



ROHDE & SCHWARZ

SERVICE DOCUMENTS

Switched-mode Power Supply

819.1568.02

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5 Service Manual "Switched-mode Power Supply"

5.1 Function Description

(See circuit diagrams 819.1568 S, 819.1716 S and 819.1916 S)

The module is a primary switched-mode power supply. Five secondary voltages are generated:

+ 24 V, + 15 V, -15 V, + 5 V for analog circuits and + 5 V for digital circuits.

The power supply also contains a mains transformer, rectifier and linear regulator so that the crystal reference of the SMGU can still be operated when in standby mode. The power supply has a power fail circuit to detect AC power brought-outs and failures.

5.1.1 Description of AC Power Input Circuit

The AC voltage is applied via fuses F1 and F2, AC filter, AC power switch and voltage selector to the input of circuit board A41.

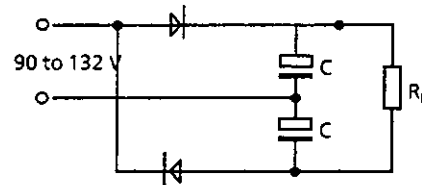
The AC power supply ranges are 90 to 132 V or 190 to 260 V.

5.1.2 Description of PCB A41

Following the EMI suppression filter containing L100 and C100, the AC voltage is applied to the AC transformer T100 and also via the NTC resistor V101 (inrush current limiting) to rectifier V110.

Rectification of the AC supply is by means of a bridge rectifier for the voltage range from 190 to 260 V and as a voltage doubler in the range from 90 to 132 V. The magnitude of the hum voltage is the same in both cases as a result of the electrolytic capacitors switched over in the process.

Range from 90 to 132 V:



Range from 190 to 260 V:

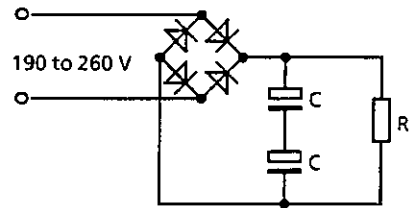


Fig. 5-1 Rectifier principle

The rectified AC supply voltage is then applied to connector X20 via the noise suppression inductor L102.

The VDR (V102) prevents spikes from reaching the switching transistor.

The mains transformer T100 has two primary windings and two secondary windings.

The two primary windings are selected according to the AC voltage ranges.

One of the secondary windings powers the components connected to the AC supply potential, the second winding is connected to the instrument ground (earth) and is used to supply the power supply and the crystal oven in the SMGU.

The secondary voltages are applied to the bridge rectifiers V111 and V112 via fuses F100 and F101. + 12 V are then generated by each of the linear regulators N101 and N102. The function of the component D100 and the associated parts of the circuit is described in Section 5.1.3.1.

The three inputs fulfil the following tasks:

- ▶ **Pin 8**, slow start-up, hum precontrol and limiting of duty factor

Duty factor limiting is implemented in conjunction with the hum precontrol.

A voltage is derived from the rectified AC supply voltage by means of the divider R110, R111 and R107. This voltage is then smoothed by C116. The voltage at pin 8 together with the hum modulation of the sawtooth voltage at pin 10 results in hum precontrol and therefore compensation of the secondary hum voltage.

The time constant for C115 is dimensioned such that the voltage at pin 10 with the minimum AC supply voltage cannot rise to more than half the period of the oscillator frequency. A maximum duty factor of 0.5 is therefore not exceeded.

- ▶ **Pin 7**, current limitation for power transistor

The voltage between pins 6 and 7 is compared using an internal comparator. R117 and R118 define the voltage for the switch-off threshold. The precision resistor R202 is connected between the source of V220 and ground. The voltage drop across this resistor is applied to pin 7 via X20. The maximum current in the power transistor is then calculated as follows:

$$I_{pmax} = V_p(\text{Pin 6}) / R202$$

where I_{pmax} = max. peak current

$V_p(\text{Pin 6})$ = voltage at pin 6 (approx. 1 V)

$R202 = 0.15 \Omega$

The power supply is switched off if the peak current exceeds 6.6 A.

- ▶ **Pin 18**, control voltage input

Pin 18 is the input of a voltage follower. The control voltage of the switching controller is connected to this input. The control voltage comes from the module A42 via the opto isolator U101 and X20.

The duty factor v_t can be adjusted from 0 to v_{tmax} by means of the control voltage.

- **Switching the power supply on and off**

A switching signal generated by the standby switch and the following circuit on PCB 842 is applied to the opto isolator U100 via plug connector X20.

This opto isolator switches pin 2 of D100 either to approx. 6 V (= on) or 0 V (= off).

5.1.3.2 Design of Control Loop

The following block diagram represents the control loop for controlling the +6 V of the switched-mode power supply:

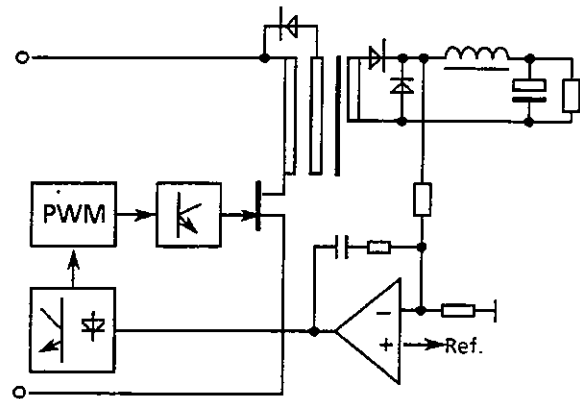


Fig. 5-3 Control of switched-mode power supply

5.1.3.3 Generation of Output Voltages

All voltages after the storage inductors are subject to further regulation from the linear regulators.

The regulators (some of which are of discrete design) and the switching controller have a common reference voltage of +5 V (V300, N300, adjustment using R304).

- +5 V controller for supplying the digital circuit

This consists of an integrated linear regulator N290.

- +5 V controller for supply of analog circuit

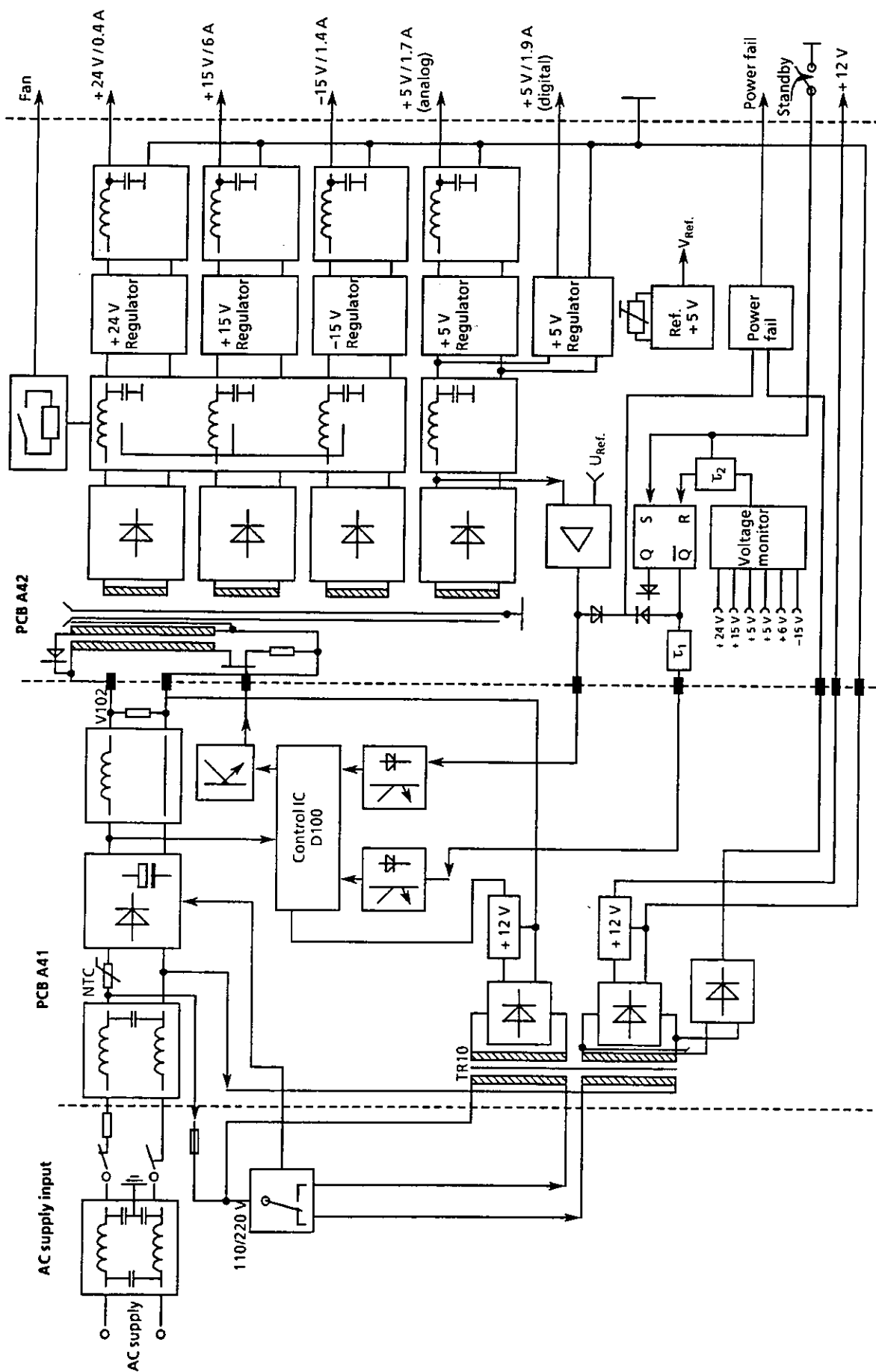
The regulator is a series regulator and has N300-B as an amplifier.

L281 and C287 are the noise suppression filter for 100 kHz.

- -15-V controller

This is implemented with the positive controller N270. The output voltage is generated by applying the positive voltage output of the controller to ground. The negative reference point serves as the output.

L270 and C275 are the EMI suppression filter for 100 kHz.



5.2.2.4 Testing the Control Voltage Monitoring

Check the power supply using the following table:

| Test point | DC voltage | ± Tol. |
|------------|------------|--------|
| P322 | 2.18 V | 0.1 V |
| P323 | 1.75 V | 0.1 V |
| P327 | 3.75 V | 0.1 V |
| P324 | 11.5 V | 1.0 V |

Short-circuit the voltages at the output one after the other:
the power supply must cut out each time.

5.2.2.5 Testing the Power Fail Circuit

Connect DC voltmeter to P325. Set AC power selector to 90 to 132 V. The voltmeter must indicate a voltage between 4 and 5 V.

Slowly reduce the AC supply using the transformer:

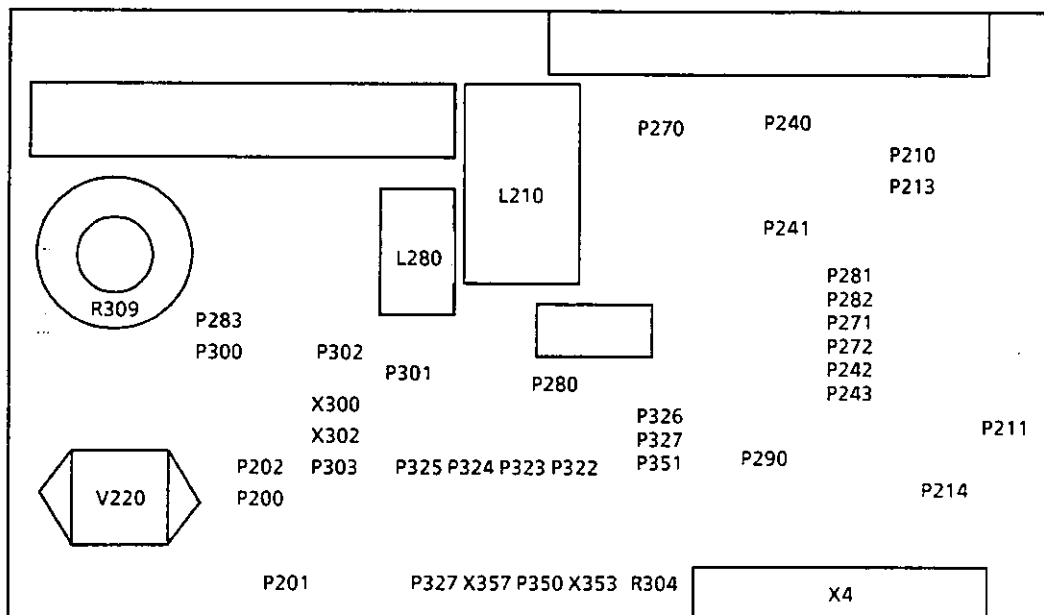
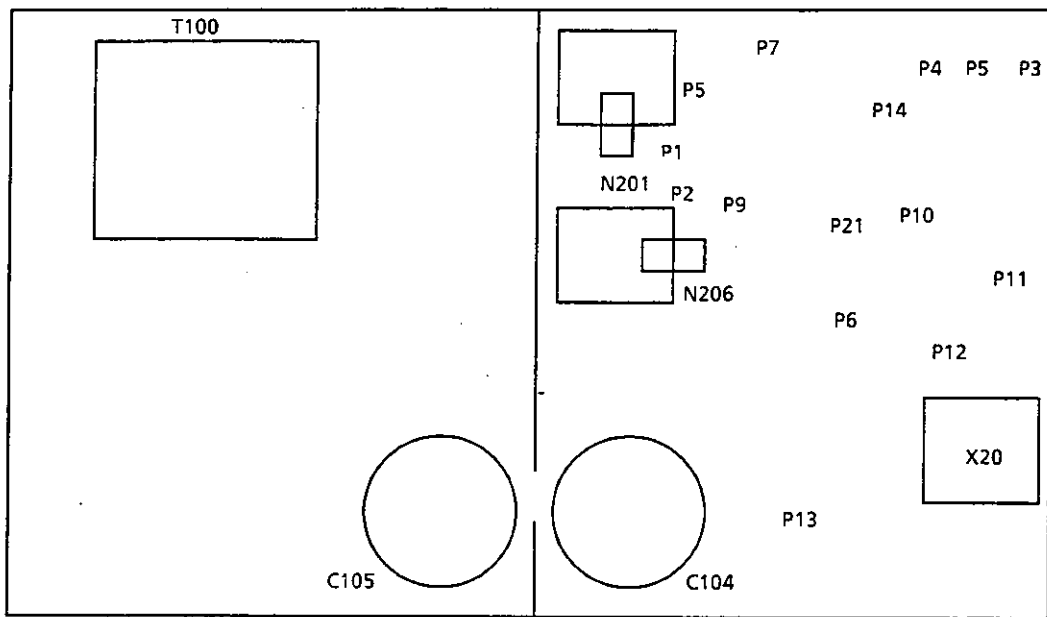
the voltage at P325 must drop to 0 V at <90 V.

Table 5-1 Checking the unregulated and output voltages of the regulators

| Voltage | Test point/ unregulated voltage | Test point/ output voltage | Noise voltage 15 Hz to 100 kHz |
|---------|------------------------------------|-------------------------------|-----------------------------------|
| +24 V | P210: +26 to +28 V | P213: +23.5 to +24.6 V | X4.19 <1 mV |
| +15 V | P240: +16.5 to +17.5 V | P242: +14.9 to +15.3 V | X14.14 <2 mV |
| -15 V | P271: +1.8 to +2.5 V | P271: -15.25 to -14.5 V | X4.6 <2 mV |
| +5.2 V | P280: +5.7 to +6 V | P290: +5.1 to +5.4 V | X4.2 <4 mV |
| +5.1 V | P280: +5.7 to +6 V | P292: +5.0 to +5.2 V | X4.9 <1 mV |
| +12 V | | Z300: +11.0 to +12.1 V | X4.85 <30 mV |

5.4 Interfaces


A41 Rectification



A42 Switching controller

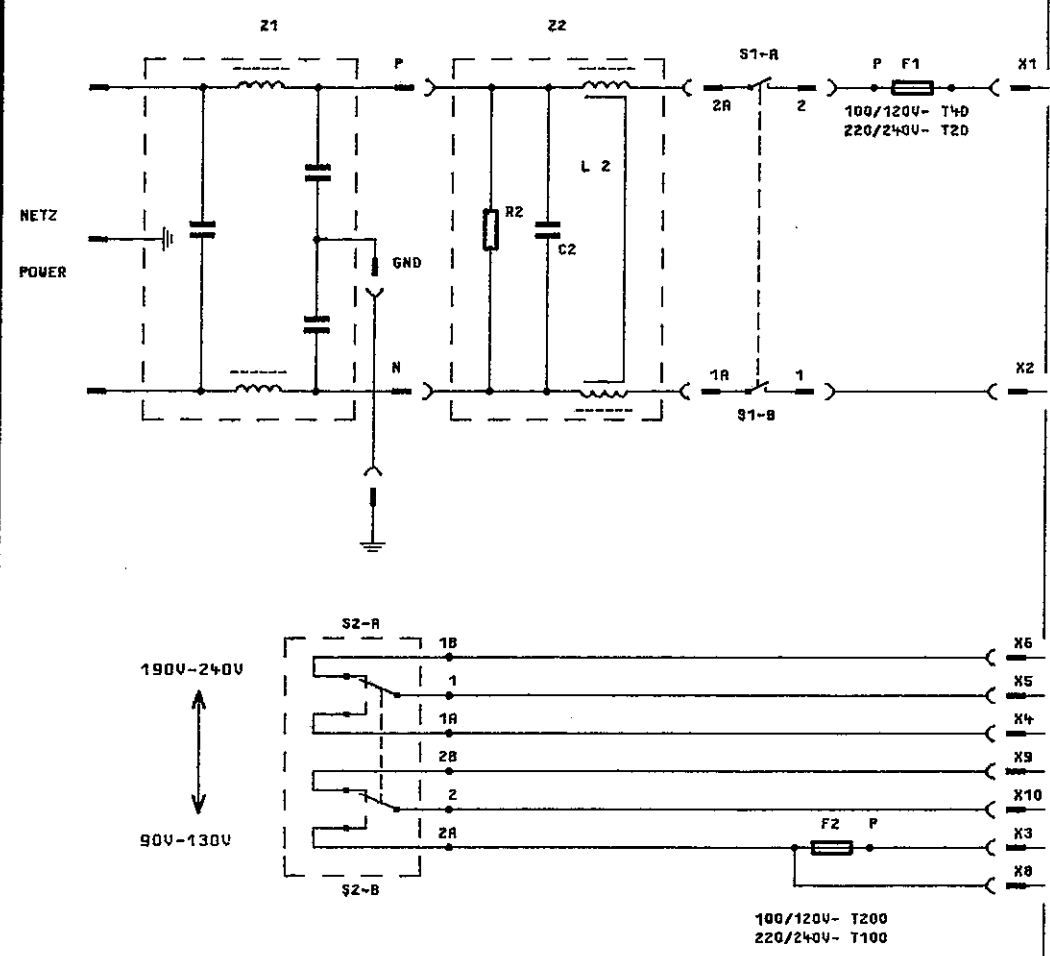
Schaltteillisten
Stromläufe
Bestückungspläne
Part lists
Circuit diagrams
Components plans
Listes des pièces détachées
Schémas de Circuit
Plans des composants

Für diese Unterlage behalten
wir uns alle Rechte vor.

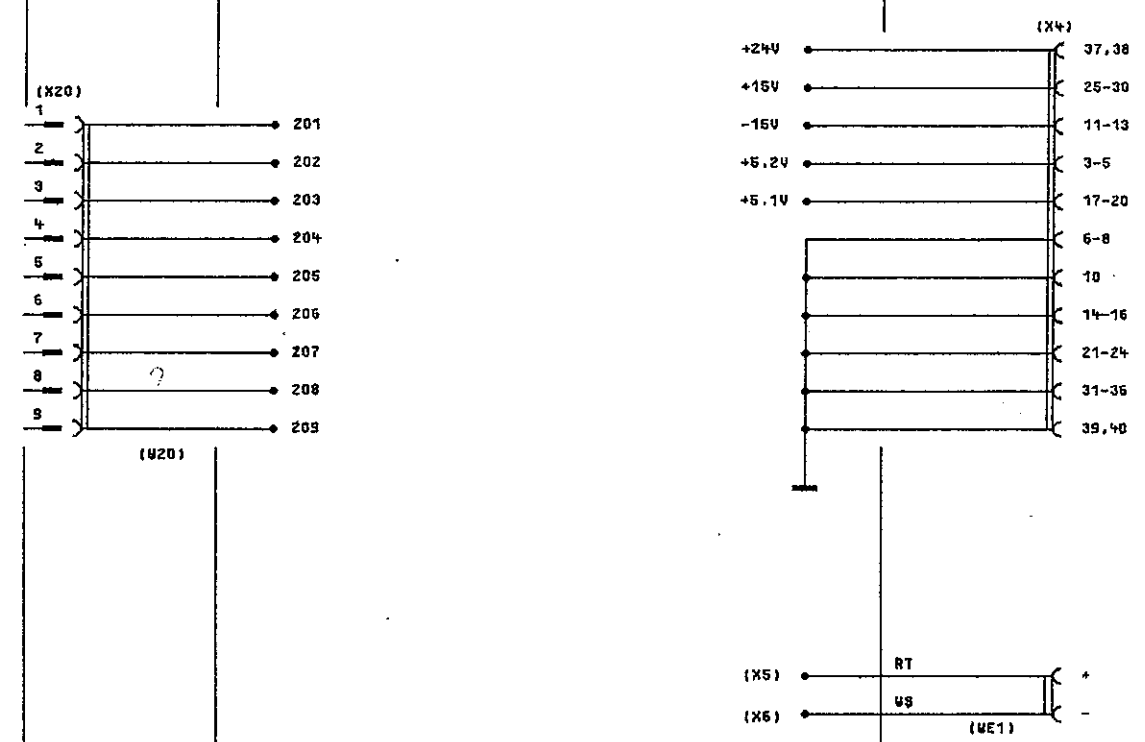
| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|--|--|-------------------------|---------------------------------------|----------------------------|------------------------------|
| A41 | ED GLEICHRICHTUNG RECTIFIER BOARD | 0819.1716.02 | | | |
| A42 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.02 | | | |
| C2 | CS 1,0UF+-20% 250V RM27,5 CAPACITOR ENTHALTEN IN/INCLUDED IN Z2 | 0811.2542.00 | SIEMENS | B81121-C-B132 | 0819.1739.00 |
| F1 | SS SCHMELZ.T2,0IEC127-2/3 FUSE T2,0 | SS 0009.0578.00 | WICKMANN | T2 L NR.19195 | |
| F2 | SS SCHMELZS.T100 IEC127/3 FUSE | SS 0020.7146.00 | WICKMANN | T100 L NR.19195 | |
| L2 | LD STROMKOMPENS.DROSSEL COMPENSATION INDUCTOR ENTHALTEN IN/INCLUDED IN Z2 | 0811.2571.00 | | | 0819.1739.00 |
| R2 | RL 1W 182 KOHM+-1%TK100 METAL FILM RESISTOR ENTHALTEN IN/INCLUDED IN Z2 | RL 0006.5927.00 | ROEDERSTEI | MK 5 | 0819.1739.00 |
| S1 | SK WIPPSCH.2POL.AUS SW SWITCH | SK 0553.2925.00 | MARQUARDT | 1802.1102 | |
| S2 | SK SPANNUNGSSCH.115/230 VOLTAGE SWITCH | 0292.5387.00 | MARQUARDT | 4021.0501 | |
| X1 | XX ENTHALTEN IN INCLUDED IN Z1 | | | | |
| Z1 | FN EINBAUST.M.NETZFILT.3A POWER LINE FILTER | FN 0006.0977.00 | SCHAFFNER | FN329-3/05 | |
| Z2 | LD NETZFILTER POWER LINE FILTER | 0819.1739.00 | | | |
| MENP5 502 3PUA | | | | | |
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095 0028-0693

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|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|



A41 GLEICHRICHTUNG
RECTIFIER

A42 SCHALTREGLER
SWITCHED REGULATOR

| | | | | | | | | | |
|---------------|---------------------------|-------|------|--|----------|------|--------------------------------|--|-----------|
| | | | | 1KSB | TAG | NARE | BENENNUNG | | |
| | | | | BEARB. | | LS | SCHALTNETZTEIL POWER-SUPPLY | | |
| | | | | GEPR. | | * | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 12. 4.89 | * | | | |
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| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NARE |  ROHDE & SCHWARZ | | | REG.I.V. - 819.0010 | | U. 1 BL. |
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|--|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C100 | CS 1,0UF+-20% 250V RM27,5 CAPACITOR | 0811.2542.00 | SIEMENS | B81121-C-B132 | |
| C102 | CK 68NF+-20%250V QUADER CAPACITOR | CK 0087.4184.00 | ROEDERSTEI | MKC 1862 368/25 | |
| C103 | CK 68NF+-20%250V QUADER CAPACITOR | CK 0087.4184.00 | ROEDERSTEI | MKC 1862 368/25 | |
| C104 | CE 470UF-10+30%250V40X45 ELECTROLYTIC CAPACITOR | 0006.9939.00 | VALVO | 2222 052 43471 | |
| C105 | CE 470UF-10+30%250V40X45 ELECTROLYTIC CAPACITOR | 0006.9939.00 | VALVO | 2222 052 43471 | |
| C106 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C107 | CK 330NF+-5%63VRD4,5H10 CAPACITOR | CK 0099.2969.00 | ROEDERSTEI | MKT 1826-433-06-4 | |
| C108 | CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | 0008.7510.00 | PHILIPS_CO | 2222 116 90042 | |
| C109 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C110 | CK 330NF+-5%63VRD4,5H10 CAPACITOR | CK 0099.2969.00 | ROEDERSTEI | MKT 1826-433-06-4 | |
| C111 | CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | 0008.7510.00 | PHILIPS_CO | 2222 116 90042 | |
| C112 | CK 2,2NF +-1% 100V RM5 KP POLYPROPYLENE CAPACITOR | CK 0007.7617.00 | ROEDERSTEI | KP1830-222 01 1 3 W | |
| C115 | CK 1,0NF +-1% 100V RM5 KP POLYPROPYLENE CAPACITOR | CK 0007.7598.00 | ROEDERSTEI | KP1830-210 01 1 3 W | |
| C116 | CE 15 UF+-20%16V 7X 5X11 ELECTROLYTIC CAPACITOR | CE 0087.9328.00 | KEMET | T340 C156M016 AS | |
| C117 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C118 | CC 330PF+-2%6X9N750 CERAMIC CAPACITOR | CC 0087.6964.00 | PHILIPS_CO | 2222 678 58331 | |
| C122 | CS 1NF+-20%250V/50HZ VDE Y-CAPACITOR (DISC) | 0834.9143.00 | ROEDERSTEI | WY 7 | |
| C123 | CK 10NF+-20%630V QUADER CAPACITOR | CK 0024.7763.00 | PLESSEY | R60 PF2100AAM | |
| C124 | CK 10NF+-20%630V QUADER CAPACITOR | CK 0024.7763.00 | PLESSEY | R60 PF2100AAM | |
| D100 | BO UC2840J OA2 SCH.REGL REG.PULSE WIDTH MODULATOR | 0374.9904.00 | UNITRODE | UC2840J | |
| F100 | SS SCHMELZS.T 0,5A TR5-T FUSE TR5T 0,5A | SS 0815.8239.00 | WICKMANN | TR5-T/NR.19372 K | |
| F101 | SS SCHMELZS.T 0,315A TR5T FUSE TR5T 0,315A | SS 0377.6906.00 | WICKMANN | TR5-T/NR.19372K | |
| L100 | LD STROMKOMPENS.DROSSEL COMPENSATION INDUCTOR | 0811.2571.00 | | | |
| L102 | LD 100UH 20% 1A 0,650OHM CHOKE | LD 0155.9446.00 | SIEMENS | B82111-E-C25 | |
| N101 | BO LM7812CT+12V1A0 VREGL VOLTAGE REGULATOR | BO 0344.9641.00 | NSC | LM340T12 | |
| N102 | BO MC78M12CT+12VOA5 VREGF VOLTAGE REGULATOR | 0820.3331.00 | MOTOROLA | MC78M12CT | |
| P1 ..14 | VL WIRE-WRAP PIN L=11,6 WIRE-WRAP PIN | 0088.4542.00 | DUPONT CON | 75403-003 | |
| P21 | VL WIRE-WRAP PIN L=11,6 WIRE-WRAP PIN | 0088.4542.00 | DUPONT CON | 75403-003 | |
| P31 ..34 | VL WIRE-WRAP PIN L=11,6 WIRE-WRAP PIN | 0088.4542.00 | DUPONT CON | 75403-003 | |
| R101 | RL 0,60W 221 KOHM+-1%TK50 RESISTOR | RL 0083.2270.00 | RESISTA | MK2 | |
| R102 | RL 0,60W 221 KOHM+-1%TK50 RESISTOR | RL 0083.2270.00 | RESISTA | MK2 | |
| R103 | RL 0,60W 3,92KOHM+-1%TK50 RESISTOR | RL 0083.1039.00 | DRALORIC | SMA 0207 | |
| R104 | RL 0,60W 3,92KOHM+-1%TK50 RESISTOR | RL 0083.1039.00 | DRALORIC | SMA 0207 | |
| R105 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | |
| R106 | RL 0,60W 4,99KOHM+-1%TK50 RESISTOR | RL 0083.1116.00 | RESISTA | MK2 | |
| R107 | RL 0,60W 10,0KOHM+-1%TK50 RESISTOR | RL 0083.1297.00 | RESISTA | MK2 | |
| MENP5 502 3PUA AI Datum Date | | | | | |
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RECTIFIER

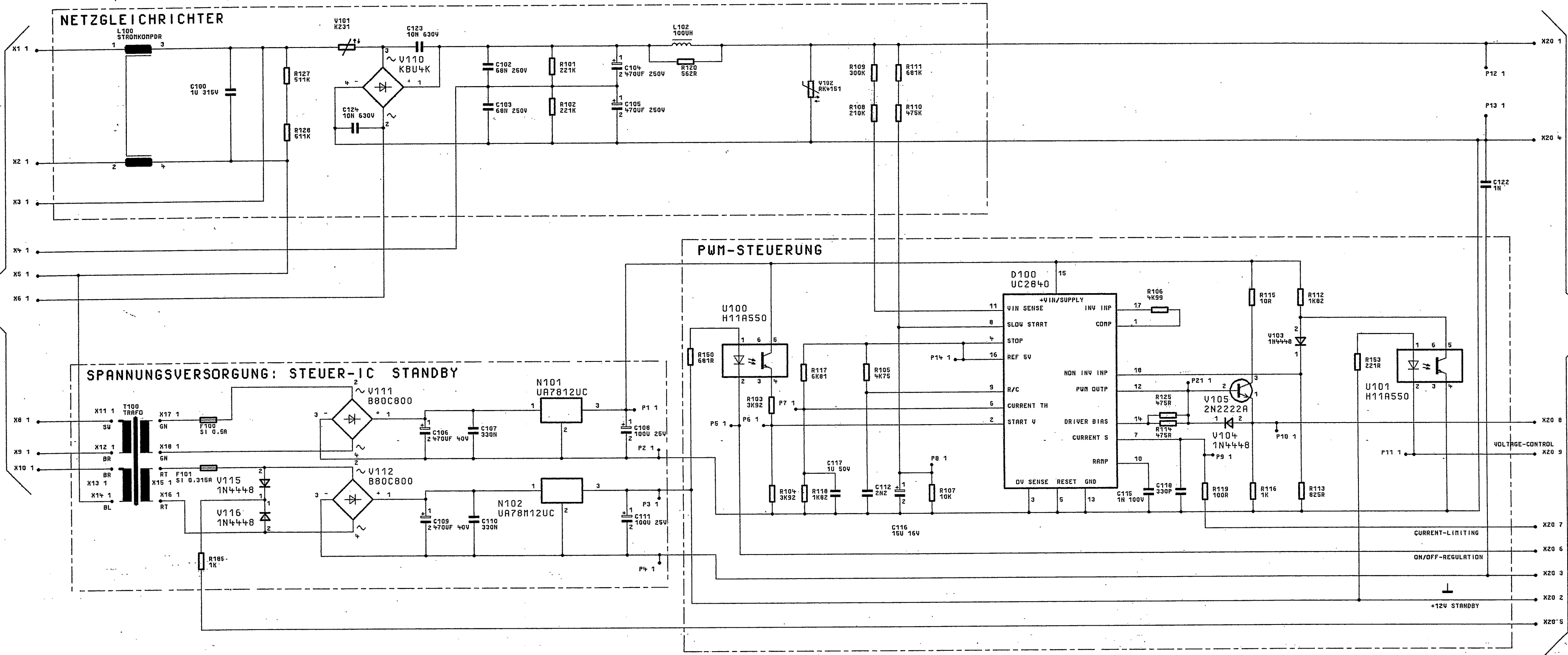
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R108 | RL 0,60W 210 KOHM+-1%TK50 RESISTOR | RL 0083.2258.00 | RESISTA | MK2 | |
| R109 | RL 0,35W 300KOHM+-1%TK50 RESISTOR | RL 0082.7840.00 | RESISTA | MK2 | |
| R110 | RL 0,60W 475 KOHM+-1%TK50 RESISTOR | RL 0083.2593.00 | RESISTA | MK2 | |
| R111 | RL 0,60W 681 KOHM+-1%TK50 RESISTOR | RL 0083.2735.00 | RESISTA | MK2 | |
| R112 | RL 0,60W 1,82KOHM+-1%TK50 RESISTOR | RL 0082.2277.00 | RESISTA | MK2 | |
| R113 | RL 0,60W 825 OHM+-1%TK50 RESISTOR | RL 0082.2502.00 | RESISTA | MK2 | |
| R114 | RL 0,60W 475 OHM+-1%TK50 RESISTOR | RL 0083.0390.00 | RESISTA | MK2 | |
| R115 | RL 0,60W 10,0 OHM+-1%TK50 RESISTOR | RL 0082.8852.00 | RESISTA | MK2 | |
| R116 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | |
| R117 | RL 0,60W 6,81KOHM+-1%TK50 RESISTOR | RL 0082.2560.00 | RESISTA | MK2 | |
| R118 | RL 0,60W 1,82KOHM+-1%TK50 RESISTOR | RL 0082.2277.00 | RESISTA | MK2 | |
| R119 | RL 0,60W 825 OHM+-1%TK50 RESISTOR | RL 0082.2502.00 | RESISTA | MK2 | |
| R120 | RL 0,60W 562 OHM+-1%TK50 RESISTOR | RL 0083.0461.00 | RESISTA | MK2 | |
| R125 | RL 0,60W 475 OHM+-1%TK50 RESISTOR | RL 0083.0390.00 | RESISTA | MK2 | |
| R127 | RL 0,60W 511 KOHM+-1%TK50 RESISTOR | RL 0083.2629.00 | RESISTA | MK2 | |
| R128 | RL 0,60W 511 KOHM+-1%TK50 RESISTOR | RL 0083.2629.00 | RESISTA | MK2 | |
| R150 | RL 0,60W 681 OHM+-1%TK50 RESISTOR | RL 0083.0490.00 | RESISTA | MK2 | |
| R153 | RL 0,60W 221 OHM+-1%TK50 RESISTOR | RL 0083.0084.00 | RESISTA | MK2 | |
| R185 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | |
| T100 | LT NETZTRANSFORMATOR LINE TRANSFORMER | 0819.1851.00 | | | |
| U100 | BP H11A550 OPTOCOUPLER OPTO COUPLER | BP 0006.0948.00 | QUALITY | MCT22XX.4910 | |
| U101 | BP H11A550 OPTOCOUPLER OPTO COUPLER | BP 0006.0948.00 | QUALITY | MCT22XX.4910 | |
| V101 | RK HEISSEL 4.7 OHM, 10% 1.5W THERMISTOR | 0820.3319.00 | SIEMENS | B57234-S479-M | |
| V102 | RK VARISTOR 300V 1W VARISTOR | 0820.3348.00 | SIEMENS | Q 69-X3234 | |
| V103 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V104 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V105 | AK 2N2222A N 40V 800MA TRANSISTOR | AK 0010.5405.00 | VALVO | 2N2222A | |
| V110 | AG KBU4K 560V 4AO BRGL RECTIFIER | 0820.3302.00 | GEN_INSTRU | KBU4K | |
| V111 | AG B80C800 BRGL RECTIFIER | AG 0013.2042.00 | GEN_INSTRU | B80C800G | |
| V112 | AG B80C800 BRGL RECTIFIER | AG 0013.2042.00 | GEN_INSTRU | B80C800G | |
| V115 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V116 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| X1 | FV FLACHSTECKER 2,8X0,8 | FV 0279.1998.00 | VOGT | 3775 A/O.8/MS-SN8 | |
| ..6 | FLAT PLUG 2,8X0,8 | | | | |
| X8 | FV FLACHSTECKER 2,8X0,8 | FV 0279.1998.00 | VOGT | 3775 A/O.8/MS-SN8 | |
| ..18 | FLAT PLUG 2,8X0,8 | | | | |
| X20 | FP STIFTSOCKEL F.GS 9P. CONNECTOR 9POL | 0681.1150.00 | AMP | 350712-1 | |

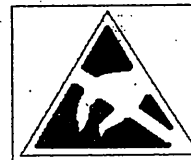
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|--|----------|----|---------------|------------------------------------|------------------------|------------------|
| MENP5 | 502 3PUA | AI | Datum Date | Schaltzettel für Parts list for | Sachnummer Stock No | Blatt-Nr Page |
|  ROHDE & SCHWARZ | | 05 | 04.02.98 | ED GLEICHRICHTUNG RECTIFIER | 0819.1716.01 SA | 2- |

ZU/TO Z1



ZU/TO SCHALTNETZTEIL-A2/POWERSUPPLY-A2

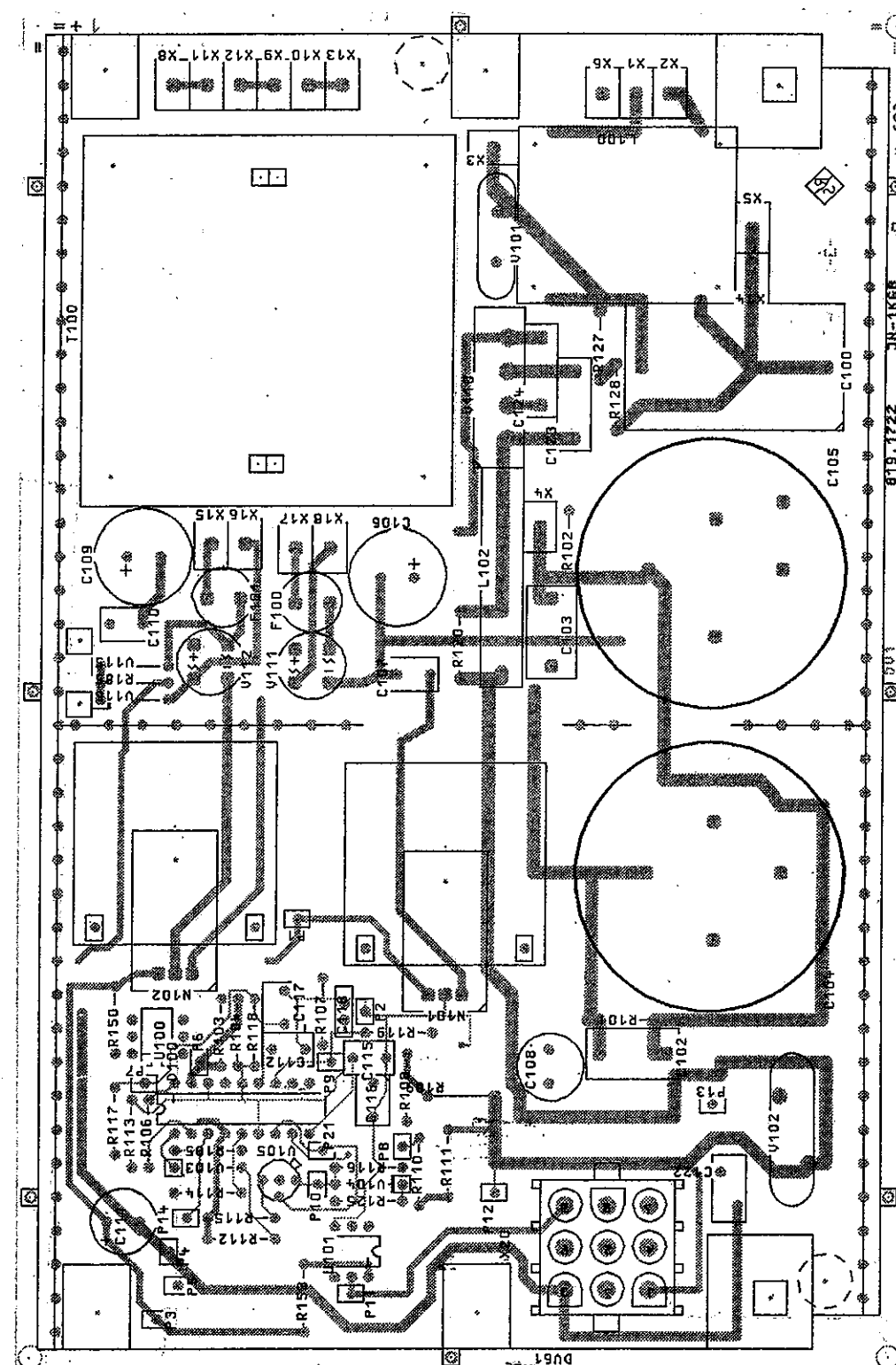
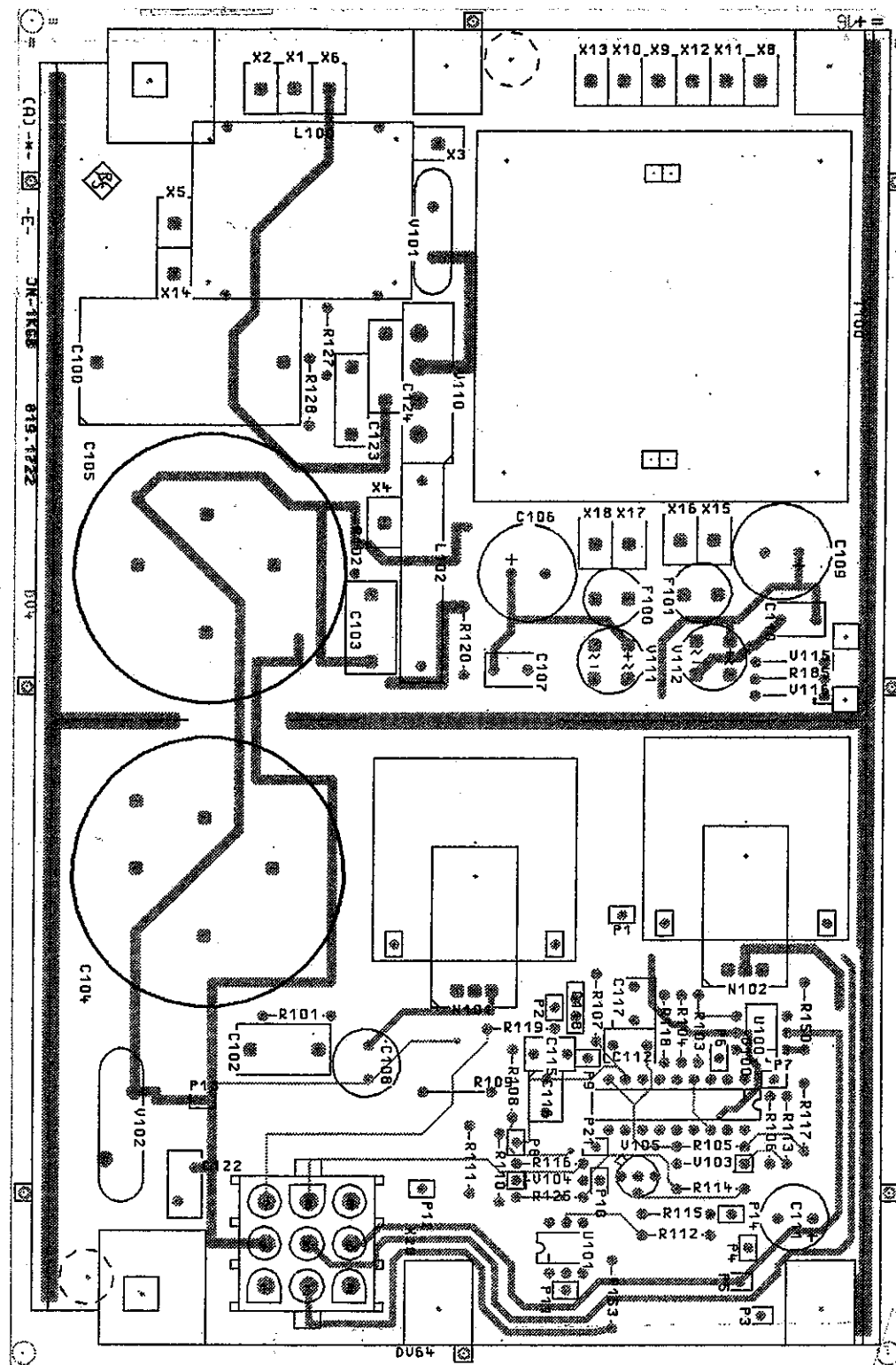
STROMLAUF GILT FÜR VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02.




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


| | | | | | | | | |
|-------|-------------|-------|------|---------------------|----------|--------------|----------------|-----------|
| 02 | 43071 | 11.89 | JN | 1KGB | TAG | NAME | BENENNUNG | BLATT-NR. |
| | | | | BEARB. | | JN | GLEICHRICHTUNG | 1 |
| | | | | GEPR. | | JN | RECTIFIER | |
| | | | | NORM | | | | |
| | | | | PLOTT | 21.11.89 | * | | |
| REND. | RENDERUNGS- | DATUM | NAME | ROHDE&SCHWARZ | | ZEICHN.-NR. | | 1 |
| IND. | NITTEILUNG | | | ZU GERÄT SMGU | | 819.1716.015 | | U. 1 BL. |
| | | | | REG. I. V. 819.0010 | | ERSTE Z. | | |


Ansicht und Leitungsfuehrung Loetseite
View of tracks on solder side




| | | | | | | | | |
|---------------|--------------------------|-------|------|---|-------|---------------------|----------------|-----------|
| 07 | 43071 | 11.89 | JN | Maße ohne Toleranzangabe | | Maßstab 1 : 1 | | |
| | | | | | | Halbzeug, Werkstoff | | |
| | | | | 1KGB | Tag | Name | Benennung | |
| 7 | 43071 | 11.89 | JN | Bearb. | 11.89 | JN | GLEICHRICHTUNG | |
| | | | | Gepr. | | | Z | |
| | | | | Norm | | | | |
| | | | | | | Zeichn.-Nr. | | Blatt-Nr. |
| | | | |  ROHDE & SCHWARZ | | 819.1716 | | 2 |
| Änd. Zust. | Änderungs- Mitteilung | Tag | Name | zu Gerät | SMGU | reg. i. V. | 819.0010 V | erste Z. |

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| C200 | CK 2,2UF+-5%400V RM27,5 FILM-CAPACITOR | 0681.2133.00 | SIEMENS | B32654-A4225-J | |
| C210 | CC 150PF+-20% HDK700 RD5 CERAMIC CAPACITOR | 0006.0448.00 | VALVO | 2222 655 **151 | |
| C211 | CC 100PF+-20% HDK700 RD5 CERAMIC CAPACITOR | 0006.0431.00 | VALVO | 2222 65553(09<16000) | |
| C212 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C213 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C214 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C215 | CK 10NF+-5%63V RD2,5H7MKT CAPACITOR | CK 0099.2869.00 | ROEDERSTEI | MKT 1826-310-014W | |
| C216 | CE 2,2UF+-20%40V SAL ELECTR.CAPACITOR | CE 0007.3911.00 | VALVO | 2222 128 37228 | |
| C217 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C218 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 55649 | |
| C219 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C240 | CC 1 NF+50-20%500V HDK CERAMIC CAPACITOR | 0006.0490.00 | VALVO | 2222 65553(09<16000) | |
| C241 | CC 1 NF+50-20%500V HDK CERAMIC CAPACITOR | 0006.0490.00 | VALVO | 2222 65553(09<16000) | |
| C242 | CE 1000UF 40V 16RDX30 ELECTROLYTIC CAPACITOR | 0573.9931.00 | SIEMENS | B 41293-B7108-T | |
| C243 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C244 | CE 10UF+-20%25V SAL ELECTR.CAPACITOR | CE 0007.3934.00 | VALVO | 2222 128 36109 | |
| C245 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C246 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 55649 | |
| C247 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C270 | CC 100PF+-20% HDK700 RD5 CERAMIC CAPACITOR | 0006.0431.00 | VALVO | 2222 65553(09<16000) | |
| C271 | CC 100PF+-20% HDK700 RD5 CERAMIC CAPACITOR | 0006.0431.00 | VALVO | 2222 65553(09<16000) | |
| C272 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C273 | CK 330NF+-5%63VRD4,5H10 CAPACITOR | CK 0099.2969.00 | ROEDERSTEI | MKT 1826-433-06-4 | |
| C274 | CE 10UF+-20%25V SAL ELECTR.CAPACITOR | CE 0007.3934.00 | VALVO | 2222 128 36109 | |
| C275 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C280 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | |
| C281 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | |
| C282 | CE 1000UF-10+50%25V 17X26 ALUMINIUM CAPACITOR | 0565.9513.00 | FROLYT | EKR 00 JH 410E | |
| C284 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C285 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C286 | CE 10UF+-20%25V SAL ELECTR.CAPACITOR | CE 0007.3934.00 | VALVO | 2222 128 36109 | |
| C287 | CE 470UF+-20%50V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7504.00 | PANASONIC | ECA 1 HFG 471 B | |
| C290 | CK 330NF+-5%63VRD4,5H10 CAPACITOR | CK 0099.2969.00 | ROEDERSTEI | MKT 1826-433-06-4 | |
| C291 | CE 22UF+-20%10V SAL ELECTR.CAPACITOR | CE 0007.3940.00 | VALVO | 2222 128 34229 | |
| C292 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C300 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |
| C301 | CE 22UF+-20%10V SAL ELECTR.CAPACITOR | CE 0007.3940.00 | VALVO | 2222 128 34229 | |
| C302 | CK 10NF+-5%63V RD2,5H7MKT CAPACITOR | CK 0099.2869.00 | ROEDERSTEI | MKT 1826-310-014W | |
| C303 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | |


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|--|----------|----------|---------------------------------------|---------------------------------------|-------------------------|-------------------|
| MENP5 | 517 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  ROHDE & SCHWARZ | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA | 1+ | |

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|--|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| C304 | CK 10NF+-5%63V RD2,5H7MKT CAPACITOR | CK 0099.2869.00 | ROEDERSTEI | MKT 1826-310-014W | | |
| C305 | CC 3,3NF+-10%6X7R2000 CAPACITOR | CC 0087.7083.00 | PHILIPS_CO | 2222 630 5(1)1332 | | |
| C306 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| C320 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| C321 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | | |
| C322 | CC 47PF+-2%3X4N750 CAPACITOR | CC 0087.6864.00 | PHILIPS_CO | 2222 678 58479 | | |
| C323 | CC 47PF+-2%3X4N750 CAPACITOR | CC 0087.6864.00 | PHILIPS_CO | 2222 678 58479 | | |
| C324 | CK 220NF+-5%63VRD3,5H9MKT CAPACITOR | CK 0099.2952.00 | ROEDERSTEI | MKT 1826-422-06-4 | | |
| C350 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| C351 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| C352 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| C353 | CK 100NF+-5%63VRD2,5H7MKT CAPACITOR | CK 0099.2930.00 | ROEDERSTEI | MKT 1826-410-06-4W | | |
| C354 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERO | MKT 1826-510/054-R | | |
| L210 | LD DREIFACHDR.650UH/4A STORAGE CHOKE | 0820.3377.00 | VACUUMSCHM | T60405-A4198-X064-XX | | |
| L211 | LD 100UH 20% 1A 0,6500HM CHOKE | LD 0155.9446.00 | SIEMENS | B82111-E-C25 | | |
| L212 | LD 680 UH10%60,00HMO,030A CHOKE | LD 0067.3201.00 | DALE | IM-2 | | |
| L240 | LD 9UH 6A 0,0120HM CHOKE | LD 0026.4826.00 | SIEMENS | B82111-B-C22 | | |
| L241 | LD 680 UH10%60,00HMO,030A CHOKE | LD 0067.3201.00 | DALE | IM-2 | | |
| L270 | LD 56UH 1,5A 0,30HM CHOKE | LD 0099.5197.00 | SIEMENS | B82111-E-C24 | | |
| L280 | LD SPEICHERDR.63UH/10A CHOKE | 0686.9565.00 | VACUUMSCHM | T60405-A4194-X780 | | |
| L281 | LD 25UH 3A 0,0460HM CHOKE | LD 0026.4849.00 | SIEMENS | B82111-B-C24 | | |
| L300 | RL 0-OHM-WIDERST. 0204 O-OHM RESISTOR | RL 0069.0000.00 | DRALORIC | OMA 0204 | | |
| N210 | BO LM358P 2X OPAMP OPERATIONAL AMPLIFIER | BO 0377.3813.00 | NSC | LM358P | | |
| N240 | BO LM358P 2X OPAMP OPERATIONAL AMPLIFIER | BO 0377.3813.00 | NSC | LM358P | | |
| N270 | BO SI3152V +15V2AO VREGL VOLTAGE REGULATOR | 0803.0615.00 | SANKEN | (SI)-3152V (ROEDERS) | | |
| N290 | BO SI3052V + 5V2AO VREGL VOLTAGE REGULATOR | 0641.8553.00 | SANKEN | SI-3052V(ROEDERST.) | | |
| N300 | BO TLO74IN LN 4XFET OPAMP OPERATIONAL AMPLIFIER | 0568.7528.00 | TEXAS | TLO74IN | | |
| N320 | BO LM339N 4X COMPAR COMPARATOR | BO 0342.2062.00 | NSC | LM339N | | |
| N350 | BL CD4025BE 3X3INP.NORG NOR GATE | 0086.7121.00 | RCA | CD4025BE | | |
| P200 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR P202 | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P201 | 2-POLIG/PINS FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P210 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR P212,P213 | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P211 | 3-POLIG/PINS FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P214 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P240 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| MENP5 517 3PUA | | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA | 2+ |


| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|------------------|
| P241 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P270 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P280 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P281 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P283 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P290 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P300 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P301 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P303 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P322 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P326 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| P327 | FP STIFTFLEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | | |
| R200 | RL 0,60W 56,2 OHM+-1%TK50 RESISTOR | RL 0082.9571.00 | RESISTA | MK2 | | |
| R201 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | PHILIPS_CO | RC02 | | |
| R202 | RD 0,8W 0,15 OHM+-1% WIRE-WOUND RESISTOR | RD 0087.5222.00 | DALE | LVR-1 ... (RS-1A) | | |
| R210 | RL 0,60W 475 OHM+-1%TK50 RESISTOR | RL 0083.0390.00 | RESISTA | MK2 | | |
| R211 | RL 0,60W 475 OHM+-1%TK50 RESISTOR | RL 0083.0390.00 | RESISTA | MK2 | | |
| R212 | RD 0,8W 100 OHM+-1% WIRE WOUND RESISTOR | RD 0082.6420.00 | DALE | LVR-1 ... (RS-1A) | | |
| R213 | RL 0,60W 47,5 OHM+-1%TK50 RESISTOR | RL 0082.9507.00 | RESISTA | MK2 | | |
| R214 | RL 0,60W 47,5 OHM+-1%TK50 RESISTOR | RL 0082.9507.00 | RESISTA | MK2 | | |
| R220 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | | |
| R221 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | D25 | | |
| R222 | RL 0,60W 18,2KOHM+-1%TK50 RESISTOR | RL 0083.1480.00 | RESISTA | MK2 | | |
| R223 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | PHILIPS_CO | RC02 | | |
| R224 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | D25 | | |
| R225 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | | |
| R230 | RG 221 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6004.00 | ROEDERSTEI | D25 | | |
| R231 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | PHILIPS_CO | RC02 | | |
| R232 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | PHILIPS_CO | RC02 | | |
| R233 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | D25 | | |
| R234 | RD 0,8W 0,33 OHM+-1%TK80 WIRE WOUND RESISTOR | RD 0450.6670.00 | TEPRO | TS 1 A ... | | |
| R235 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | PHILIPS_CO | RC02 | | |
| R240 | RD 0,8W 47 OHM+-1% WIRE-WOUND RESISTOR | RD 0082.0680.00 | TEPRO | TS 1 A ... | | |
| MENP5 | 517 3PUA | Äi | Datum Date | Schalttafel für Parts list for | Sachnummer Stock No. | Blatt-Nr Page |
|  | ROHDE & SCHWARZ | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA | 3+ |

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wir uns alle Rechte vor.


| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R241 | RD 0,8W 47 OHM+-1% WIRE-WOUND RESISTOR | RD 0082.0680.00 | TEPRO | TS 1 A ... | |
| R245 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R246 | RL 0,60W 10,0 OHM+-1%TK50 RESISTOR | RL 0082.8852.00 | RESISTA | MK2 | |
| R247 | RL 0,60W 10,0 OHM+-1%TK50 RESISTOR | RL 0082.8852.00 | RESISTA | MK2 | |
| R248 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | PHILIPS_CO | RC02 | |
| R249 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | D25 | |
| R250 | RG 3,57KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5795.00 | ROEDERSTEI | D25 | |
| R251 | RL 0,60W 909 KOHM+-1%TK50 RESISTOR | RL 0083.2858.00 | RESISTA | MK2 | |
| R252 | RL 0,60W 909 KOHM+-1%TK50 RESISTOR | RL 0083.2858.00 | RESISTA | MK2 | |
| R253 | RG 1,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9951.00 | ROEDERSTEI | D25 | |
| R254 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | D25 | |
| R255 | RD 2,4W 0,05 OHM+-1%TK20 RESISTOR | RD 0069.1964.00 | DALE | RS-2B | |
| R260 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R261 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | D25 | |
| R262 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | |
| R263 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R270 | RL 0,60W 332 OHM+-1%TK50 RESISTOR | RL 0083.0255.00 | RESISTA | MK2 | |
| R271 | RL 0,60W 332 OHM+-1%TK50 RESISTOR | RL 0083.0255.00 | RESISTA | MK2 | |
| R280 | RD 0,8W 15 OHM+-1% WIRE-WOUND RESISTOR | RD 0087.5316.00 | DALE | LVR-1 ... (RS-1A) | |
| R281 | RD 0,8W 15 OHM+-1% WIRE-WOUND RESISTOR | RD 0087.5316.00 | DALE | LVR-1 ... (RS-1A) | |
| R283 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | PHILIPS_CO | RC02 | |
| R285 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | D25 | |
| R286 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R287 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R288 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R290 | RG 162 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8932.00 | ROEDERSTEI | D25 | |
| R291 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | PHILIPS_CO | RC02 | |
| R292 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | PHILIPS_CO | RC02 | |
| R300 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | D25 | |
| R301 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | D25 | |
| R302 | RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5914.00 | ROEDERSTEI | D25 | |
| R303 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | D25 | |
| R304 | RS 0,5W10KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 0247.7526.00 | SPECTROL | 63X ... TO10 | |
| R305 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R306 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R307 | RL 0,60W 5,23KOHM+-1%TK50 RESISTOR | RL 0083.1122.00 | RESISTA | MK2 | |
| R308 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R309 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R310 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | D25 | |

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| MENP5 | 517 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  ROHDE & SCHWARZ | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA | 4+ | |

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R311 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | PHILIPS_CO | RC02 | |
| R312 | RL 0,60W 56,2 OHM+-1%TK50 RESISTOR | RL 0082.9571.00 | RESISTA | MK2 | |
| R320 | RL 0,60W 6,04KOHM+-1%TK50 RESISTOR | RL 0082.6089.00 | RESISTA | MK2 | |
| R321 | RL 0,60W 5,11KOHM+-1%TK50 RESISTOR | RL 0082.2348.00 | RESISTA | MK2 | |
| R322 | RL 0,60W 15,0KOHM+-1%TK50 RESISTOR | RL 0083.1400.00 | RESISTA | MK2 | |
| R323 | RL 0,60W 14,3KOHM+-1%TK50 RESISTOR | RL 0083.1380.00 | RESISTA | MK2 | |
| R324 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R325 | RG 130,0KOH+-1%TK100 1206 RESISTOR CHIP | RG 0007.5966.00 | ROEDERSTEI | D25 | |
| R326 | RG 82,5KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1925.00 | ROEDERSTEI | D25 | |
| R327 | RG 82,5KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1925.00 | ROEDERSTEI | D25 | |
| R328 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5772.00 | ROEDERSTEI | D25 | |
| R329 | RG 750 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9097.00 | ROEDERSTEI | D25 | |
| R330 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | D25 | |
| R331 | RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0841.00 | PHILIPS_CO | RC02 | |
| R332 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R333 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | D25 | |
| R334 | RG 82,5KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1925.00 | ROEDERSTEI | D25 | |
| R335 | RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0758.00 | ROEDERSTEI | D25 | |
| R336 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | D25 | |
| R337 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | PHILIPS_CO | RC02 | |
| R338 | RL 0,60W 100KOHM+-1%TK50 RESISTOR | RL 0082.1764.00 | RESISTA | MK2 | |
| R339 | RL 0,60W 33,2KOHM+-1%TK50 RESISTOR | RL 0083.1674.00 | RESISTA | MK2 | |
| R340 | RL 0,60W 24,3KOHM+-1%TK50 RESISTOR | RL 0083.1574.00 | RESISTA | MK2 | |
| R341 | RL 0,60W 15,0KOHM+-1%TK50 RESISTOR | RL 0083.1400.00 | RESISTA | MK2 | |
| R342 | RL 0,60W 4,99KOHM+-1%TK50 RESISTOR | RL 0083.1116.00 | RESISTA | MK2 | |
| R343 | RL 0,60W 2,21KOHM+-1%TK50 RESISTOR | RL 0082.2477.00 | RESISTA | MK2 | |
| R350 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | PHILIPS_CO | RC 02 | |
| R351 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R352 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R353 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | D25 | |
| R354 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R355 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | PHILIPS_CO | RC02 | |
| R356 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | PHILIPS_CO | RC 02 | |
| R357 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | D25 | |
| R358 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | D25 | |
| R359 | RG 68,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1902.00 | ROEDERSTEI | D25 | |
| S3 | ST TEMP.SCHALT.45GRSCHL TEMPERATURE SWITCH | 0801.8325.00 | MIDWEST_CO | MTS 45 A | |
| T200 | LT SCHALTTRAFO TRANSFORMER | 0819.2112.00 | | | |

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|--|----------|----------|---------------------------------------|---------------------------------------|-------------------------|-------------------|
| MENP5 | 517 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  ROHDE & SCHWARZ | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA | 5+ | |

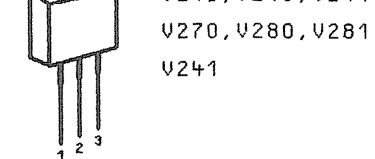
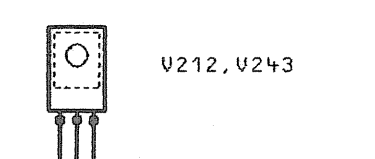
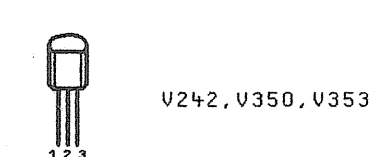
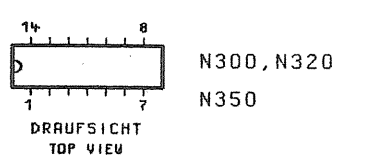
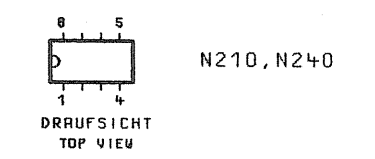
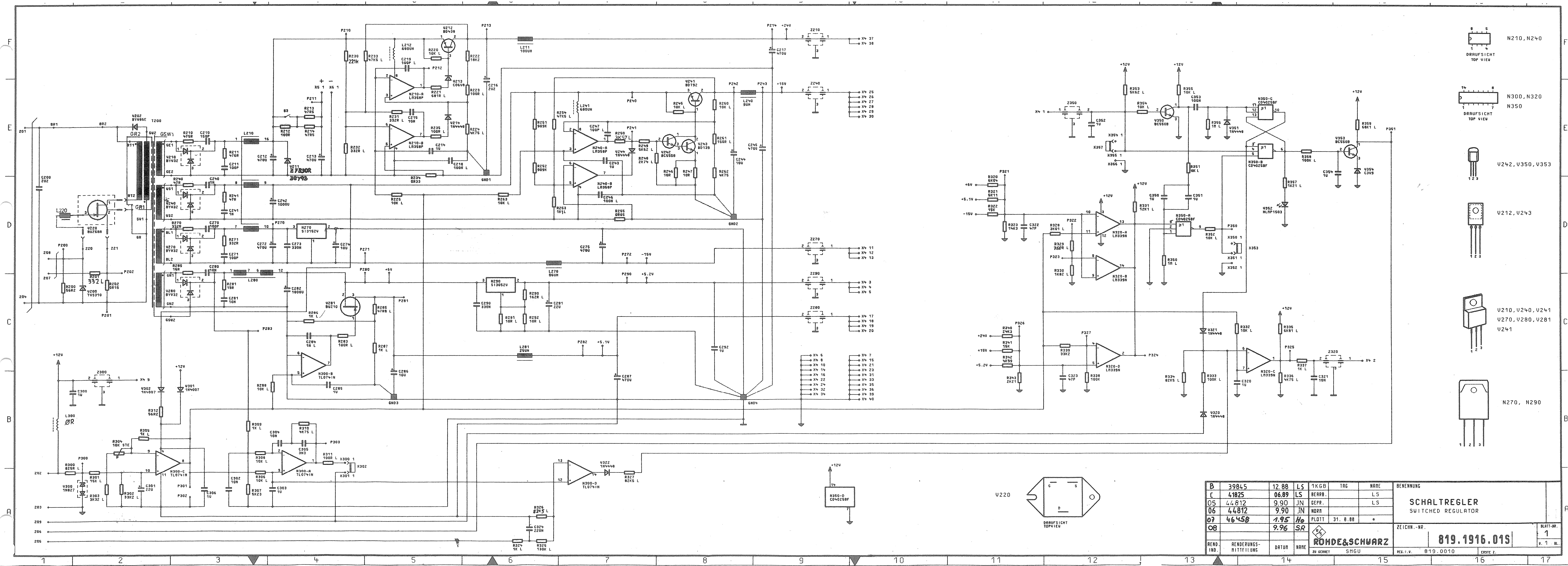
| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| V200 | AE TVS310 10V SUPPR SUPPRESSOR | 0811.2594.00 | UNITRODE | TVS310(T/R) | |
| V202 | AG BYV96E GL1000V OA8 RECTIFIER | 0099.9034.00 | PHILIPS_SE | BYV 96E | |
| V210 | AG BYV32/200 2GL200V10AO RECTIFIER | 0803.0644.00 | PHILIPS_SE | BYV32E/200 | |
| V211 | AE BZY93/C3OR 20W ZDI ZENER DIODE (SUPPR.) | 0464.9160.00 | PHILIPS_SE | BZY93C3OR | |
| V212 | AL BD438 P 45V 4AO TRANSISTOR | AL 0010.0403.00 | VALVO | BD438 | |
| V213 | AE BZX79/B6V8 0,5W ZDI ZENER DIODE | AE 0586.9906.00 | PHILIPS | BZX79B6V8 | |
| V214 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V220 | AM BUZ58 N-E1000V MOSF POWER MOSFET | 0820.3354.00 | SIEMENS | BUZ58 | |
| V240 | AG BYV32/200 2GL200V10AO RECTIFIER | 0803.0644.00 | PHILIPS_SE | BYV32E/200 | |
| V241 | AL BD810 P 80V 10AO TRANSISTOR | 0803.0650.00 | MOTOROLA | BD808 | |
| V242 | AK BC550B N 50V 100MA TRANSISTOR | AK 0007.2050.00 | SIEMENS | BC550B | |
| V243 | AL BD139 N 80V 1AO TRANSISTOR | AL 0274.8994.00 | VALVO | BD139 | |
| V244 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V270 | AG BYV32/200 2GL200V10AO RECTIFIER | 0803.0644.00 | PHILIPS_SE | BYV32E/200 | |
| V280 | AG BYV32/200 2GL200V10AO RECTIFIER | 0803.0644.00 | PHILIPS_SE | BYV32E/200 | |
| V281 | AM BUZ10 N-E 50V MOSF MOS-FET | AM 0608.9490.00 | SIEMENS | BUZ10S2 | |
| V300 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V301 | AG 1N4007 GL1000V 1AO RECTIFIER | AG 0013.0310.00 | ITT-SEMICO | 1N4007 | |
| V302 | AG 1N4007 GL1000V 1AO RECTIFIER | AG 0013.0310.00 | ITT-SEMICO | 1N4007 | |
| V320 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V321 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V322 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V350 | AK BC550B N 50V 100MA TRANSISTOR | AK 0007.2050.00 | SIEMENS | BC550B | |
| V351 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | |
| V352 | AF HLMP1503 LED GN RD3 LED | 0252.5570.00 | QUALITY | HLMP1503-(74)19(D) | |
| V353 | AK BC550B N 50V 100MA TRANSISTOR | AK 0007.2050.00 | SIEMENS | BC550B | |
| V354 | AE BZX79B3V9 2% 0.5W ZDI ZENER | AE 0008.7685.00 | PHILIPS_SE | BZX79B3V9 | |
| W20 | DX KABEL (W20) CABLE | 0819.2106.00 | | | |
| WE1 | DY KABEL WE1 CABLE | 0819.2158.00 | | | |
| X4 | DY BUCHSENEINHEIT CONNECTOR UNNIT | 0819.2135.00 | | | |
| X5 | VL LOETOESE 11,5 X 1,4 SOLDERING PIN | 0082.5247.00 | VOGT | N.ZEICHNUNG 082.5247 | |
| X6 | VL LOETOESE 11,5 X 1,4 SOLDERING PIN | 0082.5247.00 | VOGT | N.ZEICHNUNG 082.5247 | |
| X300 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X301 | 2-POLIG/PINS | | | | |
| X302 | FP KURZSCHLUSSBUCHSE SHORTING PLUG | FP 0491.7042.00 | IS | IPC-254-BL01 | |
| X353 | FP KURZSCHLUSSBUCHSE SHORTING PLUG | FP 0491.7042.00 | IS | IPC-254-BL01 | |
| X357 | FP KURZSCHLUSSBUCHSE SHORTING PLUG | FP 0491.7042.00 | IS | IPC-254-BL01 | |

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| MENP5 | 517 | 3PUA | ÄI | Datum Date | Schaltteilleiste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | | | 11 | 26.02.98 | ED SCHALTREGLER SWITCHED REGULATOR | 0819.1916.01 SA 6+ |

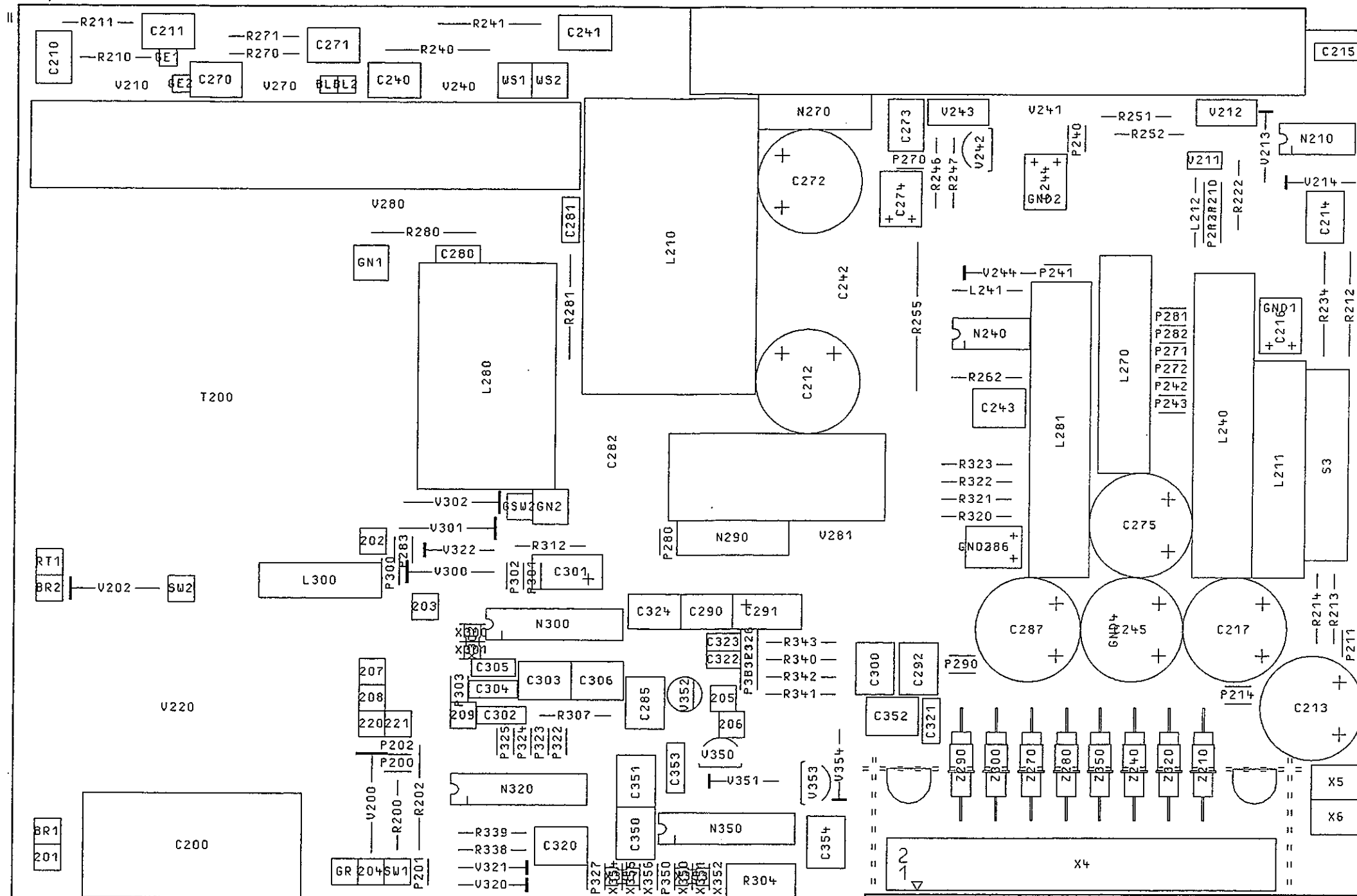
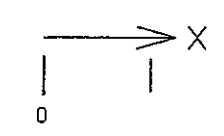
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BEHALTEN SIE DIESE UNTERLEGENE
FÜR DIESE UNTERLEGENE
BEHALTEN SIE DIESE UNTERLEGENE



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|-----------------|-----------------------|-------|------|-----------|----------|------------------|--------------------|
| B | 39845 | 12.88 | LS | 1KGB | TAG | NANE | BENENNUNG |
| C | 41825 | 06.89 | LS | BEARB. | | LS | SCHALTREGLER |
| 05 | 44812 | 9.90 | JN | GEPR. | | LS | SWITCHED REGULATOR |
| 06 | 44812 | 9.90 | JN | NORM | | | |
| 07 | 46458 | 1.95 | Ho | PLOTT | 31. 8.88 | * | |
| 08 | | 9.96 | SR | | | | |
| REND. IND. | RENDERUNGS-NITTEILUNG | DATUM | NANE | ZU GEHÖRT | SMGU | REG.-V. 819.0010 | ERSTE Z. |
| ROHDE & SCHWARZ | | | | | | | 819.1916.015 |
| BLATT-NR. 1 | | | | | | | V. 1. BL. |




DARSTELLUNG SEITE B
VIEW ON SIDE B



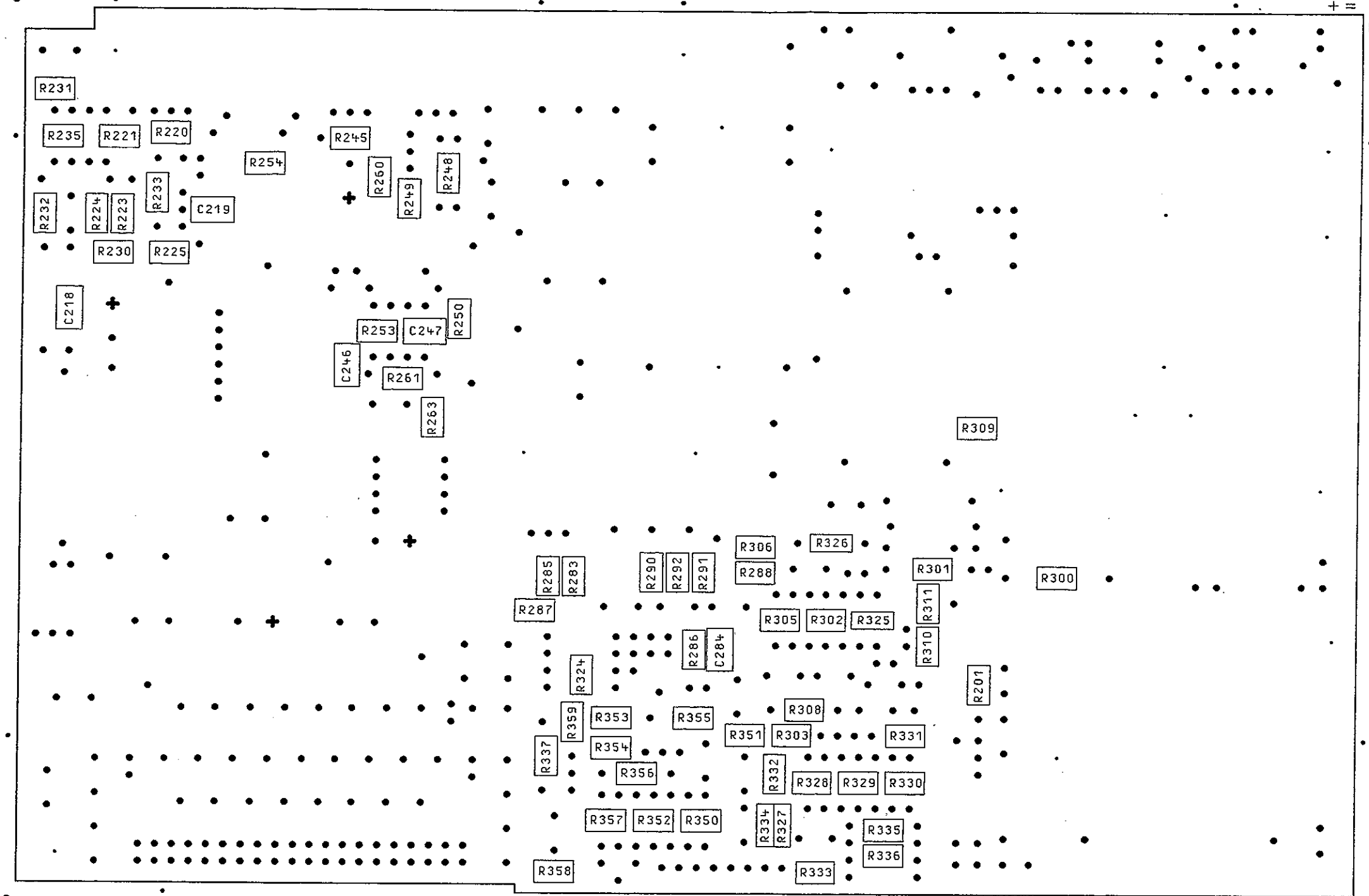
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

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.

| | | | | | | | | | | | |
|----------------|--------------------------|----------|------|---|----------|------|---------------------------------------|--|----------|-----------|---------|
| 09.90 | | 10.02.97 | E I | MENP | TRG | NAME | BENENNUNG | | | Z | |
| | | | | BEARB. | | E I | ED SCHALTREGLER SWITCHED REGULATOR | | | | |
| | | | | GEPR. | | | | | | | |
| | | | | NORM | | | | | | | |
| | | | | PLOTT | 10.02.97 | | | | | | |
| | | | |  | | | ZEICHN.-NR. | | | BLATT-NR. | |
| 09/10 | | 09.96 | DR | ROHDE&SCHWARZ | | | 819.1916.01 | | | D | 1+ |
| REND. (IND) | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT SMGU | | | REG. I. V. 819.0010 | | ERSTE Z. | | v. 4 BL |

DIESE ZEICHNUNG IST EINE RECHNERAUSGABE. VERÄNDERUNGEN KÖNNEN NUR DURCH HENDUNG DES DATENSATZES ERFOLGEN



DARSTELLUNG SEITE A
VIEW ON SIDE A



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

BINDENDE ANGABEN ÜBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTÜCKTE BAUTEILE SIEHE SA.
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|-------|------------|-------|--------|---------------|------|--------------------|-----------|
| 09.30 | 10.02.97 | EI | MENP | TAG | NAME | BENENNUNG | Z |
| | | | BEARB. | | EI | ED SCHALTREGLER | |
| | | | GEPR. | | | SWITCHED REGULATOR | |
| | | | NORM | | | | |
| | | | PLOTT | 10.02.97 | | | |
| 09/10 | 09.96 | OR | | | | ZEICHN.-NR. | BLATT-NR. |
| REND. | ÄNDERUNGS- | DATUM | NAME | ROHDE&SCHWARZ | | 819.1916.01 | 1.1 - |
| IND. | MITTEILUNG | | | ZU GERÄT | SMGU | REG. I.V. 819.0010 | ERSTE Z. |