GRUNDIG

DVD Service Manual

GDP 2200
GMJ8600

NUR FÜR INTERNEN GEBRAUCH
FOR INTERNAL USE ONLY

Zusätzlich erforderliche Unterlagen für den Komplettservice
Additionally required Service Documents for the Complete Service

Service Manual

Sicherheit Safety

Materialnr./Part No.
720108000000

Grundig Service

Hotline Deutschland...
...Mo.-Fr. 8.00-18.00 Uhr

Technik:

TV	*0180/52318-41*
TV	*0180/52318-49*
SAT	*0180/52318-48*
VCR/LiveCam	*0180/52318-42*
HiFi/Audio	*0180/52318-43*
Car Audio	*0180/52318-44*
Telekommunikation	*0180/52318-45*
Fax:	*0180/52318-51*
Planatron (8.00-22.00 Uhr)	*0180/52318-99*

Ersatzteil-Verkauf: *Mo.-Fr. 8.00-19.00 Uhr*

Telefon:	*0180/52318-40*
Fax:	*0180/52318-50*

Kundendienst/Werkstätten: Mo.-Fr. 8.00-18.00 Uhr

Telefon:	*0180/52318-52*
Fax:	*0180/52318-46*

gebührenpflichtig

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Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Materialnummer 720108000000, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 720108000000, as well as the respective national deviations.

Inhaltsverzeichnis

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Allgemeiner Teil

Messgeräte / Messmittel

Regeltrenntrafo
Zweikanaloszilloskop
Digitalmultimeter

General Section

Test Equipment / Jigs

Variable isolating transformer
Dual channel oscilloscope
Digital multimeter

Servicehinweise

Achtung: ESD-Vorschriften beachten

Vor Öffnen des Gehäuses Netzstecker ziehen.

Leitungsverlegung
Bevor Sie die Leitungen und insbesondere die Masseleitungen lösen, muss die Leitungsverlegung zu den einzelnen Baugruppen beachtet werden.
Nach erfolgter Reparatur ist es notwendig, die Leitungsführung wieder in den werkseitigen Zustand zu versetzen um evtl. spätere Ausfälle oder Störungen zu vermeiden.

Wichtige Masseverbindungen!
Beim Zusammenbau des Gerätes ist darauf zu achten, dass die Masseverbindungen zwischen den einzelnen Platinen und dem Rahmen sowie dem Laufwerk und dem Rahmen gewährleistet sind.

Durchführen von Messungen
Bei Messungen mit dem Oszilloskop an Halbleitern sollten Sie nur Tastköpfe mit 10:1 - Teiler verwenden. Außerdem ist zu beachten, dass nach vorheriger Messung mit AC-Kopplung der Koppelkondensator des Oszilloskops aufgeladen sein kann. Durch die Entladung über das Messobjekt können diese Bauteile beschädigt werden.

Messwerte und Oszillogramme
Bei den in den Schaltplänen und Oszillogrammen angegebenen Messwerten handelt es sich um Näherungswerte!

Service Instructions

Attention: Observe the ESD safety regulations

Disconnect the mains plug before opening the set.

Wiring
Before disconnecting any leads and especially the earth connecting leads observe the way they are routed to the individual assemblies. On completion of the repairs the leads must be laid out as originally fitted at the factory to avoid later failures or disturbances.

Important: Ground Connections!
When reassembling the set it is essential to observe that the ground connections between the individual circuit boards and the frame as well as between the Drive Mechanism and the frame are in good order.

Carrying out Measurements
When making measurements on semi-conductors with an oscilloscope, ensure that the test probe is set to 10:1 dividing factor. Further, please note that if the previous measurement is made on AC input, the coupling capacitor in the oscilloscope will be charged. Discharge via the item being checked can damage components.

Measured Values and Oscillograms
The measured values given in the circuit diagrams and oscillograms are approximates!

Ausbauhinweise

1. DVD/CD aus defektem Laufwerk entfernen
– Rastnasen Ⓐ (Fig. 1) zum Laufwerk drücken, Zentrierscheibe Ⓑ anheben und Halter Ⓒ nach hinten schieben.
– Halter Ⓒ (Fig. 1) anheben und DVD/CD aus defektem Laufwerk entnehmen.

2. Hauptplatte
– Nach dem Tausch der Hauptplatte, des EEPROM´s (U10, optional) oder des FLASH (U4) muss ein Software-Upgrade (Seite 1-4) durchgeführt werden.

Disassembly Instructions

1. Opening the Tray when the Drive is Defective
– Press the locking lugs Ⓐ (Fig. 1) against the drive, lift the centring washer Ⓑ then slide the holder Ⓒ to the rear.
– Lift the holder Ⓒ (Fig. 1) then remove the DVD/CD from the defective drive unit.

2. Main Board
– After replacing the main board, the EEPROM (U10, option) or the FLASH (U4), a software upgrade must be carried out (page 1-4).

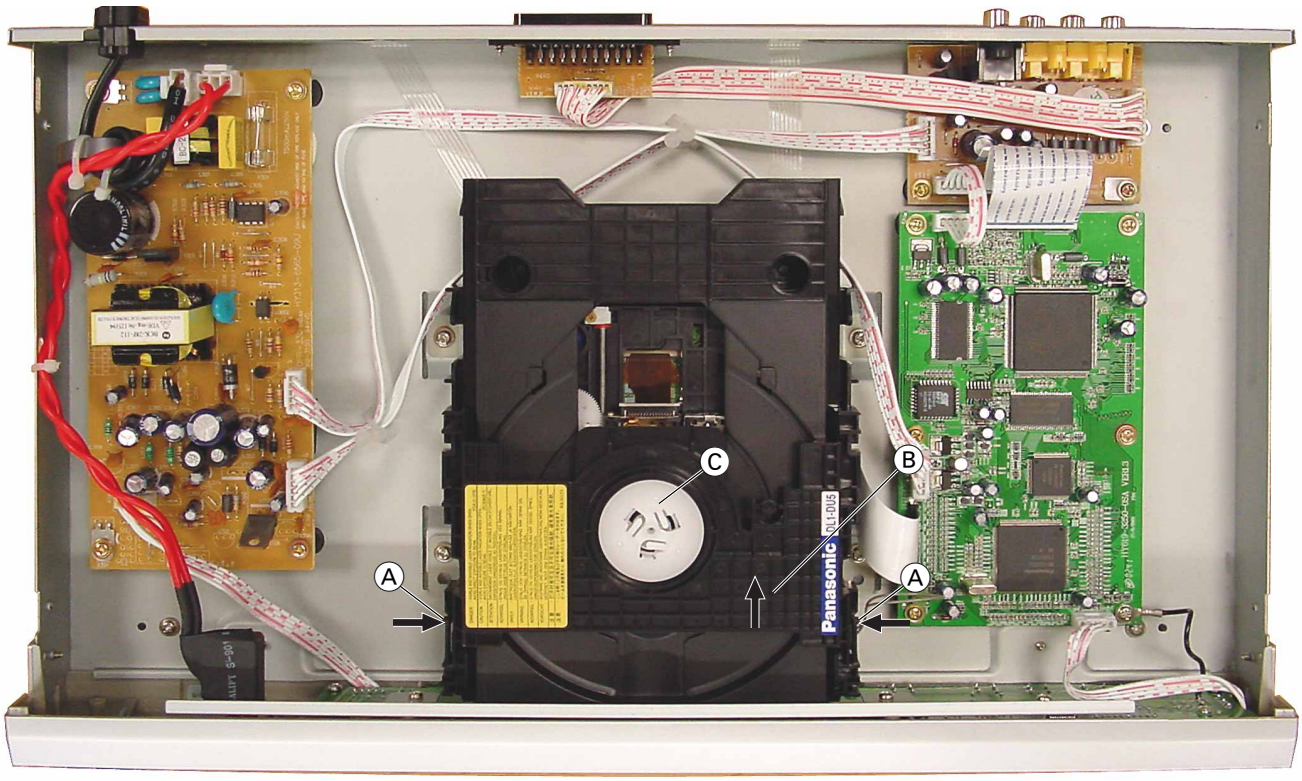


Fig. 1

Software-Upgrade

Das Software-Upgrade können Sie mit einem Internet-Browser über das P@rtnerWeb (https://partnerweb.grundig.de) downloaden.
- Selbstentpackendes Programm z.B. "Vx_xx.exe" auf ein Laufwerk Ihres PCs kopieren.
- Selbstentpackendes Programm "Vx_xx.exe" starten.
- Software-Upgrade-CD erstellen.
  - Verwenden Sie nur eine neue beschreibbare CD-R / CD-RW (keine gelöschte).
  - CD-Name ist frei wählbar (z.B. Versionsstand und Gerät).
  - Entpackte Dateien auf die CD-R / CD-RW brennen.
  - Im Stammverzeichnis (oberste Ebene) der Software-Upgrade-CD müssen folgende Dokumente enthalten sein: aml_dd.TXT, Gdp2200.bin

Achtung: Sollte während dem Software-Upgrade eine Störung (z.B. Stromausfall) auftreten, so sind eventuell die Gerätefunktionen und ein Neustart der Upgrade-Funktion nicht mehr gewährleistet. In diesem Fall müssen Sie die eingebauten FLASH-ICs (U17) durch vorprogrammierte ersetzen (siehe entsprechende Ersatzteilliste).
- Software-Upgrade-CD einlegen und die Hinweise am Display und am Bildschirm des Fernsehgerätes beachten.
- Initialisierung des Gerätes durchführen.

Gewährleistung

Wir weisen ausdrücklich darauf hin, dass nur von GRUNDIG freigegebene System-Software zulässig ist. Wurde als Fehlerursache festgestellt, dass eine aus nicht legitimierten Quellen gleich welcher Herkunft stammende oder eine veränderte System-Software in die Geräte geladen wurde, so ist dies ein Fremdeingriff. Ein Fremdeingriff führt zum Erlöschen jeglicher Gewährleistungsansprüche. GRUNDIG muss daher alle aus diesen Gründen resultierenden Kostenerstattungen generell ablehnen. Instandsetzungskosten, auch innerhalb der Gewährleistungszeit, gehen in diesen Fällen zu Lasten des Händlers bzw. des Endkunden.

Software-Versionsnummer anzeigen

- Am Gerät die Tasten "STOP" und "EJECT" nacheinander drücken.
- Mit der Fernbedienung die Zahlenkombination 2812 eingeben.
- Mit den Cursor-Tasten der Fernbedienung die Software-Versionsnummer "MICRO VERSION" bzw. "CUSTOMER VERSION" anwählen. Dabei wird jeweils die Software-Versionsnummer angezeigt.

Software Upgrade

You can download the software upgrade from the P@rtnerWeb (https://partnerweb.grundig.de) using an Internet browser.
- Copy a self-extracting programme, e.g. "Vx_xx.exe", on a drive of your PC.
- Run the self-extracting programme "Vx_xx.exe".
- Creating a software upgrade CD:
  - Use only a new CD-R / CD-RW (not an erased one).
  - Give the CD a name of your choice (e.g. version and unit name).
  - Burn the unpacked documents on the CD-R / CD-RW.
  - The root directory (uppermost level) of the software upgrade CD must contain the following documents: aml_dd.TXT, Gdp2200.bin

Attention: if a failure should occur during the software upgrade (e.g. a mains failure), it may happen that the units function and a restart of the upgrade function are no longer possible. If this should be the case, you must replace the integrated FLASH ICs (U17) with preprogrammed ICs (see corresponding spare parts list).
- Insert the upgrade CD (see corresponding spare parts list) and observe the hints on the display and on the screen of the TV set.
- Carry out an initialization of the set.

Warranty / costs

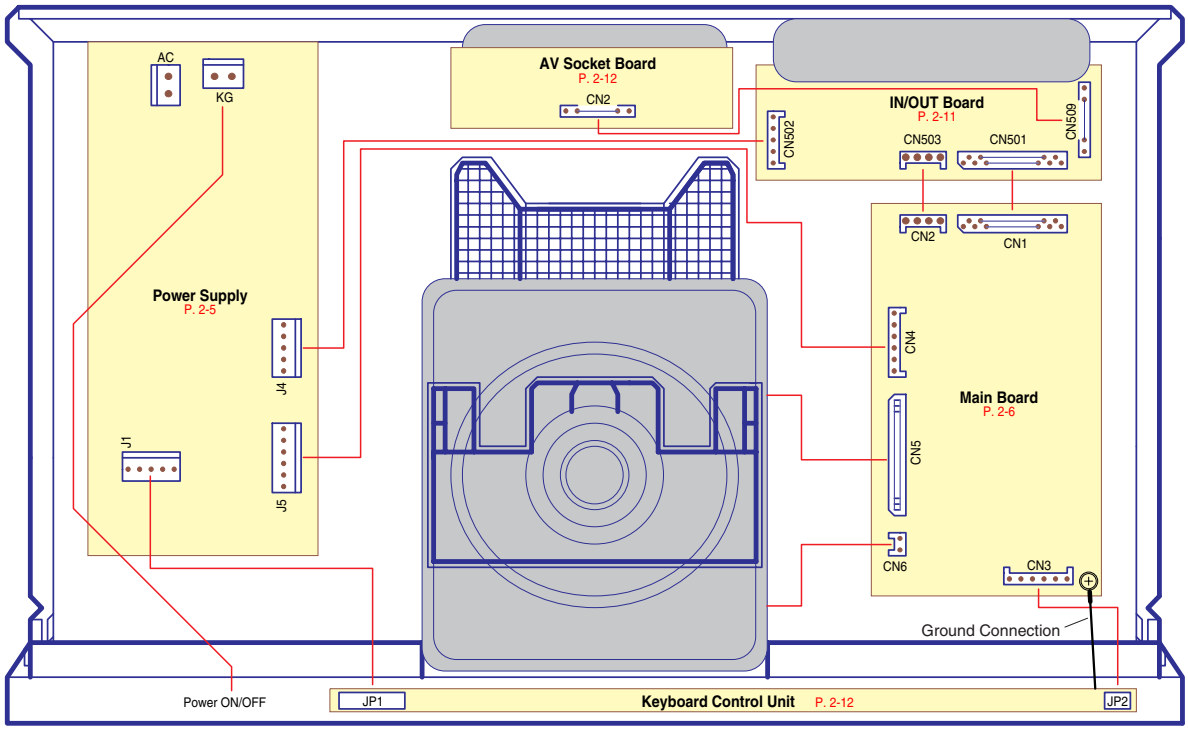
We expressly point out that only operating software authorized by GRUNDIG is allowed. If a failure is caused by an operating software which has been downloaded from not authorized sources, independent of its origin, or a modified software, this represents an outside interference. An outside interference leads to the expiration of any warranty claims. For this reason, GRUNDIG is obliged to generally refuse any payment due to such infringements. In such cases, the repair costs are at the charge of the retailer or the final customer, even within the period of warranty.

Displaying the Software Version Number

- Press one after the other the "STOP" and "EJECT" buttons on the unit.
- Enter the number 2812 with the remote control.
- Using the cursor buttons on the remote control, select the software version "MICRO Version" or "CUSTOMER VERSION". The respective software version number then is displayed.

Platinenabbildungen und Schaltpläne / Layout of PCBs and Circuit Diagrams

Verdrahtungsplan / Wiring Diagram



Steckerübersicht / Connection Overview

1. Power Supply

1.1 Socket J1 to Keyboard Control Unit (JP1)

Pin	Lever (ca.)	Name	Description
1	-23V	-25V	-25V Supply
2	-17.5V	FIP2	Filament Voltage 2
3	-14.8V	FIP1	Filament Voltage 1
4	0V	GND	Ground
5	4.9V	5V	5V Supply

1.2 Socket J3 to Main Board (CN4)

Pin	Lever (ca.)	Name	Description
1	4.9V	D5V	5V Supply
2	0V	GND	Ground
3	0V	GND	Ground
4	8.6V	Vcc	9V Supply
5	0V	GND	Ground
6	4.9V	A5V	5V Supply

1.3 Socket J4 to IN/OUT Board (CN502)

Pin	Lever (ca.)	Name	Description
1	3.3V	3V3	3.3V Supply
2	4.9V	5V	5V Supply
3	0V	GND	Ground
4	10.5V	12V	12V Supply
5	-13.8V	-12V	-12V Supply

2. Keyboard Control Unit

2.1 Socket JP1 to Power Supply (J1)

Pin	Lever (ca.)	Name	Description
1	4.9V	+5V	5V Supply
2	0V	GND	Ground
3	-14.8V	3.5V~1	Filament Voltage 1
4	-17.5V	3.5V~2	Filament Voltage 2
5	-23V	-25V	-25V Supply

2.2 Socket JP2 to Main Board (CN3)

Pin	Lever (ca.)	Name	Description
1	Oscillogram 7	VFDAT	Keyboard Data
2	Oscillogram 8	VFDCK	Keyboard Clock
3	Oscillogram 9	VFDST	Keyboard Strobe
4	0V	GND	Ground (Not Connected)
5	Oscillogram 10	IR	IR Remote Control Signal

3. Main Board

3.1 Socket CN1 to IN/OUT Board (CN501)

Pin	Lever (ca.)	Name	Description
1	Oscillogram 18	VIDEO_V	Green Out
2	Oscillogram 14	VIDEO_C	Chrominance Out
3	Oscillogram 17	VIDEO_U	Blue Out
4	Oscillogram 13	VIDEO_Y1	Luminance Out
5	Oscillogram 19	VIDEO_Y	Red Out
6	–	MIC	Not Connected
7	Oscillogram 16	VIDEO_COMP	Composite Video Out
8	0V	GND	Ground
9	Oscillogram 26	IEC958	Digital Audio Out
10	0V	GND	Ground
11	Oscillogram 21	AOCLK	Digital De-Emphasis Clock
12	Oscillogram 23	AMCLK	Digital Audio Master Clock
13	Oscillogram 22	ALRCLK	Digital Left/Right Clock
14	0V	GND	Ground
15	Oscillogram 20	ADATA01	Digital Serial Audio Data
16	1.7V	MODE	RGB Mode On/Off
17	–	ADATA02	Not Connected
18	0V	GND	Ground
19	–	ADATA1	Not Connected
20	0V	GND	Ground
21	–	ADATA2	Not Connected
22	0V	GND	Ground
23	–	TXD	Not Connected
24	4.9V	RXD	Mute Control
25	–	MDET	Not Connected

3.2 Socket CN2 to IN/OUT Board (CN503)

Pin	Lever (ca.)	Name	Description
1	4.9V	VCC5V	5V Supply
2	0V	GND	Ground
3	0V	GND	Ground
4	3.3V	VCC3V	3V Supply

3.3 Socket CN3 to Keyboard Control Unit (JP2)

Pin	Lever (ca.)	Name	Description
1	4.9V	VCC5V	5V Supply (Not Connected)
2	Oscillogram 10	REMOTE	IR Remote Control Signal
3	Oscillogram 9	STB	Keyboard Strobe
4	Oscillogram 8	CLOCK	Keyboard Clock
5	Oscillogram 7	DATA	Keyboard Data
6	0V	GND	Ground (Not Connected)

3.4 Socket CN4 to Power Supply (J3)

Pin	Lever (ca.)	Name	Description
1	0V	GND	Ground
2	4.9V	S+5V	5V Supply
3	0V	GND	Ground
4	4.9V	A+5V	5V Supply
5	0V	GND	Ground
6	8.6V	S+9V	9V Supply

3.5 Socket CN5 to DVD Drive

Pin	Lever (ca.)		Name	Description
	Play DVD/CD	no Disc		
1	0V	0V	DGND	Digital Ground
2	0V	0V	DGND	Digital Ground
3	5V	5V	D+5V	Digital +5V
4	5V	5V	D+5V	Digital +5V
5	9V	9V	M+9V	Motor +9V
6	9V	9V	M+9V	Motor +9V
7	9V	9V	M+9V	Motor +9V
8	0V	0V	MGND	Motor Ground
9	0V	0V	MGND	Motor Ground
10	0V	0V	MGND	Motor Ground
11	0V	0V	MGND	Motor Ground
12	3.3V	0V	MUTE12	Focus/Track Control
13	0V	2.4V	MUTE4	Motor Control Sledge/Tray
14	2V	1.65V	DMV	Disc Motor Voltage
15	1.65V	1.65V	FOIN	Focus Control
16	1.65V	1.65V	TRIN	Tracking Control
17	1.65V	1.65V	SPDIN	Motor Disc Speed Control
18	1.65V	1.65V	TRAYIN	Motor Control Sledge/Tray
19	1.65V	1.65V	TRAYREF	Motor Reference Sledge/Tray
20	1.65V	1.65V	TRVSIN	Motor Control Sledge/Tray
21	3.3V	2.7V	MUTE3	Motor Control Disc
22	3.3V	3.3V	TRAY/TRV	Motor Control Sledge/Tray
23	3.3V	3.3V	IN-SW	Tray End Position Switch
24	2.2V	2.5V	LDCUR	Loader Current
25	2.2V	2.2V	VREF2	Reference Voltage
26	5V	5V	A+5V	Analogue +5V
27	1V	1.6V	RFENV	RF Envelope
28	1V	1V	TSTSG	Test Signal
29	1.8V	1.8V	NARF	RF Amplifier Signal
30	1.8V	1.8V	ARF	RF Amplifier Signal
31	0V	0V	AGND	Analogue Ground
32	3.3V	3.3V	A+3.3V	Analogue +3.3V
33	3.3V	3.3V	A+3.3V	Analogue +3.3V
34	1.65V	1.65V	VHALF	Reference Voltage
35	2.2V	1.65V	FS	RF Amplifier Signal
36	1.65V	1.65V	FE	Focus Error
37	1.65V	1.65V	TE	Tracking Error
38	0V	0V	AGND	Analogue Ground
39	0V	0V	BDO	Drop Out Signal
40	0V	3.3V	OFTR	Out of Track
41	0V	2.7V	FEPDATA	Frontend Data
42	0V	2.7V	FEPCLK	Frontend Clock
43	3.3V	3.3V	FEPENB	Frontend Enable
44	0V	0V	AGND	Analogue Ground
45	1.6V	1.65V	TBAL	Tracking Balance
46	1.2V	1.65V	FBAL	Focus Balance
47	0V	0V	AGND	Analogue Ground
48	0V	0V	GAINH-L	Laser Beam Control
49	0V (DVD) 3.3V (CD)	3.3V	HFMON	Dual Laser Control
50	0V	0V	AGND	Analogue Ground

3.6 Socket CN6 to DVD Drive

Pin	Lever (ca.)	Name	Description
1	3.2V	TRY-OPEN	Tray Open/Close
2	0V	GND	Ground

4. IN/OUT Board

4.1 Socket CN501 to Main Board (CN1)

Pin	Lever (ca.)	Name	Description
1	Oscillogram 18	VIDEO_V1	Green Out
2	Oscillogram 14	VIDEO_C1	Chrominance Out
3	Oscillogram 17	VIDEO_U1	Blue Out
4	Oscillogram 13	VIDEO_Y11	Luminance Out
5	Oscillogram 19	VIDEO_Y2	Red Out
6	–	MIC	Not Connected
7	Oscillogram 16	VIDEO_COMP1	Composite Video Out
8	0V	GND	Ground
9	Oscillogram 26	IEC958F	Digital Audio Out
10	0V	GND	Ground
11	Oscillogram 21	DA_BCK	Digital De-Emphasis Clock
12	Oscillogram 23	DA_XCK	Digital Audio Master Clock
13	Oscillogram 22	DA_LRCK	Digital Left/Right Clock
14	0V	GND	Ground
15	Oscillogram 20	DA_DATA0	Digital Serial Audio Data
16	1.7V	MODE	RGB Mode On/Off
17	–	DA_DATA1	Not Connected
18	0V	GND	Ground
19	–	DA_DATA2	Not Connected
20	0V	GND	Ground
21	–	DA_DATA3	Not Connected
22	0V	GND	Ground
23	–	TXDU	Not Connected
24	4.9V	RXDU	Mute Control
25	–	–	Not Connected

4.2 Socket CN502 to Power Supply (J4)

Pin	Lever (ca.)	Name	Description
1	3.3V	3V3	3.3V Supply
2	4.9V	+5	5V Supply
3	0V	GND	Ground
4	10.5V	+12	12V Supply
5	-13.8V	-12	-12V Supply

4.3 Socket CN503 to Main Board (CN2)

Pin	Lever (ca.)	Name	Description
1	4.9V	+5	5V Supply
2	0V	GND	Ground
3	0V	GND	Ground
4	3.3V	3V3	3V Supply

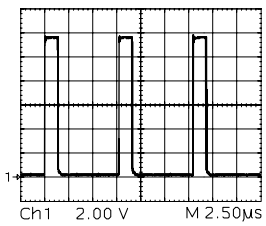
4.4 Socket CN509 to AV Socket Board (CN2)

Pin	Lever (ca.)	Name	Description
1	0V	SCART_GND	0V
2	Oscillogram 25	SCART_R	Analog Audio Right
3	Oscillogram 25	SCART_L	Analog Audio Left
4	10.2V	SCART_12V	Control AV Pin 8
5	1.7V	SCART_MODE	Control AV Pin 16 (RGB/CVBS)
6	Oscillogram 19	SCART_R	RED Out
7	Oscillogram 17	SCART_G	GREEN Out
8	Oscillogram 18	SCART_B	BLUE Out
9	Oscillogram 16	SCART_SYNC	CVBS Out

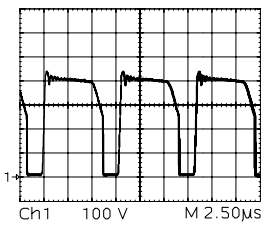
Hinweis:
1. Audio-Signal: 1KHz, 0dB.
2. Video-Signal: 100% Farbbalken.
3. Die angegebenen Werte sind Annäherungswerte.

Note:
1. Audio test signal is 1KHz, 0dB.
2. Video test signal is 100% color bar signal.
3. The measured values given in the above forms are approximates!

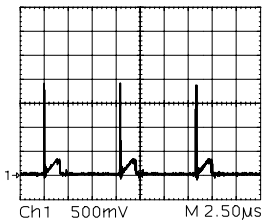
Oszillogramme / Oscillograms



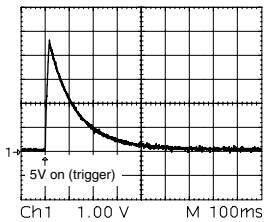
① Mode: DVD playback



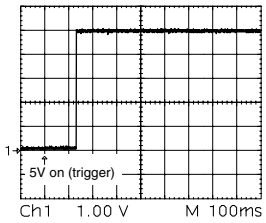
② Mode: DVD playback



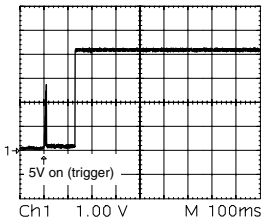
③ Mode: DVD playback



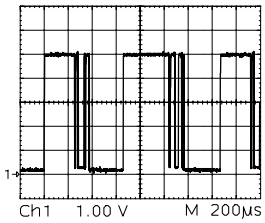
④ Mode: switch power on



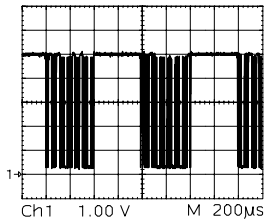
(5) Mode: switch power on



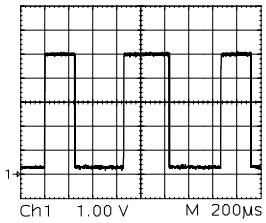
(6) Mode: switch power on



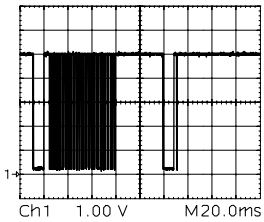
(7) Mode: DVD playback



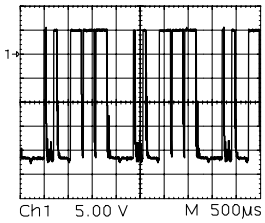
(8) Mode: DVD playback



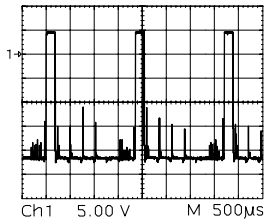
(9) Mode: DVD playback



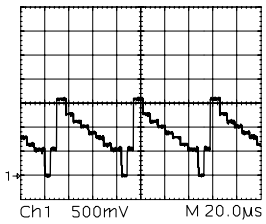
(10) Mode: remote control



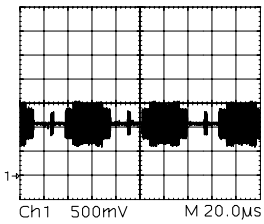
(11) Mode: DVD playback



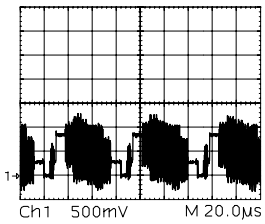
(12) Mode: DVD playback



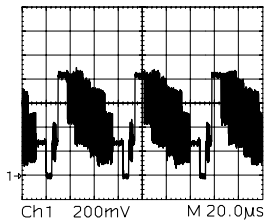
(13) Mode: DVD playback (S-Video on)



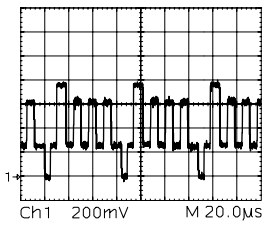
(14) Mode: DVD playback (S-Video on)



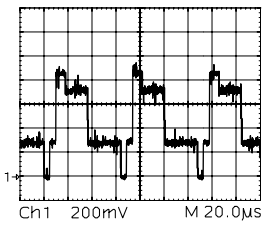
(15) Mode: DVD playback



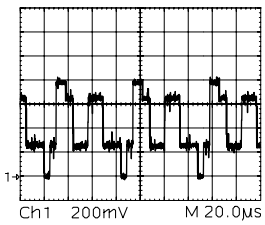
(16) Mode: DVD playback



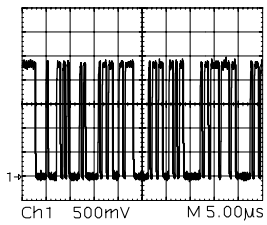
(17) Mode: DVD playback (Scart RGB)



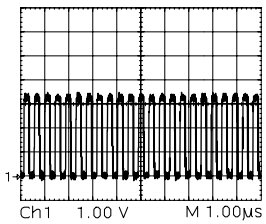
(18) Mode: DVD playback (Scart RGB)



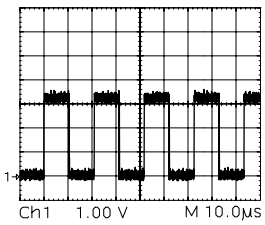
(19) Mode: DVD playback (Scart RGB)



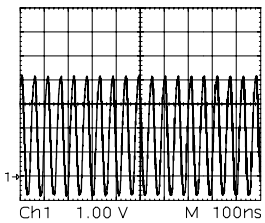
(20) Mode: DVD playback 1kHz/0dB



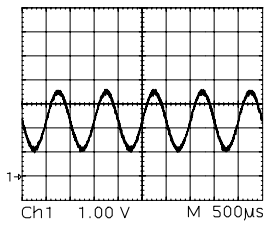
(21) Mode: DVD playback 1kHz/0dB



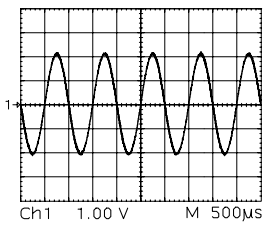
(22) Mode: DVD playback 1kHz/0dB



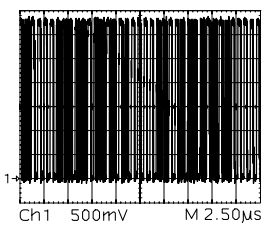
(23) Mode: DVD playback 1kHz/0dB



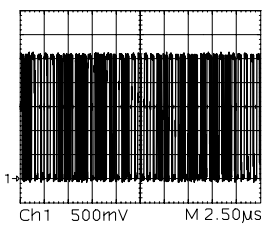
(24) Mode: DVD playback 1kHz/0dB



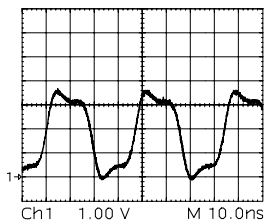
(25) Mode: DVD playback 1kHz/0dB



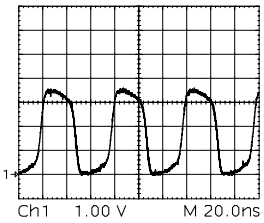
(26) Mode: DVD playback 1kHz/0dB



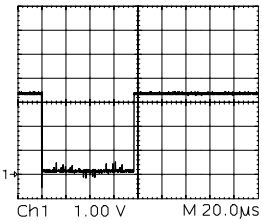
(27) Mode: DVD playback 1kHz/0dB



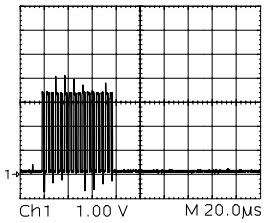
(28) Mode: DVD playback



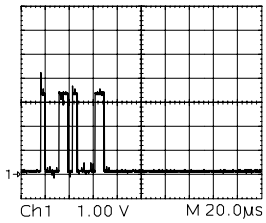
29 Mode: DVD playback



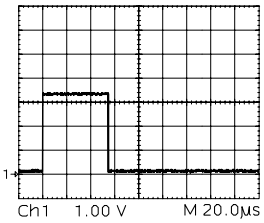
30 Mode: DVD playback



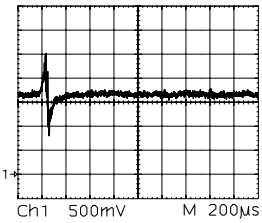
31 Mode: DVD playback



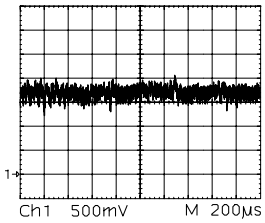
32 Mode: DVD playback



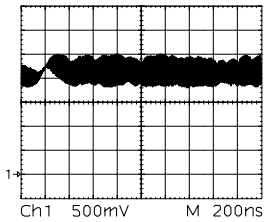
33 Mode: DVD playback



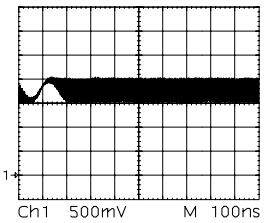
34 Mode: DVD playback



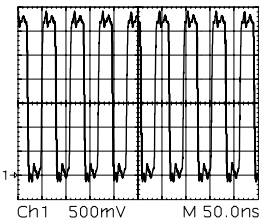
35 Mode: DVD playback



36 Mode: CD playback

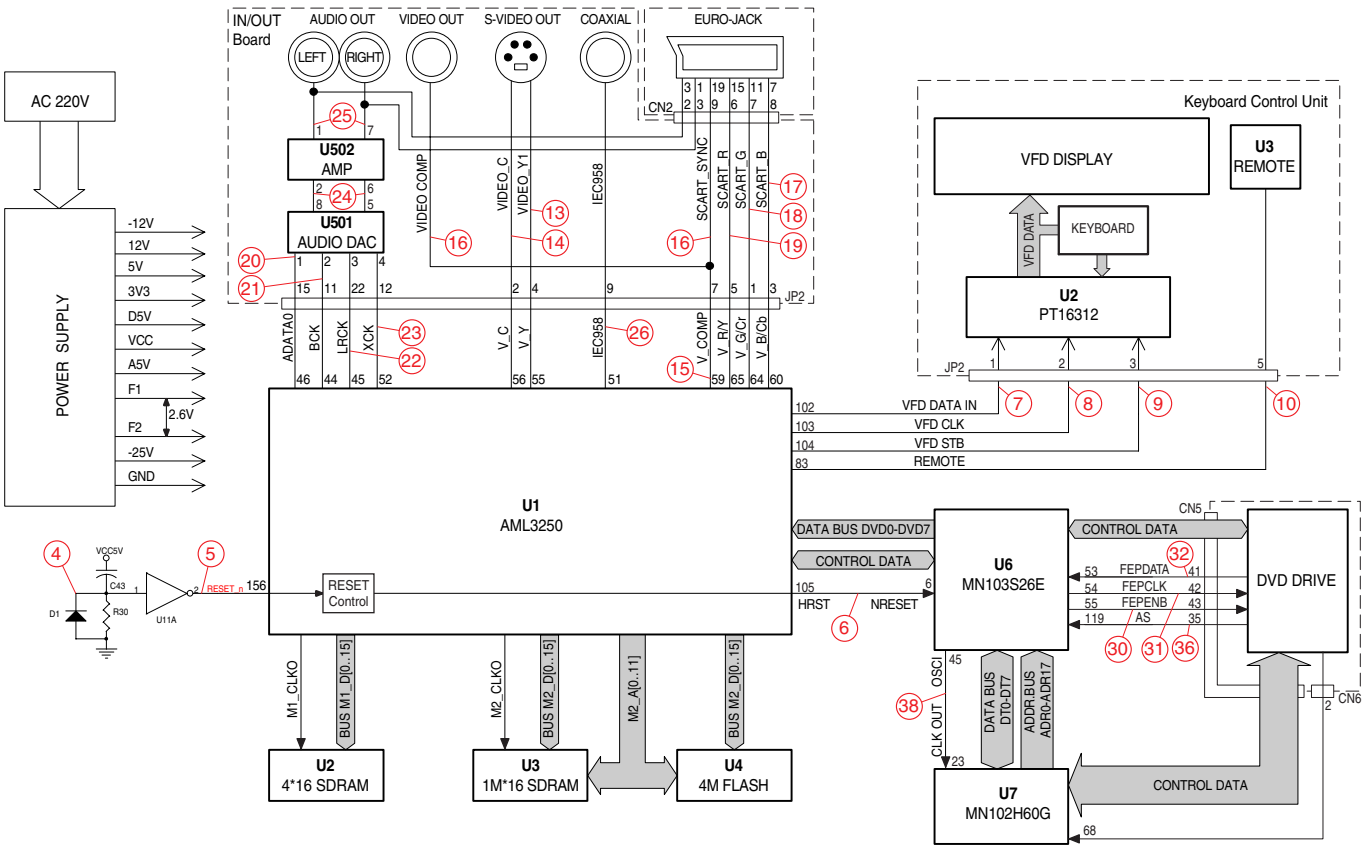


37 Mode: DVD playback



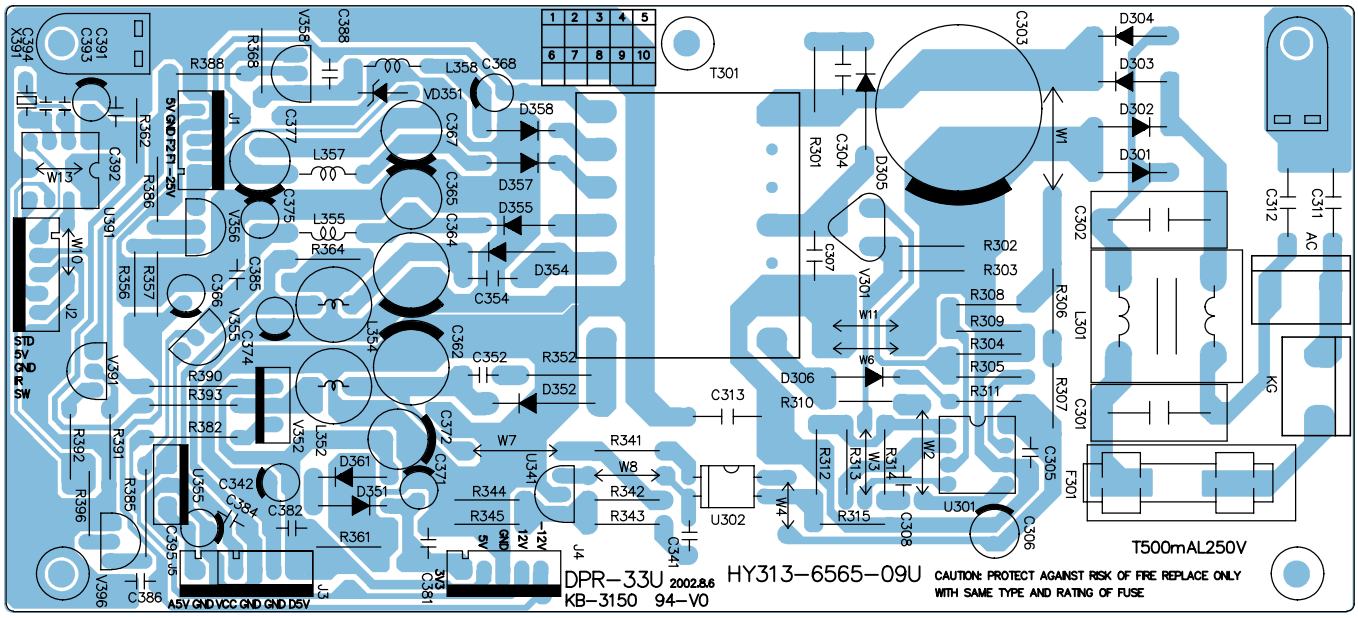
38 Mode: DVD playback

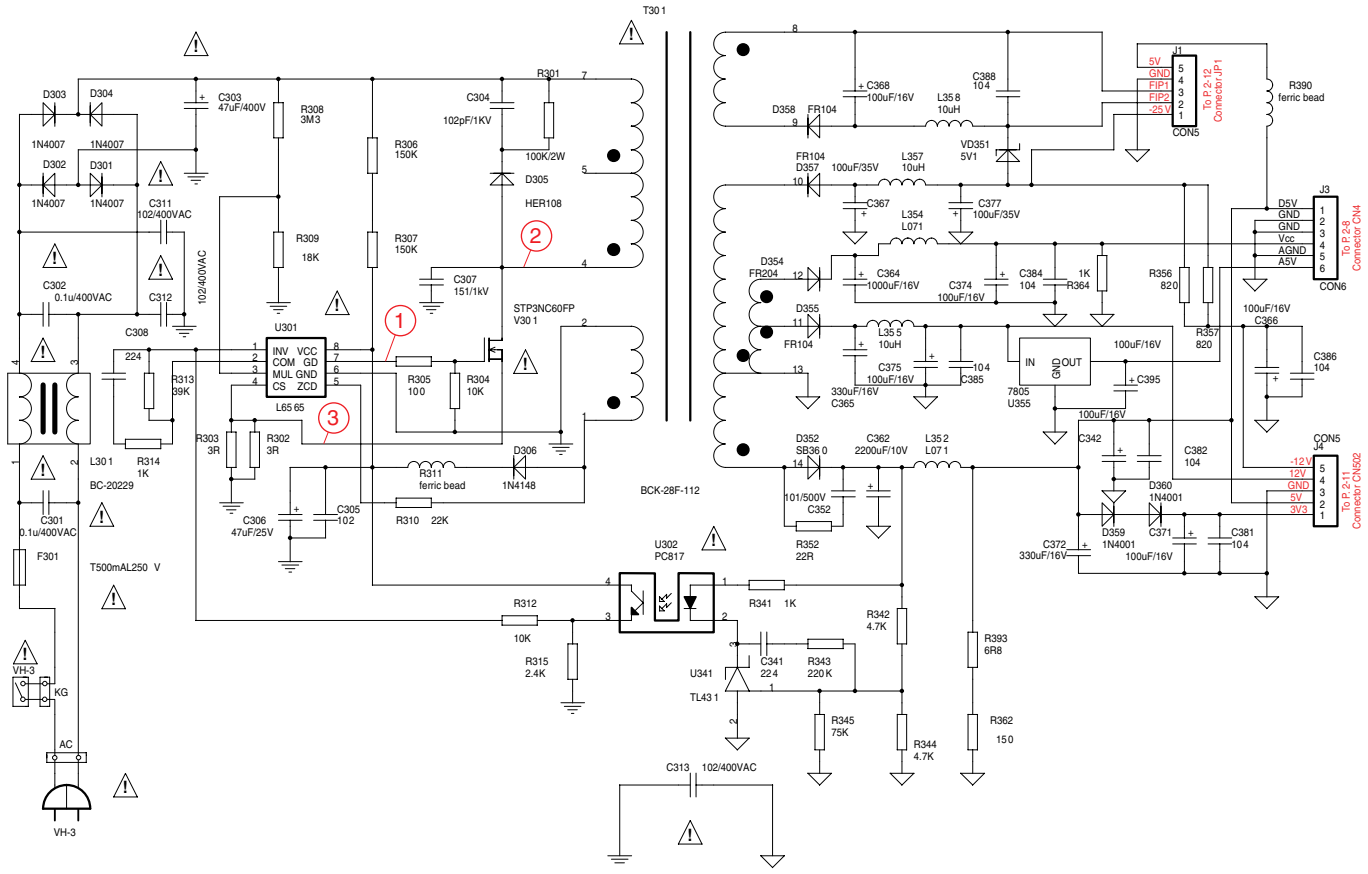
Blockschaltplan / Block Circuit Diagram



Netzteil / Power Supply

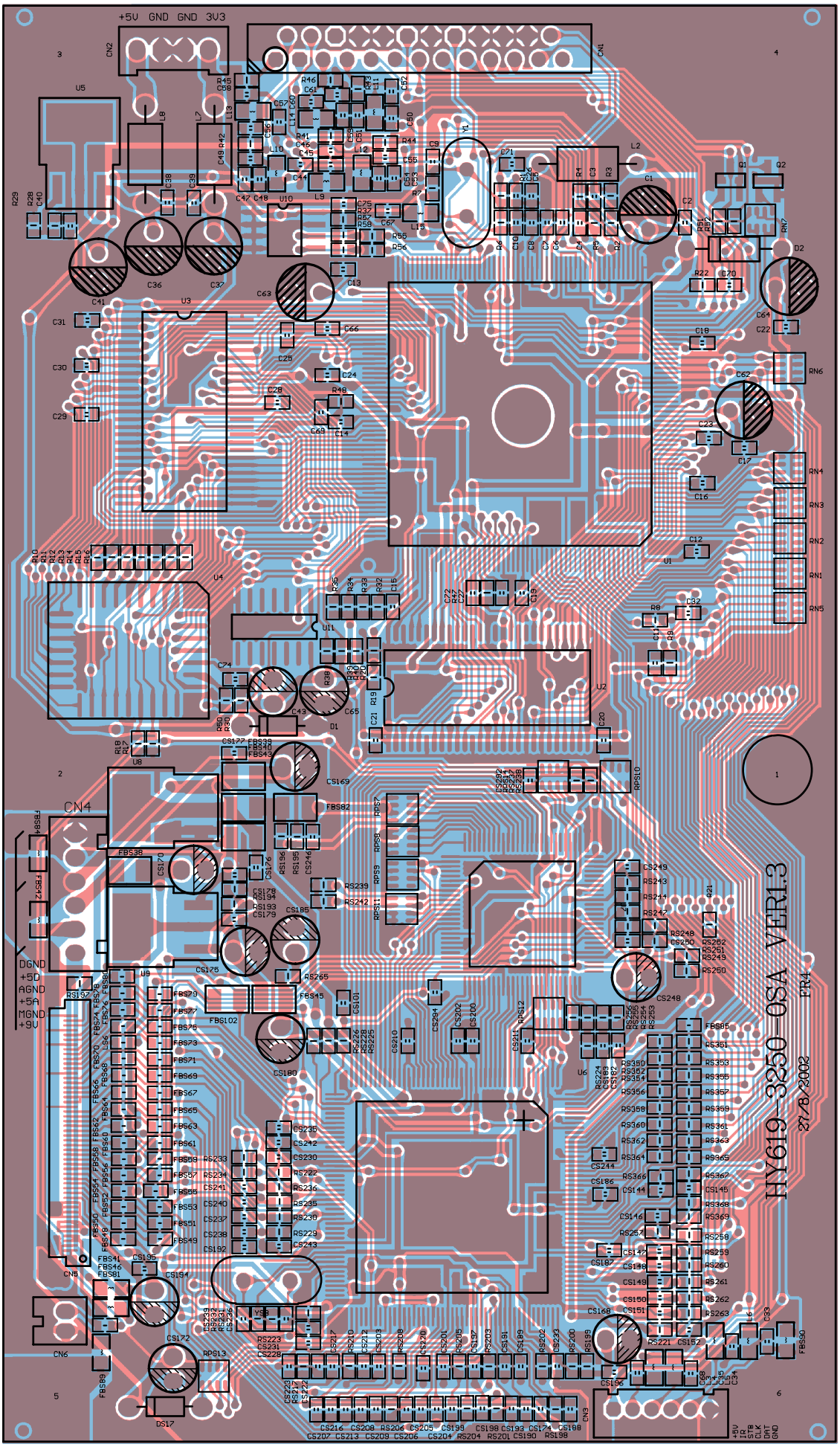
Ansicht von der Bestückungsseite / View of Component Side



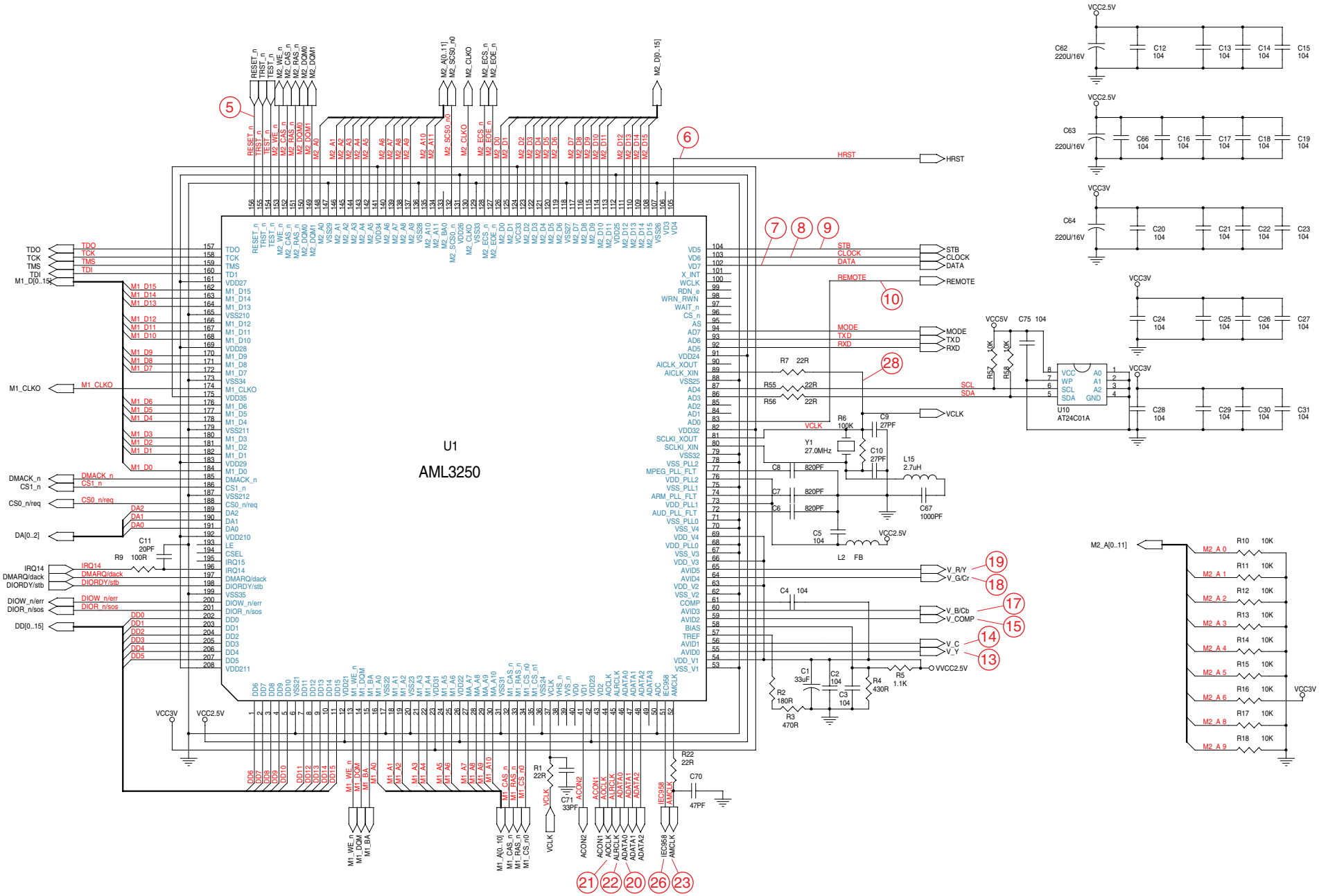


Hauptplatte / Main Board

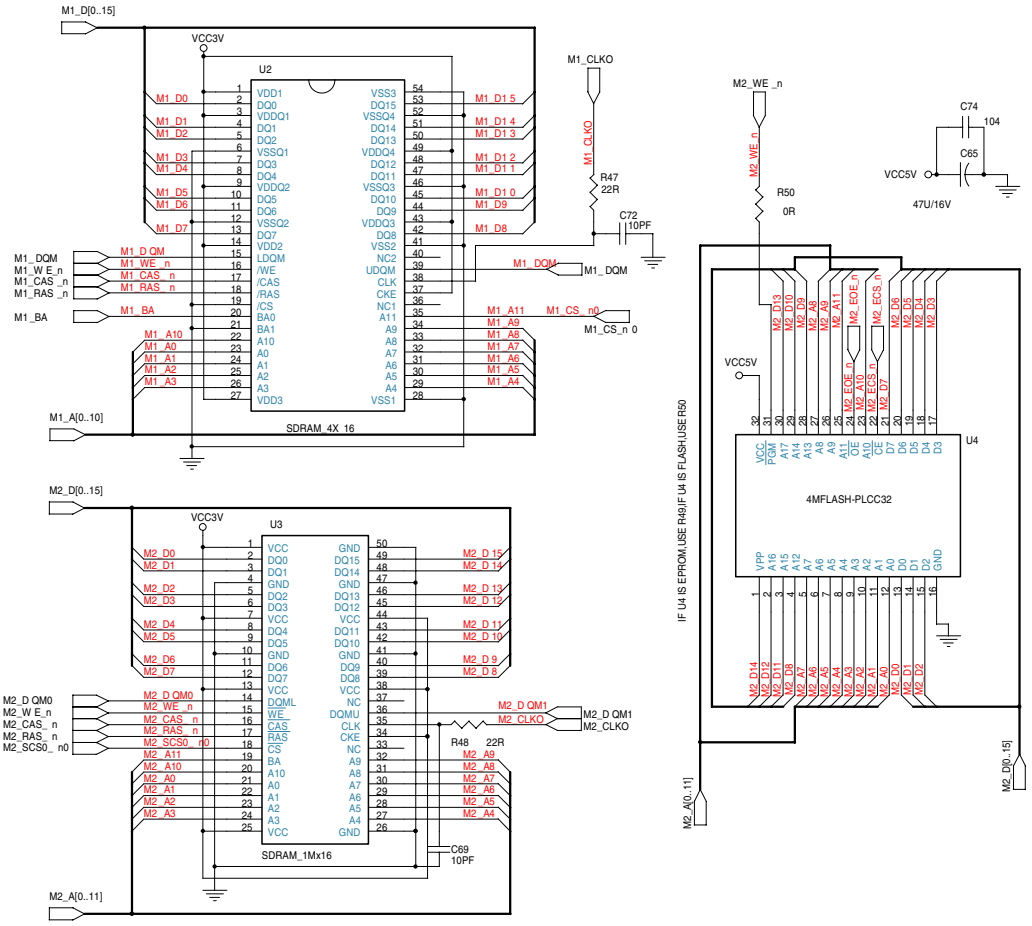
Ansicht von der Bestückungsseite / View of Component Side



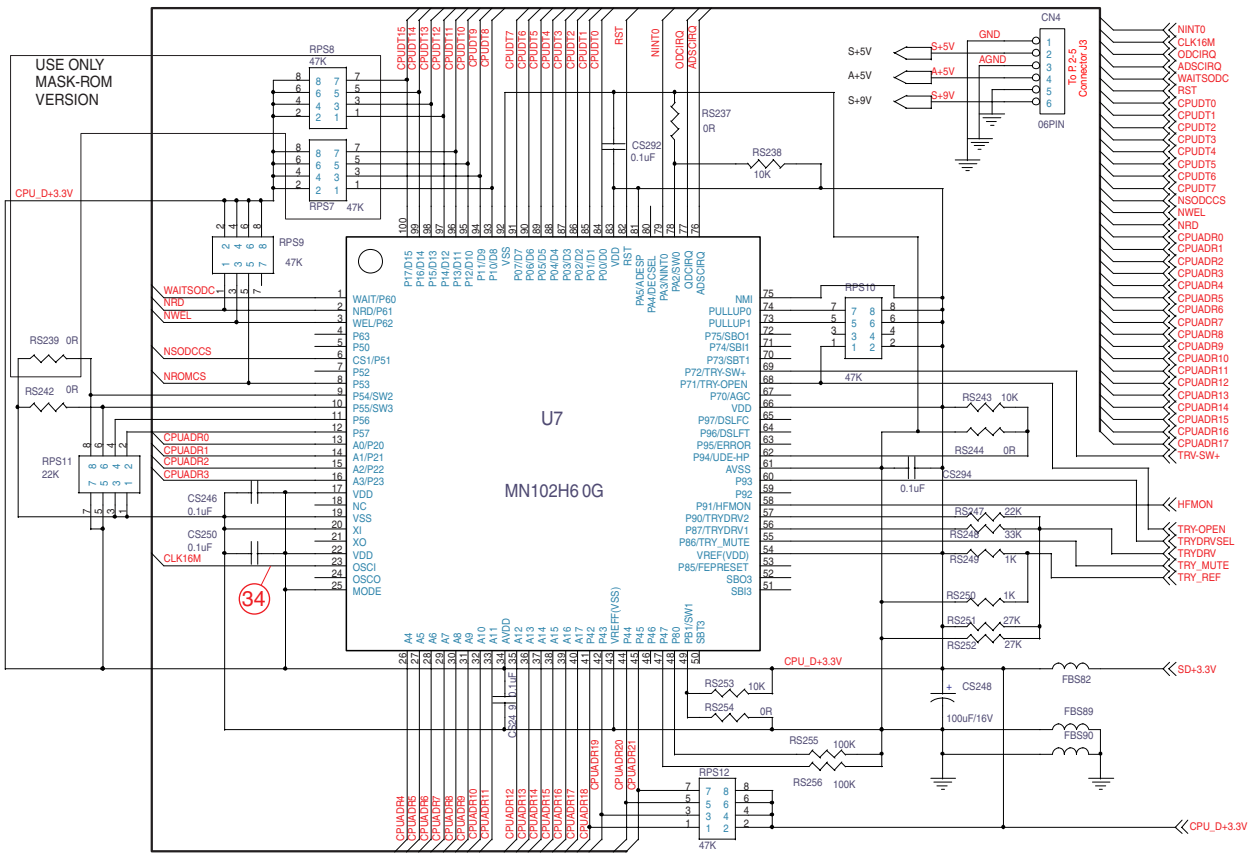
Hauptplatte – Hauptrechner / Main Board – Main Processor



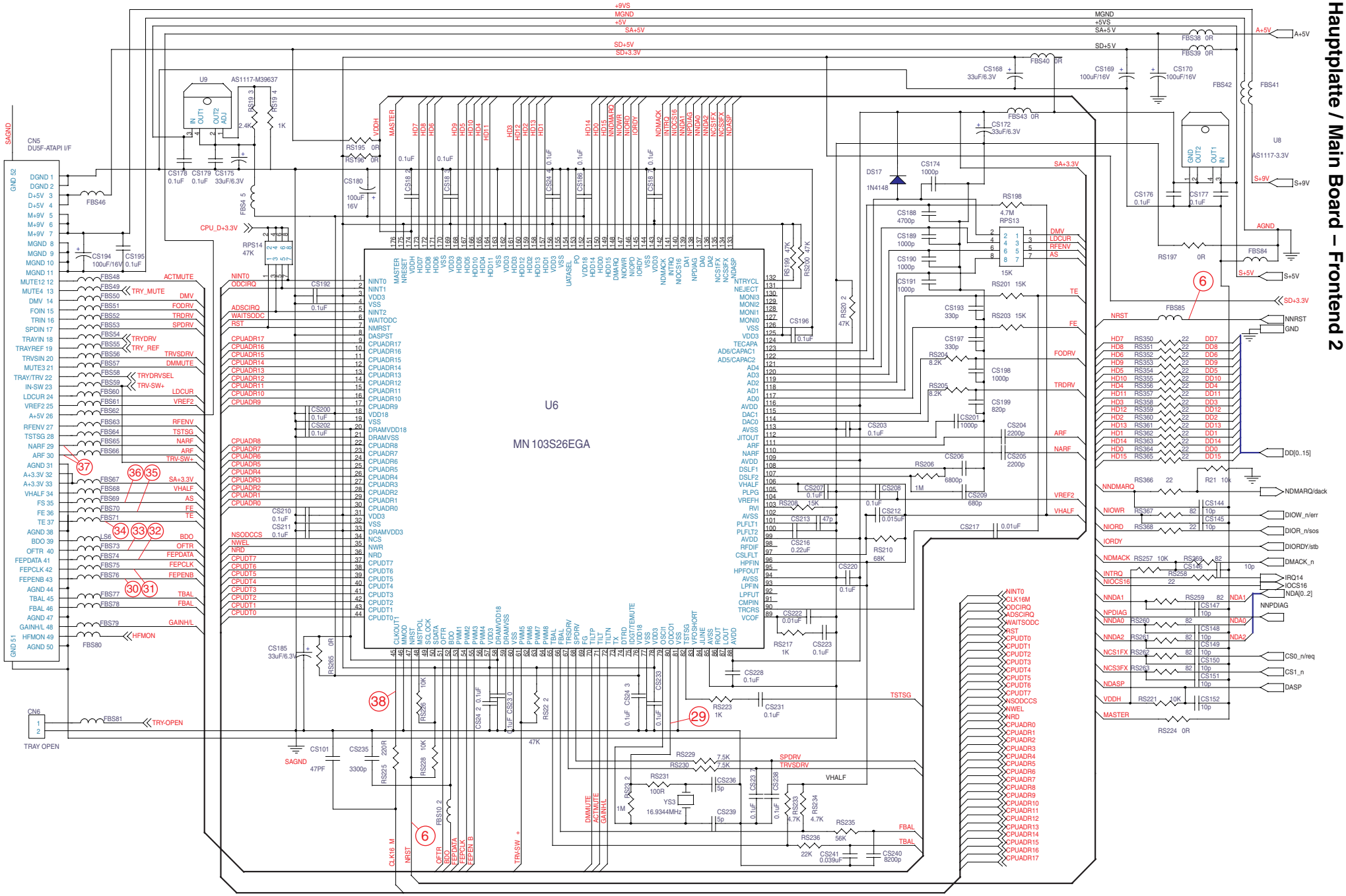
Hauptplatte – Speicher / Main Board – Memory



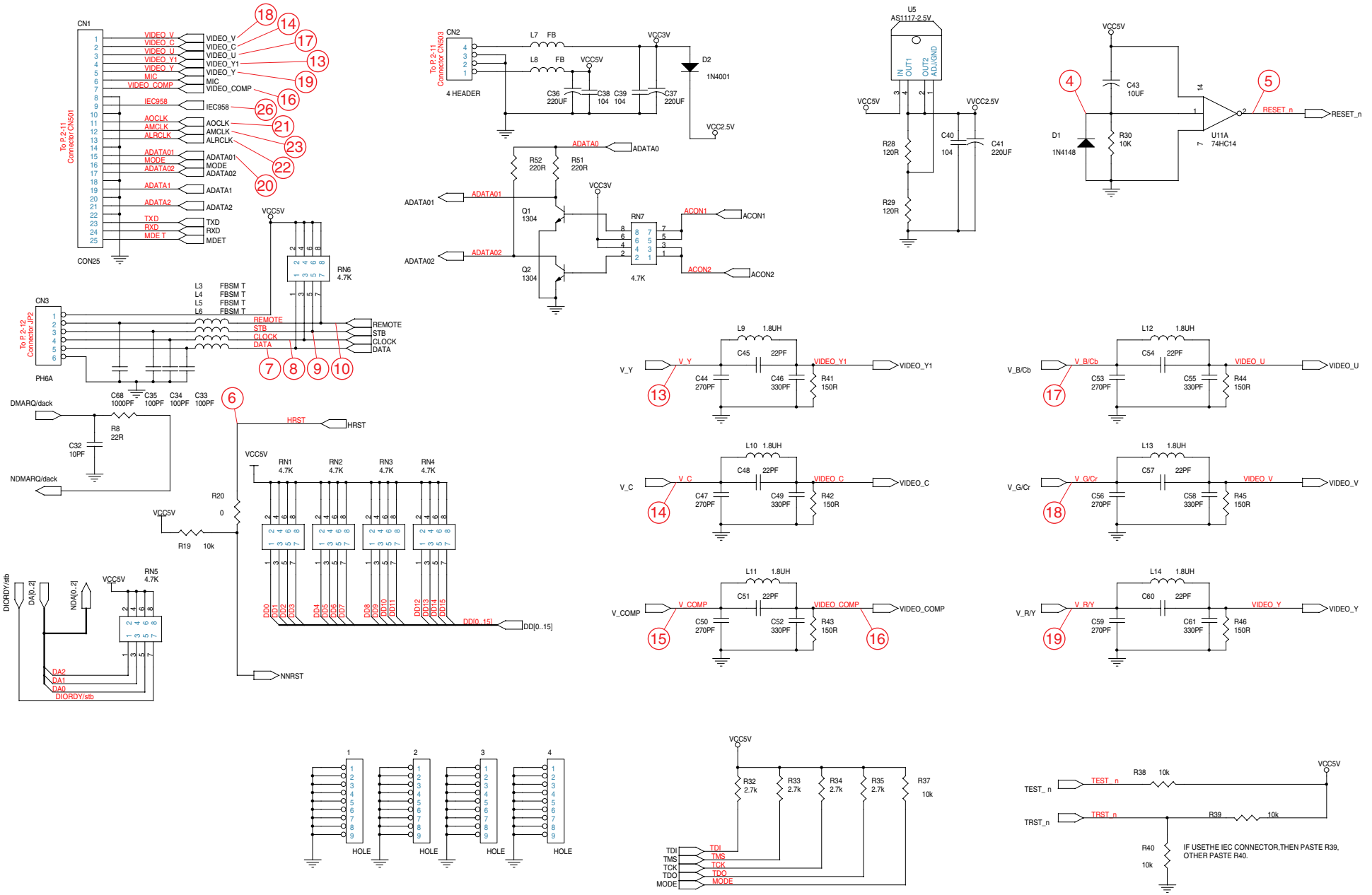
Hauptplatte / Main Board – Frontend 1

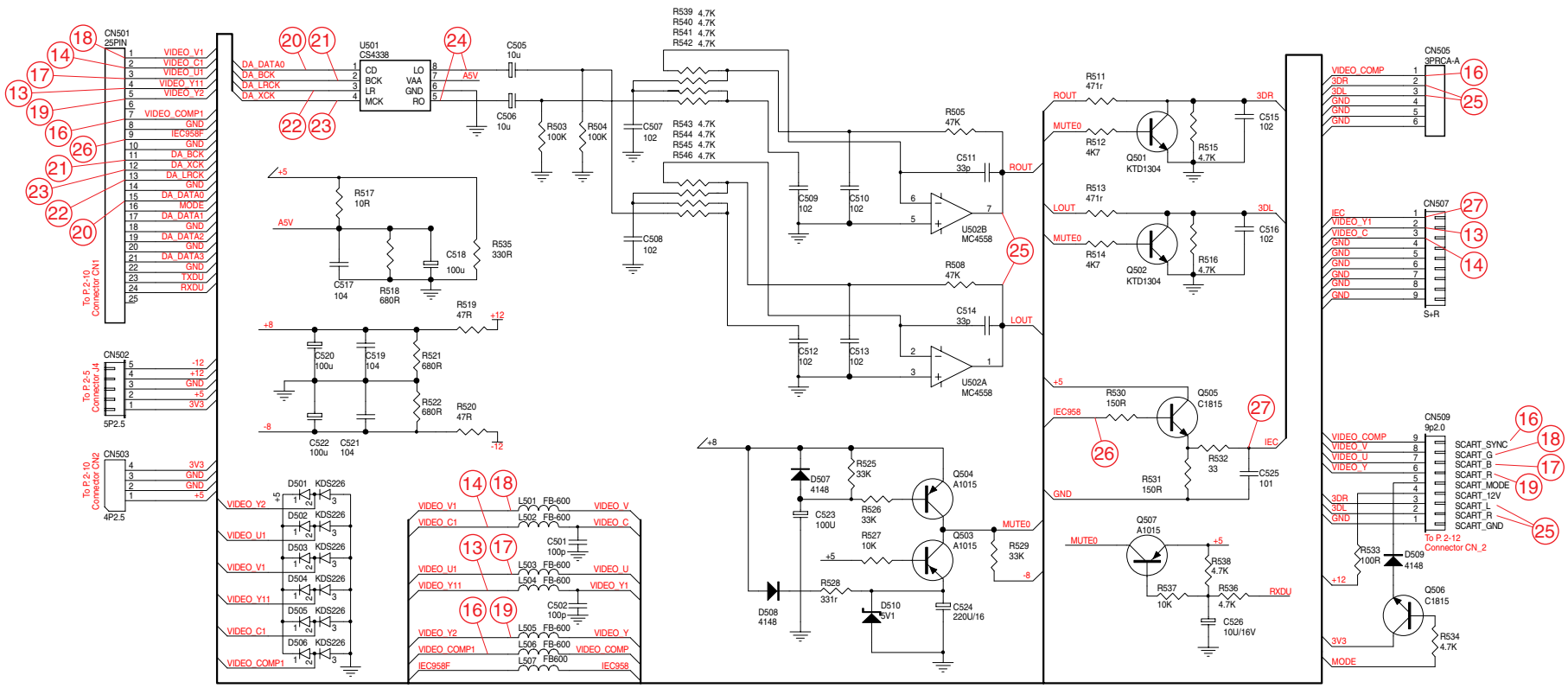


Hauptplatte / Main Board – Frontend 2

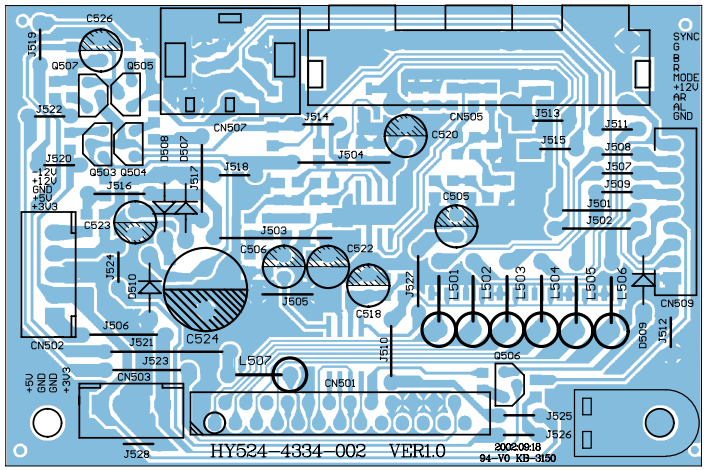


Hauptplatte / Main Board – Interface

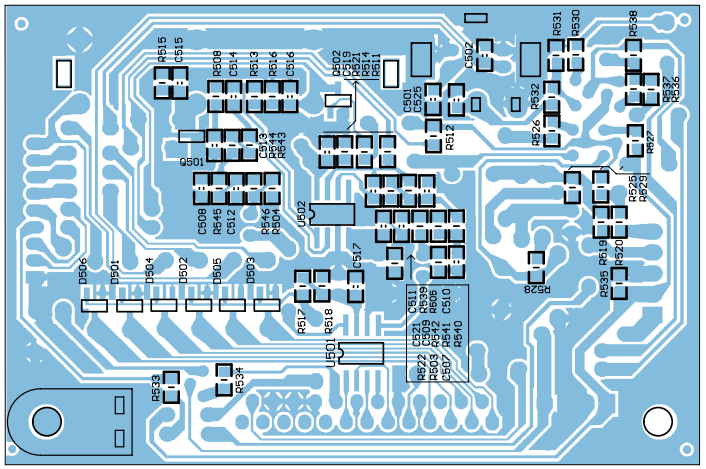




Ansicht von der Bestückungsseite / View of Component Side

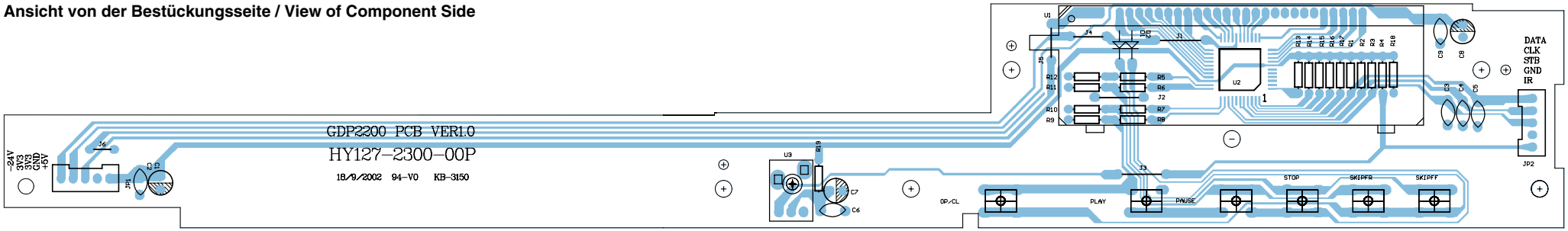


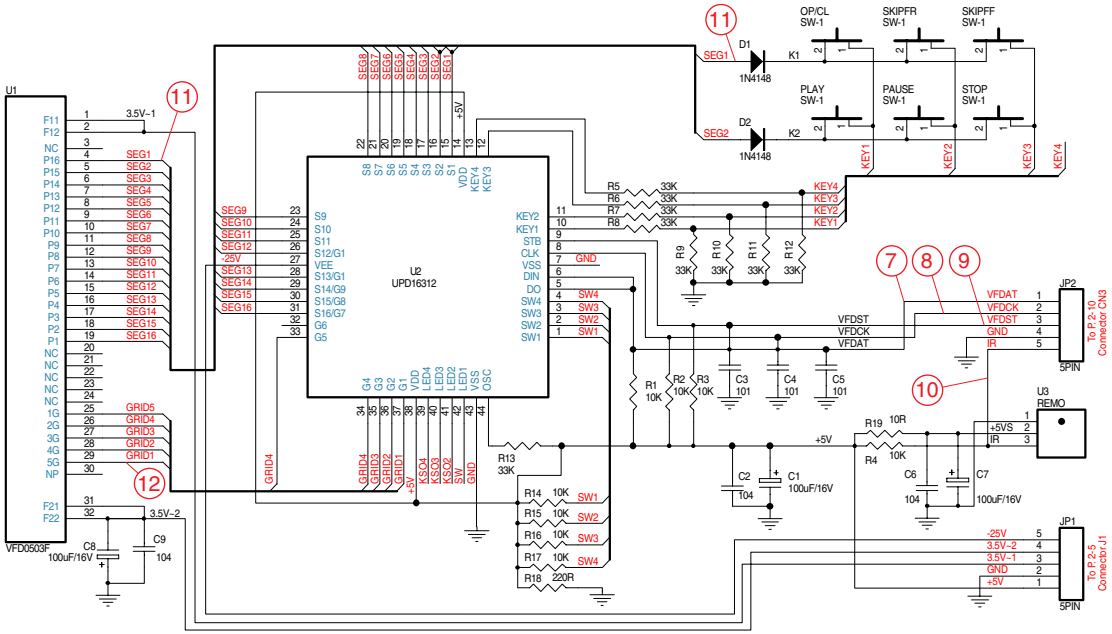
Ansicht von der Lötseite / View of Solder Side



Bedieneinheit / Keyboard Control Unit

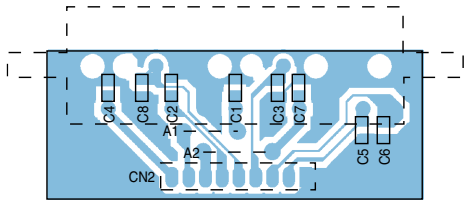
Ansicht von der Bestückungsseite / View of Component Side

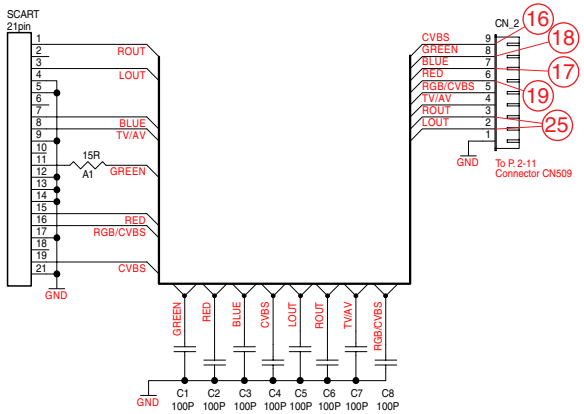




AV-Buchse / Socket

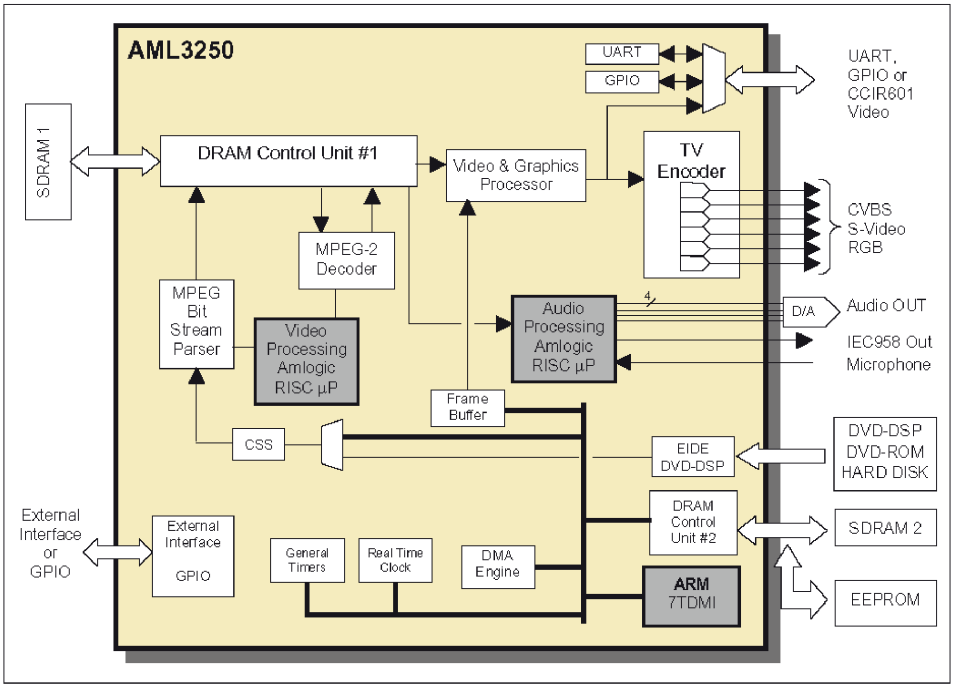
Ansicht von der Lötseite / View of Solder Side

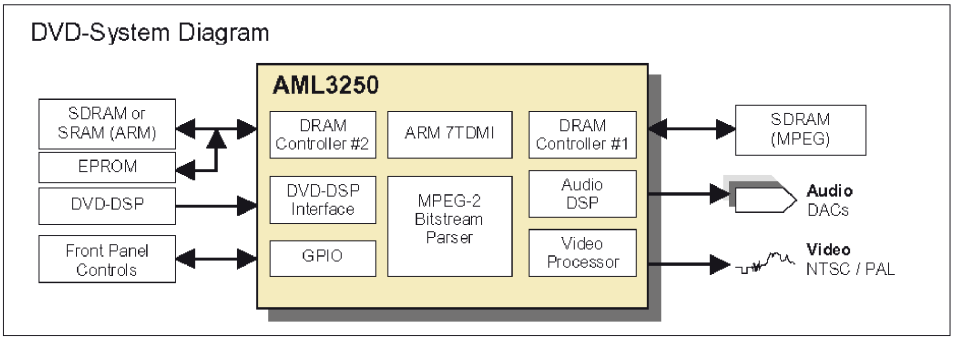




IC-Blockdiagramme / IC Block Diagrams

AML3250

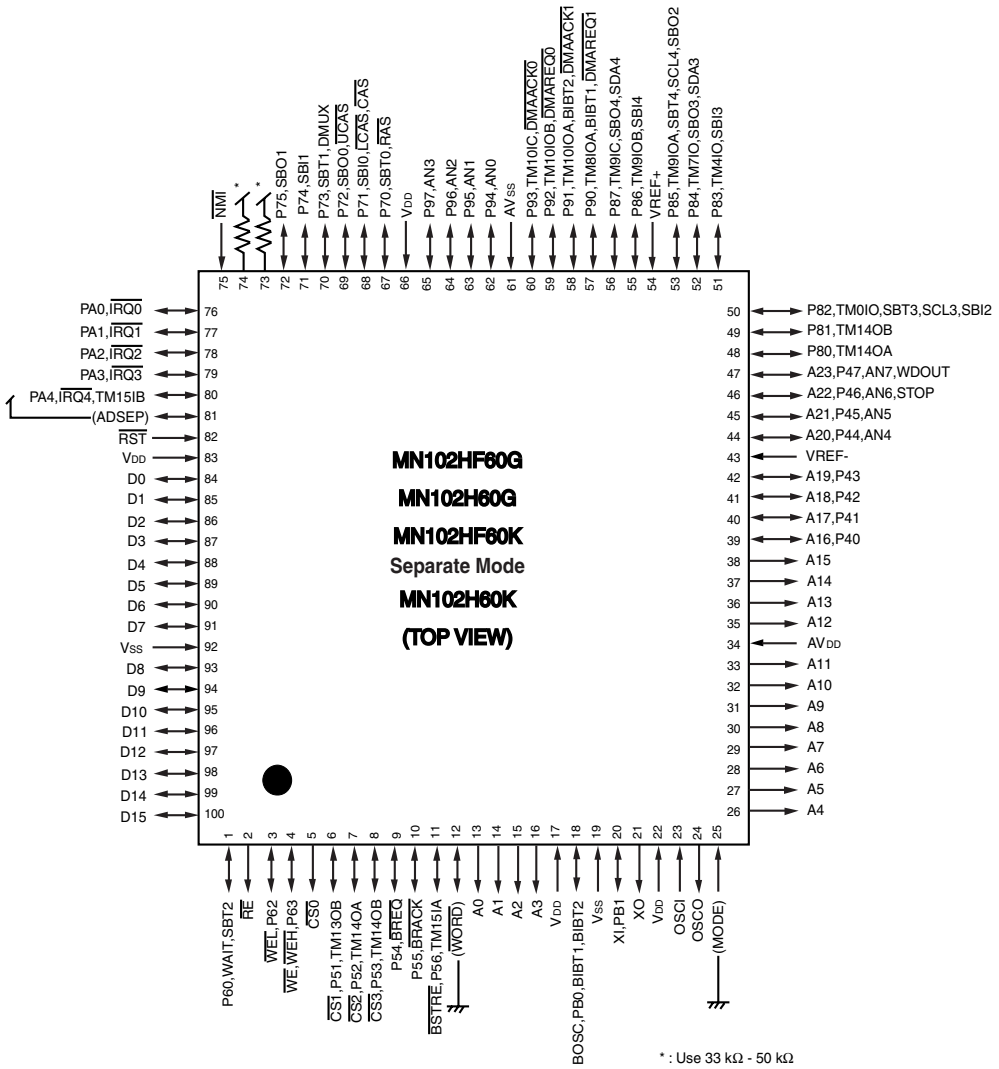


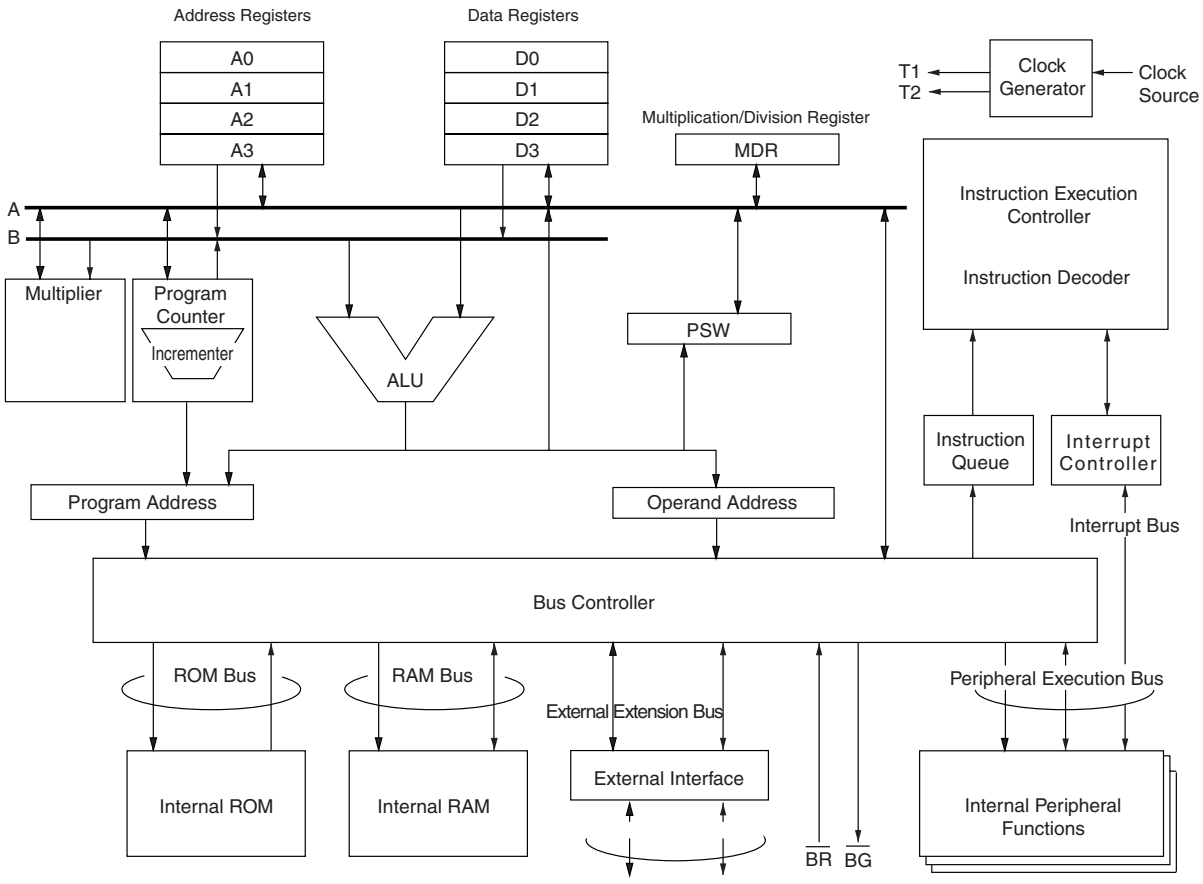


Name	Type	Pin	Description AML3250
SDRAM1 (MPEG)			
m1_a[10:0]	O	*	Adress bus, pins: 16…19, 21, 22, 24, 25, 27…30
m1_ba	O	15	Bank select
m1_cas_n	O	32	Column adress strobe
m1_clko	O	174	Clock
m1_cs_n[0]	O	34	Chip select 0
m1_cs_n[1]	O	35	Chip select 1
m1_d[15:0]	B	*	SDRAM data bus, pins: 162…164, 166…168, 170…172, 176…178, 180…182, 184
m1_dqm	O	14	Input / output mask
m1_ras_n	O	33	Row address strobe
m1_we_n	O	13	Write enable
SDRAM2 (Host Memory)			
m2_a[11:0]	B	*	Adress bus, pins: 134,135, 137…140, 142…146, 148 These signals are also used to configure the chip at reset.
m2_ba0	O	133	Bank select. Also used as a chip select when the decoder is configured to interface to static RAMs.
m2_cas_n	O	152	Column address strobe
m2_clko	B	130	Clock
m2_d[15:0]	B	*	Data bus, pins: 108…111, 113…117, 119…123, 125, 126
m2_dqm[1:0]	O	149, 150	Input / output mask
m2_scs0_n	O	132	SDRAM chip select. This signal is low when the SDRAM is selected.
m2_ecs_n	O	128	EPROM chip select. This signal is low when the EPROM is selected.
m2_eoe_n	O	127	EPROM output enable
m2_ras_n	O	151	Row address strobe
m2_we_n	O	153	write enable (active low)
GPIO / External Interface			
ad[7:0]	B	83…87, 92…94	External interface data, GPIO[7:0]
as	B	95	Address strobe, GPIO[8]
cs_n	B	96	Chip select, GPIO[11]
wait_n	B	97	Wait, GPIO[12]
wrn_rwn	B	98	Intel processor: WR_n, Motorola R/W_n, GPIO[10]
rdn_e	B	99	Intel Processor: RD_n, Motorola (E)nable, GPIO[9]
wclk	B	100	Wait clock, GPIO[13]
x_int	B	101	Interrupt, GPIO[14]

Name	Type	Pin	Description AML3250
Audio			
adc	I	50	Audio data in
adata[3:0]	O	46, 47, 48, 49	Audio data out
alrclk	O	45	Left/right clock
amclk	O	52	Master clock
aoclk	O	44	Data clock
iec958	O	51	IEC958 output
aiclk_xin	I	89	Audio clock XTAL pin, Connect a 14.318MHz crystal or drive with an oscillator (5MHz to 40MHz).
aiclk_xout	O	90	Audio clock XTAL pin, Connect a 14.318MHz crystal. Can be left open if aiclk_xin is driven by an oscillator.
aud_pll_filt	O	72	Audio PLL filter pin (820pF to ground)
Video			
avid[5:0]	O	*	Video encoder analog DAC output, pins: 55, 56, 59, 60, 64, 65
iref	O	57	Current reference
bias	O	58	Bias voltage
comp	O	61	Compensation
vclk	B	37	Video clock
vd[0]	B	40	Video D0, Address[8], UART RTS, GPIO[16].
vd[1]	B	41	Video D1, Address[9], UART RI, GPIO[17]
vd[2]	B	43	Video D2, Address[10], UART DTR, GPIO[18]
vd[3]	B	106	Video D3, Address[11], UART DSR, GPIO[19]
vd[4]	B	105	Video D4, Address[12], UART DCD, GPIO[20]
vd[5]	B	104	Video D5, Address[13], UART CTS, GPIO[21]
vd[6]	B	103	Video D6, Address[14], UART TxD, GPIO[22]
vd[7]	B	102	Video D7, Address[15], UART RxD, GPIO[23]
vhs_n	B	38	Horizontal sync
vvs_n	B	39	Vertical sync
DVD-DSP / IDE			
cs0_n	O	188	Chip select 0
cs1_n	O	186	Chip select 1
csel	O	194	Cable select
da[2:0]	O	189, 190, 191	Address
dd[0]	B	202	IDE/DVD-DSP D0 (CD-Data in CD-DSP mode)
dd[1]	B	203	IDE/DVD-DSP D1 (CD-LRCLK in CD-DSP mode)
dd[2]	B	204	IDE/DVD-DSP D2 (CD-BCLK in CD-DSP mode)
dd[3]	B	205	IDE/DVD-DSP D3 (CD-C2PO in CD-DSP mode)
dd[7:4]	B	1, 2, 206, 207	IDE/DVD-DSP D[7:4]
dd[15:8]	B	3…5, 7…11	IDE D[15:8]
dior_n/sos	B	201	IDE dior_n, DVD-DSP sos
diordy/stb	I	198	IDE diordy, DVD-DSP strobe
diow_n/err	B	200	IDE diow_n, DVD-DSP error
dmack_n	O	185	IDE DMA acknowledge
dmarq/dack	I	197	IDE DMA request DVD-DSP dack
irq14	I	196	Interrupt HD0
irq15	I	195	Interrupt HD1
Other			
VDD(core)	P	*	2.5V power supply, pins: 12, 26, 42, 54, 63, 66, 68, 69, 76, 91, 112, 131, 161, 169, 183, 192, 208
GND(core)	P	*	2.5V ground, pins: 6, 17, 20, 36, 53, 62, 67, 70, 71, 73, 75, 78, 79, 88, 107, 118, 136, 147, 165, 179, 187
VDD(pads)	P	*	3.3V power supply, pins: 23, 82, 124, 141, 175
GND(pads)	P	*	3.3V ground, pins: 31, 129, 173, 199
Le	O	193	No connect
reset_n	I	156	Active low chip RESET. This pin must be held low for at least 10ms after power has been supplied to the chip. There are several pins that use the rising edge of this signal to configure the chip.
sclk_xin	I	80	MPEG clock XTAL pin. Connect a 14.318MHz crystal or drive with an oscillator (5MHz to 40MHz)
sclk_xout	O	81	MPEG clock XTAL pin, Connect a 14.318MHz crystal. Can be left open if sclk_xin is driven by an oscillator.
mpeg_pll_filt	O	77	MPEG PLL filter
arm_pll_filt	O	74	
tck	I	158	JTAG, ICD, test pin
tdi	I	160	JTAG, ICD, test pin
tdo	B	157	JTAG, ICD, test pin
test_n	I	154	JTAG, ICD, test pin
tms	I	159	JTAG, ICD, test pin
trst_n	I	155	JTAG, ICD, test pin

MN102HF


MN102HF60G
MN102H60G
MN102HF60K
Separate Mode
MN102H60K
(TOP VIEW)
* : Use 33 kΩ - 50 kΩ


Address Registers
Data Registers
A0
A1
A2
A3
D0
D1
D2
D3
Multiplication/Division Register
MDR
Clock Generator
Clock Source
T1
T2
A
B
Multiplier
Program Counter
Incrementer
ALU
PSW
Instruction Execution Controller
Instruction Decoder
Instruction Queue
Interrupt Controller
Interrupt Bus
Program Address
Operand Address
Bus Controller
ROM Bus
RAM Bus
External Extension Bus
Peripheral Execution Bus
Internal ROM
Internal RAM
External Interface
Internal Peripheral Functions
BR
BG

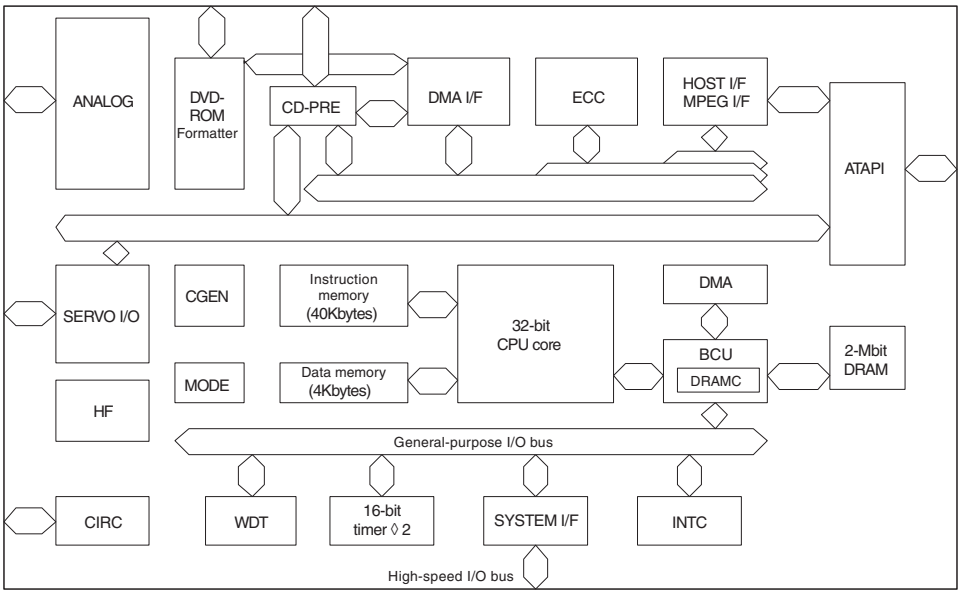
Pin	Pin Name	I/O	Function MN102HF
1	WAIT P60 SBT2	Input I/O I/O	Bus Cycle Wait Input General-purpose Port 60 Serial Interface 2 Clock Input/Output
2	/RE P61	Output I/O	Read Enable Output General-purpose Port 61
3	/WEL P62	Output I/O	Lower Byte Write Enable Output General-purpose Port 62
4	/WEH /WE P63	Output Output I/O	Upper Byte Write Enable Output Write Enable Output for DRAM General-purpose Port 63
5	/CS0 TM13OA	Output Output	Chip Select Output Timer 13A Output
6	/CS1 TM13OB	Output Output	Chip Select Output Timer 13B Output
7	/CS2 TM14OA	Output Output	Chip Select Output Timer 14A Output
8	/CS3 TM14OB	Output Output	Chip Select Output Timer 14B Output
9	/BREQ P54	Input I/O	Bus Request Input General-purpose Port 54
10	/BRACK P55	Output I/O	Bus Request Enable Output General-purpose Port 55
11	ALE /BSTRE P56 TM15IA	Output Output I/O Input	Address Latch Enable Output Read Enable for Burst ROM General-purpose Port 56 Timer 15A Input
12	/WORD P57	Input I/O	Data Bus Width Setup Input General-purpose Port 57
13	A0 P20 SBT2	Output I/O I/O	Address Output General-purpose Port 20 Serial Interface 2 Clock Input/Output
14	A1 P21 SBI2	Output I/O Input	Address Output General-purpose Port 21 Serial Interface 2 Data Input
15	A2 P22 SBO2	Output I/O Output	Address Output General-purpose Port 21 Serial Interface 2 Data Output
16	A3 P23	Output I/O	Address Output General-purpose Port 23
17	VDD	-	Power
18	BOSC BIBT1/BIBT2 PB0	Output Output I/O	System Clock Output Internal System Clock Output General-purpose Port B0
19	VSS	-	Power (Ground)
20	XI	Input	Low-speed Oscillator Input
21	XO	Output	Low-speed Oscillator Output
22	VDD	-	Power
23	OSCI	Input	High-speed Oscillator Input
24	OSCO	Output	High-speed Oscillator Output
25	MODE	Input	Mode Setup Input
26	A4	Output	Address Output
27-29	A5-A7	Output	Address Output
30-33, 35-38	A8-A15	Output	Address Output
34	AVDD	-	Analog Voltage
39-42	A16-A19 P40-P43	Output I/O	Address Output General-purpose Port 40-43
43	Vref-	-	Analog Basic Voltage
44-45	A20-A21 P44-P45 AN4-AN5	Output I/O Input	Address Output General-purpose Port 44-45 A/D Conversion Input
46	A22 P46 AN6 STOP	Output I/O Input Output	Address Output General-purpose Port 46 A/D Converter 6 Conversion Input STOP Status Output
47	A23 P47 AN7 WDOUT	Output I/O Input Output	Address Output General-purpose Port 47 A/D Converter 7 Conversion Input Watchdog Timer Overflow Output

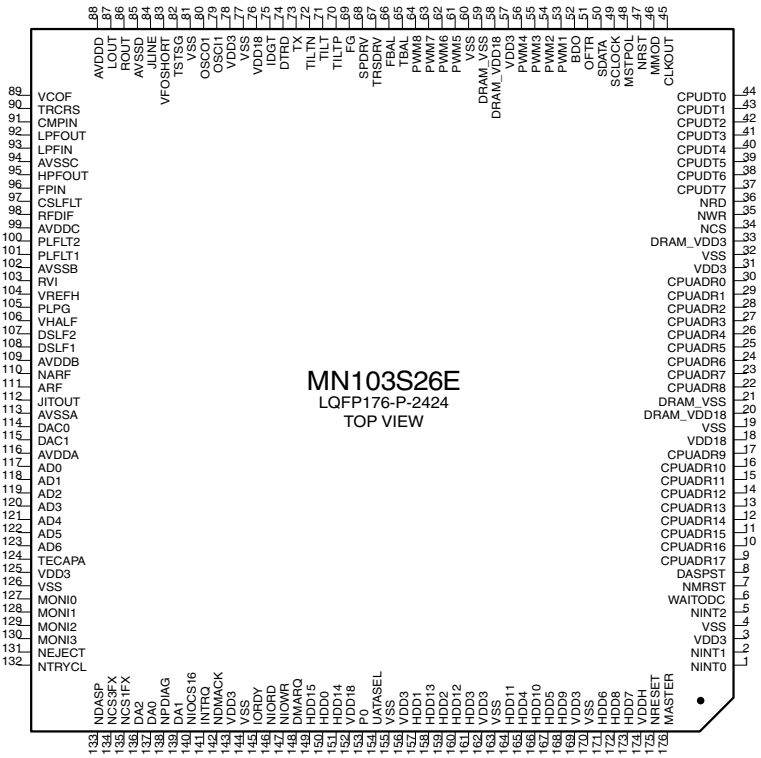
Pin	Pin Name	I/O	Function MN102HF
48	P80 TM14OA	I/O Output	General-purpose Port 80 Timer 14A Output
49	P81 TM14OB	I/O Output	General-purpose Port 81 Timer 14B Output
50	P82 TM0IO SBI2 SBT3 SCL3	I/O I/O Input I/O Output	General-purpose Port 82 Timer 0 Input/Output Serial Interface 2 Data Input Serial Interface 3 Clock Input/Output Serial Interface 3 Clock Output
51	P83 TM4IO SBI3	I/O I/O Input	General-purpose Port 83 Timer 4 Input/Output Serial Interface 3 Data Input
52	P84 TM7IO SBO3 SDA3	I/O I/O Output I/O	General-purpose Port 84 Timer 7 Input/Output Serial Interface 3 Data Output Serial Interface 3 Data Input/Output
53	P85 TM9IOA SBO2 SBT4 SCL4	I/O I/O Output I/O Output	General-purpose Port 85 Timer 9A Input/Output Serial Interface 2 Data Output Serial Interface 4 Clock Input/Output Serial Interface 4 Clock Output
54	Vref+	-	Analog Basic Voltage
55	P86 TM9IOB SBI4	I/O I/O Input	General-purpose Port 86 Timer 9B Input/Output Serial Interface 4 Data Input
56	P87 TM9IC SBO4 SDA4	I/O Input Output I/O	General-purpose Port 87 Timer 9C Input Serial Interface 4 Output Serial Interface 4 Input/Output
57	P90 TM8IOA	I/O I/O	General-purpose Port 90 Timer 8A Input/Output
57	BIBT1 /DMAREQ1	Output Input	Internal System Clock Output ETC1 Activation Request Input
58	P91 TM10IOA BIBT2 /DMAACK1	I/O I/O Output Output	General-purpose Port 91 Timer 10A Input/Output Internal System Clock Output ETC1 Acknowledge v
59	P92 TM10IOB /DMAREQ0	I/O I/O Input	General-purpose Port 92 Timer 10B Input/Output ETC0 Activation Request Input
60	P93 TM10IC /DMAACK0	I/O Input Output	General-purpose Port 93 Timer 10C Input ETC0 Acknowledge Output
61	AVSS	-	Analog Voltage (Ground)
62	P94 AN0	I/O Input	General-purpose Port 94 A/D Converter 0 Conversion Input
63	P95 AN1	I/O Input	General-purpose Port 95 A/D Converter 1 Conversion Input
64	P96 AN2	I/O Input	General-purpose Port 96 A/D Converter 2 Conversion Input
65	P97 AN3	I/O Input	General-purpose Port 97 A/D Converter 3 Conversion Input
66	VDD	-	Power
67	/RAS P70 SBT0	Output I/O I/O	DRAM Control Output General-purpose Port 70 Serial Interface 0 Clock Input/Output
68	/CAS, /LCAS P71 SBI0	Output I/O Input	DRAM Control Output General-purpose Port 71 Serial Interface 0 Data Input
69	/UCAS P72 SBO0	Output I/O Output	DRAM Control Output General-purpose Port 72 Serial Interface 0 Data Output
70	DUMX P73 SBT1	Output I/O I/O	DRAM Control Output General-purpose Port 73 Serial Interface 1 Clock Input/Output
71	P74 SBI1	I/O Input	General-purpose Port 74 Serial Interface 1 Data Input
72	P75 SBO1	I/O Output	General-purpose Port 75 Serial Interface 1 Data Output
73-74	PULLUP	Input	Pull-up
75	/NMI	Input	Nonmaskable Interrupt Input

Pin	Pin Name	I/O	Function MN102HF
76	PA0 /IRQ0	I/O Input	General-purpose Port A0 External Interrupt 0 Input
77	PA1 /IRQ1	I/O Input	General-purpose Port A1 External Interrupt 1 Input
78	PA2 /IRQ2	I/O Input	General-purpose Port A2 External Interrupt 2 Input
79	PA3 /IRQ3	I/O Input	General-purpose Port A3 External Interrupt 3
80	PA4 /IRQ4 TM15IB	I/O Input Input	General-purpose Port A4 Input External Interrupt 4 Timer 15B Input
81	ADSEP PA5	Input I/O	Address/Data Separate General-purpose Port A5
82	/RST	Input	Reset Input

Pin	Pin Name	I/O	Function MN102HF
83	VDD	-	Power
84-91	D0-D7	I/O	Data I/O
92	VSS	-	Power (Ground)
93	D8	I/O	Data I/O
94	D9	I/O	Data I/O
95	D10	I/O	Data I/O
96	D11	I/O	Data I/O
97	D12	I/O	Data I/O
98	D13	I/O	Data I/O
99	D14	I/O	Data I/O
100	D15	I/O	Data I/O

MN103S26E

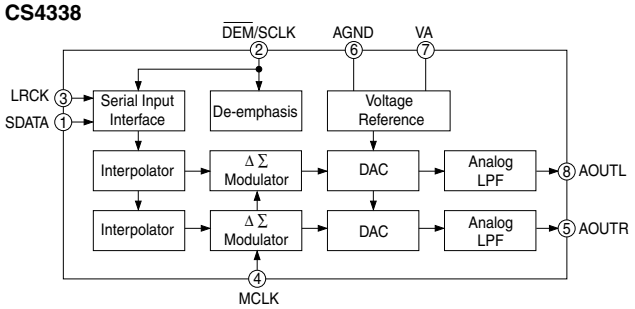


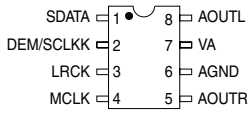


Pin	Pin Name	I/O	Function MN103S26E	Connected Device
1	NINT0	O	Systemcontroller interrupt signal 0	SYSCON
2	NINT1	O	Systemcontroller interrupt signal 1	SYSCON
3	VDD3	–	I/O power supply (3.3V)	–
4	VSS	–	Ground	–
5	NINT2	O	Systemcontroller interrupt signal 2	SYSCON
6	WAITODC	O	Systemcontroller bus wait signal	SYSCON
7	NMRST	O	Systemcontroller reset output	SYSCON
8	DASPST	I	DASP signal initial value setting	HOST
9	CPUADR17	I	Systemcontroller address 17	SYSCON
10	CPUADR16	I	Systemcontroller address 16	SYSCON
11	CPUADR15	I	Systemcontroller address 15	SYSCON
12	CPUADR14	I	Systemcontroller address 14	SYSCON
13	CPUADR13	I	Systemcontroller address 13	SYSCON
14	CPUADR12	I	Systemcontroller address 12	SYSCON
15	CPUADR11	I	Systemcontroller address 11	SYSCON
16	CPUADR10	I	Systemcontroller address 10	SYSCON
17	CPUADR9	I	Systemcontroller address 9	SYSCON
18	VDD18	–	I/O power supply (1.8V)	–
19	VSS	–	Ground	–
20	DRAMVDD18	–	DRAM power supply (1.8V)	–
21	DRAMVSS	–	DRAM ground	–
22	CPUADR8	I	Systemcontroller address 8	SYSCON
23	CPUADR7	I	Systemcontroller address 7	SYSCON
24	CPUADR6	I	Systemcontroller address 6	SYSCON
25	CPUADR5	I	Systemcontroller address 5	SYSCON
26	CPUADR4	I	Systemcontroller address 4	SYSCON
27	CPUADR3	I	Systemcontroller address 3	SYSCON
28	CPUADR2	I	Systemcontroller address 2	SYSCON
29	CPUADR1	I	Systemcontroller address 1	SYSCON
30	CPUADR0	I	Systemcontroller address 0	SYSCON
31	VDD3	–	I/O power supply (3.3V)	–
32	VSS	–	Ground	–
33	DRAMVDD33	–	DRAM power supply (3.3V)	–
34	NCS	I	Systemcontroller chip selection signal	SYSCON
35	NWR	I	Systemcontroller write signal Input	SYSCON
36	NRD	I	Systemcontroller read signal Input	SYSCON
37	CPUDT7	I/O	Systemcontroller data 7	SYSCON
38	CPUDT6	I/O	Systemcontroller data 6	SYSCON
39	CPUDT5	I/O	Systemcontroller data 5	SYSCON
40	CPUDT4	I/O	Systemcontroller data 4	SYSCON
41	CPUDT3	I/O	Systemcontroller data 3	SYSCON
42	CPUDT2	I/O	Systemcontroller data 2	SYSCON
43	CPUDT1	I/O	Systemcontroller data 1	SYSCON
44	CPUDT0	I/O	Systemcontroller data 0	SYSCON
45	CLKOUT	O	Systemcontroller clock output	SYSCON
46	MMOD	I	Test mode selection signal	–
47	NRST	I	Reset	Input RSTIC
48	MSTPOL	I	MASTER pin polarity selection Input	–
49	SCLOCK	I/O	Debug serial clock	–
50	SDATA	I/O	Debug serial data	–
51	OFTR	I	Off track signal	Input EFP
52	BDO	I	Dropout signal Input	EFP
53	PWM1	I/O	General-purpose PWM 1 output	–
54	PWM2	I/O	General-purpose PWM 2 output	–
55	PWM3	I/O	General-purpose PWM 3 output	–
56	PWM4	I/O	General-purpose PWM 4 output	–
57	VDD3	–	I/O power supply (3.3V)	–
58	DRAMVDD18	–	DRAM power supply (1.8V)	–
59	DRAMVSS	–	DRAM ground	–
60	VSS	–	Ground	–
61	PWM5	I/O	General-purpose PWM 5 output	–
62	PWM6	I/O	General-purpose PWM 6 output	–
63	PWM7	I/O	General-purpose PWM 7 output	–
64	PWM8	I/O	General-purpose PWM 8 output	–
65	TBAL	O	Tracking balance adjustment output	FEP
66	FBAL	O	Focus balance adjustment output	FEP
67	TRSDRV	O	Traverse drive output	DRVIC
68	SPDRV	O	Spindle drive output	DRVIC
69	FG	I	Motor FG Input	DRVIC
70	TILTP	O	Tilting drive plus (+) output	Optical PU
71	TILT	O	Tilting drive reference output	Optical PU
72	TILTN	O	Tilting drive minus (-) output	Optical PU
73	TX	O	Digital output signal	–
74	DTRD	O	Data block frequency control selection signal	FEP
75	IDGT	O	CAPA block selection signal	FEP
76	VDD18	–	I/O power supply (1.8V)	–
77	VSS	–	Ground	–
78	VDD3	–	I/O power supply (3.3V)	–
79	OSCI1	I	16.9MHz oscillation	Input
80	OSCO1	O	16.9MHz oscillation	output
81	VSS	–	Ground	–
82	TSTSG	O	EQ calibration signal	FEP
83	VFOSHORT	O	VFO short-circuit output	FEP
84	JLINE	O	J-line setting output	FEP
85	AVSSD	–	Analog circuit ground	–
86	ROUT	O	MASH R-ch audio output	–
87	LOUT	O	NASH L-ch audio output	–
88	AVDDD	–	Analog circuit power supply (3.3V)	–

Pin	Pin Name	I/O	Function MN103S26E	Connected Device
89	VCOF	I	JFVCO control voltage	–
90	TRCRS	I	Track cross generating signal Input	FEP
91	CMPIN	I	WOBBLE comparator Input	–
92	LPFOUT	O	LPF output	–
93	LPFIN	I	LPF Input	–
94	AVSSC	–	Analog circuit ground	–
95	HPFOUT	O	HPF output	–
96	FPFIN	I	HPF Input	–
97	CSLFLT	I	CPDET capacitor	–
98	RFDIF	I	CPDET RF Input	–
99	AVDDC	–	Analog circuit power supply (3.3V)	–
100	PLFLT2	I	PLL capacitor 2	–
101	PLFLT1	I	PLL capacitor 1	–
102	AVSSB	–	Analog circuit ground	–
103	RVI	I	VREFH reference current source resistor	–
104	VREFH	I	Reference voltage 2.2V Input	FEP
105	PLPG	I	PLL phase gain setting resistor	–
106	VHALF	I	Reference voltage 1.65V Input	FEP
107	DSLF2	I	DSL capacitor 2	–
108	DSLF1	I	DSL capacitor 1	–
109	AVDDB	–	Analog circuit power supply (3.3V)	–
110	NARF	I	Equivalent RF - Input	FEP
111	ARF	I	Equivalent RF • Input	FEP
112	JITOUT	O	Jitter signal monitor	–
113	AVSSA	–	Analog circuit ground	–
114	DAC0	O	Tracking drive output	DRVIC
115	DAC1	O	Focus drive output	DRVIC
116	AVDDA	–	Analog circuit power supply (3.3V)	–
117	AD0	I	FE Input	FEP
118	AD1		AS Input	FEP
119	AD2	I	TEph/TE3b/TEpp Input	FEP
120	AD3	I	RF envelope Input	FEP
121	AD4	I	Tangential phase difference Input	FEP
122	AD5/CAPAC2	I	Upper CAPA ENV Input/hold capacitor	FEP
123	AD6/CAPAC1	I	Lower CAPA ENV Input/hold capacitor	FEP
124	TECAPA	I	CAPA tracking error signal	
125	VDD3	–	I/O power supply (3.3V)	–
126	VSS	–	Ground	–
127	MONI0	O	Internal signal monitor 0	–
128	MONI1	O	Internal signal monitor 1	–
129	MONI2	O	Internal signal monitor 2	–
130	MONI3	O	Internal signal monitor 3	–
131	NEJECT	I/O	Eject detection	MECA
132	NTRYCL	I/O	Tray close detection	MECA
133	NDASP	I/O	ATAPI drive active / slave connection I/O	HOST
134	NCS3FX	I	ATAPI host chip selection	HOST
135	NCS1FX	I	ATAPI host chip selection	HOST
136	DA2	I/O	ATAPI host address 2	HOST
137	DA0	I/O	ATAPI host address 0	HOST
138	NPDIAG	I/O	ATAPI slave to master diagnostic I/O	HOST
139	DA1	I/O	ATAPI host address 1	HOST
140	NIOCS16	O	ATAPI host data bus width selection output	HOST
141	INTRQ	O	ATAPI host Interrupt request	HOST
142	NDMACK	I	ATAPI host DMA acknowledge	HOST
143	VDD3	–	I/O power supply (3.3V)	–
144	VSS	–	Ground	–
145	IORDY	O	ATAPI host ready output	HOST
146	NIORD	I/O	ATAPI host data read	HOST
147	NIOWR	I/O	ATAPI host data write	HOST
148	DMARQ	O	ATAPI host DMA request	HOST
149	HDD15	I/O	ATAPI host data 15	HOST
150	HDD0	I/O	ATAPI host data 0	HOST
151	HDD14	I/O	ATAPI host data 14	HOST
152	VDD18	–	I/O power supply (1.8V)	–
153	P0	I	(Fix to the ground)	–
154	UATASEL	I	(Fix to the ground)	–
155	VSS	–	Ground	–
156	VDD3	–	I/O power supply (3.3V)	–
157	HDD1	I/O	ATAPI host data 1	HOST
158	HDD13	I/O	ATAPI host data 13	HOST
159	HDD2	I/O	ATAPI host data 2	HOST
160	HDD12	I/O	ATAPI host data 12	HOST
161	HDD3	I/O	ATAPI host data 3	HOST
162	VDD3	–	I/O power supply (3.3V)	–
163	VSS	–	Ground	–
164	HDD11	I/O	ATAPI host data 11	HOST
165	HDD4	I/O	ATAPI host data 4	HOST
166	HDD10	I/O	ATAPI host data 10	HOST
167	HDD5	I/O	ATAPI host data 5	HOST
168	HDD9	I/O	ATAPI host data 9	HOST
169	VDD3	–	I/O power supply (3.3V)	–
170	VSS	–	Ground	–
171	HDD6	I/O	ATAPI host data 6	HOST
172	HDD8	I/O	ATAPI host data 8	HOST
173	HDD7	I/O	ATAPI host data 7	HOST
174	VDDH	–	ATAPI reference power supply (5.0V)	–
175	NRESET	I	ATAPI host reset Input	HOST
176	MASTER	I	ATAPI master / slave selection	HOST

CS4338

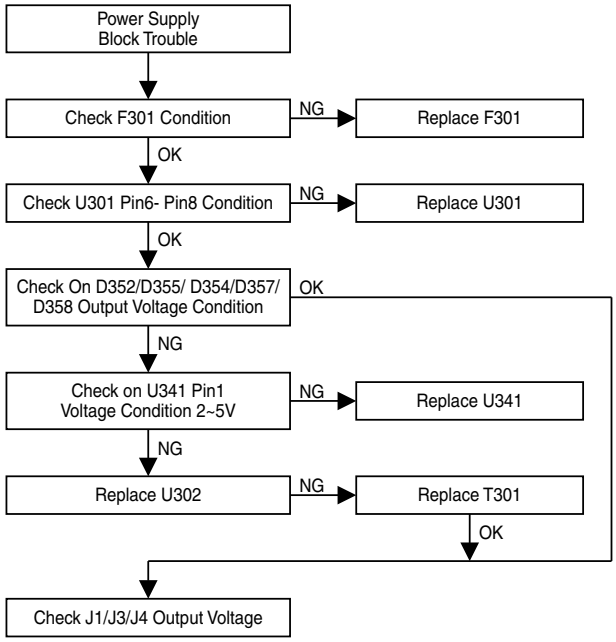




Pin	Pin Name	Type	Function CS4338
1	SDATA	Digital input	Serial Audio Data Input - two's complement MSB-first serial data is input on this pin. The data is clocked into the CS4334 via internal or external SCLK, and the channel is determined by LRCK.
2	DEM/SCLK	Digital input	De-Emphasis/External Serial Clock Input - used for de-emphasis filter control or external serial clock input.
3	LRCK	Digital input	Left/Right Clock - determines which channel is currently being input on the Audio Serial Data Input pin, SDATA.
4	MCLK	Digital input	Master Clock - frequency must be 256x, 384x, or 512x the input sample rate in BRM and either 128x or 192x the input sample rate in HRM.
5	AOUTR	Analogue output	Analog Right Channel Output - typically 3.5 Vpp for a full-scale input signal.
6	AGND	Ground	Analog Ground - analog ground reference is 0V.
7	VA	Supply	Analog Power - analog power supply is nominally +5V.
8	AOUTL	Analogue output	Analog Left Channel Output - typically 3.5 Vpp for a full-scale input signal.

Fehlersuchdigramme / Trouble Shouting Diagrams

1. Power Supply Trouble Service Flow Chart



2. Read Disc Trouble Service Flow Chart

Read disc problem in a DVD player is a very complicated issue that may involve complex issues. This problem is not only relation to the electronic circuit, but also very much relation to the operation environment.

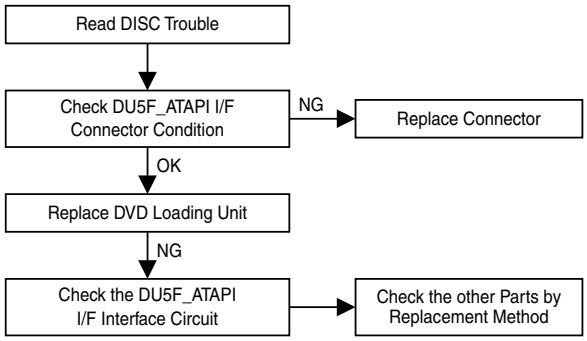
DVD loading unit is a very complicate part that contains big number of ESD components, which require specific equipment, tools and technique to repair; in general, service technician is not suggested to disassemble the DVD loading unit. It is suggest proving the trouble and replacing the complete DVD loading unit, instead of repairing the DVD loading unit in local workshop.

It is suggested to prove the faulty of a DVD loading unit by replacement by a good DVD loading unit.

Before checking the "NO Disc" Trouble, ensure excluding the following possibilities:

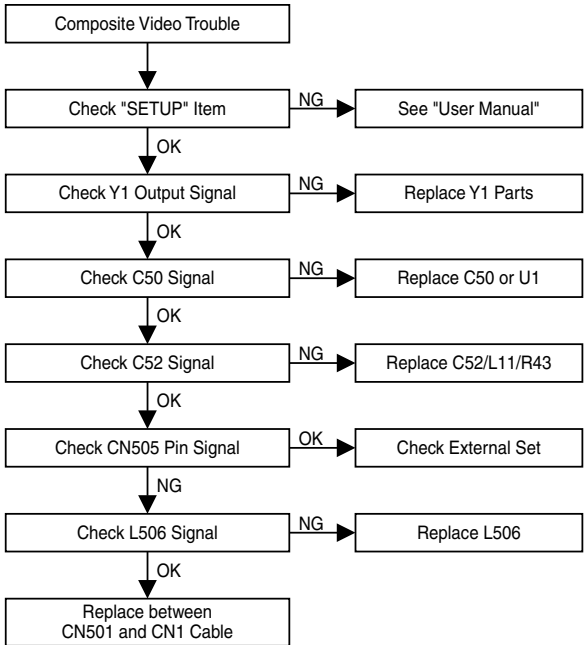
– The test disc is damage.
– AC power supply voltage dropped below the minimum required level.
– DVD disc region code and color system is not matching to the DVD player or system setting.
– Moisture condensed inside the unit. (Power on the unit, without disc loaded, for 1/2 to 2 hours).

Service Flow Chart

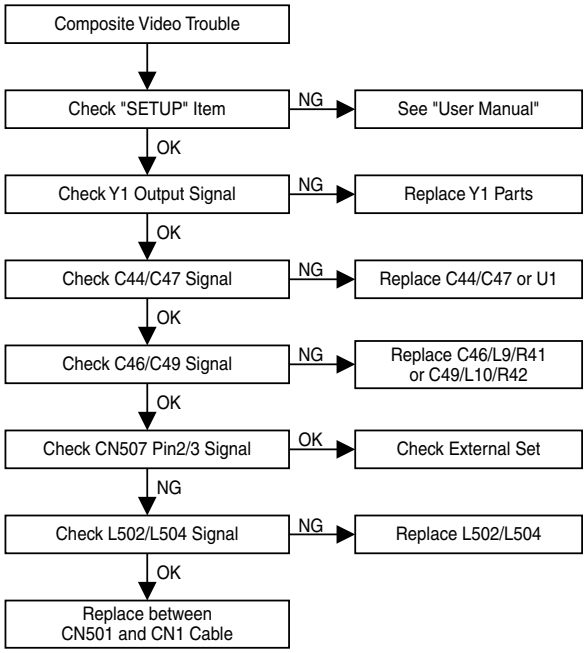


3. Video Trouble Service Flow Chart

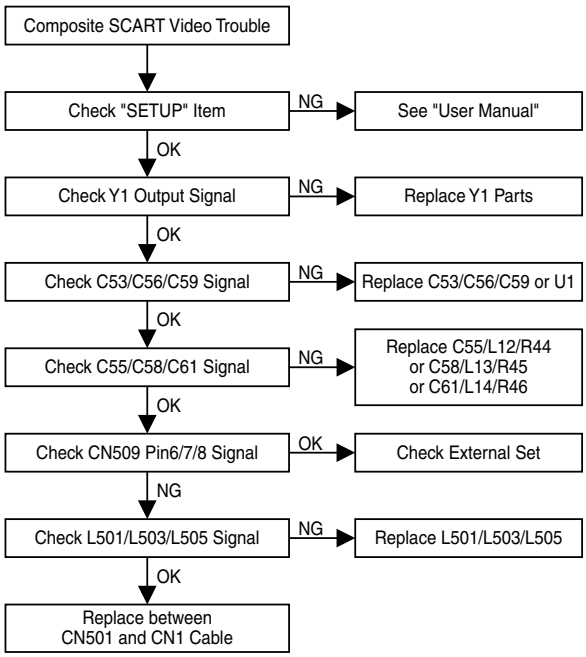
3.1 Composite Video Trouble Service Flow Chart



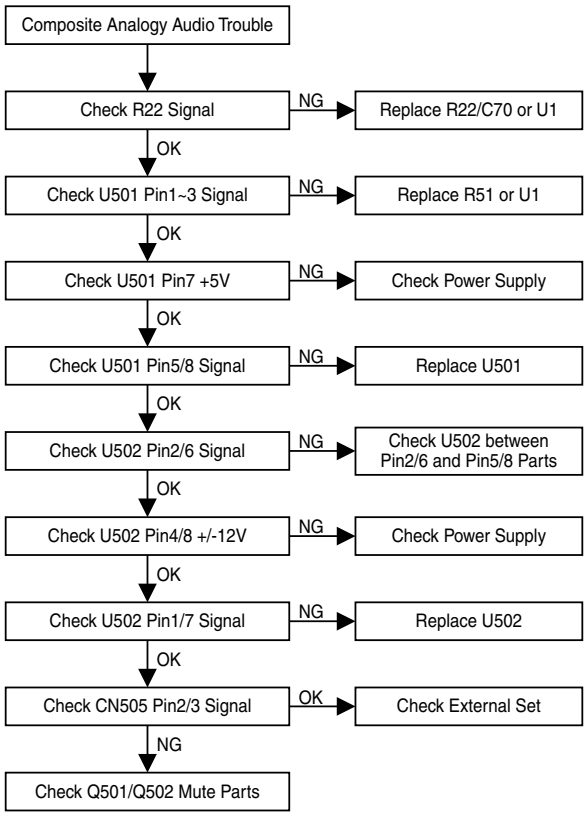
3.2 S-Video Trouble Service Flow Chart



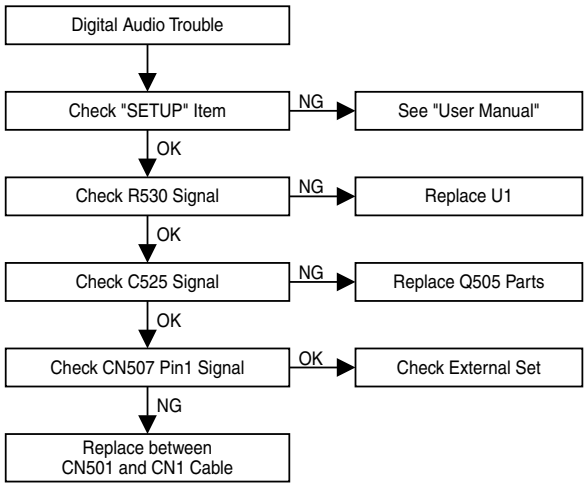
3.3 SCART Video Trouble Service Flow Chart



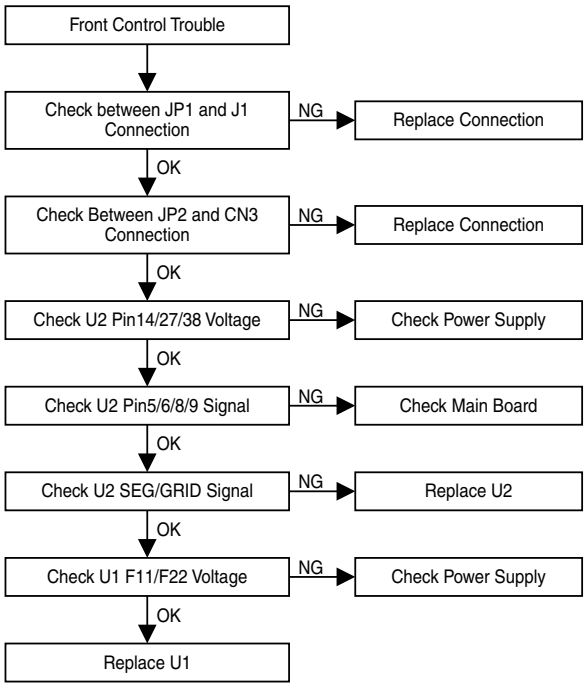
4. Composite Analogy Audio Trouble Service Flow Chart



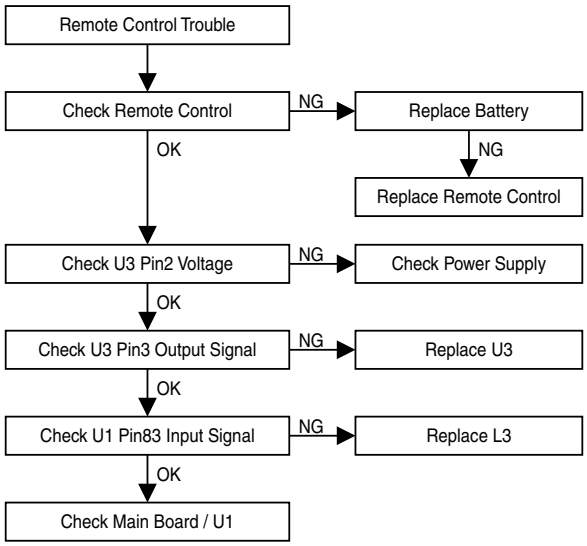
5. Digital Audio Trouble Service Flow Chart



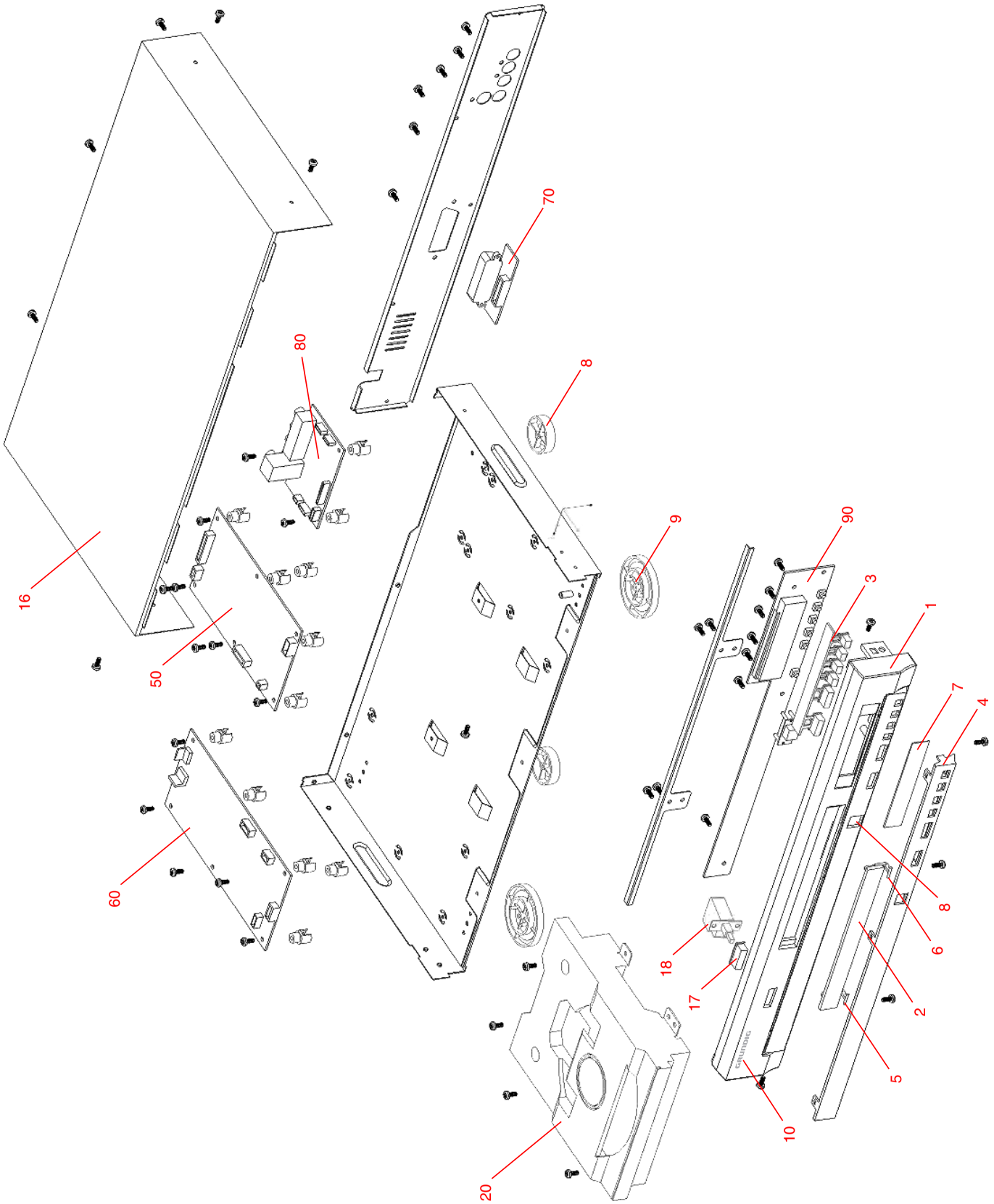
6. Front Control Trouble Service Flow Chart



7. Remote Control Trouble Service Flow Chart



Explosionszeichnungen und Ersatzteillisten
Exploded Views and Spare Parts Lists



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GDP 2200

MATERIAL-NR. / PART NO.: 774010375100
BESTELL-NR. / ORDER NO.: GMJ8600 SILBER/SILVER

POS. NR. POS. NO.	ABB. FIG.	MATERIAL-NR. PART NUMBER	ANZ. QTY.	BEZEICHNUNG (D)	DESCRIPTION (GB)
		774010375100		GDP 2200 PROCON SILBER KEIN E-TEIL	GDP 2200 PROCON SILVER NO SPARE PART
0001.000	1	759880717300		FRONTPLATTE SILBER	FRONT PANEL SILVER
0002.000	1	759880717400		TUER	DOOR
0003.000	1	759880717600		TASTENSATZ	TASTE SET
0004.000	1	759880717800		DEKORBLENDE	DECOR PANEL
0005.000	1	759880717700		FEDER TUER	SPRING DOOR
0006.000	1	759880717900		FEDER TUER	SPRING DOOR
0007.000	1	759880718000		FENSTER	WINDOW
0008.000	1	759880718100		LINSE	LENS
0009.000	1	759880718200		FUSS GROSS	FOOT BIG
0010.000	1	759880712400		GRUNDIG LOGO	GRUNDIG LOGO
0011.000	1	759880722500		FUSS KLEIN	FOOT SMALL
0016.000	1	759880718300		GEH.-OBERTEIL	TOP COVER
0017.000	1	759880717500		KNOPF NETZ	POWER BUTTON
0018.000⚠	1	759880723100		NETZSCHALTER	POWER SWITCH
0020.000	1	759880722700		LAUFWERK	DRIVE MECHANISM
0050.000	1	275990114400	X	LP-MPEG DECODER (HAUPTPLATTE)	MPEG DECODER BOARD (MAIN BOARD)
0060.000⚠	1	275990032500	X	LP-NETZTEILMODUL	POWER SUPPLY BOARD
0070.000	1	275990061600	X	LP-AV OUTPUT MODUL (IN/OUT-PLATTE) KEIN E-TEIL	AV OUTPUT BOARD (IN/OUT BOARD) NO SPARE PART
0080.000	1	275990061500		LP-SCART OUTPUT MODUL (AV-BUCHSE)	SCART OUTPUT BOARD (AV SOCKET)
0090.000	1	275990202200	X	LP-BEDIENMODUL KEIN E-TEIL	CONTROL BOARD NO SPARE PART
	⚠	829099122000		NETZKABEL	POWER CABLE
		720117132800		FERNBEDIENUNG TP 2200	REMOTE CONTROL TP 2200
		720105412500		SERVICE MANUAL D/GB	SERVICE MANUAL D/GB
		720116025500		BEDIENUNGSANLEITUNG D/GB	INSTRUCTION MANUAL D/GB
				X = SIEHE GESONDERTE E-LISTE	X = SEE SEPARATE PARTS LIST

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Mat.-Nummer 720108000000, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

⚠ (!)

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 720108000000, as well as the respective national deviations.

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION

GRUNDIG

Ersatzteilliste
Spare Parts List

DVD

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LP-MPEG DECODER
MPEG DECODER BOARD

MATERIAL-NR. / PART NO.: 275990114400

POS. NR. POS. NO.	ABB. FIG.	MATERIAL-NR. PART NUMBER	ANZ. QTY.	BEZEICHNUNG (D)	DESCRIPTION (GB)
		275990114400		LP-MPEG DECODER	MPEG DECODER BOARD

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
D 1	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 2	759880718900	SPULE L0805-1.8UH-500MA 10%
DS 17	830921504500	DIODE 1 N 4148 GEG.N.AV 619
FBS 38	759880719300	SPULE L0805-50MA-600OHM
FBS 39	759880722100	SPULE VLQ0910K100T
FBS 40	759880722100	SPULE VLQ0910K100T
FBS 41	759880719300	SPULE L0805-50MA-600OHM
FBS 43	759880722100	SPULE VLQ0910K100T
FBS 45	759880722100	SPULE VLQ0910K100T
FBS 46	759880719200	FERRITPERLE VPL0323A601R
FBS 46	759880719300	SPULE L0805-50MA-600OHM
FBS 48	759880719200	FERRITPERLE VPL0323A601R
FBS 49	759880719200	FERRITPERLE VPL0323A601R
FBS 50	759880719200	FERRITPERLE VPL0323A601R
FBS 51	759880719200	FERRITPERLE VPL0323A601R
FBS 52	759880719200	FERRITPERLE VPL0323A601R
FBS 53	759880719200	FERRITPERLE VPL0323A601R
FBS 54	759880719200	FERRITPERLE VPL0323A601R
FBS 55	759880719200	FERRITPERLE VPL0323A601R
FBS 56	759880719200	FERRITPERLE VPL0323A601R
FBS 57	759880719200	FERRITPERLE VPL0323A601R
FBS 58	759880719200	FERRITPERLE VPL0323A601R
FBS 59	759880719200	FERRITPERLE VPL0323A601R
FBS 60	759880719200	FERRITPERLE VPL0323A601R
FBS 61	759880719200	FERRITPERLE VPL0323A601R
FBS 62	759880719200	FERRITPERLE VPL0323A601R
FBS 63	759880719200	FERRITPERLE VPL0323A601R
FBS 64	759880719200	FERRITPERLE VPL0323A601R
FBS 65	759880719200	FERRITPERLE VPL0323A601R
FBS 66	759880719200	FERRITPERLE VPL0323A601R
FBS 67	759880719200	FERRITPERLE VPL0323A601R
FBS 68	759880719200	FERRITPERLE VPL0323A601R
FBS 69	759880719200	FERRITPERLE VPL0323A601R
FBS 70	759880719200	FERRITPERLE VPL0323A601R
FBS 71	759880719200	FERRITPERLE VPL0323A601R
FBS 73	759880719200	FERRITPERLE VPL0323A601R
FBS 73	759880719200	FERRITPERLE VPL0323A601R
FBS 74	759880719200	FERRITPERLE VPL0323A601R
FBS 74	759880719200	FERRITPERLE VPL0323A601R
FBS 75	759880719200	FERRITPERLE VPL0323A601R
FBS 75	759880719200	FERRITPERLE VPL0323A601R
FBS 76	759880719200	FERRITPERLE VPL0323A601R
FBS 76	759880719200	FERRITPERLE VPL0323A601R
FBS 77	759880719200	FERRITPERLE VPL0323A601R
FBS 77	759880719200	FERRITPERLE VPL0323A601R
FBS 78	759880719200	FERRITPERLE VPL0323A601R
FBS 78	759880719200	FERRITPERLE VPL0323A601R

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
FBS 79	759880719200	FERRITPERLE VPL0323A601R
FBS 79	759880719200	FERRITPERLE VPL0323A601R
FBS 80	759880719200	FERRITPERLE VPL0323A601R
FBS 80	759880719200	FERRITPERLE VPL0323A601R
FBS 81	759880719200	FERRITPERLE VPL0323A601R
FBS 81	759880719200	FERRITPERLE VPL0323A601R
FBS 82	759880722100	SPULE VLQ0910K100T
FBS 85	759880719200	FERRITPERLE VPL0323A601R
FBS 85	759880719200	FERRITPERLE VPL0323A601R
FBS 102	759880722100	SPULE VLQ0910K100T
L 2	759880719400	SPULE RH356008
L 3	759880719300	SPULE L0805-50MA-600OHM
L 3	759880719300	SPULE L0805-50MA-600OHM
L 4	759880719300	SPULE L0805-50MA-600OHM
L 4	759880719300	SPULE L0805-50MA-600OHM
L 5	759880719300	SPULE L0805-50MA-600OHM
L 5	759880719300	SPULE L0805-50MA-600OHM
L 6	759880719300	SPULE L0805-50MA-600OHM
L 6	759880719300	SPULE L0805-50MA-600OHM
L 7	759880719400	SPULE RH356008
L 8	759880719400	SPULE RH356008
L 9	759880718900	SPULE L0805-1.8UH-500MA 10%
L 10	759880718900	SPULE L0805-1.8UH-500MA 10%
L 11	759880718900	SPULE L0805-1.8UH-500MA 10%
L 12	759880718900	SPULE L0805-1.8UH-500MA 10%
L 13	759880718900	SPULE L0805-1.8UH-500MA 10%
L 14	759880718900	SPULE L0805-1.8UH-500MA 10%
L 15	759880722000	SPULE L0805-3.3UH-500MA 10%
LS 6	759880719200	FERRITPERLE VPL0323A601R
Q 1	759880719500	TRANS KTD1304-SOT
Q 2	759880719500	TRANS KTD1304-SOT
U 1	759880719800	IC AMLOGIC AML3250
U 2	759880720100	IC HY57V641620HG/TSOPII54P
U 4	759880719900	IC DT39VF040-90N
U 5	759880720300	IC SPX1117M3-SOT223
U 6	759880720400	IC MN103S26EGB-LQFP176
U 7	759880720500	IC MN102H60GHC-LQFP100
U 8	759880720200	IC SPX1117-3.3V-SOT223
U 9	759880720300	IC SPX1117M3-SOT223
U 11	759880720600	IC 74HC14D-SO14
Y 1	759880719700	QUARZ 27MHZ-30PPM-20PF
YS 3	759880719600	QUARZ 16.9344MHZ-30PPM-20PF

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION

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LP-NETZTEILMODUL
POWER SUPPLY BOARD

MATERIAL-NR. / PART NO.: 275990032500

POS. NR. POS. NO.	ABB. FIG.	MATERIAL-NR. PART NUMBER	ANZ. QTY.	BEZEICHNUNG (D)	DESCRIPTION (GB)
	⚠	275990032500		LP-NETZTEILMODUL	POWER SUPPLY BOARD

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
C 301 ⚠	759880722800	KONDENS. 0,1 UF 275VAC
C 302 ⚠	759880722800	KONDENS. 0,1 UF 275VAC
C 303 ⚠	759880723000	KONDENS. 47 UF 450V
C 311 ⚠	759880722900	KONDENS. 102 M/400VAC
C 312 ⚠	759880722900	KONDENS. 102 M/400VAC
C 313 ⚠	759880722900	KONDENS. 102 M/400VAC
D 301	830921512700	DIODE 1 N 4007 -GA
D 302	830921512700	DIODE 1 N 4007 -GA
D 303	830921512700	DIODE 1 N 4007 -GA
D 304	830921512700	DIODE 1 N 4007 -GA
D 305	759880718700	DIODE HER108
D 306	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 351	830921512700	DIODE 1 N 4007 -GA
D 352	759880719000	DIODE SR360
D 354	759880718900	SPULE L0805-1.8UH-500MA 10%
D 355	759880718800	DIODE HER104
D 357	759880718800	DIODE HER104
D 358	759880718800	DIODE HER104
D 361	830921512700	DIODE 1 N 4007 -GA
F 301 ⚠	759880225600	SICHERUNG T500MA
L 301 ⚠	759880718500	SPULE BC-20229
L 352	759880718400	SPULE L-071
L 354	759880718400	SPULE L-071
L 355	759880718600	SPULE LGA0307-10UH-K
L 357	759880718600	SPULE LGA0307-10UH-K
L 358	759880718600	SPULE LGA0307-10UH-K
T 301 ⚠	759880721900	TRAFO BCK-70-01B 20216
U 301 ⚠	759880721800	IC L6565-DIP8
U 302 ⚠	759880722600	IC PC817B-DIP4
U 341	830544043200	IC TL431ACLPRP MOT AV330 E
U 355	759880448900	IC LM7805CT
V 301 ⚠	759880721700	TRANSISTOR P3NC60FP
VD 351	759880719100	DIODE BZX-5V1 1/2W

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Mat.-Nummer 720108000000, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

⚠ (!)

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 720108000000, as well as the respective national deviations.

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION

GRUNDIG

Ersatzteilliste
Spare Parts List

DVD

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LP-BEDIENMODUL
CONTROL BOARD

MATERIAL-NR. / PART NO.: 275990202200

POS. NR. POS. NO.	ABB. FIG.	MATERIAL-NR. PART NUMBER	ANZ. QTY.	BEZEICHNUNG (D)	DESCRIPTION (GB)
		275990202200		LP-BEDIENMODUL KEIN E-TEIL	CONTROL BOARD NO SPARE PART

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
D 1	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 2	830921504500	DIODE 1 N 4148 GEG.N.AV 619
S 1	759880721300	SCHALTER KAO-6
S 2	759880721300	SCHALTER KAO-6
S 3	759880721300	SCHALTER KAO-6
S 4	759880721300	SCHALTER KAO-6

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
S 5	759880721300	SCHALTER KAO-6
S 6	759880721300	SCHALTER KAO-6
U 1	759880721600	IC LHVFD20-0501
U 2	759880721500	IC PT6312-QFP44
U 3	759880722300	IR EMPFAENGER GP1UM271RK-12

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LP-AV OUTPUT MODUL
AV OUTPUT BOARD

MATERIAL-NR. / PART NO.: 275990061600

POS. NR. POS. NO.	ABB. FIG.	MATERIAL-NR. PART NUMBER	ANZ. QTY.	BEZEICHNUNG (D)	DESCRIPTION (GB)
		275990061600		LP-AV OUTPUT MODUL KEIN E-TEIL	AV OUTPUT BOARD NO SPARE PART

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
D 501	759880720700	DIODE KDS226 (SOT-23)
D 502	759880720700	DIODE KDS226 (SOT-23)
D 503	759880720700	DIODE KDS226 (SOT-23)
D 504	759880720700	DIODE KDS226 (SOT-23)
D 505	759880720700	DIODE KDS226 (SOT-23)
D 506	759880720700	DIODE KDS226 (SOT-23)
D 507	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 508	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 509	830921504500	DIODE 1 N 4148 GEG.N.AV 619
D 510	759880722200	DIODE DZ-5V1 5MA-1/2W
L 501	759880719400	SPULE RH356008
L 502	759880719400	SPULE RH356008
L 503	759880719400	SPULE RH356008
L 504	759880719400	SPULE RH356008
L 505	759880719400	SPULE RH356008

POS. NR. POS. NO.	MATERIAL-NR. PART NUMBER	BEZEICHNUNG DESCRIPTION
L 506	759880719400	SPULE RH356008
L 507	759880719400	SPULE RH356008
Q 501	759880721000	TRANS KTD1304 (SOT-23)
Q 501	759880721100	IC CS4334K-SOIC8
Q 502	759880721200	IC JRC4558-S08
Q 503	759880720900	TRANS A1015-TO-92)
Q 504	759880720900	TRANS A1015-TO-92)
Q 505	759880720800	TRANS C1815-(TO-92)
Q 506	759880720800	TRANS C1815-(TO-92)
Q 507	759880720900	TRANS A1015-TO-92)

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Mat.-Nummer 720108000000, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

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