas test does not apply.

TYPE 6W5G

(See Condensed Data Section)



SYLVANIA TYPE 6W6GT
BEAM POWER AMPLIFIER



MECHANICAL DATA

Bulb..... T-9, Outline 9-11 or 9-41
 Base..... Intermediate Shell Octal or Short Intermediate Shell Octal
 Basing..... 7S
 Mounting Position..... Any

6W6GT (Cont'd)

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	1.2 Amperes
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate.....	0.8 $\mu\mu\text{f}$
Input.....	15 $\mu\mu\text{f}$
Output.....	9.0 $\mu\mu\text{f}$

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Class A₁ Amplifier

Plate Voltage.....	300 Volts
Grid No. 2 Voltage.....	150 Volts
Plate Dissipation.....	10 Watts
Grid No. 2 Dissipation.....	1.25 Watts
Grid No. 1 Circuit Resistance	
Fixed Bias.....	0.1 Megohm
Cathode Bias.....	0.5 Megohm

Vertical Deflection Amplifier—Triode Connected¹

D C Plate Voltage.....	300 Volts
Peak Positive Plate Voltage (Abs. Max.).....	1200 Volts
Plate Dissipation ²	7.5 Watts
Peak Negative Grid Voltage.....	250 Volts
Average Cathode Current.....	40 Ma
Peak Cathode Current.....	140 Ma
Grid No. 1 Circuit Resistance, Cathode Bias.....	2.2 Megohms

CHARACTERISTICS AND TYPICAL OPERATION (Single Tube)

Class A₁ Amplifier

Plate Voltage.....	110	200 Volts
Grid No. 2 Voltage.....	110	125 Volts
Grid No. 1 Voltage.....	-7.5	Volts
Cathode Bias Resistor.....		180 Ohms
Peak A F Grid No. 1 Voltage.....	7.5	8.5 Volts
Plate Current (Zero-Signal).....	49	46 Ma
Plate Current (Maximum Signal).....	50	47 Ma
Grid No. 2 Current (Zero-Signal).....	4.0	2.2 Ma
Grid No. 2 Current (Maximum Signal).....	10	8.5 Ma
Plate Resistance (approx.).....	13000	28000 Ohms
Transconductance.....	8000	8000 μmhos
Load Resistance.....	2000	4000 Ohms
Maximum Signal Power Output.....	2.1	3.8 Watts
Total Harmonic Distortion (approx.).....	10	10 Percent

Triode Connected

Plate Voltage.....	225 Volts
Grid No. 1 Voltage.....	-30 Volts
Plate Current.....	22 Ma
Transconductance.....	3800 μmhos
Amplification Factor.....	6.2
Plate Resistance.....	1600 Ohms
Grid No. 1 Voltage (approx.) for $I_p = 0.5 \text{ Ma}$	-42 Volts

Vertical Deflection Amplifier, Triode Connected 90° Picture Tube—17.2 kv 2nd Anode Voltage

Plate Supply Voltage.....	310 Volts
Plate Output Voltage	
Peak to Peak.....	535 Volts
Sawtooth Component.....	310 Volts
Grid No. 1 Input Voltage	
Peak to Peak.....	110 Volts
Sawtooth Component.....	60 Volts
Average Cathode Current.....	35 Ma
Peak Cathode Current.....	90 Ma
Cathode Resistor.....	1100 Ohms

NOTES:

1. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
2. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

APPLICATION

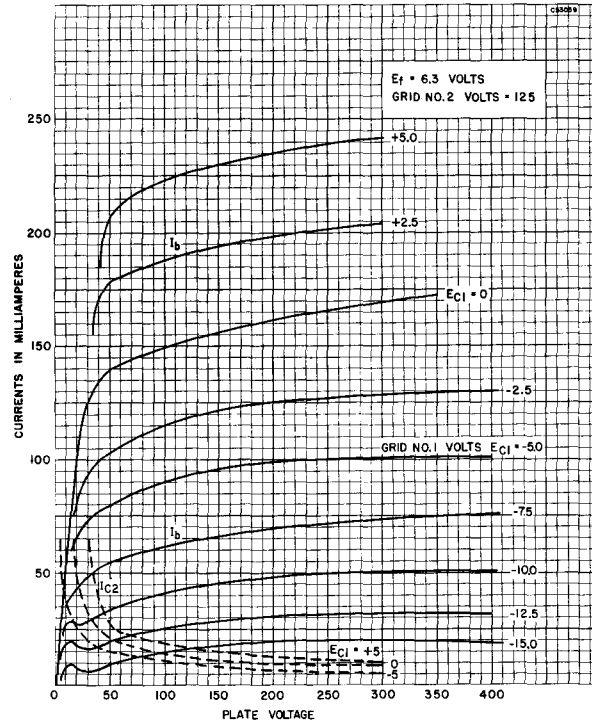
The Sylvania Type 6W6GT is a beam power pentode intended for service as a general purpose audio power amplifier or vertical deflection amplifier in television receiver sweep circuits.

6W6GT (Cont'd)

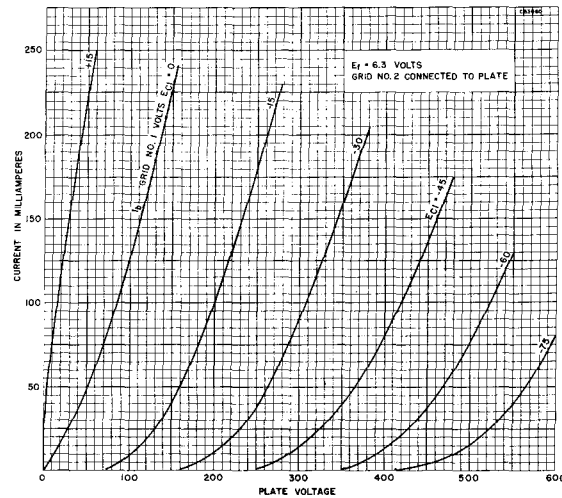
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	034	18	X
219/220	6.3	2	7S	12	7	045Z	3	8

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTED

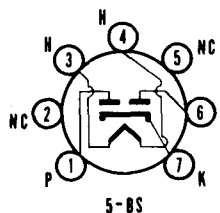


TYPE 6W7G

(See Condensed Data Section)



SYLVANIA TYPE 6X4 FULL-WAVE RECTIFIER



MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-3
Base.....	Miniature Button 7-Pin
Basing.....	5BS
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	600 Ma
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode.....	450 Volts
Heater Positive with Respect to Cathode.....	100 Volts

MAXIMUM RATINGS (Design Center Values)

Peak Inverse Plate Voltage.....	1250 Volts
A C Plate Supply Voltage (R M S) With D C Output	
Current of 35 Ma Per Plate (Each Plate).....	325 Volts
Steady State Peak Plate Current.....	210 Ma
Rectification Efficiency to Keep Within Steady State	
Peak Current Rating at 35 Ma Per Plate.....	67.5 Percent
Transient Peak Plate Current Per Plate (Each Plate) ¹	1.0 Ampere
Minimum Plate Supply Resistance Per Plate for	
325 Volt R M S Supply.....	325 Ohms
Tube Voltage Drop (70 Ma Per Plate).....	22 Volts
D C Output Current Each Plate with 325 Volts	
A C Plate Supply Voltage (R M S)	
Capacitor Input to Filter.....	35 Ma
Choke Input to Filter.....	42 Ma

CHARACTERISTICS AND TYPICAL OPERATION

Full-Wave Rectifier

	Input to Filter	
	Capacitor	Choke
A C Plate Supply Voltage Per Plate (R M S).....	325	450 Volts
Filter Input Capacitor ²	10	μf
Filter Input Choke (Minimum).....		10 Henrys
Total Effective Plate Supply Impedance		
(Per Plate) ²	525	Ohms
D C Output Current.....	70	70 Ma
D C Output Voltage at Filter Input (approx.):		
For D C Cathode Current of 35 Ma.....	365	395 Volts
70 Ma.....	310	385 Volts
Difference (Voltage Regulation).....	55	10 Volts
Percentage Regulation.....	15	2.5 Percent

NOTES:

1. If capacitor input circuits are to be used, protect the circuits against the possibility of hot-switching and do not exceed a maximum peak current value of one (1) ampere during the initial cycles of the hot-switching transient.
2. When a filter capacitor larger than 10 μf is used, it may be necessary to add additional plate supply impedance to limit the hot-switching transient plate current to the rated maximum.

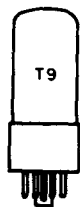
APPLICATION

The 6X4 is a miniature, full-wave, cathode type rectifier. It is intended for service in compact a c or auto receivers where the average current is not in excess of 70 ma. It is similar electrically to Type 6X5GT.

SYLVANIA TUBE TESTER SETTINGS

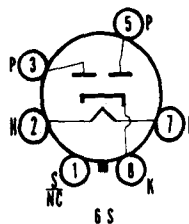
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	2	—	22	Y
	6.3	0	—	0	5	—	22	Y
219/220	6.3	3	4	12	4	Z	1*	7
	6.3	3	4	12	4	Z	6*	7

* Diode gas test does not apply.



**SYLVANIA TYPE 6X5
6X5GT**

FULL-WAVE RECTIFIER



MECHANICAL DATA

Bulb..... T-9, Outline 9-11
 Base..... Intermediate Octal 6-Pin
 Basing..... 6S
 Mounting Position..... Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage..... 6.3 Volts
 Heater Current..... 600 Ma
 Maximum Heater-Cathode Voltage..... 450 Volts

MAXIMUM RATINGS (Design Center Values)

Peak Inverse Voltage..... 1250 Volts
 Steady State Peak Plate Current (Each Plate)..... 210 Ma
 Tube Voltage Drop (70 Ma Per Plate)..... 22 Volts

TYPICAL OPERATION

Capacitor Input to Filter

Plate Voltage (Each Plate—R M S)..... 325 Volts
 D C Output Current..... 70 Ma
 Effective Plate Supply Impedance (Each Plate)¹..... 150 Ohms

Choke Input to Filter

Plate Voltage (Each Plate—R M S)..... 450 Volts
 D C Output Current..... 70 Ma
 Input Choke Value..... 10 Henrys
 Min.

NOTE:

1. Additional impedance may be required when a filter of more than 40 μ f is used.

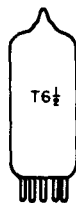
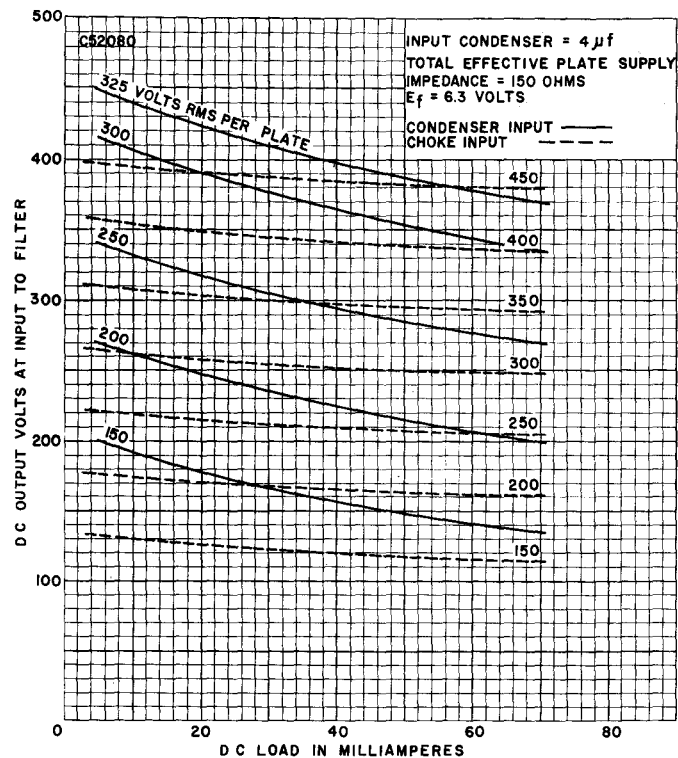
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	—	20	Y
	6.3	0	—	0	3	—	20	Y
219/220	6.3	2	7	13	7	Z	3*	8
	6.3	2	7	13	7	Z	5*	8

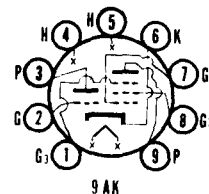
* Diode gas test does not apply.

6X5, 6X5GT (Cont'd)

AVERAGE CHARACTERISTICS



SYLVANIA TYPE 6X8
 H F TRIODE PENTODE



MECHANICAL DATA

Bulb.....	T-6 1/2, Outline 6-2
Base.....	Small Button 9-Pin
Basing.....	9AK
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	450 Ma
Maximum Peak Heater-Cathode Voltage.....	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded ¹	Unshielded	
Triode Section:			
Grid to Plate.....	1.4	1.4 μf	
Input.....	2.6	2.0 μf	
Output.....	1.0	0.5 μf	
Pentode Section:			
Grid No. 1 to Plate.....	0.06	0.09 μf	Max
Input.....	4.5	4.3 μf	
Output.....	1.4	0.7 μf	
Coupling:			
Pentode Grid No. 1 to Triode Plate.....	0.035	0.045 μf	Max
Pentode Plate to Triode Plate.....	0.008	0.040 μf	Max

6X8 (Cont'd)

MAXIMUM RATINGS (Design Center Values)

Converter Service	Triode Section as Oscillator	Pentode Section as Mixer
Plate Voltage.....	250	250 Volts
Grid No. 2 Supply Voltage.....		250 Volts
Grid No. 2 Voltage.....	See Screen Grid Rating Curve	
Grid No. 1 Voltage.....		
Negative Bias.....		40 Volts
Positive Bias.....		0 Volts
Plate Dissipation.....	1.5	2.0 Watts
Grid No. 2 Input.....		0.4 Watt
Grid No. 1 Input.....	0.5	Watt
Grid No. 1 Circuit Resistance.....		
Fixed Bias.....	0.1	Megohm
Cathode Bias.....	0.5	Megohm

CHARACTERISTICS

	Triode	Pentode
Plate Voltage.....	100	250 Volts
Grid No. 3.....	Connected to	Cathode at Socket
Grid No. 2 Voltage.....		150 Volts
Cathode Bias Resistor.....	100	200 Ohms
Amplification Factor.....	40	
Plate Resistance (approx.).....	6900	750000 Ohms
Transconductance.....	5800	4600 μ mhos
Grid No. 1 Bias for Plate Current of 10 μ a (approx.).....	-10	-10 Volts
Plate Current.....	8.5	7.7 Ma
Grid No. 2 Current.....		1.6 Ma

TYPICAL OPERATION

	Triode Section as 250 Mc Osc.	Pentode Section as Mixer ²
Plate Voltage.....	150	150 Volts
Grid No. 3.....	Connected to	Cathode at Socket
Grid No. 2 Voltage.....		150 Volts
Mixer Grid No. 1 Supply Voltage.....		-3.5 Volts
Oscillator Voltage at Mixer Grid No. 1 (R.M.S.).....		2.6 Volts
Mixer Grid No. 1 Circuit Resistance.....		120000 Ohms
Oscillator Grid Resistor.....	2700	Ohms
Conversion Transconductance.....		2100 μ mhos
Plate Current.....	13	6.2 Ma
Grid No. 2 Current.....		1.8 Ma
Grid No. 1 Current.....	3.6	Ma
Grid No. 1 Current.....		2.0 μ a
Oscillator Power Output (approx.).....	0.5 ³	Watt

NOTES:

- External shield No. 315 tied to cathode.
- With separate excitation and triode unit grounded.
- In tv or fm receivers, it is generally desirable to operate the oscillator with less power input than shown in the tabulated data in order to avoid over-excitation and excessive oscillator radiation.

APPLICATION

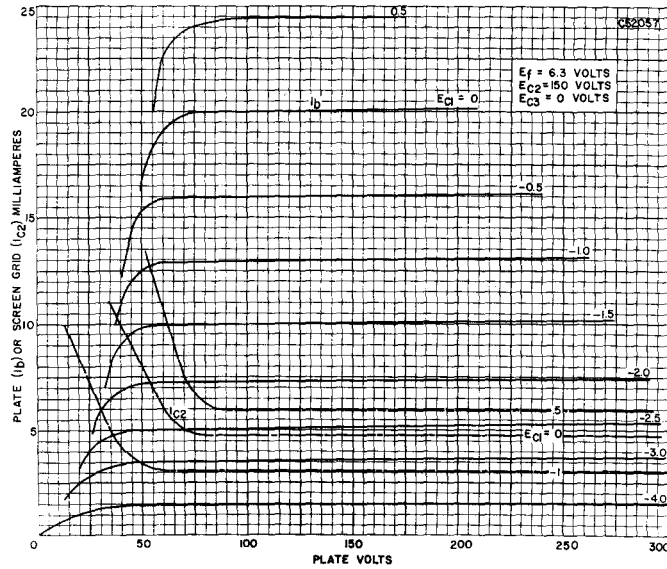
A miniature medium- μ triode and a sharp cutoff pentode in one envelope. Designed primarily for use as a combined oscillator and mixer in television receivers utilizing an if in the order of 40 mc. The 6X8 gives performance comparable to that obtainable with a 6AG5 mixer and an oscillator consisting of one unit of a Type 6J6.

SYLVANIA TUBE TESTER SETTINGS

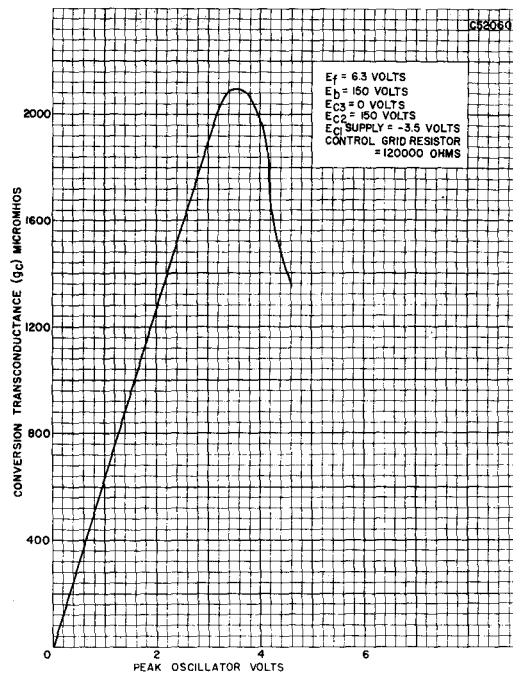
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	4	0279	48	V
	6.3	0	—	0	5	3	37	U
219/220	6.3	4	5S	38	5	78Y	9	6
	6.3	4	5S	44	5	2X	3	6

6X8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS PENTODE SECTION

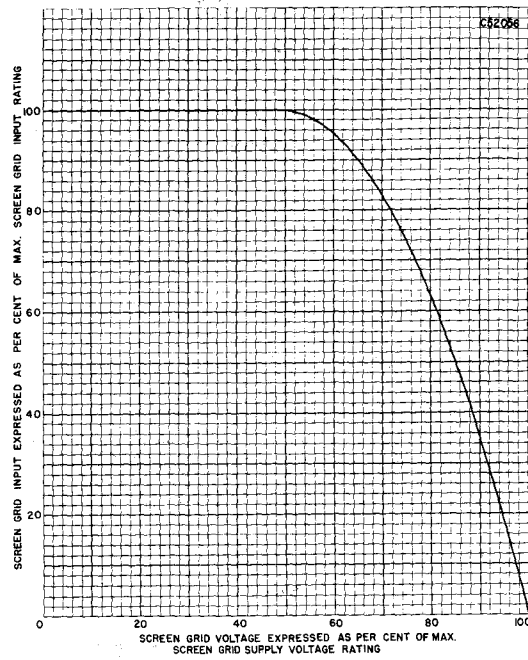


AVERAGE OPERATING CHARACTERISTICS PENTODE SECTION—SEPARATE EXCITATION

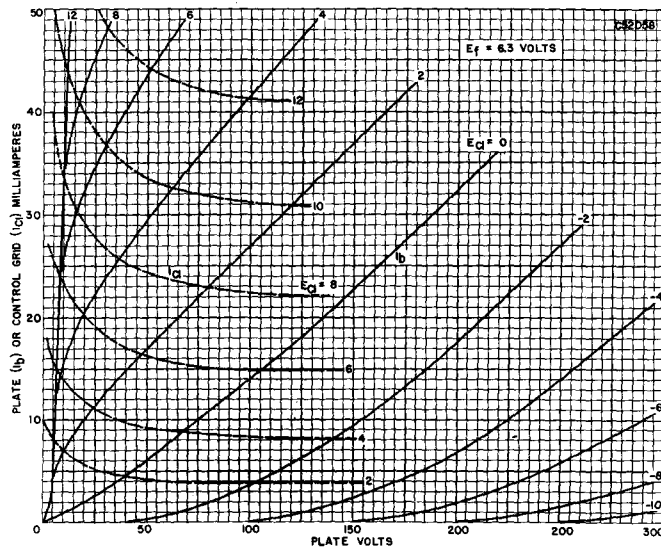


6X8 (Cont'd)

SCREEN GRID RATING CHART



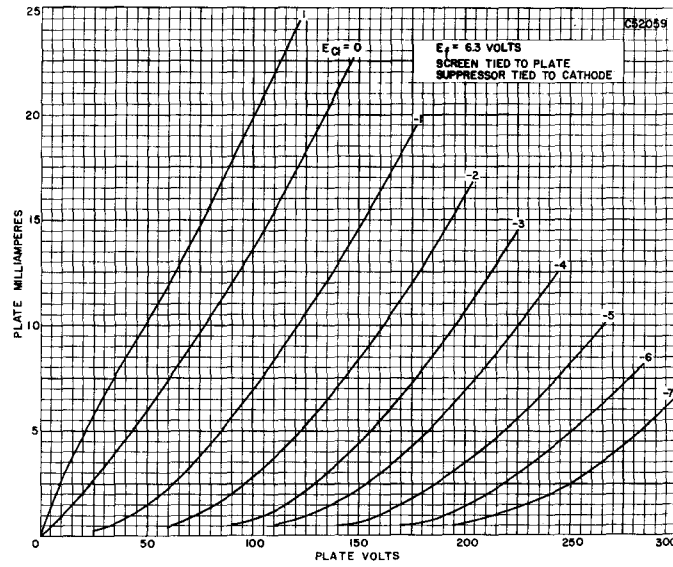
AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION



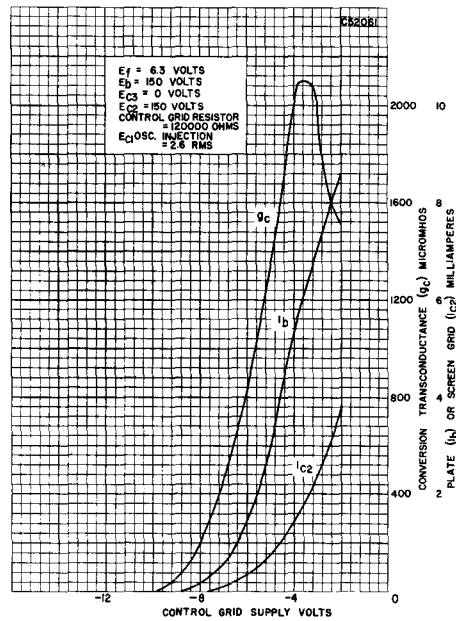
SYLVANIA ELECTRONIC TUBES

6X8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS PENTODE SECTION—TRIODE CONNECTED

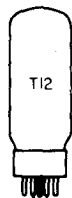


AVERAGE OPERATING CHARACTERISTICS PENTODE SECTION—SEPARATE EXCITATION



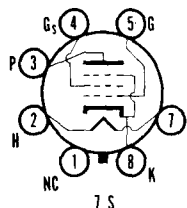
TYPES 6Y3G, 6Y5, 6Y5V

(See Condensed Data Section)



SYLVANIA TYPE 6Y6G 6Y6GA

BEAM POWER AMPLIFIER



MECHANICAL DATA

	6Y6G	6Y6GA
Bulb.....	ST-14, Outline 14-3	T-12, Outline 12-101
Base.....	Medium Octal 7-Pin	Medium or Short Medium Octal 7-Pin
Basing.....	7S	7S
Mounting Position.....	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTIC

Heater Voltage.....	6.3 Volts
Heater Current.....	1.25 Amperes
Maximum Heater-Cathode Voltage.....	180 Volts

MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	200 Volts
Plate Dissipation.....	12.5 Watts
Grid No. 2 Voltage.....	See Screen Grid Rating Curve or Type 6AM8
Grid No. 2 Supply Voltage.....	200 Volts
Grid No. 2 Dissipation.....	1.75 Watts
Grid No. 1 Circuit Resistance.....	
Fixed Bias.....	0.1 Megohm
Cathode Bias.....	0.5 Megohm

CHARACTERISTICS AND TYPICAL OPERATION

Class A₁ Amplifier

Plate Voltage.....	135	200 Volts
Grid No. 2 Voltage.....	135	135 Volts
Grid No. 1 Voltage.....	-13.5	-14 Volts
Peak A F Grid No. 1 Voltage.....	13.5	14 Volts
Plate Current (Zero Signal).....	58	61 Ma
Plate Current (Maximum Signal).....	60	66 Ma
Grid No. 2 Current (Zero Signal).....	3.5	2.2 Ma
Grid No. 2 Current (Maximum Signal).....	11.5	9 Ma
Transconductance.....	7000	7100 μmhos
Plate Resistance (approx.).....	9300	18300 Ohms
Load Resistance.....	2000	2600 Ohms
Maximum Signal Power Output.....	3.6	6.0 Watts
Total Harmonic Distortion (approx.).....	10	10 Percent

SYLVANIA TUBE TESTER SETTINGS

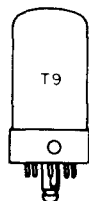
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	03	19	X
219/220	6.3	2	7	12	7	045Z	3	8

TYPE 6Y7G

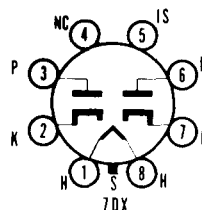
(See Condensed Data Section)

TYPES 6Z3, 6Z4, 6Z4/84,
6Z5, 6Z5/12Z5,
6Z7G, 6ZY5G,
7A4, 7A5

(See Condensed Data Section)



SYLVANIA TYPE 7A6
DUODIODE



MECHANICAL DATA

Bulb	T-9, Outline 9-30
Base	Lock-In 8-Pin
Basing	7DX
Mounting Position	Any

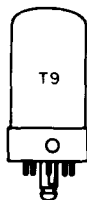
ELECTRICAL DATA

HEATER CHARACTERISTICS

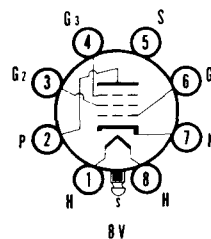
Heater Voltage	6.3 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage	330 Volts

TYPICAL OPERATION

A C Voltage Per Plate (R M S)	150 Volts
D C Output Current	8.0 Ma



SYLVANIA TYPE 7A7
REMOTE CUTOFF R F PENTODE



MECHANICAL DATA

Bulb	T-9, Outline 9-30
Base	Lock-In 8-Pin
Basing	8V
Mounting Position	Any

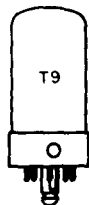
ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

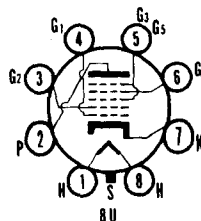
TYPICAL OPERATION

Plate Voltage	100	250 Volts
Grid No. 2 Voltage	100	100 Volts
Grid No. 1 Voltage	-1.0	-3.0 Volts
Self Bias Resistor	60	260 Ohms
Grid No. 3	Connect to Cathode	
Plate Current	13.0	9.2 Ma
Grid No. 2 Current	4.0	2.6 Ma
Transconductance	2350	2000 μ mhos
Plate Resistance	0.12	0.8 Megohm
Control Grid Bias for $G_m = 10 \mu$ mhos	35	-35 Volts



SYLVANIA TYPE 7A8

OCTODE CONVERTER



MECHANICAL DATA

Bulb.....	T-9, Outline 9-30
Base.....	Lock-in 8-Pin
Basing.....	8U
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	150 Ma
Maximum Heater-Cathode Voltage.....	90 Volts

DIRECT INTERELECTRODE CAPACITANCES (Shielded)¹

Grid No. 4 to Plate.....	0.15 μf	Max
Grid No. 4 to Grid No. 2.....	0.3 μf	Max
Grid No. 4 to Grid No. 1.....	0.15 μf	Max
Grid No. 1 to Grid No. 2.....	0.60 μf	
R F Input, Grid No. 4 to All.....	7.5 μf	
Osc. Output, Grid No. 2 to All Except Grid No. 1.....	3.4 μf	
Osc. Input, Grid No. 1 to All Except Grid No. 2.....	3.8 μf	
Mixer Output, Plate to All.....	9.0 μf	

MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	300 Volts
Grids No. 3 and 5 Supply Voltage.....	300 Volts
Grids No. 3 and 5 Voltage.....	100 Volts
Grid No. 2 Supply Voltage.....	300 Volts
Grid No. 2 Voltage.....	200 Volts
Plate Dissipation.....	1.0 Watt
Grids No. 3 and 5 Dissipation.....	0.3 Watt
Grid No. 2 Dissipation.....	0.75 Watt
Cathode Current.....	13.0 Ma
Positive Grid No. 4 Voltage.....	0 Volts

TYPICAL OPERATION

Plate Voltage.....	100	250 Volts
Grids No. 3 and 5 Voltage.....	75	100 Volts
Grid No. 4 Voltage (Signal Grid).....	-3.0	-3.0 Volts
Grid No. 2 Voltage (Osc. Anode).....	100	250 Volts ²
Grid No. 1 Resistor (Osc. Grid).....	50000	50000 Ohms
Plate Current.....	1.8	3.0 Ma
Grids No. 3 and 5 Current.....	2.7	3.2 Ma
Grid No. 2 Current.....	2.8	4.2 Ma
Grid No. 1 Current.....	0.2	0.4 Ma
Self Bias Resistor.....	400	280 Ohms
Plate Resistance.....	.65	.70 Megohm
Conversion Transconductance.....	375	550 μmhos
Grid No. 4 Voltage for $G_c = 2 \mu\text{mhos}$	-22.5	-30 Volts

CHARACTERISTICS

Oscillator, Non-oscillating Condition³

Grid No. 2 Current.....	10 Ma
Transconductance (Grid No. 1 to Grid No. 2).....	1600 μmhos
Amplification Factor (Grid No. 1 to Grid No. 2).....	65

NOTES:

- Shield No. 308 connected to cathode.
- Applied through 20,000 ohm resistor for $E_{c2} = 250 \text{ V}$.
- Measurements taken with $E_b = 250 \text{ volts}$; $E_{c2} = 180 \text{ volts}$; $E_{c3} = 100 \text{ Volts}$; $E_{c1} = 0 \text{ volts}$.

APPLICATION

Sylvania Type 7A8 is a single-ended oscillator-mixer tube. The addition of a suppressor grid serves to increase the plate resistance for improved performance, particularly when operated at low plate supply voltages.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	---	0	1	056	70	W
	6.3	0	---	0	2	45	93	X
219/220	6.3	1	8S	65	8	056X	2	7
	6.3	1	8	41	8	4U	3	7