ROHDE&SCHWARZ

Geschäftsbereich
Meßtechnik

Servicehandbuch

Vektor-Signalgenerator

SMIQ02/02W/03/03A/03W

1084.8004.02/02W/03/03A/03W

SMIQ02E/03E

1106.1506.02E/03E

ENGLISH SERVICE MANUAL FOLLOWS FIRST COLOURED DEVIDER

Band 4
Servicehandbuch besteht aus 4 Bänden

Printed in the Federal
Republic of Germany

1085.2445.24-03-

Inhaltsübersicht

Band 1

6 Instandsetzung

7 Prüfen und Instandsetzen der Baugruppen

Frontmodul mit Rechner VAR 06 ..... Register 1
Frontmodul mit Rechner VAR 08 ..... Register 2
Referenz/Stepsynthese (nur SMIQ02/03) ..... Register 3

Band 2

7 Prüfen und Instandsetzen der Baugruppen

Digitale Synthese (nur SMIQ02/03) ..... Register 1
Summierschleife (nur SMIQ02/03) ..... Register 2
Synthesizer (nur SMIQ02E/03E) ..... Register 3
Eichleitung 3 GHz ..... Register 4
I/Q-Modulator ..... Register 5

Band 3

7 Prüfen und Instandsetzen der Baugruppen

I/Q-Modulator VAR 06 ..... Register 1
I/Q-Converter ..... Register 2
Option Referenzoszillator OCXO SM-B1 ..... Register 3
Option FM-Modulator SM-B5 (nur SMIQ02/03) ..... Register 4

Band 4

7 Prüfen und Instandsetzen der Baugruppen

Option Fading Simulator SMIQ-B14 und SMIQ-B15 (nur SMIQ02/03) ..... Register 1
Option Modulationcoder SMIQB10 ..... Register 2
Optionen Datengenerator SMIQB11 und Speichererweiterung SMIQB12 ..... Register 3
N/D Simulator ..... Register 4
Netzteil ..... Register 5

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Test and Measurement
Division

Service Manual

VECTOR SIGNAL GENERATOR

SMIQ02/02W/03/03A/03W

1084.8004.02/02W/03/03A/03W

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Contents

Volume 1

6 Repair Instruction

7 Testing and Repair of Modules

Front Module with Controller VAR 06 ..... Register 1
Front Module with Controller VAR 08 ..... Register 2
Reference/Step Synthesis (SMIQ02/03 only) ..... Register 3

Volume 2

7 Testing and Repair of Modules

Digital Synthesis (SMIQ02/03 only) ..... Register 1
Summing Loop (SMIQ02/03 only) ..... Register 2
Synthesizer (SMIQ02E/03E only) ..... Register 3
Attenuator 3 GHz ..... Register 4
I/Q Modulator ..... Register 5

Volume 3

7 Testing and Repair of Modules

I/Q Modulator MOD 6 ..... Register 1
I/Q Converter ..... Register 2
Option Reference Oscillator OCXO SM-B1 ..... Register 3
Option FM-Modulator SM-B5 (SMIQ02/03 only) ..... Register 4

Volume 4

7 Testing and Repair of Modules

Option Fading Simulator SMIQ-B14 and SMIQ-B15 (SMIQ02/03 only) ..... Register 1
Option Modulation Coder SMIQB10 ..... Register 2
Options Data Generator SMIQB11 and Memory Extension SMIQB12 ..... Register 3
N/D Simulator ..... Register 4
Power Supply ..... Register 5

ROHDE&SCHWARZ

SERVICEUNTERLAGEN

Baugruppe Fading Simulator

1085.4060.02

Inhaltsverzeichnis

7. Prüfen und Instandsetzen der Baugruppe 5

7.1 Funktionsbeschreibung 5

7.2 Servicekonzept 5

7.3 Meßgeräte und Hilfsmittel 5

7.4 Fehlersuche 5

7.4.1 Selbsttest 5
7.4.1.1 Test der Versorgungsspannungen 5
7.4.1.2 Fading Board interner Selbsttest 6
7.4.1.3 Bypass Test 7
7.4.1.4 Test Signalpfadeingang 8
7.4.1.5 Test Signalpfadausgang 8
7.4.2 Zusätzliche Prüfungen 8

7.5 Prüfen und Abgleichen 8

7.5.1 Änderungszustand 9
7.5.2 Steckbrücken 9
7.5.2.1 Nur FSIM1 installiert (6 Pfade) 9
7.5.2.2 FSIM1 und FSIM2 installiert (12 Pfade) 9
7.5.3 Diagnosepunkte 9
7.5.4 DC-Kompensation 10

7.6 Zerlegung und Zusammenbau 10

7.7 Externe Schnittstellen 10

7.7.1 Schnittstelle zum Motherboard 11
7.7.2 Koaxiale Schnittstellen 13
7.7.2.1 Nur FSIM1 installiert (6 Pfade) 13
7.7.2.2 FSIM1 und FSIM2 installiert (12 Pfade) 14

Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

Der Fading Simulator (FSIM1) kann wahlweise in das komplexe Modulationssignal (I und Q) des SMIQ eingeschleift werden. Dabei kann das Modulationssignal, je nach Ausstattung und Verkabelung, von der Baugruppe Modulationscoder (Option SMIQ B10, MCOD) oder von einer externen Quelle kommen. Bei eingeschaltetem Fading wird das analoge Eingangssignal digitalisiert (AD-Wandler), entsprechend dem gewählten Fading Profile rein digital beeinflusst und abschließend durch DA-Wandler wieder in ein komplexes Analogsignal gewandelt.

Ein SMIQ kann mit einer oder 2 Baugruppen Fading Simulator ausgestattet sein, welche als FSIM1 und FSIM2 bezeichnet werden. Bei Verwendung einer Baugruppe handelt es sich um einen Fading Simulator mit 1 Kanal und 6 Pfaden. Befinden sich 2 Baugruppen im Gerät, so können diese durch Software zu 1 Kanal mit 12 Pfaden oder 2 Kanälen mit je 6 Pfaden konfiguriert werden. Für den Zweikanalbetrieb ist ein zweiter SMIQ notwendig, da pro Gerät nur ein I/Q-Modulator vorhanden ist.

7.2 Servicekonzept

Die Baugruppe ist eine sehr komplexe Hybridschaltung mit überwiegendem Digitalteil. Eine genaue Fehlerdiagnose auf Bauteilebene bzw. Instandsetzung ist daher in den Niederlassungen oder direkt beim Kunden nicht möglich. Eine als defekt erkannte Baugruppe muß durch eine Ersatzbaugruppe ersetzt werden. Die defekte Baugruppe ist der Fertigung zur genaueren Diagnose und Fehlerbehebung zu überlassen.

Entsprechend ist dieses Dokument aufgebaut. Es soll den Service-techniker in die Lage versetzen, eindeutig eine defekte Fading-Baugruppe zu erkennen.

7.3 Meßgeräte und Hilfsmittel

- Spektrumanalysator, Frequenzbereich 1.5 GHz z.B. FSA
- Dual Arbitrary Waveform Generator mit einstellbaren DC-Offset z.B. ADS
- DC-Voltmeter z.B. UDS5

7.4 Fehlersuche

Bei Verdacht auf ein Fehlverhalten des Fading Simulators, ist zuerst der Selbstest aufzurufen.

➢ UTILITIES --> TEST --> **TEST FSIM**

7.4.1 Selbsttest

Der gesamte Selbsttest setzt sich aus mehreren Teilen zusammen, die nacheinander abgearbeitet werden. Tritt in einem der Selbsttest-Abschnitte ein Fehler auf, dann wird der Rest des Selbsttests nicht mehr bearbeitet, da jeder Selbsttest-Abschnitt den fehlerfreien Ablauf der vorhergehenden Abschnitte voraussetzt (z.B. ist es nicht sinnvoll, den Fading Board internen Selbsttest-Abschnitt anzustoßen, wenn nicht alle Versorgungsspannungen korrekt gemessen werden konnten). Ist das Gerät mit zwei FSIM´s ausgestattet, wird jede Baugruppe getrennt getestet.

7.4.1.1 Test der Versorgungsspannungen

Die Versorgungsspannungen des Fading Boards werden zum Teil von extern (über Siebglieder) zugeführt und zum Teil auf dem Fading Board aus diesen externen Spannungen abgeleitet. Über den Diagnose Multiplexer (D91) des Fading Boards können die Spannungen auf den DIAG-5V-Meßbus (X360.A19) geschaltet werden. Mit dem Diagnose-AD-Wandler des SMIQ werden die Spannungen vom Host-Rechner (A3, FRO) überprüft.

Folgende Spannungen werden nachgemessen:

Bezeichnung	zulässiger Bereich	Testpunkt
3.3 V Spannungsversorgung Delay RAM	3.15 V <= U <= 3.45 V	TP 2500 (FSIM1) TP 2600 (FSIM2)
5VCL Spannungsversorgung Clock Generator	4.76 V <= U <= 5.24 V	TP 2503 (FSIM1) TP 2603 (FSIM2)
5VD Spannungsversorgung Digitalteil	4.96 V <= U <= 5.44 V	TP 2504 (FSIM1) TP 2604 (FSIM2)

7.4.1.2 Fading Board interner Selbsttest

Dieser Abschnitt des Selbsttests wird automatisch angestoßen, wenn alle Versorgungsspannungen korrekt gemessen wurden.

Während des internen Selbsttests werden folgende Prüfungen durchgeführt:

Schreiben und Lesen der Delay-RAMs

In einem speziellem ASIC-Mode kann das Delay-Ram jedes Pfads vom DSP beschrieben und gelesen werden. Zum Test des Delay-RAMs wird für jeden Pfad eine Speicherzelle mit den Mustern 0555h und 0AAAh beschrieben und ausgelesen.

Delay-RAM Address Test

Dieser Test soll Fehler in der Adressierung des Delay RAMs erkennen.

Der Test läuft folgendermaßen ab:

1) Die Speicherzelle mit der Adresse 1h wird mit dem Muster 555h für die I-Daten und AAAh für die Q-Daten belegt.
2) Alle restlichen Speicherzellen werden mit AAAh für die I-Daten und 555h für die Q-Daten beschrieben.
3) Anschließend wird die erste Speicherzelle wieder ausgelesen. Falls kein Adressierungsfehler vorliegt, muß ihr Inhalt unverändert sein.

Die Testschritte 1) bis 3) werden analog für die Adressen 2h, 4h ... (Walking One Address) wiederholt.

DC-Kompensation

Hier wird automatisch der Eingangs- und Ausgangsoffset der I/Q-Pfade ermittelt und im Digitalteil kompensiert. Dabei werden zuerst die I/Q-Eingänge über 50 Ohm auf GND geschaltet und die Offsetspannungen ermittelt und korrigiert. Anschließend werden die I/Q-Ausgänge über Relais direkt mit den Eingängen verbunden und die Ausgangsoffsets mit den Eingangs-AD-Wandlern gemessen.

ADC/DAC Loop Back Test

Mit Hilfe des Constant Output Modes des ASIC3 (Pfad 5 und 6) wird an den I/Q-DA-Wandlern eine Gleichspannung erzeugt und über die Rückkopplung mit dem entsprechenden AD-Wandler gemessen.

Es werden die folgenden 4 Messungen, jeweils I- und Q-Pfad mit +/- 0.4V, ausgeführt.

Rückmeldungen des Fading Board internen Selbsttests

Der interne Selbsttest liefert als Ergebnis folgende Fehler-Codes

Selftest Error Code	Beschreibung
00000000h	kein Fehler
00000001h	ASIC-I/O-Error Pfad 1
00000002h	ASIC-I/O-Error Pfad 2
00000003h	ASIC-I/O-Error Pfad 3
00000004h	ASIC-I/O-Error Pfad 4
00000005h	ASIC-I/O-Error Pfad 5
00000006h	ASIC-I/O-Error Pfad 6
00000007h	Delay RAM Error Pfad 1
00000008h	Delay RAM Error Pfad 2
00000009h	Delay RAM Error Pfad 3
0000000Ah	Delay RAM Error Pfad 4
0000000Bh	Delay RAM Error Pfad 5
0000000Ch	Delay RAM Error Pfad 6
0000000Dh	DC AD Compensation Error I-Input (der DC Offset ist so groß, daß er nicht kompensiert werden kann)
0000000Eh	DC AD Compensation Error Q-Input (der DC Offset ist so groß, daß er nicht kompensiert werden kann)
0000000Fh	DC DA Compensation Error I-Output (der DC Offset ist so groß, daß er nicht kompensiert werden kann)
00000010h	DC DA Compensation Error Q-Output (der DC Offset ist so groß, daß er nicht kompensiert werden kann)
00000011h	ADC/DAC Loop Back Error I (die mit dem AD-Wandler gemessene Spannung lag nicht im zulässigen Bereich).
00000012h	ADC/DAC Loop Back Error Q (die mit dem AD-Wandler gemessene Spannung lag nicht im zulässigen Bereich).

Anmerkung: Der interne Selbsttest wird abgebrochen, sobald ein Fehler erkannt wurde, d.h. die restlichen Prüfungen werden nicht mehr durchgeführt.

7.4.1.3 Bypass Test

Um den Bypass-Pfad der Baugruppe FSIM1 zu testen, wird von der Baugruppe MCOD eine Gleichspannung auf die Eingänge I_MODIN bzw. Q_MODIN geschaltet. Diese Spannung wird an den Baugruppenausgängen I_MODOUT bzw. Q_MODOUT mit Hilfe des Diagnose-Multiplexers abgegriffen und über die DIAG-5V-Leitung dem Diagnose-AD-Wandler des SMIQ zugeführt und dort gemessen. Für die eventuell vorhandene zweite Baugruppe FSIM2, wird der Test nicht durchgeführt, weil deren Bypass-Pfad nicht benutzt wird. Besitzt das Gerät keinen MCOD, kommt das Modulationssignal von extern. Der Selbsttest kann in diesem Fall kein Eingangssignal erzeugen, daher wird der Test übersprungen. Der Service kann den Test aber folgendermaßen manuell durchführen:

- FADING SIM --> CONFIGURATION --> **OFF**
- Gleichspannung < +/- 0.5 V in I-Input (Frontplatte) einspeisen.
- UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP 2501
- Prüfen, ob die gemessene Spannung mit dem eingespeisten Wert übereinstimmt.
- Gleichspannung < +/- 0.5 V in Q-Input (Frontplatte) einspeisen.
- UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP 2502

➢ Prüfen, ob die gemessene Spannung mit dem eingespeisten Wert übereinstimmt.

Bezeichnung	zulässiger Bereich	Testpunkt
I_OUT_T I-Ausgang	entsprechend der eingespeisten Spannung	TP 2501 (FSIM1)
Q_OUT_T Q-Ausgang	entsprechend der eingespeisten Spannung	TP 2502 (FSIM1)

7.4.1.4 Test Signalpfadeingang

Von der Baugruppe MCOD wird eine Gleichspannung an den Eingängen I_MODIN und Q_MODIN eingespeist.

Auf dem Fading Board wird der AD-Wandler für den I- und Q-Pfad ausgelesen und die gemessene Spannung gegen die angegebenen Spannungsbereiche geprüft (dabei wird die Meßgenauigkeit der AD-Wandler berücksichtigt).
Bei einer Gerätekonfiguration ohne MCOD wird dieser Test übersprungen.

Als Ergebnis werden vom FSIM folgende Fehler-Codes zurückgeliefert:

Selftest Error Code	Beschreibung
00000000h	alle Spannungen liegen im erlaubten Bereich
00000001h	Spannung am I-Eingang ist zu niedrig
00000002h	Spannung am I-Eingang ist zu hoch
00000003h	Spannung am Q-Eingang ist zu niedrig
00000004h	Spannung am Q-Eingang ist zu hoch

7.4.1.5 Test Signalpfadausgang

Mit Hilfe des Constant Output Modes des ASIC3 (Pfad 5 und 6) wird an den I/Q-DA-Wandlern eine Gleichspannung erzeugt.

Diese Spannungen werden an den Baugruppenausgängen I_MODOUT bzw. Q_MODOUT mit Hilfe des Diagnose-Multiplexers abgegriffen und über die DIAG-5V-Leitung dem Diagnose-AD-Wandler des SMIQ zugeführt, dort gemessen und mit den Sollwerten verglichen.

7.4.2 Zusätzliche Prüfungen

Ungleichheiten, bezüglich Dämpfungs- und Laufzeitverhalten der Eingangs- und Ausgangsfilter, zwischen I- und Q-Pfad, führen zu
einer schlechten Unterdrückung des Image-Spektrums. Das Image-Spektrum findet man im gleichen Abstand zum Träger, wie das Nutz-Spektrum, nur auf der anderen Seite.

Fehlerbeschreibung	Fehlerbehebung
Image-Spektrum wird mit weniger als 40 db gedämpft. Eine Dämpfung ist aber deutlich zu sehen.	Der Abgleich der Eingangs- oder Ausgangsfilter wurde verändert. FSIM neu abgleichen.
Image-Spektrum wird nicht gedämpft.	I- oder Q-Signalpfad unter-brochen. Diesen Fehler findet bei einem Gerät mit MCOD der Selbsttest. Bei einem Gerät ohne MCOD wird der Signalpfadeingang nicht überprüft, daher kann der Fehler auftreten, obwohl der Selbsttest nichts findet.

7.5 Prüfen und Abgleichen

Wie unter Abschnitt „7.2 Servicekonzept" bereits erläutert, sind defekte Baugruppen nur in der Fertigung zu reparieren, zu prüfen und abzugleichen.

7.5.1 Änderungszustand

Unter UTILITIES --> DIAG --> CONF wird der Änderungszustand sowie die Variante der einzelnen Baugruppen angezeigt. Der Änderungs-zustand wird mit den Widerständen R469 bis R472 codiert, die Variante mit den Widerständen R467 und R468.

7.5.2 Steckbrücken

Siehe auch Beschriftung „JUMPER SETTING" auf Schirmdeckel.

7.5.2.1 Nur FSIM1 installiert (6 Pfade)

Dies ist die Grundeinstellung der Option.

X1.1		mit	X1.2	verbinden
X8.1		mit	X8.2	verbinden
X9.1		mit	X9.2	verbinden
X12.2	mit	X12.3	verbinden	
X13.1	mit	X13.2	verbinden	
X15.1	mit	X15.2	verbinden	
X16.1	mit	X16.2	verbinden	

7.5.2.2 FSIM1 und FSIM2 installiert (12 Pfade)

FSIM1

X1.1		mit	X1.2	verbinden
X8.2		mit	**X8.3**	verbinden
X9.2		mit	**X9.3**	verbinden
X12.2	mit	X12.3	verbinden	
X13.2	mit	**X13.3**	verbinden	
X15.1	mit	X15.2	verbinden	
X16.2	mit	**X16.3**	verbinden	

FSIM2

X1.2		mit	**X1.3**	verbinden
X8.2		mit	**X8.3**	verbinden
X9.2		mit	**X9.3**	verbinden
X12.1	mit	**X12.2**	verbinden	
X13.2	mit	**X13.3**	verbinden	
X15.2	mit	**X15.3**	verbinden	
X16.2	mit	**X16.3**	verbinden	

Die Abweichungen von der Grundeinstellung sind **fett** gedruckt.

7.5.3 Diagnosepunkte

UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP xxxx

Testpunkt	Beschreibung
TP 2500	FSIM1 + 3.3 V +/- 0.1 V, Spannungsversorgung
TP 2501	FSIM1 I_OUT_T, I-Ausgangssignal an X367 und X368
TP 2502	FSIM1 Q_OUT_T, Q-Ausgangssignal an X370 und X371
TP 2503	FSIM1 +5VCL, Spannungsversorgung Clock Generator Soll: 5 V +/- 0.24 V
TP 2504	FSIM1 +5VD, Spannungsversorgung Digitalteil Soll: +5.2V +/- 0.24 V
TP 2505	GND
TP 2506	GND
TP 2507	GND
TP 2600	FSIM2 + 3.3 V +/- 0.1 V, Spannungsversorgung
TP 2601	FSIM2 I_OUT_T, I-Ausgangssignal an X367 und X368
TP 2602	FSIM2 Q_OUT_T, Q-Ausgangssignal an X370 und X371
TP 2603	FSIM2 +5VCL, Spannungsversorgung Clock Generator Soll: 5 V +/- 0.24 V
TP 2604	FSIM2 +5VD, Spannungsversorgung Digitalteil Soll: +5.2V +/- 0.24 V
TP 2605	GND
TP 2606	GND
TP 2607	GND

7.5.4 DC-Kompensation

Mit UTILITIES --> CALIB --> FSIM lässt sich die automatische DC-Kompensation aufrufen, welche auch Bestandteil des board-internen Selbstests ist (siehe 7.4.1.2 Fading Board interner Selbsttest).

7.6 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes und dem Lösen der mechanischen Verriegelung am Motherboard die Koax-Verbindungen an der Baugruppe abziehen. Die Baugruppe kann nun aus ihrem Steckplatz entnommen werden. Schrauben lösen und Schirmdeckel abnehmen.
Der Zusammen- und Einbau der Baugruppe erfolgt entsprechend in umgekehrter Reihenfolge.

7.7 Externe Schnittstellen

7.7.1 Schnittstelle zum Motherboard

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X360.A1					
X360.A2					
X360.A3					
X360.A4					
X360.A5					
X360.A6					
X360.A7					
X360.A8					
X360.A9					
X360.A10					
X360.A11	GND		A200, MBIQ		Masse
X360.A12	SERBUS-CLK	Eingang	A3, FRO, X31.40	HCT-Pegel	Serbus Clock
X360.A13	GND		A200, MBIQ		Masse
X360.A14	SERBUS-OUT	Ausgang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X360.A15	SERBUS-IN	Eingang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X360.A16	SERBUS-SYNC	Eingang	A3, FRO, X31.37	HCT-Pegel	Serbus Sync
X360.A17	SERBUS-INT	Ausgang	A3, FRO, X31.38	HCT-Pegel	Serbus Interrupt
X360.A18	Reset-P	Eingang	A3, FRO, X31.28	HCT-Pegel	Serbus Reset
X360.A19	DIAG-5V	Ausgang	A3, FRO, X31.44	-5 V ... +5 V	Diagnose
X360.A20	READY	Ausgang	A3, FRO, X31.50 für FSIM1 oder A3, FRO, X31.49 für FSIM2	HCT-Pegel	Serbus Handshake 1
X360.A21	GND		A200, MBIQ		Masse
X360.A22					
X360.A23	GND		A200, MBIQ		Masse
X360.A24	VA15-P	Eingang	A2, POWS1	14.85... 15.75 V max. 450 mA	15 Volt Stromversorgung
X360.A25	GND		A200, MBIQ		Masse
X360.A26	VA7.5-P	Eingang	A2, POWS1	7.45 ... 7.95 V max. 300 mA	7.5 V Stromversorgung
X360.A27	GND		A200, MBIQ		Masse
X360.A28	VD5-P	Eingang	A2, POWS1	5.15 ... 5.25 V max. 2.3 A	5 V Digital Stromversorgung
X360.A29	GND		A200, MBIQ		Masse
X360.A30	VA15-N	Eingang	A2, POWS1	-15.75 .. -14.85 V max. 150 mA	-15 V Stromversorgung
X360.A31	GND		A200, MBIQ		Masse
X360.A32	VD5-N	Eingang	A200, MBIQ	-5.3 ... -5.1 V max. 400 mA	-5.2 V Stromversorgung

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X360.B1					
X360.B2	GND		A200, MBIQ		Masse
X360.B3	EN_FAD	bidirektional	A360, FSIM1, / A360, FSIM2	TTL Open Collector	Enable Fading
X360.B4	DONE	Ausgang	A3, FRO, X31.47	TTL Open Collector	Serbus Handshake 2
X360.B5	DX0	Ausgang	A360, FSIM2 oder FSIM1, X360.B10	TTL-Pegel	DSP Serial Port Transmit Data
X360.B6	FSX0	Ausgang	A360, FSIM2 oder FSIM1, X360.B9	TTL-Pegel	DSP Serial Port Transmit Frame
X360.B7	CLKX0	Ausgang	A360, FSIM2 oder FSIM1, X360.B8	TTL-Pegel	DSP Serial Port Transmit Clock
X360.B8	CLKR0	Eingang	A360, FSIM2 oder FSIM1, X360.B7	TTL-Pegel	DSP Serial Port Receive Clock
X360.B9	FSR0	Eingang	A360, FSIM2 oder FSIM1, X360.B6	TTL-Pegel	DSP Serial Port Receive Frame
X360.B10	DR0	Eingang	A360, FSIM2 oder FSIM1, X360.B5	TTL-Pegel	DSP Serial Port Receive Data
X360.B11	GND				Masse
X360.B12	CEEX	Eingang	A360, FSIM2 oder FSIM1, X360.B14	TTL-Pegel	Clock Enable Extern Synchron. FSIM1 / FSIM2
X360.B13	GND				Masse
X360.B14	CEIN	Ausgang	A360, FSIM2 oder FSIM1, X360.B12	TTL-Pegel	Clock Enable Intern Synchron. FSIM1 / FSIM2
X360.B15					
X360.B16					
X360.B17					
X360.B18					
X360.B19					
X360.B20					
X360.B21	GND		A200, MBIQ		Masse
X360.B22					
X360.B23	GND		A200, MBIQ		Masse
X360.B24	VA15-P	Eingang	A2, POWS1	14.85... 15.75 V Strom s. X360.A24	15 Volt Stromversorgung
X360.B25	GND		A200, MBIQ		Masse
X360.B26	VA7.5-P	Eingang	A2, POWS1	7.45 ... 7.95 V Strom s. X360.A26	7.5 V Stromversorgung
X360.B27	GND		A200, MBIQ		Masse
X360.B28	VD5-P	Eingang	A2, POWS1	5.15 ... 5.25 V Strom s. X360.A28	5 V Digital Stromversorgung
X360.B29	VD5-P	Eingang	A2, POWS1	5.15 ... 5.25 V Strom s. X360.A28	5 V Digital Stromversorgung
X360.B30	VA15-N	Eingang	A2, POWS1	-15.75 .. -14.85 V Strom s. X360.A30	-15 V Stromversorgung
X360.B31	GND		A200, MBIQ		Masse
X360.B32	VD5-N	Eingang	A200, MBIQ	-5.3 ... -5.1 V Strom s. X360.A32	-5.2 V Stromversorgung

7.7.2 Koaxiale Schnittstellen

7.7.2.1 Nur FSIM1 installiert (6 Pfade)

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X361	I_MODIN	Eingang	Gerät mit MCOD: A320, MCOD, X325 Gerät ohne MCOD: A3, FRO, I(X244)	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Eingangssignal (I-Anteil des Modulationssignals)
X362	I_NEXT	Ausgang		siehe X361	Wird nicht verwendet
X363	Q_MODIN	Eingang	Gerät mit MCOD: A320, MCOD, X328 Gerät ohne MCOD: A3, FRO, Q(X245)	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Eingangssignal (Q-Anteil des Modulationssignals)
X364	Q_NEXT	Ausgang		siehe X363	Wird nicht verwendet
X365	EXT_CK	Ausgang		TTL-Pegel, 40 MHz	Wird nicht verwendet
X366	I_CASCIN	Eingang		siehe X361	Wird nicht verwendet
X367	I_MODOUT	Ausgang	A240, IQMOD, X244	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Ausgangssignal (I-Anteil des Modulationssignals mit oder ohne Fading)
X368	I_FSIM	Ausgang	A320, MCOD, X326	siehe X367	I-Ausgangssignal des Fading Simulators
X369	Q_CASCIN	Eingang		siehe X361	Wird nicht verwendet
X370	Q_MODOUT	Ausgang	A240, IQMOD, X245	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Ausgangssignal (Q-Anteil des Modulationssignals mit oder ohne Fading)
X371	Q_FSIM	Ausgang	A320, MCOD, X329	siehe X370	Q-Ausgangssignal des Fading Simulators

7.7.2.2 FSIM1 und FSIM2 installiert (12 Pfade)

FSIM1

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X361	I_MODIN	Eingang	Gerät mit MCOD: A320, MCOD, X325 Gerät ohne MCOD: A3, FRO, I(X244)	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Eingangssignal (I-Anteil des Modulationssignals)
X362	I_NEXT	Ausgang	A360, FSIM2, X361	siehe X361	Weiterführung des I-Eingangssignals nach I_MODIN des FSIM2
X363	Q_MODIN	Eingang	Gerät mit MCOD: A320, MCOD, X328 Gerät ohne MCOD: A3, FRO, Q(X245)	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Eingangssignal (Q-Anteil des Modulationssignals)
X364	Q_NEXT	Ausgang	A360, FSIM2, X363	siehe X363	Weiterführung des Q-Eingangssignals nach Q_MODIN des FSIM2
X365	EXT_CK	Ausgang	A360, FSIM2, X365	TTL-Pegel, 40 MHz	Grundtakt 40 MHz. Beide FSIM´s müssen aus Synchronisationsgründen den Takt von FSIM1 verwenden.
X366	I_CASCIN	Eingang	A360, FSIM2, X367	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Kaskadiereingang (Für die Addition des I-Ausgangssignals des FSIM2)
X367	I_MODOUT	Ausgang	A240, IQMOD, X244	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Ausgangssignal (I-Anteil des Modulationssignals mit oder ohne Fading)
X368	I_FSIM	Ausgang	A320, MCOD, X326	siehe X367	I-Ausgangssignal des Fading Simulators
X369	Q_CASCIN	Eingang	A360, FSIM2, X370	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Kaskadiereingang (Für die Addition des Q-Ausgangssignals des FSIM2)
X370	Q_MODOUT	Ausgang	A240, IQMOD, X245	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Ausgangssignal (Q-Anteil des Modulationssignals mit oder ohne Fading)
X371	Q_FSIM	Ausgang	A320, MCOD, X329	siehe X370	Q-Ausgangssignal des Fading Simulators

FSIM2

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X361	I_MODIN	Eingang	A360, FSIM1, X362	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Eingangssignal (I-Anteil des Modulationssignals, Weiterführung v. FSIM1)
X362	I_NEXT	Ausgang		siehe X361	Wird nicht verwendet
X363	Q_MODIN	Eingang	A360, FSIM1, X364	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Eingangssignal (Q-Anteil des Modulationssignals, Weiterführung v. FSIM1)
X364	Q_NEXT	Ausgang		siehe X363	Wird nicht verwendet
X365	EXT_CK	Eingang	A360, FSIM1, X365	TTL-Pegel, 40 MHz	Grundtakt 40 MHz. Beide FSIM´s müssen aus Synchronisationsgründen den Takt von FSIM1 verwenden.
X366	I_CASCIN	Eingang		siehe X361	Wird nicht verwendet
X367	I_MODOUT	Ausgang	A360, FSIM1, X366	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Ausgangssignal (I-Anteil des Modulationssignals mit Fading der FSIM2-Pfade)
X368	I_FSIM	Ausgang	AUX IN/OUT, X400	siehe X367	I-Ausgangssignal des FSIM2
X369	Q_CASCIN	Eingang		siehe X361	Wird nicht verwendet
X370	Q_MODOUT	Ausgang	A360, FSIM1, X369	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Ausgangssignal (Q-Anteil des Modulationssignals mit Fading der FSIM2-Pfade)
X371	Q_FSIM	Ausgang	AUX IN/OUT, X400	siehe X370	Q-Ausgangssignal des FSIM2

ROHDE&SCHWARZ

SERVICE Instructions for the Fading-Simulator Module

1085.4060.02

Contents

7. Testing and Repair of the Module 5
7.1 Function Description 5
7.2 Service Conception 5
7.3 Test Instruments and Utilities 5
7.4 Troubleshooting 5
7.4.1 Selftest 5
7.4.1.1 Test of the Supply Voltages 6
7.4.1.2 Internal Selftest of the Fading Board 6
7.4.1.3 Bypass Test 8
7.4.1.4 Test of the Signal-path Input 8
7.4.1.5 Test of the Signal-path Output 9
7.4.2 Additional Tests 9

7.5 Testing and Adjustment 9
7.5.1 Modification State 9
7.5.2 Jumpers 9
7.5.2.1 Only FSIM1 Fitted (6 Paths) 10
7.5.2.2 FSIM1 and FSIM2 Fitted (12 Paths) 10
7.5.3 Diagnostic Test Points 10
7.5.4 DC Compensation 11

7.6 Removal and Assembly 11
7.7 External Interfaces 11
7.7.1 Interface to the Motherboard 12
7.7.2 Coaxial Interfaces 14
7.7.2.1 Only FSIM1 Fitted (6 paths) 14
7.7.2.2 FSIM1 and FSIM2 Fitted (12 paths) 15

Parts list
List of coordinates
Circuit diagram
Components layout diagram

7. Testing and Repair of the Module

7.1 Function Description

The Fading Simulator (FSIM1) may optionally be looped in the complex modulation signal (I and Q) of the SMIQ. The modulation signal may either be obtained from the modulation-coder board (Option SMIQ B10, MCOD) or from an external source, depending on the equipment fitted and the cabling. With fading active, the analog input signal is digitalized (AD converter), it is influenced digitally according to the selected fading profile and, finally, converted to a complex analog signal again by means of a DA converter.

An SMIQ may be equipped with one or two Fading Simulator modules, which are designated FSIM1 and FSIM2. If one Fading Simulator is fitted, it provides 1 channel and 6 paths. If two modules are fitted, they can be configured either as 1 channel and 12 paths or 2 channels with 6 paths, each. For two-channel operation, a second SMIQ is required, since only one I/Q modulator is provided per instrument.

7.2 Service Conception

The module is a very complex hybrid circuit which is essentially set up in digital form. An exact error diagnosis on the component level or repair cannot be performed in the R&S departments or by the customer. A faulty module has to be replaced. The defective module must be shipped to the manufacturer for detailed diagnosis and repair.

This document is organized, accordingly. The service engineer is intended to be able to unambiguously identify a faulty fading module.

7.3 Test Instruments and Utilities

- Spectrum analyzer, frequency range 1.5 GHz e.g., FSA
- Dual Arbitrary Waveform Generator with variable dc offset e.g., ADS
- DC voltmeter e.g., UDS5

7.4 Troubleshooting

If a failure of the Fading Simulator is assumed, call the selftest first.

➢ UTILITIES --> TEST --> **TEST FSIM**

7.4.1 Selftest

The complete selftest consists of various steps which are processed successively. If an error occurs in one of the selftest steps, the selftest is not continued since each step requires trouble-free processing of the preceding steps (e.g., the internal selftest of the fading board need not be triggered until all of the supply voltages have been measured correctly). If the instrument contains two FSIMs, each of the modules is tested, individually.

7.4.1.1 Test of the Supply Voltages

The supply voltages of the fading board are partly applied externally (via filters) and partly derived from these external voltages onboard. The voltages can be connected to the DIAG-5V measurement bus (X360.A19) via the diagnosis multiplexer (D91) of the fading board. The diagnosis A/D converter of the SMIQ is used to check the voltages from the host computer (A3, FRO).

The following voltages are measured :

Designation	Permitted range	Test point
3.3 V Voltage supply Delay RAM	3.15 V <= V <= 3.45 V	TP 2500 (FSIM1) TP 2600 (FSIM2)
5VCL Voltage supply clock generator	4.76 V <= V <= 5.24 V	TP 2503 (FSIM1) TP 2603 (FSIM2)
5VD Voltage supply digital unit	4.96 V <= V <= 5.44 V	TP 2504 (FSIM1) TP 2604 (FSIM2)

7.4.1.2 Internal Selftest of the Fading Board

This part of the selftest is triggered automatically, if all supply voltages have been measured correctly.

The following tests are performed during the internal selftest:

Reading and Writing to the Delay RAMs

The delay RAM of each path of the DSP can be read or written in a special ASIC mode. To test the delay RAM, the patterns 0555h and 0AAAh are written to one memory cell per path, each, and read.

Delay-RAM Address Test

This test is provided for error identification in the delay-RAM addressing.
The test is performed as follows:

1) The memory cell with the address 1h is occupied with the pattern 555h for the I-data and AAAh for the Q-data.

2) All other memory cells are written with AAAh for the I-data and 555h for the Q-data.
3) Subsequently, the first memory cell is read. If no addressing error occurred, the contents must be unchanged.

Test steps 1) to 3) are repeated analogously for the addresses 2h, 4h ... (walking one address).

DC Compensation

The input and output offsets of the I/Q paths are determined automatically and compensated in the digital unit. To this end, the I/Q inputs are first connected to GND via 50 Ω and the offset voltages are determined and corrected. In the following, the I/Q inputs are directly connected to the inputs via relays and the output offsets are measured using the input AD converters.

ADC/DAC Loop Back Test

The constant output mode of ASIC3 (paths 5 and 6) allows for generating a dc voltage at the I/Q-DA converters and measuring it via the loop-back using the appropriate AD converter.

The following 4 measurements are performed with +/- 0.4V for the I andd Q-paths, each.

Results of the Internal Selftest of the Fading Board

The internal selftest provides the following error codes

Selftest error code	Description
00000000h	no error
00000001h	ASIC-I/O-error path 1
00000002h	ASIC-I/O-error path 2
00000003h	ASIC-I/O-error path 3
00000004h	ASIC-I/O-error path 4
00000005h	ASIC-I/O-error path 5
00000006h	ASIC-I/O-error path 6
00000007h	Delay RAM error path 1
00000008h	Delay RAM error path 2
00000009h	Delay RAM error path 3
0000000Ah	Delay RAM error path 4
0000000Bh	Delay RAM error path 5
0000000Ch	Delay RAM error path 6
0000000Dh	DC AD compensation error I-input (the DC offset is too large to be compensated
0000000Eh	DC AD compensation error Q-input (the DC offset is too large to be compensated)
0000000Fh	DC DA compensation error I-output (the DC offset is too large to be compensated)
00000010h	DC DA compensation error Q-output (the DC offset is too large to be compensated)
00000011h	ADC/DAC loop back error I (the voltage measured via the AD converter was out of the permitted range).
00000012h	ADC/DAC loop back error Q (the voltage measured via the AD converter was out of the permitted range).

Note: the internal selftest is aborted as soon as an error was identified, i.e., the remaining tests are no longer performed.

7.4.1.3 Bypass Test

The bypass path of the FSIM1 module is tested by connecting a dc from the MCOD board to the inputs I_MODIN and Q_MODIN. This voltage is picked up at the module outputs I_MODOUT and Q_MODOUT by means of the diagnosis multiplexer and applied via the DIAG-5V line to the diagnosis-AD-converter of the SMIQ where it is measured. The test is not performed for the second module FSIM2, if fitted, since its bypass path is not used. If the instrument is not fitted with MCOD, the modulation signal is supplied externally. In this case, the selftest cannot generate any input signal, which is why the test is skipped. However, it can be performed manually by the service staff as follows:

- FADING SIM --> CONFIGURATION --> **OFF**
- Apply dc voltage < +/- 0.5 V to I-input (front panel)
- UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP 2501
- Check, whether the measured voltage corresponds to the value applied
- Apply dc voltage < +/- 0.5 V to Q-input (front panel)
- UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP 2502
- ➢ Check, whether the measured voltage corresponds to the value applied.

Description	Permitted range V	Test point
I_OUT_T I-output	corresponding to the voltage applied	TP 2501 (FSIM1)
Q_OUT_T Q-output	corresponding to the voltage applied	TP 2502 (FSIM1)

7.4.1.4 Test of the Signal-path Input

A dc voltage from the MCOD module is fed to the inputs I_MODIN and Q_MODIN.

The AD converters for the I and Q paths are read on the Fading Board and the measured voltage is checked with respect to the given voltage ranges (taking into account the measuring accuracy of the AD converters).
If the instrument configuration does not include MCOD, this test is skipped.

The following error codes are returned by the FSIM:

Selftest error code	Description
00000000h	All voltages are in the permitted range
00000001h	Voltage at the I-input is too low
00000002h	Voltage at the I-input is too high
00000003h	Voltage at the Q-input is too low
00000004h	Voltage at the Q-input is too high

7.4.1.5 Test of the Signal-path Output

The constant output mode of the ASIC3 (paths 5 and 6) allows for generating a dc voltage at the I/Q-DA converters.

These voltages are picked up at the module outputs I_MODOUT and Q_MODOUT using the diagnosis multiplexer and applied via the DIAG-5V line to the diagnosis AD converter. There, they are measured and compared to the rated values.

7.4.2 Additional Tests

Imbalances between the I-path and the Q-path concerning attenuation and delay characteristics of the input and output filters lead to insufficient suppression of the image spectrum. The image spectrum has the same offset from the carrier as the wanted spectrum but on the other side.

Error description	Remedy
Image spectrum is attenuated less than 40 dB. Attenuation is, however, clearly visible.	Adjustment of the input and output filters was varied. Readjust FSIM.
Image spectrum is not attenuated.	I or Q-signal-paths interrupted. This error is located by the selftest if MCOD is fitted to the instrument. If MCOD is not fitted to the instrument, the signal-path input is not tested, which is why the error may occur although no error was found by the selftest.

7.5 Testing and Adjustment

As explained already under section "7.2 Service Conception" faulty boards have to be repaired, tested and adjusted with the manufacturer.

7.5.1 Modification State

The modification state and model of the individual boards is indicated with UTILITIES --> DIAG --> CONF. The modification state is coded by means of the resistors R469 to R472, the model by means of the resistors R467 and R468.

7.5.2 Jumpers

See "JUMPER SETTING" label on the screening cover.

7.5.2.1 Only FSIM1 Fitted (6 Paths)

This is the basic setting of the option.

Connect X1.1 to X1.2
Connect X8.1 to X8.2
Connect X9.1 to X9.2
Connect X12.2 to X12.3
Connect X13.1 to X13.2
Connect X15.1 to X15.2
Connect X16.1 to X16.2

7.5.2.2 FSIM1 and FSIM2 Fitted (12 Paths)

FSIM1

Connect X1.1 to X1.2
Connect **X8.2** to **X8.3**
Connect **X9.2** to **X9.3**
Connect X12.2 to X12.3
Connect **X13.2** to **X13.3**
Connect X15.1 to X15.2
Connect **X16.2** to **X16.3**

FSIM2

Connect **X1.2** to **X1.3**
Connect **X8.2** to **X8.3**
Connect **X9.2** to **X9.3**
Connect **X12.1** to **X12.2**
Connect **X13.2** to **X13.3**
Connect **X15.2** to **X15.3**
Connect **X16.2** to **X16.3**

Variations of the basic setting are **bold-typed**.

7.5.3 Diagnostic Test Points

UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP xxxx

Test point	Description
TP 2500	FSIM1 + 3.3 V +/- 0.1 V, voltage supply
TP 2501	FSIM1 I_OUT_T, I-output signal at X367 and X368
TP 2502	FSIM1 Q_OUT_T, Q-output signal at X370 and X371
TP 2503	FSIM1 +5VCL, rated voltage supply to clock generator: 5 V +/- 0.24 V
TP 2504	FSIM1 +5VD, voltage supply digital unit Rated value: +5.2V +/- 0.24 V
TP 2505	GND
TP 2506	GND
TP 2507	GND
TP 2600	FSIM2 + 3.3 V +/- 0.1 V, voltage supply
TP 2601	FSIM2 I_OUT_T, I-output signal at X367 and X368
TP 2602	FSIM2 Q_OUT_T, Q-output signal at X370 and X371
TP 2603	FSIM2 +5VCL, rated voltage supply to clock generator: 5 V +/- 0.24 V
TP 2604	FSIM2 +5VD, voltage supply to digital unit Rated value: +5.2V +/- 0.24 V
TP 2605	GND
TP 2606	GND
TP 2607	GND

7.5.4 DC Compensation

The automatic dc compensation can be called via UTILITIES --> CALIB --> FSIM. It is also contained in the internal selftest onboard (cf. 7.4.1.2 Internal Selftest of the Fading Board).

7.6 Removal and Assembly

After opening the instrument and unlocking the motherboard disconnect the coaxial connection at the module. The module can then be removed from its slot. Undo screws and take off screening cover.
For assembly and replacement, proceed in the reverse order.

7.7 External Interfaces

7.7.1 Interface to the Motherboard

Pin	Name	Input/Output	Origin/Destination	Specified range	Signal description
X360.A1					
X360.A2					
X360.A3					
X360.A4					
X360.A5					
X360.A6					
X360.A7					
X360.A8					
X360.A9					
X360.A10					
X360.A11	GND		A200, MBIQ		Ground
X360.A12	SERBUS-CLK	Input	A3, FRO, X31.40	HCT level	Serbus clock
X360.A13	GND		A200, MBIQ		Ground
X360.A14	SERBUS-OUT	Output	A3, FRO, X31.39	HCT level	Serbus data
X360.A15	SERBUS-IN	Input	A3, FRO, X31.39	HCT level	Serbus data
X360.A16	SERBUS-SYNC	Input	A3, FRO, X31.37	HCT level	Serbus sync
X360.A17	SERBUS-INT	Output	A3, FRO, X31.38	HCT level	Serbus interrupt
X360.A18	Reset-P	Input	A3, FRO, X31.28	HCT level	Serbus reset
X360.A19	DIAG-5V	Output	A3, FRO, X31.44	-5 V to +5 V	Diagnosis
X360.A20	READY	Output	A3, FRO, X31.50 for FSIM1 or A3, FRO, X31.49 for FSIM2	HCT level	Serbus handshake 1
X360.A21	GND		A200, MBIQ		Ground
X360.A22					
X360.A23	GND		A200, MBIQ		Ground
X360.A24	VA15-P	Input	A2, POWS1	14.85 to 15.75 V max. 450 mA	15 Volt power supply
X360.A25	GND		A200, MBIQ		Ground
X360.A26	VA7.5-P	Input	A2, POWS1	7.45 to 7.95 V max. 300 mA	7.5 V power supply
X360.A27	GND		A200, MBIQ		Ground
X360.A28	VD5-P	Input	A2, POWS1	5.15 to 5.25 V max. 2.3 A	5 V Digital power supply
X360.A29	GND		A200, MBIQ		Ground
X360.A30	VA15-N	Input	A2, POWS1	-15.75 to -14.85 V max. 150 mA	-15 V power supply
X360.A31	GND		A200, MBIQ		Ground
X360.A32	VD5-N	Input	A200, MBIQ	-5.3 to -5.1 V max. 400 mA	-5.2 V power supply

Pin	Name	Input/Output	Origin/Destination	Specific Data/Range	Signal description
X360.B1					
X360.B2	GND		A200, MBIQ		Ground
X360.B3	EN_FAD	bi-directional	A360, FSIM1, / A360, FSIM2	TTL open collector	Enable Fading
X360.B4	DONE	Output	A3, FRO, X31.47	TTL open collector	Serbus handshake 2
X360.B5	DX0	Output	A360, FSIM2 or FSIM1, X360.B10	TTL	DSP serial prt transmit data
X360.B6	FSX0	Output	A360, FSIM2 or FSIM1, X360.B9	TTL	DSP serial port transmit frame
X360.B7	CLKX0	Output	A360, FSIM2 or FSIM1, X360.B8	TTL	DSP serial port transmit clock
X360.B8	CLKR0	Input	A360, FSIM2 or FSIM1, X360.B7	TTL	DSP serial port receive clock
X360.B9	FSR0	Input	A360, FSIM2 or FSIM1, X360.B6	TTL	DSP serial port Receive frame
X360.B10	DR0	Input	A360, FSIM2 or FSIM1, X360.B5	TTL	DSP serial port receive data
X360.B11	GND				Ground
X360.B12	CEEX	Input	A360, FSIM2 or FSIM1, X360.B14	TTL	Clock Enable Extern synchron. FSIM1 / FSIM2
X360.B13	GND				Ground
X360.B14	CEIN	Output	A360, FSIM2 or FSIM1, X360.B12	TTL	Clock Enable Intern synchron. FSIM1 / FSIM2
X360.B15					
X360.B16					
X360.B17					
X360.B18					
X360.B19					
X360.B20					
X360.B21	GND		A200, MBIQ		Ground
X360.B22					
X360.B23	GND		A200, MBIQ		Ground
X360.B24	VA15-P	Input	A2, POWS1	14.85.to.75 V current cf. X360.A24	15 Volt power supply
X360.B25	GND		A200, MBIQ		Ground
X360.B26	VA7.5-P	Input	A2, POWS1	7.45 ... 7.95 V current cf. . X360.A26	7.5 V power supply
X360.B27	GND		A200, MBIQ		Ground
X360.B28	VD5-P	Input	A2, POWS1	5.15 to 5.25 V current cf. X360.A28	5 V Digital power supply
X360.B29	VD5-P	Input	A2, POWS1	5.15 to 5.25 V current cf. X360.A28	5 V Digital power supply
X360.B30	VA15-N	Input	A2, POWS1	-15.75 to -14.85 V current cf. X360.A30	-15 V power supply
X360.B31	GND		A200, MBIQ		Ground
X360.B32	VD5-N	Input	A200, MBIQ	-5.3 to -5.1 V current cf. X360.A32	-5.2 V power supply

7.7.2 Coaxial Interfaces

7.7.2.1 Only FSIM1 Fitted (6 Paths)

Pin	Name	Input/Output	Ordering/Option	Specified range	Signal description
X361	I_MODIN	Input	Instrument with MCOD: A320, MCOD, X325 Instrument without MCOD: A3, FRO, I(X244)	max. 1 Vpp at50 Ω, 0 to 8 MHz	I-input signal (I-part of modulation signal)
X362	I_NEXT	Output		see X361	not used
X363	Q_MODIN	Input	Instrument with MCOD: A320, MCOD, X328 Instrument without MCOD: A3, FRO, Q(X245)	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-input signal (Q-part of modulation signal)
X364	Q_NEXT	Output		see X363	not used
X365	EXT_CK	Output		TTL, 40 MHz	not used
X366	I_CASCIN	Input		see X361	not used
X367	I_MODOUT	Output	A240, IQMOD, X244	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-output signal (I-part of modulation signal with or without fading)
X368	I_FSIM	Output	A320, MCOD, X326	see X367	I-output signal of the Fading Simulator
X369	Q_CASCIN	Input		see X361	not used
X370	Q_MODOUT	Output	A240, IQMOD, X245	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-output signal (Q-part of modulation signal with or without fading)
X371	Q_FSIM	Output	A320, MCOD, X329	see X370	Q-output signal of the Fading Simulator

7.7.2.2 FSIM1 and FSIM2 Fitted (12 Paths)

FSIM1

Pin	Name	Input/Output	Origin/Destination	Specified range	Signal description
X361	I_MODIN	Input	Instrument with MCOD: A320, MCOD, X325 Instrument without MCOD: A3, FRO, I(X244)	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-input signal (I-part of modulation signal)
X362	I_NEXT	Output	A360, FSIM2, X361	see X361	Routing the I-input signal to I_MODIN of FSIM2
X363	Q_MODIN	Input	Instrument with MCOD: A320, MCOD, X328 Instrument without MCOD: A3, FRO, Q(X245)	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-input signal (Q-part of the modulation signal)
X364	Q_NEXT	Output	A360, FSIM2, X363	see X363	Routing the Q-input signal to Q_MODIN of FSIM2
X365	EXT_CK	Output	A360, FSIM2, X365	TTL, 40 MHz	Main clock 40 MHz. Both FSIMs must use the clock of FSIM1 due to synchronization.
X366	I_CASCIN	Input	A360, FSIM2, X367	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-cascade input (for addition of the I-output signal to FSIM2)
X367	I_MODOUT	Output	A240, IQMOD, X244	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-output signal (I-part of the modulation signal with or without fading)
X368	I_FSIM	Output	A320, MCOD, X326	see X367	I-output ignal of the Fading Simulator
X369	Q_CASCIN	Input	A360, FSIM2, X370	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-cascade input (for addition of the Q-output signal to FSIM2)
X370	Q_MODOUT	Output	A240, IQMOD, X245	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-output signal (Q-part of the modulation signal with or without fading)
X371	Q_FSIM	Output	A320, MCOD, X329	see X370	Q-output signal of the Fading Simulator

FSIM2

Pin	Name	Input/Output	Origin/Destin.	Specified range	Signal description
X361	I_MODIN	Input	A360, FSIM1, X362	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-input signal (I-part of the modulation signal, from. FSIM1)
X362	I_NEXT	Output		see X361	not used
X363	Q_MODIN	Input	A360, FSIM1, X364	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-input signal (Q-part of the modulation signal, from FSIM1)
X364	Q_NEXT	Output		see X363	not used
X365	EXT_CK	Input	A360, FSIM1, X365	TTL, 40 MHz	Main clock 40 MHz. Both FSIMs must use the clock of FSIM1 due to synchronization.
X366	I_CASCIN	Input		see X361	not used
X367	I_MODOUT	Output	A360, FSIM1, X366	max. 1 Vpp at 50 Ω, 0 to 8 MHz	I-output signal (I-part of the modulation signal with fading of the FSIM2 paths
X368	I_FSIM	Output	AUX IN/OUT, X400	see X367	I-output signal of FSIM2
X369	Q_CASCIN	Input		see X361	not used
X370	Q_MODOUT	Output	A360, FSIM1, X369	max. 1 Vpp at 50 Ω, 0 to 8 MHz	Q-output-signal (Q-part of the modulation signal with fading of the FSIM2-paths)
X371	Q_FSIM	Output	AUX IN/OUT, X400	see X370	Q-output ignal of FSIM2

ROHDE&SCHWARZ

Schaltteillisten numerisch geordnet

Part lists in numerical order

Listes des pièces détachées par numéros de référence

095.1000 Bl. 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
.	XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VARO2=GRUNDAUSFUEHRUNG MODO2=BASIC_MODEL				
C1 ..4	CC 22PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4609.00	MURATA	GRM39COG***F50ZPT	
C5	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
C6	CC 27PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0010.9323.00	MURATA	GRM39COG***F50ZPT	
C7	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
C8	CC 27PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0010.9323.00	MURATA	GRM39COG***F50ZPT	
C9	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
C10	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C11	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
C12	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C13 ..16	CC 1,0NF+-10%50V HDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4938.00	MURATA	GRM39X7R***K5C500PT*	
C17	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C18	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C19	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C20	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C21	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C22	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C23	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C24	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C25	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C26	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C27	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C28	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C29	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C30	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C31	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C32	CC 8,2PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
C33	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C34	CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8809.00	MURATA	GRM42-6COG 560F50ZPT	
C35	CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8809.00	MURATA	GRM42-6COG 560F50ZPT	
C36	CC 68PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.9746.00	MURATA	GRM39COG***F50ZPT	
C37	CC 68PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.9746.00	MURATA	GRM39COG***F50ZPT	
C38	CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8780.00	MURATA	GRM42-6COG 330F50ZPT	
C39	CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8780.00	MURATA	GRM42-6COG 330F50ZPT	
C40	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C41	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C42 ..49	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C50	CE 47UF +-10% 10V 7343 TANTALUM CHIP CAPACITOR	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
C51	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C52	CE 47UF +-10% 10V 7343 TANTALUM CHIP CAPACITOR	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
C53	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C54 ..58	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C59	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C60	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C61	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C62 ..69	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C70	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C71	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C72 ..94	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C95	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C96 ..99	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C100	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C101	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C102	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C103	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C104	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C105	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C106	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C107 ..110	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C111	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C112 ..114	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C115	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C116	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C117	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C118	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C119	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C120	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C121	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C122	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C123	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C124	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C125	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C126 ..135	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C136	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C137 ..139	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C140	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	

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1ESK 853 3PLU	Ä1	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	10	11.08.99	EE FADING SIMULATOR FADING SIMULATOR	1085.4060.01 SA	2+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C141	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C142	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C143 ..149	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C150	CC 3,3PF 0, 1PF50V NPO 06 SMD-CERAMIC-CAPACITOR	CC 0009.8285.00	MURATA	GRM39C0G***B50ZPT	
C151	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6C0G 180F50ZPT	
C152	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C153 ..168	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C169 ..171	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C172	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C173	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C174	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C175	CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4644.00	MURATA	GRM39C0G***F50ZPT	
C176 ..178	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C179	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C180 ..182	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C183	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C184 ..190	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C191	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C192 ..206	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C207	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C208 ..213	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C214 ..216	CC 3,3PF 0, 1PF50V NPO 06 SMD-CERAMIC-CAPACITOR	CC 0009.8285.00	MURATA	GRM39C0G***B50ZPT	
C217	CC 820PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0007.7381.00	MURATA	GRM42-6C0G 821F50ZPT	
C218	CC 820PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0007.7381.00	MURATA	GRM42-6C0G 821F50ZPT	
C219	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C220 ..222	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6C0G 180F50ZPT	
C223	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C224	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C225 ..230	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C231 ..233	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C234	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C235	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C236	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C237	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C238	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C239	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C240	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C241	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C242 ..246	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C247	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C248 ..250	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C251 ..253	CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4644.00	MURATA	GRM39C0G***F50ZPT	
C254 ..257	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C258	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C259	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C260	CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4644.00	MURATA	GRM39C0G***F50ZPT	
C261	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C262 ..266	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C267	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C268	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C270 ..272	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C275 ..277	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C279	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C281	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C282	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C283	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C284 ..286	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C287	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C292 ..295	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C296	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C297	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C298 ..316	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C317	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C318	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C319	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C320	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C321 ..324	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C325	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C327	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C328 ..332	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C333	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C334	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C335 ..337	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C338	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C339	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
D1	BL 74ACT573SC 8XTRLATCH3S IC OCTAL TRANSP.LATCH 3ST	BL 0008.0751.00	HARRIS	CD74ACT573M	
D2	BL 74ACT573SC 8XTRLATCH3S IC OCTAL TRANSP.LATCH 3ST	BL 0008.0751.00	HARRIS	CD74ACT573M	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D3	BG TH3034.1I FADING ASIC	BG 1085.1861.00	THESYS	TH3034.1	
..5	IC GATE ARRAY				
D6	BL 74F32D 4X 2-INPUT OR	BL 0007.3670.00	PHILIPS_SE	(N)74F32(D)	
	QUAD 2-INPUT OR GATE				
D7	BL 74ACT377SC 8XDFLIPFLOP	BL 1051.4168.00	NSC	74ACT377SC	
..12	IC OCTALD-FLIP-FLOP				
D13	BJ HI5731BIB 1X12B-DAC	1085.1890.00	HARRIS	HI5731BIB	
	D/A CONVERTER				
D14	BJ HI5731BIB 1X12B-DAC	1085.1890.00	HARRIS	HI5731BIB	
	D/A CONVERTER				
D15	BL PC74HCT574T 8XD-FF 3S	BL 0007.6727.00	PHILIPS	(PC)74HCT574(T)	
	OCTAL D-TYPE FLIPFLOP				
D16	BL PC74HCT574T 8XD-FF 3S	BL 0007.6727.00	PHILIPS	(PC)74HCT574(T)	
	OCTAL D-TYPE FLIPFLOP				
D17	BJ AD9042AST 1X12B-ADC	1080.7578.00	ANALOG_DEV	AD9042AST	
	12BIT 41MSPS AD-CONVERTER				
D18	BJ AD9042AST 1X12B-ADC	1080.7578.00	ANALOG_DEV	AD9042AST	
	12BIT 41MSPS AD-CONVERTER				
D19	BC MCM6306D-15 32KX8 SRAM	BC 1085.1810.00	SAMSUNG	KM68V257CJ-15	
..36	SRAM 32KX8 15NS				
D37	BL 74F74D 2XD-FF	BL 0007.3686.00	PHILIPS_SE	(N)74F74(D)	
	DUAL D-TYPE FLIPFLOP				
D38	BL IDT49FCT805 CLK DRIV	BL 2058.6891.00	IDT	(IDT49)FCT805(SO)	
	IC CLOCK DRIVER				
D39	BL 74ACT574SC 8XD-FF 3S	BL 0008.2225.00	HARRIS	CD74ACT574M	
..44	OCTAL D FLIP-FLOP 3ST				
D45	BL IDT49FCT805 CLK DRIV	BL 2058.6891.00	IDT	(IDT49)FCT805(SO)	
	IC CLOCK DRIVER				
D46	BL 74F175AD 4XD-FF	BL 0853.9580.00	PHILIPS_SE	N74F175AD	
	QUAD D FLIP-FLOP				
D47	BL PC74HCT573T 8XD-FF 3S	0812.8796.00	PHILIPS_SE	(PC)74HCT573(D/T)	
	OCTAL D-TYPE FLIPFLOP				
D48	BL 74ACT573SC 8XTRLATCH3S	BL 0008.0751.00	HARRIS	CD74ACT573M	
	IC OCTAL TRANSP.LATCH 3ST				
D49	BC MCM6726BWJ12 BICM SRAM	BC 0009.9830.00	MOTOROLA	MCM6726B(D)WJ(12/10)	
	IC BICMOS MEMORY				
D50	BC MCM6726BWJ12 BICM SRAM	BC 0009.9830.00	MOTOROLA	MCM6726B(D)WJ(12/10)	
	IC BICMOS MEMORY				
D51	BL 74F109D 2XJK-FF	BL 0007.4099.00	SIGNETICS	(N)74F109D	
	2 JK-FLIPFLOP				
D52	BL 74F00D 4X2IN NAND GATE	BL 0007.3628.00	PHILIPS_SE	(N)74F00(D)	
	QUAD 2INPUT NAND GATE				
D53	BL 74F32D 4X 2-INPUT OR	BL 0007.3670.00	PHILIPS_SE	(N)74F32(D)	
	QUAD 2-INPUT OR GATE				
D54	BL 74ACT00SC 4X 2-NAND	BL 0008.0668.00	RCA	CD74ACT00M	
	IC QUAD 2INP NAND GATE				
D55	BL PC74HCT125T 4XBUFF. 3S	BL 0007.5395.00	PHILIPS_SE	(PC)74HCT125(D/T)	
	QUAD LINE DRIVER				
D56	BL 74FCT157DT 4X2MULTIP	BL 1085.1790.00	IDT	(IDT74)FCT157(DT9	
	IC 4X2 MULTIPLEXER				
D57	BL 74F20D 2X4INP NANDGATE	BL 0007.3663.00	PHILIPS_SE	74F20D	
	DUAL 4-INPUT NAND GATE				
D58	BL 74ACT74SC 2XRSFLIPFLOP	BL 0008.0680.00	TOSHIBA	(TC74)ACT74(FN)	
	IC DUAL D-FLIPFLOP				
D59	BL 74F11D 3X3INP AND GATE	BL 0380.1547.00	SIGNETICS	(N)74F11D	
	IC TRIPLE THREE-INP AND				
D60	BC XC5204-5C 4K GAT LCA	BC 1085.1878.00	XILINX	XC5204-5TQ144C	
	IC LOGIC CELL ARRAY				
D61	BL 74FCT138CTSO1-8DECODER	BL 1051.5164.00	IDT	(IDT74)FCT138C(TSO)	
	IC 1-OF-8 DECODER				
D62	BL 74FCT138CTSO1-8DECODER	BL 1051.5164.00	IDT	(IDT74)FCT138C(TSO)	
	IC 1-OF-8 DECODER				
D63	BL 74ACT32SC 4X2-IN OR	BL 1012.9385.00	HARRIS	CD74ACT32M	
..65	IC QUAD 2-INPUT OR GATE				
D66	BL 74ACT125SC 4XBUFFER 3S	BL 2013.8620.00	FAIRCHILD	74ACT125SC(X)	
	IC QUAD BUFFER 3-STATE				
D67	BL 74F08D 4X 2-INPUT AND	BL 0007.3634.00	PHILIPS_SE	(N)74F08(D)	
	QUAD 2-INPUT AND GATE				
D68	BL 74ACT164M 8BIT SHIFTR	BL 2007.5081.00	HARRIS	CD74ACT164M	
	8BIT SER/PAR SHIFT REG				
D69	BL 74ACT273 8X D-FF M.RES	BL 1058.0745.00	HARRIS	(CD74)ACT273(M)	
	OCTAL D FLIP-FLOP				
D70	BL 74ACT273 8X D-FF M.RES	BL 1058.0745.00	HARRIS	(CD74)ACT273(M)	
	OCTAL D FLIP-FLOP				
D71	BL 74FCT245ASO 8XBUSTRSCV	BL 2000.2264.00	IDT	IDT 74FCT245ASO	
..78	IC 8XBUS TRSCV 74FCT245A				
D79	BL 74F86D 4X2INP EXORGATE	BL 0007.3692.00	PHILIPS_SE	(N)74F86(D)	
	QUAD 2INPUT EXOR-GATE				

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D80	BG TH3032.1C SERBUSD ASIC IC GATE ARRAY	BG 0008.6143.00	THESYS	TH3032.1C	
D81	BC TMS320C31PQL FLPTR DSP DIGITAL SIGNAL PROCESSOR	1078.3310.00	TEXAS	TMS320C31PQL60	
D82	BL PC74HCT164T 8B.SH.REG. SHIFT REGISTER	BL 0007.6440.00	PHILIPS_SE	(PC)74HCT164(D/T)	
D83	BL PC74HCT125T 4XBUFF. 3S QUAD LINE DRIVER	BL 0007.5395.00	PHILIPS_SE	(PC)74HCT125(D/T)	
D84	BL 74F32D 4X 2-INPUT OR QUAD 2-INPUT OR GATE	BL 0007.3670.00	PHILIPS_SE	(N)74F32(D)	
D85	BC MCM6726BWJ12 BICM SRAM IC BICMOS MEMORY	BC 0009.9830.00	MOTOROLA	MCM6726B(D)WJ(12/10)	
D86	BC MCM6726BWJ12 BICM SRAM IC BICMOS MEMORY	BC 0009.9830.00	MOTOROLA	MCM6726B(D)WJ(12/10)	
D87	BL 74ACT273 8X D-FF M.RES OCTAL D FLIP-FLOP	BL 1058.0745.00	HARRIS	(CD74)ACT273(M)	
D88	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	
D89	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	
D91	BL PC74HCT4051T 8CH.A.MUX ANALOG MULTIPLEXER	0007.6827.00	PHILIPS	(PC)74HCT4051(T)	
D92	BL PC74HCT14T 6XINV.SCHM INV. SCHMITT-TRIGGER	BL 0007.6204.00	PHILIPS_SE	(PC)74HCT14(D/T)	
G1	EO 60,000MHZ QUARZOSZ QUARTZ CRYSTAL UNIT	1078.3427.00	SEIKO	SG 615 PH-C	
G2	EO 40,000MHZ QUARZOSZ QUARTZ CRYSTAL OSCILLATOR	1078.3133.00	SEIKO	SG 615 PH	
K1 ..8	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
L1 ..4	LD 680NH 10% 0,14A 1210 RF CHOKE	LD 0690.9195.00	SIEMENS	B82422-A3681-J(K)100	
L5 ..8	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L9	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L10	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L11	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L12	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L13	LD 6UH 4A 0,017OHM CHOKE	LD 0026.4761.00	FASTRON_GE	SSSC-6ROM-00	
L14	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L15	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L16	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L17	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L18	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L19	LD 5,5UH Q110/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L20 ..23	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L24	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L25	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L26	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L27	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L28	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L29 ..31	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L32	LD 1,2OUH10%0,18OHMO,62OA CHOKE	LD 0067.2870.00	DALE	IM2	
L35	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
L36	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L37	LD 5,5UH Q110/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L38	LD 5,5UH Q110/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L40 ..48	LD 5,5UH Q110/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L49 ..52	LD SP-DROSSEL 15UH 2,45A CHOKE	1081.0283.00	SUMIDA	CDR125-150	
L53	LD 15UH 10% 0,16A 1210 RF CHOKE	LD 0009.5192.00	SIEMENS	B82422-A1153-J(K)100	
L54	LD 15UH 10% 0,16A 1210 RF CHOKE	LD 0009.5192.00	SIEMENS	B82422-A1153-J(K)100	
L55	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L56	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
N1 ..4	BO AD9631AR VF OPAMP IC OPAMP	1085.1803.00	ANALOG_DEV	AD9631AR	
N5	BO REF01CS 10V 20MA VREF VOLTAGE REFERENCE	1002.5129.00	PMI	REF01C(S)	
N6 ..13	BO AD9631AR VF OPAMP IC OPAMP	1085.1803.00	ANALOG_DEV	AD9631AR	
N14	BV PT6203C DC/DC-CONV DC/DC-CONVERTER	BV 1085.1884.00	POWER_TREN	PT6203C	
N15 ..17	BO LT1124CS8 2X OPAMP IC OPAMP	1036.4483.00	LINEAR_TEC	(LT)1124(CS8)	
N19	BO OP07CS8 OPAMP OPERATIONAL AMPLIFIER	0007.7781.00	LINEAR_TEC	LT1001(CS8)	
N23 ..25	BO OP07CS8 OPAMP OPERATIONAL AMPLIFIER	0007.7781.00	LINEAR_TEC	LT1001(CS8)	
R1	RG 511 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9051.00	PHILIPS_CO	RC02	
R2	RG 511 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9051.00	PHILIPS_CO	RC02	
R3	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R4 ..15	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R16	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R17	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R18	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R19 ..24	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R25	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R26	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R27	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R28	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R29	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R30	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	PHILIPS_CO	RC02	
R31	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	PHILIPS_CO	RC02	
R32 ..34	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R35	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R36	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R37	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R38	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R39	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R40	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R41	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R42	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R43	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R44	RL 0,60W 100 OHM+-1%TK50 RESISTOR	RL 0082.6543.00	PHILIPS_CO	MRS 25	
R45	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R46	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R47	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R48	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R49	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R50	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R51	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R52	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R53	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R54	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R55	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R56	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R57	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R58	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R59	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R60	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R61 ..65	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R66	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R67	RG 4K75 +-1% TK100 1206 RESISTOR CHIP	RG 0007.5820.00	PHILIPS_CO	RC02	
R68	RG 619 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9074.00	PHILIPS_CO	RC02	
R69	RG 619 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9074.00	PHILIPS_CO	RC02	
R70	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R71	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R72	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R73	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R74	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R75	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R76	RG 51,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8810.00	PHILIPS_CO	RC02	
R77	RG 51,0 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9030.00	DRALORIC	CR 0603	
R78	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R79	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R80	RG 51,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8810.00	PHILIPS_CO	RC02	
R81	RG 51,0 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9030.00	DRALORIC	CR 0603	
R82	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R83	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R84	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R85	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R86	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R87	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R88	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R89	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R90	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R91	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R92	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R93	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R94 ..105	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R106	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R107	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R108	RG 1,3 KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5708.00	PHILIPS_CO	RC02	
R109	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R110	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R111	RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9968.00	PHILIPS_CO	RC02	
R112	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R113	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R114	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R115	RG 117OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8756.00	PHILIPS_CO	MPC 01	
R116	RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9968.00	PHILIPS_CO	RC02	
R117	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R118	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R119	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R120	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R121 ..124	RG 15R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6899.00	DRALORIC	CR 0603	
R125 ..130	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R131	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R132	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R133	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R134	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R135	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R136	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R137 ..139	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R140	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R141	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R142	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R143	RG 0-OHM WIDERSTAND 1206 RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	

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1ESK 853 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	10	11.08.99	EE FADING SIMULATOR FADING SIMULATOR	1085.4060.01 SA	9+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R144	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R145	RG 1170HM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8756.00	PHILIPS_CO	MPC 01	
R146	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R147	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R148	RG 0-OHM WIDERSTAND 1206 RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R149	RG 560R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9630.00	DRALORIC	CR 0603	
R150	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R151	RG 90,9 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	1081.1773.00	DRALORIC	CR 0603	
R152	RG 90,9 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	1081.1773.00	DRALORIC	CR 0603	
R153 ..163	RG 560R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9630.00	DRALORIC	CR 0603	
R164	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R165 ..176	RG 560R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9630.00	DRALORIC	CR 0603	
R177	RG 51,0 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9030.00	DRALORIC	CR 0603	
R178	RG 15R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6899.00	DRALORIC	CR 0603	
R179	RG 220R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6953.00	DRALORIC	CR 0603	
R180	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R181	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R182	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R183	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R184	RG 51,0 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9030.00	DRALORIC	CR 0603	
R185	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R186 ..188	RG 220R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6953.00	DRALORIC	CR 0603	
R189	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R191 ..209	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R210	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R211	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R212 ..215	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R218 ..220	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R221	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R222 ..225	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R226	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R227	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	PHILIPS_CO	RC02	
R228	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R229	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R230	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R231	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	PHILIPS_CO	RC02	
R232	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R233	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R234	RG 1,3KOHM+-0,1%TK25 1206 RESISTOR	0010.1968.00	PHILIPS_CO	MPC 01	

1ESK 853 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	10	11.08.99	EE FADING SIMULATOR FADING SIMULATOR	1085.4060.01 SA	10+

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R235	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R236	RG 549 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8827.00	PHILIPS_CO	MPC 01	
R237	RG 150 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8091.00	PHILIPS_CO	MPC 01	
R238	RG 549 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8827.00	PHILIPS_CO	MPC 01	
R239	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R240	RG 1,3KOHM+-0,1%TK25 1206 RESISTOR	0010.1968.00	PHILIPS_CO	MPC 01	
R241	RG 150 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8091.00	PHILIPS_CO	MPC 01	
R242	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R243	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R244	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R245	RG 270R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R246	RG 274 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5637.00	PHILIPS_CO	RC02	
R247	RG 274 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5637.00	PHILIPS_CO	RC02	
R248 ..252	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R253	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R254	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R255	RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5520.00	ROEDERSTEI	D25	
R256	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R257	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R259 ..264	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R265	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R266	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R267 ..269	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R270	RS 0,25W 20 OHM+-20% SMD POTENTIOMETER	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R271	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R272	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R273 ..275	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R276	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R277	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R278	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R279 ..290	RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5489.00	PHILIPS_CO	RC02	
R291	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R292	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R293	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R294	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R295	RS 0,25W 20 OHM+-20% SMD POTENTIOMETER	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R296	RG 7K5 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8440.00	PHILIPS_CO	RC 22 H	
R297 ..299	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R300	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R301	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..306	SMD RESISTOR EIA0603					
R308	RS 0,25W100 OHM+-20% SMD POTENTIOMETER		RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R309	RG 121 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9498.00	DRALORIC	CR 0603	
R310	RG 1K21 +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0010.9817.00	DRALORIC	CR 0603	
R311	RG 2K2 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7008.00	DRALORIC	CR 0603	
R312	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R313	RG 20K +-1% TK100	0603	0010.9100.00	DRALORIC	CR 0603	
..315	SMD RESISTOR EIA0603					
R316	RG 562 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.9068.00	ROEDERSTEI	D25	
R317	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..374	SMD RESISTOR EIA0603					
R375	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R376	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R377	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R378	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R379	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R380	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R381	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R382	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R383	RG 1KO +-1% TK100 CHIP RESISTOR	1206	RG 0006.7271.00	DRALORIC	CR 1206	
R384	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R385	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..387	SMD RESISTOR EIA0603					
R388	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R389	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R390	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..392	SMD RESISTOR EIA0603					
R393	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R394	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R395	RG 2K2 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7008.00	DRALORIC	CR 0603	
R396	RG 2K2 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7008.00	DRALORIC	CR 0603	
R397	RG 1KO +-1% TK100 CHIP RESISTOR	1206	RG 0006.7271.00	DRALORIC	CR 1206	
R398	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R399	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R400	RG 2K2 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7008.00	DRALORIC	CR 0603	
R401	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R403	RG 3,32KOHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5789.00	PHILIPS_CO	RC02	
R404	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R405	RG 3,32KOHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5789.00	PHILIPS_CO	RC02	
R406	RG 3,32KOHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5789.00	PHILIPS_CO	RC02	
R407	RG 392 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5672.00	DRALORIC	CR 1206	
R408	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R409	RG 47,5 OHM+-1%TK100	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
..419	RESISTOR CHIP					

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R420	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R421	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R422	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R423	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R424	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R425	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R426	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R427	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R428	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R429	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R430	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R431	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R432	RG 22,1 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5489.00	PHILIPS_CO	RC02	
R433	RG 0-OHM WIDERSTAND RESISTOR CHIP 0-OHM	1206	RG 0007.5108.00	DRALORIC	CR 1206	
R434	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R435	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R436	RG 3R32 +-1% TK250 SMD RESISTOR EIA0603	0603	0010.8362.00	DRALORIC	CR 0603	
R437 ..443	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R444	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R445	RG 3R32 +-1% TK250 SMD RESISTOR EIA0603	0603	0010.8362.00	DRALORIC	CR 0603	
R446	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R447	RG 680R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R448	RG 680R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R449	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R450	RG 680R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R451	RG 680R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R452 ..457	RG 47,5 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5566.00	PHILIPS_CO	RC02	
R458 ..461	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R462	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R463	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R464	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R465	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R466	RG 100 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8884.00	ROEDERSTEI	D25	
R468	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R470	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R471	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R472	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R473 ..478	RG 1KO +-1% TK100 CHIP RESISTOR	1206	RG 0006.7271.00	DRALORIC	CR 1206	
R479	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R480	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R481	RG 2K2 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7008.00	DRALORIC	CR 0603	
R482	RG 15R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6899.00	DRALORIC	CR 0603	
R483 ..487	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R488	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	PHILIPS_CO	RC02	
R489 ..492	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R493 ..496	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R497	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R498	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R499	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R500 ..502	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R503	RG 82,5 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9052.00	DRALORIC	CR 0603	
R504	RG 82,5 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9052.00	DRALORIC	CR 0603	
R507	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R509	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R511	RL 0,60W 100 OHM+-1%TK50 RESISTOR	RL 0082.6543.00	PHILIPS_CO	MRS 25	
V1 ..10	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V11	AK BCP69-25 P 20V TRANS MEDIUM POWER TRANSISTOR	0008.2002.00	PHILIPS	BCP 69-16 (25)	
V12	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V13	AK BCP68-16 N 20V TRANS MEDIUM POWER TRANSISTOR	0008.2019.00	PHILIPS	BCP68-25	
V14	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V15	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V16 ..18	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V19	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V20	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
W1	DW KABEL W1 CABLE W1	1085.4148.00			
W2	DW KABEL W2 CABLE W2	1085.4154.00			
X1	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X2 ..5	FP STIFTLEISTE 4P.R2,54 PIN CONNECTOR	FP 0009.6147.00			
X6	FP STIFTLEISTE 2P.R2,54 PIN CONNECTOR	FP 0009.5992.00			
X7	FP STIFTLEISTE 4P.R2,54 PIN CONNECTOR	FP 0009.6147.00			
X8	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X9	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X10	FP STIFTLEISTE 4P.R2,54 PIN CONNECTOR	FP 0009.6147.00			
X11	FP STIFTLEISTE 2P.R2,54 PIN CONNECTOR	FP 0009.5992.00			
X12	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X13	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
X14	FP STECKERLEISTE 12POL CONNECTOR 12P	FP 0701.5231.00	BINDER	11-0203-00-12	
X15	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X16	FP STIFTLEISTE 3P.R2,54 PIN CONNECTOR	FP 0009.6101.00			
X360	FP STECKERLEISTE 64P. CONNECTOR 64P.	FP 0008.5747.00	DEUT_ELCO	16 8457 064 002 025	
X361 ..371	FJ EINLOETBUCHSE MMCX CONNECTOR	1085.1532.00	SUHNER	82MMCXS50-0-2/111KG	
Z1 ..35	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z36 ..50	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z51	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z52 ..57	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z58	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z59	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	

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ROHDE&SCHWARZ

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

el. Kennz.	**Bauelement-Kennzeichen**
Seite	**Leiterplatten-Seite, auf der sich das Bauelement befindet**
X/Y	**Koordinaten (in Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt**
Planq., Bl.	**Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement**

Explanation of column designations:

Part	**Identification of instrument part**
Side	**Side of the PC board on which instrument part is positioned**
X/Y	**Coordinates (in units of millimeters) of the component on the PC board in reference to zero point**
Sqr, Pg	**Square and page of the diagram for the respective instrument part**

Service-Relevante Bauteile / Service-Relevant Components

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C136	B	16	34	3C	17	L47	B	270	56	2C	10	X2	B	252	81	4A	8
C140	B	54	34	3C	18	L48	B	294	56	4C	10	X3	B	260	46	5C	8
C179	B	235	69	3C	8	R89	B	255	69	5B	8	X4	B	299	39	5D	10
C183	B	273	69	3C	10	R109	B	263	64	5A	8	X5	B	290	73	4A	10
L19	B	18	46	2C	17	R110	B	301	64	5A	10	X6	B	30	28	6B	17
L37	B	32	46	3C	17	R133	B	246	85	3B	8	X7	B	18	66	7C	17
L38	B	32	39	4C	17	R270	B	38	20	3B	17	X8	B	34	10	2B	17
L40	B	70	39	4C	18	R272	B	293	69	5B	10	X9	B	34	13	3A	17
L41	B	70	46	3C	18	R276	B	285	85	3B	10	X10	B	58	66	7D	18
L42	B	57	46	2C	18	R295	B	77	20	3B	18	X11	B	71	28	6B	18
L43	B	256	56	4C	8	R300	B	17	22	4B	17	X12	B	219	10	3B	9
L44	B	245	56	3C	8	R308	B	56	22	4B	18	X15	B	235	10	5B	9
L45	B	231	56	2C	8	R464	B	44	45	5C	17						
L46	B	283	56	3C	10	R465	B	82	45	5C	18						

Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C1	A	43	39	5C	17	C34	B	29	36	4C	17	C67	A	268	116	3E	11
C2	A	81	39	5C	18	C35	B	67	36	4C	18	C68	A	222	110	4E	11
C3	A	243	40	5C	8	C36	B	253	50	4D	8	C69	B	238	105	4E	11
C4	A	281	39	6C	10	C37	B	291	52	4D	10	C70	B	214	88	5E	11
C5	B	29	42	4C	17	C38	A	203	16	4D	9	C71	B	221	94	6E	11
C6	B	24	64	6C	17	C39	A	217	10	4C	9	C72	A	173	142	1E	12
C7	B	67	42	4C	18	C40	B	17	115	2F	15	C73	A	28	70	6C	17
C8	B	60	63	6C	18	C41	B	40	115	3F	15	C74	A	169	130	1E	12
C9	A	252	55	4C	8	C42	A	103	106	3F	15	C75	B	32	74	8E	17
C10	B	253	52	4D	8	C43	A	129	109	4F	15	C76	A	172	127	1E	12
C11	A	291	55	4C	10	C44	A	70	116	5F	15	C77	A	167	110	1E	12
C12	B	291	50	4D	10	C45	A	59	128	6E	16	C78	B	12	67	7E	17
C13	B	235	86	9A	8	C46	B	117	139	7E	16	C79	B	168	142	4E	12
C14	B	39	67	8B	17	C47	B	117	133	8E	16	C80	A	182	142	4E	12
C15	B	55	63	8B	18	C48	A	112	120	8E	16	C81	A	98	136	4F	12
C16	B	240	85	7A	8	C49	B	122	105	1E	16	C82	A	195	137	4E	12
C17	B	271	86	9A	10	C50	A	44	130	11E	2	C83	B	32	82	7E	17
C18	B	12	43	2C	17	C51	A	112	136	1E	16	C84	A	23	70	6D	17
C19	B	35	43	4C	17	C52	A	44	135	11E	2	C85	A	141	119	5E	12
C20	B	32	43	3C	17	C53	B	117	75	7E	3	C86	A	143	138	6E	12
C21	B	36	66	8B	17	C54	A	82	125	1E	16	C87	A	143	129	6E	12
C22	B	51	43	2C	18	C55	B	84	142	1E	16	C88	B	199	139	7E	12
C23	B	70	43	3C	18	C56	A	108	130	4E	16	C89	A	202	127	8E	12
C24	B	74	43	4C	18	C57	B	82	139	4E	16	C90	A	201	117	8E	12
C25	B	12	61	6E	17	C58	B	112	139	4F	16	C91	B	13	79	8E	17
C26	A	229	57	2D	8	C59	B	151	93	7E	3	C92	A	222	130	5E	14
C27	A	239	52	3C	8	C60	B	79	109	4E	16	C93	A	224	140	6E	14
C28	B	241	51	4D	8	C61	B	149	93	8E	3	C94	B	221	113	6E	14
C29	B	17	60	6E	17	C62	A	58	139	5E	16	C95	B	281	124	7E	14
C30	A	267	57	2D	10	C63	B	57	116	6E	16	C96	A	281	137	8E	14
C31	A	277	52	3C	10	C64	A	284	116	1E	11	C97	A	281	110	8E	14
C32	B	279	51	4D	10	C65	A	301	104	2E	11	C98	A	225	130	1E	14
C33	B	53	63	8B	18	C66	A	249	110	3E	11	C99	A	32	68	7E	17

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	1+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C100	B	244	140	1E	14	C157	B	70	74	7E	18	C214	B	54	43	2C	18
C101	B	13	75	8E	17	C158	A	154	94	7E	4	C215	B	227	50	2C	8
C102	B	281	138	1E	14	C159	A	118	79	8E	4	C216	B	265	51	2C	10
C103	A	228	133	1E	14	C160	A	166	48	8E	4	C217	B	257	43	5C	8
C104	A	228	82	7A	8	C161	B	197	74	2E	4	C218	B	295	43	5C	10
C105	B	263	143	4E	14	C162	A	180	62	1E	4	C219	A	15	45	2C	17
C106	B	247	142	4E	14	C163	A	213	81	4E	5	C220	A	57	43	3C	18
C107	B	281	141	4F	14	C164	A	165	81	4E	5	C221	B	239	57	3D	8
C108	A	246	113	3E	14	C165	A	61	70	6D	18	C222	B	277	56	3D	10
C109	B	276	83	8A	10	C166	A	210	77	3E	5	C223	B	43	11	2E	17
C110	A	148	63	2C	9	C167	A	180	51	3E	5	C224	B	43	83	8A	17
C111	B	195	56	6E	9	C168	A	166	92	2E	5	C225	B	58	43	3C	18
C112	A	208	14	4E	9	C169	B	140	106	2E	5	C226	A	73	43	3C	18
C113	A	196	50	7E	9	C170	B	90	87	1E	5	C227	A	240	58	3D	8
C114	A	220	14	5E	9	C171	B	202	70	5E	5	C228	A	242	52	4D	8
C115	B	223	28	2B	9	C172	A	72	60	9B	18	C229	A	278	58	3D	10
C116	A	40	80	7E	17	C173	B	276	90	9A	10	C230	A	280	52	4D	10
C117	B	233	91	2A	8	C174	A	66	100	10D	18	C231	B	41	60	2E	17
C118	B	217	105	10A	8	C175	A	100	46	2C	3	C232	B	37	83	9B	17
C119	A	131	49	9E	3	C176	A	49	100	11D	18	C233	B	43	27	2D	17
C120	B	44	67	5E	17	C177	A	79	41	2E	18	C234	A	257	64	4A	8
C121	B	141	47	9E	3	C178	A	73	20	3E	18	C235	A	54	45	2C	18
C122	B	124	104	6E	3	C180	A	56	20	3E	18	C236	A	56	31	4B	18
C123	B	114	90	6E	3	C181	A	78	34	2E	18	C237	A	259	76	7B	8
C124	B	39	64	5E	17	C182	A	66	26	3E	18	C238	A	229	55	2D	8
C125	B	124	94	5E	3	C184	A	54	34	3E	18	C239	A	267	55	2D	10
C126	A	150	81	2E	4	C185	B	73	71	5E	18	C240	A	158	20	2E	2
C127	A	150	66	3E	4	C186	B	79	68	5E	18	C241	A	256	75	7B	8
C128	A	118	64	4E	4	C187	A	258	88	3A	8	C242	A	144	20	2E	2
C129	A	131	61	4E	4	C188	A	255	94	3A	8	C243	A	123	19	2F	2
C130	A	136	79	5E	4	C189	A	250	90	3B	8	C244	B	190	26	3F	2
C131	A	118	48	6E	4	C190	A	236	90	8A	8	C245	A	102	20	2F	2
C132	A	168	62	6E	4	C191	A	35	43	3C	17	C246	A	28	60	3F	17
C133	A	40	34	4E	17	C192	A	243	74	8B	8	C247	B	21	68	6D	17
C134	A	28	26	3E	17	C193	A	240	87	8B	8	C248	A	285	64	7B	10
C135	A	15	34	3E	17	C194	A	228	85	8B	8	C249	A	281	74	7B	10
C137	A	41	41	4D	17	C195	A	256	29	6E	8	C250	A	296	64	4A	10
C138	A	35	20	3D	17	C196	B	249	37	5E	8	C251	B	13	33	2C	17
C139	A	18	20	3D	17	C197	B	245	46	5E	8	C252	B	51	33	3C	18
C141	A	286	79	7A	10	C198	B	254	39	5D	8	C253	A	233	72	3C	8
C142	B	229	83	9B	10	C199	A	247	64	8B	8	C254	A	26	136	10E	2
C143	A	44	75	9A	17	C200	A	22	78	6B	17	C255	A	40	135	11E	2
C144	A	28	100	11D	17	C201	A	288	90	3B	10	C256	B	68	63	9B	18
C145	A	12	100	11D	17	C202	A	293	29	6E	10	C257	B	82	11	2E	18
C146	B	70	69	7E	18	C203	B	287	37	5E	10	C258	A	73	71	7B	18
C147	B	70	82	7E	18	C204	A	297	77	7B	10	C259	B	81	27	2D	18
C148	B	51	75	7E	18	C205	A	296	88	3A	10	C260	A	271	72	3C	10
C149	A	66	71	6C	18	C206	A	293	94	4A	10	C261	A	254	68	6B	8
C150	B	15	43	2C	17	C207	A	18	31	4B	17	C262	B	79	63	3F	18
C151	A	19	43	3C	17	C208	A	281	87	10B	10	C263	B	79	57	2E	18
C152	B	20	43	3C	17	C209	B	292	39	5D	10	C264	A	238	44	2D	8
C153	B	58	60	5E	18	C210	B	283	46	5E	10	C265	B	234	96	2B	8
C154	B	50	66	5E	18	C211	A	278	83	10B	10	C266	A	248	79	8A	8
C155	A	70	69	7E	18	C212	A	294	75	7B	10	C267	A	292	68	6B	10
C156	B	51	79	7E	18	C213	A	59	79	6B	18	C268	A	243	69	4B	8

ROHDE & SCHWARZ	ÄI	Datum Date	XY-Liste für XY-list for	Sach-Nummer Stock-Nr	Blatt Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	2+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C270	B	254	43	5D	8	C334	B	180	101	2E	7	D23	B	119	111	8E	16
C271	B	234	78	2A	8	C335	A	214	45	3E	7	D24	B	60	134	3B	16
C272	B	292	43	5D	10	C336	B	225	96	3D	7	D24	B	60	134	5E	16
C275	B	273	78	2B	10	C337	B	213	107	3D	7	D25	B	283	117	6B	12
C276	A	276	44	2D	10	C338	A	226	110	3D	7	D25	B	283	117	7E	12
C277	B	269	96	2A	10	C339	A	195	110	3D	7	D26	B	283	128	6A	12
C279	A	281	69	4B	10	D1	B	200	76	5C	11	D26	B	283	128	6E	12
C281	B	59	68	6D	18	D1	B	200	76	5E	11	D27	B	224	110	3A	12
C282	A	247	91	3B	8	D2	B	211	99	5D	11	D27	B	224	110	5E	12
C283	A	255	81	4A	8	D2	B	211	99	5E	11	D28	B	224	122	3B	12
C284	B	254	85	3B	8	D3	B	84	105	5A	15	D28	B	224	122	6E	12
C285	B	292	85	3B	10	D3	B	84	105	1F	16	D29	B	224	134	3C	12
C286	A	285	91	3B	10	D3	B	84	105	4A	16	D29	B	224	134	5E	12
C287	A	293	81	4A	10	D4	B	249	110	3A	11	D30	B	283	105	6C	12
C292	A	197	90	6E	5	D4	B	249	110	1F	12	D30	B	283	105	8E	12
C293	B	210	63	6E	6	D4	B	249	110	4A	12	D31	B	142	122	3A	14
C294	A	118	95	7E	5	D5	B	168	109	4A	13	D31	B	142	122	5E	14
C295	A	137	94	7E	5	D5	B	168	109	1F	14	D32	B	142	111	3B	14
C296	B	136	90	8E	5	D5	B	168	109	4A	14	D32	B	142	111	6E	14
C297	A	184	91	6E	5	D6	A	61	116	1C	15	D33	B	142	134	3C	14
C298	B	138	59	1F	3	D6	A	61	116	1D	15	D33	B	142	134	5E	14
C299	B	136	72	1E	3	D6	A	61	116	4F	15	D34	B	202	122	6A	14
C300	B	154	49	1E	3	D6	A	61	116	5B	3	D34	B	202	122	7E	14
C301	B	120	75	1E	3	D6	A	61	116	5C	3	D35	B	202	134	6B	14
C302	B	116	76	1E	3	D7	A	205	115	4E	11	D35	B	202	134	7E	14
C303	B	100	81	1E	3	D7	A	205	115	6A	11	D36	B	202	110	6C	14
C304	B	98	64	1E	3	D8	A	221	115	4E	11	D36	B	202	110	8E	14
C305	B	99	59	1E	3	D8	A	221	115	7A	11	D37	A	187	64	2C	9
C306	B	100	53	3F	3	D9	A	271	115	1E	11	D37	A	187	64	2E	9
C307	B	104	47	3E	3	D9	A	271	115	7C	11	D37	A	187	64	6E	9
C308	B	117	42	3E	3	D10	A	254	115	3E	11	D38	B	212	16	4B	9
C309	B	122	42	3E	3	D10	A	254	115	6B	11	D38	B	212	16	4E	9
C310	B	130	42	3E	3	D11	A	237	115	2E	11	D39	B	20	106	2A	15
C311	B	136	50	3E	3	D11	A	237	115	7B	11	D39	B	20	106	2F	15
C312	B	136	56	3E	3	D12	A	288	115	2E	11	D40	B	42	106	2B	15
C313	B	114	42	3E	3	D12	A	288	115	7D	11	D40	B	42	106	2F	15
C314	B	178	81	3E	6	D13	B	262	98	2A	8	D41	B	11	92	10B	17
C315	B	175	101	3E	6	D14	B	300	98	2A	10	D41	B	11	92	10D	17
C316	B	178	93	3E	6	D15	A	94	112	2C	15	D42	B	26	92	10C	17
C317	B	184	17	3E	6	D15	A	94	112	3F	15	D42	B	26	92	11D	17
C318	B	180	72	3F	6	D16	A	119	112	2C	15	D43	B	50	92	10B	18
C319	B	181	87	1E	6	D16	A	119	112	4F	15	D43	B	50	92	10D	18
C320	A	167	65	3F	6	D17	B	18	70	6C	17	D44	B	65	92	10C	18
C321	B	155	100	1E	6	D17	B	18	70	7E	17	D44	B	65	92	11D	18
C322	B	164	101	1E	6	D18	B	56	70	6C	18	D45	B	200	44	5B	9
C323	B	151	81	1E	6	D18	B	56	70	7E	18	D45	B	200	44	6E	9
C324	B	152	87	3E	6	D19	B	60	111	3C	16	D46	A	217	17	3C	9
C325	B	173	17	4E	6	D19	B	60	111	5E	16	D46	A	217	17	4E	9
C327	B	221	105	10B	8	D20	B	60	122	3A	16	D47	B	183	62	7C	6
C328	B	197	54	6E	6	D20	B	60	122	6E	16	D47	B	183	62	7E	6
C329	B	178	53	7E	6	D21	B	119	134	6A	16	D48	A	105	79	3D	5
C330	B	165	73	7E	6	D21	B	119	134	6E	16	D48	A	105	79	6E	5
C331	A	178	77	8E	6	D22	B	119	122	6B	16	D49	B	103	92	5A	3
C332	A	168	81	5B	6	D22	B	119	122	7E	16	D49	B	103	92	5E	3
C333	B	198	86	2E	7	D23	B	119	111	6C	16	D50	B	103	78	6E	3

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	3+

Part	Side	X	Y	Sqr	Pg
D50	B	103	78	7A	3
D51	A	171	51	2A	5
D51	A	171	51	2B	5
D51	A	171	51	3E	5
D52	A	122	50	2A	3
D52	A	122	50	4B	3
D52	A	122	50	4F	3
D52	A	122	50	8E	3
D52	A	122	50	3B	5
D53	A	156	80	3C	5
D53	A	156	80	3C	5
D53	A	156	80	4A	5
D53	A	156	80	4C	5
D53	A	156	80	4E	5
D54	B	204	65	5E	5
D54	B	204	65	6B	5
D54	B	204	65	7B	5
D54	B	204	65	7C	5
D54	B	204	65	7D	5
D55	A	177	18	2A	6
D55	A	177	18	2B	6
D55	A	177	18	2B	6
D55	A	177	18	2B	6
D55	A	177	18	3E	6
D56	B	89	91	1E	5
D56	B	89	91	5A	5
D57	A	109	95	1F	4
D57	A	109	95	2A	4
D57	A	109	95	3E	4
D58	A	187	90	5E	5
D58	A	187	90	6B	5
D58	A	187	90	7B	5
D59	A	201	77	2A	5
D59	A	201	77	3E	5
D59	A	201	77	3D	9
D60	B	156	77	10A	6
D60	B	156	77	1F	6
D61	A	171	65	1E	4
D61	A	171	65	6C	4
D62	A	187	76	1E	4
D62	A	187	76	7C	4
D63	A	135	50	4E	3
D63	A	135	50	4E	3
D63	A	135	50	9E	3
D63	A	135	50	2C	5
D63	A	135	50	6D	5
D64	A	170	93	4B	5
D64	A	170	93	4F	5
D64	A	170	93	5C	5
D64	A	170	93	6B	5
D64	A	170	93	6E	5
D65	A	201	64	5E	6
D65	A	201	64	6F	6
D65	A	201	64	6F	6
D65	A	201	64	8C	6

Part	Side	X	Y	Sqr	Pg
D65	A	201	64	9C	6
D66	B	90	80	1E	5
D66	B	90	80	4C	5
D66	B	90	80	7C	5
D66	B	90	80	7D	5
D66	B	90	80	7E	5
D67	A	157	93	2E	5
D67	A	157	93	3C	5
D67	A	157	93	4A	5
D67	A	157	93	4B	5
D67	A	157	93	7D	5
D68	A	201	90	4E	5
D68	A	201	90	5B	5
D69	A	124	95	7D	5
D69	A	124	95	7E	5
D70	A	200	46	5D	5
D70	A	200	46	8E	5
D71	A	105	64	3E	4
D71	A	105	64	4A	4
D72	A	122	64	4E	4
D72	A	122	64	6A	4
D73	A	122	79	5E	4
D73	A	122	79	7A	4
D74	A	154	64	6E	4
D74	A	154	64	7B	4
D75	A	89	79	4B	4
D75	A	89	79	7E	4
D76	A	140	95	6B	4
D76	A	140	95	7E	4
D77	A	153	49	3B	4
D77	A	153	49	8E	4
D78	A	105	48	3A	4
D78	A	105	48	5E	4
D79	A	142	81	2A	4
D79	A	142	81	2E	4
D79	A	142	81	2F	4
D79	A	142	81	5C	6
D79	A	142	81	2C	7
D80	B	157	62	3F	6
D80	B	157	62	4A	6
D81	B	133	58	1F	3
D81	B	133	58	3A	3
D82	A	187	50	6B	6
D82	A	187	50	6E	6
D83	A	166	18	4E	6
D83	A	166	18	4F	6
D83	A	166	18	4F	6
D83	A	166	18	9A	6
D83	A	166	18	9A	6
D84	A	141	67	2B	7
D84	A	141	67	2B	7
D84	A	141	67	2C	7
D84	A	141	67	2C	7
D84	A	141	67	2E	7
D85	B	128	92	7C	3

Part	Side	X	Y	Sqr	Pg
D85	B	128	92	7E	3
D86	B	128	78	5C	3
D86	B	128	78	8E	3
D87	B	181	44	7B	6
D87	B	181	44	7E	6
D88	B	183	76	1E	7
D88	B	183	76	3C	7
D89	B	183	90	2E	7
D89	B	183	90	3B	7
D91	A	208	102	3E	7
D91	A	208	102	5B	7
D92	A	171	81	2B	15
D92	A	171	81	6A	6
D92	A	171	81	6B	6
D92	A	171	81	7B	6
D92	A	171	81	7C	6
D92	A	171	81	7F	6
D92	A	171	81	8E	6
G1	B	149	66	3C	9
G2	B	216	22	3B	9
K1	B	31	25	2A	17
K1	B	31	25	2A	17
K1	B	31	25	3D	17
K2	B	70	25	2A	18
K2	B	70	25	2A	18
K2	B	70	25	3D	18
K3	B	231	21	1C	8
K3	B	231	21	3D	8
K3	B	231	21	3D	8
K4	B	234	33	3E	8
K4	B	234	33	7C	8
K4	B	234	33	7C	8
K5	B	245	21	3E	8
K5	B	245	21	3E	8
K5	B	245	21	7C	8
K6	B	269	20	1C	10
K6	B	269	20	3D	10
K6	B	269	20	3D	10
K7	B	272	33	3E	10
K7	B	272	33	7C	10
K7	B	272	33	7C	10
K8	B	283	20	3E	10
K8	B	283	20	3E	10
K8	B	283	20	7C	10
L1	B	12	46	2C	17
L2	B	50	46	2C	18
L3	B	228	57	2C	8
L4	B	266	57	2C	10
L5	B	28	59	6C	17
L6	A	38	75	9A	17
L7	A	79	61	2F	18
L8	B	64	60	6C	18
L9	A	79	57	9A	18
L10	B	231	107	10A	8
L11	B	259	29	5C	8

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	4+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
L12	B	298	29	5C	10	N15	A	36	64	5E	17	R39	B	42	63	6A	17
L13	B	163	21	2E	2	N15	A	36	64	6A	17	R40	B	11	28	5B	17
L14	B	27	45	3C	17	N15	A	36	64	8B	17	R41	B	62	56	7A	18
L15	A	40	44	4D	17	N16	A	51	57	5E	18	R42	A	65	16	3B	18
L16	B	12	38	2C	17	N16	A	51	57	6A	18	R43	A	63	14	2B	18
L17	B	11	30	3C	17	N16	A	51	57	8B	18	R44	B	278	93	9B	10
L18	A	42	60	2F	17	N17	A	231	83	7A	8	R45	A	59	76	7B	18
L20	B	50	30	3C	18	N17	A	231	83	8B	8	R46	B	50	23	4B	18
L21	B	50	38	2C	18	N17	A	231	83	9A	8	R47	A	57	76	6B	18
L22	B	240	74	3C	8	N19	A	73	64	5E	18	R48	A	32	10	2B	17
L23	B	231	64	2C	8	N19	A	73	64	7A	18	R49	B	51	24	5B	18
L24	B	65	45	3C	18	N23	A	248	40	4E	8	R50	A	259	73	5A	8
L25	B	278	74	3C	10	N23	A	248	40	6D	8	R51	A	261	72	4B	8
L26	A	237	64	3B	8	N24	A	269	83	10B	10	R52	A	297	73	5A	10
L27	A	233	94	8A	8	N24	A	269	83	8A	10	R53	A	299	72	4B	10
L28	B	269	64	2C	10	N25	A	286	40	5E	10	R54	B	37	28	4B	17
L29	A	242	46	5D	8	N25	A	286	40	6D	10	R55	A	22	18	3B	17
L30	A	238	55	3C	8	R1	A	18	82	6B	17	R56	A	70	10	2B	18
L31	A	276	64	3B	10	R2	A	57	82	6B	18	R57	B	42	33	5C	17
L35	A	280	46	5D	10	R3	A	98	100	7B	15	R58	A	32	14	2A	17
L36	A	277	55	3C	10	R4	A	108	106	4A	15	R59	B	80	33	5C	18
L49	B	149	22	2E	2	R5	A	113	110	4A	15	R60	B	75	28	3B	18
L50	B	132	23	2E	2	R6	A	135	113	4A	15	R61	A	61	18	3B	18
L51	B	118	22	2F	2	R7	A	142	109	4B	15	R62	A	256	78	4B	8
L52	B	103	22	2F	2	R8	B	112	105	4B	15	R63	A	250	30	6C	8
L53	B	259	36	5C	8	R9	A	115	109	7D	15	R64	A	295	78	5B	10
L54	B	298	36	5C	10	R10	A	218	117	5B	11	R65	A	287	29	6C	10
L55	A	229	105	2D	7	R11	A	268	131	2B	11	R66	B	243	88	8A	8
L56	A	198	106	4E	7	R12	A	289	108	2A	11	R67	B	281	90	9A	10
N1	A	25	19	3B	17	R13	A	292	110	2B	11	R68	A	257	46	5C	8
N1	A	25	19	3E	17	R14	A	224	100	2A	11	R69	A	296	46	5C	10
N2	B	41	35	4E	17	R15	A	222	96	2A	11	R70	A	203	22	4D	9
N2	B	41	35	5C	17	R16	A	261	131	5B	11	R71	A	214	14	4C	9
N3	A	12	23	3E	17	R17	A	266	136	5D	11	R72	B	40	69	8B	17
N3	A	12	23	5B	17	R18	A	281	98	6B	13	R73	A	260	64	4A	8
N4	B	247	71	6B	8	R19	A	284	109	3B	13	R74	A	22	23	3D	17
N4	B	247	71	7B	8	R20	A	286	109	5D	13	R75	B	55	61	8B	18
N5	A	13	59	5E	17	R21	A	187	119	3A	13	R76	A	252	90	4B	8
N6	B	285	71	6B	10	R22	A	191	122	3B	13	R77	B	236	46	7C	8
N6	B	285	71	7B	10	R23	A	191	110	3A	13	R78	B	242	85	8A	8
N7	A	64	19	3B	18	R24	A	187	112	3A	13	R79	A	280	96	9A	10
N7	A	64	19	3E	18	R25	B	236	99	9A	8	R80	A	291	90	4B	10
N8	B	79	35	2E	18	R26	A	213	94	9B	8	R81	B	275	45	7C	10
N8	B	79	35	5C	18	R27	A	196	63	2E	9	R82	A	34	24	3D	17
N9	A	50	23	3E	18	R28	B	203	13	4B	9	R83	B	23	27	5B	17
N9	A	50	23	5B	18	R29	A	28	16	3B	17	R84	B	25	27	5B	17
N10	B	261	77	5B	8	R30	A	252	84	3A	8	R85	A	70	14	2B	18
N10	B	261	77	7B	8	R31	A	290	84	3A	10	R86	A	254	71	5B	8
N11	A	248	32	5E	8	R32	A	26	14	3B	17	R87	B	39	70	8B	17
N11	A	248	32	6C	8	R33	B	13	24	5B	17	R88	A	291	71	6B	10
N12	B	299	77	5B	10	R34	B	11	23	4B	17	R90	B	39	44	4D	17
N12	B	299	77	7B	10	R35	B	21	62	7D	17	R91	A	45	37	4E	17
N13	A	286	32	5E	10	R36	B	57	62	7D	18	R92	B	63	27	5B	18
N13	A	286	32	6C	10	R37	A	19	76	6B	17	R93	B	62	27	5B	18
N14	B	18	128	10E	2	R38	A	21	76	7B	17	R94	A	239	35	6C	8

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	5+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R95	A	239	37	6C	8	R153	A	14	95	8C	17	R208	B	37	116	1B	15
R96	A	254	14	6C	8	R154	A	16	95	8C	17	R209	B	34	116	1B	15
R97	A	254	17	6C	8	R155	A	18	95	8C	17	R210	B	13	26	4B	17
R98	A	234	31	1C	8	R156	A	20	95	8C	17	R211	A	39	37	5C	17
R99	A	237	31	1C	8	R157	A	23	95	8C	17	R212	A	12	104	11B	17
R100	A	278	37	6C	10	R158	A	25	95	8C	17	R213	A	15	104	11C	17
R101	A	272	31	1C	10	R159	A	27	95	8C	17	R214	A	17	104	11C	17
R102	A	275	31	1C	10	R160	A	29	95	8D	17	R215	A	20	104	11C	17
R103	A	291	17	6C	10	R161	A	31	95	8D	17	R216	B	160	75	10E	6
R104	A	291	15	6C	10	R162	A	34	95	8D	17	R217	B	158	74	10E	6
R105	A	278	34	6C	10	R163	A	36	95	8D	17	R218	A	22	104	11C	17
R106	B	36	71	8B	17	R164	A	105	45	2C	3	R219	A	25	104	11C	17
R107	A	29	39	5C	17	R165	A	60	95	8C	18	R220	A	29	104	11C	17
R108	A	54	64	8B	18	R166	A	62	95	8C	18	R221	B	81	42	5C	18
R111	B	228	87	9B	8	R167	A	64	95	8D	18	R222	A	77	96	10C	18
R112	A	22	21	3E	17	R168	A	67	95	8D	18	R223	A	74	96	10D	18
R113	A	68	39	4C	18	R169	A	69	95	8D	18	R224	A	211	68	8E	8
R114	B	55	66	8B	18	R170	A	71	95	8D	18	R225	A	239	40	7E	8
R115	A	239	21	2C	8	R171	A	58	95	8C	18	R226	B	251	39	7D	8
R116	A	237	77	7A	8	R172	A	56	95	8C	18	R227	A	252	29	8D	8
R117	A	244	42	6C	8	R173	A	53	95	8C	18	R228	B	214	70	8D	10
R118	A	237	21	2C	8	R174	A	51	95	8C	18	R229	A	277	40	7D	10
R119	A	273	81	8A	10	R175	A	49	95	8C	18	R230	B	289	39	7D	10
R120	A	282	42	6C	10	R176	A	47	95	8B	18	R231	A	291	29	8D	10
R121	B	253	48	4C	8	R177	A	25	69	6D	17	R232	A	31	104	11C	17
R122	B	252	46	5C	8	R178	B	79	42	5C	18	R233	B	51	26	4B	18
R123	B	290	47	5C	10	R179	A	21	28	4C	17	R234	B	247	34	6C	8
R124	B	291	48	4C	10	R180	B	50	61	5F	18	R235	B	252	34	6C	8
R125	A	118	106	4A	15	R181	B	75	66	8A	18	R236	A	242	24	5C	8
R126	A	145	113	4B	15	R182	A	42	97	10C	17	R237	A	245	29	6C	8
R127	A	289	105	2B	11	R183	A	39	97	10D	17	R238	A	280	24	5C	10
R128	A	219	96	2A	11	R184	A	63	69	6D	18	R239	B	291	34	6C	10
R129	A	187	107	3A	13	R185	B	43	42	5C	17	R240	B	285	34	6C	10
R130	A	187	117	2B	13	R186	A	59	28	4C	18	R241	A	283	29	6C	10
R131	A	194	44	2D	6	R187	A	242	64	6B	8	R242	A	263	66	4A	8
R132	A	13	32	3E	17	R188	A	280	64	6B	10	R243	A	301	66	4A	10
R134	B	11	86	6C	17	R189	B	75	69	5F	18	R244	A	34	104	11C	17
R135	A	20	100	9B	17	R190	B	161	75	10E	6	R245	A	77	37	5C	18
R136	B	32	11	2B	17	R191	A	86	129	3B	15	R246	A	245	40	6C	8
R137	B	43	69	5E	17	R192	A	97	129	4B	15	R247	A	283	39	6C	10
R138	B	33	65	5F	17	R193	A	97	127	3B	15	R248	B	206	56	6C	9
R139	B	15	64	5E	17	R194	A	89	121	4B	15	R249	B	204	56	6C	9
R140	B	50	86	6C	18	R195	A	75	123	3B	15	R250	B	201	56	6C	9
R141	A	62	100	9B	18	R196	A	89	124	4C	15	R251	B	203	56	6C	9
R142	B	194	17	2D	6	R197	A	76	121	3C	15	R252	B	138	72	3C	9
R143	A	245	94	2B	8	R198	A	89	119	4C	15	R253	B	217	11	5C	9
R144	B	61	59	5E	18	R199	A	86	126	3C	15	R254	A	205	16	5D	9
R145	A	275	21	2C	10	R200	A	76	118	4C	15	R255	A	212	27	4C	9
R146	A	277	21	2C	10	R201	A	76	116	3C	15	R256	A	210	24	4D	9
R147	B	82	70	5E	18	R202	A	104	127	4C	15	R257	B	208	58	6C	9
R148	A	283	94	2B	10	R203	B	79	112	3C	15	R258	B	210	12	5B	9
R149	A	11	95	8B	17	R204	A	88	116	4D	15	R259	B	156	46	6B	9
R150	B	70	12	2B	18	R205	A	88	114	3D	15	R260	B	197	45	6B	9
R151	B	250	75	4B	8	R206	A	104	129	4D	15	R261	B	196	47	6B	9
R152	B	288	75	4B	10	R207	A	76	113	3D	15	R262	B	198	50	6B	9

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	6+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R263	B	209	56	6B	9	R324	B	100	56	8C	3	R379	B	176	55	3A	6
R264	B	211	12	5B	9	R325	B	90	75	8C	3	R380	A	123	44	2C	6
R265	A	298	64	5A	10	R326	B	100	57	8C	3	R381	B	272	83	8A	10
R266	B	215	28	5C	9	R327	B	100	61	8C	3	R382	B	102	42	4B	3
R267	A	36	104	11D	17	R328	B	92	76	8C	3	R383	A	119	58	4E	3
R268	A	39	104	11D	17	R329	B	100	62	8C	3	R384	B	23	64	7C	17
R269	A	41	104	11D	17	R330	B	95	76	8C	3	R385	B	161	50	5B	4
R271	A	51	32	4E	18	R331	B	100	65	8D	3	R386	B	151	46	1A	4
R273	A	61	21	3E	18	R332	B	100	67	8D	3	R387	B	138	76	1E	4
R274	A	83	37	2E	18	R333	B	100	69	9B	3	R388	B	162	17	9A	6
R275	A	61	23	3D	18	R334	B	100	70	9B	3	R389	B	163	73	3B	6
R277	A	73	24	3D	18	R335	B	100	72	9B	3	R390	B	172	74	5D	4
R278	B	77	44	2D	18	R336	B	95	74	9B	3	R391	B	179	82	8B	4
R279	A	68	105	11C	18	R337	B	105	75	9C	3	R392	B	174	73	8B	4
R280	A	70	105	11D	18	R338	B	104	75	9C	3	R393	A	105	102	8B	4
R281	A	73	105	11D	18	R339	B	102	75	9C	3	R394	B	170	73	8B	4
R282	A	58	105	11C	18	R340	B	107	75	9C	3	R395	B	150	91	2C	5
R283	A	60	105	11C	18	R341	B	125	89	9D	3	R396	B	152	90	4C	5
R284	A	63	105	11C	18	R342	B	119	74	9D	3	R397	A	173	48	2B	5
R285	A	65	105	11C	18	R343	B	95	77	9C	3	R398	B	77	106	4A	5
R286	A	55	105	11C	18	R344	B	100	73	9C	3	R399	B	20	59	7B	17
R287	A	53	105	11C	18	R345	B	114	75	9C	3	R400	B	150	84	6A	5
R288	A	48	105	11C	18	R346	B	112	75	9C	3	R401	B	23	33	4B	17
R289	A	46	105	11B	18	R347	B	111	75	9C	3	R402	B	154	69	4A	6
R290	A	76	105	11D	18	R348	B	109	75	9C	3	R403	A	196	70	2D	9
R291	B	256	41	5C	8	R349	B	122	74	1C	3	R404	B	58	64	7C	18
R292	B	295	41	5C	10	R350	B	123	74	1C	3	R405	A	183	97	4F	5
R293	B	247	38	5E	8	R351	B	125	74	1C	3	R406	A	101	100	4D	5
R294	A	257	35	5D	8	R352	B	127	75	1C	3	R407	A	110	45	1B	3
R296	B	22	60	7A	17	R353	B	128	75	1D	3	R408	B	182	17	2A	6
R297	B	138	45	2A	3	R354	B	130	75	1D	3	R409	A	107	43	2A	6
R298	B	119	40	2A	3	R355	B	132	75	1D	3	R410	A	110	24	2A	6
R299	B	138	48	3A	3	R356	B	142	60	1D	3	R411	A	153	42	3B	6
R301	B	158	51	2B	4	R357	B	136	69	1D	3	R412	A	151	24	2A	6
R302	B	153	54	2B	4	R358	A	123	61	1D	3	R413	A	178	41	3B	6
R303	B	153	56	2C	4	R359	B	134	75	1D	3	R414	A	191	22	2B	6
R304	B	153	57	2C	4	R360	B	136	74	1D	3	R415	A	174	42	3B	6
R305	B	154	59	2C	4	R361	B	145	61	2D	3	R416	A	188	22	2B	6
R306	B	154	60	2C	4	R362	B	136	58	2D	3	R417	B	174	47	2C	6
R307	B	152	96	10E	6	R363	B	136	55	2D	3	R418	A	116	24	2C	6
R309	B	50	28	5B	18	R364	B	136	53	2D	3	R419	A	121	24	2C	6
R310	B	234	82	6A	8	R365	B	150	59	2D	3	R420	B	132	42	10A	3
R311	B	24	59	7B	17	R366	B	149	44	2D	3	R421	A	136	27	11A	3
R312	B	31	66	7B	17	R367	B	153	63	2D	3	R422	B	136	43	10A	3
R313	B	138	52	2A	3	R368	B	136	61	2D	3	R423	A	141	27	11A	3
R314	B	142	56	3A	3	R369	B	136	63	2C	3	R424	B	124	40	10B	3
R315	B	141	51	3A	3	R370	B	136	64	2C	3	R425	A	126	27	11B	3
R316	A	187	46	8C	5	R371	B	137	66	2C	3	R426	A	156	27	11B	3
R317	B	100	43	8B	3	R372	B	137	67	2C	3	R427	B	155	44	10B	3
R318	B	100	45	8B	3	R373	B	116	42	8D	3	R428	A	131	27	11B	3
R319	B	99	46	8B	3	R374	B	102	46	9D	3	R429	B	126	42	10B	3
R320	B	99	48	8B	3	R375	A	190	20	1B	6	R430	A	146	27	11C	3
R321	B	99	50	8C	3	R376	A	185	22	2B	6	R431	B	144	43	10C	3
R322	B	100	51	8C	3	R377	B	54	60	7B	18	R432	A	185	42	4E	2
R323	B	100	54	8C	3	R378	B	163	50	3A	6	R433	A	187	17	3E	2

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	7+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R434	B	155	54	4A	6	R491	B	62	33	4B	18	X371	B	296	10	11C	2
R435	A	182	51	6B	6	R492	A	169	35	6D	9	Z1	A	50	18	1B	17
R436	A	30	14	2B	17	R493	A	252	68	5A	8	Z2	B	50	58	1E	17
R437	B	193	60	6D	6	R494	A	249	66	6A	8	Z3	B	42	92	8A	17
R438	B	167	51	6D	6	R495	A	288	66	6A	10	Z4	A	50	13	1F	17
R439	B	190	57	6D	6	R496	A	290	68	6A	10	Z5	A	94	20	2D	17
R440	B	191	60	6D	6	R497	A	249	69	6B	8	Z6	A	50	79	7D	17
R441	B	187	60	5D	6	R498	A	288	69	6B	10	Z7	B	14	53	5B	17
R442	B	184	60	5D	6	R499	A	75	73	7A	18	Z8	B	105	35	2E	2
R443	B	180	60	5D	6	R500	B	171	45	6D	9	Z9	B	202	35	3E	2
R444	B	168	17	3F	6	R501	A	139	46	2D	9	Z10	B	207	35	3F	2
R445	A	67	14	2B	18	R502	A	145	35	1D	9	Z11	B	93	20	1B	18
R446	A	183	78	7F	6	R503	A	23	62	6A	17	Z12	A	94	25	2D	18
R447	A	39	39	4C	17	R504	B	56	57	6A	18	Z13	B	88	61	1E	18
R448	A	77	39	5C	18	R505	B	45	62	6A	17	Z14	B	88	56	1E	18
R449	A	210	61	5F	6	R506	B	63	57	6A	18	Z15	B	93	25	1F	18
R450	A	243	36	6C	8	R507	B	31	59	7A	17	Z16	B	52	50	5B	18
R451	A	281	36	6C	10	R508	B	32	59	6A	17	Z17	B	82	66	8A	18
R452	A	199	41	7A	6	R509	B	56	58	7A	18	Z18	B	228	38	7C	8
R453	A	159	27	8A	6	R510	B	65	56	6A	18	Z19	B	222	69	3A	8
R454	B	169	27	8A	6	V1	A	212	13	4C	9	Z20	A	214	58	2D	8
R455	A	208	44	8A	6	V2	A	209	21	4C	9	Z21	A	214	48	2D	8
R456	A	162	27	7C	7	V3	A	40	23	3D	17	Z22	B	212	41	2E	8
R457	A	160	46	6C	7	V4	A	78	23	3D	18	Z23	A	221	74	1A	8
R458	B	178	85	8C	6	V5	A	233	39	4E	8	Z24	A	235	105	1B	8
R459	B	212	73	8D	6	V6	A	246	26	4E	8	Z25	A	221	43	1E	8
R460	B	154	71	8D	6	V7	A	232	27	4D	8	Z26	B	220	64	7E	8
R461	B	158	102	9C	6	V8	A	270	27	4D	10	Z27	A	266	30	7C	10
R462	B	176	76	9C	6	V9	A	284	26	4E	10	Z28	A	262	76	3A	10
R463	B	179	76	9D	6	V10	A	271	39	4E	10	Z29	A	214	53	2D	10
R466	A	151	92	5C	6	V11	A	276	95	9A	10	Z30	B	214	48	2D	10
R467	B	169	49	6C	6	V12	A	39	72	9B	17	Z31	B	214	53	2E	10
R468	B	186	57	6C	6	V13	A	62	58	9B	18	Z32	A	262	81	1B	10
R469	B	190	59	6C	6	V14	A	219	104	9A	8	Z33	A	271	105	1A	10
R470	B	185	59	5C	6	V15	A	242	91	8A	8	Z34	A	259	36	1E	10
R471	B	182	59	5C	6	V16	A	168	88	5B	6	Z35	B	220	74	7D	10
R472	B	177	59	5C	6	V17	A	26	76	6B	17	Z36	B	110	35	2A	6
R473	B	219	107	5C	7	V18	A	63	77	6B	18	Z37	B	151	35	3A	6
R474	B	217	100	4C	7	V19	A	24	79	6B	17	Z38	B	177	35	3B	6
R475	B	214	97	5C	7	V20	A	62	79	6B	18	Z39	B	171	35	3B	6
R476	A	205	100	5C	7	X1	B	197	15	1D	6	Z40	A	110	35	2C	6
R477	A	205	103	5C	7	X13	B	73	10	2B	18	Z41	A	116	35	2C	6
R478	A	201	105	4C	7	X14	B	144	58	2B	3	Z42	B	136	41	10A	3
R479	B	87	102	7A	15	X16	B	73	13	2A	18	Z43	B	141	41	10A	3
R480	A	139	83	2D	7	X360	B	189	11	1B	2	Z44	A	121	42	10B	3
R481	B	206	62	7C	5	X361	B	17	10	1A	2	Z45	B	156	41	10B	3
R482	B	41	42	5C	17	X362	B	27	10	11A	2	Z46	A	126	42	10B	3
R483	B	157	73	7A	6	X363	B	52	10	1C	2	Z47	B	146	41	10C	3
R484	B	152	76	8A	6	X364	B	62	10	11A	2	Z48	B	182	35	3E	2
R485	B	152	71	9B	6	X365	B	245	10	1C	2	Z49	B	192	41	8A	6
R486	B	207	73	9B	6	X366	B	255	10	1A	2	Z50	B	197	41	8A	6
R487	B	178	90	9B	6	X367	B	263	10	11B	2	Z51	B	161	41	7C	7
R488	A	167	78	5A	6	X368	B	271	10	11A	2	Z52	A	192	35	2D	6
R489	B	285	38	5E	10	X369	B	281	10	1C	2	Z53	B	214	79	4E	7
R490	A	295	35	5D	10	X370	B	288	10	11C	2	Z54	A	43	48	1D	18

ROHDE & SCHWARZ	ÄI	Datum / Date	XY-Liste für / XY-list for	Sach-Nummer / Stock-Nr	Blatt / Page
	03	21.01.97	EE FADING_SIMULATOR *	1085.4060.01 XY	8+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
Z55	B	269	84	1A	8	Z57	A	221	69	9B	10	Z59	A	141	35	2D	9
Z56	A	262	69	7A	10	Z58	A	171	42	6D	9						

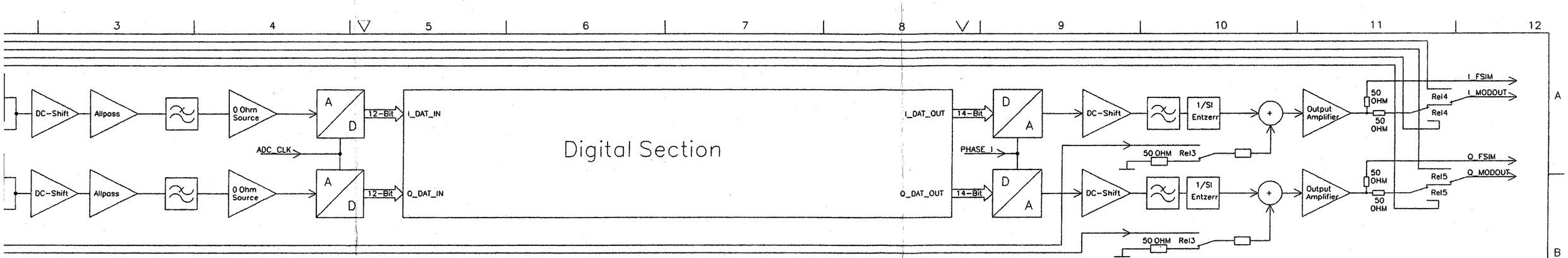
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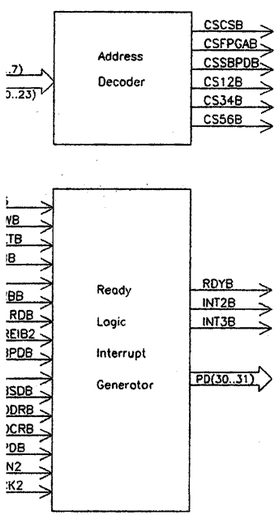
Stromläufe
Bestückungspläne

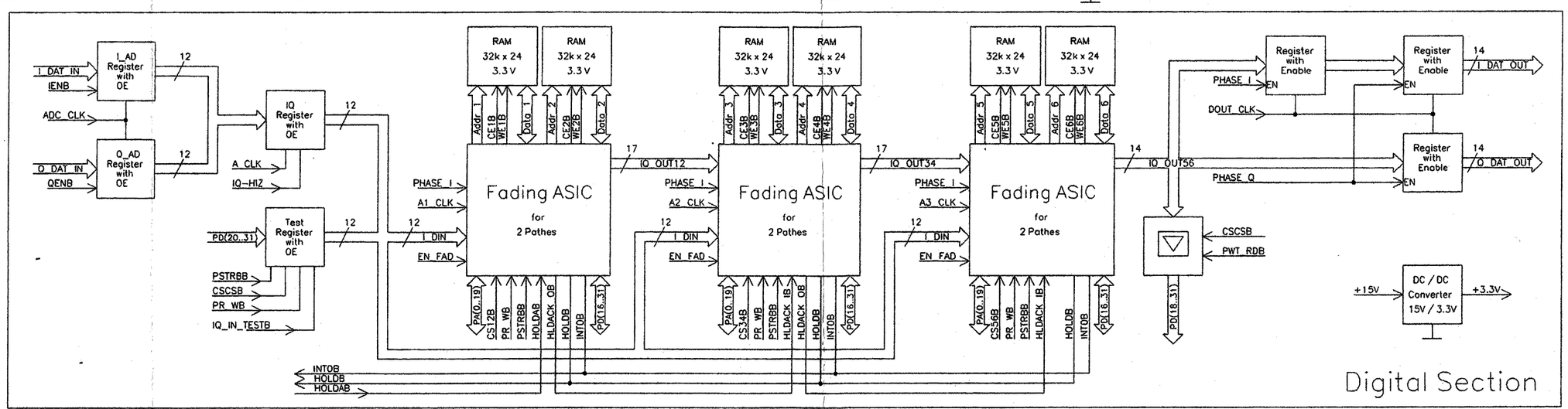
Circuit diagrams
Component plans

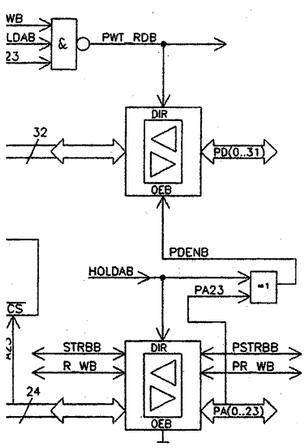
Schémas de circuit
Plans des composants

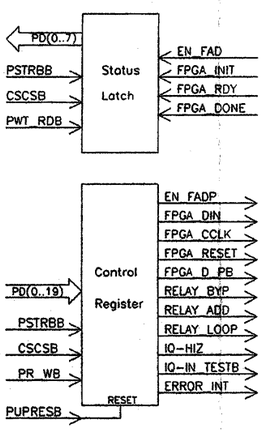
095.1000 Bl. 4

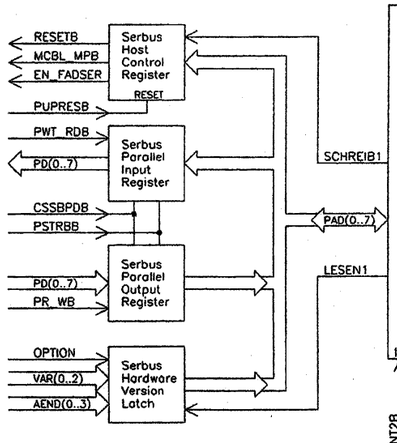


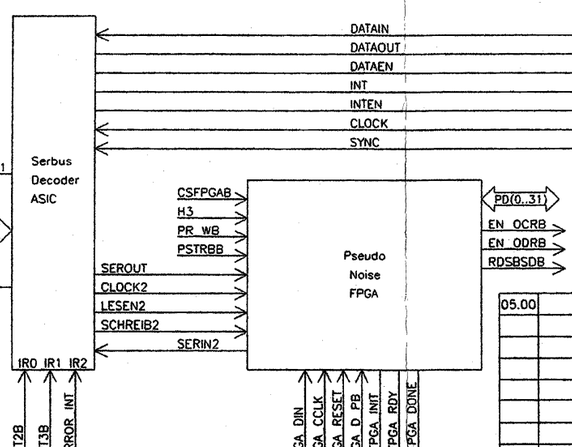


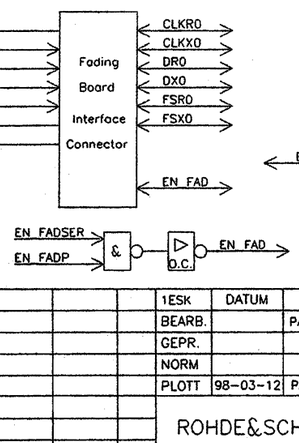


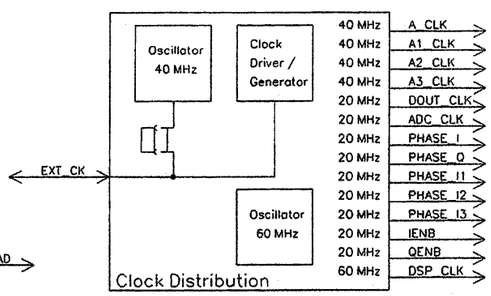












05.00				1ESK	DATUM	NAME
				BEARB.		PA
				GEPR.		
				NORM		
				PLOTT	98-03-12	PA PASHA
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ		

BENENNUNG
FADING_SIMULATOR
*
TOP/TOP.1

ROHDE&SCHWARZ

ZEICHN.-NR.
1085.4060.01 S

BLATT-NR. 1 +

REG.I.V. 1085.4002 | ERSTE Z. 1085.4002.00

Digital Section

I_NEXT
I_MODIN
Rel1
50 OHM
Buffer
DC-Shift
Allpass
0 Ohm Source
A/D
12-Bit
I_DAT_IN
ADC_CLK
Q_NEXT
Q_MODIN
Rel2
Q_DAT_IN
I_CASCIN
Q_CASCIN
I_DAT_OUT
Q_DAT_OUT
14-Bit
D/A
PHASE_I
1/SI Entzerr
Output Amplifier
50 OHM Rel3

DSP

EMU3 EMU2 EMU1 EMU0
CLKR0 CLKX0 DR0 DX0 FSR0 FSX0
DSP_CLK RESETB MCBL_MPB INT0B INT2B INT3B RDYB HOLDB HOLDAB H1 H3 STRBB R_WB

Address Decoder
PA(6..7) PA(20..23)
CSCSB CSFPGAB CSSBPDB CS12B CS34B CS56B

Ready Logic Interrupt Generator
PA23 PR_WB RESETB STRBB H1 PSTRBB PWT_RDB SCHREIB2 CSSBPDB A23 RDSBSDB EN_ODRB EN_OCRB WT_PDB LESEN2 CLOCK2
RDYB INT2B INT3B PD(30..31)

R_WB HOLDAB PA23 & PWT_RDB
DIR OEB
D(0..31) PD(0..31)
Data Local Memory 256k x 32
WE Addr CS
PDENB HOLDAB PA23 =1
STRBB R_WB A(0..17) A23 18 24 A(0..23)
PSTRBB PR_WB PA(0..23)

I_AD Register with OE
I_DAT_IN IENB ADC_CLK
Q_AD Register with OE
Q_DAT_IN QENB
12
IQ Register with OE
A_CLK IQ-HIZ
Test Register with OE
PD(20..31) PSTRBB CSCSB PR_WB IQ_IN_TESTB

RAM 32k x 24 3.3 V
Addr 1 CE1B WE1B Data 1
Addr 2 CE2B WE2B Data 2
Addr 3 CE3B WE3B Data 3
Addr 4 CE4B WE4B Data 4
Addr 5 CE5B WE5B Data 5
Addr 6 CE6B WE6B Data 6

Fading ASIC for 2 Pathes
PHASE_I A1_CLK I_DIN EN_FAD
A2_CLK A3_CLK
17 IQ_OUT12 IQ_OUT34
14 IQ_OUT56
PA(0..19) CS12B PR_WB PSTRBB HOLDAB HLDACK_OB HOLDB INT0B PD(16..31)
CS34B HLDACK_IB
CS56B
PHASE_Q
Register with Enable
DOUT_CLK
CSCSB PWT_RDB PD(18..31)
INT0B HOLDB HOLDAB

Status Latch
PD(0..7) PSTRBB CSCSB PWT_RDB
EN_FAD FPGA_INIT FPGA_RDY FPGA_DONE

Control Register
PD(0..19) PSTRBB CSCSB PR_WB PUPRESB RESET
EN_FADP FPGA_DIN FPGA_CCLK FPGA_RESET FPGA_D_PB RELAY_BYP RELAY_ADD RELAY_LODP IQ-HIZ IQ-IN_TESTB ERROR_INT

RESETB MCBL_MPB EN_FADSER PUPRESB PWT_RDB PD(0..7) CSSBPDB PSTRBB PD(0..7) PR_WB OPTION VAR(0..2) AEND(0..3)
Serbus Host Control Register RESET
Serbus Parallel Input Register
Serbus Parallel Output Register
Serbus Hardware Version Latch
PAD(0..7) SCHREIB1 LESEN1
Serbus Decoder ASIC
IR0 IR1 IR2 INT2B INT3B ERROR_INT

DATAIN DATAOUT DATAEN INT INTEN CLOCK SYNC
Fading Board Interface Connector
CLKR0 CLKX0 DR0 DX0 FSR0 FSX0 EN_FAD
SEROUT CLOCK2 LESEN2 SCHREIB2 SERIN2
CSFPGAB H3 PR_WB PSTRBB
Pseudo Noise FPGA
FPGA_DIN FPGA_CCLK FPGA_RESET FPGA_D_PB FPGA_INIT FPGA_RDY FPGA_DONE
PD(0..31) EN_OCRB EN_ODRB RDSBSDB
EN_FADSER EN_FADP & O.C. EN_FAD
Oscillator 40 MHz
EXT_CK
Clock Distribu

05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_
				GEPR.			*
				NORM			TOP/TOP.1
				PLOTT	98-03-12	PA PASHA	ZEICHN.-NR.
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			
				ZU GERAET	SMIQ		REG.I.V. 1085.4

BEHALTEN WIR UNS ALLE RECHTE VOR

I_OUT_BACK

I_MODBYP

_PATH_12

_DIN

:S

'R_CTRL

OCKS

H_12_11

HLDA12B
IQ_OUT12
IQ_IN
PD
PA
DSP_CTRL
BLATT 15,16

IQ_OUT12
IQ_IN

FAD_PATH_34

HLDA12B
IQ_OUT12
IQ_IN
PCS
PER_CTRL
CLOCKS
FAD_PATH_34_14

HLDA34B
IQ_OUT34
PD
PA
DSP_CTRL
BLATT 13,14

IQ_OUT34

Q_OUT_BACK
IQDC_SHIFT
Q_MODBYP

FAD_PATH_56

HLDA34B
IQ_OUT34
IQ_IN
PCS
PER_CTRL
CLOCKS
FAD_PATH_56_12

I_DAT_OUT
Q_DAT_OUT
PD
PA
DSP_CTRL
BLATT 11,12

I_DAT_OUT
Q_DAT_OUT

I_OUTPUT

I_CASCIN
I_MODBYP
IQDC_SHIFT
I_DAT_OUT
PER_CTRL
CLOCKS
I_OUTPUT_8

I_FSIM
I_OUT_BACK
I_OUT_T
I_MODOUT
DC_SHIFT

I_NEXT → X362 MMCX-BU
Q_NEXT → X364 MMCX-BU
I_FSIM → X368 MMCX-BU
I_MODOUT → X367 MMCX-BU

BLATT 8

Q_OUTPUT

DC_SHIFT
Q_MODBYP
Q_CASCIN
Q_DAT_OUT
PER_CTRL
CLOCKS
Q_OUTPUT_9

Q_FSIM
Q_OUT_BACK
Q_OUT_T
Q_MODOUT

Q_FSIM → X371 MMCX-BU
Q_MODOUT → X370 MMCX-BU

BLATT 10

CLOCK_DISTRIBUTION

DSP_CTRL
EXT_CK
CEEX
CLOCK_DIS_5

CEIN
CLOCKS
EXT_CLB

CLOCKS

BLATT 9

SERBUS_PNGEN

SERBUS
SERBUS
PER_CTRL
PCS
I_OUT_T
Q_OUT_T
SERBUS_PNGEN_15

FPGA_CTRL
READY
PD
DONE
PA
DSP_CTRL
DIAG-5V
BLATT 6,7

DSP

FPGA_CTRL
FPGA_CTRL
CLOCKS
DSP_CTRL
SER_IO
SER_IO
DSP_4

PER_CTRL
PD
PA
PCS
BLATT 3,4,5

PER_CTRL
PD
PA
PCS

I_OUT_T
Q_OUT_T

N14
PT6203C
12
V_OUT_ADJ
+15VD
L32
1.2U
C254 10U
4 V_IN
3 V_IN
2 N/C
1 INHIBIT
GND GND GND GND
5 6 7 8
N/C 11
10 V_OUT
9 V_OUT
+3.3V
C255 10U
C50 47U
C52 47U

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

	DATUM	NAME
1ESK		
BEARB.		PA
GEPR.		
NORM		
PLOTT	98-03-12	PA PASHA

BENENNUNG
FADING_SIMULATOR
*
TOP/TOP.2

ROHDE&SCHWARZ

ZEICHN.-NR.
1085.4060.01 S

BLATT-NR. 2 +

ZU GERAET SMIQ
REG.I.V. 1085.4002
ERSTE Z. 1085.4002.00

DENN LEIN WIR UNS ALLE RECHTE VOR

1 2 3 4 5 6 7 8

A B C D E F

MMCX-BU X366 — I_CASCIN

MMCX-BU X361 — I_MODIN

X360 A11 A13 A21 A23 A25 A27 A29 A31 B2 B11 B13 B21 B23 B25 B27 B31

MMCX-BU X363 — Q_MODIN

MMCX-BU X369 — Q_CASCIN

MMCX-BU X365 — EXT_CK

X360 A19 — DIAG-5V
X360 B1 — EXT_CLB
X360 B14 — CEIN
X360 B12 — CEEX
X360 A20 — READY
X360 B4 — DONE

X360 A12 — SERBUS-CLK
X360 A14 — SERBUS-DAT
X360 A15
X360 A16 — SERBUS-SYNC
X360 A17 — SERBUS-INT
X360 A18 — RESET-P
X360 B3 — EN_FADN
X360 B5 — DX0
X360 B6 — FSX0
X360 B7 — CLKX0
X360 B8 — CLKR0
X360 B9 — FSR0
X360 B10 — DR0

X360 A24 B24 — VA15-P — L49 15U — +15V — C240 10U — Z8 40DB — +15VD
X360 A26 B26 — VA7.5-P — L50 15U — +7.5V — C242 10U
X360 B28 A28 B29 — VD5-P — L13 6U — +5V
X360 A30 B30 — VA15-N — L51 15U — C243 10U — -15V
X360 A32 B32 — VA5.2-N — L52 15U — C245 10U — -5.2V

R433 0 — Z48 7.5DB — R432 22.1 — EN_FAD

Z9 40DB — +5VD
Z10 40DB — C244 10U

I_INPUT
I_OUT_BACK
I_MODIN
CLOCKS
PER_CTRL
I_MODBYP
I_NEXT
IQ_DIN
I_INPUT_6

BLATT 17

Q_INPUT
PER_CTRL
CLOCKS
Q_OUT_BACK
Q_MODIN
IQDC_SHIFT
Q_MODBYP
Q_NEXT
IQ_DIN
Q_INPUT_7

BLATT 18

FAD_PATH_12
IQ_DIN
PCS
PER_CTRL
CLOCKS
HLDA12B
IQ_OUT12
IQ_IN
PD
PA
DSP_CTRL
FAD_PATH_12_11
BLATT 15,16

FAD_PATH_34
HLDA12B
IQ_OUT12
IQ_IN
PCS
PER_CTRL
CLOCKS
HLDA34B
IQ_OUT34
PD
PA
DSP_CTRL
FAD_PATH_34_14
BLATT 13,14

FAD_PATH_56
HLDA34B
IQ_OUT34
IQ_IN
PCS
PER_CTRL
CLOCKS
I_DAT_OUT
Q_DAT_OUT
PD
PA
DSP_CTRL
FAD_PATH_56_12
BLATT 11,12

I_OUT_BACK
I_MODBYP
IQ_DIN
IQ_OUT12
IQ_IN
IQ_OUT34
Q_OUT_BACK
IQDC_SHIFT
Q_MODBYP

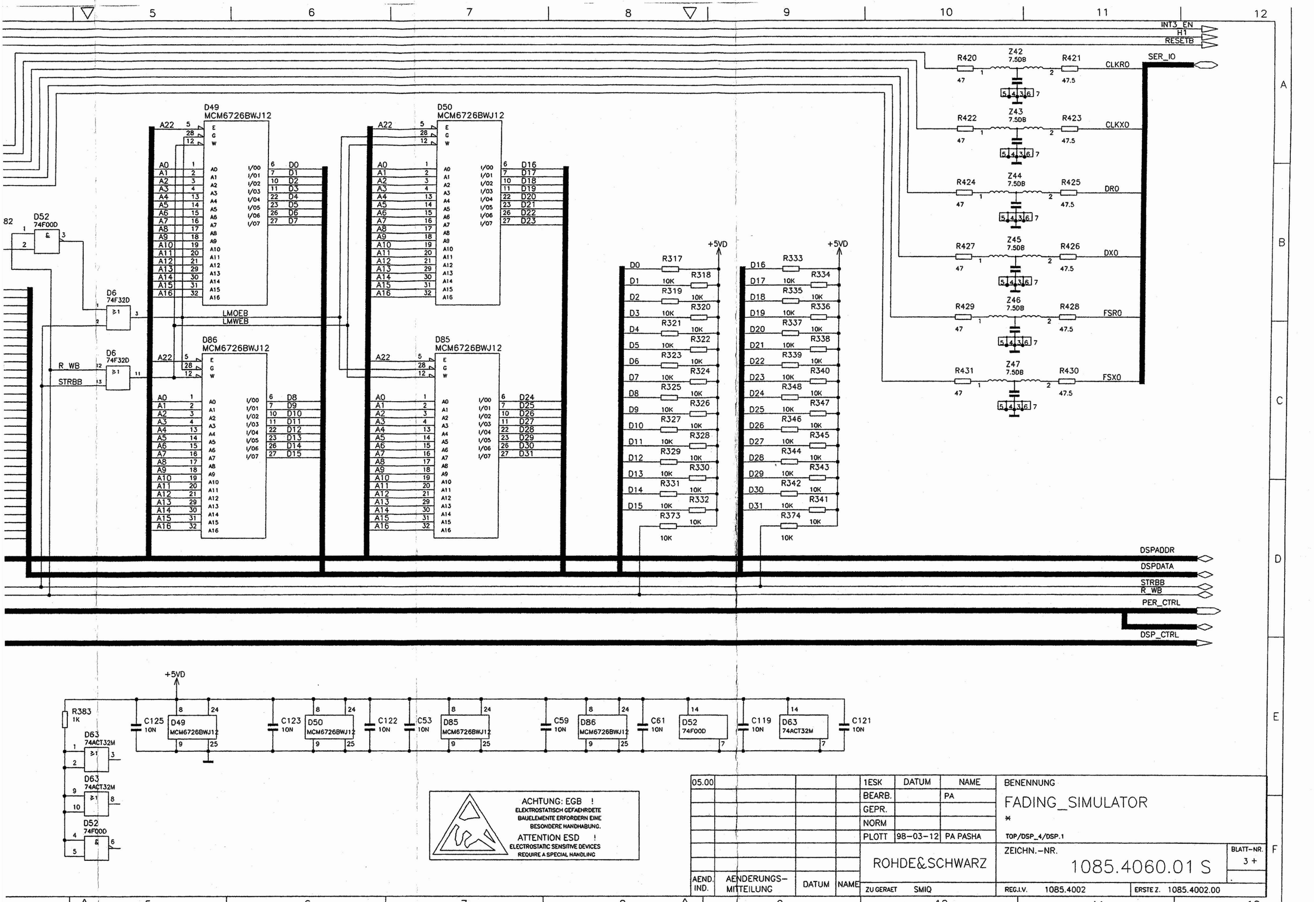
SERBUS_PNGEN
SERBUS
PER_CTRL
PCS
I_OUT_T
Q_OUT_T
FPGA_CTRL
READY
PD
DONE
PA
DSP_CTRL
DIAG-5V
SERBUS_PNGEN_15
BLATT 6,7

DSP
FPGA_CTRL
CLOCKS
DSP_CTRL
SER_IO
PER_CTRL
PD
PA
PCS
DSP_4
BLATT 3,4,5

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

05.00

AEND. IND. AENDER MITTEILU


5
6
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11
12
A
B
C
D
E
F
INT3_EN
H1
RESETB
SER_IO
CLKR0
CLKX0
DR0
DX0
FSR0
FSX0
R420
R421
R422
R423
R424
R425
R427
R426
R429
R428
R431
R430
Z42
Z43
Z44
Z45
Z46
Z47
7.5DB
47
47.5
D49
MCM6726BWJ12
D50
MCM6726BWJ12
D86
MCM6726BWJ12
D85
MCM6726BWJ12
A22
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
D0
D1
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D21
D22
D23
D24
D25
D26
D27
D28
D29
D30
D31
LMOEB
LMWEB
R_WB
STRBB
D6
74F32D
D52
74F00D
82
+5VD
R317
R318
R319
R320
R321
R322
R323
R324
R325
R326
R327
R328
R329
R330
R331
R332
R373
R333
R334
R335
R336
R337
R338
R339
R340
R348
R347
R346
R345
R344
R343
R342
R341
R374
10K
DSPADDR
DSPDATA
STRBB
R_WB
PER_CTRL
DSP_CTRL
R383
1K
D63
74ACT32M
C125
C123
C122
C53
C59
C61
C119
C121
10N
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING
05.00
AEND. IND.
AENDERUNGS-MITTEILUNG
DATUM
NAME
1ESK
BEARB.
GEPR.
NORM
PLOTT
98-03-12
PA PASHA
BENENNUNG
FADING_SIMULATOR
*
TOP/DSP_4/DSP.1
ROHDE&SCHWARZ
ZEICHN.-NR.
1085.4060.01 S
BLATT-NR.
3 +
ZU GERAET SMIQ
REG.I.V. 1085.4002
ERSTE Z. 1085.4002.00

BEHALTEN WIR UNS ALLE RECHTE VOR

D81
TMS320C31PQL

D49
MCM6726BWJ12

D50
MCM6726BWJ12

D86
MCM6726BWJ12

D85
MCM6726BWJ12

D52
74F00D

D6
74F32D

D63
74ACT32M

R382 1K
R383 1K
R407 392
R164 100
C175 47P
R298 10K
R313 20.0K
R315 20.0K
R297 10K
R314 20.0K
R299 10K
R349 R350 R351 R352 R353 R354 R355 R356 R360 R359 R358 R357 10K
R372 R371 R370 R369 R368 R367 R366 R365 R361 R362 R363 R364 10K
R317 R318 R319 R320 R321 R322 R323 R324 R325 R326 R327 R328 R329 R330 R331 R332 R373 10K

C305 C304 C303 C302 C301 C300 C299 C298 C313 C312 C311 C310 C309 C308 C307 C306 10N

C125 C123 C122 C53 C59 C61 10N

DSP_CTRL
PAR_BOOT
MCBL_MPB
INT0B
INT2B
INT3B
RESETB
MCBL_MPB
CLOCKS
DSP_CLK
RDYB
HOLDB
H3
HOLDAB
LMOEB
LMWEB
R_WB
STRBB

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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AEND. IND.
AENDERU MITTEILUN

DIESE UNTERLAGEN SIND EIGENTUM DER ROHDE & SCHWARZ GMBH & CO. KG. MÜNCHEN. ALLE RECHTE VORBEHALTEN WIR UNS ALLE RECHTE VOR

DSPDATA
DSPADDR
+5VD
R386 1K
D57 74F20M
PWT_RDB
D79 74F86M
HOLDAB
PA22
PDENB
PER_CTRL
STRBB
R_WB

D78 74FCT245 — D0 D1 D2 D3 D4 D5 D6 D7 — PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
D71 74FCT245 — D8 D9 D10 D11 D12 D13 D14 D15 — PD8 PD9 PD10 PD11 PD12 PD13 PD14 PD15
D72 74FCT245 — D16 D17 D18 D19 D20 D21 D22 D23 — PD16 PD17 PD18 PD19 PD20 PD21 PD22 PD23
D73 74FCT245 — D24 D25 D26 D27 D28 D29 D30 D31 — PD24 PD25 PD26 PD27 PD28 PD29 PD30 PD31
PD

HOLDAB
D77 74FCT245 — PSTRBB PR_WB
D75 74FCT245 — A0 A1 A2 A3 A4 A5 A6 A7 — PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
R385 1K
D76 74FCT245 — A8 A9 A10 A11 A12 A13 A14 A15 — PA8 PA9 PA10 PA11 PA12 PA13 PA14 PA15
D74 74FCT245 — A16 A17 A18 A19 A20 A21 A22 A23 — PA16 PA17 PA18 PA19 PA20 PA21 PA22 PA23
PA22
R391 PA20
R392 PA21 1K
R393 PA22 1K
R394 PA23 182 1K
PA
A22

R301 R302 R303 R304 R305 R306 10K
PA22

D61 74FCT138C
PA19 PA20 PA21 PA22 PA23
DX G 0/7 — 0 1 2 3 4 5 6 7
&
CSSBPDB
CSCSB
CSFPGAB
R390 1K

D62 74FCT138C
PA6 PA7 PA22 PA21 PA20 PA19
DX G 0/7 — 0 1 2 3 4 5 6 7
&
CS12B CS34B CS56B CSCCLKB
PCS

+5VD
C162 100N (D61 74FCT138C)
C161 100N (D62 74FCT138C)
C126 100N (D79 74F86M)
C127 100N (D57 74F20M)
C128 100N (D71 74FCT245)
C129 100N (D72 74FCT245)
C130 100N (D73 74FCT245)
C131 100N (D78 74FCT245)
C132 100N (D74 74FCT245)
C158 100N (D76 74FCT245)
C159 100N (D75 74FCT245)
C160 100N (D77 74FCT245)

+5VD
R387 1K
D57 74F20M
D79 74F86M

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

1ESK	DATUM	NAME
BEARB.		PA
GEPR.		
NORM		
PLOTT	98-03-12	PA PASHA

ROHDE&SCHWARZ
ZU GERAET SMIQ

BENENNUNG
FADING_SIMULATOR
*
TOP/DSP_4/DSP.2

ZEICHN.-NR. 1085.4060.01 S
BLATT-NR. 4 +
REG.I V. 1085.4002
ERSTE Z. 1085.4002.00

BEHALTEN WIR UNS ALLE RECHTE VOR

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

05.00				1ESK	DATUM	NAME
				BEARB.		PA
				GEPR.		
				NORM		
				PLOTT	98-03-12	PA PASHA
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ		

BENENNUNG: FADING_SIMULATOR
*
TOP/DSP_4/DSP.3
ROHDE&SCHWARZ
ZEICHN.-NR. 1085.4060.01 S
BLATT-NR. 5 +
REG.I.V. 1085.4002
ERSTE Z. 1085.4002.00

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

R402 * 10K
R434 10K

PARDAT 0..7 PAD0..PAD7
SEROUT, CLK1, RD1, WR1, SERIN1, CLK2, RD2, WR2, SERIN2

+5VD
R488 100K
V16 BAS16
C332 100N
D92 74HCT14T
R435 10K
D82 74HCT164T
D87 74ACT273M
SEROUT
CLOCK1
SCHREIB1
DIAG_ENB
DIAG_SEL0
DIAG_SEL1
DIAG_SEL2
RESETB
MCBL_MPB
EN_FADS
R466 100
D79 74F86M
LESEN1
PAR_BOOT
D47 74HCT573T
R472 1K
R471 1K *
R470 1K
R469 1K *
R468 1K
R467 1K *
R443 10K
R442 10K
R441 10K
R440 10K
R439 10K
R438 10K
R437 10K
PAD0..PAD7
PAD
LESEN2
SCHREIB2
CLOCK2

R455 47.5
Z50 7.5DB
R454 47.5
R388 10K
D83 74HCT125T
READY
DONE
R452 47.5
Z49 7.5DB
R453 47.5
R483 4.7K
R484 4.7K

D60
XC5204-6
WAIT
SBSDB
EN_ICRB
LESEN2
EN_ODRB
SET_DONE
INT3B
SET_READY
SERIN2
INT2B
CLOCK2
+5VD
R485 4.7K
R486 4.7K
R487 4.7K
R462 1K
D65 74ACT32M
CSCCLKB
PR_WB
SEROUT
R461 0
SCHREIB2
PSTRBB
FPGA_INITB
R458 0
R463 1K
FPGA_PROGB
R459 0
FPGA_DONE
R460 0
CSFPGAB
PA5 PA6 PA0 PA1 PA2 PA3 PA4

I/O pins 131 132 135 136 140 141 4 5 9 10 12 13 3 2 143 142 139 138 134 133 130 129 126 125 122 121 116 115 112 111 31 32 33 107 106 40 109 85 44 39 76 53 102 93 36 34 38 6 7 11 74 72 14 15 16 19 20 21 22 23
I/O(A17) GCK1(A16,I/O) I/O(A15) I/O(A14) I/O(A13) I/O(A12) I/O(A11) I/O(A10) I/O(A9) I/O(A8) I/O(A7) I/O(A6) I/O(A5) I/O(A4) I/O(A3) I/O(A2,CS1) I/O(A1) I/O(A0,WS) I/O I/O I/O CCLK I/O(DOUT) I/O(HDC) I/O(TDO) I/O(CSO) I/O(LDC) GCK2(I/O) GCK3(I/O) I/O(ERR,INIT) I/O(RCLK-BUSY/RDY) I/O(RS) M0(I/O) M1(I/O) M2(I/O) I/O(TDI) I/O(TCK) I/O(TMS) PROG DONE I/O I/O(D7) I/O(D6) I/O(D5) I/O(D4) I/O(D3) I/O(D2) I/O(D1) I/O(D0,DIN)
I/O 124 123 120 119 117 114 113 104 103 PD8 99 98 PD9 97 95 94 PD10 89 PD11 87 86 PD12 83 82 PD13 80 78 77 PD14 70 PD15 69 68 PD16 67 66 PD17 65 63 PD18 62 61 PD19 60 59 PD20 58 57 56 PD21 52 PD22 51 50 PD23 49 48 PD24 47 46 PD25 43 PD26 42 41 PD27 30 PD28 29 28 PD29 26 PD30 25 24 PD31 75 PD7 79 PD6 84 PD5 88 PD4 92 PD3 96 PD2 101 PD1 105 PD0

PD
PAD
PER_CTRL
DSP_CTRL
FPGA_CTRL
PCS
DIAGNOSE

R307 10K *
R217 10K *
R216 10K *
R190 10K *

C325 100N
25T 8
25T 11

+5VD
D65 74ACT32M C293 100N D82 74HCT164T C328 100N D87 74ACT273M C329 100N D47 74HCT573T C330 100N D92 74HCT14T C331 100N
R449 10K
D65 74ACT32M
D65 74ACT32M
R446 10K
D92 74HCT14T

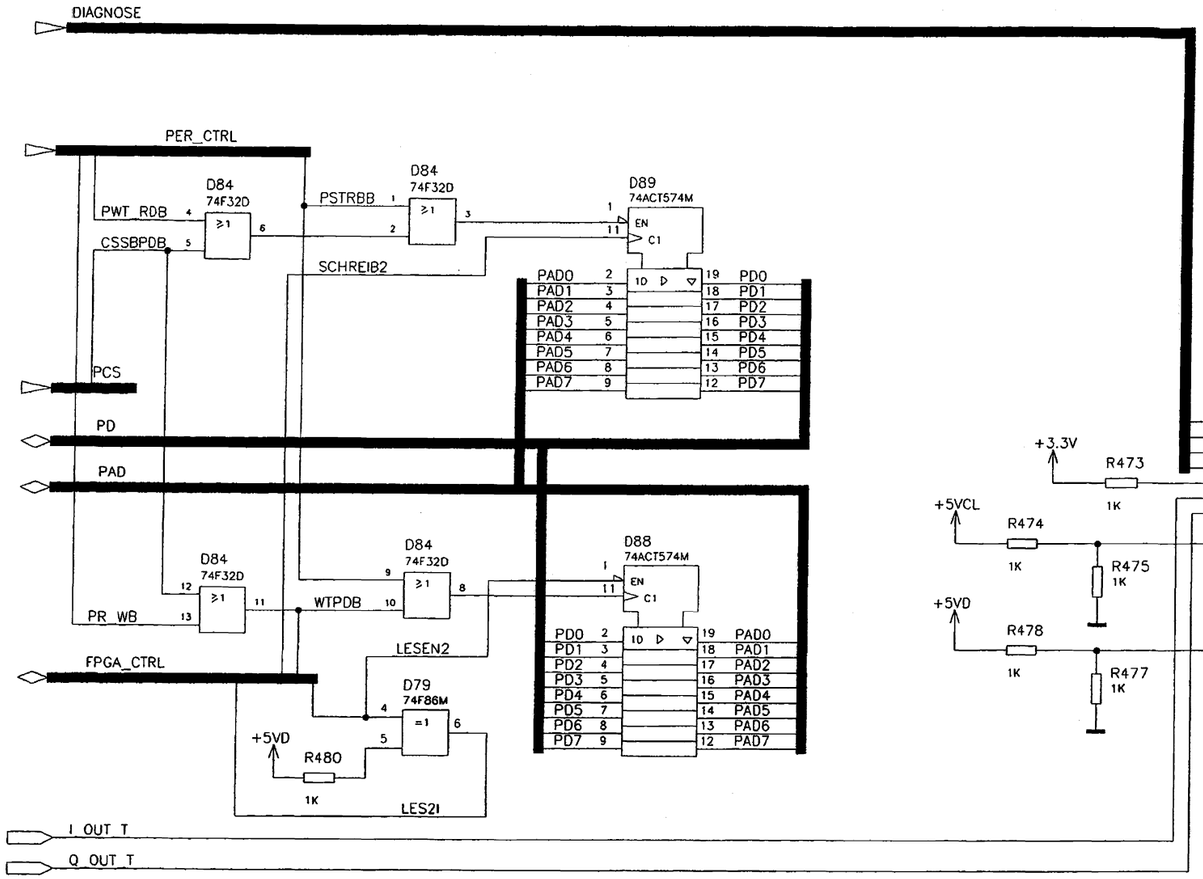
* = not fitted

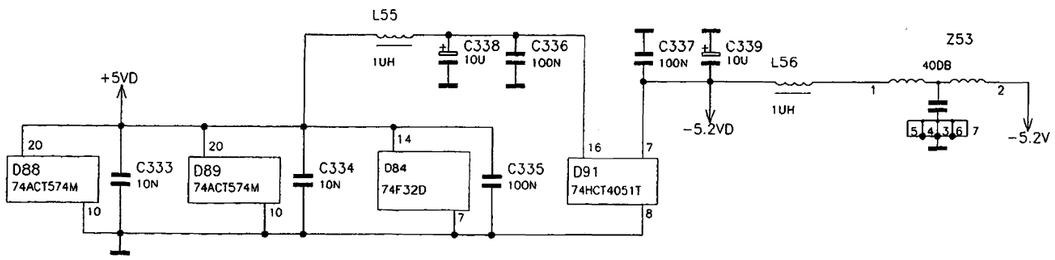
05.00				1ESK	DATUM	NAME	BENENNUNG	
				BEARB.		PA	FADING_SIMULATOR	
				GEPR.			*	
				NORM			TOP/SERBUS_PNGEN_15/SERBUS_PNGEN.1	
				PLOTT	98-03-12	PA PASHA		
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S	BLATT-NR. 6 +
				ZU GERAET SMIQ			REG.I.V. 1085.4002	ERSTE Z. 1085.4002.00

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

SERBUS
RESET-P
SERBUS-CLK
SERBUS-DAT
SERBUS-INT
SERBUS-SYNC
D80 L5A8856
D55 74HCT125T
D92 74HCT14T
D82 74HCT164T
D87 74ACT273M
D47 74HCT573T
D79 74F86M
D65 74ACT32M
D83 74HCT125T
SEROUT
CLOCK1
SCHREIB1
LESEN1
PAD
SERB_AD
ERR_INT
LESEN2
SCHREIB2
CLOCK2
FPGA_CTRL
PA
PCS
PER_CTRL
WAIT
SBSDB
EN_ICRB
LESEN2
EN_ODRB
SET_DONE
INT3B
SET_READY
SERIN2
INT2B
CLOCK2
DIAG_ENB
DIAG_SELO
DIAG_SEL1
DIAG_SEL2
RESETB
MCBL_MPB
EN_FADS
PAR_BOOT
CSCCLKB
PR_WB
SEROUT
SCHREIB2
PSTRBB
FPGA_INITB
FPGA_PROGB
FPGA_DONE
D60 XC5204-6
05.00
AEND. IND.
AENDE MITTEI

BEHALTEN WIR UNS ALLE RECHTE VOR





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ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

1ESK	DATUM	NAME
BEARB.		PA
GEPR.		PA
NORM		
PLOTT	98-03-12	PASHA

BENENNUNG
FADING_SIMULATOR
*
TOP/SERBUS_PNGEN_15/SERBUS_PNGEN.2

ROHDE&SCHWARZ

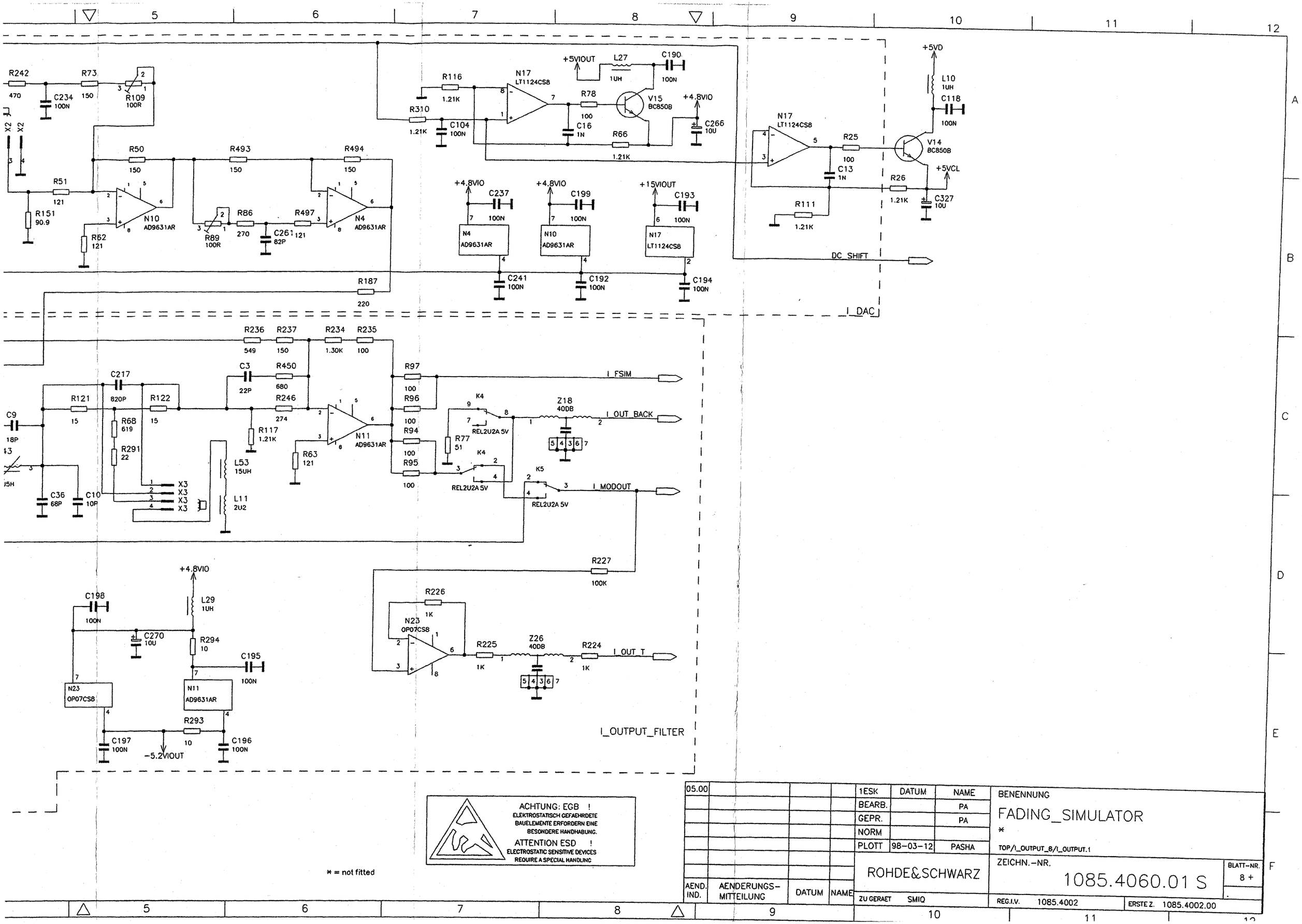
ZEICHN.-NR. 1085.4060.01 S

BLATT-NR. 7 +

ZU GERAET SMIQ

REG.I.V. 1085.4002

ERSTE Z. 1085.4002.00


R242 470
C234 100N
R73 150
R109 100R
X2 X2
R50 150
R493 150
R494 150
R51 121
R151 90.9
R62 121
N10 AD9631AR
R89 100R
R86 270
C261 82P
R497 121
N4 AD9631AR
R187 220
+5VIOUT
L27 1UH
C190 100N
R116 1.21K
N17 LT1124CS8
R78 100
C16 1N
V15 BC850B
+4.8VIO
R310 1.21K
C104 100N
R66 1.21K
C266 10U
+4.8VIO C237 100N
+4.8VIO C199 100N
+15VIOUT C193 100N
N4 AD9631AR
N10 AD9631AR
N17 LT1124CS8
C241 100N
C192 100N
C194 100N
+5VD
L10 1UH
C118 100N
N17 LT1124CS8
R25 100
C13 1N
V14 BC850B
+5VCL
R26 1.21K
C327 10U
R111 1.21K
DC_SHIFT
I_DAC
R236 549
R237 150
R234 1.30K
R235 100
C217 820P
R121 15
R122 15
C3 22P
R450 680
R246 274
R117 1.21K
R63 121
N11 AD9631AR
R97 100
R96 100
R94 100
R95 100
I_FSIM
K4
REL2U2A 5V
R77 51
Z18 40DB
I_OUT_BACK
K4
REL2U2A 5V
K5
REL2U2A 5V
I_MODOUT
C9 18P
R68 619
R291 22
X3
X3
X3
X3
L53 15UH
L11 2U2
C36 68P
C10 10P
R227 100K
R226 1K
N23 OP07CS8
R225 1K
Z26 40DB
R224 1K
I_OUT_T
+4.8VIO
C198 100N
L29 1UH
C270 10U
R294 10
C195 100N
N23 OP07CS8
N11 AD9631AR
R293 10
C197 100N
C196 100N
-5.2VIOUT
I_OUTPUT_FILTER
* = not fitted
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING
05.00
AEND. IND.
AENDERUNGS-MITTEILUNG
DATUM
NAME
1ESK DATUM NAME
BEARB. PA
GEPR. PA
NORM
PLOTT 98-03-12 PASHA
BENENNUNG
FADING_SIMULATOR
*
TOP/I_OUTPUT_6/I_OUTPUT.1
ROHDE&SCHWARZ
ZEICHN.-NR.
1085.4060.01 S
BLATT-NR.
8 +
ZU GERAET SMIQ
REG.I.V. 1085.4002
ERSTE Z. 1085.4002.00

BEHALTEN WIR UNS ALLE RECHTE VOR

IQDC_SHIFT
Z55 40DB
C117 10U
-5.2VQO
-5.2VIO
+15V
Z23 40DB
+15VIOUT
C271 10U
+5VD
Z24 40DB
+5VIOUT
C265 10U
I_DAT_OUT
CLOCKS
DOUT_CLK
R143 0
D13 HI5741
IDA13 IDA12 IDA11 IDA10 IDA9 IDA8 IDA7 IDA6 IDA5 IDA4 IDA3 IDA2 IDA1 IDA0
D13 MSB D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0 LSB
CTRL A OUT CTRL A IN RSET AVEE IOUT IOUT ARTN DVEE DGND DVCC CLOCK
DGND AGND REF OUT
+5VIOUT
Z19 40DB
R242 470
R73 150
R109 100R
C234 100N
R30 909
C187 100N
C188 100N
C283 10N
X2 X2 X2 X2
R133 100R
C189 100N
C268 10U
C284 10N
L26 1UH
-5.2VIOUT
C282 10N
R76 51.1
R151 90.9
R51 121
R50 150
R493 150
R494 150
R62 121
R89 100R
R86 270
R497 121
C261 82P
N10 AD9631AR
N4 AD9631AR
R187 220
+5VIOUT L27 1UH C190 100N
R116 1.21K
R310 1.21K
C104 100N
N17 LT1124CS8
R78 100
C16 1N
V15 BC850B
+4.8VIO
R66 1.21K
C266 10U
+4.8VIO C237 100N
+4.8VIO C199 100N
+15VIOUT C193 100N
N4 AD9631AR
N10 AD9631AR
N17 LT1124CS8
C241 100N
C192 100N
C194 100N

K3
I_CASCIN
REL2U2A 5V
R99 100
R98 100
R115 117
R118 100
L23 2U7H
L22 2U7H
C253 47P
C179 30P-7P
C215 3.3P
C27 10P
C9 18P
L3 680N
L45 5U5H
L30 1UH
L44 5U5H
L43 5U5H
C238 82P
C26 8.2P
C227 150P
C221 18P
C228 150P
C28 8.2P
C36 68P
C10 10P
R121 15
C217 820P
R122 15
R68 619
R291 22
X3 X3 X3 X3
L53 15UH
L11 2U2
R236 549
R237 150
R234 1.30K
R235 100
C3 22P
R450 680
R246 274
R117 1.21K
R63 121
N11 AD9631AR
R97 100
R96 100
R94 100
R95 100
I_FSIM
K4
Z18 40DB
I_OUT_BACK
R77 51
REL2U2A 5V
K5
I_MODOUT
I_MODBYP

PER_CTRL
Z20 40DB
RLY_ADD1
K3 REL2U2A 5V
V7 BAS16
Z21 40DB
RLY_LOOP1
K4 REL2U2A 5V
V5 BAS16
Z22 40DB
RLY_FSON3
K5 REL2U2A 5V
V6 BAS16
Z25 40DB
C264 10U
-5.2V
-5.2VIOUT
+4.8VIO
C198 100N
L29 1UH
C270 10U
R294 10
C195 100N
N23 OP07CS8
N11 AD9631AR
R293 10
C197 100N
C196 100N
-5.2VIOUT
R227 100K
R226 1K
N23 OP07CS8
R225 1K
Z26 40DB
R224 1K
I_OUT_T

I_OUTPUT_FILTER

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
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* = not fitted

AEND. IND.	AENDER MITTEILU
05.00	

EXT_CK

EXT_CLB

CLOCKS

+5VCL

G2 40MHZ

C115 10N

40MHZ

D38 49FCT805

R28 1K

R264 22

* R258 22

+5VD

G1 60MHZ

C110 100N

60MHZ

R252 22

DSP_CLK

R266 22 PHASE_Q

D45 49FCT805

R259 22 A_CLK

R260 22 A1_CLK

R261 22 A2_CLK

R262 22 A3_CLK

R263 22 DOUT_CLK

R250 22 PHASE_I

R251 22 PHASE_I1

R249 22 PHASE_I2

R248 22 PHASE_I3

ASIC_CLK

R257 22

D46 74F175

ASIC_CLK 9

V1 BAS16

R71 33.2

R255 33.2 ADC_CLK

C39 33P

R253 22.1 QENB

V2 BAS16

R70 33.2

R256 22.1

R254 22.1 IENB

C38 33P

DSP_CTRL

D37 74F74D

RESETB

+5VD

R403 3.32K

D59 74F11D

R500 10

Z58 7.5DB

R492 10

CEIN

CEEX

R502 10

Z59 7.5DB

R501 10

+5VD

R27 1K

D37 74F74D

+5VCL

D38 49FCT805

C112 100N

D46 74F175

C114 100N

+5VD

D45 49FCT805

C111 10N

D37 74F74D

C113 100N

* = not fitted

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

	DATUM	NAME
1ESK		
BEARB.		PA
GEPR.		
NORM		
PLOTT	98-03-12	PA PASHA

ROHDE&SCHWARZ

ZU GERAET SMIQ

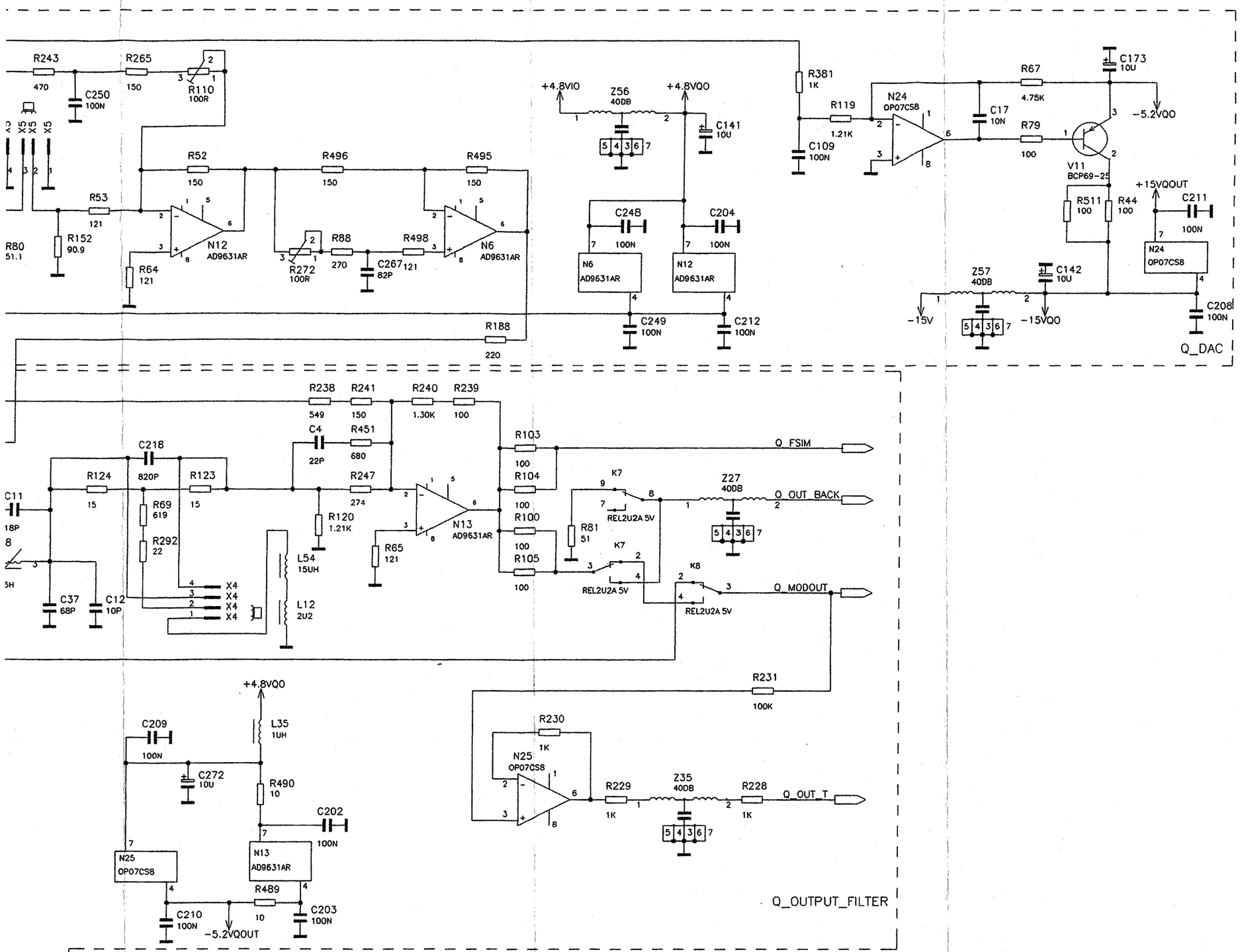
BENENNUNG
FADING_SIMULATOR
*
TOP/CLOCK_DIS_5/CLOCK_DIS.1

ZEICHN.-NR. 1085.4060.01 S

BLATT-NR. 9 +

REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

BEHALTEN WIR UNS ALLE RECHTE VOR



* = not fitted

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ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

	1ESK	DATUM	NAME
	BEARB.		PA
	GEPR.		PA
	NORM		
	PLOTT	98-03-12	PASHA

ZU GERAET SMIQ

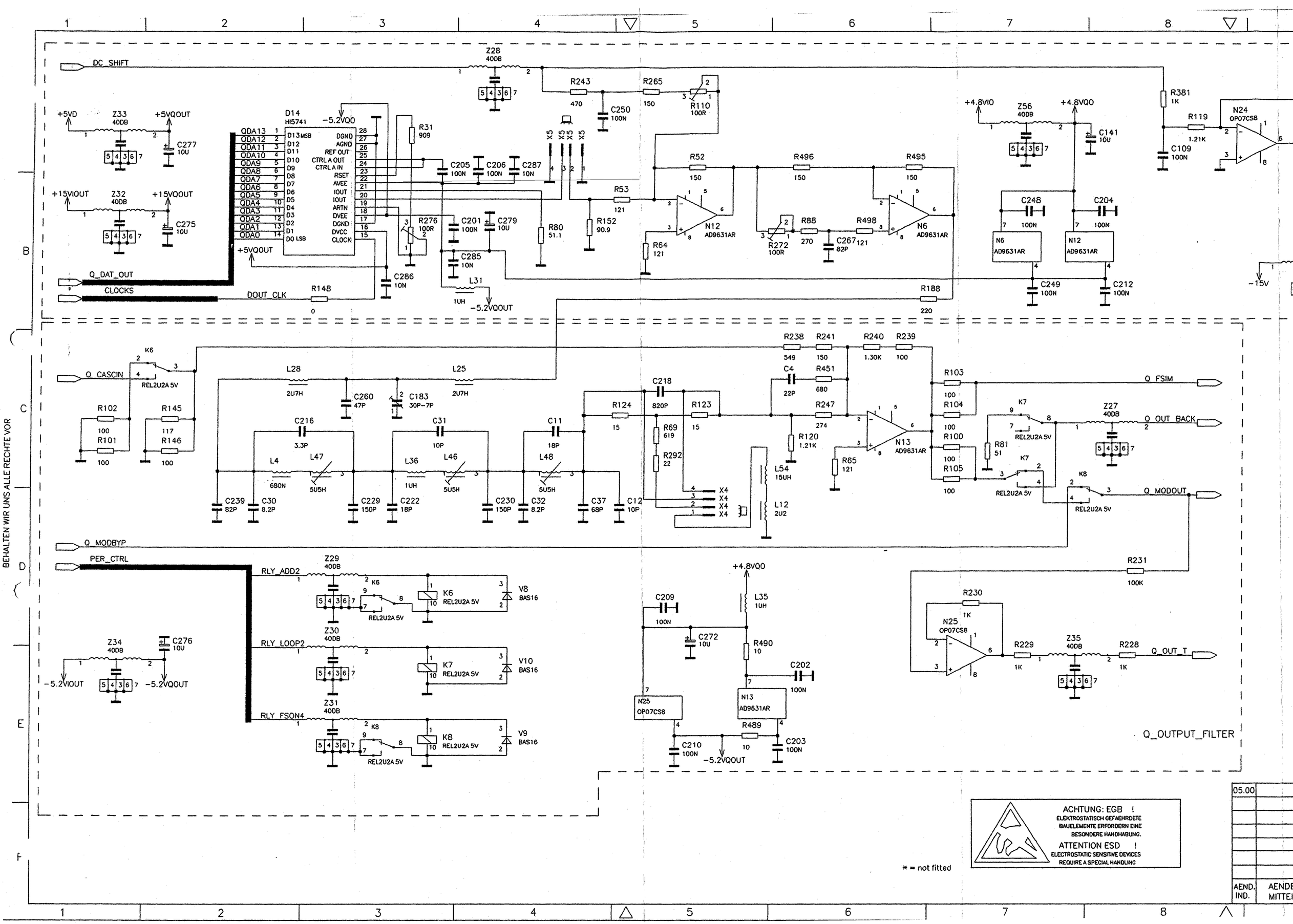
BENENNUNG
FADING_SIMULATOR
*
TOP/Q_OUTPUT_9/Q_OUTPUT.1

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.4060.01 S

BLATT-NR. 10 +

REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00


DC_SHIFT
Z28 40DB
R243 470
C250 100N
R265 150
R110 100R
+5VD
Z33 40DB
+5VQOUT
C277 10U
+15VIOUT
Z32 40DB
+15VQOUT
C275 10U
D14 HI5741
-5.2VQO
QDA13 QDA12 QDA11 QDA10 QDA9 QDA8 QDA7 QDA6 QDA5 QDA4 QDA3 QDA2 QDA1 QDA0
D13 MSB D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0 LSB
DGND AGND REF OUT CTRL A OUT CTRL A IN RSET AVEE IOUT IOUT ARTN DVEE DGND DVCC CLOCK
R31 909
C205 100N
C206 100N
C287 10N
X5
R53 121
R80 51.1
R152 90.9
R276 100R
C201 100N
C279 10U
C285 10N
L31 1UH
-5.2VQOUT
+5VQOUT
C286 10N
R148 0
Q_DAT_OUT
CLOCKS
DOUT_CLK
R52 150
R496 150
R495 150
N12 AD9631AR
R64 121
R272 100R
R88 270
C267 82P
R498
N6 AD9631AR
R188 220
+4.8VIO
Z56 40DB
+4.8VQO
C141 10U
R381 1K
R119 1.21K
N24 OP07CS8
C109 100N
C248 100N
C204 100N
N6 AD9631AR
N12 AD9631AR
C249 100N
C212 100N
-15V
K6
Q_CASCIN
REL2U2A 5V
R102 100
R101 100
R145 117
R146 100
L28 2U7H
L25 2U7H
C260 47P
C183 30P-7P
C216 3.3P
C31 10P
C11 18P
L4 680N
L47 5U5H
L36 1UH
L46 5U5H
L48 5U5H
C239 82P
C30 8.2P
C229 150P
C222 18P
C230 150P
C32 8.2P
C37 68P
C12 10P
R124 15
C218 820P
R123 15
R69 619
R292 22
X4
L54 15UH
L12 2U2
R238 549
R241 150
R240 1.30K
R239 100
C4 22P
R451 680
R247 274
R120 1.21K
R65 121
N13 AD9631AR
R103 100
R104 100
R100 100
R105 100
Q_FSIM
K7
REL2U2A 5V
Z27 40DB
Q_OUT_BACK
R81 51
K8
Q_MODOUT
Q_MODBYP
PER_CTRL
RLY_ADD2
RLY_LOOP2
RLY_FSON4
Z29 40DB
Z30 40DB
Z31 40DB
V8 BAS16
V10 BAS16
V9 BAS16
Z34 40DB
C276 10U
-5.2VIOUT
-5.2VQOUT
+4.8VQO
C209 100N
L35 1UH
C272 10U
R490 10
C202 100N
N25 OP07CS8
N13 AD9631AR
R489 10
C210 100N
C203 100N
R231 100K
R230 1K
N25 OP07CS8
R229 1K
Z35 40DB
R228 1K
Q_OUT_T
Q_OUTPUT_FILTER
* = not fitted
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING
05.00
AEND. IND.
AENDERU MITTEILUI
BEHALTEN WIR UNS ALLE RECHTE VOR

D4 FADING ASIC

PCS
CLOCKS
HLDA34B
PER_CTRL
PD
IQ_OUT34
IQ_IN
DSP_CTRL
I_DAT_OUT
Q_DAT_OUT
PA
IQ_OUT56
RD_STATB
TEST_OUT

+5VD
R15 10K
R128
A3_CLK
R14 10K
R12 10K 33.2
R127
PHASE_I3
R13 10K 33.2
R11 10K

CS56B 31 CSB
59 TRISTATE
60 HOLDACK IN
56 CLK
RESETB 57 RESETB
58 PHASE I
HOLDB 62 HOLD
EN_FAD 63 EN FAD
PR_WB 32 R WB
PSTRBB 33 STRB
PD16 34 DATA0
PD17 35 DATA1
PD18 36 DATA2
PD19 37 DATA3
PD20 38 DATA4
PD21 39 DATA5
PD22 40 DATA6
PD23 41 DATA7
PD24 42 DATA8
PD25 43 DATA9
PD26 44 DATA10
PD27 45 DATA11
PD28 46 DATA12
PD29 47 DATA13
PD30 48 DATA14
PD31 49 DATA15
IQ034_0 180 IO CASC0
IQ034_1 181 IO CASC1
IQ034_2 182 IO CASC2
IQ034_3 183 IO CASC3
IQ034_4 184 IO CASC4
IQ034_5 185 IO CASC5
IQ034_6 186 IO CASC6
IQ034_7 187 IO CASC7
IQ034_8 188 IO CASC8
IQ034_9 189 IO CASC9
IQ034_10 190 IO CASC10
IQ034_11 191 IO CASC11
IQ034_12 192 IO CASC12
IQ034_13 193 IO CASC13
IQ034_14 194 IO CASC14
IQ034_15 195 IO CASC15
IQ034_16 196 IO CASC16
IQ_IN0 198 IO IN0
IQ_IN1 199 IO IN1
IQ_IN2 200 IO IN2
IQ_IN3 201 IO IN3
IQ_IN4 202 IO IN4
IQ_IN5 203 IO IN5
IQ_IN6 204 IO IN6
IQ_IN7 205 IO IN7
IQ_IN8 3 IO IN8
IQ_IN9 4 IO IN9
IQ_IN10 5 IO IN10
IQ_IN11 6 IO IN11

INTB 7 INT0B
SCAN_EN 30
HOLDACK OUT 61
IO OUT0 81 IQ056_0
IO OUT1 80 IQ056_1
IO OUT2 79 IQ056_2
IO OUT3 78 IQ056_3
IO OUT4 77 IQ056_4
IO OUT5 76 IQ056_5
IO OUT6 75 IQ056_6
IO OUT7 74 IQ056_7
IO OUT8 73 IQ056_8
IO OUT9 72 IQ056_9
IO OUT10 71 IQ056_10
IO OUT11 70 IQ056_11
IO OUT12 69 IQ056_12
IO OUT13 68 IQ056_13
IO OUT14 67 IQ056_14
IO OUT15 66 IQ056_15
IO OUT16 65 IQ056_16

R16 1K
R10 10K
R17 10K 55

ADR0 8 PA0
ADR1 9 PA1
ADR2 10 PA2
ADR3 11 PA3
ADR4 12 PA4
ADR5 13 PA5
ADR6 14 PA6
ADR7 15 PA7
ADR8 16 PA8
ADR9 17 PA9
ADR10 18 PA10
ADR11 19 PA11
ADR12 20 PA12
ADR13 21 PA13
ADR14 22 PA14
ADR15 23 PA15
ADR16 24 PA16
ADR17 25 PA17
ADR18 26 PA18
ADR19 27 PA19

D7 74ACT377SC: PHASE_I, DOUT_CLK, IQ056_3..9 → IDA0..IDA6
D8 74ACT377SC: PHASE_Q, DOUT_CLK, IQ056_3..9 → IDA0..IDA6
D10 74ACT377SC: IQ056_10..16 → IDA7..IDA13
D11 74ACT377SC: PHASE_Q, DOUT_CLK → IDA7..IDA13
D1 74ACT573M: IQ056_1..8 → PD16..PD23
D2 74ACT573M: IQ056_9..16 → PD24..PD31
D9 74ACT377SC: PHASE_Q, DOUT_CLK, IQ056_3..9 → QDA0..QDA6
D12 74ACT377SC: PHASE_Q, DOUT_CLK, IQ056_10..16 → QDA7..QDA13

+5VD
D9 74ACT377SC C64 100N
D12 74ACT377SC C65 100N
D11 74ACT377SC C66 100N
D10 74ACT377SC C67 100N
D7 74ACT377SC C68 100N
D8 74ACT377SC C69 100N
D1 74ACT573M C70 10N
D2 74ACT573M C71 10N

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

	DATUM	NAME
1ESK		
BEARB.		PA
GEPR.		
NORM		
PLOTT	98-03-12	PA PASHA

BENENNUNG: FADING_SIMULATOR
*
TOP/FAD_PATH_56_12/FAD_PATH_56.1

ROHDE&SCHWARZ
ZEICHN.-NR. 1085.4060.01 S
BLATT-NR. 11 +
ZU GERAET SMIQ
REG.I.V. 1085.4002
ERSTE Z. 1085.4002.00

BEHALTEN WIR UNS ALLE RECHTE VOR

BEHALTEN WIR UNS ALLE RECHTE VOR

R5ADR

R5DAT

R6ADR

R6DAT

D27
MCM6306DJ-15

D28
MCM6306DJ-15

D29
MCM6306DJ-15

D26
MCM6306DJ-15

D25
MCM6306DJ-15

D30
MCM6306DJ-15

D4
FADING ASIC

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

+5VD

C77 100N
C76 100N
C74 100N
C72 100N
C82 100N
C79 100N
C80 100N
C81 100N

+3.3V

D4
FADING ASIC
1 2 29 28 53 54 64 82 105 129 157 158 178 179 197 207 50 107

+3.3V

C85 100N
C86 100N
C87 100N
C88 100N
C89 100N
C90 100N

05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			TOP/FAD_PATH_56_12/FAD_PATH_56.2
				PLOTT	98-03-12	PA PASHA	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SMIQ		REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

BLATT-NR. 12 +

BEHALTEN WIR UNS ALLE RECHTE VOR

D5
FADING ASIC

PCS

CLOCKS

HLDA12B

PER_CTRL

PD

IQ_OUT12

IQ_IN

DSP_CTRL

HLDA34B

IQ_OUT34

PA

+5VD

R24 10K

R129 33.2

A2_CLK

R23 10K

R21 10K

R130 33.2

PHASE_I2

R22 10K

R19 10K

CS34B	31	CSB
	59	TRISTATE
	60	HOLDACK IN
	56	CLK
RESETB	57	RESETB
	58	PHASE I
HOLDB	62	HOLD
EN_FAD	63	EN FAD
PR_WB	32	R WB
PSTRBB	33	STRB
PD16	34	DATA0
PD17	35	DATA1
PD18	36	DATA2
PD19	37	DATA3
PD20	38	DATA4
PD21	39	DATA5
PD22	40	DATA6
PD23	41	DATA7
PD24	42	DATA8
PD25	43	DATA9
PD26	44	DATA10
PD27	45	DATA11
PD28	46	DATA12
PD29	47	DATA13
PD30	48	DATA14
PD31	49	DATA15
IQ012_0	180	IQ CASC0
IQ012_1	181	IQ CASC1
IQ012_2	182	IQ CASC2
IQ012_3	183	IQ CASC3
IQ012_4	184	IQ CASC4
IQ012_5	185	IQ CASC5
IQ012_6	186	IQ CASC6
IQ012_7	187	IQ CASC7
IQ012_8	188	IQ CASC8
IQ012_9	189	IQ CASC9
IQ012_10	190	IQ CASC10
IQ012_11	191	IQ CASC11
IQ012_12	192	IQ CASC12
IQ012_13	193	IQ CASC13
IQ012_14	194	IQ CASC14
IQ012_15	195	IQ CASC15
IQ012_16	196	IQ CASC16
IQ_IN0	198	IQ IN0
IQ_IN1	199	IQ IN1
IQ_IN2	200	IQ IN2
IQ_IN3	201	IQ IN3
IQ_IN4	202	IQ IN4
IQ_IN5	203	IQ IN5
IQ_IN6	204	IQ IN6
IQ_IN7	205	IQ IN7
IQ_IN8	3	IQ IN8
IQ_IN9	4	IQ IN9
IQ_IN10	5	IQ IN10
IQ_IN11	6	IQ IN11

INTB	7	INT0B
SCAN_EN	30	
HOLDACK OUT	61	
IQ OUT0	81	IQ034_0
IQ OUT1	80	IQ034_1
IQ OUT2	79	IQ034_2
IQ OUT3	78	IQ034_3
IQ OUT4	77	IQ034_4
IQ OUT5	76	IQ034_5
IQ OUT6	75	IQ034_6
IQ OUT7	74	IQ034_7
IQ OUT8	73	IQ034_8
IQ OUT9	72	IQ034_9
IQ OUT10	71	IQ034_10
IQ OUT11	70	IQ034_11
IQ OUT12	69	IQ034_12
IQ OUT13	68	IQ034_13
IQ OUT14	67	IQ034_14
IQ OUT15	66	IQ034_15
IQ OUT16	65	IQ034_16

R18 1K

ADR0	8	PA0
ADR1	9	PA1
ADR2	10	PA2
ADR3	11	PA3
ADR4	12	PA4
ADR5	13	PA5
ADR6	14	PA6
ADR7	15	PA7
ADR8	16	PA8
ADR9	17	PA9
ADR10	18	PA10
ADR11	19	PA11
ADR12	20	PA12
ADR13	21	PA13
ADR14	22	PA14
ADR15	23	PA15
ADR16	24	PA16
ADR17	25	PA17
ADR18	26	PA18
ADR19	27	PA19

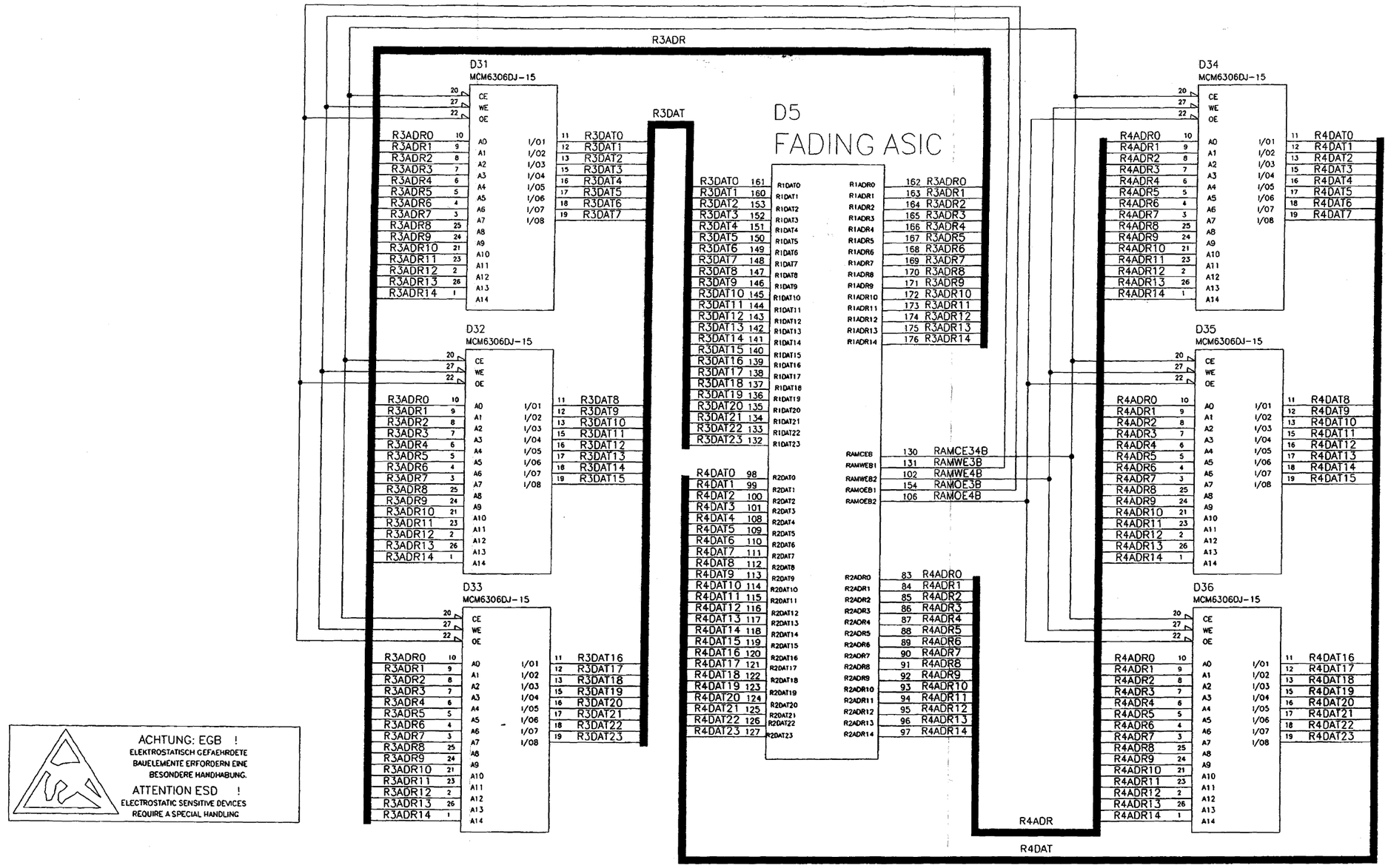
TEST_OUT 55 R20 10K

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

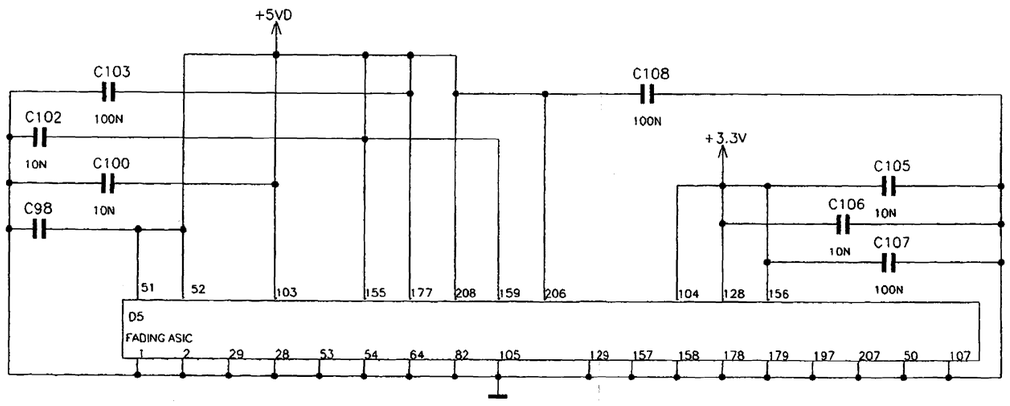
05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			
				PLOTT	98-03-12	PA PASHA	TOP/FAD_PATH_34_14/FAD_PATH_34.1
							ZEICHN.-NR. 1085.4060.01 S
				ROHDE&SCHWARZ			BLATT-NR. 13 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

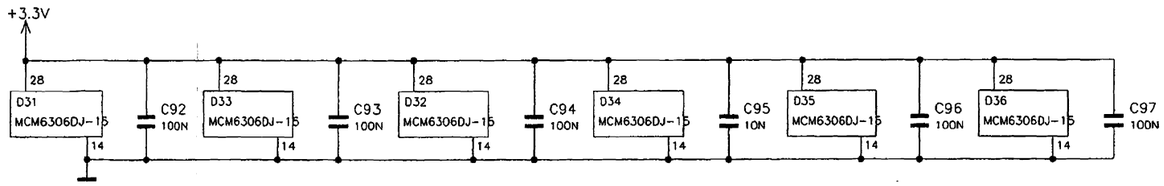
1 2 3 4 5 6 7 8

BEHALTEN WIR UNS ALLE RECHTE VOR



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING





05.00				1ESK	DATUM	NAME	BENNENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			TOP/FAD_PATH_34_14/FAD_PATH_34.2
				PLOTT	98-03-12	PA PASHA	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SMIQ		REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

BLATT-NR. 14 +

BEHALTEN WIR UNS ALLE RECHTE VOR

D3 FADING ASIC

CLOCKS

IQ_DIN

PD

PCS

PER_CTRL

DSP_CTRL

IQ_IN

D39 74ACT574M

A_CLK

IQ_DIN11 IQ_DIN10 IQ_DIN9 IQ_DIN8 IQ_DIN7 IQ_DIN6

IQ_IN11 IQ_IN10 IQ_IN9 IQ_IN8 IQ_IN7 IQ_IN6

R208 1K

D92 74HCT14T

D40 74ACT574M

IQ_DIN5 IQ_DIN4 IQ_DIN3 IQ_DIN2 IQ_DIN1 IQ_DIN0

IQ_IN5 IQ_IN4 IQ_IN3 IQ_IN2 IQ_IN1 IQ_IN0

R209 1K

D15 74HCT574T

IQ-IN_TESTB

PD31 PD30 PD29 PD28 PD27 PD26

IQ_IN11 IQ_IN10 IQ_IN9 IQ_IN8 IQ_IN7 IQ_IN6

D16 74HCT574T

PD25 PD24 PD23 PD22 PD21 PD20

IQ_IN5 IQ_IN4 IQ_IN3 IQ_IN2 IQ_IN1 IQ_IN0

D6 74F32D

PR_WB

CSCSB

PSTRBB

A1_CLK R125 33.2

PHASE_I1 R126 33.2

+5VD R4 10K R5 10K R6 10K R7 10K R8 10K

R191 1K R192 1K R193 1K R194 1K R195 1K R196 1K R197 1K R198 1K R199 1K R200 1K R201 1K R202 1K R203 1K R204 1K R205 1K R206 1K R207 1K

CS12B HOLDAB RESETB HOLDB EN_FAD PR_WB PSTRBB PD16 PD17 PD18 PD19 PD20 PD21 PD22 PD23 PD24 PD25 PD26 PD27 PD28 PD29 PD30 PD31

CSB TRISTATE HOLDACK IN CLK RESETB PHASE I HOLD EN FAD R WB STRB DATA0 DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7 DATA8 DATA9 DATA10 DATA11 DATA12 DATA13 DATA14 DATA15

IQ CASC0 IQ CASC1 IQ CASC2 IQ CASC3 IQ CASC4 IQ CASC5 IQ CASC6 IQ CASC7 IQ CASC8 IQ CASC9 IQ CASC10 IQ CASC11 IQ CASC12 IQ CASC13 IQ CASC14 IQ CASC15 IQ CASC16

IQ_IN0 IQ_IN1 IQ_IN2 IQ_IN3 IQ_IN4 IQ_IN5 IQ_IN6 IQ_IN7 IQ_IN8 IQ_IN9 IQ_IN10 IQ_IN11

IQ IN0 IQ IN1 IQ IN2 IQ IN3 IQ IN4 IQ IN5 IQ IN6 IQ IN7 IQ IN8 IQ IN9 IQ IN10 IQ IN11

+5VD R479 1K

INTB SCAN_EN HOLDACK OUT IQ OUT0 IQ OUT1 IQ OUT2 IQ OUT3 IQ OUT4 IQ OUT5 IQ OUT6 IQ OUT7 IQ OUT8 IQ OUT9 IQ OUT10 IQ OUT11 IQ OUT12 IQ OUT13 IQ OUT14 IQ OUT15 IQ OUT16

INTOB IQQ12_0 IQQ12_1 IQQ12_2 IQQ12_3 IQQ12_4 IQQ12_5 IQQ12_6 IQQ12_7 IQQ12_8 IQQ12_9 IQQ12_10 IQQ12_11 IQQ12_12 IQQ12_13 IQQ12_14 IQQ12_15 IQQ12_16

HLDA12B

R3 1K

IQ_OUT12

PA

ADR0 ADR1 ADR2 ADR3 ADR4 ADR5 ADR6 ADR7 ADR8 ADR9 ADR10 ADR11 ADR12 ADR13 ADR14 ADR15 ADR16 ADR17 ADR18 ADR19

PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7 PA8 PA9 PA10 PA11 PA12 PA13 PA14 PA15 PA16 PA17 PA18 PA19

TEST_OUT 55 R9 10K

+5VD

D39 74ACT574M 20 10 C40 10N

D40 74ACT574M 20 10 C41 10N

D15 74HCT574T 20 10 C42 100N

D16 74HCT574T 20 10 C43 100N

D6 74F32D 14 7 C44 100N

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			
				PLOTT	98-03-12	PA PASHA	TOP/FAD_PATH_12_11/FAD_PATH_12.1
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S
				ZU GERAET SMIQ			REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

BLATT-NR. 15 +

1 2 3 4 5 6 7 8

BEHALTEN WIR UNS ALLE RECHTE VOR

R1ADR

R1DAT

R2ADR

R2DAT

D20
MCM6306DJ-15

D21
MCM6306DJ-15

D22
MCM6306DJ-15

D23
MCM6306DJ-15

D24
MCM6306DJ-15

D19
MCM6306DJ-15

D3
FADING ASIC

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

+5VD

+3.3V

C55 100N
C54 100N
C51 100N
C49 100N
C60 100N
C56 100N
C57 100N
C58 100N

D3
FADING ASIC

C62 100N
C63 100N
C45 100N
C46 100N
C47 100N
C48 100N

05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			TOP/FAD_PATH_12_11/FAD_PATH_12.2
				PLOTT	98-03-12	PA PASHA	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			BLATT-NR. 16 +
							REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

5 6 7 8 9 10 11 12

A B C D E F

I_MODBYP
I_NEXT
ADC_CLK
IENB

+15VIIN R508 0 R505 825 R507 0 R39 1K R503 82.5 N15 LT1124CS8 +5VIAD
10V_REF R296 7.5K 2.41VIQ R312 R311 2.2K 1K R399 182 C21 100N R106 1.21K
+5VD Z3 40DB +5VIIN L6 C224 10U 1UH
N15 LT1124CS8 C143 100N R72 100 V12 BC850B C14 1N R87 1.21K +4.8VII C232 10U
R135 33.2
Z7 40DB
R34 150 R33 150 X6 X6
R210 270 R40 121 N3 AD9631AR R83 100 R84 100 C207 82P R179 220
V19 BC850B R1 511 C200 100N R37 470 R38 470
+1.7VI V17 BAS16 R134 0 ADC_CLK C73 100N
D17 AD9042AST (MSB) D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 (LSB) D0
ENC ENC AIN VOFF 2.4V C1 N/C
R149 560 R153 560 R154 560 R155 560 R156 560 R157 560 R158 560 R159 560 R160 560 R161 560 R162 560 R163 560
D41 74ACT574M EN C1 1D
D42 74ACT574M EN C1 1D
R212 22.1 IQ_DIN11
R213 22.1 IQ_DIN10
R214 22.1 IQ_DIN9
R215 22.1 IQ_DIN8
R218 22.1 IQ_DIN7
R219 22.1 IQ_DIN6
R220 22.1 IQ_DIN5
R232 22.1 IQ_DIN4
R244 22.1 IQ_DIN3
R267 22.1 IQ_DIN2
R268 22.1 IQ_DIN1
R269 22.1 IQ_DIN0
IQ_DIN
R182 1K R183 1K
R447 680 C1 22P R185 470 R482 15 R464 100R R211 270 R107 1.21K N2 AD9631AR R57 121
C34 56P
L5 1UH C6 27P R384 182 R35 68 X7 X7 X7 X7
R177 51 C247 10N C84 100N
+5VD D41 74ACT574M 20 10 C144 100N D42 74ACT574M 20 10 C145 100N
+4.8VII
+5VQAD Z6 40DB +5VIAD C116 10U
C83 100N C75 100N C78 100N C101 100N C99 100N C91 100N
D17 AD9042AST
R137 10 C120 100N N15 LT1124CS8 C124 100N R138 10
R139 10 C25 100N N5 REF01CS 10V_REF C29 100N
I_ADC

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

* = not fitted

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.00			

1ESK	DATUM	NAME	BENNENNUNG
BEARB.		PA	FADING_SIMULATOR
GEPR.			*
NORM			TOP/I_INPUT_6/I_INPUT.1
PLOTT	98-03-12	PA PASHA	

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.4060.01 S

BLATT-NR. 17 +

ZU GERAET SMIQ | REG.I.V. 1085.4002 | ERSTE Z. 1085.4002.00

CLOCKS

I_INPUT_FILTER

I_MODIN
K1
REL2U2A 5V
K1
REL2U2A 5V
X9 X9
R58 3.32
X8 X8
R436 3.32
R48 182
R136 68
I_OUT_BACK
Z1 40DB
R32 150
R29 150
N1 AD9631AR
R55 121
R54 47
R401 10
R270 20R
Z7 40DB
R34 150
R33 150
R210 270
R300 100R
C207 82P
R40 121
N3 AD9631AR
X6 X6
R83 100
R84 100
R179 220
L16 2U7H
C251 47P
C136 30P-7P
L17 2U7H
C150 3.3P
C20 10P
C5 18P
L1
L19 5U5H
L14 1UH
L37 5U5H
L38 5U5H
680N
C219 82P
C18 8.2P
C152 150P
C151 18P
C191 150P
C19 8.2P
C34 56P
R447 680
C1 22P
R185 470
R482 15
R464 100R
R211 270
R107 1.21K
N2 AD9631AR
R57 121
L5 1UH
C6 27P
R384 182
R35 68
X7 X7 X7 X7
R177 51
C247 10N
C84 100N
+15VIIN
R505 825
R508 0
R507 0
R39 1K
R503 82.5
N15 LT1124CS8
+5VIAD
R1 511
C200 100N
R37 470
V19 BC850B
R38 470
+1.7VI
V17 BAS16
ADC_CLK
R134 0
D17 AD9042AST
(MSB) D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 (LSB) D0
ENC ENC AIN VOFF 2.4V C1 N/C
C73 100N
10V_REF
R296 7.5K
2.41VIQ
R312 1K
R311 2.2K
R399 182
C21 100N
+5VD
Z3 40DB
+5VIIN
C224 10U
N15 LT1124CS8
R72 100
C14 1N
R87 1.21K
R106 1.21K
R149 560
R153 560
R154 560
R155 560
R156 560
R157 560
R158 560
R159 560
R160 560
R161 560
R162 560
R163 560

PER_CTRL
RLY_FSON1
Z5 40DB
K1 REL2U2A 5V
V3 BAS16

L15 1UH
C233 10U
R74 10
C139 100N
R82 10
C138 100N
R90 10
C137 100N
+4.8VII
N3 AD9631AR
N1 AD9631AR
N2 AD9631AR
C135 100N
R132 10
C134 100N
R112 10
C133 100N
R91 10
-5.2VIIN
-5.2VIIN
-5.2VIIN

+15VOIN
Z2 40DB
+15VIIN
C231 10U
Z4 40DB
C223 10U
-5.2VOIN
-5.2VIIN
L18 1UH
C246 10U

R137 10
C120 100N
N15 LT1124CS8
C124 100N
R138 10
R139 10
C25 100N
N5 REF01CS
10V_REF
C29 100N

+5VQAD
Z6 40DB
+5VIAD
C116 10U
C83 100N
C75 100N
C78 100N
C101 100N
C99 100N
C91 100N
D17 AD9042AST

05.00

AEND. IND.
AENDER MITTEIL

BEHALTEN WIR UNS ALLE RECHTE VOR

Q_MODBYP
Q_NEXT
IQDC_SHIFT
ADC_CLK
QENB

+15VQIN
R510 0
R506 825
R509 0
R41 1K
R504 82.5
N16 LT1124CS8
+5VQAD
Z16 40DB
R46 150
R49 150
N9 AD9631AR
R233 270
R309 121
C236 82P
R92 100
R93 100
R186 220
X11 X11
R2 511
C213 100N
R47 470
V20 BC850B
R45 470
+1.7VQ
V18 BAS16
R140 0
ADC_CLK
C149 100N
D18 AD9042AST
(MSB) D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 (LSB) D0
ENC ENC AIN VOFF 2.4V C1 N/C

R181
N19 OP07CS8 1K
Z17 40DB
+7.5VQIN
L9 2U2
C172 100N
2.41VIQ
R499 1K
C258 100N
N16 LT1124CS8
R75 100
V13 BCP68-16
R377 1K
C33 100N
C15 1N
R108 1.3K
+5VQAD
C256 10U
R114 1.21K

R141 33.2
D43 74ACT574M
EN C1
1D

R176 R175 R174 R173 R172 R171 560
R165 R166 R167 R168 R169 R170 560

R289 IQ_DIN11
R288 22.1 IQ_DIN10
R287 22.1 IQ_DIN9
R286 22.1 IQ_DIN8
R282 22.1 IQ_DIN7
R283 22.1 IQ_DIN6
R284 22.1 IQ_DIN5
R285 22.1 IQ_DIN4
R279 22.1 IQ_DIN3
R280 22.1 IQ_DIN2
R281 22.1 IQ_DIN1
R290 22.1 IQ_DIN0
IQ_DIN

R222 1K
D44 74ACT574M
R223 1K
+5VD
D43 74ACT574M
C174 100N
D44 74ACT574M
C176 100N

R448 680
C2 22P
R221 470
R178 15
R465 100R
R245 270
C35 56P
R113 1.21K
N8 AD9631AR
R59 121
L8 1UH
C8 27P
R404 182
R36 68
R184 51
C281 10N
C165 100N

R147 10
R144 10
C186 100N
C153 100N
N19 OP07CS8
N16 LT1124CS8
C185 100N
C154 100N
R189 10
R180 10

+5VQAD
C146 100N
C148 100N
C147 100N
C157 100N
C155 100N
C156 100N
D18 AD9042AST

Q_ADC

* = not fitted

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

05.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	FADING_SIMULATOR
				GEPR.			*
				NORM			
				PLOTT	98-03-12	PA PASHA	TOP/Q_INPUT_7/Q_INPUT.1
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 S
				ZU GERAET SMIQ			REG.I.V. 1085.4002 ERSTE Z. 1085.4002.00

BLATT-NR. 18 -

CLOCKS

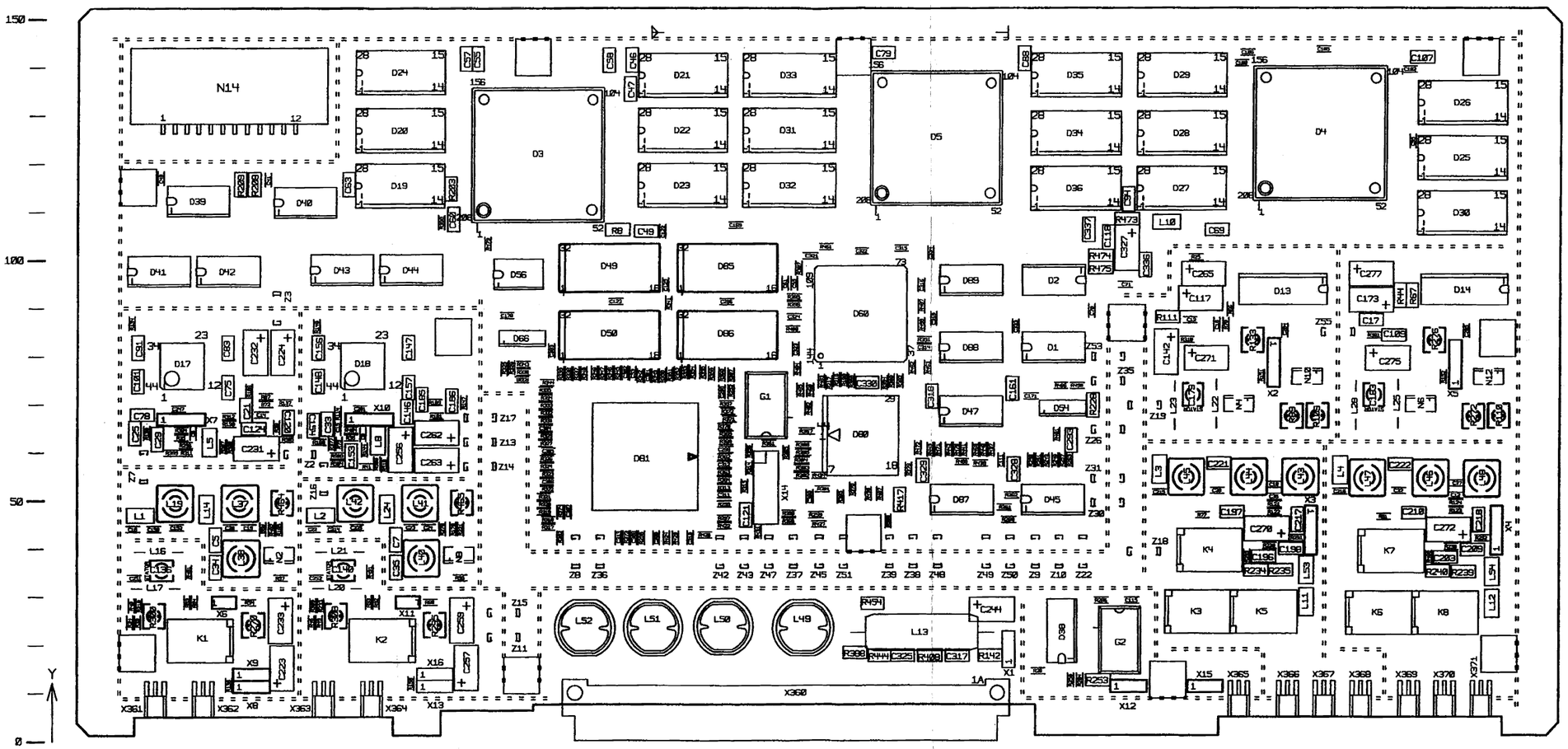
Q_INPUT_FILTER

Q_MODIN
REL2U2A 5V
REL2U2A 5V
Q_OUT_BACK
Z11 40DB
R85 3.32
R445 3.32
R56 182
R150 68
R43 150
R42 150
R61 121
N7 AD9631AR
R295 20R
R60 47
R491 10
R46 150
R49 150
R308 100R
R233 270
C236 82P
R309 121
N9 AD9631AR
Z16 40DB
R92 100
R93 100
L21 2U7H
C252 47P
C140 30P-7P
L20 2U7H
R186 220
C214 3.3P
C23 10P
C7 18P
L2 680N
L42 5U5H
L24 1UH
L41 5U5H
L40 5U5H
C235 82P
C22 8.2P
C225 150P
C220 18P
C226 150P
C24 8.2P
C35 56P
R448 680
C2 22P
R221 470
R178 15
R465 100R
R245 270
R113 1.21K
N8 AD9631AR
R59 121
L8 1UH
R504 82.5
+15VQIN
R510 0
R506 825
R41 1K
R509 0
N16 LT1124CS8
+5VQAD
R2 511
V20 BC850B
C213 100N
R47 470
R45 470
+1.7VQ
V18 BAS16
D18 AD9042AST
ADC_CLK
R140 0
C149 100N
C8 27P
R404 182
R36 68
R184 51
C281 10N
C165 100N
R181 1K
N19 OP07CS8
Z17 40DB
2.41VIQ
R499 1K
C258 100N
R377 1K
C33 100N
R75 100
C15 1N
R114 1.21K
R108 1.3K
BCP68-1
R176 560
R175 560
R174 560
R173 560
R172 560
R171 560
R165 560
R166 560
R167 560
R168 560
R169 560
R170 560
PER_CTRL
RLY_FSON2
Z12 40DB
K2 REL2U2A 5V
V4 BAS16
+4.8VII
Z54 40DB
C259 10U
+15V
Z13 40DB
+15VQIN
C263 10U
+7.5V
Z14 40DB
+7.5VQIN
Z15 40DB
C257 10U
-5.2V
-5.2VQIN
L7 1UH
C262 10U
R278 10
R277 10
R275 10
C177 100N
C178 100N
C180 100N
N8 AD9631AR
N7 AD9631AR
N9 AD9631AR
C181 100N
C182 100N
C184 100N
R274 10
R273 10
R271 10
R147 10
R144 10
C186 100N
C153 100N
N19 OP07CS8
N16 LT1124CS8
C185 100N
C154 100N
R189 10
R180 10
+5VQAD
C146 100N
C148 100N
C147 100N
C157 100N
C155 100N
C156 100N
D18 AD9042AST

05.00

AEND. IND.
AENDE MITTEIL

BEHALTEN WIR UNS ALLE RECHTE VOR



DARSTELLUNG SEITE B
VIEW ON SIDE B

ACHTUNG! ESDI
ELEKTROSTATISCH GEFÄHRDETE BAUELEMENTE VORHANDEN. BESONDERE HANDHABUNG.
ATTENTION ESDI
ELECTROSTATIC SENSITIVE DEVICES PRESENT. SPECIAL HANDLING.

ÄNDERUNGEN UNSERER WARENZEICHEN, TYPENNORM., BAUTEILWERTE UND NICHT BESTÜCKTE BAUTEILE SIEHE SA.

FOR REMARKS INFORMATION ON MODELS, TYPEPINS AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

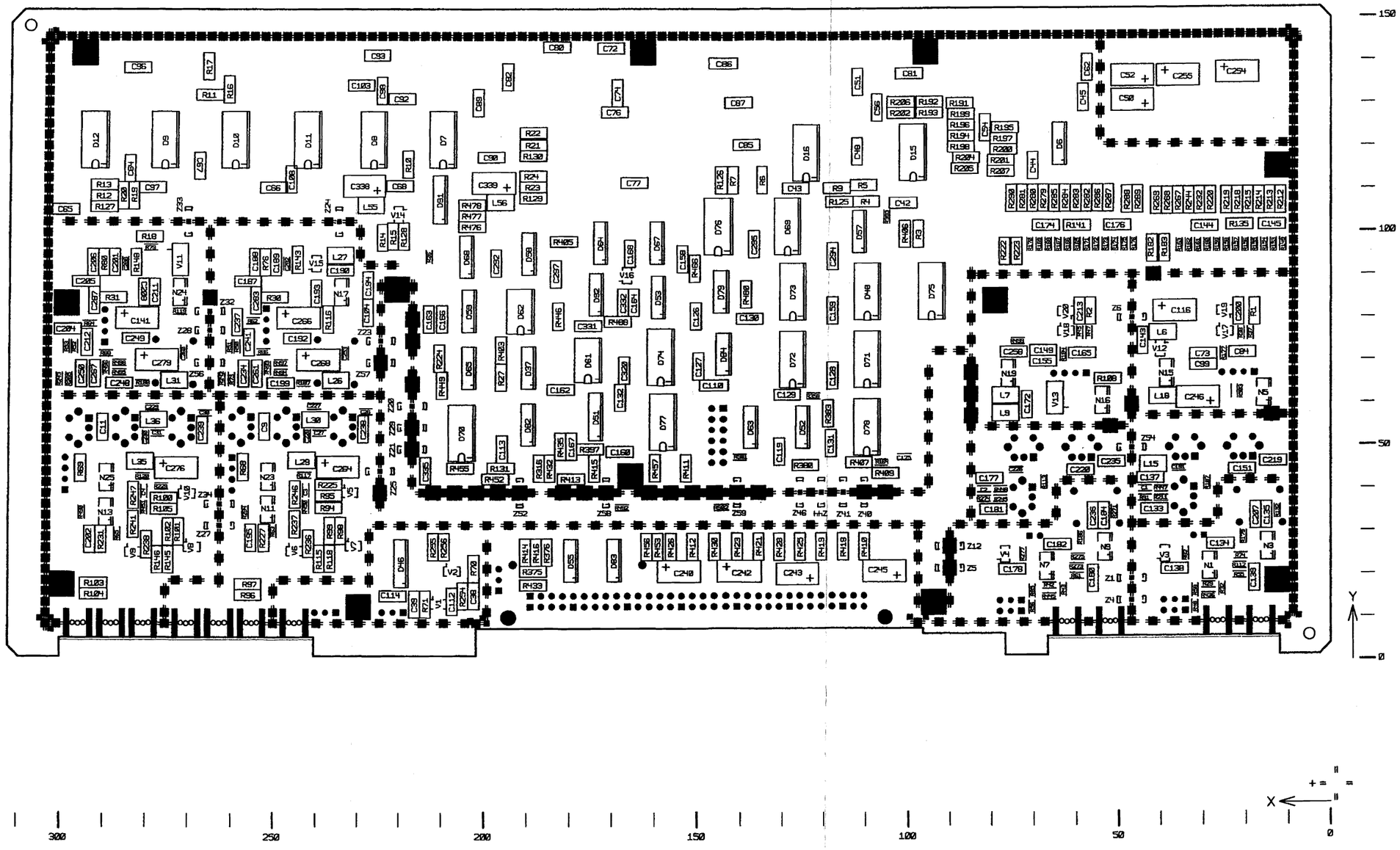
		10.12.98	PA	IESK	DATUM	NAME
				BEARB		PA
				GEPR.		PA
				NORM		
				PLOTT	21.01.97	PASHA
ÄND. IND.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ		

BENENNUNG: FADING_SIMULATOR

ZEICHN.-NR.: 1085.4060.01 D

BLATT-NR. 1+

AUCH DIESE UNTERLAGE BEHALTEN WIR UNS ALLE RECHTE VOR



DARSTELLUNG SEITE A
VIEW ON SIDE A

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ACHTUNG: ESD!
ELEKTROSTATISCH GEFÄHRDETE BAUELEMENTE ENTHALTEN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

ERSETZT ANGABEN LEERER VARIANTEN, TEILMONTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR REPLACING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NON-FITTED COMPONENTS SEE PARTS LIST.

03		18.12.96	PA	IESK	DATUM	NAME	BENENNUNG: FADING_SIMULATOR
				BEARB.		PA	*
				GEPR.		PA	
				NORM			
				PLOTT	21.01.97	PASHA	
ÄNDG. IND.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4060.01 D; BLATT-NR. 2; V.
				ZU GERÄT SMIQ			REPL.V. 1085.4002 ERSETZT 2. 1085.4002

ROHDE&SCHWARZ

SERVICEUNTERLAGEN

Option MODULATIONCODER

1085.5050.02

Inhaltsverzeichnis

7. Prüfen und Instandsetzen der Baugruppe 5
7.1 Funktionsbeschreibung 5
7.2 Servicekonzept 8
7.3 Meßgeräte und Hilfsmittel 8
7.4 Fehlersuche 8
7.4.1 Selbsttest 8
7.5 Prüfen und Abgleichen 11
7.5.1 Abfragen des Änderungszustandes 11
7.5.2 Steckbrücken 11
7.5.3 Diagnosepunkte 11
7.5.4 Abgleich der I-/Q-Ausgangspegel und Offsets 11
7.5.5 Abgleich des Powerramping-Ausgangspegels 12
7.5.6 Delay-Abbleich bei externem Takt 12
7.6 Zerlegung und Zusammenbau 12
7.7 Externe Schnittstellen 13

Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

Die Baugruppe MCOD enthält einen universellen Modulationscoder, der die digitalen Modulationsdaten in analoge I/Q-Signale umwandelt; die Aufbereitung des Powerramp Signals, eine Schnittstelle zum optionalen Datengenerator sowie einen Taktsynthesizer für den Bit- und Symbolclock sowie alle in der Baugruppe verwendeten Takte.

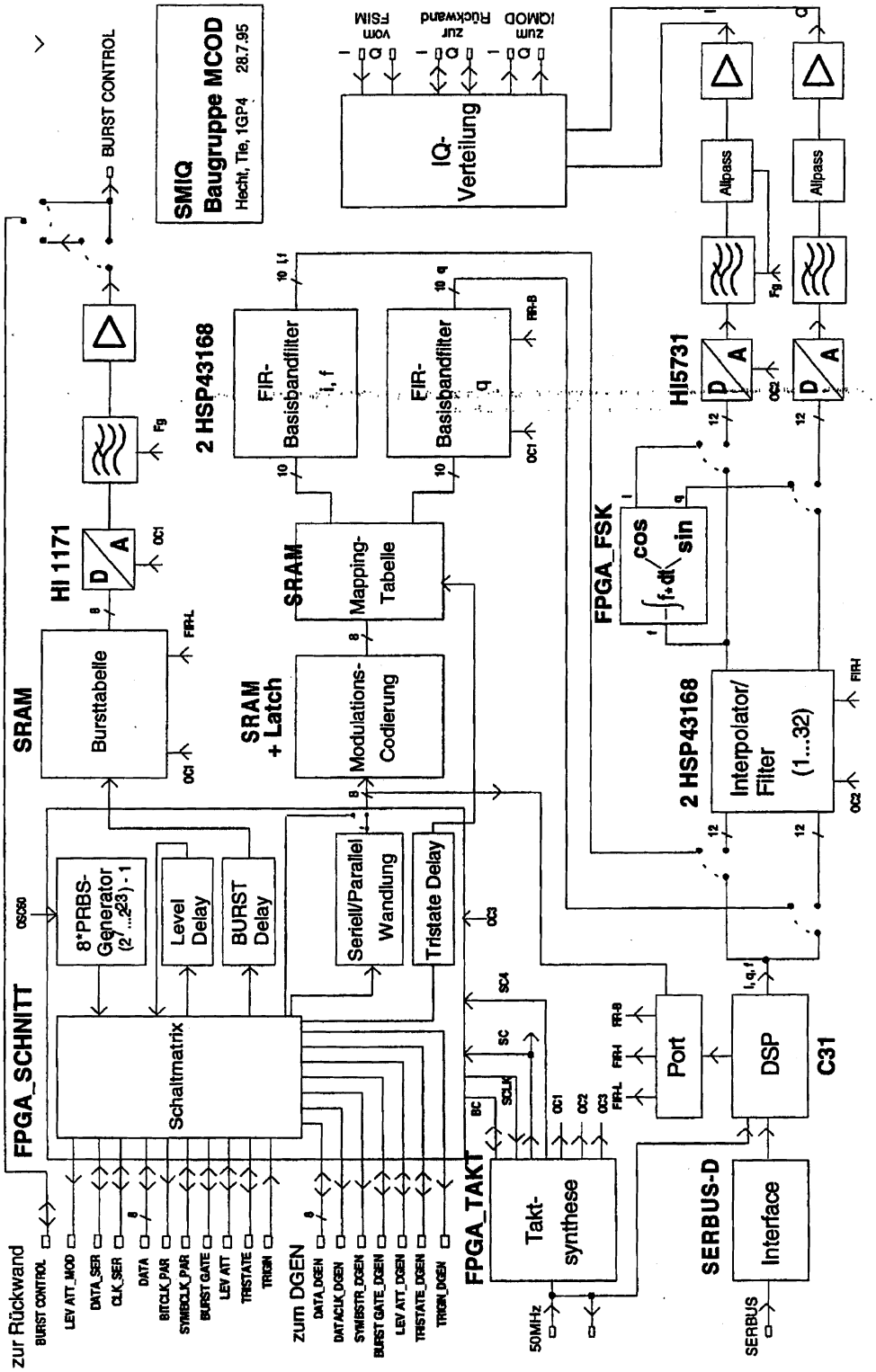
Der Modulationscoder kann serielle und parallele Daten verarbeiten, der Triggerpegel sowie der Eingangswiderstand ist einstellbar, sodaß TTL- und ECL-Signale benutzt werden können. Es können Symbolraten von 1k...7.5 MSymbole/s verarbeitet werden. Alle Schnittstellenfunktionen für die Modulationsdaten sind im FPGA SCHNITT_MCOD integriert.
Die gesamte Basisbandsignalerzeugung wird digital durchgeführt. Eine programmierbare Codierung sowie Mappingtabelle gestattet die Anpassung an die Modulationsverfahren PSK, QAM und FSK. Die Basisbandfilterung wird durch 2 FIR-Filter IC's durchgeführt, alle üblichen Filterungen sind einstellbar. Ein nachgeschaltetes Interpolatorfilter mit zwei weiteren FIR-Filter IC's erhöht im Bedarfsfall weiter die Abtastrate. Bei FSK-Modulation wandelt ein Frequenzintegrator (FSK_MCOD) mit Sinus- und Cosinustabelle das FM-Signal in I/Q-Signale um. Zwei D/A-Wandler wandeln die digitalen I/Q-Signale in analoge Signale um, nachfolgende Aliasingfilter unterdrücken die Wiederholspektren. Je nach Taktrate wird das „HIGH-FILTER" mit einer Grenzfrequenz von 8 MHz bzw. das „LOW-FILTER" mit 50 kHz Grenzfrequenz verwendet.

Das analoge POW RAMP-Signal, das durch das digitale BURST GATE Signal getriggert wird, steuert die Hüllkurve des Hf-Signals. Die Flanke dieses Signals ist im Powerramping-RAM abgespeichert, es wird durch einen Zähler addressiert, der von der Flanke des BURST GATE Signals getriggert wird. Die Kurvenform sowie die Anstiegszeit läßt sich einstellen. Das POWERRAMPING Signal kann nur in einem eingeschränktem Bereich der Symbolrate von 1k....2.5 MSymbole/s erzeugt werden.

Der Taktsynthesizer besteht aus einem VCO (195...390 MHz), zwei ECL-Vorteilern, sowie dem FPGA TAKT_MCOD als Hauptteiler und einer PLL-Regelschaltung mit drei Bandbreiten. Es ist Betrieb mit internem Takt sowie externem Bit- oder Symboltakt möglich. Bei internem Takt wird die 50 MHz als Referenz für die PLL benutzt, bei externen Takt wird direkt der eingespeiste Bit- oder Symboltakt verwendet. In dieser Betriebsart ändert sich außerdem die Regelbandbreite in Abhängigkeit von der eingespeisten Taktrate. Die Ansteuerung der FIR-Filter ist ebenfalls in TAKT_MCOD integriert.

Als einfache internen Datenquelle sind PRBS-Generatoren (2^9-1...2^23-1) sowie ein Patterngenerator (00, 01, 11) auf der Baugruppe integriert.

Der DSP berechnet aus den Vorgaben des Hostrechners alle Einstellparameter der Baugruppe wie die Filterkoeffizienten, die RAM-Werte für die Codierung, Mapping, Burstfilter sowie die Parameter der Taktsynthese.
Die Kommunikation mit der Rechner-Baugruppe (Host) erfolgt in serieller Weise über den SERBUS-D-Baustein.



Blockschaltbild MCOD

7.2 Servicekonzept

Die Baugruppe ist eine komplexe Hybridschaltung mit überwiegendem Digitalteil. Eine genaue Fehlerdiagnose auf Bauteilebene bzw. Instandsetzung ist daher in den Niederlassungen oder direkt beim Kunden nicht möglich. Eine als defekt erkannte Baugruppe muß durch eine Ersatzbaugruppe ersetzt werden. Die defekte Baugruppe ist der Fertigung zur genaueren Diagnose und Fehlerbehebung zu überlassen. Entsprechend ist dieses Dokument aufgebaut. Es soll den Servicetechniker in die Lage versetzen, eindeutig eine defekte Baugruppe zu erkennen.
Zur Unterstützung der Fertigung bei der Reparatur sollte mit der defekten Baugruppe auch eine Fehlerbeschreibung eingeschickt werden.

7.3 Meßgeräte und Hilfsmittel

- Zweikanal-Oszilloskop
- Rechteck- oder Pulsgenerator (4MHz)
- AC/DC-Voltmeter, R_i >1MOhm z.B. URE3

Die Meßgeräte werden im Abschn. 7.5 benötigt.

7.4 Fehlersuche

Bei Verdacht auf ein Fehlverhalten der Baugruppe ist zuerst der Selbstest aufzurufen.

➢ UTILITIES --> TEST --> **TEST MCOD**

7.4.1 Selbsttest

Der gesamte Selbsttest setzt sich aus mehreren Teilen zusammen, die nacheinander abgearbeitet werden. Tritt in einem der Selbsttest-Abschnitte ein Fehler auf, dann wird der Rest des Selbsttests nicht mehr bearbeitet, da jeder Selbsttest-Abschnitt den fehlerfreien Ablauf der vorhergehenden Abschnitte voraussetzt (z.B. ist es nicht sinnvoll, den Selbsttest der Takt-PLL anzustoßen, wenn nicht alle Versorgungsspannungen korrekt gemessen werden konnten).

Während des internen Selbsttests werden folgende Prüfungen durchgeführt:

Test der Versorgungsspannungen

Die analoge +5V- sowie -5V-Versorgung wird mit der Gerätediagnose nachgemessen.

Test der Takt-PLL

Die Abstimmspannung sowie der Ausgangspegel des Takt-VCO wird über den Abstimmbereich mit der Gerätediagnose gemessen. Mit diesem Test ist eine Prüfung der Funktion der Takt-PLL bei externem Takt nicht möglich.

Test des Codierungs-/Mapping-/SinCos-/Powerramping- RAM's

Dieser Test gliedert sich für jedes RAM in zwei Teile

1. Test der Datenleitungen:
   Eine Speicherzelle wird mit den Mustern 555555h und AAAAAAh beschrieben und wieder ausgelesen.
2. Test der Adressleitungen:
   - Die Speicherzelle mit der Adresse 1h wird mit dem Muster 555555h für belegt.
   - Alle restlichen Speicherzellen werden mit AAAAAAh beschrieben.
   - Anschließend wird die erste Speicherzelle wieder ausgelesen. Falls kein Adressierungsfehler vorliegt, muß ihr Inhalt unverändert sein.
   - Die drei Testschritte werden analog für die Adressen 2h, 4h ... (Walking One Address) wiederholt.

Test des i- und q-D/A's

Mit dem SinCos-RAM werden die Datenwörter 000h, 001h, 002h...800h an die D/A-Wandler angelegt und mit der Gerätediagnose die Ausgangsspannung nachgemessen.

Test des i- und q-Basisband FIR-Filters

Für diesen Test wird das Interpolatorfilter überbrückt. Der Test gliedert sich für beide Zweige in zwei Teile:

1. Test der Daten Ein- und Ausgänge
   Dazu werden mit dem Mapping-RAM die Datenwörter 000h, 001h, 002h...200h an die FIR-Filter angelegt. Die DC-Verstärkung des FIR-Filters wird dazu über die Koeffizienten auf 1 eingestellt. Mit der Gerätediagnose wird die Ausgangspannung des D/A-Wandlers nachgemessen.

2. Test der Filterkoeffizienten
   Die Filterkoeffizienten eines Symbols werden von 000h, 001h, 002h 200h eingestellt, das Eingangswort am FIR-Filter wird so angepaßt, das kein Zahlenüberlauf stattfindet. Mit der Gerätediagnose wird wieder die Ausgangsspannung des D/A-Wandlers nachgemessen.

Test des i- und q-Interpolator FIR-Filters

Dieser Test wird äquivalent zum i- und q-Basisbandfiltertest durchgeführt.

Test des Powerramping-D/A's

Mit dem Powerramping-RAM werden die Datenwörter 00h, 01h, 02h...80h an den D/A-Wandler angelegt und mit der Gerätediagnose die Ausgangsspannung nachgemessen.

Rückmeldungen des MCOD Selbsttests

Der interne Selbsttest liefert als Ergebnis folgende Fehler-Codes

Selbsttest Error Code	Beschreibung
00000000h	kein Fehler
00000100h	Versorgungsspannungsfehler +5VA
00000101h	Versorgungsspannungsfehler -5V
00000200h	Fehler Takt-PLL
000003xxh	Fehler Codierungs-RAM, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + A, für Fehler in Addressleitung, A = 00h ... 0Fh
000004xxh	Fehler Mapping-RAM, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + A, für Fehler in Addressleitung, A = 00h ... 0Fh
000005xxh	Fehler SinCos-RAM, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + A, für Fehler in Addressleitung, A = 00h ... 0Fh
000006xxh	Fehler i-D/A, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 0Bh
000007xxh	Fehler q-D/A, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 0Bh
000008xxh	Fehler i Basisband FIR-Filter, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + C, für Fehler in Koeffizient, C = 00h ... 09h
000009xxh	Fehler q Basisband FIR-Filter, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + C, für Fehler in Koeffizient, C = 00h ... 09h
00000Axxh	Fehler i Interpolator FIR-Filter, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + C, für Fehler in Koeffizient, C = 00h ... 09h
00000Bxxh	Fehler q Interpolator FIR-Filter, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 1Fh xx = 80h + C, für Fehler in Koeffizient, C = 00h ... 09h
000006xxh	Fehler Powerramping-D/A, xx = 00h + D, für Fehler in Datenleitung, D = 00h ... 07h

Anmerkung: Der interne Selbsttest wird abgebrochen, sobald ein Fehler erkannt wurde, d.h. die restlichen Prüfungen werden nicht mehr durchgeführt.

7.5 Prüfen und Abgleichen

7.5.1 Abfragen des Änderungszustandes

Unter **UTILITIES:DIAG:CONFIG** wird der Änderungszustand (REV) sowie die Variante (VAR) der Baugruppen angezeigt.

MCOD SMIQB10 VAR... REV...

7.5.2 Steckbrücken

P53 muß mit P54 verbunden sein.
P55 muß mit P56 verbunden sein.
P2 muß mit P3 verbunden sein.
P39 muß mit P40 verbunden sein.
P41 muß mit P42 verbunden sein.
P31 muß mit P32 verbunden sein.
P33 muß mit P34 verbunden sein.
P38 muß mit P20 verbunden sein.
P35 muß mit P36 verbunden sein.
P23 muß mit P24 verbunden sein.

7.5.3 Diagnosepunkte

UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP xxxx

Testpunkt	Beschreibung	Werteberech
TP 2200	Referenz 10kOhm	-0.01..0.01V
TP 2201	Abstimmspannung VCO Takt	0...18
TP 2202	Ausgang I	-1.1...1.1V
TP 2203	Ausgang Q	-1.1...1.1V
TP 2204	Ausgang Burst	0...1.1V
TP 2205	Pegel VCO Takt	0...0.5V
TP 2206	Versorgung +5VA	4.8...5.3V
TP 2207	Versorgung -5V	-5.3...-4.8V

7.5.4 Abgleich der I-/Q-Ausgangspegel und Offsets

- Einstellungen: **PRESET-Taste drücken**
  DIG.MOD :MODE:AUTO
  :SOURCE:SOURCE:PATTERN
  :SOURCE:PATTERN:00
  :MODULATION TYPE:GMSKK 2b/sym
  :MODULATION FSK DEVIATION:400kHz
  :SYMBOL RATE:siehe Tabelle
  :FILTER:FILTER PARAMETER:0.3

AC/DC-Voltmeter an die I- bzw. Q-Buchse anschließen und folgende Abgleiche durchführen

Buchse	Meßart	Abgleichpunkt	Spannung	Symbolrate
I	AC	R467	707 ± 2 mV	1.2Msym/s
I	DC	R204	0 ± 1 mV	"
Q	AC	R465	707 ± 2 mV	"
Q	DC	R205	0 ± 1 mV	"
I	AC	R199	707 ± 2 mV	10ksym/s
Q	AC	R200	707 ± 2 mV	"

Der Abgleich ist noch einmal zu wiederholen, da sich die Abgleiche teilweise geringfügig beeinflussen.

7.5.5 Abgleich des Powerramping-Ausgangspegels

- Einstellungen: **PRESET-Taste drücken**
  DIG.MOD :MODE:AUTO
  :SOURCE:SOURCE:PATTERN
  :POWER RAMP CONTROL:SOURCE:EXT_DIGITAL

Am Stecker PARDATA X203.22, BURST GATE "High" Pegel einspeisen, mit R2 an der Buchse POW RAMP auf
1000 ± 2 mV angleichen

7.5.6 Delay-Abbleich bei externem Takt

- Einstellungen: **PRESET-Taste drücken**
  DIG.MOD :MODE:AUTO
  :MODULATION:BPSK 2b/sym
  :SYMBOL RATE:4Msym/s
  :EXT INPUTS:THRESHOLD:2V
  :EXT INPUTS:CLOCK SLOPE:POS
  :CLOCK:SOURCE:EXT
  :CLOCK:MODE:SYMBOL

Rechteck-TTL-Signal mit 4MHz an SYMBOL CLOCK einspeisen, mit Zweikanal-Oszilloskop den eingespeisten Takt und den internen Symboltakt an P10 messen. Mit R471 die Differenz zwischen den steigenden Flanken auf 0 ± 5 nS abgleichen.

7.6 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes und dem Entriegeln der Baugruppe kann die Baugruppe aus ihrem Steckplatz entnommen werden. Die Schirmdeckel der Baugruppe sind auf herkömmliche Weise verschraubt.
Der Zusammen- und Einbau der Baugruppe erfolgt entsprechend in umgekehrter Reihenfolge.

7.7 Externe Schnittstellen

Motherboard:

Pin	Name	Eing./Ausgang	Beschaltung/Ziel	Wertebereich	Signalbeschreibung
X320.A1	CLK_SER	Bidirektional	A3, FRO, BIT CLK	-5...5V	serieller Clock
X320.A2	GND		A200, MBIQ		
X320.A3	DATA_SER	Bidirektional	A3, FRO, DATA	-5...5V	serielle Daten
X320.A4	GND		A200, MBIQ		
X320.A5	SYMB_SER	Bidirektional	A3, FRO, SYM CLK	-5...5V	ser. Symboltakt
X320.A6	GND		A200, MBIQ		
X320.A7	BURST GATE	Bidirektional	PAR. DATA, X203.22	-5...5V	Pegelaustastung
X320.A8	LEV ATT	Bidirektional	PAR. DATA, X203.9	-5...5V	Pegelabsenkung
X320.A9	CW	Bidirektional	PAR. DATA, X203.21	-5...5V	Modulation aus
X320.A10	LEV ATT_MOD	Ausgang	A240, IQMOD, X240.A10		Pegelabsenkung
X320.A11	GND		A200, MBIQ		Masse
X320.A12	SERBUS-CLK	Eingang	A3, FRO, X31.40	HCT-Pegel	SERBUS
X320.A13	GND		A200, MBIQ		
X320.A14	SERBUS-OUT	Ausgang	A3, FRO, X31.39	HCT-Pegel	SERBUS
X320.A15	SERBUS-IN	Eingang	A3, FRO, X31.39	HCT-Pegel	SERBUS
X320.A16	SERBUS-SYNC	Eingang	A3, FRO, X31.37	HCT-Pegel	SERBUS
X320.A17	SERBUS-INT	Ausgang	A3, FRO, X31.38	HCT-Pegel	SERBUS
X320.A18	RESET-P	Eingang	A3, FRO, X31.28	HCT-Pegel	SERBUS
X320.A19	DIAG-5V	Ausgang	A3, FRO, X31.44	-5...+5V	Diagnose
X320.A20	READY_MCOD	Ausgang	A3, FRO, X31.31	HCT-Pegel	/DSP-Busy
X320.A21	GND		A200, MBIQ		Masse
X320.A22	VA24-P		A2, POWS1	+23.6...+25.4V I_{max}=20mA	Stromversorgung
X320.A23	GND		A200, MBIQ		Masse
X320.A24	VA15-P		A2, POWS1	+14.7...+15.9V I_{max}=0.15A	Stromversorgung
X320.A25	GND		A200, MBIQ		Masse
X320.A26	VA7.5-P		A2, POWS1	+7.4...+8.0V I_{max}=0.55A	Stromversorgung
X320.A27	GND		A200, MBIQ		Masse
X320.A28	VD5-P		A2, POWS1	+5.1...+5.3V I_{max}=2.7A	Stromversorgung
X320.A29	GND		A200, MBIQ		Masse
X320.A30	VA15-N		A2, POWS1	-15.9...-14.7V I_{max}=0.80A	Stromversorgung
X320.A31	GND		A200, MBIQ		Masse
X320.A32	VD5-N		A2, POWS1	-4.8...-5.3V I_{max}=.4A	Stromversorgung

Motherboard:

Pin	Name	Ein-/Ausgang	Herkunft/Ziel	Werte-bereich	Signal-bedeutung
X320.B1	BITCLK_PAR	Bidirektional	PAR. DATA, X203.20	-5...5V	paralleler Bitclock
X320.B2	GND		A200, MBIQ		Masse
X320.B3	SYMBCLK_PAR	Bidirektional	PAR. DATA, X203.7	-5...5V	paralleler Symbolclock
X320.B4	DONE	A	A3, FRO, X50.47	HCT-Pegel, OC.	Einstellung fertig
X320.B5	DATA_PAR D0	Bidirektional	PAR. DATA, X203.6	-5...5V	parallele Daten D0, von/zur RW
X320.B6	DATA_PAR D1	Bidirektional	PAR. DATA, X203.18	-5...5V	parallele Daten D1
X320.B7	DATA_PAR D2	Bidirektional	PAR. DATA, X203.5	-5...5V	parallele Daten D2
X320.B8	DATA_PAR D3	Bidirektional	PAR. DATA, X203.16	-5...5V	parallele Daten D3
X320.B9	DATA_PAR D4	Bidirektional	PAR. DATA, X203..4	-5...5V	parallele Daten D4
X320.B10	DATA_PAR D5	Bidirektional	PAR. DATA, X203.16	-5...5V	parallele Daten D5
X320.B11	DATA_PAR D6	Bidirektional	PAR. DATA, X203.3	-5...5V	parallele Daten D6
X320.B12	DATA_PAR D7	Bidirektional	PAR. DATA, X203.15	-5...5V	parallele Daten D7
X320.B13	GND		A200, MBIQ		Masse
X320.B14	TRIGIN	Eingang	PAR. DATA, X203.14	-5...5V	Trigger, Rückwand
X320.B15	TRIGIN_DGEN	Ausgang	A340, DGEN, X340.B15	HCT-Pegel	Trigger, DGEN
X320.B16	CW_DGEN	Bidirektional	A340, DGEN, X340.B16	HCT-Pegel	Tristate, DGEN
X320.B17	LEV_ATT_DGEN	Bidirektional	A340, DGEN, X340.B17	HCT-Pegel	LEV ATT, DGEN
X320.B18	BURST GATE_DGEN	Bidirektional	A340, DGEN, X340.B18	HCT-Pegel	
X320.B19	GND		A200, MBIQ		Masse
X320.B20	DATA_DGEN D0	Bidirektional	A340, DGEN, X340.B20	HCT-Pegel	parallele Daten D0, von/zum DGEN
X320.B21	DATA_DGEN D1	Bidirektional	A340, DGEN, X340.B21	HCT-Pegel	parallele Daten D1
X320.B22	DATA_DGEN D2	Bidirektional	A340, DGEN, X340.B22	HCT-Pegel	parallele Daten D2
X320.B23	DATA_DGEN D3	Bidirektional	A340, DGEN, X340.B23	HCT-Pegel	parallele Daten D3
X320.B24	DATA_DGEN D4	Bidirektional	A340, DGEN, X340.B24	HCT-Pegel	parallele Daten D4
X320.B25	DATA_DGEN D5	Bidirektional	A340, DGEN, X340.B25	HCT-Pegel	parallele Daten D5
X320.B26	DATA_DGEN D6	Bidirektional	A340, DGEN, X340.B26	HCT-Pegel	parallele Daten D6
X320.B27	DATA_DGEN D7	Bidirektional	A340, DGEN, X340.B27	HCT-Pegel	parallele Daten D7
X320.B28	VD5-P		A2, POWS1	+5.1...+5.3V I_{max}=2.7A	Stromversorgung
X320.B29	VD5-P		A2, POWS1		Stromversorgung
X320.B30	SYMSTR_DGEN	Ausgang	A340, DGEN, X340.B30	HCT-Pegel	Symbolstrobe
X320.B31	GND		A200, MBIQ		Masse
X320.B32	DATACLK_DGEN	Ausgang	A340, DGEN, X340.B32	HCT-Pegel	verzögerter Symbolclock

Koaxiale Schnittstellen:

Stecker	Name	Ein-/Ausgang	HF-Kabel/Ziel	Wertebereich	Signalbeschreibung
X326	I_FSIM	Eingang	A360, FSIM1, X368	-0.5...+.5V, R_i = 50Ohm	I/Q-Signale
X329	Q_FSIM	Eingang	A360, FSIM1, X371	-0.5...+.5V,. R_i = 50Ohm	I/Q-Signale
X327	I_EXT	Ein-/Ausgang	I	-0.5...+.5V, R_i= 50Ohm	I/Q-Signale
X330	Q_EXT	Ein-/Ausgang	Q	-0.5...+.5V, R_i = 50Ohm	I/Q-Signale
X325	I_MOD	Ausgang	A240, IQMOD, X244 **mit FSIM1/2** A360, FSIM1, X361	-0.5...+.5V, R_i = 50Ohm	I/Q-Signale
X328	Q_MOD	Ausgang	A240, IQMOD, X245 **mit FSIM1/2** A360, FSIM1, X363	-0.5...+.5V, R_i = 50Ohm	I/Q-Signale
X323	CTRL_REAR	Ein-/Ausgang	POW RAMP	0....+1V, R_i = 10kOhm/100hm	Pegelsteuerung
X324	CTRL_MOD	Ausgang	A240, IQMOD, X243	0....+1V, R_i= 100hm	Pegelsteuerung
X321	REF50IN	Eingang	A7, REFSS, X72	50MHz, 9dBm, R_i = 50Ohm	Referenzfrequenzeingang
X322	REF50OUT	Ausgang	A8, DSYN,X81	50MHz, 9dBm, R_i = 50Ohm	Referenzfrequenzausgang

SUB-D-Stecker PARDATA an der Rückwand:

Pin	Name	Ein/Ausgang	Bezeichnung / Ziel	Pegel-bereich	Signal-beschreibung
X203.1	GND		A200, MBIQ		
X203.2	GND		A200, MBIQ		
X203.3	DATA_PAR_D6	Ausgang	A320, MCOD, X320.B11	HCT-Pegel	DATA-Signal 6
X203.4	DATA_PAR_D4	Ausgang	A320, MCOD, X320.B9	HCT-Pegel	DATA-Signal 4
X203.5	DATA_PAR_D2	Ausgang	A320, MCOD, X320.B7	HCT-Pegel	DATA-Signal 2
X203.6	DATA_PAR_D0	Ausgang	A320, MCOD, X320.B5	HCT-Pegel	DATA-Signal 0
X203.7	SYMBCLK_PAR	Ein/Ausgang	A320, MCOD, X320.B3	HCT-Pegel	Symboltakt
X203.8	GND		A200, MBIQ		
X203.9	LEV_ATT	Ausgang	A320, MCOD, X320.A8	HCT-Pegel	CONTROL-Sig. zum Pegeltasten
X203.10	GND		A200, MBIQ		
X203.11	TRIGOUT_1	Ausgang	A340, DGEN, X34.B10	HCT-Pegel	CONTROL-Sig. für Sync.zwecke
X203.12	GND		A200, MBIQ		
X203.13	GND		A200, MBIQ		
X203.14	TRIGIN	Eingang	A320, MCOD, X320.B14	HCT-Pegel	ext. Triggersignal
X203.15	DATA_PAR_D7	Ausgang	A320, MCOD, X320.B12	HCT-Pegel	DATA-Signal 7
X203.16	DATA_PAR_D5	Ausgang	A320, MCOD, X320.B10	HCT-Pegel	DATA-Signal 5
X203.17	DATA_PAR_D3	Ausgang	A320, MCOD, X320.B8	HCT-Pegel	DATA-Signal 3
X203.18	DATA_PAR_D1	Ausgang	A320, MCOD, X320.B6	HCT-Pegel	DATA-Signal 1
X203.19	GND		A200, MBIQ		
X203.20	BITCLK_PAR	Ein/Ausgang	A320, MCOD, X320.B1	HCT-Pegel	Bittakt
X203.21	CW	Ausgang	A320, MCOD, X320.A9	HCT-Pegel	CONTROL-Sig. zum Abschalten der Modulation in Echtzeit
X203.22	BURST_GATE	Ausgang	A320, MCOD, X320.A7	HCT-Pegel	CONTROL-Sig. zum Pegeltasten
X203.23	TRIGOUT_2	Ausgang	A340, DGEN, X34.B11	HCT-Pegel	CONTROL-Sig. für Sync.zwecke
X203.24	TRIGOUT_3	Ausgang	A340, DGEN, X34.B9	HCT-Pegel	Signal für Sync.zwecke
X203.25	HOP	Ausgang	A340, DGEN, X34.A2	HCT-Pegel	CONTROL-Sig. für Frequencyhopping

ROHDE&SCHWARZ

SERVICE INSTRUCTIONS
for the
MODULATION CODER Option

1085.5050.02

Contents

7. Testing and Repair of the Module 5
7.1 Function Description 5
7.2 Service Conception 8
7.3 Test Instruments and Utilities 8
7.4 Troubleshooting 8
7.4.1 Selftest 8
7.5 Testing and Adjustment 11
7.5.1 Requesting the Revision 11
7.5.2 Jumpers 11
7.5.3 Diagnostic Points 11
7.5.4 Adjusting the I/Q Output Levels and Offsets 11
7.5.5 Adjusting the Output Level of Power Ramping 12
7.5.6 Delay Adjustment with External Clock 12
7.6 Disassembly and Assembly 12
7.7 External Interfaces 13

Parts list
List of coordinates
Cicuit diagram
Components layout diagram

7. Testing and Repair of the Module

7.1 Function Description

The MCOD module contains a universal modulation coder which converts the digital modulation data into analog I/Q signals; it provides the conditioning of the power ramp signal, an interface to the optional data generator as well as a clock synthesizer for the bit and symbol clocks and all clocks used onboard.

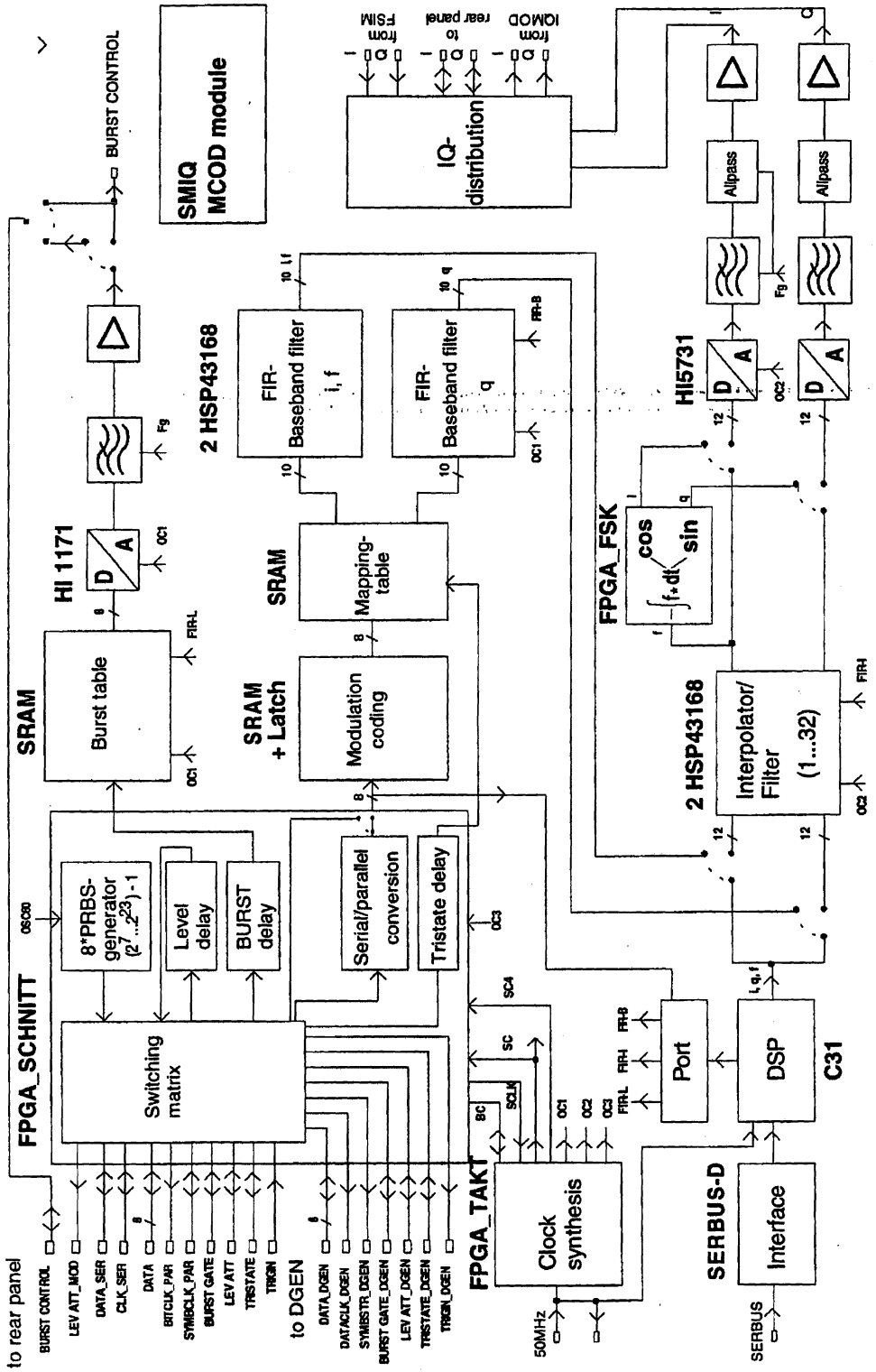
The modulation coder can process serial and parallel data, the trigger level and the input impedance are adjustable such that TTL and ECL signals can be used. Symbol rates from 1k to 7.5 Msymbole/s can be processed. All interface functions for the modulation data are integrated in the FPGA SCHNITT_MCOD. Generation of the baseband signal is completely digital. Programmable coding and a mapping table allow for adapting to the modulation methods PSK, QAM and FSK. Filtering of the baseband is performed via two FIR-filter ICs allowing for all usual filter functions to be set. A succeeding interpolation filter with two more FIR-filter ICs increases the sampling rate, if required. With FSK modulation selected, a frequency integrator (FSK_MCOD) with sine and cosine table converts the FM signal to digital I/Q signals. Two D/A converters convert the digital I/Q signals into analog signals, succeeding aliasing filters suppress the repetitive spectra. Depending on the clock rate, either the „HIGH-FILTER" with a cut-off frequency of 8 MHz or the „LOW-FILTER" with a cut-off frequency of 50 kHz are used.

The analog POW RAMP signal, which is triggered by the digital BURST GATE signal, controls the envelope of the RF signal. The edge of this signal is stored in the POWER RAMPING RAM, it is addressed via a counter which is triggered by the edge of the BURST GATE signal. The waveform and the rise time can be set. The POWERRAMPING signal can only be generated in a limited range of the symbol rate 1k to 2.5 Msymbole/s.

The clock synthesizer consists of a VCO (195 to 390 MHz), two ECL predividers as well as FPGA TAKT_MCOD as main divider and a PLL control circuit with three bandwidths. Operation may either be clocked by an internal clock or by external bit clock or symbol clock. With internal clock, the 50 MHz is used as reference for the PLL, with external clock, the bit or symbol clock applied is used. In this operating mode, the control bandwidth varies in conjunction with the applied clock rate. Control of the FIR filters is also integrated in TAKT_MCOD.

PRBS generators (2^9-1 to 2^23-1) and a pattern generator (00, 01, 11) are integrated onboard.

The DSP derives all setting parameters of the module such as filter coefficients, the RAM values for coding, mapping, burst filters and the parameters of the clock synthesis from the data of the host computer.
Communication with the host is accomplished serially via the SERBUS-D component.



Block diagram MCOD

7.2 Service Conception

The module is a complex hybrid circuit with major digital unit. Therefore, a detailed error diagnosis on the component level or repair cannot be carried out in the service agencies or directly at the customer`s premises. If a faulty module has been located, it must be replaced. The faulty module should be sent to the manufacturer for detailed diagnosis and repair.
This document is organized, accordingly. It is intended to enable the service staff to unambiguously identify a faulty board.
The faulty module should be sent to the manufacturer together with an error description to support repair.

7.3 Test Instruments and Utilities

- Two-channel oscilloscope
- Square wave or pulse generator (4MHz)
- AC/DC voltmeter, R_i >1MOhm e.g., URE3

The test instruments are required in Section 7.5.

7.4 Troubleshooting

If the module is assumed to be faulty, call the selftest, first.

➢ UTILITIES --> TEST --> **TEST MCOD**

7.4.1 Selftest

The complete selftest consists of various parts which are processed successively. If an error occurs in one of the selftest steps, the selftest is not continued since each step requires trouble-free processing of the preceding steps (e.g., the selftest of the clock PLL need not be triggered, if not all of the supply voltages have been measured correctly).

The following tests are performed during the internal selftest:

Test of the Supply Voltages

The analog +5V supply and -5V supply are measured using the instrument diagnosis.

Test of the Clock PLL

The tuning voltage and the output level of the clock VCO are measured across the tuning range. This test does not allow for testing the function of the clock PLL with external clock.

Testing the Coding/Mapping/SinCos/Power Ramping RAM's

This test is subdivided into two parts for each RAM

1. Test of the data lines:
   The patterns 555555h and AAAAAAh are written to a memory cell and read out.
2. Test of the address lines:
   - The pattern 555555h is written to the memory cell at the address 1h..
   - AAAAAAh is written to all other memory cells.
   - Subsequently, the first memory cell is read out. If no addressing error occurred, the contents must be unchanged.
   - These three test steps are repeated for the addresses 2h, 4h ... (Walking One Address), analogously.

Testing the I and Q-D/A's

The data words 000h, 001h, 002h to 800h from the SinCos RAM are applied to the D/A converters and the output voltage is measured using the instrument diagnosis.

Testing the I and Q-baseband FIR Filters

The interpolator filter is bypassed for this test. The test is subdivided into two parts for both paths, each:

1. Test of the data inputs and outputs
   The data words 000h, 001h, 002h to 200h from the MAPPING RAM are applied to the FIR filters. The dc gain of the FIR filters is set to 1 via the filter coefficients. The diagnosis of the instrument allows for measuring the output voltage of the D/A converter.

2. Test of the filter coefficients
   The filter coefficients of a symbol are set from 000h, 001h, 002h to 200h and the input data word at the FIR filter is set such that no overflow occurs. The instrument diagnosis is again used to measure the output voltage of the D/A converter.

Testing the Interpolator FIR Filters

This test is performed similar to the test of the I and Q-baseband filter.

Testing the Power Ramping D/A

The data words 00h, 01h, 02h to 80h from the power ramping RAM are applied to the D/A converter and the output voltage is measured using the instrument diagnosis.

Error Codes of the MCOD Selftest

The internal selftest supplies the following error codes

Selftest error code	Description
00000000h	no error
00000100h	Error of the +5-VA supply voltage
00000101h	Error of the -5V supply voltage
00000200h	Error of clock PLL
000003xxh	Error Coding RAM, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + A, for errors in the address line, A = 00h to 0Fh
000004xxh	Error Mapping RAM, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + A, for errors in the address line, A = 00h to 0Fh
000005xxh	Error SinCos RAM, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + A, for errors in the address line, A = 00h to 0Fh
000006xxh	Error i-D/A, xx = 00h + D, for errors in the data line, D = 00h to 0Bh
000007xxh	Error q-D/A, xx = 00h + D, for errors in the data line, D = 00h to 0Bh
000008xxh	Error i baseband FIR filter, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + C, for coefficient errors, C = 00h to 09h
000009xxh	Error q baseband FIR filter, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + C, for coefficient errors, C = 00h to 09h
00000Axxh	Error i interpolator FIR filter, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + C, for coefficient errors, C = 00h to 09h
00000Bxxh	Error q interpolator FIR filter, xx = 00h + D, for errors in the data line, D = 00h to 1Fh xx = 80h + C, for coefficient errors, C = 00h to 09h
000006xxh	Error powerramping D/A, xx = 00h + D, for errors in the data line, D = 00h to 07h

Note: The internal selftest is aborted as soon as an error is identified, ie, the remaining tests are not performed any more.

7.5 Testing and Adjustment

7.5.1 Requesting the Revision

The revision (REV) and the variant (VAR) of the modules are indicated by entering **UTILITIES:DIAG:CONFIG.**

MCOD SMIQB10 VAR ... REV ...

7.5.2 Jumpers

P53 must be connected to P54.
P55 must be connected to P56.
P2 must be connected to P3.
P39 must be connected to P40.
P41 must be connected to P42.
P31 must be connected to P32.
P33 must be connected to P34.
P38 must be connected to P20.
P35 must be connected to P36.
P23 must be connected to P24.

7.5.3 Diagnostic Points

UTILITIES --> DIAG --> TPOINT --> STATE --> ON --> TP xxxx

Test point	Description	Range
TP 2200	Reference 10kΩ	-0.01 to 0.01V
TP 2201	Tuning voltage VCO clock	0 to 18
TP 2202	I-output	-1.1 to 1.1V
TP 2203	Q-output	-1.1 to 1.1V
TP 2204	Burst output	0 to 1.1V
TP 2205	Level VCO clock	0 to 0.5V
TP 2206	+5-VA supply	4.8 to 5.3V
TP 2207	-5-V supply	-5.3 to -4.8V

7.5.4 Adjustment of the I/Q-Output Levels and Offsets

- Settings: **Press PRESET key**
  DIG.MOD :MODE:AUTO
  :SOURCE:SOURCE:PATTERN
  :SOURCE:PATTERN:00
  :MODULATION TYPE:GMSKK 2b/sym
  :MODULATION FSK DEVIATION:400kHz
  :SYMBOL RATE:see Table
  :FILTER:FILTER PARAMETER:0.3

Connect ac/dc voltmeter to the I or the Q-socket and perform the following adjustments

Socket	Type of measurement	Trimming potentiometer	Voltage	Symbol rate
I	AC	R467	707 ± 2 mV	1.2Msym/s
I	DC	R204	0 ± 1 mV	"
Q	AC	R465	707 ± 2 mV	"
Q	DC	R205	0 ± 1 mV	"
I	AC	R199	707 ± 2 mV	10ksym/s
Q	AC	R200	707 ± 2 mV	"

The total adjustment must be repeated once, since the individual adjustments slightly mutually influence.

7.5.5 Adjustment of the Power Ramping Output Level

- Settings: **Press PRESET key**
  DIG.MOD :MODE:AUTO
  :SOURCE:SOURCE:PATTERN
  :POWER RAMP CONTROL:SOURCE:EXT_DIGITAL

Apply "high" level to the connector PARDATA X203.22, BURST GATE, adjust to 1000 ± 2 mV at the POW RAMP socket using R2

7.5.6 Delay Adjustment with External Clock

- Settings: **Press PRESET key**
  DIG.MOD :MODE:AUTO
  :MODULATION:BPSK 2b/sym
  :SYMBOL RATE:4Msym/s
  :EXT INPUTS:THRESHOLD:2V
  :EXT INPUTS:CLOCK SLOPE:POS
  :CLOCK:SOURCE:EXT
  :CLOCK:MODE:SYMBOL

Apply 4-MHz square TTL signal to SYMBOL CLOCK, measure the applied clock and the internal symbol clock using a two-channel oscilloscope. Adjust the difference between the rising edges to 0 ± 5 nS using R471.

7.6 Disassembly and Assembly

After opening the instrument and unlocking the board, the latter can be removed from its slot. The screening covers of the module are conventionally screwed.
For assembly and installation of the module, proceed in the reverse order.

7.7 External Interfaces

Motherboard:

Pin	Name	Input/ Output	Origin/ Destination	Range	Signal description
X320.A1	CLK_SER	Bidirectional	A3, FRO, BIT CLK	-5 to 5V	Serial clock
X320.A2	GND		A200, MBIQ		
X320.A3	DATA_SER	Bidirectional	A3, FRO, DATA	-5 to 5V	Serial data
X320.A4	GND		A200, MBIQ		
X320.A5	SYMB_SER	Bidirectional	A3, FRO, SYM CLK	-5 to 5V	Serial symbol clock
X320.A6	GND		A200, MBIQ		
X320.A7	BURST GATE	Bidirectional	PAR. DATA, X203.22	-5 to 5V	Level blanking
X320.A8	LEV ATT	Bidirectional	PAR. DATA, X203.9	-5 to 5V	Level attenuation
X320.A9	CW	Bidirectional	PAR. DATA, X203.21	-5 to 5V	Modulation off
X320.A10	LEV ATT_MOD	Output	A240, IQMOD,X240.A10		Level attenuation
X320.A11	GND		A200, MBIQ		Ground
X320.A12	SERBUS-CLK	Input	A3, FRO, X31.40	HCT level	SERBUS
X320.A13	GND		A200, MBIQ		
X320.A14	SERBUS-OUT	Output	A3, FRO, X31.39	HCT level	SERBUS
X320.A15	SERBUS-IN	Input	A3, FRO, X31.39	HCT level	SERBUS
X320.A16	SERBUS-SYNC	Input	A3, FRO, X31.37	HCT level	SERBUS
X320.A17	SERBUS-INT	Output	A3, FRO, X31.38	HCT level	SERBUS
X320.A18	RESET-P	Input	A3, FRO, X31.28	HCT level	SERBUS
X320.A19	DIAG-5V	Output	A3, FRO, X31.44	-5 to +5V	Diagnosis
X320.A20	READY_MCOD	Output	A3, FRO, X31.31	HCT level	/DSP-Busy
X320.A21	GND		A200, MBIQ		Ground
X320.A22	VA24-P		A2, POWS1	+23.6 to +25.4V I_{max}=20mA	Power supply
X320.A23	GND		A200, MBIQ		Ground
X320.A24	VA15-P		A2, POWS1	+14.7 to +15.9V I_{max}=0.15A	Power supply
X320.A25	GND		A200, MBIQ		Ground
X320.A26	VA7.5-P		A2, POWS1	+7.4 to +8.0V I_{max}=0.55A	Power supply
X320.A27	GND		A200, MBIQ		Ground
X320.A28	VD5-P		A2, POWS1	+5.1 to +5.3V I_{max}=2.7A	Power supply
X320.A29	GND		A200, MBIQ		Ground
X320.A30	VA15-N		A2, POWS1	-15.9 to -14.7V I_{max}=0.80A	Power supply
X320.A31	GND		A200, MBIQ		Ground
X320.A32	VD5-N		A2, POWS1	-4.8 to -5.3V I_{max}=.4A	Power supply

Motherboard:

Pin	Name	Input/ Output	Origin/ Destination	Range	Signal description
X320.B1	BITCLK_PAR	Bidirectional	PAR. DATA, X203.20	-5 to 5V	Parallel bit clock
X320.B2	GND		A200, MBIQ		Ground
X320.B3	SYMBCLK_PAR	Bidirectional	PAR. DATA, X203.7	-5 to 5V	Parallel symbol clock
X320.B4	DONE	A	A3, FRO, X50.47	HCT level, OC.	Setting done
X320.B5	DATA_PAR D0	Bidirectional	PAR. DATA, X203.6	-5 to 5V	Parallel data D0, from/to rear p.
X320.B6	DATA_PAR D1	Bidirectional	PAR. DATA, X203.18	-5 to 5V	Parallel data D1
X320.B7	DATA_PAR D2	Bidirectional	PAR. DATA, X203.5	-5 to 5V	Parallel data D2
X320.B8	DATA_PAR D3	Bidirectional	PAR. DATA, X203.16	-5 to 5V	Parallel data D3
X320.B9	DATA_PAR D4	Bidirectional	PAR. DATA, X203.4	-5 to 5V	Parallel data D4
X320.B10	DATA_PAR D5	Bidirectional	PAR. DATA, X203.16	-5 to 5V	Parallel data D5
X320.B11	DATA_PAR D6	Bidirectional	PAR. DATA, X203.3	-5 to 5V	Parallel data D6
X320.B12	DATA_PAR D7	Bidirectional	PAR. DATA, X203.15	-5 to 5V	Parallel data D7
X320.B13	GND		A200, MBIQ		Ground
X320.B14	TRIGIN	Input	PAR. DATA, X203.14	-5 to 5V	Trigger, rear panel
X320.B15	TRIGIN_DGEN	Output	A340, DGEN, X340.B15	HCT level	Trigger, DGEN
X320.B16	CW_DGEN	Bidirectional	A340, DGEN, X340.B16	HCT level	Tristate, DGEN
X320.B17	LEV_ATT_DGEN	Bidirectional	A340, DGEN, X340.B17	HCT level	LEV ATT, DGEN
X320.B18	BURST GATE_DGEN	Bidirectional	A340, DGEN, X340.B18	HCT level	
X320.B19	GND		A200, MBIQ		Ground
X320.B20	DATA_DGEN D0	Bidirectional	A340, DGEN, X340.B20	HCT level	Parallel data D0, from/to DGEN
X320.B21	DATA_DGEN D1	Bidirectional	A340, DGEN, X340.B21	HCT level	Parallel data D1
X320.B22	DATA_DGEN D2	Bidirectional	A340, DGEN, X340.B22	HCT level	Parallel data D2
X320.B23	DATA_DGEN D3	Bidirectional	A340, DGEN, X340.B23	HCT level	Parallel data D3
X320.B24	DATA_DGEN D4	Bidirectional	A340, DGEN, X340.B24	HCT level	Parallel data D4
X320.B25	DATA_DGEN D5	Bidirectional	A340, DGEN, X340.B25	HCT level	Parallel data D5
X320.B26	DATA_DGEN D6	Bidirectional	A340, DGEN, X340.B26	HCT level	Parallel data D6
X320.B27	DATA_DGEN D7	Bidirectional	A340, DGEN, X340.B27	HCT level	Parallel data D7
X320.B28	VD5-P		A2, POWS1	+5.1 to +5.3V I_{max}=2.7A	Output
X320.B29	VD5-P		A2, POWS1		Output
X320.B30	SYMSTR_DGEN	Output	A340, DGEN, X340.B30	HCT level	Symbol strobe
X320.B31	GND		A200, MBIQ		Ground
X320.B32	DATACLK_DGEN	Output	A340, DGEN, X340.B32	HCT level	Delayed symbol clock

Coaxial interfaces:

Connector	Name	Input/ Output	Destination	Range	Signal description
X326	I_FSIM	Input	A360, FSIM1, X368	-0.5 to +.5V, R_i = 50Ω	I/Q signals
X329	Q_FSIM	Input	A360, FSIM1, X371	-0.5 to +.5V,. R_i = 50Ω	I/Q signals
X327	I_EXT	Input/Output	I	-0.5 to +.5V, R_i = 50Ω	I/Q signals
X330	Q_EXT	Input/Output	Q	-0.5 to +.5V, R_i = 50Ω	I/Q signals
X325	I_MOD	Output	A240, IQMOD, X244 **incl. FSIM1/2** A360, FSIM1, X361	-0.5 to +.5V, R_i = 50Ω	I/Q signals
X328	Q_MOD	Output	A240, IQMOD, X245 **incl.FSIM1/2** A360, FSIM1, X363	-0.5 to +.5V, R_i = 50Ω	I/Q signals
X323	CTRL_REAR	Input/Output	POW RAMP	0 to .+1V, R_i = 10kΩ/10Ω	Level control
X324	CTRL_MOD	Output	A240, IQMOD, X243	0 to .+1V, R_i= 10Ω	Level control
X321	REF50IN	Input	A7, REFSS, X72	50MHz, 9dBm, R_i = 50Ω	Reference-frequency input
X322	REF50OUT	Output	A8, DSYN,X81	50MHz, 9dBm, R_i = 50 Ω	Reference-frequency output

SUB-D connector PARDATA on the rear panel:

Pin	Name	Input/ Output	Origin/ Destination	Range	Signal description
X203.1	GND		A200, MBIQ		
X203.2	GND		A200, MBIQ		
X203.3	DATA_PAR_D6	Output	A320, MCOD, X320.B11	HCT level	DATA signal 6
X203.4	DATA_PAR_D4	Output	A320, MCOD, X320.B9	HCT level	DATA signal 4
X203.5	DATA_PAR_D2	Output	A320, MCOD, X320.B7	HCT level	DATA signal 2
X203.6	DATA_PAR_D0	Output	A320, MCOD, X320.B5	HCT level	DATA signal 0
X203.7	SYMBCLK_PAR	Input/Output	A320, MCOD, X320.B3	HCT level	Symbol clock
X203.8	GND		A200, MBIQ		
X203.9	LEV_ATT	Output	A320, MCOD, X320.A8	HCT level	CONTROL signal for level blanking
X203.10	GND		A200, MBIQ		
X203.11	TRIGOUT_1	Output	A340, DGEN, X34.B10	HCT level	CONTROL signal for sync. purposes
X203.12	GND		A200, MBIQ		
X203.13	GND		A200, MBIQ		
X203.14	TRIGIN	Input	A320, MCOD, X320.B14	HCT level	Ext. trigger signal
X203.15	DATA_PAR_D7	Output	A320, MCOD, X320.B12	HCT level	DATA signal 7
X203.16	DATA_PAR_D5	Output	A320, MCOD, X320.B10	HCT level	DATA signal 5
X203.17	DATA_PAR_D3	Output	A320, MCOD, X320.B8	HCT level	DATA signal 3
X203.18	DATA_PAR_D1	Output	A320, MCOD, X320.B6	HCT level	DATA signal 1
X203.19	GND		A200, MBIQ		
X203.20	BITCLK_PAR	Input/Output	A320, MCOD, X320.B1	HCT level	Bit clock
X203.21	CW	Output	A320, MCOD, X320.A9	HCT level	CONTROL signal for real-time modulation switch-off
X203.22	BURST_GATE	Output	A320, MCOD, X320.A7	HCT level	CONTROL signal for level blanking
X203.23	TRIGOUT_2	Output	A340, DGEN, X34.B11	HCT level	CONTROL signal for sync. purposes
X203.24	TRIGOUT_3	Output	A340, DGEN, X34.B9	HCT level	Signal for sync. purposes
X203.25	HOP	Output	A340, DGEN, X34.A2	HCT level	CONTROL signal for frequency hopping

ROHDE&SCHWARZ

Schaltteillisten numerisch geordnet

Part lists in numerical order

Listes des pièces détachées par numéros de référence

095.1000 Bl. 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
.	XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS				
C1	CC 10NF+-1% 50V NPO 1210	0010.3002.00	VITRAMON	VJ1210A103FXAT	
..6	SMD-CERAMIC CAPACITOR				
C7	CC 10NF+-10% 50VHDK 0603	CC 0009.4844.00	MURATA	GRM39X7R***K5C50OPT*	
..9	SMD-CERAMIC-CAPACITOR				
C10	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..17	SMD CERAMIC CAPACITOR				
C18	CC 10NF+-10% 50VHDK 0603	CC 0009.4844.00	MURATA	GRM39X7R***K5C50OPT*	
	SMD-CERAMIC-CAPACITOR				
C19	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..72	SMD CERAMIC CAPACITOR				
C73	CC 33NF+-10% 50V X7R 1206	CC 0007.5172.00	AVX	1206 5 C 333 KA 3	
	CERAMIC CHIP CAPACITOR				
C74	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..118	SMD CERAMIC CAPACITOR				
C119	CE 4,7UF+-10% 10V 3528	CE 0007.7275.00	SPRAGUE	293D 475 X9 010 B2T	
	TANTALUM CHIP CAPACITOR				
C120	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..125	SMD CERAMIC CAPACITOR				
C126	CE 4,7UF+-10% 10V 3528	CE 0007.7275.00	SPRAGUE	293D 475 X9 010 B2T	
	TANTALUM CHIP CAPACITOR				
C127	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..148	SMD CERAMIC CAPACITOR				
C149	CE 4,7UF+-10% 10V 3528	CE 0007.7275.00	SPRAGUE	293D 475 X9 010 B2T	
	TANTALUM CHIP CAPACITOR				
C150	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
	SMD CERAMIC CAPACITOR				
C151	CC 27OPF+-1%50V NPO 1206	CC 0099.8867.00	AVX	1206 5A 271 F 3	
	CERAMIC CHIP CAPACITOR				
C152	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
	SMD CERAMIC CAPACITOR				
C153	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C154	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
	SMD CERAMIC CAPACITOR				
C155	CC 22PF+-1% 50VNPO 0603	CC 0009.4609.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C156	CC 33OPF+-1%50V NPO 1206	CC 0099.8873.00	AVX	1206 5A 331 F 3	
	CERAMIC CHIP CAPACITOR				
C157	CC 27OPF+-1%50V NPO 1206	CC 0099.8867.00	AVX	1206 5A 271 F 3	
..162	CERAMIC CHIP CAPACITOR				
C163	CC 39PF+-1% 50VNPO 0603	CC 0009.9730.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C164	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C165	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C166	CC 27OPF+-1%50V NPO 1206	CC 0099.8867.00	AVX	1206 5A 271 F 3	
	CERAMIC CHIP CAPACITOR				
C167	CC 10NF+-10%50V X7R 1206	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
	CERAMIC CHIP CAPACITOR				
C168	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
..173	CERAMIC CHIP CAPACITOR				
C174	CC 33OPF+-1%50V NPO 1206	CC 0099.8873.00	AVX	1206 5A 331 F 3	
	CERAMIC CHIP CAPACITOR				
C175	CC 27OPF+-1%50V NPO 1206	CC 0099.8867.00	AVX	1206 5A 271 F 3	
..177	CERAMIC CHIP CAPACITOR				
C178	CC 15OPF+-1% 50V NPO 0603	CC 1051.4680.00	MURATA	GRM39COG***F50ZPT	
	MD-CERAMIC-CAPACITOR				
C179	CC 3,3PF+-0,1PF50VCOG0603	CC 0008.2125.00	AVX	0603 5J 3R3 BAW	
	SMD-CERAMIC CAPACITOR				
C180	CC 3,3PF+-0,1PF50VCOG0603	CC 0008.2125.00	AVX	0603 5J 3R3 BAW	
	SMD-CERAMIC CAPACITOR				
C181	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
	SMD CERAMIC CAPACITOR				
C182	CC 33OPF+-1%50V NPO 1206	CC 0099.8873.00	AVX	1206 5A 331 F 3	
	CERAMIC CHIP CAPACITOR				
C183	CC 33OPF+-1%50V NPO 1206	CC 0099.8873.00	AVX	1206 5A 331 F 3	
	CERAMIC CHIP CAPACITOR				
C184	CK 1,5UF+-5% 50V RD5,5H12	CK 0008.1141.00	SIEMENS	B32529-C5155-J	
	POLYESTER CAPACITOR				
C185	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
	SMD CERAMIC CAPACITOR				
C186	CC 33OPF+-1%50V NPO 1206	CC 0099.8873.00	AVX	1206 5A 331 F 3	
..188	CERAMIC CHIP CAPACITOR				

1GPK 854 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	20	12.08.99	EE MODULATIONSCODER MODULATION CODER	1085.5050.01 SA	1+

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C189	CC 4,7PFO,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4538.00	MURATA	GRM39COG***B50ZPT	
C190	CC 4,7PFO,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4538.00	MURATA	GRM39COG***B50ZPT	
C191	CC 2,2NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2964.00	MURATA	GRM42-6COG222F50PT	
C192	CC 3,3NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2970.00	MURATA	GRM42-6COG332F50PT	
C193	CC 3,3NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2970.00	MURATA	GRM42-6COG332F50PT	
C194	CC 2,2NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2964.00	MURATA	GRM42-6COG222F50PT	
C195	CC 1,0PFO,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.8304.00	MURATA	GRM39COG***B50ZPT	
C196	CC 1,0PFO,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.8304.00	MURATA	GRM39COG***B50ZPT	
C197	CC 15PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.8227.00	MURATA	GRM39COG***F50ZPT	
C198	CC 560PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0007.3186.00	AVX	1206 5 A 561 F 3	
C199	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C200	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C201	CC 220NF+-10%50V X7R 1210 CERAMIC CAPACITOR CHIP	CC 0520.6850.00	AVX	1210 5C 224KA 11A	
C202	CC 47NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5195.00	AVX	1206 5 C 473 KA 3	
C203	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C204	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C205	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C206 ..209	CC 1UF+-10% 50V X7R 2220 CERAMIC CAPACITOR	CC 0520.6873.00	AVX	2220 5C 105 KAT**A(F	
C210	CE 10UF+-20%16V RD3,5X5 ELECTROLYTIC CAPACITOR	0803.0173.00	NCC	SRE 16 VB-10(M) C	
C211	CC 1UF+-10% 50V X7R 2220 CERAMIC CAPACITOR	CC 0520.6873.00	AVX	2220 5C 105 KAT**A(F	
C212	CC 1UF+-10% 50V X7R 2220 CERAMIC CAPACITOR	CC 0520.6873.00	AVX	2220 5C 105 KAT**A(F	
C213	CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8515.00	AVX	1206 5 A 471 F 3	
C214	CC 220NF+-10%50V X7R 1210 CERAMIC CAPACITOR CHIP	CC 0520.6850.00	AVX	1210 5C 224KA 11A	
C215	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C216	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C217	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C218	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C219	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C220	CC 1,0NF+-10%50V HDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4938.00	MURATA	GRM39X7R***K5C50OPT*	
C221	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C50OPT*	
C222 ..224	CE 10UF+-20%35V RUND SMD SMD ELECTROLYTIC CAPACIT.	CE 0009.5605.00	PANASONIC	EEV HB 1V 100X	
C225	CC 3,3NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2970.00	MURATA	GRM42-6COG332F50PT	
C226	CC 47NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5195.00	AVX	1206 5 C 473 KA 3	
C227	CE 1UF +-10% 25V 3528 TANTALUM CHIP CAPACITOR	CE 0007.7217.00	SPRAGUE	293D 105 X9 025 B2T	
C228	CC 120PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8838.00	MURATA	GRM42-6COG 121F50ZPT	
C229	CC 470PF+-10%50V HDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4896.00	MURATA	GRM39X7R***K5C50OPT*	
C230 ..233	CE 22UF+-20%35V RUND SMD SMD ELECTROLYTIC CAPACIT.	CE 0009.6253.00	PANASONIC	EEV HB 1V 220P	
C234	CC 3,3PF O, 1PF50V NPO 06 SMD-CERAMIC-CAPACITOR	CC 0009.8285.00	MURATA	GRM39COG***B50ZPT	
C235	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C236	CC 3,3NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8909.00	PHILIPS_CO	2238 581 16621	
C237	CC 33PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0048.3639.00	MURATA	GRM39COG***B50ZPT	
C238 ..245	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C246	CC 10P+-0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
C247	CE 22UF +-10% 10V 7343 TANTALUM CHIP CAPACITOR	CE 0007.7298.00	SPRAGUE	293D226X9020D2W	
C248	CC 3,3NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR	0010.2970.00	MURATA	GRM42-6COG332F50PT	
C249 ..251	CC 2,2NF+-10%50VX7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8444.00	AVX	1206 5 C 222 KA 3	
C252	CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR	CC 0099.8844.00	MURATA	GRM42-6COG 181F50ZPT	
C253	CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR	CC 0099.8844.00	MURATA	GRM42-6COG 181F50ZPT	
C254	CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4680.00	MURATA	GRM39COG***F50ZPT	
C255	CC 22NF+-10%50VX7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8467.00	AVX	1206 5 C 223 KA 3	
C256 ..262	CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4680.00	MURATA	GRM39COG***F50ZPT	
C263 ..279	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C280	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39COG***F50ZPT	
C281	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C282	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39COG***F50ZPT	
C283	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39COG***F50ZPT	
C284	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C285	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C286	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C288 ..293	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C294	CC 39PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8796.00	MURATA	GRM42-6COG 390F50ZPT	
C295	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C296 ..298	CE 22UF+-20%35V RUND SMD SMD ELECTROLYTIC CAPACIT.	CE 0009.6253.00	PANASONIC	EEV HB 1V 220P	
C299	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C300 ..303	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
D1 ..9	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	
D10	BC TC551664AJ-15 SRAM IC MEMORY	BC 0009.8385.00	TOSHIBA	TC551664(A/B)J-15	
D11	BC TC551664AJ-15 SRAM IC MEMORY	BC 0009.8385.00	TOSHIBA	TC551664(A/B)J-15	
D12	BL PC74HCT597T 8XSHIFT-FF 8BIT SHIFT REG WITH FF	1085.2051.00	PHILIPS_SE	74HCT597(D)	
D13 ..16	BL PC74HCT245T 8XTRANSC OCTAL BUS TRANSCEIVER	BL 0007.5414.00	PHILIPS_SE	(PC)74HCT245(D/T)	
D17	BL PC74HCT125T 4XBUFF. 3S QUAD LINE DRIVER	BL 0007.5395.00	PHILIPS_SE	(PC)74HCT125(D/T)	
D18 ..21	BC IDT72021L25J 1KX9 FIFO IC FIFO MEMORY	BC 2032.2601.00	IDT	IDT72021L25J	
D22	BC TMS320C31PQL FLPTR DSP DIGITAL SIGNAL PROCESSOR	1078.3310.00	TEXAS	TMS320C31PQL60	
D23 ..26	BJ DS26C32ATM 4X RS422 RX IC QUAD RS422 LINE DRIV	6031.4129.00	NSC	DS26C32ACM	
D27	BL 74F00D 4X2IN NAND GATE QUAD 2INPUT NAND GATE	BL 0007.3628.00	PHILIPS_SE	(N)74F00(D)	
D28	BL PC74HCT4094T 8ST.SHREG 8-STAGE SHIFT&STORE REG.	0007.6885.00	PHILIPS	(PC)74HCT4094(D)	
D29	BL 74ACT00SC 4X 2-NAND IC QUAD 2INP NAND GATE	BL 0008.0668.00	RCA	CD74ACT00M	

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1GPK 854 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	20	12.08.99	EE MODULATIONSCODER MODULATION CODER	**1085.5050.01 SA**	3+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D30	BL 74AC00SC 4X2IN NAND QUAD NAND GATE	BL 0820.3477.00	FAIRCHILD	74AC00SC	
D31	BL 74ACT04SC 6X INVERTER IC HEX INVERTER	BL 1012.9379.00	HARRIS	(CD74)ACT04(M)	
D32	BL 74ACT74SC 2XRSFLIPFLOP IC DUAL D-FLIPFLOP	BL 0008.0680.00	TOSHIBA	(TC74)ACT74(FN)	
D33	BL PC74HCT245T 8XTRANSC OCTAL BUS TRANSCEIVER	BL 0007.5414.00	PHILIPS_SE	(PC)74HCT245(D/T)	
D34	BL PC74HC373T 8XD-LATCH OCTAL D-LATCH	0007.4047.00	PHILIPS_SE	(PC)74HC373(D/T)	
D35	BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH	1004.7058.00	SILICONIX	DG413DY	
D36	BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH	0746.0322.00	SILICONIX	DG419DY	
D37	BL PC74HCT00T 4X2IN.NAND NAND GATE	BL 0007.6156.00	PHILIPS_SE	(PC)74HCT00D(T)	
D38	BC KM68257CJ-15 32KX8SRAM SRAM 32KX8	BC 0008.1064.00	MOTOROLA	MCM6206CJ(D)25	
D39	BC KM68257CJ-15 32KX8SRAM SRAM 32KX8	BC 0008.1064.00	MOTOROLA	MCM6206CJ(D)25	
D40 ..45	BL PC74HC4094T 8ST.BUSREG 8-STAGE SHIFT&STORE REG.	0804.0977.00	PHILIPS_SE	(PC)74HC4094(D/T)	
D46	BL PC74HC390T 2XDEC.CNT DUAL DECADE COUNTER	BL 0007.5043.00	PHILIPS_SE	(PC)74HC390(D/T)	
D47	BL PC74HCT02T 4X2IN NORG QUAD 2INPUT NORGATE	BL 0007.5366.00	PHILIPS_SE	(PC)74HCT02(D/T)	
D48	BL PC74HCT02T 4X2IN NORG QUAD 2INPUT NORGATE	BL 0007.5366.00	PHILIPS_SE	(PC)74HCT02(D/T)	
D49	BL MC10E016 8B.BIN.ZAEHL IC 8B BIN COUNTER	BL 1043.9641.00	MOTOROLA	(MC)10E016(FN)	
D50	BL MC10E016 8B.BIN.ZAEHL IC 8B BIN COUNTER	BL 1043.9641.00	MOTOROLA	(MC)10E016(FN)	
D51	BL PC74HCT597T 8XSHIFT-FF 8BIT SHIFT REG WITH FF	1085.2051.00	PHILIPS_SE	74HCT597(D)	
D52	BL 74F32D 4X 2-INPUT OR QUAD 2-INPUT OR GATE	BL 0007.3670.00	PHILIPS_SE	(N)74F32(D)	
D53	BL 74AC02SC 4X2IN NORG QUAD NOR GATE	BL 0820.3490.00	NSC	74AC02(SC)	
D54	BL PC74HC4051T 8CH.AN.MUX 8CHANNEL ANAL.MULTIPLEXER	0007.3592.00	PHILIPS_SE	(PC)74HC4051(D/T)	
D55	BL 74ACT00SC 4X 2-NAND IC QUAD 2INP NAND GATE	BL 0008.0668.00	RCA	CD74ACT00M	
D56	BJ CXD1171M 1X8B-DAC IC DAC	1051.5629.00	HARRIS	HI1171JCB	
D57	BO LT1117CSTLOWDROP+VREGL VOLTAGE REGULATOR	1036.4283.00	LINEAR_TEC	LT1117(CST)	
D58	BJ HI5731BIB 1X12B-DAC D/A CONVERTER	1085.1890.00	HARRIS	HI5731BIB	
D59	BJ HI5731BIB 1X12B-DAC D/A CONVERTER	1085.1890.00	HARRIS	HI5731BIB	
D60	BL PC74HC14T 6XINV.SCHM HEXINV.SCHMITT-TRIGGER	BL 0007.4018.00	PHILIPS_SE	(PC)74HC14(D/T)	
D61	BL 74ACT541SC 8XBUF/DR 3S 8XBUFFER/LINEDRIV 3-ST	BL 1006.4033.00	HARRIS	CD74ACT541M	
D62	BL 74ACT541SC 8XBUF/DR 3S 8XBUFFER/LINEDRIV 3-ST	BL 1006.4033.00	HARRIS	CD74ACT541M	
D63	BC EPF8820ARC-2 8K EPLD IC LOGIC CELL ARRAY	BC 1085.1903.00	ALTERA	EPF8820ARC208-2	
D64	BL 74ACT161SC 4B BINCTR IC COUNTER	BL 0008.0697.00	HARRIS	CD74ACT161M	
D65	BJ DAC8143FS 1X12B-DAC 12B SERIAL D/A-CONVERTER	1012.9510.00	PMI	DAC8143FS	
D66	BJ DAC8143FS 1X12B-DAC 12B SERIAL D/A-CONVERTER	1012.9510.00	PMI	DAC8143FS	
D67	BC EPF8820AQC-2 8K EPLD IC LOGIC CELL ARRAY	BC 1085.1910.00	ALTERA	EPF8820AQC160-2	
D68	BC MCM56824F 8KX24 SRAM IC DSP SRAM 8KX24	BC 0008.2354.00	MOTOROLA	MCM56824AFNC25	
D69	BC MCM56824F 8KX24 SRAM IC DSP SRAM 8KX24	BC 0008.2354.00	MOTOROLA	MCM56824AFNC25	
D70	BL 74ACT86SC 4X 2IN-EXOR QUAD 2-INPUT EXOR GATE	BL 2005.4307.00	HARRIS	(CD74)ACT86(M)	
D71 ..74	BL 74F125D 4XBUFFER 3ST IC QUAD BUFFERS 3-STATE	BL 0380.1530.00	SIGNETICS	(N)74F125D	
D75	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	
D76	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D77	BL 74FCT821BSO 10XREG/IF IC 74FCT821BSO 10XREG/IF	BL 2016.1604.00	IDT	IDT74FCT821BSO	
D78	BL PC74HCT273T 8XD-FF OCTAL D-TYPE FLIPFLOP	BL 0007.6610.00	PHILIPS_SE	(PC)74HCT273(D/T)	
D79	BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH	0746.0322.00	SILICONIX	DG419DY	
D80	BL PC74HCT597T 8XSHIFT-FF 8BIT SHIFT REG WITH FF	1085.2051.00	PHILIPS_SE	74HCT597(D)	
D81 ..84	BC LF43168QC15 FIR-FILTER DUAL 8-TAP FIR FILTER	1085.2216.00	LOGIC_DEVI	LF43168QC15	
D85 ..90	BL PC74HCT245T 8XTRANSC OCTAL BUS TRANSCEIVER	BL 0007.5414.00	PHILIPS_SE	(PC)74HCT245(D/T)	
D91	BG TH3032.1C SERBUSD ASIC IC GATE ARRAY	BG 0008.6143.00	THESYS	TH3032.1C	
D92	BL PC74HCT597T 8XSHIFT-FF 8BIT SHIFT REG WITH FF	1085.2051.00	PHILIPS_SE	74HCT597(D)	
D93	BL 74FCT821BSO 10XREG/IF IC 74FCT821BSO 10XREG/IF	BL 2016.1604.00	IDT	IDT74FCT821BSO	
D94	BL 74FCT821BSO 10XREG/IF IC 74FCT821BSO 10XREG/IF	BL 2016.1604.00	IDT	IDT74FCT821BSO	
D95	BL PC74HCT132T 4X2IN SCHM NAND SCHMITT TRIGGER	BL 0007.6340.00	PHILIPS	(PC)74HCT132(D/T)	
D96	BL PC74HCT245T 8XTRANSC OCTAL BUS TRANSCEIVER	BL 0007.5414.00	PHILIPS_SE	(PC)74HCT245(D/T)	
D97	BL PC74HCT32T 4X2IN ORG QUAD 2INPUT OR GATE	BL 0007.5389.00	PHILIPS_SE	(PC)74HCT32(D/T)	
D98 ..105	BL 74ACT541SC 8XBUF/DR 3S 8XBUFFER/LINEDRIV 3-ST	BL 1006.4033.00	HARRIS	CD74ACT541M	
D106	BL 74ACTOOSC 4X 2-NAND IC QUAD 2INP NAND GATE	BL 0008.0668.00	RCA	CD74ACTOOM	
D107	BL PC74HCT74T 2XD-FLIPFL DUAL D-TYPE FLIP FLOP	BL 0007.6262.00	PHILIPS_SE	(PC)74HCT74D(T)	
D108	BC EPF8282ATC-3 2K5 EPLD IC LOGIC CELL ARRAY	BC 1085.1932.00	ALTERA	EPF8282ATC100-3	
D109	BL PC74HC4094T 8ST.BUSREG 8-STAGE SHIFT&STORE REG.	0804.0977.00	PHILIPS_SE	(PC)74HC4094(D/T)	
D110	BL PC74HCT02T 4X2IN NORG QUAD 2INPUT NORGATE	BL 0007.5366.00	PHILIPS_SE	(PC)74HCT02(D/T)	
D111	BC X24164S8 2KX8 EEPROM IC MEMORY	BC 2013.8937.00	ATMEL	AT24C164-10SC-2.7	
D112	BL PC74HCT238T 3TO8 L.DEC 3-TO-8 LINE DECODER	BL 0007.6527.00	PHILIPS	(PC)74HCT238(T)	
D113	BL 74F138D 1-OF-8 DECOD 1-OF-8 DECODER/DEMUX	BL 0007.3705.00	PHILIPS_SE	(N)74F138(D)	
D114	BL 74F138D 1-OF-8 DECOD 1-OF-8 DECODER/DEMUX	BL 0007.3705.00	PHILIPS_SE	(N)74F138(D)	
D115	BL 74ACT138SC 3TO8 DECOD 3-TO-8 DECODER/DEMUX	BL 2007.5017.00	HARRIS	CD74ACT138(M)	
D116	BL 74ACTO8SC 4X2-IN AND IC QUAD 2-INP AND GATE	BL 1012.9362.00	HARRIS	CD74ACTO8M	
D117	BL 74ACT175SC 4XD-FLIPFL IC QUAD D-FLIPFLOP	BL 1012.9433.00	HARRIS	CD74ACT175M	
D118	BL PC74HCT238T 3TO8 L.DEC 3-TO-8 LINE DECODER	BL 0007.6527.00	PHILIPS	(PC)74HCT238(T)	
G1	BO REFO2CS VREF IC VOLTAGE REFERENCE	0009.6882.00	ANALOG_DEV	REFO2CS	
G2	EO 50,000MHZ QUARZOSZ QUARTZ CRYSTAL OSCILLATOR	1029.2995.00	SEIKO	SG-615PH-C	
G3	EO POS-400 200-380MHZ VCO VOLTAGE CONTR.OSCILLATOR	1085.1949.00	MINI-CIRCU	POS-400	
G4	BO REFO2CS VREF IC VOLTAGE REFERENCE	0009.6882.00	ANALOG_DEV	REFO2CS	
K1 ..7	SN GEPOLT 2XUM 12V MONOST RELAY	1085.1784.00	MATSUSHITA	TQ2SA-12V	
L1	LD 150NH 10% 0,39A 1210 RF CHOKE	LD 0009.5140.00	SIEMENS	B82422-A3151-J(K)100	
L2 ..9	LD 3,9UH1%10HMO,25A MIL MOLDED INDUCTOR MIL	0836.4084.00	DALE	IM2	
L10 ..15	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L16	LD 14UH 0,7 A 0,760HM CHOKE	LD 0026.4555.00	FASTRON_GE	MISC-140M-01	
L17	LD 10UH 10% 0,18A 1210 RF CHOKE	LD 0007.9255.00	SIEMENS	B82422-A1103-J(K)100	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
L18	LD SMD-DR.Z=55 OHM 300MHZ	1085.1684.00	PHILIPS	BDS 3/3/4.6-4S2	
..21	CHOKE				
L22	LD 1,5UH 10% 0,34A 1210	LD 0009.5157.00	SIEMENS	B82422-A1152-J(K)100	
	RF CHOKE				
L23	LD 1,5UH 10% 0,34A 1210	LD 0009.5157.00	SIEMENS	B82422-A1152-J(K)100	
	RF CHOKE				
L24	LD SMD-DR.Z=55 OHM 300MHZ	1085.1684.00	PHILIPS	BDS 3/3/4.6-4S2	
	CHOKE				
L25	LD 3,9UH+-10% 280MIA 1206	0920.1746.00	STETTNER	5503 3922400	
	COIL				
L26	LD 3,9UH+-10% 280MIA 1206	0920.1746.00	STETTNER	5503 3922400	
	COIL				
L27	LD 1,20UH10%0,180HMO,620A	LD 0067.2870.00	DALE	IM2	
	CHOKE				
L28	LD 3UH 2A 0,0380HM	LD 0026.4603.00	FASTRON_GE	SMSC-3ROM-00	
	CHOKE				
L29	LD 330NH 10% 0,20A 1210	LD 0520.7534.00	SIEMENS	B82422-A3331-J(K)100	
	RF CHOKE				
L30	LD 330NH 10% 0,20A 1210	LD 0520.7534.00	SIEMENS	B82422-A3331-J(K)100	
	RF CHOKE				
L31	LD 1UH 10% 0,38A 1210	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
	RF CHOKE				
L32	LD 680NH 10% 0,14A 1210	LD 0690.9195.00	SIEMENS	B82422-A3681-J(K)100	
..36	RF CHOKE				
L37	LD 3,9UH1%10HMO,25A MIL	0836.4084.00	DALE	IM2	
	MOLDED INDUCTOR MIL				
L38	LD 8,2UH 10% 0,22A 1206	4038.6830.00	STETTNER	5503 8222400	
	CHIP COIL				
L39	LD 8,2UH 10% 0,22A 1206	4038.6830.00	STETTNER	5503 8222400	
	CHIP COIL				
L40	LD 3,9UH1%10HMO,25A MIL	0836.4084.00	DALE	IM2	
	MOLDED INDUCTOR MIL				
L41	LD 82 NH+-10% 0,3A 0805	LD 0009.6853.00	TOKO	LL2012-FH47NK(J)	
	SMD-MULTILAYER INDUCTOR				
L42	LD 82 NH+-10% 0,3A 0805	LD 0009.6853.00	TOKO	LL2012-FH47NK(J)	
	SMD-MULTILAYER INDUCTOR				
L43	LD 680NH 10% 0,14A 1210	LD 0690.9195.00	SIEMENS	B82422-A3681-J(K)100	
	RF CHOKE				
L44	LD 82 NH+-10% 0,3A 0805	LD 0009.6853.00	TOKO	LL2012-FH47NK(J)	
..58	SMD-MULTILAYER INDUCTOR				
L59	LD 10UH 10% 0,18A 1210	LD 0007.9255.00	SIEMENS	B82422-A1103-J(K)100	
	RF CHOKE				
L265	LD 22 NH+-10% 0,3A 0603	LD 0009.6730.00	TOKO	LL1608-FH...K(J)	
..268	SMD-MULTILAYER INDUCTOR				
N1	BO TL074ACD 4XFET OPAMP	0007.7823.00	TEXAS	TL074A(CD)	
	OPERATIONAL AMPLIFIER				
N2	BO TL074ACD 4XFET OPAMP	0007.7823.00	TEXAS	TL074A(CD)	
	OPERATIONAL AMPLIFIER				
N3	BM MAR6-SM DC-2.0G MMIC	6024.3666.00	MINI-CIRCU	MAR-6-SM	
	MICROWAVE MONOLITHIC CIRC				
N4	BM MAR6-SM DC-2.0G MMIC	6024.3666.00	MINI-CIRCU	MAR-6-SM	
	MICROWAVE MONOLITHIC CIRC				
N5	BO TL072ACD 2XFET OPAMP	0803.1057.00	TEXAS	TL 072 ACDR	
	OPERATIONAL AMPLIFIER				
N6	BO OP97FS LP PREC OPAMP	1036.4390.00	PMI	OP97F(S)	
	OPAMP				
N7	BO OP97FS LP PREC OPAMP	1036.4390.00	PMI	OP97F(S)	
	OPAMP				
N8	BO AD9631AR VF OPAMP	1085.1803.00	ANALOG_DEV	AD9631AR	
..13	IC OPAMP				
N14	BO AD744KR FET OPAMP	0854.1754.00	ANALOG_DEV	(AD)744KR	
..22	BIFET OPAMP				
P1	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
	PIN				
P2	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
	PIN				
P3	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
	PIN				
P4	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
	PIN				
P5	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
	PIN				
	NICHT BESTUECKT/NOT FITTED				
P6	VL EINPRESSSTIFT 5,6	VL 0010.7250.00	AMP	1-928776-5	
..9	PIN				

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
	NICHT BESTUECKT/NOT FITTED				
P10	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P11	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
	NICHT BESTUECKT/NOT FITTED				
P12	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P13	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
	NICHT BESTUECKT/NOT FITTED				
P14 ..19	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
	NICHT BESTUECKT/NOT FITTED				
P20 ..46	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P47	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
	NICHT BESTUECKT/NOT FITTED				
P48 ..56	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
R1	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	ROEDERSTEI	D25	
R2	RS 0,25W 2KOHM +-20% SMD POTENTIOMETER	RS 0007.9626.00	BI_TECHNOL	23 B R... TR	
R3	RG 56R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9646.00	DRALORIC	CR 0603	
R4	RG 56R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9646.00	DRALORIC	CR 0603	
R5	RG 130R +-1% TK100 0603 SMD RESISTOR EIA0603	1078.3110.00	DRALORIC	CR 0603	
R6	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R7 ..10	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R11	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R12	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R13	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R14 ..30	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R31	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R32	RG 130R +-1% TK100 0603 SMD RESISTOR EIA0603	1078.3110.00	DRALORIC	CR 0603	
R33	RG 130R +-1% TK100 0603 SMD RESISTOR EIA0603	1078.3110.00	DRALORIC	CR 0603	
R34	RG 330R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6960.00	DRALORIC	CR 0603	
R35	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R36	RG 330R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6960.00	DRALORIC	CR 0603	
R37	RG 220R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6953.00	DRALORIC	CR 0603	
R38	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R39 ..41	RG 4R75 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8379.00	PHILIPS_CO	RC 22 H	
R42	RG 7K5 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8440.00	PHILIPS_CO	RC 22 H	
R43	RG 6,80KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8891.00	PHILIPS_CO	MPC 01	
R44	RG 9,09KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.0787.00	PHILIPS_CO	RC02	
R45 ..47	RG 220R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6953.00	DRALORIC	CR 0603	
R48	RG 56R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.9646.00	DRALORIC	CR 0603	
R49	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R50	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R51	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R52	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R53	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R54 ..56	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R57	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R58	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R59	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R60	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R61	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R62	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R63	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R64	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R65	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R66 ..70	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R71	RG 220R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6953.00	DRALORIC	CR 0603	
R72	RG 33R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6918.00	DRALORIC	CR 0603	
R73 ..76	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R77	RG 33R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6918.00	DRALORIC	CR 0603	
R78 ..125	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R126	RG 4,32KOHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5814.00	PHILIPS_CO	RC02	
R127 ..129	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R130	RG 1KO +-1% TK100 CHIP RESISTOR	1206	RG 0006.7271.00	DRALORIC	CR 1206	
R131	RG 8K25 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8456.00	DRALORIC	CR 0603	
R132	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R133	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R134	RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR	1206	RG 0007.0793.00	DRALORIC	CR 1206	
R135 ..140	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R141	RG 7K5 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8440.00	PHILIPS_CO	RC 22 H	
R142	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R143	RG 121 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8903.00	PHILIPS_CO	RC02	
R144	RG 121 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8903.00	PHILIPS_CO	RC02	
R145	RG 5,11KOHM+-1%TK100 CHIP RESISTOR	1206	RG 0007.0729.00	PHILIPS_CO	RC02	
R146	RG 5,11KOHM+-1%TK100 CHIP RESISTOR	1206	RG 0007.0729.00	PHILIPS_CO	RC02	
R147	RG 3K3 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7014.00	DRALORIC	CR 0603	
R148	RG 20K +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9100.00	DRALORIC	CR 0603	
R149 ..180	RG 100 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8884.00	ROEDERSTEI	D25	
R181	RG 33K +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7066.00	PHILIPS_CO	RC 22 H	
R182 ..185	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R186	RG 619R +-1% TK100 SMD RESISTOR EIA0603	0603	1093.6169.00	DRALORIC	CR 0603	
R187	RG 619R +-1% TK100 SMD RESISTOR EIA0603	0603	1093.6169.00	DRALORIC	CR 0603	

Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R188	RG 6,80KOH+-0,1%TK25 SMD-RESISTOR EIA1206	1206	0009.8891.00	PHILIPS_CO	MPC 01	
R189	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R190	RG 1K5 +-1% TK100	0603	0009.6999.00	DRALORIC	CR 0603	
..195	SMD RESISTOR EIA0603					
R196	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R197	RG 220R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6953.00	DRALORIC	CR 0603	
R198	RG 1,82KOH+-0,1%TK25 SMD-RESISTOR	1206	0009.8010.00	PHILIPS_CO	MPC 01	
R199	RS 0,25W 20 OHM+-20% POTENTIOMETER	SMD	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R200	RS 0,25W 20 OHM+-20% POTENTIOMETER	SMD	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R201	RG 220R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6953.00	DRALORIC	CR 0603	
R202	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R203	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R204	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R205	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R206	RL 1W 1 OHM+-1%TK100 METAL FILM RESISTOR		RL 0006.2992.00	BEYSCHLAG	MBE 0414-50	
R207	RG 47K +-1% TK100	0603	0009.7072.00	DRALORIC	CR 0603	
..213	SMD RESISTOR EIA0603					
R214	RG 47R +-1% TK100	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
..218	SMD RESISTOR EIA0603					
R219	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R220	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R221	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R222	RG 6,80KOH+-0,1%TK25 SMD-RESISTOR EIA1206	1206	0009.8891.00	PHILIPS_CO	MPC 01	
R223	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R224	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R225	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R226	RG 1R +-1% TK250 SMD RESISTOR EIA0603	0603	0048.4187.00	DRALORIC	CR 0603	
R227	RG 3R32 +-1% TK250 SMD RESISTOR EIA0603	0603	0010.8362.00	DRALORIC	CR 0603	
R228	RG 3R32 +-1% TK250 SMD RESISTOR EIA0603	0603	0010.8362.00	DRALORIC	CR 0603	
R229	RG 10R +-1% TK100	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
..235	SMD RESISTOR EIA0603					
R236	RG 20,0KOH+-0,1%TK25 SMD-RESISTOR	1206	0009.7643.00	PHILIPS_CO	MPC 01	
R237	RG 10R +-1% TK100	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
..252	SMD RESISTOR EIA0603					
R253	RG 47K +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7072.00	DRALORIC	CR 0603	
R254	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R255	RG 75,0 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8855.00	PHILIPS_CO	RC02	
R256	RG 75,0 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8855.00	PHILIPS_CO	RC02	
R257	RG 562 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.9068.00	ROEDERSTEI	D25	
R258	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R259	RG 182 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9130.00	DRALORIC	CR 0603	
R260	RG 1,0 OHM+-1%TK100 CHIP-RESISTOR	1206	RG 0007.8265.00	PHILIPS_CO	RC 02	
R261	RG 330R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6960.00	DRALORIC	CR 0603	
R262	RG 330R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6960.00	DRALORIC	CR 0603	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R263	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R264	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R265 ..268	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R269	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R270	RG 511R +-1%TK100 0603 SMD RESISTOR EIA0603	1097.6470.00	DRALORIC	CR 0603	
R271	RG 511R +-1%TK100 0603 SMD RESISTOR EIA0603	1097.6470.00	DRALORIC	CR 0603	
R272	RG 2K2 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7008.00	DRALORIC	CR 0603	
R273	RG 2K2 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7008.00	DRALORIC	CR 0603	
R274	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R275	RG 825R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8391.00	PHILIPS_CO	RC 22 H	
R276	RG 2,43KOH+-0,1%TK25 1206 RESISTOR	0010.1974.00	PHILIPS_CO	MPC 01	
R277	RG 6,80KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.8891.00	PHILIPS_CO	MPC 01	
R278	RG 6K8 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7037.00	DRALORIC	CR 0603	
R279	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R280	RG 1K82 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8404.00	PHILIPS_CO	RC 22 H	
R281	RG 1K82 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8404.00	PHILIPS_CO	RC 22 H	
R282	RG 825 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.9930.00	PHILIPS_CO	MPC 01	
R283	RG 825 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.9930.00	PHILIPS_CO	MPC 01	
R284 ..287	RG 22K +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7050.00	DRALORIC	CR 0603	
R288	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R289	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R290	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R291	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R292	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R293	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R294	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R295	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R296	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R297	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R298	RG 1K82 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8404.00	PHILIPS_CO	RC 22 H	
R299 ..316	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R317	RG 10,0KOH+-0,1%TK25 1206 SMD-RESISTOR	0009.7666.00	PHILIPS_CO	MPC 01	
R318 ..320	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R321	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R322	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R323	RG 750 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.9923.00	PHILIPS_CO	MPC 01	
R324	RG 750 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	0009.9923.00	PHILIPS_CO	MPC 01	
R325 ..328	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R329	RG 6K8 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7037.00	DRALORIC	CR 0603	

wir uns alle machte vor.

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R330	RG 1,82KOH+-0,1%TK25 1206 SMD-RESISTOR	0009.8010.00	PHILIPS_CO	MPC 01	
R331	RG 240 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206	2035.3780.00	PHILIPS_CO	MPC 01	
R332	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R333 ..348	RG 51,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8810.00	PHILIPS_CO	RC02	
R349	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R350	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R351	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R352	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R353 ..357	RG 221 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5614.00	DRALORIC	CR 1206	
R358 ..360	RG 51,0 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9030.00	DRALORIC	CR 0603	
R361	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R362 ..369	RG 100K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5363.00	DRALORIC	CR 0603	
R370	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R371	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R372	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R373 ..375	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R376	RG 20K +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9100.00	DRALORIC	CR 0603	
R377	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R378 ..395	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R396	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R397	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R398	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R399 ..401	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R402	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R403 ..409	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R410	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R411	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R412 ..425	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R426	RG 20K +-1% TK100 0603 SMD RESISTOR EIA0603	0010.9100.00	DRALORIC	CR 0603	
R427	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R428	RG 1K5 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6999.00	DRALORIC	CR 0603	
R429	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R430	RG 1,0 OHM+-1%TK100 1206 CHIP-RESISTOR	RG 0007.8265.00	PHILIPS_CO	RC 02	
R431	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R432	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R433	RG 3K3 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7014.00	DRALORIC	CR 0603	
R434	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R435	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R436 ..450	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R451	RG 121 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9498.00	DRALORIC	CR 0603	
R452	RG 121 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9498.00	DRALORIC	CR 0603	
R453	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R454	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R455	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R456	RG 8K25 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8456.00	DRALORIC	CR 0603	
R457	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R458	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R459	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R460	RG 90,9KOHM+-1%TK100 CHIP RESISTOR	1206	RG 0007.1931.00	PHILIPS_CO	RC02	
R461	RG 27OR +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R462	RG 27OR +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R463	RG 240 OHM+-0,1%TK25 SMD-RESISTOR EIA1206	1206	2035.3780.00	PHILIPS_CO	MPC 01	
R464	RG 22OR +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6953.00	DRALORIC	CR 0603	
R465	RS 0,25W2OO OHM+-20% POTENTIOMETER	SMD	RS 0007.9590.00	BI_TECHNOL	23 B R... TR	
R466	RG 68OR +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R467	RS 0,25W2OO OHM+-20% POTENTIOMETER	SMD	RS 0007.9590.00	BI_TECHNOL	23 B R... TR	
R468	RG 68OR +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R469	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R470	RG 2,43KOH+-0,1%TK25 RESISTOR	1206	0010.1974.00	PHILIPS_CO	MPC 01	
R471	RS 0,25W2OKOHM +-20% POTENTIOMETER	SMD	RS 0007.9655.00	BI_TECHNOL	23 B R... TR	
R472	RG 56R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.9646.00	DRALORIC	CR 0603	
R473	RG 1OOR +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R474	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R475	RG 30K1+-1% TK100 SMD RESISTOR EIA0603	0603	0010.9281.00	DRALORIC	CR 0603	
R476	RG 33K +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7066.00	PHILIPS_CO	RC 22 H	
R477 ..480	RG 1,5KOHM+-0,1%TK25 SMD-RESISTOR EIA1206	1206	0009.9975.00	PHILIPS_CO	MPC 01	
R481	RG 1OOR +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R482 ..485	RG 15OR +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R486	RG 12K1 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8462.00	DRALORIC	CR 0603	
R487	RG 15OR +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R488 ..490	RG O-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
R491	RG 2K2 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7008.00	DRALORIC	CR 0603	
R492	RG O-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
R493	RG 1K82 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8404.00	PHILIPS_CO	RC 22 H	
R494	RG 9,09KOHM+-1%TK100 CHIP RESISTOR	1206	RG 0007.0787.00	PHILIPS_CO	RC02	
R495	RG 432R +-1%TK100 SMD RESISTOR EIA0603	0603	0009.9098.00	DRALORIC	CR 0603	
R496	RG O-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
R497	RG O-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R498	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R499	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R500	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R501	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R502 ..504	RG 330R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6960.00	DRALORIC	CR 0603	
R505	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R506	RG 475 OHM+-0,1%TK25 SMD-RESISTOR EIA1206	1206	0009.8110.00	PHILIPS_CO	MPC 01	
R507	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R508	RG 2K74 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8410.00	PHILIPS_CO	RC 22 H	
R509	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R510	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R511	RG 100K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5363.00	DRALORIC	CR 0603	
R512	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R513	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R514 ..516	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R517	RG 150K +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7095.00	DRALORIC	CR 0603	
R518	RG 10,0KOH+-0,1%TK25 SMD-RESISTOR	1206	0009.7666.00	PHILIPS_CO	MPC 01	
R519 ..522	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R523	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R524	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R525	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R526	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R527	RG 150R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R528	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R529	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R530	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R531	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R532	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R533 ..535	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R536	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R537 ..541	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R542	RG 475 OHM+-0,1%TK25 SMD-RESISTOR EIA1206	1206	0009.8110.00	PHILIPS_CO	MPC 01	
R543	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R544	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R545	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R546	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R547	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R548 ..554	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R555	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R556	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R557	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R558	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R559	RG 5K62 +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8433.00	DRALORIC	CR 0603	
R560	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R561	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R562	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R563	RG 5K11 +-1% TK100 0603 SMD RESISTOR EIA0603	1097.6334.00	PHILIPS_CO	RC 22 H	
R564 ..568	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R569	RG 100 OHM+-0,1%TK25 1206 SMD-RESISTOR	0009.8033.00	PHILIPS_CO	MPC 01	
R570	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R571	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R572	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R573	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R574	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R575	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R576 ..616	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R617 ..620	RG O-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R621 ..627	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R628	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R629	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R630	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R631	RG 47K +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7072.00	DRALORIC	CR 0603	
R632 ..637	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R638	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R639 ..651	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R652	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R653 ..656	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
R657 ..665	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R666	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R667	RG 4K7 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7020.00	DRALORIC	CR 0603	
U2 ..9	BO LM339D 4X COMPAR COMPARATOR	0007.3757.00	SIGNETICS	LM-339D	
U10	BO LM2903D 2XLP COMPAR DUAL	0520.7734.00	SIGNETICS	LM2903(D)	
U11	BO LM2903D 2XLP COMPAR DUAL	0520.7734.00	SIGNETICS	LM2903(D)	
V1 ..6	AM BSR56 N-D 40V JFET N-CHANNEL JUNCTION-FET	AM 0007.3111.00	VALVO	BSR56	
V7 ..10	AK BC860B P 45V 200MA TRANSISTOR	AK 0007.7975.00	MOTOROLA	BC860B	
V11	AK BFS17 N 15V 25MA 1 GHZ WIDEBAND TRANSISTOR	AK 0010.6460.00	VALVO	BFS17	
V12 ..15	AK BCP69-25 P 20V TRANS MEDIUM POWER TRANSISTOR	0008.2002.00	PHILIPS	BCP 69-16 (25)	

1GPK 854 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	20	12.08.99	EE MODULATIONSCODER MODULATION CODER	1085.5050.01 SA	14+

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
V16	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V17	AE HSMS2810 SCHOTTKY SCHOTTKY DIODE	0520.7340.00	HEWLETT_PA	HSMS-2810	
V18	AD BAW56 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0012.9350.00	PHILIPS	BAW56 (A1P)	
V19	AE BZV55/C7V5 0,5W ZDI ZENER DIODE	AE 0007.3428.00	PHILIPS_SE	BZV55B7V5	
V20	AE HSMS2800 SCHOTTKY SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
V21	AE HSMS2800 SCHOTTKY SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
V22	AD BAW56 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0012.9350.00	PHILIPS	BAW56 (A1P)	
V23	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V24	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V25	AD BAW56 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0012.9350.00	PHILIPS	BAW56 (A1P)	
V26	AE HSMS2810 SCHOTTKY SCHOTTKY DIODE	0520.7340.00	HEWLETT_PA	HSMS-2810	
V27 ..31	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V32	AK BSR12 P 15V 100MA TRANSISTOR	AK 0007.2067.00	PHILIPS_SE	BSR12	
V33	AK BSR12 P 15V 100MA TRANSISTOR	AK 0007.2067.00	PHILIPS_SE	BSR12	
V34	AE BZX284-B2V7 0,4W ZDI ZENER DIODE	0048.3345.00	PHILIPS_SE	BZX284-B2V7	
V35	AK BFS20 N 20V 25MA TRANSISTOR	AK 0010.6482.00	PHILIPS	BFS20	
V36	AD BAW56 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0012.9350.00	PHILIPS	BAW56 (A1P)	
V37 ..52	AD BAV99 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0911.0092.00	VALVO	BAV99	
V53 ..55	AE HSMS2800 SCHOTTKY SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
V56 ..66	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V67	AE BZX284-B6V8 0,4W ZDI ZENER DIODE	0048.3545.00	PHILIPS_SE	BZX284-B6V8	
V68 ..72	AD BAV70 70V DUO UDI DUAL DIODE COMMON CATHODE	0007.9278.00	PHILIPS	BAV70	
V73 ..104	AM BSS138 N-E 50V MOSF MOSFET	0520.7740.00	SIEMENS	BSS138 (-S566)	
V105	AD BAV70 70V DUO UDI DUAL DIODE COMMON CATHODE	0007.9278.00	PHILIPS	BAV70	
X1	FJ EINLOETBUCHSE MMCX SMD CONNECTOR	1075.4045.00	SUHNER	82MMCX-S50-0-51/1110	
X4	FJ EINLOETBUCHSE MMCX SMD CONNECTOR	1075.4045.00	SUHNER	82MMCX-S50-0-51/1110	
X11	FP STECKERLEISTE 12POL CONNECTOR 12P NICHT BESTUECKT/NOT FITTED	FP 0701.5231.00	BINDER	11-0203-00-12	
X320	FP STECKERLEISTE 64P. CONNECTOR 64P.	FP 0008.5747.00	DEUT_ELCO	16 8457 064 002 025	
X321	FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR	FJ 0602.8804.00	ROSENBERGE	59S-206-400-D3	
X322	FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR	FJ 0602.8804.00	ROSENBERGE	59S-206-400-D3	
X323 ..330	FJ EINLOETBUCHSE MMCX CONNECTOR	1085.1532.00	SUHNER	82MMCXS50-0-2/111KG	
Z1 ..3	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z4 ..10	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z11 ..14	LD PI-FILTER 2X1NF SMD SMD-CERAMIC-PI-FILTER	4024.7152.00	TUSONIX	4700-003	
Z15 ..46	LD T-FILTER 33PF SMD SMD-T-FILTER 33PF	1062.6744.00	MURATA	NFM61R00T330	
Z47	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z48	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	

1GPK 854 3PLU	Ä1	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	20	12.08.99	EE MODULATIONSCODER MODULATION CODER	1085.5050.01 SA	15+

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
Z49	LD T-FILTER 3,3NF SMD-FILTER	SMD	1039.1362.00	MURATA	NFM61R2OT332T1	
Z50	LD T-FILTER 100PF SMD-FILTER	SMD	1039.1356.00	MURATA	NFM61ROOT1O1T1	

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ROHDE&SCHWARZ

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

el. Kennz.	**Bauelement-Kennzeichen**
Seite	**Leiterplatten-Seite, auf der sich das Bauelement befindet**
X/Y	**Koordinaten (in Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt**
Planq., Bl.	**Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement**

Explanation of column designations:

Part	**Identification of instrument part**
Side	**Side of the PC board on which instrument part is positioned**
X/Y	**Coordinates (in units of millimeters) of the component on the PC board in reference to zero point**
Sqr, Pg	**Square and page of the diagram for the respective instrument part**

Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C1	B	275	99	5E	15	C54	B	121	110	5E	7	C107	B	176	92	8E	13
C2	B	273	101	5E	15	C55	B	139	93	6E	7	C108	B	188	109	7E	13
C3	A	275	76	7E	15	C56	B	164	142	4D	7	C109	B	198	96	7E	13
C4	A	297	76	7C	15	C57	B	105	77	1E	8	C110	A	239	117	1E	14
C5	B	295	102	5C	15	C58	A	122	92	6C	8	C111	A	240	101	2E	14
C6	B	297	100	5C	15	C59	B	32	23	10D	17	C112	A	236	134	2E	14
C7	A	152	141	6C	7	C60	B	100	99	4F	8	C113	B	239	113	4E	14
C8	A	91	137	2C	7	C61	A	94	95	4E	8	C114	B	243	137	4E	14
C9	A	131	141	6A	7	C62	A	92	75	2E	8	C115	B	227	123	4E	14
C10	B	151	36	4E	2	C63	A	95	90	2E	8	C116	B	59	75	6D	3
C11	B	177	38	3D	2	C64	A	185	59	2E	9	C117	A	279	128	2D	15
C12	B	41	104	7E	4	C65	B	185	65	3E	9	C118	A	277	135	2D	15
C13	B	58	119	6E	4	C66	A	159	57	5E	9	C119	B	263	108	4C	15
C14	A	36	135	5E	4	C67	B	159	65	6E	9	C120	B	274	110	3E	15
C15	B	25	112	5E	4	C68	A	229	39	3E	10	C121	B	270	110	3E	15
C16	B	27	137	2B	4	C69	B	231	47	4E	10	C122	B	277	68	3E	15
C17	A	71	131	2F	4	C70	A	209	58	5E	10	C123	B	273	69	3E	15
C18	A	107	133	4A	7	C71	B	211	65	6E	10	C124	A	301	122	2B	15
C19	B	91	47	2E	3	C72	A	233	50	3E	11	C125	A	301	128	2B	15
C20	A	48	105	2F	4	C73	A	247	46	4E	11	C126	B	284	108	4A	15
C21	B	34	74	3F	4	C74	B	226	60	7C	11	C127	A	301	111	2A	15
C22	A	23	70	3F	4	C75	A	159	70	6E	12	C128	A	299	135	2B	15
C23	A	99	12	2C	2	C76	A	143	71	7E	12	C129	B	295	110	2E	15
C24	B	23	90	8E	4	C77	B	175	68	7E	12	C130	B	292	110	2E	15
C25	B	40	90	8E	4	C78	B	128	75	8E	12	C131	B	294	69	5E	15
C26	A	47	126	1E	4	C79	B	163	71	5E	12	C132	B	18	92	2F	4
C27	A	36	128	1E	4	C80	A	97	48	3E	12	C133	A	274	35	11C	15
C28	A	59	126	2E	4	C81	B	107	36	3E	12	C134	A	279	113	2C	15
C29	B	19	110	2E	4	C82	B	124	72	4E	12	C135	A	290	34	11A	15
C30	A	84	106	4F	5	C83	B	135	61	4E	12	C136	B	292	38	2F	15
C31	A	84	118	4F	5	C84	A	206	95	1E	13	C137	B	272	39	1F	15
C32	A	71	105	5F	5	C85	B	187	140	2E	13	C138	B	286	33	2E	15
C33	A	40	76	5F	5	C86	B	198	131	2E	13	C139	B	268	34	1E	15
C34	A	40	86	6F	5	C87	B	191	111	2E	13	C140	A	279	123	2D	15
C35	A	56	91	6F	5	C88	B	176	126	3E	13	C141	B	22	33	1F	4
C36	A	40	92	7F	5	C89	B	183	110	3E	13	C142	B	20	22	8B	17
C37	A	69	74	8F	5	C90	A	206	81	2E	13	C143	B	25	59	2E	18
C38	B	57	101	8F	5	C91	B	200	126	4E	13	C144	B	52	29	3E	18
C39	A	70	119	3F	5	C92	B	208	140	4E	13	C145	B	41	26	3E	18
C40	B	59	137	1F	6	C93	B	222	128	4E	13	C146	A	70	43	3C	18
C41	B	62	87	2F	6	C94	B	215	111	4E	13	C147	B	61	47	4B	18
C42	B	62	105	2F	6	C95	B	207	110	5E	13	C148	B	61	53	4B	18
C43	B	61	119	3F	6	C96	A	206	119	1E	13	C149	B	61	39	3A	18
C44	B	81	73	3F	6	C97	A	224	119	6E	13	C150	B	297	69	5E	15
C45	B	83	60	4F	6	C98	A	223	83	5E	13	C151	A	289	89	5C	15
C46	A	82	69	5F	6	C99	A	225	92	5E	13	C152	A	91	43	3E	3
C47	A	106	47	5F	6	C100	B	208	79	6E	13	C153	A	99	134	3B	7
C48	A	159	138	6C	7	C101	B	211	108	6E	13	C154	B	21	35	1F	4
C49	A	138	137	6A	7	C102	B	223	98	7E	13	C155	B	12	25	7D	17
C50	A	123	130	1E	7	C103	B	216	79	7E	13	C156	B	13	28	7C	17
C51	B	142	143	3D	7	C104	B	200	93	7E	13	C157	A	267	89	5E	15
C52	B	158	111	5E	7	C105	B	184	79	8E	13	C158	B	290	76	9A	15
C53	B	145	131	5E	7	C106	B	191	79	8E	13	C159	B	291	61	10A	15

1GPK HM	Datum / Date	XY-Liste fuer / XY-list for	Sachnummer / Stock-No.	Aei	Blatt / Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	1+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
C160	B	290	49	10A	15	C215	A	48	63	2E	5	C270	B	135	82	4E	16
C161	B	267	99	9C	15	C216	B	82	15	2C	2	C271	A	143	86	5E	16
C162	B	289	98	9A	15	C217	B	95	116	4D	8	C272	A	23	41	5E	16
C163	B	26	24	8D	17	C218	A	23	80	4F	4	C273	B	258	90	5E	16
C164	A	105	130	4B	7	C219	B	179	18	2D	2	C274	B	174	109	6E	16
C165	A	111	127	4C	7	C220	A	105	132	3B	7	C275	A	159	126	6E	16
C166	B	268	76	9C	15	C221	B	231	64	10A	11	C276	B	162	111	7E	16
C167	A	89	121	2B	7	C222	B	87	119	2B	7	C277	A	159	110	7E	16
C168	A	110	139	4C	7	C223	B	102	103	4E	8	C278	B	258	106	7E	16
C169	A	108	136	4D	7	C224	B	96	104	4F	8	C279	A	31	106	1E	4
C170	A	234	46	2B	11	C225	A	294	74	7B	15	C280	B	290	44	11A	15
C171	A	234	52	2D	11	C226	A	101	110	9D	8	C281	A	140	142	2E	7
C172	A	241	57	5B	11	C227	B	104	116	9B	8	C282	B	267	102	9C	15
C173	A	244	41	5D	11	C228	B	113	123	3D	8	C283	B	269	44	11C	15
C174	B	24	33	8C	17	C229	A	99	112	4C	8	C284	A	188	80	8E	13
C175	B	269	50	10C	15	C230	B	251	47	3D	11	C285	A	186	114	3E	13
C176	B	269	61	10C	15	C231	B	251	66	5D	11	C286	A	58	35	9C	18
C177	B	66	16	8D	18	C232	B	251	57	6B	11	C288	B	117	84	7F	6
C178	B	288	102	9A	15	C233	B	251	39	3B	11	C289	A	120	56	8F	6
C179	A	278	87	6D	15	C234	A	104	44	6B	12	C290	A	118	73	7F	6
C180	A	300	87	6B	15	C235	B	41	44	7B	17	C291	A	91	54	3F	3
C181	A	120	44	6F	6	C236	B	55	32	9D	18	C292	A	78	57	9D	3
C182	B	107	125	4B	7	C237	A	54	22	9C	18	C293	A	23	131	4F	4
C183	B	100	131	3B	7	C238	B	44	35	4E	18	C294	B	57	40	5B	18
C184	B	115	104	8B	8	C239	B	54	38	4E	18	C295	B	13	112	4F	4
C185	B	13	93	1E	4	C240	B	56	18	5E	18	C296	B	112	18	2C	2
C186	B	100	133	3C	7	C241	B	58	26	5E	18	C297	B	90	15	2A	2
C187	B	108	139	4C	7	C242	A	64	31	5E	18	C298	B	186	23	2A	2
C188	A	48	37	6B	18	C243	A	57	20	5E	18	C299	A	86	121	2B	7
C189	A	278	71	7D	15	C244	A	68	26	6E	18	C300	B	236	110	5E	14
C190	A	300	71	7B	15	C245	B	19	61	2E	4	C301	A	231	91	6E	14
C191	A	274	96	6E	15	C246	A	19	62	10B	4	C302	A	232	100	5E	14
C192	A	273	64	8D	15	C247	A	124	17	2E	2	C303	B	223	94	6E	14
C193	A	294	63	8B	15	C248	A	273	74	7D	15	D1	A	192	118	1F	13
C194	A	295	96	6C	15	C249	B	100	96	4A	8	D1	A	192	118	6A	13
C195	A	278	59	8D	15	C250	B	103	96	4B	8	D2	A	192	97	1F	13
C196	A	300	58	8B	15	C251	B	63	17	8C	18	D2	A	192	97	6B	13
C197	A	48	27	9B	18	C252	A	45	28	9B	18	D3	A	192	81	2F	13
C198	A	52	32	7B	18	C253	A	52	44	6B	18	D3	A	192	81	6D	13
C199	B	94	90	4A	8	C254	B	33	72	4A	4	D4	A	209	97	10B	13
C200	B	106	90	4B	8	C255	B	67	23	7D	18	D4	A	209	97	5F	13
C201	A	103	116	9C	8	C256	B	219	67	9B	11	D5	A	209	81	10A	13
C202	A	115	114	8B	8	C257	B	278	117	3D	15	D5	A	209	81	5E	13
C203	B	145	24	3E	2	C258	B	277	114	3D	15	D6	A	209	118	10D	13
C204	A	59	61	3E	5	C259	B	299	118	3B	15	D6	A	209	118	6F	13
C205	B	46	61	3F	4	C260	B	299	114	3B	15	D7	A	247	98	1F	14
C206	B	256	42	3B	11	C261	B	274	37	10D	15	D7	A	247	98	9D	14
C207	B	256	50	3D	11	C262	B	294	36	10B	15	D8	A	247	131	2F	14
C208	B	256	60	5B	11	C263	A	58	49	3E	16	D8	A	247	131	9B	14
C209	B	256	68	5D	11	C264	A	159	133	1E	16	D9	A	247	115	2F	14
C210	B	301	133	1D	15	C265	B	163	126	1E	16	D9	A	247	115	9C	14
C211	B	271	138	1D	15	C266	A	159	96	2E	16	D10	B	36	77	10C	4
C212	B	64	51	5B	18	C267	A	176	80	2E	16	D10	B	36	77	7F	4
C213	B	117	89	6A	8	C268	A	37	42	3E	16	D11	B	53	76	11C	4
C214	B	113	109	8B	8	C269	B	152	81	4E	16	D11	B	53	76	8F	4

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	2+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
D12	A	111	44	10D	6	D31	A	227	80	8E	15	D52	A	149	138	7C	7
D12	A	111	44	6F	6	D31	A	227	80	8E	15	D52	A	149	138	7D	7
D13	A	53	88	10C	5	D32	A	98	78	1E	8	D52	A	149	138	7E	7
D13	A	53	88	6F	5	D32	A	98	78	3A	8	D53	A	87	78	1C	8
D14	A	43	91	6F	5	D32	A	98	78	3B	8	D53	A	87	78	2B	8
D14	A	43	91	9C	5	D33	A	129	87	2D	16	D53	A	87	78	2B	8
D15	A	27	91	6C	5	D33	A	129	87	5F	16	D53	A	87	78	2E	8
D15	A	27	91	7F	5	D34	B	96	58	4F	6	D53	A	87	78	2F	8
D16	A	37	88	5F	5	D34	B	96	58	7B	6	D54	A	82	43	3F	3
D16	A	37	88	8C	5	D35	A	59	18	5E	18	D54	A	82	43	9D	3
D17	A	90	12	2A	3	D35	A	59	18	7B	18	D55	B	20	113	11C	4
D17	A	90	12	2B	3	D35	A	59	18	7B	18	D55	B	20	113	2C	4
D17	A	90	12	2B	3	D35	A	59	18	8B	18	D55	B	20	113	2C	4
D17	A	90	12	2C	3	D35	A	59	18	8B	18	D55	B	20	113	3E	4
D17	A	90	12	2F	3	D36	A	293	43	7E	15	D55	B	20	113	4F	4
D18	B	62	135	1F	6	D36	A	293	43	9C	15	D56	A	68	55	3B	18
D18	B	62	135	3A	6	D37	A	75	73	2A	6	D57	A	134	17	2E	2
D19	B	65	119	3B	6	D37	A	75	73	2B	6	D58	A	288	114	1A	15
D19	B	65	119	3F	6	D37	A	75	73	2C	6	D59	A	266	114	1C	15
D20	B	65	103	2F	6	D37	A	75	73	2D	6	D60	B	41	63	3F	4
D20	B	65	103	3C	6	D37	A	75	73	3F	6	D60	B	41	63	5A	4
D21	B	65	88	1F	6	D38	B	133	70	8B	12	D60	B	41	63	5E	4
D21	B	65	88	3D	6	D38	B	133	70	8F	12	D60	B	41	63	3A	5
D22	B	28	121	4A	4	D39	B	26	49	2C	18	D60	B	41	63	3C	5
D22	B	28	121	5F	4	D39	B	26	49	2E	18	D60	B	41	63	1E	6
D23	B	177	65	3E	9	D40	A	62	132	2F	4	D60	B	41	63	8D	6
D23	B	177	65	5B	9	D40	A	62	132	6A	4	D61	A	59	76	7F	5
D24	B	152	65	11C	9	D41	A	40	62	2B	5	D61	A	59	76	8D	5
D24	B	152	65	5E	9	D41	A	40	62	2F	5	D62	A	69	102	8F	5
D25	B	223	46	11B	10	D42	A	62	118	3F	5	D62	A	69	102	9D	5
D25	B	223	46	4E	10	D42	A	62	118	7A	5	D63	B	155	98	4E	7
D26	B	203	65	6C	10	D43	A	62	106	5F	5	D63	B	155	98	9A	7
D26	B	203	65	6E	10	D43	A	62	106	8A	5	D64	A	25	23	10B	17
D27	A	29	65	1F	4	D44	A	75	118	4F	5	D64	A	25	23	10D	17
D27	A	29	65	8D	4	D44	A	75	118	9A	5	D65	A	108	92	5A	8
D27	A	29	65	8D	4	D45	A	75	106	10A	5	D65	A	108	92	6B	8
D27	A	29	65	9D	4	D45	A	75	106	4F	5	D65	A	108	92	6C	8
D27	A	29	65	9D	4	D46	A	86	89	2C	8	D66	A	216	58	5E	11
D28	A	73	43	3F	3	D46	A	86	89	2E	8	D66	A	216	58	8B	11
D28	A	73	43	8C	3	D47	A	14	113	11A	4	D66	A	216	58	9C	11
D29	A	120	133	1E	7	D47	A	14	113	11A	4	D67	B	101	67	3A	12
D29	A	120	133	3E	7	D47	A	14	113	11A	4	D67	B	101	67	3F	12
D29	A	120	133	3F	7	D47	A	14	113	2E	4	D68	B	163	93	10B	12
D29	A	120	133	7B	7	D48	A	14	91	11B	4	D68	B	163	93	5F	12
D29	A	120	133	7B	7	D48	A	14	91	11B	4	D69	B	230	125	4E	14
D30	A	16	23	7C	17	D48	A	14	91	11C	4	D69	B	230	125	6B	14
D30	A	16	23	8B	17	D48	A	14	91	2F	4	D70	A	14	69	11A	2
D30	A	16	23	8B	17	D49	B	148	136	4E	7	D70	A	14	69	3F	4
D30	A	16	23	8C	17	D49	B	148	136	5C	7	D70	A	14	69	5A	4
D30	A	16	23	9D	17	D50	B	127	136	3E	7	D70	A	14	69	6E	4
D31	A	227	80	1A	15	D50	B	127	136	5A	7	D70	A	14	69	7D	4
D31	A	227	80	1C	15	D51	A	111	56	10C	6	D71	A	176	58	2A	9
D31	A	227	80	4E	15	D51	A	111	56	8F	6	D71	A	176	58	2D	9
D31	A	227	80	7E	15	D52	A	149	138	2E	7	D71	A	176	58	2E	9
D31	A	227	80	7F	15	D52	A	149	138	6E	7	D71	A	176	58	4B	9

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	3+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
D71	A	176	58	4D	9	D94	A	178	84	8E	13	D115	A	49	108	6C	4
D72	A	150	58	10D	9	D95	B	62	78	4F	3	D116	A	39	126	1E	4
D72	A	150	58	5E	9	D95	B	62	78	4F	3	D116	A	39	126	8B	4
D72	A	150	58	7A	9	D95	B	62	78	6D	3	D116	A	39	126	8C	4
D72	A	150	58	7D	9	D95	B	62	78	7D	3	D116	A	39	126	8C	4
D72	A	150	58	9B	9	D95	B	62	78	9D	3	D116	A	39	126	8C	4
D73	A	220	39	2B	10	D96	B	248	104	8B	16	D117	A	14	130	1C	4
D73	A	220	39	2D	10	D96	B	248	104	8F	16	D117	A	14	130	4F	4
D73	A	220	39	3E	10	D97	A	101	49	8A	14	D118	B	26	61	2E	4
D73	A	220	39	5B	10	D97	A	101	49	1C	6	D118	B	26	61	4E	4
D73	A	220	39	5D	10	D97	A	101	49	2D	6	G1	B	62	31	2A	18
D74	A	200	58	10D	10	D97	A	101	49	5E	6	G2	B	17	133	2B	4
D74	A	200	58	5E	10	D97	A	101	49	5F	6	G3	B	94	124	2B	7
D74	A	200	58	7A	10	D98	A	161	85	2F	16	G4	B	224	51	8A	11
D74	A	200	58	8D	10	D98	A	161	85	4A	16	K1	B	279	83	5C	15
D74	A	200	58	9A	10	D99	A	145	93	2F	16	K1	B	279	83	7C	15
D75	A	145	70	6C	12	D99	A	145	93	4B	16	K1	B	279	83	8C	15
D75	A	145	70	6F	12	D100	B	173	128	2F	16	K2	B	301	83	5A	15
D76	A	129	70	7D	12	D100	B	173	128	6B	16	K2	B	301	83	7A	15
D76	A	129	70	7F	12	D101	A	172	141	1F	16	K2	B	301	83	8A	15
D77	A	162	68	7F	12	D101	A	172	141	6A	16	K3	B	288	26	5B	17
D77	A	162	68	9B	12	D102	A	29	44	3B	16	K3	B	288	26	5D	17
D78	A	95	70	4F	6	D102	A	29	44	3F	16	K3	B	288	26	6C	17
D78	A	95	70	7D	6	D103	B	149	89	2A	16	K4	B	274	26	5B	17
D79	A	272	43	6E	15	D103	B	149	89	4F	16	K4	B	274	26	5C	17
D79	A	272	43	9D	15	D104	B	132	90	2B	16	K4	B	274	26	5C	17
D80	A	109	74	10B	6	D104	B	132	90	4F	16	K5	B	254	26	3B	17
D80	A	109	74	7F	6	D105	A	45	47	3A	16	K5	B	254	26	3C	17
D81	B	178	135	2A	13	D105	A	45	47	3F	16	K5	B	254	26	3D	17
D81	B	178	135	2F	13	D106	B	51	63	3F	4	K6	B	240	26	2B	17
D82	B	178	103	4A	13	D106	B	51	63	3A	5	K6	B	240	26	2C	17
D82	B	178	103	7E	13	D106	B	51	63	3A	5	K6	B	240	26	2C	17
D83	B	203	103	6F	13	D106	B	51	63	3B	5	K7	B	41	23	10A	18
D83	B	203	103	7A	13	D106	B	51	63	3B	5	K7	B	41	23	10B	18
D84	B	203	135	4F	13	D107	A	14	80	4F	4	K7	B	41	23	6C	18
D84	B	203	135	9A	13	D107	A	14	80	4D	5	L1	B	17	25	7D	17
D85	A	13	44	3D	16	D107	A	14	80	5D	5	L2	B	265	105	9C	15
D85	A	13	44	5F	16	D108	B	228	105	3B	14	L3	B	265	92	9C	15
D86	B	248	88	6F	16	D108	B	228	105	5F	14	L4	B	267	73	9C	15
D86	B	248	88	8C	16	D109	A	51	62	2C	5	L5	B	267	47	11C	15
D87	B	162	108	6F	16	D109	A	51	62	2F	5	L6	B	286	104	9A	15
D87	B	162	108	9C	16	D110	A	27	130	11B	4	L7	B	286	92	9A	15
D88	A	172	126	10C	16	D110	A	27	130	1E	4	L8	B	288	73	9A	15
D88	A	172	126	6F	16	D110	A	27	130	2A	4	L9	B	288	47	11A	15
D89	B	174	111	10B	16	D110	A	27	130	6D	4	L10	B	288	133	1D	15
D89	B	174	111	7F	16	D110	A	27	130	3D	5	L11	B	265	138	1D	15
D90	A	172	111	7F	16	D111	B	20	94	1A	4	L12	B	18	31	7C	17
D90	A	172	111	9B	16	D111	B	20	94	1E	4	L13	B	61	59	5C	18
D91	B	73	48	2F	3	D112	A	50	125	2E	4	L14	B	106	132	4B	7
D91	B	73	48	6A	3	D112	A	50	125	8A	4	L15	B	117	139	4C	7
D92	B	109	83	10A	6	D113	A	28	108	1E	4	L16	B	150	20	2A	2
D92	B	109	83	7F	6	D113	A	28	108	8B	4	L17	A	119	18	2C	2
D93	A	178	117	1A	13	D114	A	39	108	2F	4	L18	B	65	44	3C	2
D93	A	178	117	3F	13	D114	A	39	108	6C	4	L19	B	70	34	3C	2
D94	A	178	84	4A	13	D115	A	49	108	1F	4	L20	B	32	41	3C	2

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	4+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
L21	B	155	38	4E	2	N5	B	221	68	10B	11	P21	B	269	30	11D	15
L22	B	275	119	3D	15	N5	B	221	68	3E	11	P22	B	287	29	11B	15
L23	B	296	120	3B	15	N5	B	221	68	9B	11	P23	B	91	114	10B	8
L24	B	145	36	4E	2	N6	B	267	123	2C	15	P24	B	91	117	10B	8
L25	A	58	44	5B	18	N7	B	288	122	2A	15	P25	B	91	119	10B	8
L26	A	48	34	7B	18	N8	B	269	108	3E	15	P26	B	53	142	3B	4
L27	B	163	24	2D	2	N8	B	269	108	4C	15	P27	B	50	142	3C	4
L28	B	107	21	2C	2	N9	B	291	108	2E	15	P28	B	53	139	3C	4
L29	B	29	25	8D	17	N9	B	291	108	4A	15	P29	B	24	107	5A	4
L30	B	30	31	8C	17	N10	B	273	47	1E	15	P30	B	21	109	6A	4
L31	B	113	120	3D	8	N10	B	273	47	9D	15	P31	B	40	139	6B	4
L32	B	285	63	10A	15	N11	B	276	30	10D	15	P32	B	40	142	6B	4
L33	B	285	51	10A	15	N11	B	276	30	1E	15	P33	B	55	139	6B	4
L34	B	265	79	9C	15	N12	B	294	30	10B	15	P34	B	55	142	6B	4
L35	B	264	63	10C	15	N12	B	294	30	2E	15	P35	B	37	139	5B	4
L36	B	264	50	10C	15	N13	B	294	46	2E	15	P36	B	37	142	5B	4
L37	B	288	60	10A	15	N13	B	294	46	9B	15	P37	B	50	139	5B	4
L38	A	52	39	6B	18	N14	A	270	84	3E	15	P38	B	48	139	5B	4
L39	A	45	38	6B	18	N14	A	270	84	5D	15	P39	B	45	139	5A	4
L40	B	267	60	10C	15	N15	A	270	55	3E	15	P40	B	45	142	5A	4
L41	B	187	44	7E	2	N15	A	270	55	8D	15	P41	B	43	142	5A	4
L42	A	188	34	7E	2	N16	A	269	67	4E	15	P42	B	43	139	5A	4
L43	B	287	79	9A	15	N16	A	269	67	7D	15	P43	B	35	142	5B	4
L44	A	184	34	7D	2	N17	A	292	55	5E	15	P44	B	115	129	10B	8
L45	B	199	36	7D	2	N17	A	292	55	8B	15	P45	B	92	104	5A	8
L46	B	208	10	7D	2	N18	A	291	67	5E	15	P46	B	98	56	9C	7
L47	B	211	14	7D	2	N18	A	291	67	7B	15	P47	B	115	134	11C	7
L48	B	211	28	7C	2	N19	A	291	84	5B	15	P48	B	159	119	10D	7
L49	B	207	35	7C	2	N19	A	291	84	5E	15	P49	B	110	87	3B	8
L50	B	123	34	7C	2	N20	B	45	30	3E	18	P50	B	297	110	4A	15
L51	A	130	36	7C	2	N20	B	45	30	9B	18	P51	B	275	110	4C	15
L52	A	133	42	7B	2	N21	B	62	20	5E	18	P52	B	58	53	5B	18
L53	B	133	36	7B	2	N21	B	62	20	8C	18	P53	B	23	102	3A	4
L54	B	137	36	7B	2	N22	B	51	34	4E	18	P54	B	23	104	3A	4
L55	B	166	37	7B	2	N22	B	51	34	9C	18	P55	B	21	102	3A	4
L56	B	173	36	7A	2	P1	B	27	142	3B	4	P56	B	21	104	3A	4
L57	B	159	34	7A	2	P2	B	30	142	3B	4	R1	A	111	133	4A	7
L58	B	155	36	7A	2	P3	B	32	142	3B	4	R2	B	67	35	4A	18
L59	A	107	17	2A	2	P4	B	156	127	7D	7	R3	B	97	128	3B	7
L265	B	179	111	2E	13	P5	B	118	137	7B	7	R4	B	98	137	3C	7
L266	B	203	111	4E	13	P6	B	214	54	8A	11	R5	B	66	25	7D	18
L267	B	180	79	7E	13	P7	B	118	129	9D	7	R6	B	292	44	9B	15
L268	B	204	79	6E	13	P8	B	115	131	9D	7	R7	A	77	39	4D	3
N1	A	98	89	10C	8	P9	B	118	131	9D	7	R8	A	67	15	3B	2
N1	A	98	89	4A	8	P10	B	118	134	9C	7	R9	B	83	36	4A	3
N1	A	98	89	4E	8	P11	B	115	137	9C	7	R10	A	73	35	4D	3
N1	A	98	89	5F	8	P12	B	85	86	3C	8	R11	A	129	130	7B	7
N1	A	98	89	7A	8	P13	B	112	114	8A	8	R12	A	143	128	7D	7
N2	A	237	46	2B	11	P14	B	229	58	7C	11	R13	A	108	43	2D	12
N2	A	237	46	2D	11	P15	B	213	63	11A	11	R14	B	175	63	6C	9
N2	A	237	46	4B	11	P16	B	235	68	5C	11	R15	B	185	61	6C	9
N2	A	237	46	4D	11	P17	B	242	44	3A	11	R16	B	175	60	6C	9
N2	A	237	46	4E	11	P18	B	246	52	3C	11	R17	B	185	58	6C	9
N3	B	100	139	4C	7	P19	B	234	60	5A	11	R18	B	159	59	11C	9
N4	B	100	125	4B	7	P20	B	48	142	5B	4	R19	B	149	59	11C	9

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	5+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R20	B	160	62	11C	9	R75	B	91	99	7E	8	R130	A	241	60	5B	11
R21	B	149	63	11C	9	R76	B	91	106	7E	8	R131	B	218	62	8C	11
R22	B	200	64	6C	10	R77	A	92	106	4F	8	R132	B	232	68	5D	11
R23	B	212	55	6C	10	R78	B	179	49	2A	9	R133	B	279	80	6D	15
R24	B	200	59	6C	10	R79	B	180	46	2B	9	R134	B	301	80	6B	15
R25	B	211	60	6C	10	R80	B	164	61	2C	9	R135	A	244	26	2C	17
R26	B	227	34	11C	10	R81	B	168	47	2D	9	R136	A	293	26	6C	17
R27	B	220	41	11C	10	R82	B	169	43	4A	9	R137	A	279	26	4C	17
R28	B	232	39	11C	10	R83	B	175	42	4B	9	R138	B	15	27	7C	17
R29	B	220	45	11C	10	R84	B	167	39	4D	9	R139	A	259	26	3C	17
R30	B	278	119	3D	15	R85	B	177	41	4C	9	R140	A	45	23	5D	18
R31	B	270	44	9D	15	R86	B	169	45	4A	9	R141	B	62	41	4A	18
R32	B	271	55	8C	15	R87	B	171	44	4D	9	R142	A	70	47	3C	18
R33	B	290	55	8A	15	R88	B	167	54	2D	9	R143	A	274	15	5B	17
R34	A	293	49	9B	15	R89	B	166	64	2A	9	R144	A	240	15	2B	17
R35	B	299	119	3B	15	R90	B	142	55	7D	9	R145	A	267	82	6D	15
R36	A	272	50	9D	15	R91	B	146	48	7E	9	R146	A	289	83	6B	15
R37	B	298	41	10B	15	R92	B	154	46	7B	9	R147	B	111	93	5C	8
R38	B	32	27	8C	17	R93	B	154	48	7A	9	R148	A	43	24	10B	18
R39	B	130	77	8E	12	R94	B	154	44	9B	9	R149	A	163	62	1B	9
R40	B	163	69	5E	12	R95	B	144	47	9A	9	R150	A	163	65	2B	9
R41	B	23	55	2E	18	R96	B	146	46	9D	9	R151	A	168	57	2D	9
R42	B	106	94	11C	8	R97	B	142	57	7D	9	R152	A	168	54	1D	9
R43	A	271	99	5E	15	R98	B	142	62	7A	9	R153	A	163	51	4B	9
R44	A	297	79	6B	15	R99	B	138	45	9A	9	R154	A	163	48	4B	9
R45	B	101	82	3B	8	R100	B	148	41	9D	9	R155	A	167	43	4D	9
R46	B	269	113	3C	15	R101	B	151	43	9C	9	R156	A	167	41	4D	9
R47	B	291	113	3A	15	R102	B	215	29	2D	10	R157	A	146	53	7D	9
R48	B	99	123	2B	7	R103	B	224	28	2B	10	R158	A	146	56	6D	9
R49	A	88	115	2B	7	R104	B	222	17	4B	10	R159	A	137	65	7B	9
R50	B	88	36	5A	3	R105	B	223	19	4C	10	R160	A	137	63	7B	9
R51	B	93	38	5A	3	R106	A	229	31	2C	10	R161	A	138	48	9B	9
R52	B	86	36	5A	3	R107	B	224	30	2A	10	R162	A	138	51	9B	9
R53	B	79	36	5A	3	R108	B	215	46	2A	10	R163	A	146	40	9D	9
R54	B	69	46	6A	3	R109	B	218	37	2D	10	R164	A	135	51	9D	9
R55	B	76	36	6A	3	R110	B	216	23	4A	10	R165	A	213	39	2D	10
R56	B	74	35	6A	3	R111	B	216	27	4D	10	R166	A	213	37	2D	10
R57	A	100	19	2C	3	R112	B	213	15	4D	10	R167	A	209	47	2B	10
R58	B	93	40	8B	3	R113	B	217	25	4A	10	R168	A	209	44	2B	10
R59	B	95	43	8B	3	R114	B	195	45	9A	10	R169	A	208	25	4B	10
R60	B	95	45	8B	3	R115	B	193	48	9C	10	R170	A	208	28	4B	10
R61	B	95	46	8B	3	R116	B	196	57	7D	10	R171	A	212	18	4D	10
R62	B	93	50	8B	3	R117	B	195	65	7A	10	R172	A	212	20	4D	10
R63	B	94	51	9B	3	R118	A	210	50	7A	10	R173	A	189	63	7B	10
R64	B	94	53	9B	3	R119	B	197	60	7B	10	R174	A	189	65	7B	10
R65	B	93	55	9B	3	R120	B	203	48	7D	10	R175	A	193	58	7D	10
R66	A	94	46	10C	3	R121	B	203	46	7E	10	R176	A	193	55	7D	10
R67	B	79	60	6B	3	R122	B	202	39	9C	10	R177	A	191	41	9D	10
R68	A	84	39	7C	3	R123	B	192	36	9D	10	R178	A	191	43	9D	10
R69	B	97	79	2A	8	R124	B	202	37	9B	10	R179	A	187	51	9B	10
R70	B	109	94	5C	8	R125	B	195	44	9A	10	R180	A	187	48	9B	10
R71	A	94	121	4D	8	R126	B	227	58	6C	11	R181	A	13	25	7B	17
R72	A	98	37	10A	2	R127	B	223	57	6B	11	R182	A	96	37	4E	3
R73	A	97	105	4B	8	R128	B	237	44	3B	11	R183	A	82	22	3D	3
R74	B	91	90	6D	8	R129	B	232	54	3D	11	R184	B	97	131	3B	7

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	6+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R185	B	98	134	3C	7	R240	A	33	35	9D	17	R295	B	104	89	3B	8
R186	B	270	117	3C	15	R241	A	159	74	6E	12	R296	B	104	92	4B	8
R187	B	292	116	3A	15	R242	A	143	75	7E	12	R297	B	116	99	5C	8
R188	A	270	96	5E	15	R243	B	177	68	7E	12	R298	B	104	111	9B	8
R189	B	150	38	4E	2	R244	A	206	115	1E	13	R299	A	108	113	9C	8
R190	B	89	84	1B	8	R245	A	206	99	1E	13	R300	A	106	120	9D	8
R191	B	84	96	6D	8	R246	A	204	79	2E	13	R301	B	159	39	1B	9
R192	B	83	104	6E	8	R247	A	225	116	6E	13	R302	B	161	37	1D	9
R193	B	85	111	6E	8	R248	A	227	90	5E	13	R303	B	169	35	3B	9
R194	B	89	82	2F	8	R249	A	224	81	5E	13	R304	B	164	35	3D	9
R195	B	61	44	4C	18	R250	A	242	136	1E	14	R305	A	135	38	6D	9
R196	B	178	45	5E	9	R251	A	42	14	10B	18	R306	B	137	40	6B	9
R197	B	277	40	10D	15	R252	A	42	18	10B	18	R307	B	159	50	9B	9
R198	A	294	92	6B	15	R253	B	97	86	4A	8	R308	B	126	36	9D	9
R199	B	273	55	8C	15	R254	B	146	61	11B	9	R309	B	210	28	1D	10
R200	B	293	55	8A	15	R255	A	154	140	6C	7	R310	B	209	39	1B	10
R201	B	279	38	10D	15	R256	A	134	141	6A	7	R311	B	209	25	4B	10
R202	A	68	39	3C	18	R257	A	110	141	4C	7	R312	B	212	12	4D	10
R203	B	177	36	3D	2	R258	A	52	30	7B	18	R313	B	200	34	6B	10
R204	B	264	117	3C	15	R259	B	58	45	5B	18	R314	B	185	35	6D	10
R205	B	286	116	3A	15	R260	A	121	128	3D	7	R315	B	188	39	9D	10
R206	B	118	21	2E	2	R261	A	155	129	6D	7	R316	B	185	39	8B	10
R207	A	124	75	8D	12	R262	A	135	130	6B	7	R317	B	216	68	10B	11
R208	B	121	75	8D	12	R263	B	277	112	4D	15	R318	A	243	39	3A	11
R209	B	151	78	8D	12	R264	B	299	112	4B	15	R319	A	247	55	3C	11
R210	A	122	71	8D	12	R265	A	281	21	5C	17	R320	A	244	61	5A	11
R211	A	127	80	8E	12	R266	A	246	22	2C	17	R321	B	221	62	7C	11
R212	A	122	75	8D	12	R267	A	246	14	2B	17	R322	A	245	67	5C	11
R213	B	123	76	8C	12	R268	A	281	14	5B	17	R323	A	279	63	7D	15
R214	B	81	23	3A	3	R269	B	243	139	3E	14	R324	A	300	62	7B	15
R215	B	79	23	3C	3	R270	B	278	111	4D	15	R325	A	301	118	2B	15
R216	A	79	22	3D	3	R271	B	300	111	4B	15	R326	A	267	31	11D	15
R217	A	93	25	3E	3	R272	B	99	94	4A	8	R327	A	286	33	11B	15
R218	B	76	23	3D	3	R273	B	101	94	4B	8	R328	A	279	120	2D	15
R219	A	101	41	3B	2	R274	B	270	28	10D	15	R329	B	66	18	8D	18
R220	A	89	34	4B	3	R275	B	57	34	9D	18	R330	A	272	91	6D	15
R221	A	88	36	4D	3	R276	A	299	99	5C	15	R331	B	300	97	5A	15
R222	A	293	99	5C	15	R277	A	291	96	5C	15	R332	A	41	26	10B	18
R223	B	29	137	2B	4	R278	B	66	19	8D	18	R333	A	163	60	1A	9
R224	B	169	64	5B	9	R279	B	294	40	10B	15	R334	A	164	57	1C	9
R225	B	187	63	5B	9	R280	A	109	124	4B	7	R335	A	163	46	3A	9
R226	B	23	94	7E	4	R281	B	112	132	4D	7	R336	A	164	39	3C	9
R227	A	35	125	1D	4	R282	A	272	76	6D	15	R337	A	136	58	6D	9
R228	B	23	96	3E	4	R283	A	294	77	6B	15	R338	A	137	60	6A	9
R229	A	73	117	3E	5	R284	B	23	121	2D	4	R339	A	139	39	9C	9
R230	A	39	74	5E	5	R285	B	25	121	2D	4	R340	A	141	46	8A	9
R231	B	61	100	7E	5	R286	A	31	123	2D	4	R341	A	210	31	1C	10
R232	B	82	75	3E	6	R287	A	33	123	2D	4	R342	A	209	42	1A	10
R233	B	58	105	1E	6	R288	A	99	22	2A	3	R343	A	208	16	4C	10
R234	A	155	138	6C	7	R289	A	92	9	2A	3	R344	A	208	23	4A	10
R235	A	136	139	6A	7	R290	A	100	37	11A	2	R345	A	187	43	9C	10
R236	A	212	54	9A	11	R291	B	76	69	7C	6	R346	A	189	60	7A	10
R237	B	124	129	1E	7	R292	A	137	18	3E	2	R347	A	186	57	7D	10
R238	B	103	80	1E	8	R293	B	98	90	3A	8	R348	A	187	46	8A	10
R239	B	115	97	5B	8	R294	B	97	92	4A	8	R349	A	281	16	5B	17

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	7+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R350	A	281	19	5D	17	R405	B	121	141	5A	7	R460	A	93	109	4B	8
R351	A	117	38	11D	2	R406	A	118	140	7A	7	R461	B	276	114	4D	15
R352	A	246	19	2D	17	R407	A	116	123	4B	7	R462	B	297	114	4B	15
R353	B	279	72	6C	15	R408	B	110	136	4D	7	R463	B	278	97	5C	15
R354	B	296	72	6A	15	R409	B	122	137	5A	7	R464	B	298	39	10B	15
R355	A	254	15	3C	17	R410	B	220	43	10B	10	R465	B	299	108	4B	15
R356	A	288	15	6C	17	R411	B	231	43	10B	10	R466	B	279	41	10D	15
R357	A	51	17	6C	18	R412	B	122	139	5A	7	R467	B	277	107	4D	15
R358	B	113	127	4B	7	R413	B	93	79	1A	8	R468	B	299	40	10B	15
R359	B	273	127	2D	15	R414	B	105	83	3A	8	R469	B	292	28	10B	15
R360	B	294	127	2B	15	R415	B	105	82	2A	8	R470	A	278	99	5E	15
R361	B	163	65	10B	9	R416	B	115	94	6B	8	R471	B	101	113	4C	8
R362	A	101	134	3B	7	R417	B	23	31	9C	17	R472	B	112	136	4C	7
R363	A	101	132	3A	7	R418	A	27	35	10C	17	R473	A	122	38	11E	2
R364	B	112	102	7B	8	R419	B	23	29	10C	17	R474	A	231	66	9C	11
R365	B	112	105	7C	8	R420	B	23	27	10C	17	R475	B	108	92	11C	8
R366	B	111	109	7C	8	R421	B	87	91	6D	8	R476	B	66	33	3A	18
R367	A	102	107	9B	8	R422	B	88	99	6E	8	R477	A	269	53	7D	15
R368	A	110	115	9C	8	R423	B	88	106	7E	8	R478	A	276	53	8D	15
R369	A	102	120	9D	8	R424	A	124	91	6B	8	R479	A	291	53	7B	15
R370	B	20	72	11A	2	R425	A	22	17	10C	17	R480	A	297	53	8B	15
R371	B	198	64	6B	10	R426	A	94	112	4C	8	R481	A	111	38	11D	2
R372	B	213	60	5B	10	R427	A	24	17	10C	17	R482	A	278	94	5C	15
R373	A	54	123	8A	4	R428	A	97	107	4B	8	R483	A	300	94	5A	15
R374	A	47	137	4C	4	R429	B	229	68	9D	11	R484	B	269	43	9D	15
R375	B	33	137	3B	4	R430	A	121	125	4D	7	R485	B	290	43	9B	15
R376	B	183	36	3D	2	R431	A	230	63	9D	11	R486	B	15	30	7C	17
R377	B	147	35	4E	2	R432	B	231	61	9C	11	R487	B	275	38	10D	15
R378	B	39	81	10C	4	R433	B	217	56	8C	11	R488	A	279	67	7D	15
R379	B	39	82	10C	4	R434	A	68	23	3B	2	R489	B	277	67	3E	15
R380	B	23	83	9C	4	R435	A	125	103	9A	7	R490	B	271	68	3F	15
R381	B	23	81	9D	4	R436	B	168	69	10B	12	R491	B	67	21	8D	18
R382	A	25	67	8D	4	R437	B	167	71	10B	12	R492	A	300	68	7B	15
R383	A	18	110	10B	4	R438	B	141	67	6C	12	R493	B	54	21	9D	18
R384	B	17	76	6D	4	R439	B	151	91	10C	12	R494	A	275	82	6D	15
R385	B	17	73	6E	4	R440	B	157	95	10C	12	R495	B	58	30	9D	18
R386	A	72	133	6A	4	R441	B	159	95	10C	12	R496	B	293	68	5F	15
R387	A	59	133	6A	4	R442	B	157	71	9C	12	R497	B	298	67	5E	15
R388	B	58	140	3A	6	R443	B	128	73	7D	12	R498	B	294	130	2B	15
R389	B	59	131	3A	6	R444	B	186	111	2B	13	R499	B	53	27	3D	18
R390	B	59	125	3B	6	R445	B	198	127	2C	13	R500	B	42	28	4E	18
R391	B	61	116	3B	6	R446	B	198	132	2C	13	R501	B	294	97	5B	15
R392	B	62	109	3C	6	R447	B	198	99	4C	13	R502	B	33	69	4A	4
R393	B	62	97	3C	6	R448	B	198	94	4C	13	R503	A	153	137	6C	7
R394	B	62	93	3D	6	R449	B	186	79	4B	13	R504	A	130	137	6B	7
R395	B	59	84	3E	6	R450	B	223	100	7C	13	R505	B	100	14	2C	2
R396	A	122	42	6E	6	R451	B	288	105	4A	15	R506	A	297	82	6B	15
R397	A	103	60	5E	6	R452	B	267	105	4C	15	R507	B	273	97	5D	15
R398	A	113	38	11D	2	R453	B	224	131	9C	13	R508	B	117	115	10C	8
R399	B	119	82	10A	6	R454	A	18	64	10B	4	R509	B	70	77	4F	3
R400	B	122	134	3F	7	R455	B	227	121	6B	14	R510	B	142	129	8A	7
R401	B	142	135	5C	7	R456	B	120	116	10D	8	R511	B	58	77	6D	3
R402	B	142	140	7C	7	R457	A	276	32	11C	15	R512	A	41	122	6C	4
R403	B	144	138	5C	7	R458	A	293	30	11A	15	R513	A	43	120	6C	4
R404	B	144	140	5C	7	R459	B	21	26	9D	17	R514	B	149	92	9A	7

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	8+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R515	B	159	99	9A	7	R570	B	78	59	6C	3	R625	A	103	39	11B	2
R516	B	158	121	8A	7	R571	B	114	37	11C	2	R626	B	97	38	11A	2
R517	A	98	103	4B	8	R572	B	20	92	1B	4	R627	B	81	36	4C	3
R518	B	229	63	10A	11	R573	B	13	90	1B	4	R628	A	76	55	9D	3
R519	B	120	112	11C	8	R574	B	138	17	3E	2	R629	A	88	24	3B	3
R520	A	100	70	3A	12	R575	B	136	66	2A	12	R630	B	119	97	6B	8
R521	A	99	66	3A	12	R576	B	17	84	5E	5	R631	B	117	121	11D	8
R522	B	97	41	2A	12	R577	B	59	62	1C	5	R632	B	80	77	2A	6
R523	A	127	39	2A	12	R578	A	108	60	9D	6	R633	A	156	123	9E	7
R524	A	115	38	11D	2	R579	A	153	91	6D	5	R634	A	150	111	9E	7
R525	B	96	52	3B	12	R580	A	253	87	6D	5	R635	A	145	113	9E	7
R526	B	230	84	7F	15	R581	A	253	85	6D	5	R636	A	137	110	8E	7
R527	B	118	118	10E	8	R582	A	253	74	6E	5	R637	A	150	107	8E	7
R528	B	233	110	5E	14	R583	A	73	108	6E	5	R638	A	231	98	3B	14
R529	B	34	25	7B	17	R584	B	58	112	6E	5	R639	A	228	106	4B	14
R530	A	36	61	1A	5	R585	A	72	115	6E	5	R640	B	247	111	3D	14
R531	B	167	125	2E	16	R586	A	80	91	6E	5	R641	B	247	109	3D	14
R532	B	15	84	3D	5	R587	A	180	104	6D	5	R642	B	242	87	3D	14
R533	A	178	82	2E	16	R588	A	156	107	6D	5	R643	B	245	92	4D	14
R534	A	44	43	3E	16	R589	A	253	89	6D	5	R644	A	229	96	4D	14
R535	B	151	85	4E	16	R590	A	253	83	6D	5	R645	B	247	106	4D	14
R536	B	15	80	4D	5	R591	A	71	110	6E	5	R646	A	228	100	4D	14
R537	A	143	90	5E	16	R592	A	80	86	6E	5	R647	B	240	87	4D	14
R538	A	27	41	5E	16	R593	A	253	81	6D	5	R648	A	96	51	2D	12
R539	B	255	106	8E	16	R594	A	253	78	6E	5	R649	B	96	55	3D	12
R540	B	254	90	6E	16	R595	A	253	76	6E	5	R650	B	135	54	3D	12
R541	B	174	106	6E	16	R596	A	80	89	6E	5	R651	B	96	49	3D	12
R542	A	275	79	6D	15	R597	A	81	84	6E	5	R652	B	19	103	2A	4
R543	B	28	62	4E	4	R598	B	124	141	5A	7	R653	B	159	71	11C	12
R544	B	158	114	7E	16	R599	B	144	141	5C	7	R654	B	154	71	11C	12
R545	B	253	136	6B	14	R600	A	130	127	5B	7	R655	B	174	95	11D	12
R546	B	24	114	8B	4	R601	A	133	127	6B	7	R656	B	174	98	11D	12
R547	B	23	110	8B	4	R602	A	137	123	6B	7	R657	B	239	110	5D	14
R548	B	24	116	8B	4	R603	A	135	124	6B	7	R658	A	122	87	2C	16
R549	A	48	122	8A	4	R604	A	133	110	6B	7	R659	A	27	58	3C	16
R550	A	39	122	6C	4	R605	A	142	103	5B	7	R660	A	148	117	4C	16
R551	B	29	62	4E	4	R606	A	140	109	5B	7	R661	A	142	111	4C	16
R552	A	12	98	10B	4	R607	A	133	115	5B	7	R662	A	140	113	4C	16
R553	A	24	135	1A	4	R608	A	142	123	5D	7	R663	B	180	141	6C	16
R554	A	25	137	3D	5	R609	A	152	127	6D	7	R664	B	180	139	6C	16
R555	A	96	75	2E	8	R610	A	152	121	6D	7	R665	B	176	135	5C	16
R556	A	110	104	3E	8	R611	A	148	124	6D	7	R666	A	140	44	8A	9
R557	A	181	115	1A	13	R612	A	146	124	6D	7	R667	B	123	127	11D	8
R558	A	183	82	3A	13	R613	A	148	126	5D	7	U2	A	175	47	1E	9
R559	B	106	112	8B	8	R614	A	145	126	5D	7	U2	A	175	47	2A	9
R560	B	109	118	3D	8	R615	A	154	126	5D	7	U2	A	175	47	2D	9
R561	A	106	45	6A	12	R616	A	138	103	6D	5	U2	A	175	47	2E	9
R562	A	60	74	7D	5	R617	B	44	38	4D	18	U2	A	175	47	3B	9
R563	B	55	26	9D	18	R618	B	53	36	4E	18	U3	A	175	36	2E	9
R564	A	79	102	9D	5	R619	B	54	13	5D	18	U3	A	175	36	4A	9
R565	A	156	112	6D	5	R620	B	60	28	5E	18	U3	A	175	36	4B	9
R566	A	156	109	6D	5	R621	A	109	38	11C	2	U3	A	175	36	4D	9
R567	A	182	104	6D	5	R622	A	111	34	11C	2	U3	A	175	36	4E	9
R568	A	154	114	6D	5	R623	A	106	36	11B	2	U4	A	150	47	4E	9
R569	A	246	17	2B	17	R624	A	105	39	11B	2	U4	A	150	47	7A	9

1GPK HM	Datum Date	XY-Liste fuer XY-list for	Sachnummer Stock-No.	Aei	Blatt Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	9+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
U4	A	150	47	7D	9	V22	B	15	88	5E	5	V77	B	171	50	2E	9
U4	A	150	47	7E	9	V23	B	278	74	6C	15	V78	B	162	55	2C	9
U4	A	150	47	8B	9	V24	B	301	75	6A	15	V79	A	171	60	2B	9
U5	A	150	36	10A	9	V25	B	74	74	6C	6	V80	B	169	59	2A	9
U5	A	150	36	10B	9	V26	A	289	29	12A	15	V81	B	142	45	9A	9
U5	A	150	36	10D	9	V27	A	260	22	3C	17	V82	A	147	45	9B	9
U5	A	150	36	10E	9	V28	A	278	22	4C	17	V83	A	143	35	9C	9
U5	A	150	36	4E	9	V29	A	294	22	6C	17	V84	B	146	40	9E	9
U6	A	220	29	2B	10	V30	A	243	22	2C	17	V85	B	148	50	7E	9
U6	A	220	29	2D	10	V31	A	48	20	6C	18	V86	A	138	53	7D	9
U6	A	220	29	2E	10	V32	A	157	134	6C	7	V87	A	146	59	7B	9
U6	A	220	29	3A	10	V33	A	136	135	6A	7	V88	B	141	58	7A	9
U6	A	220	29	3E	10	V34	A	112	107	3E	8	V89	B	213	42	2A	10
U7	A	220	18	2E	10	V35	A	96	117	4D	8	V90	A	212	32	2C	10
U7	A	220	18	5A	10	V36	A	105	65	8D	6	V91	B	218	32	2E	10
U7	A	220	18	5B	10	V37	A	171	63	1B	9	V92	A	218	42	2B	10
U7	A	220	18	5D	10	V38	B	166	48	1D	9	V93	B	217	18	4E	10
U7	A	220	18	5E	10	V39	A	172	49	3B	9	V94	A	211	13	4C	10
U8	A	199	36	10A	10	V40	B	162	39	3D	9	V95	A	217	23	4B	10
U8	A	199	36	10B	10	V41	B	144	50	6E	9	V96	B	213	23	4A	10
U8	A	199	36	10C	10	V42	A	146	64	6B	9	V97	B	193	61	7A	10
U8	A	199	36	10E	10	V43	A	147	49	9B	9	V98	A	197	60	7B	10
U8	A	199	36	4E	10	V44	B	142	40	9D	9	V99	A	188	53	7D	10
U9	A	199	47	5E	10	V45	B	214	32	1D	10	V100	B	196	51	7E	10
U9	A	199	47	8A	10	V46	A	218	45	1B	10	V101	B	196	39	9E	10
U9	A	199	47	8B	10	V47	A	217	28	4B	10	V102	A	192	36	9C	10
U9	A	199	47	8D	10	V48	B	213	18	4D	10	V103	A	196	45	9B	10
U9	A	199	47	8E	10	V49	A	197	64	7B	10	V104	B	191	44	9A	10
U10	A	218	51	4E	11	V50	B	192	51	7E	10	V105	B	121	127	11D	8
U10	A	218	51	5E	11	V51	B	191	39	9D	10	X1	B	274	124	3D	15
U10	A	218	51	7B	11	V52	A	196	49	9B	10	X4	B	296	124	3B	15
U11	A	113	116	10D	8	V53	A	151	132	6D	7	X11	B	25	128	2D	4
U11	A	113	116	10D	8	V54	A	98	130	3A	7	X320	B	189	11	5A	2
U11	A	113	116	4F	8	V55	A	130	132	6B	7	X321	B	17	15	7D	17
V1	B	110	102	7C	8	V56	B	90	93	7D	8	X322	B	29	15	8D	17
V2	B	110	106	7C	8	V57	B	90	101	7E	8	X323	B	44	9	11A	18
V3	B	109	110	7C	8	V58	B	90	108	7E	8	X324	B	52	9	11B	18
V4	A	106	107	9D	8	V59	B	98	81	2A	8	X325	B	245	9	3D	17
V5	A	105	112	9B	8	V60	B	271	78	7D	15	X326	B	253	9	4D	17
V6	A	110	120	9C	8	V61	B	293	78	6B	15	X327	B	260	9	2B	17
V7	B	84	94	6D	8	V62	A	265	25	3C	17	X328	B	278	9	6D	17
V8	B	84	101	6E	8	V63	A	286	27	4C	17	X329	B	286	9	6D	17
V9	B	84	109	6F	8	V64	A	299	25	6C	17	X330	B	296	9	5B	17
V10	B	93	84	1B	8	V65	A	250	27	2C	17	Z1	B	85	27	3C	2
V11	B	113	95	5C	8	V66	A	52	22	6D	18	Z2	B	76	20	3A	2
V12	B	241	37	3B	11	V67	B	216	60	7C	11	Z3	B	34	30	7B	17
V13	B	241	47	3D	11	V68	B	120	120	11D	8	Z4	B	76	27	3D	3
V14	B	241	55	5B	11	V69	B	102	85	3B	8	Z5	A	82	27	3D	3
V15	B	241	63	5D	11	V70	A	100	100	9B	8	Z6	A	79	27	3D	3
V16	B	108	115	8B	8	V71	A	109	111	9C	8	Z7	B	79	27	3C	3
V17	A	272	30	12C	15	V72	A	100	119	9D	8	Z8	B	82	27	3A	3
V18	B	79	68	6C	6	V73	B	165	43	4A	9	Z9	A	85	27	3B	3
V19	B	96	108	3F	8	V74	A	172	45	4B	9	Z10	A	96	27	3E	3
V20	B	98	119	4D	8	V75	A	169	36	4C	9	Z11	B	151	27	3E	2
V21	A	100	124	4D	8	V76	B	171	38	4E	9	Z12	B	76	15	3C	2

1GPK HM	Datum / Date	XY-Liste fuer / XY-list for	Sachnummer / Stock-No.	Aei	Blatt / Page
ROHDE & SCHWARZ	25.07.97	EE MODULATIONSCODER MODULATION_CODER	1085.5050.01 XY	04.00	10+

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
Z13	B	177	27	3D	2	Z26	B	110	27	10C	2	Z39	B	133	27	7B	2
Z14	B	182	27	3A	2	Z27	B	114	27	10C	2	Z40	B	136	27	6B	2
Z15	B	191	27	7E	2	Z28	B	117	27	10C	2	Z41	B	130	27	7C	2
Z16	B	187	27	6D	2	Z29	B	120	27	10D	2	Z42	B	126	27	6C	2
Z17	B	197	27	7D	2	Z30	A	114	27	10D	2	Z43	B	201	22	7C	2
Z18	B	201	13	6D	2	Z31	A	117	27	10D	2	Z44	B	201	19	6C	2
Z19	B	194	27	6E	2	Z32	A	120	27	10D	2	Z45	B	201	16	7D	2
Z20	A	99	27	10A	2	Z33	A	133	27	10E	2	Z46	A	105	27	3B	2
Z21	A	102	27	10A	2	Z34	B	156	27	6A	2	Z47	A	76	15	3B	2
Z22	B	96	27	10A	2	Z35	B	161	27	7A	2	Z48	A	76	20	3B	2
Z23	B	99	27	10B	2	Z36	B	171	27	6A	2	Z49	B	34	34	9B	17
Z24	B	102	27	10B	2	Z37	B	166	27	7B	2	Z50	A	33	20	9B	17
Z25	B	105	27	10B	2	Z38	A	136	27	6B	2						

ROHDE&SCHWARZ

Stromläufe
Bestückungspläne

Circuit diagrams
Component plans

Schémas de circuit
Plans des composants

095.1000 Bl. 4

Taktsynthesizer

Clock Synthesizer

REF 50 IN X321

REF 50 OUT X322

50MHZ BUFFER

Tuning Voltage VCO

VCO

168–360MHZ

OUTPUT VCO

P 1 / 1

Q / 1

50 / 1

φ

MCOD

Delay

T

Burst

Clock Signals

FPGA

TAKT_MCOD

BURST FILTERUNG

BURST FILTERING

SRAM

BURST DAC

BURST DAC

D / A

BURST GAIN

TIEFPASS 2MHZ

LOWPASS 2MHZ

TIEFPASS 50KHZ

LOWPASS 50KHZ

OUTPUT BURST

CTRL_REAR X323

CTRL_MOD X324

FSK Converter

FPGA FSK_MCOD

SRAM

OUTPUT I

I–EXT X327

I–FSIM X326

I–MOD X325

I GAIN

I OFFSET

TIEFPASS 50KHZ

LOWPASS 50KHZ

TIEFPASS 8MHZ

LOWPASS 8MHZ

Mapping

erung

ing

SRAM

LATCH

SRAM

FIR FILTER

I

ID

Q

QD

FIR FILTER

FIR FILTER

FIR FILTER

Basisbandfilterung

Basebandfiltering

Interpolationsfilter

Interpolation Filter

Q GAIN

Q OFFSET

I LOW GAIN

Q LOW GAIN

D / A

MODULATIONS–DAC

MODULATION–DAC

Q–EXT X330

Q–FSIM X329

Q–MOD X328

OUTPUT Q

ADRESS 0...23

DATA 0..31

ID

QD

PD

ACHTUNG: EGB !

ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.

ATTENTION ESD !

ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS–MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98–10–27	HALLERME

BENENNUNG

MODULATIONSCODER

MODULATION–CODER

TOP/TOP.1

ROHDE&SCHWARZ

ZEICHN.–NR. 1085.5050.01 S

BLATT–NR. 1 +

ZU GERAET SMIQB10

REG.I.V. 1085.5009

ERSTE Z.

Digital Data
I/O Section

Digital–Schwelle
Digital–Threshold

D
A

Externe Modulationsdaten und Taktsignale
External Modulation Data and Clock Signals

X320

50

500hm

REF 50 IN
X321

REF 50 OUT
X322

50MHZ BUFFER

50
1

Tuning Voltage VCO

VCO

168–360MHZ

OUTPUT VCO

P1
1

Q
1

Taktsynthesizer
Clock Synthesizer

FPGA Schnitt_MCOD

Zufallsdaten–Generator
Pseudo Random– Data Generator

Delay

Schaltmatrix
Switch Matrix

Burst

Clock Signals

FPGA
TAKT_MCOD

BURST FILTERUNG
BURST FILTERING

SRAM

BURST DAC
BURST DAC

BURST GAIN

FSK Converter

FPGA
FSK_MCOD

SRAM

Modulationsdaten von Datengenerator
Modulation Data from Data Generator

X320

SER
PAR

G

Codierung
Coding

LATCH

SRAM

Mapping

LATCH

SRAM

FIR FILTER

I

ID

Q

QD

Basisbandfilterung
Basebandfiltering

Interpolationsfilter
Interpolation Filter

MODULATION
MODULATION–D

Rechnerschnittstelle
Controller Interface

SERBUS

X320

DATA INTERRUPT

DSP

ADRESS 0...23

DATA 0..31

ID

QD

PD

FIFO

RAM
EEPROM

Diagnose MUX

REFERENCE 0V
TUNING VOLTAGE VCO
OUTPUT_I
OUTPUT_Q
OUTPUT_BURST
OUTPUT_VCO
SUPPLY 5VA
SUPPLY –5V

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

05.01

AEND. IND.

AENDERU MITTEILU

X320 A1 CLK_SER — Z34 2.5DB — L58 82N — CLK_SER (9/1A)
X320 A3 DATA_SER — Z35 2.5DB — L57 82N — DATA_SER (9/1D)
X320 A5 SYMB_SER — Z36 2.5DB — L56 82N — SYMB_SER (9/3A)
X320 A7 BURSTGATE — Z37 2.5DB — L55 82N — BURSTGATE (9/3D)
X320 A8 LEVATT — Z38 2.5DB — L54 82N — LEVATT (9/6A)
X320 A9 CW — Z39 2.5DB — L53 82N — CW (9/6D)
X320 B1 BITCLK_PAR — Z40 2.5DB — L52 82N — BITCLK_PAR (9/9A)
X320 B14 TRIGIN — Z41 2.5DB — L51 82N — TRIGIN (9/8B)
X320 B3 SYMBCLK_PAR — Z42 2.5DB — L50 82N — SYMBCLK_PAR (9/9D)
X320 B5 DATA_PARD0 — Z43 2.5DB — L49 82N — DATA_PARD0 (10/1A)
X320 B6 DATA_PARD1 — Z44 2.5DB — L48 82N — DATA_PARD1 (10/1D)
X320 B7 DATA_PARD2 — Z45 2.5DB — L47 82N — DATA_PARD2 (10/3A)
X320 B8 DATA_PARD3 — Z18 2.5DB — L46 82N — DATA_PARD3 (10/3D)
X320 B9 DATA_PARD4 — Z17 2.5DB — L45 82N — DATA_PARD4 (10/6A)
X320 B10 DATA_PARD5 — Z16 2.5DB — L44 82N — DATA_PARD5 (10/6D)
X320 B11 DATA_PARD6 — Z15 2.5DB — L42 82N — DATA_PARD6 (10/8A)
X320 B12 DATA_PARD7 — Z19 2.5DB — L41 82N — DATA_PARD7 (10/9C)

X320 B32 — Z20 2.5DB — R72 33 — D70 74ACT86M =1 — R370 1K — +5VDE1 — DATACLK_DGEN (12/1C)
X320 B30 — Z21 2.5DB — R290 100 — SYMSTR_DGEN (12/1C)
X320 B27 — Z22 2.5DB — R626 100 — DATA_DGEN_D7 (12/1C)
X320 B26 — Z23 2.5DB — R625 100 — DATA_DGEN_D6 (12/1C)
X320 B25 — Z24 2.5DB — R624 100 — DATA_DGEN_D5 (12/1C)
X320 B24 — Z25 2.5DB — R623 100 — DATA_DGEN_D4 (12/1C)
X320 B23 — Z26 2.5DB — R622 100 — DATA_DGEN_D3 (12/1C)
X320 B22 — Z27 2.5DB — R621 100 — DATA_DGEN_D2 (12/1C)
X320 B21 — Z28 2.5DB — R571 100 — DATA_DGEN_D1 (12/1C)
X320 B20 — Z29 2.5DB — R524 100 — DATA_DGEN_D0 (12/1C)
X320 B18 — Z30 2.5DB — R481 100 — BURSTGATE_DGEN (12/1D)
X320 B17 — Z31 2.5DB — R398 100 — LEV_ATT_DGEN (12/1D)
X320 B16 — Z32 2.5DB — R351 100 — CW_DGEN (12/1D)
X320 B15 — Z33 2.5DB — R473 100 — TRIGIN_DGEN (12/1D)

L24 SMD FERRIT — +5VA1
L21 SMD FERRIT — +5VA
C10 33N
DIAG6 (3/10D)

X320 B2, B13, B19, B31, A2, A4, A6, A11
X320 A13, A21, A23, A25, A27, A29, A31

VAR02 = Grundausfuehrung
VAR02 = Basic version

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

05.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	MODULATIONSCODER
				GEPR.		HM	MODULATION-CODER
				NORM			TOP/TOP.2
				PLOTT	98-10-27	HALLERME	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB10			REG.I.V. 1085.5009

BLATT-NR. 2 +
ERSTE Z.

VAR02 = Grundausfuehrung

VAR02 = Basic version

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Bindende Angab
Trimmwerte, Ba
nicht bestueckt

AEND. IND.	AENDERUI MITTEILUN
05.01	

VERVIELFAELTIGUNG DIESER UNTERLAGE SOWIE VERWERTUNG IHRES INHALTS UNZULAESSIG, SOWEIT NICHT AUSDRUECKLICH ZUGESTANDEN. ZUWIDERHANDLUNGEN VERPFLICHTEN ZU SCHADENERSATZ.

** NOT FITTED/NICHT BESTUECKT

+5VS

R51 10K **
R50 10K
R52 10K **
R53 10K **
R54 10K
R55 10K
R56 10K

D91
L5A8856

TRISTATE
NANDTREE
RESET-P
A1
A2
A3
A4
A5
A6
A7
SYNC
SERCLK
DATAEN
DATAIN
DATAOUT
PARDAT 0
INTEN
INT
IROUIT
MASK
IRO
IR1
IR2
IR3
SEROUT
CLK1
RD1
WR1
SERIN1
CLK2
RD2
WR2
SERIN2

+5VS

R67 10K

R570 4.7K

DSP_INT1 (6/8E)
DSP_INT2 (6/8E)

+5VS

R58 10K **
R59 10K **
R60 10K **
R61 10K **
R62 10K **
R63 10K **
R64 10K **
R65 10K **

AEI S
VAR
OPT

SEROUT_DSP (4/6B)
CLK1_DSP (4/4A)
WRITE1_DSP (4/1C,4/5A,5/4D)
CLK2_DSP (6/9A)
RD2_DSP (4/5A,5/4D,6/9A)
SERIN2_DSP (6/11E)

+5VS

R68 10K

D28
74HCT4094T

C2
EN3
SRG
C1/ →

D54
74HC4051T
MUXDX
8M
G8

R66 10K

DIAG1 (8/11C)
DIAG2 (17/12C)
DIAG3 (17/12A)
DIAG4 (20/9B)
DIAG5 (7/3A)
DIAG6 (2/4E)
DIAG7 (2/4D)

D95
74HCT132T

PLL_INT (8/11D)
R511 100K
C116 33N

R628 10K
C292 33N

(4/1A) DSP_BOOT
DSP_RESET (4/3A,6/7D,6/9A)
(4/3A) DSP_MODE

R10 100
R221 47
R7 100
R182 470

D95
74HCT132T
R509 1K

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SERBUS

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.3

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 3 +

ZU GERAET SMIQB10 | REG.I.V. 1085.5009 | ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

** NOT FITTED/NICHT BESTUECKT

SERBUS-CLK X320 A12 — D17 74HCT125T — R214 47 — Z8 7.5DB — R9 100
HC125 (2/2D,3/2E) — R288 1K — D17 74HCT125T — R289 1K
SERBUS-IN A15 — R629 47 — Z9 7.5DB — R220 47
D17 74HCT125T
SERBUS-OUT X320 A14 — D17 74HCT125T — R215 47 — Z7 7.5DB — R627 100
R57 1K
SERBUS-SYNC X320 A16 — R218 47 — Z4 7.5DB — R10 100
SERBUS-INT X320 A17 — R183 470 — Z5 7.5DB — R221 47
RESET-P X320 A18 — R216 47 — Z6 7.5DB — R7 100
DIGA-5V X320 A19 — R217 47 — Z10 7.5DB — R182 470

+5VS
R51 10K ** R50 10K R52 10K ** R53 10K ** R54 10K R55 10K R56 10K

D91 L5A8856
TRISTATE, NANDTREE, RESET-P, A1–A7
SYNC, SERCLK, DATAEN, DATAIN, DATAOUT
PARDAT 0–7
INTEN, INT, IROUT, MASK, IR0–IR3
SEROUT, CLK1, RD1, WR1, SERIN1, CLK2, RD2, WR2, SERIN2

+5VS
R67 10K
R570 4.7K
DSP_INT1 (6/8E)
DSP_INT2 (6/8E)

AEI S — +5VS — VA
R58 10K ** R59 10K ** R60 10K ** R61 10K R62 10K

+5VS
R68 10K
D28 74HCT4094T
C2, EN3, SRG, C1/→, 2D

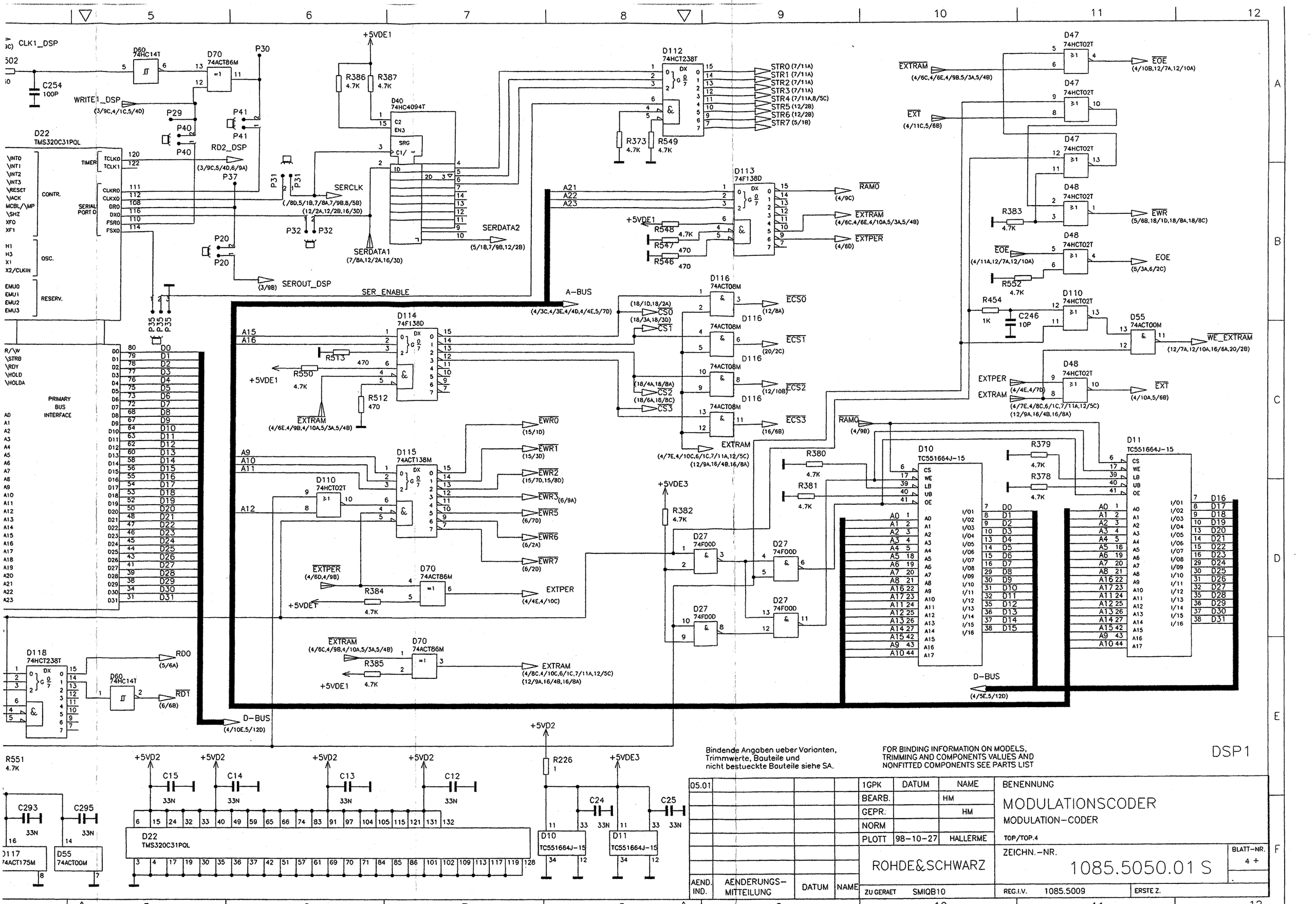
D95 74HCT132T
PLL_INT (8/11D) — R511 100K — C116 33N
D95 74HCT132T

DSP_BOOT (4/1A)
DSP_MODE (4/3A)
DSP_RE (4/3A)

HC125 (2/2D.3/2A)
+5VS C19 33N — D17 74HCT125T
+5VS — D91 L5A8856
+5VS — D28 74HCT4094T
+5VS C152 33N — D54 74HC4051T
-5V C291 33N
+5VS — D95 74HCT132T
D95 74HCT132T — R509 1K

ACHTUNG: EGB !
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05.01	
AEND. IND.	AENDE MITTEI



Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

DSP1

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

BENENNUNG

MODULATIONSCODER

MODULATION-CODER

TOP/TOP.4

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 4 +

ZU GERAET SMIQB10

REG.I.V. 1085.5009

ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

DSP_BOOT (3/8D) R553 4.7K D110 74HCT02T

+5VDE1 R652 10K D111 X24164S8 (SCL, TEST, SDA, A0, A1, A2) R573 4.7K R572 4.7K

P53 P54 P55 P56

+5VD2 R223 10 C16 33N G2 50MHZ (VDD, OE, O, GND)

+5VD2 R375 4.7K

P1 P1 P1

P26

(3/9C) CLK1_DSP R502 330 C254 100P

INT_SYMB_CLOCK (4/2C)
INT_SER_RECEIVE (4/2C)
INT_FPGA_NSTATUS (6/7C)
DSP_RESET (3/9D,6/7D,6/9A)
DSP_MODE (3/9D)

D22 TMS320C31PQL

\INT0	100	CONTR.
\INT1	103	
\INT2	106	
\INT3	107	
\RESET	95	
\ACK	99	
MCBL/\MP	127	
\SHZ	118	
XFO	96	
XF1	98	
H1	81	OSC.
H3	82	
X1	88	
X2/CLKIN	87	
EMU0	124	RESERV.
EMU1	125	
EMU2	126	
EMU3	123	
TCLK0	120	TIMER
TCLK1	122	
CLKR0	111	SERIAL PORT 0
CLKX0	112	
DR0	108	
DX0	116	
FSR0	110	
FSX0	114	
R/\W	94	PRIMARY BUS INTERFACE
\STRB	93	
\RDY	92	
\HOLD	90	
\HOLDA	89	
A0–A23	29–130	
D0–D31	80–31	

D60 74HC14T D70 74ACT86M P30 P29 P40 P41 WRITE1_DSP (3/9C,4/1C,5/4D) RD2_DSP (3/9C,5/4D,6/9A) P37 P20 SEROUT_DSP (3/9B)

P31 P31 SERCLK (/8D,5/1B,7/8A,7/9B,8/5B) (12/2A,12/2B,16/3D) P32 P32 SERDATA1 (7/8A,12/2A,16/3D) SERDATA2 (5/18,7/9B,12/2B)

+5VDE1 R386 4.7K R387 4.7K D40 74HC4094T (C2, EN3, SRG C1/, 1D, 2D)

D112 74HCT238T R373 4.7K R549 4.7K

D113 74F138 A21 A22 A23 +5VDE1 R548 4.7K R547 470 R546 470

SER_ENABLE

A-BUS (4/3C,4/3E,4/4D,4/4E,5/7D)

D116 74ACT08M (18/1D,18/2A) CS0 (18/3A,18/3D) CS1 (18/4A,18/8A) CS2 (18/6A,18/8C) CS3

D114 74F138D A15 A16 R513 470 R550 4.7K +5VDE1 R512 470 EXTRAM (4/6E,4/9B,4/10A,5/3A,5/4B)

D115 74ACT138M A9 A10 A11 A12 D110 74HCT02T

EWR0 (15/1D) EWR1 (15/3D) EWR2 (15/7D,15/8D) EWR3 (6/9A) EWR5 (6/7D) EWR6 (6/2A) EWR7 (6/2D)

EXTRAM (4/7E,4/10C,6/1C,7/11A,12/5C) (12/9A,16/4B,16/8A)

EXTPER (4/6D,4/9B) R384 4.7K +5VDE1 D70 74ACT86M EXTPER (4/4E,4/10C)

EXTRAM (4/6C,4/9B,4/10A,5/3A,5/4B) R385 4.7K +5VDE1 D70 74ACT86M EXTRAM (4/8C,4/10C,6/1C,7/11A,12/5C) (12/9A,16/4B,16/8A)

+5VDE3 R382 4.7K D27 74F00D D27 74F00D

WRITE1_DSP (3/9C,4/5A,5/4D) D117 74ACT175M D55 74ACT00M INT_SER_RECEIVE (4/3A)

SC2 (7/9D,12/5B,12/7B,12/7D,12/9A) D55 74ACT00M INT_SYMB_CLOCK (4/3A)

+5VD2 R284 22K R285 22K R286 22K R287 22K

X11B X11A (6 pairs)

+5VD2 R227 3.32 C26 C27 C28 33N D116 74ACT08M D110 74HCT02T D112 74HCT238T

C185 C279 C29 33N D111 X24164S8 D113 74F138D D47 74HCT02T

C154 C141 C132 33N D115 74ACT138M D27 74F00D D48 74HCT02T

C245 33N D118 74HCT238T

+5VD2 R228 3.32 +5VDE1 R551 4.7K

C17 C20 C21 C205 C22 C218 C293 C295 33N D40 74HC4094T D114 74F138D D60 74HC14T D106 74ACT00M D70 74ACT86M D107 74HCT74T D117 74ACT175M D55 74ACT00M

A23 (4/4D,4/8B) P27 P28 +5VD2 R374 4.7K

A-BUS (4/3C,4/3E,4/4E,4/8B,5/7D)

4.7K R543 D118 74HCT238T RD0 (5/6A) RD1 (6/6B)

A9 (4/4D,4/8B,5/7D) A12 (4/4D,4/8B,5/7D) D55 74ACT00M EXTPER (4/7D,4/10C) D60 74HC14T

D-BUS (4/10E,5/12D)

+5VD2 C15 C14 C13 C12 33N D22 TMS320C31POL

+5VD2 R226 1 C24 C25 33N D10 TC551664J-15 D11 TC551664J-15

+5VDE3

05.01

AEND. IND. AENDERU MITTEILU

DE_FSK

EN_X (12/7B)

EN_Y (12/7D)

EN_INT (15/7B,15/9B)

(12/2B) STR_DSP
RDO
(12/2B) CLK_DSP
(4/5C)

(12/2B) DATA_DSP

D42 74HC4094T
D43 74HC4094T
D44 74HC4094T
D45 74HC4094T

ED-BUS
(5/6B,6/2E,6/7E,6/9C,15/2D)
(15/4D,15/7D,15/9D,18/2E)
(18/4E,18/9C,18/9D)

EXT (4/10A,4/11C)
EWR (4/11B,18/1D,18/8A,18/8C)

ED-BUS
(5/12B,6/2E,6/7E,6/9C,15/2D)
(15/4D,15/7D,15/9D,18/2E)
(18/4E,18/9C,18/9D)

D15 74HCT245T
D16 74HCT245T
D14 74HCT245T
D13 74HCT245T

D-BUS
(4/5E,4/10E)

DSP1

D107 74HCT74T
RD2_DSP (3/9C,4/5A,6/9A)
+5VDE1
R536 4.7K
V22 BAW56
READY_MCOD (2/4B)
R576 4.7K +5VDE1

R567 R587 R568 R565 R566 R588 R616 R579 R589 R580 R581 R590 R593 R594 R595 R582 R583 R591 R584 R585 R586 R592 R596 R597 4.7K

A-BUS (4/3E,4/4D,4/4E,4/8B)

D61 74ACT541M
D62 74ACT541M
R562 4.7K
R564 4.7K

EA-BUS
(15/2D,15/4D,15/7D,15/9D,18/1A)
(18/2A,18/4A,18/5A)

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+5VD2
R230 10
C30 33N D44 74HC4094T
C31 33N D43 74HC4094T
C32 33N
C33 33N D13 74HCT245T
C34 33N D14 74HCT245T
C35 33N D15 74HCT245T
C36 33N D16 74HCT245T

+5VD2
R231 10
C37 33N D61 74ACT541M
C38 33N D62 74ACT541M

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

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DSP2

05.01				1GPK	DATUM	NAME	BENENNUNG	
				BEARB.		HM	MODULATIONSCODER	
				GEPR.		HM	MODULATION-CODER	
				NORM			TOP/TOP.5	
				PLOTT	98-10-27	HALLERME	ZEICHN.-NR.	BLATT-NR.
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			1085.5050.01 S	5 +
				ZU GERAET	SMIQB10		REG.I.V. 1085.5009	ERSTE Z.

DSP1

EN_FSK (5/3B,7/11A,16/4B,16/8A)
D60 74HC14T
D106 74ACT00M
D106 74ACT00M
EOE_FSK (16/6B)
EXTRAM (4/6C,4/6E,4/9B,4/10A,5/4B)
EOE (4/11B,6/2C)

+5VDE1
R530 4.7K
STR7 (4/9A)
D41 74HC4094T
SERCLK (/8D,4/6B,7/8A,7/9B,8/5B) (12/2A,12/2B,16/3D)
SERDATA2 (4/7B,7/9B,12/2B)
RS_FIFO (6/2A)
EN_DSP1 (6/2A,6/2B,15/6A)
EN_DSP2 (6/1E,6/2D)
D106 74ACT00M
EN_X (12/7B)
D106 74ACT00M
EN_Y (12/7D)
EN_FSK (5/3A,7/11A,16/4B,16/8A)
EXTRAM (4/6C,4/6E,4/9B,4/10A,5/3A)
D60 74HC14T
EN_INT (15/7B,15/9B)
EN_INT (7/11A,15/11A)

+5VDE1
R577 4.7K
D109 74HC4094T
FPGA1_NCONF (7/8A)
FPGA2_NCONF (12/2A)
SC_SYNC (7/9C)
FRAN0 (16/3B)
FRAN1 (16/3B)
FRAN2 (16/3B)
FRAN3 (16/3B)
FPGA3_NCONF (16/4B)

(12/2B) STR_DSP
RD0
(12/2B) CLK_DSP
(12/2B) DATA_DSP
D42 74HC4094T
D43 74HC4094T
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7

EXT (4/10A,4/11C)
EWR (4/11B,18/1D,18/8A,18/8C)
ED-BUS (5/12B,6/2E,6/7E,6/9C,15/2D) (15/4D,15/7D,15/9D,18/2E) (18/4E,18/9C,18/9D)
D15 74HCT245T
D16 74HCT245T
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7 ED8 ED9 ED10 ED11 ED12 ED13 ED14 ED15
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15

ED8 R567 4.7K
ED9 R587 4.7K
ED10 R568 4.7K
ED11 R565 4.7K
ED12 R566 4.7K
ED13 R588 4.7K
ED14 R616 4.7K
ED15 R579 4.7K
ED16 R589 4.7K
ED17 R580 4.7K
ED18 R581 4.7K
ED19 R590 4.7K
ED20 R593 4.7K
ED21 R594 4.7K
ED22 R595 4.7K
ED23 R582 4.7K
ED24 R583 4.7K
ED25 R591 4.7K
ED26 R584 4.7K
ED27 R585 4.7K
ED28 R586 4.7K
ED29 R592 4.7K
ED30 R596 4.7K
ED31 R597 4.7K

A-BUS (4/3E,4/4D,4/4E,4/8B)
D61 74ACT541M
R562 4.7K
A0 A1 A2 A3 A4 A5 A6 A7
EA0 EA1 EA2 EA3 EA4 EA5 EA6 EA7

RESET_READY (6/8D)
D107 74HCT74T
WRITE1_DSP (3/9C,4/1C,4/5A)
R532 4.7K
+5VDE1
RD2_DSP (3/9C,4/5A,6/9A)
R536 4.7K
+5VDE1
D107 74HCT74T
SET_READY (6/8D)
D110 74HCT02T
R554 4.7K
V22 BAW56
READY_MCOD (2/4B)
R576 4.7K
+5VDE1

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

+5VDE1
C215 33N
C204 33N
D41 74HC4094T
D109 74HC4094T

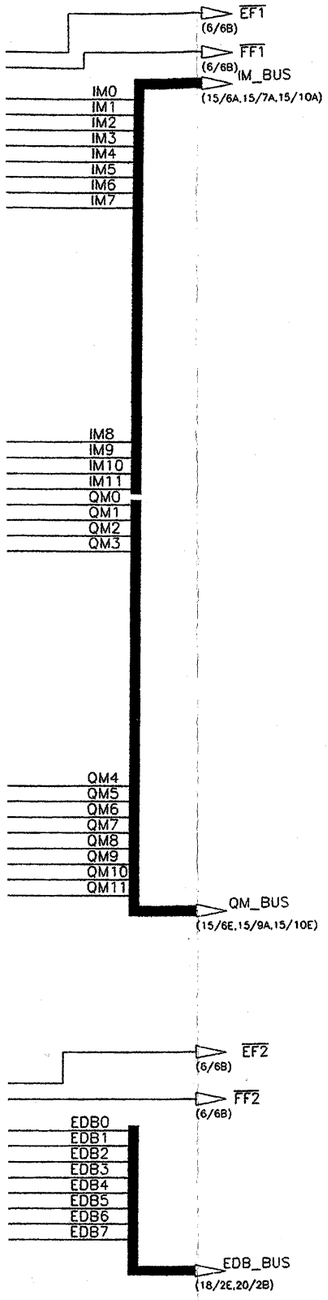
+5VD2
R229 10
D42 74HC4094T
C39 33N
D45 74HC4094T
C30 33N
D44 74HC4094T
C31 33N
D43 74HC4094T
C32 33N

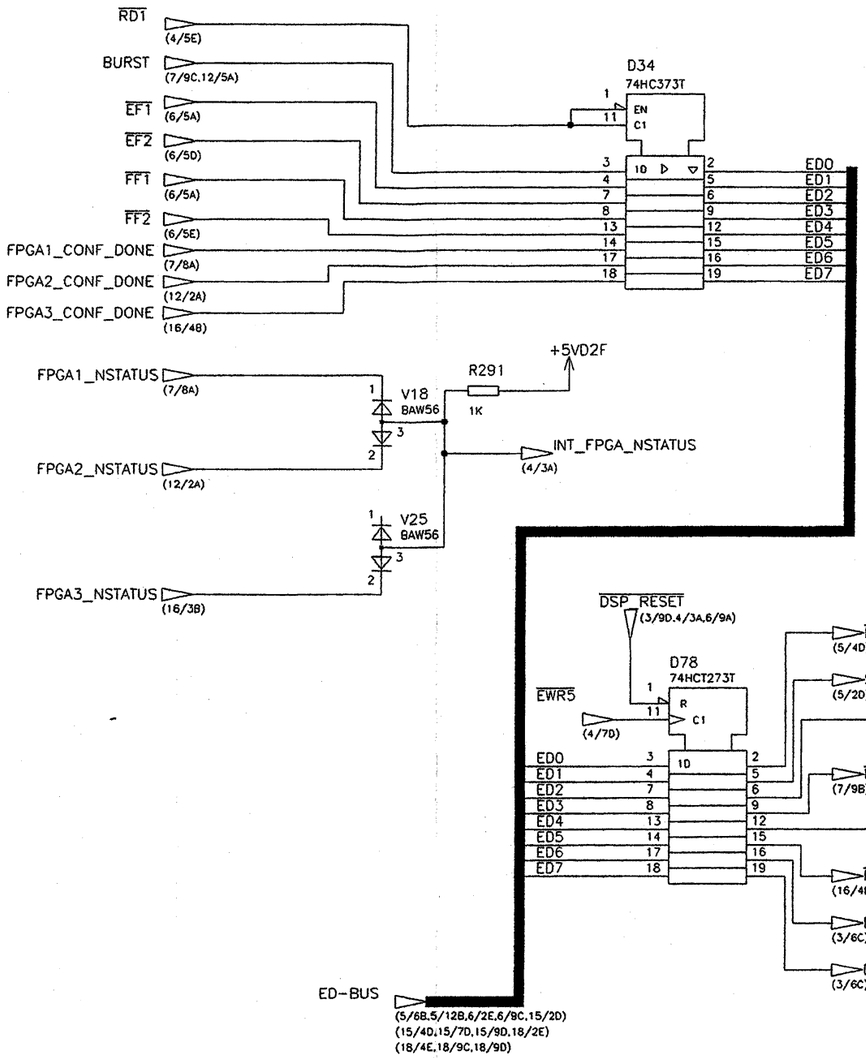
+5VD2
R230 10
D16 74HCT245T
C33 33N
D13 74HCT245T
C34 33N
D14 74HCT245T
C35 33N
D15 74HCT245T
C36 33N

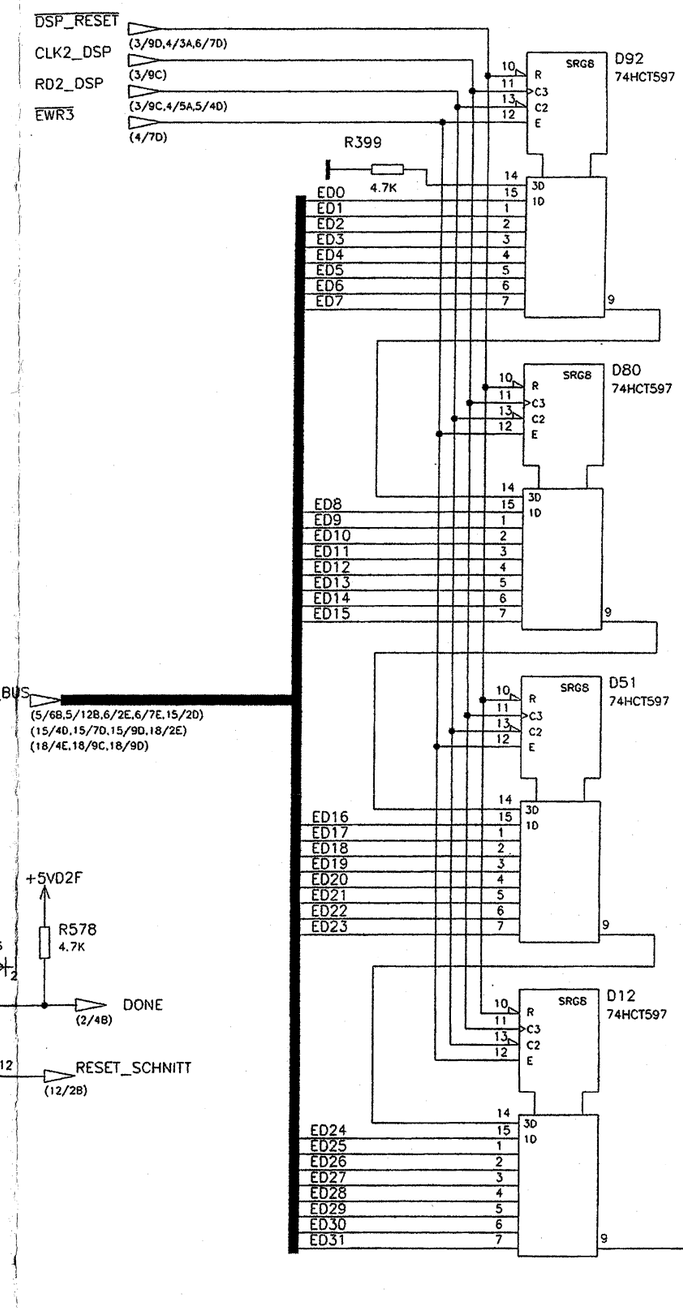
+5VD2
R231 10
D61 74ACT541M
C37 33N
D62 74ACT541M
C38 33N

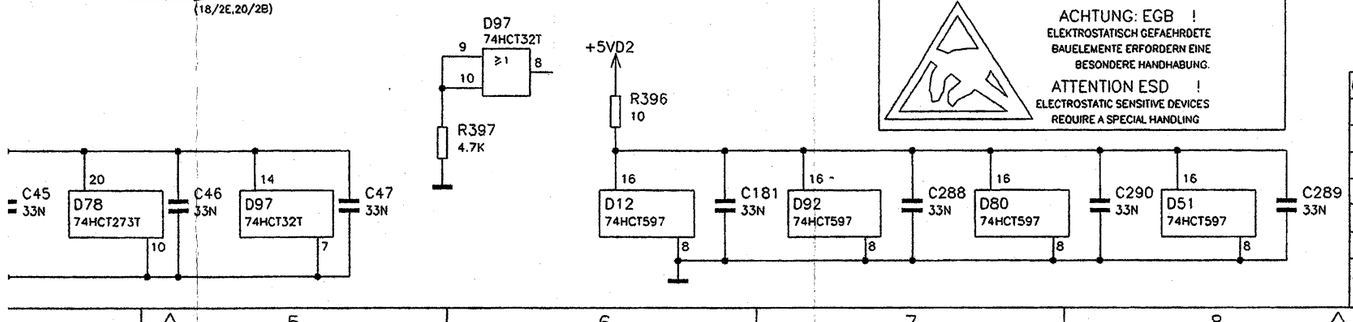
05.01
AEND. IND.
AENDE MITTEIL

FUER DIESE UNTERLAGE BEHALTEN WIR UNS ALLE RECHTE VOR









ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

DSP3

05.01				1GPK	DATUM	NAME
				BEARB.		HM
				GEPR.		HM
				NORM		
				PLOTT	98-10-27	HALLERME
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB10		

BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.6

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 6 +

REG.I.V. 1085.5009

ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

D37 74HCT00T
EN_DSP1 (5/3B,6/2B,15/6A)
OC3 (7/9D,12/5B,15/6A)
EWR6 (4/7D)
RS_FIFO (5/3B)
+5VD2
R388 4.7K
R389 4.7K
+5VD2F
R632 4.7K
EN_DSP1 (5/3B,6/2A,15/6A)

D18 IDT72021
D19 IDT72021
D20 IDT72021
D21 IDT72021
\R \W \XI \RS \FL/RT \OE \XO/HF \AEF \EF \FF
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7
IM0 IM1 IM2 IM3 IM4 IM5 IM6 IM7
ED8 ED9 ED10 ED11 ED16 ED17 ED18 ED19
IM8 IM9 IM10 IM11 QM0 QM1 QM2 QM3
ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27
QM4 QM5 QM6 QM7 QM8 QM9 QM10 QM11
EDB0 EDB1 EDB2 EDB3 EDB4 EDB5 EDB6 EDB7
EF1 (6/6B)
FF1 (6/6B)
IM_BUS (15/6A,15/7A,15/10A)
QM_BUS (15/6E,15/9A,15/10E)
EF2 (6/6B)
FF2 (6/6B)
EDB_BUS (18/2E,20/2B)
+5VD2
R390 4.7K
R391 4.7K
R392 4.7K
R393 4.7K
R394 4.7K
R395 4.7K

D97 74HCT32T
EXTRAM (4/7E,4/8C,4/10C,7/11A,12/5C) (12/9A,16/4B,16/8A)
OE_P_RAM (20/2B)
EOE (4/11B,5/3A)
D37 74HCT00T
EN_DSP2 (5/3B,6/1E)
OC1 (7/6E,7/9C)
EWR7 (4/7D)
D60 74HC14T
D97 74HCT32T
EN_DSP2 (5/3B,6/2D)
ED-BUS (5/6B,5/12B,6/7E,6/9C,15/2D) (15/4D,15/7D,15/9D,18/2E) (18/4E,18/9C,18/9D)

RD1 (4/5E)
BURST (7/9C,12/5A)
EF1 (6/5A)
EF2 (6/5D)
FF1 (6/5A)
FF2 (6/5E)
FPGA1_CONF_DONE (7/8A)
FPGA2_CONF_DONE (12/2A)
FPGA3_CONF_DONE (16/4B)
D34 74HC373T
EN C1
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7

FPGA1_NSTATUS (7/8A)
FPGA2_NSTATUS (12/2A)
FPGA3_NSTATUS (16/3B)
V18 BAW56
V25 BAW56
R291 1K
+5VD2F
INT_FPGA_NSTATUS (4/3A)

DSP_RESET (3/9D,4/3A,6/9A)
D78 74HCT273T
EWR5 (4/7D)
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7
RESET_READY (5/4D)
SET_READY (5/2D)
RESET_TAKT (7/9B)
RESET_FSK (16/4B)
DSP_INT1 (3/6C)
DSP_INT2 (3/6C)
V36 BAW56
D60 74HC14T
ED_BUS (5/6B,5/12B,6/2E,6/9C,15/2D) (15/4D,15/7D,15/9D,18/2E) (18/4E,18/9C,18/9D)

D97 74HCT32T
R397 4.7K
R396 10

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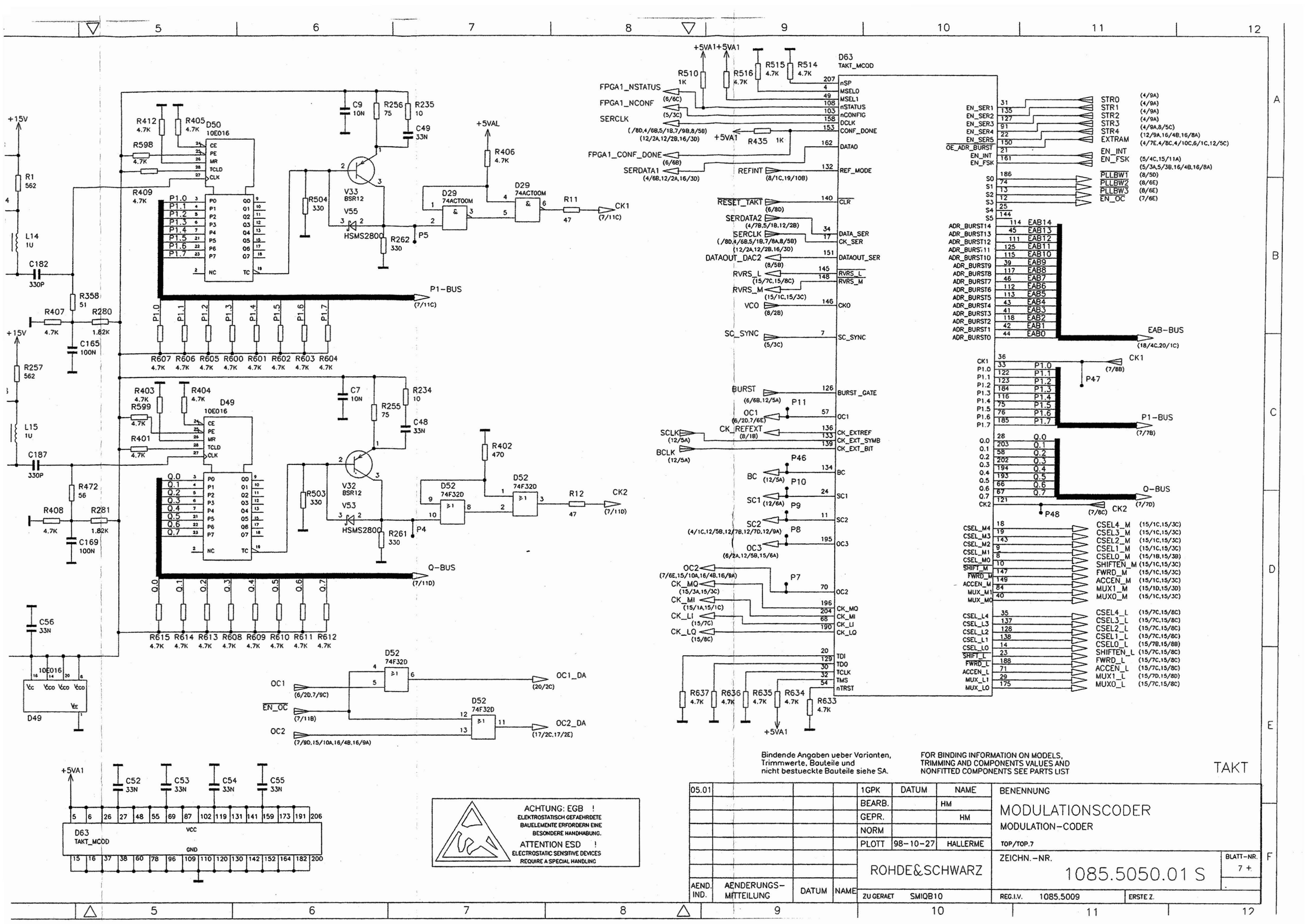
+5VD2
R233 10
D18 IDT72021 C40 33N
D21 IDT72021 C41 33N
D20 IDT72021 C42 33N
D19 IDT72021 C43 33N

+5VD2
+5VD2F
R232 10
D37 74HCT00T C44 33N
D34 74HC373T C45 33N
D78 74HCT273T C46 33N
D97 74HCT32T C47 33N

+5VD2
R396 10
D12 74HCT597 C181 33N
D92 74HCT597 C288 33N
D80 74HCT597 C290 33N
D51 74HCT597 C289 33N

Bindende A
Trimmwerte
nicht bestu

AEND. IND.	AENDER MITTEIL
05.01	

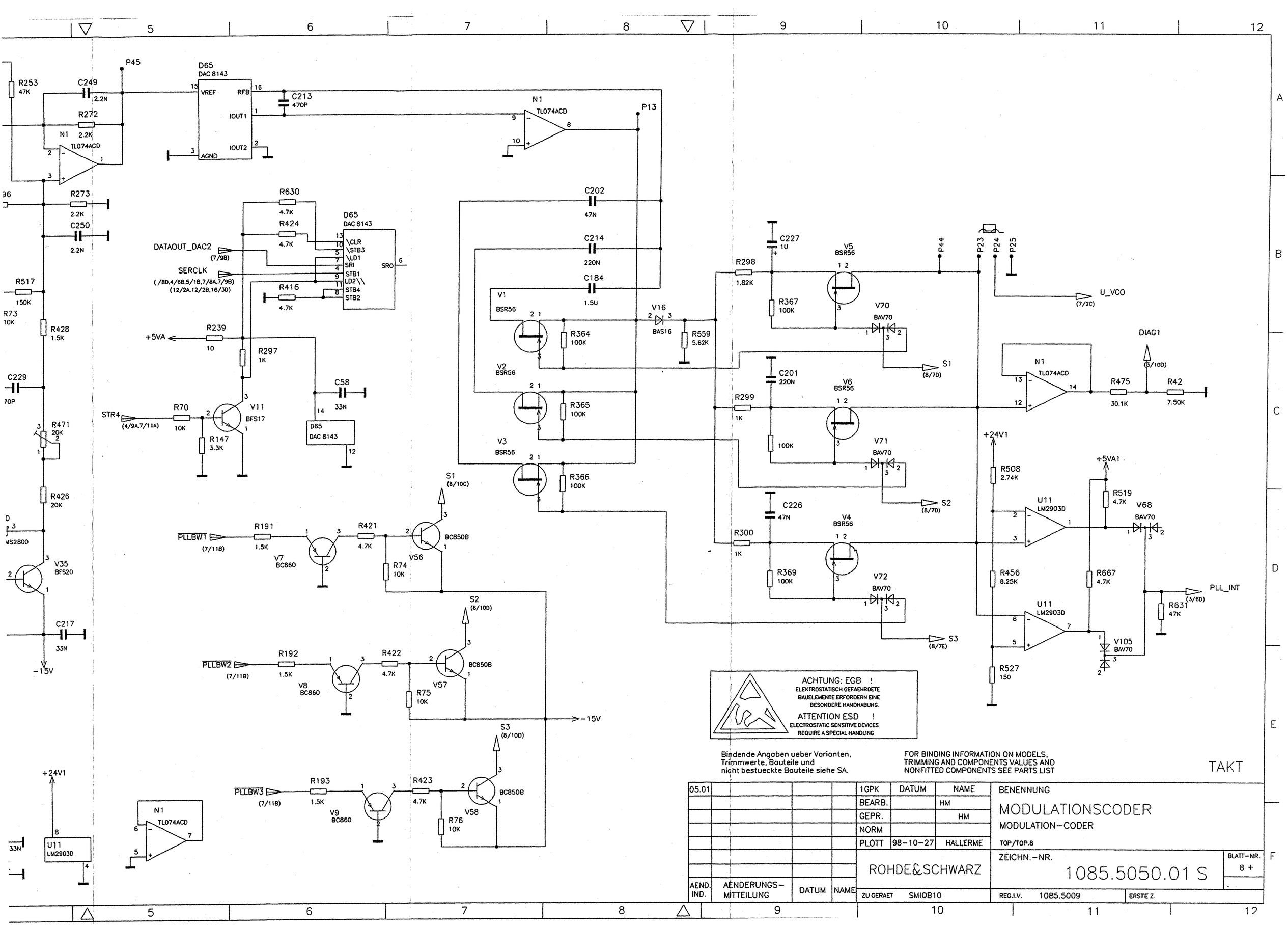

+15V
R1 562
L14 1U
C182 330P
R358 51
R407 4.7K
R280 1.82K
C165 100N
R257 562
L15 1U
C187 330P
R472 56
R408 4.7K
R281 1.82K
C169 100N
C56 33N
D49 10E016
R412 4.7K
R405 4.7K
R598 4.7K
R409 4.7K
D50 10E016
C9 10N
R256 75
R235 10
C49 33N
R504 330
V33 BSR12
V55 HSMS2800
R262 330
P5
+5VAL
R406 4.7K
D29 74ACT00M
R11 47
CK1 (7/11C)
P1-BUS (7/11C)
P1.0 P1.1 P1.2 P1.3 P1.4 P1.5 P1.6 P1.7
R607 R606 R605 R600 R601 R602 R603 R604 4.7K
R403 4.7K
R404 4.7K
R599 4.7K
R401 4.7K
D49 10E016
C7 10N
R255 75
R234 10
C48 33N
R503 330
V32 BSR12
V53 HSMS2800
R261 330
P4
R402 470
D52 74F32D
R12 47
CK2 (7/11D)
Q-BUS (7/11D)
Q.0 Q.1 Q.2 Q.3 Q.4 Q.5 Q.6 Q.7
R615 R614 R613 R608 R609 R610 R611 R612 4.7K
OC1 (6/2D,7/9C)
EN_OC (7/11B)
OC2 (7/9D,15/10A,16/4B,16/9A)
OC1_DA (20/2C)
OC2_DA (17/2C,17/2E)
+5VA1
C52 33N
C53 33N
C54 33N
C55 33N
D63 TAKT_MCOD
VCC
GND
FPGA1_NSTATUS (6/6C)
FPGA1_NCONF (5/3C)
SERCLK (/8D,4/6B,5/1B,7/9B,8/5B) (12/2A,12/2B,16/3D)
FPGA1_CONF_DONE (6/6B)
SERDATA1 (4/6B,12/2A,16/3D)
R510 1K
R516 4.7K
R515 4.7K
R514 4.7K
R435 1K
REFINT (8/1C,19/10B)
RESET_TAKT (6/8D)
SERDATA2 (4/7B,5/1B,12/2B)
SERCLK (/8D,4/6B,5/1B,7/8A,8/5B) (12/2A,12/2B,16/3D)
DATAOUT_DAC2 (8/5B)
RVRS_L (15/7C,15/8C)
RVRS_M (15/1C,15/3C)
VCO (8/2B)
SC_SYNC (5/3C)
BURST (6/6B,12/5A)
OC1 (6/2D,7/6E)
CK_REFEXT (8/1B)
SCLK (12/5A)
BCLK (12/5A)
BC (12/5A)
SC1 (12/6A)
SC2 (4/1C,12/5B,12/7B,12/7D,12/9A)
OC3 (6/2A,12/5B,15/6A)
OC2 (7/6E,15/10A,16/4B,16/9A)
CK_MQ (15/3A,15/3C)
CK_MI (15/1A,15/1C)
CK_LI (15/7C)
CK_LQ (15/8C)
R637 R636 R635 R634 R633 4.7K
+5VA1
D63 TAKT_MCOD
nSP
MSEL0
MSEL1
nSTATUS
nCONFIG
DCLK
CONF_DONE
DATA0
REF_MODE
CLR
DATA_SER
CK_SER
DATAOUT_SER
RVRS_L
RVRS_M
CKO
SC_SYNC
BURST_GATE
OC1
CK_EXTREF
CK_EXT_SYMB
CK_EXT_BIT
BC
SC1
SC2
OC3
OC2
CK_MQ
CK_MI
CK_LI
CK_LQ
TDI
TDO
TCLK
TMS
nTRST
EN_SER1 EN_SER2 EN_SER3 EN_SER4 EN_SER5
OE_ADR_BURST
EN_INT
EN_FSK
S0 S1 S2 S3 S4 S5
STR0 (4/9A)
STR1 (4/9A)
STR2 (4/9A)
STR3 (4/9A,8/5C)
STR4 (12/9A,16/4B,16/8A)
EXTRAM (4/7E,4/8C,4/10C,6/1C,12/5C)
EN_INT
EN_FSK (5/4C,15/11A) (5/3A,5/3B,16/4B,16/8A)
PLLBW1 (8/5D)
PLLBW2 (8/6E)
PLLBW3 (8/6E)
EN_OC (7/6E)
ADR_BURST14 ADR_BURST13 ADR_BURST12 ADR_BURST11 ADR_BURST10 ADR_BURST9 ADR_BURST8 ADR_BURST7 ADR_BURST6 ADR_BURST5 ADR_BURST4 ADR_BURST3 ADR_BURST2 ADR_BURST1 ADR_BURST0
EAB14 EAB13 EAB12 EAB11 EAB10 EAB9 EAB8 EAB7 EAB6 EAB5 EAB4 EAB3 EAB2 EAB1 EAB0
EAB-BUS (18/4C,20/1C)
CK1 (7/8B)
P47
P1.0 P1.1 P1.2 P1.3 P1.4 P1.5 P1.6 P1.7
P1-BUS (7/7B)
Q.0 Q.1 Q.2 Q.3 Q.4 Q.5 Q.6 Q.7
CK2 (7/8C)
P48
Q-BUS (7/7D)
CSEL_M4 CSEL_M3 CSEL_M2 CSEL_M1 CSEL_M0 SHIFT_M FWRD_M ACCEN_M MUX_M1 MUX_M0
CSEL4_M (15/1C,15/3C)
CSEL3_M (15/1C,15/3C)
CSEL2_M (15/1C,15/3C)
CSEL1_M (15/1C,15/3C)
CSEL0_M (15/1B,15/3B)
SHIFTEN_M (15/1C,15/3C)
FWRD_M (15/1C,15/3C)
ACCEN_M (15/1C,15/3C)
MUX1_M (15/1D,15/3D)
MUX0_M (15/1C,15/3C)
CSEL_L4 CSEL_L3 CSEL_L2 CSEL_L1 CSEL_L0 SHIFT_L FWRD_L ACCEN_L MUX_L1 MUX_L0
CSEL4_L (15/7C,15/8C)
CSEL3_L (15/7C,15/8C)
CSEL2_L (15/7C,15/8C)
CSEL1_L (15/7C,15/8C)
CSEL0_L (15/7B,15/8B)
SHIFTEN_L (15/7C,15/8C)
FWRD_L (15/7C,15/8C)
ACCEN_L (15/7C,15/8C)
MUX1_L (15/7D,15/8D)
MUX0_L (15/7C,15/8C)
ACHTUNG: EGB !
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TAKT
05.01
AEND. IND.
AENDERUNGS-MITTEILUNG
DATUM
NAME
1GPK DATUM NAME
BEARB. HM
GEPR. HM
NORM
PLOTT 98-10-27 HALLERME
BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.7
ROHDE&SCHWARZ
ZEICHN.-NR.
1085.5050.01 S
BLATT-NR.
7 +
ZU GERAET SMIQB10
REG.I.V. 1085.5009
ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

+15V
C299 100N
R49 150
C222 10U
C167 10N
R48 56
G3 VCO
U_VCO (6/11B)
C8 10N
DIAG5 (3/10D)
V54 HSMS2800
R363 100K
R362 100K
C220 1N
C153 10P
R184 470
C183 330P
R3 56
+15V
C18 10N
R1 562
C164 100N
L14 1U
N4 MAR6
C182 330P
R358 51
R407 4.7K
R280 1.82K
C165 100N
+15V
R257 562
C168 10N
L15 1U
N3 MAR6
R185 470
C186 330P
R4 56
C187 330P
R472 56
R408 4.7K
R281 1.82K
C169 100N
+5VA1
R260 1
R430 1
C51 33N
C56 33N
10E016 D50
10E016 D49
+5VA1
R237 10
C50 33N
C281 33N
+5VAL
D29 74ACT00M
D52 74F32D
D29 74ACT00M
R400 4.7K
+5VA1
C52 33N
C53 33N
C54 33N
C55 33N
D63 TAKT_MCOD
VCC
GND
R412 4.7K
R405 4.7K
D50 10E016
R598 4.7K
R409 4.7K
P1.0 P1.1 P1.2 P1.3 P1.4 P1.5 P1.6 P1.7
P0 P1 P2 P3 P4 P5 P6 P7
Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7
NC TC
CE PE MR TCLD CLK
C9 10N
R256 75
R235 10
C49 33N
+5VAL
R406 4.7K
V33 BSR12
R504 330
V55 HSMS2800
R262 330
P5
D29 74ACT00M
D29 74ACT00M
R11 47
CK1 (7/11C)
P1-BUS (7/11C)
R607 R606 R605 R600 R601 R602 R603 R604 4.7K
R403 4.7K
R404 4.7K
D49 10E016
R599 4.7K
R401 4.7K
C7 10N
R255 75
C48 33N
R234 10
R402 470
V32 BSR12
R503 330
V53 HSMS2800
R261 330
P4
D52 74F32D
D52 74F32D
R12 47
CK2 (7/11D)
Q-BUS (7/11D)
R615 R614 R613 R608 R609 R610 R611 R612 4.7K
OC1
EN_OC
OC2
(6/2D,7/9C)
(7/11B)
(7/9D,15/10A,16/4B,16/9A)
D52 74F32D
OC1_DA (20/2C)
OC2_DA (17/2C,17/2E)
+5VA1 +5VA1
R510 1K
R516 4.7K
FPGA1_NSTATUS (6/6C)
FPGA1_NCONF (5/3C)
SERCLK (/8D,4/6B,5/18,7/9B,8/5B) (12/2A,12/2B,16/3D)
+5VA1
FPGA1_CONF_DONE (6/6B)
SERDATA1 (4/6B,12/2A,16/3D)
RESET_TA
SERDAT, (4/
SERCL (/8D,4/6B,5/
(12/2A
DATAOUT_DAC
RVRS_
RVRS_
VC
SC_SYN
BURST (6/
OC (6/20,7/
CK_REFE (8/1E
SCLK (12/5A)
BCLK (12/5A)
B(
SC
SC (4/1C,12/5B,12/7B,12/
OC (6/2A,12/5
OC2 (7/6E,15/10A,16/4B,16/9A)
CK_MQ (15/3A,15/3C)
CK_MI (15/1A,15/1C)
CK_LI (15/7C)
CK_LQ (15/8C)
R637 4.7K
R636 4.7K

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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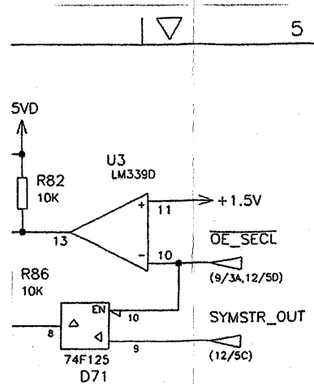
AEND. IND.	AENDER MITTEIL
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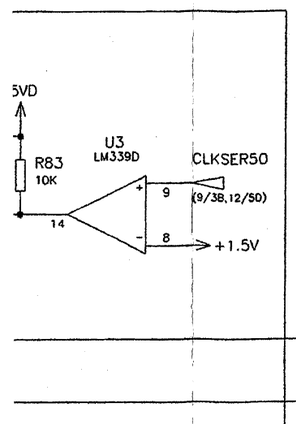

P45
D65
DAC 8143
R253
47K
C249
2.2N
R272
N1
2.2K
TL074ACD
C213
470P
N1
TL074ACD
P13
R273
2.2K
C250
2.2N
R630
4.7K
R424
4.7K
D65
DAC 8143
DATAOUT_DAC2
(7/9B)
SERCLK
(/8D,4/6B,5/18,7/8A,7/9B)
(12/2A,12/2B,16/3D)
R416
4.7K
\CLR
\STB3
\LD1
SRI
STB1
LD2\\
STB4
STB2
SRO
C202
47N
C214
220N
C184
1.5U
R517
150K
R428
1.5K
R239
10
+5VA
R297
1K
C58
33N
D65
DAC 8143
C229
70P
R471
20K
STR4
(4/9A,7/11A)
R70
10K
V11
BFS17
R147
3.3K
R426
20K
V35
BFS20
C217
33N
-15V
V1
BSR56
R364
100K
V16
BAS16
R559
5.62K
V2
BSR56
R365
100K
V3
BSR56
R366
100K
S1
(8/10C)
S2
(8/10D)
S3
(8/10D)
PLLBW1
(7/11B)
R191
1.5K
V7
BC860
R421
4.7K
BC850B
V56
R74
10K
PLLBW2
(7/11B)
R192
1.5K
V8
BC860
R422
4.7K
BC850B
V57
R75
10K
-15V
PLLBW3
(7/11B)
R193
1.5K
V9
BC860
R423
4.7K
BC850B
V58
R76
10K
+24V1
U11
LM2903D
N1
TL074ACD
C227
1U
V5
BSR56
P44
P23
P24
P25
R298
1.82K
R367
100K
V70
BAV70
U_VCO
(7/2C)
S1
(8/7D)
C201
220N
V6
BSR56
R299
1K
100K
V71
BAV70
S2
(8/7D)
C226
47N
V4
BSR56
R300
1K
R369
100K
V72
BAV70
S3
(8/7E)
DIAG1
(5/10D)
N1
TL074ACD
R475
30.1K
R42
7.50K
+24V1
R508
2.74K
U11
LM2903D
+5VA1
R519
4.7K
V68
BAV70
R456
8.25K
R667
4.7K
PLL_INT
(3/6D)
R631
47K
U11
LM2903D
V105
BAV70
R527
150
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING
Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bauteile siehe SA.
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST
TAKT
05.01
1GPK
DATUM
NAME
BEARB.
HM
GEPR.
HM
NORM
PLOTT
98-10-27
HALLERME
BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.8
AEND. IND.
AENDERUNGS-MITTEILUNG
DATUM
NAME
ROHDE&SCHWARZ
ZU GERAET
SMIQB10
ZEICHN.-NR.
1085.5050.01 S
BLATT-NR.
8 +
REG.I.V.
1085.5009
ERSTE Z.

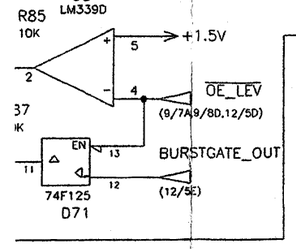
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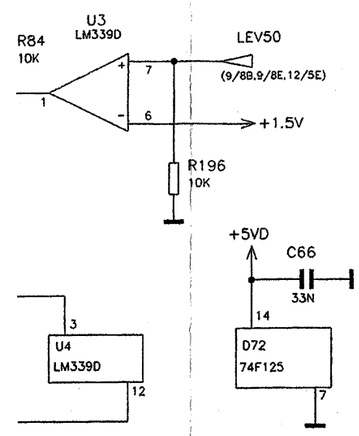
+5VAN
R415 4.7K
R414 4.7K
D32 74ACT74M
R293 1.21K
R294 1K
C199 10N
R253 47K
C249 2.2N
P45
D65 DAC 8143
C213 470P
N1 TL074ACD
P13
V59 BC850B
R413 4.7K
R69 10K
-15V
V10 BC860B
V69 BAV70
R295 1.21K
R296 1K
R273 2.2K
C200 10N
C250 2.2N
R272 2.2K
R630 4.7K
R424 4.7K
R416 4.7K
C202 47N
C214 220N
C184 1.5U
R29 1.82
V1 BSR56
V16 BAS16
R364 100K
R559 5.62K
V2 BSR56
R365 100K
R29
1K
V3 BSR56
R366 100K
S1 (8/10C)
R30
1K
VCO (7/9B)
P49
R45 220
R190 1.5K
R460 90.9K
R517 150K
R73 10K
R428 1.5K
DATAOUT_DAC2 (7/9B)
SERCLK (/8D.4/6B.5/16,7/8A.7/9B) (12/2A,12/2B,16/3D)
D65 DAC 8143
\CLR \STB3 \LD1 SRI STB1 LD2\\ STB4 STB2 SRO
R239 10
+5VA
R297 1K
C58 33N
D65 DAC 8143
STR4 (4/9A.7/11A)
R70 10K
V11 BFS17
R147 3.3K
CK_REFEXT (7/9C)
D53 74AC02M
REFINT (7/9A,19/10B)
D46 74HC390T
CTR CT=0 DIV2 DIV5 CT
REF10 (19/11C)
P12
C229 470P
R471 20K
R426 20K
V20 HSMS2800
C228 120P
L31 1U
R560 47
V35 BFS20
V21 HSMS2800
R71 220
C217 33N
-15V
PLLBW1 (7/11B)
R191 1.5K
V7 BC860
R421 4.7K
V56 BC850B
R74 10K
S2 (8/10D)
PLLBW2 (7/11B)
R192 1.5K
V8 BC860
R422 4.7K
V57 BC850B
R75 10K
-15V
S3 (8/10D)
PLLBW3 (7/11B)
R193 1.5K
V9 BC860
R423 4.7K
V58 BC850B
R76 10K
+5VA1
R238 10
C57 33N
D32 74ACT74M
+5VAN
R555 10
C62 33N
C63 33N
D53 74AC02M
D46 74HC390T
R194 1.5K
D53 74AC02M
V34 BZX284B2V7
+24V1
R556 10
C223 10U
C61 33N
N1 TL074ACD
C60 33N
V19 BZV55B7V5
-15V
R77 10
C224 10U
+24V1
U11 LM2903D
N1 TL074ACD

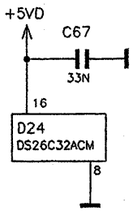
AEND. IND.	AENDE MITTEI
05.01	

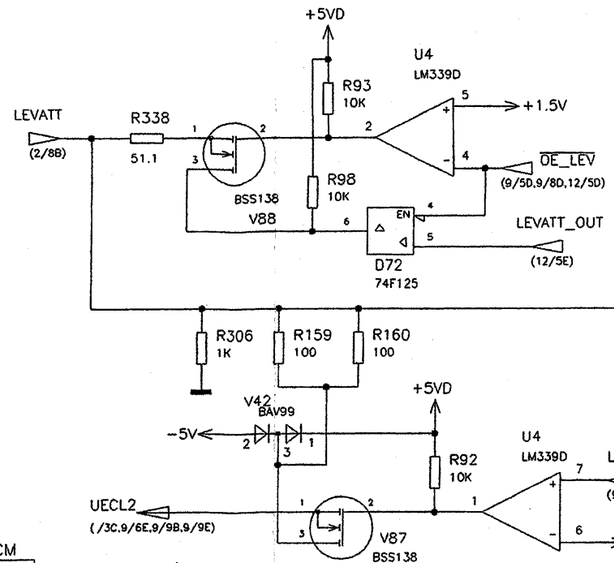


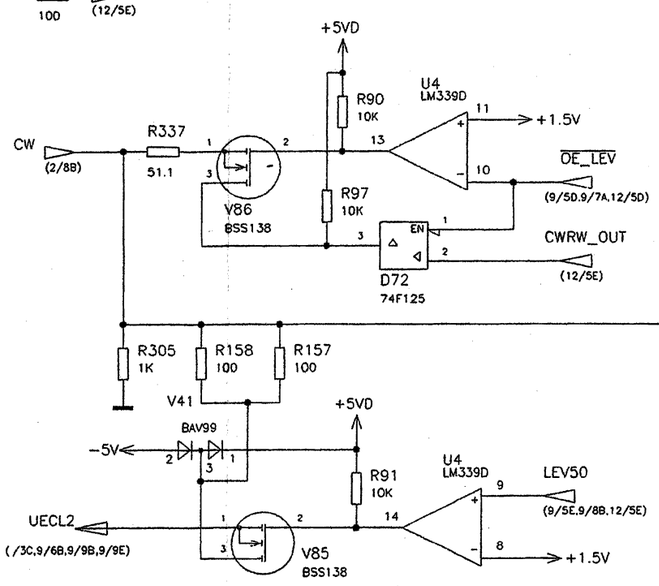


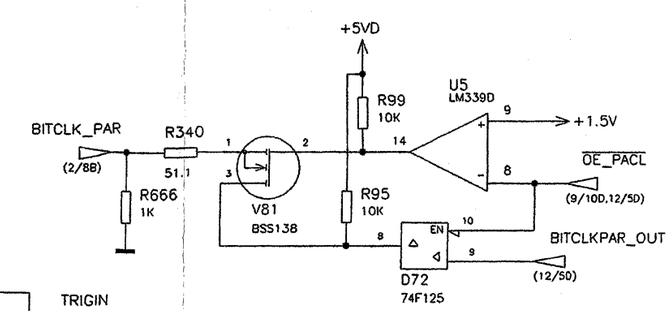


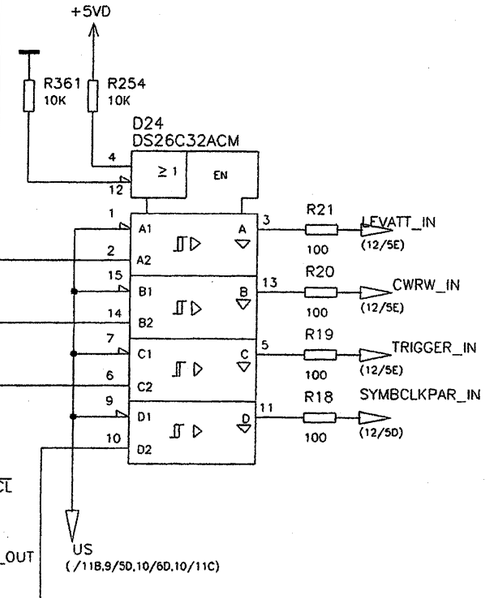


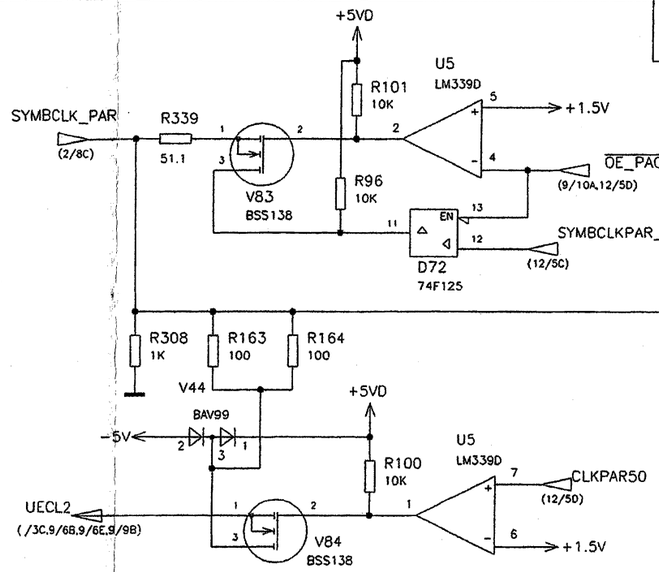












ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

DIG/BUF

05.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	MODULATIONSCODER
				GEPR.		HM	MODULATION-CODER
				NORM			TOP/TOP.9
				PLOTT	98-10-27	HALLERME	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S
				ZU GERAET SMIQB10			REG.I.V. 1085.5009

BLATT-NR. 9 +

ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

1 2 3 4 5 6 7 8

B C D E F

+5VD
U2 LM339D
R78 10K
CLK_SER
(2/8A)
R333 51.1
BSS138 V80
R89 10K
+1.5V
OE_SECL
(9/5A,12/5D)
74F125 D71
CLKSER_OUT
(12/5C)
R301 1K
R149 100
R150 100
V37
BAV99
-5V
R79 10K
U2 LM339D
CLKSER50
(9/5B,12/50)
UECL1
(/3A,9/1E,9/3B,9/3E)
BSS138 V79
+1.5V

+5VD
U3 LM339D
R82 10K
SYMB_SER
(2/8A)
R335 51.1
BSS138 V73
R86 10K
+1.5V
OE_SECL
(9/3A,12/5D)
74F125 D71
SYMSTR_OUT
(12/5C)
R303 1K
R154 100
R153 100
V39
BAV99
-5V
R83 10K
U3 LM339D
CLKSER50
(9/3B,12/50)
UECL1
(/3A,9/1B,9/1E,9/3E)
BSS138 V74
+1.5V

+5VD
U4 LM339D
R93 10K
LEVATT
(2/8B)
R338 51.1
BSS138 V88
R98 10K
+1.5V
OE_LEV
(9/5D,9/8D,12/5D)
D72 74F125
LEVATT_OUT
(12/5E)
R306 1K
R159 100
R160 100
V42
BAV99
-5V
R92 10K
U4 LM339D
LEV50
(9/5E,9/8E,12/5E)
UECL2
(/3C,9/6E,9/9B,9/9E)
V87 BSS138
+1.5V

BITCLK_PAR
(2/8B)
R340 51.1
R666 1K
TRIGIN
(2/8C)
-5
UECL2
(/3C,9/6B,9/6

+5VD
R225 10K
R224 10K
D23 DS26C32ACM
≥1
EN
R14 CLKSER_IN
(12/5C)
R15 DATASER_IN
(12/5C)
R16 SYMSTR_IN
(12/5C)
R17 BURSTGATE_IN
(12/5E)
100
US
(/11B,9/11D,10/6D,10/11C)

+5VD
U2 LM339D
R80 10K
DATA_SER
(2/8A)
R334 51.1
BSS138 V78
R88 10K
+1.5V
OE_SEDA
(12/5D)
74F125 D71
DATASER_OUT
(12/5C)
R302 1K
R152 100
R151 100
V38
BAV99
-5V
R81 10K
U2 LM339D
DATAS50
(12/5D)
UECL1
(/3A,9/1B,9/3B,9/3E)
BSS138 V77
+1.5V

+5VD
U3 LM339D
R85 10K
BURSTGATE
(2/8B)
R336 51.1
BSS138 V75
R87 10K
+1.5V
OE_LEV
(9/7A,9/8D,12/5D)
74F125 D71
BURSTGATE_OUT
(12/5E)
R304 1K
R155 100
R156 100
V40
BAV99
-5V
R84 10K
U3 LM339D
LEV50
(9/8B,9/8E,12/5E)
UECL1
(/3A,9/1B,9/1E,9/3B)
BSS138 V76
+1.5V
R196 10K

+5VD
U4 LM339D
R90 10K
CW
(2/8B)
R337 51.1
V86 BSS138
R97 10K
+1.5V
OE_LEV
(9/5D,9/7A,12/5D)
D72 74F125
CWRW_OUT
(12/5E)
R305 1K
R158 100
R157 100
V41
BAV99
-5V
R91 10K
U4 LM339D
LEV50
(9/5E,9/8B,12/5E)
UECL2
(/3C,9/6B,9/9B,9/9E)
V85 BSS138
+1.5V

SYMBCLK_PAR
(2/8C)
-5V
UECL2
(/3C,9/6B,9/6E,9/9B)

+5VD
U2 LM339D
U3 LM339D
-5V

+5VD
C64 33N
D71 74F125

+5VD
C65 33N
D23 DS26C32ACM

+5VD
U5 LM339D
U4 LM339D
-5V

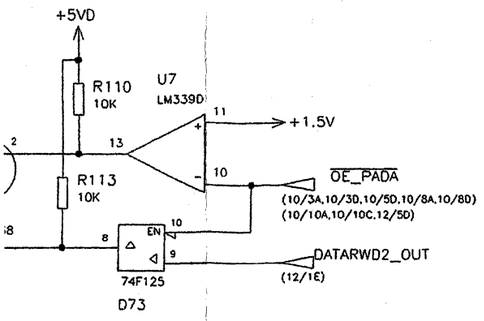
+5VD
C66 33N
D72 74F125

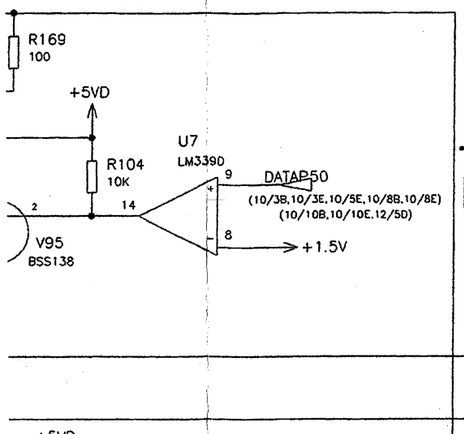
+5VD
C67 33N
D24 DS26C32ACM

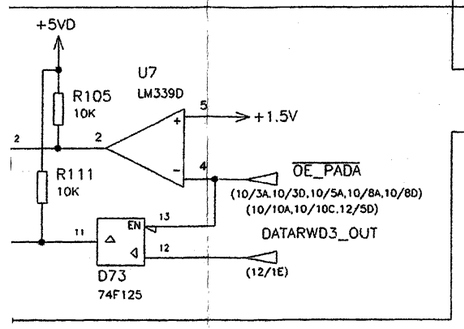
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

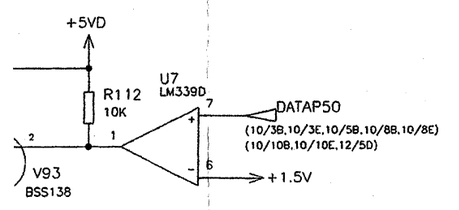
Bindende Ang
Trimmwerte, I
nicht bestuec

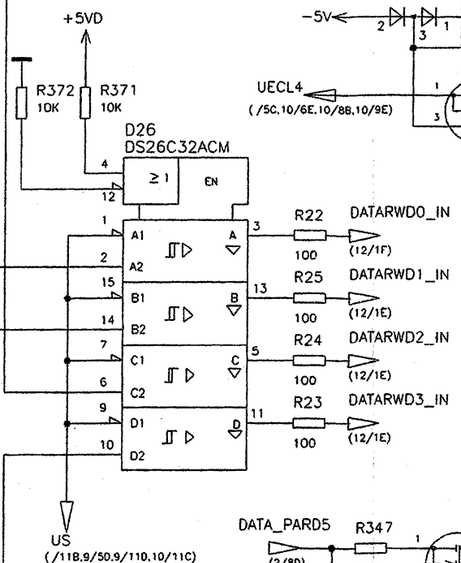
05.01	
AEND. IND.	AENDER MITTEIL

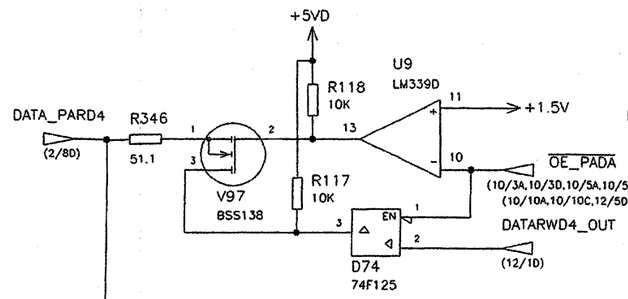


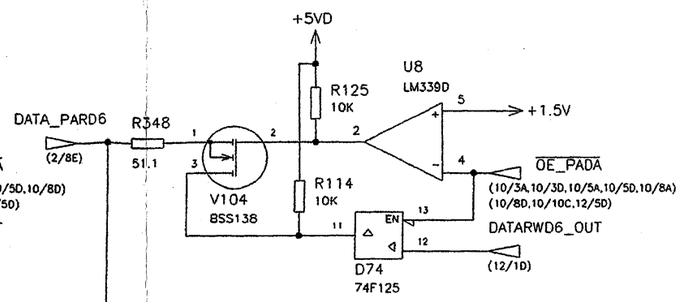


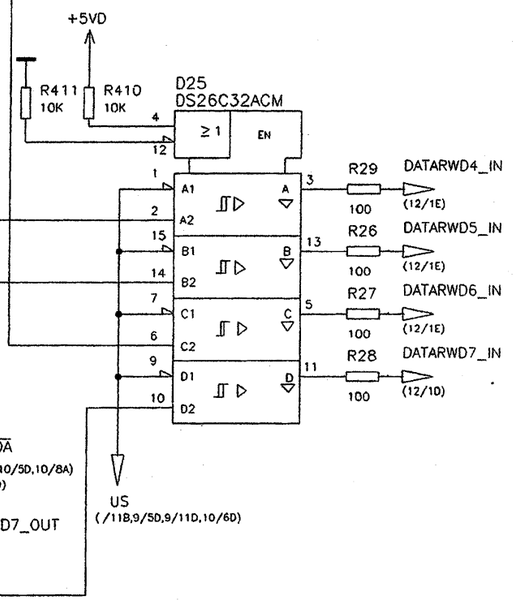


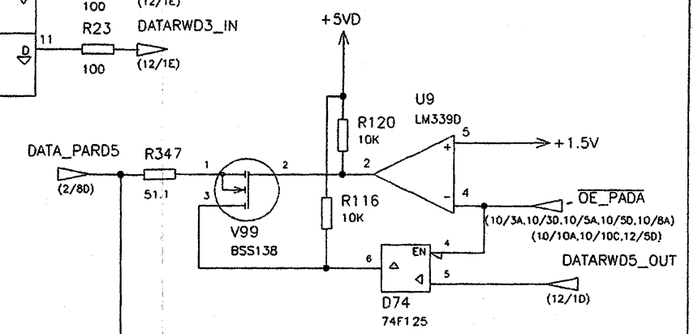


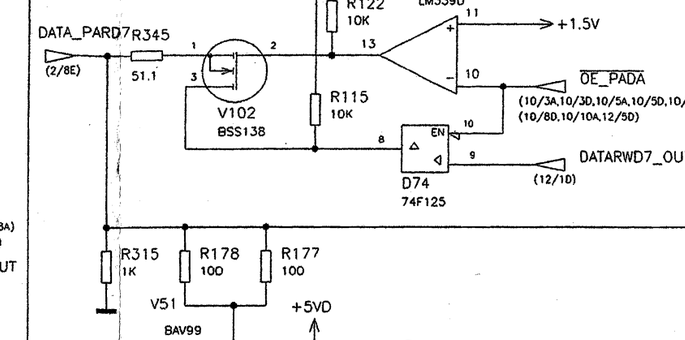


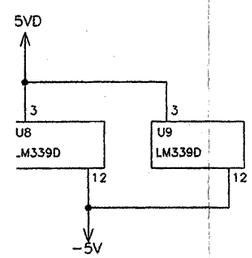


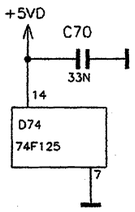


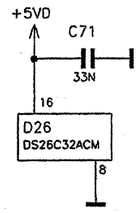












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ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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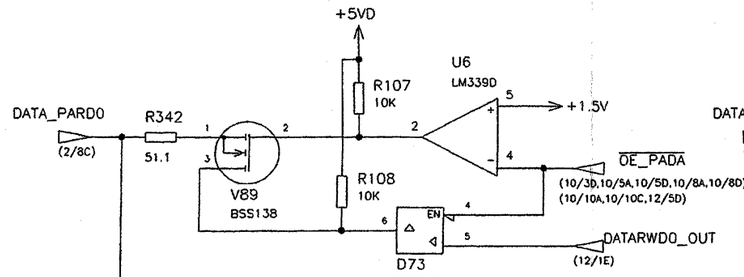
FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

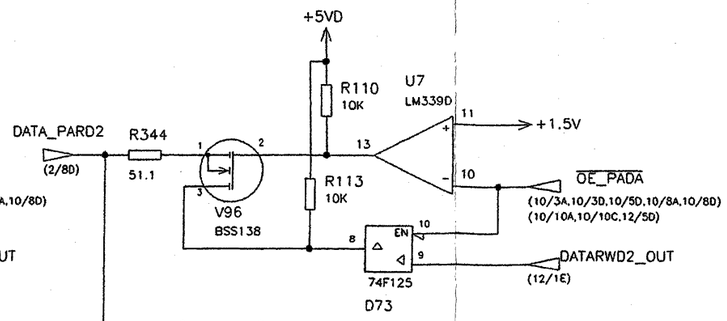
DIG/BUF

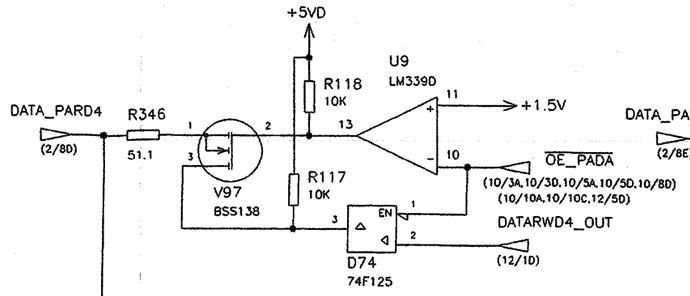
05.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	MODULATIONSCODER
				GEPR.		HM	MODULATION-CODER
				NORM			TOP/TOP.10
				PLOTT	98-10-27	HALLERME	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB10			REG.I.V. 1085.5009

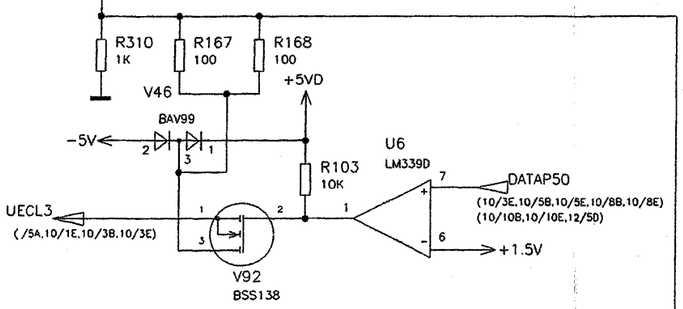
BLATT-NR. 10 +

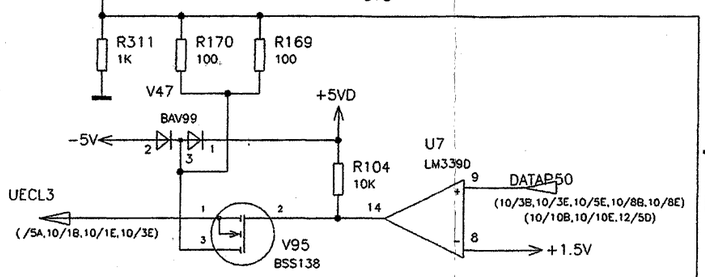
ERSTE Z.

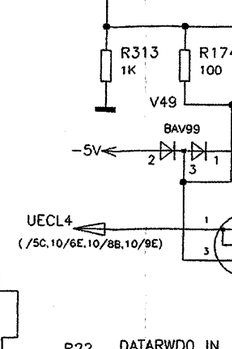


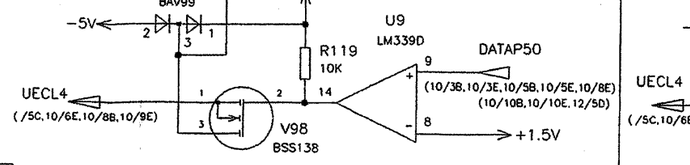


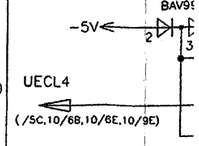


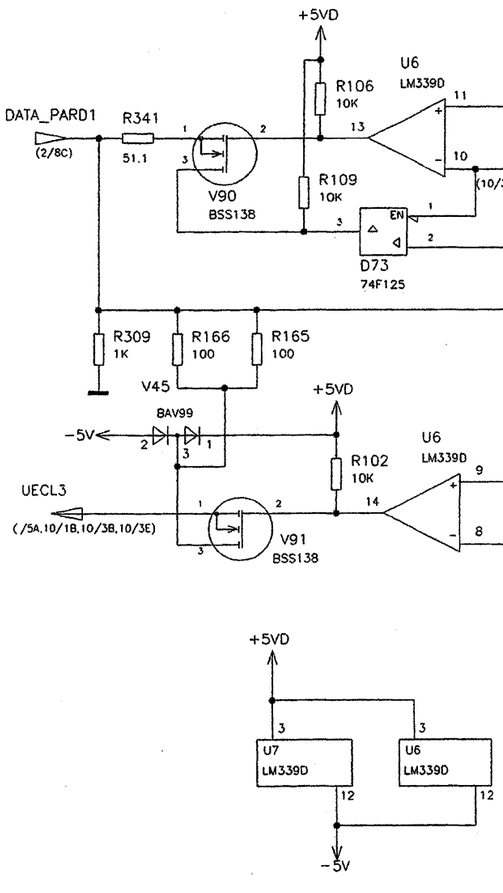


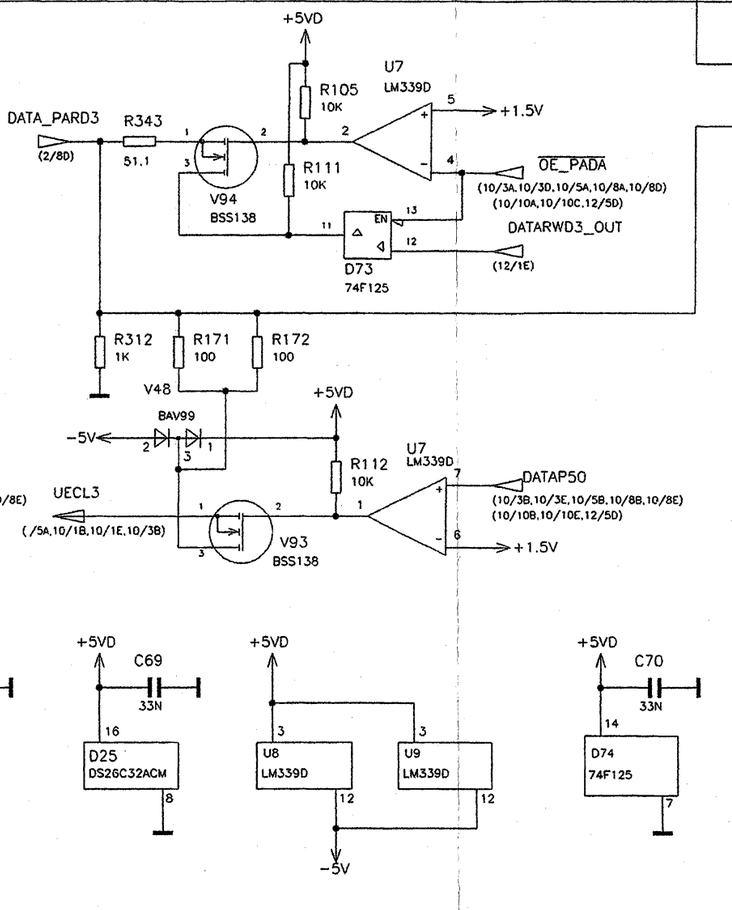


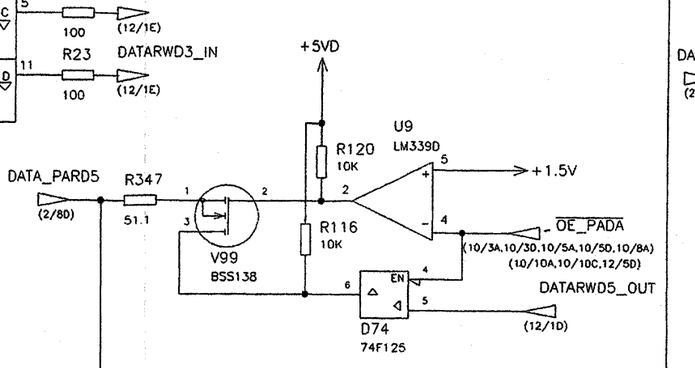


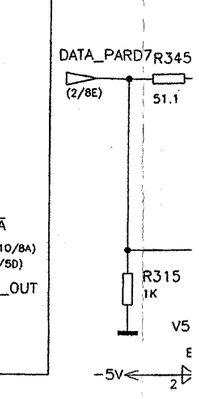


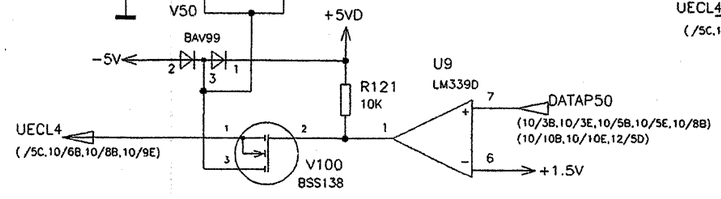


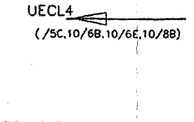


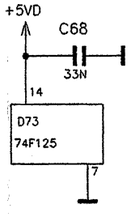


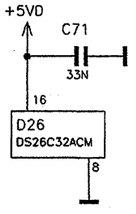








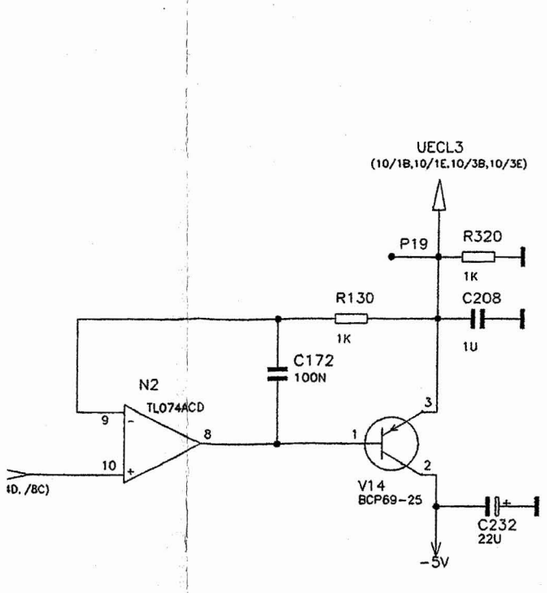


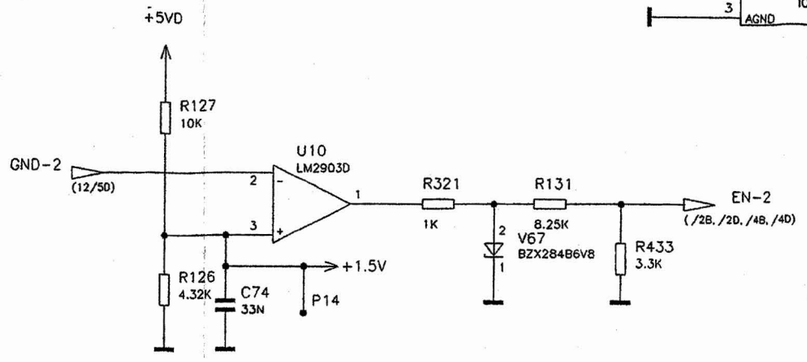


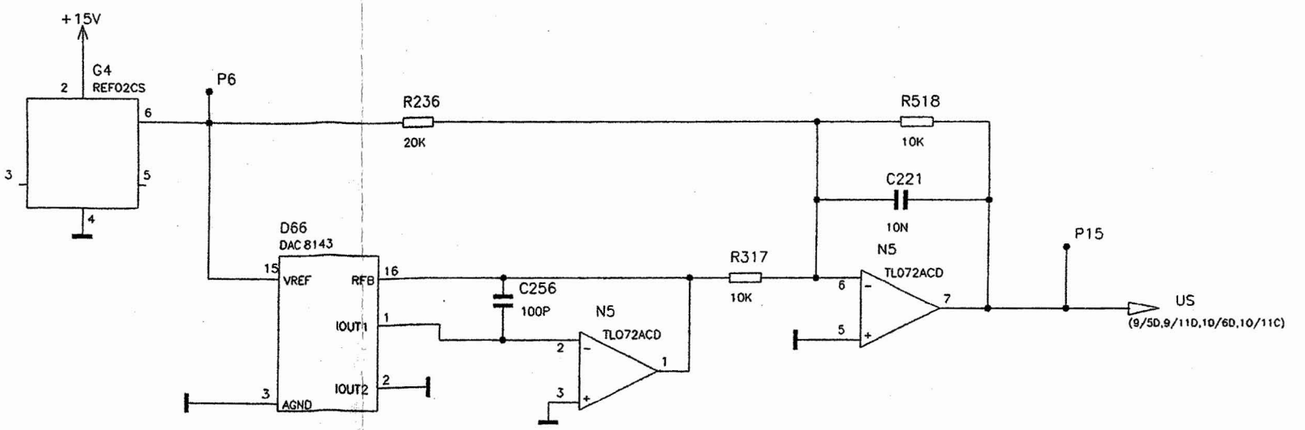
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

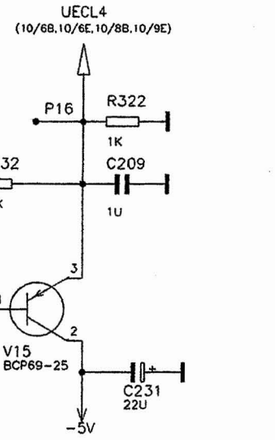
Bindende A
Trimmwert
nicht bestu

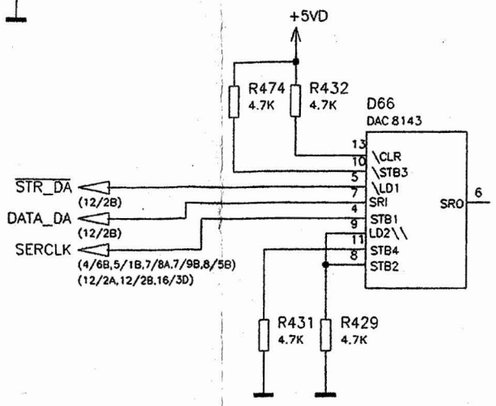
05.01	
AEND. IND.	AENDERU MITTEILUN

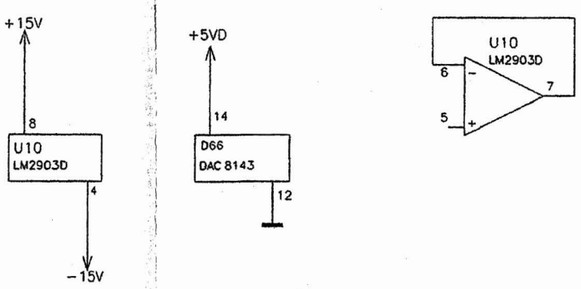












ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

DIG/BUF

05.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	MODULATIONSCODER
				GEPR.		HM	MODULATION-CODER
				NORM			TOP/TOP.11
				PLOTT	98-10-27	HALLERME	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S
				ZU GERAET SMIQB10			REG.I.V. 1085.5009 ERSTE Z.

BLATT-NR. 11 +

FÜR DIESE UNTERLAGE BEHALTEN WIR UNS ALLE RECHTE VOR

UECL1
(9/1B,9/1E,9/3B,9/3E)

P17 R318 1K
R128 10K C206 1U
C170 100N
N2 TL074ACD
EN-2 (/2D, /4B, /4D, /8C)
V12 BCP69-25
C233 22U
-5V

UECL3
(10/1B,10/1E,10/3B,10/3E)

P19 R320 1K
R130 1K C208 1U
C172 100N
N2 TL074ACD
EN-2 (/2B, /2D, /4D, /8C)
V14 BCP69-25
C232 22U
-5V

+15V
G4 REF02CS
P6
D66 DAC 8143
VREF RFB IOUT1 IOUT2 AGND

+5VD
R127 10K
GND-2 (12/5D)
U10 LM2903D
R321 1K
R131 8.25K
V67 BZX284B6V8
R433 3.3K
R126 4.32K
C74 33N
+1.5V
P14
EN-2 (/2B, /2D, /4B, /4D)

STR_DA (12/2B)
DATA_DA (12/2B)
SERCLK (4/6B,5/1B,7/8A,7/9B,8/5B) (12/2A,12/2B,16/3D)

UECL2
(9/6B,9/6E,9/9B,9/9E)

P18 R319 1K
R129 10K C207 1U
C171 100N
N2 TL074ACD
EN-2 (/2B, /4B, /4D, /8C)
V13 BCP69-25
C230 22U
-5V

UECL4
(10/6B,10/6E,10/8B,10/9E)

P16 R322 1K
R132 10K C209 1U
C173 100N
N2 TL074ACD
EN-2 (/2B, /2D, /4B, /8C)
V15 BCP69-25
C231 22U
-5V

+15V
N5 TL072ACD
-15V

+5VD
C72 33N
N2 TL074ACD
C73 33N
-5V

+15V
U10 LM2903D
-15V

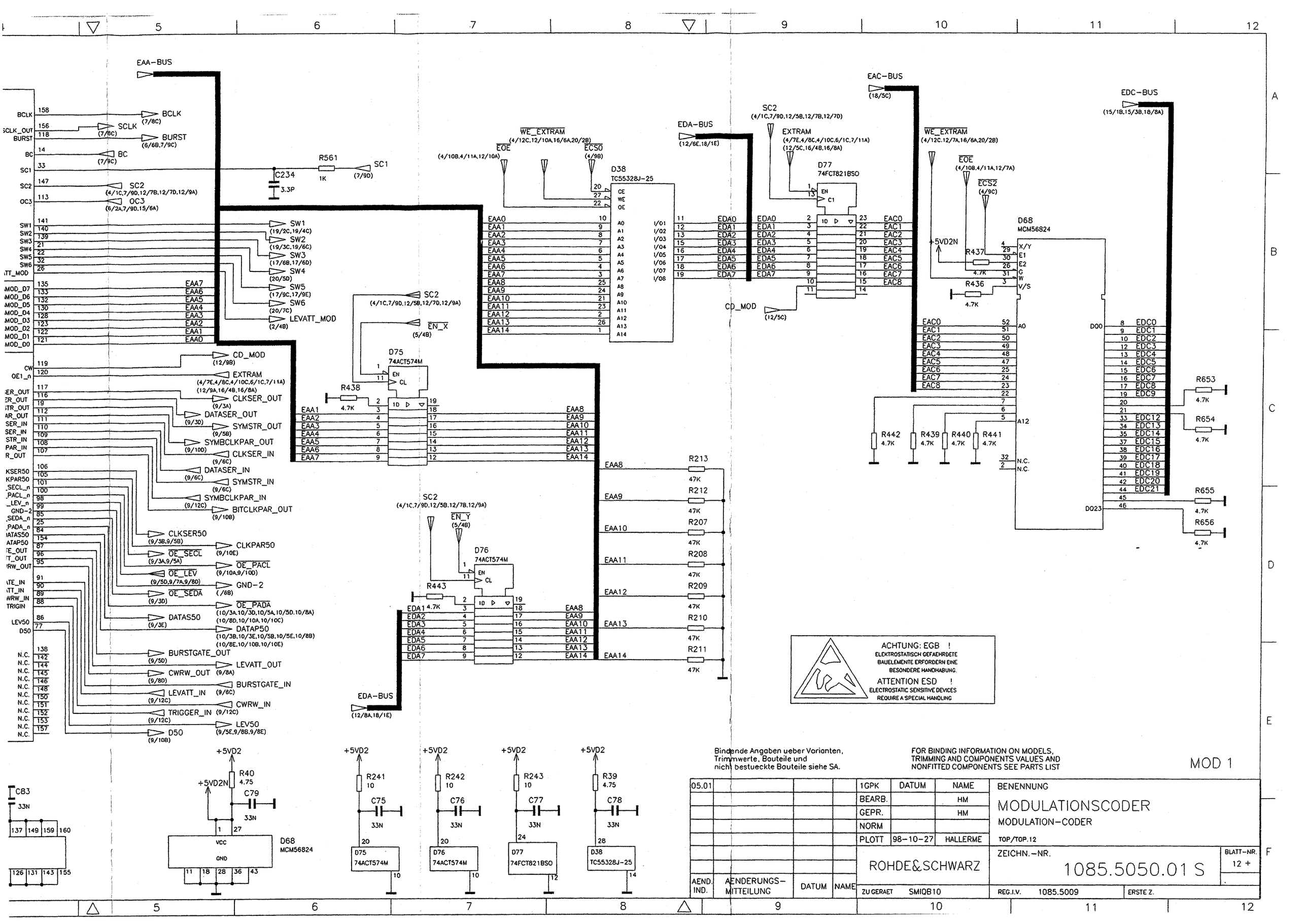
+5VD
D66 DAC 8143

U10 LM2903D

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
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Bindende An
Trimmwerte,
nicht bestue

AEND. IND.	AENDERU MITTEILU
05.01	



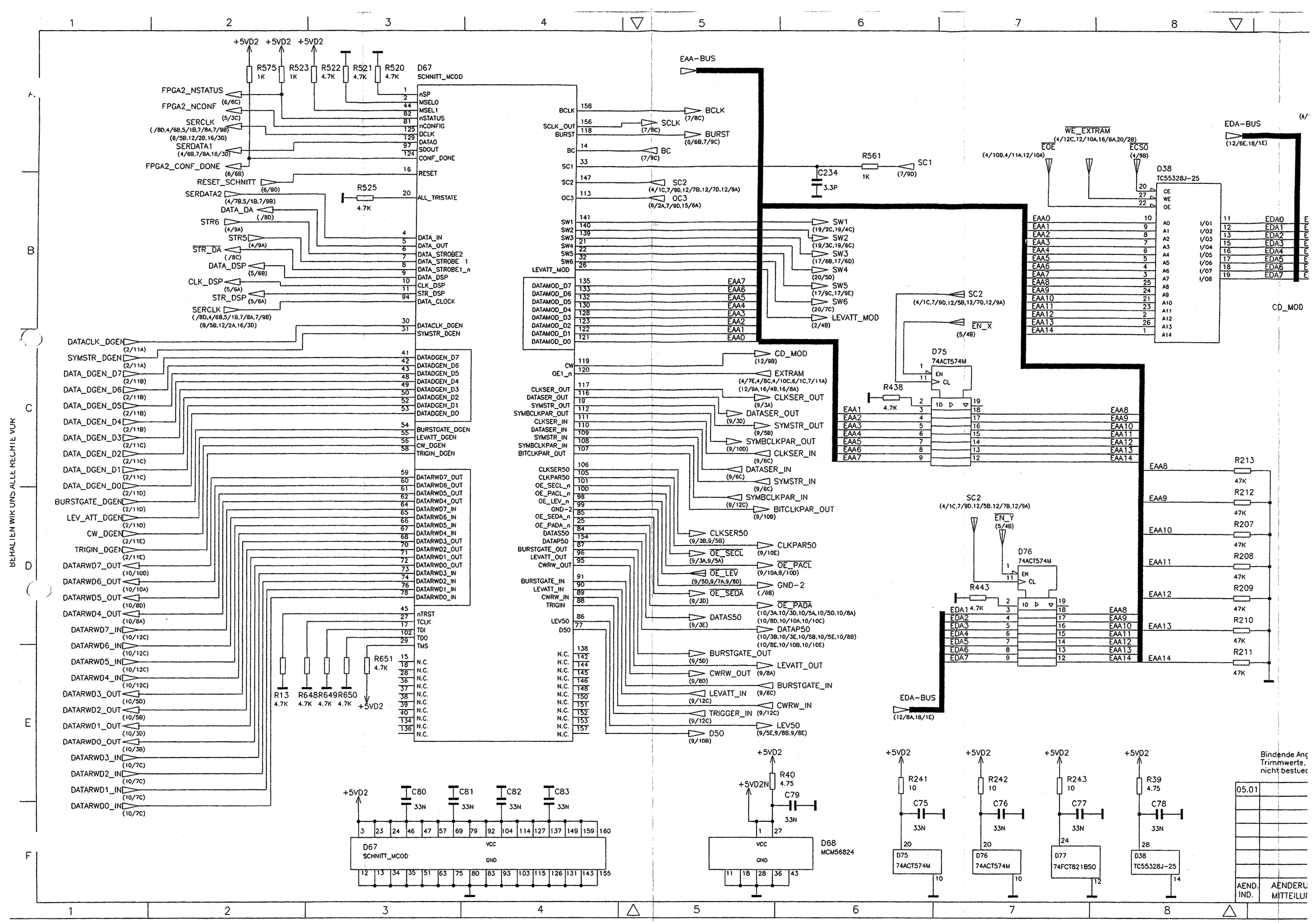
Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

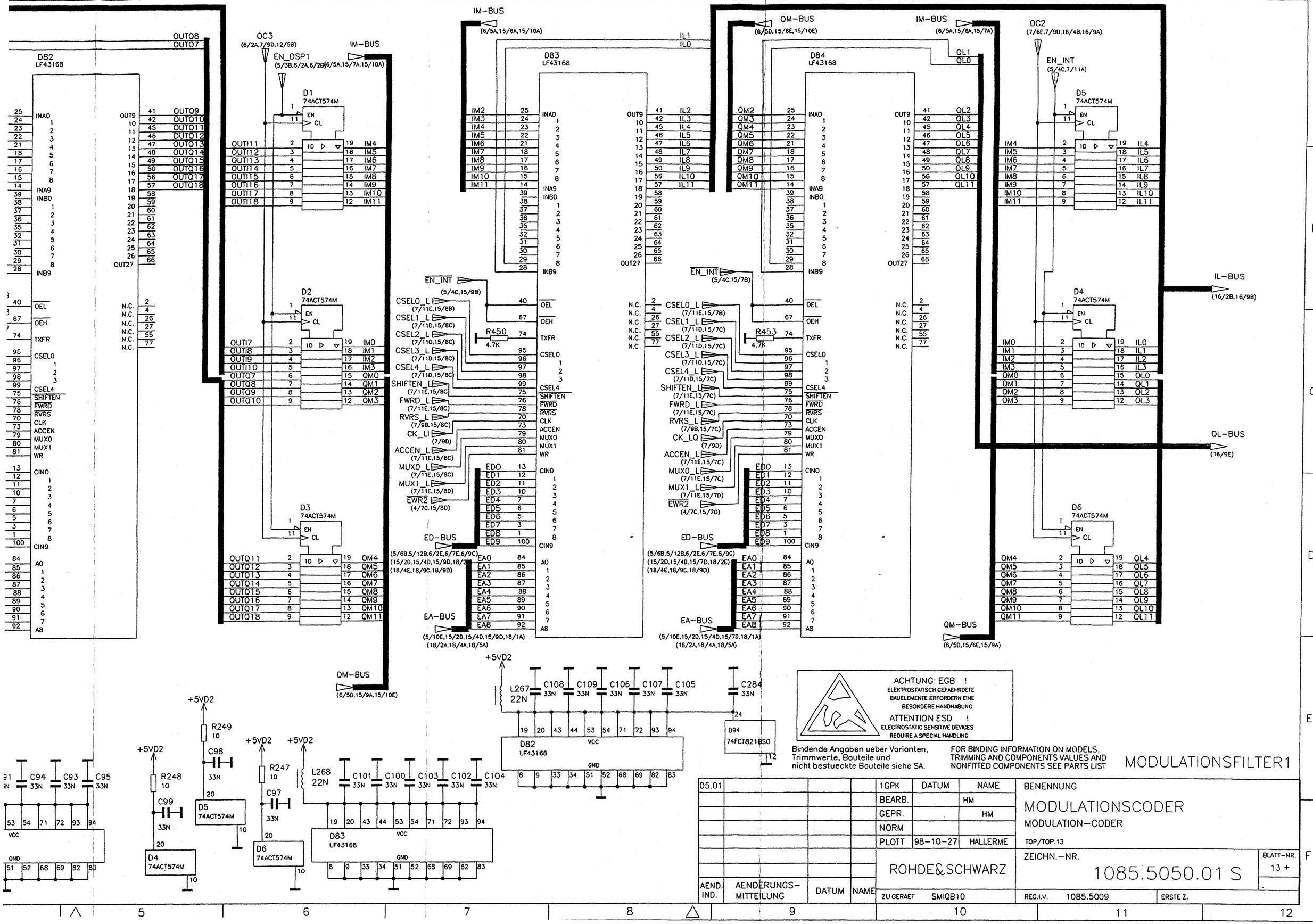
FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

MOD 1

05.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	MODULATIONSCODER
				GEPR.		HM	MODULATION-CODER
				NORM			TOP/TOP.12
				PLOTT	98-10-27	HALLERME	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S
				ZU GERAET SMIQB10			REG.I.V. 1085.5009 ERSTE Z.

BLATT-NR. 12 +


+5VD2 +5VD2 +5VD2
R575 1K
R523 1K
R522 4.7K
R521 4.7K
R520 4.7K
D67
SCHNITT_MCOD
FPGA2_NSTATUS (6/6C)
FPGA2_NCONF (5/3C)
SERCLK (/8D,4/6B,5/1B,7/8A,7/9B) (8/5B,12/2B,16/3D)
SERDATA1 (4/6B,7/8A,16/3D)
FPGA2_CONF_DONE (6/6B)
RESET_SCHNITT (6/9D)
SERDATA2 (4/7B,5/1B,7/9B)
DATA_DA (/8D)
STR6 (4/9A)
STR5 (4/9A)
STR_DA (/8C)
DATA_DSP (5/6B)
CLK_DSP (5/6A)
STR_DSP (5/6A)
SERCLK (/8D,4/6B,5/1B,7/8A,7/9B) (8/5B,12/2A,16/3D)
R525 4.7K
nSP
MSEL0
MSEL1
nSTATUS
nCONFIG
DCLK
DATA0
SDOUT
CONF_DONE
RESET
ALL_TRISTATE
DATA_IN
DATA_OUT
DATA_STROBE2
DATA_STROBE 1
DATA_STROBE1_n
DATA_DSP
CLK_DSP
STR_DSP
DATA_CLOCK
DATACLK_DGEN
SYMSTR_DGEN
DATADGEN_D7
DATADGEN_D6
DATADGEN_D5
DATADGEN_D4
DATADGEN_D3
DATADGEN_D2
DATADGEN_D1
DATADGEN_D0
BURSTGATE_DGEN
LEVATT_DGEN
CW_DGEN
TRIGIN_DGEN
DATARWD7_OUT
DATARWD6_OUT
DATARWD5_OUT
DATARWD4_OUT
DATARWD3_OUT
DATARWD2_OUT
DATARWD1_OUT
DATARWD0_OUT
DATARWD7_IN
DATARWD6_IN
DATARWD5_IN
DATARWD4_IN
DATARWD3_IN
DATARWD2_IN
DATARWD1_IN
DATARWD0_IN
nTRST
TCLK
TDI
TDO
TMS
N.C.
R13 4.7K
R648 4.7K
R649 4.7K
R650 4.7K
R651 4.7K
+5VD2
DATACLK_DGEN (2/11A)
SYMSTR_DGEN (2/11A)
DATA_DGEN_D7 (2/11B)
DATA_DGEN_D6 (2/11B)
DATA_DGEN_D5 (2/11B)
DATA_DGEN_D4 (2/11B)
DATA_DGEN_D3 (2/11C)
DATA_DGEN_D2 (2/11C)
DATA_DGEN_D1 (2/11C)
DATA_DGEN_D0 (2/11D)
BURSTGATE_DGEN (2/11D)
LEV_ATT_DGEN (2/11D)
CW_DGEN (2/11E)
TRIGIN_DGEN (2/11E)
DATARWD7_OUT (10/10D)
DATARWD6_OUT (10/10A)
DATARWD5_OUT (10/8D)
DATARWD4_OUT (10/8A)
DATARWD7_IN (10/12C)
DATARWD6_IN (10/12C)
DATARWD5_IN (10/12C)
DATARWD4_IN (10/12C)
DATARWD3_OUT (10/5D)
DATARWD2_OUT (10/5B)
DATARWD1_OUT (10/3D)
DATARWD0_OUT (10/3B)
DATARWD3_IN (10/7C)
DATARWD2_IN (10/7C)
DATARWD1_IN (10/7C)
DATARWD0_IN (10/7C)
EAA-BUS
BCLK (7/8C)
SCLK (7/8C)
BURST (6/6B,7/9C)
BC (7/9C)
SC1 (7/9D)
SC2 (4/1C,7/9D,12/7B,12/7D,12/9A)
OC3 (6/2A,7/9D,15/6A)
SW1 (19/2C,19/4C)
SW2 (19/3C,19/6C)
SW3 (17/6B,17/6D)
SW4 (20/5D)
SW5 (17/9C,17/9E)
SW6 (20/7C)
LEVATT_MOD (2/4B)
CD_MOD (12/9B)
EXTRAM (4/7E,4/8C,4/10C,6/1C,7/11A) (12/9A,16/4B,16/8A)
CLKSER_OUT (9/3A)
DATASER_OUT (9/3D)
SYMSTR_OUT (9/5B)
SYMBCLKPAR_OUT (9/10D)
CLKSER_IN (9/6C)
DATASER_IN (9/6C)
SYMSTR_IN (9/6C)
SYMBCLKPAR_IN (9/12C)
BITCLKPAR_OUT (9/10B)
CLKSER50 (9/3B,9/5B)
CLKPAR50 (9/10E)
OE_SECL (9/3A,9/5A)
OE_PACL (9/10A,9/10D)
OE_LEV (9/5D,9/7A,9/8D)
GND-2
OE_SEDA (/6B)
OE_PADA (10/3A,10/3D,10/5A,10/5D,10/8A) (10/8D,10/10A,10/10C)
DATAS50 (9/3E)
DATAP50 (10/3B,10/3E,10/5B,10/5E,10/8B) (10/8E,10/10B,10/10E)
BURSTGATE_OUT (9/5D)
LEVATT_OUT (9/8A)
CWRW_OUT (9/8D)
BURSTGATE_IN (9/6C)
LEVATT_IN (9/12C)
CWRW_IN (9/12C)
TRIGGER_IN (9/12C)
LEV50 (9/5E,9/8B,9/8E)
D50 (9/10B)
R561 1K
C234 3.3P
EAA7
EAA6
EAA5
EAA4
EAA3
EAA2
EAA1
EAA0
EDA-BUS (12/6E,18/1E)
WE_EXTRAM (4/12C,12/10A,16/6A,20/2B)
EOE (4/10B,4/11A,12/10A)
ECS0 (4/9B)
D38
TC55328J-25
EDA0
EDA1
EDA2
EDA3
EDA4
EDA5
EDA6
EDA7
CD_MOD
SC2 (4/1C,7/9D,12/5B,12/7D,12/9A)
EN_X (5/4B)
D75
74ACT574M
R438 4.7K
EAA8
EAA9
EAA10
EAA11
EAA12
EAA13
EAA14
R213 47K
R212 47K
R207 47K
R208 47K
R209 47K
R210 47K
R211 47K
SC2 (4/1C,7/9D,12/5B,12/7B,12/9A)
EN_Y (5/4B)
D76
74ACT574M
R443 4.7K
EDA-BUS (12/8A,18/1E)
C80 33N
C81 33N
C82 33N
C83 33N
D67 SCHNITT_MCOD VCC GND
R40 4.75
+5VD2N
C79 33N
D68 MCM56824 VCC GND
R241 10
R242 10
R243 10
R39 4.75
C75 33N
C76 33N
C77 33N
C78 33N
D75 74ACT574M
D76 74ACT574M
D77 74FCT821BSO
D38 TC55328J-25
BEHALTEN WIR UNS ALLE RECHTE VOR
Bindende Ang
Trimmwerte,
nicht bestued
05.01
AEND. IND.
AENDERU
MITTEILUN



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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MODULATIONSFILTER1

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.13

ROHDE&SCHWARZ

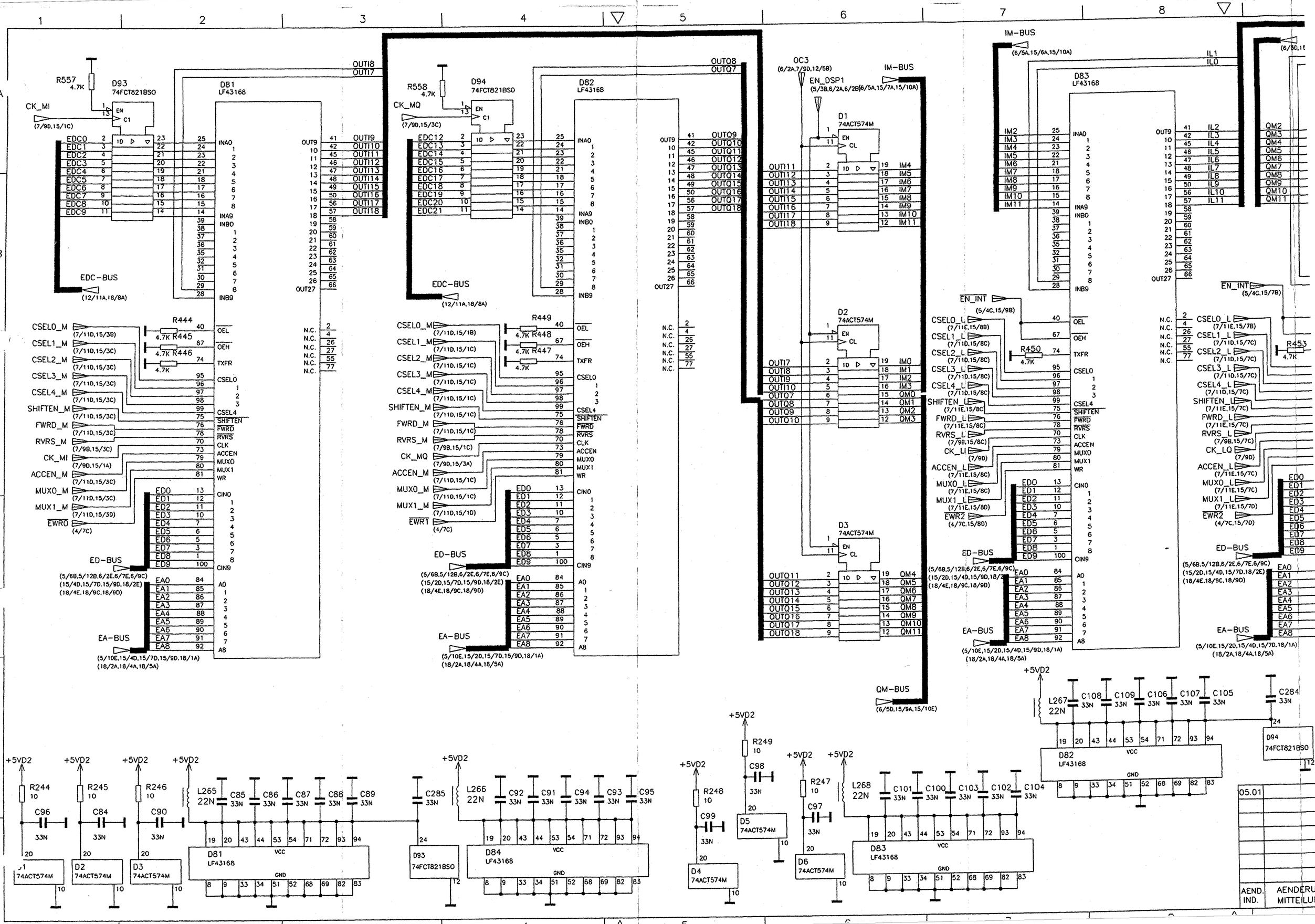
ZEICHN.-NR. 1085.5050.01 S

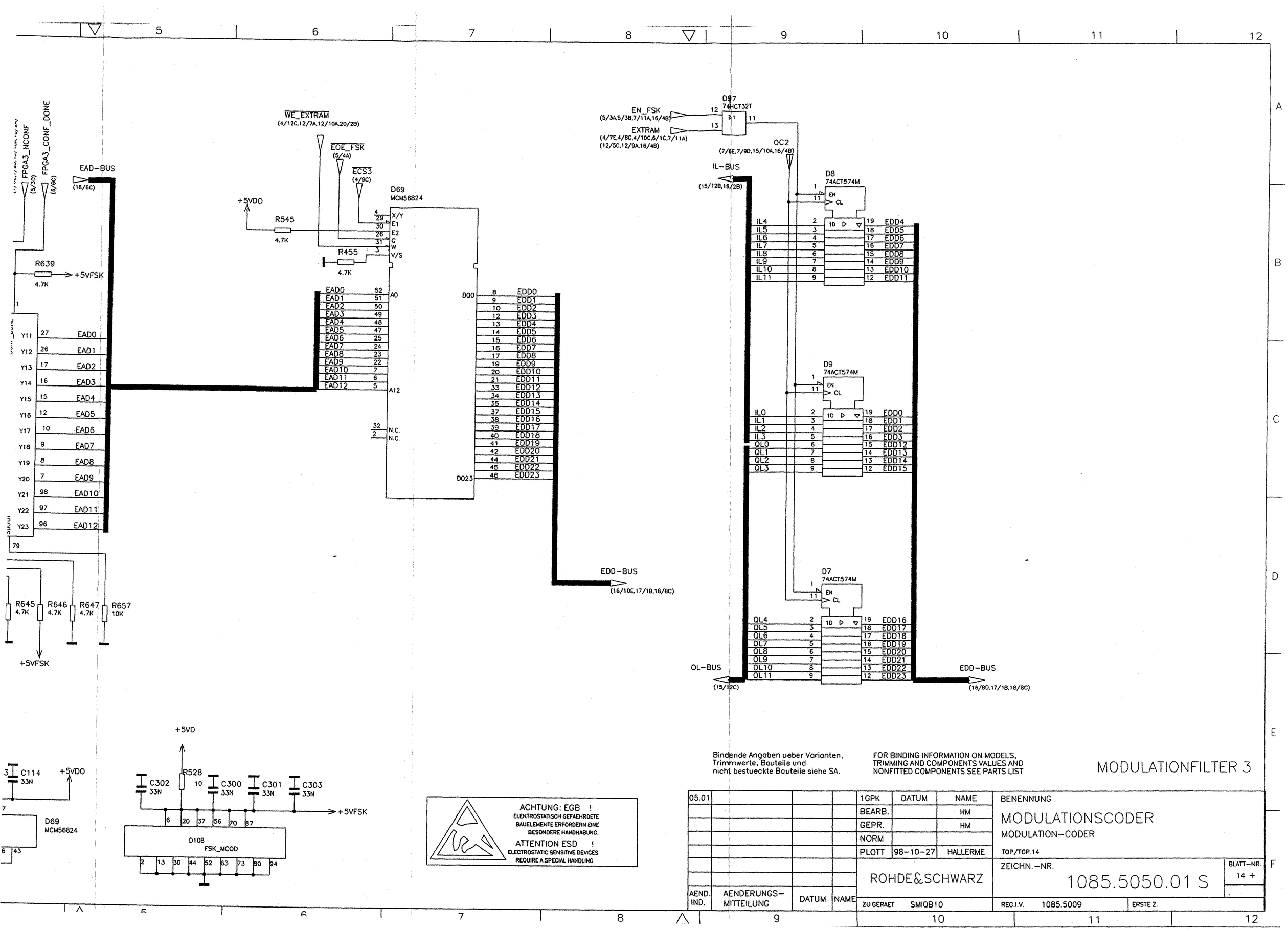
BLATT-NR. 13 +

ZU GERAET SMIQB10

REG.I.V. 1085.5009

ERSTE Z.


R557 4.7K
D93 74FCT821BSO
CK_MI
(7/9D,15/1C)
D81 LF43168
OUTI8
OUTI7
EDC-BUS
(12/11A,18/8A)
R558 4.7K
D94 74FCT821BSO
CK_MQ
(7/9D,15/3C)
D82 LF43168
OUTQ8
OUTQ7
OC3
(6/2A,7/9D,12/5B)
EN_DSP1
(5/3B,6/2A,6/2B,6/5A,15/7A,15/10A)
IM-BUS
D1 74ACT574M
D2 74ACT574M
D3 74ACT574M
QM-BUS
(6/5D,15/9A,15/10E)
D83 LF43168
EN_INT
(5/4C,15/9B)
R450 4.7K
R453 4.7K
ED-BUS
(5/6B,5/12B,6/2E,6/7E,6/9C)
(15/2D,15/4D,15/9D,18/2E)
(18/4E,18/9C,18/9D)
EA-BUS
(5/10E,15/2D,15/4D,15/7D,18/1A)
(18/2A,18/4A,18/5A)
R444 4.7K
R445 4.7K
R446 4.7K
R449 4.7K
R448 4.7K
R447 4.7K
CSEL0_M
CSEL1_M
CSEL2_M
CSEL3_M
CSEL4_M
SHIFTEN_M
FWRD_M
RVRS_M
CK_MI
ACCEN_M
MUX0_M
MUX1_M
EWR0
EWR1
CSEL0_L
CSEL1_L
CSEL2_L
CSEL3_L
CSEL4_L
SHIFTEN_L
FWRD_L
RVRS_L
CK_LI
CK_LQ
ACCEN_L
MUX0_L
MUX1_L
EWR2
R244 10
R245 10
R246 10
R247 10
R248 10
R249 10
C96 33N
C84 33N
C90 33N
C97 33N
C98 33N
C99 33N
L265 22N
L266 22N
L267 22N
L268 22N
C85 33N
C86 33N
C87 33N
C88 33N
C89 33N
C92 33N
C91 33N
C94 33N
C93 33N
C95 33N
C285 33N
C284 33N
C108 33N
C109 33N
C106 33N
C107 33N
C105 33N
C101 33N
C100 33N
C103 33N
C102 33N
C104 33N
D5 74ACT574M
D6 74ACT574M
D4 74ACT574M
+5VD2
VCC
GND
05.01
AEND. IND.
AENDERUN MITTEILUN



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MODULATIONFILTER 3

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

BENNENUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.14

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 14 +

ZU GERAET SMIQB10 | REG.I.V. 1085.5009 | ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

IL-BUS
(15/12B,16/9B)

EAD-BUS
(18/6C)

FPGA3_NSTATUS (6/6C)
FRAN3 (5/3C)
FRAN2 (5/3C)
FRAN1 (5/3C)
FRAN0 (5/3C)
EXTRAM (4/7E,4/8C,4/10C,6/1C,7/11A) (12/5C,12/9A,16/8A)
RESET_FSK (6/8D)
EN_FSK (5/3A,5/3B,7/11A,16/8A)
OC2 (7/6E,7/9D,15/10A,16/9A)
FPGA3_NCONF (5/3D)
FPGA3_CONF_DONE (6/6C)

+5VFSK — R638 1K
R639 4.7K — +5VFSK

D108
FSK_MCOD

IL0	49	DATA0	nSTATUS	SHIFT3	SHIFT2	SHIFT1	SHIFT0	OE	RST	ENA	CLK	nCONF	CONF_DONE
IL1	55	DATA1	24	45	46	47	48	53	23	92	3	25	1
IL2	58	DATA2											
IL3	59	DATA3											
IL4	60	DATA4											
IL5	64	DATA5											
IL6	65	DATA6											
IL7	66	DATA7											
IL8	67	DATA8											
IL9	68	DATA9											
IL10	76	DATA10											
IL11	77	DATA11											

DCLK	+DATA0	nSP	MSEL0	MSEL1	TDI	TDO	TCLK	TMS	nTRST	SDOUT			
100	5	75	74	51	54	18	72	11	50	79			

Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	
27	26	17	16	15	12	10	9	8	7	98	97	96	
EAD0	EAD1	EAD2	EAD3	EAD4	EAD5	EAD6	EAD7	EAD8	EAD9	EAD10	EAD11	EAD12	

SERCLK (8/5B,12/2A,12/2B) (/80,4/66,5/18,7/8A,7/8B)
SERDATA1 (4/66,7/8A,12/2A)

R640 4.7K, R641 4.7K, R642 4.7K, R643 4.7K, R644 4.7K, R645 4.7K, R646 4.7K, R647 4.7K, R657 10K

+5VFSK — +5VFSK

WE_EXTRAM (4/12C,12/7A,12/10A,20/2B)
EOE_FSK (5/4A)
ECS3 (4/9C)

+5VDO — R545 4.7K
R455 4.7K

D69
MCM56824

4	X/Y	
29	E1	
30	E2	
26	G	
31	W	
3	V/S	

EAD0	52	A0											
EAD1	51												
EAD2	50												
EAD3	49												
EAD4	48												
EAD5	47												
EAD6	25												
EAD7	24												
EAD8	23												
EAD9	22												
EAD10	7												
EAD11	6												
EAD12	5	A12											
	32	N.C.											
	2	N.C.											

DQ0	8	EDD0											
	9	EDD1											
	10	EDD2											
	12	EDD3											
	13	EDD4											
	14	EDD5											
	15	EDD6											
	16	EDD7											
	17	EDD8											
	19	EDD9											
	20	EDD10											
	21	EDD11											
	33	EDD12											
	34	EDD13											
	35	EDD14											
	37	EDD15											
	38	EDD16											
	39	EDD17											
	40	EDD18											
	41	EDD19											
	42	EDD20											
	44	EDD21											
	45	EDD22											
DQ23	46	EDD23											

D97
74HCT32T
EN_FSK (5/3A,5/3B,7/11A,16/4B)
EXTRAM (4/7E,4/8C,4/10C,6/1C,7/11A) (12/5C,12/9A,16/4B)
(7/6E,7/9D,1

IL-BUS
(15/12B,16/2B)

EDD-BUS
(16/10E,17/1B,18/8C)

QL-BUS
(15/12C)

+5VD — R250 10 — C110 33N, C111 33N, C112 33N
D7 74ACT574M, D8 74ACT574M, D9 74ACT574M

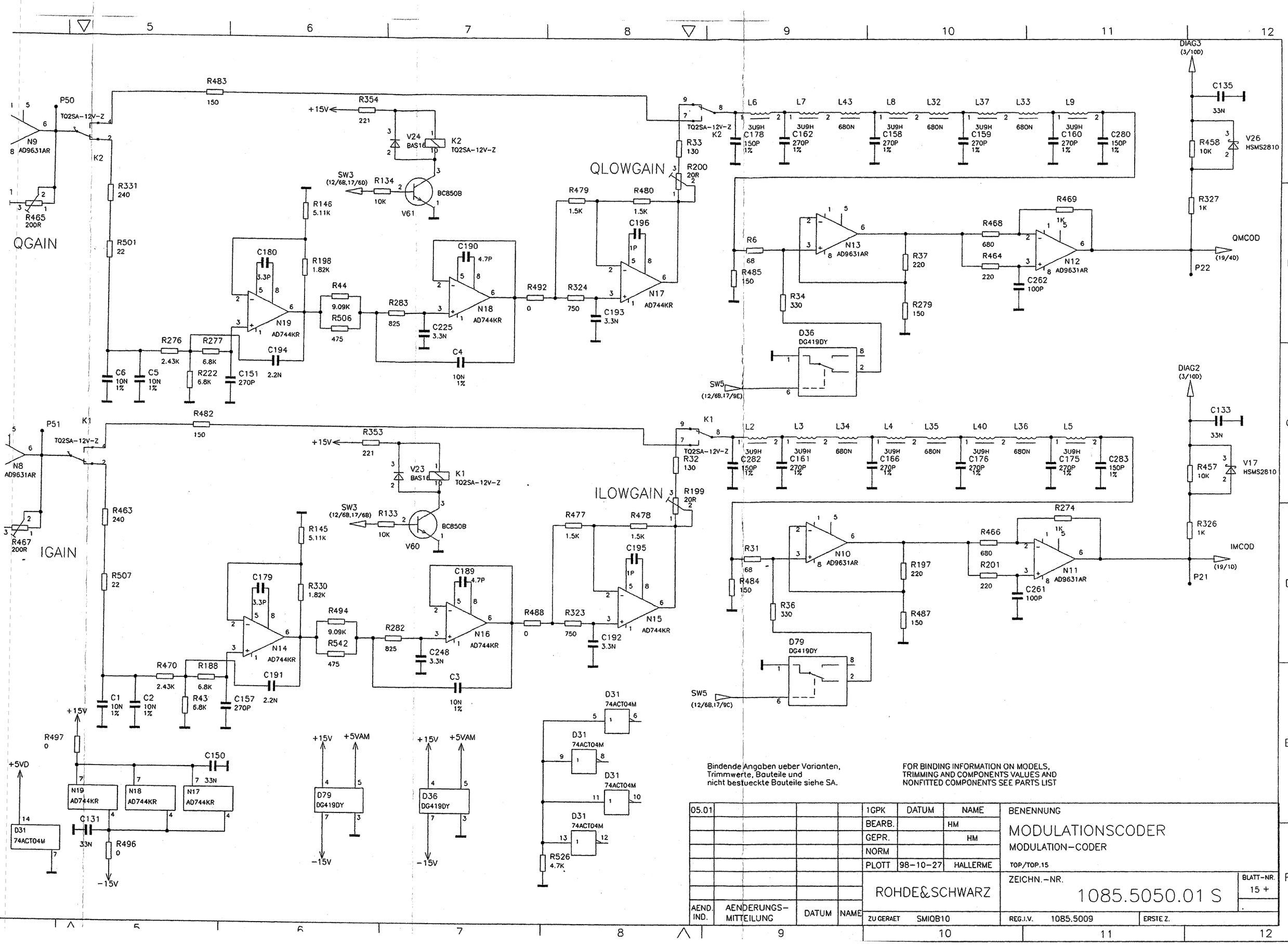
+5VD — R269 3.32 — C115 33N, C113 33N, C114 33N — +5VDO
D69 MCM56824 (VCC, GND)

+5VD — R528 10 — C302 33N, C300 33N, C301 33N, C303 33N — +5VFSK
D108 FSK_MCOD

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

Bindende A
Trimmwert
nicht bestu

AEND. IND.	AENDE MITTEIL
05.01	



Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

1GPK	DATUM	NAME
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

BENENNUNG

MODULATIONSCODER

MODULATION-CODER

TOP/TOP.15

ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 15 +

ZU GERAET SMIQB10

REG.I.V. 1085.5009

ERSTE Z.

BEHALTEN WIR UNS ALLE RECHTE VOR

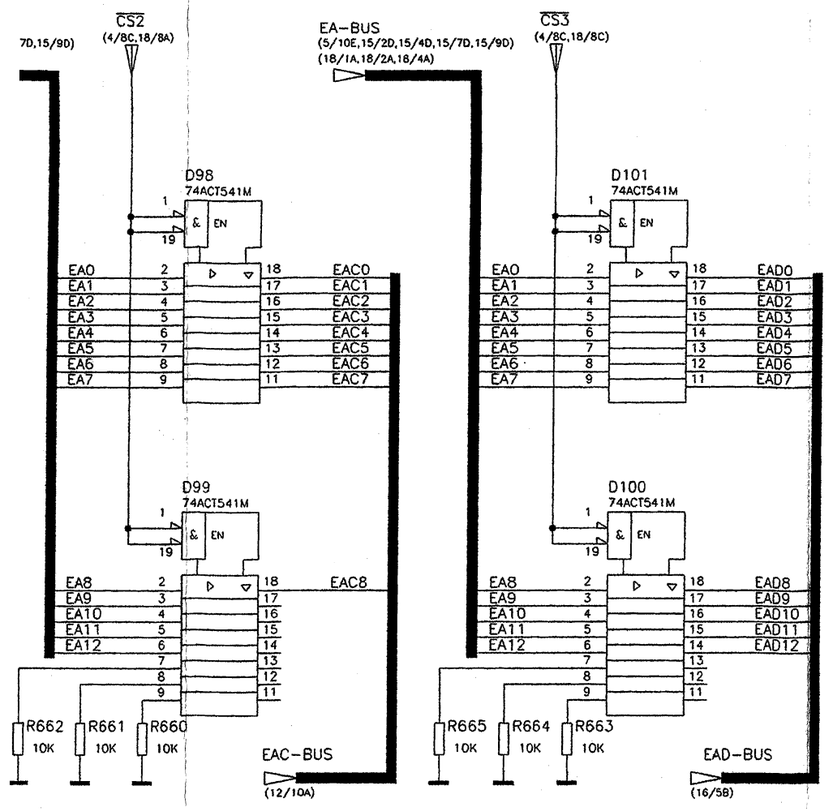
D31 74ACT04M
EDD23
D58 HI5731
EDD22 EDD21 EDD20 EDD19 EDD18 EDD17 EDD16 EDD15 EDD14 EDD13 EDD12
D11 MSB D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0 LSB N.C. N.C.
DGND AGND REF OUT CTRL A OUT CTRL A IN RSET AVEE IOUT IOUT ARTN DVEE DGND DVCC CLOCK
-5VAM +5VAM
C127 33N
R325 1K
C124 33N
R360 51
C125 33N
C128 33N
R498 1K
EDD-BUS
(16/8D,16/10E,18/8C)
OC2_DA
(7/7E,17/2E)
QOFFSET
N7 OP97
R187 Max5kOhm
X1 4M
L23
R205 100R
R47 220
C126 4.7U
R451 121
N9 AD9631AR
P50 TQ2SA-12V-Z
K2
R35 100
C259 100P
1.5U
C260 100P
R462
R264 270
150
R271 511
R465 200R
QGAIN
R483 150
R354 221
+15V
V24 BAS16
K2 TQ2SA-12V-Z
SW3 (12/6B,17/6D)
R134 10K
BC850B
V61
QLOWGAIN
R479 1.5K
R480 1.5K
R200 20R
R33 130
L6
TQ2SA-12V-Z
K2
C17 150P 1%
R146 5.11K
R198 1.82K
C180 3.3P
N19 AD744KR
R44 9.09K
R506 475
R283 825
C190 4.7P
N18 AD744KR
C225 3.3N
C4 10N 1%
R492 0
R324 750
C196 1P
N17 AD744KR
C193 3.3N
R331 240
R501 22
R276 2.43K
R277 6.8K
C194 2.2N
C6 10N 1%
C5 10N 1%
R222 6.8K
C151 270P
SW5 (12/6B,17/9E)
R6 68
R48 150

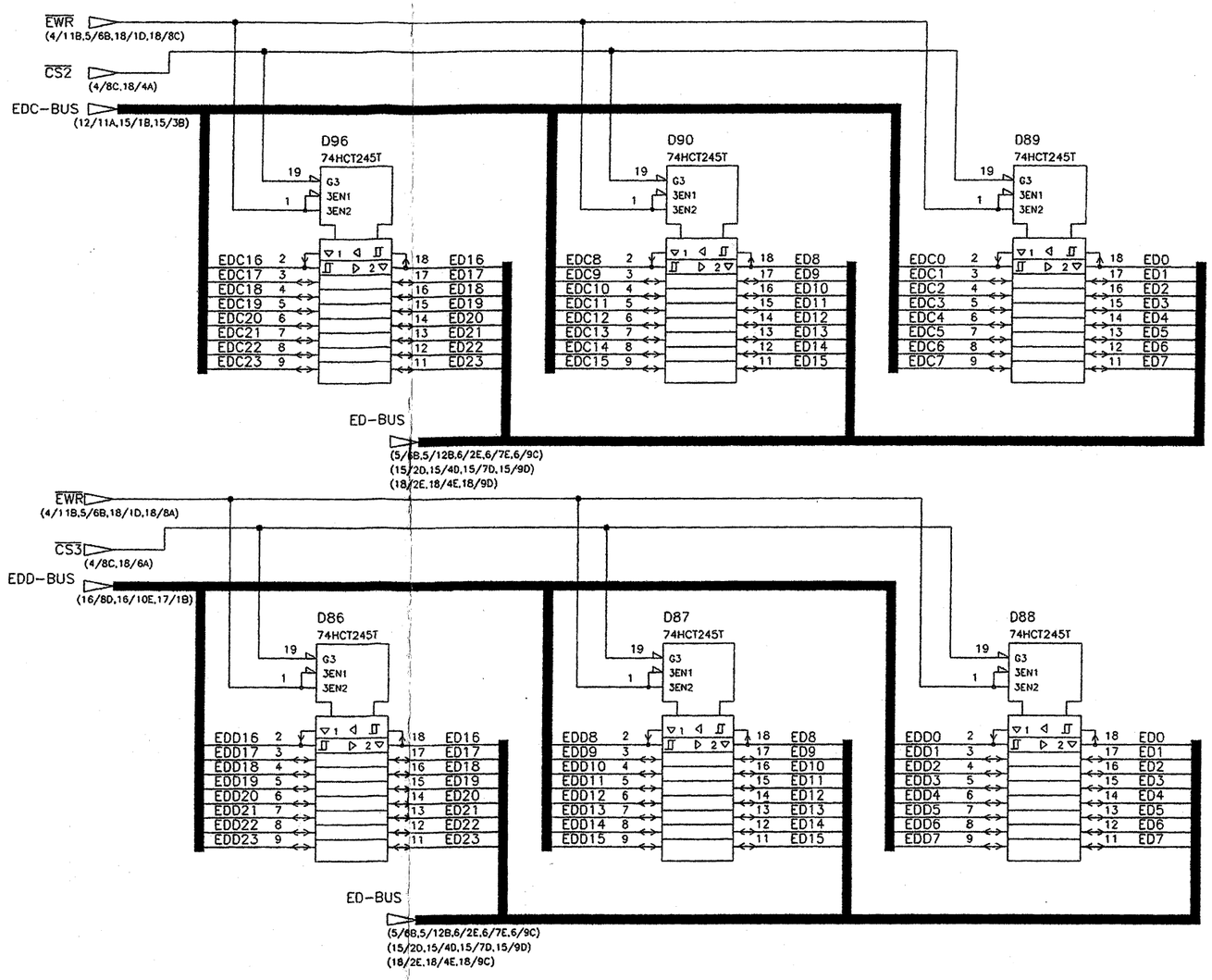
D31 74ACT04M
EDD11
D59 HI5731
EDD10 EDD9 EDD8 EDD7 EDD6 EDD5 EDD4 EDD3 EDD2 EDD1 EDD0
D11 MSB D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0 LSB N.C. N.C.
DGND AGND REF OUT CTRL A OUT CTRL A IN RSET AVEE IOUT IOUT ARTN DVEE DGND DVCC CLOCK
-5VAM +5VAM
C134 33N
R328 1K
C140 33N
R359 51
C117 33N
C118 33N
L10 -5V -5VAM 1U C210 10U
L11 +5VA +5VAM 1U C211 1U
OC2_DA
(7/7E,17/2C)
IOFFSET
N6 OP97
R186 Max5kOhm
X1
L22
R204 100R
R46 220
C119 4.7U
R452 121
N8 AD9631AR
P51 TQ2SA-12V-Z
K1
R30 100
C257 100P
1.5U
C258 100P
R461
R263 270
150
R270 511
R467 200R
IGAIN
R482 150
R353 221
+15V
V23 BAS16
K1 TQ2SA-12V-Z
SW3 (12/6B,17/6B)
R133 10K
BC850B
V60
ILOWGAIN
R477 1.5K
R478 1.5K
R199 20R
R32 130
K1 TQ2SA-12V-Z
C28 150P 1%
R145 5.11K
R330 1.82K
C179 3.3P
N14 AD744KR
R494 9.09K
R542 475
R282 825
C189 4.7P
N16 AD744KR
C248 3.3N
C3 10N 1%
R488 0
R323 750
C195 1P
N15 AD744KR
C192 3.3N
R507 22
R470 2.43K
R188 6.8K
C191 2.2N
C1 10N 1%
C2 10N 1%
R43 6.8K
C157 270P
SW5 (12/6B,17/9C)
R3 68
R48 150

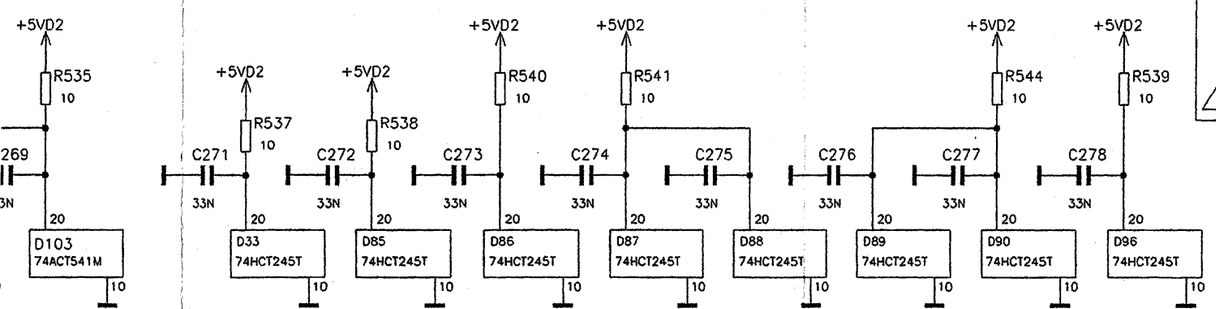
+5VAM
C139 33N
N11 AD9631AR
N10 AD9631AR
C137 33N
-5VAM
C138 33N
N13 AD9631AR
N12 AD9631AR
C136 33N
C129 33N
N9 AD9631AR
C130 33N
C120 33N
N8 AD9631AR
C121 33N
+15V
R489 0
C122 33N
N14 AD744KR
N15 AD744KR
N16 AD744KR
C123 33N
R490 0
+5VD
D31 74ACT04M
R497 0
N19 AD744KR
N18 AD744KR
N17 AD744KR
C131 33N
R496 0
C150 33N
D79 DG419DY
D36 DG419DY
D31 74ACT04M
D31 74ACT04M
D31 74ACT04M
R526 4.7K

Bindende Anc
Trimmwerte,
nicht bestuec

AEND. IND.	AENDER MITTEIL
05.01	







ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

DSP 4

05.01				1GPK	DATUM	NAME	BENENNUNG: MODULATIONSCODER / MODULATION-CODER
				BEARB.		HM	
				GEPR.		HM	
				NORM			
				PLOTT	98-10-27	HALLERME	TOP/TOP.16
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.5050.01 S / BLATT-NR. 16 +
				ZU GERAET SMIQB10		REG.I.V. 1085.5009	ERSTE Z.

FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

EA-BUS
(18/2A,18/4A,18/5A)
(5/10E,15/2D,15/4D,15/7D,15/9D)

$\overline{CS0}$
(4/8B,18/1D)

D103
74ACT541M

D104
74ACT541M

R658
10K

EAA-BUS

EA-BUS
(18/1A,18/4A,18/5A)
(5/10E,15/2D,15/4D,15/7D,15/9D)

$\overline{CS1}$
(4/8C,18/3D)

D105
74ACT541M

D102
74ACT541M

R659
10K

EAB-BUS
(7/11C,20/1C)

EA-BUS
(5/10E,15/2D,15/4D,15/7D,15/9D)
(18/1A,18/2A,18/5A)

$\overline{CS2}$
(4/8C,18/8A)

D98
74ACT541M

D99
74ACT541M

R662 10K
R661 10K
R660 10K

EAC-BUS
(12/10A)

EA-BUS
(5/10E,15/2D,15/4D,15/7D,15/9D)
(18/1A,18/2A,18/4A)

$\overline{CS3}$
(4/8C,18/8C)

D101
74ACT541M

D100
74ACT541M

R665 10K
R664 10K
R663 10K

EAD-BUS
(16/5B)

$\overline{EWR}$
(4/11B,5/6B,18/1D,18/8C)

$\overline{CS2}$
(4/8C,18/4A)

EDC-BUS
(12/11A,15/1B,15/3B)

D96
74HCT245T

ED-BUS
(5/6B,5/12B,15/2D,15/4D,15/7D,15/9D)
(18/2E,18/4

$\overline{EWR}$
(4/11B,5/6B,18/1D,18/8A)

$\overline{CS3}$
(4/8C,18/6A)

EDD-BUS
(16/8D,16/10E,17/1B)

D86
74HCT245T

ED-BUS
(5/6B,5/12E
(15/2D,15/4
(18/2E,18/4

$\overline{CS0}$
(4/8B,18/2A)

$\overline{EWR}$
(4/11B,5/6B,18/8A,18/8C)

D33
74HCT245T

EDA-BUS
(12/6E,12/8A)

$\overline{CS1}$
(4/8C,18/3A)

D85
74HCT245T

ED-BUS
(5/6B,5/12B,6/2E,6/7E,6/9C)
(15/2D,15/4D,15/7D,15/9D)
(18/4E,18/9C,18/9D)

EDB-BUS (6/5E,20/2B)

ED-BUS
(5/6B,5/12B,6/2E,6/7E,6/9C)
(15/2D,15/4D,15/7D,15/9D)
(18/2E,18/9C,18/9D)

+5VD2

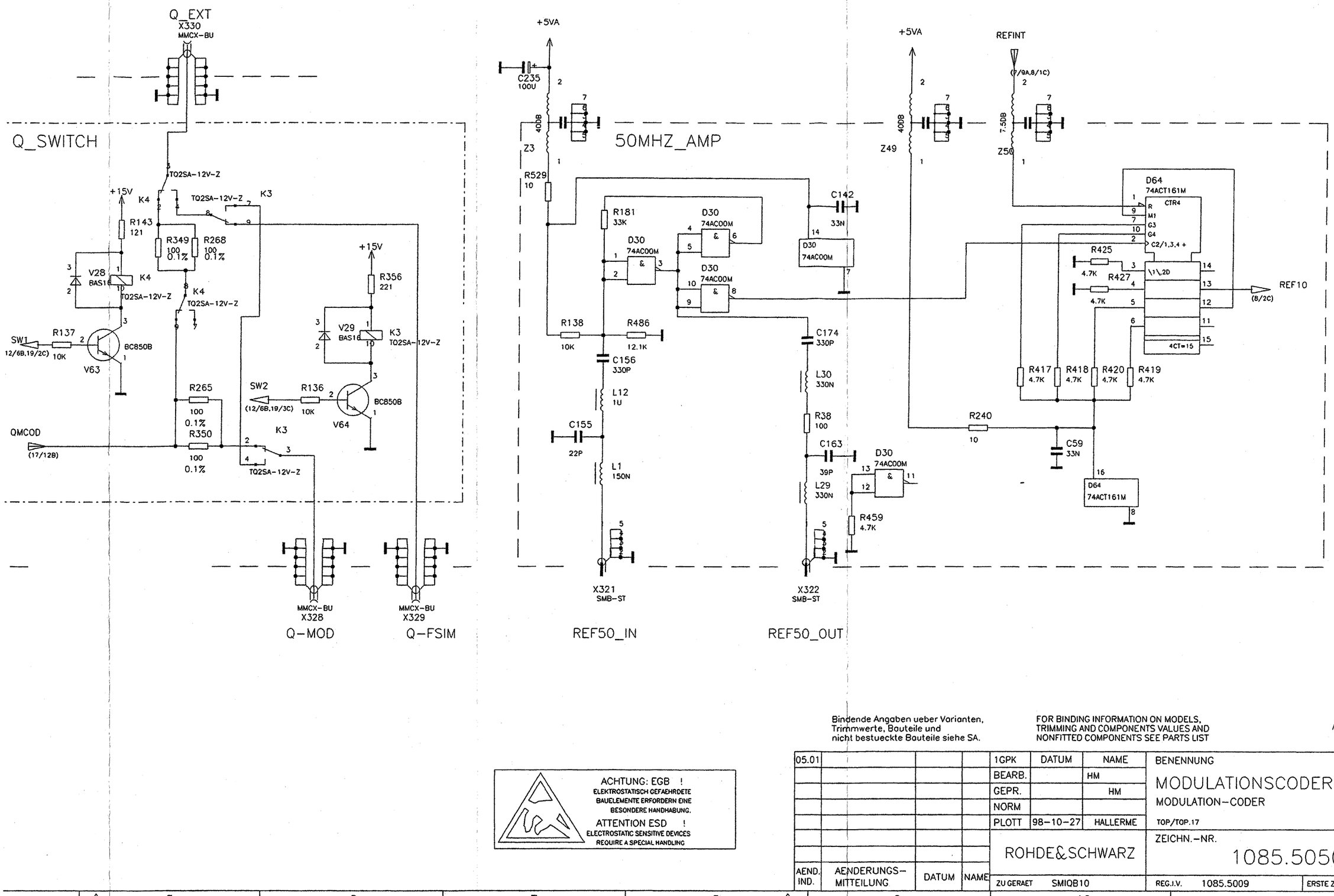
R531 10
R533 10
R534 10
R535 10
R537 10
R538 10
R540 10
R541 10
R544 10
R539 10

C265 C266 C267 C264 C263 C268 C270 C269 C271 C272 C273 C274 C275 C276 C277 C278
33N

D101 74ACT541M
D100 74ACT541M
D99 74ACT541M
D98 74ACT541M
D105 74ACT541M
D102 74ACT541M
D104 74ACT541M
D103 74ACT541M
D33 74HCT245T
D85 74HCT245T
D86 74HCT245T
D87 74HCT245T
D88 74HCT245T
D89 74HCT245T
D90 74HCT245T
D96 74HCT245T

ACHTUNG: EC
ELEKTROSTATISCH GEF
BAUELEMENTE ERFOR
BESONDERE HAN
ATTENTION ES
ELECTROSTATIC SENSITI
REQUIRE A SPECIAL H

05.01	
AEND. IND.	AENDE MITTEI



Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

ANALOG_IQ2

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

	DATUM	NAME
1GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

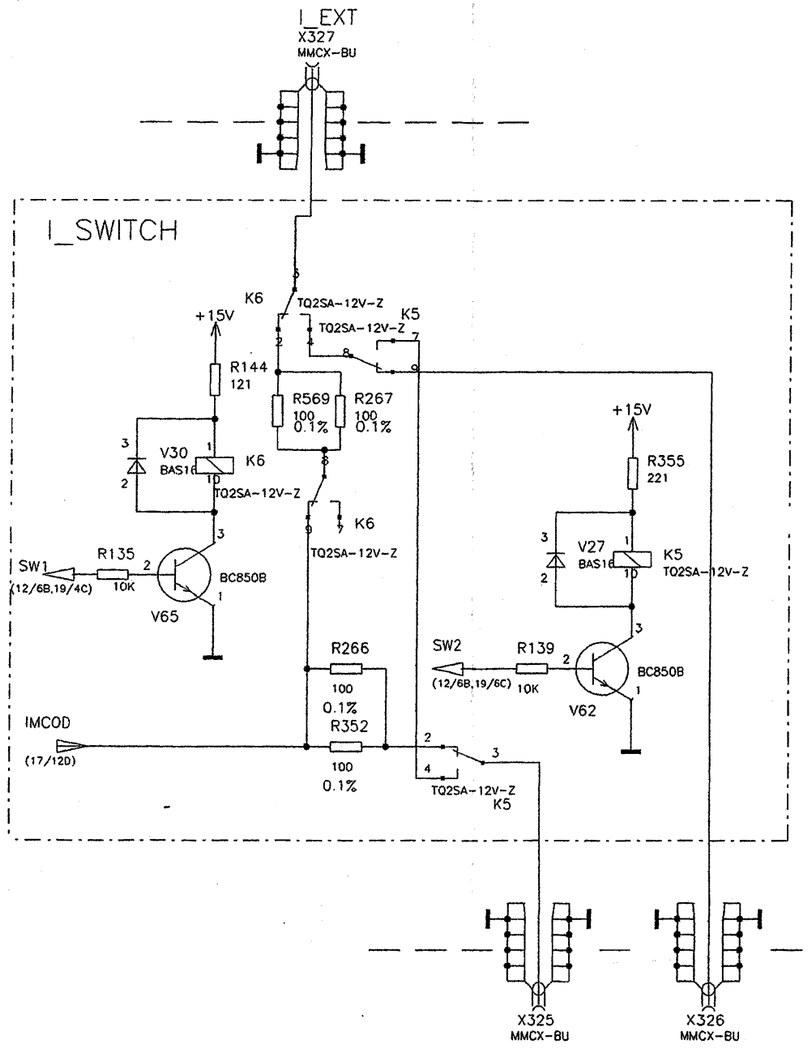
BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.17

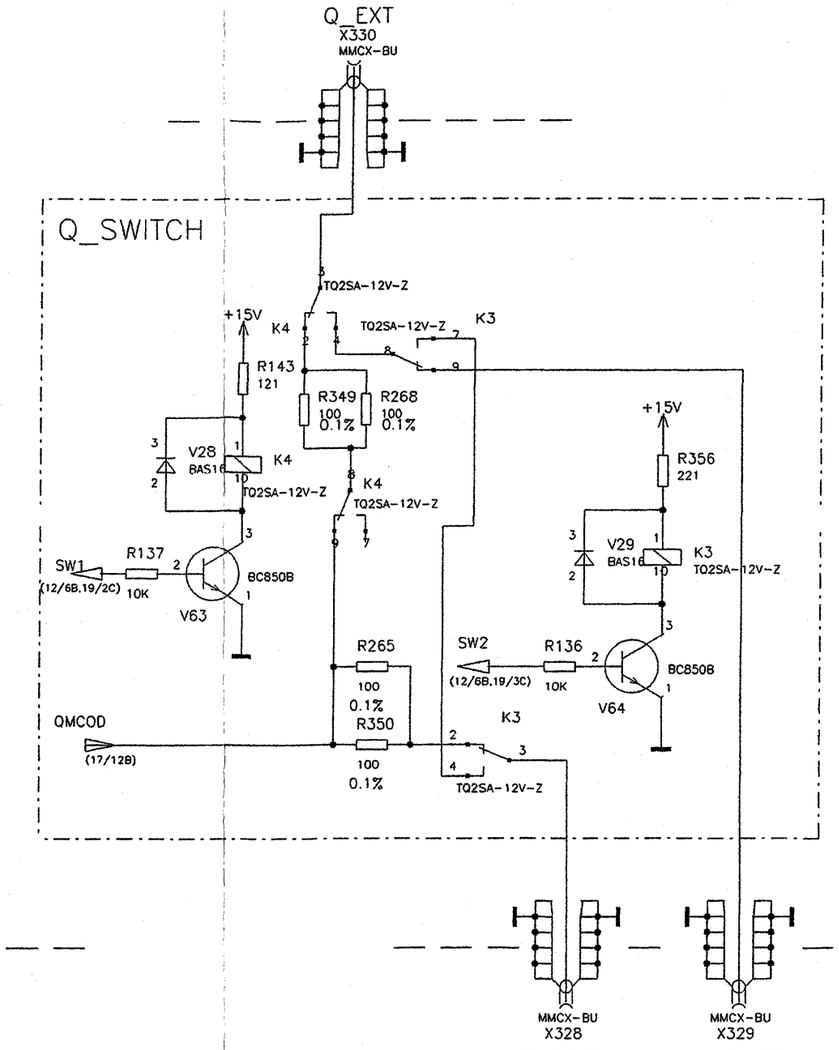
ROHDE&SCHWARZ

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 17 +

ZU GERAET SMIQB10 | REG.I.V. 1085.5009 | ERSTE Z.







AEND. IND.	AENDE MITTEIL
05.01	

Bindend
Trimmwe
nicht bes

VON DIESE UNTERLAGEN BEHALTEN WIR UNS ALLE RECHTE VOR

GAIN

R141
7.5K

C147
33N

C148
33N
+5VD

C212
1U
L13
1U
+5VA

P52
R259
182
C294
39P
L25
3U3
C253
180P
L38
8.2U
C188
330P
L39
8.2U
L26
3U3
C198
560P
R258
182

D35
DG413DY

SW6
(12/6B)

C197
15P
N20
AD744KR
DIAG4
(3/100)
R148
20K
C252
180P
R332
10K

K7
TQ2SA-12V-Z
R252
10
R251
10
X323
MMCX-BU
BURST
CTRL_REAR
X324
MMCX-BU
BURST
CTRL_MOD

+15V
R357
221
V31
BAS16
SW4
(12/6B)
R140
10K
BC850B
V66

C251
2.2N
C237
3.3P
R5
130
R491
2.2K
R329
6.8K
C255
22N
R278
6.8K
C177
270P
N21
AD744KR
R495
432
R493
1.82K
R563
5.11K
C286
10N
R275
825
C236
3.3N
N22
AD744KR

+15V
R617
0
C238
33N
N22
AD744KR
C239
33N
R618
0
-15V

+15V
R619
0
C240
33N
N21
AD744KR
C241
33N
R620
0
-15V

+15V
+5VD
C242
33N
C244
33N
D35
DG413DY
C243
33N
-15V

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
05.01			

1GPK	DATUM	NAME
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-10-27	HALLERME

ROHDE&SCHWARZ

ZU GERAET SMIQB10

BENENNUNG
MODULATIONSCODER
MODULATION-CODER
TOP/TOP.18

ZEICHN.-NR. 1085.5050.01 S

BLATT-NR. 18 -

REG.I.V. 1085.5009

ERSTE Z.

BURST

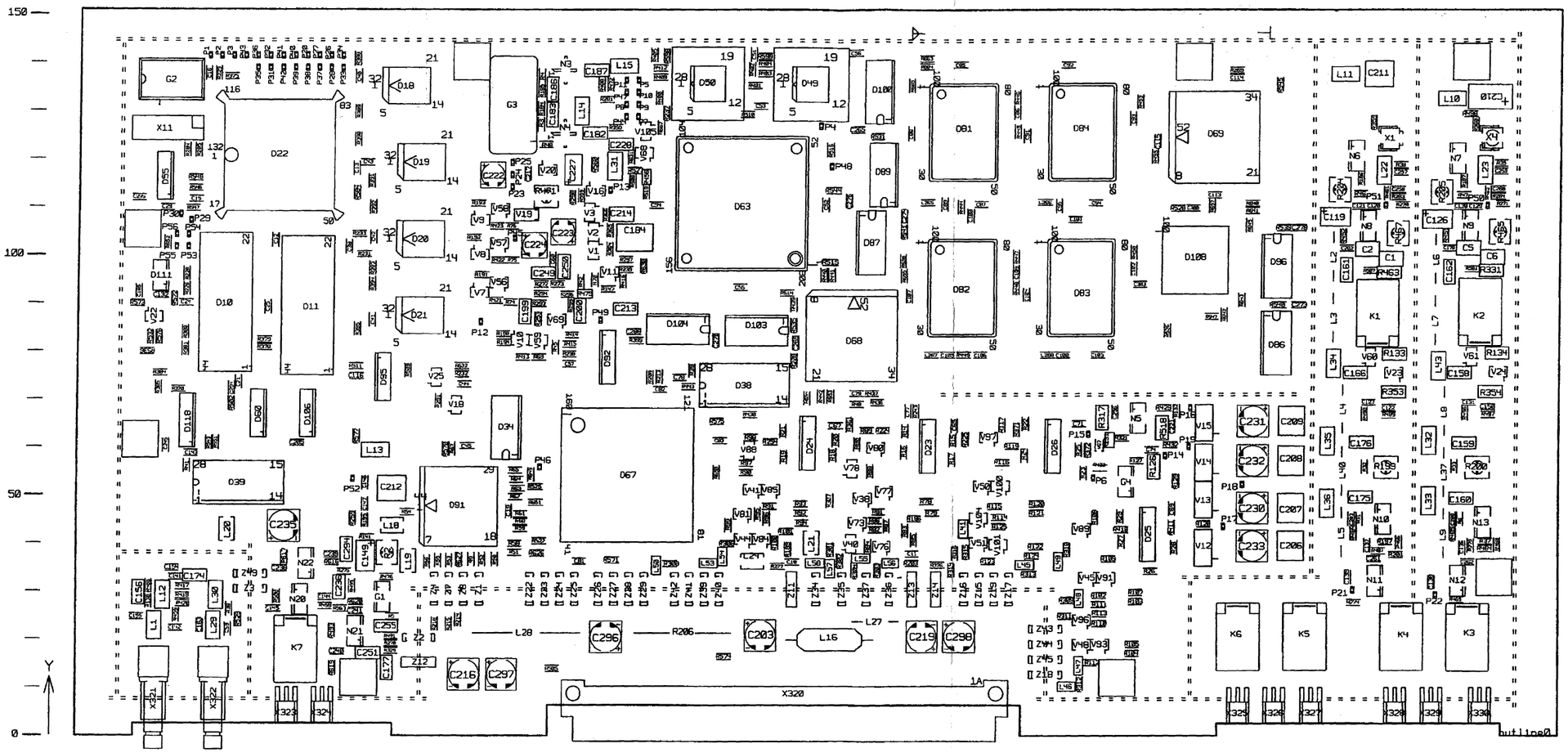
BEHALTEN WIR UNS ALLE RECHTE VOR

+15V
G1
REF02CS
R476 33K
C149 4.7U
BURSTGAIN
R2 2K
R141 7.5K
D56 HI1171
REF
D7 MSB
D0 LSB
CLK
BLNK
VB
Iref
Iout
VG
AVDD
DVDD
GND
C147 33N
C148 33N
+5VD
R142 10K
C146 33N
R195 1.5K
R202 10K
OC1_DA (7/7E)
EDB-BUS (6/5E,18/2E)
EDB0 EDB1 EDB2 EDB3 EDB4 EDB5 EDB6 EDB7
OE_P_RAM (6/2C)
WE_EXTRAM (4/12C,12/7A,12/10A,16/6A)
ECS1 (4/9C)
D39 TC55328J-25
CE WE OE
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14
I/O1 I/O2 I/O3 I/O4 I/O5 I/O6 I/O7 I/O8
EAB-BUS (7/11C,18/4C)
EAB0 EAB1 EAB2 EAB3 EAB4 EAB5 EAB6 EAB7 EAB8 EAB9 EAB10 EAB11 EAB12 EAB13 EAB14
P52
R259 182
C294 39P
L25 3U3
C253 180P
L38 8.2U
C188 330P
L39 8.2U
L26 3U3
C198 560P
R258 182
C212 1U
L13 1U
+5VA
D35 DG413DY
SW6 (12/6B)
+15V
R357 221
V31 BAS16
K7 TQ2SA-12V-2
SW4 (12/6B)
R140 10K
BC850B
V66
C251 2.2N
C237
R5 130
R491 2.2K
R329 6.8K
C255 22N
R278 6.8K
C177 270P
N2 AD7
+5VD
R41 4.75
C143 33N
D39 TC55328J-25
+15V
R499 0
C144 33N
N20 AD744KR
C145 33N
R500 0
-15V
R617 0
C238 33N
N22 AD744KR
C239 33N
R618 0
-15V
R619 0
C240 33N
N21 AD744KR
C241 33N
R620 0
-15V
C242 33N
C244 33N
D35 DG413DY
C243 33N
-15V

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

Binden
Trimm
nicht b

AEND. IND.	AENDER MITTEILI
05.01	



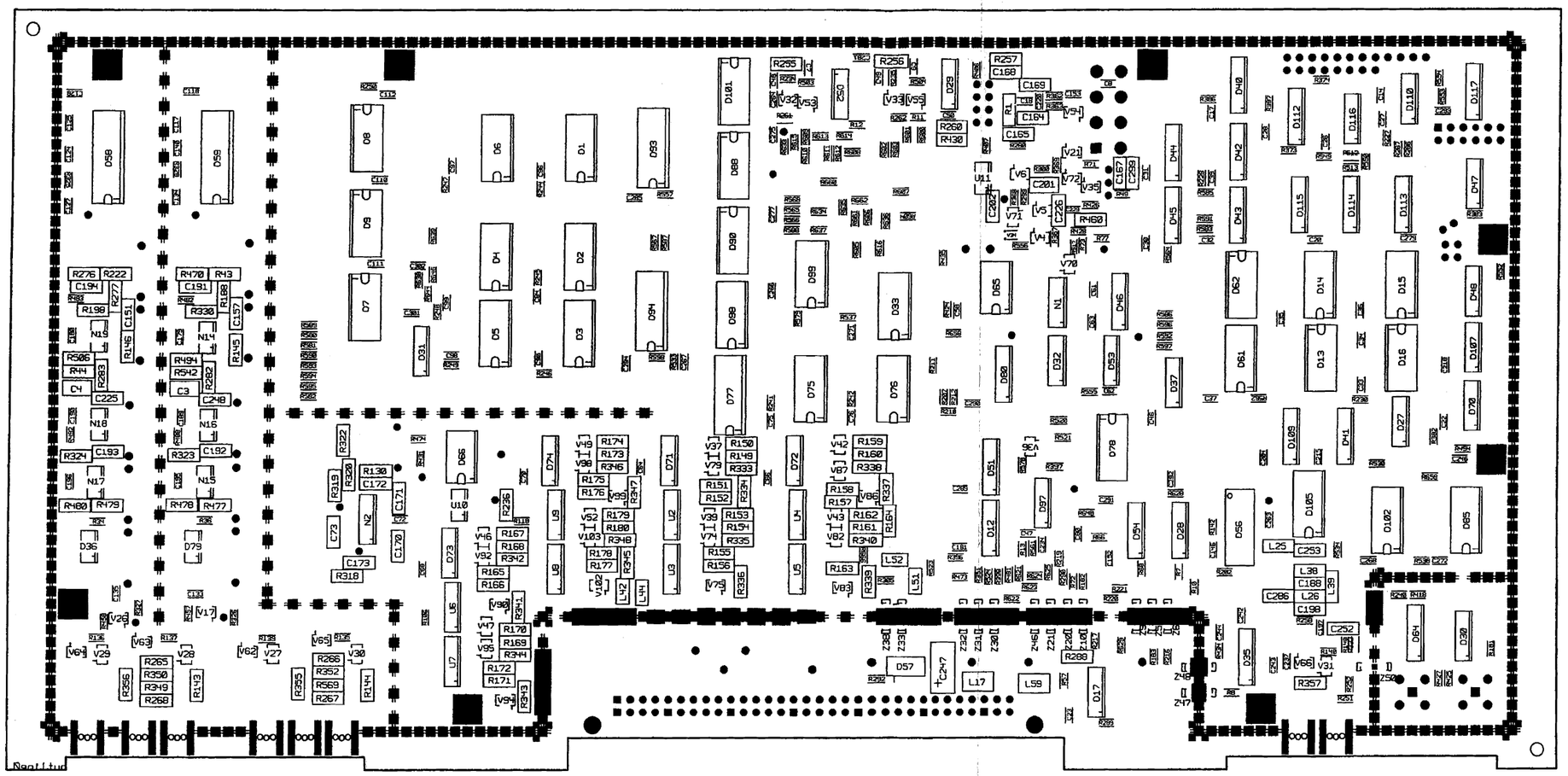
DARSTELLUNG SEITE B
VIEW ON SIDE B

ACHTUNG! ESDI
ELEKTROSTATISCH GEFÄHRDETE BAUELEMENTE UNTERLIEGEN DER BESONDEREN HANDHABUNG.
ATTENTION ESDI
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING.

DARGESTELLTE ANORDNUNG KANN VARIANTEN, BESTÜCKUNGS-, BAUELEMENTE UND NICHT BESTÜCKTE BAUTEILE ENTHALTEN.
FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NOT-FITTED COMPONENTS SEE PARTS LIST.

ÄND. IND.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME
			HM
			HM
			HM
			HALLERMEIER

ROHDE&SCHWARZ
BENENNUNG
MODULATIONSCODER
MODULATION_CODER
ZEICHN.-NR.
1085.5050.01 D
BLATT-NR. 1 +
MAT.-V. 1085.5009
ERSTE Z.



DARSTELLUNG SEITE A
VIEW ON SIDE A

ACHTUNG: ESD!
ELEKTROSTATISCH GEFÄHRDETE BAUELEMENTE ENTSPRECHEN FEM 100015 ANFORDERUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING.

GEGENÜBER ANGABEN LEERER VARIANTEN, TOLERANZEN, BAUTEILWERTE UND NICHT BESTÜCKTE BAUTEILE SIEHE SA.

FOR BENDING INFORMATION ON MODELS, TOLERANCE AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

						HM	1GPK	DATUM	NAME	BENENNUNG
							BEARB.		HM	MODULATIONSCODER
							GEPR.		HM	MODULATION_CODER
							NORM			
							PLOTT	24.07.97	HALLERMEIER	
										ZEICHN.-NR. 1085.5050.01 D
										BLATT-NR. 2- v. 8.
ÄND. IND.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME				ROHDE&SCHWARZ			REG.I.V. 1085.5009 ERSTL. J.
							ZU GERÄET SM10B10			

ROHDE&SCHWARZ

SERVICEUNTERLAGEN

Option DATENGENERATOR und Option SPEICHERERWEITERUNG

1085.4560.02
1085.2845.02

Inhaltsverzeichnis

7. Prüfen und Instandsetzen der Baugruppe 5
7.1 Funktionsbeschreibung 5
7.2 Servicekonzept 6
7.3 Meßgeräte und Hilfsmittel 6
7.4 Fehlersuche 6
7.5 Prüfen und Abgleichen 7
7.5.1 Prüfung des Bootladevorganges nach dem Einschalten .. 7
7.5.2 Abfragen des Änderungszustandes 7
7.5.3 Steckbrücken 7
7.5.4 Diagnose 7
7.5.5 Prüfung der Ausgangssignale und der ext. Triggerung . 8
7.5.6 Prüfung der RS232-Schnittstelle 10
7.6 Zerlegung und Zusammenbau 10
7.7 Externe Schnittstellen 11

Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

Die Baugruppe Datengenerator (DGEN) dient als geräteinterne digitale Modulationsquelle für die Baugruppe Modulationscoder (MCOD). Der Takt, mit dem die digitalen Datensignale generiert und übertragen werden kommt von der Baugruppe MCOD. Es wird zwischen zwei Arten von Datensignalen unterschieden. Die maximal acht sog. DATA-Signale werden von MCOD für die digitale Modulation herangezogen. Die sechs sog. CONTROL-Signale haben verschiedene Steuerfunktionen wie z.B. das Tasten des Ausgangspegels.

Es werden zwei grundlegende Betriebsarten unterschieden:

In der Betriebsart DIGITAL MOD werden die Signale mittels eines Listeneditors eingegeben, in einem batteriegepufferten Speicherbereich auf DGEN abgelegt und taktsynchron auf die Signalausgänge ausgelesen. Es können auch die über eine eigene RS232-Schnittstelle (Buchse SERDATA an der Rückwand) in Echtzeit eingelesenen Daten auf die DATA-Ausgänge ausgelesen werden.

In der Betriebsart DIGITAL STD werden Signale in Echtzeit generiert, die den verschiedenen Mobilfunkstandards entsprechen. Der Bediener gibt hier im wesentlichen standardspezifische Parameter des „Physical Layers" ein. Es werden die gängigen Multiplexverfahren FDMA, TDMA und CDMA unterstützt.
Daten, die über die RS232-Schnittstelle in Echtzeit eingelesen werden, können als Nutzdaten in die DATA-Sequenz eingebaut werden.

Mit einem externen Triggersignal (TRIGIN), kann eine Datensequenz neu gestartet werden. Zur Synchronisation weiterer Geräte wird aus diesem Triggersignal ein zum Takt synchroner Impuls erzeugt (TRIGOUT_3).

Das Blockschaltbild im Anhang zeigt den Aufbau der Baugruppe. Kernstück ist der Digitale Signalprozessor (DSP) TMS320C32 von Texas Instruments. An den DSP-Bus direkt ist ein 2MBit großes, schnelles SRAM angeschlossen, in das nach dem Einschalten das Programm geladen wird und das nicht batteriegepuffert ist. Die batteriegepufferten SRAM für die Speicherung der Signaldaten im DIGITAL-MOD-Modus sind über zwei Bustreiber (BUFFER1 und 2) an den DSP-Bus angeschlossen und entprechend langsamer.
Die Module 8MBIT-SRAM1 und 8MBIT-SRAM2 sind optional (SPEICHERERWEITERUNG, kurz DMXT, SMIQ-B12) und werden auf die Steckerleistenpaare X350 und X351 aufgesteckt.
Damit die Batteriespannung auch von einer zentralen Batterie im Gerät kommen kann, ist ein entsprechender Anschluß zum Motherboard (UBEXT) vorhanden.

Das Auslesen der Signaldaten erfolgt über zwei DMA-Kanäle vom DSP über den BUFFER1 und das FIFO-FPGA. Dieser FPGA-Baustein verarbeitet alle Takt-, Trigger und Signaldaten. Sein Master-Takt kommt vom DSP und beträgt die Hälfte des DSP-Taktes von 60MHz. Das FIFO-FPGA fordert die DMA-Daten wortweise vom DSP per

7.5 Prüfen und Abgleichen

7.5.1 Prüfung des Bootladevorganges nach dem Einschalten

Nach dem Einschalten des Gerätes wird das DSP-Programm und die Konfiguration des FIFO-FPGA geladen. War der Ladevorgang erfolgreich, erscheint die Meldung:

„Download DSP OK"

Ist beim Ladevorgang vom Host ein Fehler festgestellt worden, erscheint die Meldung:

„Firmware download error DGEN"

7.5.2 Abfragen des Änderungszustandes

Unter **UTILITIES:DIAG:CONFIG** wird der Änderungszustand (REV) sowie die Variante (VAR) der einzelnen Baugruppen angezeigt.

Ist die Baugruppe DGEN mit beiden DMXT-Modulen (8MBIT-SRAM, Option SMIQ-B12) bestückt, so erscheint folgende Anzeige:

```
DGEN SMIQB11 VAR... REV...
DMXT SMIQB12 VAR... REV...
DMXT SMIQB12 VAR... REV...
```

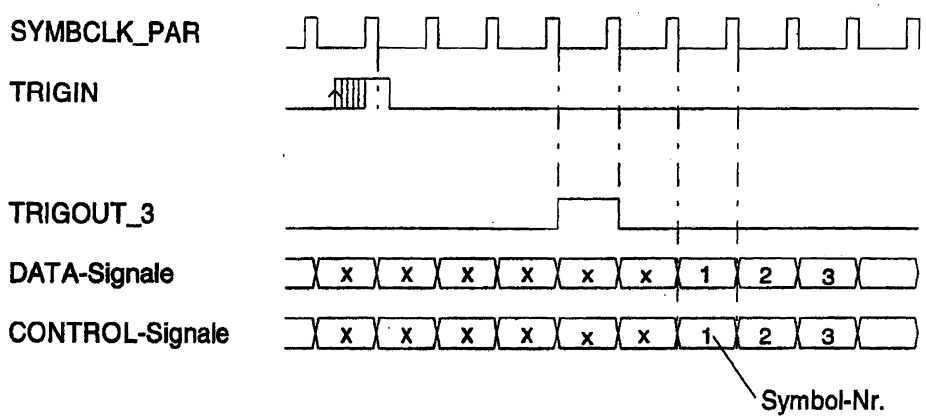
7.5.3 Steckbrücken

```
X21A muß mit X21B verbunden sein.
X58A muß mit X58B verbunden sein.
X63A muß mit X63B verbunden sein.
X59A muß mit X59B verbunden sein.
P86  muß mit P87  verbunden sein.
P84  muß mit P85  verbunden sein.
P1   muß mit P2   verbunden sein.
```

7.5.4 Diagnose

- Einstellungen **UTILITIES:DIAG:TPOINT :STATE ON**
  :TEST POINT 2300

➢ Die angezeigte Batteriespannung muß > 2V sein, sonst ist nicht mehr sichergestellt, daß die DATA- und CONTROL-Daten beim abschalten des Gerätes erhalten bleiben.



D_7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D_6	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
D_5	1	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0
D_4	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
D_3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D_2	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1
D_1	1	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	1
D_0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0

- Einstellungen: **DIG.MOD :SYMBOL RATE:2500000.0sym/s**
  :SOURCE :CONTROL STATE ON
  :SEL.CONTROL LIST:CREATE NEW LIST
  :EDIT CONTROL LIST:EDIT/VIEW

```
SELECT CONTROL LIST...                              CURRENT: CLIST0
EDIT CONTROL LIST...     FREE 00104080    LEN 00000019
-SYMBOL-----------BGATE-LATT--CW----HOP---TRIG2-TRIG1--
00000001              1     0     0     0     0     0
00000002              1     1     0     0     0     0
00000003              0     1     1     0     0     0
00000004              0     0     1     1     0     0
00000005              0     0     0     1     1     0
00000006              0     0     0     0     1     1
00000007              0     0     0     0     0     1
00000008              0     0     0     0     0     0
00000010              1     1     1     1     1     1
00000012              0     0     0     0     0     0
00000018              1     1     1     1     1     1
00000019              0     0     0     0     0     0
```

➢ Zwei Symboltaktperioden nach dem TRIGOUT_3-Signal erscheinen die sechs CONTROL-Signale BURST_GATE, LEV_ATT ... Eine CONTROL-Sequenz ist 19 Symboltaktperioden lang und wiederholt sich zyklisch mit dieser Länge. Die Tabelle unten gibt an, welche 19 Zustände jedes CONTROL-Signal zur steigenden Flanke von SYMBCLK_PAR haben muß.

7.7 Externe Schnittstellen

Motherboard:

X340.A1					
X340.A2	HOP	Ausgang	A3, FRO, X203.25 X50.42	HCT-Pegel	CONTROL-Sig. für Frequencyhopping
X340.A3					
X340.A4					
X340.A5					
X340.A6					
X340.A7					
X340.A8					
X340.A9					
X340.A10					
X340.A11	GND		A200, MBIQ		Masse
X340.A12	SERBUS-CLK	Eingang	A3, FRO, X31.40	HCT-Pegel	Serbus Clock
X340.A13	GND		A200, MBIQ		Masse
X340.A14	SERBUS-OUT	Ausgang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X340.A15	SERBUS-IN	Eingang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X340.A16	SERBUS-SYNC	Eingang	A3, FRO, X31.37	HCT-Pegel	Serbus Sync
X340.A17	SERBUS-INT	Ausgang	A3, FRO, X31.38	HCT-Pegel	Serbus Interrupt
X340.A18	Reset-P	Eingang	A3, FRO, X31.28	HCT-Pegel	Serbus Reset
X340.A19	DIAG-5V	Ausgang	A3, FRO, X31.44	-5 V ... +5 V	Diagnose
X340.A20	READY_DGEN	Ausgang	A3, FRO, X50.32	HCT-Pegel	Serbus Handshake 1
X340.A21	GND		A200, MBIQ		Masse
X340.A22					
X340.A23	GND		A200, MBIQ		Masse
X340.A24					
X340.A25	GND		A200, MBIQ		Masse
X340.A26					
X340.A27	GND		A200, MBIQ		Masse
X340.A28	VD5-P	Eingang	A2, POWs1	5.15 ... 5.25 V max. 1400 mA	5 V Stromversorgung
X340.A29	GND		A200, MBIQ		Masse
X340.A30					
X340.A31	GND		A200, MBIQ		Masse
X340.A32	VD5-N	Eingang	A2, POWs1	-5.05 ... -5.35 V max 10 mA	-5 V Stromversorgung

X350.A15	AB18	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A16	AB17	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A17	AB16	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A18	GND		A340, DGEN		
X350.A19	AB15	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A20	AB14	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A21	GND		A340, DGEN		
X350.A22	AB13	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A23	AB12	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A24	GND		A340, DGEN		
X350.A25	AB11	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A26	AB10	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A27	GND		A340, DGEN		
X350.A28	AB9	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A29	AB8	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A30	GND		A340, DGEN		
X350.A31	AB7	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A32	AB6	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A33	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.A34	AB5	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A35	AB4	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A36	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.A37	AB3	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A38	AB2	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A39	GND		A340, DGEN		
X350.A40	AB1	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A41	AB0	Eingang	A340, DGEN	HCT-Pegel	Adreßbus
X350.A42	GND		A340, DGEN		
X350.A43	STRB1B_B3	Eingang	A340, DGEN	HCT-Pegel	Strobe-Signal
X350.A44	STRB1B_B2	Eingang	A340, DGEN	HCT-Pegel	Strobe-Signal
X350.A45	STRB1B_B1	Eingang	A340, DGEN	HCT-Pegel	Strobe-Signal
X350.A46	STRB1B_B0	Eingang	A340, DGEN	HCT-Pegel	Strobe-Signal
X350.A47	GND		A340, DGEN		
X350.A48	GND		A340, DGEN		
X350.A49	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.A50	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung

Speichererweiterung (DMXT):

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X350.B1	GND		A340, DGEN		
X350.B2	+5VBATT	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V batteriegepuffert
X350.B3	+5VBATT	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V batteriegepuffert
X350.B4	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.B5	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.B6	IO31	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B7	IO30	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B8	+5V	Eingang	A340, DGEN	5.15 ... 5.25 V	5 V Stromversorgung
X350.B9	IO29	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B10	IO28	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B11	IO27	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B12	GND		A340, DGEN		
X350.B13	IO26	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B14	IO25	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B15	IO24	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B16	GND		A340, DGEN		
X350.B17	IO23	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus
X350.B18	IO22	Ein/Ausgang	A340, DGEN	HCT-Pegel	Datenbus

X203.21	CW	Ausgang	A320, MCOD, X320.A9	HCT-Pegel	CONTROL-Sig. zum Abschalten der Modulation in Echtzeit
X203.22	BURST_GATE	Ausgang	A320, MCOD, X320.A7	HCT-Pegel	CONTROL-Sig. zum Pegeltasten
X203.23	TRIGOUT_2	Ausgang	A340, DGEN, X34.B11	HCT-Pegel	CONTROL-Sig. für Sync.zwecke
X203.24	TRIGOUT_3	Ausgang	A340, DGEN, X34.B9	HCT-Pegel	Signal für Sync.zwecke
X203.25	HOP	Ausgang	A340, DGEN, X34.A2	HCT-Pegel	CONTROL-Sig. für Frequencyhopping

ROHDE&SCHWARZ

SERVICE INSTRUCTIONS for the DATA GENERATOR and MEMORY EXTENSION Options

1085.4560.02
1085.2845.02

Contents

7. Testing and Repair of the Module 5

7.1 Function Description 5

7.2 Service Conception 6

7.3 Test Instruments and Utilities 6

7.4 Troubleshooting 6

7.5 Testing and Adjustment 7

7.5.1 Boot-Check after Switch-on 7
7.5.2 Requesting the Revision 7
7.5.3 Jumpers 7
7.5.4 Diagnosis 7
7.5.5 Testing the Output Signals and Ext. Trigger Signal .. 8
7.5.6 Testing the RS-232 Interface 10

7.6 Removal and Assembly 10

7.7 External Interfaces 11

Parts list
List of coordinates
Circuit diagram
Components layout diagram

7. Testing and Repair of the Module

7.1 Function Description

The Data Generator module (DGEN) is used as internal digital modulation source for the modulation-coder board (MCOD). The clock for generation and transmission of the digital data signals is supplied by the MCOD board. Two types of data signal are distinguished. The maximum eight so-called DATA signals are used by MCOD for the digital modulation. The six so-called CONTROL signals are assigned various control functions such as output-level blanking.

There are two fundamental operating modes:

In the DIGITAL MOD mode, the signals are entered by means of a list editor, stored in a battery-backed memory area on DGEN and read to the signal outputs at clock frequency. Besides, the real-time data read in via an individual RS232 interface (SERDATA socket on the rear panel) can be read to the DATA outputs.

In the DIGITAL STD mode, signals are generated at real-time operation which correspond to the different mobile-radio standards. The user enters mainly standard-specific parameters of the „physical layer". The conventional multiplex methods FDMA, TDMA and CDMA are supported.
Real-time data entered via the RS232 interface are integrated as wanted data in the DATA sequence.

An external trigger signal (TRIGIN) can start a data sequence. For synchronization to further instruments, a clock-synchronous pulse (TRIGOUT_3) is derived from this trigger signal.

The block diagram appended illustrates the board setup. The digital signal processor (DSP) TMS320C32 from Texas Instruments is the nucleus. A fast 2-Mbit SRAM is connected directly to the DSP bus which is loaded with the program subsequent to switch-on and which is not battery-backed. The battery-backed SRAMs for storage of the signal data in the DIGITAL MOD mode are connected to the DSP bus via two bus drivers (BUFFERs 1 and 2) and are accordingly slower.
The modules 8MBIT-SRAM1 and 8MBIT-SRAM2 are optional (MEMORY EXTENSION, abbreviated DMXT, SMIQ-B12) and are plugged on the pin-connector pairs X350 and X351.
A connection to the motherboard (UBEXIT) is provided which allows for the battery voltage to be supplied by a central battery in the instrument.

7.5 Testing and Adjustment

7.5.1 Boot-Check after Switch-on

After switching on the instrument, the DSP program and the FIFO-FPGA configuration are loaded. If booting was successful, the message

„Download DSP OK"

is displayed.

If an error occurred with booting the host, the message

„Firmware download error DGEN"

is displayed.

7.5.2 Requesting the Revision

The revision (REV) and the variant (VAR) of the individual modules are indicated under **UTILITIES:DIAG:CONFIG.**

If both of the DMXT modules (8-MBIT SRAM, SMIQ-B12 option) are fitted to the DGEN, the display reads as follows:

DGEN SMIQB11 VAR... REV...
DMXT SMIQB12 VAR... REV...
DMXT SMIQB12 VAR... REV...

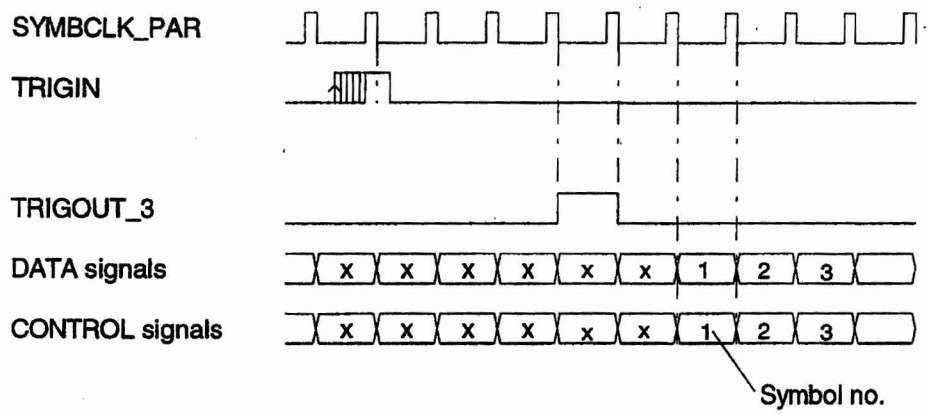
7.5.3 Jumpers

X21A must be connected to X21B.
X58A must be connected to X58B.
X63A must be connected to X63B.
X59A must be connected to X59B.
P86 must be connected to P87.
P84 must be connected to P85.
P1 must be connected to P2.

7.5.4 Diagnosis

- Settings: **UTILITIES:DIAG:TPOINT :STATE ON**
  :TEST POINT 2300

➢ The indicated battery voltage must be > 2V to ensure the the DATA and CONTROL data are retained with switch-off.



D_7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D_6	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
D_5	1	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0
D_4	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
D_3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D_2	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1
D_1	1	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	1
D_0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0

- Settings: **DIG.MOD :SYMBOL RATE:2500000.0sym/s**
  :SOURCE :CONTROL STATE ON
  :SEL.CONTROL LIST:CREATE NEW LIST
  :EDIT CONTROL LIST:EDIT/VIEW

```
SELECT CONTROL LIST...                              CURRENT: CLIST0
EDIT CONTROL LIST...     FREE 00104080    LEN 00000019
-SYMBOL-----------BGATE-LATT--CW----HOP---TRIG2-TRIG1--
00000001              1     0     0     0     0     0
00000002              1     1     0     0     0     0
00000003              0     1     1     0     0     0
00000004              0     0     1     1     0     0
00000005              0     0     0     1     1     0
00000006              0     0     0     0     1     1
00000007              0     0     0     0     0     1
00000008              0     0     0     0     0     0
00000010              1     1     1     1     1     1
00000012              0     0     0     0     0     0
00000018              1     1     1     1     1     1
00000019              0     0     0     0     0     0
```

➢ Two symbol-clock periods after the TRIGOUT_3 signal the six CONTROL signals BURST_GATE, LEV_ATT ... appera. A CONTROL sequence consists of 19 Symbol-clock periods and is repeated cyclically at this length. The table below indicates the 19 states, each of the DATA signals must assume at the rising edge of SYMBCLK_PAR.

➢ The delay between the falling edge of SYMBCLK_PAR and the edge of the CONTROL signal must be < 100ns.

7.7 External Interfaces

Motherboard:

Pin	Name	Input/Output	Origin/ Destination	Specified range	Signal description
X340.A1					
X340.A2	HOP	Output	A3, FRO, X203.25 X50.42	HCT level	CONTROL signal for frequency hopping
X340.A3					
X340.A4					
X340.A5					
X340.A6					
X340.A7					
X340.A8					
X340.A9					
X340.A10					
X340.A11	GND		A200, MBIQ		Ground
X340.A12	SERBUS-CLK	Input	A3, FRO, X31.40	HCT level	Serbus Clock
X340.A13	GND		A200, MBIQ		Ground
X340.A14	SERBUS-OUT	Output	A3, FRO, X31.39	HCT level	Serbus data
X340.A15	SERBUS-IN	Input	A3, FRO, X31.39	HCT level	Serbus data
X340.A16	SERBUS-SYNC	Input	A3, FRO, X31.37	HCT level	Serbus sync
X340.A17	SERBUS-INT	Output	A3, FRO, X31.38	HCT level	Serbus interrupt
X340.A18	Reset-P	Input	A3, FRO, X31.28	HCT level	Serbus reset
X340.A19	DIAG-5V	Output	A3, FRO, X31.44	-5 V to +5 V	Diagnosis
X340.A20	READY_DGEN	Output	A3, FRO, X50.32	HCT level	Serbus handshake 1
X340.A21	GND		A200, MBIQ		Ground
X340.A22					
X340.A23	GND		A200, MBIQ		Ground
X340.A24					
X340.A25	GND		A200, MBIQ		Ground
X340.A26					
X340.A27	GND		A200, MBIQ		Ground
X340.A28	VD5-P	Input	A2, POWs1	5.15 to 5.25 V max. 1400 mA	5-V power supply
X340.A29	GND		A200, MBIQ		Ground
X340.A30					
X340.A31	GND		A200, MBIQ		Ground
X340.A32	VD5-N	Input	A2, POWs1	-5.05 to -5.35 V max 10 mA	-5-V power supply

Memory extension(DMXT):

Name	Input/Output	Assembly/ Destination	Specified range	Signal description
X350.A1	+5V	Input	A340, DGEN	5.15 to 5.25 V	5-V power supply
X350.A2	+5VBATT	Input	A340, DGEN	5.15 to 5.25 V	5-V battery-backed
X350.A3	+5VBATT	Input	A340, DGEN	5.15 to 5.25 V	5-V battery-backed
X350.A4	OE	Input	A340, DGEN	HCT level	Output-Enable signal
X350.A5	CD	Input	A340, DGEN	HCT level	Power-Down signal
X350.A6	8MEN	Input	A340, DGEN	HCT level	Select signal
X350.A7	GND		A340, DGEN		
X350.A8	+5V	Input	A340, DGEN	5.15 to 5.25 V	5-V power supply
X350.A9	HV_D0	Output	A340, DGEN	HCT level	Version (REV)
X350.A10	HV_D1	Output	A340, DGEN	HCT level	Version (REV)
X350.A11	HV_D2	Output	A340, DGEN	HCT level	Version (REV)
X350.A12	HV_D3	Output	A340, DGEN	HCT level	Version (REV)
X350.A13	R/WB	Input	A340, DGEN	HCT level	Read-Write signal
X350.A14	GND		A340, DGEN		
X350.A15	AB18	Input	A340, DGEN	HCT level	Address bus
X350.A16	AB17	Input	A340, DGEN	HCT level	Address bus
X350.A17	AB16	Input	A340, DGEN	HCT level	Address bus
X350.A18	GND		A340, DGEN		
X350.A19	AB15	Input	A340, DGEN	HCT level	Address bus
X350.A20	AB14	Input	A340, DGEN	HCT level	Address bus
X350.A21	GND		A340, DGEN		
X350.A22	AB13	Input	A340, DGEN	HCT level	Address bus
X350.A23	AB12	Input	A340, DGEN	HCT level	Address bus
X350.A24	GND		A340, DGEN		
X350.A25	AB11	Input	A340, DGEN	HCT level	Address bus
X350.A26	AB10	Input	A340, DGEN	HCT level	Address bus
X350.A27	GND		A340, DGEN		
X350.A28	AB9	Input	A340, DGEN	HCT level	Address bus
X350.A29	AB8	Input	A340, DGEN	HCT level	Address bus
X350.A30	GND		A340, DGEN		
X350.A31	AB7	Input	A340, DGEN	HCT level	Address bus
X350.A32	AB6	Input	A340, DGEN	HCT level	Address bus
X350.A33	+5V	Input	A340, DGEN	5.15 to 5.25 V	5 V power supply
X350.A34	AB5	Input	A340, DGEN	HCT level	Address bus
X350.A35	AB4	Input	A340, DGEN	HCT level	Address bus
X350.A36	+5V	Input	A340, DGEN	5.15 to 5.25 V	5 V power supply
X350.A37	AB3	Input	A340, DGEN	HCT level	Address bus
X350.A38	AB2	Input	A340, DGEN	HCT level	Address bus
X350.A39	GND		A340, DGEN		
X350.A40	AB1	Input	A340, DGEN	HCT level	Address bus
X350.A41	AB0	Input	A340, DGEN	HCT level	Address bus
X350.A42	GND		A340, DGEN		
X350.A43	STRB1B_B3	Input	A340, DGEN	HCT level	Strobe signal
X350.A44	STRB1B_B2	Input	A340, DGEN	HCT level	Strobe signal
X350.A45	STRB1B_B1	Input	A340, DGEN	HCT level	Strobe signal
X350.A46	STRB1B_B0	Input	A340, DGEN	HCT level	Strobe signal
X350.A47	GND		A340, DGEN		
X350.A48	GND		A340, DGEN		
X350.A49	+5V	Input	A340, DGEN	5.15 to 5.25 V	5-V power supply
X350.A50	+5V	Input	A340, DGEN	5.15 to 5.25 V	5-V power supply

SUB-D connector PARDATA on the rear panel:

Pin	Name	Input/ Output	Origin/Destination	Specified range	Signal description
X203.1	GND		A200, MBIQ		
X203.2	GND		A200, MBIQ		
X203.3	DATA_PAR_D6	Output	A320, MCOD, X320.B11	HCT level	DATA signal 6
X203.4	DATA_PAR_D4	Output	A320, MCOD, X320.B9	HCT level	DATA signal 4
X203.5	DATA_PAR_D2	Output	A320, MCOD, X320.B7	HCT level	DATA signal 2
X203.6	DATA_PAR_D0	Output	A320, MCOD, X320.B5	HCT level	DATA signal 0
X203.7	SYMBCLK_PAR	Input/ Output	A320, MCOD, X320.B3	HCT level	Symbol clock
X203.8	GND		A200, MBIQ		
X203.9	LEV_ATT	Output	A320, MCOD, X320.A8	HCT level	CONTROL signal for level blanking
X203.10	GND		A200, MBIQ		
X203.11	TRIGOUT_1	Output	A340, DGEN, X34.B10	HCT level	CONTROL signal for sync. Purposes
X203.12	GND		A200, MBIQ		
X203.13	GND		A200, MBIQ		
X203.14	TRIGIN	Input	A320, MCOD, X320.B14	HCT level	Ext. Trigger signal
X203.15	DATA_PAR_D7	Output	A320, MCOD, X320.B12	HCT level	DATA signal 7
X203.16	DATA_PAR_D5	Output	A320, MCOD, X320.B10	HCT level	DATA signal 5
X203.17	DATA_PAR_D3	Output	A320, MCOD, X320.B8	HCT level	DATA signal 3
X203.18	DATA_PAR_D1	Output	A320, MCOD, X320.B6	HCT level	DATA signal 1
X203.19	GND		A200, MBIQ		
X203.20	BITCLK_PAR	Input/ Output	A320, MCOD, X320.B1	HCT level	Bit clock
X203.21	CW	Output	A320, MCOD, X320.A9	HCT level	CONTROL signal for real-time switch-off of the modulation
X203.22	BURST_GATE	Output	A320, MCOD, X320.A7	HCT level	CONTROL signal for level blanking
X203.23	TRIGOUT_2	Output	A340, DGEN, X34.B11	HCT level	CONTROL signal for sync. purposes
X203.24	TRIGOUT_3	Output	A340, DGEN, X34.B9	HCT level	Signal for sync. purposes
X203.25	HOP	Output	A340, DGEN, X34.A2	HCT level	CONTROL signal for frequency hopping

ROHDE&SCHWARZ

Schaltteillisten numerisch geordnet

Part lists in numerical order

Listes des pièces détachées par numéros de référence

095.1000 Bl. 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
.	XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS				
1	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
2	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
C1	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C2	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C3	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	AVX	1206 5A 102 FAT00J	
C4 ..14	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C15 ..17	CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8780.00	MURATA	GRM42-6C0G 330F50ZPT	
C18 ..35	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C36	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C37	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C38	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C39	CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8780.00	MURATA	GRM42-6C0G 330F50ZPT	
C40 ..42	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C43 ..46	CE 10UF+-20%35V RUND SMD SMD ELECTROLYTIC CAPACIT.	CE 0009.5605.00	PANASONIC	EEV HB 1V 100X	
C47	CC 100PF+-1% 50VNP0 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4680.00	MURATA	GRM39C0G***F50ZPT	
C48 ..62	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C63	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C64	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C65	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C66	CE 100UF+-20%16V RUND SMD SMD-ELECTOLYTIC CAPACIT.	CE 0009.6553.00	SANYO	16CV100F(G)S	
C67	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C68	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C69	CC 100PF+-1% 50VNP0 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4680.00	MURATA	GRM39C0G***F50ZPT	
C70	CC 100PF+-1% 50VNP0 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4680.00	MURATA	GRM39C0G***F50ZPT	
C71	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C72	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C73	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	AVX	1206 5A 102 FAT00J	
C74 ..78	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C79	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	AVX	1206 5A 102 FAT00J	
C80 ..84	CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8780.00	MURATA	GRM42-6C0G 330F50ZPT	
D1	BL 74ACT86SC 4X 2IN-EXOR QUAD 2-INPUT EXOR GATE	BL 2005.4307.00	HARRIS	(CD74)ACT86(M)	
D2	BC KM6164002BJ-15 SRAM OBSOLETE	1085.1361.00	SAMSUNG	KM6164002(A/BJ)-15	
D3	BC KM6164002BJ-15 SRAM OBSOLETE	1085.1361.00	SAMSUNG	KM6164002(A/BJ)-15	
D4	BL PC74HCT04T 6XINVERT HEXINVERTER	BL 0007.5372.00	PHILIPS_SE	(PC)74HCT04(D/T)	
D5 ..11	BL PC74HCT245T 8XTRANSC OCTAL BUS TRANSCEIVER	BL 0007.5414.00	PHILIPS_SE	(PC)74HCT245(D/T)	
D12	BC XC4013E-3C 13K GAT LCA IC LOGIC CELL ARRAY	BC 1085.2016.00	XILINX	XC4013E-3PQ208C	

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1GPK 854 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	13	12.08.99	EE DATENGENERATOR DATA GENERATOR	1085.4560.01 SA	1+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
L2	LD 100NH 10% 0,080HM 1,4A CHOKE	LD 0067.2740.00	DALE	IM2	
L3	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L4	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L5 ..17	LD 100NH 10% 0,44A 1210 RF CHOKE	LD 0007.9249.00	SIEMENS	B82422-A3101-J(K)100	
L18	LD 47ONH10%OR5 0,1A1206 SMD-MULTILAYER INDUCTOR	0007.9226.00	TOKO	MLF 3216 D R47 KL	
L19	LD 47ONH10%OR5 0,1A1206 SMD-MULTILAYER INDUCTOR	0007.9226.00	TOKO	MLF 3216 D R47 KL	
P1	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P2	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P3	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P4	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P5	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P6	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P7	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P8	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P9	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P10	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P11	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P12	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P13	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P14	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P15	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P16	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P17	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P18	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P19	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P20	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P21	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P22	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P23	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P24	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P25	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P26	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P27	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P28	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P29	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P30	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P31	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P32	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
P33	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P34	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P35	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P36	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P37	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P38	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P39	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P40	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P41	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P42	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P43	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P44	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P45	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P46	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P47	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P48	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P49	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P50	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P51	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P52	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P53	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P54	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P55	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P56	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P57	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P60	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P61	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P62	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P64	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P65	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P66	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P67	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P68	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P69	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P70	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P71	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P72	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P73	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P74	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
P75	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P76	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P77	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P78	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P79	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P80	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P81	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P82	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P83	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P84 ..87	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P88	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P89	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P90	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5 ··	
P91	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P92	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P93	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P94	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P97	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P98	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P99	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P100	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P101	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P102	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P103	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P104	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P105	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P119	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P120	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P121	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P122	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P124	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P125	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P127	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P128	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
P129	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
R1	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R2	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R3	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R4	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..9	SMD RESISTOR EIA0603					
R10	RG 100K +-1% TK100	0603	RG 0009.5363.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603					
R11	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R12	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R13	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R14	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
	NUR VAR/ONLY MOD: 02					
R15	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R16	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R17	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..19	SMD RESISTOR EIA0603					
R20	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..22	SMD RESISTOR EIA0603					
R23	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R24	RG 47R +-1% TK100	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
..33	SMD RESISTOR EIA0603					
R34	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R35	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R36	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R37	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R38	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R39	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
	NUR VAR/ONLY MOD: 04					
R41	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..46	SMD RESISTOR EIA0603					
R47	RG 47R +-1% TK100	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
..57	SMD RESISTOR EIA0603					
R58	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R59	RG 47R +-1% TK100	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
..74	SMD RESISTOR EIA0603					
R76	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..87	SMD RESISTOR EIA0603					
R88	RG 470R +-1% TK100	0603	0009.6976.00	DRALORIC	CR 0603	
..94	SMD RESISTOR EIA0603					
R95	RG 47K +-1% TK100	0603	0009.7072.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603					
R96	RG 47R +-1% TK100	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
..112	SMD RESISTOR EIA0603					
R113	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..118	SMD RESISTOR EIA0603					
R119	RG 2K2 +-1% TK100	0603	0009.7008.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603					
R120	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R121	RG 22K +-1% TK100	0603	0009.7050.00	DRALORIC	CR 0603	
..124	SMD RESISTOR EIA0603					
R125	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R126	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..131	SMD RESISTOR EIA0603					
R132	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..135	SMD RESISTOR EIA0603					
R136	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R137	RG 1KO +-1% TK100	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					
R138	RG 330R +-1% TK100	0603	0009.6960.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603					
R139	RG 10K +-1% TK100	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..188	SMD RESISTOR EIA0603					
R189	RG 100R +-1% TK100	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603					

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R190	RG 82,5 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8861.00	PHILIPS_CO	RC02	
R191 ..194	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R195	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R196 ..198	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R199	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R200 ..209	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R210 ..213	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R214 ..216	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R217	RG 47K +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7072.00	DRALORIC	CR 0603	
R218	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R219	RG 47R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R220	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	..
R221	RG 4K7 +-1% TK100 SMD RESISTOR EIA0603	0603	0009.7020.00	DRALORIC	CR 0603	
R222	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R223 ..238	RG 100K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5363.00	DRALORIC	CR 0603	
R239	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R240	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R241	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R242	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R243	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R244	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R245	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R246	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R247	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R248	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R249	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R250	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R251	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R252	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R253	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R254	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R255	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R256	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R257	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R258	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R259	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R260	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
V2	AE HSMS2810 SCHOTTKY SCHOTTKY DIODE	0520.7340.00	HEWLETT_PA	HSMS-2810	
V3	AE HSMS2810 SCHOTTKY SCHOTTKY DIODE	0520.7340.00	HEWLETT_PA	HSMS-2810	
V4 ..6	AD BAV99 75V DUO UDI HIGH-SPEED DOUBLE DIODE	AD 0911.0092.00	VALVO	BAV99	
V7	AE HSMS2810 SCHOTTKY SCHOTTKY DIODE	0520.7340.00	HEWLETT_PA	HSMS-2810	
V9	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V10	AK BCP69-25 P 20V TRANS MEDIUM POWER TRANSISTOR	0008.2002.00	PHILIPS	BCP 69-16 (25)	
X5	FP STIFTLEISTE 6P.R2,54 PIN CONNECTOR	FP 0009.6160.00			
X6	FP STIFTLEISTE 6P.R2,54 PIN CONNECTOR	FP 0009.6160.00			
X340	FP STECKERLEISTE 64P. CONNECTOR 64P.	FP 0008.5747.00	DEUT_ELCO	16 8457 064 002 025	
X341	FP STECKERLEISTE 10P.WIN CONNECTOR	FP 0738.5335.00	SIEMENS	V23535-A2210-A102	
X21A	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X21B	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X21C	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X21D	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X350A	FP STECKERLEISTE 50P.R=2 CONNECTOR 50P	FP 1051.4516.00	BERG_ELEKT	87131-550	
X350B	FP STECKERLEISTE 50P.R=2 CONNECTOR 50P	FP 1051.4516.00	BERG_ELEKT	87131-550	
X351A	FP STECKERLEISTE 50P.R=2 CONNECTOR 50P	FP 1051.4516.00	BERG_ELEKT	87131-550	
X351B	FP STECKERLEISTE 50P.R=2 CONNECTOR 50P	FP 1051.4516.00	BERG_ELEKT	87131-550	
X58A	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X58B	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X59A	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X59B	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X63A	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
X63B	VL EINPRESSSTIFT 5,6 PIN	VL 0010.7250.00	AMP	1-928776-5	
Z1 ..5	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z6	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z7 ..10	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
Z11	LD T-FILTER 33PF SMD SMD-T-FILTER 33PF	1062.6744.00	MURATA	NFM61R00T330	
Z12 ..33	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z34	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z35	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	

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ROHDE&SCHWARZ

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

el. Kennz.	**Bauelement-Kennzeichen**
Seite	**Leiterplatten-Seite, auf der sich das Bauelement befindet**
X/Y	**Koordinaten (in Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt**
Planq., Bl.	**Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement**

Explanation of column designations:

Part	**Identification of instrument part**
Side	**Side of the PC board on which instrument part is positioned**
X/Y	**Coordinates (in units of millimeters) of the component on the PC board in reference to zero point**
Sqr, Pg	**Square and page of the diagram for the respective instrument part**

Nicht–Service–Relevante Bauteile / Non–Service–Relevant Components

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
1	B	187	105	7F	2
2	B	220	105	7F	2
C1	B	228	22	2C	2
C2	B	297	39	6D	2
C3	A	79	24	8D	2
C4	B	174	110	8E	2
C5	A	250	59	5C	7
C6	B	213	41	7B	7
C7	A	20	67	5A	7
C8	A	185	77	5B	7
C9	A	165	96	5B	7
C10	A	242	59	5C	7
C11	A	185	92	6C	7
C12	A	165	81	5C	7
C13	A	275	64	2E	7
C14	A	238	65	3E	7
C15	A	50	71	1A	7
C16	A	84	64	1A	7
C17	A	70	51	1B	7
C18	A	185	49	7C	7
C19	A	290	46	7C	7
C20	A	23	37	5E	7
C21	A	66	72	7A	7
C22	A	18	20	4C	7
C23	A	277	46	4E	7
C24	A	77	72	8A	7
C25	A	257	66	1E	7
C26	A	171	50	7A	7
C27	B	211	69	7B	7
C28	B	209	55	8B	7
C29	B	170	104	6A	7
C30	A	73	118	7D	7
C31	A	37	65	5A	7
C32	A	25	118	5D	7
C33	A	163	45	6C	7
C34	A	165	68	6B	7
C35	A	282	12	8C	7
C36	A	154	83	7C	7
C37	A	214	10	4C	7
C38	A	58	118	6D	7
C39	A	68	85	1A	7
C40	A	293	66	2E	7
C41	A	128	57	6E	7
C42	A	185	63	5C	7
C43	B	274	30	3C	2
C44	B	274	36	3C	2
C45	B	282	36	4C	2
C46	B	282	30	4C	2
C47	B	100	55	7C	2
C48	A	41	118	5D	7
C49	A	121	86	6E	7
C50	A	107	62	7E	7
C51	A	138	64	7E	7
C52	A	125	55	7E	7
C53	B	80	118	7D	7
C54	A	52	38	5B	7
C55	A	37	37	5B	7
C56	A	65	37	6B	7
C57	A	47	20	3A	7
C58	A	32	19	3B	7
C59	A	62	20	4B	7
C60	B	65	118	8D	7
C61	B	49	118	8C	7
C62	B	32	118	7C	7
C63	B	228	14	2C	2
C64	B	150	112	8B	7
C65	B	150	97	8B	7
C66	B	215	18	2C	2
C67	B	293	40	6D	2
C68	B	288	41	6D	2
C69	B	78	16	8D	2
C70	B	83	17	8D	2
C71	A	80	43	7B	7
C72	A	92	98	7B	7

el. Kennz *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
C73	A	280	33	5D	2
C74	A	274	27	4D	2
C75	A	75	85	1A	7
C76	A	61	53	1B	7
C77	A	84	70	1A	7
C78	A	52	67	1A	7
C79	A	131	86	6D	7
C80	A	114	59	7D	7
C81	A	113	51	7D	7
C82	A	128	60	7D	7
C83	A	14	69	4A	7
C84	A	31	66	5A	7
D1	A	71	61	7C	2
D1	A	71	61	1C	7
D1	A	71	61	1C	7
D1	A	71	61	1D	7
D1	A	71	61	8A	7
D2	B	40	53	11A	2
D2	B	40	53	6A	7
D3	B	24	53	11C	2
D3	B	24	53	5A	7
D4	A	159	48	6C	2
D4	A	159	48	6E	2
D4	A	159	48	6A	5
D4	A	159	48	2C	7
D4	A	159	48	2C	7
D4	A	159	48	2D	7
D4	A	159	48	6C	7
D5	A	198	77	2B	4
D5	A	198	77	5B	7
D6	A	198	48	2D	4
D6	A	198	48	7C	7
D7	A	198	92	2A	4
D7	A	198	92	6C	7
D8	A	198	63	2C	4
D8	A	198	63	6C	7
D9	A	179	80	3B	4
D9	A	179	80	5C	7
D10	A	179	65	3D	4
D10	A	179	65	6B	7
D11	A	179	95	3C	4
D11	A	179	95	6B	7
D12	B	135	83	6A	5
D12	B	135	83	7E	7
D13	A	204	9	2A	2
D13	A	204	9	2A	2
D13	A	204	9	2B	2
D13	A	204	9	2B	2
D13	A	204	9	4C	7
D14	B	23	23	2A	5
D14	B	23	23	4C	7
D15	B	23	116	2A	3
D15	B	23	116	7C	7
D16	B	150	81	4A	5
D16	B	150	81	7C	7
D17	B	40	116	2B	3
D17	B	40	116	8C	7
D18	B	56	116	2C	3
D18	B	56	116	8D	7
D19	B	71	116	2D	3
D19	B	71	116	7D	7
D20	A	268	46	3A	4
D20	A	268	46	3B	4
D20	A	268	46	3B	4
D20	A	268	46	4B	4
D20	A	268	46	4E	7
D21	B	84	58	9A	2
D21	B	84	58	2A	7
D22	B	173	107	7E	2
D22	B	173	107	6A	7
D23	A	17	24	3A	5
D23	A	17	24	5E	7
D24	A	33	115	3A	3
D24	A	33	115	5D	7

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
D25	A	50	115	3B	3
D25	A	50	115	6D	7
D26	A	66	115	3C	3
D26	A	66	115	6D	7
D27	A	81	115	3D	3
D27	A	81	115	7D	7
D28	B	264	58	4B	4
D28	B	264	58	1E	7
D29	B	245	58	4C	4
D29	B	245	58	3E	7
D30	B	282	58	7B	4
D30	B	282	58	3E	7
D31	B	301	58	7C	4
D31	B	301	58	2E	7
D32	B	53	23	2B	5
D32	B	53	23	4A	7
D33	A	272	15	3C	2
D33	A	272	15	4C	2
D33	A	272	15	4E	2
D33	A	272	15	4E	2
D33	A	272	15	5D	2
D33	A	272	15	8C	7
D34	A	62	61	7C	2
D34	A	62	61	2B	7
D34	A	62	61	2C	7
D34	A	62	61	2C	7
D34	A	62	61	2C	7
D34	A	62	61	2D	7
D34	A	62	61	7A	7
D35	B	218	43	5C	2
D35	B	218	43	7A	7
D36	A	281	46	4D	2
D36	A	281	46	8E	4
D36	A	281	46	9E	4
D36	A	281	46	1D	7
D36	A	281	46	7C	7
D37	B	221	55	6A	2
D37	B	221	55	8A	7
D38	A	236	46	10B	4
D38	A	236	46	6C	7
D39	A	248	46	10A	4
D39	A	248	46	5C	7
D40	A	118	58	7E	4
D40	A	118	58	6E	7
D41	B	170	47	4A	2
D41	B	170	47	7A	7
D42	B	221	72	6B	2
D42	B	221	72	7A	7
D43	B	147	109	6E	2
D43	B	147	109	8B	7
D44	B	38	23	2C	5
D44	B	38	23	4A	7
D45	B	67	23	2D	5
D45	B	67	23	4B	7
D46	A	47	24	3B	5
D46	A	47	24	5A	7
D47	A	32	24	3C	5
D47	A	32	24	6A	7
D48	A	61	24	3D	5
D48	A	61	24	6A	7
D49	B	271	19	4E	2
D50	A	89	101	2D	3
D50	A	89	101	3C	7
D50	A	89	101	3C	7
D50	A	89	101	3D	7
D50	A	89	101	7B	7
D51	A	74	45	8B	2
D51	A	74	45	8B	2
D51	A	74	45	8C	2
D51	A	74	45	4E	4
D51	A	74	45	7B	7
D52	A	258	46	3A	4
D52	A	258	46	3B	7
D52	A	258	46	3C	7

ROHDE & SCHWARZ

Benennung: EE DATENGENERATOR
Designation: DATA_GENERATOR

Sprache: *Lang.:* de

Blatt: *Sh.:* 1 +

Aei: *C.I.:* 04.01

Typ: *Type:* SMIQB11

Datum: *Date:* 99–04–01

Abteilung: *Dpt:* 1GPK

Name: *Name:* DR

Sachnr.: *Part No.:* **1085.4560.01 XY**

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Nicht–Service–Relevante Bauteile / Non–Service–Relevant Components

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
D52	A	258	46	3C	7
D52	A	258	46	3C	7
D52	A	258	46	3D	7
D52	A	258	46	4E	7
G1	B	288	34	6D	2
G2	B	185	105	7F	2
G3	B	80	28	9D	2
L1	B	225	22	2C	2
L2	B	211	6	2C	2
L3	A	298	40	6D	2
L4	A	291	40	6D	2
L5	A	83	20	8D	2
L6	B	79	13	8D	2
L7	A	281	30	4D	2
L8	A	48	64	1A	7
L9	A	80	67	1A	7
L10	A	64	48	1B	7
L11	A	71	82	1A	7
L12	A	128	84	7D	7
L13	A	114	66	7D	7
L14	A	119	51	7D	7
L15	A	131	65	8D	7
L16	A	31	62	5A	7
L17	A	14	63	4A	7
L18	B	91	72	7A	7
L19	B	140	64	6E	7
P1	B	290	22	5D	2
P2	B	293	22	5D	2
P3	B	170	98	8E	2
P4	B	174	113	8E	2
P5	B	180	110	7E	2
P6	B	286	20	5D	2
P7	B	267	13	4D	2
P8	B	156	45	4C	2
P9	B	153	45	4C	2
P10	B	141	100	6A	5
P11	B	138	116	7D	5
P12	B	138	105	7D	5
P13	B	136	100	8C	5
P14	B	133	100	8C	5
P15	B	136	110	7D	5
P16	B	133	116	7D	5
P17	B	131	110	7D	5
P18	B	128	116	7D	5
P19	B	128	105	7D	5
P20	B	126	110	7D	5
P21	B	131	100	8C	5
P22	B	126	100	7D	5
P23	B	123	116	7D	5
P24	B	123	105	7D	5
P25	B	118	116	7D	5
P26	B	121	110	7E	5
P27	B	121	100	7E	5
P28	B	116	110	7E	5
P29	B	118	105	7E	5
P30	B	116	100	7E	5
P31	B	113	116	7E	5
P32	B	113	105	7E	5
P33	B	110	110	7E	5
P34	B	110	100	7E	5
P35	B	108	116	7E	5
P36	B	108	105	7E	5
P37	B	105	110	7E	5
P38	B	105	100	7E	5
P39	B	103	105	7E	5
P40	B	103	116	7E	5
P41	B	141	70	4C	2
P42	B	152	97	4C	5
P43	B	152	94	4C	5
P44	B	141	73	6C	5
P45	B	118	46	6F	5
P46	B	156	52	4C	2
P47	B	210	46	5C	2
P48	B	155	57	6C	2

el. Kennz *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
P49	B	210	43	5C	2
P50	B	222	46	5C	2
P51	B	153	49	6C	2
P52	B	153	52	6C	2
P53	B	97	58	7C	2
P54	B	206	47	6D	2
P55	B	222	44	6C	2
P56	B	210	49	6D	2
P57	B	206	50	6D	2
P60	B	159	95	5A	5
P61	B	156	95	5A	5
P62	B	130	50	6A	5
P64	B	98	95	6E	5
P65	B	102	43	9B	2
P66	B	90	48	9B	2
P67	B	88	48	9B	2
P68	B	103	95	7C	5
P69	B	100	48	9B	2
P70	B	93	48	9B	2
P71	B	98	48	9B	2
P72	B	86	32	9C	2
P73	B	90	43	10A	2
P74	B	100	43	10A	2
P75	B	97	43	10A	2
P76	B	87	43	10B	2
P77	B	95	48	10B	2
P78	B	92	43	10B	2
P79	B	95	43	10B	2
P80	B	138	100	8C	5
P81	B	140	61	7C	5
P82	B	152	69	6B	5
P83	B	155	69	6B	5
P84	B	81	32	9C	2
P85	B	78	32	9C	2
P86	B	183	106	7E	2
P87	B	183	104	7E	2
P88	B	163	106	6E	2
P89	B	222	49	4A	4
P90	B	97	68	6D	4
P91	B	182	72	6D	4
P92	B	184	69	6D	4
P93	B	186	66	6D	4
P94	B	183	41	6D	4
P97	B	222	41	11A	4
P98	B	207	62	11A	4
P99	B	210	51	11B	4
P100	B	207	59	11B	4
P101	B	138	50	7C	5
P102	B	141	75	6F	5
P103	B	146	75	6F	5
P104	B	141	80	6F	5
P105	B	110	48	7B	5
P119	B	104	48	6A	5
P120	B	107	48	6A	5
P121	B	100	110	6C	5
P122	B	115	46	6F	5
P124	B	121	46	6F	5
P125	B	133	50	5F	5
P127	B	140	58	5F	5
P128	B	98	105	4F	5
P129	B	100	100	5F	5
R1	B	207	19	2B	2
R2	B	188	78	8A	4
R3	B	183	111	7E	2
R4	B	275	10	5D	2
R5	B	157	56	4B	2
R6	B	157	103	7F	2
R7	B	22	119	1A	3
R8	B	88	61	9A	2
R9	B	206	43	5C	2
R10	B	229	55	6A	2
R11	B	229	57	7A	2
R12	B	229	59	7A	2
R13	B	229	61	7A	2

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
R14	B	229	63	7A	2
R15	B	181	98	7F	2
R16	B	185	49	3A	2
R17	B	159	92	5A	5
R18	B	112	88	6A	5
R19	B	107	82	6A	5
R20	B	122	50	6A	5
R21	B	161	69	5B	5
R22	B	185	51	3A	2
R23	B	185	53	3A	2
R24	B	187	25	10E	5
R25	B	187	38	9E	5
R26	B	182	38	9E	5
R27	B	182	25	9E	5
R28	B	176	25	10D	5
R29	B	176	38	9D	5
R30	B	171	25	9D	5
R31	B	171	38	9D	5
R32	B	166	38	9D	5
R33	B	166	25	10D	5
R34	B	185	55	4A	2
R35	B	185	59	4A	2
R36	B	185	61	4A	2
R37	B	185	63	4A	2
R38	B	88	64	9A	2
R39	B	229	65	7A	2
R40	B	229	67	8A	2
R41	B	73	51	9A	2
R42	B	62	51	9A	2
R43	B	177	73	3C	4
R44	B	181	90	3D	4
R45	B	180	70	3E	4
R46	B	273	83	6A	4
R47	B	161	38	9D	5
R48	B	156	38	9C	5
R49	B	156	25	10C	5
R50	B	151	38	9C	5
R51	B	151	25	9C	5
R52	B	148	38	9C	5
R53	B	148	25	10C	5
R54	B	139	38	9C	5
R55	B	139	25	9C	5
R56	B	136	38	9C	5
R57	B	136	25	10C	5
R58	B	196	78	8A	4
R59	B	126	38	9A	5
R60	B	161	25	9D	5
R61	B	121	38	9A	5
R62	B	123	27	10A	5
R63	B	113	27	9A	5
R64	B	115	38	9A	5
R65	B	110	38	9B	5
R66	B	110	25	10B	5
R67	B	105	38	9B	5
R68	B	105	25	9B	5
R69	B	100	38	9B	5
R70	B	100	25	10B	5
R71	B	95	38	9B	5
R72	B	95	25	9B	5
R73	B	131	25	10A	5
R74	B	131	38	9A	5
R75	B	229	69	8A	2
R76	B	39	119	1B	3
R77	B	55	119	1C	3
R78	B	248	52	11A	4
R79	B	250	52	11B	4
R80	B	72	90	3B	6
R81	B	282	89	3B	6
R82	B	70	119	1D	3
R83	B	121	41	5E	5
R84	B	25	18	3A	5
R85	B	55	19	3B	5
R86	B	40	18	3C	5
R87	B	69	19	3D	5

ROHDE & SCHWARZ

Benennung: EE DATENGENERATOR
Designation: DATA_GENERATOR

Sprache: *Lang.:* de

Blatt: *Sh.:* 2 +

Aei: *C.I.:* 04.01

Typ: *Type:* SMIQB11

Datum: *Date:* 99–04–01

Abteilung: *Dpt:* 1GPK

Name: *Name:* DR

Sachnr.: *Part No.:* **1085.4560.01 XY**

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Nicht–Service–Relevante Bauteile / Non–Service–Relevant Components

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
R88	B	217	36	3C	2
R89	B	192	36	3A	2
R90	B	212	23	2B	2
R91	B	207	36	3B	2
R92	B	202	23	2A	2
R93	B	220	36	3F	2
R94	B	218	23	2F	2
R95	B	287	22	5E	2
R96	B	189	25	2A	2
R97	B	199	25	2A	2
R98	B	207	23	2B	2
R99	B	216	23	2C	2
R100	B	197	36	3A	2
R101	B	202	36	3A	2
R102	B	212	36	3B	2
R103	B	49	58	9C	2
R104	B	258	25	2D	2
R105	B	258	34	3D	2
R106	B	126	25	9A	5
R107	B	251	25	2E	2
R108	B	250	36	3E	2
R109	B	248	36	3E	2
R110	B	248	25	2E	2
R111	B	253	25	2E	2
R112	B	253	36	3E	2
R113	B	191	82	8A	4
R114	B	192	86	8A	4
R115	B	193	82	8A	4
R116	B	194	86	8A	4
R117	B	196	82	8A	4
R118	B	197	86	8A	4
R119	B	167	100	8D	2
R120	B	160	107	6F	2
R121	B	91	68	10A	2
R122	B	89	66	10A	2
R123	B	89	68	10A	2
R124	B	91	66	11A	2
R125	B	135	47	5E	5
R126	B	28	50	11B	2
R127	B	30	50	11B	2
R128	B	32	50	11B	2
R129	B	16	50	11C	2
R130	B	15	50	11C	2
R131	B	13	50	11C	2
R132	B	147	93	4A	5
R133	B	115	41	5E	5
R134	B	155	92	4B	5
R135	B	140	54	6E	5
R136	B	217	11	2A	2
R137	B	218	11	2B	2
R138	B	155	60	6C	2
R139	B	194	76	8B	4
R140	B	196	75	8B	4
R141	B	193	73	8B	4
R142	B	196	71	8B	4
R143	B	193	70	8B	4
R144	B	196	68	8B	4
R145	B	193	67	8B	4
R146	B	196	65	8B	4
R147	B	193	62	8B	4
R148	B	196	61	8B	4
R149	B	193	60	8C	4
R150	B	196	58	8C	4
R151	B	193	57	8C	4
R152	B	196	55	8C	4
R153	B	193	54	8C	4
R154	B	196	52	8C	4
R155	B	193	51	8C	4
R156	B	196	50	8C	4
R157	B	193	48	8C	4
R158	B	196	46	8C	4
R159	B	193	45	8D	4
R160	B	196	43	8D	4
R161	B	193	41	8D	4
R162	B	196	40	8D	4
R163	B	180	80	6B	4
R164	B	179	77	6B	4
R165	B	177	77	6B	4
R166	B	178	82	6B	4
R167	B	173	78	6C	4
R168	B	172	78	6C	4
R169	B	170	78	6C	4
R170	B	169	78	6C	4
R171	B	179	90	6D	4
R172	B	174	87	6D	4
R173	B	179	88	6D	4
R174	B	179	94	6D	4
R175	B	179	92	6D	4
R176	B	174	95	6D	4
R177	B	171	90	6D	4
R178	B	169	90	6D	4
R179	B	175	73	6D	4
R180	B	169	73	6E	4
R181	B	182	77	5D	4
R182	B	182	84	5D	4
R183	B	183	78	5D	4
R184	B	185	81	5D	4
R185	B	183	46	5D	4
R186	B	128	50	6A	5
R187	B	155	100	6F	2
R188	B	141	106	7C	5
R189	B	120	49	6E	5
R190	A	114	55	7E	4
R191	B	90	109	2E	3
R192	B	290	53	9E	4
R193	B	257	53	10B	4
R194	B	233	46	10C	4
R195	B	84	105	2E	3
R196	B	97	112	3D	7
R197	B	207	45	5C	2
R198	B	204	48	7D	2
R199	B	84	106	2E	3
R200	B	169	76	3B	4
R201	B	169	95	3C	4
R202	B	169	70	3D	4
R203	B	261	51	3D	7
R204	B	235	55	11B	4
R205	B	118	41	4E	5
R206	B	90	63	1D	7
R207	B	290	50	1D	7
R208	B	93	63	2D	7
R209	B	167	42	2D	7
R210	B	221	23	2D	2
R211	B	222	36	3D	2
R212	B	240	26	9E	5
R213	B	237	38	9E	5
R214	B	136	105	8C	5
R215	B	131	103	7D	5
R216	B	133	103	8D	5
R217	B	160	105	6E	2
R218	B	242	25	2D	2
R219	B	245	36	3D	2
R220	B	101	69	6A	5
R221	B	133	88	6B	5
R222	B	155	107	6F	2
R223	B	226	55	6A	2
R224	B	226	57	7A	2
R225	B	226	59	7A	2
R226	B	226	61	7A	2
R227	B	226	63	7A	2
R228	B	226	65	7A	2
R229	B	226	67	8A	2
R230	B	226	69	8A	2
R231	B	224	70	6B	2
R232	B	229	70	6B	2
R233	B	225	72	7B	2
R234	B	225	74	7B	2
R235	B	225	76	7B	2
R236	B	225	78	7B	2
R237	B	225	80	7B	2
R238	B	225	82	8B	2
R239	B	226	49	3A	4
R240	B	226	51	4A	4
R241	A	174	41	5E	4
R242	A	175	42	3F	4
R243	A	245	70	4A	4
R244	A	246	69	4A	4
R245	A	255	62	4B	4
R246	A	255	60	4A	4
R247	A	236	72	4C	4
R248	A	235	71	4C	4
R249	A	235	65	4C	4
R250	A	235	63	4C	4
R251	A	273	69	6A	4
R252	A	271	71	6A	4
R253	A	264	62	7A	4
R254	A	264	60	6B	4
R255	A	291	71	6C	4
R256	A	290	69	6C	4
R257	A	291	62	6C	4
R258	A	291	60	7C	4
R259	B	116	90	7E	5
R260	B	89	105	2E	3
V2	B	165	98	5E	2
V3	B	239	52	11B	4
V4	B	136	44	8E	5
V5	B	131	44	8C	5
V6	B	125	44	9C	5
V7	B	183	115	7E	2
V9	B	158	101	7E	2
V10	B	166	107	8D	2
X5	B	102	77	11A	2
X6	B	102	75	11A	2
X21A	B	93	60	8A	2
X21B	B	93	57	8A	2
X21C	B	91	57	8A	2
X21D	B	88	57	8A	2
X58A	B	91	52	8A	2
X58B	B	89	52	8A	2
X59A	B	103	52	8A	2
X59B	B	100	52	8A	2
X63A	B	95	52	8A	2
X63B	B	97	52	8A	2
X340	B	189	11	1A	2
X341	B	254	22	2F	2
X350A	B	236	93	3A	6
X350B	B	236	41	1A	6
X351A	B	22	93	4A	6
X351B	B	22	41	2A	6
Z1	B	207	27	2B	2
Z2	B	202	27	2A	2
Z3	B	197	27	2A	2
Z4	B	192	27	2A	2
Z5	B	220	27	2F	2
Z6	B	232	27	2C	2
Z7	B	255	27	2D	2
Z8	B	250	27	2E	2
Z9	B	187	34	10E	5
Z10	B	177	34	10D	5
Z11	B	171	34	9D	5
Z12	B	166	34	10D	5
Z13	B	161	34	9D	5
Z14	B	156	34	10C	5
Z15	B	151	34	9C	5
Z16	B	148	34	10C	5
Z17	B	139	34	9C	5
Z18	B	136	34	10C	5
Z19	B	126	34	9A	5
Z20	B	182	34	9E	5
Z21	B	121	34	10A	5
Z22	B	116	34	9A	5
Z23	B	110	34	10B	5

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ROHDE & SCHWARZ	Benennung: *Designation:* EE DATENGENERATOR / DATA_GENERATOR		Sprache: *Lang.:* de	Blatt: *Sh.:* 3 +	Aei: *C.I.:* 04.01
Typ: *Type:* SMIQB11	Datum: *Date:* 99–04–01	Abteilung: *Dpt:* 1GPK	Name: *Name:* DR	Sachnr.: *Part No.:* **1085.4560.01 XY**	

Nicht–Service–Relevante Bauteile / Non–Service–Relevant Components

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
Z24	B	105	34	9B	5
Z25	B	100	34	10B	5
Z26	B	95	34	9B	5
Z27	B	131	34	10A	5
Z28	B	248	27	2E	2
Z29	B	253	27	2E	2
Z30	B	212	27	2B	2
Z31	B	217	27	2C	2
Z32	B	222	27	2D	2
Z33	B	237	34	9E	5
Z34	B	227	27	2C	2
Z35	B	245	27	2D	2

el. Kennz *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*

ROHDE & SCHWARZ

Benennung: *Designation:* EE DATENGENERATOR / DATA_GENERATOR

Sprache: *Lang.:* de

Blatt: *Sh.:* 4 +

Aei: *C.I.:* 04.01

Typ: *Type:* SMIQB11

Datum: *Date:* 99–04–01

Abteilung: *Dpt:* 1GPK

Name: *Name:* DR

Sachnr.: *Part No.:* **1085.4560.01 XY**

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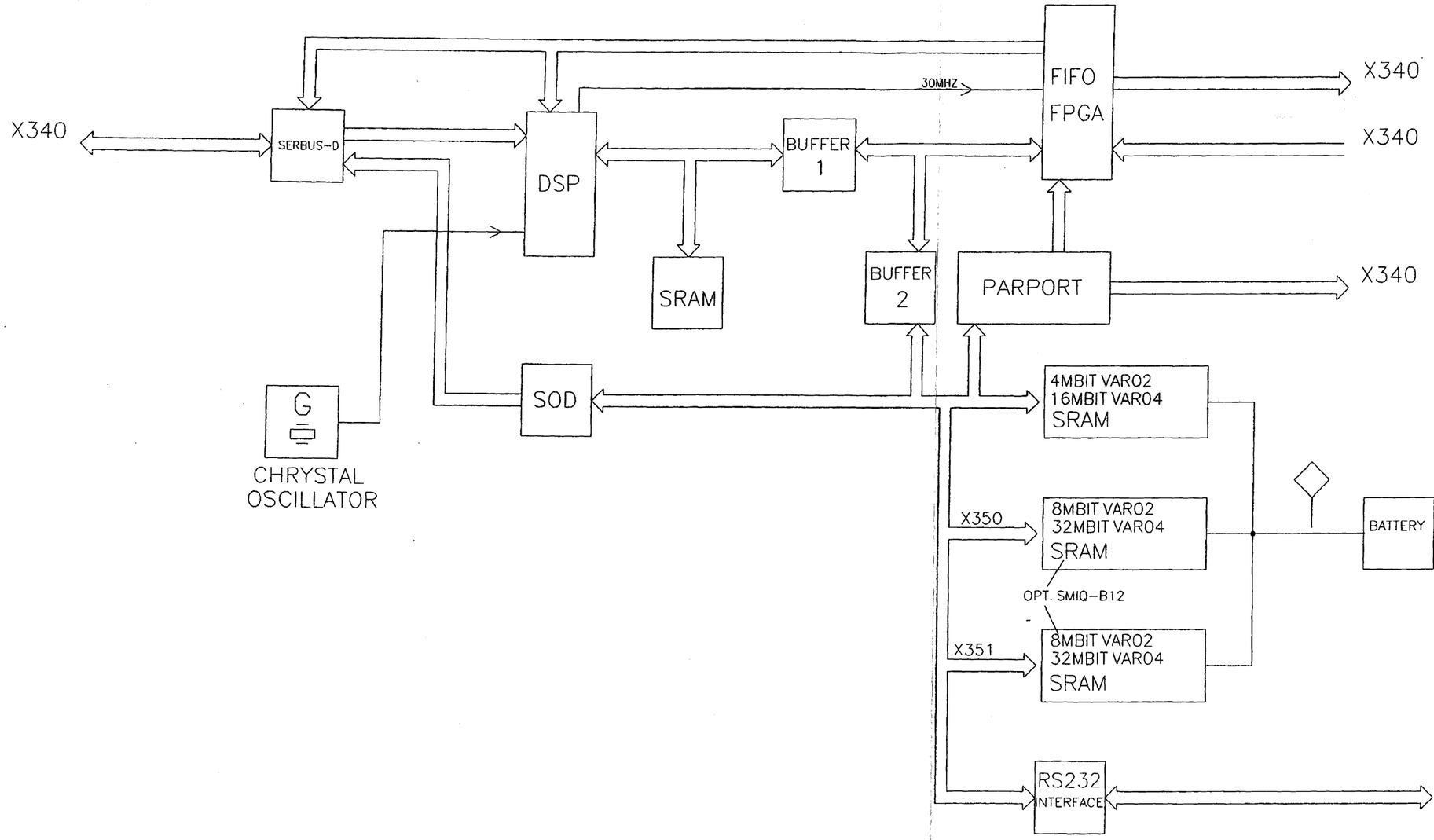
ROHDE&SCHWARZ

Stromläufe
Bestückungspläne

Circuit diagrams
Component plans

Schémas de circuit
Plans des composants

BEMALEN WIR UNS ALLE RECHTE VOR



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

06.00				1GPK	DATUM	NAME	BENENNUNG	
				BEARB.		DR	DATENGENERATOR	
				GEPR.		DR	DATA_GENERATOR	
				NORM			TOP/TOP.7	
				PLOTT	99-06-10	DORNER		
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4560.01 S	BLATT-NR. 1 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB11			REG.I.V. 1085.4502	ERSTE Z. 1085.4502.01

SERBUS-D

HARDWARE VERSION REGISTER

SERIAL HOST CONTROL REGISTER

CRYSTAL OSCILLATOR

DSP

EMULATOR INTERFACE

2MBIT SRAM

BATTERY

AF-BUS

DF-BUS

CF-BUS

C-BUS

Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST
* = variant
** = not fitted

06.00				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		DR	DATENGENERATOR
				GEPR.		DR	DATA_GENERATOR
				NORM			TOP/TOP.1
				PLOTT	99-06-10	DORNER	ZEICHN.-NR. 1085.4560.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			BLATT-NR. 2 +
				ZU GERAET SMIQB11			REG.I.V. 1085.4502 ERSTE Z. 1085.4502.01

SERBUS-D

HARDWARE VERSION REGISTER

SERIAL HOST CONTROL REGISTER

RS232 INTERFACE

CRYSTAL OSCILLATOR

BATTERY

SERBUS-CLK
SERBUS-OUT
SERBUS-IN
SERBUS-SYNC
SERBUS-INT
RESET-P
VD5-P
VD5-N
UBEXT
RS232_DTR
RS232_RTS
RS232_CTS
RS232_TXD
RS232_RXD
DIAG-5V

D13 74HCT125T
D41 L5A8856
D37 74HCT541T
D42 74HCT541T
D33 LT1181CS
D34 74HC14T
D1 74ACT86M
D35 74HCT4094T
D4 74HCT04T
D36 74ACT02M
D49 82510
D51 74ACT32M
D43 74HCT4051T
D22 MAX691AESE

Z4 Z3 Z2 Z1 Z30 Z31 Z6 Z34 Z32 Z35 Z7 Z8 Z28 Z29 Z5
7.5DB

L1 L2 100NH
C1 C63 C66 C43 C44 C45 C46 C74 C73 C69 C70 C3 C68 C67 C2 C4 C47
100U 10U 100N 1N 100P 10N 1U
R1 R5 R9 R4 R95 R197 R198 R222 R187 R120 R6 R15 R119 R217 R3 R138
10K 47K 330 100 2.2K
R10 R11 R12 R13 R14 R39 R40 R75 R223 R224 R225 R226 R227 R228 R229 R230 R231 R232 R233 R234 R235 R236 R237 R238
100K
R16 R22 R23 R34 R35 R36 R37
R136 R137 R210 R211 R218 R219 R104 R105 R107 R108 R110 R109 R111 R112 R94 R93
47 470

G1 18432KHZ
G3 60MHZ
V2 V7 HSMS2810
V9 BC850B
V10 BCP69-25
G2 3.4V
2300

X340 X341 X21A X21B X21C X21D X63A X63B X59A X59B X58A X58B

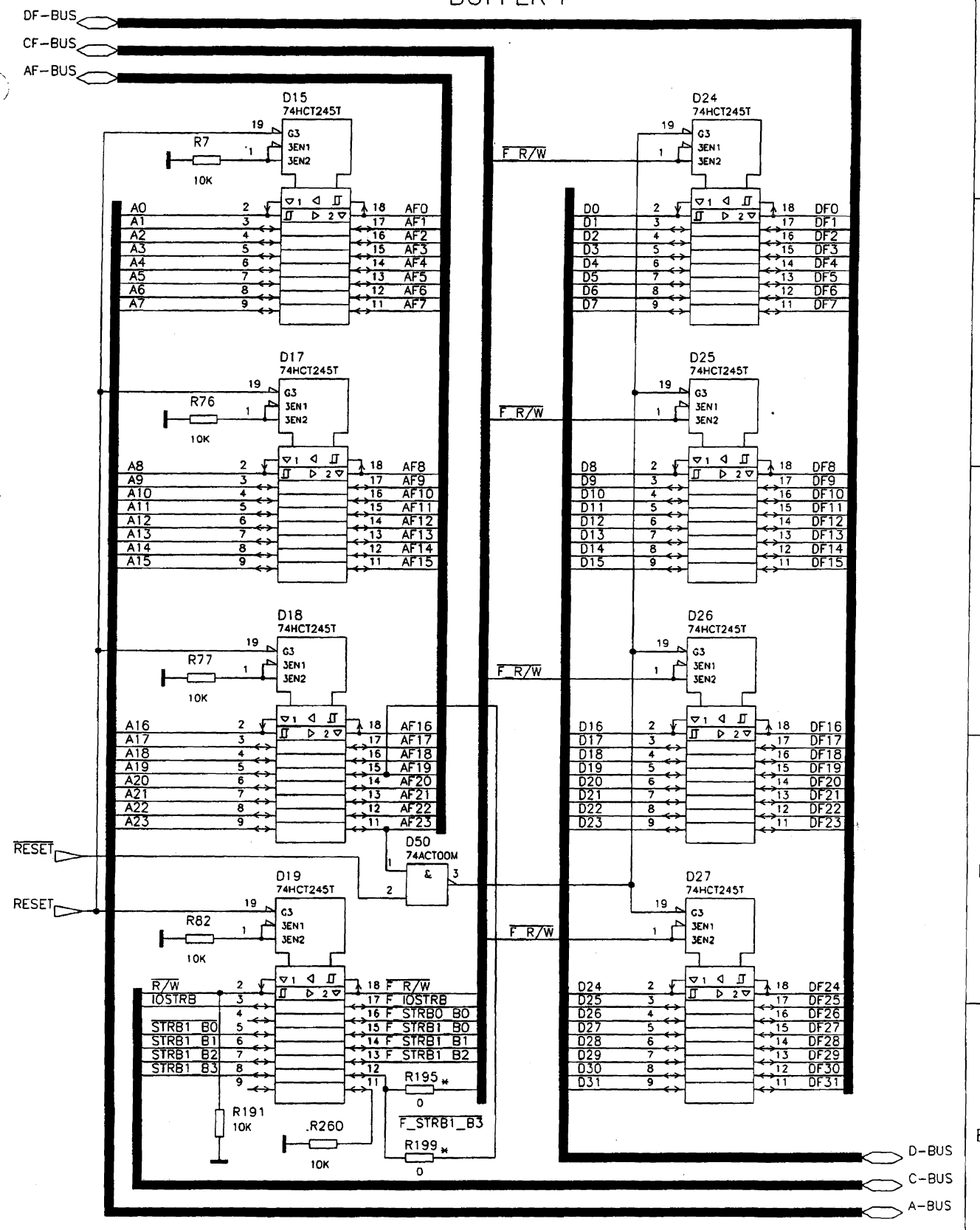
P1 P2 P3 P4 P5 P6 P7 P8 P9 P41 P46 P48 P51 P52 P53 P54 P55 P56 P57 P86 P87 P88

SERINT0 SERINT1 SERINT2 SERINT3
HV2_D0 HV2_D1 HV2_D2 HV2_D3 HV2_D4 HV2_D5 HV2_D6 HV2_D7
DSPINT0 DSPINT1 DSPINT2 DSPINT3
RESET RESET-P RESET WR RD
BOOT RS232EN FIFORESET TESTBATT MCEN MCLK
CLK1 RD1 SERIN1 CD
AB0 AB1 AB2 I00 I01 I02 I03 I04 I05 I06 I07
I0-BUS AB-BUS
AF-BUS DF-BUS CF-BUS C-BUS
+5V +5VA +5VBATT V- PD
KONFIG_DONE SERINTO

LSB AEI LSB VAR

06.00
AEND. IND.
AENDERU MITTEILUN

BUFFER 1



06.00				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		DR	DATENGENERATOR
				GEPR.			DATA_GENERATOR
				NORM			TOP/TOP.2
				PLOTT	99-06-10	DRDORNER	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4560.01 S
							BLATT-NR. 3 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB11			REG.I.V 1085.4502 ERSTE Z. 1085.4502.01

1 2 3 4

4MBIT SRAM VAR02
16MBIT SRAM VAR04

PARPORT

D28 HM628512 /TC551001
D29 HM628512 /TC551001
D30 HM628512 /TC551001
D31 HM628512 /TC551001
D36 74ACT02M
D38 74HCT173T
D39 74HCT173T
D40 74HC138T
D51 74ACT32M

Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

*= variantes BE
** = not fitted

06.00					1GPK	DATUM	NAME	BENENNUNG
					BEARB.		DR	DATENGENERATOR
					GEPR.			DATA_GENERATOR
					NORM			TOP/TOP.3
					PLOTT	99-06-10	DRDORNER	
3					ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4560.01 S
AEND. IND.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME		ZU GERAET	SMIQB11		BLATT-NR. 4 +
					REG.I.V.	1085.4502		ERSTE Z. 1085.4502.01

BUFFER 2

4MBIT SRAM VAR02
16MBIT SRAM VAR04

BUFEN
4MEN
P89
PD
RESET-P
CD
R/W
R/WB
D-BUS
CB-BUS
A-BUS
'O-BUS
C-BUS
D7 74HCT245T
D5 74HCT245T
D8 74HCT245T
D6 74HCT245T
D9 74HCT245T
D11 74HCT245T
D10 74HCT245T
D52 74HC04T
D20 74HC02T
D28 HM628512 /TC551001
D29 HM628512 /TC551001
D30 HM628512 /TC551001
D31 HM628512 /TC551001
D51 74ACT32M
D40 74HC138T
D36 74ACT02M
STRB1B_B0
STRB1B_B1
STRB1B_B2
STRB1B_B3
AB17
AB18
OUTEN
R190 82.5
06.00
AEND. IND.

BEHALTEN WIR UNS ALLE RECHTE VOR

FIFO–FPGA

D12 XC4013E-3C

D16 29F010

D4 74HCT04T

Schematic Text

+5V R17 1K R18 1K R19 1K R20 10K R134 10K R220 4.7K R186 10K R21 10K R221 4.7K R205 10K R83 10K R125 10K R133 10K R135 10K R188 10K R214 10K R215 10K R216 10K R259 0 R189 100

P60 P61 P62 P10 P119 P120 P43 P42 P82 P83 P44 P121 P64 P105 P81 P101 P68 P80 P13 P14 P21 P11 P12 P15 P16 P17 P18 P19 P20 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 P36 P37 P38 P39 P40 P102 P103 P104 P128 P129 P127 P125 P124 P122 P45

IOSTRB RDY PROGRAMM AD2 /CS1 AD0 /WS

FIFORESET DSPINT2 DSPINT1 DSPINT0 MCLK SERINT3 SERINT1 SERINT2 SYNCTEST

RESET DATAINT SWITCHINT STARTINT MCLK SYNCERROR DATAERROR SWITCHERROR FIFOERROR SYNCTEST

DSPDATA 0 … DSPDATA 31

DSPADR 0 … DSPADR 23

STRB1_B0 R/W SEREN CHIPSEL 0 … CHIPSEL 9 WR RD

4MEN 8MEN1 8MEN2 BUFEN WR RD RS232EN

A-BUS C-BUS

DATA 0 … DATA 7 SWITCH 0 … SWITCH 5 TRIGIN SYMBCLK TRIGCLK SYMBSTR TRIGOUT 3 (DOUT) (CCLK) (LDC)

TDO TDI TCK TMS TESTP 0 … TESTP 29

R74 Z27 7.5DB R73 B20 X340 DATA_DGEN_D0 B1 X340 GND

R59 Z19 7.5DB R106 B21 X340 DATA_DGEN_D1 B2 X340 GND

R61 Z21 7.5DB R62 B22 X340 DATA_DGEN_D2

R64 Z22 7.5DB R63 B23 X340 DATA_DGEN_D3 B7 X340 GND

R65 Z23 7.5DB R66 B24 X340 DATA_DGEN_D4

R67 Z24 7.5DB R68 B25 X340 DATA_DGEN_D5 B8 X340 GND

R69 Z25 7.5DB R70 B26 X340 DATA_DGEN_D6

R71 Z26 7.5DB R72 B27 X340 DATA_DGEN_D7 B12 X340 GND

R56 Z18 7.5DB R57 B10 X340 TRIGOUT1

R54 Z17 7.5DB R55 B11 X340 TRIGOUT2 B13 X340 GND

R52 Z16 7.5DB R53 A2 X340 HOP

R50 Z15 7.5DB R51 B16 X340 CW_DGEN B14 X340 GND

R48 Z14 7.5DB R49 B17 X340 LEV_ATT_DGEN

R47 Z13 7.5DB R60 B18 X340 BURST_GATE_DGEN B19 X340 GND

R32 Z12 7.5DB R33 B15 X340 TRIGIN_DGEN

R31 Z11 2.5DB R30 B32 X340 DATACLK_DGEN

R29 Z10 7.5DB R28 A20 X340 READY_DGEN

R26 Z20 7.5DB R27 B30 X340 SYMBSTR_DGEN B31 X340 GND

R25 Z9 7.5DB R24 B9 X340 TRIGOUT 3

R213 Z33 7.5DB R212 B4 X340 DONE

V6 V5 V4 BAV99

READY DONE

Revision Block

AEND. IND.	AENDERUNGS–MITTEILUNG	DATUM	NAME
06.00			

Title Block

	DATUM	NAME
1GPK		
BEARB.		DR
GEPR.		
NORM		
PLOTT	99–06–10	DRDORNER

BENENNUNG

DATENGENERATOR

DATA_GENERATOR

TOP/TOP.4

ROHDE&SCHWARZ

ZEICHN.–NR. 1085.4560.01 S

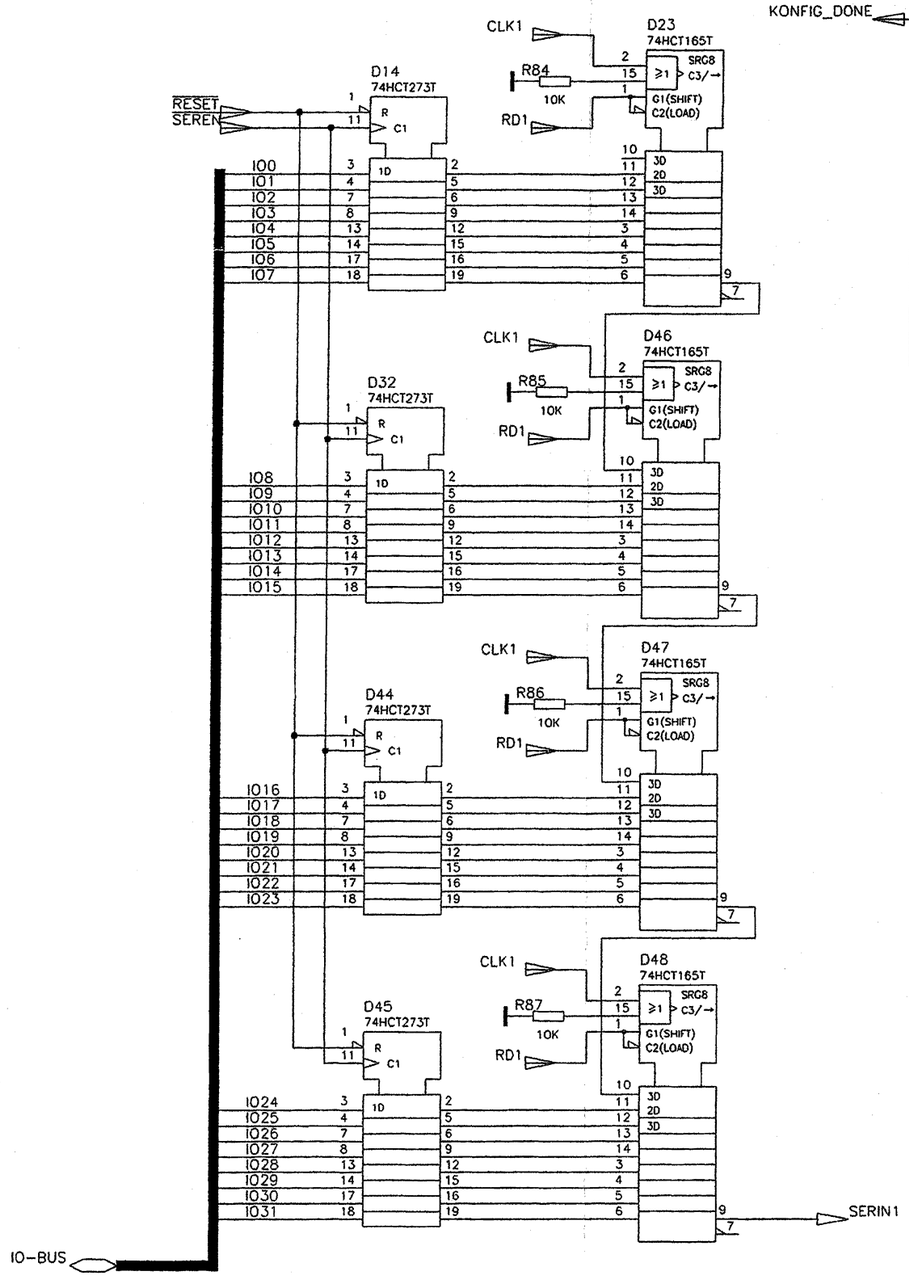
BLATT–NR. 5 +

ZU GERAET SMIQB11

REG.I.V. 1085.4502

ERSTE Z. 1085.4502.01

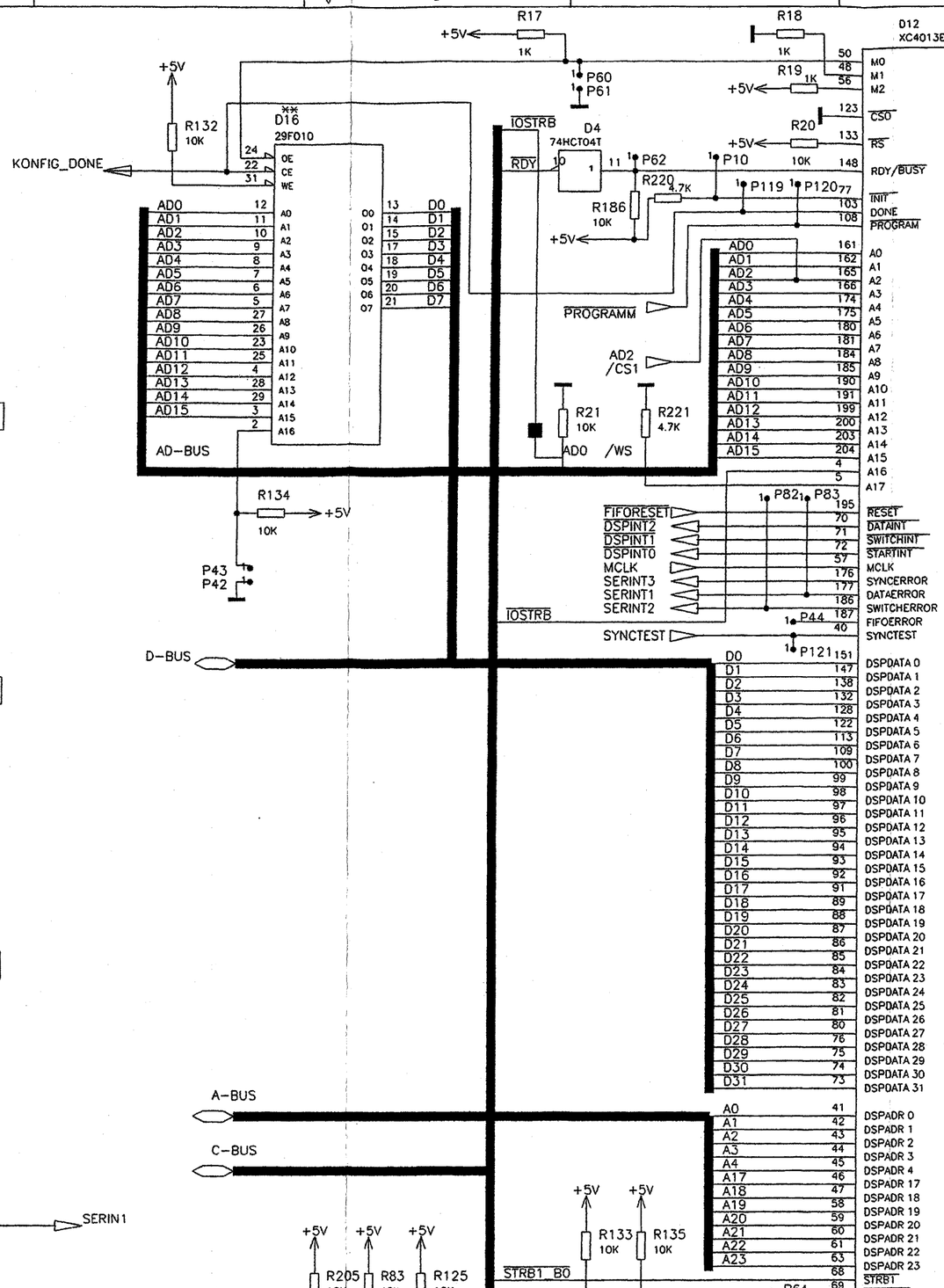
SERIAL OUTPUT DATA REGISTER

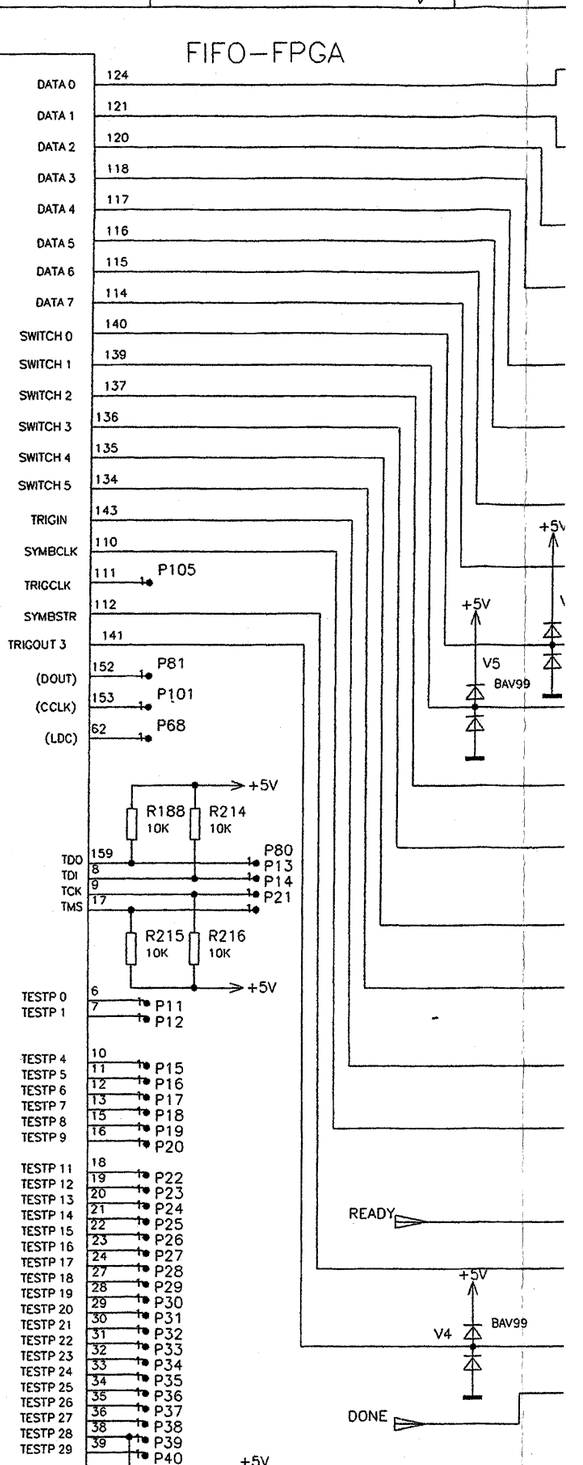


Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

** = not fitted

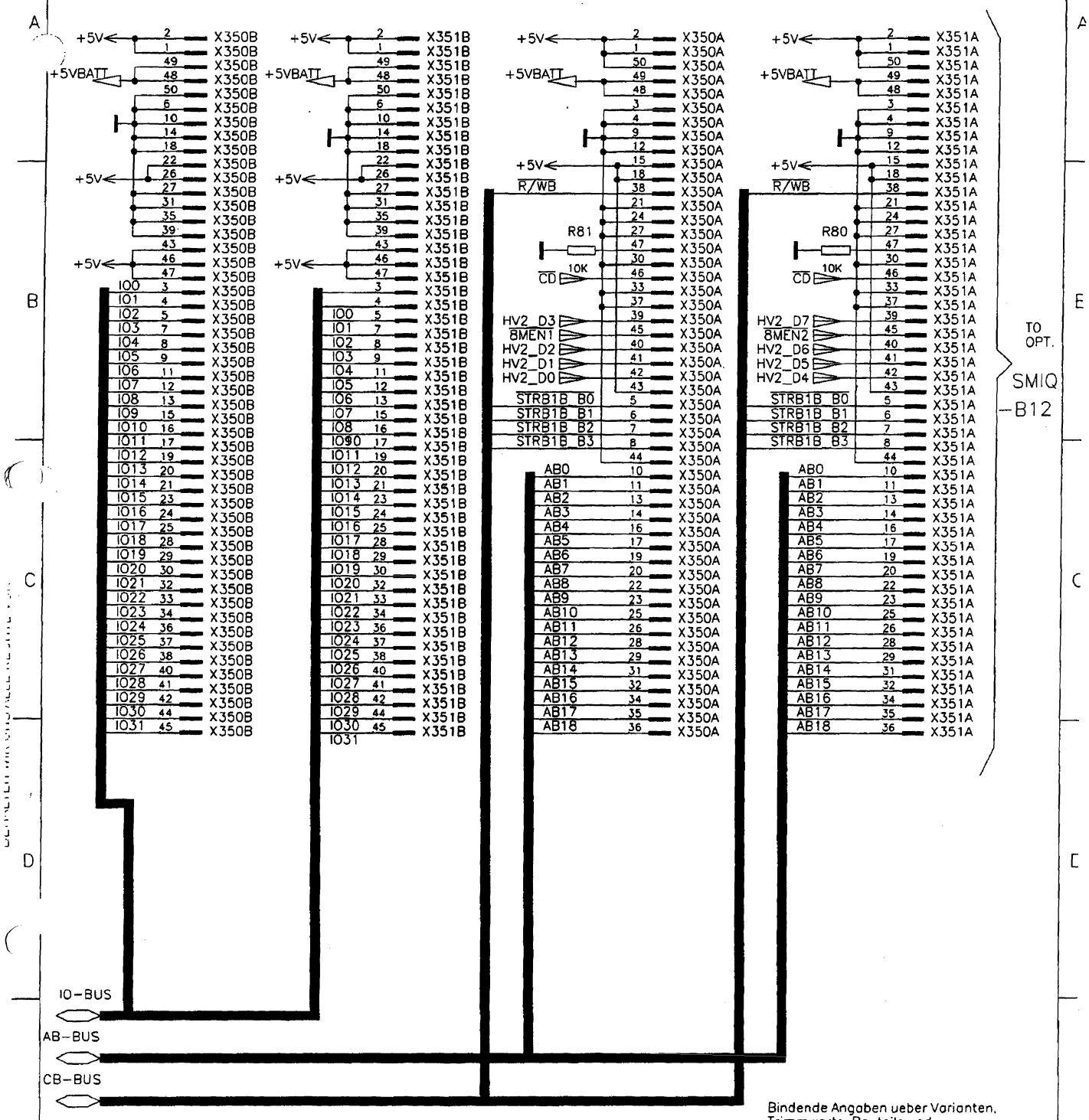




AEND. IND.	AENDERU MITTEILU
06.00	

BEHALTEN WIR UNS ALLE RECHTE VOR

DMXT INTERFACE (OPTION SMIQ-B12)



Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

** = not fitted

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
06.00			

	DATUM	NAME
1GPK		
BEARB.		DR
GEPR.		
NORM		
PLOTT	99-06-10	DRDORNER

BENENNUNG

DATENGENERATOR

DATA_GENERATOR

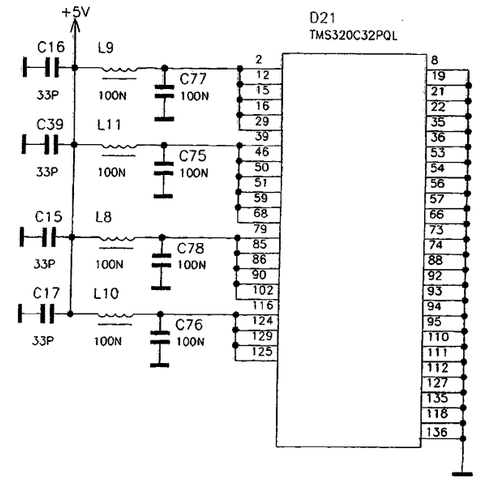
TOP/TOP.5

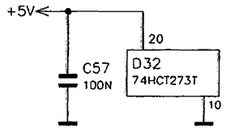
ROHDE&SCHWARZ

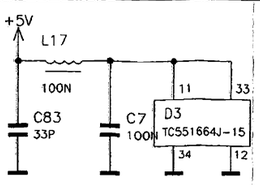
ZEICHN.-NR. 1085.4560.01 S

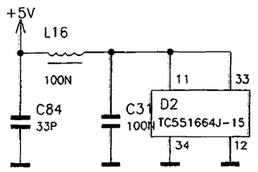
BLATT-NR. 6 +

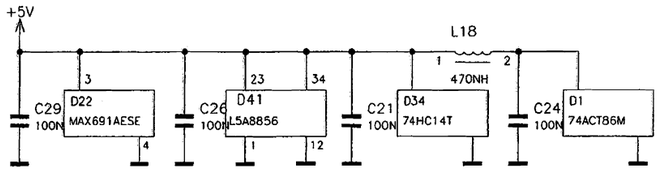
ZU GERAET SMIOB11 | REG.I.V 1085.4502 | ERSTE Z. 1085.4502.01

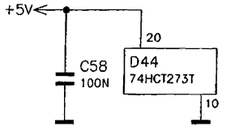


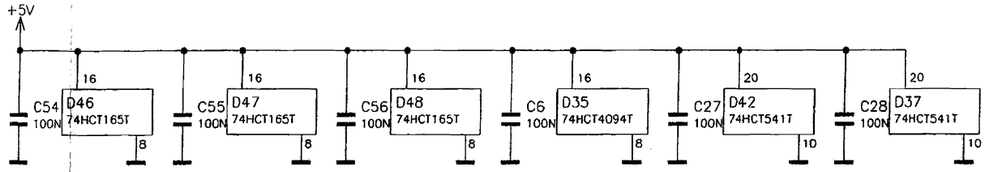


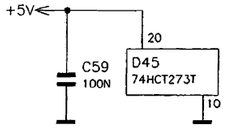


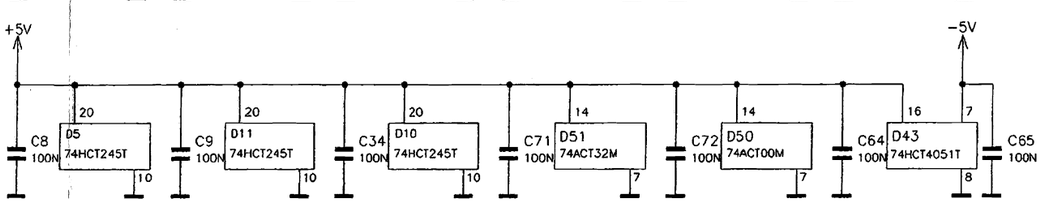


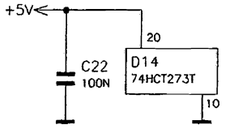


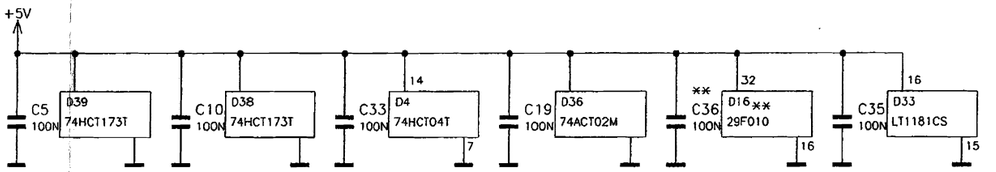


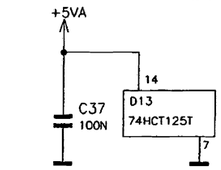


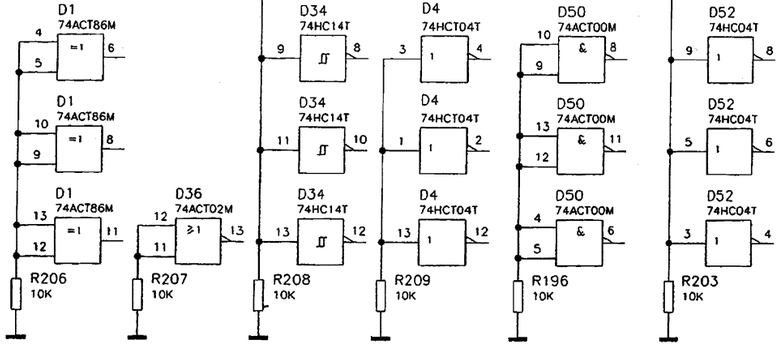


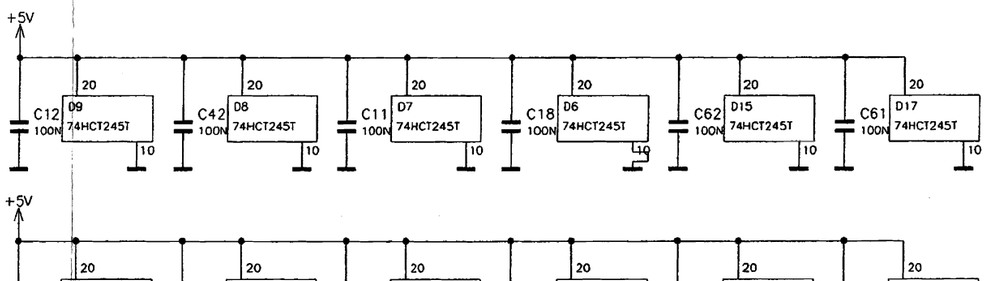


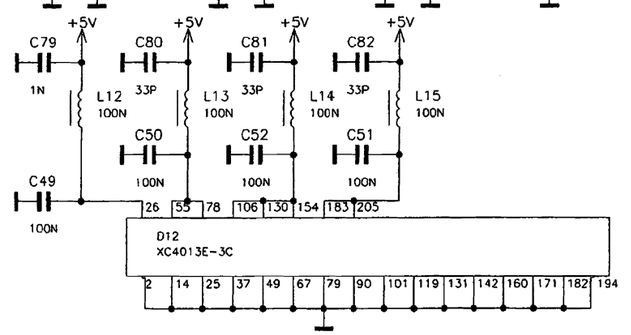


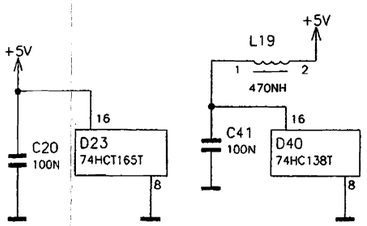


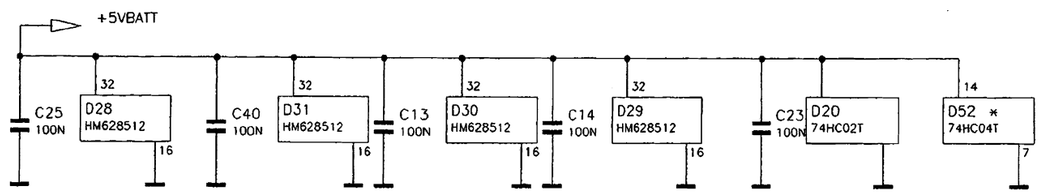












Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bauteile siehe SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

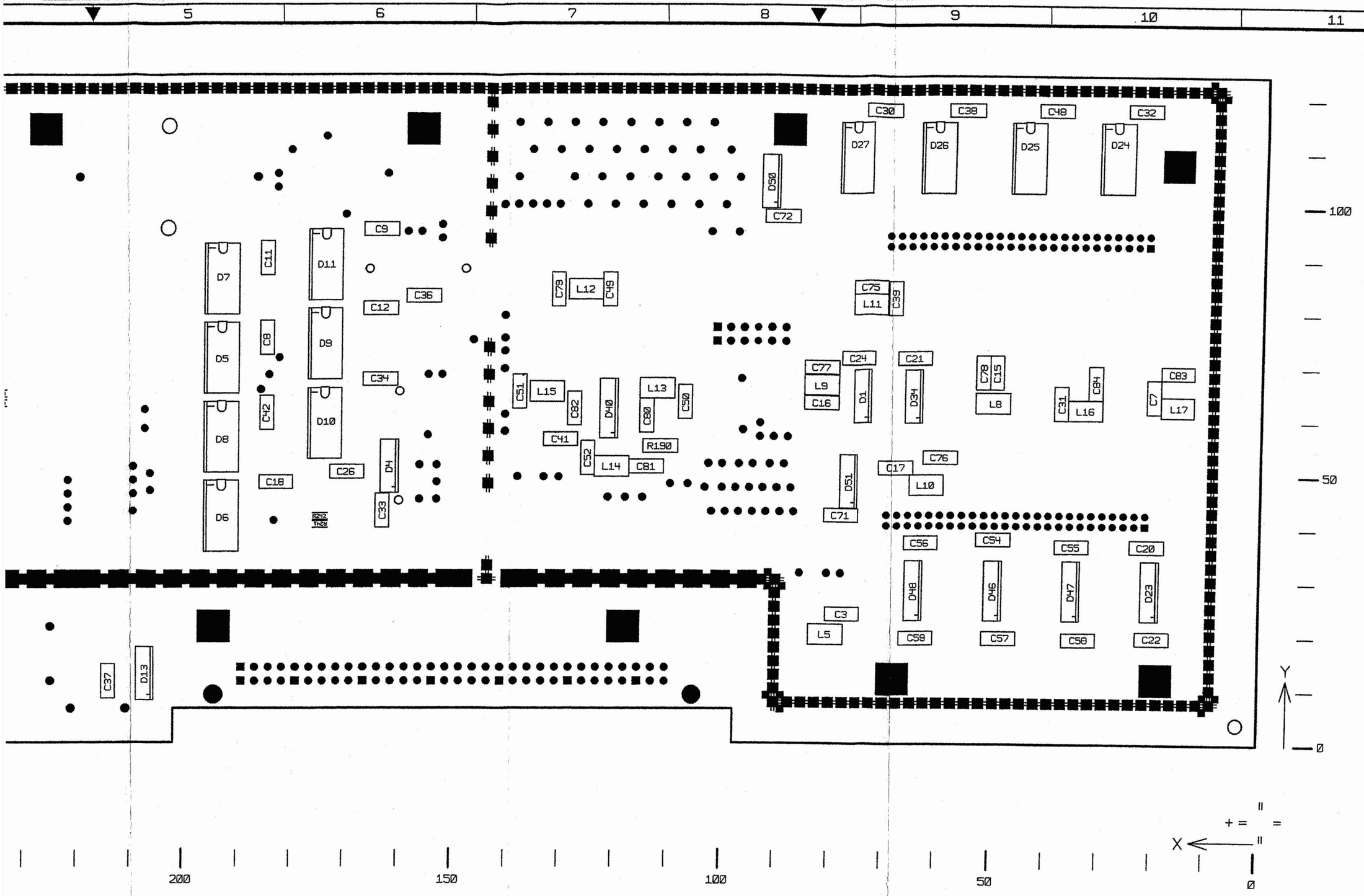
** = not fitted

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

06.00				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		DR	DATENGENERATOR
				GEPR.			DATA_GENERATOR
				NORM			TOP/TOP.6
				PLOTT	99-06-10	DRDORNER	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1085.4560.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQB11			REG.I.V. 1085.4502 ERSTE Z. 1085.4502.01

BLATT-NR. 7 +

BEHALTEN WIR UNS ALLE RECHTE VOR



ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

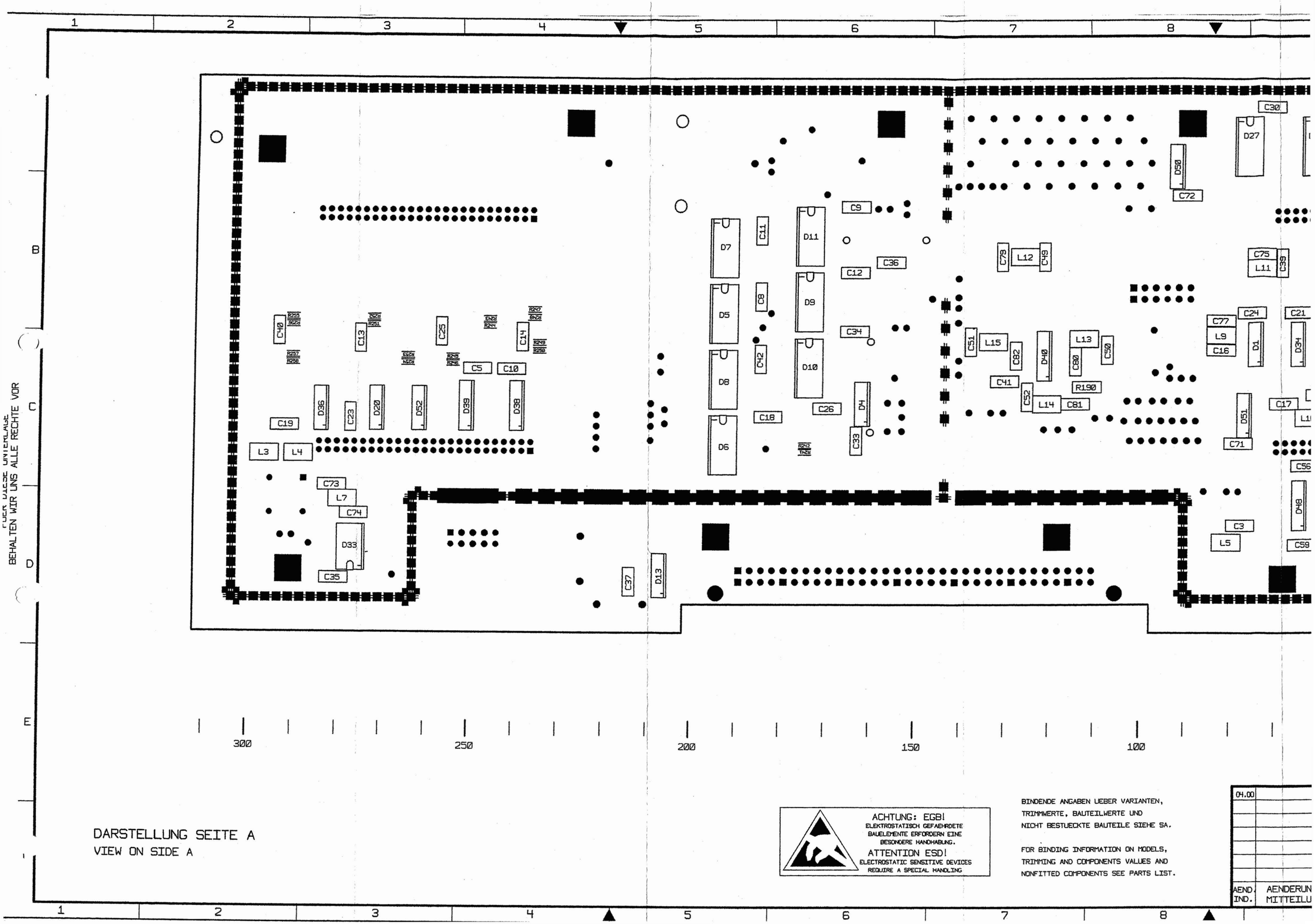
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
04.00			DR

1GPK	DATUM	NAME
BEARB.		DR
GEPR.		DR
NORM		
PLOTT	13.10.97	DORNER

ROHDE&SCHWARZ
ZU GERAET SMIQB11

BENENNUNG
DATENGENERATOR
DATA_GENERATOR

ZEICHN.-NR. 1085.4560.01 D
BLATT-NR. 2-
V. BL.
REG.I.V. 1085.4502
ERSTE Z. 1085.4502



DARSTELLUNG SEITE A
VIEW ON SIDE A

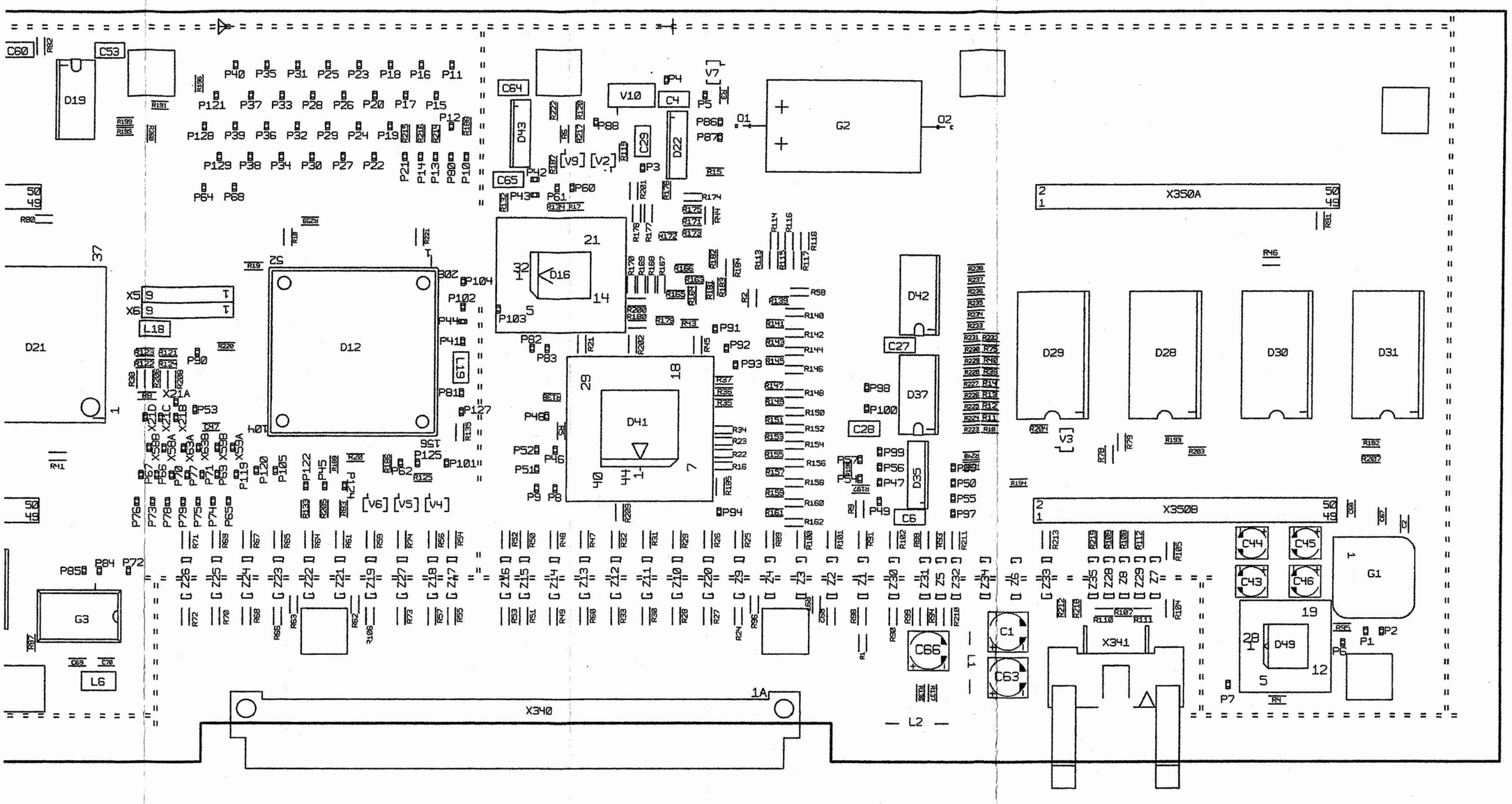
ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

04.00	
AEND. IND.	AENDERUN MITTEILU

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR



ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
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ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
04.00			DR

1GPK	DATUM	NAME
BEARB.		DR
GEPR.		DR
NORM		
PLOTT	13.10.97	DORNER

ROHDE&SCHWARZ
ZU GERAET SMIQB11

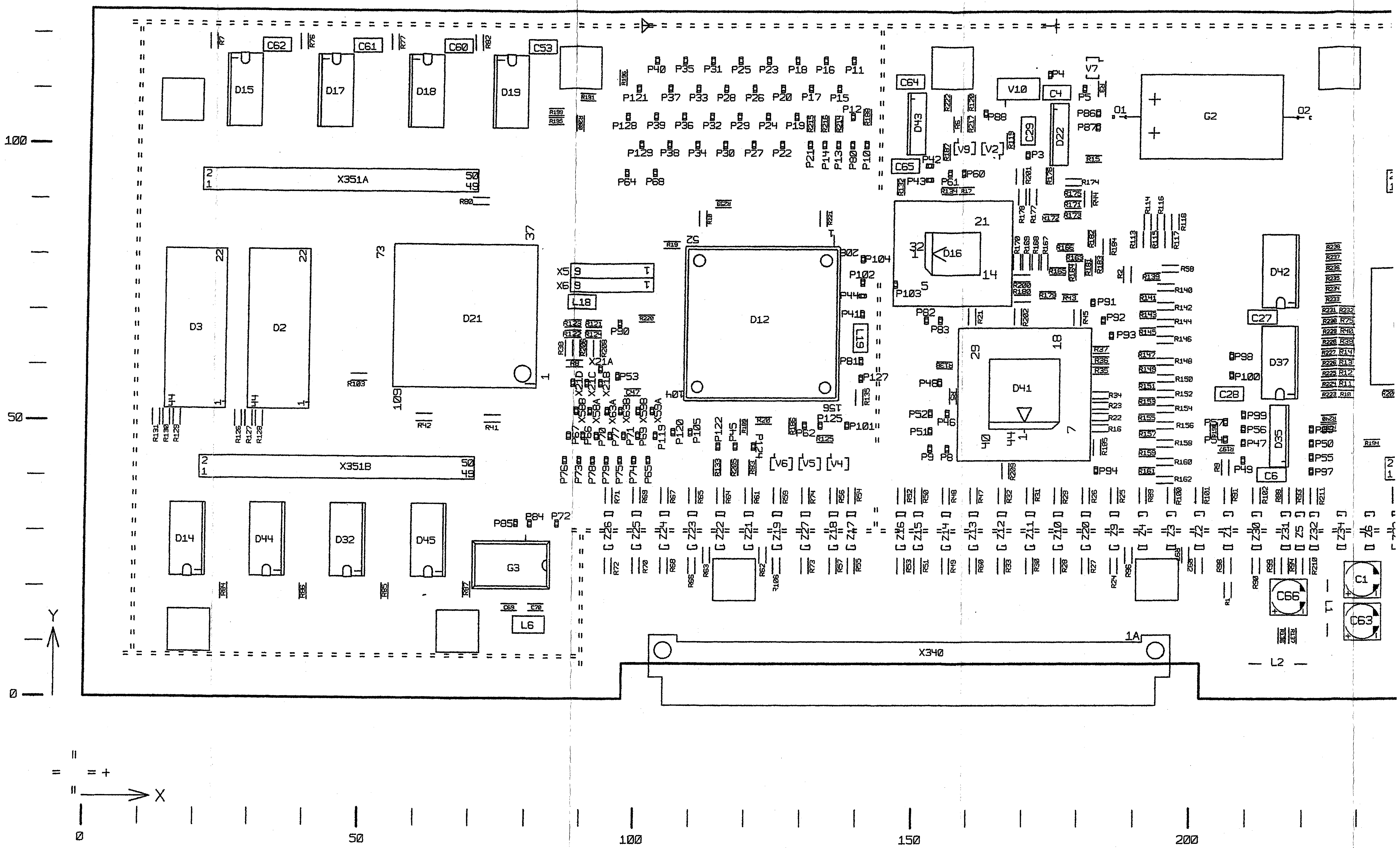
BENENNUNG
DATENGENERATOR
DATA_GENERATOR

ZEICHN.-NR.
1085.4560.01 D

BLATT-NR. 1+
V. BL.

REG.I.V. 1085.4502
ERSTE Z. 1085.4502

BEHALTEN WIR UNS ALLE RECHTE VOR



DARSTELLUNG SEITE B
VIEW ON SIDE B

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

04.00	
AEND. IND.	AENDERUNG MITTEILUN

ROHDE&SCHWARZ

Schaltteillisten
numerisch geordnet

Part lists
in numerical order

Listes des pièces détachées
par numéros de référence

095.1000 Bl. 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
.	XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS				
C1	CC 33NF+-10% 25V HDK 0603	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
..8	SMD CERAMIC CAPACITOR				
C9	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR NUR VAR/ONLY MOD: 02	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
C10	CC 33NF+-10% 25V HDK 0603 SMD CERAMIC CAPACITOR	CC 1051.4697.00	AVX	CM105X7R333K25VAT	
D1	BL PC74HCT04T 6XINVERT HEXINVERTER NUR VAR/ONLY MOD: 02	BL 0007.5372.00	PHILIPS_SE	(PC)74HCT04(D/T)	
D2	BC TC551001FL 128KX8 SRAM STATIC RAM 128KX8 NUR VAR/ONLY MOD: 02	BC 1046.3938.00	SAMSUNG	KM681000(B/C)LG-7	
..2					
..9					
D9	BC HM628512L 512KX8 SRAM IC STATIC RAM 512KX8 NUR VAR/ONLY MOD: 04	BC 2068.9193.00	SAMSUNG	KM684000(B/C)LG-7	
D10	BL PC74HC138T LINE DECOD LINE DECODER	BL 0007.3534.00	PHILIPS_SE	(PC)74HC138D(T)	
R1	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R2	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..7					
R8	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..10	SMD RESISTOR EIA0603				
R11	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R12	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R13	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R14	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
..17					
R18	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 02	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R19	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603 NUR VAR/ONLY MOD: 04	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
X350A	FP BUCHSENLEISTE 50P. SMD CONNECTOR 50P SMD	FP 1065.8702.00	3M	150250-2020TB	
X350B	FP BUCHSENLEISTE 50P. SMD CONNECTOR 50P SMD	FP 1065.8702.00	3M	150250-2020TB	

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1GPK 854 3PLU	Äi	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	05	12.08.99	EE SPEICHERERWEITERUNG MEMORY EXTENSION	1085.2845.01 SA	1-

095.0026-0893

ROHDE&SCHWARZ

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

el. Kennz.	**Bauelement-Kennzeichen**
Seite	**Leiterplatten-Seite, auf der sich das Bauelement befindet**
X/Y	**Koordinaten (in Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt**
Planq., Bl.	**Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement**

Explanation of column designations:

Part	**Identification of instrument part**
Side	**Side of the PC board on which instrument part is positioned**
X/Y	**Coordinates (in units of millimeters) of the component on the PC board in reference to zero point**
Sqr, Pg	**Square and page of the diagram for the respective instrument part**

Nicht–Service–Relevante Bauteile / Non–Service–Relevant Components

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
C1	B	63	30	2F	1
C2	B	4	30	1F	1
C3	B	46	30	2F	1
C4	B	38	30	3F	1
C5	B	30	30	4F	1
C6	B	54	30	3F	1
C7	B	13	30	5F	1
C8	B	21	30	4F	1
C9	B	70	35	6F	1
C10	B	69	15	6F	1
D1	B	74	38	4B	1
D1	B	74	38	4C	1
D1	B	74	38	4C	1
D1	B	74	38	4C	1
D1	B	74	38	4E	1
D1	B	74	38	4E	1
D1	B	74	38	6F	1
D2	B	16	33	1F	1
D2	B	16	33	5A	1

el. Kennz *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
D3	B	16	9	2F	1
D3	B	16	9	5C	1
D4	B	33	33	2F	1
D4	B	33	33	6A	1
D5	B	33	9	3F	1
D5	B	33	9	6C	1
D6	B	50	33	3F	1
D6	B	50	33	8A	1
D7	B	50	9	4F	1
D7	B	50	9	8C	1
D8	B	67	33	4F	1
D8	B	67	33	9A	1
D9	B	67	9	5F	1
D9	B	67	9	9C	1
D10	B	74	18	4A	1
D10	B	74	18	7F	1
R1	B	8	54	3B	1
R2	B	72	35	4B	1
R3	B	74	34	4C	1

el. Kennz. *Part*	Seite *Side*	X	Y	Planq. *Sqr*	Bl. *Pg*
R4	B	71	32	4C	1
R5	B	70	56	4C	1
R6	B	69	48	3E	1
R7	B	71	48	4E	1
R8	B	74	14	4A	1
R9	B	71	14	3A	1
R10	B	72	14	3A	1
R11	B	8	57	4B	1
R12	B	12	55	4B	1
R13	B	12	58	4B	1
R14	B	70	29	4B	1
R15	B	73	30	4C	1
R16	B	73	55	4C	1
R17	B	74	53	4D	1
R18	B	68	55	3C	1
R19	B	74	48	3C	1
X350A	B	17	58	3A	1
X350B	B	17	6	2B	1

ROHDE & SCHWARZ	Benennung: *Designation:* EE SPEICHERERWEITERUNG MEMORY_EXTENSION	Sprache: *Lang.:* de	Blatt: *Sh.:* 1 –	Aei: *C.I.:* 03.01
Typ: *Type:* SMIQB12	Datum: *Date:* 98–01–08	Abteilung: *Dpt:* 1GPK	Name: *Name:* HM	Sachnr.: *Part No.:* **1085.2845.01 XY**

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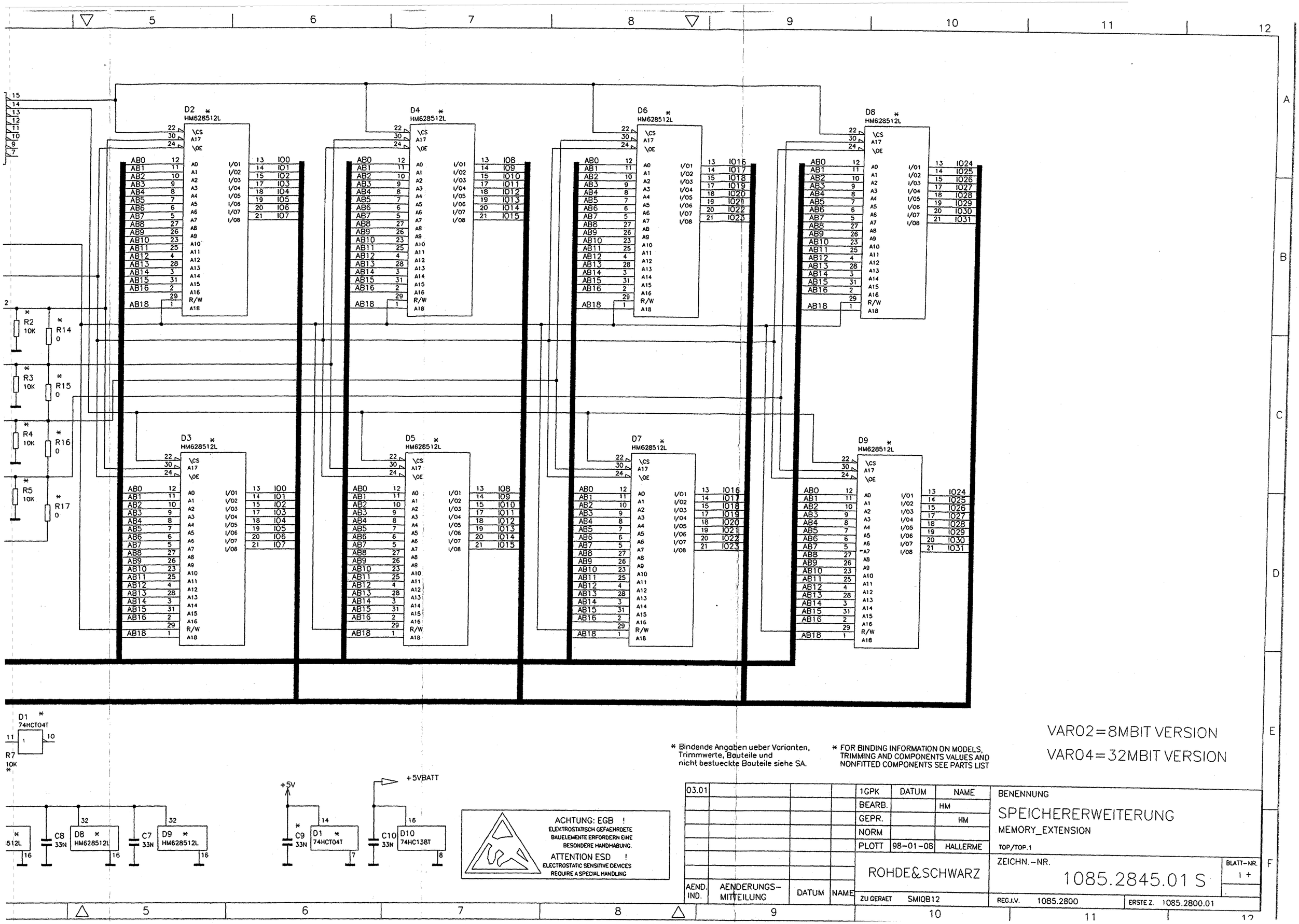
ROHDE&SCHWARZ

Stromläufe
Bestückungspläne

Circuit diagrams
Component plans

Schémas de circuit
Plans des composants

095.1000 Bl. 4



* Bindende Angaben ueber Varianten, Trimmwerte, Bauteile und nicht bestueckte Bauteile siehe SA.

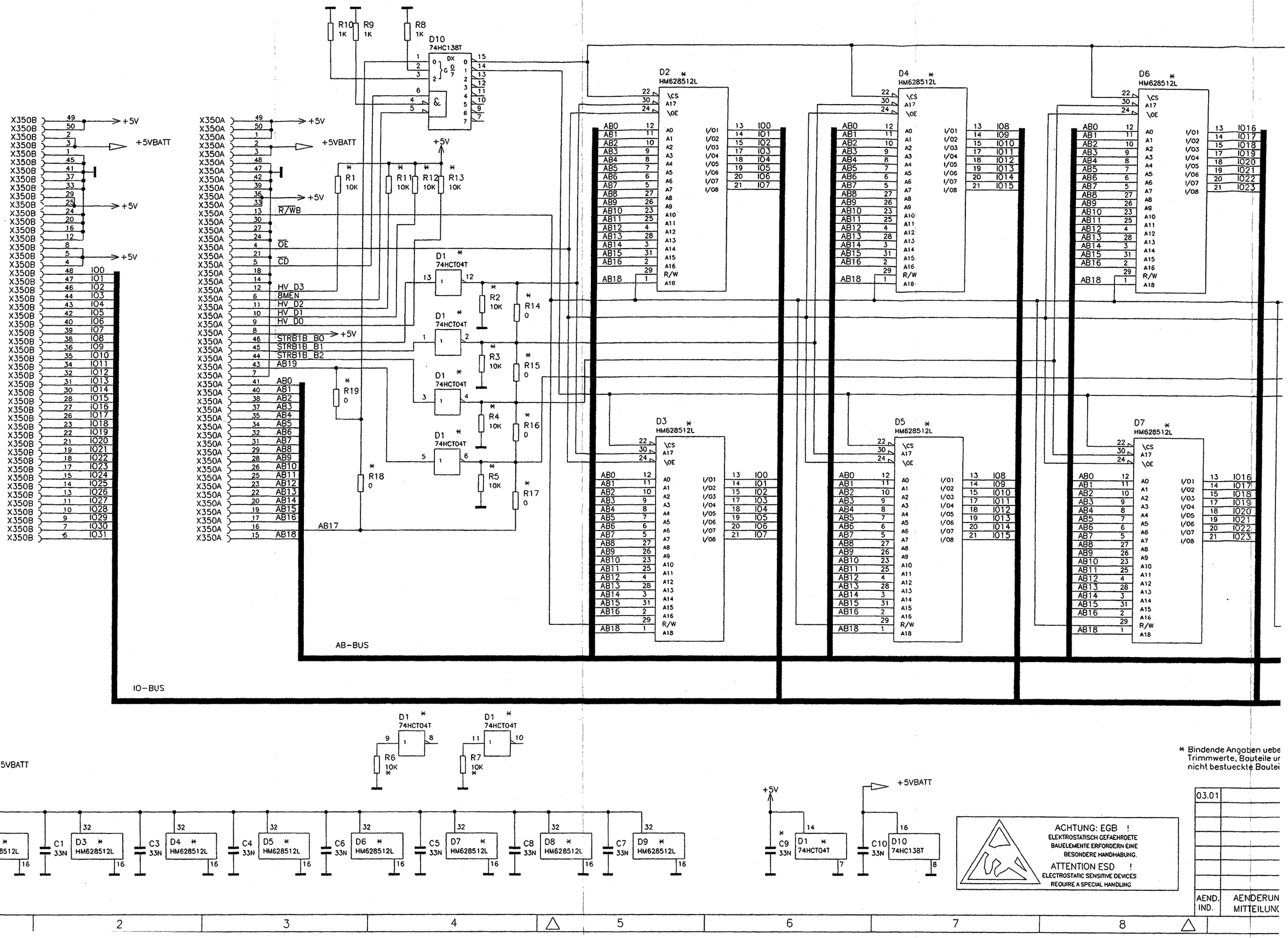
* FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

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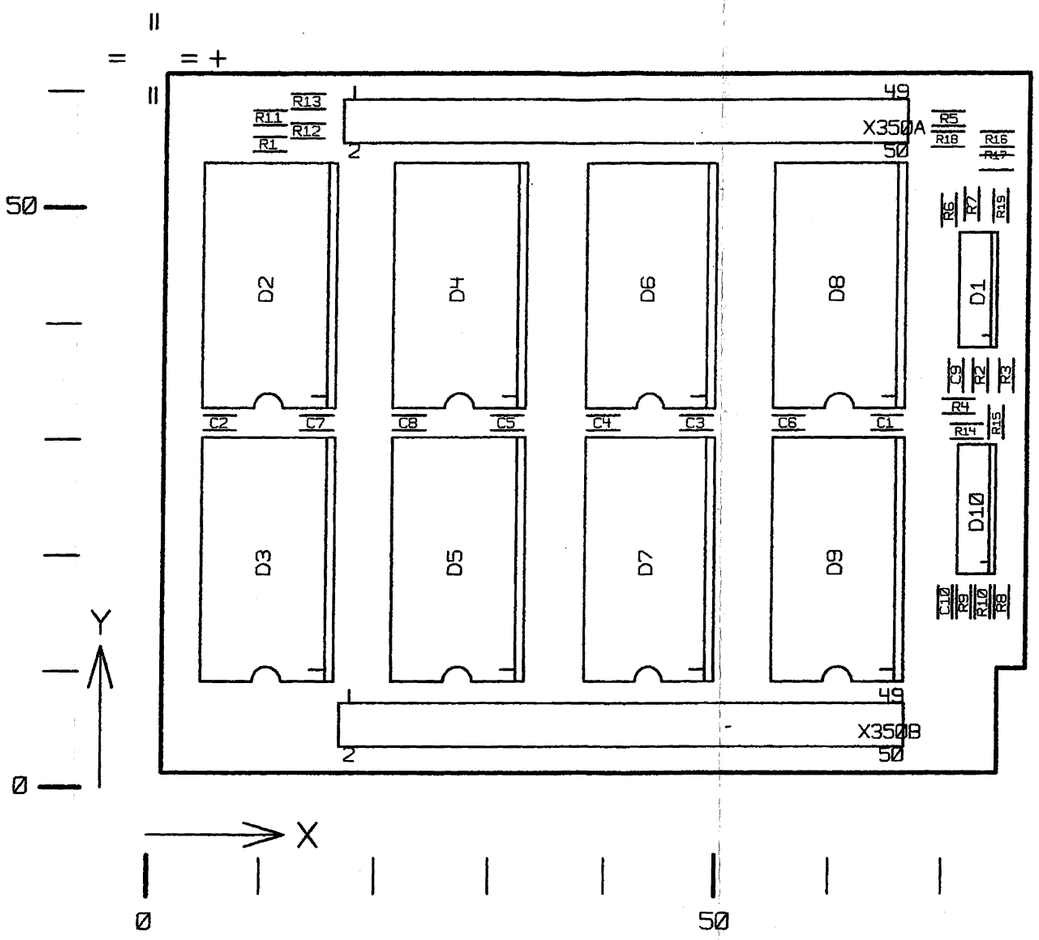
VAR04=32MBIT VERSION

03.01				1GPK	DATUM	NAME	BENENNUNG
				BEARB.		HM	SPEICHERERWEITERUNG
				GEPR.		HM	MEMORY_EXTENSION
				NORM			TOP/TOP.1
				PLOTT	98-01-08	HALLERME	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1085.2845.01 S
				ZU GERAET SMIQB12			REG.I.V. 1085.2800 ERSTE Z. 1085.2800.01

BLATT-NR. 1 +


X350B
X350A
+5V
+5VBATT
R/WB
OE
CD
HV_D3
8MEN
HV_D2
HV_D1
HV_D0
STRB1B_B0
STRB1B_B1
STRB1B_B2
AB19
AB17
R10 1K
R9 1K
R8 1K
D10 74HC138T
R1 10K
R11 10K
R12 10K
R13 10K
D1 74HCT04T
R2 10K
R3 10K
R4 10K
R5 10K
R14 0
R15 0
R16 0
R17 0
R18 0
R19 0
D2 HM628512L
D3 HM628512L
D4 HM628512L
D5 HM628512L
D6 HM628512L
D7 HM628512L
AB-BUS
IO-BUS
R6 10K
R7 10K
C1 33N
C2 33N
C3 33N
C4 33N
C5 33N
C6 33N
C7 33N
C8 33N
C9 33N
D8 HM628512L
D9 HM628512L
D10 74HC138T
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING
* Bindende Angaben uebe
Trimmwerte, Bauteile ur
nicht bestueckte Bautei
03.01
AEND. IND.
AENDERUN
MITTEILUNG

BEHALTEN WIR UNS ALLE RECHTE VOR



DARSTELLUNG SEITE B
VIEW ON SIDE B

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
03.01			

	DATUM	NAME
1 GPK		
BEARB.		HM
GEPR.		HM
NORM		
PLOTT	98-01-08	HALLERME

ROHDE&SCHWARZ
ZU GERAET SM1QB12

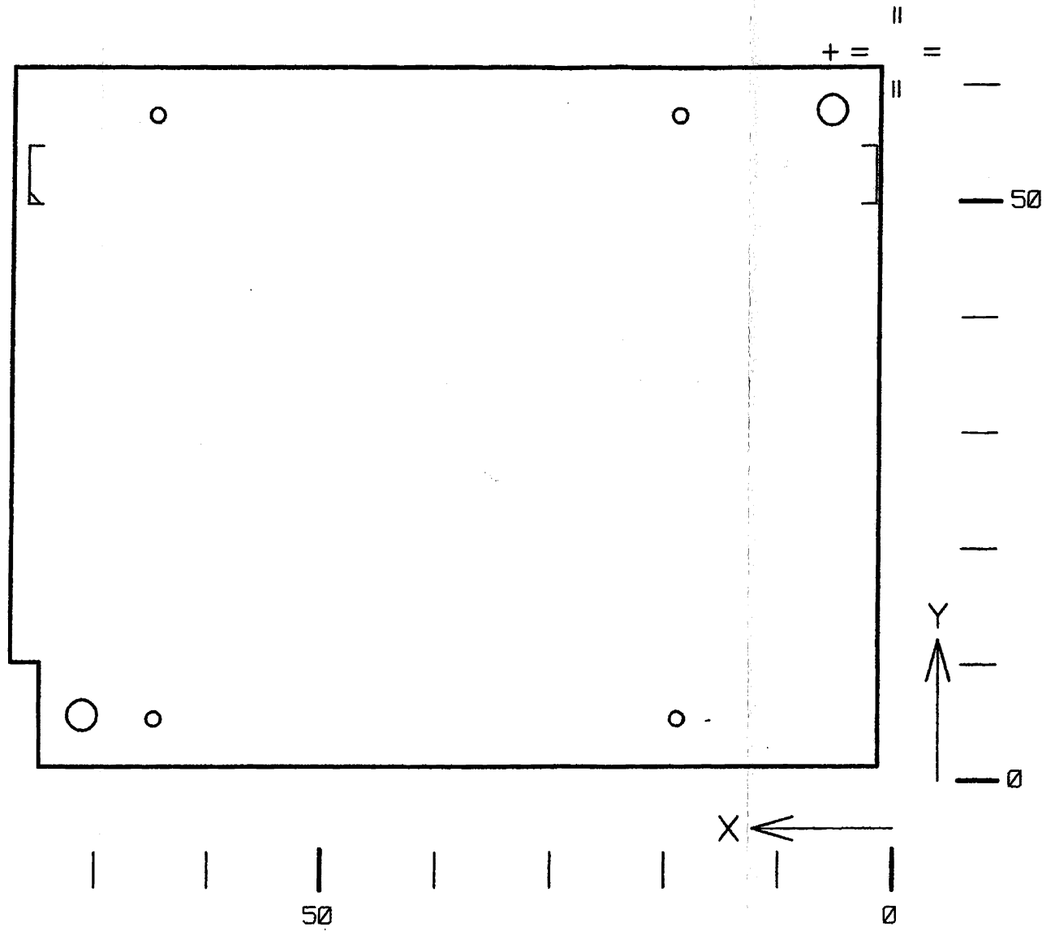
BENENNUNG
SPEICHERERWEITERUNG
MEMORY_EXTENSION

ZEICHN.-NR.
1085.2845.01 D

BLATT-NR. 1+
V. BL.

REG.I.V. 1085.2800
ERSTE Z. 1085.2800

BEHALTEN WIR UNS ALLE RECHTE VOR



DARSTELLUNG SEITE A
VIEW ON SIDE A

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
03.01			

	1GPK	DATUM	NAME
BEARB.			HM
GEPR.			HM
NORM			
PLOTT	98-01-08		HALLERME

ROHDE&SCHWARZ
ZU GERAET SMIQB12

BENENNUNG
SPEICHERERWEITERUNG
MEMORY_EXTENSION

ZEICHN.-NR.
1085.2845.01 D

BLATT-NR. 2-
V. BL.

REG.I.V. 1085.2800
ERSTE Z. 1085.2800

ROHDE&SCHWARZ

SERVICEUNTERLAGEN

Baugruppe RAUSCHGENERATOR UND VERZERRUNGSIMULATOR

1104.9080.02

Inhaltsverzeichnis

7. Prüfen und Instandsetzen der Baugruppe 5
7.1 Funktionsbeschreibung 5
7.2 Servicekonzept 5
7.3 Meßgeräte und Hilfsmittel 5
7.4 Fehlersuche 5
7.4.1 Laden der FPGAs nach dem Einschalten 5
7.4.2 Selbsttest 6
7.4.2.1 Test der Versorgungsspannungen 6
7.4.2.2 RAM-Adreßtest 6
7.4.2.3 ADC-Eingänge des DISTO1-FPGA (D5) 7
7.4.2.4 DAC-Ausgänge des NOISE-FPGA (D40) 7
7.4.2.5 Test des Überbrückungspfades 7
7.4.2.6 Test der Signalpfadeingänge 7
7.4.2.7 Test der Signalpfadausgänge 8
7.4.2.8 ADC/DAC Loop Back Test 8
7.4.2.9 DC-Offsetkompensation 8
7.4.2.10 Fehlermeldungen des Selbsttests 8
7.4.3 Zusätzliche Prüfungen 10
7.5 Prüfen und Abgleichen 12
7.5.1 Änderungszustand 12
7.5.2 Steckbrücken 12
7.5.3 Diagnosepunkte 13
7.5.4 DC-Offsetkompensation 13
7.5.4.1 ADC-Offsetkompensation 13
7.5.4.2 DAC-Offsetkompensation 13
7.5.4.3 Fehlermeldungen der Offsetkompensation 13
7.6 Zerlegung und Zusammenbau 14
7.7 Externe Schnittstellen 15
7.7.1 Schnittstelle zum Motherboard 15
7.7.2 Koaxiale Schnittstellen 17

Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

Die Baugr. "Rauschgenerator und Verzerrungssimulator " (engl.: Noisegenerator and Distortionsimulator, Option SMIQB17, kurz NDSIM) kann optional in das komplexe Modulationssignal (I und Q) des SMIQ eingeschleift werden. Dabei kann das Modulationssignal, je nach Ausstattung und Betriebsart, von der Baugruppe Modulationscoder (Option SMIQB10, kurz MCOD), von einer externen Quelle oder von der Baugr. Fadingsimulator (Option SMIQB14, kurz FSIM) kommen. Bei eingeschaltetem NDSIM wird das analoge Eingangssignal digitalisiert (AD-Wandler), entsprechend dem gewählten Rauschen oder der gewählten Verzerrung rein digital beeinflusst und abschließend durch DA-Wandler wieder in ein komplexes Analogsignal gewandelt. Das komplexe Ausgangssignal (I und Q) wird zum IQ-Modulator (Baugr. IQMOD) und zur AUX-Buchse an der Rückwand geführt.

7.2 Servicekonzept

Die Baugruppe ist eine komplexe Hybridschaltung mit überwiegendem Digitalteil. Eine genaue Fehlerdiagnose auf Bauteilebene bzw. Instandsetzung ist daher in den Niederlassungen oder direkt beim Kunden nicht möglich. Eine als defekt erkannte Baugruppe muß durch eine Ersatzbaugruppe ersetzt werden. Die defekte Baugruppe ist der Fertigung zur genaueren Diagnose und Fehlerbehebung zu überlassen.

Das gleiche gilt für den Abgleich.

Entsprechend ist dieses Dokument aufgebaut. Es soll den Servicetechniker in die Lage versetzen, eindeutig eine defekte oder falsch abgeglichene Baugruppe zu erkennen.

7.3 Meßgeräte und Hilfsmittel

• Spektrumanalysator, Frequenzbereich	z.B. FSA, FSE
• Signalgenerator (100 kHz ... 5 MHz)	z.B. ADS
• Gleichspannungsquelle (50 Ohm Last)	z.B. ADS
• DC-Spannungsmesser (50 Ohm Last)	z.B. URE

7.4 Fehlersuche

Bei Verdacht auf ein Fehlverhalten des NDSIM, ist zuerst der Selbsttest aufzurufen.

- Einstellungen: **UTILITIES :TEST :TEST NDSIM**

7.4.1 Laden der FPGAs nach dem Einschalten

Nach dem Einschalten werden die drei FPGAs auf der Baugruppe über die Serbus-Schnittstelle von der Baugruppe RECHNER geladen. War der Ladevorgang nicht erfolgreich, erscheint die flüchtige Fehlermeldung "**ERROR 420 NDSIM FPGA loading failed**", die anschließend in die statische "Error Page" eingetragen wird.

7.4.2 Selbsttest

Der gesamte Selbsttest setzt sich aus mehreren Teilen zusammen, die nacheinander abgearbeitet werden. Tritt in einem der Selbsttestabschnitte ein Fehler auf, dann wird der Rest des Selbsttests nicht mehr bearbeitet, da jeder Selbsttestabschnitt den fehlerfreien Ablauf der vorhergehenden Abschnitte voraussetzt (z.B. ist es nicht sinnvoll, den NDSIM internen Selbsttest anzustoßen, wenn nicht alle Versorgungsspannungen korrekt gemessen werden konnten).

7.4.2.1 Test der Versorgungsspannungen

Die Versorgungsspannungen des NDSIM werden zum Teil extern (über Siebglieder) zugeführt und zum Teil auf der Baugruppe aus diesen externen Spannungen abgeleitet. Über den Diagnose Multiplexer (D47) können die Spannungen auf den DIAG-5V-Meßbus (X600.A19) geschaltet werden. Mit dem Diagnose-AD-Wandler des SMIQ werden die Spannungen vom Host-Rechner (A3, FRO) überprüft.

Folgende Spannungen werden nachgemessen:

Bezeichnung	zulässiger Bereich	Testpunkt
3.3 V Spannungsversorgung FPGAs und RAMs	3.15 V <= U <= 3.45 V	TP 2700
3.3V2 Spannungsversorgung FPGAs und RAMs	3.15 V <= U <= 3.45 V	TP 2704
5VD Spannungsversorgung Digitalteil	4.96 V <= U <= 5.44 V	TP 2703

7.4.2.2 RAM-Adreßtest

Dieser Test soll Fehler in der Adressierung der RAMs (Kurzschlüße zwischen Adreß-Pins, nicht verlötete Adreß-Pins) erkennen.

Der Test läuft folgendermaßen ab:

1) Die Speicherzelle mit der Adresse "0000hex" wird mit dem Muster "55...55hex" belegt.
2) Alle Speicherzellen mit der Adr. "0001hex", "0002hex", "0004hex" bis "8000hex" werden mit "AA...AAhex" beschrieben.
3) Anschließend wird die Speicherzelle mit der Adr. "0000hex" wieder ausgelesen. Falls kein Adressierungsfehler vorliegt, muß ihr Inhalt unverändert sein.
4) Die Testschritte 1) bis 3) werden analog für die Adressen "0001hex", "0002hex", "0004hex" bis "8000hex" (Walking One Address) wiederholt.

7.4.2.3 ADC-Eingänge des DISTO1-FPGA (D5)

Dieser Test prüft, ob alle ADC-Eingänge des DISTO1-FPGA richtig verlötet sind. Dabei wird über das SHIFT-REGISTER1 (D21, D22, D23) über Serbus an die Eingänge des FPGA ein statisches digitales Signal angelegt und im FPGA gelesen. Der Test wird als "Walking-One-Test" 12 mal wiederholt d.h. jede der 12 Datenleitungen pro Kanal wird einmal auf "1" gesetzt.

7.4.2.4 DAC-Ausgänge des NOISE-FPGA (D40)

Dieser Test prüft, ob alle DAC-Ausgänge des NOISE-FPGA richtig verlötet sind. Dabei wird mit der DAC-Kompensation im NOISE-FPGA ein statisches Signal an die Ausgänge geführt und mit dem SHIFT-REGISTER2 (D34, D35, D36, D39) über Serbus gelesen. Der Test wird als "Walking-One-Test" 12 mal wiederholt d.h. jede der 12 Bits der DAC-Komp. wird einmal auf "1" gesetzt.

7.4.2.5 Test des Überbrückungspfades

Um den Überbrückungspfad der Baugruppe zu testen, wird von der Baugruppe MCOD eine Gleichspannung auf die Eingänge I_MODIN bzw. Q_MODIN geschaltet. Diese Spannung wird an den Baugruppenausgängen I_MODOUT bzw. Q_MODOUT mit Hilfe des Diagnose-Multiplexers abgegriffen und über die DIAG-5V-Leitung dem Diagnose-AD-Wandler des SMIQ zugeführt und dort gemessen.

7.4.2.6 Test der Signalpfadeingänge

Von der Baugruppe MCOD wird eine Gleichspannung an den Eingängen I_MODIN und Q_MODIN eingespeist. Auf dem NDSIM werden die Relais auf Normalbetrieb geschaltet. Die AD-Wandler werden über das Distol-FPGA ausgelesen und geprüft.

7.4.2.7 Test der Signalpfadausgänge

Bei diesem Test werden die Ralais auf Normalbetrieb geschaltet. Ein FPGA interner Testgenerator liefert ein konstantes Signal, das über den überbrückten Verzerrungssimulator an die DACs gelangt. Der Rauschgenerator wird abgeschaltet.

Diese Ausgangsspannungen der DACs werden an den Baugruppenausgängen I_MODOUT bzw. Q_MODOUT mit Hilfe des Diagnose-Multiplexers abgegriffen und über die DIAG-5V-Leitung dem Diagnose-AD-Wandler des SMIQ zugeführt und dort gemessen.

7.4.2.8 ADC/DAC Loop Back Test

Der FPGA interne Testgenerator liefert ein konstantes Signal, das über den Verzerrungssimulator an den DAC gelangt. Der Rauschgenerator wird abgeschaltet.
Wie bei der DAC-Offsetkompensation werden die Relais auf den Rückkoppelpfad geschaltet, sodaß das statische Signal vom Testgenerator über DAC und ADC zur DC-Calculation im Distortion1-FPGA geführt wird.

7.4.2.9 DC-Offsetkompensation

Nach erfolgreichem Durchlauf der obigen Tests wir zum Schluß die DC-Offsetkompensation aufgerufen, die auch einzeln per Menü aufgerufen werden kann und in Abschn. 7.5.4 näher beschrieben ist.

7.4.2.10 Fehlermeldungen des Selbsttests

Nach dem Start des Selbsttest werden die einzelnen Tests nacheinander aufgerufen. Tritt ein Fehler auf, so wird eine Fehlermeldung ("NDSIM Error Code", siehe folgende Tabelle) ausgegeben und der Selbsttest abgebrochen.

Test	NDSIM Error Code	
Test der Versorgungsspannungen		
3.3V FPGA	Power	TP 2700
3.3V FPGA	Power	TP 2704
5.0V Versorgung Digitalteil	Power	TP 2703
Schreiben & Lesen der RAMs		
StützSteig RAM	Ram:	St_St
Mult RAM	Ram:	Mult
Noise RAM	Ram:	Noise
ADC-Eingang	ADC	in
DAC-Ausgang	DAC	out
Überbrückungspfad		
Iout	Bypass	Iout
Qout	Bypass	Qout
Signalpfadeingänge		
Iout	Signal	Iin
Qout	Signal	Qin
Signalpfadausgänge		
Iout	Signal	Iout
Qout	Signal	Qout
ADC/DAC Loop Back	Loop Back	

Der "NDSIM Error Code" wird in der Statuszeile flüchtig angezeigt. Zusätzlich erfolgt folgender statischer Eintrag auf der "Error Page":

ERROR -330 Selftest failed: NDSIM;

7.4.3 Zusätzliche Prüfungen

Ungleichheiten, bezüglich Dämpfungs- und Laufzeitverhalten der Eingangs- und Ausgangsfilter, zwischen I- und Q-Pfad, führen zu einer schlechten Unterdrückung des Image-Spektrums. Das Image-Spektrum findet man im gleichen Abstand zum Träger, wie das Nutz-Spektrum, nur auf der anderen Seite.

Eine zu große Offsetspannung führt zu einem zu hohen Trägerrest.

- Einstellungen: **PRESET-Taste drücken**
  VECTOR MOD :STATE :ON
  NOISE/DIST :SELECT CHARACTERISTIC :TEST
  :DISTORTION :ON

- Spektrumanalysator an den Ausgang AUX IN/OUT I_FADED auf der Rückseite anschließen.

- Signalgenerator an den I-Eingang auf der Frontseite anschließen.

- Frequenzgang von 100 kHz ... 5 MHz (500 kHz - Schritte) messen.

Fehlerbeschreibung	Fehlerbeseitigung
Falls Baugr. FSIM (SMIQ-B14) nicht eingebaut ist: **Frequenzgang > 0.6 dB** **(Kabel: 0.2 dB, Filter: 0.4 dB)**	Der Abgleich des Frequenzganges der Eingangs- oder Ausgangsfilter wurde verändert. NDSIM neu abgleichen lassen.
Falls Baugr. FSIM (SMIQ-B14) eingebaut ist: **Frequenzgang > 0.7 dB** **(FSIM: 0.1 dB)**	

- Gleichspannungsquelle an den I- bzw. Q-Eingang auf der Frontseite anschließen und nacheinander +0.5 V +- 1 mV und -0.5 V +- 1 mV einspeisen.

- DC-Spannungsmesser (50 Ohm Last) an den Ausgang AUX IN/OUT I_FADED bzw. Q_FADED auf der Rückseite anschließen und Spannungsdifferenz von + 0.5 V nach - 0.5 V messen (Offset geht nicht in die Messung ein.)

Fehlerbeschreibung	Fehlerbehebung
Falls Baugr. FSIM (SMIQ-B14) nicht eingebaut ist: **Spngsdiff. < 965 mV** **Spngsdiff. > 1005 mV** **Unterschied zw.** **I- und Q-Kanal > 15 mV** **Falls Baugr. FSIM (SMIQ-B14) eingebaut ist:** **Spngsdiff. < 950 mV** **Spngsdiff. > 990 mV** **Unterschied zw.** **I- und Q-Kanal > 15 mV**	Der DC-Abgleich der Eingangs- oder Ausgangsfilter wurde verändert. NDSIM neu abgleichen lassen.

- Mit **UTILITIES : CALIB: NDSIM** die automatische Offset-Kompensation aufrufen.

- I- und Q-Eingang mit 50 Ohm abschließen.
- Mit DC-Spannungsmesser (50 Ohm Last) am Ausgang AUX IN/OUT I_FADED und Q_FADED die Offsetspannung messen.

Fehlerbeschreibung	Fehlerbehebung
Offsetspannung > 2 mV	Automatische Offsetkompensation defekt. NDSIM reparieren lassen.

Die folgende Fehlersuche setzt voraus, daß die Baugr. MCOD (SMIQ-B10) eingebaut ist und einwandfrei arbeitet. Außerdem müssen die Baugr. IQMOD und IQCON fehlerfrei funktionieren und datenhaltig sein.

- Spektrumanalysator an den RF-Ausgang anschließen.

- Einstellungen: **PRESET-Taste drücken**
  DIG.MOD :STATE :ON
  :SOURCE :SOURCE :PATTERN
  :SYMBOL RATE :800 000.0 sym/s
  NOISE/DIST :SELECT CHARACTERISTIC :TEST
  :DISTORTION :ON

Fehlerbeschreibung	Fehlerbehebung
Image-Spektrum 100 kHz unterhalb der Trägerfrequenz wird mit weniger als 40 db gedämpft. Eine Dämpfung ist aber deutlich zu sehen.	Obige Frequenzgang- und DC-Messungen durchführen und NDSIM gegebenenfalls neu abgleichen bzw. reparieren lassen.
Image-Spektrum 100 kHz unterhalb der Trägerfrequenz wird nicht gedämpft.	I- oder Q-Signalpfad unterbrochen. NDSIM reparieren lassen.
Intermodulationsprodukte 200 kHz und 300 kHz unterhalb und oberhalb der Trägerfrequenz werden mit weniger als 55 dB gedämpft.	Verstärker oder Wandler übersteuert oder defekt. Obige Frequenzgang und DC-Messungen durchführen und NDSIM gegebenenfalls neu abgleichen bzw. reparieren lassen.

7.5 Prüfen und Abgleichen

Wie unter Abschnitt "7.2 Servicekonzept" bereits erläutert, sind defekte Baugruppen nur in der Fertigung zu reparieren und abzugleichen.

7.5.1 Änderungszustand

Unter **UTILITIES :DIAG :CONF** wird der Änderungszustand sowie die Variante der einzelnen Baugruppen angezeigt. Der Änderungszustand (REV) wird mit den Widerständen R469 bis R472 codiert, die Variante (VAR) mit den Widerständen R204, R467 und R468.

7.5.2 Steckbrücken

Siehe auch Beschriftung "JUMPER SETTING" auf Schirmdeckel.

X2.2	mit	X2.3	verbinden
X3.3	mit	X3.4	verbinden
X4.3	mit	X4.4	verbinden
X5.2	mit	X5.3	verbinden
X8.1	mit	X8.2	verbinden
X9.1	mit	X9.2	verbinden
X13.1	mit	X13.2	verbinden
X15.1	mit	X15.2	verbinden
X16.1	mit	X16.2	verbinden

7.5.3 Diagnosepunkte

- Einstellungen: **UTILITIES :DIAG :TPOINT :STATE ON**
  :TEST POINT xxxx

Testpunkt	Beschreibung
TP 2700	3.3 V Spannungsversorgung, 3.15 V ... 3.45 V
TP 2704	3.3V2 Spannungsversorgung, 3.15 V .. 3.45 V
TP 2703	5VD Spannungsversorgung, 4.96 V ... 5.44 V
TP 2701	I_OUT_T, I-Ausgangssignal an X603 und X604
TP 2702	Q_OUT_T, Q-Ausgangssignal an X605 und X606
TP 2705	Massepotential

7.5.4 DC-Offsetkompensation

Mit **UTILITIES :CALIB :NDSIM** oder **NOISE/DIST :CALIBRATION** läßt sich die automatische DC-Kompensation aufrufen, welche auch Bestandteil des internen Selbstestes ist.

7.5.4.1 ADC-Offsetkompensation

Bei der ADC-Offsetkompensation werden die Relais 1, 2, 4 und 7 auf einen 50Ohm-Widerstand geschaltet. Im Disto1-FPGA (D5) wird der Spannungsoffset, der im AD-Wandler und Eingangs-Tiefpaß ensteht, für I- und Q-Kanal ermittelt und von der Rechner-Baugruppe gelesen. Diese gelesenen Werte werden vom Host gerundet, invertiert und in das Disto1-FPGA geschrieben.

7.5.4.2 DAC-Offsetkompensation

Bei der DAC-Offsetkompensation werden die Relais 1, 2, 4 und 7 auf den Rückkoppelpfad geschaltet. Der Ausgang des Noise-FPGA (D40) wird auf "10...0bin" geschaltet, sodaß der DA-Wandler 0V Ausgangsspannung liefert. Im Disto1-FPGA wird der Spannungsoffset, der im DA-Wandler und Ausgangs-Tiefpaß ensteht für I- und Q-Kanal ermittelt und von der Rechner-Baugruppe gelesen. Diese gelesenen Werte werden vom Host invertiert, skaliert und in das Noise-FPGA geschrieben.

7.5.4.3 Fehlermeldungen der Offsetkompensation

Es können folgende flüchtige Fehlermeldungen auftreten:
ERROR 180 NDSIM calibration error; ADC offset calibration
ERROR 180 NDSIM calibration error; ADC offset > 64
ERROR 180 NDSIM calibration error; DAC offset calibration
ERROR 180 NDSIM calibration error; DAC offset > 64

Zusätzlich wird folgende statische Fehlermeldung in die Error Page eingetragen:
ERROR 180 Calibration failed: NDSIM

Wird der SMIQ mit gedrückter Preset-Taste eingeschaltet, werden die Kalibrationsdaten gelöscht und es wird folgende statische Fehlermeldung in die "Error Page" eingetragen:
ERROR -313 Calibration memory lost; NDSIM-run internal calibration

Diese Meldung erlischt bei der nächsten erfolgreichen Kalibration.

7.6 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes und dem Lösen der mechanischen Verriegelung am Motherboard die sechs Koax-Verbindungen an der Baugruppe abziehen. Die Baugruppe kann nun aus ihrem Steckplatz entnommen werden. Schrauben lösen und Schirmdeckel abnehmen.
Der Zusammen- und Einbau der Baugruppe erfolgt entsprechend in umgekehrter Reihenfolge.

7.7 Externe Schnittstellen

7.7.1 Schnittstelle zum Motherboard

X600.A1					
X600.A2					
X600.A3					
X600.A4					
X600.A5					
X600.A6					
X600.A7					
X600.A8					
X600.A9					
X600.A10					
X600.A11	GND		A200, MBIQ		Masse
X600.A12	SERBUS-CLK	Eingang	A3, FRO, X31.40	HCT-Pegel	Serbus Clock
X600.A13	GND		A200, MBIQ		Masse
X600.A14	SERBUS-OUT	Ausgang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X600.A15	SERBUS-IN	Eingang	A3, FRO, X31.39	HCT-Pegel	Serbus Daten
X600.A16	SERBUS-SYNC	Eingang	A3, FRO, X31.37	HCT-Pegel	Serbus Sync
X600.A17	SERBUS-INT	Ausgang	A3, FRO, X31.38	HCT-Pegel	Serbus Interrupt
X600.A18	Reset-P	Eingang	A3, FRO, X31.28	HCT-Pegel	Serbus Reset
X600.A19	DIAG-5V	Ausgang	A3, FRO, X31.44	-5 V ... +5 V	Diagnose
X600.A20					
X600.A21	GND		A200, MBIQ		Masse
X600.A22					
X600.A23	GND		A200, MBIQ		Masse
X600.A24	VA15-P	Eingang	A2, POWS1	14.7... 15.9 V max. 550 mA	15 Volt Stromversorgung
X600.A25	GND		A200, MBIQ		Masse
X600.A26	VA7.5-P	Eingang	A2, POWS1	7.4 ... 8.0 V max. 350 mA	7.5 V Stromversorgung
X600.A27	GND		A200, MBIQ		Masse
X600.A28	VD5-P	Eingang	A2, POWS1	5.1 ... 5.3 V max. 550 mA	5 V Digital Stromversorgung
X600.A29	GND		A200, MBIQ		Masse
X600.A30	VA15-N	Eingang	A2, POWS1	-15.9 .. -14.7 V max. 200 mA	-15 V Stromversorgung
X600.A31	GND		A200, MBIQ		Masse
X600.A32	VD5-N	Eingang	A200, MBIQ	-5.3 ... -5.1 V max. 350 mA	-5.2 V Stromversorgung

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Kenndaten	Signalbeschreibung
X600.B1	EXT_CLB	Eingang	--------	40 MHz, TTL-Pegel	Master-Clock Testausgang
X600.B2	GND		A200, MBIQ		Masse
X600.B3					
X600.B4					
X600.B5					
X600.B6					
X600.B7					
X600.B8					
X600.B9					
X600.B10					
X600.B11	GND		A200, MBIQ		Masse
X600.B12					
X600.B13	GND		A200, MBIQ		Masse
X600.B14					
X600.B15					
X600.B16					
X600.B17					
X600.B18					
X600.B19					
X600.B20					
X600.B21	GND		A200, MBIQ		Masse
X600.B22					
X600.B23	GND		A200, MBIQ		Masse
X600.B24	VA15-P	Eingang	A2, POWS1	14.7... 15.9 V Strom s. X600.A24	15 Volt Stromversorgung
X600.B25	GND		A200, MBIQ		Masse
X600.B26	VA7.5-P	Eingang	A2, POWS1	7.4 ... 8.0 V Strom s. X600.A26	7.5 V Stromversorgung
X600.B27	GND		A200, MBIQ		Masse
X600.B28	VD5-P	Eingang	A2, POWS1	5.1 ... 5.3 V Strom s. X600.A28	5 V Digital Stromversorgung
X600.B29	VD5-P	Eingang	A2, POWS1	5.1 ... 5.3 V Strom s. X600.A28	5 V Digital Stromversorgung
X600.B30	VA15-N	Eingang	A2, POWS1	-15.9 .. -14.7 V Strom s. X600.A30	-15 V Stromversorgung
X600.B31	GND		A200, MBIQ		Masse
X600.B32	VD5-N	Eingang	A200, MBIQ	-5.3 ... -5.1 V Strom s. X600.A32	-5.2 V Stromversorgung

7.7.2 Koaxiale Schnittstellen

X601	I_MODIN	Eingang	ohne MCOD, FSIM: FRO, I-Buchse mit MCOD: A320, MCOD, X325 mit FSIM: A360, FSIM, X367	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Eingangssignal (I-Anteil des Modulationssignals)
X602	Q_MODIN	Eingang	ohne MCOD, FSIM: FRO, Q-Buchse mit MCOD: A320, MCOD, X328 mit FSIM: A360, FSIM, X370	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Eingangssignal (Q-Anteil des Modulationssignals)
X603	I_MODOUT	Ausgang	A240, IQMOD, X244	max. 1 Vss an 50 Ohm, 0...8 MHz	I-Ausgangssignal (I-Anteil des Modulationssignals)
X604	I_NDSIM	Ausgang	AUX IN/OUT I_FADED, X400	siehe X603	I-Ausgangssignal zur Rückwand
X605	Q_MODOUT	Ausgang	A240, IQMOD, X245	max. 1 Vss an 50 Ohm, 0...8 MHz	Q-Ausgangssignal (Q-Anteil des Modulationssignals)
X606	Q_NDSIM	Ausgang	AUX IN/OUT Q_FADED, X400	siehe X605	Q-Ausgangssignal zur Rückwand

ROHDE&SCHWARZ

SERVICE DOCUMENTS

Module NOISE GENERATOR AND DISTORTION SIMULATOR

1104.9080.02

Contents

7. Testing and Repair of the Module 5
7.1 Function Description 5
7.2 Servicing Concept 5
7.3 Measuring Equipment and Accessories 5
7.4 Troubleshooting 5
7.4.1 Loading the FPGAs after Switch-on 5
7.4.2 Selftest 6
7.4.2.1 Testing the Supply Voltages 6
7.4.2.2 RAM Address Test 6
7.4.2.3 ADC Inputs of the DISTO1-FPGA (D5) 7
7.4.2.4 DAC Outputs of the NOISE-FPGA (D40) 7
7.4.2.5 Testing the Shorting Path 7
7.4.2.6 Testing the Signal Path Inputs 7
7.4.2.7 Testing the Signal Path Outputs 8
7.4.2.8 ADC/DAC Loop Back Test 8
7.4.2.9 DC Offset Compensation 8
7.4.2.10 Error Messages of the Selftest 8
7.4.3 Additional Tests 10
7.5 Testing and Adjustment 12
7.5.1 Revision 12
7.5.2 Jumpers 12
7.5.3 Diagnostic Points 13
7.5.4 DC Offset Compensation 13
7.5.4.1 ADC Offset Compensation 13
7.5.4.2 DAC Offset Compensation 13
7.5.4.3 Error Messages of Offset Compensation 13
7.6 Disassembly and Assembly 14
7.7 External Interfaces 15
7.7.1 Interface to Motherboard 15
7.7.2 Coaxial Interfaces 17

Parts list
Coordinate list
Circuit diagram
Component plan

7. Testing and Repair of the Module

7.1 Function Description

The module "Noise Generator and Distortion Simulator (Option SMIQB17, NDSIM for short) can optionally be connected into the complex modulation signal (I and Q) path of the SMIQ. Depending on the configuration and the operating mode, the modulation signal may be derived from the modulation coder module (Option SMIQB10, MCOD for short), from an external source or from the fading simulator module (Option SMIQB14, FSIM for short). With the NDSIM switched on, the analog input signal is converted into a digital one (AD converter), purely digitally influenced according to the noise or distortion selected and finally converted into a complex analog signal again by DA converters. The complex output signal (I and Q) is routed to the IQ modulator (IQMOD module) and to the AUX connector at the rear panel.

7.2 Servicing Concept

The module is a complex hybrid circuit with a prevailing digital section. Therefore, exact fault diagnosis at the component level or repair is not possible at the subsidiaries or at the customer's. A module found to be defective must be replaced by a spare module. Leave the defective module at the production for exact diagnosis and error elimination.

The same applies to the adjustment.

This document is therefore designed to enable the service engineer to clearly identify a defective or incorrectly adjusted module.

7.3 Measuring Equipment and Accessories

- Spectrum analyzer, frequency range e.g. FSA, FSE
- Signal generator (100 kHz to 5 MHz) e.g. ADS
- DC voltage source (50-ohm load) e.g. ADS
- DC voltmeter (50-ohm load) e.g. URE

7.4 Troubleshooting

If the NDSIM does not work properly, call up the selftest first.

- Settings: **UTILITIES :TEST :TEST NDSIM**

7.4.1 Loading the FPGAs after Switch-on

After switch-on, the three FPGAs on the module are loaded via the serbus interface by the COMPUTER module. If loading was not successful, this is indicated by the volatile error message "**ERROR 420 NDSIM FPGA loading failed**", which will then entered into the static "Error Page".

7.4.2 Selftest

The complete selftest is composed of several parts, which are executed one after the other. If a fault occurs in one of these steps, the remaining selftest will no longer be carried out, since each step assumes that there have not been any faults in the preceding steps (e.g. it does not make sense to initiate the NDSIM-internal selftest unless all supply voltage could be measured correctly).

7.4.2.1 Testing the Supply Voltages

Part of the supply voltages of the NDSIM are applied externally (via filter sections), part of them can be derived from these external voltages on the module. The voltages can be connected via the diagnostic multiplexer (D47) to the DIAG 5V bus (X600.A19). Using the diagnostic AD converter of the SMIQ, the voltages are checked by the host computer (A3, FRO).

The following voltages are remeasured:

Designation	Permissible range	Test point
3.3 V Voltage supply FPGAs and RAMs	3.15 V <= U <= 3.45 V	TP 2700
3.3V2 Voltage supply FPGAs und RAMs	3.15 V <= U <= 3.45 V	TP 2704
5VD Voltage supply Digital section	4.96 V <= U <= 5.44 V	TP 2703

7.4.2.2 RAM Address Test

This test serves to detect faults in the addressing of the RAMs (short-circuits between address pins, address pins that are not soldered).

The test is carried out as follows:

1) The memory cell with address "0000hex" is assigned the pattern "55...55hex".
2) "AA...AAhex" is written to all memory cells with the address "0001hex", "0002hex", "0004hex" to "8000hex".
3) Then the memory cell with the address "0000hex" is read out again. If there is no fault in addressing, its contents must be unchanged.
4) Test steps 1) to 3) are repeated for the addresses "0001hex", "0002hex", "0004hex" to "8000hex" (Walking One Address) in the same way.

7.4.2.3 ADC Inputs of the DISTO1-FPGA (D5)

This test checks whether all ADC inputs of the DISTO1-FPGA are correctly soldered. A static digital signal is applied via SHIFT REGISTER1 (D21, D22, D23) via serbus to the inputs of the FPGA and read in the FPGA. The test is repeated 12 times as "Walking-One-Test", i.e. each of the 12 data lines of each channel is set to "1" once.

7.4.2.4 DAC Outputs of the NOISE-FPGA (D40)

This test checks whether all DAC outputs of the NOISE-FPGA are correctly soldered. A static signal is applied to the outputs with the DAC compensation in the NOISE-FPGA and read with the SHIFT-REGISTER2 (D34, D35, D36, D39) via serbus. The test is repeated 12 times as "Walking-One-Test", i.e. each of the 12 bits of the DAC compensation is set to "1" once.

7.4.2.5 Testing the Shorting Path

In order to test the shorting path of the module, a DC voltage is connected from the module MCOD to the inputs I_MODIN or Q_MODIN. This voltage is tapped at the module outputs I_MODOUT or Q_MODOUT with the aid of the diagnostic multiplexer and taken via the DIAG-5V line to the diagnostic AD converter of the SMIQ for measurement.

7.4.2.6 Testing the Signal Path Inputs

A DC voltage is applied from the module MCOD to the inputs I_MODIN and Q_MODIN. The relays are switched to normal mode on the NDSIM. The AD converters are read out via the Distol-FPGA and checked.

7.4.2.7 Testing the Signal Path Outputs

In this test, the relays are switched to normal mode. An FPGA-internal test generator provides a constant signal, which is taken via the bridged distortion simulator to the DACs. The noise generator is switched off.

These output voltages of the DACs are tapped at the module outputs I_MODOUT or Q_MODOUT with the aid of the diagnostic multiplexer and taken via the DIAG-5V line to the diagnostic AD converter of the SMIQ for measurement.

7.4.2.8 ADC/DAC Loop Back Test

The FPGA-internal test generator provides a constant signal, which is taken via the distortion simulator to the DAC. The noise generator is switched off.
As with the DAC offset compensation, the relays are switched to the feedback path so that the static signal is taken from the test generator via DAC and ADC to the DC calculation in the Distortion1-FPGA.

7.4.2.9 DC Offset Compensation

After the above tests have been performed successfully, the DC offset compensation is finally called up. It can as well be called up individually via the menu. For more details see section 7.5.4.

7.4.2.10 Error Messages of the Selftest

After the selftest has been started, the individual tests are called up one after the other. If a fault occurs, an error message ("NDSIM Error Code", see table below) is output and the selftest is aborted.

Test	NDSIM Error Code
Testing the supply voltages	
3.3V FPGA	Power TP 2700
3.3V FPGA	Power TP 2704
5.0V supply digital section	Power TP 2703
Writing & reading of the RAMs	
StützSteig RAM	Ram: St_St
Mult RAM	Ram: Mult
Noise RAM	Ram: Noise
ADC input	ADC in
DAC output	DAC out
Shorting path	
Iout	Bypass Iout
Qout	Bypass Qout
Signal path inputs	
Iout	Signal Iin
Qout	Signal Qin
Signal path outputs	
Iout	Signal Iout
Qout	Signal Qout
ADC/DAC Loop Back	Loop Back

The NDSIM error code is indicated as volatile display in the status line. In addition, the following static entry is made on the "Error Page":
ERROR -330 Selftest failed: NDSIM;

7.4.3 Additional Tests

Imbalances in terms of attenuation and group delay of the input and output filters between I and Q path result in a poor suppression of the image spectrum. The image spectrum is located at the same carrier spacing as the useful spectrum, but on the other side.

An excessive offset voltage leads to an excessive residual carrier.

- Settings: **Press the PRESET key**
  VECTOR MOD :STATE :ON
  NOISE/DIST :SELECT CHARACTERISTIC :TEST
  :DISTORTION :ON

- Connect the spectrum analyzer to the output AUX IN/OUT I_FADED at the rear.

- Connect the signal generator to the I-input at the front.

- Measure the frequency response from 100 kHz to 5 MHz (500-kHz steps).

Error description	Error elimination
If the module FSIM (SMIQ-B14) is not installed: **Frequency response > 0.6 dB** **(cable: 0.2 dB, filter: 0.4 dB)** **If the module FSIM (SMIQ-B14) is installed:** **Frequency response > 0.7 dB** **(FSIM: 0.1 dB)**	The adjustment of the frequency response of the input or output filters was changed. Readjust the NDSIM.

- Connect DC voltage source to the I or Q input at the front and apply +0.5 V +- 1 mV and
  -0.5 V +- 1 mV one after the other.

- Connect DC voltmeter (50-ohm load) to the output AUX IN/OUT I_FADED or Q_FADED at the rear and measure voltage difference from + 0.5 V to - 0.5 V (offset is not considered in the measurement.)

Error description	Error elimination
If the module FSIM (SMIQ-B14) is not installed: **Voltage difference < 965 mV** **Voltage difference > 1005 mV** **Difference between I and Q channel > 15 mV** **If the module FSIM (SMIQ-B14) is installed:** **Voltage difference < 950 mV** **Voltage difference > 990 mV** **Difference between I and Q channel > 15 mV**	The DC adjustment of the input or output filters was changed. Readjust the NDSIM.

- Use **UTILITIES : CALIB: NDSIM** to call the automatic offset compensation.

- Terminate the I and Q input with 50 ohms.
- Use DC voltmeter (50-ohm load) to measure the offset voltage at output AUX IN/OUT I_FADED and Q_FADED.

Error description	Error elimination
Offset voltage > 2 mV	Automatic offset compensation defective. Repair the NDSIM.

The following troubleshooting procedure assumes that the MCOD module (SMIQ-B10) is installed and works properly. Besides, the modules IQMOD and IQCON must function properly and data integrity must be ensured.

- Connect spectrum analyzer to RF output.

- Settings: **Press PRESET key**
  DIG.MOD :STATE :ON
  :SOURCE :SOURCE :PATTERN
  :SYMBOL RATE :800 000.0 sym/s
  NOISE/DIST :SELECT CHARACTERISTIC :TEST
  :DISTORTION :ON

Image spectrum 100 kHz below the carrier frequency is attenuated with less than 40 dB. However, an attenuation is clearly visible.	Perform above frequency response and DC measurements and readjust or repair the NDSIM, if required.
Image spectrum 100 kHz below the carrier frequency is not attenuated.	I or Q signal path open. Repair the NDSIM.
Intermodulation products 200 kHz and 300 kHz below and above the carrier frequency are attenuated with less than 55 dB.	Amplifier or converter overdriven or defective. Perform above frequency response and DC measurements and readjust or repair the NDSIM, if required.

7.5 Testing and Adjustment

As already explained under "7.2 Servicing Concept", defective modules are to be sent to the production department for repair and adjustment.

7.5.1 Revision

UTILITIES :DIAG :CONF serves to indicate the revision and the version of the individual modules. The revision (REV) is coded with resistors R469 to R472, the version (VAR) with resistors R204, R467 and R468.

7.5.2 Jumpers

See also the label "JUMPER SETTING" on the screening cover.

Connect X2.2 with X2.3
Connect X3.3 with X3.4
Connect X4.3 with X4.4
Connect X5.2 with X5.3
Connect X8.1 with X8.2
Connect X9.1 with X9.2
Connect X13.1 with X13.2
Connect X15.1 with X15.2
Connect X16.1 with X16.2

7.5.3 Diagnostic Points

- Settings: **UTILITIES :DIAG :TPOINT :STATE ON**
  :TEST POINT xxxx

Test point	Description
TP 2700	3.3 V voltage supply, 3.15 V to 3.45 V
TP 2704	3.3V2 voltage supply, 3.15 V to 3.45 V
TP 2703	5VD voltage supply, 4.96 V to 5.44 V
TP 2701	I_OUT_T, I output signal at X603 and X604
TP 2702	Q_OUT_T, Q output signal at X605 and X606
TP 2705	Ground potential

7.5.4 DC Offset Compensation

UTILITIES :CALIB :NDSIM or **NOISE/DIST :CALIBRATION** permits to call up the automatic DC compensation, which is also part of the internal selftest.

7.5.4.1 ADC Offset Compensation

For the ADC offset compensation, the relays 1, 2, 4 and 7 are switched to a 50-ohm resistor. The voltage offset produced in the AD converter and input lowpass is determined for I and Q channel in the Disto1-FPGA (D5) and read by the computer module. The values read are rounded by the host, inverted and written to the Disto1-FPGA.

7.5.4.2 DAC Offset Compensation

For the DAC offset compensation, the relays 1, 2, 4 and 7 are switched to the feedback path. The output of the Noise-FPGA (D40) is switched to "10...0bin" so that the DA converter provides a 0-V output voltage. The voltage offset produced in the DA converter and output lowpass is determined for I and Q channel in the Disto1-FPGA and read by the computer module. The values read are inverted by the host, scaled and written to the noise-FPGA.

7.5.4.3 Error Messages of Offset Compensation

The following volatile error messages may occur:
ERROR 180 NDSIM calibration error; ADC offset calibration
ERROR 180 NDSIM calibration error; ADC offset > 64
ERROR 180 NDSIM calibration error; DAC offset calibration
ERROR 180 NDSIM calibration error; DAC offset > 64

In addition, the following static error message is entered into the error page:
ERROR 180 Calibration failed: NDSIM

If the SMIQ is switched on with the Preset key depressed, the calibration data are deleted and the following static error message is entered into the error page:
ERROR -313 Calibration memory lost; NDSIM-run internal calibration

This message is extinguished with the next successful calibration.

7.6 Disassembly and Assembly

After opening the instrument and loosening the mechanical lock on the motherboard, pull off the six coax connections on the module. The module can then be removed from its slot. Loosen screws and remove screening cover. For assembling and replacing the module proceed in the reverse order.

7.7 External Interfaces

7.7.1 Interface to Motherboard

X600.A1					
X600.A2					
X600.A3					
X600.A4					
X600.A5					
X600.A6					
X600.A7					
X600.A8					
X600.A9					
X600.A10					
X600.A11	GND		A200, MBIQ		Ground
X600.A12	SERBUS-CLK	Input	A3, FRO, X31.40	HCT level	Serbus Clock
X600.A13	GND		A200, MBIQ		Ground
X600.A14	SERBUS-OUT	Output	A3, FRO, X31.39	HCT level	Serbus data
X600.A15	SERBUS-IN	Input	A3, FRO, X31.39	HCT level	Serbus data
X600.A16	SERBUS-SYNC	Input	A3, FRO, X31.37	HCT level	Serbus Sync
X600.A17	SERBUS-INT	Output	A3, FRO, X31.38	HCT level	Serbus Interrupt
X600.A18	Reset-P	Input	A3, FRO, X31.28	HCT level	Serbus Reset
X600.A19	DIAG-5V	Output	A3, FRO, X31.44	-5 V to +5 V	Diagnosis
X600.A20					
X600.A21	GND		A200, MBIQ		Ground
X600.A22					
X600.A23	GND		A200, MBIQ		Ground
X600.A24	VA15-P	Input	A2, POWS1	14.7 to 15.9 V max. 550 mA	15 Volt Current supply
X600.A25	GND		A200, MBIQ		Ground
X600.A26	VA7.5-P	Input	A2, POWS1	7.4 to 8.0 V max. 350 mA	7.5 V Current supply
X600.A27	GND		A200, MBIQ		Masse
X600.A28	VD5-P	Input	A2, POWS1	5.1 to 5.3 V max. 550 mA	5 V Digital Current supply
X600.A29	GND		A200, MBIQ		Ground
X600.A30	VA15-N	Input	A2, POWS1	-15.9 to -14.7 V max. 200 mA	-15 V Current supply
X600.A31	GND		A200, MBIQ		Ground
X600.A32	VD5-N	Input	A200, MBIQ	-5.3 to -5.1 V max. 350 mA	-5.2 V Current supply

Pin	Name	Input / output	Origin / destination	Value / range	Signal description
X600.B1	EXT_CLB	Eingang	--------	40 MHz, TTL level	Master Clock test output
X600.B2	GND		A200, MBIQ		Ground
X600.B3					
X600.B4					
X600.B5					
X600.B6					
X600.B7					
X600.B8					
X600.B9					
X600.B10					
X600.B11	GND		A200, MBIQ		Ground
X600.B12					
X600.B13	GND		A200, MBIQ		Ground
X600.B14					
X600.B15					
X600.B16					
X600.B17					
X600.B18					
X600.B19					
X600.B20					
X600.B21	GND		A200, MBIQ		Ground
X600.B22					
X600.B23	GND		A200, MBIQ		Ground
X600.B24	VA15-P	Input	A2, POWS1	14.7 to 15.9 V Current see X600.A24	15 Volt Current supply
X600.B25	GND		A200, MBIQ		Ground
X600.B26	VA7.5-P	Input	A2, POWS1	7.4 to 8.0 V Current see X600.A26	7.5 V Current supply
X600.B27	GND		A200, MBIQ		Ground
X600.B28	VD5-P	Input	A2, POWS1	5.1 to 5.3 V Current see X600.A28	5 V Digital Current supply
X600.B29	VD5-P	Input	A2, POWS1	5.1 to 5.3 V Current see X600.A28	5 V Digital Current supply
X600.B30	VA15-N	Input	A2, POWS1	-15.9 to -14.7 V Current see X600.A30	-15 V Current supply
X600.B31	GND		A200, MBIQ		Ground
X600.B32	VD5-N	Input	A200, MBIQ	-5.3 to -5.1 V Current see X600.A32	-5.2 V Current supply

7.7.2 Coaxial Interfaces

X601	I_MODIN	Input	without MCOD, FSIM: FRO, I socket with MCOD: A320, MCOD, X325 with FSIM: A360, FSIM, X367	max. 1 Vpp into 50 ohms, 0 to 8 MHz	I input signal (I component of modulation signal)
X602	Q_MODIN	Input	without MCOD, FSIM: FRO, Q socket with MCOD: A320, MCOD, X328 with FSIM: A360, FSIM, X370	max. 1 Vpp into 50 ohms, 0 to 8 MHz	Q input signal (Q compoenent of modulation signal)
X603	I_MODOUT	Output	A240, IQMOD, X244	max. 1 Vpp into 50 ohms, 0 to 8 MHz	I output signal (I component of modulation signal)
X604	I_NDSIM	Output	AUX IN/OUT I_FADED, X400	see X603	I output signal to rear panel
X605	Q_MODOUT	Output	A240, IQMOD, X245	max. 1 Vpp into 50 ohms, 0 to 8 MHz	Q output signal (Q component of modulation signal)
X606	Q_NDSIM	Output	AUX IN/OUT Q_FADED, X400	see X605	Q output signal to rear panel

ROHDE&SCHWARZ

Schaltteillisten numerisch geordnet

Part lists in numerical order

Listes des pièces détachées par numéros de référence

095.1000 Bl. 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
.	XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS				
C1	CC 22PF+-1% 50VNPO 0603	CC 0009.4609.00	MURATA	GRM39COG***F50ZPT	
..4	SMD-CERAMIC-CAPACITOR				
C5	CC 18PF+-1% 50V NPO 1206	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
	CERAMIC CHIP CAPACITOR				
C6	CC 27PF+-1% 50VNPO 0603	CC 0010.9323.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C7	CC 18PF+-1% 50V NPO 1206	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
	CERAMIC CHIP CAPACITOR				
C8	CC 27PF+-1% 50VNPO 0603	CC 0010.9323.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C9	CC 18PF+-1% 50V NPO 1206	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
	CERAMIC CHIP CAPACITOR				
C10	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C11	CC 18PF+-1% 50V NPO 1206	CC 0099.8767.00	MURATA	GRM42-6COG 180F50ZPT	
	CERAMIC CHIP CAPACITOR				
C12	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C13	CC 1,0NF+-10%50V HDK 0603	CC 0009.4938.00	MURATA	GRM39X7R***K5C50OPT*	
..16	SMD-CERAMIC-CAPACITOR				
C17	CC 10NF+-10%50V X7R 1206	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
	CERAMIC CHIP CAPACITOR				
C18	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C19	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C20	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C21	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C22	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C23	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C24	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C25	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C26	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C27	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C28	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C29	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C30	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C31	CC 10P+-0,1PF50V NPO 0603	CC 0009.4567.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C32	CC 8,2PF0,1PF50V NPO 0603	CC 0009.4550.00	MURATA	GRM39COG***B50ZPT	
	SMD-CERAMIC-CAPACITOR				
C33	CC 100NF+-10%50V X7R 1206	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
	CERAMIC CHIP CAPACITOR				
C34	CC 56PF+-1%50V NPO 1206	CC 0099.8809.00	MURATA	GRM42-6COG 560F50ZPT	
	CERAMIC CHIP CAPACITOR				
C35	CC 56PF+-1%50V NPO 1206	CC 0099.8809.00	MURATA	GRM42-6COG 560F50ZPT	
	CERAMIC CHIP CAPACITOR				
C36	CC 68PF+-1% 50VNPO 0603	CC 0009.9746.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C37	CC 68PF+-1% 50VNPO 0603	CC 0009.9746.00	MURATA	GRM39COG***F50ZPT	
	SMD-CERAMIC-CAPACITOR				
C39	CC 100NF+-10%16V HDK 0603	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
	CERAMIC CHIP CAPACITOR				
C40	CE 10UF +-10% 25V 7343	CE 0007.7246.00	SPRAGUE	293D 106 X9 025 D2W	
	TANTALUM SMD-CAPACITOR				
C41	CE 10UF +-10% 25V 7343	CE 0007.7246.00	SPRAGUE	293D 106 X9 025 D2W	
	TANTALUM SMD-CAPACITOR				
C42	CE 47UF +-10% 10V 7343	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
	TANTALUM CHIP CAPACITOR				
C43	CE 47UF +-10% 10V 7343	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
	TANTALUM CHIP CAPACITOR				
C44	CC 100NF+-10%16V HDK 0603	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
..49	CERAMIC CHIP CAPACITOR				

Für diese Unterlage behalten wir uns alle Rechte vor.

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C50	CE 47UF +-10% 10V 7343 TANTALUM CHIP CAPACITOR	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
C51	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C52	CE 47UF +-10% 10V 7343 TANTALUM CHIP CAPACITOR	CE 0007.7300.00	SPRAGUE	293D X9 010 D2W	
C53 ..59	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C60	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C61 ..72	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C73	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C74	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C75	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C76	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C77	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C78	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C79 ..82	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C83	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C84	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C85 ..90	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C91	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C92 ..98	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C99	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C100	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C101	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C102	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C103	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C104	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C105 ..108	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C109	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C110	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C111	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C112 ..114	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C115	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C116	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C117	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C118	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C119	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C120	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C121 ..123	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C124	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C125	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C126	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C128	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C129	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C133 ..135	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C136	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C137 ..139	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C140	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C141	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C142	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C143 ..149	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C150	CC 3,3PF 0, 1PF50V NPO 06 SMD-CERAMIC-CAPACITOR	CC 0009.8285.00	MURATA	GRM39C0G***B50ZPT	
C151	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6C0G 180F50ZPT	
C152	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C153 ..157	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C165	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C172	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C173	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C174	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C176 ..178	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C179	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C180 ..182	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C183	CT 7P-30P 4,4X4 GN SMD CERAMIC CHIP TRIMMER	CT 0008.1235.00	PANASONIC	ECR-JA030E12	
C184 ..190	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C191	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C192 ..206	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C207	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C208 ..213	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C214 ..216	CC 3,3PF 0, 1PF50V NPO 06 SMD-CERAMIC-CAPACITOR	CC 0009.8285.00	MURATA	GRM39C0G***B50ZPT	
C217	CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8850.00	MURATA	GRM42-6C0G 221F 50PT	
C218	CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8850.00	MURATA	GRM42-6C0G 221F 50PT	
C219	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C220 ..222	CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8767.00	MURATA	GRM42-6C0G 180F50ZPT	
C223	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C224	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C225 ..230	CC 150PF+-1% 50V NPO 0603 MD-CERAMIC-CAPACITOR	CC 1051.4680.00	MURATA	GRM39C0G***F50ZPT	
C231 ..233	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C234	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C235	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C236	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6C0G 820F50ZPT	
C237	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C238	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6COG 820F50ZPT	
C239	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6COG 820F50ZPT	
C240	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C241	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C242 ..246	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C247	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C248 ..250	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C251 ..253	CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4644.00	MURATA	GRM39COG***F50ZPT	
C254 ..257	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C258	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	AVX	1206 5C 104 KA 3	
C259	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C260	CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4644.00	MURATA	GRM39COG***F50ZPT	
C261	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6COG 820F50ZPT	
C262 ..266	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C267	CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8821.00	MURATA	GRM42-6COG 820F50ZPT	
C268	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C270 ..272	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C275 ..277	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C279	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C281	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C282	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C283	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C284 ..286	CC 10NF+-10% 50VHDK 0603 SMD-CERAMIC-CAPACITOR	CC 0009.4844.00	MURATA	GRM39X7R***K5C500PT*	
C287	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C317	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C318	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C320	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C327	CE 10UF+-20%35V 7343 TANTALUM CHIP CAPACITOR	1078.3291.00	SIEMENS	B45197-A6106-M40*	
C328	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C329	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C331	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
C332	CC 100NF+-10%16V HDK 0603 CERAMIC CHIP CAPACITOR	CC 1097.6292.00	PHILIPS_CO	2238 786 16649	
D1 ..3	BL PC74HCT164T 8B.SH.REG. SHIFT REGISTER	BL 0007.6440.00	PHILIPS_SE	(PC)74HCT164(D/T)	
D4	BL 74AC245SC 8XBUSTRANSC IC OCTAL BUS-TRANSC 3-ST	BL 4039.4290.00	NSC	74AC245(SC)	
D5	BC XC4013XL-1 13K GAT LCA IC LOGIC CELL ARRAY	BC 1104.9197.00	XILINX	XC4013XL-1PQ208C	
D6	BL 74AC245SC 8XBUSTRANSC IC OCTAL BUS-TRANSC 3-ST	BL 4039.4290.00	NSC	74AC245(SC)	
D7	BL 74AC245SC 8XBUSTRANSC IC OCTAL BUS-TRANSC 3-ST	BL 4039.4290.00	NSC	74AC245(SC)	
D8 ..12	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D13	BJ HI5731BIB 1X12B-DAC D/A CONVERTER	1085.1890.00	HARRIS	HI5731BIB	
D14	BJ HI5731BIB 1X12B-DAC D/A CONVERTER	1085.1890.00	HARRIS	HI5731BIB	
D15	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	
D16	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	
D17	BJ AD9042AST 1X12B-ADC 12BIT 41MSPS AD-CONVERTER	1080.7578.00	ANALOG_DEV	AD9042AST	
D18	BJ AD9042AST 1X12B-ADC 12BIT 41MSPS AD-CONVERTER	1080.7578.00	ANALOG_DEV	AD9042AST	
D19	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	
D20	BC XC4013XL-1 13K GAT LCA IC LOGIC CELL ARRAY	BC 1104.9197.00	XILINX	XC4013XL-1PQ208C	
D21 ..23	BL PC74HCT4094T 8ST.SHREG 8-STAGE SHIFT&STORE REG.	0007.6885.00	PHILIPS	(PC)74HCT4094(D)	
D25	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	
D26	BC IS61LV6416-10T SRAM 3.3V STATIC RAM	BC 1104.9180.00	INTEGRATED	IS61LV6416-10T	
D27	BL 74LVC125ADB 4X3S BUFF. IC QUAD BUFFER	BL 4052.5080.00	PHILIPS_SE	(74)LVC125A(DB)	
D28 ..30	BL 74ACT273 8X D-FF M.RES OCTAL D FLIP-FLOP	BL 1058.0745.00	HARRIS	(CD74)ACT273(M)	
D32	BL 74LVT00DB 4X2NAND 3.3V QUAD 2-IN NAND GATE	BL 0048.3151.00	PHILIPS_SE	74LVT00DB	
D34 ..36	BL PC74HCT165T 8B SHREG SHIFT REGISTER	BL 0007.5408.00	PHILIPS_SE	(PC)74HCT165(D/T)	
D37	BC AM29F040 10% FL.EPROM IC MEMORY	BC 0009.6818.00	AMD	AM29F040B-120JC	
D39	BL PC74HCT165T 8B SHREG SHIFT REGISTER	BL 0007.5408.00	PHILIPS_SE	(PC)74HCT165(D/T)	
D40	BC XC4028XL-1 28K GAT LCA IC LOGIC CELL ARRAY	BC 1104.9216.00	XILINX	XC4028XL-1HQ208C	
D41 ..44	BL 74ACT574SC 8XD-FF 3S OCTAL D FLIP-FLOP 3ST	BL 0008.2225.00	HARRIS	CD74ACT574M	
D45	BL IDT49FCT805 CLK DRIV IC CLOCK DRIVER	BL 2058.6891.00	IDT	(IDT49)FCT805(SO)	
D47	BL PC74HCT4051T 8CH.A.MUX ANALOG MULTIPLEXER	0007.6827.00	PHILIPS	(PC)74HCT4051(T)	
D55	BL PC74HCT125T 4XBUFF. 3S QUAD LINE DRIVER	BL 0007.5395.00	PHILIPS_SE	(PC)74HCT125(D/T)	
D80	BG TH3032.1C SERBUSD ASIC IC GATE ARRAY	BG 0008.6143.00	THESYS	TH3032.1C	
D82	BL PC74HCT164T 8B.SH.REG. SHIFT REGISTER	BL 0007.6440.00	PHILIPS_SE	(PC)74HCT164(D/T)	
D87	BL 74ACT273 8X D-FF M.RES OCTAL D FLIP-FLOP	BL 1058.0745.00	HARRIS	(CD74)ACT273(M)	
D92	BL PC74HCT14T 6XINV.SCHM INV. SCHMITT-TRIGGER	BL 0007.6204.00	PHILIPS_SE	(PC)74HCT14(D/T)	
G2	EO 40,000MHZ QUARZOSZ QUARTZ CRYSTAL OSCILLATOR	1078.3133.00	SEIKO	SG 615 PH	
K1	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
K2	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
K4	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
K5	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
K7	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
K8	SN GEPOLT 2XUM 5V MONOST. RELAY	1078.3262.00	MATSUSHITA	TQ2SA-5V(Z)	
L1 ..4	LD 680NH 10% 0,14A 1210 RF CHOKE	LD 0690.9195.00	SIEMENS	B82422-A3681-J(K)100	
L5 ..8	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L9	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L10	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
L11	LD 1,5UH 10% 0,34A 1210 RF CHOKE	LD 0009.5157.00	SIEMENS	B82422-A1152-J(K)100	
L12	LD 1,5UH 10% 0,34A 1210 RF CHOKE	LD 0009.5157.00	SIEMENS	B82422-A1152-J(K)100	
L13	LD 6UH 4A 0,017OHM CHOKE	LD 0026.4761.00	FASTRON_GE	SSSC-6ROM-00	
L14	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L15	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L16	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L17	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L18	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L19	LD 5,5UH Q11O/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L20 ..23	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L24	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L25	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L26	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L27	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L28	LD 2,7OUH10%0,55OHMO,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L29 ..33	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L34	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L35	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L36	LD 1UH 10% 0,38A 1210 RF CHOKE	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L37	LD 5,5UH Q11O/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L38	LD 5,5UH Q11O/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L39	LD 2,2UH 10% 0,27A 1210 RF CHOKE	LD 0520.7870.00	SIEMENS	B82422-A1222-J(K)100	
L40 ..48	LD 5,5UH Q11O/5,5MHZ COIL	0374.7053.00	TOKO	P119ANS-A4342 AH	
L49 ..52	LD SP-DROSSEL 15UH 2,45A CHOKE	1081.0283.00	SUMIDA	CDR125-150	
L53	LD 6,8UH 10% 0,13A 1210 RF CHOKE	LD 0009.5186.00	SIEMENS	B82422-A1682-J(K)100	
L54	LD 6,8UH 10% 0,13A 1210 RF CHOKE	LD 0009.5186.00	SIEMENS	B82422-A1682-J(K)100	
N1 ..4	BO AD9631AR VF OPAMP IC OPAMP	1085.1803.00	ANALOG_DEV	AD9631AR	
N5	BO REFO1CS 10V 2OMA VREF VOLTAGE REFERENCE	1002.5129.00	PMI	REFO1C(S)	
N6 ..13	BO AD9631AR VF OPAMP IC OPAMP	1085.1803.00	ANALOG_DEV	AD9631AR	
N14	BV PT62O3C DC/DC-CONV DC/DC-CONVERTER	BV 1085.1884.00	POWER_TREN	PT6203C	
N15 ..17	BO LT1124CS8 2X OPAMP IC OPAMP	1036.4483.00	LINEAR_TEC	(LT)1124(CS8)	
N18	BV PT62O3C DC/DC-CONV DC/DC-CONVERTER	BV 1085.1884.00	POWER_TREN	PT6203C	
N19	BO OPO7CS8 OPAMP OPERATIONAL AMPLIFIER	0007.7781.00	LINEAR_TEC	LT1001(CS8)	
N23 ..25	BO OPO7CS8 OPAMP OPERATIONAL AMPLIFIER	0007.7781.00	LINEAR_TEC	LT1001(CS8)	
R1	RG 511 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9051.00	PHILIPS_CO	RCO2	
R2	RG 511 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9051.00	PHILIPS_CO	RCO2	
R3 ..7	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R8	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	PHILIPS_CO	RCO2	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R9	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	PHILIPS_CO	RC02	
R10	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R11	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R12	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R13	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
..24					
R25	RG 100R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R26	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R27	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R28	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R29	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R30	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	PHILIPS_CO	RC02	
R31	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	PHILIPS_CO	RC02	
R32	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
..34					
R35	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R36	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R37	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R38	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R39	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R40	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R41	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R42	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R43	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R44	RG 200 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5608.00	PHILIPS_CO	RC02	
R45	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R46	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R47	RG 470R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6976.00	DRALORIC	CR 0603	
R48	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R49	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R50	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R51	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R52	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R53	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R54	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	
R55	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R56	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R57	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R58	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R59	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R60	RG 47R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6924.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R61 ..65	RG 121 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9498.00	DRALORIC	CR 0603	
R66	RG 1K21 +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0010.9817.00	DRALORIC	CR 0603	
R67	RG 4K75 +-1% TK100 RESISTOR CHIP	1206	RG 0007.5820.00	PHILIPS_CO	RC02	
R68	RG 619 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.9074.00	PHILIPS_CO	RC02	
R69	RG 619 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.9074.00	PHILIPS_CO	RC02	
R70	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R71	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R72	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R73	RG 150R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R74	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R75	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R76	RG 51,1 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8810.00	PHILIPS_CO	RC02	
R77	RG 51,0 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9030.00	DRALORIC	CR 0603	
R78	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R79	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R80	RG 51,1 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.8810.00	PHILIPS_CO	RC02	
R81	RG 51,0 OHM+-1%TK100 SMD RESISTOR EIA0603	0603	0009.9030.00	DRALORIC	CR 0603	
R82	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R83	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R84	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R85	RG 3R32 +-1% TK250 SMD RESISTOR EIA0603	0603	0010.8362.00	DRALORIC	CR 0603	
R86	RG 270R +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R87	RG 1K21 +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0010.9817.00	DRALORIC	CR 0603	
R88	RG 270R +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R89	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R90	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R91	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R92	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R93	RG 100R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5334.00	PHILIPS_CO	RC 22 H	
R94 ..97	RG 100 OHM+-0,1%TK25 SMD-RESISTOR	1206	0009.8033.00	PHILIPS_CO	MPC 01	
R98	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R99	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R100	RG 100 OHM+-0,1%TK25 SMD-RESISTOR	1206	0009.8033.00	PHILIPS_CO	MPC 01	
R101	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R102	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R103 ..105	RG 100 OHM+-0,1%TK25 SMD-RESISTOR	1206	0009.8033.00	PHILIPS_CO	MPC 01	
R106	RG 1K21 +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0010.9817.00	DRALORIC	CR 0603	
R107	RG 1K21 +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0010.9817.00	DRALORIC	CR 0603	
R108	RG 1,3 KOHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5708.00	PHILIPS_CO	RC02	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R109	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R110	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R111	RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9968.00	PHILIPS_CO	RC02	
R112	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R113	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R114	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R115	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R116	RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9968.00	PHILIPS_CO	RC02	
R117	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R118	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R119	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R120	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R121 ..124	RG 15R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6899.00	DRALORIC	CR 0603	
R125	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R126	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R127	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R128 ..130	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R131	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R132	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R133	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R134	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R135	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R136	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R137 ..139	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R140	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R141	RG 22R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6901.00	DRALORIC	CR 0603	
R142	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R143	RG 0-OHM WIDERSTAND 1206 RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R144	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R145	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R146	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R147	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R148	RG 0-OHM WIDERSTAND 1206 RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R149	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R150	RG 68R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6930.00	DRALORIC	CR 0603	
R151	RG 90,9 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	1081.1773.00	DRALORIC	CR 0603	
R152	RG 90,9 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	1081.1773.00	DRALORIC	CR 0603	
R153 ..163	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R164	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R165	RG 182 OHM+-1%TK100 0603	0009.9130.00	DRALORIC	CR 0603	
..176	SMD RESISTOR EIA0603				
R177	RG 51,0 OHM+-1%TK100 0603	0009.9030.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R178	RG 15R +-1% TK100 0603	0009.6899.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R179	RG 22OR +-1% TK100 0603	0009.6953.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R180	RG 1OR +-1% TK100 0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R181	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R182	RG 1KO +-1% TK100 1206	RG 0006.7271.00	DRALORIC	CR 1206	
	CHIP RESISTOR				
R183	RG 1KO +-1% TK100 1206	RG 0006.7271.00	DRALORIC	CR 1206	
	CHIP RESISTOR				
R184	RG 51,0 OHM+-1%TK100 0603	0009.9030.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R185	RG 47OR +-1% TK100 0603	0009.6976.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R186	RG 22OR +-1% TK100 0603	0009.6953.00	DRALORIC	CR 0603	
..188	SMD RESISTOR EIA0603				
R189	RG 1OR +-1% TK100 0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R190	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..193	SMD RESISTOR EIA0603				
R194	RG 22R +-1% TK100 0603	0009.6901.00	DRALORIC	CR 0603	
..203	SMD RESISTOR EIA0603				
R204	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R205	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R206	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R207	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R208	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R209	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R210	RG 27OR +-1% TK100 0603	0010.9581.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R211	RG 27OR +-1% TK100 0603	0010.9581.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R212	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
..218	SMD RESISTOR EIA0603				
R219	RG O-OHM WIDERSTAND 0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
	SMD RESISTOR EIA0603				
R220	RG O-OHM WIDERSTAND 0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
	SMD RESISTOR EIA0603				
R221	RG 47OR +-1% TK100 0603	0009.6976.00	DRALORIC	CR 0603	
	SMD RESISTOR EIA0603				
R222	RG 1KO +-1% TK100 1206	RG 0006.7271.00	DRALORIC	CR 1206	
..225	CHIP RESISTOR				
R226	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R227	RG 100,OKOH+-1%TK100 1206	RG 0007.1948.00	PHILIPS_CO	RC02	
	CHIP RESISTOR				
R228	RG 1KO +-1% TK100 1206	RG 0006.7271.00	DRALORIC	CR 1206	
	CHIP RESISTOR				
R229	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R230	RG 1KO +-1% TK100 0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R231	RG 100,OKOH+-1%TK100 1206	RG 0007.1948.00	PHILIPS_CO	RC02	
	CHIP RESISTOR				
R232	RG O-OHM WIDERSTAND 0603	0009.9369.00	PHILIPS_CO	RC21 O OHM	
	SMD RESISTOR EIA0603				
R233	RG 27OR +-1% TK100 0603	0010.9581.00	PHILIPS_CO	RC 22 H	
	SMD RESISTOR EIA0603				
R234	RG 1,3KOHM+-0,1%TK25 1206	0010.1968.00	PHILIPS_CO	MPC 01	
	RESISTOR				
R235	RG 100 OHM+-0,1%TK25 1206	0009.8033.00	PHILIPS_CO	MPC 01	
	SMD-RESISTOR				
R236	RG 681 OHM+-1%TK100 1206	RG 0006.9080.00	PHILIPS_CO	RC02	
	CHIP RESISTOR				
R237	RG 43,2 OHM+-1%TK100 1206	RG 0007.5550.00	DRALORIC	CR 1206	
	RESISTOR CHIP				

Kennz. Comp. No.	Benennung Designation		Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R238	RG 681 OHM+-1%TK100 CHIP RESISTOR	1206	RG 0006.9080.00	PHILIPS_CO	RC02	
R239	RG 100 OHM+-0,1%TK25 SMD-RESISTOR	1206	0009.8033.00	PHILIPS_CO	MPC 01	
R240	RG 1,3KOHM+-0,1%TK25 RESISTOR	1206	0010.1968.00	PHILIPS_CO	MPC 01	
R241	RG 43,2 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5550.00	DRALORIC	CR 1206	
R242	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R243	RG 470R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6976.00	DRALORIC	CR 0603	
R244	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R245	RG 270R +-1% TK100 SMD RESISTOR EIA0603	0603	0010.9581.00	PHILIPS_CO	RC 22 H	
R246	RG 274 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5637.00	PHILIPS_CO	RC02	
R247	RG 274 OHM+-1%TK100 RESISTOR CHIP	1206	RG 0007.5637.00	PHILIPS_CO	RC02	
R248 ..251	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R252 ..257	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R258	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R259	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R260 ..263	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R264	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R265	RG 150R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R266 ..269	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R270	RS 0,25W 20 OHM+-20% POTENTIOMETER	SMD	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R271	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R272	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R273 ..275	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R276	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R277	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R278	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R279 ..285	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R286 ..289	RG 10K +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R290	RG 22R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6901.00	DRALORIC	CR 0603	
R291	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R292	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R293	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R294	RG 10R +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R295	RS 0,25W 20 OHM+-20% POTENTIOMETER	SMD	RS 0007.9561.00	BI_TECHNOL	23 B R... TR	
R296	RG 7K5 +-1% TK100 SMD RESISTOR EIA0603	0603	0010.8440.00	PHILIPS_CO	RC 22 H	
R297 ..299	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R300	RS 0,25W100 OHM+-20% POTENTIOMETER	SMD	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R301	RG 1KO +-1% TK100 SMD RESISTOR EIA0603	0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R302 ..304	RG 33R +-1% TK100 SMD RESISTOR EIA0603	0603	0009.6918.00	DRALORIC	CR 0603	
R305 ..307	RG 0-OHM WIDERSTAND SMD RESISTOR EIA0603	0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R308	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R309	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R310	RG 1K21 +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0010.9817.00	DRALORIC	CR 0603	
R311	RG 2K2 +-1% TK100 0603 SMD RESISTOR EIA0603	0009.7008.00	DRALORIC	CR 0603	
R312	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R313 ..319	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R320	RG 200 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5608.00	PHILIPS_CO	RC02	
R321	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R322	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R323 ..325	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R326 ..329	RG 1KO +-1% TK100 1206 CHIP RESISTOR	RG 0006.7271.00	DRALORIC	CR 1206	
R330	RG 200 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5608.00	PHILIPS_CO	RC02	
R331	RG 200 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5608.00	PHILIPS_CO	RC02	
R375	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R376	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R377	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R378	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R379	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R380	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	PHILIPS_CO	RC02	
R381	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R384	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R389	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R399	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R401	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R402	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R404	RG 182 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9130.00	DRALORIC	CR 0603	
R408	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	DRALORIC	CR 1206	
R409 ..419	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	PHILIPS_CO	RC02	
R434	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R435	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R436	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R437 ..443	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R445	RG 3R32 +-1% TK250 0603 SMD RESISTOR EIA0603	0010.8362.00	DRALORIC	CR 0603	
R446	RG 10K +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5357.00	PHILIPS_CO	RC 22 H	
R447	RG 680R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R448	RG 680R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R450	RG 680R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R451	RG 680R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6982.00	PHILIPS_CO	RC 22 H	
R464	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R465	RS 0,25W100 OHM+-20% SMD POTENTIOMETER	RS 0007.9584.00	BI_TECHNOL	23 B R... TR	
R467	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R468	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R469	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R470	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R471	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R472	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R482	RG 15R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6899.00	DRALORIC	CR 0603	
R488	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	PHILIPS_CO	RC02	
R489 ..491	RG 10R +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5328.00	PHILIPS_CO	RC 22 H	
R493 ..496	RG 150R +-1% TK100 0603 SMD RESISTOR EIA0603	0009.6947.00	PHILIPS_CO	RC 22 H	
R497	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R498	RG 121 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9498.00	DRALORIC	CR 0603	
R499	RG 1KO +-1% TK100 0603 SMD RESISTOR EIA0603	RG 0009.5340.00	PHILIPS_CO	RC 22 H	
R503	RG 82,5 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9052.00	DRALORIC	CR 0603	
R504	RG 82,5 OHM+-1%TK100 0603 SMD RESISTOR EIA0603	0009.9052.00	DRALORIC	CR 0603	
R505	RG 825R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8391.00	PHILIPS_CO	RC 22 H	
R506	RG 825R +-1% TK100 0603 SMD RESISTOR EIA0603	0010.8391.00	PHILIPS_CO	RC 22 H	
R507	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R508	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R509	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
R510	RG 0-OHM WIDERSTAND 0603 SMD RESISTOR EIA0603	0009.9369.00	PHILIPS_CO	RC21 0 OHM	
S1	SK CODIERSCH..2P.2XEIN DIP-SWITCH	1081.0190.00	C&K	DMR-02-T(R)	
V3 ..6	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V9	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V10	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V11	AK BCP69-25 P 20V TRANS MEDIUM POWER TRANSISTOR	0008.2002.00	PHILIPS	BCP 69-16 (25)	
V12	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V13	AK BCP68-16 N 20V TRANS MEDIUM POWER TRANSISTOR	0008.2019.00	PHILIPS	BCP68-25	
V14	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V15	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V16 ..18	AD BAS16 75V UDI HIGH-SPEED DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V19	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V20	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
W1	DW RF CABLE W1	1104.9116.00			
W2	DW KABEL W2	1104.9122.00			
X1	FP E-PRESS STIFTLEISTE 2P CONNECTOR	0048.4706.00			
X2 ..5	FP E-PRESS STIFTLEISTE 4P CONNECTOR	0048.4729.00			

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1ESK 854 3PLS	Äl	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt-Nr. Page
ROHDE&SCHWARZ	11	12.08.99	EE N/D-SIMULATOR N/D-SIMULATOR	1104.9080.01 SA	13+

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
X6	FP E-PRESS STIFTLEISTE 2P CONNECTOR	0048.4706.00			
X7	FP E-PRESS STIFTLEISTE 4P CONNECTOR	0048.4729.00			
X8	FP E-PRESS STIFTLEISTE 3P CONNECTOR	0048.4712.00			
X9	FP E-PRESS STIFTLEISTE 3P CONNECTOR	0048.4712.00			
X10	FP E-PRESS STIFTLEISTE 4P CONNECTOR	0048.4729.00			
X11	FP E-PRESS STIFTLEISTE 2P CONNECTOR	0048.4706.00			
X12	FP E-PRESS STIFTL.10P. 2R CONNECTOR	0048.4970.00			
X13	FP E-PRESS STIFTLEISTE 3P CONNECTOR	0048.4712.00			
X14	FP E-PRESS STIFTLEISTE 2P CONNECTOR	0048.4706.00			
X15	FP E-PRESS STIFTLEISTE 3P CONNECTOR	0048.4712.00			
X16	FP E-PRESS STIFTLEISTE 3P CONNECTOR	0048.4712.00			
X600	FP STECKERLEISTE 64P. CONNECTOR 64P.	FP 0008.5747.00	DEUT_ELCO	16 8457 064 002 025	
X601 ..606	FJ EINLOETBUCHSE MMCX CONNECTOR	1085.1532.00	SUHNER	82MMCXS50-0-2/111KG	
Z1 ..35	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z36 ..41	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z42	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z43	LD T-FILTER 100PF SMD SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z54 ..57	LD T-FILTER 3,3NF SMD SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	

ROHDE&SCHWARZ

Stromläufe
Bestückungspläne

Circuit diagrams
Component plans

Schémas de circuit
Plans des composants

095.1000 Bl. 4

Digital Section

Sheets 4,5 + 11–17

D17 A/D 12-Bit I_ADC_OUT
D18 A/D 12-Bit Q_ADC_OUT
DC_CLK

I_DAC_DATA 14-Bit → D13 D/A → N10 DC-Shift → N4 Allpass → Sheet 6,7 → 1/SI Entzerr → N11 Output Amplifier → 50 OHM → I_NDSIM X604, I_MODOUT X603
Rel5, Rel4, Rel4 50 OHM, TP 2701

Q_DAC_DATA 14-Bit → D14 D/A → N12 DC-Shift → N6 Allpass → Sheet 6,7 → 1/SI Entzerr → N13 Output Amplifier → 50 OHM → Q_NDSIM X606, Q_MODOUT X605
Rel8, Rel7, Rel7 50 OHM, TP 2702

DAC_CLK

DC_NEG I: R133 Q: R276
DC_POS I: R109 Q: R110
T_g I: R89 Q: R272
OUTPUT LOWPASS
Rel5/8 = FSON 3/4
Rel4/7 = LOOP 1/2

D4,D6,D7 BUF Sheet 15
D12,D15 RAM Sheet 14
D16,D19 D25,D26 RAM Sheet 17
I/O_STUETZ_DATA
2*14 DII/DIQ_DATA
2*14 DQI/DQQ_DATA
DIST2_CLK

Distortion2 FPGA D20 Sheet 16
12 I_DISTORTION_OUT
12 Q_DISTORTION_OUT

D8,D9 RAM Sheet 12

Noise FPGA D40 Sheet 11
Noise_CLK
14 I_DAC_DATA
14 Q_DAC_DATA
4 Boundary Scan X12

Sheet 2
N14 DC / DC Converter 15V / 3.3V
+15V → TP 2700 → +3.3V
N18 DC / DC Converter 15V / 3.3V
+15V → TP 2704 → +3.3V2

Sheet 8
D47 DIAG MUX
TP 2700 → 0
TP 2701 → 1
TP 2702 → 2
TP 2703 → 3
TP 2704 → 4
TP 2705 → 5,6,7
DIAG-5V X600/A19

Sheet 8
TP 2703 → +5VD
TP 2705 → GND

Boot-EEPROM (D37) not shown
(only for development)

Sheet 8,9,10
D80 Sheet 8
X600
SEROUT → D1,D2,D3,D21,D22,D23 Shift-Register 1 (an Serbus-D Kanal 1) 2*12 I/Q_ADC_DATA, 4 DIAG_MUX, 6 RELAIS, 8 FPGA-CTRL, ADC_LATCH_EN
SERIN1 ← D34,D35,D36,D39 Shift-Register 2 (an Serbus-D Kanal 1) 2*14 I/Q_DAC_DATA, FPGA INIT, FPGA DONE
OPTION, VAR (0..2), REV (0..3) → Serbus Hardware Version with R-Coding → PARDAT
Serbus Decoder ASIC
SEROUT, SERIN2 ↔ FPGA-DATA (an Serbus-D Kanal 2)
RAM_WR_ERR → IR0

02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.		PA	N/D-SIMULATOR
				NORM			TOP/TOP.1
				PLOTT	98-10-15	NIEDERL	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
				ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 1 +

I_MODIN
X601

Q_MODIN
X602

Rel1

Rel2

N1
DC-Shift

N3
Allpass

N2
0 Ohm Source

N7
DC-Shift

N9
Allpass

N8
0 Ohm Source

D17
A/D

D18
A/D

Sheet 4,5

ADC_CLK

12-Bit

I_ADC_OUT

Q_ADC_OUT

Digital Section

Sheets 4,5 + 11–17

I_DAC_DATA

Q_DAC_DATA

14-Bit

D13
D/A

D14
D/A

DAC_CLK

N10
DC-Shift

N12
DC-Shift

Rel1 = FSON 1

Rel2 = FSON 2

DC_OFFSET
I: R270
Q: R295

T_g
I: R300
Q: R308

INPUT LOWPASS

DC_GAIN
I: R464
Q: R465

DC_NEG
I: R133
Q: R276

DC_POS
I: R109
Q: R110

Digital Section

Sheet 4,5

D41,D42

I_ADC Register with OE

Q_ADC Register with OE

D43,D44

I_ADC_OUT

Q_ADC_OUT

ADC_LATCH_EN

ADC_LATCH_CLK

12

I_ADC_DATA

Q_ADC_DATA

DIST1_CLK

Distortion1 FPGA
D5
Sheet 13

D10,D11
RAM
Sheet 14

D4,D6,D7
BUF
Sheet 15

RAM
Sheet 14
D12,D15

I/Q_STUETZ_DATA

2*14

RAM
Sheet 17
D16,D19
D25,D26

DII/DIQ_DATA

DQI/DQQ_DATA

DIST2_CLK

Distortion2 FPGA
D20
Sheet 16

12
I_DISTORTION_OUT

12
Q_DISTORTION_OUT

Noise_CLK

Noise FPGA
D40
Sheet 11

14
I_DAC_DATA

14
Q_DAC_DATA

4 Boundary Scan X12

D8,D9
RAM
Sheet 12

Sheet 3

G2
Oscillator 40 MHz

D45
Clock Driver / Generator

X15
1 3

Clock Distribution

40 MHz DIST1_CLK
40 MHz DIST2_CLK
40 MHz NOISE_CLK
40 MHz DAC_CLK
40 MHz ADC_CLK
40 MHz ADC_LATCH_CLK

Sheet 8,9,10

D80
Sheet 8

Serbus Decoder ASIC

X600

SEROUT

SERIN1

SERIN2

IR0

RAM_WR_ERR

D1,D2,D3,D21,D22,D23
Shift–Register 1
(an Serbus–D Kanal 1)

2*12
I/Q_ADC_DATA

4 DIAG_MUX

6 RELAIS

8 FPGA–CTRL

ADC_LATCH_EN

D34,D35,D36,D39
Shift–Register 2
(an Serbus–D Kanal 1)

2*14
I/Q_DAC_DATA

FPGA INIT

FPGA DONE

OPTION

VAR (0..2)

REV (0..3)

Serbus Hardware Version with R–Coding

PARDAT

FPGA–DATA
(an Serbus–D Kanal 2)

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AENDE MITTEI

BEHALTEN WIR UNS ALLE RECHTE VOR

I_OUT_BACK

YP

TION_BLOCK_1

DOUT_DIST2
IQ_STUETZ_DATA
DIST1->DIST2
_DATA
DII/DIQ/DQI/DQQ/DI/DQ_ADR
DII_ADR,DI_ADR,...
FPGA_CTRL
FPGA_CTRL
BOUNDARY_SCAN
I_BLOCK_1_815
SHEET 13,14,15

DISTORTION_BLOCK_2

DOUT_DIST2 DOUT_NOISE
IQ_STUETZ_DATA
DIST1->DIST2
I_DISTORTION_OUT
Q_DISTORTION_OUT
CLOCKS
DII_ADR,DI_ADR,...
FPGA_CTRL RAM_WR_ERR
BOUNDARY_SCAN
DISTORTION_BLOCK_2_816
SHEET 16,17

NOISE_BLOCK

DOUT_NOISE NOISE_BLOCK_814
I_DISTORTION_OUT I_DAC_DATA
Q_DISTORTION_OUT Q_DAC_DATA
CLOCKS
FPGA_CTRL
BOUNDARY_SCAN
SHEET 11,12

I_DAC_DATA
Q_DAC_DATA

W1B

I_OUTPUT

I_MODBYP
IQDC_SHIFT
I_DAC_DATA
RELAIS_CTRL
CLOCKS
I_OUTPUT_8
I_FSIM
I_OUT_BACK
I_OUT_T
I_MODOUT
DC_SHIFT
SHEET 6

I_NDSIM — X604
I_MODOUT — X603

Q_OUT_BACK

W2B

Q_OUTPUT

DC_SHIFT
Q_MODBYP
Q_DAC_DATA
RELAIS_CTRL
CLOCKS
Q_OUTPUT_9
Q_FSIM
Q_OUT_BACK
Q_OUT_T
Q_MODOUT
SHEET 7

Q_NDSIM — X606
Q_MODOUT — X605

DBYP

CLOCK_DISTRIBUTION

CLOCKS
CLOCK_DIS_5
SHEET 3

SERBUS_PNGEN

SERBUS
RELAIS_CTRL
IQ_ADC_DATA
RAM_WR_ERR
I_OUT_T
Q_OUT_T
SERBUS_PNGEN_15
SERBUS
RELAIS_CTRL
ADC_LATCH_EN
I_DAC_DATA
Q_DAC_DATA
FPGA_CTRL
BOUNDARY_SCAN
DIAG-5V
SHEET 8,9,10

Q_OUT_T
I_OUT_T

N18 PT6203C

+15VD — L39 2.2U — C129 10U
V_IN, V_IN, N/C, INHIBIT, V_OUT_ADJ, V_OUT, V_OUT, N/C, GND GND GND GND
+3.3V2 — C128 10U, C42 47U, C43 47U

N14 PT6203C

+15VD — L34 2.2U — C254 10U
V_IN, V_IN, N/C, INHIBIT, V_OUT_ADJ, V_OUT, V_OUT, N/C, GND GND GND GND
+3.3V — C255 10U, C50 47U, C52 47U

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
02.00			

1ESK	DATUM	NAME
BEARB.		PA
GEPR.		PA
NORM		
PLOTT	98-10-15	NIEDERL

ZU GERAET SMIQ

BENENNUNG
N/D-SIMULATOR
N/D-SIMULATOR
TOP/TOP.2

ROHDE&SCHWARZ

ZEICHN.-NR. 1104.9080.01 S
BLATT-NR. 2 +
REG.I.V. 1104.9000
ERSTE Z. 1104.9000.01

BEHALTEN WIR UNS ALLE RECHTE VOR

I_OUT_BACK

W1A
I_MODBYP

I_INPUT

X601 I_MODIN

X600 A11 A13 A21 A23 A25 A27 A29 A31 B2 B11 B13 B21 B23 B25 B27 B31

I_OUT_BACK
I_MODIN
ADC_LATCH_EN
CLOCKS
RELAIS_CTRL
I_MODBYP
IQ_ADC_DATA
I_INPUT_6
SHEET 4

DISTORTION_BLOCK_1

DOUT_DIST2
IQ_STUETZ_DATA
DIST1->DIST2
IQ_ADC_DATA
DII_ADR,DI_ADR,...
FPGA_CTRL
CLOCKS
BOUNDARY_SCAN
DII/DIQ/DQI/DQQ/DI/DQ_ADR
DISTORTION_BLOCK_1_815
SHEET 13,14,15

DISTORTION_BLOCK_2

DOUT_DIST2
DOUT_NOISE
IQ_STUETZ_DATA
DIST1->DIST2
I_DISTORTION_OUT
Q_DISTORTION_OUT
CLOCKS
DII_ADR,DI_ADR,...
FPGA_CTRL
RAM_WR_ERR
BOUNDARY_SCAN
DISTORTION_BLOCK_2_816
SHEET 16,17

NOISE_BLOCK

DOUT_NOISE
NOISE_BL
I_DISTORTION_OUT
Q_DISTORTION_OUT
CLOCKS
FPGA_CTRL
BOUNDARY_SCAN
SHE

Q_OUT_BACK

Q_INPUT

X602 Q_MODIN

Q_INPUT_7
RELAIS_CTRL
CLOCKS
ADC_LATCH_EN
Q_OUT_BACK
Q_MODIN
IQ_ADC_DATA
IQDC_SHIFT
Q_MODBYP
SHEET 5

W2A
Q_MODBYP

X600 B1

X600 A12 SERBUS-CLK
X600 A14 SERBUS-DAT
X600 A15
X600 A16 SERBUS-SYNC
X600 A17 SERBUS-INT
X600 A18 RESET-P

SERBUS_PNGEN

SERBUS
RELAIS_CTRL
IQ_ADC_DATA
RAM_WR_ERR
I_OUT_T
Q_OUT_T
ADC_LATCH_EN
I_DAC_DATA
Q_DAC_DATA
FPGA_CTRL
BOUNDARY_SCAN
DIAG-5V
SERBUS_PNGEN_15
SHEET 8,9,10

X600 A19 DIAG-5V

Q_OUT
I_OUT

+15V
Z8 40DB
+15VD
X600 A24 VA15-P
X600 B24
L49 15U
C240 10U

+7.5V
X600 A26 VA7.5-P
X600 B26
L50 15U
C242 10U

+5V
X600 B28 VD5-P
X600 A28
X600 B29
L13 6U

Z9 40DB
+5VD
Z10 40DB
C244 10U

X600 A30 VA15-N
X600 B30
L51 15U
C243 10U
-15V

X600 A32 VA5.2-N
X600 B32
L52 15U
C245 10U
-5.2V

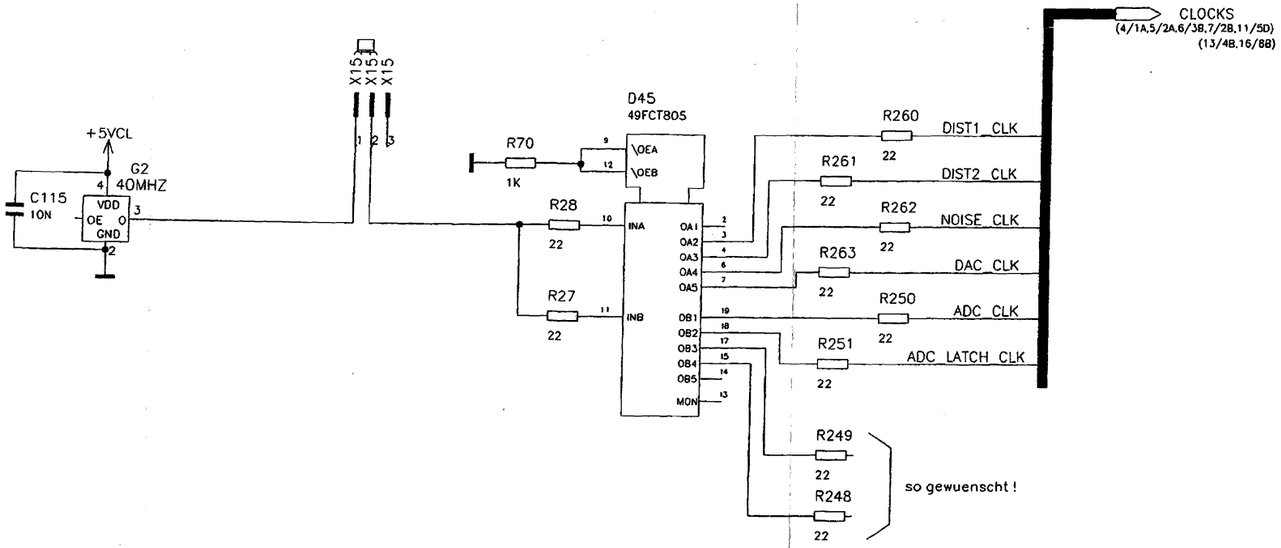
N18

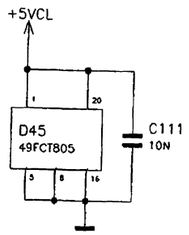
PT6203C

+15VD
L39 2.2U
C129 10U
V_IN
V_IN
N/C
INHIBIT
V_OUT_ADJ
V_OUT
V_OUT
GND GND GND GND
N/C

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERU MITTEILU
02.00	





ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
02.00			

1ESK	DATUM	NAME
BEARB.		PA
GEPR.		
NORM		
PLOTT	98-10-15	PANIEDERL

BENENNUNG
N/D-SIMULATOR
N/D-SIMULATOR
TOP/CLOCK_DIS_5/CLOCK_DIS.1

ROHDE&SCHWARZ

ZEICHN.-NR. 1104.9080.01 S

BLATT-NR. 3 +

ZU GERAET SMIQ | REG.I.V. 1104.9000 | ERSTE Z. 1104.9000.01

ADC_LATCH_EN
(5/10A,9/5B,10/5A)
I_MODBYP
IQ_ADC_DATA
(5/12A,10/7A,13/1A)
ADC_LATCH_CLK
ADC_CLK
+15VIIN
+5VIAD
+5VD
+5VQAD
+4.8VII
+1.7VI
10V_REF
2.4VIQ
-5.2VIIN
I_ADC
* = not fitted

D41 74ACT574M
D42 74ACT574M
D17 AD9042AST
N15 LT1124CS8
N1 AD9631AR
N2 AD9631AR
N3 AD9631AR
N5 REF01CS
V12 BC850B
V19 BC850B
V17 BAS16
Z3 40DB
Z6 40DB
Z7 40DB
L5 1UH
L6 1UH
L15 1UH

I_ADC_DATA11
I_ADC_DATA10
I_ADC_DATA9
I_ADC_DATA8
I_ADC_DATA7
I_ADC_DATA6
I_ADC_DATA5
I_ADC_DATA4
I_ADC_DATA3
I_ADC_DATA2
I_ADC_DATA1
I_ADC_DATA0

02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.			N/D-SIMULATOR
				NORM			TOP/I_INPUT_6/I_INPUT.1
				PLOTT	98-10-19	PANIEDERL	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 4 +

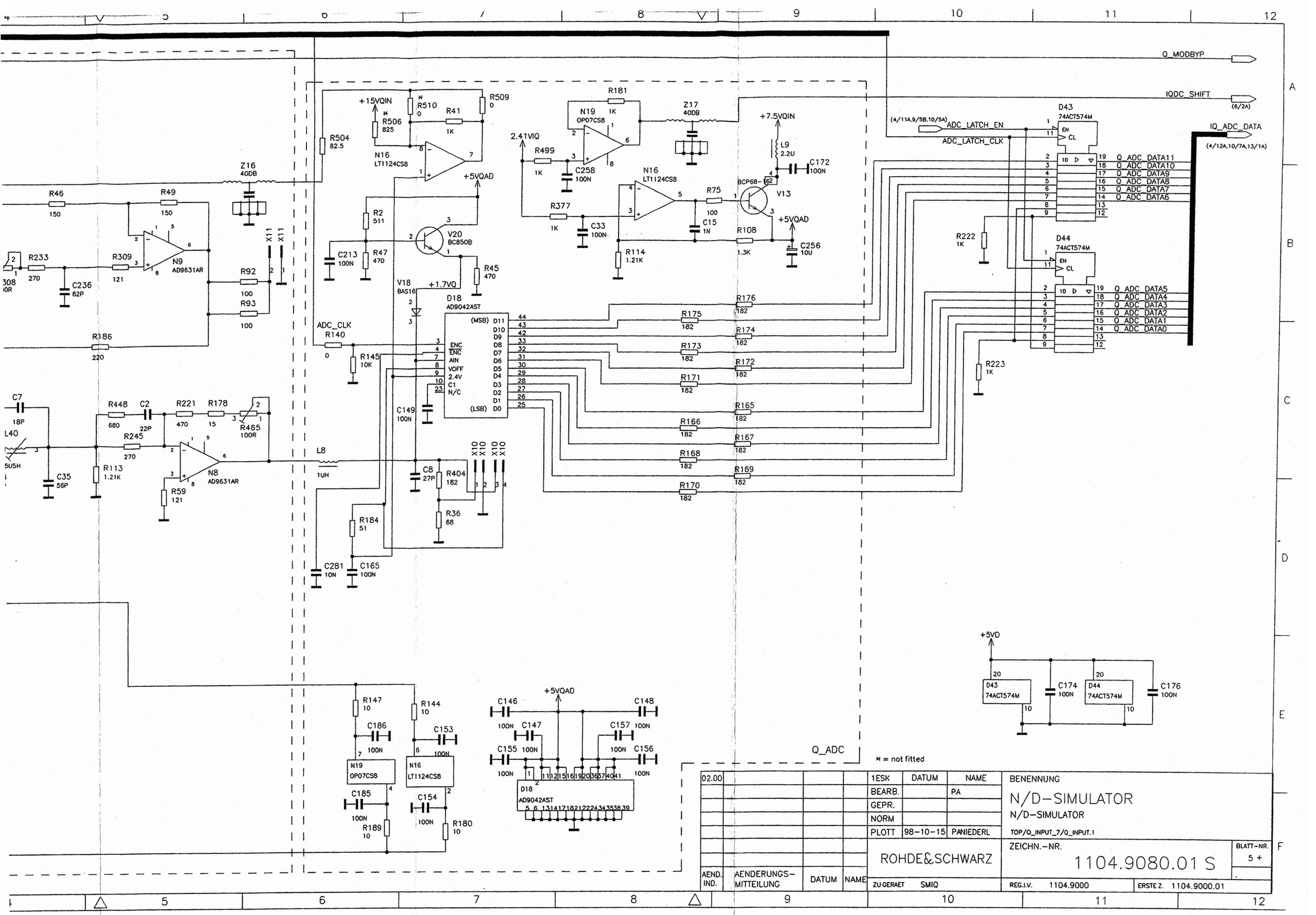
I_INPUT_FILTER

(3/6B,5/2A,6/3B,7/2B,11/5D)
(13/4B,16/8B) CLOCKS

I_MODIN
REL2U2A 5V
REL2U2A 5V
K1
K1
X9 X9 X9
X8 X8 X8
R58 3.32
R436 3.32
R48 182
R136 68
R32 150
R29 150
R55 121
R54 47
R401 10
R270 20R
R34 150
R33 150
R210 270
R300 100R
R40 121
C207 82P
N1 AD9631AR
N3 AD9631AR
Z7 40DB
X6 X6
R83 100
R84 100
I_OUT_BACK
(6/10C)
Z1 40DB
L16 2U7H
L17 2U7H
C251 47P
C136 30P-7P
R179 220
C150 3.3P
C20 10P
C5 18P
L1 680N
L19 5U5H
L14 1UH
L37 5U5H
L38 5U5H
C219 82P
C18 8.2P
C152 150P
C151 18P
C191 150P
C19 8.2P
C34 56P
R447 680
C1 22P
R185 470
R482 15
R464 100R
R211 270
R107 1.21K
R57 121
N2 AD9631AR
L5 1UH
C6 27P
R384 182
R35 68
X7 X7 X7 X7
R177 51
C247 10N
C84 100N
+15VIIN
R505 825
R508 0
R507 0
R39 1K
N15 LT1124CS8
R503 82.5
+5VIAD
R1 511
C200 100N
R37 470
V19 BC850B
R38 470
+1.7VI
V17 BAS16
ADC_CLK
R134 0
R142 10K
C73 100N
D17 AD9042AST
(MSB) D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 (LSB) D0
ENC ENC AIN VOFF 2.4V C1 N/C
10V_REF
R296 7.5K
2.4VIQ
R312
R311 2.2K
R399 182
C21 100N
1K
+5VD
Z3 40DB
+5VIIN
L6 1UH
C224 10U
N15 LT1124CS8
R72 100
C14 1N
R87 1.21K
R106 1.21K
R149 182
R153 182
R154 182
R155 182
R156 182
R157 182
R158 182
R159 182
R160 182
R161 182
R162 182
R163 182
+5VQAD
Z6 40DB
+5VIAD
C116 10U
C83 100N
C75 100N
C78 100N
C101 100N
C99 100N
C91 100N
D17 AD9042AST
RELAIS_CTRL
(5/1D,6/3D,7/2D,9/5B)
RLY_FSON1
Z5 40DB
K1 REL2U2A 5V
V3 BAS16
+4.8VII
L15 1UH
C233 10U
R74 10
R82 10
R90 10
C139 100N
C138 100N
C137 100N
N3 AD9631AR
N1 AD9631AR
N2 AD9631AR
C135 100N
C134 100N
C133 100N
R132 10
R112 10
R91 10
-5.2VIIN
-5.2VIIN
-5.2VIIN
+15VQIN
Z2 40DB
+15VIIN
C231 10U
Z4 40DB
C223 10U
-5.2VQIN
-5.2VIIN
L18 1UH
C246 10U
R137 10
C120 100N
N15 LT1124CS8
C124 100N
R138 10
R139 10
C25 100N
N5
REF01CS
10V_REF
C29 100N
02.00
AEND. IND.
AENDER MITTEILU

BEHALTEN WIR UNS ALLE RECHTE VOR

1 2 3 4 5 6 7 8
B C D E



02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.			N/D-SIMULATOR
				NORM			TOP/Q_INPUT_7/Q_INPUT.1
				PLOTT	98-10-15	PANIEDERL	ZEICHN.-NR. 1104.9080.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			BLATT-NR. 5 +
				ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

(3/6B,4/1A,6/3B,7/2B,11/5D)
(13/4B,16/8B)

CLOCKS

Q_INPUT_FILTER

Q_MODIN
REL2U2A 5V
REL2U2A 5V
Q_OUT_BACK
(7/9C)
RELAIS_CTRL
(4/1D,6/3D,7/2D,9/5B)
RLY_FSON2
K2
REL2U2A 5V
V4
BAS16
+15V
+15VQIN
+4.8VII
+7.5V
+7.5VQIN
-5.2V
-5.2VQIN
+15VQIN
+5VQAD
2.41VIQ
+1.7VQ
ADC_CLK
+5VQAD

R85 3.32
R445 3.32
R150 68
R56 182
R43 150
R42 150
R295 20R
R60 47
R491 10
R46 150
R49 150
R308 100R
R233 270
R309 121
R61 121
R92 100
R93 100
R186 220
R504 82.5
R506 825
R510 0
R509 0
R41 1K
R499 1K
R377 1K
R75 100
R114 1.21K
R108 1.3K
R2 511
R47 470
R45 470
R140 0
R145 10K
R176 182
R175 182
R174 182
R173 182
R172 182
R171 182
R165 182
R166 182
R167 182
R168 182
R169 182
R170 182
R404 182
R36 68
R184 51
R448 680
R245 270
R221 470
R178 15
R465 100R
R113 1.21K
R59 121
R147 10
R144 10
R186 10
R189 10
R180 10
R274 10
R273 10
R271 10
R278 10
R277 10
R275 10

C252 47P
C140 30P-7P
C214 3.3P
C23 10P
C7 18P
C2 22P
C235 82P
C22 8.2P
C225 150P
C220 18P
C226 150P
C24 8.2P
C35 56P
C236 82P
C8 27P
C149 100N
C213 100N
C258 100N
C33 100N
C15 1N
C281 10N
C165 100N
C263 10U
C259 10U
C257 10U
C262 10U
C177 100N
C178 100N
C180 100N
C181 100N
C182 100N
C184 100N
C186 100N
C153 100N
C185 100N
C154 100N
C146 100N
C147 100N
C148 100N
C155 100N
C157 100N
C156 100N

L21 2U7H
L20 2U7H
L2 680N
L42 5U5H
L24 1UH
L41 5U5H
L40 5U5H
L8 1UH
L7 1UH

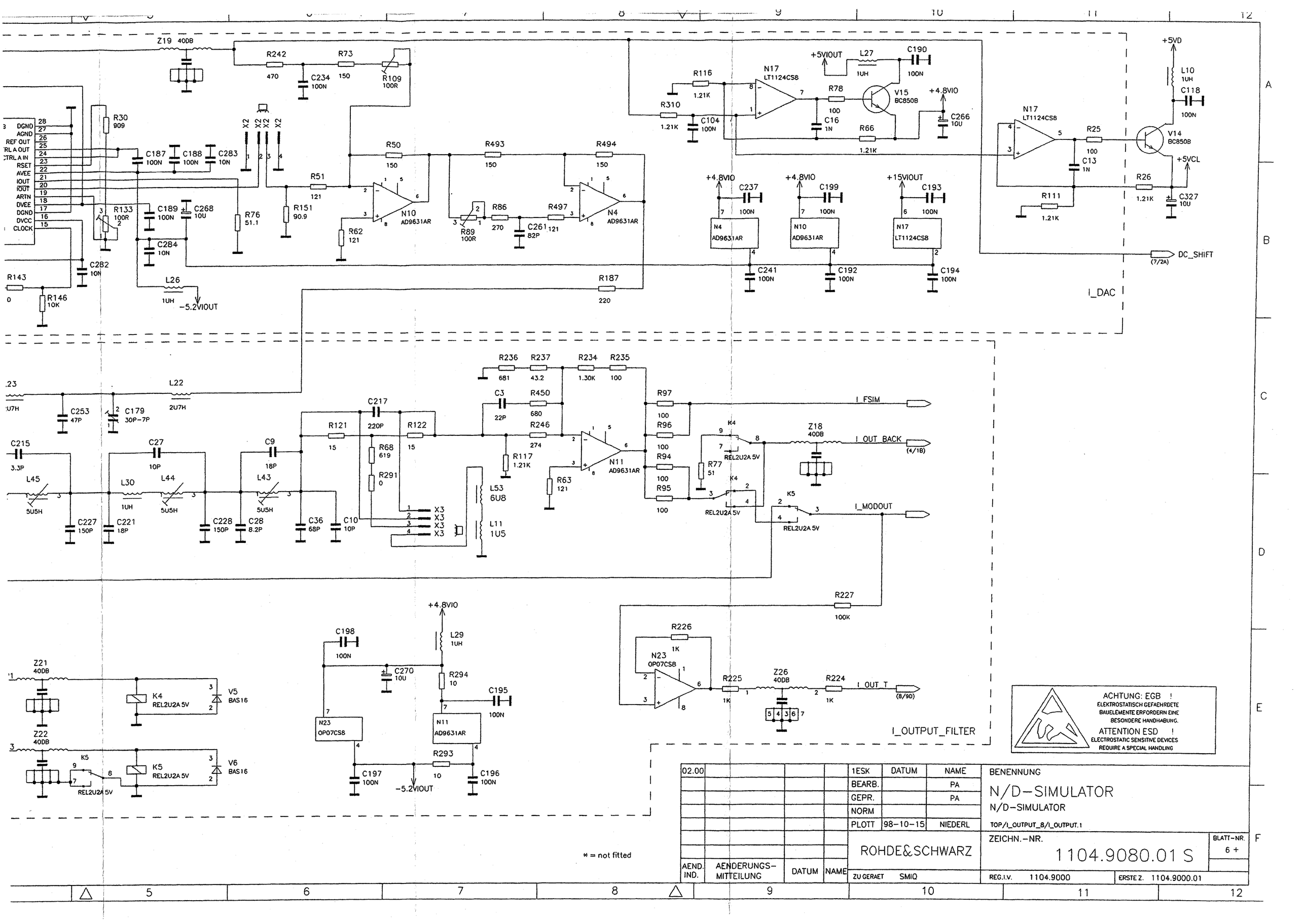
Z11 40DB
Z12 40DB
Z13 40DB
Z54 40DB
Z14 40DB
Z15 40DB
Z16 40DB
Z17 40DB

N7 AD9631AR
N8 AD9631AR
N9 AD9631AR
N16 LT1124CS8
N19 OP07CS8
V18 BAS16
V20 BC850B
D18 AD9042AST

X16 X16 X16
X13 X13 X13
X11 X11
X10 X10 X10 X10

02.00

AEND. IND.
AEND MITTE



02.00				1ESK	DATUM	NAME	BENENNUNG	
				BEARB.		PA	N/D-SIMULATOR	
				GEPR.		PA	N/D-SIMULATOR	
				NORM			TOP/I_OUTPUT_8/I_OUTPUT.1	
				PLOTT	98-10-15	NIEDERL		
							ZEICHN.-NR.	BLATT-NR.
				ROHDE&SCHWARZ			1104.9080.01 S	6 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SMIQ		REG.I.V. 1104.9000	ERSTE Z. 1104.9000.01

5 6 7 8 9 10 11 12

A B C D E F

BEHALTEN WIR UNS ALLE RECHTE VOR

IQDC_SHIFT
(5/12A)

Z55 40DB
C117 10U
-5.2VQO
-5.2VIO

D13
HI5731

I_DAC_DATA13 1
I_DAC_DATA12 2
I_DAC_DATA11 3
I_DAC_DATA10 4
I_DAC_DATA9 5
I_DAC_DATA8 6
I_DAC_DATA7 7
I_DAC_DATA6 8
I_DAC_DATA5 9
I_DAC_DATA4 10
I_DAC_DATA3 11
I_DAC_DATA2 12
I_DAC_DATA1 13
I_DAC_DATA0 14

D13MSB 28 DGND
D12 27 AGND
D11 26 REF OUT
D10 25 CTRL A OUT
D9 24 CTRL A IN
D8 23 RSET
D7 22 AVEE
D6 21 IOUT
D5 20 IOUT
D4 19 ARTN
D3 18 DVEE
D2 17 DGND
D1 16 DVCC
D0 LSB 15 CLOCK

+15V Z23 40DB +15VIOUT
C271 10U
+5VD Z24 40DB +5VIOUT
C265 10U

I_DAC_DATA
(10/1C,11/4B)
CLOCKS
(3/6B,4/1A,5/2A,7/2B,11/5D)
(13/4B,16/8B)

+5VIOUT
DAC_CLK
R143 0
R146 10K
C282 10N
R30 909
R133 100R
C187 100N
C188 100N
C283 10N
C189 100N
C268 10U
C284 10N
L26 1UH
-5.2VIOUT

Z19 40DB
R242 470
C234 100N
R73 150
R109 100R
X2 X2 X2 X2
R51 121
R76 51.1
R151 90.9
R62 121
R50 150
R493 150
R494 150
N10 AD9631AR
R89 100R
R86 270
C261 82P
R497 121
N4 AD9631AR
R116 1.21K
R310 1.21K
C104 100N
+4.8VIO
C23
100N
N4 AD9631AR
R187 220

L23 2U7H
C253 47P
C179 30P-7P
L22 2U7H

C215 3.3P
L3 680N
L45 5U5H
C238 82P
C26 8.2P
C227 150P

C27 10P
L30 1UH
L44 5U5H
C221 18P
C228 150P

C9 18P
L43 5U5H
C28 8.2P
C36 68P
C10 10P

C217 220P
R121 15
R122 15
R68 619
R291 0
X3 X3 X3 X3
L53 6U8
L11 1U5
R236 681
R237 43.2
R234 1.30K
R235 100
C3 22P
R450 680
R246 274
R117 1.21K
R63 121
N11 AD9631AR
R97 100
R96 100
R94 100
R95 100
R77 51
K4 REL2U2A5V
K4 REL2U2A5V

I_MODBYP
RELAIS_CTRL
(4/1D,5/1D,7/2D,9/5B)

Z25 40DB C264 10U
-5.2V -5.2VIOUT

RLY_LOOP1
Z21 40DB
K4 REL2U2A5V
V5 BAS16

RLY_FSON3
Z22 40DB
K5
K5 REL2U2A5V
REL2U2A5V
V6 BAS16

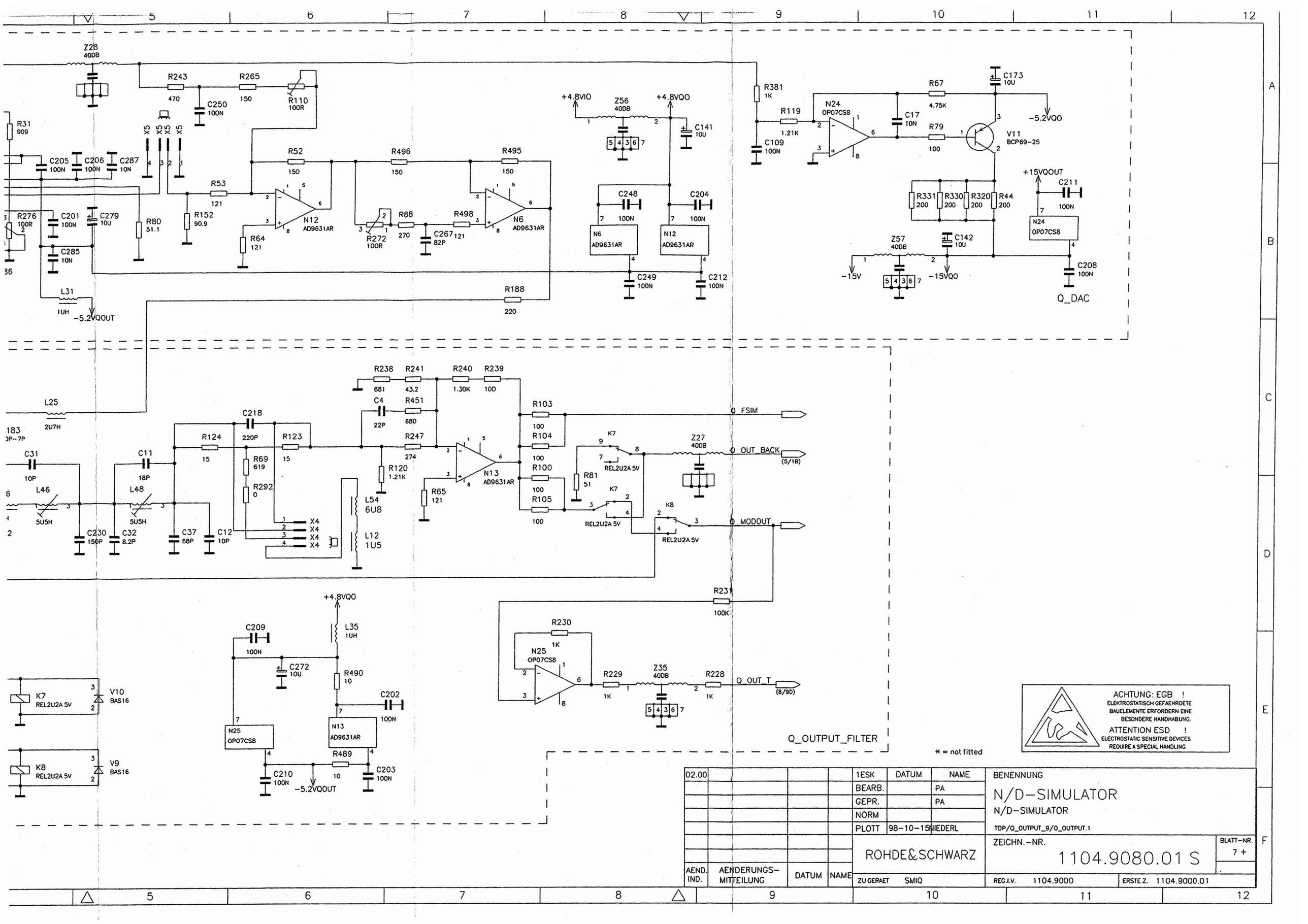
+4.8VIO
C198 100N
L29 1UH
C270 10U
R294 10
C195 100N
N23 OP07CS8
N11 AD9631AR
R293 10
C197 100N
C196 100N
-5.2VIOUT

R226 1K
N23 OP07CS8
R225 1K

02.00

AEND. IND. | AENDER MITTEILL

* = not fitted



AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
02.00			

	DATUM	NAME
1ESK		
BEARB.		PA
GEPR.		PA
NORM		
PLOTT	98-10-15	NIEDERL

BENENNUNG

N/D-SIMULATOR

N/D-SIMULATOR

TOP/Q_OUTPUT_9/Q_OUTPUT.1

ROHDE&SCHWARZ

ZEICHN.-NR. 1104.9080.01 S

BLATT-NR. 7 +

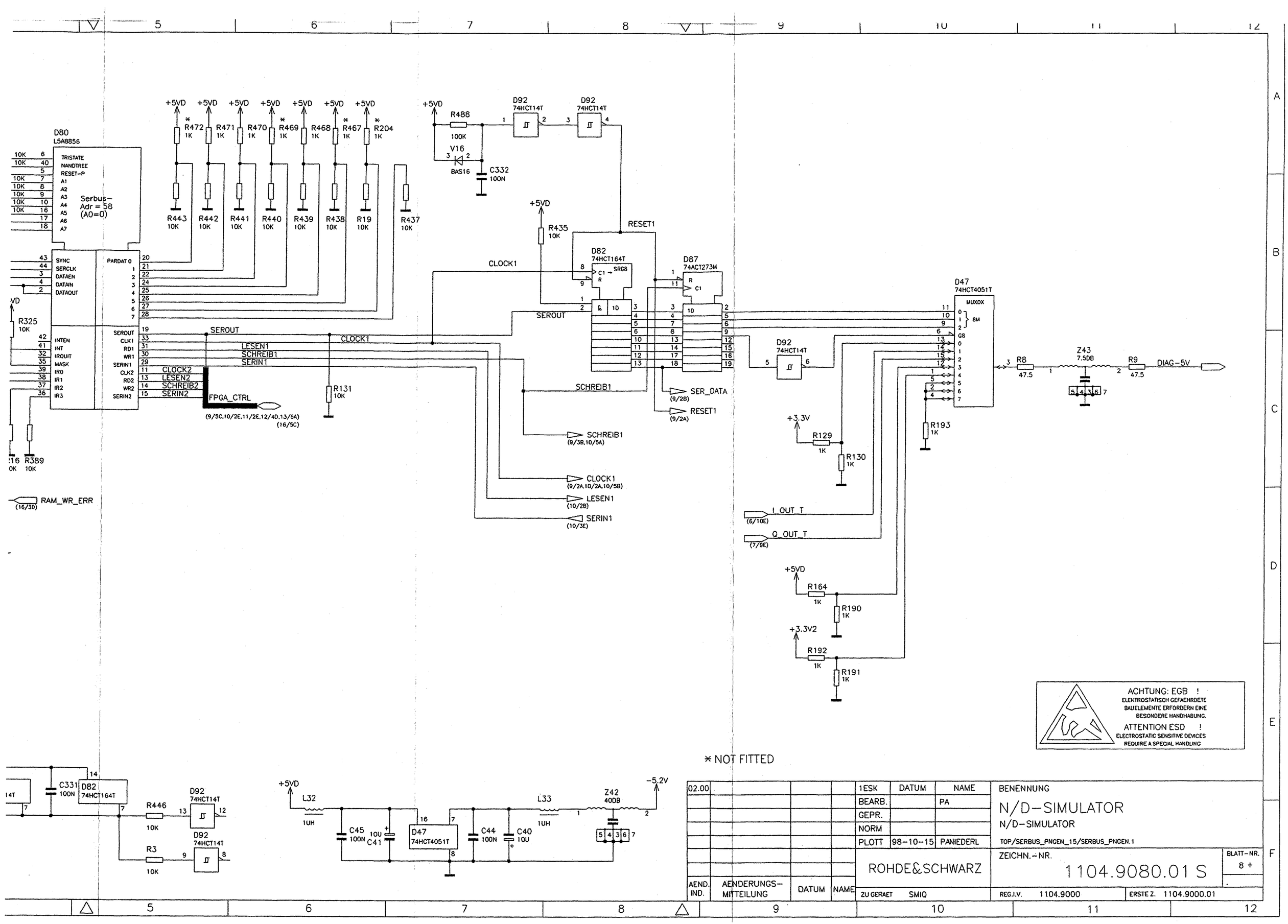
ZU GERAET SMIQ | REG.I.V. 1104.9000 | ERSTE Z. 1104.9000.01

BEHALTEN WIR UNS ALLE RECHTE VOR

DC_SHIFT (6/11B)
Z28 40DB
R243 470
R265 150
R110 100R
C250 100N
+5VD
Z33 40DB
+5VQOUT
C277 10U
+15VIOUT
Z32 40DB
+15VQOUT
C275 10U
D14 HI5731
-5.2VQO
Q_DAC_DATA13 Q_DAC_DATA12 Q_DAC_DATA11 Q_DAC_DATA10 Q_DAC_DATA9 Q_DAC_DATA8 Q_DAC_DATA7 Q_DAC_DATA6 Q_DAC_DATA5 Q_DAC_DATA4 Q_DAC_DATA3 Q_DAC_DATA2 Q_DAC_DATA1 Q_DAC_DATA0
D13 MSB D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0 LSB
DGND AGND REF OUT CTRL A OUT CTRL A IN RSET AVEE IOUT IOUT ARTN DVEE DGND DVCC CLOCK
R31 909
C205 100N
C206 100N
C287 10N
X5 X5 X5 X5
R52 150
R496 150
R495 150
R53 121
R80 51.1
R152 90.9
R276 100R
C201 100N
C279 10U
C285 10N
C286 10N
+5VQOUT
Q_DAC_DATA (10/2B,11/4B)
CLOCKS (3/6B.4/1A,5/2A,6/3B,11/5D) (13/4B.16/8B)
DAC_CLK
R148 0
R289 10K
L31 1UH
-5.2VQOUT
N12 AD9631AR
R64 121
R272 100R
R88 270
C267 82P
R498 121
N6 AD9631AR
+4.8VIO
Z56 40DB
+4.8VQO
C141 10U
C248 100N
C204 100N
N6 AD9631AR
N12 AD9631AR
C249 100N
C212 100N
R188 220

L28 2U7H
C260 47P
C183 30P-7P
L25 2U7H
C216 3.3P
L4 680N
L47 5U5H
C239 82P
C30 8.2P
C229 150P
C31 10P
L36 1UH
L46 5U5H
C222 18P
C230 150P
C11 18P
L48 5U5H
C32 8.2P
C37 68P
C12 10P
R124 15
C218 220P
R123 15
R69 619
R292 0
X4 X4 X4 X4
L54 6U8
L12 1U5
R238 681
R241 43.2
R240 1.30K
R239 10D
C4 22P
R451 680
R247 274
R120 1.21K
R65 121
N13 AD9631AR
R103 100
R104 100
R100 100
R105 100
R81 51
K7 REL2U2A 5V
K8 REL2U2A 5V
Z27 40DB
Q_FS
Q_OL
Q_MC
Q_MODBYP
RELAIS_CTRL (4/1D.5/1D.6/3D,9/5B)
Z34 40DB
C276 10U
-5.2V1OUT
-5.2VQOUT
RLY_LOOP2
Z30 40DB
K7 REL2U2A 5V
V10 BAS16
RLY_FSON4
Z31 40DB
K8 REL2U2A 5V
V9 BAS16
+4.8VQO
C209 100N
L35 1UH
C272 10U
R490 10
C202 100N
N25 OP07CS8
N13 AD9631AR
R489 10
C210 100N
C203 100N
-5.2VQOUT
R231 100K
R230 1K
N25 OP07CS8
R229 1K
Z35 40DB
R228 1K
Q_C

AEND. IND.	AENDER MITTEIL
02.00	



* NOT FITTED

02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.			N/D-SIMULATOR
				NORM			TOP/SERBUS_PNGEN_15/SERBUS_PNGEN.1
				PLOTT	98-10-15	PANIEDERL	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
				ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 8 +

BEHALTEN WIR UNS ALLE RECHTE VOR

SERBUS
RESET-P
SERBUS-CLK
SERBUS-DAT
SERBUS-INT
SERBUS-SYNC

R410 47.5 Z36 7.5DB R409 47.5
R412 47.5 Z37 7.5DB R411 47.5
R414 47.5 Z38 7.5DB R413 47.5
R416 47.5 Z39 7.5DB R415 47.5
R418 47.5 Z40 7.5DB R417 47.5
R419 47.5 Z41 7.5DB R380 47.5

R408 10K
R375 10K
R376 10K

D55 74HCT125T

+5V

R434 10K
R402 * 10K
R322 * 10K
R258 * 10K
R378 10K
R324 10K
R379 * 10K

D80 L5A8856
TRISTATE
NANDTREE
RESET-P
A1 A2 A3 A4 A5 A6 A7
Serbus-Adr = 58 (A0=0)
SYNC SERCLK DATAEN DATAIN DATAOUT
INTEN INT IROUT MASK IR0 IR1 IR2 IR3
PARDAT 0 1 2 3 4 5 6 7
SEROUT CLK1 RD1 WR1 SERIN1 CLK2 RD2 WR2 SERIN2

R325 10K
R17 10K R16 10K R389 10K
R219 0 (16/3D) RAM_WR_ERR
R18 10K

+5VD
R472 * 1K R471 1K R470 1K R469 * 1K R468 1K R467 * 1K R204 * 1K
R443 10K R442 10K R441 10K R440 10K R439 10K R438 10K R19 10K R437 10K

R488 100K
V16 BAS16
C332 100N
D92 74HCT14T

R435 10K
RESET1
CLOCK1
D82 74HCT164T SRG8
SEROUT
D87 74ACT273M
SER_DATA (9/2B)
RESET1 (9/2A)

SEROUT
CLOCK1
LESEN1
SCHREIB1
SERIN1
CLOCK2
LESEN2
SCHREIB2
SERIN2
FPGA_CTRL (9/5C,10/2E,11/2E,12/4D,13/5A) (16/5C)
R131 10K

SCHREIB1 (9/3B,10/5A)
CLOCK1 (9/2A,10/2A,10/5B)
LESEN1 (10/2B)
SERIN1 (10/3E)

	1	2
NDSIM 1	ON	OFF
NDSIM 2	ON	ON
NDSIM 3	OFF	ON
NDSIM 4	OFF	OFF

S1 2-1X2EIN
R328 1K Z20 40DB R327 1K
R329 1K Z29 40DB R326 1K

C320 100N C318 100N D80 L5A8856
C317 100N D55 74HCT125T

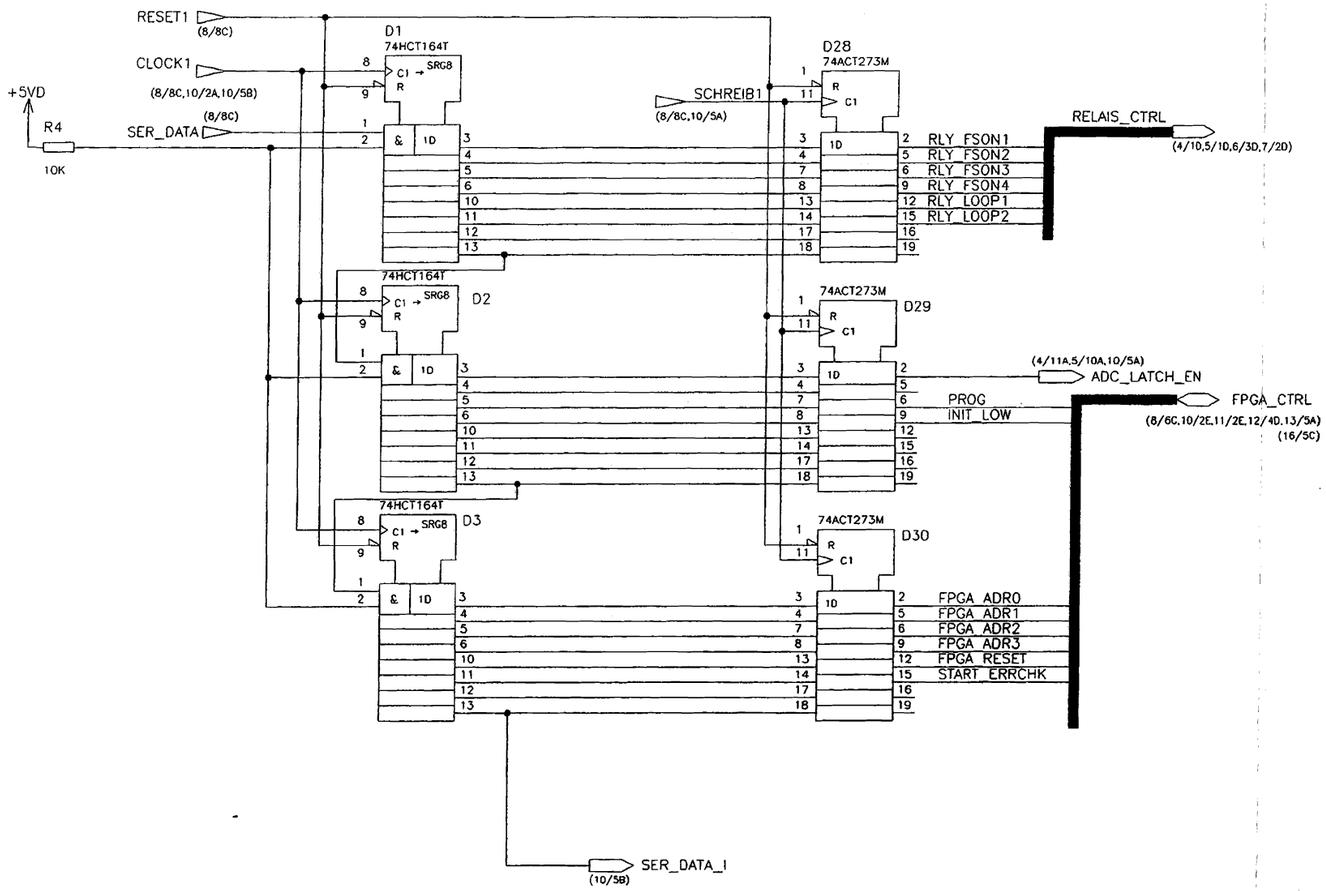
C328 100N D87 74ACT273M
C329 100N D92 74HCT14T
C331 100N D82 74HCT164T
R446 10K D92 74HCT14T
R3 10K D92 74HCT14T

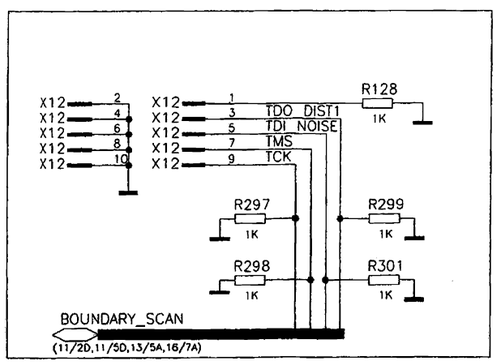
L32 1UH
C45 100N C41 10U
D47 74HCT4051T
C44 100N C40 10U
L33 1UH
Z42 40DB
-5.2V

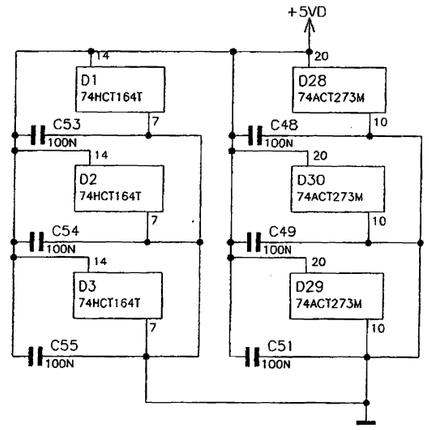
* NOT FIT

AEND. IND.	AENDER MITTEILU
02.00	

BEHALTEN WIR UNS ALLE RECHTE VOR



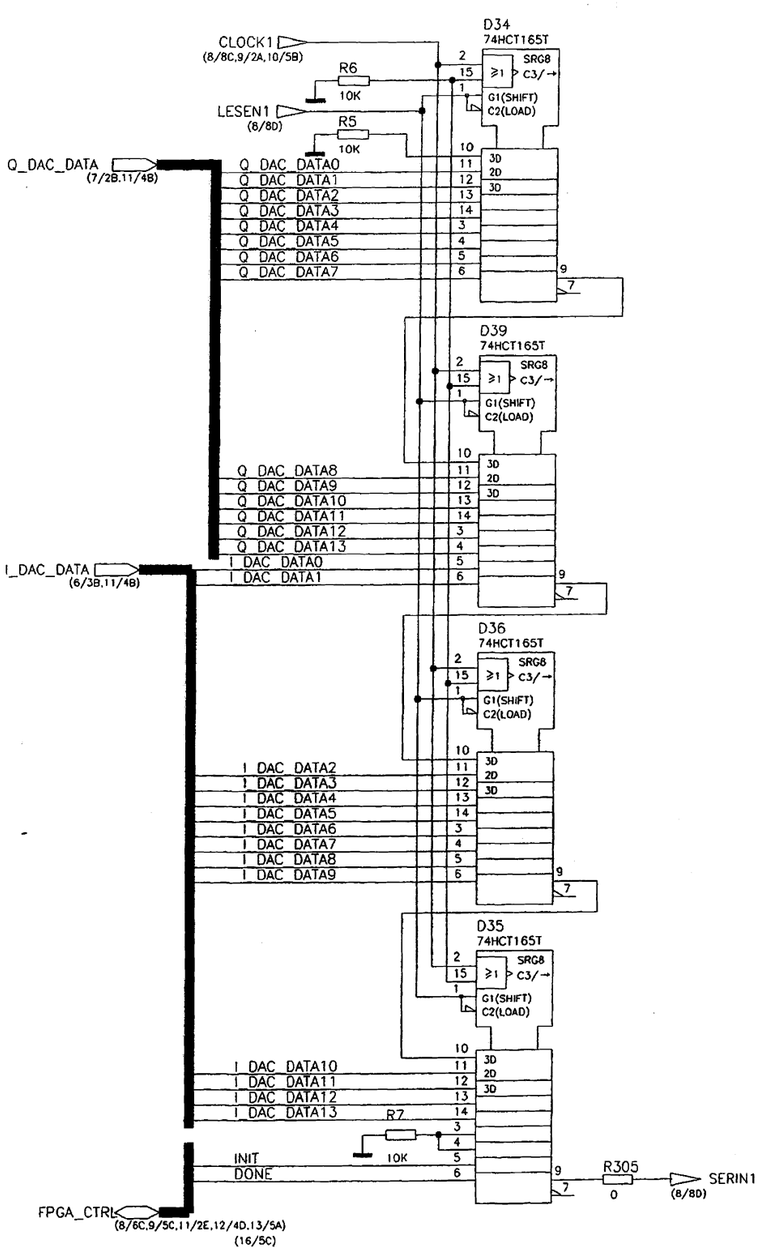


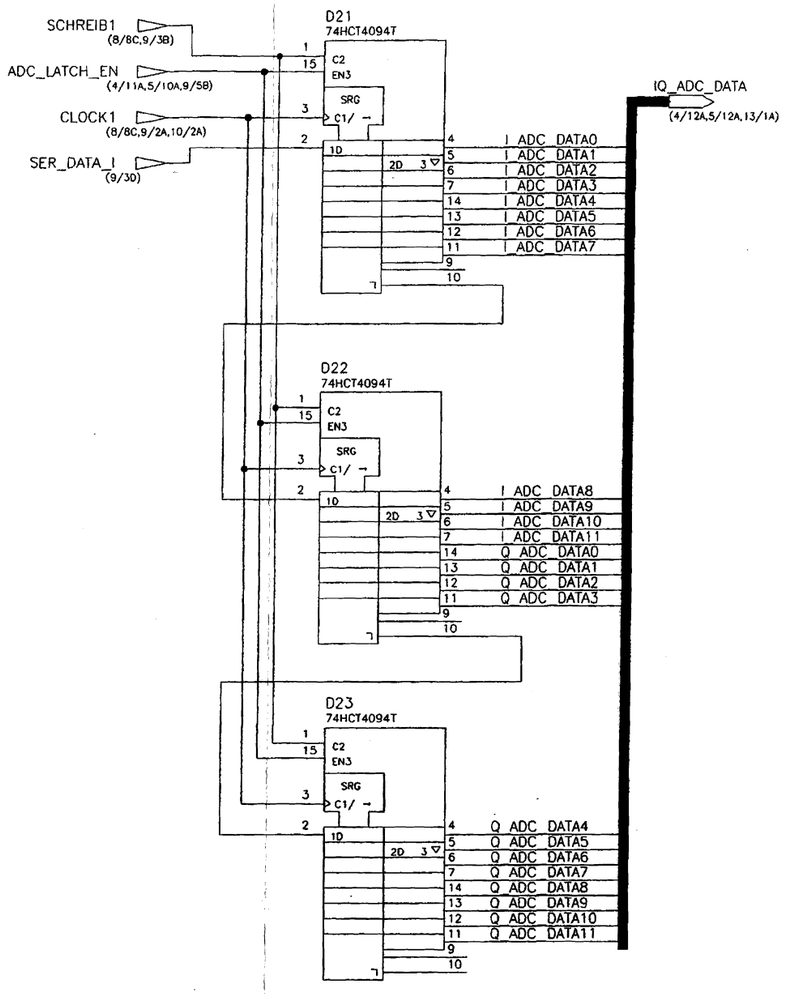


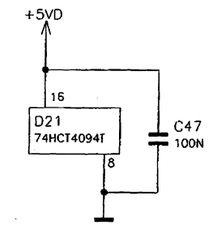
ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

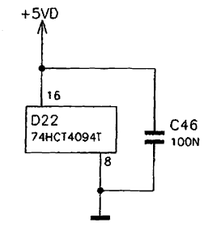
02.00				1ESK	DATUM	NAME	BENENNUNG	
				BEARB.		PA	N/D-SIMULATOR	
				GEPR.		PA	N/D-SIMULATOR	
				NORM			TOP/SERBUS_PNGEN_15/SERBUS_PNGEN 2	
				PLOTT	98-10-15	NIEDERL		
				ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S	BLATT-NR. 9 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1104.9000	ERSTE Z. 1104.9000.01

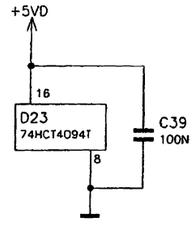
BEHALTEN WIR UNS ALLE RECHTE VOR

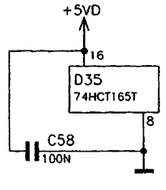


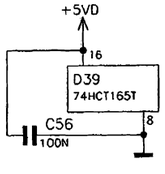


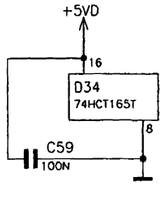


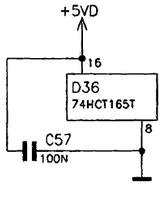












02.00				TESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.		PA	N/D-SIMULATOR
				NORM			
				PLOTT	98-10-15	NIEDERL	TOP/SERBUS_PNGEN_15/SERBUS_PNGEN.3
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
				ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 10 +

D40
XC4028-1 PQ208

I_DISTORTION_OUT
(11/7D,16/4B)
I_DISTORTION_OUT0 111
I_DISTORTION_OUT1 112
I_DISTORTION_OUT2 114
I_DISTORTION_OUT3 115
I_DISTORTION_OUT4 116
I_DISTORTION_OUT5 117
I_DISTORTION_OUT6 118
I_DISTORTION_OUT7 120
I_DISTORTION_OUT8 121
I_DISTORTION_OUT9 123
I_DISTORTION_OUT10 124

Q_DISTORTION_OUT
(11/7D,16/4C)
BOOT_DATA2 (12/4B)
Q_DISTORTION_OUT2 139
Q_DISTORTION_OUT3 140
Q_DISTORTION_OUT4 141
Q_DISTORTION_OUT5 143
Q_DISTORTION_OUT6 144
Q_DISTORTION_OUT7 145
Q_DISTORTION_OUT8 146
BOOT_DATA1 (12/4B) 147
Q_DISTORTION_OUT9 148
Q_DISTORTION_OUT10 149
Q_DISTORTION_OUT11 150

(12/4B) BOOT_DATA5 122
(12/4B) BOOT_DATA4 128
(12/4B) BOOT_DATA3 132
(12/4B) BOOT_DATA0 151
(16/8B) DOUT_NOISE 152
153
(9/2F,11/5D,13/5A,16/7A) TDO_NOISE 159
(12/2B) BOOT_ADR1 162
(12/2B) BOOT_ADR6 180
(12/2B) BOOT_ADR7 181
(12/2B) BOOT_ADR8 184
R290 22 BOOT_ADR9 185
(12/2B) 186
(12/2B) 187
BOOT_ADR10 190
(12/2B) BOOT_ADR11 191
N_BANK 195
(12/6A)
CCLK

85 I_DAC_DATA13
86 I_DAC_DATA12
87 I_DAC_DATA11
88 I_DAC_DATA10
89 I_DAC_DATA9
91 I_DAC_DATA8
92 I_DAC_DATA7
93 I_DAC_DATA6
94 I_DAC_DATA5
95 I_DAC_DATA4
96 I_DAC_DATA3
97 I_DAC_DATA2
98 I_DAC_DATA1
99 I_DAC_DATA0
I_DAC_DATA (6/3B,10/1C)

176 Q_DAC_DATA13
175 Q_DAC_DATA12
174 Q_DAC_DATA11
173 Q_DAC_DATA10
172 Q_DAC_DATA9
170 Q_DAC_DATA8
169 Q_DAC_DATA7
168 Q_DAC_DATA6
167 Q_DAC_DATA5
166 Q_DAC_DATA4
165 Q_DAC_DATA3
164 Q_DAC_DATA2
163 Q_DAC_DATA1
161 Q_DAC_DATA0
(7/2B,10/2B) Q_DAC_DATA (12/2B)
R220 0 BOOT_ADR5
0 R232 BOOT_ADR4 (12/2B)
R244 0 (12/2B) BOOT_ADR3
R252 0 (12/2B) BOOT_ADR2
R253 BOOT_ADR0
0 (12/2B)

1
3
51
52
53
54
102
104
105
107
155
156
157
158
206
207
208
"NC"-Pins

FPGA_CTRL
(8/6C,9/5C,10/2E,12/4D,13/5A)
(16/5C)

BOUNDARY_SCAN
(9/2F,11/2D,11/5D,13/5A,16/7A)
(9/2F,11/2D,11/5D,13/5A,16/7A) TDO_NOISE
TDI_NOISE 8
TCK 9
TMS 17
(12/6B,12/7E) WE_NOISE 30
(12/6B,12/7E) CE_NOISE 31
(12/6C,12/7E) OE_NOISE 32
(12/5A) M1 48
(12/5A) M0 50
(12/5A) M2 56
74
75
77
103
108
109
110
113
+3.3V
R22 10K
R21 10K
R20 10K
INIT R135 22
DONE
PROG R141 22
R194 22
(12/4B) BOOT_DATA7
CLOCKS (3/6B,4/1A,5/2A,6/3B,7/2B) (13/4B,16/8B) NOISE_CLK R302 33
(12/4B) BOOT_DATA6
R286 10K
R306 0 SEROUT
R266 0 SERIN2

D40
XC4028-1 PQ208

Q_NOISERAM_DATA
(12/8A)
Q_NOISERAM_DATA15 12
Q_NOISERAM_DATA14 13
Q_NOISERAM_DATA13 15
Q_NOISERAM_DATA12 16
Q_NOISERAM_DATA11 18
Q_NOISERAM_DATA10 19
Q_NOISERAM_DATA9 20
Q_NOISERAM_DATA8 21
Q_NOISERAM_DATA7 22
Q_NOISERAM_DATA6 23
Q_NOISERAM_DATA5 24
Q_NOISERAM_DATA4 27
Q_NOISERAM_DATA3 28
Q_NOISERAM_DATA2 29

I_NOISERAM_DATA
(12/8C)
I_NOISERAM_DATA15 33
I_NOISERAM_DATA14 34
I_NOISERAM_DATA13 35
I_NOISERAM_DATA12 36
I_NOISERAM_DATA11 38
I_NOISERAM_DATA10 39
I_NOISERAM_DATA9 40
I_NOISERAM_DATA8 41
I_NOISERAM_DATA7 42
I_NOISERAM_DATA6 43
I_NOISERAM_DATA5 44
I_NOISERAM_DATA4 45
I_NOISERAM_DATA3 46
I_NOISERAM_DATA2 47

Q_NOISERAM_ADR
(12/6A)
11 Q_NOISERAM_ADR0
10 Q_NOISERAM_ADR1
7 Q_NOISERAM_ADR2
6 Q_NOISERAM_ADR3
5 Q_NOISERAM_ADR4
4 Q_NOISERAM_ADR5
204 Q_NOISERAM_ADR6
203 Q_NOISERAM_ADR7
202 Q_NOISERAM_ADR8
201 Q_NOISERAM_ADR9
200 Q_NOISERAM_ADR10
199 Q_NOISERAM_ADR11
198 Q_NOISERAM_ADR12
197 Q_NOISERAM_ADR13
196 Q_NOISERAM_ADR14
R254 0 R255 0 BOOT_ADR17 (12/2B)
BOOT_ADR16 (12/2B)
R256 0 R257 0 BOOT_ADR15 (12/2B)
BOOT_ADR14 (12/2B)
R259 0 R264 0 BOOT_ADR13 (12/2B)
BOOT_ADR12 (12/2B)

I_NOISERAM_ADR
(12/6C)
57 I_NOISERAM_ADR0
58 I_NOISERAM_ADR1
59 I_NOISERAM_ADR2
60 I_NOISERAM_ADR3
61 I_NOISERAM_ADR4
62 I_NOISERAM_ADR5
63 I_NOISERAM_ADR6
64 I_NOISERAM_ADR7
65 I_NOISERAM_ADR8
66 I_NOISERAM_ADR9
68 I_NOISERAM_ADR10
69 I_NOISERAM_ADR11
70 I_NOISERAM_ADR12
71 I_NOISERAM_ADR13
72 I_NOISERAM_ADR14

73
76
80
81
82
83
84
100 R11 22 (11/2B,16/4B) CLOCK2
125 _DISTORTION_OUT11
126 R313 LESEN2
127 0 SCHREIB2
129 R307 0 FPGA_ADR0
133 FPGA_ADR1
134 FPGA_ADR2
135 (11/2B,16/4C) FPGA_ADR3
136 Q_DISTORTION_OUT0
137 Q_DISTORTION_OUT1
177 (11/2B,16/4C) FPGA_RESET
178
179
188
189
192
193
nicht verwendete IO-Pins

+3.3V
C76 100N
C74 100N
C70 100N
C69 100N
C68 100N
C67 100N
C71 100N
C72 100N
26 55 78 106 130 154 183 205
D40
XC4028-1 PQ208
2 14 25 37 49 67 79 90 101 119 131 142 160 171 182 194

02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.		PA	N/D-SIMULATOR
				NORM			
				PLOTT	98-10-15	NIEDERL	TOP/NOISE_BLOCK_814/NOISE_BLOCK.1
				ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 11 +

BEHALTEN WIR UNS ALLE RECHTE VOR

X14 1
X14 2
+3.3V
R197 22 → M2 (11/60)
R196 22 → M1 (11/60)
R195 22 → M0 (11/60)
+5VD
R102 10K
INIT_LOW
D27 74LVC125ADB
INIT
+5VD
R125 10K
DONE
D37 29F040
BOOT_ADR (11/2D,11/4C,11/8B)
BOOT_ADR0 12 … BOOT_ADR17 30
BOOT_DATA (11/2C,11/2D,11/60)
BOOT_DATA0 13 … BOOT_DATA7 21
mit Fassung !!!
R207 1K
+5VD
R208 1K
X1
X1
SEROUT
D32 74LVT00DB
D27 74LVC125ADB
BOOT_DATA0
CLOCK2
CCLK
FPGA_CTRL (8/6C,9/5C,10/2E,11/2E,13/5A) (16/5C)
C61 100N
C62 100N
C60 100N
R99 10K
R101 10K
* NOT FITTED

Q_NOISERAM_ADR (11/8B)
N_BANK (11/2D)
D8 IS61LV6416
Q_NOISERAM_ADR14 … Q_NOISERAM_ADR0
Q_NOISERAM_DATA15 … Q_NOISERAM_DATA2
Q_NOISERAM_DAT (11/5B)
R323 10K
(11/60,12/7E)
CE_NOISE
WE_NOISE
OE_NOISE
R205 1K
C63 100N
C64 100N
C65 100N
C66 100N

I_NOISERAM_ADR (11/8C)
D9 IS61LV6416
I_NOISERAM_ADR14 … I_NOISERAM_ADR0
I_NOISERAM_DATA15 … I_NOISERAM_DATA2
I_NOISERAM_DATA (11/5C)
R321 10K
(11/60,12/6B)
CE_NOISE
WE_NOISE
OE_NOISE
R206 1K

02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.		PA	N/D-SIMULATOR
				NORM			TOP/NOISE_BLOCK_814/NOISE_BLOCK.2
				PLOTT	98-10-20	NIEDERL	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
				ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 12 +

BEHALTEN WIR UNS ALLE RECHTE VOR

D5
XC4013XL

IQ_ADC_DATA
(4/12A,5/12A,10/7A)

I_ADC_DATA11	5	
I_ADC_DATA10	6	
I_ADC_DATA9	7	
I_ADC_DATA8	10	
I_ADC_DATA7	11	
I_ADC_DATA6	12	
I_ADC_DATA5	13	
I_ADC_DATA4	15	
I_ADC_DATA3	16	
I_ADC_DATA2	18	
I_ADC_DATA1	19	
I_ADC_DATA0	20	
Q_ADC_DATA11	21	
Q_ADC_DATA10	22	
Q_ADC_DATA9	23	
Q_ADC_DATA8	24	
Q_ADC_DATA7	27	
Q_ADC_DATA6	28	
Q_ADC_DATA5	29	
Q_ADC_DATA4	30	
Q_ADC_DATA3	31	
Q_ADC_DATA2	32	
Q_ADC_DATA1	33	
Q_ADC_DATA0	34	

I_STEIG_DATA
(14/5A)

I_STEIG_DATA13	167	
I_STEIG_DATA12	168	
I_STEIG_DATA11	169	
I_STEIG_DATA10	170	
I_STEIG_DATA9	172	
I_STEIG_DATA8	173	
I_STEIG_DATA7	174	
I_STEIG_DATA6	175	
I_STEIG_DATA5	176	
I_STEIG_DATA4	177	
I_STEIG_DATA3	178	
I_STEIG_DATA2	179	
I_STEIG_DATA1	180	
I_STEIG_DATA0	181	
I_STEIG_DATA17	116	
I_STEIG_DATA16	117	
I_STEIG_DATA15	118	
I_STEIG_DATA14	120	

Q_STEIG_DATA
(14/7E)

Q_STEIG_DATA17	185	
Q_STEIG_DATA16	186	
Q_STEIG_DATA15	187	
Q_STEIG_DATA14	188	
Q_STEIG_DATA13	189	
Q_STEIG_DATA12	190	
Q_STEIG_DATA11	191	
Q_STEIG_DATA10	192	
Q_STEIG_DATA9	193	
Q_STEIG_DATA8	195	
Q_STEIG_DATA7	196	
Q_STEIG_DATA6	197	
Q_STEIG_DATA5	198	
Q_STEIG_DATA4	199	
Q_STEIG_DATA3	200	
Q_STEIG_DATA2	201	
Q_STEIG_DATA1	202	
Q_STEIG_DATA0	203	

150	I_STUETZ_ADR7	
149	I_STUETZ_ADR6	
148	I_STUETZ_ADR5	
147	I_STUETZ_ADR4	
146	I_STUETZ_ADR3	
145	I_STUETZ_ADR2	
144	I_STUETZ_ADR1	
143	I_STUETZ_ADR0	
137	Q_STUETZ_ADR7	
136	Q_STUETZ_ADR6	
135	Q_STUETZ_ADR5	
134	Q_STUETZ_ADR4	
133	Q_STUETZ_ADR3	
132	Q_STUETZ_ADR2	
129	Q_STUETZ_ADR1	
128	Q_STUETZ_ADR0	

IQ_STUETZ_ADR

4, 110, 123, 127, 140, 141, 161, 162, 165, 184, 204 → MULT_Q → DIST_BRIDGE_EN (15/2A)

nicht verwendete I/O-Pins

1, 3, 51, 52, 53, 54, 102, 104, 105, 107, 155, 156, 157, 158, 206, 207, 208 → "NC" Pins

BOUNDARY_SCAN
(9/2F,11/2D,11/5D,16/7A)

FPGA_CTRL
(8/6C,9/5C,10/2E,11/2E,12/4D)(16/5C)

+3.3V2

R200 22
R199 22
R198 22

CLOCKS
(3/6B,4/1A,5/2A,6/3B,7/2B)
(11/5D,16/8B)

R303 33
DIST1_CLK
R287 10K

DOUT_DIST2
(16/8B)

DIST1->DIST2

TDO_DIST2		8
TCK		9
TMS		17
FPGA_ADR0		35
FPGA_ADR1		36
FPGA_ADR2		38
FPGA_ADR3		39
		48
		50
		56
CLOCK2	R12	57
INIT	22 R279	77
CE2	0	99
		100
DONE	R268	103
PROG	0 R269	108
WR_EN2	0	109
OE2		111
		112
M_BANK2		113
M_BANK1		114
M_BANK0		115
SERIN_51_52		121
MULT_I		122
SEROUT	R314	124
LESEN2	0 R315	125
SCHREIB2	0 R316	126
RAM_TEST	0	138
FPGA_RESET		139
	DIN	151
	0 R280	152
CCLK	R267	153
TDO_DIST1	0	159
	CE1	163
	WR_EN1	164
	OE1	166

(14/2C,14/2D,14/6C,14/6D)
(14/2C,14/2D,14/6C,14/6D)
(14/2C,14/2D,14/6C,14/6D)

D5
XC4013XL

DII/DIQ/DQI/DQQ/DI/DQ_ADR
(15/2D,17/2A)

98	DII_ADR8	
97	DII_ADR7	
96	DII_ADR6	
95	DII_ADR5	
94	DII_ADR4	
93	DII_ADR3	
92	DII_ADR2	
91	DII_ADR1	
89	DII_ADR0	
88	DIQ_ADR8	
87	DIQ_ADR7	
86	DIQ_ADR6	
85	DIQ_ADR5	
84	DIQ_ADR4	
83	DIQ_ADR3	
82	DIQ_ADR2	
81	DIQ_ADR1	
80	DIQ_ADR0	
76	DQI_ADR8	
75	DQI_ADR7	
74	DQI_ADR6	
73	DQI_ADR5	
72	DQI_ADR4	
71	DQI_ADR3	
70	DQI_ADR2	
69	DQI_ADR1	
68	DQI_ADR0	
66	DQQ_ADR8	
65	DQQ_ADR7	
64	DQQ_ADR6	
63	DQQ_ADR5	
62	DQQ_ADR4	
61	DQQ_ADR3	
60	DQQ_ADR2	
59	DQQ_ADR1	
58	DQQ_ADR0	
40	DQ_ADR0	
41	DQ_ADR1	
42	DQ_ADR2	
43	DQ_ADR3	
44	DI_ADR0	
45	DI_ADR1	
46	DI_ADR2	
47	DI_ADR3	

+3.3V2

C77 100N, C79 100N, C82 100N, C85 100N, C86 100N, C87 100N, C81 100N, C80 100N

26, 55, 78, 106, 130, 154, 183, 205

D5
XC4013XL

2, 14, 25, 37, 49, 67, 79, 90, 101, 119, 131, 142, 160, 171, 182, 194

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME
02.00			

	DATUM	NAME
1ESK		
BEARB.		PA
GEPR.		PA
NORM		
PLOTT	98-10-15	NIEDERL

BENENNUNG
N/D-SIMULATOR
N/D-SIMULATOR
TOP/DISTORTION_BLOCK_1_815/DISTORTION_BLOCK_1.1

ROHDE&SCHWARZ

ZEICHN.-NR. 1104.9080.01 S

BLATT-NR. 13 +

ZU GERAET SMIQ | REG.I.V. 1104.9000 | ERSTE Z. 1104.9000.01

BEIM ÄNDERN WIRD UNS ALLE RECHTE VORBEHALTEN

IQ_STUETZ_ADR

IQ_STUETZ_DATA (15/4B,16/4A)

STUETZ_RAM_Q (12 – 13) und

STUETZ_RAM_I (0 – 13)

D15
IS61LV6416

I_STUETZ_ADR7	1	A15	I/O 15	38	I_STUETZ_DATA13
I_STUETZ_ADR6	2	A14	I/O 14	37	I_STUETZ_DATA12
I_STUETZ_ADR5	3	A13	I/O 13	36	I_STUETZ_DATA11
I_STUETZ_ADR4	4	A12	I/O 12	35	I_STUETZ_DATA10
I_STUETZ_ADR3	5	A11	I/O 11	32	I_STUETZ_DATA9
I_STUETZ_ADR2	18	A10	I/O 10	31	I_STUETZ_DATA8
I_STUETZ_ADR1	19	A9	I/O 9	30	I_STUETZ_DATA7
I_STUETZ_ADR0	20	A8	I/O 8	29	I_STUETZ_DATA6
Q_STUETZ_ADR7	21	A7	I/O 7	16	I_STUETZ_DATA5
Q_STUETZ_ADR6	24	A6	I/O 6	15	I_STUETZ_DATA4
Q_STUETZ_ADR5	25	A5	I/O 5	14	I_STUETZ_DATA3
Q_STUETZ_ADR4	26	A4	I/O 4	13	I_STUETZ_DATA2
Q_STUETZ_ADR3	27	A3	I/O 3	10	I_STUETZ_DATA1
Q_STUETZ_ADR2	42	A2	I/O 2	9	I_STUETZ_DATA0
Q_STUETZ_ADR1	43	A1	I/O 1	8	Q_STUETZ_DATA13
Q_STUETZ_ADR0	44	A0	I/O 0	7	Q_STUETZ_DATA12

(13/6C,14/2D,14/6C,14/6D)
CE1 → 6 (CE)
WR_EN1 (13/6C,14/2D,14/6C,14/6D) → 17 (WE)
39 (LB), 40 (UB), 41 (OE)
R209 1K
OE1 (13/6C,14/2D,14/6C,14/6D)
NC → 22, 23, 28

D12
IS61LV6416

I_STUETZ_ADR7	1	A15	I/O 15	38	Q_STUETZ_DATA11
I_STUETZ_ADR6	2	A14	I/O 14	37	Q_STUETZ_DATA10
I_STUETZ_ADR5	3	A13	I/O 13	36	Q_STUETZ_DATA9
I_STUETZ_ADR4	4	A12	I/O 12	35	Q_STUETZ_DATA8
I_STUETZ_ADR3	5	A11	I/O 11	32	Q_STUETZ_DATA7
I_STUETZ_ADR2	18	A10	I/O 10	31	Q_STUETZ_DATA6
I_STUETZ_ADR1	19	A9	I/O 9	30	Q_STUETZ_DATA5
I_STUETZ_ADR0	20	A8	I/O 8	29	Q_STUETZ_DATA4
Q_STUETZ_ADR7	21	A7	I/O 7	16	Q_STUETZ_DATA3
Q_STUETZ_ADR6	24	A6	I/O 6	15	Q_STUETZ_DATA2
Q_STUETZ_ADR5	25	A5	I/O 5	14	Q_STUETZ_DATA1
Q_STUETZ_ADR4	26	A4	I/O 4	13	Q_STUETZ_DATA0
Q_STUETZ_ADR3	27	A3	I/O 3	10	I_STEIG_DATA17
Q_STUETZ_ADR2	42	A2	I/O 2	9	I_STEIG_DATA16
Q_STUETZ_ADR1	43	A1	I/O 1	8	I_STEIG_DATA15
Q_STUETZ_ADR0	44	A0	I/O 0	7	I_STEIG_DATA14

(13/6C,14/2C,14/6C,14/6D)
CE1 → 6 (CE)
WR_EN1 (13/6C,14/2C,14/6C,14/6D) → 17 (WE)
39 (LB), 40 (UB), 41 (OE)
R212 1K
OE1 (13/6C,14/2C,14/6C,14/6D)
NC → 22, 23, 28

Steig_RAM_I (14 – 17) und

STUETZ_RAM_Q (0 – 11)

I_STEIG_DATA (13/1C)

Steig_RAM_Q (16 – 17) und

Steig_RAM_I (0 – 13)

D11
IS61LV6416

I_STUETZ_ADR7	1	A15	I/O 15	38	I_STEIG_DATA13
I_STUETZ_ADR6	2	A14	I/O 14	37	I_STEIG_DATA12
I_STUETZ_ADR5	3	A13	I/O 13	36	I_STEIG_DATA11
I_STUETZ_ADR4	4	A12	I/O 12	35	I_STEIG_DATA10
I_STUETZ_ADR3	5	A11	I/O 11	32	I_STEIG_DATA9
I_STUETZ_ADR2	18	A10	I/O 10	31	I_STEIG_DATA8
I_STUETZ_ADR1	19	A9	I/O 9	30	I_STEIG_DATA7
I_STUETZ_ADR0	20	A8	I/O 8	29	I_STEIG_DATA6
Q_STUETZ_ADR7	21	A7	I/O 7	16	I_STEIG_DATA5
Q_STUETZ_ADR6	24	A6	I/O 6	15	I_STEIG_DATA4
Q_STUETZ_ADR5	25	A5	I/O 5	14	I_STEIG_DATA3
Q_STUETZ_ADR4	26	A4	I/O 4	13	I_STEIG_DATA2
Q_STUETZ_ADR3	27	A3	I/O 3	10	I_STEIG_DATA1
Q_STUETZ_ADR2	42	A2	I/O 2	9	I_STEIG_DATA0
Q_STUETZ_ADR1	43	A1	I/O 1	8	Q_STEIG_DATA17
Q_STUETZ_ADR0	44	A0	I/O 0	7	Q_STEIG_DATA16

(13/6C,14/2C,14/2D,14/6D)
CE1 → 6 (CE)
WR_EN1 (13/6C,14/2C,14/2D,14/6D) → 17 (WE)
39 (LB), 40 (UB), 41 (OE)
R213 1K
OE1 (13/6C,14/2C,14/2D,14/6D)
NC → 22, 23, 28

D10
IS61LV6416

I_STUETZ_ADR7	1	A15	I/O 15	38	Q_STEIG_DATA15
I_STUETZ_ADR6	2	A14	I/O 14	37	Q_STEIG_DATA14
I_STUETZ_ADR5	3	A13	I/O 13	36	Q_STEIG_DATA13
I_STUETZ_ADR4	4	A12	I/O 12	35	Q_STEIG_DATA12
I_STUETZ_ADR3	5	A11	I/O 11	32	Q_STEIG_DATA11
I_STUETZ_ADR2	18	A10	I/O 10	31	Q_STEIG_DATA10
I_STUETZ_ADR1	19	A9	I/O 9	30	Q_STEIG_DATA9
I_STUETZ_ADR0	20	A8	I/O 8	29	Q_STEIG_DATA8
Q_STUETZ_ADR7	21	A7	I/O 7	16	Q_STEIG_DATA7
Q_STUETZ_ADR6	24	A6	I/O 6	15	Q_STEIG_DATA6
Q_STUETZ_ADR5	25	A5	I/O 5	14	Q_STEIG_DATA5
Q_STUETZ_ADR4	26	A4	I/O 4	13	Q_STEIG_DATA4
Q_STUETZ_ADR3	27	A3	I/O 3	10	Q_STEIG_DATA3
Q_STUETZ_ADR2	42	A2	I/O 2	9	Q_STEIG_DATA2
Q_STUETZ_ADR1	43	A1	I/O 1	8	Q_STEIG_DATA1
Q_STUETZ_ADR0	44	A0	I/O 0	7	Q_STEIG_DATA0

(13/6C,14/2C,14/2D,14/6C)
CE1 → 6 (CE)
WR_EN1 (13/6C,14/2C,14/2D,14/6C) → 17 (WE)
39 (LB), 40 (UB), 41 (OE)
R214 1K
OE1 (13/6C,14/2C,14/2D,14/6C)
NC → 22, 23, 28

Q_STEIG_DATA (13/10)

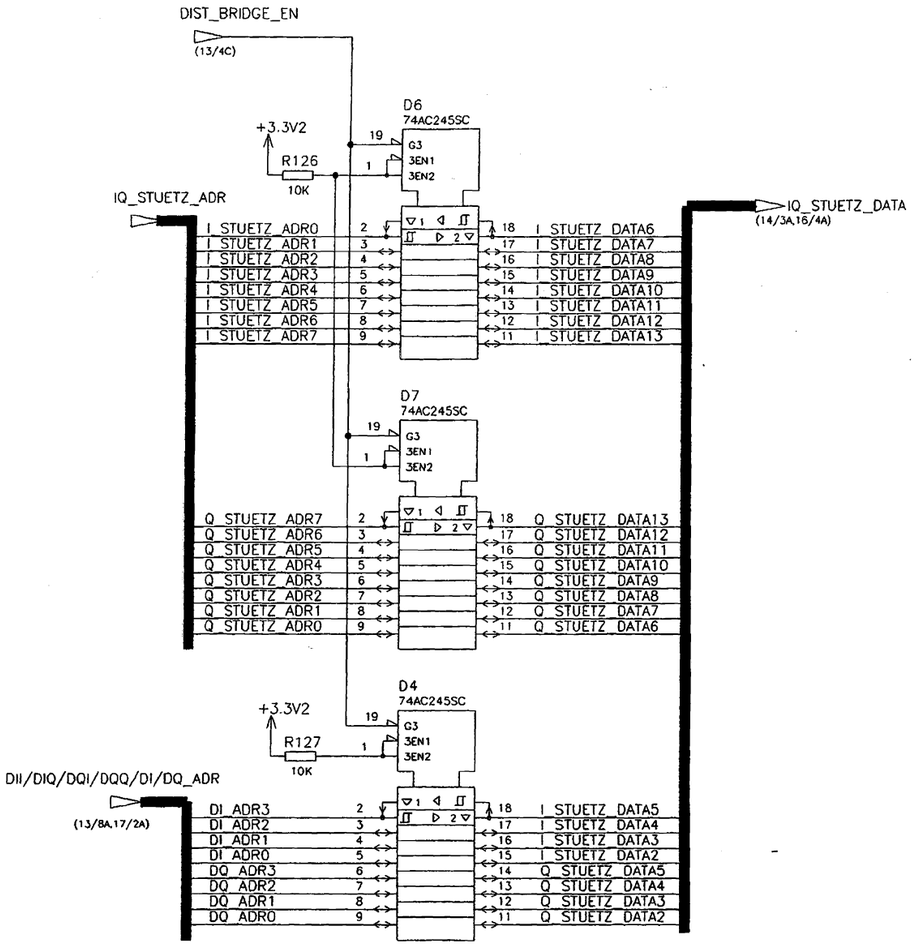
Steig_RAM_Q (0 – 15)

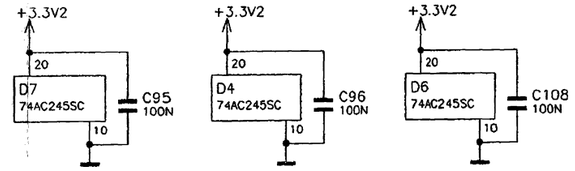
+3.3V2 — C89 100N — 11 — D10 IS61LV6416 — 12 — 33 — C88 100N — +3.3V2
+3.3V2 — C92 100N — 11 — D11 IS61LV6416 — 12 — 33 — C90 100N — +3.3V2
+3.3V2 — C94 100N — 11 — D12 IS61LV6416 — 12 — 33 — C93 100N — +3.3V2
+3.3V2 — C126 100N — 11 — D15 IS61LV6416 — 12 — 33 — C125 100N — +3.3V2

02.00					1ESK	DATUM	NAME	BENENNUNG
					BEARB.		PA	N/D-SIMULATOR
					GEPR.		PA	N/D-SIMULATOR
					NORM			TOP/DISTORTION_BLOCK_1_815/DISTORTION_BLOCK_1.2
					PLOTT	98-10-15	NIEDERL	
					ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
AEND. IND.	AENDERUNGS-MITTEILUNG		DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1104.9000 ERSTE Z. 1104.9000.01

BLATT-NR. 14 +

1 2 3 4 5 6 7 8





BEHALTEN WIR UNS ALLE RECHTE VOR

ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

02.00				1ESK	DATUM	NAME	BENENNUNG	
				BEARB.		PA	N/D-SIMULATOR	
				GEPR.		PA	N/D-SIMULATOR	
				NORM				
				PLOTT	98-10-15	NIEDERL	TOP/DISTORTION_BLOCK_1_815/DISTORTION_BLOCK_1.3	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S	BLATT-NR. 15 +
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMIQ			REG.I.V. 1104.9000	ERSTE Z. 1104.9000.01

D20
XC4013XL

DII/DIQ_DATA (17/2A)

DII_DATA13	4
DIQ_DATA13	5
DII_DATA12	6
DIQ_DATA12	7
DII_DATA11	10
DIQ_DATA11	11
DII_DATA10	12
DIQ_DATA10	13
DII_DATA9	15
DIQ_DATA9	16
DII_DATA8	18
DIQ_DATA8	19
DII_DATA7	20
DIQ_DATA7	21
DII_DATA6	22
DIQ_DATA6	23
DII_DATA5	24
DIQ_DATA5	27
DII_DATA4	28
DIQ_DATA4	29
DII_DATA3	30
DIQ_DATA3	31
DII_DATA2	32
DIQ_DATA2	33
DII_DATA1	34
DIQ_DATA1	35
DII_DATA0	36
DIQ_DATA0	38

DQI/DQQ_DATA (17/5A)

DQI_DATA13	39
DQQ_DATA13	40
DQI_DATA12	41
DQQ_DATA12	42
DQI_DATA11	43
DQQ_DATA11	44
DQI_DATA10	45
DQQ_DATA10	46
DQI_DATA9	47
DQQ_DATA9	58
DQI_DATA8	59
DQQ_DATA8	60
DQI_DATA7	61
DQQ_DATA7	62
DQI_DATA6	63
DQQ_DATA6	64
DQI_DATA5	65
DQQ_DATA5	66
DQI_DATA4	68
DQQ_DATA4	69
DQI_DATA3	70
DQQ_DATA3	71
DQI_DATA2	72
DQQ_DATA2	73
DQI_DATA1	74
DQQ_DATA1	75
DQI_DATA0	76
DQQ_DATA0	80

I_DISTORTION_OUT (11/2B,11/7D)

I_DISTORTION_OUT11	150
I_DISTORTION_OUT10	149
I_DISTORTION_OUT9	147
I_DISTORTION_OUT8	146
I_DISTORTION_OUT7	145
I_DISTORTION_OUT6	144
I_DISTORTION_OUT5	143
I_DISTORTION_OUT4	141
I_DISTORTION_OUT3	140
I_DISTORTION_OUT2	139
I_DISTORTION_OUT1	138
I_DISTORTION_OUT0	137

Q_DISTORTION_OUT (11/2B,11/7D)

Q_DISTORTION_OUT11	129
Q_DISTORTION_OUT10	128
Q_DISTORTION_OUT9	127
Q_DISTORTION_OUT8	126
Q_DISTORTION_OUT7	125
Q_DISTORTION_OUT6	124
Q_DISTORTION_OUT5	122
Q_DISTORTION_OUT4	121
Q_DISTORTION_OUT3	120
Q_DISTORTION_OUT2	118
Q_DISTORTION_OUT1	117
Q_DISTORTION_OUT0	116

	81
	82
(8/4D) RAM_WR_ERR	83
START_ERRCHK	91
	93
	94
	95
	96
	97
	98
	99

nicht verwendete I/O-Pins

IQ_STUETZ_DATA (14/3A,15/4B)

R10 10K
R13 10K

Q_STUETZ_DATA0	200
Q_STUETZ_DATA1	199
Q_STUETZ_DATA2	198
Q_STUETZ_DATA3	197
Q_STUETZ_DATA4	196
Q_STUETZ_DATA5	195
Q_STUETZ_DATA6	193
Q_STUETZ_DATA7	192
Q_STUETZ_DATA8	191
Q_STUETZ_DATA9	190
Q_STUETZ_DATA10	189
Q_STUETZ_DATA11	188
Q_STUETZ_DATA12	187
Q_STUETZ_DATA13	186

R14 10K
R15 10K

I_STUETZ_DATA0	180
I_STUETZ_DATA1	179
I_STUETZ_DATA2	178
I_STUETZ_DATA3	177
I_STUETZ_DATA4	176
I_STUETZ_DATA5	175
I_STUETZ_DATA6	174
I_STUETZ_DATA7	173
I_STUETZ_DATA8	172
I_STUETZ_DATA9	170
I_STUETZ_DATA10	169
I_STUETZ_DATA11	168
I_STUETZ_DATA12	167
I_STUETZ_DATA13	166

FPGA_CTRL (8/6C,9/5C,10/2E,11/2E,12/4D) (13/5A)

FPGA_ADR0	84
FPGA_ADR1	85
FPGA_ADR2	86
FPGA_ADR3	87

"NC" Pins

	1
	3
	51
	52
	53
	54
	102
	104
	105
	107
	155
	156
	157
	158
	206
	207
	208

	109
	110
	111
	112
	113
	114
	115
	123
	132
	133
	134
	135
	136
	148
	161
	162
	163
	164
	165
	181
MULT_Q	201
MULT_I	204

nicht verwendete I/O-Pins

DIST1->DIST2

D20
XC4013XL

TDO_NOISE	8
TCK	9
TMS	17
	48
	50
	56
	57
	77
	88
	89
	92
	100
	103
	108
	151
	152
	153
TDO_DIST2	159
	184
	185
SERIN_51_52	202
SEROUT	203

BOUNDARY_SCAN (9/2F,11/2D,11/5D,13/5A)

+3.3V

R201		
R203	22	
R202	22	
R115	22	CLOCK2
R284	22	INIT
R319	0	SCHREIB2
R318	0	LESEN2
R285	0	SERIN2
	0	
R118		DONE
R282	0	PROG
R283	0	
	0	
R281		CCLK
	0	

RAM_TEST
FPGA_RESET
R317 0

R304 33 DIST2_CLK (11/2D)
CLOCKS (3/6B,4/1A,5/2A,6/3B,7/2B) (11/5D,13/4B)
DOUT_NOISE
DOUT_DIST2 (13/5C)
R288 10K

+3.3V

C107 100N, C106 100N, C102 100N, C100 100N, C98 100N, C97 100N, C103 100N, C105 100N

26	55	78	106	130	154	183	205												

D20
XC4013XL

2	14	25	37	49	67	79	90	101	119	131	142	160	171	182	194				

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02.00				1ESK	DATUM	NAME	BENENNUNG
				BEARB.		PA	N/D-SIMULATOR
				GEPR.		PA	N/D-SIMULATOR
				NORM			TOP/DISTORTION_BLOCK_2_816/DISTORTION_BLOCK_2.1
				PLOTT	98-10-15	NIEDERL	
				ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S
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BLATT-NR. 16 +

BEHALTEN WIR UNS ALLE RECHTE VOR

DII/DIQ_DATA
(16/1B)

DII/DIQ/DQI/DQQ/DI/DQ_ADR
(13/8A,15/20)

DIST1->DIST2

MULT_RAM 1

D16
IS61LV6416

M_BANK2	1	A15	I/O15	38	DII_DATA13
M_BANK1	2	A14	I/O14	37	DII_DATA12
M_BANK0	3	A13	I/O13	36	DII_DATA11
DII_ADR8	4	A12	I/O12	35	DII_DATA10
DII_ADR7	5	A11	I/O11	32	DII_DATA9
DII_ADR6	18	A10	I/O10	31	DII_DATA8
DII_ADR5	19	A9	I/O9	30	DII_DATA7
DII_ADR4	20	A8	I/O8	29	DII_DATA6
DII_ADR3	21	A7	I/O7	16	DII_DATA5
DII_ADR2	24	A6	I/O6	15	DII_DATA4
DII_ADR1	25	A5	I/O5	14	DII_DATA3
DII_ADR0	26	A4	I/O4	13	DII_DATA2
DI_ADR3	27	A3	I/O3	10	DII_DATA1
DI_ADR2	42	A2	I/O2	9	DII_DATA0
DI_ADR1	43	A1	I/O1	8	
DI_ADR0	44	A0	I/O0	7	

R23 10K

CE2	6	CE	NC	22	
WR_EN2	17	WE	NC	23	
R215 1K	39	LB	NC	28	
	40	UB			
OE2	41	OE			

D26
IS61LV6416

M_BANK2	1	A15	I/O15	38	DIQ_DATA13
M_BANK1	2	A14	I/O14	37	DIQ_DATA12
M_BANK0	3	A13	I/O13	36	DIQ_DATA11
DIQ_ADR8	4	A12	I/O12	35	DIQ_DATA10
DIQ_ADR7	5	A11	I/O11	32	DIQ_DATA9
DIQ_ADR6	18	A10	I/O10	31	DIQ_DATA8
DIQ_ADR5	19	A9	I/O9	30	DIQ_DATA7
DIQ_ADR4	20	A8	I/O8	29	DIQ_DATA6
DIQ_ADR3	21	A7	I/O7	16	DIQ_DATA5
DIQ_ADR2	24	A6	I/O6	15	DIQ_DATA4
DIQ_ADR1	25	A5	I/O5	14	DIQ_DATA3
DIQ_ADR0	26	A4	I/O4	13	DIQ_DATA2
DQ_ADR3	27	A3	I/O3	10	DIQ_DATA1
DQ_ADR2	42	A2	I/O2	9	DIQ_DATA0
DQ_ADR1	43	A1	I/O1	8	
DQ_ADR0	44	A0	I/O0	7	

R24 10K

CE2	6	CE	NC	22	
WR_EN2	17	WE	NC	23	
R216 1K	39	LB	NC	28	
	40	UB			
OE2	41	OE			

MULT_RAM 2

DQI/DQQ_DATA
(16/1C)

MULT_RAM 1 MULT_RAM 3

D25
IS61LV6416

M_BANK2	1	A15	I/O15	38	DQI_DATA13
M_BANK1	2	A14	I/O14	37	DQI_DATA12
M_BANK0	3	A13	I/O13	36	DQI_DATA11
DQI_ADR8	4	A12	I/O12	35	DQI_DATA10
DQI_ADR7	5	A11	I/O11	32	DQI_DATA9
DQI_ADR6	18	A10	I/O10	31	DQI_DATA8
DQI_ADR5	19	A9	I/O9	30	DQI_DATA7
DQI_ADR4	20	A8	I/O8	29	DQI_DATA6
DQI_ADR3	21	A7	I/O7	16	DQI_DATA5
DQI_ADR2	24	A6	I/O6	15	DQI_DATA4
DQI_ADR1	25	A5	I/O5	14	DQI_DATA3
DQI_ADR0	26	A4	I/O4	13	DQI_DATA2
DI_ADR3	27	A3	I/O3	10	DQI_DATA1
DI_ADR2	42	A2	I/O2	9	DQI_DATA0
DI_ADR1	43	A1	I/O1	8	
DI_ADR0	44	A0	I/O0	7	

R71 10K

CE2	6	CE	NC	22	
WR_EN2	17	WE	NC	23	
R217 1K	39	LB	NC	28	
	40	UB			
OE2	41	OE			

D19
IS61LV6416

M_BANK2	1	A15	I/O15	38	DQQ_DATA13
M_BANK1	2	A14	I/O14	37	DQQ_DATA12
M_BANK0	3	A13	I/O13	36	DQQ_DATA11
DQQ_ADR8	4	A12	I/O12	35	DQQ_DATA10
DQQ_ADR7	5	A11	I/O11	32	DQQ_DATA9
DQQ_ADR6	18	A10	I/O10	31	DQQ_DATA8
DQQ_ADR5	19	A9	I/O9	30	DQQ_DATA7
DQQ_ADR4	20	A8	I/O8	29	DQQ_DATA6
DQQ_ADR3	21	A7	I/O7	16	DQQ_DATA5
DQQ_ADR2	24	A6	I/O6	15	DQQ_DATA4
DQQ_ADR1	25	A5	I/O5	14	DQQ_DATA3
DQQ_ADR0	26	A4	I/O4	13	DQQ_DATA2
DQ_ADR3	27	A3	I/O3	10	DQQ_DATA1
DQ_ADR2	42	A2	I/O2	9	DQQ_DATA0
DQ_ADR1	43	A1	I/O1	8	
DQ_ADR0	44	A0	I/O0	7	

R98 10K

CE2	6	CE	NC	22	
WR_EN2	17	WE	NC	23	
R218 1K	39	LB	NC	28	
	40	UB			
OE2	41	OE			

MULT_RAM 2 MULT_RAM 4

+3.3V2 C110 100N 11 33 D16 IS61LV6416 12 34
+3.3V2 C112 100N

+3.3V2 C121 100N 11 33 D25 IS61LV6416 12 34
+3.3V2 C119 100N

+3.3V C114 100N 11 33 D19 IS61LV6416 12 34
+3.3V C113 100N

+3.3V C123 100N 11 33 D26 IS61LV6416 12 34
+3.3V C122 100N

02.00					1ESK	DATUM	NAME	BENENNUNG	
					BEARB.		PA	N/D-SIMULATOR	
					GEPR.		PA	N/D-SIMULATOR	
					NORM			TOP/DISTORTION_BLOCK_2_816/DISTORTION_BLOCK_2.2	
					PLOTT	98-10-15	NIEDERL		
					ROHDE&SCHWARZ			ZEICHN.-NR. 1104.9080.01 S	BLATT-NR. 17 -
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME		ZU GERAET SMIQ			REG.I.V. 1104.9000	ERSTE Z. 1104.9000.01

1 2 3 4 5 6 7 8

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02.00				TESK	DATUM	NAME
				BEARB		PA
				GEPR		PA
				NORM		
				PLOTT	08-10-19	NIEDERL
IND	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ		
				ZU GERAET SW10		

BENENNUNG
N/D-SIMULATOR
N/D-SIMULATOR

ZEICHN.-NR.
1104.9080.01 D

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02.00				TESK	DATUM	NAME
				BEARB		PA
				GEPR		PA
				NORM		
				PLOTT	98-10-19	NIEDERL
ÄND. NO.	ÄNDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE&SCHWARZ		
				DU GERÄET SM10		

BENENNUNG
N/D-SIMULATOR
N/D-SIMULATOR

ZEICHN.-NR.
1104.9080.01 D

BLATT-NR. 2-
V. 8.

REG.I.V. 1104.9000 | ERSTE Z. 1104.9000

Netzteil IN 1039.1504.00

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81614 München

Tel.: 0049-89-41 29 28 60
Fax.: 0049-89-41 29 33 06

1997-02-20

Inhaltsverzeichnis

7.	Prüfen und Instandsetzen der Baugruppe	5
7.1	Funktionsbeschreibung	5
7.1.1	Überblick	5
7.1.2	Hilfs-und Standbykreis	5
7.1.3	Primär-Leistungsteil	6
7.1.4	Primär-Steuerung	6
7.1.5	Sekundär-Leistungsteil	7
7.1.6	Referenzspannungen	7
7.1.7	Strombegrenzungen / Überspannungsschutz	8
7.1.8	Sekundär-Logik	9
7.1.9	Sonstiges	9
7.2	Meßgeräte und Hilfsmittel	9
7.3	Fehlersuche	10
7.4	Inbetriebnahme	11
7.5	Zerlegung und Zusammenbau	11
7.6	Externe Schnittstellen über die 50-polige SUB-D-Buchse	12

Anhang:

Stücklisten

Stromläufe

Bestückungspläne

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

7.1.1 Überblick

Die gleichgerichtete, gesiebte Netzspannung wird mit einem Pulssteller auf eine Zwischenkreisspannung von ca. 140V herabgesetzt. Diese Zwischenspannung wird anschließend von einer Gegentaktstufe zerhackt und speist den Hauptübertrager T1, aus dessen Sekundärwicklungen durch Längsregler und Schaltregler 7 von 8 Ausgangsspannungen erzeugt werden. Die Standbyspannung sowie die internen Hilfsspannungen werden aus einem separaten primärgetakteten Wandler gewonnen.
Die Einstellung des Gerätes auf den Wert der Netzspannung (115/230V) erfolgt automatisch. Am Netzeingang befindet sich ein Entstörfilter zur Unterdrückung von leitungsgebundenen Störungen. Die sichere Netztrennung wird durch Verwendung von Transformatoren zur Leistungsübertragung und VDE-Optokopplern zur Signalübertragung erreicht.
Die sekundärseitigen Ausgänge sind gegen Überlast und Überspannung geschützt. Zur Kühlung des Gerätes wird ein temperaturgesteuerter Lüfter eingesetzt, der seine maximale Drehzahl erst bei höherer Umgebungstemperatur erreicht.

7.1.2 Hilfs-und Standbykreis

Der Standbywandler wird direkt aus der gleichgerichteten Netzspannung versorgt, er ist also in Betrieb, solange die Netzspannung anliegt und der Netzschalter eingeschaltet ist. Der Wandler arbeitet in freischwingender Betriebsart. Die Schwingungserzeugung erfolgt durch die Bauteile um den Schalttransistor V116 und den Standbytrafo T2. Die Regelung übernimmt der Operationsverstärker N17 nach der Gleichrichtung und Siebung der Spannung UH1 aus der Sekundärwicklung N4 des Standbytrafos. UH1 wird auf 12.8V ausgeregelt.
Aus den übrigen 2 Ausgangswicklungen von T2 werden die internen Hilfsspannungen UH4 (+12.8V, primär) sowie UH3 (+30V, sekundär) jeweils durch Gleichrichtung und kleine Längsregler erzeugt. Die +12.8V Hilfsspannung auf der Sekundärseite wird in einem weiteren Längsregler auf 12.0V abgesenkt (Transistor V98), auf ca. 1A strombegrenzt und als Standbyspannung (Ausgang 6) am 50-poligen Stecker ausgegeben. Um im Strombegrenzungsfall eine Überlastung des Regeltransistors zu verhindern, wird bei Überlast für ca. 2 Sekunden die Ausgangsspannung ganz abgeschaltet.

7.1.3 Primär-Leistungsteil

Nach dem Vorfilter mit L32 und C29 gelangt die Netzspannung über einen Leistungswiderstand R75 (zur Einschaltstrombegrenzung) zum Gleichrichter V45 und wird anschließend in den Elkos C31, C32, C23 gepuffert. Zwischen Gleichrichter und Elkos ist ein weiteres Filter mit L2, C22, C33, L28 und C95 angeordnet. Von den Elkos ausgehend wird die Gleichspannung dem Pulssteller, bestehend aus Transistor V28, Drossel L1 und Kommutierungsdiode V64 zugeführt. Die Schaltfrequenz des Pulsstellers von ca. 70kHz wird mit dem Komparator N15 erzeugt. Die Ausgangsspannung ist proportional zum Tastverhältnis des Signals, mit dem der Schalttransistor angesteuert wird. Das Tastverhältnis wird durch die Vorgabe des Hauptreglers über Optokoppler U4 und Stromkomparator N15 abhängig von Ausgangsleistung und Eingangsspannung eingestellt. Die Maximalleistung des Pulsstellers wird durch das höchste erreichbare Tastverhältnis bestimmt und liegt bei ca. 300W. Die resultierende Zwischenspannung (Ausgangsspannung des Pulsstellers) von ca. 140V wird mit einer Halbbrücke zerhackt und der Primärwicklung N1 des Hauptübertragers T1 zugeführt. Die Transistoren V131, V132 der Brücke werden über den Ansteuertrafo T3 mit ebenfalls 70kHz versorgt. Der hier beschriebene Hauptregelkreis wird durch den Regler N18 geschlossen, er hält die Sekundärspannung der Wicklung N2/N3 des Haupttrafos UGR+16 auf konstant 15.8V. Mit dem Optokoppler U2 wird der Pulssteller im Standby-Modus abgeschaltet, ebenso durch das Signal WSP aus der Primär-Steuerung bei Netz-Unterspannung.

7.1.4 Primär-Steuerung

Die Primär-Steuerung generiert die Funktionsabfolge beim Einschalten des Netzteils. Nach dem Anlegen der Netzspannung muß zunächst die Hilfsspannung UH4 auf ca. 10V ansteigen, damit durch die Hilfsspannungsüberwachung mit den Transistoren V22, V23 die weitere Steuerung freigegeben wird. Anschließend wird durch den Komparator N1 die Höhe der Netzspannung ausgewertet. Wenn nach ca. 100ms (R8, C6, C7 an N1) die Höhe der Netzspannung den 230V-Bereich noch nicht erreicht hat, zieht das Relais K1 an, um durch Kaskadierung der Eingangselkos C31, C32 eine Spannungsverdoppelung zu erreichen. Wenn innerhalb der 100ms die Netzspannung den 230V-Bereich erreicht, geht N1 in Selbsthaltung. Damit bleibt das Relais K1 abgefallen und es wird vermieden, daß beim Ausfall der Netzspannung auf den 115V-Modus zurückgeschaltet wird und dabei ein hoher Einschaltstromstoß auftritt.
Nachdem die Spannung an den Eingangselkos auf 240V angestiegen ist, startet die Unterspannungserkennung mit N2 ein Zeitglied (N1, C4, R8, R9) welches nacheinander erst den Widerstand zur Einschaltstrombegrenzung R75 durch K2 überbrückt und dann über das Steuersignal WSP den Hauptwandler freigibt. Die Unterspannungserkennung N2 ist mit einer Hysterese versehen, damit wird der Hauptwandler erst wieder gesperrt, wenn die gleichgerichtete Netzspannung unter 160V abgesunken ist.

Beim Absinken der gleichgerichteten Netzspannung informiert N2 über den Optokoppler U3 die Auswerteschaltung für das ACFAIL-Signal auf der Sekundärseite.

7.1.5 Sekundär-Leistungsteil

Die vom Primär-Leistungsteil an den Sekundärwicklungen des Haupttrafos bereitgestellten Spannungen werden separat gleichgerichtet und gesiebt. Aus den Wicklungen N2/N3 werden die Oberspannungen UGR+16 für +15.3V, UGR+8 für +7.7V und UGR-16 für -15.3V entnommen. N4/N5 liefert UGR+13 für +12V, N6 die Oberspannung für -30V und N7 liefert UGR38 für den Schaltregler der 24.5/30V. Alle diese Spannungen werden gleichgerichtet und gesiebt, bevor sie den einzelnen Nachreglern zugeführt werden. Die Spannungen für die Ausgänge +15.3V, -15.3V, +12V und -30V werden durch Längsregler nachstabilisiert. Jeder Längsregler besteht aus einem Leistungs-MOSFET als Stellglied mit Strommeßwiderstand und zugehörigem Komparator zur Überwachung der Strombegrenzung.
Die Ausgangsspannung 5.2V wird aus den UGR+16 durch einen Schaltregler nachgetaktet, dessen Schaltfrequenz mit der des Hauptwandlers synchronisiert ist.
Die Ausgangsspannung 24.5V / 30V wird durch einen freischwingenden Schaltregler auf einem eigenen Modul erzeugt. Die Ausgangsspannung dieses Reglers ist durch externe Beschaltung des Signals COD am Ausgangsstecker des Netzteils einstellbar, dabei wird der Spannungsteiler des Regel-Operationsverstärkers N3 umgeschaltet. COD offen: 24.5V, COD mit GND verbunden: 30V.
Die Ausgangsspannung 2 (7.7V) bleibt ungeregelt, da die Anforderungen an die Konstanz gering sind.

7.1.6 Referenzspannungen

Allen Reglern steht eine gemeinsame Referenzspannung REF1 von +5.2V zur Verfügung, welche mit dem integrierten Spannungsregler N18 erzeugt und mit dem Potentiometer R209 abgeglichen wird. Für die Regler der negativen Ausgangsspannungen wird zusätzlich eine Referenz mit dem halben Wert, also +2.6V (REF3) durch Spannungsteilung aus REF1 gewonnen. Die zur Überwachung der +5.2V auf Unterspannung benötigte Referenz von +4.94V (REF5) wird durch N19 gebildet und mit R223 abgeglichen.

7.1.7 Strombegrenzungen / Überspannungsschutz

Wichtigstes Element der Strombegrenzungen und des Überspannungsschutzes ist das sogenannte IREG-Signal. Dieses Signal wirkt direkt auf den Hauptregler ein und kann die Gesamt-Ausgangsleistung des Netzgerätes durch steigendem Pegel reduzieren oder sperren, mit Ausnahme der Standbyspannung. Im IREG-Signal sind die Ausgänge der einzelnen Strombegrenzungen und Überspannungs-Detektoren zusammengefasst.

- Strombegrenzung:
Die Regler der Ausgangsspannungen +5.2V und 24.5 / 30V besitzen jeweils eine unabhängige Strombegrenzung, welche bei Überlast eine Konstantstrom-Charakteristik aufweist.
Das Strombegrenzungsverhalten der Standbyspannung ist im entsprechenden Abschnitt beschrieben.
Die restlichen Ausgänge sind einzeln auf Überstrom überwacht. Dazu wird an einem im jeweiligen Strompfad liegenden Meßwiderstand die abfallende Spannung durch einen Komparator mit einer Referenzspannung verglichen. Übersteigt der Ausgangsstrom den vorgesehenen Wert, wird der Komparator aktiv und legt das IREG-Signal auf high-Potential. Damit wird die Leistung des Hauptwandlers heruntergefahren.

- Überspannungsschutz:
Um bei versehentlichen Kurzschlüssen zwischen den Ausgangsspannnungen Schäden an den Verbrauchern zu vermeiden, wird bei Überspannung an den Ausgängen der Hauptwandler abgeschaltet.
Dazu sind die Ausgangsspannungen +7.7V, +15.3V, 24.5/30V, -15.3V und +12V jeweils über Zener-Dioden auf einen gemeinsamen Arbeitswiderstand R221 gegen Masse gelegt. Überspannung an einem Ausgang führt zu einem Strom in der entsprechenden Zenerdiode und damit zu einem Spannungsabfall an R221. Der Komparator N16 stellt dies fest und schaltet daraufhin das IREG-Signal auf high und sperrt so den Hauptwandler. Siehe auch Hickup-Modus. Der Ausgang -30V wird nicht überwacht. Bei Überspannung an 5.2V wird ein Thyristor gezündet, der die Ausgangsspannung kurzschließt.
Um das Hochlaufen der Ausgangsspannungen bei internen Defekten zu verhindern, wird die Sekundärspannung UGR+16 des Hauptregelkreises separat durch den Komparator N25 überwacht und bei Überschreiten von 17V der Hauptwandler abgeschaltet.

- Hickup-Modus:
Um die interne Schaltung und die angeschlossenen Verbraucher vor hoher Dauerbelastung durch Überstrom/Überspannung zu schützen, wird beim Ansprechen des IREG-Signals ein Zeitglied N26 gestartet, welches den Hauptwandler für einige Sekunden sperrt. Dadurch wird bei dauernder Störung die Ausgangsleistung im Mittel auf unschädlichen Werten gehalten. Siehe auch 1.8 Sekundärlogik.

7.1.8 Sekundär-Logik

- Standbyschalter:
Die mehrfache RC-Beschaltung am Eingang von STANDBY/ON, D2 ermöglicht den Anschluß von Leistungsschaltern und Signalschaltern und dient zur Entprellung des Schalters. Die Schalterstellung wird über den Optokoppler U2 auf die Primär-Seite gemeldet und schaltet direkt den Hauptwandler und den Lüfter.

- ACFAIL# und SYSRESET#:
Die NAND-Gatter aus D3 generieren die Signale ACFAIL# und SYSRESET#.
ACFAIL# wird beim Einschalten des Netzgerätes logisch high, sobald die 5.2V-Ausgangsspannung 4.94V erreicht hat und die 15.3V auf 14.5V angestiegen sind. Bei Netzausfall wird ACFAIL# von der Primär-Steuerung über Optokoppler U3 auf logisch low gesetzt.
SYSRESET# wird beim Einschalten des Netzgerätes gegenüber ACFAIL# durch das RC-Glied R324, C108 um ca. 300ms verzögert. Bei Netzausfall wird SYSRESET# auf logisch low gesetzt, sobald die 5.2V auf 4.94V abgefallen sind.

- Hickup-Modus:
Der bei der Strombegrenzung angesprochene Hickup-Modus beinhaltet folgende Funktionen:
Beim Einschalten des Gerätes wird der Hauptwandler zunächst vom Timer N26 über den Optokoppler U2 freigegeben. Falls nach 2 Sekunden die Ausgangsspannung +15.3V noch nicht auf 14.5V angestiegen ist, wird der Hauptwandler für 6 Sekunden gesperrt und anschließend für einen neuen Zyklus wieder freigegeben. Bei Strombegrenzung oder Überspannung bricht die Ausgangsspannung +15.3V auf Werte unter 14.5V zusammen, es wird der selbe Vorgang ausgelöst.

7.1.9 Sonstiges

Der NTC R248 steuert über V143 die Lüfterdrehzahl abhängig von der Temperatur im Geräteinneren. Bis zu Temperaturen von 50°C wird der Lüfter mit ca. 7V betrieben, diese Spannung steigt bis 60° auf maximal 10V und bleibt dann konstant. Mit dem NTC R184 wurde eine Temperaturabschaltung realisiert, die ab 75°C den Hauptwandler abschaltet.

7.2 Meßgeräte und Hilfsmittel

Regel-Trenntrafo mit mindestens 500VA,
Labornetzgerät mit Gleichspannungsausgang 0..40V,
Gleichspannungsmeßgerät (Digital-Multimeter).

7.3 Fehlersuche

- Achtung:
Arbeiten am offenen Gerät düfen nur von Fachpersonal durchgeführt werden. Zur Stromversorgung muß ein Trenntrafo verwendet werden. Es ist zu beachten, daß Teile der Schaltung Netzspannung führen und der Eingangsteil wegen geladener Eingangselkos auch nach der Unterbrechung der Stromzufuhr noch ca. 2 Minuten berührungsgefährliche Spannung führt !

Zur Erleichterung der Fehlersuche sollten die Ausgangsspannungen des Netzgerätes mit Digitalvoltmetern überwacht werden. Bei der Beschreibung der Fehlerursachen werden meist mehrere mögliche Bauteildefekte aufgezeigt, die zum entsprechenden Fehlerbild führen können. Diese Bauteile sind zu prüfen und ggf. zu tauschen. Es sind dabei die in den Stücklisten angegebenen Typen zu verwenden.

Fehler: Eingangssicherung spricht bei Anlegen der Netzspannung an.
Ursachen:
- Schalttransistor V28 des Pulsstellers defekt,
- Freilaufdiode V64 defekt,
- Diode V63 defekt,
- Gleichrichter V45 defekt.

Fehler: keine Ausgangsspannung vorhanden, Lüfter läuft nicht.
Ursachen:
- Sicherungswiderstand R211 defekt,
- Schalttransistor V116 des Standbywandlers defekt.

Fehler: Nur Standbyspannung vorhanden.
Ursachen:
- Unterbrechung der Zuleitung vom Standbyschalter,
- Unterbrechung oder Kurzschluß auf dem Signalweg vom Anschluß des Standbyschalters über die Entprellschaltung vor D2, über Optokoppler U2 zum Pulssteller,
- Pegel des WSP-Signals im Pulssteller hat 0V: Defekt in der Primärlogik,
- Pegel des IREG-Signals größer 0V: Quelle suchen, siehe Fehler Ausgangsspannungen im Hickup-Modus.

Fehler: Ausgangsspannungen im Hickup-Modus.
Ursachen:
- Defekt einer Strombegrenzung oder in der Überspannungsschutzschaltung.
Alle einspeisenden Komparatoren sind über Dioden voneinander entkoppelt und können daher einzeln untersucht werden. Es kommen haupsächlich die Komparatoren der Strombegrenzung der Analogregler in Frage, welche nachfolgend aufgelistet sind:

+15.3V : N22 Pin 1,
+7.7V : N17 Pin 1,
-30V : N21 Pin 1,
-15.3V : N20 Pin 7,
+12V : N14 Pin 7,
Überspannung: N16 Pin 7.

- Eine Fehlfunktion der Stromkomparatoren kann auf eine Unterbrechung des Strommesswiderstandes oder einen fehlerhaften Widerstand im Spannungsteiler am Eingang des Komparators zurückzuführen sein.
- Eine Fehlfunktion durch die Überspannungserkennung kann durch einen kurzgeschlossenen Regeltransistor oder durch einen fehlerhaften Widerstand im Regler-Spannungsteiler hervorgerufen werden.

Fehler: Eine Ausgangsspannung fehlt.
Ursachen:
- Unterbrechung der Wicklung des Trafos,
- Defekt von Gleichrichterdioden,
- Defekt von Längsregler-Transistoren,
- unterbrochener Strommeßwiderstand,
- fehlerhafter Widerstand im Regler-Spannungsteiler.

7.4 Inbetriebnahme

Die Netzspannung wird über einen Regeltrafo zugeführt. Spannung auf 110V hochdrehen, Gerät schaltet ein. Am Gerät ohne Last mit R209 die Ausgangsspannung 1 auf 5.20V einstellen. Mit R223 die Spannung an Pin 1 des 50-poligen Steckers 4.94V einstellen. Netzspannung auf 230V hochdrehen, Gerät schaltet auf 230V-Betrieb um (internes Relais fällt hörbar ab) und läuft weiter. Alle Ausgangsspannungen müssen jetzt entsprechend der Beschreibung der externen Schnittstellen vorhanden sein. Zur Prüfung der Funktion des Überspannungsschutzes wird bei laufendem Gerät mit einem Labornetzgerät von außen Überspannung simuliert. Betroffen sind +5.2V, +7.7V, +15.3V, -15.3V, +12V und 24.5/30V. Dazu wird an den jeweiligen Ausgang eine ca. 25% über dem Nennwert liegende Spannung angelegt, das Netzgerät muß dann sofort abschalten.

7.5 Zerlegung und Zusammenbau

Zerlegung:
6 Schrauben umlaufend an der Haube lösen, Haube nach hinten abziehen.
4 Schrauben an der Front des Gerätes lösen, Steckker des Lüfteranschlusses und der Verbindung vom Netzanschluß zur Leiterplatte abziehen.
Es sind jetzt alle wichtigen Punkte für Messungen zugänglich.
Zusammenbau:
Nachdem darauf geachtet wurde, daß die Leiterplatten-Isolierungen vorhanden sind, erfolgt der Zusammenbau in genau der umgekehrten Reihenfolge wie die Zerlegung.

7.6 Externe Schnittstellen über die 50-polige SUB-D-Buchse

PIN-Nr.	Bezeichnung	Ein/Aus	Bemerkung
1	REF3	A	interne Referenz 2.6V
17	STANDBY/ON	E	Aktivierungseingang LOW (GND) = NT ein
33	SYSRESET#	A	System-Reset, HCT-Pegel
50	ACFAIL#	A	NMI-Interrupt, HCT-Pegel
16	COD	E	24.5/30V-Umschaltung, offen: 24.5V, Verbindung m. GND: 30V
32	-	-	frei
49	TSENSE	A	Temperaturfühlerausgang 100kOhm-NTC gegen GND
31	+12V STANDBY	A	11.65 .. 12.35VDC / 0.4A
48	-30V	A	-31 .. -29VDC / 0.1A
15	GND	-	Netzteilmasse
30, 47	+12V	A	11.65 .. 12.35VDC / 2A
13, 14	GND	-	Netzteilmasse
12, 28	-15.3V	A	-15.75 .. -14.85VDC / 2.6A
29, 46	GND	-	Netzteilmasse
7, 8, 9, 24, 25, 41, 42	+5.2V	A	5.15 .. 5.25VDC / 10A
10, 11, 26, 27, 43, 44, 45	GND	-	Netzteilmasse
5, 22, 39	+7.7V	A	7.45 .. 7.95VDC / 3.5A
6, 23, 40	GND	-	Netzteilmasse
3, 19, 36, 37	+15.3V	A	14.85 .. 15.75VDC / 5.2A
4, 20, 21, 38	GND	-	Netzteilmasse
18	24.5/30V	A	23.75 .. 25.25VDC / 0.6A, bzw. 29 .. 31VDC / 0.5A
2	GND	-	Netzteilmasse
34,35	-	-	Testpins, unbeschaltet

Power Supply Unit IN 1039.1504.00

This module is a subsupplied part. Thus the documentation does not contain the usual R&S identifications. In the case of complaint, we recommend to replace it by a new module or an exchange module.

Order designation:	New part:	IN 1039.1504.00
	Exchange part:	IN 1039.1504.98

Documents of the manufacturer are attached to our documentation. These documents (1039.1304) are valid for power supply unit IN 1039.1504.00.

Repair work at the module may only be executed by trained staff, observing the safety standards applying to works at electronic circuits.

In order to avoid the destruction of ICs due to static charge, antistatic methods (ESD measures) always have to be observed.

In the case of repair down to component level, only original parts may be used. The use of non-original components or the inappropriate execution of repair work might violate safety provisions and lead to liability claims to be refused.

Spare components can be ordered from the parts list with reference to the designation of the power supply unit IN 1039.1504.00 and mentioning the part designation.

Modules and parts can be obtained directly via the appropriate R&S representative or via Rohde & Schwarz, Zentralservice München.

Address:

Rohde & Schwarz GmbH & Co. KG
Zentralservice 3MSL
Mühldorfstr. 15
81614 München

Tel.: 0049-89-41 29 28 60
Fax.: 0049-89-41 29 33 06

1997-02-21

Contents

7. Checking and Repair of the Module 5
7.1. Function Description 5
7.1.1 Overview 5
7.1.2 Auxiliary and Standby Circuit 5
7.1.3 Primary Power Unit 6
7.1.4 Primary Control 6
7.1.5 Secondary Power Unit 7
7.1.6 Reference Voltages 7
7.1.7 Current Limiting / Overvoltage Protection 7
7.1.8 Secondary Logic 8
7.1.9 Miscellaneous 9
7.2 Measuring Instruments and Auxiliary Equipment ... 10
7.3 Troubleshooting 10
7.4 Putting into Operation 11
7.5 Disassembly and Assembly 11
7.6 Ext. Interfaces via the 50-contact SUB-D Connector 12

Annex:

Part lists

Circuit diagrams

Component location plans

7. Checking and Repair of the Module

7.1. Function Description

7.1.1 Overview

The rectified, filtered AC supply voltage is down-converted to an intermediate voltage of approx. 140 V using a pulse controller. This intermediate voltage is subsequently chopped by a push-pull stage and applied to the main transformer T1, the secondary windings of which generate 7 out of 8 output voltages by means of series regulators and switching regulators. The standby voltage as well as the internal auxiliary voltages are derived from a separate transformer clocked on the primary side.
The instrument is automatically set to the AC supply voltage value (115/230 V). A filter for suppression of conducted interference is provided at the input. Reliable isolation is achieved by using transformers for power conversion and VDE optocouplers for signal conversion.
The outputs of the secondary circuit are protected against overload and overvoltage. Cooling of the instrument is provided by a thermostat-controlled fan, which achieves its maximum speed only at high ambient temperatures.

7.1.2 Auxiliary and Standby Circuit

The standby transformer is directly operated from the rectified AC supply voltage, i.e. it is in operation as long as the AC supply voltage is applied and the power switch is switched on. The transformer operates in a freely oscillating mode. The oscillations are generated by the components arranged around switching transistor V116 and standby transformer T2. The control is performed by operational amplifier N17 following rectification and filtering of the voltage UH1 from the secondary winding N4 of the standby transformer. UH1 is adjusted to 12.8 V.
The remaining two output windings of T2 are used to generate the internal auxiliary voltages UH4 (+12.8 V, primary) as well as UH3 (+30 V, secondary) by means of rectification and using small series regulators. The +12.8-V auxiliary voltage of the secondary winding is reduced to 12.0 V in a further series regulator (transistor V98), current-limited to approx. 1 A and output as standby voltage (output 6) at the 50-contact connector. In order to prevent the variable transistor from being overloaded in the case of current limiting, the output voltage is totally cut off for approx. 2 seconds in the case of overload.

7.1.3 Primary Power Unit

After the preliminary filter with L32 and C29, the AC supply voltage is taken via a power resistor R75 (for inrush current limiting) to rectifier V45 and is subsequently buffered in the electrolytic capacitors C31, C32, C23. A further filter with L2, C22, C33, L28 and C95 is connected between rectifier and electrolytic capacitors. The DC voltage is applied from the electrolytic capacitors to the pulse controller consisting of transistor V28, choke L1 and commutation diode V64. The switching frequency of the pulse controller of approx. 70 kHz is produced by means of comparator N15. The output voltage is proportional to the pulse duty factor of the signal applied to the switching transistor. The pulse duty factor is set by the main regulator via optocoupler U4 and current comparator N15 depending on the output power and input voltage. The maximum power of the pulse controller is determined by the highest possible pulse duty factor and lies at approx. 300 W. The resulting intermediate voltage (output voltage of the pulse controller) of approx. 140 V is chopped by means of a half-bridge and applied to the primary winding N1 of main transformer T1. Transistors V131, V132 of the bridge are also supplied with 70 kHz via control transformer T3. The main control loop described here is closed by regulator N18, which maintains the secondary voltage of winding N2/N3 of the main transformer UGR+16 at a constant voltage of 15.8 V. Using the optocoupler U2, the pulse controller is switched off in standby mode; the same is achieved by the signal WSP from the primary control in the case of undervoltage.

7.1.4 Primary Control

The primary control generates the sequence of functions when the power supply unit is switched on. After the AC supply voltage has been applied, the auxiliary voltage UH4 must first increase to approx. 10 V so that the further control is enabled by the auxiliary voltage monitoring circuit with transistors V22, V23. Then the AC supply voltage value is evaluated by comparator N1. If the AC supply voltage value has not yet reached the 230-V range after approx. 100 ms (R8, C6, C7 at N1), relay K1 switches in order to achieve doubling of the voltage by cascading the input electrolytic capacitors C31, C32. If the AC supply voltage reaches the 230-V range within 100 ms, N1 remains locked in. Thus, relay K1 remains dropped out, avoiding that the 155-V mode is selected again when the AC supply voltage fails, which would involve a high current inrush.
After the voltage at the input electrolytic capacitors has increased to 240 V, the undervoltage sensing circuit N2 activates a timer (N1, C4, R8, R9) which first short-circuits the resistor R75 for inrush current limiting via K2 and then enables the main transformer via the control signal WSP. The undervoltage sensing device N2 is provided with a hysteresis so that the main transformer is only disabled again when the rectified AC supply voltage has fallen below 160 V.

When the rectified AC supply voltage decreases, N2 informs the evaluation circuit for the ACFAIL signal in the secondary circuit via optocoupler U3.

7.1.5 Secondary Power Unit

The voltages provided by the primary power unit at the secondary windings of the main transformer are separately rectified and filtered. The windings N2/N3 deliver the high-end voltages UGR+16 for +15.3V, UGR+8 for +7.7V and UGR-16 for -15.3V. N4/N5 provides UGR+13 for +12 V, N6 provides the high-end voltage for -30 V and N7 UGR38 for the switching regulator of the 24.5/30 V. These voltages are all rectified and filtered before being applied to the subsequent regulators.
The voltages for the outputs +15.3 V, -15.3 V, +12 V and -30 V are subsequently stabilized by series regulators. Each series regulator consists of a power MOSFET as regulating element with shunt and associated comparator for monitoring the current limiting. The 5.2-V output voltage is regulated by a switching regulator from the UGR+16, the switching frequency of which is synchronized with that of the main transformer.
The output voltage 24.5 V/30 V is generated on a separate module by a freely oscillating switching regulator. The output voltage of this regulator can be set by external connection of the signal COD at the output connector of the power supply, the voltage divider of the variable operational amplifier N3 being switched over. COD open: 24.5 V, COD connected to GND: 30 V.

The output voltage 2 (7.7 V) is not regulated, since only low requirements are placed on stability.

7.1.6 Reference Voltages

All regulators are provided with a common reference voltage REF1 of +5.2 V, which is generated by means of the integrated voltage regulator N18 and adjusted using potentiometer R209. For the regulators of the negative output voltages, a reference with half the value, i.e. +2.6 V (REF3) is additionally obtained from REF1 by voltage division. The reference voltage of +4.94 V (REF5) required for monitoring the +5.2 V with respect to undervoltage is formed by N19 and adjusted by means of R223.

7.1.7 Current Limiting / Overvoltage Protection

The so-called IREG signal constitutes the core of current limiting and overvoltage protection. This signal directly acts on the main regulator, reducing or disabling the total output power of the power supply by increasing the level; this is not true for the standby voltage. The IREG signal combines the outputs of the individual current limitations and overvoltage detectors.

- Current limiting:
The regulators of the output voltages +5.2 V and 24.5/30 V are provided with an independent current limiting facility each that features a constant-current characteristic in the case of overload.
The response of the standby voltage to current limiting is described in the respective section.
The remaining outputs are separately monitored with respect to overcurrent. For this purpose, the voltage dropping across a shunt in the respective current path is compared with a reference voltage by a comparator. If the output current exceeds the predetermined value, the comparator is activated, applying the IREG signal to high potential and thus reducing the power of the main transformer.

- Overvoltage protection:
In order to avoid damage to the loads in the case of accidental short-circuits between the output voltages, the main transformer is deactivated in the case of overvoltage at the outputs.
To this end, the output voltages +7.7 V, +15.3 V, 24.5/30 V, -15.3 V and +12 V are each applied via zener diodes to a common load resistance R221 and grounded. Overvoltage at an output causes a current flow in the appropriate zener diode and thus a voltage drop across R221. As a result of this, comparator N16 switches the IREG signal to high, disabling the main transformer. See also hickup mode. The -30-V output is not monitored. In the case of overvoltage at 5.2 V, a thyristor is triggered, short-circuiting the output voltage.

In order to prevent rising of the output voltages in the case of internal faults, the secondary voltage UGR+16 of the main control loop is separately monitored by comparator N25 and the main transformer deactivated when 17 V are exceeded.

- Hickup mode:
In order to protect the internal circuit and the connected loads from high continuous load due to overcurrent/overvoltage, a timer N26 is started when the IREG signal responds, disabling the main transformer for a few seconds. Thus the output power is maintained at acceptable values on average in the case of continuous disturbance. See also 1.8 Secondary Logic.

7.1.8 Secondary Logic

- Standby switch:
The multiple RC connection at the input of STANDBY/ON, D2 permits to connect power switches and signal switches and is used for debouncing the switch. The switch position is signalled to the primary side via optocoupler U2 and directly acts on the main transformer and the fan.

- ACFAIL# and SYSRESET#:
The NAND gates consisting of D3 generate the signals ACFAIL# and SYSRESET#.

ACFAIL# goes logic high after switching on of the power supply as soon as the 5.2-V output voltage has achieved 4.94 V and the 15.3-V output voltage has increased to 14.5 V. On power failure, ACFAIL# is set to logic low by the primary control via optocoupler U3.
When the power supply unit is switched on, SYSRESET# is delayed by approx. 300 ms by the RC section R324, C108 compared with ACFAIL#. On power failure, SYSRESET# is set to logic low as soon as the 5.2-V voltage has decreased to 4.94 V.

- Hickup mode:
The hickup mode mentioned in connection with current limiting includes the following functions:
When the unit is switched on, the main transformer is first enabled by timer N26 via optocoupler U2. If the +15.3-V output voltage has not yet increased to 14.5 V after 2 seconds, the main transformer is disabled for 6 seconds and subsequently enabled again for a new cycle. In the case of current limiting or overvoltage, the +15.3-V output voltage collapses to values below 14.5 V, and the same process is released.

7.1.9 Miscellaneous

The NTC R248 controls the fan speed via V143 depending on the temperature inside the instrument. At temperatures below 50°C, the fan is operated with approx. 7 V, this voltage increases to maximally 10 V at temperatures up to 60° and then remains constant. Using the NTC R184, an overtemperature protection has been implemented that deactivates the main transformer at more than 75°C.

7.2 Measuring Instruments and Auxiliary Equipment

Variable isolating transformer with at least 500 VA,
Laboratory power supply with DC voltage output 0 to 40 V,
DC voltmeter (digital multimeter).

7.3 Troubleshooting

- Note:
Repair work on the open instrument may only be carried by trained personnel. An isolating transformer must be used for current supply. Note that the circuit includes live parts and that, due to charged electrolytic capacitors, the input section carries dangerous contact voltages for approx. another 2 minutes even after the current supply has been interrupted!

To facilitate troubleshooting, the output voltages of the power supply should be monitored using digital voltmeters. The description of the causes of faults in most cases indicates several possible faults of components which may be responsible for the respective error symptom. Check these components and replace, if necessary, using the types of components indicated in the part lists.

Fault: Input fuse is blown when AC supply voltage is applied.
Causes:
- Switching transistor V28 of pulse controller faulty,
- Free-running diode V64 faulty,
- Diode V63 faulty,
- Rectifier V45 faulty.

Fault: no output voltage, fan does not run.
Causes:
- Fusing resistor R211 faulty,
- Switching transistor V116 of standby transformer faulty.

Fault: Only standby voltage provided.
Causes:
- Open circuit in the lead from the standby switch,
- Open or short circuit in the signal path from the terminal of the standby switch via the debouncing circuit preceding D2, via optocoupler U2 to the pulse controller,
- Level of WSP signal in the pulse controller is 0 V: Fault in the primary logic,
- Level of IREG signal exceeds 0 V: Find the source, see fault output voltages in hickup mode.

Fault: output voltages in hickup mode.
Causes:
- Fault in current limiting or overvoltage protection circuit.
All feeding comparators are decoupled from each other via diodes and can therefore be investigated separately. The comparators of the current limitation of the analog regulators are the main possible causes; they are listed in the following:

+15.3V : N22 pin 1,
+7.7V : N17 pin 1,
-30V : N21 pin 1,
-15.3V : N20 pin 7,
+12V : N14 pin 7,
Overvoltage: N16 pin 7.

- A faulty function of the current comparators may be due to an open circuit in the shunt or a faulty resistor in the voltage divider at the input of the comparator.
- A faulty function due to overvoltage sensing can be caused by a short circuit in the variable transistor or a faulty resistor in the regulator voltage divider.

Fault: Missing output voltage.
Causes:
- Open circuit in the winding of the transformer,
- Faulty rectifier diodes,
- Faulty series regulator transistors,
- Open circuit in shunt,
- Faulty resistor in regulator voltage divider.

7.4 Putting into Operation

The AC supply voltage is delivered via a variable transformer. Increase the voltage to 110 V, the instrument is activated. Use R209 to set the output voltage 1 to 5.20 V on the instrument without load connected. Use R223 to set the voltage at pin 1 of the 50-contact connector to 4.94 V. Increase the AC supply voltage to 230 V, instrument switches over to 230-V operation (switching of internal relay can be heard) and continues running. All output voltages must then be provided according to the description of the external interfaces. To check proper functioning of the overvoltage protection, an overvoltage is simulated from outside using a laboratory power supply with the instrument running. The involved voltages are +5.2 V, +7.7 V, +15.3 V, -15.3 V, +12 V and 24.5/30 V. For this purpose, apply a voltage that is approx. 25% above the rated value to the respective output, the power supply must shut down immediately.

7.5 Disassembly and Assembly

Disassembly:
Loosen 6 screws on the circumference of the cover, pull off the cover towards the rear.
Loosen 4 screws at the front of the instrument, remove the connector of the fan terminal and of the connection from the power terminal to the printed circuit board.
The major test points are then accessible.
Assembly:
Check that the printed circuit boards are properly insulated.
For the assembly, proceed in the reverse order.

7.6 External Interfaces via the 50-contact SUB-D Connector

PIN No.	Designation	Input/ Output	Remark
1	REF3	O	Internal reference 2.6V
17	STANDBY/ON	I	Activating input LOW (GND) = NT on
33	SYSRESET#	O	System reset, HCT level
50	ACFAIL#	O	NMI Interrupt, HCT level
16	COD	I	24.5/30V switchover, open: 24.5V, Connection to GND: 30V
32	-	-	vacant
49	TSENSE	A	Temperature sensor output 100kohm NTC against GND
31	+12V STANDBY	O	11.65 .. 12.35VDC / 0.4A
48	-30V	O	-31 .. -29VDC / 0.1A
15	GND	-	Ground of power supply
30, 47	+12V	O	11.65 .. 12.35VDC / 2A
13, 14	GND	-	Ground of power supply
12, 28	-15.3V	A	-15.75 .. -14.85VDC / 2.6A
29, 46	GND	-	Ground of power supply
7, 8, 9, 24, 25, 41, 42	+5.2V	A	5.15 .. 5.25VDC / 10A
10, 11, 26, 27, 43, 44, 45	GND	-	Ground of power supply
5, 22, 39	+7.7V	A	7.45 .. 7.95VDC / 3.5A
6, 23, 40	GND	-	Ground of power supply
3, 19, 36, 37	+15.3V	A	14.85 .. 15.75VDC / 5.2A
4, 20, 21, 38	GND	-	Ground of power supply
18	24.5/30V	A	23.75 .. 25.25VDC / 0.6A, or 29 .. 31VDC / 0.5A
2	GND	-	Ground of power supply
34,35	-	-	Test pins, not connected

ROHDE&SCHWARZ

Schaltteillisten
numerisch geordnet

Part lists
in numerical order

Listes des pièces détachées
par numéros de référence

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.21*.00-01	C	6	CE-120U/16V-64	E5_v	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	C	7	CK-47P/1000V-70	E2_v	KERKO 47P 1000V 10% RAU	ROEDERSTEIN	CERAMIC DISC CAPACITOR RAU470KBACRA(RC,LA,LC)K OR RAU470KBACFOK
AP-238.21*.00-01	C	8	CF-1N/250V-62	D3_v	FOKO 1N 250V 20% FKS2	WIMA	POLYESTER FILM CAPACITOR FKS2 1N 250VDC/160VAC 20% TAPED
AP-238.21*.00-01	C	9	CE-120U/16V-64	E3_v	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	C	10	CK-470P/1000V-R8	E2_v	KERKO 470P 1000V 20% RAZ	ROEDERSTEIN	CERAMIC DISC CAPACITOR RAZ471MBACRA(RC,LA,LC)K OR RAZ471MBACFOK
AP-238.21*.00-01	C	11	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.21*.00-01	C	13	CF-1N/100V-33	E4_v	FOKO 1N 100V 2.5% KP1830	ROEDERSTEIN	POLYPROPYLENE FILM CAPACITOR KP 1830 2.5% - 210/01 3 W
AP-238.21*.00-01	C	16	CE-120U/16V-64	E4_v	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	C	22	CY-4N7/400V-95	H5_h	Y-KOPPL 4N7 400V 20% WKP	ROEDERSTEIN	CERAMIC DISC CAPACITOR CLASS Y WKP600 4N7 400V 20% - WKP472MCPEJOK
AP-238.21*.00-01	C	23	CE-220U/400V-NA	G3_v	ELKO 220U 400V 31X37 KMH	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR KMH-VN-220U/400V-M-30X35
AP-238.21*.00-01	C	24	CM-1U/100V-W7	G4_v	MEKO 1U 100V 20% MKS2-I	WIMA	METALL. POLYESTER FILM CAPACITOR MKS2-I 1U/100V 20% TAPED
AP-238.21*.00-01	C	25	CM-1U/100V-W7	F4_v	MEKO 1U 100V 20% MKS2-I	WIMA	METALL. POLYESTER FILM CAPACITOR MKS2-I 1U/100V 20% TAPED
AP-238.21*.00-01	C	28	CM-2U2/250V-50	F3_h	MEKO 2U2 250V 20% MKT1822	ROEDERSTEIN	METALL. POLYESTER FILM CAPACITOR MKT1822-522/25 6
AP-238.21*.00-01	C	33	CY-4N7/400V-95	H5_h	Y-KOPPL 4N7 400V 20% WKP	ROEDERSTEIN	CERAMIC DISC CAPACITOR CLASS Y WKP600 4N7 400V 20% - WKP472MCPEJOK
AP-238.21*.00-01	C	43	CE-1500U/25V-64	B4_h	ELKO 1500U 25V 13X31 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1500 12.5X30
AP-238.21*.00-01	C	44	CE-1500U/25V-64	A2_h	ELKO 1500U 25V 13X31 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1500 12.5X30
AP-238.21*.00-01	C	45	CE-1000U/10V-64	B3_h	ELKO 1000U 10V 10.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF10VB-1000 10X20 TPA OR WITHOUT TPA
AP-238.21*.00-01	C	52	CE-100U/50V-65	A1_h	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.21*.00-01	C	59	CE-100U/50V-65	C3_h	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.21*.00-01	C	69	CE-220U/25V-64	E5_v	ELKO 220U 25V 8.5X16 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF25VB-220 8X15 TPA3.5 OR WITHOUT TPA
AP-238.21*.00-01	C	70	CV-1N/63V-C2		SMD-VIELKO 1N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 1NF/63V X7R 10% - 2222 581 16614
AP-238.21*.00-01	C	71	CK-2N2/500V-35	D6_h	KERKO 2N2 500V 10% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 K2000 2N2 10% 500V TAPED - 2222 655 53222
AP-238.21*.00-01	C	72	CM-100N/400V-40	D6_v	MEKO 100N 400V 20% MKT1.60	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.60 MI 3100 AA 00 M
AP-238.21*.00-01	C	73	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.21*.00-01	C	74	CV-470P/63V-C1		SMD-VIELKO 470P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 470PF/63V NP0 5% - 2222 863 15471
AP-238.21*.00-01	C	75	CE-820U/16V-64	B3_h	ELKO 820U 16V 10.5X26 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 16 VB-820 10X25
AP-238.21*.00-01	C	79	CM-100N/63V-20	E5_v	MEKO 100N 63V 20% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 DC 3100 191/201 M
AP-238.21*.00-01	C	80	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.21*.00-01	C	81	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.21*.00-01	C	82	CV-47N/63V-C2		SMD-VIELKO 47N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 47NF/63V X7R 10% - 2222 581 16636
AP-238.21*.00-01	C	83	CE-220U/35V-74	C4_h	ELKO 220U 35V 8.5X22 PL	NICHICON	ELECTROLYTIC CAPACITOR UPL1V221MPH
AP-238.21*.00-01	C	84	CE-330U/25V-64	C3_h	ELKO 330U 25V 8.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF25VB-330 8X20 TPA3.5 OR WITHOUT TPA
AP-238.21*.00-01	C	85	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.21*.00-01	C	86	CE-220U/35V-74	B4_h	ELKO 220U 35V 8.5X22 PL	NICHICON	ELECTROLYTIC CAPACITOR UPL1V221MPH
AP-238.21*.00-01	C	87	CE-120U/16V-64	B5_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	C	88	CE-22U/50V-30	B5_h	ELKO 22U 50V 5.5X12 RLL	PHILIPS COMPONENTS	ELECTROLYTIC CAPACITOR RLL 22U/50V - 2222 116 11229
AP-238.21*.00-01	C	89	CV-100P/63V-C1		SMD-VIELKO 100P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100PF/63V NP0 5% - 2222 863 15101
AP-238.21*.00-01	C	90	CV-1N/63V-C2		SMD-VIELKO 1N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 1NF/63V X7R 10% - 2222 581 16614
AP-238.21*.00-01	C	91	CV-1N/63V-C2		SMD-VIELKO 1N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 1NF/63V X7R 10% - 2222 581 16614
AP-238.21*.00-01	C	92	CK-47P/1000V-70	B5_v	KERKO 47P 1000V 10% RAU	ROEDERSTEIN	CERAMIC DISC CAPACITOR RAU470KBACRA(RC,LA,LC)K OR RAU470KBACFOK
AP-238.21*.00-01	C	93	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.21*.00-01	C	94	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.21*.00-01	C	95	CV-10N/500V-C7		SMD-VIELKO 10N 500V 10% X7R 1210	VITRAMON	CERAM. MULTILAYER CHIP CAPACITOR 10NF/500V X7R 10% - VJ1210Y103KXET
AP-238.21*.00-01	C	96	CV-10N/500V-C7		SMD-VIELKO 10N 500V 10% X7R 1210	VITRAMON	CERAM. MULTILAYER CHIP CAPACITOR 10NF/500V X7R 10% - VJ1210Y103KXET
AP-238.21*.00-01	C	97	CE-120U/16V-64	B5_v	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	C	98	CE-120U/16V-64	B5_v	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.21*.00-01	D	1	D-4001BCM-C2		SMD-NOR 2INP 4-FACH SO14	NATIONAL SEMICOND.	QUAD 2-INPUT NOR CD4001BCM
AP-238.21*.00-01	D	2	D-4013BCM-C2		SMD-D-FLIP-FLOP 2-FACH SO14	NATIONAL SEMICOND.	DUAL D-FLIP-FLOP CD4013BCM
AP-238.21*.00-01	D	3	D-4013BCM-C2		SMD-D-FLIP-FLOP 2-FACH SO14	NATIONAL SEMICOND.	DUAL D-FLIP-FLOP CD4013BCM
AP-238.21*.00-01	E	1	AP-238.212.00-01		SMDM-BLP TYP A	PULS MÜNCHEN	
AP-238.21*.00-01	E	1	AP-238.213.00-01	E6_h	SMDM-ALP TYP A	PULS MÜNCHEN	
AP-238.21*.00-01	E	1	EP-238.215.00-10		SMDM-LP 208X131X1.6 35U 2LAG	WALTER	
AP-238.21*.00-01	E	4	ES-STEZU3-10		STECKZUNGE 2.8X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 2.8X0.8 - 03785A/0.8 BZ SN OR MS SN
AP-238.21*.00-01	E	5	ES-STEZU3-10		STECKZUNGE 2.8X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 2.8X0.8 - 03785A/0.8 BZ SN OR MS SN
AP-238.21*.00-01	E	16	WI-238.810.00-10	B2_h	KABEL BL 1.34QMM STEHU6 240MM ELH	MD ELEKTRONIK	
AP-238.21*.00-01	E	18	XF-212.780.00-20	B1_h	STECKER 7POL MIT KABEL UND ELH	MD ELEKTRONIK	
AP-238.21*.00-01	E	23	WI-238.820.00-10	B2_h	KABEL RT 1.34QMM STEHU6 100MM ELH	MD ELEKTRONIK	
AP-238.21*.00-01	E	28	WI-238.870.00-10	I4_h	KABEL RT 0.86QMM STEHU6 70MM ELH	MD ELEKTRONIK	
AP-238.21*.00-01	E	29	WI-238.870.01-10	I4_h	KABEL BL 0.86QMM STEHU6 70MM ELH	MD ELEKTRONIK	
AP-238.21*.00-01	E	31	ES-RM254-61	F2_h	DRAHTBRÜCKE RM25.4 DM0.52 ISOLIERT	QUICK-OHM	WIRE JUMPER INSULATED RM25.4 DM0.52 - DB052-2540G

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.21*.00-01	E	32	ES-RM254-80	F3_h	DRAHTBRÜCKE RM25.4 DM0.6 ISOLIERT	BAYKRA	WIRE JUMPER RM25.4 X SL2.9(AB BT-UK) X DM0.60 INSULATED PVC105C
AP-238.21*.00-01	E	33	AH-238.670.00-01	E6_v	KÜHLBLECH BESTÜCKT STANDBY	PULS MÜNCHEN	
AP-238.21*.00-01	E	34	ES-RM356-82	A2_v	DRAHTBRÜCKE RM35.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM35.6 X 4 X 1.00MM INSULATED
AP-238.21*.00-01	E	36	ES-RM356-82		DRAHTBRÜCKE RM35.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM35.6 X 4 X 1.00MM INSULATED
AP-238.21*.00-01	L	1	LB-33U/A5-10	D3 v	HF-DROSSEL 33UH 0A5 4X9.2 B78108	SIEMENS	HF-CHOKE 33UH 0.5A - B78108-S1333-K
AP-238.21*.00-01	L	2	LY-2X6M8/2A-10	H6_v	STROMKOMP.DR 2X6M8H 2A 31X18X33	SIEMENS	CURRENT COMPENSATED CHOKE 2X6.8MH/2A - B82724-J2202-N1
AP-238.21*.00-01	L	3	LE-238.550.00-20	G2_v	E42/15-DROSSEL 130UH 9A	EGSTON	
AP-238.21*.00-01	L	25	LB-10U/A68-10	C4_v	HF-DROSSEL 10UH 0A68 4X9.2 B78108	SIEMENS	HF-CHOKE 10UH 0.68A - B78108-S1103-K
AP-238.21*.00-01	L	26	LB-10U/A68-10	C4_v	HF-DROSSEL 10UH 0A68 4X9.2 B78108	SIEMENS	HF-CHOKE 10UH 0.68A - B78108-S1103-K
AP-238.21*.00-01	L	27	LB-10U/A68-10	B4_v	HF-DROSSEL 10UH 0A68 4X9.2 B78108	SIEMENS	HF-CHOKE 10UH 0.68A - B78108-S1103-K
AP-238.21*.00-01	L	28	LB-192.550.00-10	G4_h	STABKERNDROSSEL 1U1H 7A 4X13.3	HAGN	
AP-238.21*.00-01	N	4	N-431CLP-13	E4_v	SPG.REF 2V495 0A1 1% TO92	MOTOROLA	VOLTAGE REFERENCE TL431CLPRA - SELECTED UNDER 936.014.01
AP-238.21*.00-01	N	15	N-339D-C1		SMD-KOMP 4-FACH 36V 5MV 6MA SO14	MOTOROLA	QUAD COMPARATOR LM339D
AP-238.21*.00-01	N	17	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.21*.00-01	N	18	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.21*.00-01	N	19	N-431CLP-13	B4_v	SPG.REF 2V495 0A1 1% TO92	MOTOROLA	VOLTAGE REFERENCE TL431CLPRA - SELECTED UNDER 936.014.01
AP-238.21*.00-01	R	29	RM-1R00-10	E2_h	MET.WID 1R00 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R00 1% TK100 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	30	RM-4K22-10	E3_h	MET.WID 4K22 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 4K22 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	31	RM-10R0-10	E2_h	MET.WID 10R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 10R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	32	RM-249R0-10	E3_v	MET.WID 249R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 249R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	33	RM-20R5-C1		SMD-METWID 20R5 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 20R5
AP-238.21*.00-01	R	34	RW-0R050/2W4-L2	F2 h	DRAHTWID 0R050 1% 2.4W +TK75 LVR3	DALE	WIRE-WOUND RESISTOR LVR-3 0.050R 1%
AP-238.21*.00-01	R	35	RM-51R1-10	E3_v	MET.WID 51R1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 51R1 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	36	RW-330R/1W-40	E3_v	M-OXIDWID 330R 5% 1.0W TK200 WK4	ROEDERSTEIN	METALOXIDE RESISTOR WK4 330R J B
AP-238.21*.00-01	R	37	RM-3K83-C1		SMD-METWID 3K83 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K83
AP-238.21*.00-01	R	38	RM-825K0-10	F3_h	MET.WID 825K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 825K0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	39	RM-787K0-10	F3_h	MET.WID 787K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 787K0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	40	RM-4K42-10	E3_h	MET.WID 4K42 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 4K42 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	41	RM-348R0-10	E3_v	MET.WID 348R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 348R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	42	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.21*.00-01	R	43	RM-3K83-C1		SMD-METWID 3K83 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K83
AP-238.21*.00-01	R	44	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	45	RM-14K7-C1		SMD-METWID 14K7 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 14K7
AP-238.21*.00-01	R	46	RM-1K87-C1		SMD-METWID 1K87 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K87
AP-238.21*.00-01	R	47	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	48	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	49	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.21*.00-01	R	50	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	51	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	52	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.21*.00-01	R	53	RM-22K6-C1		SMD-METWID 22K6 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 22K6
AP-238.21*.00-01	R	69	RW-0R012-D2	F4_h	WIDERST.DRAHT 0R012 1.0X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM1.0 RM15.24 SL=4.4 - 16633
AP-238.21*.00-01	R	70	RM-8R25-C1		SMD-METWID 8R25 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 8R25
AP-238.21*.00-01	R	71	RK-8R2-10	F4_h	KOHLE.WID 8R2 5% 0.33W +TK200 CR25	PHILIPS COMPONENTS	CARBON FILM RESISTOR CR25 8R2 TAPED - 2322 211 73828
AP-238.21*.00-01	R	72	RM-8R25-C1		SMD-METWID 8R25 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 8R25
AP-238.21*.00-01	R	73	RW-0R012-D2	E4_v	WIDERST.DRAHT 0R012 1.0X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM1.0 RM15.24 SL=4.4 - 16633
AP-238.21*.00-01	R	74	RK-8R2-10	F5_h	KOHLE.WID 8R2 5% 0.33W +TK200 CR25	PHILIPS COMPONENTS	CARBON FILM RESISTOR CR25 8R2 TAPED - 2322 211 73828
AP-238.21*.00-01	R	80	RM-1M00-C1		SMD-METWID 1M00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1M00
AP-238.21*.00-01	R	201	RM-332R0-C1		SMD-METWID 332R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 332R
AP-238.21*.00-01	R	202	RM-26K1-10	F6_h	MET.WID 26K1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 26K1 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	203	RM-205R0-10	D4_v	MET.WID 205R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 205R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	204	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.21*.00-01	R	205	RM-1R00-10	F5 h	MET.WID 1R00 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R00 1% TK100 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	206	RM-1R21-10	E5_h	MET.WID 1R21 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R21 1% TK100 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	207	RM-1M5-R8	G5_h	MET.GL.WID 1M5 5% 0.25W 1600V VR25	PHILIPS COMPONENTS	METALLIZED CERAMIC RESISTOR VR25 1M5 5% TAPED - 2322 241 13155
AP-238.21*.00-01	R	208	RM-1M5-R8	G5_h	MET.GL.WID 1M5 5% 0.25W 1600V VR25	PHILIPS COMPONENTS	METALLIZED CERAMIC RESISTOR VR25 1M5 5% TAPED - 2322 241 13155
AP-238.21*.00-01	R	209	RM-1M0-R8	G5_h	MET.GL.WID 1M0 5% 0.25W 1600V VR25	PHILIPS COMPONENTS	METALLIZED CERAMIC RESISTOR VR25 1M0 5% TAPED - 2322 241 13105
AP-238.21*.00-01	R	210	RM-11K0-C1		SMD-METWID 11K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 11K0
AP-238.21*.00-01	R	211	RY-4R7-10	G5_v	DEFDURWID 4R7 5% 0W3 +TK200 SKS2	ROEDERSTEIN	FUSIBLE RESISTOR SKS2 4R7 5% TAPED - SS204R7JR
AP-238.21*.00-01	R	212	RM-11K0-C1		SMD-METWID 11K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 11K0

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.21*.00-01	R	213	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	214	RM-825R0-C1		SMD-METWID 825R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 825R
AP-238.21*.00-01	R	215	RM-383K0-C1		SMD-METWID 383K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 383K
AP-238.21*.00-01	R	216	RM-3K32-C1		SMD-METWID 3K32 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K32
AP-238.21*.00-01	R	217	RM-825R0-10	A5 h	MET.WID 825R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 825R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	218	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.21*.00-01	R	219	RM-2K15-C1		SMD-METWID 2K15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K15
AP-238.21*.00-01	R	220	RM-464K0-C1		SMD-METWID 464K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 464K
AP-238.21*.00-01	R	221	RM-10K5-C2		SMD-METWID 10K5 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 10K5
AP-238.21*.00-01	R	222	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.21*.00-01	R	223	RM-464R0-C1		SMD-METWID 464R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 464R
AP-238.21*.00-01	R	224	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	225	RM-205R0-C1		SMD-METWID 205R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 205R
AP-238.21*.00-01	R	226	RM-14K7-C1		SMD-METWID 14K7 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 14K7
AP-238.21*.00-01	R	227	RM-16K2-C1		SMD-METWID 16K2 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 16K2
AP-238.21*.00-01	R	228	RM-11K0-C1		SMD-METWID 11K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 11K0
AP-238.21*.00-01	R	229	RM-909R0-10	B4_v	MET.WID 909R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 909R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	230	RM-274R0-10	A5_h	MET.WID 274R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 274R0 1% TK50 300V 0.6W/70C TAPED
AP-238.21*.00-01	R	231	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.21*.00-01	R	232	RM-51R1-C1		SMD-METWID 51R1 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 51R1
AP-238.21*.00-01	R	233	RM-11K0-C1		SMD-METWID 11K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 11K0
AP-238.21*.00-01	R	234	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.21*.00-01	R	235	RM-196R0-C1		SMD-METWID 196R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 196R
AP-238.21*.00-01	R	236	RM-3K65-C1		SMD-METWID 3K65 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K65
AP-238.21*.00-01	R	237	RM-1R00-C1		SMD-METWID 1R00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1R00
AP-238.21*.00-01	R	238	RM-3K65-C1		SMD-METWID 3K65 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K65
AP-238.21*.00-01	R	239	RM-3K65-C1		SMD-METWID 3K65 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K65
AP-238.21*.00-01	R	240	RM-46R4-C1		SMD-METWID 46R4 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 46R4
AP-238.21*.00-01	R	241	RM-27K4-C1		SMD-METWID 27K4 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 27K4
AP-238.21*.00-01	R	242	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.21*.00-01	R	243	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.21*.00-01	R	244	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.21*.00-01	R	245	RM-46R4-C1		SMD-METWID 46R4 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 46R4
AP-238.21*.00-01	R	246	RM-205R0-C1		SMD-METWID 205R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 205R
AP-238.21*.00-01	R	247	RM-100K0-C1		SMD-METWID 100K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100K
AP-238.21*.00-01	R	248	RT-10K-20	A5_h	MESS-NTC 10K 10% 0W75 K164	SIEMENS	NTC K164/10%/10K - B57164-K1Q3-K TAPED OR UNTAPED
AP-238.21*.00-01	R	249	RM-487R0-C1		SMD-METWID 487R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 487R
AP-238.21*.00-01	R	250	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.21*.00-01	R	251	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.21*.00-01	R	252	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.21*.00-01	R	253	RM-2K37-C1		SMD-METWID 2K37 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K37
AP-238.21*.00-01	R	254	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.21*.00-01	R	255	RM-100K0-C1		SMD-METWID 100K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100K
AP-238.21*.00-01	T	1	TE-238.590.00-20	C2_v	ETD44-ÜBERTRAGER	EGSTON	
AP-238.21*.00-01	T	2	TE-238.530.00-20	C5_v	ETD24-ÜBERTRAGER (STANDBY)	EGSTON	
AP-238.21*.00-01	T	3	TE-238.580.00-20	F5_h	EF16-ÜBERTRAGER (ANSTEUERUNG)	EGSTON	
AP-238.21*.00-01	U	1	U-SFH617G2-16	C4_v	OPTOKO 5K3V 60-70%=BL 10MA 70V DIP4	SIEMENS	OPTOCOUPLER SFH617G2 - Q62703-N128-X1 - SELECTED UNDER 936.011
AP-238.21*.00-01	U	2	U-SFH617G2-16	C3_v	OPTOKO 5K3V 60-70%=BL 10MA 70V DIP4	SIEMENS	OPTOCOUPLER SFH617G2 - Q62703-N128-X1 - SELECTED UNDER 936.011
AP-238.21*.00-01	U	3	U-SFH617G2-16	C4_v	OPTOKO 5K3V 60-70%=BL 10MA 70V DIP4	SIEMENS	OPTOCOUPLER SFH617G2 - Q62703-N128-X1 - SELECTED UNDER 936.011
AP-238.21*.00-01	U	4	U-SFH617G2-16	C4_v	OPTOKO 5K3V 60-70%=BL 10MA 70V DIP4	SIEMENS	OPTOCOUPLER SFH617G2 - Q62703-N128-X1 - SELECTED UNDER 936.011
AP-238.21*.00-01	V	22	VD-BAV103-C1		SMD-DIODE .250V 0A25 SOD80	PHILIPS COMPONENTS	RECTIFIER DIODE BAV103 SOD80C - 9336 993 60115 (REEL 7")
AP-238.21*.00-01	V	23	VD-BAV103-C1		SMD-DIODE 250V 0A25 SOD80	PHILIPS COMPONENTS	RECTIFIER DIODE BAV103 SOD80C - 9336 993 60115 (REEL 7")
AP-238.21*.00-01	V	24	VT-FMMT591-C1		SMD-PNP-TRANS 80V 1A 0W3 SOT23	ZETEX	PNP-TRANSISTOR FMMT591 SOT23 TAPED - FMMT591TA
AP-238.21*.00-01	V	25	VD-SB140-10	F5_h	SCHOTTKY 40V 1A 0V5 DO41	GENERAL INSTRUMENTS	SCHOTTKY DIODE SB140 TAPED
AP-238.21*.00-01	V	26	VD-SB140-10	F5_h	SCHOTTKY 40V 1A 0V5 DO41	GENERAL INSTRUMENTS	SCHOTTKY DIODE SB140 TAPED
AP-238.21*.00-01	V	27	VT-FMMT591-C1		SMD-PNP-TRANS 80V 1A 0W3 SOT23	ZETEX	PNP-TRANSISTOR FMMT591 SOT23 TAPED - FMMT591TA
AP-238.21*.00-01	V	28	VM-2SK1723-1F	E2_h	N-MOSFET 600V 0R65 150W CA.TO247	TOSHIBA	POWER MOS-FET 2SK1723
AP-238.21*.00-01	V	29	VZ-BZX79C15-10	E2_h	Z-DIODE 15V 6% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX 79-C15 TAPED - 9331 1783 0113
AP-238.21*.00-01	V	30	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	31	VT-FMMT491-C1		SMD-NPN-TRANS 80V 1A 0W3 SOT23	ZETEX	NPN-TRANSISTOR FMMT491 SOT23 TAPED - FMMT491TA

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.21*.00-01	V	32	VT-FMMT591-C1		SMD-PNP-TRANS 80V 1A 0W3 SOT23	ZETEX	PNP-TRANSISTOR FMMT591 SOT23 TAPED - FMMT591TA
AP-238.21*.00-01	V	33	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	34	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	35	VT-FMMT591-C1		SMD-PNP-TRANS 80V 1A 0W3 SOT23	ZETEX	PNP-TRANSISTOR FMMT591 SOT23 TAPED - FMMT591TA
AP-238.21*.00-01	V	36	VD-BA159GP-10	E2 v	DIODE 1000V 0A5 500NS DO41	GENERAL INSTRUMENTS	RECTIFIER DIODE BA159GP TAPED
AP-238.21*.00-01	V	37	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	38	VT-FMMT491-C1		SMD-NPN-TRANS 80V 1A 0W3 SOT23	ZETEX	NPN-TRANSISTOR FMMT491 SOT23 TAPED - FMMT491TA
AP-238.21*.00-01	V	39	VD-BAV103-C1		SMD-DIODE 250V 0A25 SOD80	PHILIPS COMPONENTS	RECTIFIER DIODE BAV103 SOD80C - 9336 993 60115 (REEL 7")
AP-238.21*.00-01	V	40	VT-FMMT491-C1		SMD-NPN-TRANS 80V 1A 0W3 SOT23	ZETEX	NPN-TRANSISTOR FMMT491 SOT23 TAPED - FMMT491TA
AP-238.21*.00-01	V	41	VD-BAV103-C1		SMD-DIODE 250V 0A25 SOD80	PHILIPS COMPONENTS	RECTIFIER DIODE BAV103 SOD80C - 9336 993 60115 (REEL 7")
AP-238.21*.00-01	V	42	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	43	VT-BC856B-C1		SMD-PNP-TRANS 80V 0A1 0W2 SOT23	PHILIPS COMPONENTS	PNP-TRANSISTOR BC856B SOT23 - 9335 897 30215 (REEL 7")
AP-238.21*.00-01	V	44	VT-BC856B-C1		SMD-PNP-TRANS 80V 0A1 0W2 SOT23	PHILIPS COMPONENTS	PNP-TRANSISTOR BC856B SOT23 - 9335 897 30215 (REEL 7")
AP-238.21*.00-01	V	57	VT-FMMT491-C1		SMD-NPN-TRANS 80V 1A 0W3 SOT23	ZETEX	NPN-TRANSISTOR FMMT491 SOT23 TAPED - FMMT491TA
AP-238.21*.00-01	V	59	VD-BAS21-C1		SMD-DIODE 250V 0A2 SOT23	SIEMENS	RECTIFIER DIODE BAS21 - Q62702-A79 (TAPE:E6327)
AP-238.21*.00-01	V	61	VD-BAS21-C1		SMD-DIODE 250V 0A2 SOT23	SIEMENS	RECTIFIER DIODE BAS21 - Q62702-A79 (TAPE:E6327)
AP-238.21*.00-01	V	62	VT-FMMT491-C1		SMD-NPN-TRANS 80V 1A 0W3 SOT23	ZETEX	NPN-TRANSISTOR FMMT491 SOT23 TAPED - FMMT491TA
AP-238.21*.00-01	V	63	VZ-15KE200-10	F3_h	SUPPRESSOR 200V/1MA 5W DO201	GENERAL INSTRUMENTS	SUPRESSOR DIODE 1.5KE200
AP-238.21*.00-01	V	64	VD-MUR860-1F	F2_h	DIODE 600V 8A 60NS TO220	MOTOROLA	RECTIFIER DIODE MUR860
AP-238.21*.00-01	V	78	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	79	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	80	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	81	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	82	VD-MBR2030CTL-1E		SCHOTTKY 30V 2X10A 0V52 TO220	MOTOROLA	SCHOTTKY DUAL DIODE MBR2030CTL
AP-238.21*.00-01	V	83	VD-S10SC4MR-1E		SCHOTTKY 40V 2X5A 0V55 TO220	SHINDENGEN	SCHOTTKY DUAL DIODE S10SC4MR
AP-238.21*.00-01	V	84	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	85	VD-USD945-1E		SCHOTTKY 45V 16A 0V6 TO220	MICROSEMI CORP.	SCHOTTKY DIODE USD945
AP-238.21*.00-01	V	86	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	87	VD-USD945-1E		SCHOTTKY 45V 16A 0V6 TO220	MICROSEMI CORP.	SCHOTTKY DIODE USD945
AP-238.21*.00-01	V	97	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	98	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	99	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	100	VD-BYS21/45-10	C1_h	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.21*.00-01	V	110	VT-BD139/16-19	E5_h	NPN-TRANS 100V 1A5 12W5 TO126	PHILIPS COMPONENTS	NPN-TRANSISTOR BD139-16 - 9332 6975 0127
AP-238.21*.00-01	V	111	VZ-BZX79B13-13	D5_v	Z-DIODE 13V 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B13 TAPED - 9331 669 00113
AP-238.21*.00-01	V	112	VD-UF4004-10	D4_h	DIODE 400V 1A 50NS DO41	GENERAL INSTRUMENTS	RECTIFIER DIODE UF4004 TAPED
AP-238.21*.00-01	V	113	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.21*.00-01	V	114	VZ-BZX79C12-10	E5_v	Z-DIODE 12V 6% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX 79-C12 TAPED - 9331 1781 0113
AP-238.21*.00-01	V	115	VZ-BZX79C5V1-10	F6_h	Z-DIODE 5V1 6% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX 79-C5V1 TAPED - 9331 1772 0113
AP-238.21*.00-01	V	116	VM-2SK1643-15		N-MOSFET 900V 2R8 125W TO220	TOSHIBA	POWER MOS-FET 2SK1643
AP-238.21*.00-01	V	117	VD-BA159GP-10	D5_v	DIODE 1000V 0A5 500NS DO41	GENERAL INSTRUMENTS	RECTIFIER DIODE BA159GP TAPED
AP-238.21*.00-01	V	118	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.21*.00-01	V	119	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.21*.00-01	V	120	VZ-BZX79C56-10	G5_h	Z-DIODE 56V 6% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX 79-C56 TAPED - 9331 179 70113
AP-238.21*.00-01	V	124	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	125	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.21*.00-01	V	126	VM-BSS110-10	A4_v	P-MOSFET -50V 10R 0W63 TO92	SIEMENS	SIPMOS SMALL-SIGNAL TRANSISTOR BSS110 TAPED - Q62702-S500
AP-238.21*.00-01	V	127	VD-1N4148-10	B5_h	DIODE 75V 0A15 4NS DO35	PHILIPS COMPONENTS	RECTIFIER DIODE 1N4148 TAPED - 9330 8399 0113
AP-238.21*.00-01	V	131	VM-IRFP250-19	F4_v	N-MOSFET 200V 0R085 180W TO247	HARRIS	POWER MOSFET IRFP250
AP-238.21*.00-01	V	132	VM-IRFP250-19	G4_v	N-MOSFET 200V 0R085 180W TO247	HARRIS	POWER MOSFET IRFP250
AP-238.21*.00-01	V	133	VD-S10SC4M-1E		SCHOTTKY 40V 2X5A 0V55 TO220	SHINDENGEN	SCHOTTKY DUAL DIODE S10SC4M
AP-238.21*.00-01	V	135	VD-BYV27/150-10	C4_v	DIODE 150V 2A 25NS SOD57	PHILIPS COMPONENTS	RECTIFIER DIODE BYV 27/150 TAPED - 9335 4351 0113
AP-238.21*.00-01	V	136	VD-UF4004-10	C4_v	DIODE 400V 1A 50NS DO41	GENERAL INSTRUMENTS	RECTIFIER DIODE UF4004 TAPED
AP-238.21*.00-01	V	137	VZ-BZX79B18-13	B4_v	Z-DIODE 18V 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B18 TAPED - 9331 669 30113
AP-238.21*.00-01	V	138	VT-ZTX450-10	B5_v	NPN-TRANS 60V 1A 1W TO92E	ZETEX	NPN-TRANSISTOR ZTX450 STOA OR ZTX450 STZA
AP-238.21*.00-01	V	139	VZ-BZX79C5V6-10	F3_h	Z-DIODE 5V6 6% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX 79-C5V6 TAPED - 9331 1773 0113
AP-238.21*.00-01	V	140	VZ-BZX79B16-13	D4_v	Z-DIODE 16V 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B16 TAPED - 9331 669 20113
AP-238.21*.00-01	V	141	VT-BDX54-29	A5_v	PNP-DARL 45V 8A 60W TO220	SGS-THOMSON	PNP-DARLINGTON TRANSISTOR BDX54
AP-238.21*.00-01	V	143	VT-FMMT591-C1		SMD-PNP-TRANS 80V 1A 0W3 SOT23	ZETEX	PNP-TRANSISTOR FMMT591 SOT23 TAPED - FMMT591TA
AP-238.21*.00-01	V	144	VZ-ZY3V9-12	A6 h	Z-DIODE 3V9 6% 2W 58A2	ITT	Z-DIODE ZY3.9 5% TAPED

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.21*.00-01	X	2	XM-2X8G-A8	B6_h	ST.LEISTE 2X8P GER RM2.54 1A AU	ASSMANN ELEKTRONIK	CONNECTOR RM2.54 STRAIGHT - AWHW 16G-0202
AP-238.21*.00-01	X	3	XM-1X8G-R9	H4_v	ST.LEISTE 1X8P GER RM2.54 3A AU 6.8	RATIOPLAST	PIN HEADER SERIES 010 1X8P 0.63X0.63 - 010 02 25 112 008
AP-238.21*.00-01	X	4	XM-1X2G-90	A6_h	ST.LEISTE 1X2P GER RM2.54 2A5 SN 7.5	MOLEX	PIN HEADER SERIES 6410 2PIN 2.54 0.64X0.64 - 22-27-2021
AP-238.22*.00-01	C	29	CY-470N/250V-20	I5_v	X2-KO 470N 250V 10% F1772	ROEDERSTEIN	X2-CAPACITOR 470N 250V - F1772-447-2900(-2901) OR -2000
AP-238.22*.00-01	C	31	CE-470U/200V-N2	J3_h	ELKO 470U 200V 23X42 KMH	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR KMH-VN-470U/200V-M-22X40
AP-238.22*.00-01	C	32	CE-680U/200V-NA	J2_h	ELKO 680U 200V 26.4X42 KMH	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR KMH-VN-680U/200V-M-25.4X40
AP-238.22*.00-01	C	55	CM-470N/63V-20	G3_h	MEKO 470N 63V 20% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 DC 3470 191/201 M
AP-238.22*.00-01	C	56	CM-1N5/100V-10	B6_v	MEKO 1N5 100V 5% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 EC 1150 191/201 J
AP-238.22*.00-01	C	57	CM-1U/50V-15	F4_v	MEKO 1U 50V 10% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 CC 4100 191/201 K
AP-238.22*.00-01	C	58	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	59	CE-120U/16V-64	D1_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	60	CE-120U/16V-64	D2_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	61	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	62	CK-100P/100V-10	G5_v	KERKO 100P 100V 2% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 NP0 100P 2% 100V TAPED - 2222 679 34101
AP-238.22*.00-01	C	63	CK-68P/100V-10	A5_v	KERKO 68P 100V 2% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 NP0 68P 2% 100V TAPED - 2222 679 10689
AP-238.22*.00-01	C	64	CV-1N/63V-C2		SMD-VIELKO 1N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 1NF/63V X7R 10% - 2222 581 16614
AP-238.22*.00-01	C	65	CE-1000U/25V-64	G2_h	ELKO 1000U 25V 13X26 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1000 12.5X25
AP-238.22*.00-01	C	66	CE-100U/50V-65	E2_h	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	67	CE-330U/25V-64	D2_h	ELKO 330U 25V 8.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF25VB-330 8X20 TPA3.5 OR WITHOUT TPA
AP-238.22*.00-01	C	68	CE-1500U/10V-64	F2_h	ELKO 1500U 10V 10.5X31 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 10 VB-1500 10X30
AP-238.22*.00-01	C	69	CK-220P/100V-15	C4_v	KERKO 220P 100V 10% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 K2000 220P 10% 100V TAPED - 2222 630 53221
AP-238.22*.00-01	C	70	CE-1000U/10V-64	B2_h	ELKO 1000U 10V 10.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF10VB-1000 10X20 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	71	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	72	CM-2N2/100V-10	D3_v	MEKO 2N2 100V 5% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 EC 1220 191/201 J
AP-238.22*.00-01	C	73	CE-1000U/10V-64	F1_h	ELKO 1000U 10V 10.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF10VB-1000 10X20 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	74	CE-120U/16V-64	C4_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	75	CE-1000U/25V-64	C1_h	ELKO 1000U 25V 13X26 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1000 12.5X25
AP-238.22*.00-01	C	76	CE-1000U/25V-64	C1_h	ELKO 1000U 25V 13X26 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1000 12.5X25
AP-238.22*.00-01	C	77	CK-68P/100V-10	C3_v	KERKO 68P 100V 2% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 NP0 68P 2% 100V TAPED - 2222 679 10689
AP-238.22*.00-01	C	78	CK-68P/100V-10	C3_h	KERKO 68P 100V 2% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 NP0 68P 2% 100V TAPED - 2222 679 10689
AP-238.22*.00-01	C	79	CE-2U2/50V-30	C2_h	ELKO 2U2 50V 5.5X12 RLL	PHILIPS COMPONENTS	ELECTROLYTIC CAPACITOR RLL 2U2/50V - 2222 116 11228
AP-238.22*.00-01	C	80	CF-6N8/250V-62	B1_v	FOKO 6N8 250V 20% FKS2	WIMA	POLYESTER FILM CAPACITOR FKS2 6N8 250VDC/160VAC 20% TAPED
AP-238.22*.00-01	C	81	CY-68N/250V-70	H1_v	X2-KO 68N 250V 20% MKT1.47	ARCOTRONICS	X2-CAPACITOR MKT1.47 68N 250V 20% ABM.6X12X18 - R47LI26800060M
AP-238.22*.00-01	C	82	CE-100U/50V-65	G2_h	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	83	CE-1000U/25V-64	G2_h	ELKO 1000U 25V 13X26 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF 25 VB-1000 12.5X25
AP-238.22*.00-01	C	84	CE-1000U/10V-64	F2_h	ELKO 1000U 10V 10.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF10VB-1000 10X20 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	85	CV-220N/63V-C3		SMD-VIELKO 220N 63V 10% X7R 1210	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220NF/63V X7R 10% - 2222 582 16645
AP-238.22*.00-01	C	86	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	87	CE-120U/16V-64	D3_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	88	CE-120U/16V-64	D3_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	89	CE-120U/16V-64	D3_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	90	CE-120U/16V-64	D3_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	91	CE-120U/16V-64	D3_h	ELKO 120U 16V 6.8X12.5 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF16VB-120 6.3X11.5 TPA2.5 OR WITHOUT TPA
AP-238.22*.00-01	C	92	CS-220U/10V-30	F2_h	SELKO 220U 10V 10X10.5 OS-CON	SANYO	ALU.SOLID ELECTROLYTIC CAPACITOR OS-CON - 10SA220M
AP-238.22*.00-01	C	93	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	94	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	95	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	96	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	97	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	98	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.22*.00-01	C	99	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	100	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	101	CE-1000U/10V-64	B3_h	ELKO 1000U 10V 10.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF10VB-1000 10X20 TPA OR WITHOUT TPA
AP-238.22*.00-01	C	102	CE-330U/25V-64	B4_h	ELKO 330U 25V 8.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF25VB-330 8X20 TPA3.5 OR WITHOUT TPA
AP-238.22*.00-01	C	103	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	104	CM-1U/50V-15	F6_h	MEKO 1U 50V 10% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 CC 4100 191/201 K
AP-238.22*.00-01	C	106	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	107	CV-22N/63V-C2		SMD-VIELKO 22N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 22NF/63V X7R 10% - 2222 581 16632
AP-238.22*.00-01	C	108	CM-1U/50V-15	F5_h	MEKO 1U 50V 10% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 CC 4100 191/201 K
AP-238.22*.00-01	C	110	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	C	111	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	112	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	113	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	114	CV-47N/200V-10	B1_v	VIELKO 47N 200V 10% X7R C330	KEMET	CERAMIC MULTILAYER CAPACITOR C330C473K2R5CA TAPED
AP-239.22*.00-01	C	115	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	116	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.22*.00-01	C	117	CE-330U/25V-64	D2_h	ELKO 330U 25V 8.5X21 LXF	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR LXF25VB-330 8X20 TPA3.5 OR WITHOUT TPA
AP-238.22*.00-01	C	119	CV-47N/63V-C2		SMD-VIELKO 47N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 47NF/63V X7R 10% - 2222 581 16636
AP-238.22*.00-01	D	1	D-4001BCM-C2		SMD-NOR 2INP 4-FACH SO14	NATIONAL SEMICOND.	QUAD 2-INPUT NOR CD4001BCM
AP-238.22*.00-01	D	2	D-4093BCM-C2		SMD-NAND SCH.TRIG 2INP 4-FACH SO14	NATIONAL SEMICOND.	QUAD 2-INPUT NAND SCHMITT TRIGGER CD4093BCM
AP-238.22*.00-01	D	3	D-4093BCM-C2		SMD-NAND SCH.TRIG 2INP 4-FACH SO14	NATIONAL SEMICOND.	QUAD 2-INPUT NAND SCHMITT TRIGGER CD4093BCM
AP-238.22*.00-01	E	1	AP-238.222.00-01		SMDM-BLP SEKUNDÄR	PULS MÜNCHEN	
AP-238.22*.00-01	E	1	AP-238.223.00-01	F6_h	SMDM-ALP SEKUNDÄR	PULS MÜNCHEN	
AP-238.22*.00-01	E	1	AP-238.224.00-10		SMDM-WLP SEKUNDÄR	WALTER	
AP-238.22*.00-01	E	1	EP-238.225.00-10		SMDM-LP 238X133X1.6 70U 2LAG	WALTER	
AP-238.22*.00-01	E	5	ES-RM406-82	E2_h	DRAHTBRÜCKE RM40.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM40.6 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	6	ES-STEZU4-10		STECKZUNGE 6.3X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 6.3X0.8 - 03866A BZ SN OR MS SN
AP-238.22*.00-01	E	7	ES-STEZU4-10		STECKZUNGE 6.3X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 6.3X0.8 - 03866A BZ SN OR MS SN
AP-238.22*.00-01	E	28	WI-238.880.00-10	J5_h	KABEL BL 0.86QMM STEHU4 80MM ELH	MD ELEKTRONIK	
AP-238.22*.00-01	E	29	WI-238.880.00-10		KABEL BL 0.86QMM STEHU4 80MM ELH	MD ELEKTRONIK	
AP-238.22*.00-01	E	30	ES-STEZU4-10		STECKZUNGE 6.3X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 6.3X0.8 - 03866A BZ SN OR MS SN
AP-238.22*.00-01	E	31	ES-STEZU4-10		STECKZUNGE 6.3X0.8 STEH/GER 2PIN	VOGT AG SCHWEIZ	TAB FLAT 6.3X0.8 - 03866A BZ SN OR MS SN
AP-238.22*.00-01	E	32	ES-RM254-82	C2_h	DRAHTBRÜCKE RM25.4 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM25.4 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	33	ES-RM406-82	E2_h	DRAHTBRÜCKE RM40.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM40.6 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	34	ES-RM254-82	C2_h	DRAHTBRÜCKE RM25.4 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM25.4 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	35	ES-RM152-10	B3_h	OR-BRÜCKE RM15.2 0R010 2A5 Z25	ASJ ELECTRONICS	OR-RESISTOR Z25 TAPED
AP-238.22*.00-01	E	36	ES-RM406-82	C4_h	DRAHTBRÜCKE RM40.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM40.6 X 4 X 1.00MM INSULATED
AP-239.22*.00-01	E	37	ES-RM254-82	D4_v	DRAHTBRÜCKE RM25.4 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM25.4 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	38	ES-RM406-82	C4_h	DRAHTBRÜCKE RM40.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM40.6 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	39	ES-RM203-72	C5_h	DRAHTBRÜCKE RM20.3 DM1.0 ISOLIERT	HÜTTLINGER	WIRE JUMPER RM20.3 DM1.0 SL2.9(AB BT-UK) INSULATION PVC105C - 17083
AP-238.22*.00-01	E	40	ES-RM254-82	D4_v	DRAHTBRÜCKE RM25.4 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM25.4 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	41	ES-RM203-72	D4_v	DRAHTBRÜCKE RM20.3 DM1.0 ISOLIERT	HÜTTLINGER	WIRE JUMPER RM20.3 DM1.0 SL2.9(AB BT-UK) INSULATION PVC105C - 17083
AP-238.22*.00-01	E	44	ES-RM305-82	E3_h	DRAHTBRÜCKE RM30.5 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM30.5 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	45	ES-RM406-82	F3_h	DRAHTBRÜCKE RM40.6 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM40.6 X 4 X 1.00MM INSULATED
AP-238.22*.00-01	E	46	ES-RM102-10	F3_h	OR-BRÜCKE RM10.2 0R010 2A5 Z25	ASJ ELECTRONICS	OR-RESISTOR Z25 TAPED
AP-238.22*.00-01	E	47	ES-RM102-10	F4_v	OR-BRÜCKE RM10.2 0R010 2A5 Z25	ASJ ELECTRONICS	OR-RESISTOR Z25 TAPED
AP-238.22*.00-01	E	48	EW-238.990.00-10		SCHIRMBLECH	ROHDE & SCHWARZ	
AP-238.22*.00-01	E	49	ES-RM102-30	C2_h	DRAHTBRÜCKE RM10.2 DM0.71 BLANK	POLYTRONIK	WIRE DM0.71 TAPED D=65MM - 7530102
AP-238.22*.00-01	E	50	ES-RM102-30	C2_h	DRAHTBRÜCKE RM10.2 DM0.71 BLANK	POLYTRONIK	WIRE DM0.71 TAPED D=65MM - 7530102
AP-238.22*.00-01	E	51	ES-RM152-8A	A4_h	DRAHTBRÜCKE RM15.2 DM1.0 ISOLIERT	BAYKRA	WIRE JUMPER RM15.2 X SL2.9(AB BT-UK) X DM1.00 INSULATED PVC105C
AP-238.22*.00-01	F	2	FV-S14K320-10	J6_v	VARISTOR 320V/420V 0W6 16.5X6.3	SIEMENS	ZNO-VARISTOR SIOV S14K320 - Q69-X4327
AP-238.22*.00-01	K	1	K-A/12V/8A-40	H2_h	REL 1XAK 12V/480R 8A 20X11X10	NATIONAL MATSUSHITA	RELAY DSP1A-12V
AP-238.22*.00-01	K	2	K-U/13V/16A-1A	I3_v	REL 1XUM 12V5/170R 16A 29X13X25	FEME	RELAY MZP A 001 44 16 / TU125C
AP-238.22*.00-01	L	19	LB-192.530.01-10	A5_v	STABKERNDROSSEL 3UH 4A5 4X13.3	HAGN	
AP-238.22*.00-01	L	20	LB-3U9/A85-10	F5_v	HF-DROSSEL 3U9H 0A85 4X9.2 B78108	SIEMENS	HF-CHOKE 3.9UH 0.85A - B78108-S1392-K
AP-238.22*.00-01	L	21	LB-192.530.01-10	B5_v	STABKERNDROSSEL 3UH 4A5 4X13.3	HAGN	
AP-238.22*.00-01	L	22	LE-238.570.00-10	D4_v	EF16-DROSSEL 7UH 5A	BHR-ELEKTRONIK	
AP-238.22*.00-01	L	23	LE-238.570.00-10	B4_v	EF16-DROSSEL 7UH 5A	BHR-ELEKTRONIK	
AP-238.22*.00-01	L	24	LE-238.540.00-20	B2_v	ETD24-DROSSEL 13UH 10A	EGSTON	
AP-238.22*.00-01	L	25	LB-192.540.00-10	B2_h	STABKERNDROSSEL 500NH 14A 4X13.3	HAGN	
AP-238.22*.00-01	L	26	LB-192.540.00-10	D2_h	STABKERNDROSSEL 500NH 14A 4X13.3	HAGN	
AP-238.22*.00-01	L	27	EM-D1-10		F-DÄMPFUNGSPERLE 3.5X3	PHILIPS COMPONENTS	SCREENING BEAD 3.5X3.0 FXC3B1 - 4312 020 31051
AP-238.22*.00-01	L	28	LB-150U/A28-10	C5 h	HF-DROSSEL 150UH 0A28 4X9.2 B78108	SIEMENS	HF-CHOKE 150UH 0.28A - B78108-S1154-J
AP-238.22*.00-01	L	29	LE-238.570.00-20	A4_v	EF16-DROSSEL 7UH 5A	EGSTON	
AP-238.22*.00-01	L	30	LB-3U9/A85-10	G2_h	HF-DROSSEL 3U9H 0A85 4X9.2 B78108	SIEMENS	HF-CHOKE 3.9UH 0.85A - B78108-S1392-K
AP-238.22*.00-01	L	31	LB-192.540.00-10	D2_v	STABKERNDROSSEL 500NH 14A 4X13.3	HAGN	
AP-239.22*.00-01	L	32	WI-238.880.00-10		KABEL BL 0.86QMM STEHU4 80MM ELH	MD ELEKTRONIK	
AP-238.22*.00-01	N	13	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	14	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	15	N-431CLP-10	G2 h	SPG.REF 2V495 0A1 2.2% TO92	MOTOROLA	VOLTAGE REFERENCE TL431CLPRA

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	N	16	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	17	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	18	N-431CLP-10	E6_v	SPG.REF 2V495 0A1 2.2% TO92	MOTOROLA	VOLTAGE REFERENCE TL431CLPRA
AP-238.22*.00-01	N	19	N-431CLP-10	E6_v	SPG.REF 2V495 0A1 2.2% TO92	MOTOROLA	VOLTAGE REFERENCE TL431CLPRA
AP-238.22*.00-01	N	20	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	21	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	22	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	23	N-358M-C2		SMD-OPAMP 2-FACH 32V 7MV 10MA SO8	NATIONAL SEMICOND.	DUAL OPERATIONAL AMPLIFIER LM358M
AP-238.22*.00-01	N	24	N-393D-C1		SMD-KOMP 2-FACH 36V 5MV 6MA SO14	MOTOROLA	DUAL COMPARATOR LM393D
AP-238.22*.00-01	N	25	N-324D-C1		SMD-OPAMP 4-FACH 32V 7MV 10MA SO14	MOTOROLA	QUAD OPERATIONAL AMPLIFIER LM324D
AP-238.22*.00-01	N	26	N-C555CN-20	F6_h	C-MOS TIMER 1-FACH 15V DIP8	NATIONAL SEMICOND.	C-MOS-TIMER LMC555CN
AP-238.22*.00-01	R	75	RW-39R/5W-A1	I5_v	DRAHTWID 39R 5% 5.0W +TK120 A1	MODULOHM	WIRE-WOUND RESISTOR 39R-5W-A1
AP-238.22*.00-01	R	76	RW-0R15/2W-70	I4_v	M-BANDWID 0R15 10% 2.0W TK200 MPC70	FAB.FUKUSHIMA FUTUB/	METAL-FOIL RESISTOR MPC70 0.150R
AP-238.22*.00-01	R	77	RW-75K/1W-40	I4_v	M-OXIDWID 75K 5% 1.0W TK200 WK4	ROEDERSTEIN	METALOXIDE RESISTOR WK4 075K J B
AP-238.22*.00-01	R	78	RW-75K/1W-40	J4_v	M-OXIDWID 75K 5% 1.0W TK200 WK4	ROEDERSTEIN	METALOXIDE RESISTOR WK4 075K J B
AP-238.22*.00-01	R	79	RW-0R15/2W-70	J4_v	M-BANDWID 0R15 10% 2.0W TK200 MPC70	FAB.FUKUSHIMA FUTUB/	METAL-FOIL RESISTOR MPC70 0.150R
AP-238.22*.00-01	R	81	RM-121K0-10	I5_h	MET.WID 121K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 121K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	82	RM-121K0-10	I4_v	MET.WID 121K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 121K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	179	RM-22R6-10	G3_h	MET.WID 22R6 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 22R6 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	180	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	181	RM-100R0-10	G3_h	MET.WID 100R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 100R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	182	RM-237R0-C1		SMD-METWID 237R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 237R
AP-238.22*.00-01	R	183	RM-169R0-C1		SMD-METWID 169R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 169R
AP-238.22*.00-01	R	184	RT-100K-20	F5_h	MESS-NTC 100K 10% 0W75 K164	SIEMENS	NTC K164/10%/100K - B57164-K104-K TAPED OR UNTAPED
AP-238.22*.00-01	R	185	RT-100K-20	D3_h	MESS-NTC 100K 10% 0W75 K164	SIEMENS	NTC K164/10%/100K - B57164-K104-K TAPED OR UNTAPED
AP-238.22*.00-01	R	186	RM-6K49-C1		SMD-METWID 6K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K49
AP-238.22*.00-01	R	187	RM-100R0-10	B6_v	MET.WID 100R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 100R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	188	RM-100R0-10	B6_v	MET.WID 100R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 100R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	189	RM-6K49-C1		SMD-METWID 6K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K49
AP-238.22*.00-01	R	190	RM-51K1-10	A6_h	MET.WID 51K1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 51K1 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	191	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.22*.00-01	R	192	RM-6K49-C2		SMD-METWID 6K49 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 6K49
AP-238.22*.00-01	R	193	RW-0R032-D6	B4_v	WIDERST.DRAHT 0R032 0.6X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM0.6 RM15.24 SL=4.2 - 15002
AP-238.22*.00-01	R	194	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	195	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.22*.00-01	R	196	RM-6K49-C2		SMD-METWID 6K49 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 6K49
AP-238.22*.00-01	R	197	RM-1R50-10	F4_v	MET.WID 1R50 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R50 1% TK100 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	198	RM-1K00-10	F4_v	MET.WID 1K00 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K00 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	199	RM-147R0-C1		SMD-METWID 147R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 147R
AP-238.22*.00-01	R	200	RW-0R074-D4	E4_v	WIDERST.DRAHT 0R074 0.4X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM0.4 RM15.24 SL=4.1 - 15463
AP-238.22*.00-01	R	201	RM-1R50-10	F4_v	MET.WID 1R50 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R50 1% TK100 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	202	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	203	RM-11K0-C1		SMD-METWID 11K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 11K0
AP-238.22*.00-01	R	204	RM-75K0-C1		SMD-METWID 75K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 75K0
AP-238.22*.00-01	R	205	RM-2M15-C1		SMD-METWID 2M15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2M15
AP-238.22*.00-01	R	206	RM-100K0-C1		SMD-METWID 100K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100K
AP-238.22*.00-01	R	207	RM-100K0-C1		SMD-METWID 100K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100K
AP-238.22*.00-01	R	208	RM-237R0-C1		SMD-METWID 237R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 237R
AP-238.22*.00-01	R	209	RA-1K0-21	E6_v	TRIMMPOT 1K 10% 15G TYP 3006P	BOURNS	CERMET POTENTIOMETER TYP3006P 1K - 3006P-EX2-102
AP-238.22*.00-01	R	210	RM-2K49-10	E6_v	MET.WID 2K49 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 2K49 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	211	RM-3K16-10	E6_v	MET.WID 3K16 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 3K16 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	212	RM-6K49-C2		SMD-METWID 6K49 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 6K49
AP-238.22*.00-01	R	213	RM-6K49-C2		SMD-METWID 6K49 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 6K49
AP-238.22*.00-01	R	214	RM-5K11-C1		SMD-METWID 5K11 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5K11
AP-238.22*.00-01	R	215	RM-5K11-C1		SMD-METWID 5K11 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5K11
AP-238.22*.00-01	R	216	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	217	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	218	RM-34K8-C1		SMD-METWID 34K8 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 34K8
AP-238.22*.00-01	R	219	RM-464R0-C1		SMD-METWID 464R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 464R
AP-238.22*.00-01	R	220	RM-34K8-C1		SMD-METWID 34K8 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 34K8

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	R	221	RM-332R0-C1		SMD-METWID 332R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 332R
AP-238.22*.00-01	R	222	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.22*.00-01	R	223	RA-1K0-21	E6_v	TRIMMPOT 1K 10% 15G TYP 3006P	BOURNS	CERMET POTENTIOMETER TYP3006P 1K,- 3006P-EX2-102
AP-238.22*.00-01	R	224	RM-2K61-C1		SMD-METWID 2K61 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K61
AP-238.22*.00-01	R	225	RM-2K87-C1		SMD-METWID 2K87 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K87
AP-238.22*.00-01	R	226	RM-51K1-10	B5_v	MET.WID 51K1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 51K1 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	227	RM-20K5-10	D5_v	MET.WID 20K5 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 20K5 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	228	RM-10K5-C1		SMD-METWID 10K5 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K5
AP-238.22*.00-01	R	229	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.22*.00-01	R	230	RM-34K8-C2		SMD-METWID 34K8 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 34K8
AP-238.22*.00-01	R	231	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	232	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	233	RM-1R33-10	F5_v	MET.WID 1R33 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R33 1% TK100 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	234	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	235	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	236	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.22*.00-01	R	237	RM-64K9-C1		SMD-METWID 64K9 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 64K9
AP-238.22*.00-01	R	238	RM-681R0-10	G5_v	MET.WID 681R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 681R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	239	RM-12K1-C1		SMD-METWID 12K1 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 12K1
AP-238.22*.00-01	R	240	RM-2K15-C1		SMD-METWID 2K15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K15
AP-238.22*.00-01	R	241	RM-16K9-C1		SMD-METWID 16K9 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 16K9
AP-238.22*.00-01	R	242	RM-261R0-10	B4_v	MET.WID 261R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 261R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	243	RW-0R024-D6	B4_v	WIDERST.DRAHT 0R024 0.6X10.16	HÜTTLINGER	ZERO OHM RESISTOR DM0.6 RM10.16 SL=4.2 - 15464
AP-238.22*.00-01	R	244	RM-51K1-10	A5_v	MET.WID 51K1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 51K1 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	245	RM-16K9-C1		SMD-METWID 16K9 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 16K9
AP-238.22*.00-01	R	246	RM-261R0-10	B5_v	MET.WID 261R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 261R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	247	RM-475K0-10	G5_h	MET.WID 475K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 475K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	248	RM-16K9-C1		SMD-METWID 16K9 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 16K9
AP-238.22*.00-01	R	249	RM-1K05-C1		SMD-METWID 1K05 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K05
AP-238.22*.00-01	R	250	RW-0R012-D1	D3_h	WIDERST.DRAHT 0R012 1.0X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM1.0 RM15.24 SL=3.4 - 16569
AP-238.22*.00-01	R	251	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	252	RM-9K53-C1		SMD-METWID 9K53 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 9K53
AP-238.22*.00-01	R	253	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	254	RM-9K53-C1		SMD-METWID 9K53 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 9K53
AP-238.22*.00-01	R	255	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	256	RM-6K49-C1		SMD-METWID 6K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K49
AP-238.22*.00-01	R	257	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	258	RM-6K49-C1		SMD-METWID 6K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K49
AP-238.22*.00-01	R	259	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	260	RW-0R012-D1	B5_h	WIDERST.DRAHT 0R012 1.0X15.24	HÜTTLINGER	ZERO OHM RESISTOR DM1.0 RM15.24 SL=3.4 - 16569
AP-238.22*.00-01	R	261	RM-154K0-10	C4_h	MET.WID 154K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 154K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	262	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	263	RM-7K50-C1		SMD-METWID 7K50 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 7K50
AP-238.22*.00-01	R	264	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	265	RW-0R005/2W4-L2	B3_h	DRAHTWID 0R005 1% 2.4W +TK300 LVR3	DALE	WIRE-WOUND RESISTOR LVR-3 0.005R 1%
AP-238.22*.00-01	R	266	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	267	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	268	RM-36K5-C1		SMD-METWID 36K5 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 36K5
AP-238.22*.00-01	R	269	RM-10K0-10	C3_h	MET.WID 10K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 10K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	270	RM-7K50-10	C3_v	MET.WID 7K50 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 7K50 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	271	RM-10K0-10	C4_v	MET.WID 10K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 10K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	272	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	273	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	274	RM-3R48-C1		SMD-METWID 3R48 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R48
AP-238.22*.00-01	R	275	RM-3R48-C1		SMD-METWID 3R48 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R48
AP-238.22*.00-01	R	276	RM-5K11-10	C3_v	MET.WID 5K11 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 5K11 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	277	RM-100K0-C1		SMD-METWID 100K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100K
AP-238.22*.00-01	R	278	RM-2K15-C1		SMD-METWID 2K15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K15
AP-238.22*.00-01	R	279	RM-19K6-C1		SMD-METWID 19K6 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 19K6
AP-238.22*.00-01	R	280	RM-19K6-C1		SMD-METWID 19K6 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 19K6

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	R	281	RM-750R0-10	E5_v	MET.WID 750R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 750R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	282	RM-3R16-C1		SMD-METWID 3R16 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R16
AP-238.22*.00-01	R	283	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	284	RM-332R0-C1		SMD-METWID 332R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 332R
AP-238.22*.00-01	R	285	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	286	RM-3R48-C1		SMD-METWID 3R48 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R48
AP-238.22*.00-01	R	287	RM-3R48-C1		SMD-METWID 3R48 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R48
AP-238.22*.00-01	R	288	RM-1K62-10	C2_v	MET.WID 1K62 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K62 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	289	RM-4R75-10	C2_v	MET.WID 4R75 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 4R75 1% TK100 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	290	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	291	RM-15R0-10	C3_v	MET.WID 15R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 15R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	292	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	299	RM-3R16-C1		SMD-METWID 3R16 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3R16
AP-238.22*.00-01	R	300	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	301	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	302	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	303	RM-511K0-10	I5_v	MET.WID 511K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 511K0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	304	RM-750R0-C1		SMD-METWID 750R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 750R
AP-238.22*.00-01	R	305	RM-316R0-C1		SMD-METWID 316R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 316R
AP-238.22*.00-01	R	306	RM-316R0-C1		SMD-METWID 316R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 316R
AP-238.22*.00-01	R	307	RM-1K33-C1		SMD-METWID 1K33 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K33
AP-238.22*.00-01	R	308	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	309	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-239.22*.00-01	R	310	RM-287K0-C1		SMD-METWID 287K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 287K
AP-238.22*.00-01	R	311	RM-12K1-C1		SMD-METWID 12K1 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 12K1
AP-238.22*.00-01	R	312	RM-133R0-C1		SMD-METWID 133R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 133R
AP-238.22*.00-01	R	313	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	314	RM-2M15-C1		SMD-METWID 2M15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2M15
AP-238.22*.00-01	R	315	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.22*.00-01	R	316	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.22*.00-01	R	317	RM-105K0-C1		SMD-METWID 105K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 105K
AP-238.22*.00-01	R	318	RM-12K1-C1		SMD-METWID 12K1 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 12K1
AP-238.22*.00-01	R	319	RM-6K81-C1		SMD-METWID 6K81 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K81
AP-238.22*.00-01	R	320	RM-6K81-C1		SMD-METWID 6K81 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K81
AP-238.22*.00-01	R	321	RM-6K81-C1		SMD-METWID 6K81 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 6K81
AP-238.22*.00-01	R	322	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	323	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	324	RM-511K0-C1		SMD-METWID 511K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 511K
AP-238.22*.00-01	R	325	RM-750K0-C1		SMD-METWID 750K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 750K
AP-238.22*.00-01	R	326	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	327	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	328	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.22*.00-01	R	329	RM-5K23-C2		SMD-METWID 5K23 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 5K23
AP-238.22*.00-01	R	330	RM-19K6-C2		SMD-METWID 19K6 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 19K6
AP-238.22*.00-01	R	331	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	332	RM-100R0-C1		SMD-METWID 100R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 100R
AP-238.22*.00-01	R	333	RM-287K0-C1		SMD-METWID 287K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 287K
AP-238.22*.00-01	R	334	RM-1K00-C1		SMD-METWID 1K00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K00
AP-238.22*.00-01	R	335	RM-487K0-C1		SMD-METWID 487K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 487K
AP-238.22*.00-01	R	336	RM-2K15-C1		SMD-METWID 2K15 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K15
AP-238.22*.00-01	R	337	RM-226K0-C1		SMD-METWID 226K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 226K
AP-238.22*.00-01	R	338	RM-2K15-10	E5_v	MET.WID 2K15 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 2K15 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	339	RM-24K9-C1		SMD-METWID 24K9 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 24K9
AP-238.22*.00-01	R	340	RM-237R0-10	E4_v	MET.WID 237R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 237R0 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	341	RM-11K0-C2		SMD-METWID 11K0 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 11K0
AP-238.22*.00-01	R	342	RM-19K6-C2		SMD-METWID 19K6 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 19K6
AP-238.22*.00-01	R	343	RM-6K49-10	G5_v	MET.WID 6K49 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 6K49 1% TK50 300V 0.6W/70C TAPED
AP-238.22*.00-01	R	345	RM-1K69-C1		SMD-METWID 1K69 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K69
AP-238.22*.00-01	R	346	RM-1K69-C1		SMD-METWID 1K69 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K69
AP-238.22*.00-01	R	347	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	R	348	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.22*.00-01	R	349	RM-2K61-C1		SMD-METWID 2K61 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K61
AP-238.22*.00-01	R	350	RM-3K40-C2		SMD-METWID 3K40 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 3K40
AP-238.22*.00-01	R	351	RM-0R0-C1		SMD-METWID 0R0 MAX.0R02 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204 BL 0R0
AP-238.22*.00-01	R	352	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.22*.00-01	R	353	RM-5R62-C1		SMD-METWID 5R62 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 5R62
AP-238.22*.00-01	R	354	RM-46K4-C1		SMD-METWID 46K4 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 46K4
AP-238.22*.00-01	R	355	RW-100R/W25-90		K-MASSEWID 100R 10% 0.25W CB	ALLEN BRADLEY	HOT-MOLDED RESISTOR CB 1011
AP-238.22*.00-01	R	356	RW-100R/W25-90		K-MASSEWID 100R 10% 0.25W CB	ALLEN BRADLEY	HOT-MOLDED RESISTOR CB 1011
AP-238.22*.00-01	R	357	RW-100R/W25-90		K-MASSEWID 100R 10% 0.25W CB	ALLEN BRADLEY	HOT-MOLDED RESISTOR CB 1011
AP-238.22*.00-01	V	45	VB-KBU6J-10	J5_v	BR-GLEICHR 420VAC/600VDC 6A	GENERAL INSTRUMENTS	BRIDGE RECTIFIER KBU6J
AP-238.22*.00-01	V	93	VT-BC307B-10	G3_v	PNP-TRANS 50V 0A1 0W3 TO92E	ZETEX	PNP-TRANSISTOR BC307BP STOA
AP-238.22*.00-01	V	94	VS-S0325R-19	G2_v	THYRISTOR 30V 25A 30MA TO220	TECCOR	THYRISTOR S0325R
AP-238.22*.00-01	V	95	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	96	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	97	VZ-ZMM16-C1		SMD-Z-DIODE 16V 5% 0W5 0204	ITT	Z-DIODE MINI-MELF ZMM16-SB00014 (TAPED ON REEL "7")
AP-238.22*.00-01	V	98	VT-BD240A-29	E3_v	PNP-TRANS 70V 2A 30W TO220	SGS-THOMSON	PNP-TRANSISTOR BD240A
AP-238.22*.00-01	V	99	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	100	VT-BC546B-10	F4_h	NPN-TRANS 80V 0A1 0W5 TO92E	ZETEX	NPN-TRANSISTOR BC546BP STOA
AP-238.22*.00-01	V	101	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	102	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	103	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	104	VT-BC307B-10	F4_v	PNP-TRANS 50V 0A1 0W3 TO92E	ZETEX	PNP-TRANSISTOR BC307BP STOA
AP-238.22*.00-01	V	105	VM-ZVN2110A-10	H3_v	N-MOSFET 100V 4R 0W7 TO92E	ZETEX	DMOS FET ZVN2110A STOA
AP-238.22*.00-01	V	106	VZ-BZX79B27-13	G3_v	Z-DIODE 27V 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B27 TAPED - 9331 669 70113
AP-238.22*.00-01	V	107	VZ-BZX79B5V6-13	G3_h	Z-DIODE 5V6 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B5V6 TAPED - 9331 668 20113
AP-238.22*.00-01	V	108	VZ-BZX79B9V1-13	F3_h	Z-DIODE 9V1 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B9V1 TAPED - 9331 668 60113
AP-238.22*.00-01	V	109	VZ-BZX79B5V6-13	F3_h	Z-DIODE 5V6 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B5V6 TAPED - 9331 668 20113
AP-238.22*.00-01	V	110	VZ-BZX79B8V2-13	F3_h	Z-DIODE 8V2 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B8V2 TAPED - 9331 668 50113
AP-238.22*.00-01	V	111	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	112	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	113	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	114	VZ-BZX79B18-13	G4_v	Z-DIODE 18V 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B18 TAPED - 9331 669 30113
AP-238.22*.00-01	V	115	VT-BD139/16-19	F5_v	NPN-TRANS 100V 1A5 12W5 TO126	PHILIPS COMPONENTS	NPN-TRANSISTOR BD139-16 - 9332 6975 0127
AP-238.22*.00-01	V	116	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	117	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	118	VZ-ZMM16-C1		SMD-Z-DIODE 16V 5% 0W5 0204	ITT	Z-DIODE MINI-MELF ZMM16-SB00014 (TAPED ON REEL "7")
AP-238.22*.00-01	V	119	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	120	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	121	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	122	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	123	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	124	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	125	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	126	VT-ZTX750-10	C2_h	PNP-TRANS 60V 2A 1W TO92E	ZETEX	PNP-TRANSISTOR ZTX750 STOA OR ZTX750 STZA
AP-238.22*.00-01	V	127	VT-ZTX650-10	C2_h	NPN-TRANS 60V 2A 1W TO92E	ZETEX	NPN-TRANSISTOR ZTX650 STOA OR ZTX650 STZA
AP-238.22*.00-01	V	128	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	129	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	130	VD-SB140-10	A1_h	SCHOTTKY 40V 1A 0V5 DO41	GENERAL INSTRUMENTS	SCHOTTKY DIODE SB140 TAPED
AP-238.22*.00-01	V	131	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	132	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	133	VD-BAS21-C1		SMD-DIODE 250V 0A2 SOT23	SIEMENS	RECTIFIER DIODE BAS21 - Q62702-A79 (TAPE:E6327)
AP-238.22*.00-01	V	134	VD-BAS21-C1		SMD-DIODE 250V 0A2 SOT23	SIEMENS	RECTIFIER DIODE BAS21 - Q62702-A79 (TAPE:E6327)
AP-238.22*.00-01	V	135	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	136	VM-IRFZ44-1E		N-MOSFET 60V 0R028 150W TO220	INTERNAT.RECTIFIER	HEXFET IRFZ44
AP-238.22*.00-01	V	137	VD-SB140-10	B1_h	SCHOTTKY 40V 1A 0V5 DO41	GENERAL INSTRUMENTS	SCHOTTKY DIODE SB140 TAPED
AP-238.22*.00-01	V	138	VT-ZTX750-10	C2_h	PNP-TRANS 60V 2A 1W TO92E	ZETEX	PNP-TRANSISTOR ZTX750 STOA OR ZTX750 STZA
AP-238.22*.00-01	V	139	VT-ZTX650-10	C2_h	NPN-TRANS 60V 2A 1W TO92E	ZETEX	NPN-TRANSISTOR ZTX650 STOA OR ZTX650 STZA
AP-238.22*.00-01	V	140	VT-ZTX650-10	C2_h	NPN-TRANS 60V 2A 1W TO92E	ZETEX	NPN-TRANSISTOR ZTX650 STOA OR ZTX650 STZA
AP-238.22*.00-01	V	141	VZ-ZMM5V6-C1		SMD-Z-DIODE 5V6 5% 0W5 0204	ITT	Z-DIODE MINI-MELF ZMM5V6-SB00014 (TAPED ON REEL "7")

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.22*.00-01	V	142	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.22*.00-01	V	143	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	144	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	145	VT-BC307B-10	C2_h	PNP-TRANS 50V 0A1 0W3 TO92E	ZETEX	PNP-TRANSISTOR BC307BP STOA
AP-238.22*.00-01	V	146	VZ-ZMM16-C1		SMD-Z-DIODE 16V 5% 0W5 0204	ITT	Z-DIODE MINI-MELF ZMM16-SB00014 (TAPED ON REEL "7")
AP-238.22*.00-01	V	147	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	149	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	150	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	151	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	152	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	153	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	154	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	155	VT-BC856B-C1		SMD-PNP-TRANS 80V 0A1 0W2 SOT23	PHILIPS COMPONENTS	PNP-TRANSISTOR BC856B SOT23 - 9335 897 30215 (REEL 7")
AP-238.22*.00-01	V	156	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	157	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	158	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	159	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	160	VT-BC856B-C1		SMD-PNP-TRANS 80V 0A1 0W2 SOT23	PHILIPS COMPONENTS	PNP-TRANSISTOR BC856B SOT23 - 9335 897 30215 (REEL 7")
AP-238.22*.00-01	V	161	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	V	162	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.22*.00-01	W	2	WR-238.760.00-10	C4_h	FLACHBANDKABEL KONFEKTIONIERT 16-POL.	MD ELEKTRONIK	
AP-238.22*.00-01	X	3	XF-SUBD50E-F8		SUBD-STECKVERB 50POL EINPRESS 250V	FCT	D-SUB CONNECTOR NO.2/DIN41652 50PIN - F50S9-K49
AP-238.22*.00-01	X	4	XM-1X7G-J8	B5_v	ST.LEISTE 1X7P GER RM3.96 7A SN 11	JST DEUTSCHLAND	PIN HEADER VS 7PIN - B7P-VS
AP-238.22*.00-01	X	5	XM-1X8G-R9	D4_v	ST.LEISTE 1X8P GER RM2.54 3A AU 6.8	RATIOPLAST	PIN HEADER SERIES 010 1X8P 0.63X0.63 - 010 02 25 112 008
AP-238.22*.00-01	X	8	XM-1X5G-R9	H4_v	ST.LEISTE 1X5P GER RM2.54 3A AU 6.8	RATIOPLAST	PIN HEADER SERIES 010 1X5P 0.63X0.63 - 010 02 25 112 005
AP-238.23*.00-01	C	1	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.23*.00-01	C	2	CV-220P/63V-C1		SMD-VIELKO 220P 63V 5% NP0 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220PF/63V NP0 5% - 2222 863 15221
AP-238.23*.00-01	C	3	CV-47N/63V-C2		SMD-VIELKO 47N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 47NF/63V X7R 10% - 2222 581 16636
AP-238.23*.00-01	C	4	CV-220N/63V-C3		SMD-VIELKO 220N 63V 10% X7R 1210	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220NF/63V X7R 10% - 2222 582 16645
AP-238.23*.00-01	C	5	CV-10N/63V-C2		SMD-VIELKO 10N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 10NF/63V X7R 10% - 2222 581.16627
AP-238.23*.00-01	C	6	CV-220N/63V-C3		SMD-VIELKO 220N 63V 10% X7R 1210	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220NF/63V X7R 10% - 2222 582 16645
AP-238.23*.00-01	C	7	CV-220N/63V-C3		SMD-VIELKO 220N 63V 10% X7R 1210	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 220NF/63V X7R 10% - 2222 582 16645
AP-238.23*.00-01	C	8	CV-100N/63V-C2		SMD-VIELKO 100N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 100NF/63V X7R 10% - 2222 581 16641
AP-238.23*.00-01	C	9	CV-1N/63V-C2		SMD-VIELKO 1N 63V 10% X7R 1206	PHILIPS COMPONENTS	CERAM. MULTILAYER CHIP CAPACITOR 1NF/63V X7R 10% - 2222 581 16614
AP-238.23*.00-01	E	1	EP-238.235.00-10		SMDM-LP 47X 46X1.6 35U 2LAG	WALTER	
AP-238.23*.00-01	N	1	N-339D-C1		SMD-KOMP 4-FACH 36V 5MV 6MA SO14	MOTOROLA	QUAD COMPARATOR LM339D
AP-238.23*.00-01	N	2	N-339D-C1		SMD-KOMP 4-FACH 36V 5MV 6MA SO14	MOTOROLA	QUAD COMPARATOR LM339D
AP-238.23*.00-01	R	2	RM-1M00-C1		SMD-METWID 1M00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1M00
AP-238.23*.00-01	R	3	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.23*.00-01	R	4	RM-4K75-C1		SMD-METWID 4K75 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K75
AP-238.23*.00-01	R	5	RM-1M00-C1		SMD-METWID 1M00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1M00
AP-238.23*.00-01	R	6	RM-115R0-C1		SMD-METWID 115R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 115R
AP-238.23*.00-01	R	8	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.23*.00-01	R	9	RM-4K64-C1		SMD-METWID 4K64 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K64
AP-238.23*.00-01	R	10	RM-22K6-C1		SMD-METWID 22K6 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 22K6
AP-238.23*.00-01	R	11	RM-3K32-C1		SMD-METWID 3K32 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 3K32
AP-238.23*.00-01	R	12	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.23*.00-01	R	13	RM-1K54-C1		SMD-METWID 1K54 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1K54
AP-238.23*.00-01	R	14	RM-22K6-C1		SMD-METWID 22K6 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 22K6
AP-238.23*.00-01	R	15	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.23*.00-01	R	16	RM-10K0-C1		SMD-METWID.10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.23*.00-01	R	17	RM-27K4-C1		SMD-METWID 27K4 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 27K4
AP-238.23*.00-01	R	18	RM-1M00-C1		SMD-METWID 1M00 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 1M00
AP-238.23*.00-01	R	19	RM-511K0-10	A2_v	MET.WID 511K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 511K0 1% TK50 300V 0.6W/70C TAPED
AP-238.23*.00-01	R	20	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.23*.00-01	R	21	RM-4K22-C1		SMD-METWID 4K22 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 4K22
AP-238.23*.00-01	R	22	RM-11K5-C2		SMD-METWID 11K5 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 11K5
AP-238.23*.00-01	R	23	RM-13K3-C1		SMD-METWID 13K3 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 13K3
AP-238.23*.00-01	R	24	RM-2K49-C1		SMD-METWID 2K49 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 2K49
AP-238.23*.00-01	R	27	RM-12K7-C2		SMD-METWID 12K7 0.25% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 0.25% BL 12K7

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.23*.00-01	R	28	RM-10K0-C1		SMD-METWID 10K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10K0
AP-238.23*.00-01	R	29	RM-287K0-C1		SMD-METWID 287K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 287K
AP-238.23*.00-01	R	30	RM-226K0-C1		SMD-METWID 226K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 226K
AP-238.23*.00-01	R	31	RM-287K0-C1		SMD-METWID 287K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 287K
AP-238.23*.00-01	R	32	RM-226K0-C1		SMD-METWID 226K0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 226K
AP-238.23*.00-01	R	33	RM-10R0-C1		SMD-METWID 10R0 1% W25 TK50 0204	BEYSCHLAG	METAL FILM RESISTOR MINI-MELF MMA0204-50 1% BL 10R0
AP-238.23*.00-01	V	1	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.23*.00-01	V	4	VZ-BZX79B5V6-13	A1_h	Z-DIODE 5V6 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B5V6 TAPED - 9331 668 20113
AP-238.23*.00-01	V	5	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	6	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	8	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	9	VZ-BZX79B9V1-13	B2_v	Z-DIODE 9V1 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B9V1 TAPED - 9331 668 60113
AP-238.23*.00-01	V	11	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	12	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	13	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	15	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.23*.00-01	V	16	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.23*.00-01	V	17	VD-LL101A-C1		SMD-SCHOTTKY 60V 0A01 0V41 0204	ITT	SCHOTTKY DIODE MINI-MELF LL101A-TAPE
AP-238.23*.00-01	V	18	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.23*.00-01	V	19	VD-LL4148-C1		SMD-DIODE 75V 0A15 4NS 0204	ITT	RECTIFIER DIODE MINI-MELF LL4148-SB00014
AP-238.23*.00-01	V	20	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.23*.00-01	V	21	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.23*.00-01	V	22	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.23*.00-01	V	23	VT-BC846B-C1		SMD-NPN-TRANS 80V 0A1 0W3 SOT23	PHILIPS COMPONENTS	NPN-TRANSISTOR BC846B SOT23 - 9335 895 60215 (REEL 7")
AP-238.23*.00-01	V	24	VD-D1F60-C1		SMD-DIODE 600V 0A75 CHIP	SHINDENGEN	RECTIFIER DIODE CHIP D1F60 TAPED (D<=25)
AP-238.23*.00-01	X	3	XF-1X8L-90	B2_h	BUCHSENLEISTE 1X8P LÖTPIN 3A	MOLEX	FEMALE CONNECTOR SERIES 90148 8POL 2.54 HORIZ. - 90148-1208
AP-238.23*.00-01	X	4	XF-1X5L-90	A1_h	BUCHSENLEISTE 1X5P LÖTPIN 3A	MOLEX	FEMALE CONNECTOR SERIES 90148 5POL 2.54 HORIZ. - 90148-1205
AP-238.24*.00-01	1	0	AP-238.243.00-01	A2_h	BLP SEKUNDÄRMODUL 1	PULS MÜNCHEN	
AP-238.24*.00-01	C	1	CE-100U/50V-65	B1_v	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.24*.00-01	C	2	CE-100U/50V-65	C2_v	ELKO 100U 50V 10.5X16 SXE	NIPPON CHEMICON	ELECTROLYTIC CAPACITOR SXE 50 VB-100 10X15 TPA OR WITHOUT TPA
AP-238.24*.00-01	C	3	CM-100N/63V-20	A2_h	MEKO 100N 63V 20% MKT1.85	ARCOTRONICS	METALL. POLYESTER FILM CAPACITOR R.85 DC 3100 191/201 M
AP-238.24*.00-01	C	4	CK-220P/100V-15	C2_v	KERKO 220P 100V 10% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 K2000 220P 10% 100V TAPED - 2222 630 53221
AP-238.24*.00-01	C	5	CK-220P/100V-16	C1_v	KERKO 220P 100V 10% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM2.5 K2000 220P 10% 100V TAPED - 2222 630 51221
AP-238.24*.00-01	C	8	CK-68P/100V-10	C2_h	KERKO 68P 100V 2% EGPU	PHILIPS COMPONENTS	DISC CAPACITOR EGPU RM5 NP0 68P 2% 100V TAPED - 2222 679 10689
AP-238.24*.00-01	E	1	EP-238.245.00-10	B3_h	LEITERPLATTE 70X 48X1.6 35U 2LAG	WALTER	
AP-238.24*.00-01	L	4	LE-238.560.00-20	B2_v	EF20-DROSSEL 1M9H 0A6	EGSTON	
AP-238.24*.00-01	N	3	N-392N-10	C2_h	OPKOMP 1-FACH 32V 5MV 10MA DIP8	NATIONAL SEMICOND.	OPERATIONAL AMPLIFIER / VOLTAGE COMPARATOR LM392N
AP-238.24*.00-01	R	1	RM-178R0-10	B2_h	MET.WID 178R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 178R0 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	2	RM-475K0-10	C2_v	MET.WID 475K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 475K0 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	3	RM-19K6-10	A2_v	MET.WID 19K6 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 19K6 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	4	RM-5K23-65	A2_v	MET.WID 5K23 0.25% 0.6W TK50 MBB	BEYSCHLAG	METAL FILM RESISTOR MBB0207-50/0.25%/5K23/0.6W
AP-238.24*.00-01	R	5	RM-18K7-10	A2_v	MET.WID 18K7 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 18K7 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	6	RM-1R00-10	C2_v	MET.WID 1R00 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R00 1% TK100 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	7	RM-1R00-10	C1_v	MET.WID 1R00 1% 0.6W TK100 300V		METAL FILM RESISTOR DIN0207 1R00 1% TK100 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	8	RM-1K00-10	C1_h	MET.WID 1K00 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K00 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	9	RM-10K0-10	A2_v	MET.WID 10K0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 10K0 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	10	RM-274R0-10	B2_h	MET.WID 274R0 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 274R0 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	11	RM-1K00-10	C1_h	MET.WID 1K00 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K00 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	13	RM-51K1-10	C2_v	MET.WID 51K1 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 51K1 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	14	RM-1K00-10	B2_h	MET.WID 1K00 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K00 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	16	RM-12K7-10	C2_v	MET.WID 12K7 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 12K7 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	17	RM-64K9-10	C2_h	MET.WID 64K9 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 64K9 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	R	18	RM-1K00-10	B2_h	MET.WID 1K00 1% 0.6W TK50 300V		METAL FILM RESISTOR DIN0207 1K00 1% TK50 300V 0.6W/70C TAPED
AP-238.24*.00-01	V	1	VT-ZTX750-10	B2_h	PNP-TRANS 60V 2A 1W TO92E	ZETEX	PNP-TRANSISTOR ZTX750 STOA OR ZTX750 STZA
AP-238.24*.00-01	V	2	VD-BYS21/45-10	B2_v	SCHOTTKY 45V 1A 0V55 3X5	SIEMENS	SCHOTTKY DIODE BYS21-45 TAPED
AP-238.24*.00-01	V	3	VZ-BZX79B5V6-13	A2_v	Z-DIODE 5V6 2% 0W5 DO35	PHILIPS COMPONENTS	Z-DIODE BZX79B5V6 TAPED - 9331 668 20113
AP-238.24*.00-01	V	4	VT-BC546B-10	B2_h	NPN-TRANS 80V 0A1 0W5 TO92E	ZETEX	NPN-TRANSISTOR BC546BP STOA
AP-238.24*.00-01	V	6	VD-BAT43-10	C2_v	SCHOTTKY 30V 0A2 1V DO35	SGS-THOMSON	SCHOTTKY DIODE BAT 43 TAPED
AP-238.24*.00-01	X	2	XF-1X8L-90	A2_h	BUCHSENLEISTE 1X8P LÖTPIN 3A	MOLEX	FEMALE CONNECTOR SERIES 90148 8POL 2.54 HORIZ. - 90148-1208
AP-238.490.00-01	C	1	CY-470P/400V-95		Y-KOPPL 470P 400V 20% WKP	ROEDERSTEIN	CERAMIC DISC CAPACITOR CLASS Y WKP600 470P 400V 20% - WKP471MCPEFOK

SUBASSEMBLY	P	OS	PARTNUMBER	PLAN	DESCRIPTION	MANUFACTURER	ORDERCODE
AP-238.490.00-01	C	2	CY-470P/400V-95		Y-KOPPL 470P 400V 20% WKP	ROEDERSTEIN	CERAMIC DISC CAPACITOR CLASS Y WKP600 470P 400V 20% - WKP471MCPEFOK
AP-238.490.00-01	E	1	WI-238.792.02-10		KABEL SW 0.86QMM STEHU4 120MM ELH	MD ELEKTRONIK	
AP-238.490.00-01	E	2	WI-238.792.02-10		KABEL SW 0.86QMM STEHU4 120MM ELH	MD ELEKTRONIK	
AP-238.490.00-01	E	3	EP-238.495.00-10		LEITERPLATTE 170X 64X1.6 35U 2LAG	WALTER	
AP-238.490.00-01	L	1	EM-D2-10		F-DÄMPFUNGSPERLE 3.5X7.5	PHILIPS COMPONENTS	SCREENING BEAD 3.5X7.5 FXC3B1 - 4312 020 31331
AP-238.490.00-01	R	1	RK-100R-10		KOHLE.WID 100R 5% 0.33W -TK300 CR25	PHILIPS COMPONENTS	CARBON FILM RESISTOR CR25 100R TAPED - 2322 211 73101
xy-238.790.00-01	1	0	XY-GS10FD/SS-80		GERÄTEEINB.STECK+FD+SS 250V/10A LÖ+ST	OTTO HEIL	COMPACT-CONNECTOR PART-NO. 6765.01.1802.1102
XY-238.790.00-01	5	0	FD-T6A3-10		G-SICH T 6A3 1500A 5X20 IEC127/2/5		FUSE LINK IEC127/2 BL.5 6.3A
ya-238.770.00-10	1	0	YA-12VDC/Q15-10		AX.LÜFTER 12VDC 15.5L/S 80X80X25.4	PAPST	AXIAL VENTILATING FAN MULTIFAN 80X80X25 12VDC - 8412

ROHDE&SCHWARZ

Stromläufe
Bestückungspläne

Circuit diagrams
Component plans

Schémas de circuit
Plans des composants

Netzgerät komplett

LEISTUNGS-ÜBERTRAGER

L EINGANGS-STECKER
N SICHERUNGEN
PE SCHALTER

L EMI-FILTER VORLADUNG UDC+
N 115/230V UMSCHALT.
PE GLEICHRICHTUNG 14
UAC K2 K1

GEHÄUSE

UDC+ HAUPTSCHALT-REGLER UDC+
14 U2W-
UDR

UDC+ GEGENTAKT RESONANZ-WANDLER
U2W-

T1

ZÜNDÜBERTRAGER

T3

UDR
14
UDC+ ANSTEUERLOGIK
UH4 REF4 WSP

HAUPT-REGLER

ON/OFF

REF4 WSP
K1 115/230V
K2 VORLADUNG
EINGANGSLOGIK
UAC
UDC+
14
UH4

AC FAIL

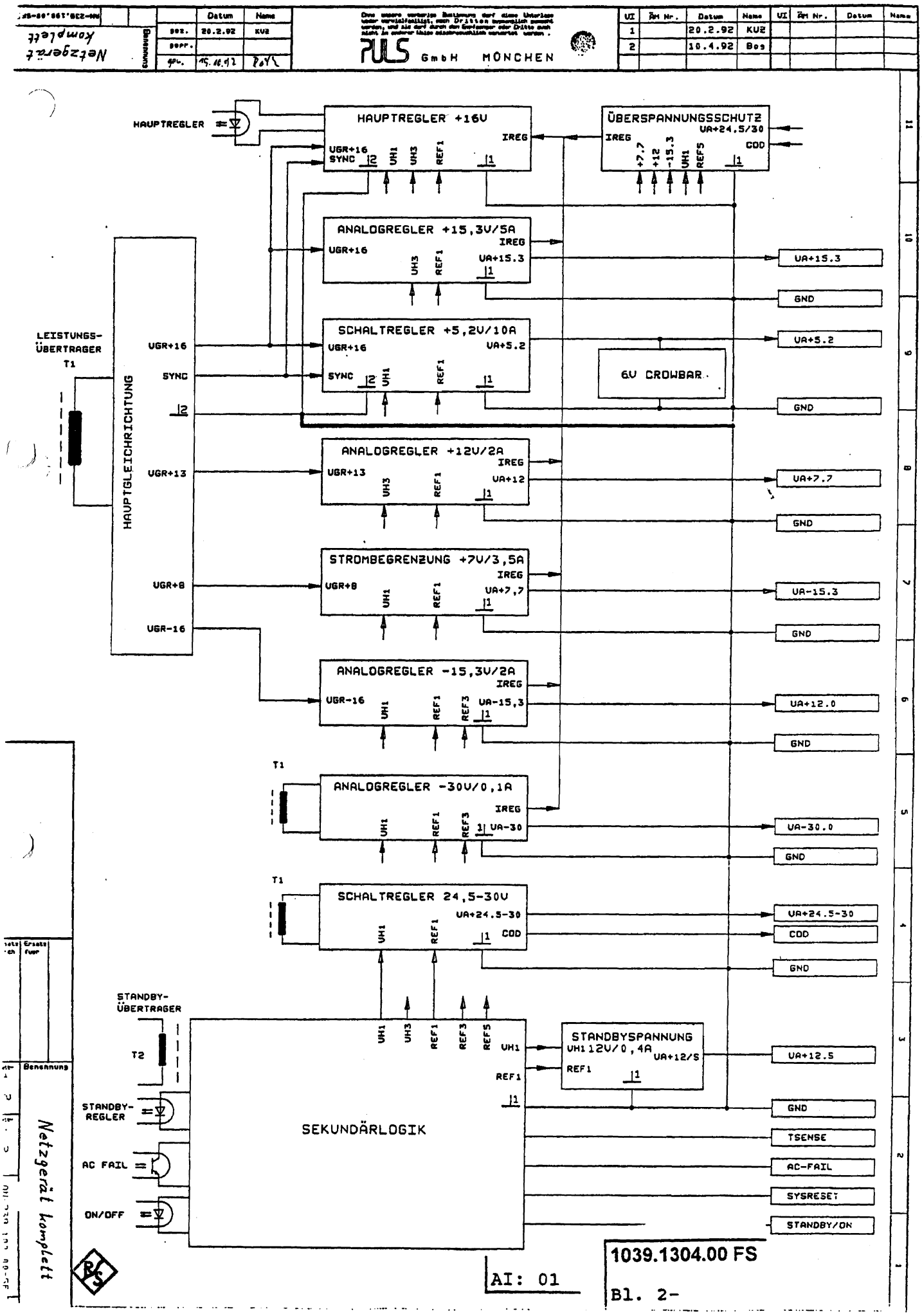
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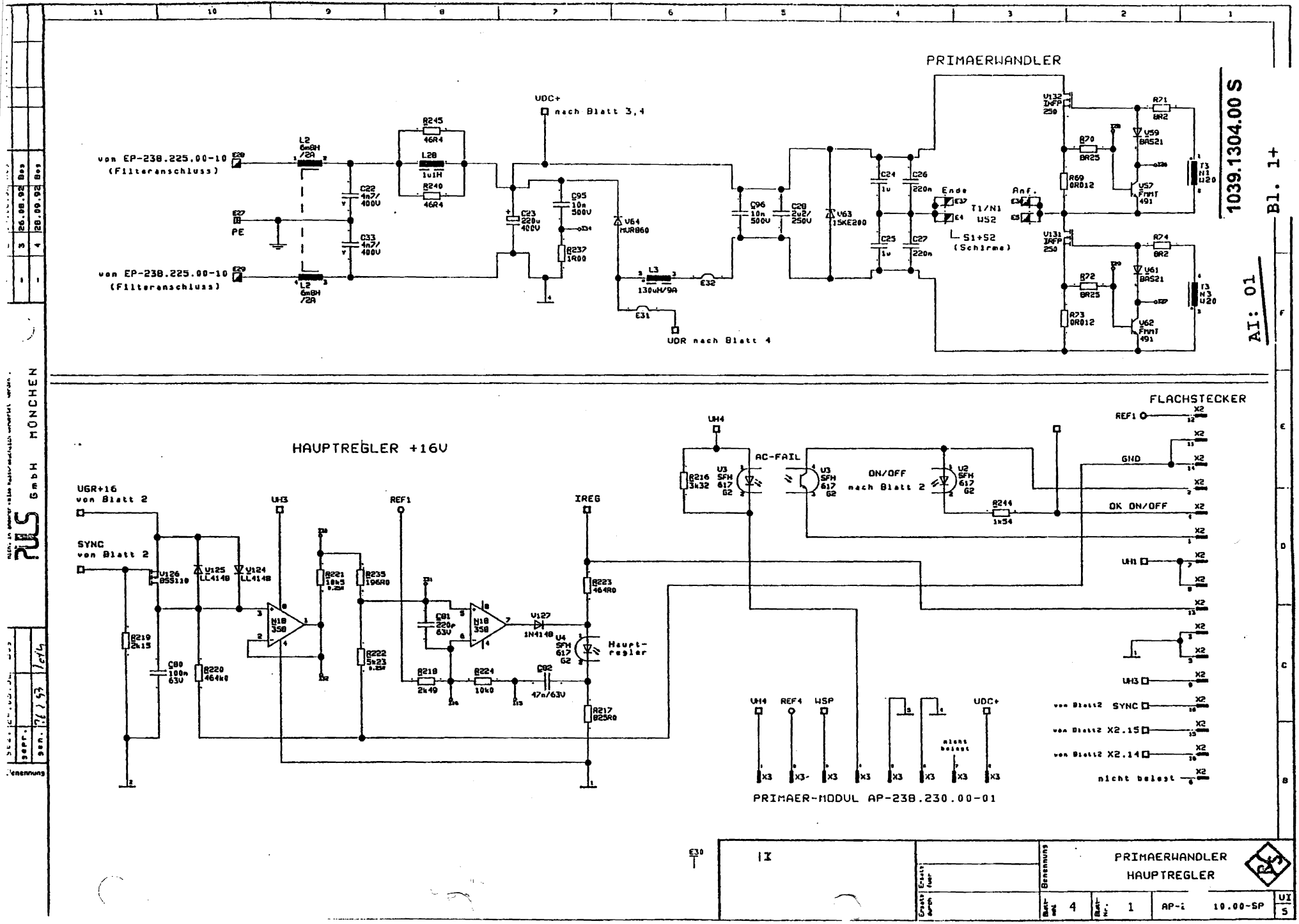
UH4
UDC+
STANDBYWANDLER
14

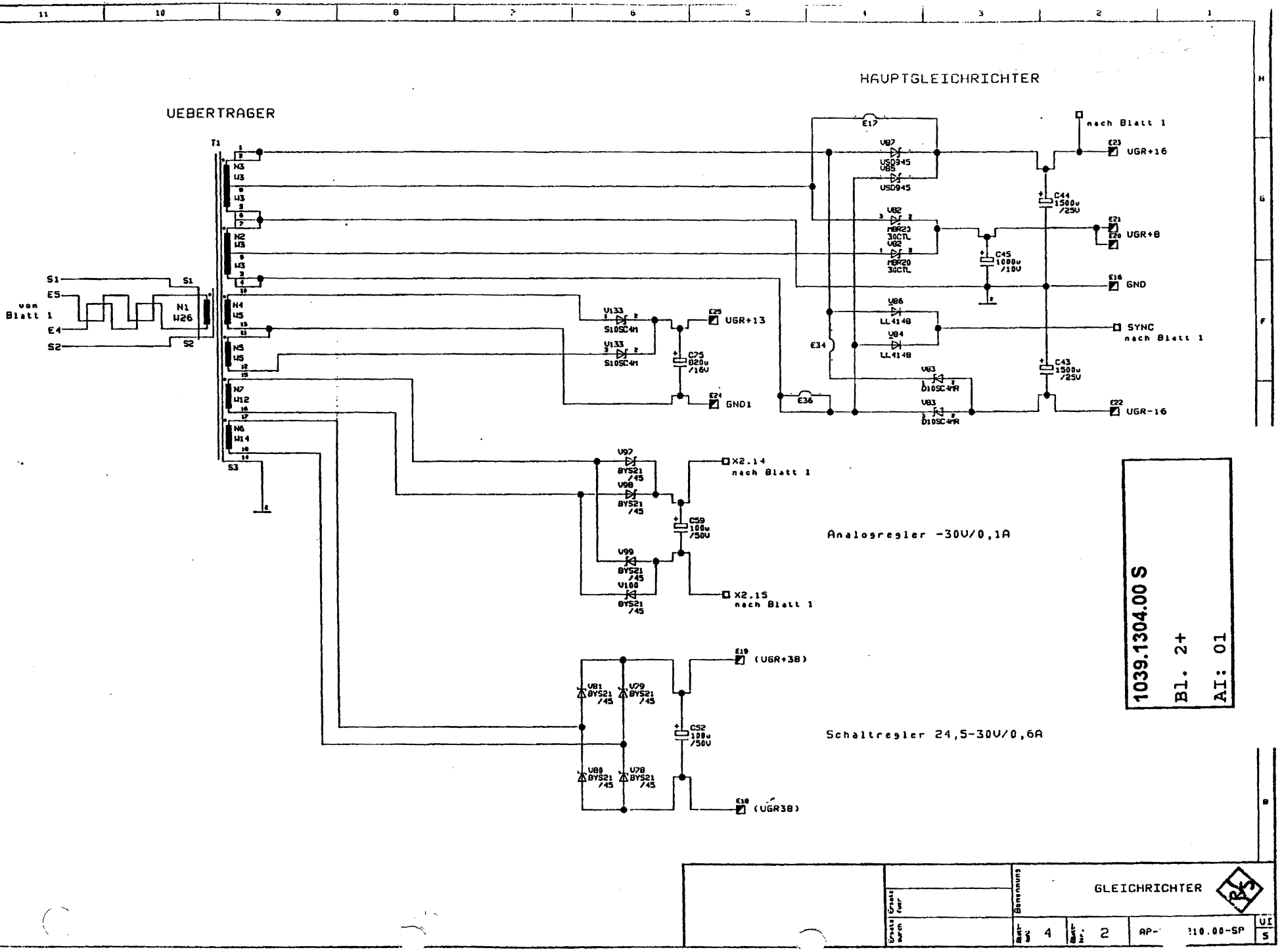
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STANDBY REGLER

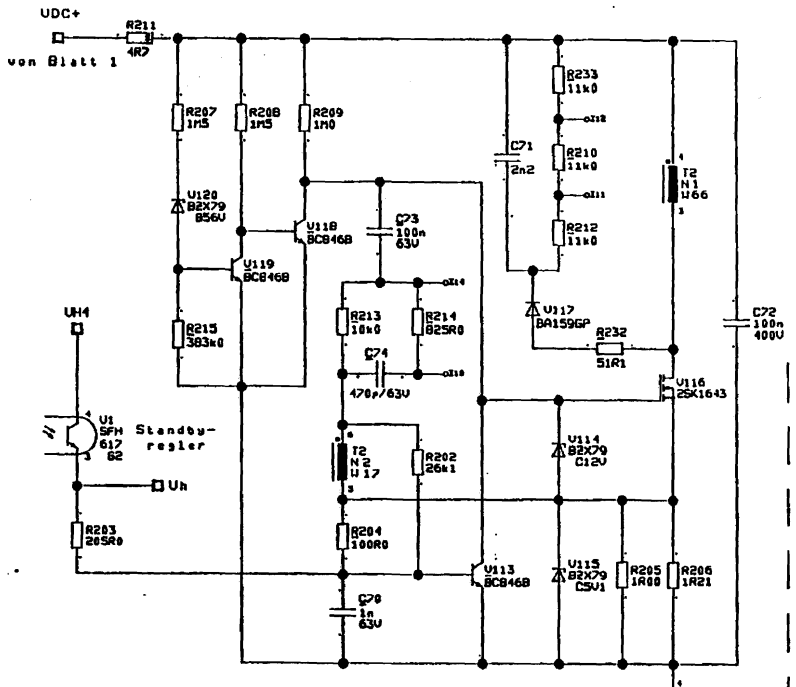
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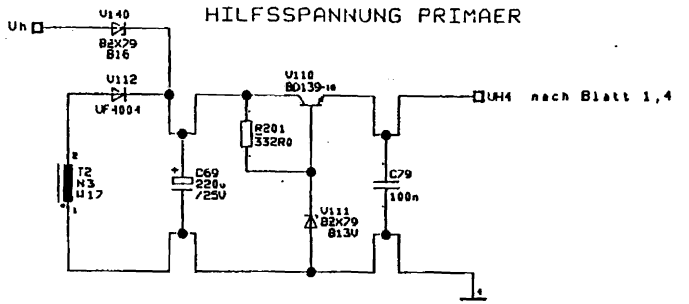

PULS GmbH MÜNCHEN
Datum
Name
20.2.92
KU2
VI
Änd Nr.
1
2
10.4.92
Bes
Netzgerät komplett
HAUPTREGLER
HAUPTREGLER +16V
IREG
UGR+16
SYNC
UH1
UH3
REF1
ÜBERSPANNUNGSSCHUTZ
UA+24.5/30
COD
+7.7
+12
-15.3
ANALOGREGLER +15,3V/5A
UA+15.3
GND
LEISTUNGS-
ÜBERTRAGER
T1
HAUPTGLEICHRICHTUNG
SCHALTREGLER +5,2V/10A
UA+5.2
6V CROWBAR
ANALOGREGLER +12V/2A
UA+12
UGR+13
STROMBEGRENZUNG +7V/3,5A
UA+7,7
UGR+8
UA-15.3
UGR-16
ANALOGREGLER -15,3V/2A
UA-15,3
UA+12.0
ANALOGREGLER -30V/0,1A
UA-30
UA-30.0
SCHALTREGLER 24,5-30V
UA+24.5-30
STANDBY-
ÜBERTRAGER
T2
STANDBYSPANNUNG
UH1 12V/0,4A
UA+12/S
UA+12.5
STANDBY-
REGLER
SEKUNDÄRLOGIK
AC FAIL
ON/OFF
REF3
REF5
TSENSE
AC-FAIL
SYSRESET
STANDBY/ON
Benennung
Ersatz für
Netzgerät komplett
1039.1304.00 FS
AI: 01
Bl. 2-

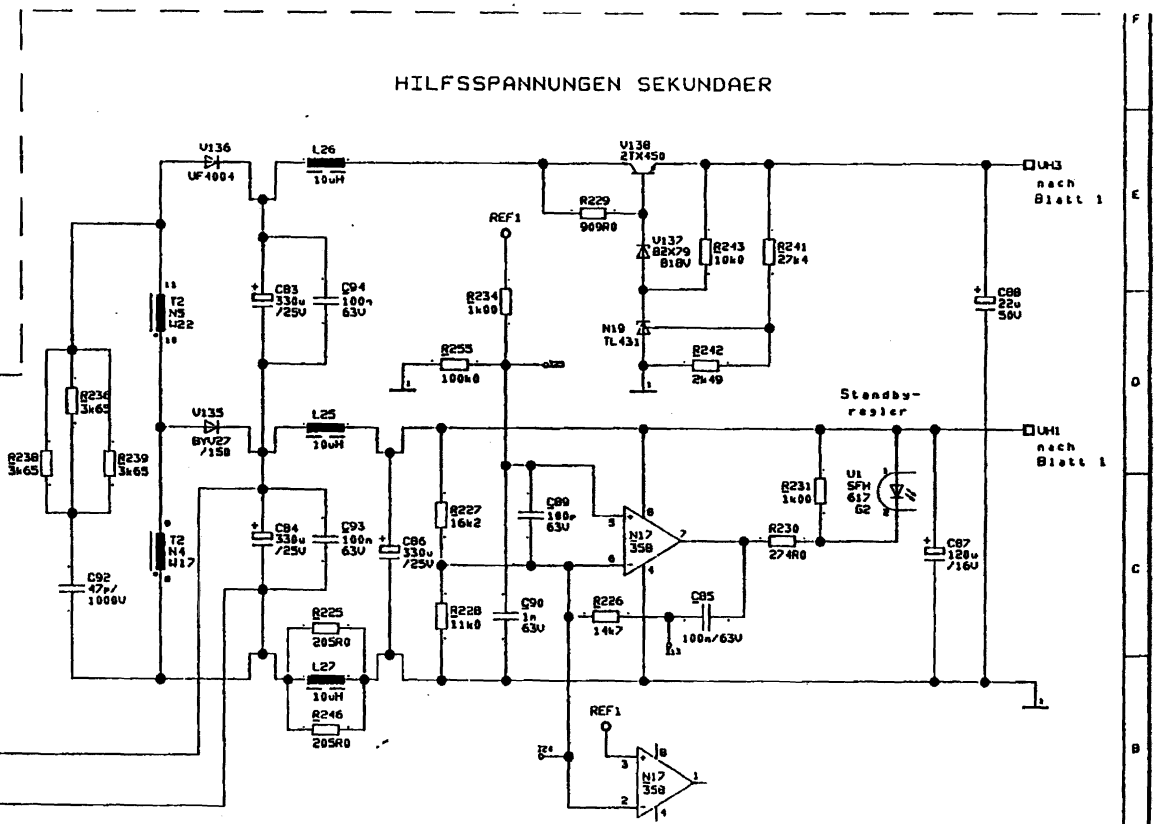

PRIMAERWANDLER
1039.1304.00 S
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Bl. 1+
von EP-238.225.00-10
(Filteranschluss)
PE
UDC+
nach Blatt 3,4
UDR nach Blatt 4
Ende
Anf.
T1/N1
U52
S1+S2
(Schirme)
HAUPTREGLER +16V
UGR+16
von Blatt 2
SYNC
von Blatt 2
AC-FAIL
ON/OFF
nach Blatt 2
Haupt-
regler
FLACHSTECKER
REF1
GND
OK ON/OFF
SYNC
X2.15
X2.14
nicht belegt
PRIMAER-MODUL AP-238.230.00-01
PRIMAERWANDLER
HAUPTREGLER
AP-i 10.00-SP

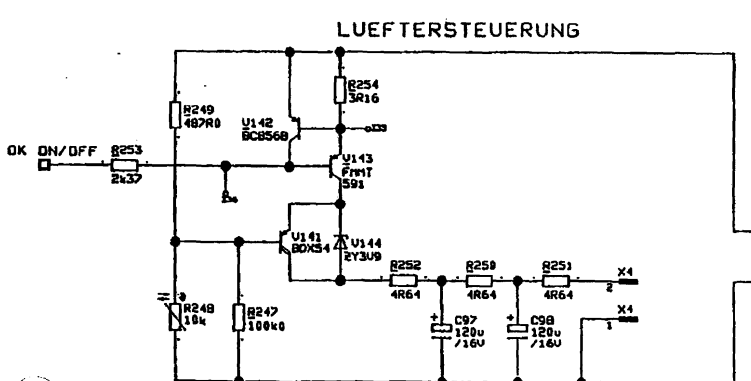

HAUPTGLEICHRICHTER
UEBERTRAGER
T1
N1 W26
von Blatt 1
S1
E5
E4
S2
N3 W3
N2 W3
N4 W5
N5 W5
N7 W12
N6 W14
S3
E17
V87 USD945
V85 USD945
V82 MBR20 30CTL
V82 MBR20 30CTL
V86 LL4148
V84 LL4148
V83 D10SC4MR
V83 D10SC4MR
E34
E36
C44 1500u /25V
C45 1000u /10V
C43 1500u /25V
nach Blatt 1
E23 UGR+16
E21
E20 UGR+8
E16 GND
SYNC nach Blatt 1
E22 UGR-16
V133 S10SC4M1
V133 S10SC4M1
C75 820u /16V
E25 UGR+13
E24 GND1
V97 BYS21 /45
V98 BYS21 /45
V99 BYS21 /45
V100 BYS21 /45
C59 100u /50V
X2.14 nach Blatt 1
X2.15 nach Blatt 1
Analogregler -30V/0,1A
V81 BYS21 /45
V79 BYS21 /45
V80 BYS21 /45
V78 BYS21 /45
C52 100u /50V
E19 (UGR+38)
E18 (UGR38)
Schaltregler 24,5-30V/0,6A
1039.1304.00 S
Bl. 2+
AI: 01
GLEICHRICHTER
Bauteil Nr. 4
Bauteil Nr. 2
AP- 110.00-SP
Blatt 5
Benennung
26.08.92 Bos
28.09.92 Bos
gepr.
gen.

STANDBY-WANDLER







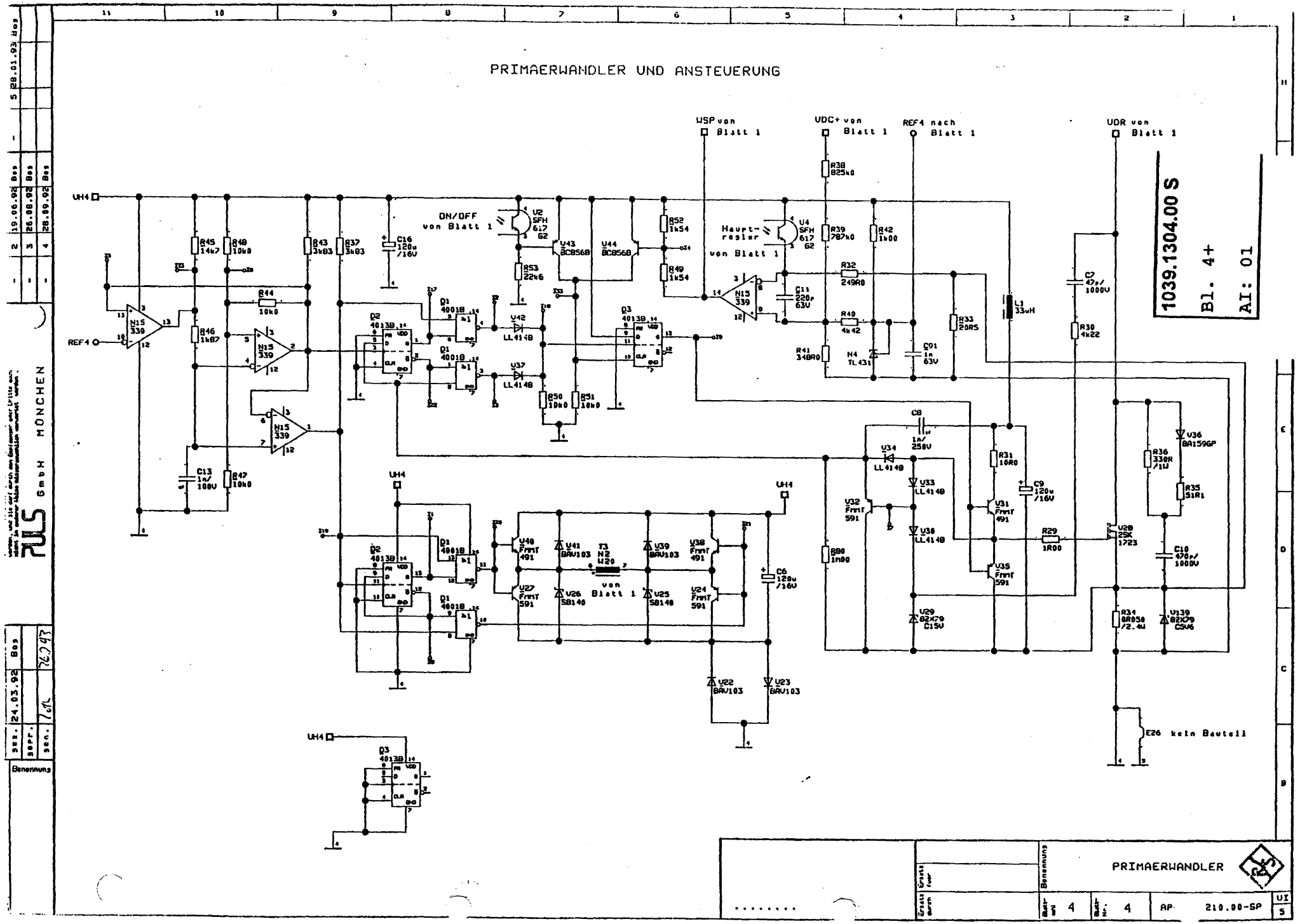


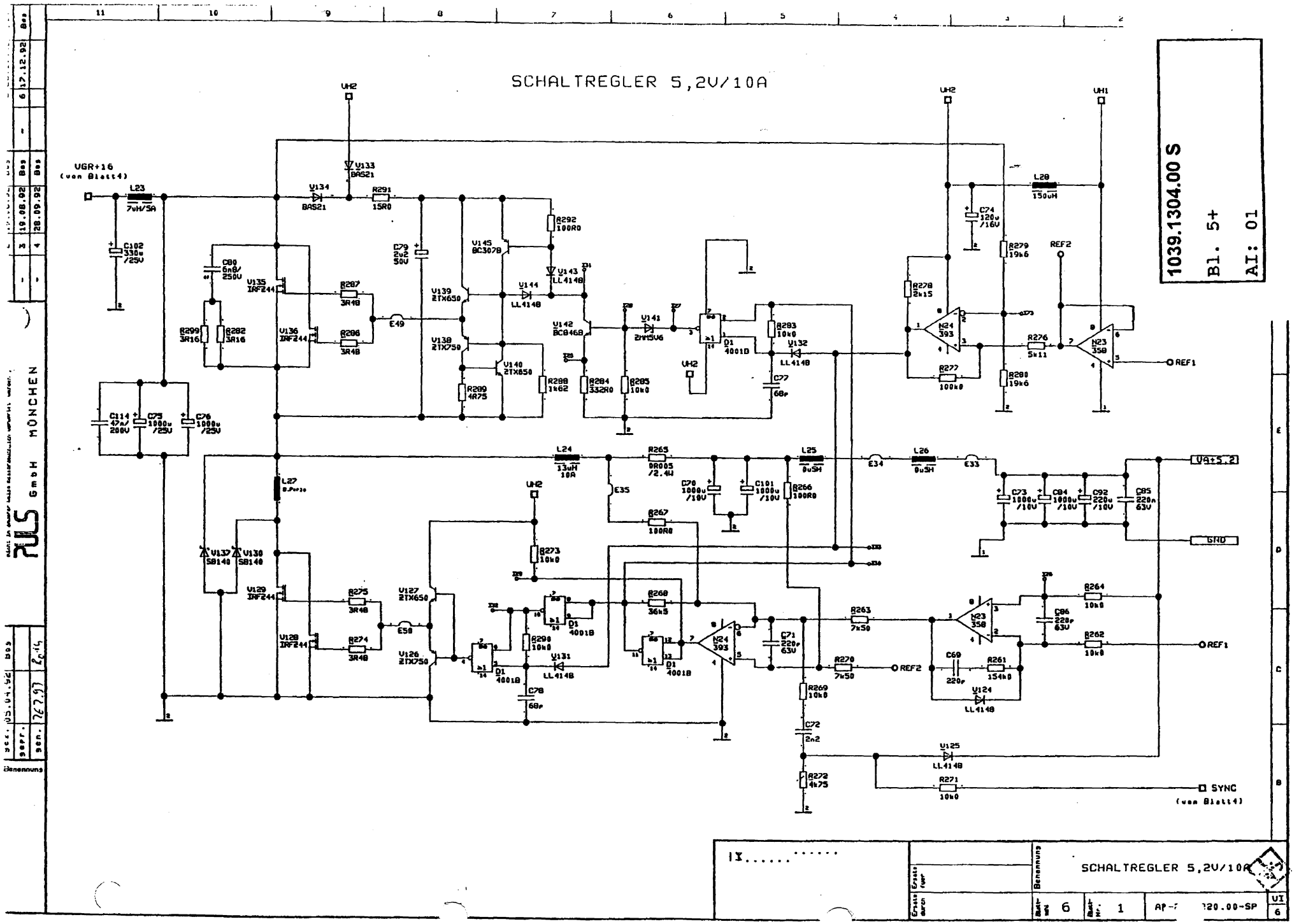
E33

1039.1304.00 S
Bl. 3+
AI: 01

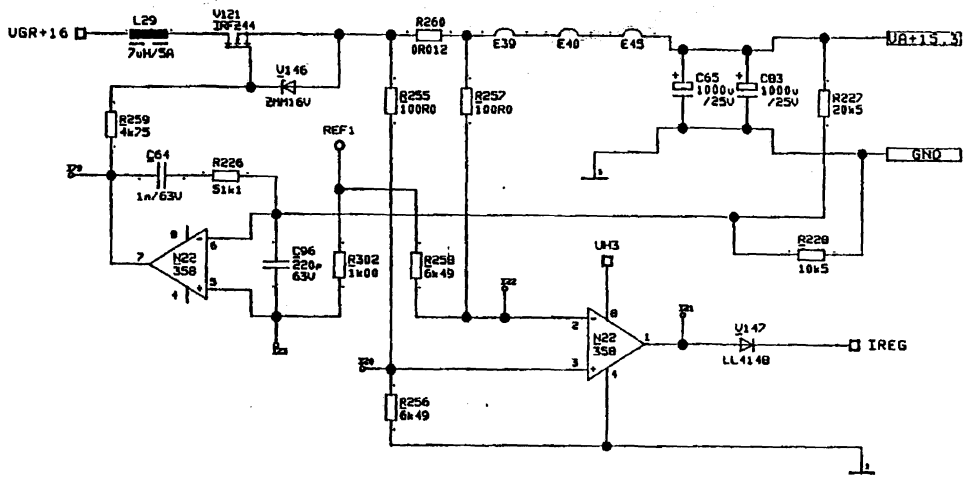
				Benennung	STANDBYSPANNUNG HILFSSPANNUNG
				Bearb. Nr. 4	Bl.: 3
				AP-	310.00-SP
				UI 5	

RUS GmbH MÜNCHEN

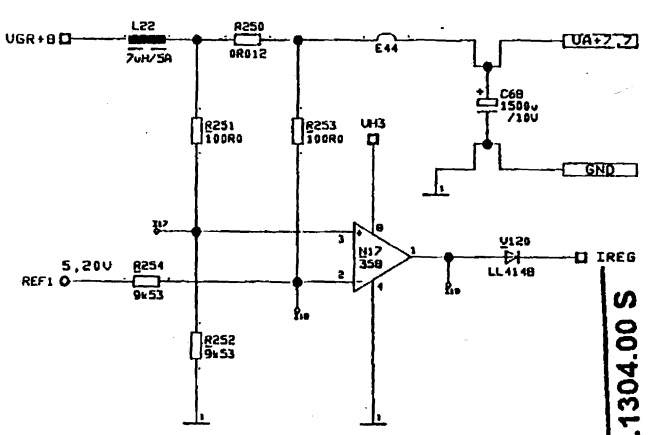

PRIMAERWANDLER UND ANSTEUERUNG
1039.1304.00 S
Bl. 4+
AI: 01
USP von Blatt 1
UDC+ von Blatt 1
REF4 nach Blatt 1
UDR von Blatt 1
UH4
REF4
ON/OFF von Blatt 1
Haupt-regler von Blatt 1
von Blatt 1
E26 kein Bauteil
PRIMAERWANDLER
AP 210.00-SP


SCHALTREGLER 5,2V/10A
1039.1304.00 S
Bl. 5+
AI: 01
VGR+16
(von Blatt4)
L23
7uH/5A
C102
330u
/25V
V134
BAS21
V133
BAS21
R291
1SR0
C80
6n8/
250V
V135
IRF244
V136
IRF244
R299
3R16
R282
3R16
R287
3R48
R286
3R48
E49
C79
2u2
50V
V139
2TX650
V138
2TX750
V145
BC307B
V144
LL4148
V143
LL4148
R292
100R0
R289
4R75
R288
1k62
V140
2TX850
V142
BC846B
V141
2MA5V6
R284
332R0
R285
10k0
D1
4001B
V132
LL4148
C77
68p
R283
10k0
UH2
UH1
L28
150uH
C74
120u
/16V
R279
19k6
REF2
R278
2k15
R276
5k11
R277
100k0
R280
19k6
N24
393
N23
358
REF1
C114
47n/
200V
C75
1000u
/25V
C76
1000u
/25V
L24
13uH
10A
R265
0R005
/2.4W
L25
0uSH
E34
L26
0uSH
E33
UA+5.2
C73
1000u
/10V
C84
1000u
/10V
C92
220u
/10V
C85
220n
63V
GND
L27
0,Perle
V137
SB140
V130
SB140
E35
C70
1000u
/10V
C101
1000u
/10V
R266
100R0
R267
100R0
R273
10k0
V129
IRF244
V128
IRF244
R275
3R48
R274
3R48
E58
V127
2TX650
V126
2TX750
R268
36k5
R290
10k0
V131
LL4148
C78
68p
C71
220p
63V
R263
7k50
R270
7k50
R269
10k0
C72
2n2
R272
4k75
R271
10k0
V125
LL4148
V124
LL4148
C69
220p
R261
1S4k0
C86
220p
63V
R264
10k0
R262
10k0
SYNC
(von Blatt4)
SCHALTREGLER 5,2V/10A
Benennung
Blatt-Nr. 6
Blatt-Nr. 1
AP-
120.00-SP
UI
6

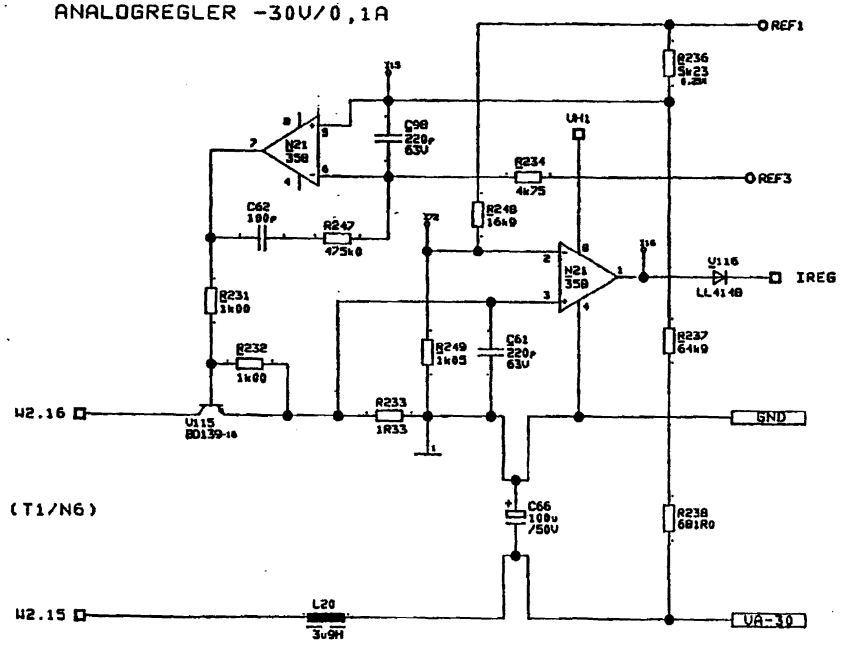
ANALOGREGLER 15,3V/5A



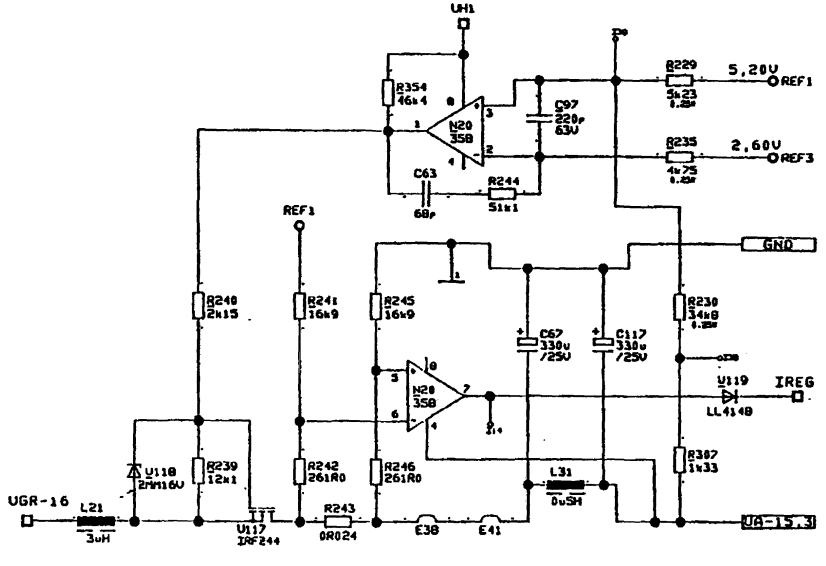
STROMBEGRENZUNG +7V/3,5A



ANALOGREGLER -30V/0,1A



ANALOGREGLER -15V/2A



1039.1304.00 S

Bl. 6+

AI: 01

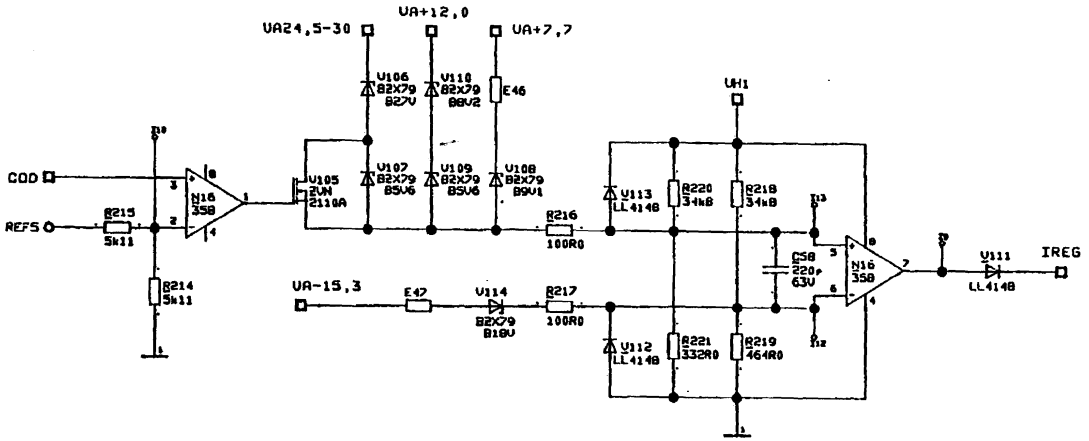
Benennung	REGLER 15,3V/5A -15V/2A -30V/0,1A I-BEG. 7V/3,5A					
Ersatz für						
Ersatz durch						
Baut. Nr.	6	Baut. Nr.	2	AP	220.00-SP	UI 6

Bes.	05.04.92	Bos	
Gepr.	27.2.92	PJL	
Gen.			

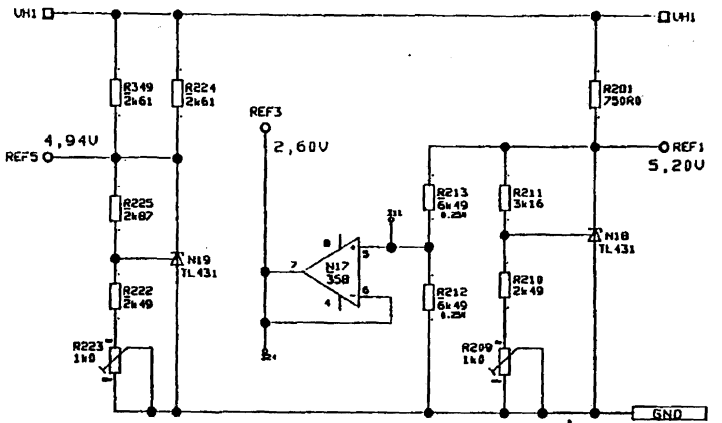
Benennung

RUS GmbH MÜNCHEN

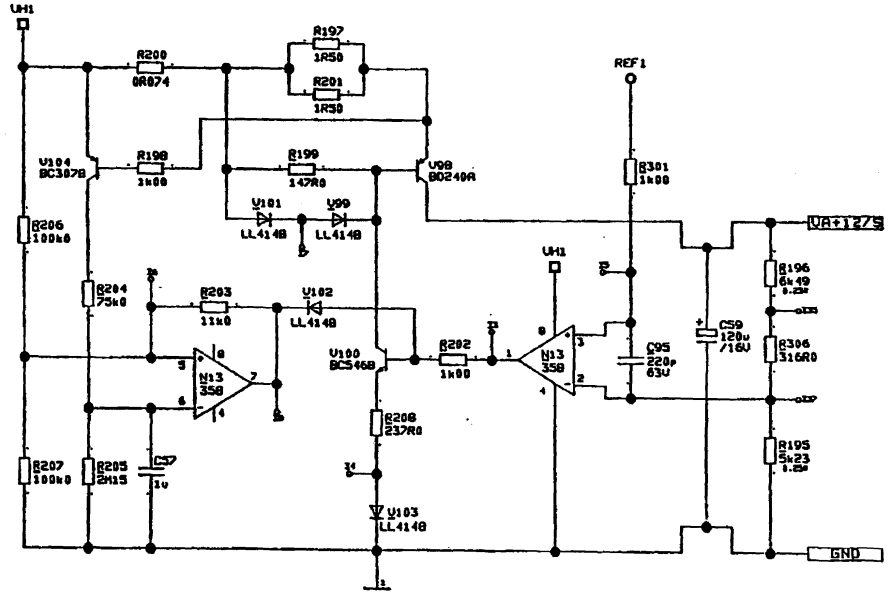
ZUSATZ-UEBERSPANNUNGSSCHUTZ



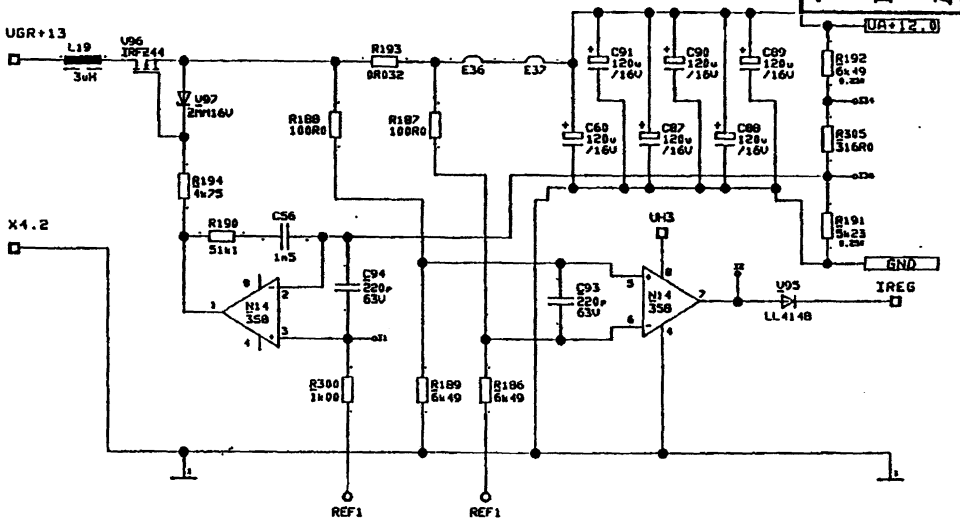
REFERENZERZEUGUNG



STANDBYSPANNUNG 12V



ANALOGREGLER +12V/2A



1039.1304.00 S Bl. 7+ AI: 01

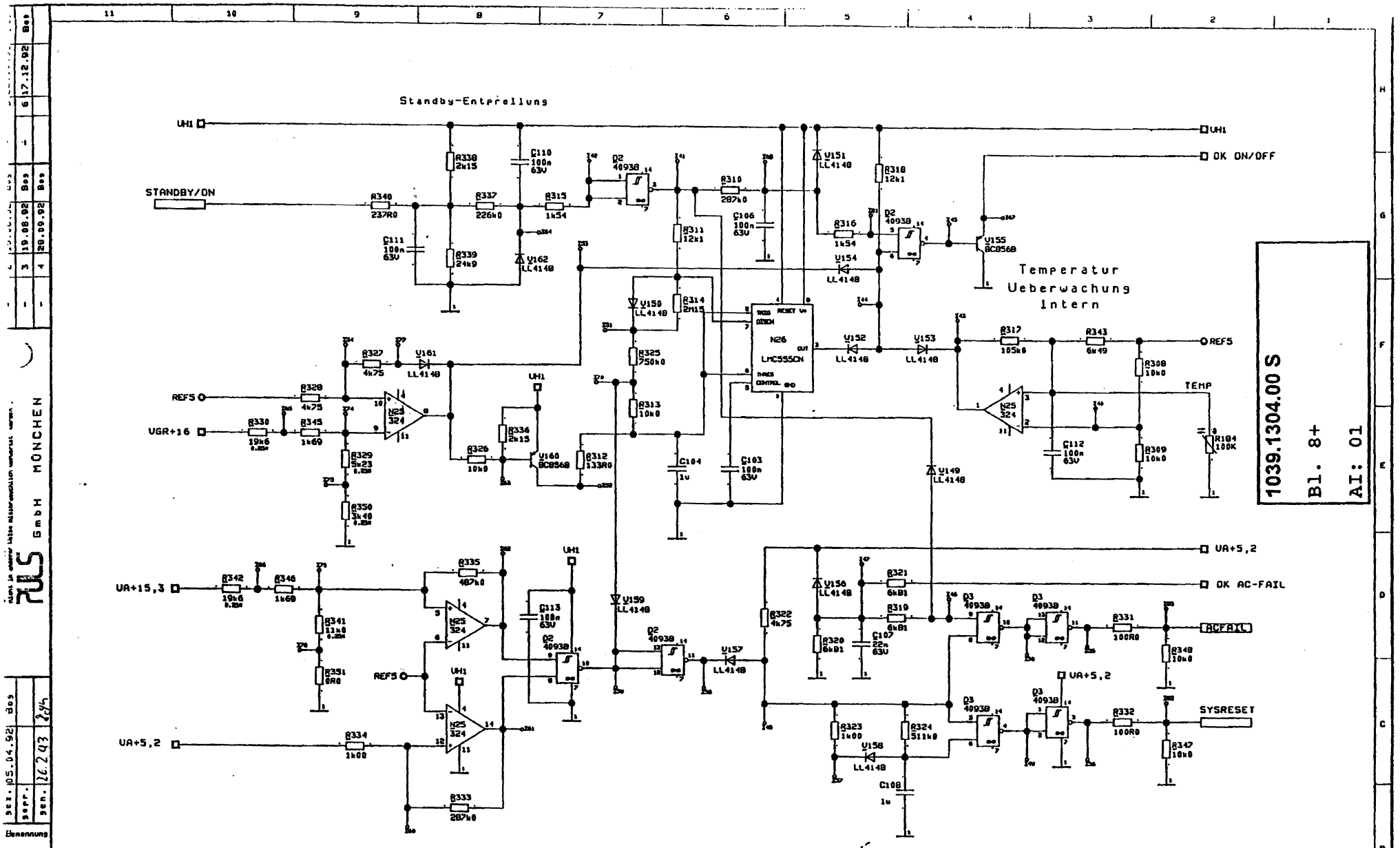
Benennung	UEBERSPANNUNGSSCHUTZ REFERENZERZEUGUNG REGLER 12V/2A STANDBY 12V					
Ersatz für						
Ersatz durch		Bauteil 6	Bauteil Nr. 3	AP-7	20.00-SP	VI 6

Benennung

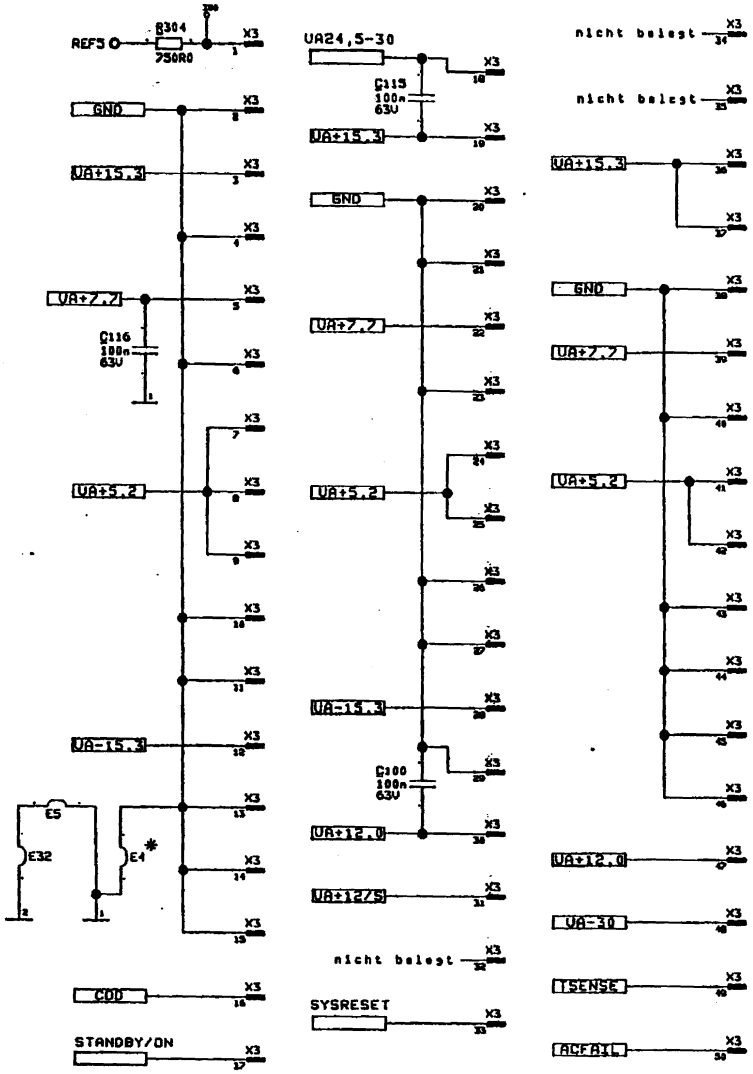
-	6	17.12.92	Bos
-			
-	3	4	19.08.92 Bos 28.09.92 Bos
-			
-			

sept.	05.04.93	Bos	
sept.	76.2.93	Pdl	
sen.			

ZUS GmbH MÜNCHEN


Standby-Entprellung
UH1
STANDBY/ON
R340 237R0
R337 226k0
R339 24k9
C111 100n 63V
C110 100n 63V
R338 2k15
R315 1k54
D2 40938
R310 287k0
C106 100n 63V
R311 12k1
V162 LL4148
V151 LL4148
R318 12k1
R316 1k54
V154 LL4148
V155 BC856B
OK ON/OFF
Temperatur Ueberwachung Intern
V150 LL4148
R314 2k15
R325 750k0
R313 10k0
N26 LMC555CN
V152 LL4148
V153 LL4148
R317 105k6
R343 6k49
REFS
R308 10k0
TEMP
R309 10k0
R184 100K
C112 100n 63V
N25 324
R327 4k75
V161 LL4148
R328 4k75
R330 19k6
R345 1k69
R329 5k23
R350 3k48
R326 10k0
R336 2k15
V160 BC856B
R312 133R0
C104 1u
C103 100n 63V
V149 LL4148
VGR+16
UA+15,3
R342 19k6
R346 1k69
R341 11k0
R351 0R0
R335 487k0
C113 100n 63V
V159 LL4148
R322 4k75
V156 LL4148
R321 6k81
R320 6k81
R319 6k81
C107 22n 63V
D3 40938
R331 100R0
ACFAIL
R348 10k0
UA+5,2
OK AC-FAIL
V157 LL4148
R334 1k00
R333 287k0
R323 1k00
R324 511k0
V158 LL4148
C108 1u
R332 100R0
SYSRESET
R347 10k0
1039.1304.00 S
Bl. 8+
AI: 01
TEMPERATURUEBERWACHUNG
SYSTEMRESET
AC-FAIL
Blatt-Nr. 6
Blatt-Nr. 4
AP-120.00-SP
VI 6

AUSGANGSSTECKER



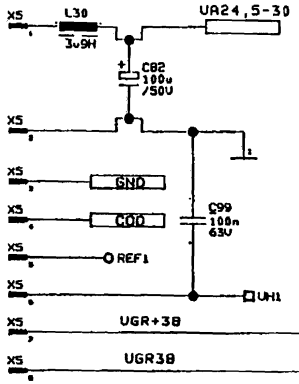
* E4 ist kein Bauteil

Signale sind aus dem Gerast herausgefuehrt

Signale sind im Gerast verwendet

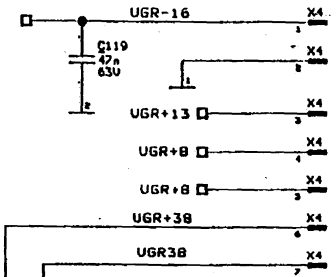
MODUL 1

(AP-238.240.00-01)



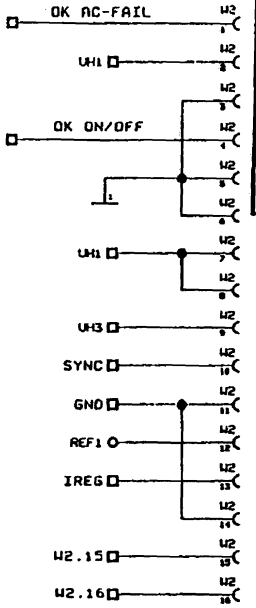
LP-VERBINDER

(AP-238.210.00-01)

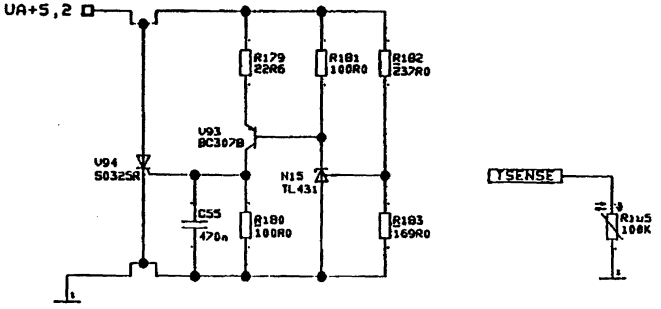


FLACHBANDKABEL

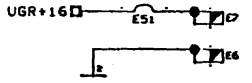
(AP-238.210.00-01)



6V Crowbar



EINZELLEITUNGEN



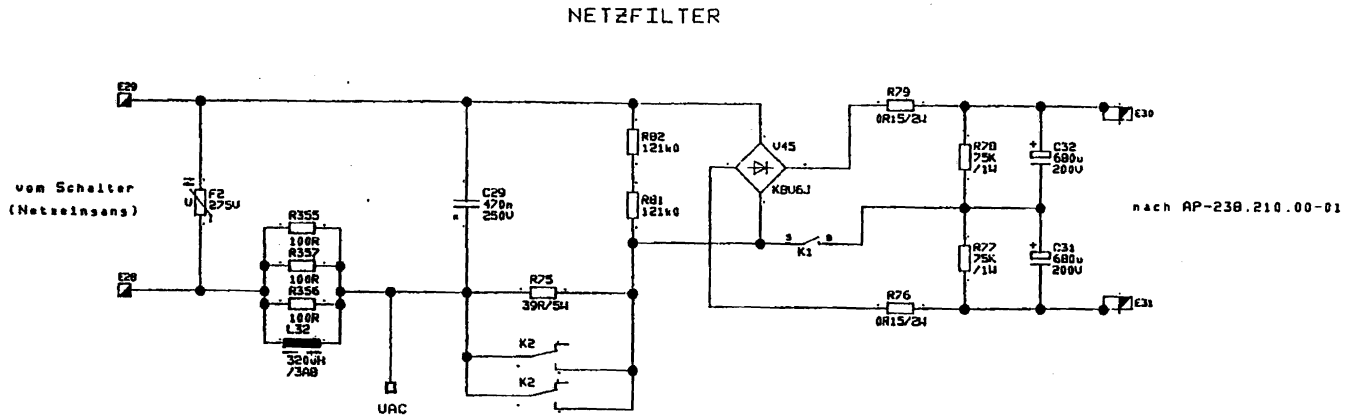
1039.1304.00 S

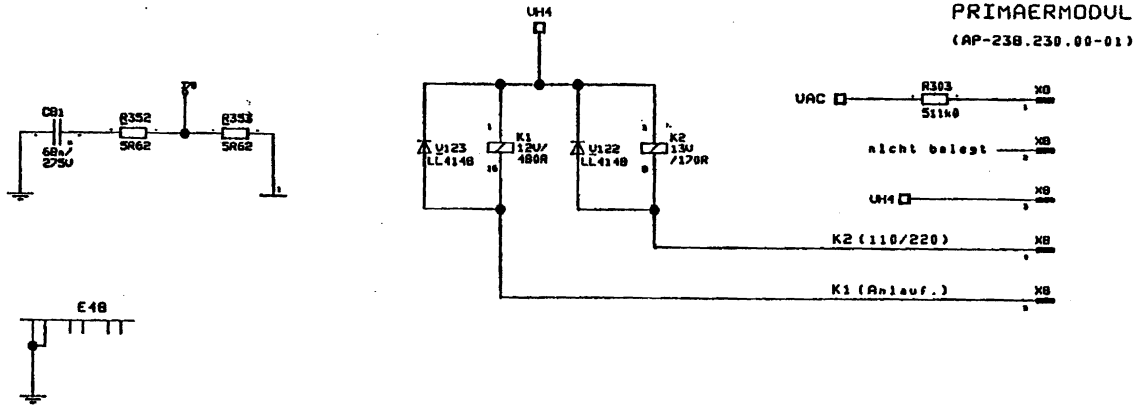
AI: 01 Bl. 9+

Benennung	ges.	gepr.	gen.
	05.04.92		26.2.93

AUSGANGSSTECKER& LP-VERBINDER

Bautyp 6 Baujahr 5 AP- 220.00-SP VI 6





1039.1304.00 S
Bl. 10+
AI: 01

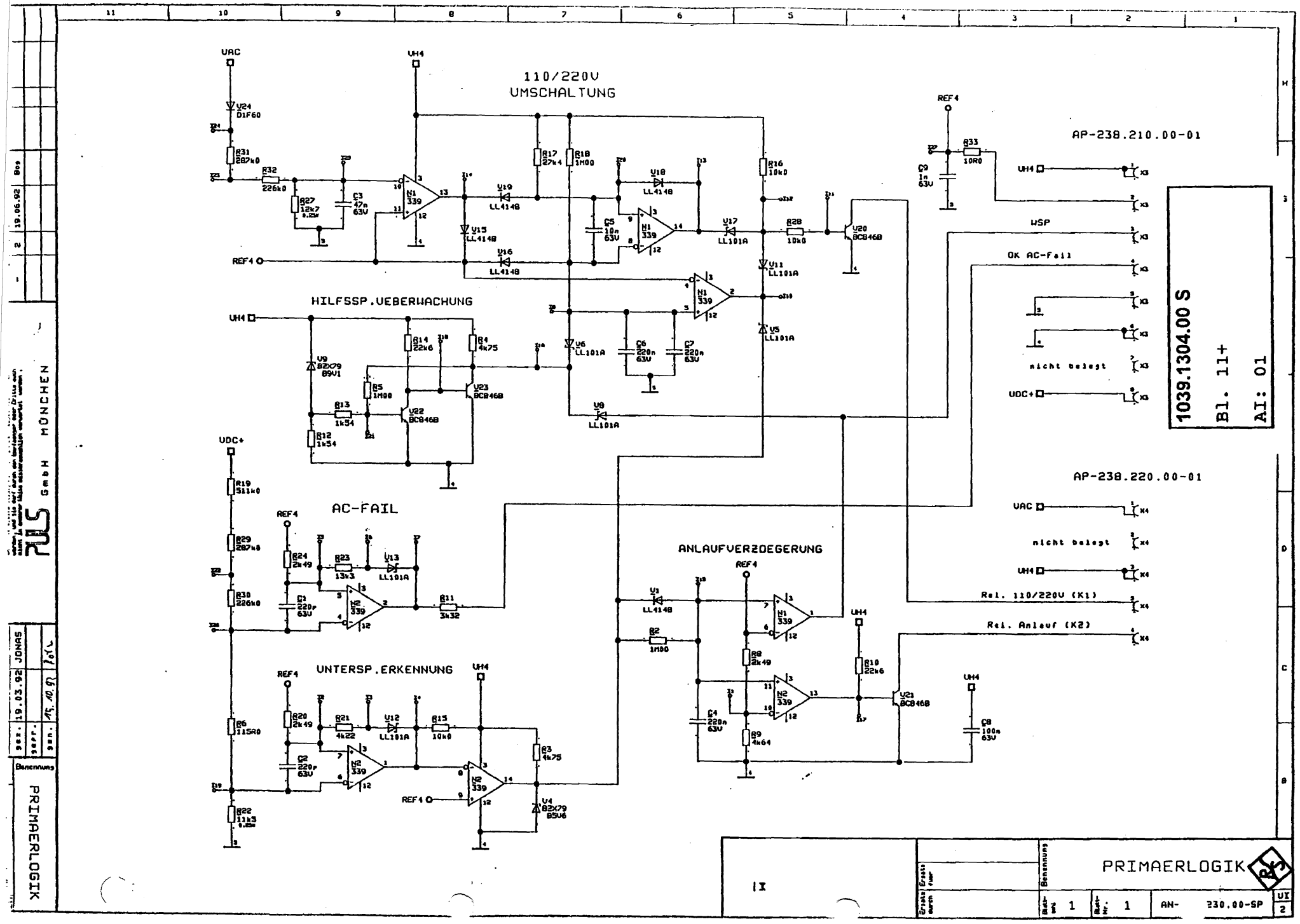
Ersatz f.		Benennung	PRIMAERFILTER GLEICHRICHTER				
Ersatz durch		Baut.	6	Bau.	6	AP	220.00-SP
							UI 6

5	28.10.92	Bos	
6	17.12.92	Bos	
-	-	-	
2	19.06.92	Bos	
3	19.08.92	Bos	
4	28.09.92	Bos	
-	-	-	

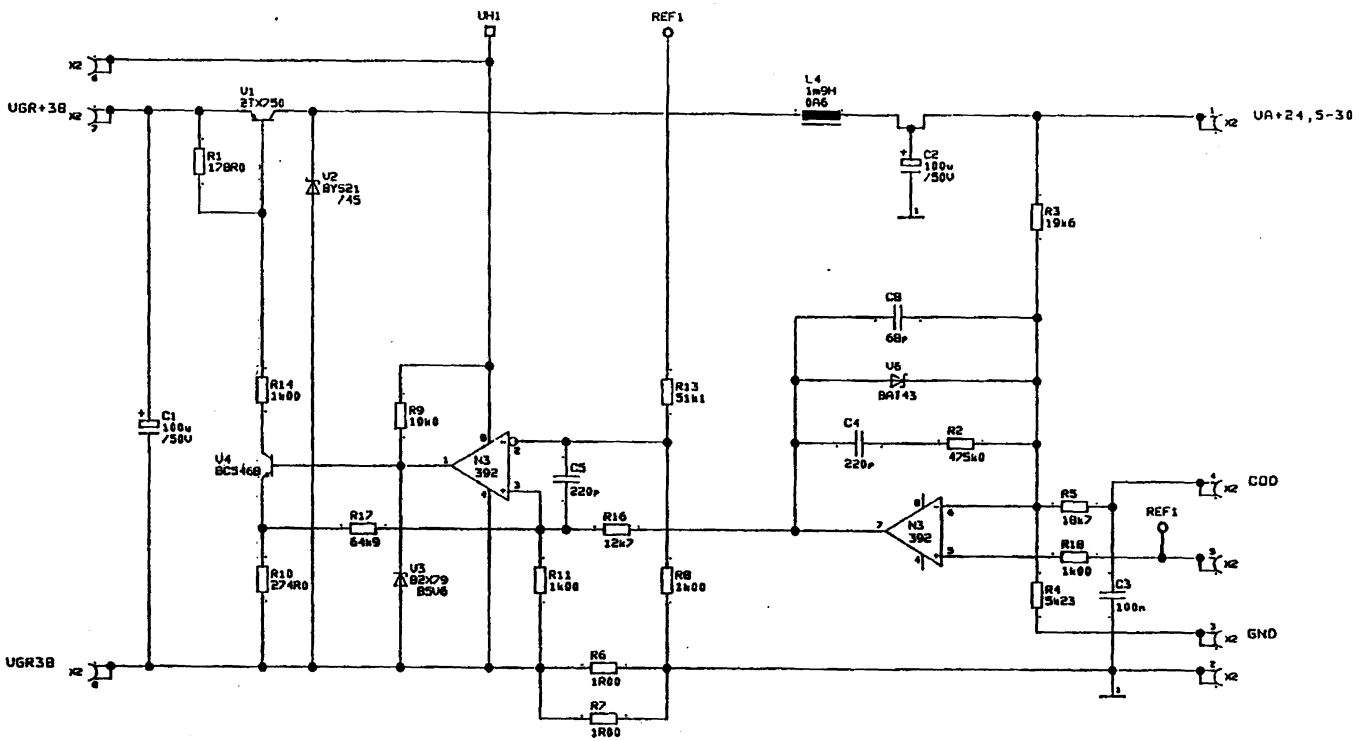
ges. 05.04.92 Bos
gepr.
gen. 26.7.94 R.M.

Benennung

PULS GmbH MÜNCHEN


110/220V
UMSCHALTUNG
HILFSSP.UEBERWACHUNG
AC-FAIL
UNTERSP.ERKENNUNG
ANLAUFVERZOEGERUNG
AP-238.210.00-01
AP-238.220.00-01
WSP
OK AC-Fail
nicht belegt
Rel. 110/220V (K1)
Rel. Anlauf (K2)
1039.1304.00 S
Bl. 11+
AI: 01
PRIMAERLOGIK
AN- 230.00-SP

SCHALTREGLER 24,5-30V/0,6A



1039.1304.00 S

Bl. 12-

AI: 01

IX

Stand: 15.06

CLP

SEKUNDAERMODUL 1

AP- .40.00-SP

Bl.-Nr. 1

Bl.-Nr. 1

CLP

GmbH MÜNCHEN

	Datum	Name	Ä.Nr.				
gez.	2. .92	KUZ	1			27.03.92	KUZ
gepr.			2			15.06.92	Mey.
gen.	15.10.91	Roth	3	–	–	31.08.92	Bog

ohne unsere vorherige Zustimmung darf diese Unterlage weder vervielfaeltigt, noch Dritten zugaenglich gemacht werden, und sie darf durch den Empfaenger oder Dritte auch nicht in anderer Weise missbraeuchlich verwertet werden.

PULS GmbH MÜNCHEN

Ersatz durch	Ersatz fuer

Blatt-zahl	BENENNU
Blatt-Nr.	

AP-238.243.00-2G

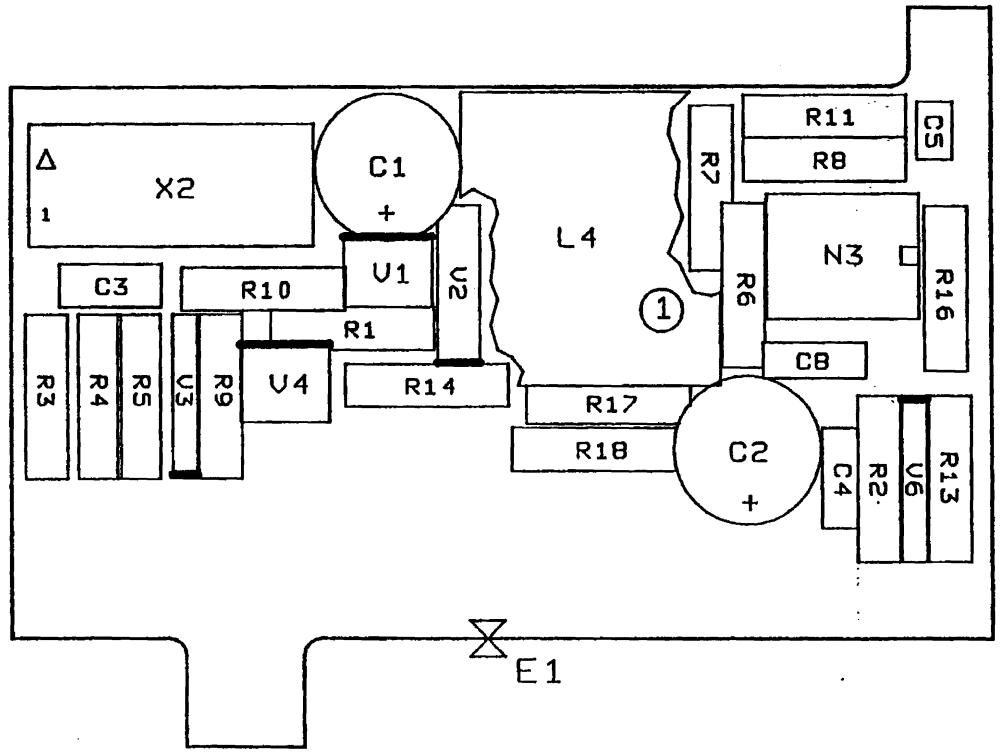
3 UZ

BLP

1039.1304.00

Bl. 1+

AI: 01



	.um	Name	AM Nr	Datum	VI	Name
gez.	17.03.92	JONAS	-	31.08.92	3	Bog
gepr.			-	02.10.92	4	Bog
gen.	5.10.92	Dc/S				

Ohne unsere vorherige Zustimmung darf diese Unterlag
weder vervielfaeltigt, noch Dritten zugaenglich gemach
werden, und sie darf durch den Empfaenger oder Dritte auch
nicht in anderer Weise missbraeuchlich verwertet werden .

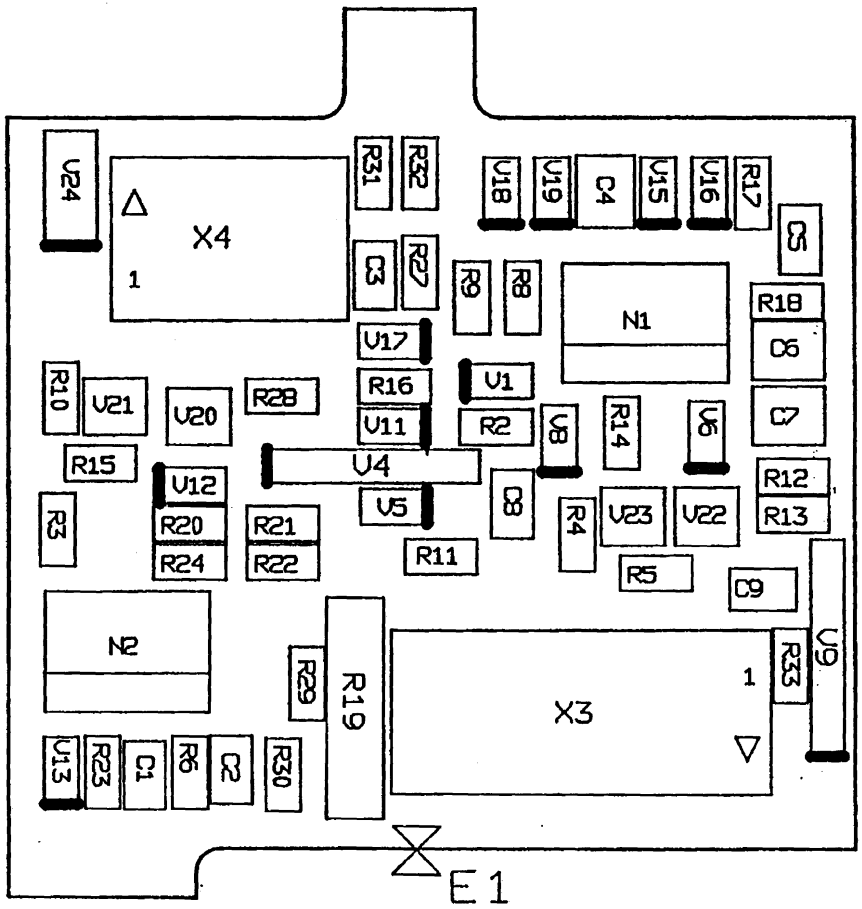
PULS GmbH MÜNCHEN

AM Nr.	Datum	VI	Name	AM Nr.	Dat	VI	Name

Ersatz durch	Ersatz fuer

Blatt-zahl	BENENNUNG
Blatt-Nr.	SMDM-BLP
AP-238.250.00-2G	
4	VI:

1039.1304.00
Bl. 2+
AI: 01



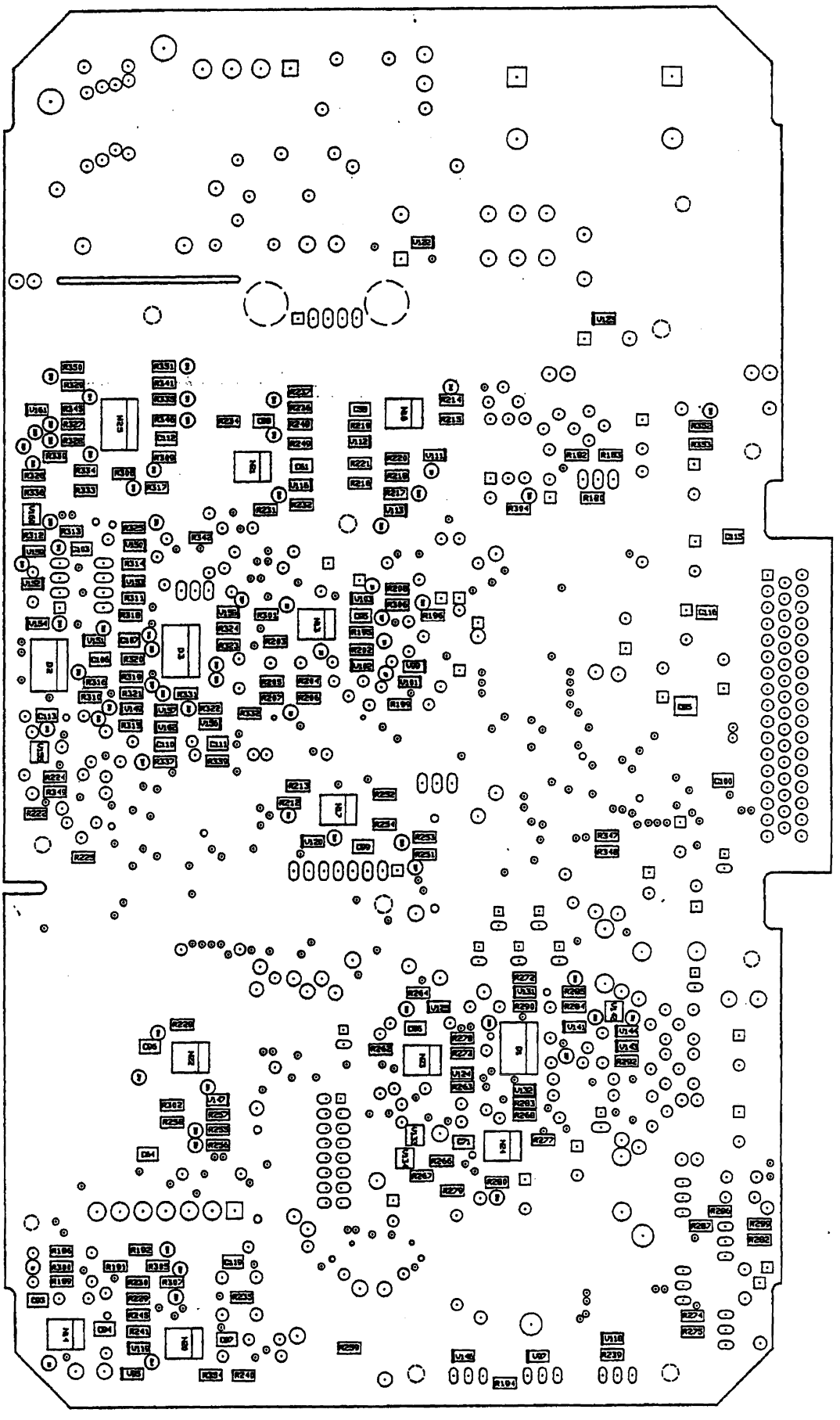
5	4	3	2	1

B	C	D	E	F	G	H

SMDM-WLP

PLS GmbH MÜNCHEN

3	01.09.92	Bey	
4	01.10.92	Bey	
6	11.01.93	Bey	



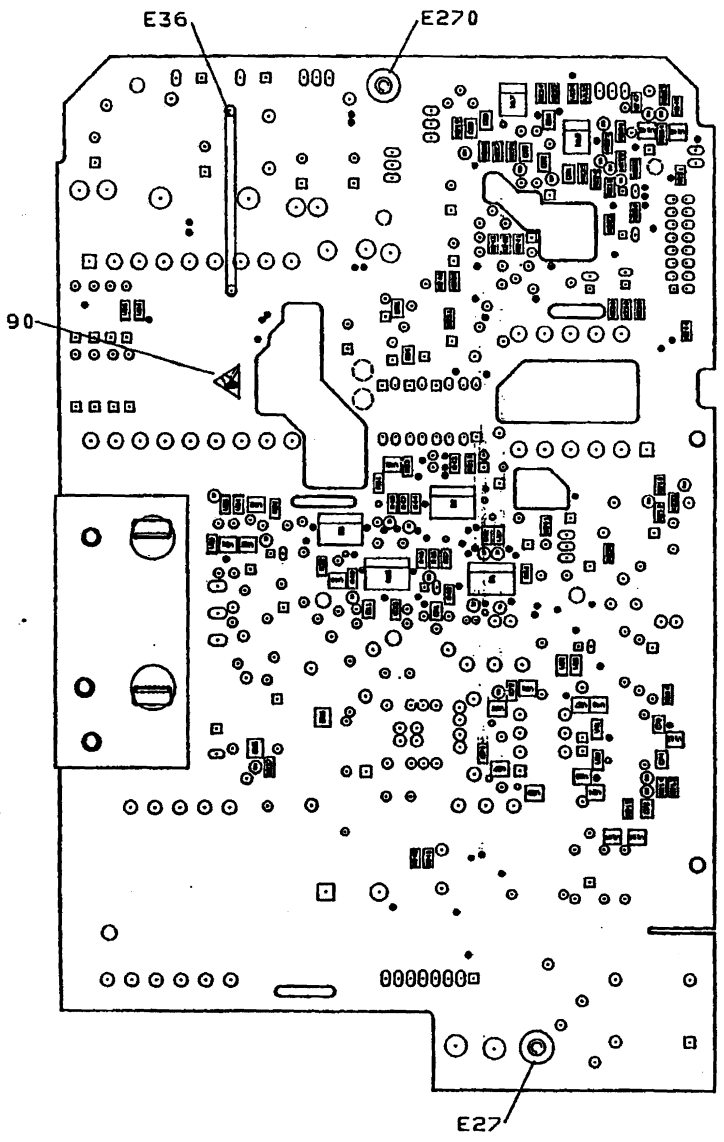
Benennung: SMDM-WLP

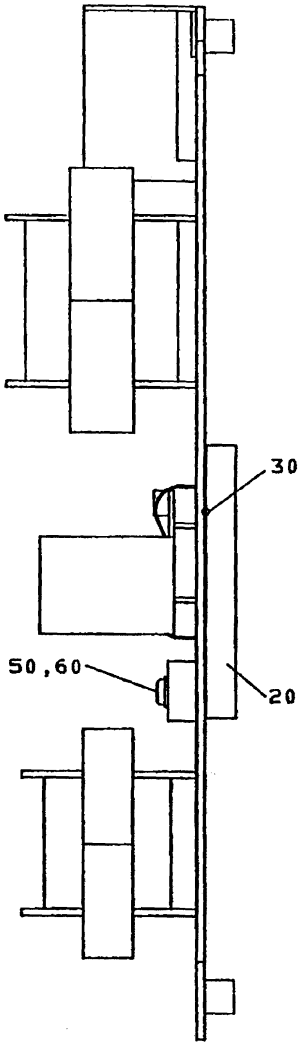
AP-: 24.00-26

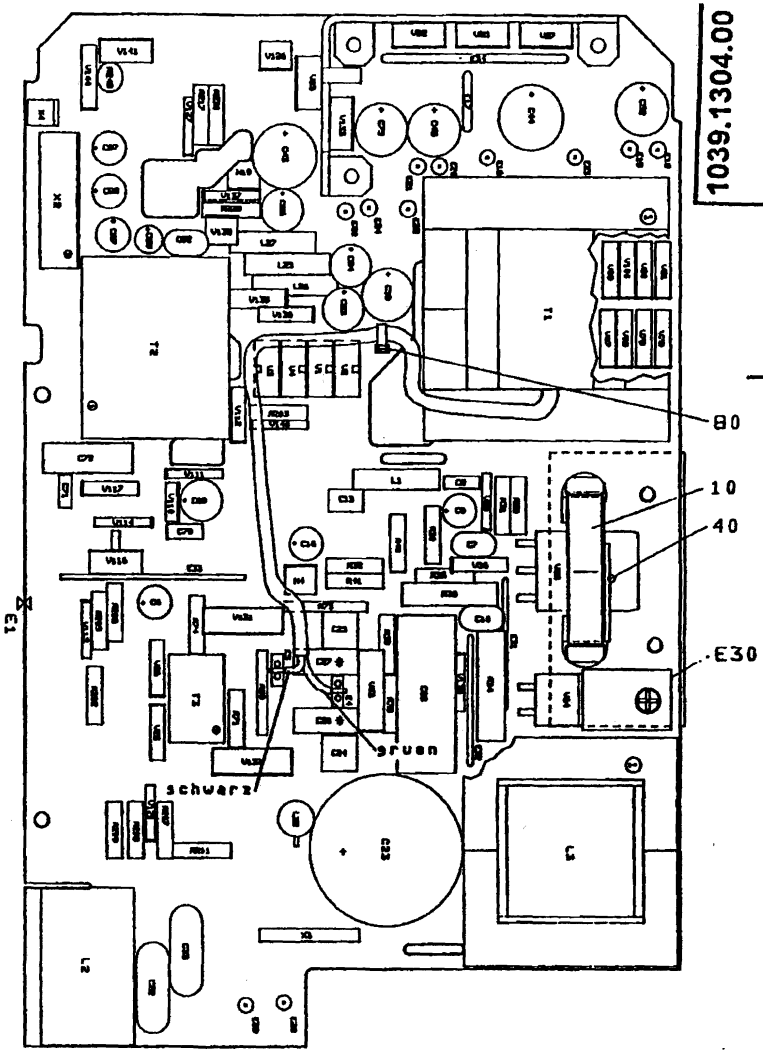
AI: 01

Bl. 3+

1039.1304.00







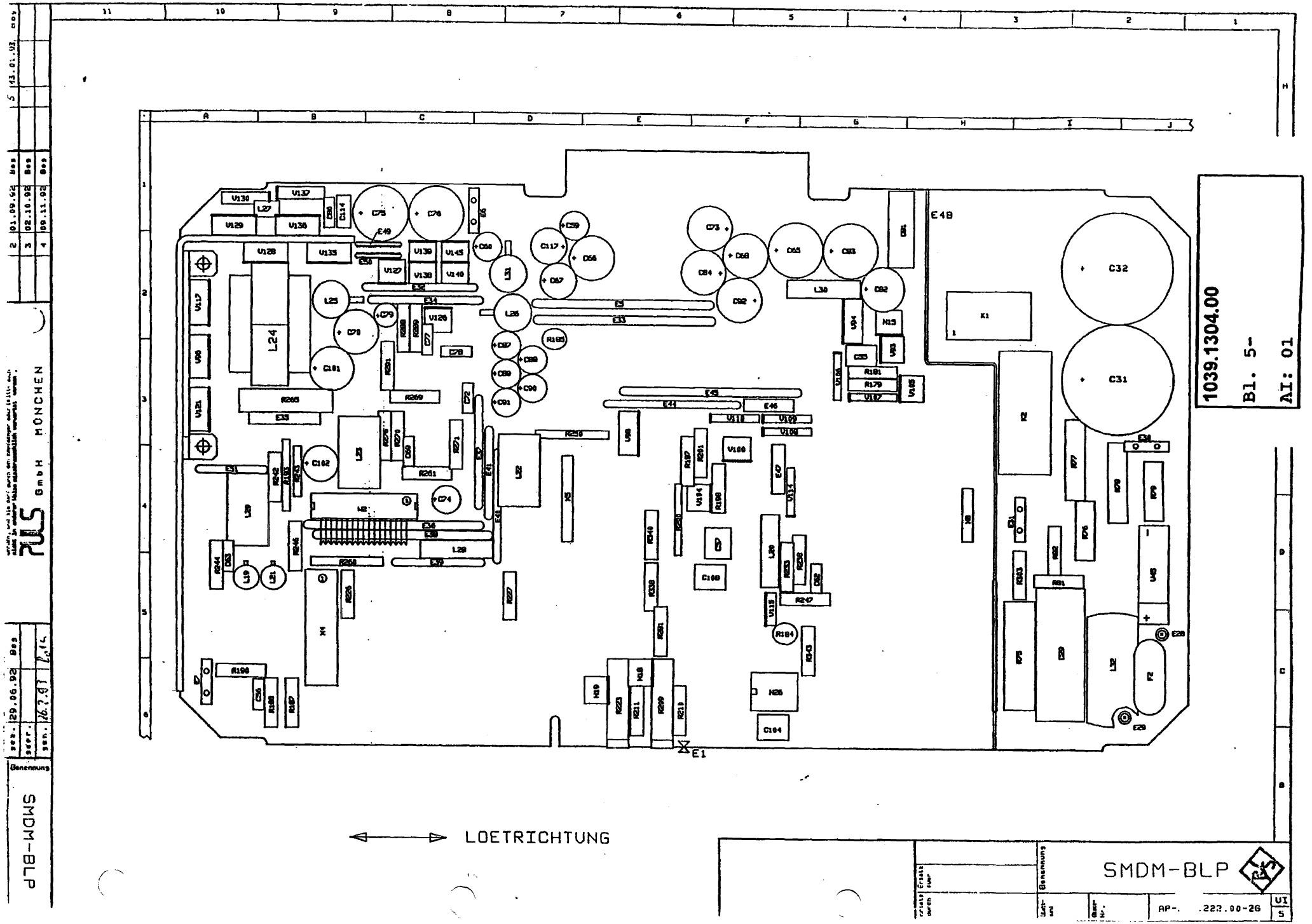
- E27 und E270 in LP eingepresst
- Pos.20 mit Pos.30 montiert
- Auf Lage der Trafoleitung achten
- Anschlussdraethe von Trafo durch Loecher von Stezu gesteckt, umgebogen und verloetet
- Pos.90 unteralb der LP-Nummer aufgeklebt
- Loetueberstand max. 3mm, LP gewaschen

1039.1304.00 AI: 01 — Bl. 4+

SMDM-CLP

AP- 210.00-26

PULS GmbH MÜNCHEN


1039.1304.00
Bl. 5-
AI: 01
SMDM-BLP
LOETRICHTUNG
AP-. .222.00-26
E48
E1
L24
K1
K2
C32
C31