

Service  
Service  
**Service**



# Service Manual



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3141 785 32911

**Version 1.1**



**PHILIPS**

## TECHNICAL SPECIFICATION

### AMPLIFIER SECTION

Output power ..... 2 x 30 W RMS  
 CD Frequency Response .....  
 ..... 100Hz - 10kHz /  $\pm 3$  dB  
 CD Signal-to-Noise Ratio > 50dB (A-WEIGHED)  
 Output Sensitivity  
 Line Out (1kHz 0dB) ..... 2 $\pm$ 0.2V

### TUNER SECTION

Tuning Range .....  
 ..... FM 87.5 – 108 MHz  
 Signal-to-Noise Ratio ..... FM  $\geq$  50 dB

### TAPE SECTION

Frequency Response  
 Normal tape ..... 125 Hz - 8 kHz /  $\pm 4$  dB  
 Signal-to-Noise Ratio  
 Normal tape .....  $\geq 45$  dB  
 JIS and WTD .....  $\leq 0.35\%$

### DVD SECTION

Laser Type ..... Semiconductor  
 Video Decoding ..... MPEG-2 / MPEG-1  
 Video DAC ..... 10 Bits  
 Signal System ..... PAL / NTSC  
 Video Format ..... 4:3 / 16:9  
 Video S/N ..... 56 dB (minimum)  
 Composite Video Output ..... 1.0 Vp-p, 75 $\Omega$

### USB PLAYER

USB ..... 12Mb/s, V1.1  
 ..... support MP3 and WMA files

### MAIN UNIT

Power Supply Rating ... 120 - 230V / 60 - 50 Hz  
 Power Consumption  
 Active ..... 70 W  
 Standby .....  $\leq 7$  W  
 Dimensions (w x d x h) ..... 415 x 305 x 70 (mm)  
 Weight ..... 10.82 kg  
 Packaging Dimensions (w x d x h) .....  
 ..... 458 x 355 x 375 (mm)  
 Gross weight ..... 12.02 kg

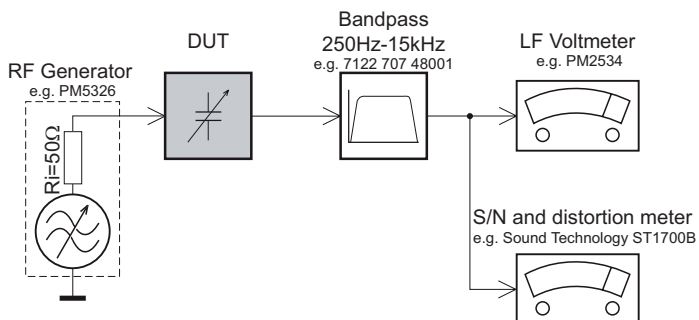
### SPEAKERS

Impedance ..... 6  $\Omega$   
 Dimensions (w x d x h) ..... 210 x 205 x 310 (mm)

***Specifications and external appearance are subject to change without notice.***

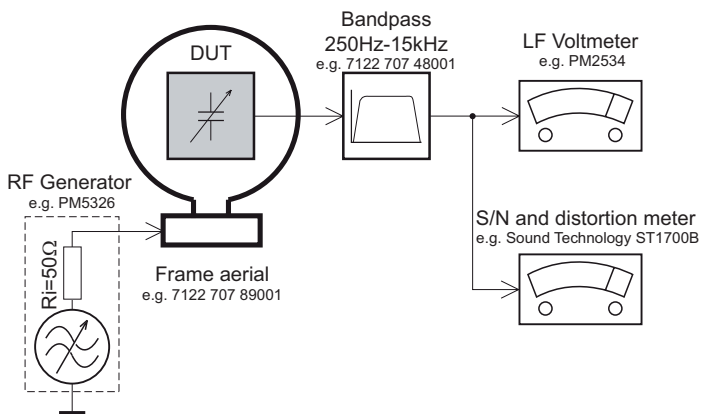
# MEASUREMENT SETUP

## Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

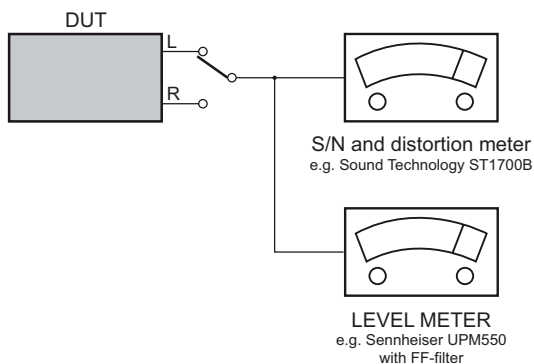
## Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

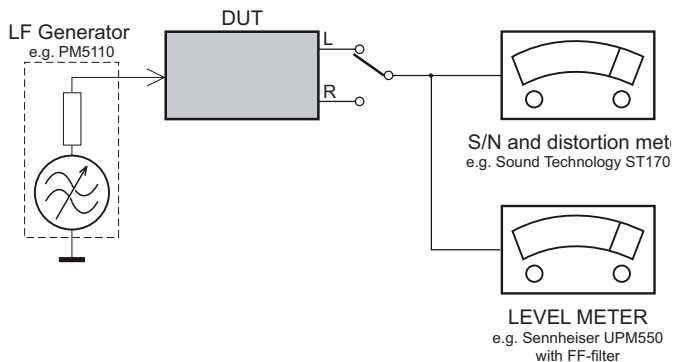
## CD

Use Audio Signal Disc SBC429 4822 397 30184  
(replaces test disc 3)



## Recorder

Use Universal Test Cassette Cr02 SBC419 4822 397 30069  
or Universal Test Cassette Fe SBC420 4822 397 30071



## SERVICE AIDS

### **GB** WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.


When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

### ESD



### **GB**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used

Safety components are marked by the symbol .

**CLASS 1  
LASER PRODUCT**

## INFORMATION ABOUT LEAD-FREE SOLDERING

Philips CE is producing lead-free sets from 1.1.2005 onwards.

### IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:
  - \* BGA-de-/soldering (+ baking instructions)
  - \* Heating-profiles of BGAs and other ICs used in Philips-sets
  - \* Lead free

You will find this and more technical information within the "magazine", chapter "workshop news".

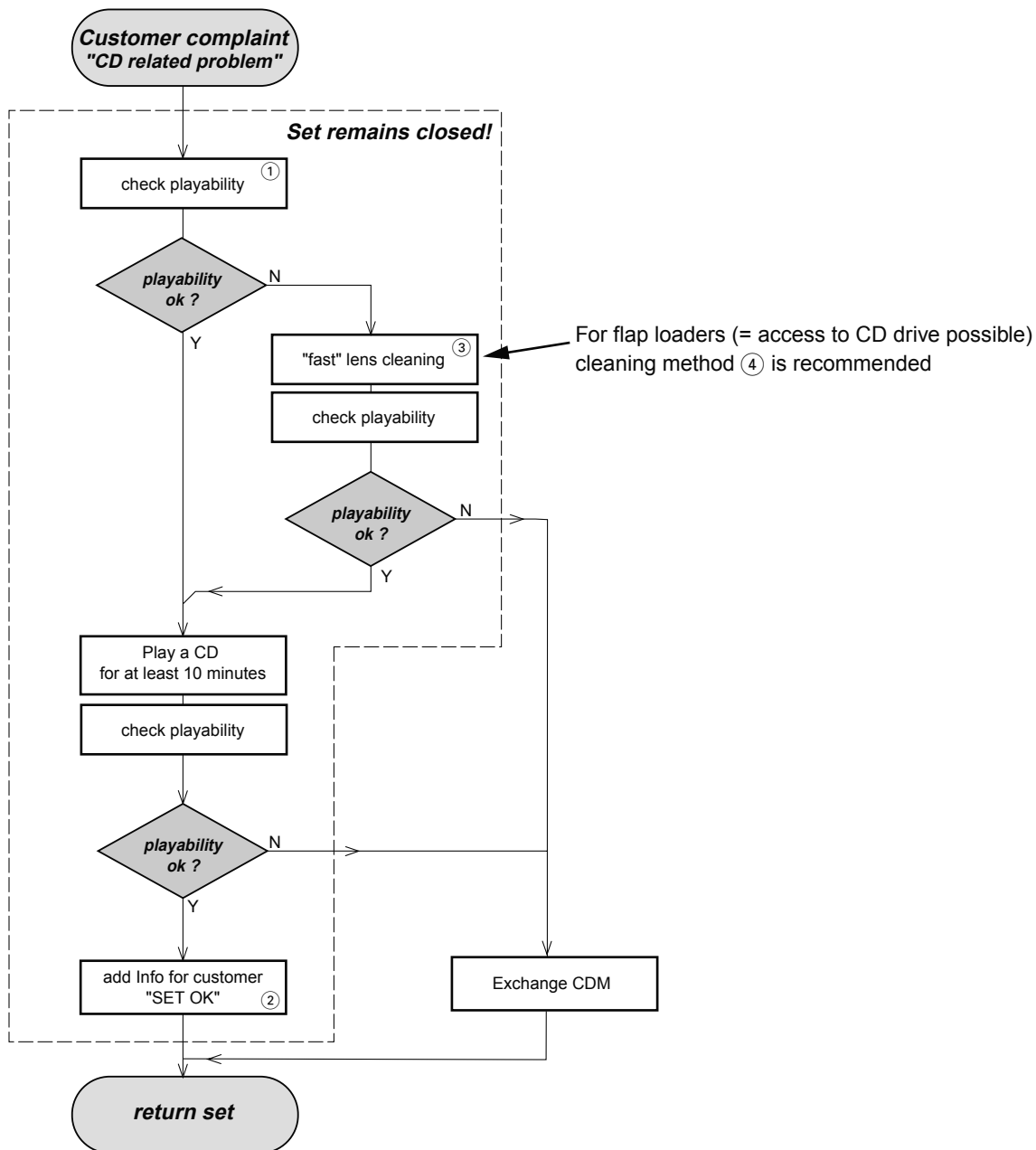
For additional questions please contact your local repair-helpdesk.

## SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
  1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
  2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
  4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

# INSTRUCTIONS ON CD PLAYABILITY



For flap loaders (= access to CD drive possible) cleaning method ④ is recommended

① - ④ For description - see following pages

## INSTRUCTIONS ON CD PLAYABILITY

①

### PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs  
 use CD-RW Printed Audio Disc .....7104 099 96611  
 TR 3 (Fingerprint)  
 TR 8 (600µ Black dot) **maximum at 01:00**

- playback of these two tracks without audible disturbance  
 playing time for: Fingerprint  $\geq 10$ seconds  
 Black dot from 00:50 to 01:10
- jump forward/backward (search) within a reasonable time

For all other sets  
 use CD-DA SBC 444A .....4822 397 30245  
 TR 14 (600µ Black dot) **maximum at 01:15**  
 TR 19 (Fingerprint)  
 TR 10 (1000µ wedge)

- playback of all these tracks without audible disturbance  
 playing time for: 1000µ wedge  $\geq 10$ seconds  
 Fingerprint  $\geq 10$ seconds  
 Black dot from 01:05 to 01:25
- jump forward/backward (search) within a reasonable time

②

### CUSTOMER INFORMATION

It is proposed to add an addendum sheet to the set which informs the customer that the set has been checked carefully - but no fault was found.

The problem was obviously caused by a scratched, dirty or copy-protected CD. In case problems remain, the customer is requested to contact the workshop directly.

The lens cleaning (method ③) should be mentioned in the addendum sheet.

The final wording in national language as well as the printing is under responsibility of the Regional Service Organizations.

④

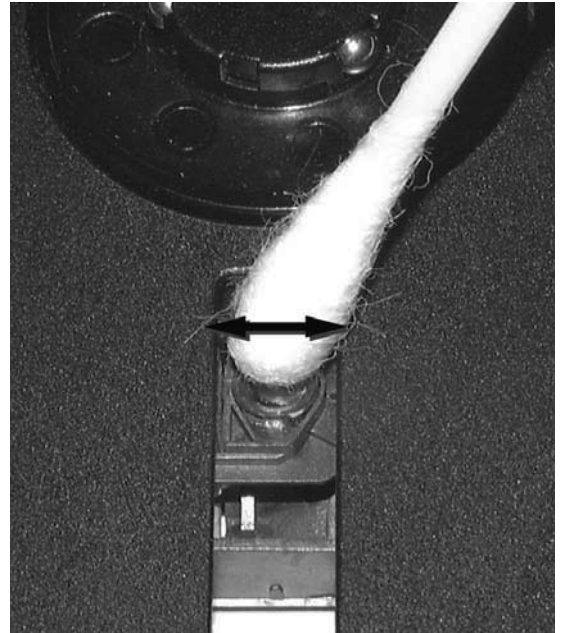
### LIQUID LENS CLEANING

**Before touching the lens it is advised to clean the surface of the lens by blowing clean air over it. This to avoid that little particles make scratches on the lens.**

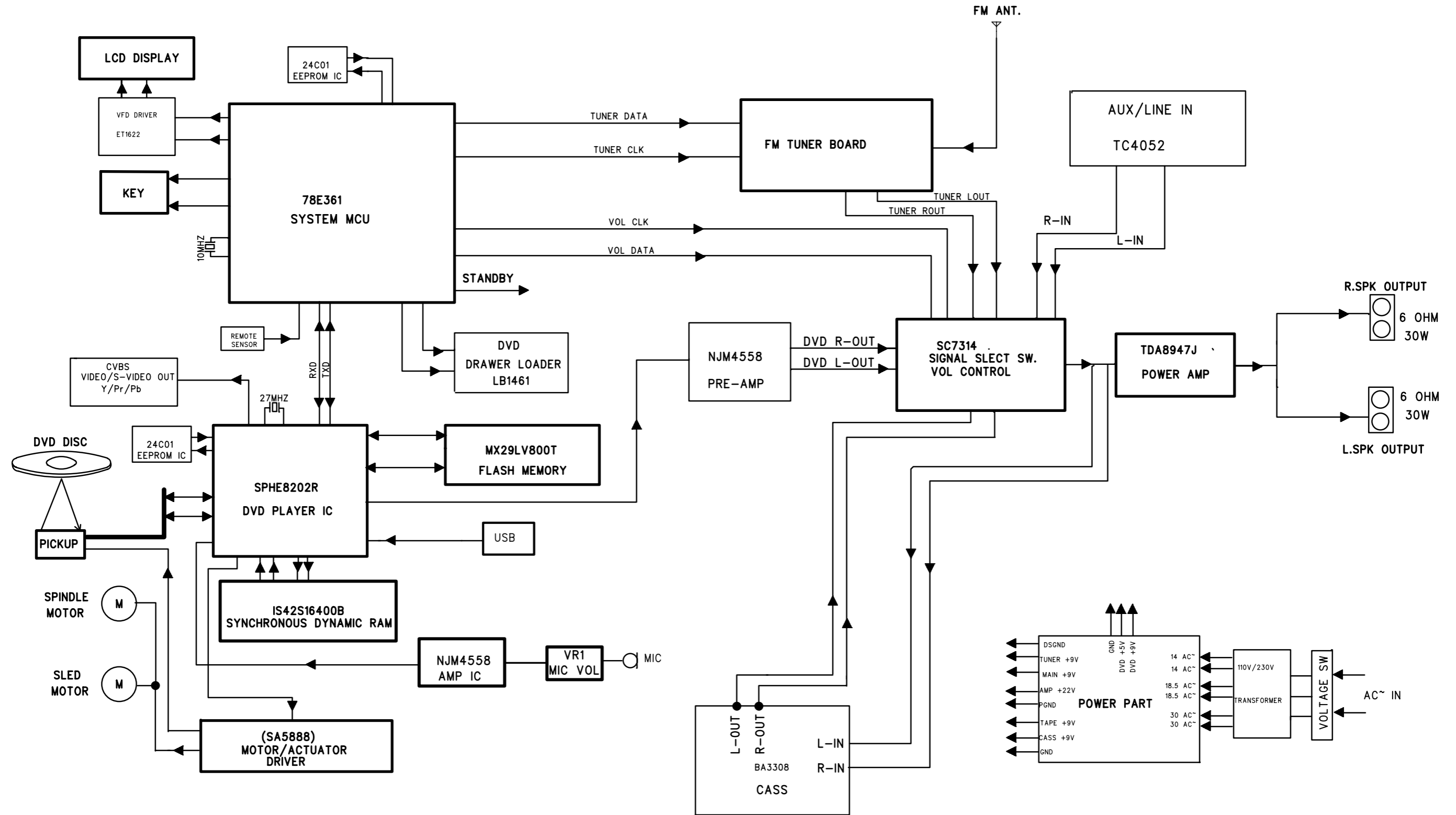
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent"

The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. Clean the lens gently (don't press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

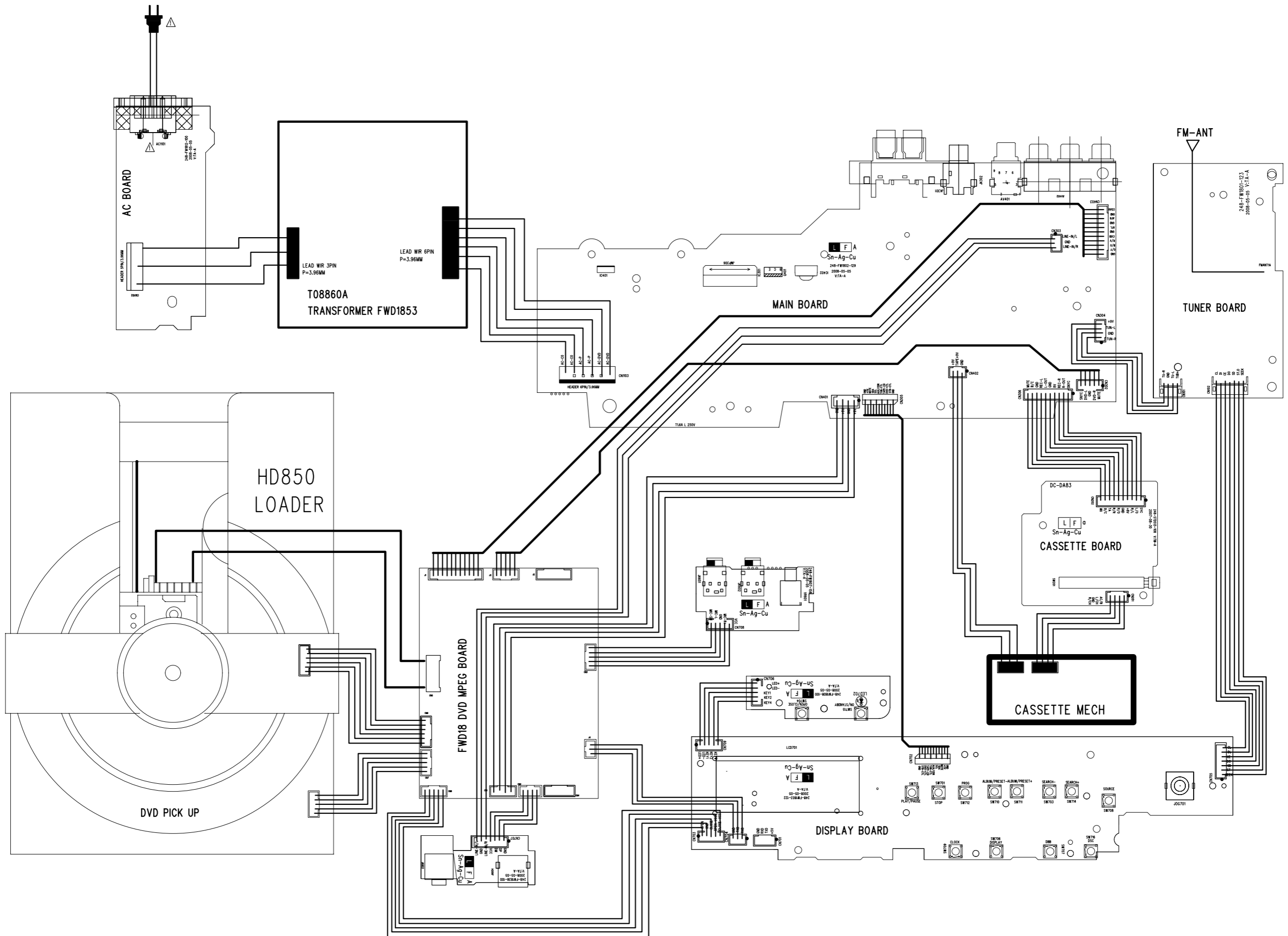
The direction of cleaning must be in the way as indicated in the picture below.



# SET BLOCK DIAGRAM

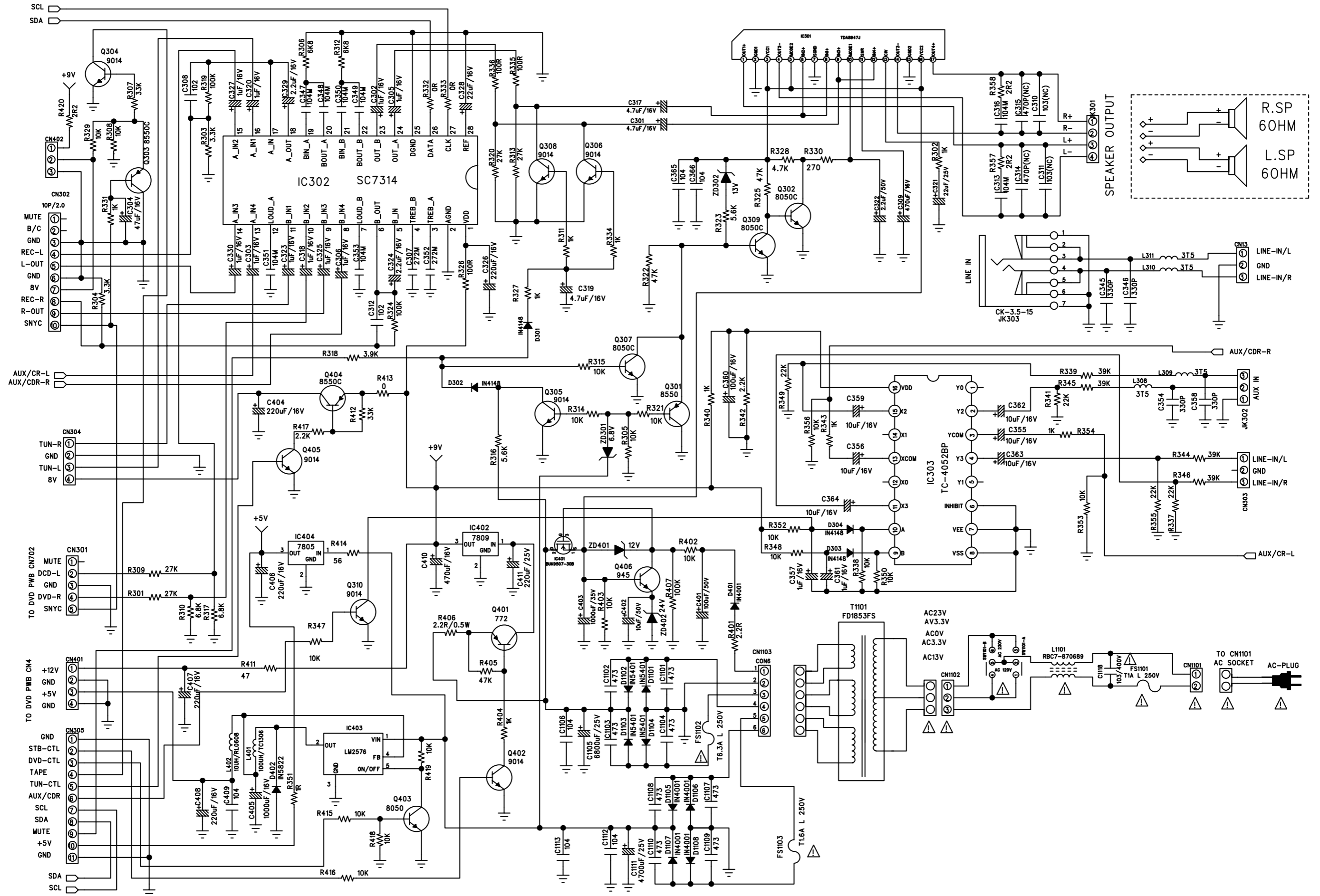


# SET WIRING DIAGRAM



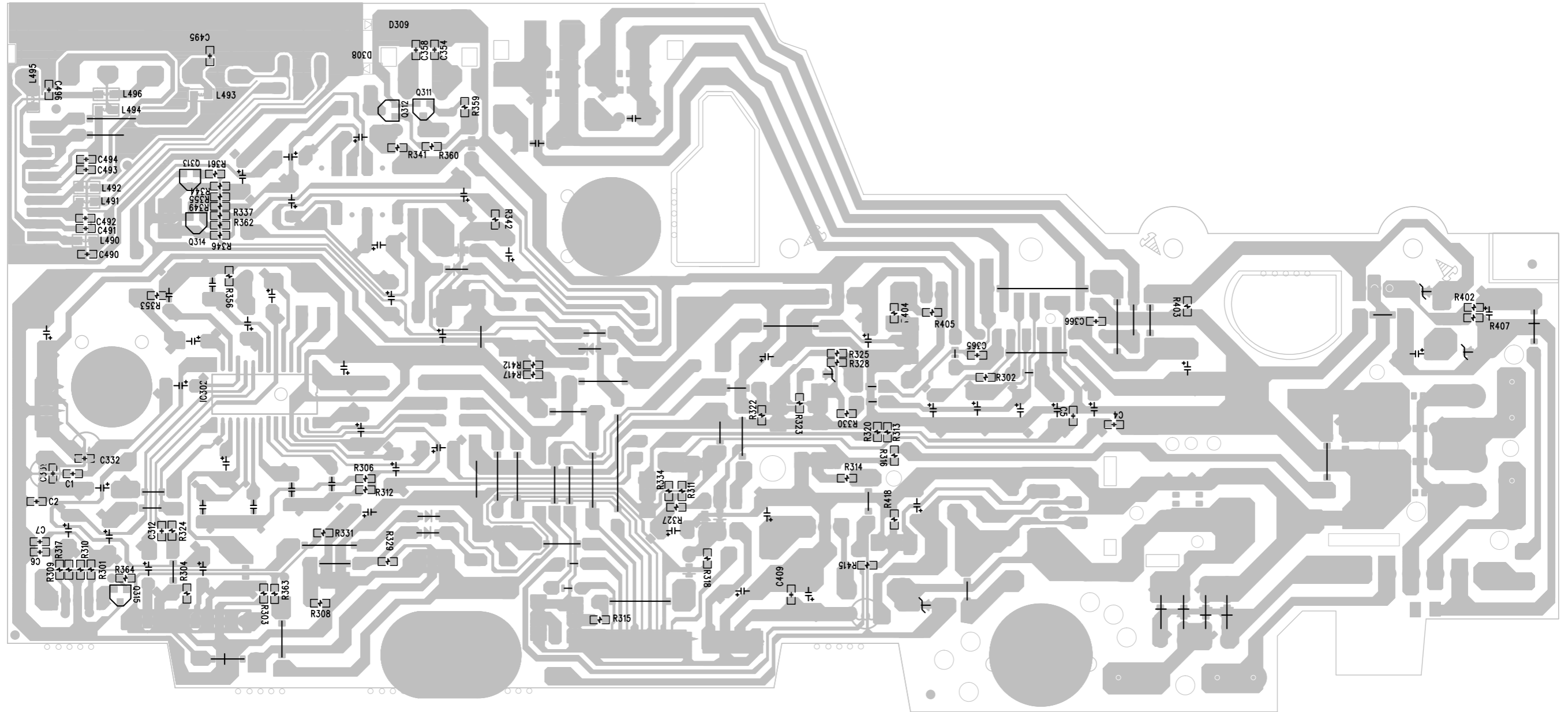


# CIRCUIT DIAGRAM - MAIN BOARD

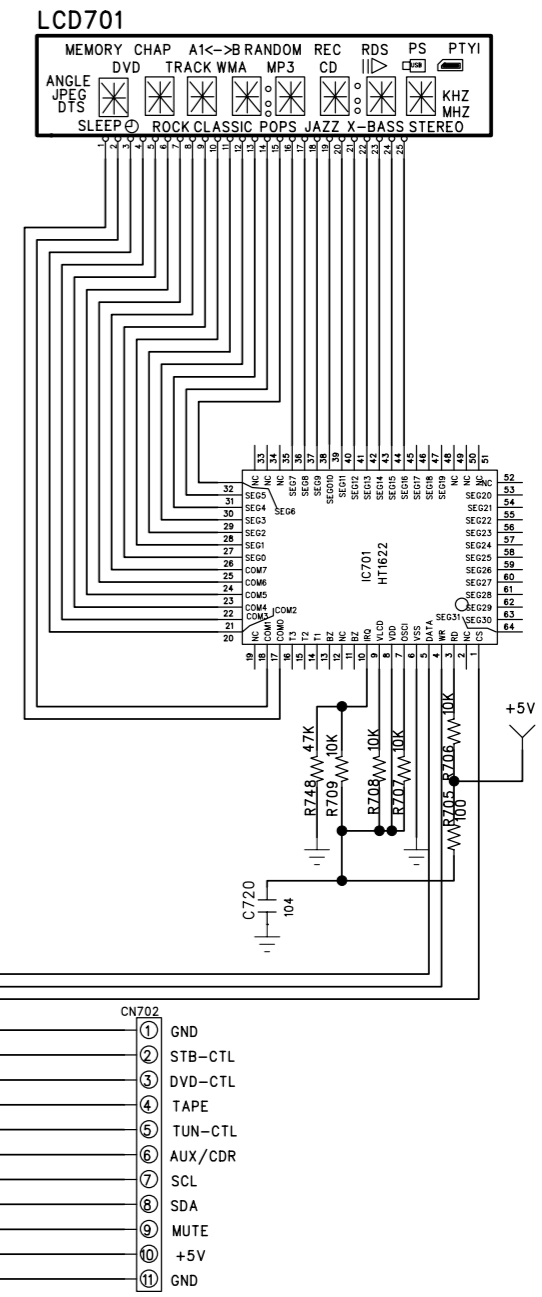
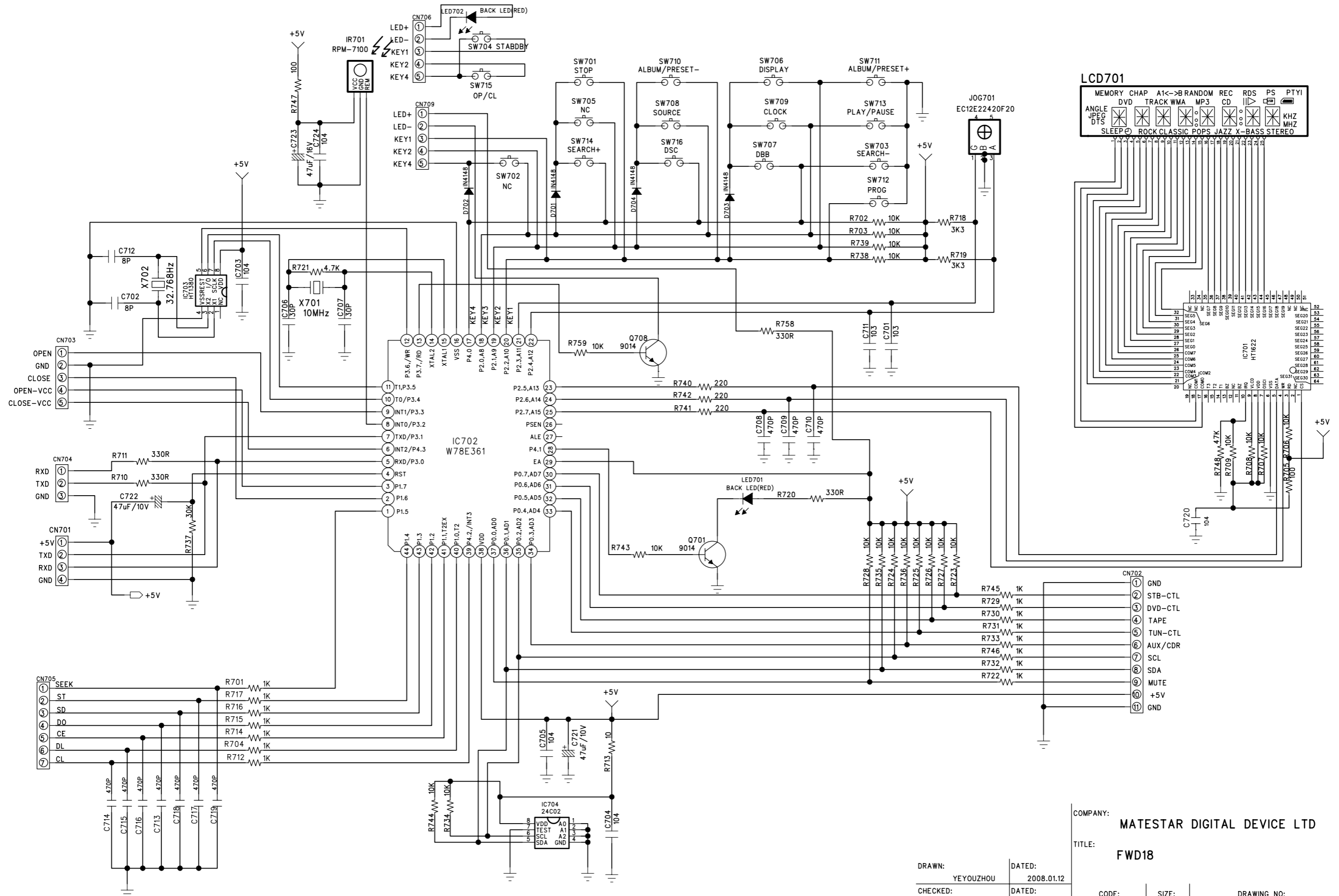




# LAYOUT DIAGARM - MAIN BOARD COPPER SIDE VIEW



# CIRCUIT DIAGRAM - DISPLAY BOARD

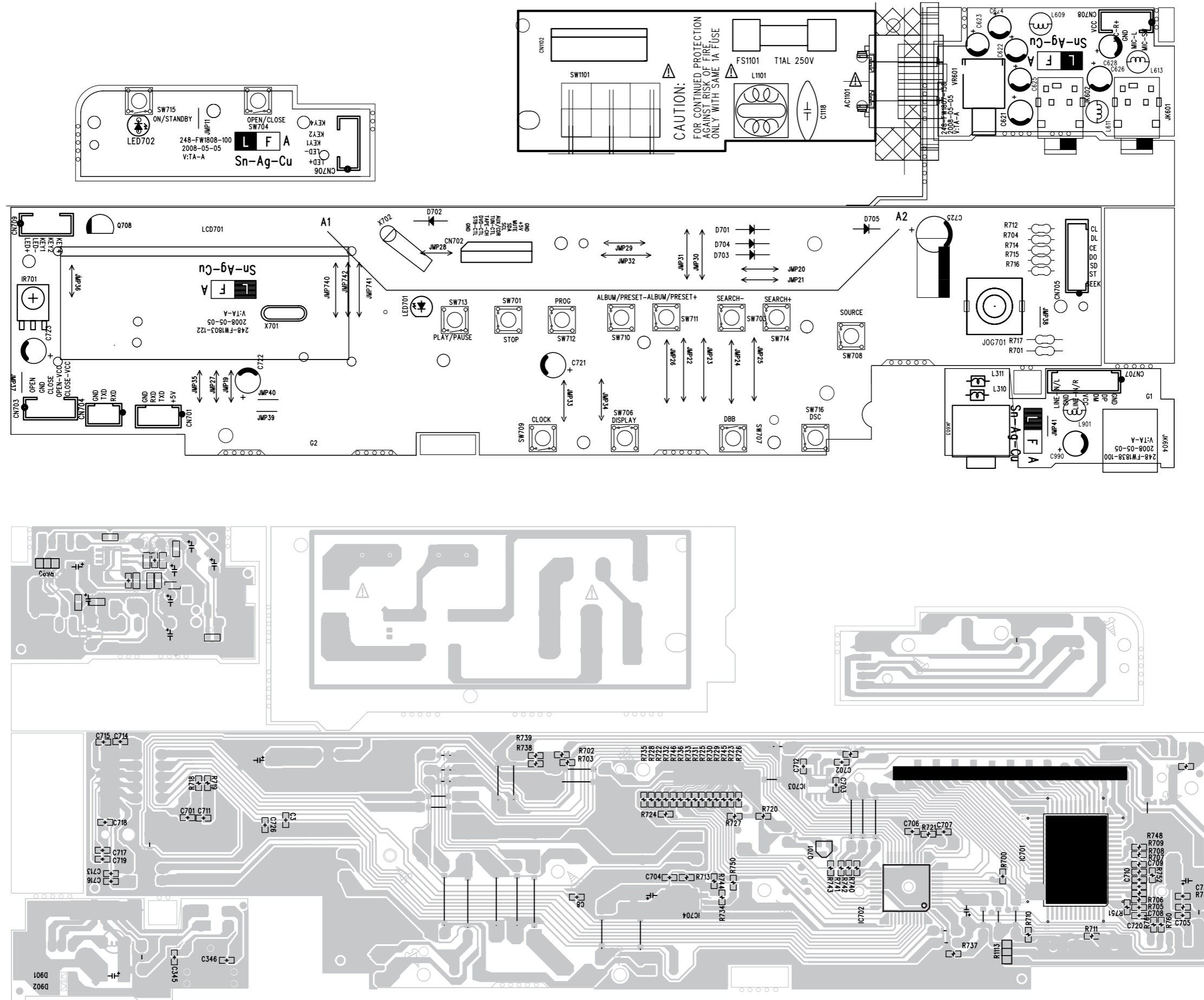


DRAWN: YEYOUZHOU DATED: 2008.01.12  
 CHECKED: LIYUBIAO DATED: 2008.01.12  
 QUALITY CONTROL: DATED:  
 RELEASED: DATED:

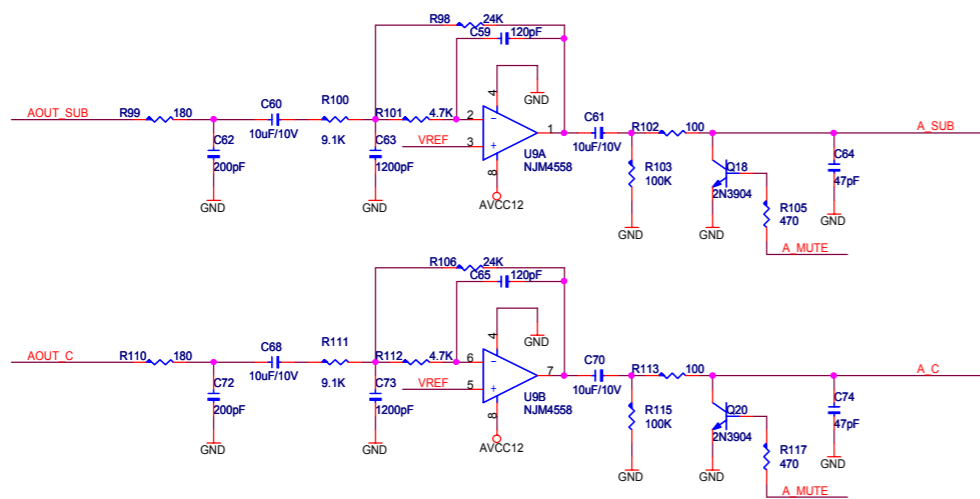
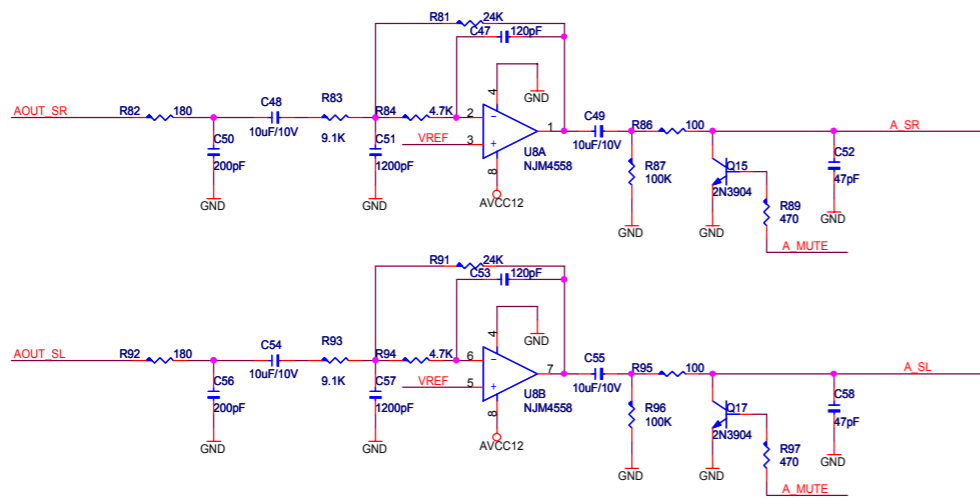
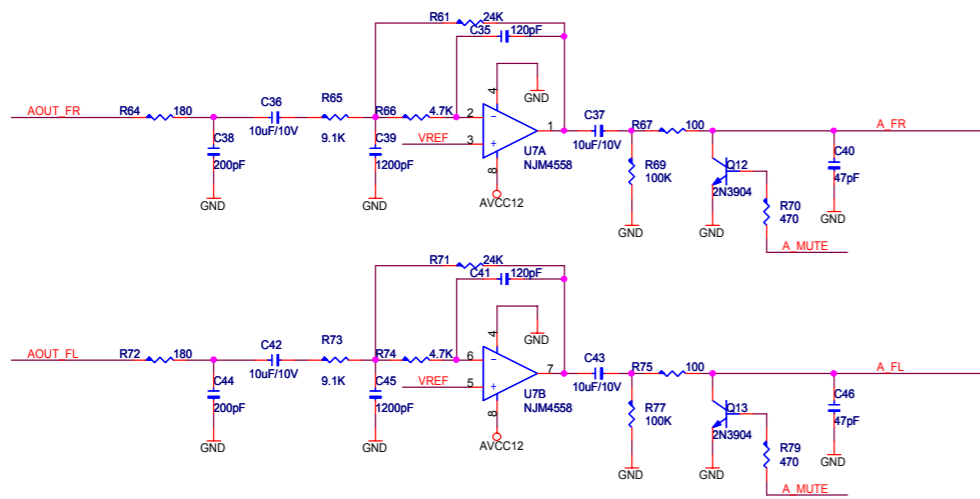
COMPANY: MATESTAR DIGITAL DEVICE LTD  
 TITLE: FWD18

CODE: SIZE: DRAWING NO: PLDFW1800C00AAA  
 REV: SCALE: SHEET: 2 OF 2

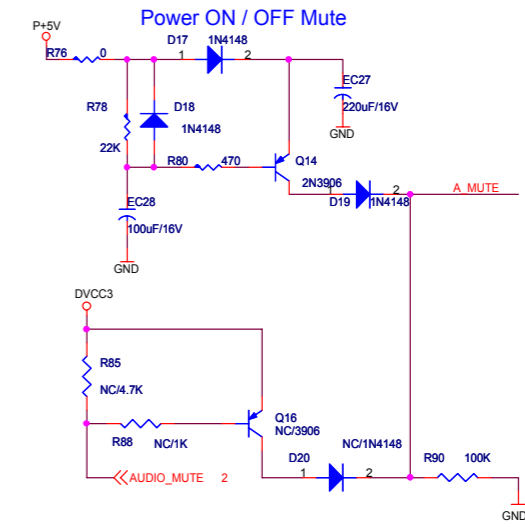
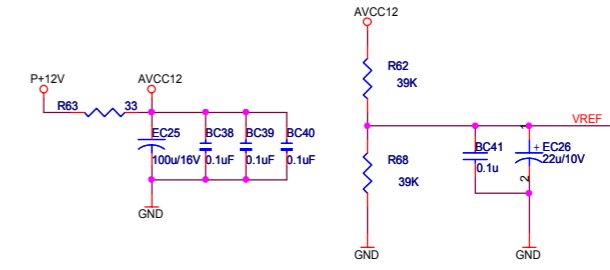
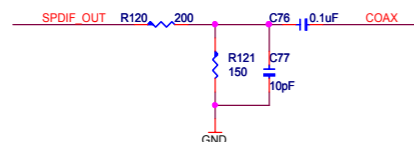
LAYOUT DIAGARM - DISPLAY BOARD



CIRCUIT DIAGRAM - DVD BOARD

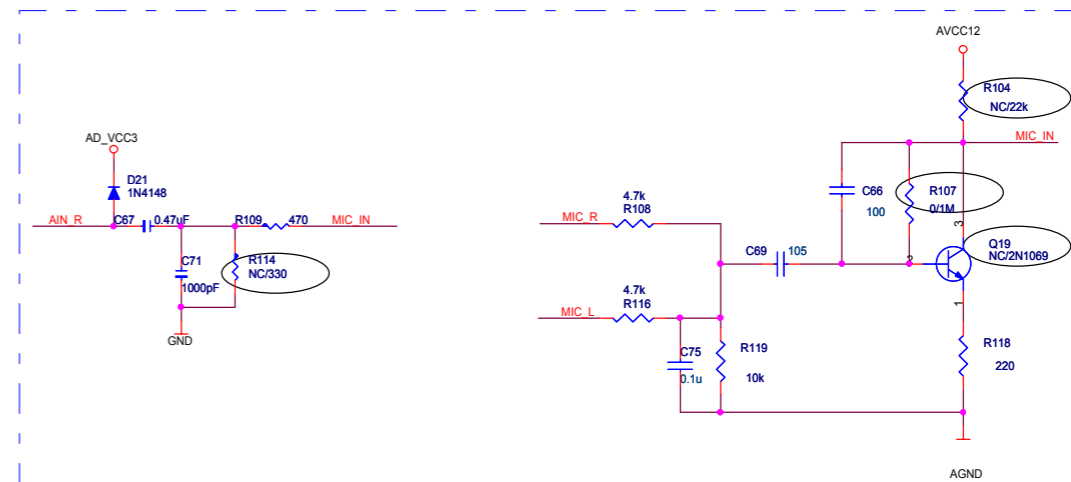


For 5.1CH / 2CH NC

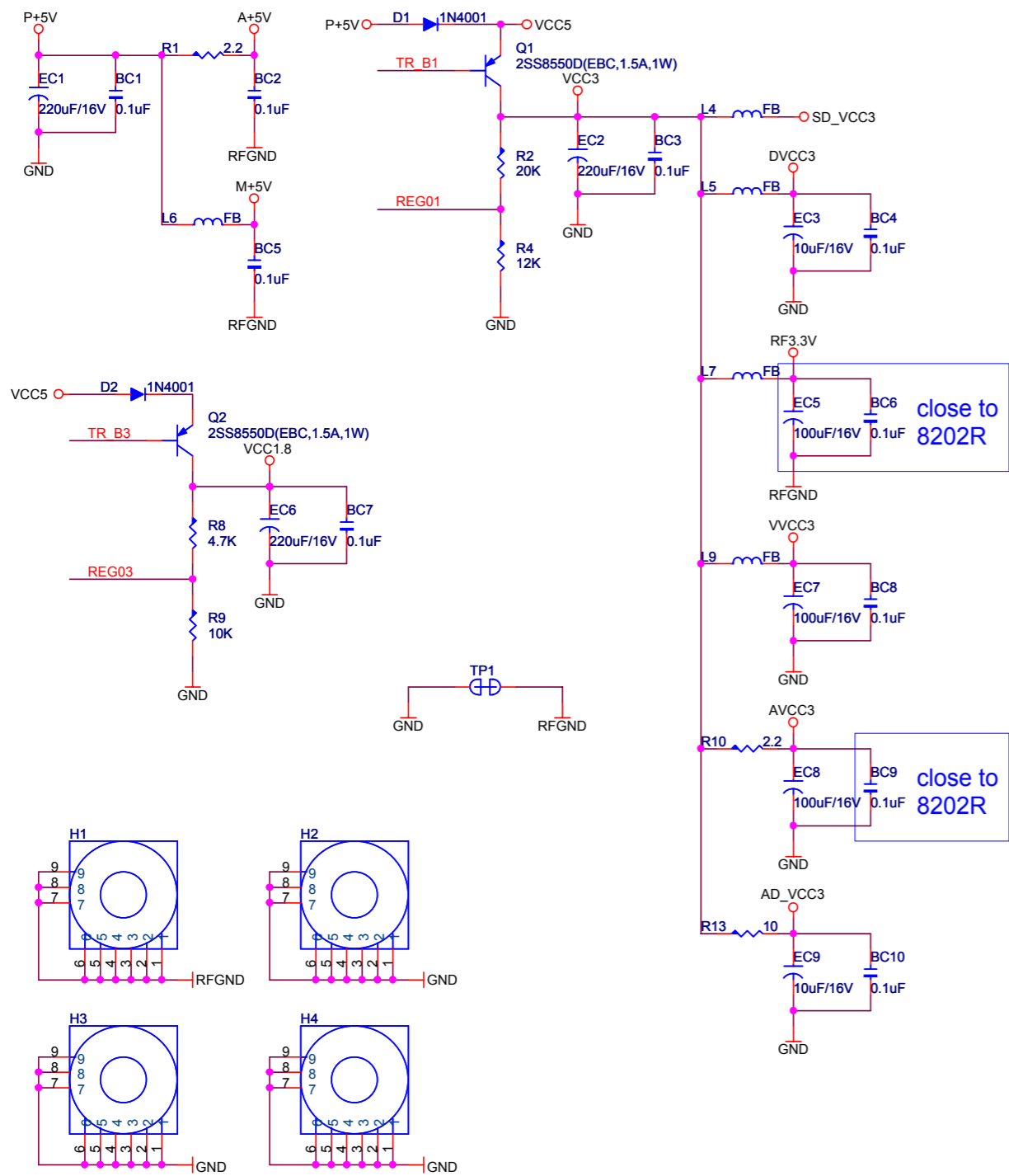


A_FR	<< A_FR	1
A_FL	<< A_FL	1
A_SR	<< A_SR	1
A_SL	<< A_SL	1
A_SUB	<< A_SUB	1
A_C	<< A_C	1
AOUT_FR	<< AOUT_FR	2
AOUT_FL	<< AOUT_FL	2
AOUT_SR	<< AOUT_SR	2
AOUT_SL	<< AOUT_SL	2
AOUT_SUB	<< AOUT_SUB	2
AOUT_C	<< AOUT_C	2

A_MUTE	<< A_MUTE	1
COAX	<< COAX	1
SPDIF_OUT	<< SPDIF_OUT	2
AIN_R	<< AIN_R	2
MIC_R	<< MIC_R	1
MIC_L	<< MIC_L	1

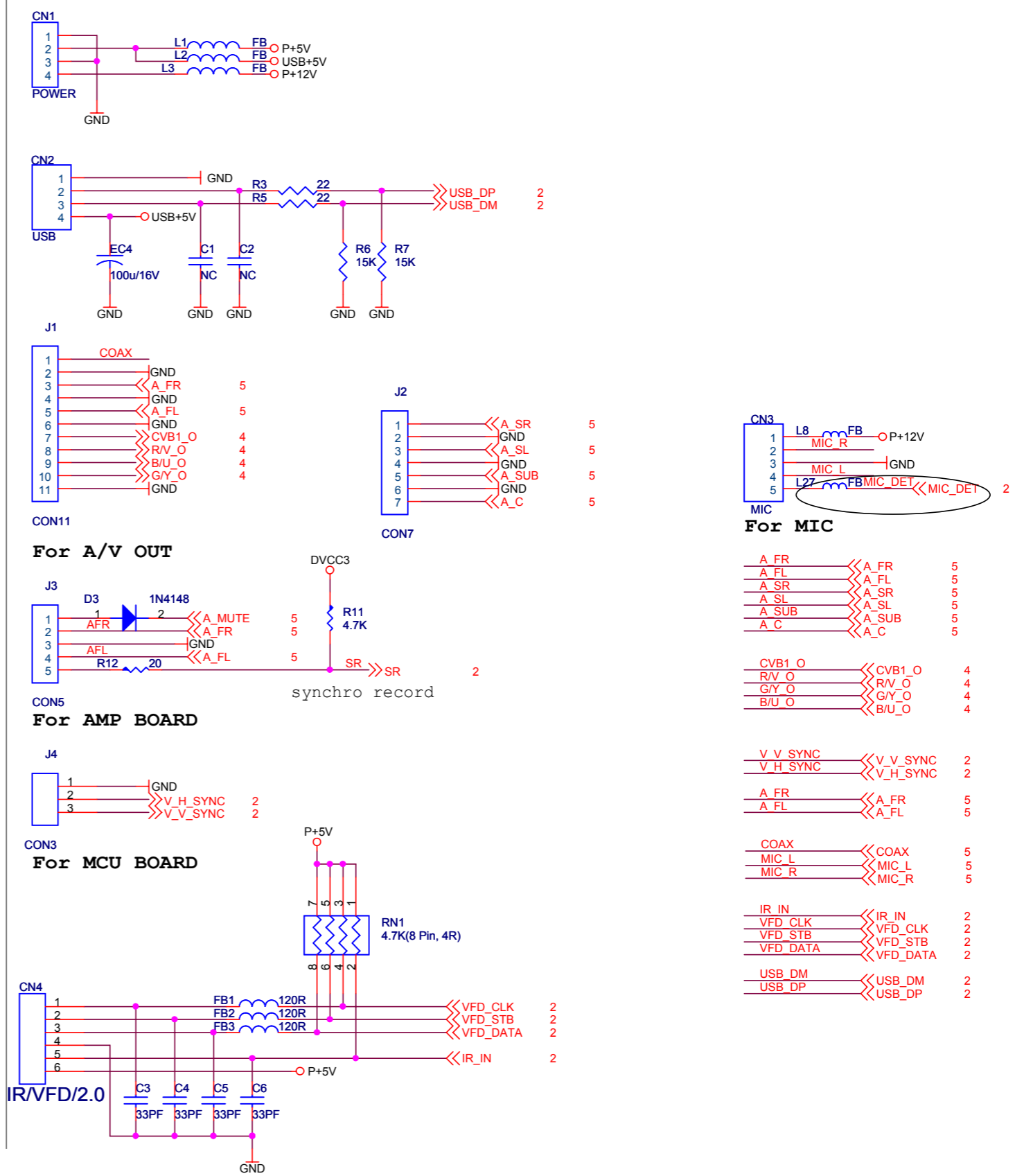


CIRCUIT DIAGRAM - DVD BOARD

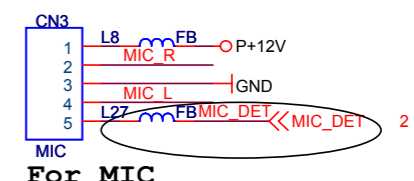


Power Bead > 2A, RAC@100 MHz = 70 ohm, RDC(max)= 0.4 ohm

TR_B1	TR_B1	2
TR_B3	TR_B3	2
REG01	REG01	2
REG03	REG03	2



IR/VFD/2.0



A_FR	A_FR	5
A_FL	A_FL	5
A_SR	A_SR	5
A_SL	A_SL	5
A_SUB	A_SUB	5
A_C	A_C	5
CVB1_O	CVB1_O	4
R/V_O	R/V_O	4
G/Y_O	G/Y_O	4
B/U_O	B/U_O	4

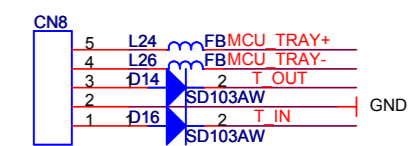
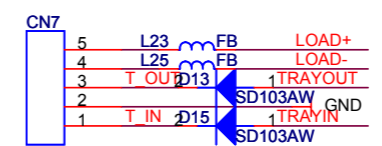
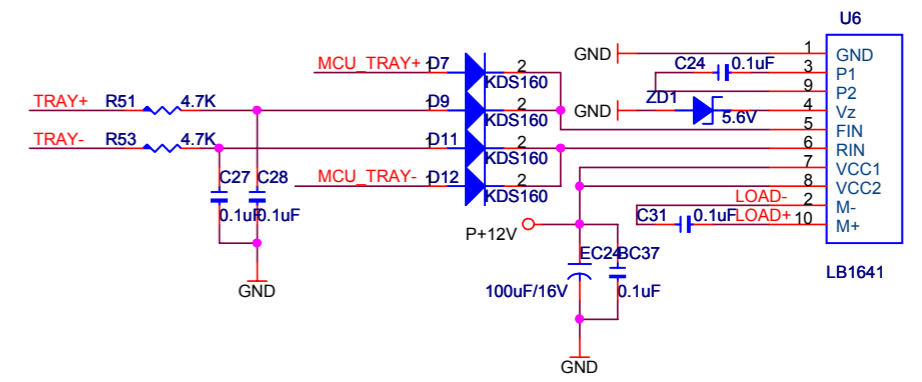
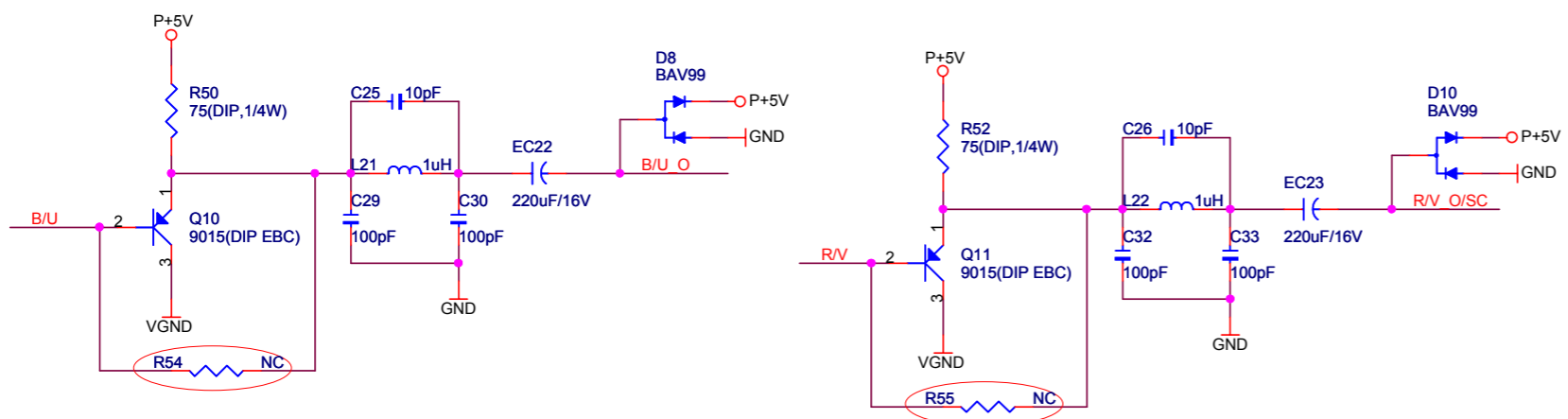
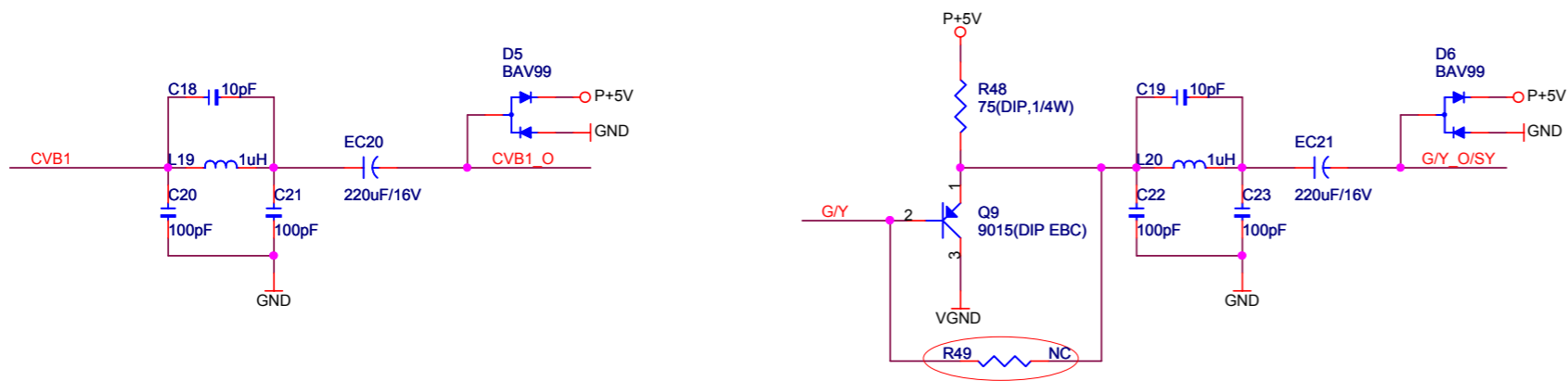
V_V_SYNC	V_V_SYNC	2
V_H_SYNC	V_H_SYNC	2
A_FR	A_FR	5
A_FL	A_FL	5

COAX	COAX	5
MIC_L	MIC_L	5
MIC_R	MIC_R	5

IR_IN	IR_IN	2
VFD_CLK	VFD_CLK	2
VFD_STB	VFD_STB	2
VFD_DATA	VFD_DATA	2

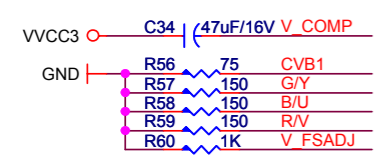
USB_DM	USB_DM	2
USB_DP	USB_DP	2

CIRCUIT DIAGRAM - DVD BOARD



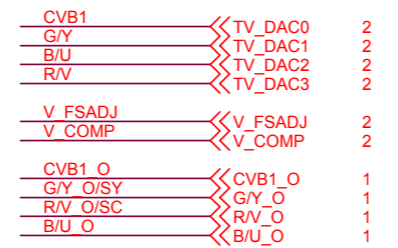
For LOADER

For MCU



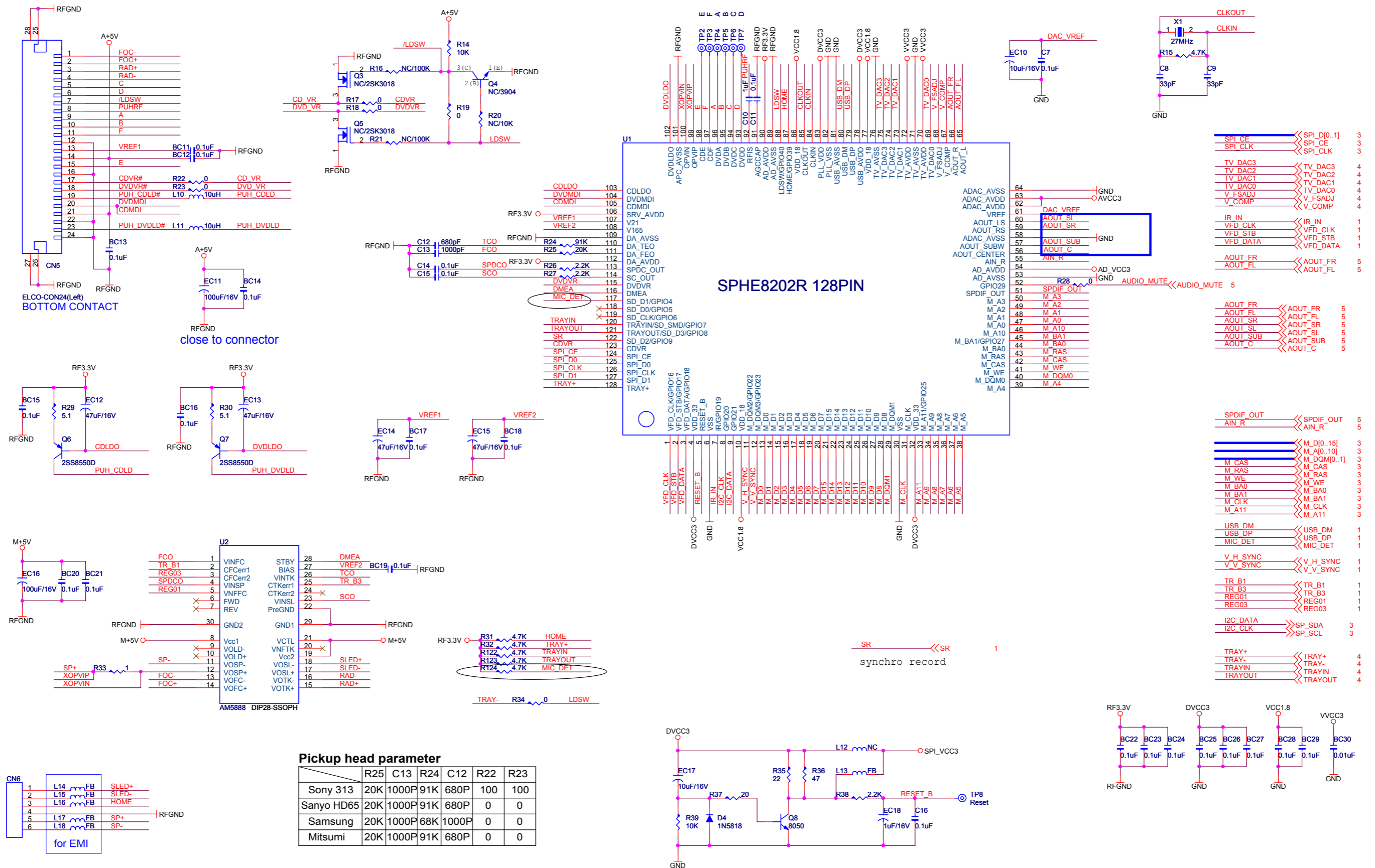
VIDEO DAC	R49	R54	R55	R57	R58	R59
Full Current	0	0	0	75	75	75
Quarter Current	NC	NC	NC	150	150	150

TV0	TV1	TV2	TV3
CVB	Y	Cb	Cr
CVB	Y(S-Video)	CVB	C(S-Video)
CVB	G	B	R

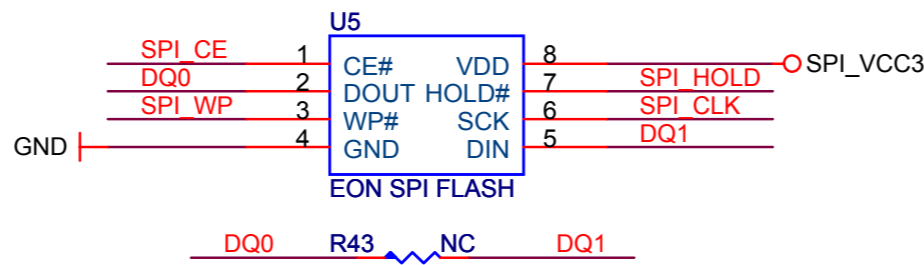
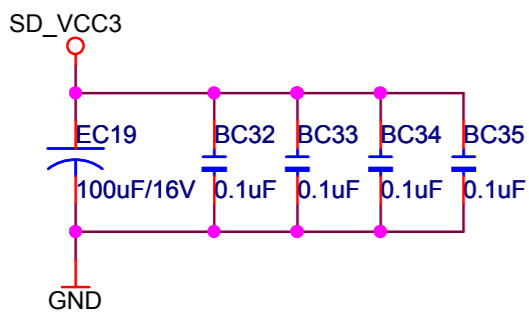
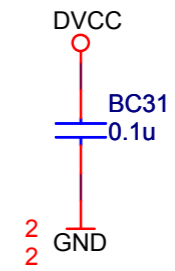
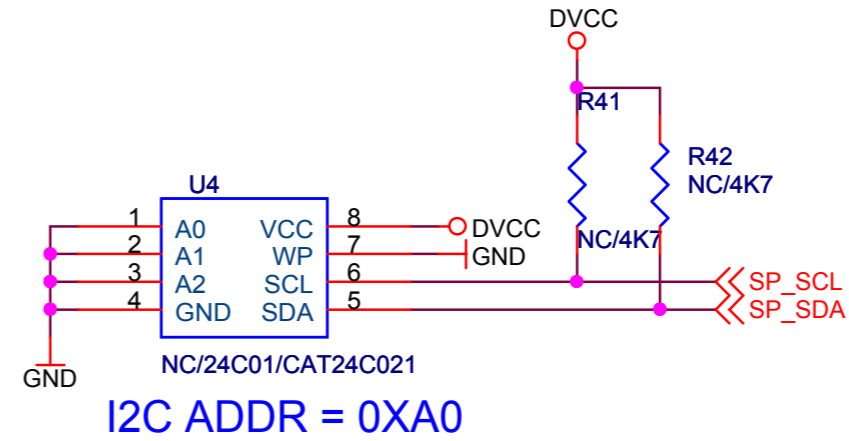
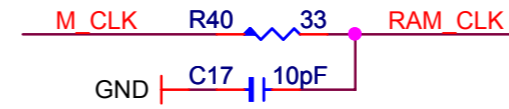
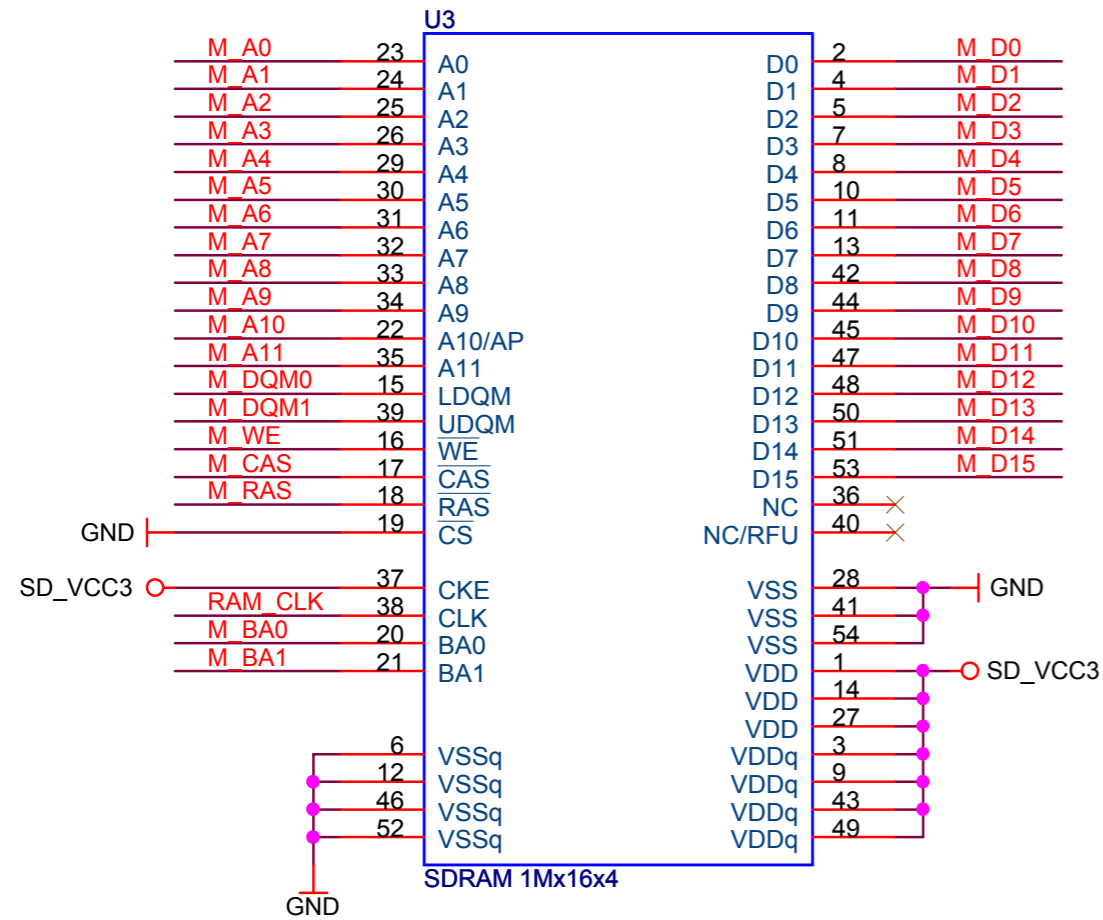




CIRCUIT DIAGRAM - DVD BOARD



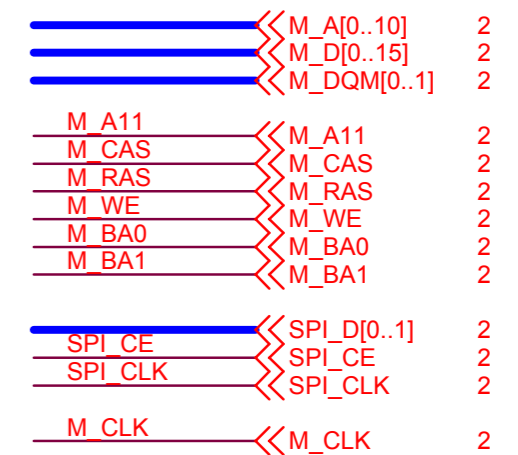
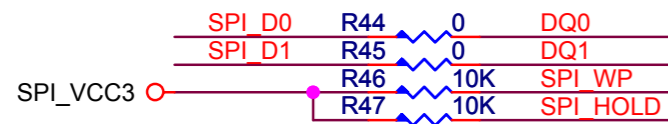
CIRCUIT DIAGRAM - DVD BOARD



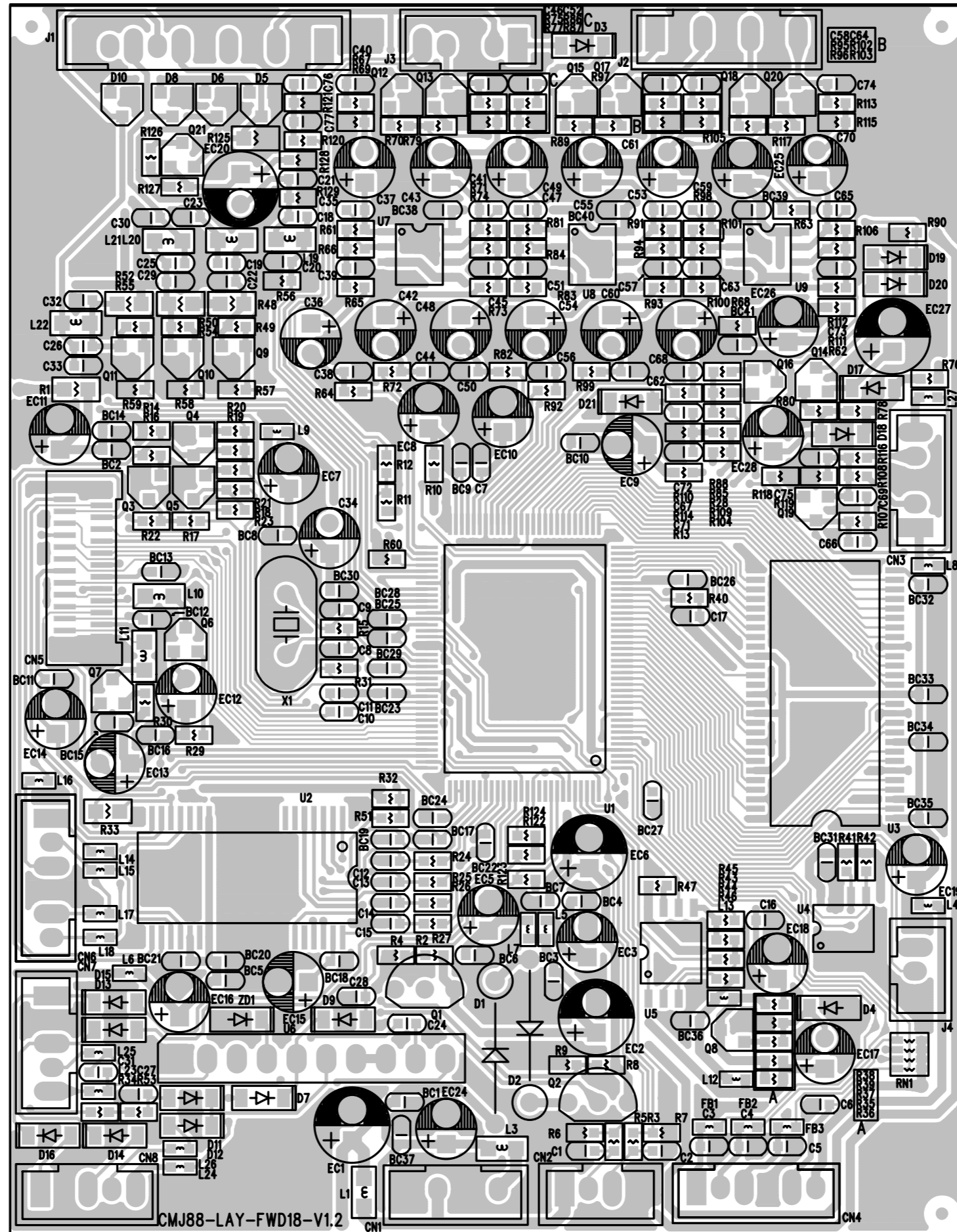
For 2bit SPI Flash

SPI Mode Setting


	2bit	1bit
R48	NC	0
R50	0	NC




LAYOUT DIAGRAM - DVD BOARD



**MECHANICAL PARTSLIST**

112	996510018098	DVD Deck
114	 996510018100	Transformer
115	996510018101	Cass. Deck
PCB1	996510018065	P.C.B FWD18 TUNER BD.
PCB2	996510018066	P.C.B FWD18 RECORDING BD.
PCB3	996520034987	P.C.B FWD18 DVD BD.
PCB9	996520034985	P.C.B FWD18 MAIN BD.
PCB5	966520034988	P.C.B FWD18 RECTIFIER BD.

**ACCESSORIES**

111	 994000001745	POWER CORD SET (BLACK) VDE
113	996510018099	Remote Control
116	996510017616	AV WIRE 1500mm
117	996510018102	Line - in Cable

**Note:** Only these parts mentioned in the list are normal service parts.

**ELECTRICAL PARTSLIST****MAIN BOARD ASSEMBLY**

AV401	996510018097	RCA JACK RCA-S-06
FS1102	▲ 994000002784	GLASS FUSE 6.3A 250V TSD
FS1103	▲ 996510018095	GLASS FUSE 1.6A 250V TSD TIME
IC301		I.C. TDA8947J4 HEADPHONE AMP
IC302	994000005026	IC SC7314
IC303		I.C. TOSHIBA TC4052
IC402		ZENER I.C. CW7809CS
IC403		I.C. LM2576-TO220V
IC404	996510008103	I.C. KA7805 POSITIVE VOLTAGE
JK301	994000001722	SPEAKER TERMINAL WP-408
JK302		RCA JACK RED/WHITE
Q301	994000005028	TRANSISTOR 8550B/C
Q302	994000005041	TRANSISTOR 8050C/D
Q303	994000005028	TRANSISTOR 8550B/C
Q304	994000005028	TRANSISTOR 8550B/C
Q307	994000005041	TRANSISTOR 8050C/D
Q309	994000005041	TRANSISTOR 8050C/D
Q315	996510018096	SMT TRANSISTOR 8550B/C(SOT23)
Q401	996510008094	TRANSISTOR B772Y
Q403	994000005041	TRANSISTOR 8050C/D
Q406		TRANSISTOR 2SC-945P NEC

**DVD BOARD ASSEMBLY**

FB1		SMT IND 100MHz 1000mA
FB2	996510018070	SMT IND 100MHz 1000mA
FB3	996510018070	SMT IND 100MHz 1000mA
Q10	996510008798	SMT TRANSISTOR 2N3906
Q11	996510008798	SMT TRANSISTOR 2N3906
Q12		SMT TRANSISTOR 2N3904
Q13	996510018068	SMT TRANSISTOR 2N3904
Q14	996510008798	SMT TRANSISTOR 2N3906
Q21	996510018068	SMT TRANSISTOR 2N3904
Q9	996510008798	SMT TRANSISTOR 2N3906
U2	996510008924	SMT I.C SA5888
U6		I.C. SANYO LB1641
U7		SMT IC.HUAJING CF4558CB AZ1309
X1	996510008800	CRYSTAL 27 MHz

**MIC BOARD ASSEMBLY**

IC601	996510008923	SMT I.C BA4558F
JK601	996510018071	STEREO EARPHONE JACK MSJ2000
JK602	996510018071	STEREO EARPHONE JACK MSJ2000
VR601	996510018072	SHAFT VOLUME 50K FB20B7.0-B503

**Note:** Only these parts mentioned in the list are normal service parts.

**ELECTRICAL PARTSLIST****RECTIFIER BOARD ASSEMBLY**

C1118		CERAMIC CAP 0.01 UF/400V +80%
FS1101	▲	GLASS FUSE 1A 250V 50T TIME
L1101		FERRITE BEAD12.5x7.5x0.65 mm
SW1101	▲	AC ADAPTOR 110-220V VSC-22-1

**USB BOARD ASSEMBLY**

JK303	996510018078	HEADPHONE JACK CKX-3.5-42 YEL
JK901	996510018077	USB CONNECTOR 4 PIN 1.25mm R

**DISPLAY BOARD ASSEMBLY**

IC701	996510018085	SMT I.C. HT1622BD
IC702	996510018086	WINBOND(A)
IC703	996510018087	SMT IC.HT1381
IC704	996510018088	SMT IC AT24C02(256X8) 1.8V
IR701	996510018082	DIODE SM338AL 3.3V
JOG701	996510018080	POTARY ENCODER EC12E224204F20
LCD701	996510018081	LCD DISPLAY
LED701	996510018079	LED
SW701	994000002786	TACT SWITCH 2P
SW703	994000002786	TACT SWITCH 2P
SW707	994000002786	TACT SWITCH 2P
SW708	994000002786	TACT SWITCH 2P
SW709	994000002786	TACT SWITCH 2P
SW710	994000002786	TACT SWITCH 2P
SW711	994000002786	TACT SWITCH 2P
SW712	994000002786	TACT SWITCH 2P
SW713	994000002786	TACT SWITCH 2P
SW714	994000002786	TACT SWITCH 2P
SW716	994000002786	TACT SWITCH 2P
WS706	994000002786	TACT SWITCH 2P
X701	996510018083	CRYSTAL 10 MHZ HC-49US
X702	996510018084	CRYSTAL 32.768 KHz +-20PPM 2P

**LED BOARD ASSEMBLY**

AW715	994000002786	TACT SWITCH 2P
LED702	996510018089	LED ROUND TYPE 3mm RED
SW704	994000002786	TACT SWITCH 2P

**Note:** Only these parts mentioned in the list are normal service parts.