iPod/iPhone/iPad DVD micro music system

DCD3020

/51/93/96/98/79/58

Service
Service
Service

Service Manual

CONTENTS

CLASS 1
LASER PRODUCT

Published by SW 1124 Service Audio Subject to modification

3141 785 36412

Version 1.2

PHILIPS

GENERAL DESCRIPTION

DVD Micro System Digital Tuner / Clock-Timer / USB / iPad / iPhone / iPoc
2 x 60W Amplifier, VFD DISPLAY, Remote Control.

LIFETIME(according to XUT-0026)

5 Years

PERFORMANCE CLASSES

Class	DVD/CD	Supply+Amplifier	Loudspeaker Boxes	USB	Clock	Tuner
I						
II	X	X	X	X	X	X
III						

SAFETY requirements

Refer to the section of Version Overview

RADIATION/IMMUNITY requirements(EMC)

Refer to the section of Version Overview

CLIMATIC requirements(according to UAN-D1590)

ALL climates : +5 ℃ till 35 ℃

POWER SUPPLY
MAINS (AC)

Version	/12
Ac Voltage	230V +/- 10%
Voltage Selection	No
Frequency	50Hz

POWER CONSUMPTION

	DCD3020			
Operation (1/8 Prated,Nom AC input)	< 55W			
Standby(Demo Mode"Off",Nom AC input)	< 3W			
ECO Standby(No LCD Display,Nom AC input)	< 1W			

REMARKS

GENERAL PART 2 SPECIFICATION

TECHNICAL DESCRIP TION
2 x 60W matching Loudspeaker Boxes of 2 X 4Ω

GENERAL PART

Output Stage Protection: **Temperature:** **Yes;** **Shortcircuit:** **Yes**
Loudspeaker DC Protection: **No**

INDICATORS

Stanby Mode Indicator: **Clock Display Active**
ECO Standby Mode: VFD Turns Off

TOUCH PANEL

-Twelve Channel
- Operating Temperature : NA
- Storage Temperature : NA
- Operating Humidity : NA

ELECTRICAL DATA

DBB (ON/OFF)	Hum / Residual noise (Volume = 1) (CD & AUX) - measured at "Line-in" mode : 200 nW
IS: No	Residual Noise (Volume = 0) : 40 nW
MAX: NA	CHANNEL SEPARATION : 40dB/1kHz, 35dB/16kHz
VEC: NA	Signal to noise ratio : 62 dBA
Input Sensitivity (±3dB)for Rated Output Power at 1kHz	Max Dist. @ AUX 15 %
	Acoustic Hum Noise in dB (Volume = 1): 30 dB (Euro & Nafta)
Tuner: FM 67.5 kHz, AM 80% Modulation.	33 dB (Latum & APAC)
DVD / CD: -6 dB track (Audio Disc 1 ,Trk 35)	Headphone Out : 8 mW - 3 dB , R Load = 32 ohm @ max volume, 0dB, 1kHz CD
Aux: 500mV +/- 2dB	
USB: -6 dB track (Copy from Audio Disc 1 ,Trk 35)	Subwoofer Out : NA
Video Output Composite Output 1Vpp 75 ohm	
Digital Output Coaxial SPDIF NA	
Microphone: NA	
Support Disc DVD (Single/ Double Layer), DVD-R, DVD-RW, DVD+RW, CD-DA, CD-R, CD-RW, MP3, VCD 1.1, VCD 2.0, SVCD, Kodak Photo CD	

OUTPUT POWER (*1)

Mains Operation : 60W (Nominal)
60W-1 dB (Limit) (At Cold Condition with 10% THD, 1kHz Sine)

LOUDSPEAKER(BOXES)

Rated Impedance : Left/Right: 4Ω @ 100 Hz ~ 15kHz

REMARKS

(*1) Electrical Parameters are to be measured at Speaker Terminals across 4 Ohm Load with Rated Input Signal in DVD Mode setting in DBB/Loudness Off and DSC at Flat unless specified otherwise.

SUPPLY + AF AMPLIFIER + LOUDSPEAKER (BOX SPECIFICATION)

Audio Signal Processing

LOUDNESS / S-BASS / PRESET EQUALIZER

Use AUX as input source with following setup conditions :

1)Input sinewave 500mV at 1kHz to L/R channel of AUX-IN socket

2)Set preset equalizer to flat mode

3)Adjust volume to get 500 mW at 4 ohm load at L/R speaker outputs.

4)The 500mW level will be used as 0dB reference.

5)Inject sine wave 500mV to AUX-in socket with frequencies indicated in Table 1:

Table 1 (Tolerance±3dB)

DIGITAL SOUND CONTROL (DSC) FREQUENCY RESPONSE(dB)

VOL STEP	Loudness(dB)		DBB(dB)
	100Hz	10KHz	100Hz
			10±2
5	17±2	13±2	
1 0	8±2	11±2	
1 5	8±1	11±1	
2 5	6±1	8±1	
3 2(MAX)	0	0	

DSC	Frequency(Hz)	Response(dB)
Flat	100	0
	1K	0
	10K	0
Jazz	100	4±2
	1K	2±1
	10K	6±1
Pops	100	8±1
	1K	0±2
	10K	6±1
Rock	100	12±2
	1K	2±1
	10K	8±2
Classic	100	2±2
	1K	2±1
	10K	0±1

TUNER PART

WAVE Range 87.5--108MHz	TOLERANCES	TUNING GRID

Refer to version overview

ELECTRICAL DATA

FM		Nom	Limit	Unit
-3dB Limiting Point	:	17	23.5	dB
Distortion(RF 1 mV, Freq.Dev.75kHz)	:	2	3	%
Stereo -46dB Quieting		46	49	dBf
Crosstalk (RF 1mVm Freq. Dev.40kHz)	:	30	26	dB
Stereo Turn-on Point Ratio/Quad Detectc	:	22/17.5	28/23.5	dBf
Stereo Turn-off Point Ratio/Quad Detectc	:	---	22/17.5	dBf
AM Suppression I/P: 48~82dBf		30	25	dB
Modulation Hum	:	55	45	dB
8th, 9th, 10th Harmonics Whistle	:	40	35	dB
Overall Frequency Response(63~8kHz)	:	0	±3	dB
Search Tuning Sensitivity	:	24~30	19~35	dBf
Search Tuning Stop Accuracy I/P:31~91dBf	:	---	0	Step
Search Tuning Stop Accuracy I/P:91~120dBf	:	---	±1	Step
Search Time	:	---	≦60	Sec
FM S/N Ratio(A weighted) Mono input 80dBf		50	45	dB
FM Channel Seprantion -400/1K/5K		21/25/18	15/20/15	

Wave Range		Noise Limited Sensitivity 26 dB		Image Rejection	IF Rejection	Large Signal Handling	Selectivity S9/300kHz
FM	Nom.		18	25	65	116 dBf	20
98 MHz	Lim.		22	20	60	108 dBf	15
	Units.	μV/m	dBf	dB	dB	mV/m	dB

REMARKS

			Ver	Issued Date
	DVD MICRO SYSTEM DCD-3020		1	24-FEB-11
NAME : Steven Guo	9	SH190 - 6		A4
CHECK:				

DVD / CD Part

Description	External DAC
output resistor	
Channel Unbalance	<±2dB (Vol 0 ~ -50dB)
Frequency Response(+0.5/-1.0dB)	20Hz~20kHz
Signal to Noise Ratio(A-weighted)	70dBA(Lim 65 dBA)
THD Noise(20 ~20,000Hz)	0.5%(Lim 2%)
(1kHz)	0.2% at -20dBFS
Outband Attentuation	35dB
Channel Separation (1K)	40dB (Lim.30dB)
16K	35dB(Lim.25dB)
Emphasls(switched automatically by CD 10)	15 / 50 μs

Amplitude output	1.0Vpp(+10/-10%)	1.0Vpp(+10/-10%)
White bar	714mVpp(+10/-10%)	700mVpp(±10%)
Sync amplitude	286mVpp(±40mV)	300mVpp(+30/-50mV)
Burst amplitude	286mVpp(±40mV)	300mVpp(+30/-50mV)
Burst/Chroma ratio	±5%	±5%
S/N luminance	≧48dB	≧48dB
S/N chroma	AM:≧58dB/PM:≧51dB	AM:≧51dB/PM:≧46dB
Video bandwidth	6Mhz(-5dB)	6Mhz(-7dB)
Chroma subcanics frequency	fsc=3.579545Mhz(±25ppm)	fsc=4.433618Mhz(±30ppm)
Chroma/Luminance delay	≦80ns	≦80ns
Subcanics locked/unlocked	Locked	locked
R Amplitude o/p	714 mVpp +/-10%	700 mVpp +/-10%
G Amplitude o/p	715 mVpp +/-10%	700 mVpp +/-10%
B Amplitude o/p	716 mVpp +/-10%	700 mVpp +/-10%
S/N RED	>53dB	>53dB
S/N GREEN	>53dB	>53dB
S/N BLUE	>53dB	>53dB

Mp3 pertormance

description	Sunplus
Bit rates	8K-320Kps
Sampling rates	8K/11.025K/16K/22.05K/32K/44.1K/48K Hz
Joliet (8 character OSD display)	
Windows XP	
UDF basic (close format)	
Mp3 multisession	Directory resting Max 8 level, Max directory 32
Display filename/ID3	
255 folders/640songs	

iPod/iPhone/iPad PART

iPod Compatibility: iPod 3G/4G/5G, iPod nano 1G/2G/3G/4G/5G, iPod Classic,iPod Touch 1G/2G/3G,iPod Mini

iPhone Compatibility: 3G/3GS/3SG+ OS4/4G

iPad Compatibility: Yes

Refer to version overview

ELECTRICAL DATA

		Nom	Limit	Unit
Channel Balance	:	0	2	dB
THD (100Hz / 1kHz / 10kHz)	:	2/1	3/1.5	%
Crosstalk 1K		45	40	dB
Frequency Response 150 to 10kHz	:	+/-1	+/-3	dB
Output power at 10% THD 1kHz 0dB	:	60	50	W
Signal to Noise Ratio(A-weighted)		80	75	dBA
Hum Vol. Max. -20dB to Vol. Min.	:	1	3	mV
Min volume (residual) noise	:	0.6	0.8	mV

TECHNICAL SPECIFICATION

Software implemented Clock/Timer with 32.768KHz Quartz Oscillator.

GENERAL PART

Tmie Setting	:	Clock and Timer
Timer Wakeup Mode	:	DVD / Tuner/Aux (Depend on power off source)
Remarks Time Setting	:	24 Hrs
Wake Up Volume Control	:	No
Volume at Wakeup	:	
No of Timer Settings	:	1
Clock Accuracy	:	Lim. +/- 2 sec / day
RC operating distance	:	8m at 30degree 6m at 45degree

INDICATORS

Display Type : VFD

VERSIONS OVERVIEW FOR DCD-3020

VER	DEST.	APPROBATION		TUNER				AC SUPPLY		MIC MIX	MATRIX SURR. SPK
		SAFETY	EMC	Freq. RANGE	STEP	AERIAL SOCKET	AERIAL	MAINS VOL TAGE	FIXED CORD		
/12	Europe	EN60065 CLASS II	EN55013 EN55020	**FM 87.5~108 MHz**	50kHz	75Ω Coaxial	PIG TAIL	230VAC +/- 10% 50 Hz	IEC	No	No

Specification for USB Part

- Refer to Philips USB direct user requirement spec.

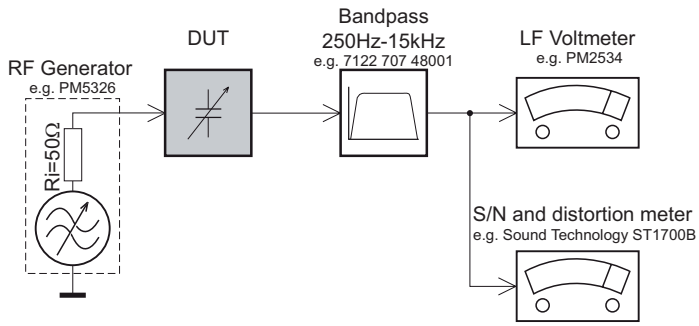
"USB Direct URS 0.6"

Change history :
1. 1st version
2. Update the electrical spec. & add back the drawing

			Ver	Issued Date
	DVD MICRO SYSTEM DCD-3020		1	24-FEB-11
NAME : Steven Guo	9	SH190 - 9		A4
CHECK:				

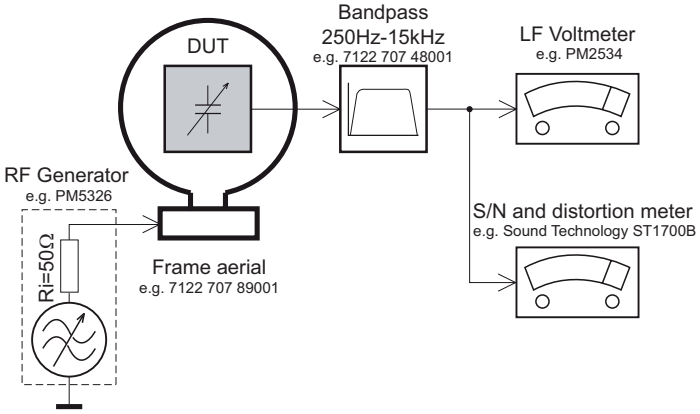
MEASUREMENT SETUP

Tuner FM



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

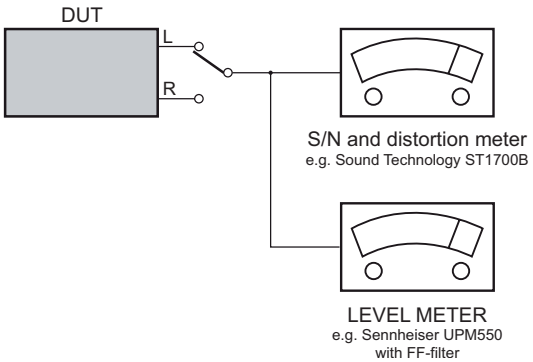
Tuner AM (MW,LW)



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).

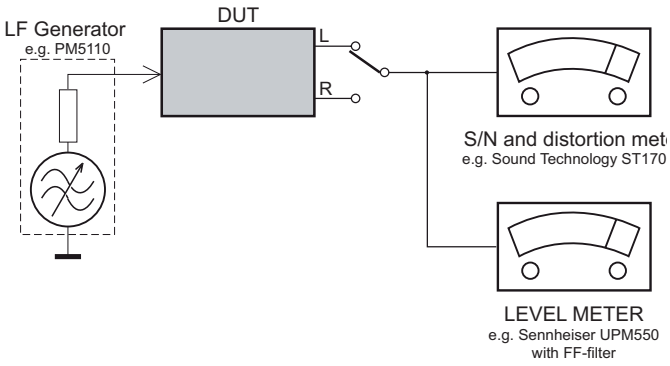
CD

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

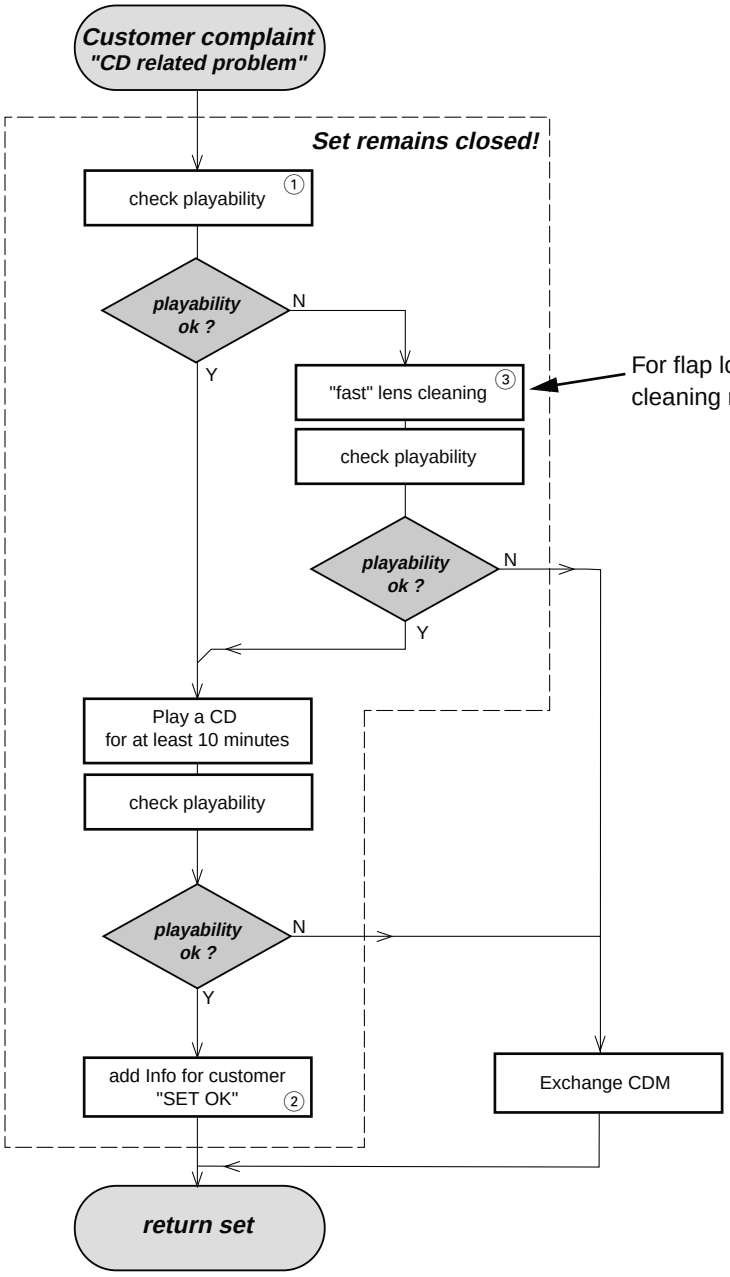


Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



INSTRUCTIONS ON CD PLAYABILITY



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 ≥10seconds
  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 ≥10seconds
  Fingerprint ≥10seconds
  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

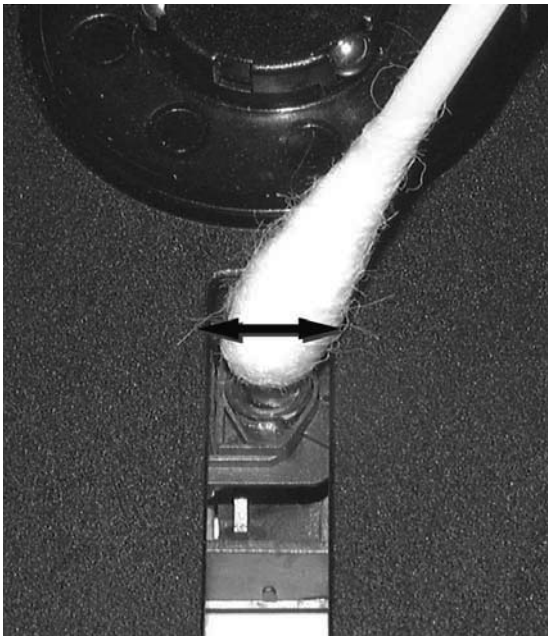
LIQUID LENS CLEANING

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.



2.0 SAFTETY INSTRUCTIONS

(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

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

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

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

Caution: These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

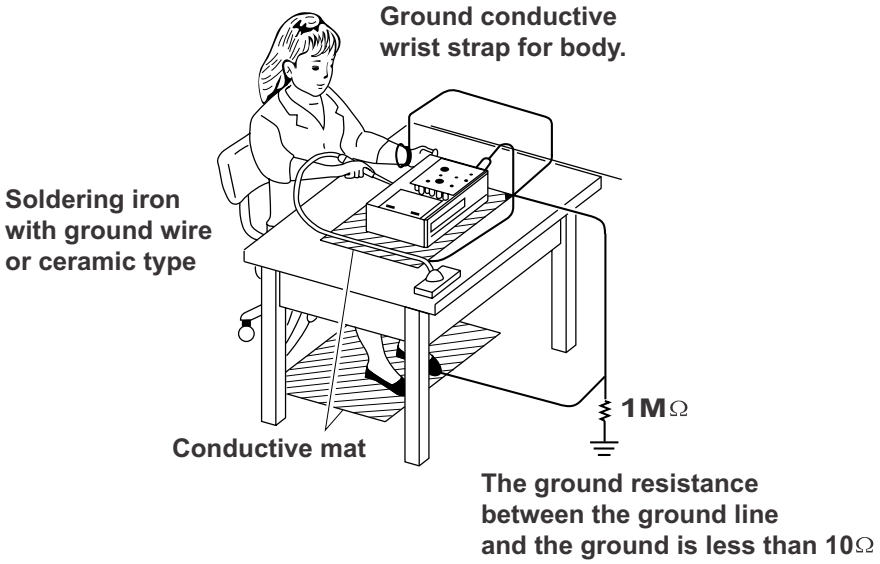
2.1 ESD PROTECTION

- レンズには絶対に触れないでください。
- DO NOT TOUCH THE LENS.
- LINSE NICHT BRÜHREN.
- NE PAS TOUCHER LA LENTILLE.

When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electrocity.
Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire,etc. to protect the laser diode form damage by static electricity.
And also, the LSI and IC are same as above.



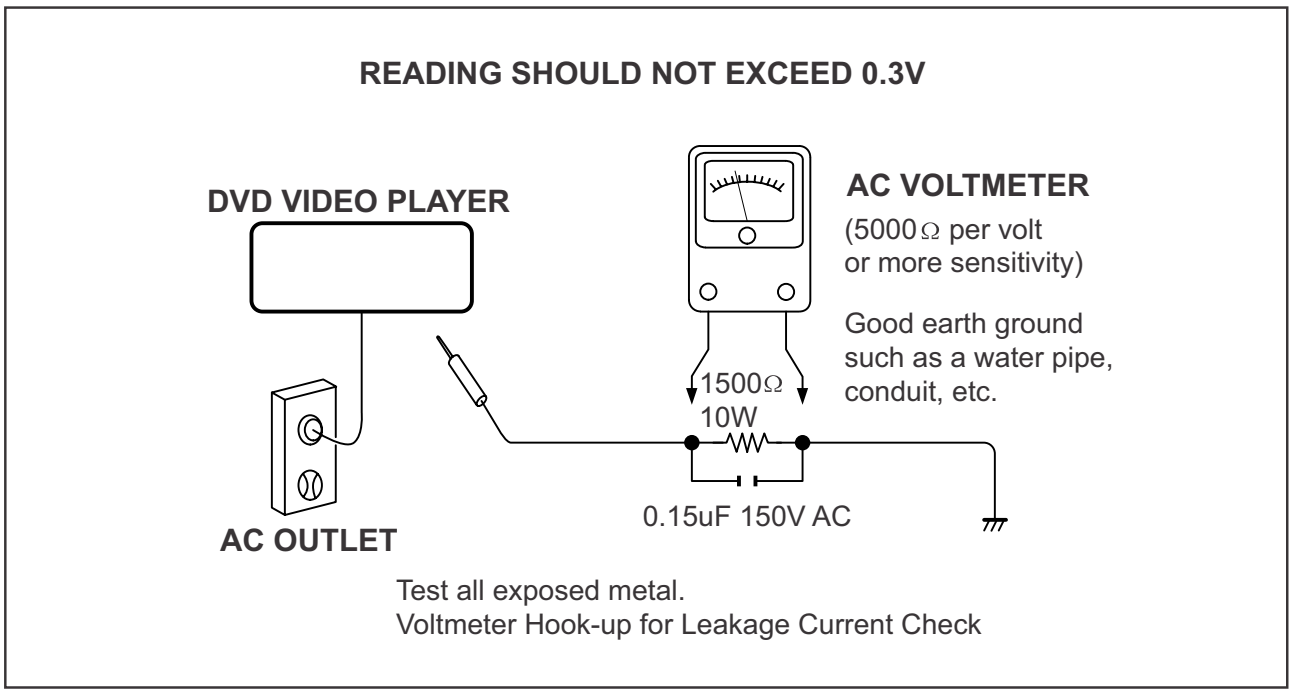
SAFTY NOTICE

SAFTY PRECAUTIONS

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000Ω per volt or more sensitivity. Connect a 1500Ω 10W resistor,paralleled by a 0.15uF 150V AC capacitor between a knomn good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

Measure the AC voltage across the 1500Ω resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3V.A reading exceeding 0.3V indicates that a dangerous potential exists, the fault must be located and corrected. Repeat the above test with the DVD VIDEO PLAYER power plug reversed.
NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



Test all exposed metal.
Voltmeter Hook-up for Leakage Current Check

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

2.2 SAFETY INSTRUCTIONS

Battery Handling Guideline

Since the battery is packed in soft package, to ensure its better performance, it's very important to carefully handle the battery

2.2.1 Soft Aluminium foil

The soft aluminum packing foil is very easily damaged by sharp edge parts such as Ni-tabs, pins and needles.

- Don't strike battery with any sharp edge parts
- Trim your nail or wear glove before taking battery
- Clean worktable to make sure no any sharp particle

2.2.2 Sealed edge

Sealing edge is very flimsy

- Don't bend or fold sealing edge

2.2.3 Folding edge

The folding edge is form in battery process and passed all hermetic test.

- Don't open or deform folding edge

2.2.4 Tabs

The battery tabs are not so stubborn especially for aluminum tab.

- Don't bend tab

2.2.5 Mechanical shock

- Don't Fall, hit, bend battery body

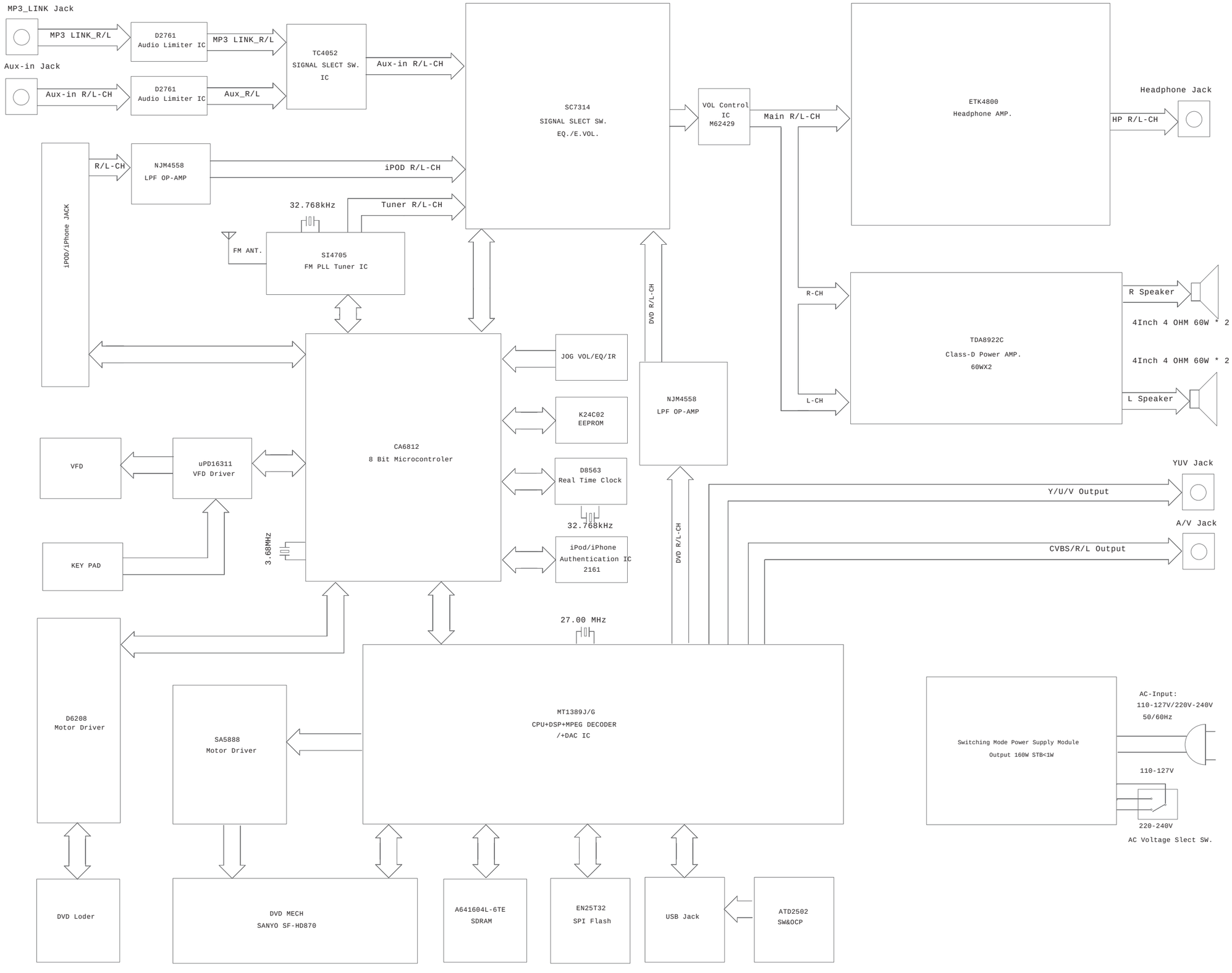
2.2.6 Short

Short terminals of battery is strictly prohibited, it may damage battery.

Caution: Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

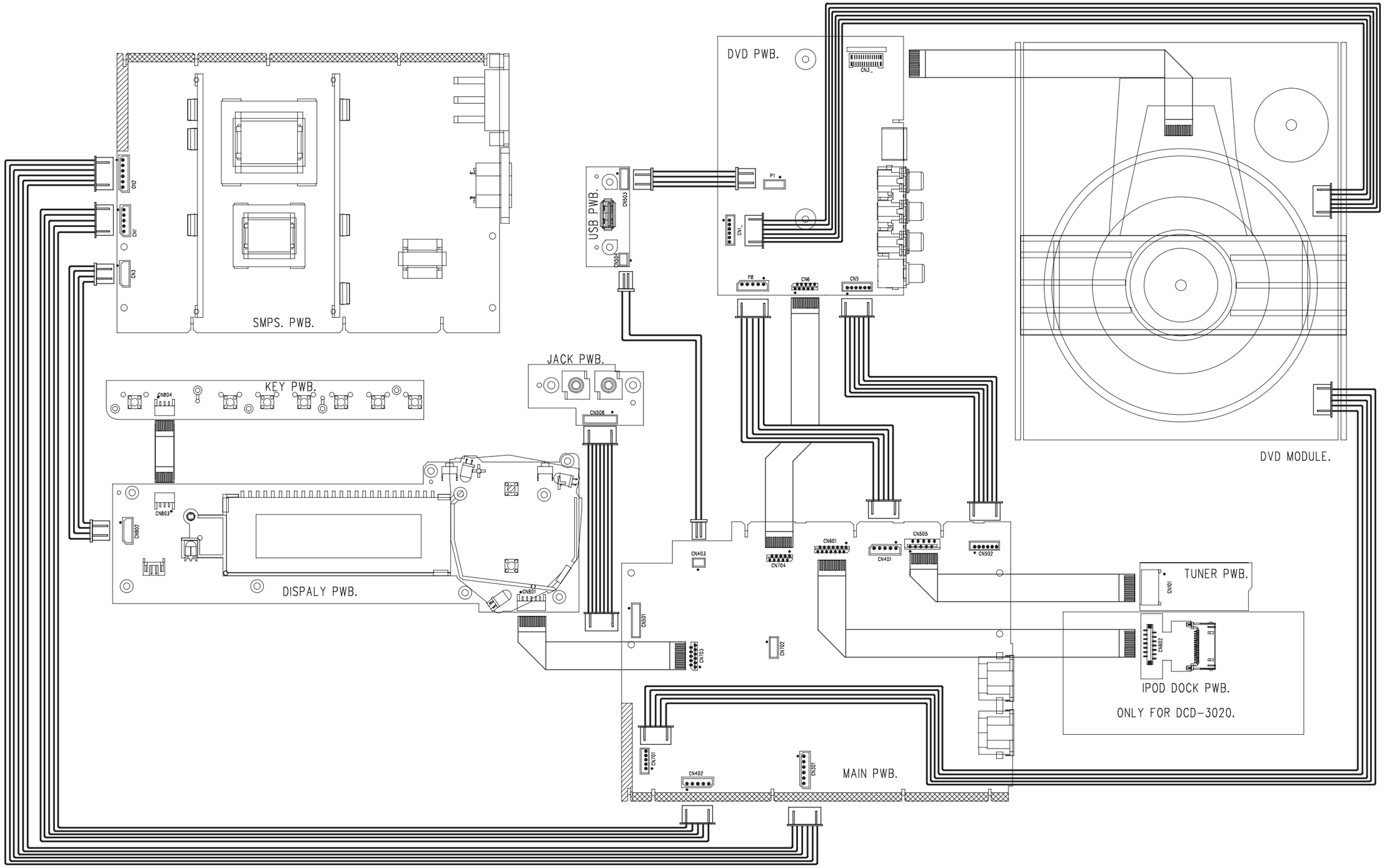
3 - 1

SET BLOCK DIAGRAM



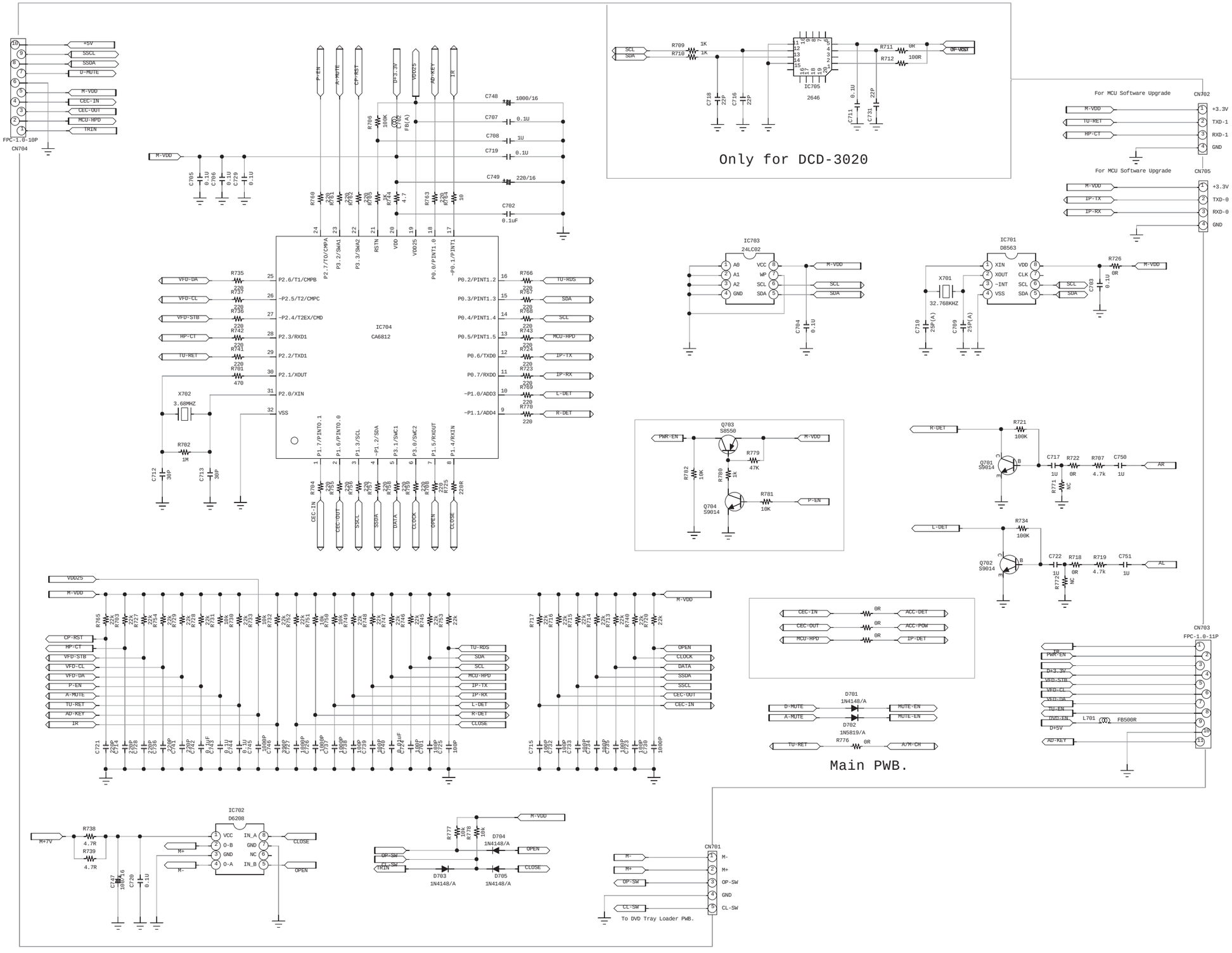
4- 1

SET WIRING DIAGRAM



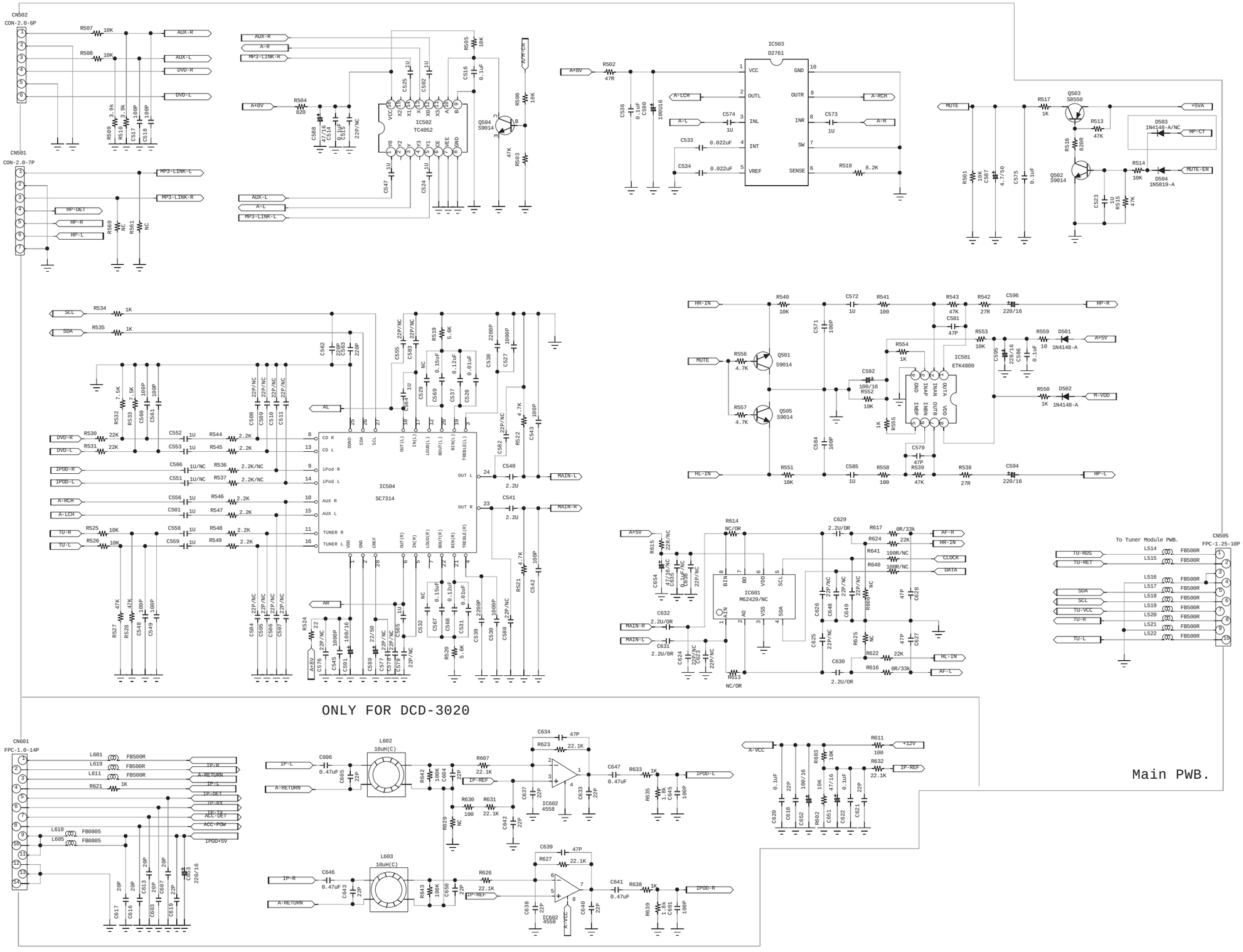
5 - 1

CIRCUIT DIAGRAM - MAIN BOARD
PART 1



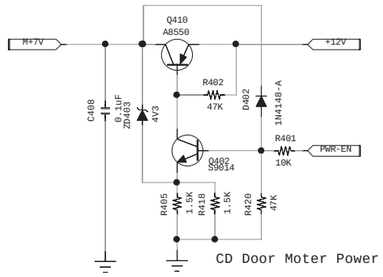
5 - 2

CIRCUIT DIAGRAM - MAIN BOARD
PART 2

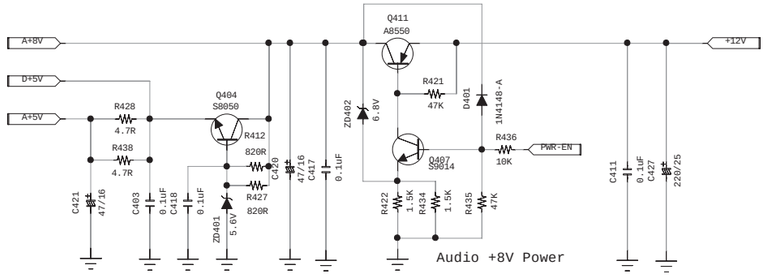


5 - 3

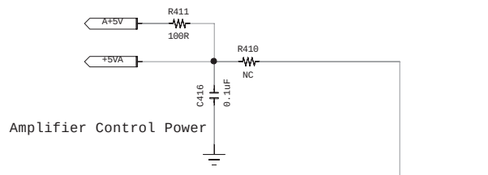
CIRCUIT DIAGARM - MAIN BOARD
PART 3



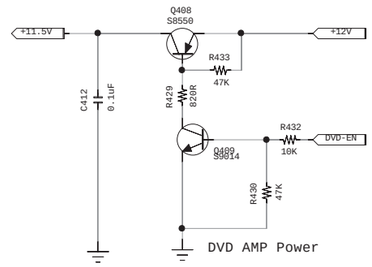
CD Door Moter Power



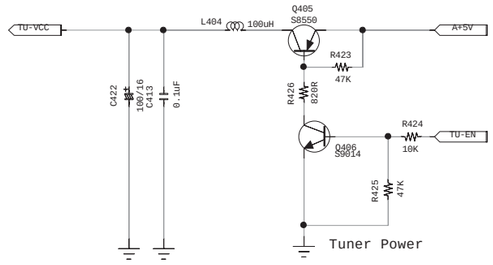
Audio +8V Power



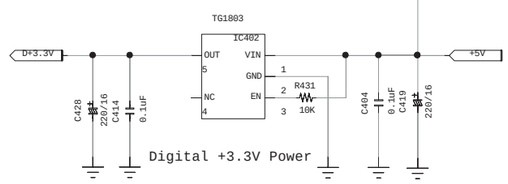
Amplifier Control Power



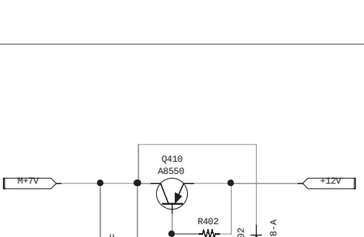
DVD AMP Power



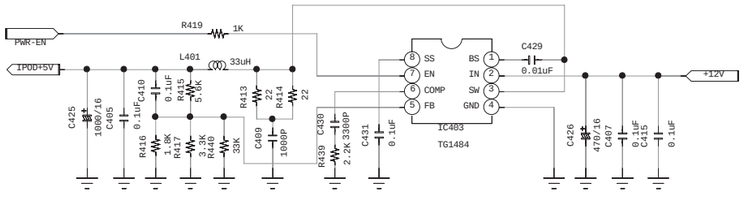
Tuner Power



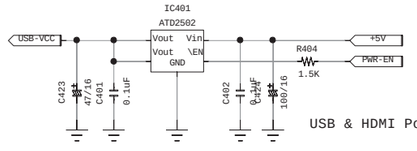
Digital +3.3V Power



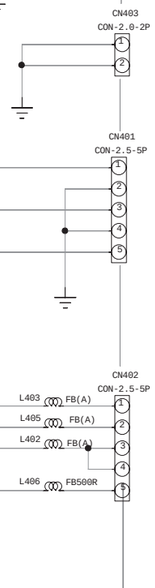
DVD Power



iPad Power



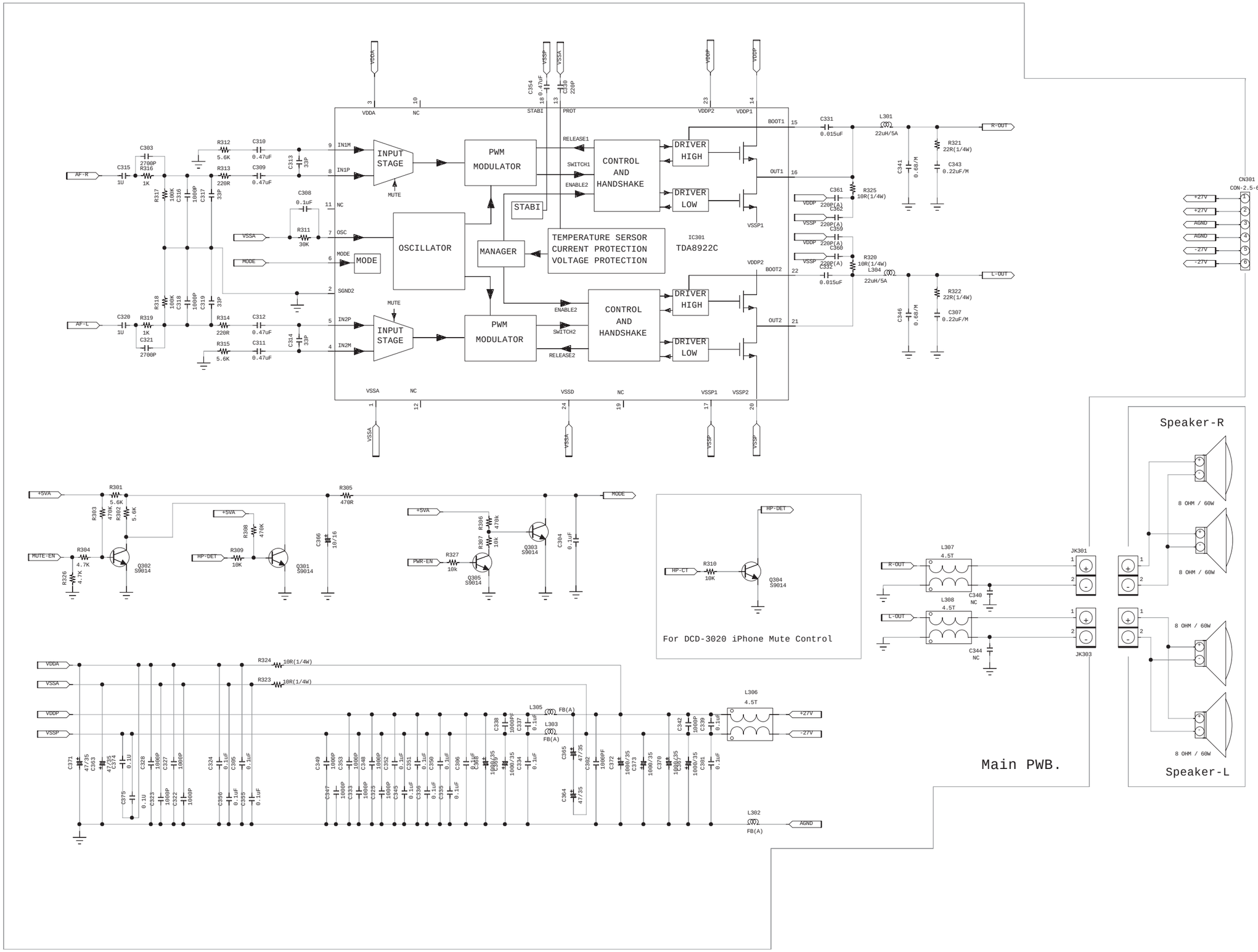
USB & HDMI Power



Main PWB.

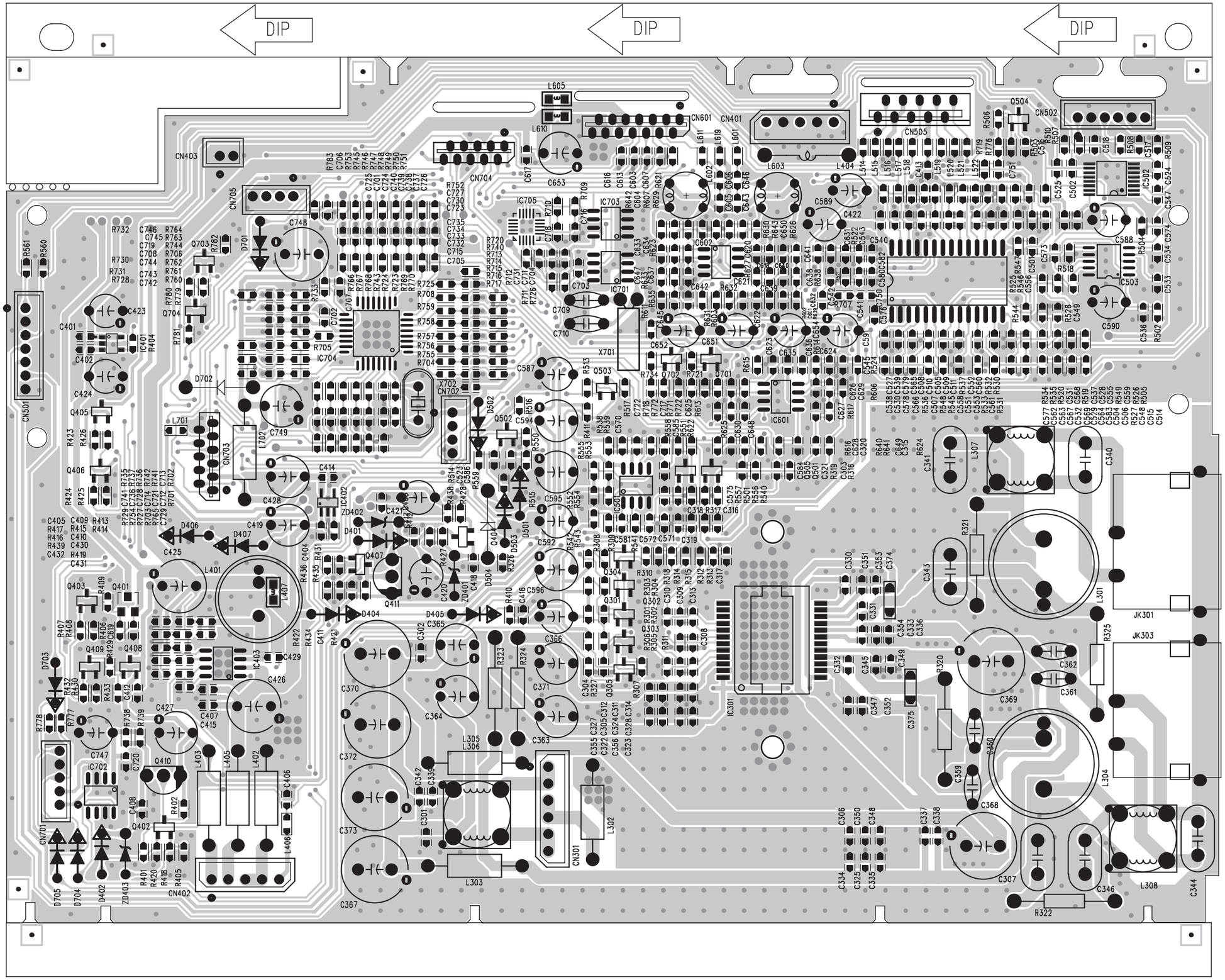
5 - 4

CIRCUIT DIAGARM - MAIN BOARD
PART 4



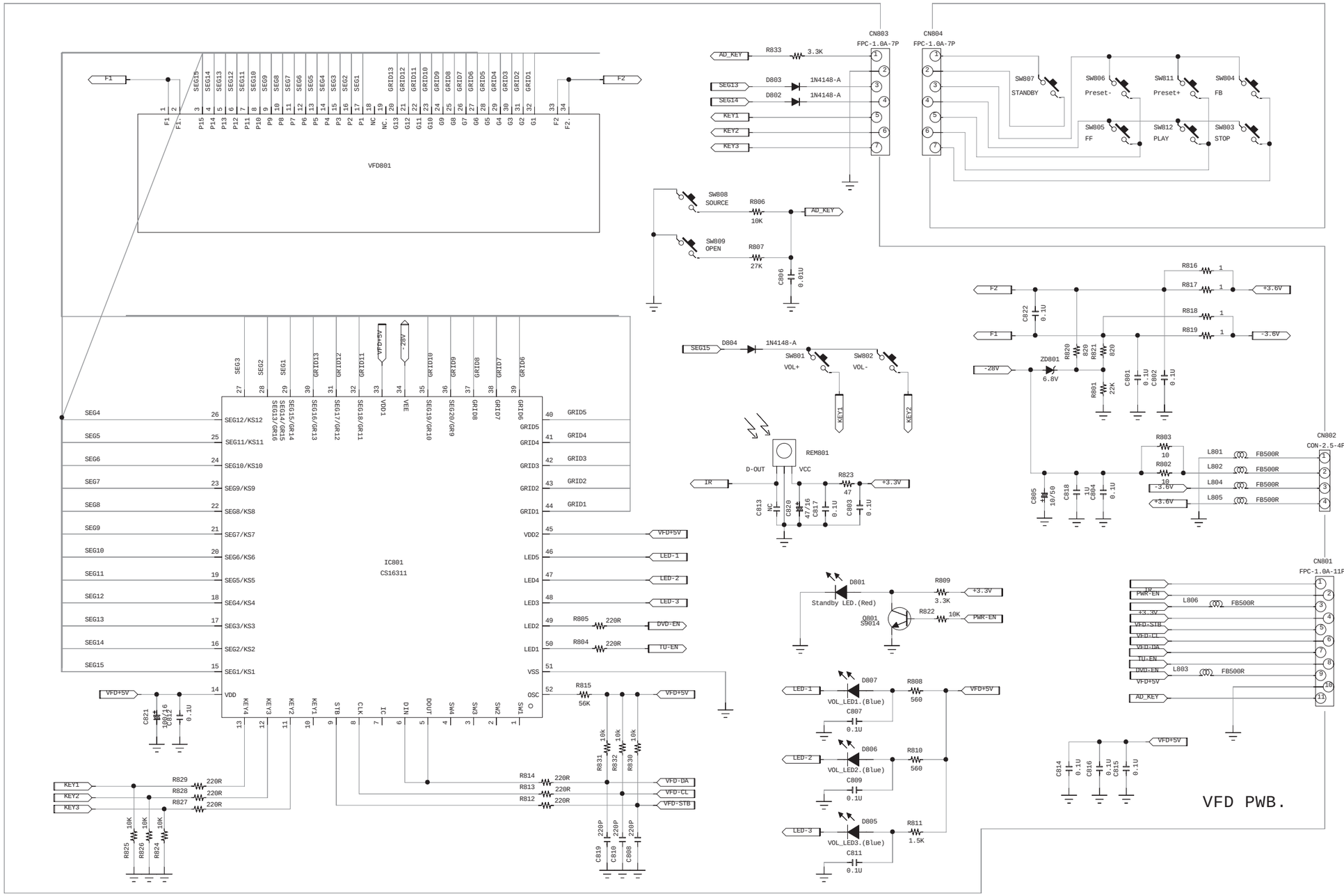
5 - 5

LAYOUT DIAGRAM - MAIN BOARD



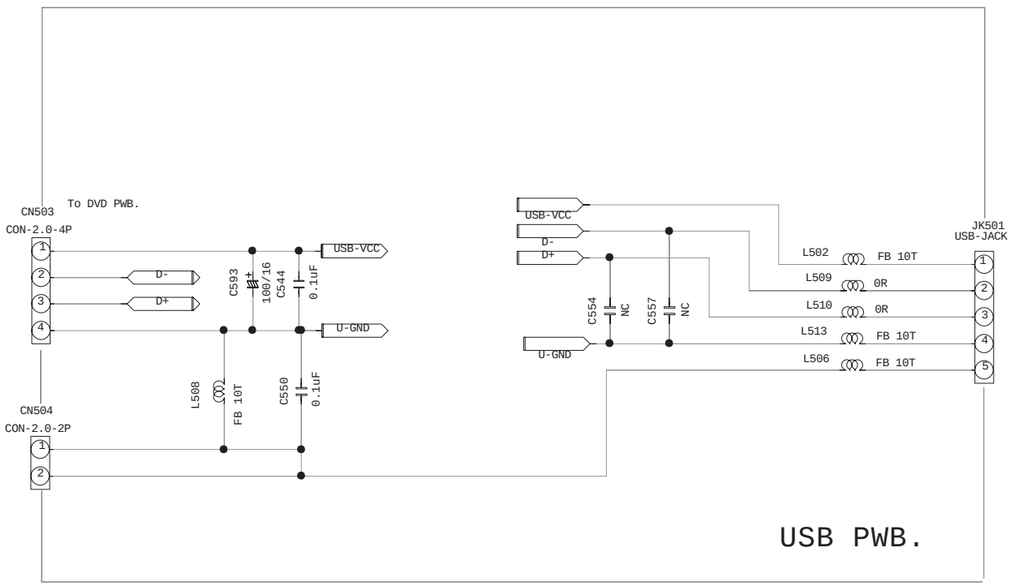
6 - 1

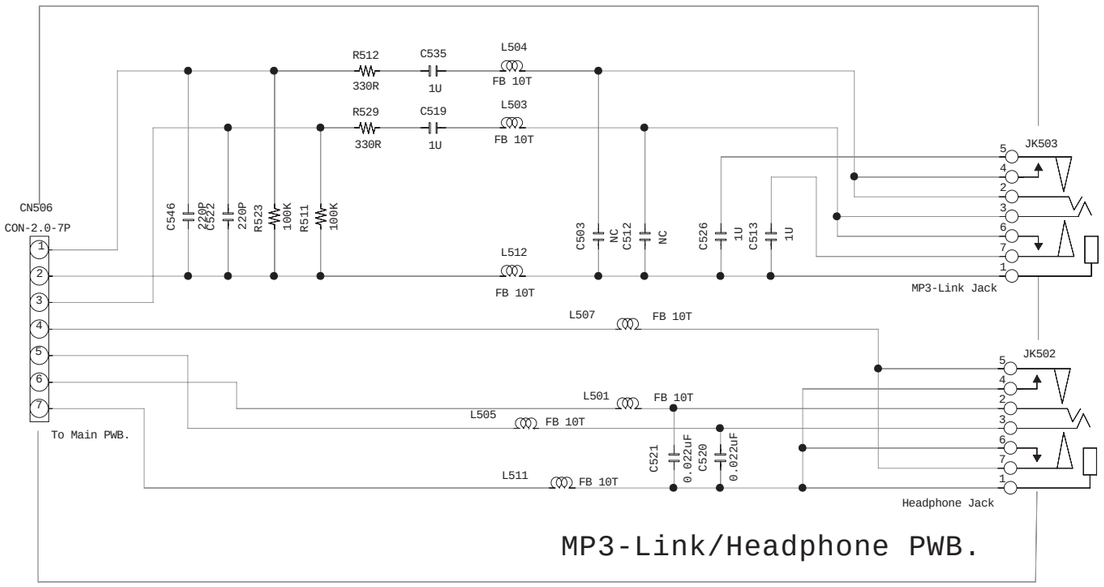
CIRCUIT DIAGRAM - DISPLAY+JACK+KEY+USB BOARD
DISPLAY PART

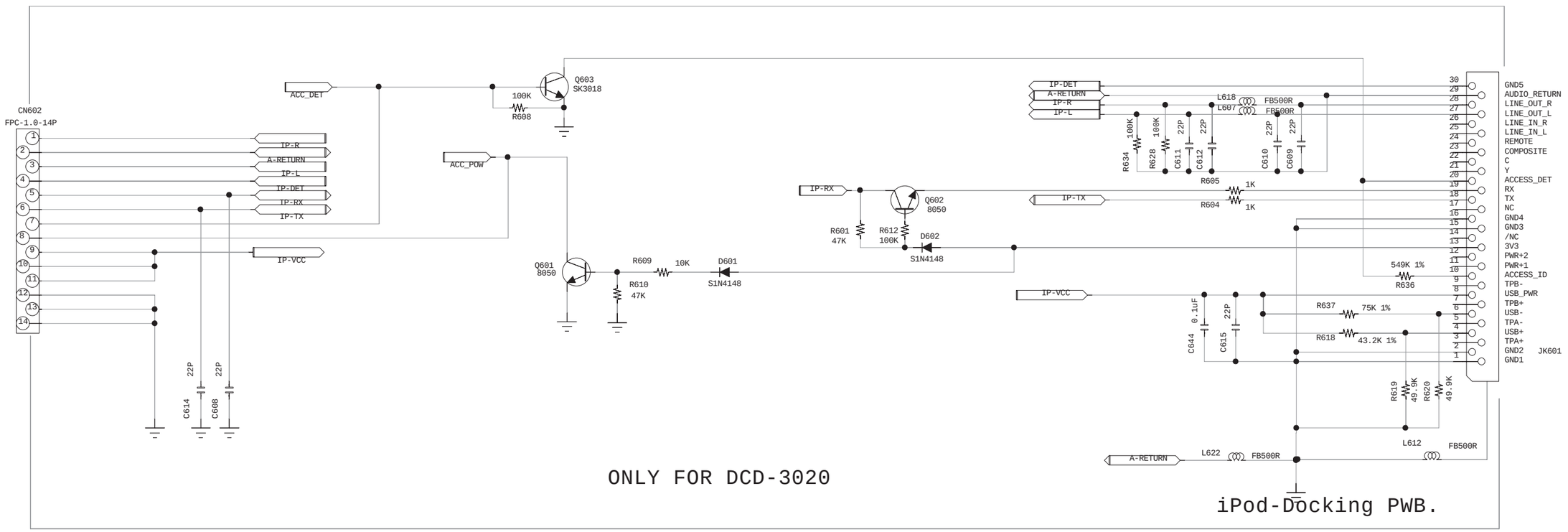


6 - 2

CIRCUIT DIAGRAM - DISPLAY+JACK+KEY+USB BOARD
USB/JACK/IPod-DOCKING PART

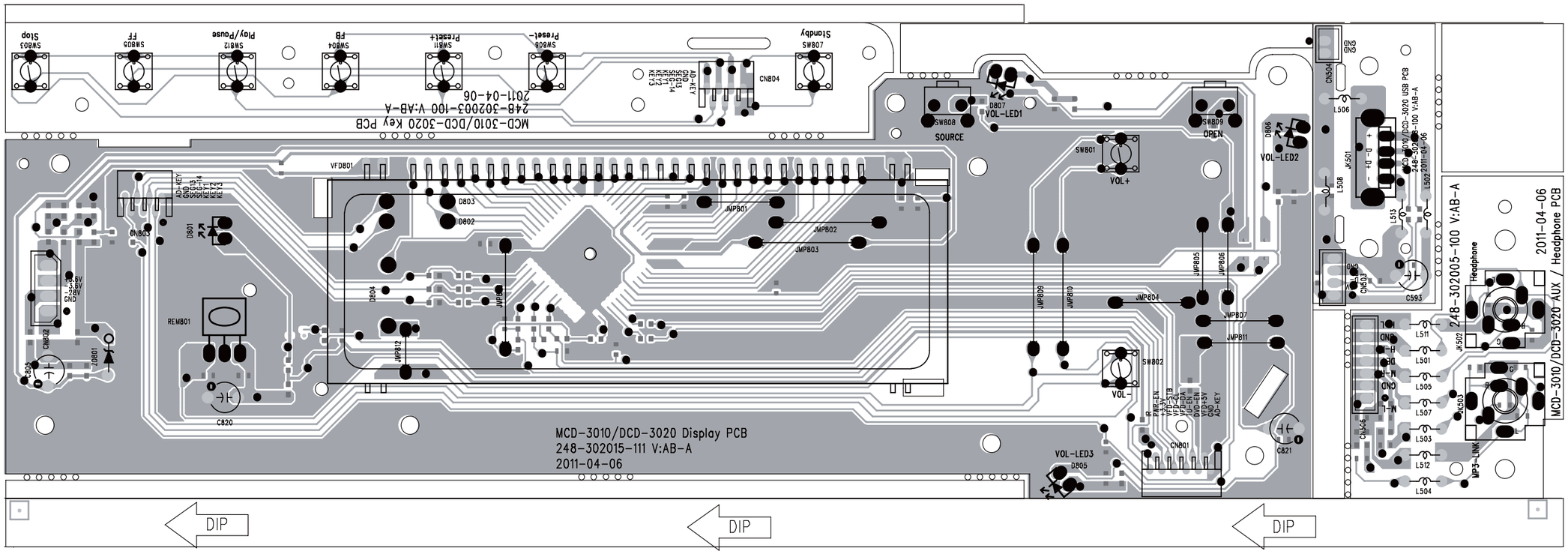






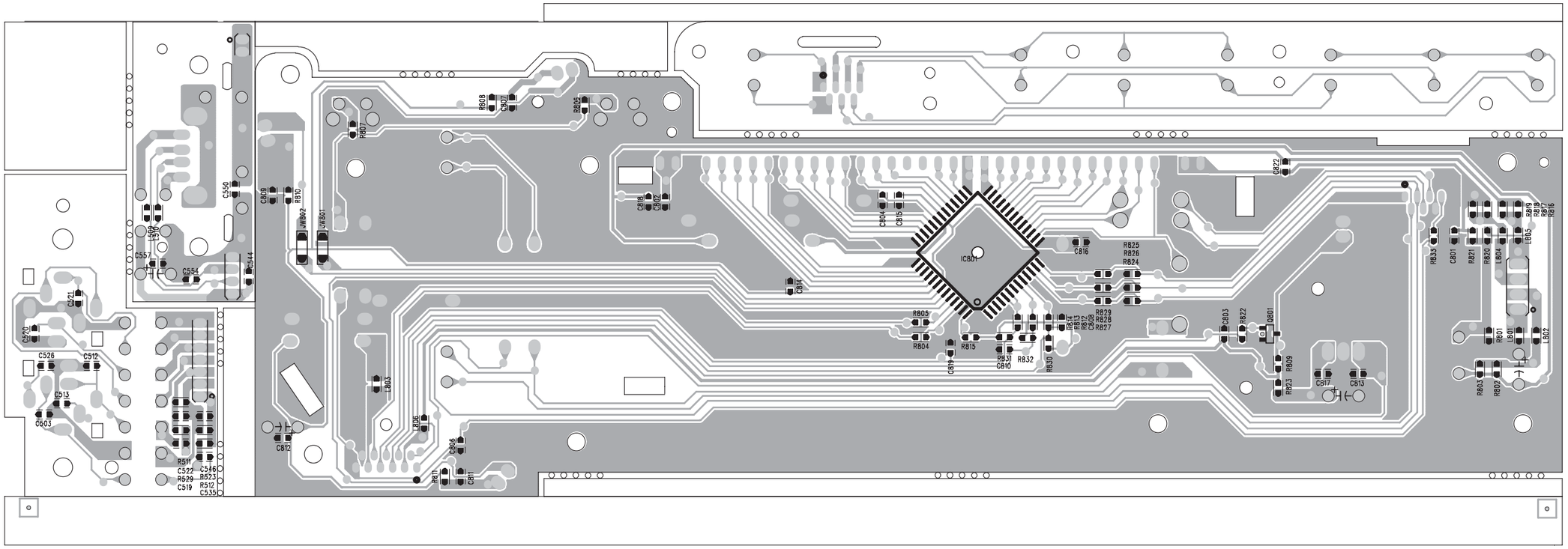
6 - 3

LAYOUT DIAGRAM - DISPLAY+JACK+KEY+USB BOARD
TOP SIDE



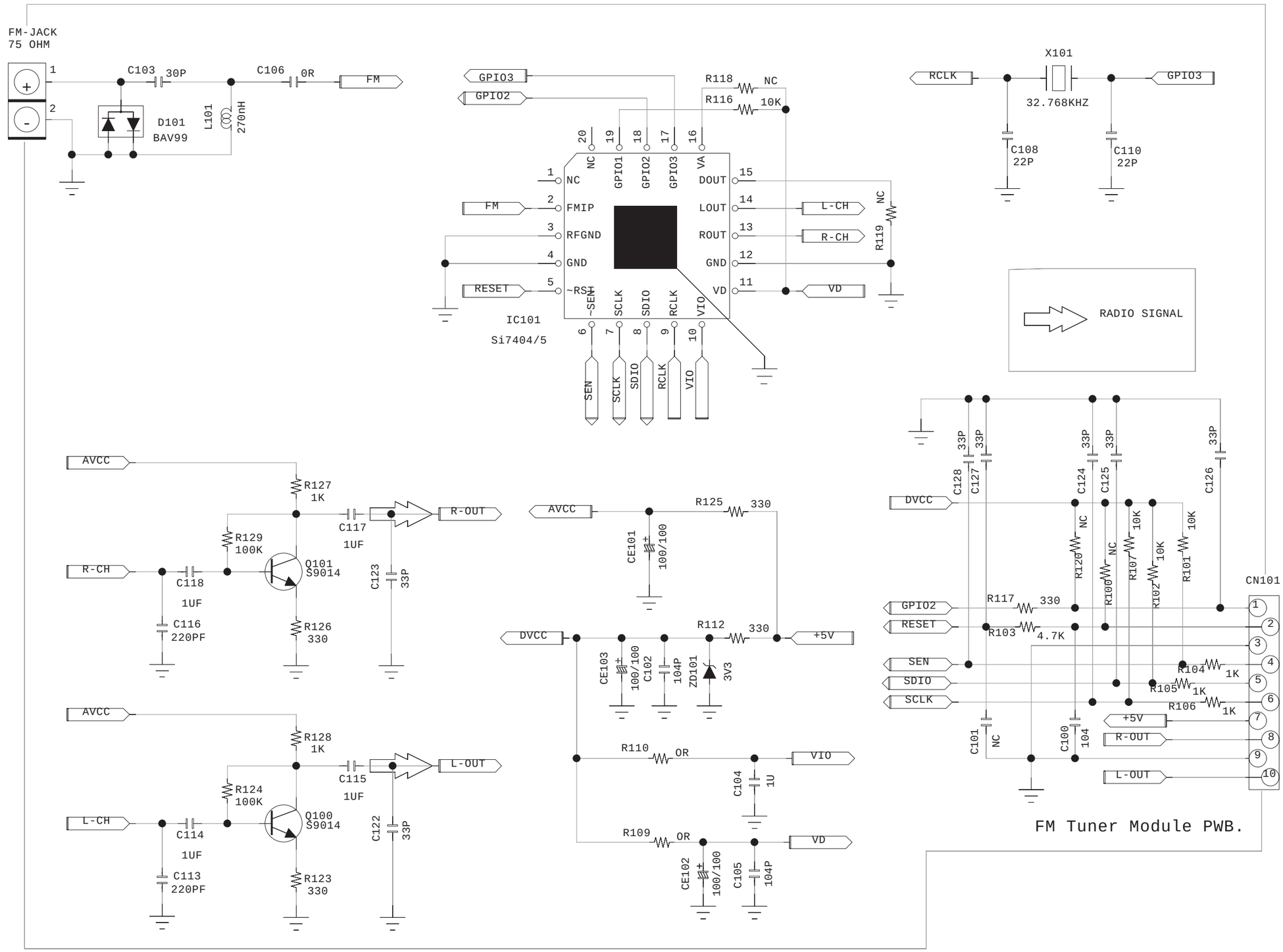
6 - 4

LAYOUT DIAGRAM - DISPLAY+JACK+KEY+USB BOARD BOTTOM SIDE



7-1

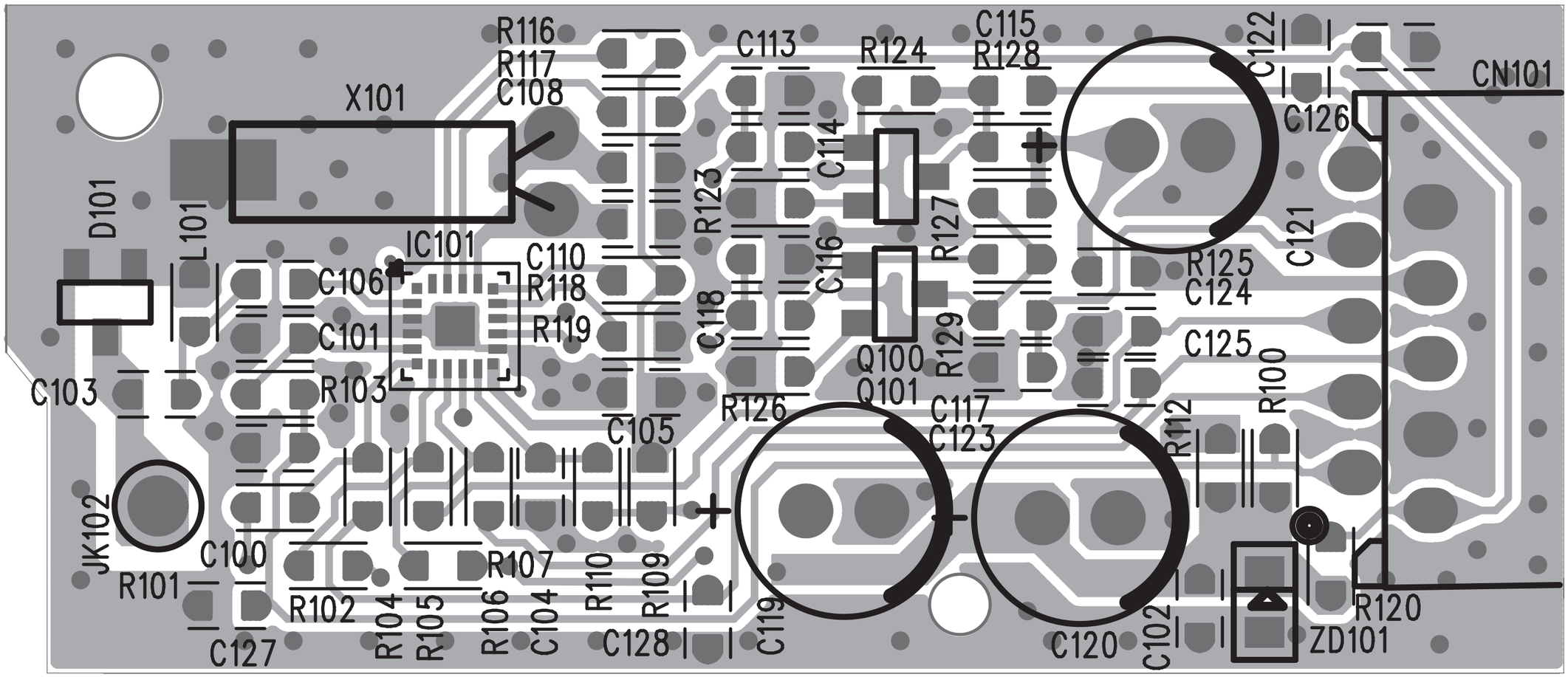
CIRCUIT DIAGRAM - TUNER BOARD



FM Tuner Module PWB.

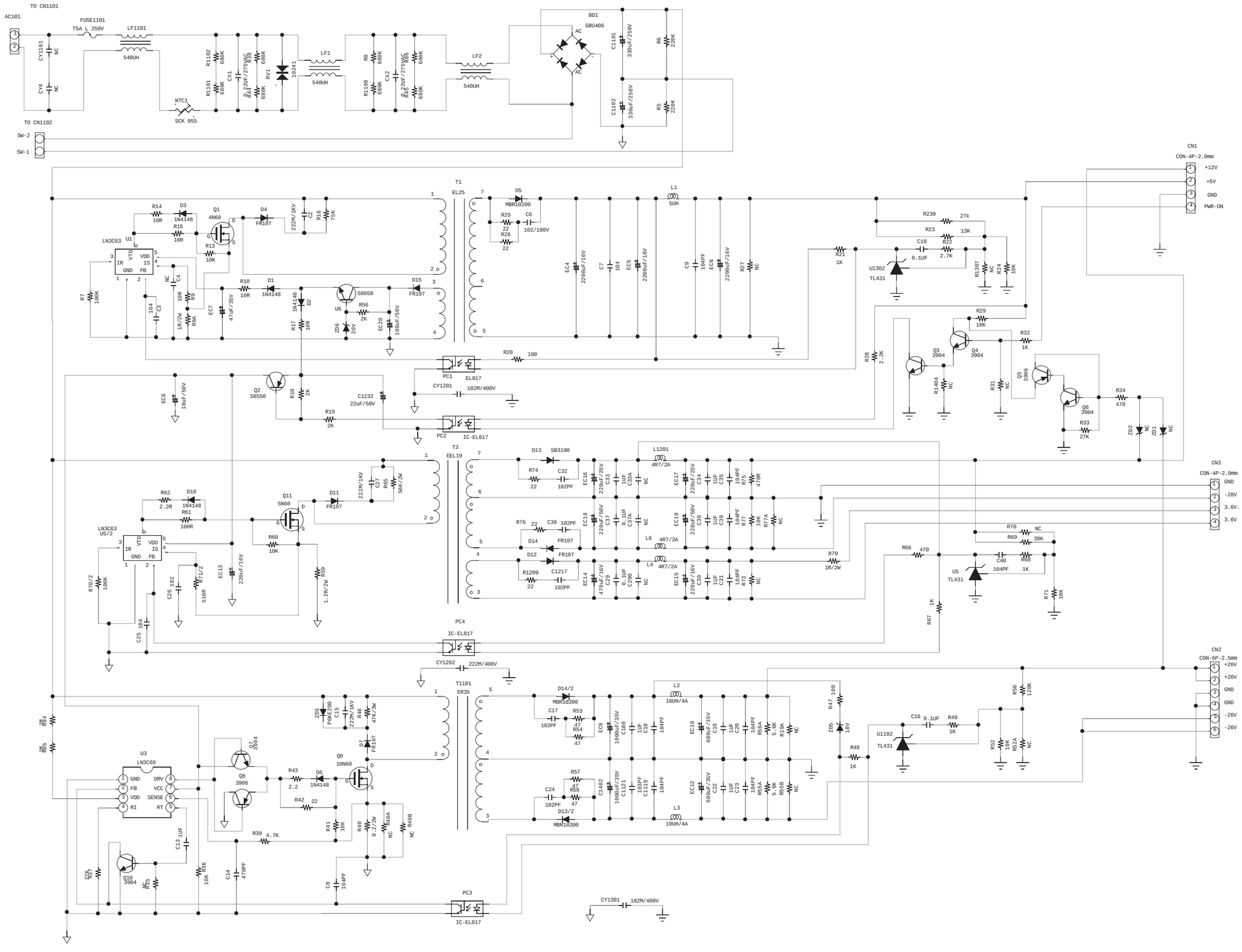
7 - 2

LAYOUT DIAGRAM - TUNER BOARD



8 - 1

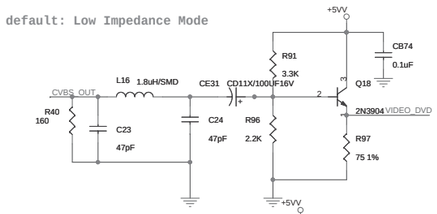
CIRCUIT DIAGRAM - SMPS POWER BOARD
PART 1

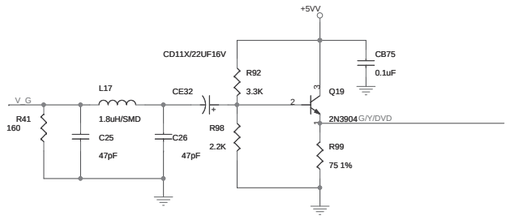


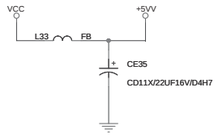
8 - 2

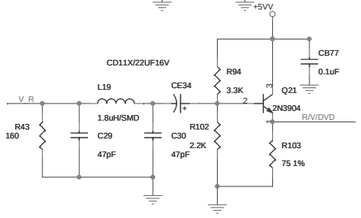
CIRCUIT DIAGRAM - SMPS POWER BOARD PART 2

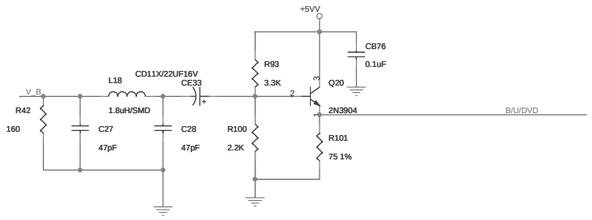
default: Low Impedance Mode

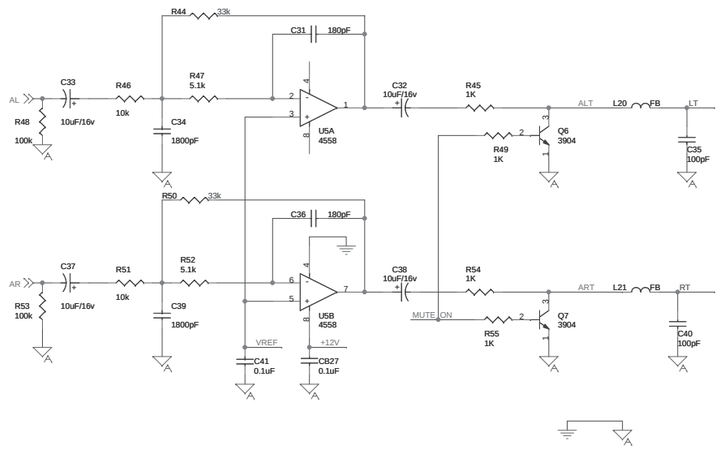


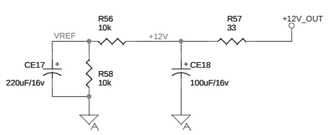


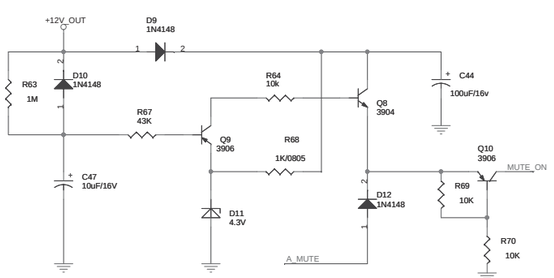


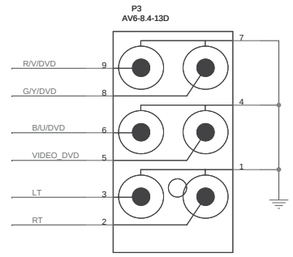




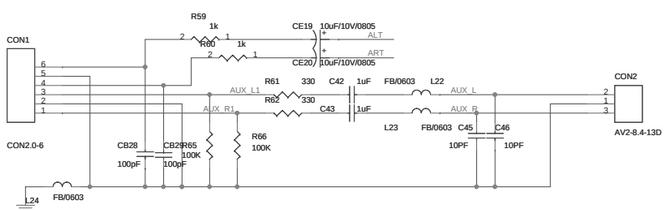




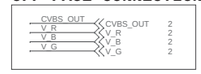


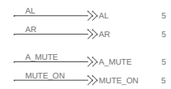


AV6-8.4-13D



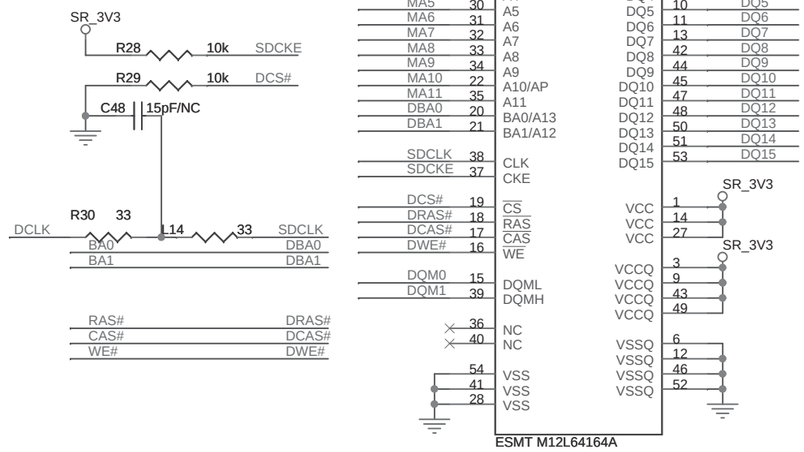
OFF-PAGE CONNECTION

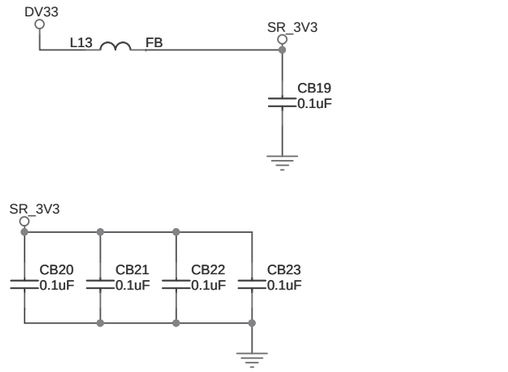




8 - 3

CIRCUIT DIAGRAM - SMPS POWER BOARD
PART 3





SDR_DRAM (Dual Layout)

OFF-PAGE CONNECTION

DQ[0..15] DQ[0..15] [2]
MA[0..11] MA[0..11] [2]
DQM[0..1] DQM[0..1] [2]
BA[0..1] BA[0..1] [2]
DCLK DCLK [2]
RAS# RAS# [2]
CAS# CAS# [2]
WE# WE# [2]

DRAM I/F

SF_CK SF_CK [2]
SF_CS SF_CS [2]
SF_DI SF_DI [2]
SF_DO SF_DO [2]

S-FLASH

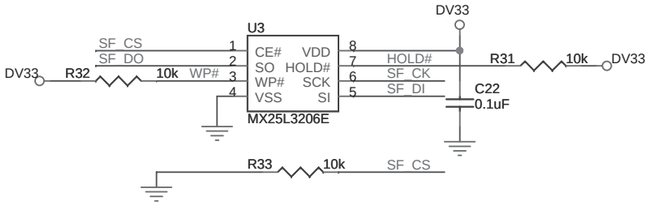
STBY STBY [2]
TRIN TRIN [2]
T- T- [2]
T+ T+ [2]
F- F- [2]
F+ F+ [2]
SL- SL- [2]
SL+ SL+ [2]
SP- SP- [2]
SP+ SP+ [2]
FOSO FOSO [2]
TRSO TRSO [2]
FMSO FMSO [2]
DMSO DMSO [2]
V1P4 V1P4 [2]

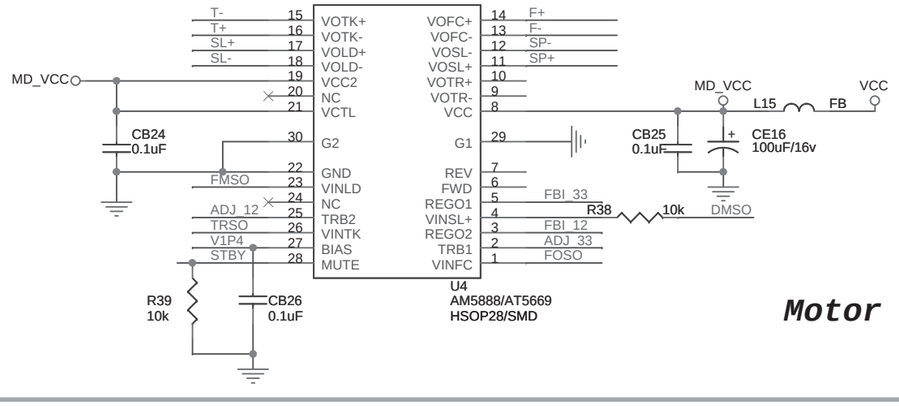
SERVO I/F

1V2 1V2 [2]
V33 V33 [1,2,4,6]

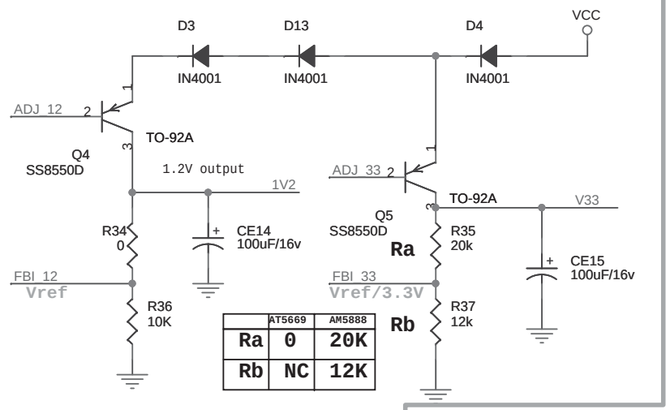
POWER

Serial Flash



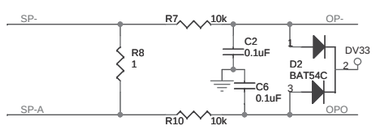


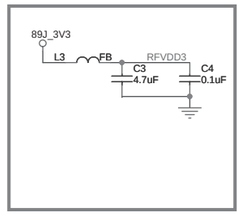
Motor Driver

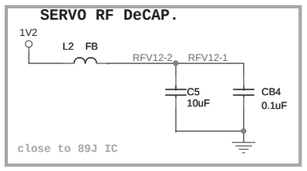


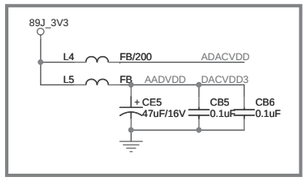
8 - 4

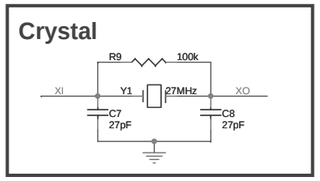
CIRCUIT DIAGRAM - SMPS POWER BOARD
PART 4

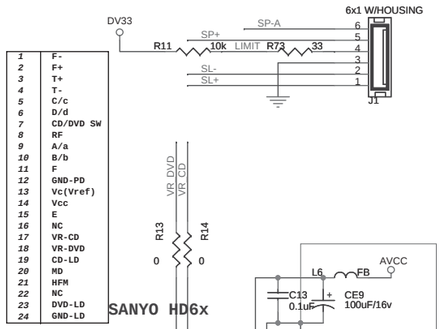


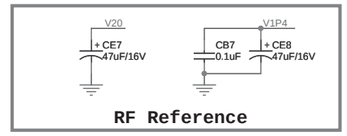


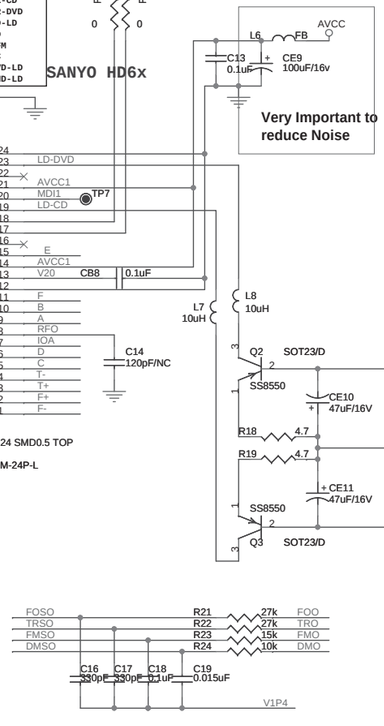


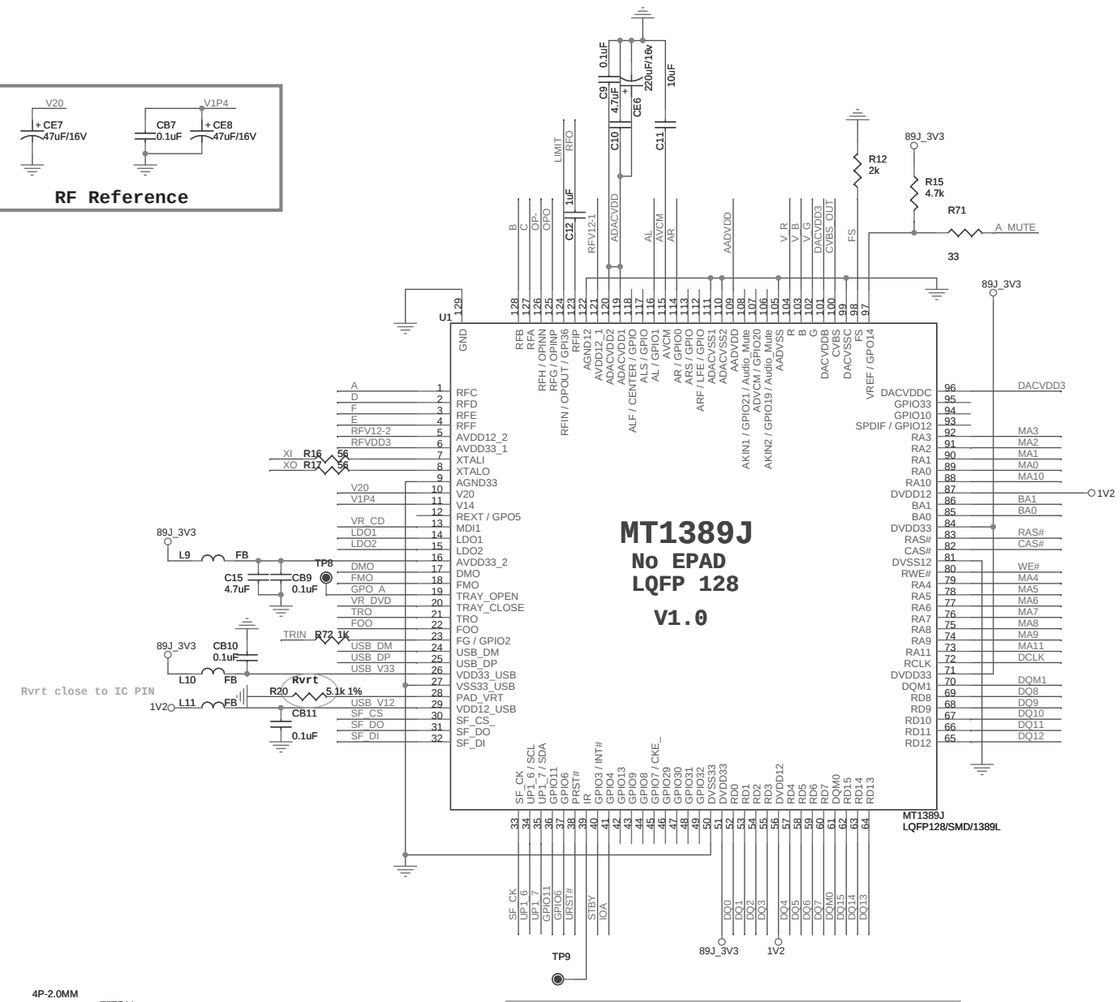




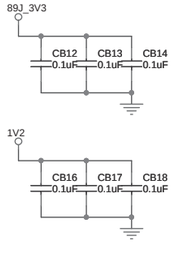


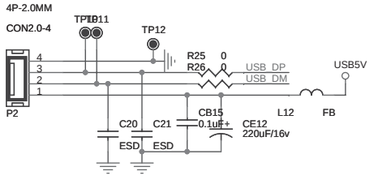


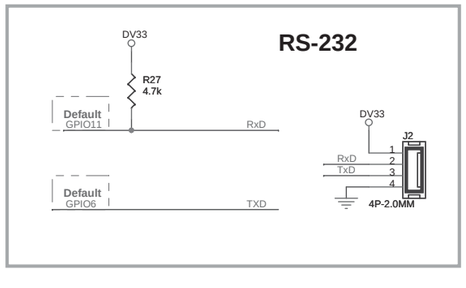




Chip Decap.







OFF-PAGE CONNECTION

DQ[0..15] — DQ[0..15] [3]
MA[0..11] — MA[0..11] [3]
DQM[0..1] — DQM[0..1] [3]
BA[0..1] — BA[0..1] [3]
DCLK — DCLK [3]
RAS# — RAS# [3]
CAS# — CAS# [3]
WE# — WE# [3]

DRAM I/F

SF_CK — SF_CK [3]
SF_CS — SF_CS [3]
SF_DI — SF_DI [3]
SF_DO — SF_DO [3]

S-FLASH

CVBS_OUT — CVBS_OUT [5]
V_R — V_R [5]
V_B — V_B [5]
V_G — V_G [5]

VIDEO I/F

AR — AR [4]
AL — AL [4]
A_MUTE — A_MUTE [4]

AUDIO I/F

Gxyz

USB I/F

UP1_[6..7] — UP1_[6..7] 4

MCR I/F

STBY — STBY [3]
TRIN — TRIN [3]
T- — T- [3]
T+ — T+ [3]
F- — F- [3]
F+ — F+ [3]
SL- — SL- [3]
SL+ — SL+ [3]
SP- — SP- [3]
SP+ — SP+ [3]
FOSO — FOSO [3]
TRSO — TRSO [3]
FMSO — FMSO [3]
DMSO — DMSO [3]
V1P4 — V1P4 [3]

SERVO I/F

RFV33 — RFV33 [1]
1V2 — 1V2 [3]

POWER

URST# — URST# [1]

CIRCUIT DIAGRAM - SMPS POWER BOARD
PART 5

COMMON1389J_HD850_AM5888_STBY

MT1389J DVD Board w/ Sanyo HD6x Series PUHs

8 - 5

Rev	History	P#	Date
V1	Original release		2009.7.13
V1.1	Modify VR-CD and MDI circuit.		2009.7.30

MT1389J General GPIO List

Name	PIN	Features		
GPO5	12	TRCLOSE		
MDI1	13	VR_CD		
GPO_B	20	VR_DVD		
GPIO2	23	TRIN		
UP1_6	34	VSCK		
UP1_7	35	VSDA		
GPIO11	36	Power Key		RXD
GPIO6	37	SD_D0		TXD
GPIO3	40	STBY		
GPIO4	41	TROPEN	IOA	
GPIO13	42	VSTB		
GPIO9	43	MS_D0	SD_CMD	
GPIO8	44	MS_BS	SD_CLK	
GPIO7	45	MS_CLK		
GPIO29	46	Gxyz_LOAD		
GPIO30	47	Gxyz_CLK		
GPIO31	48	Gxyz_DA1		
GPIO32	49	Gxyz_DA2		
GPIO12	93	ASPDIF		
GPIO10	94	SCART1	HSYNC	
GPIO33	95	SCART2	VSYNC	
GPO14	97	AUDIO_MUTE		
GPIO19	106	AKIN2		
GPIO20	107	ADVCM		
GPIO21	108	AKIN1		
GPI36	124	LIMIT	TROUT	

OFF-PAGE CONNECTION

RFV33 → RFV33 [2]

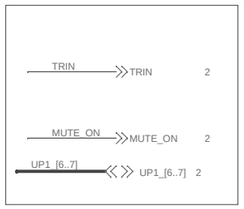
V33 ← V33 [2,3,4,6]

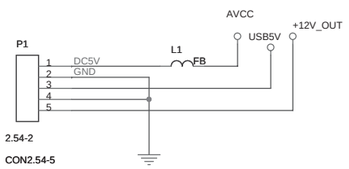
1V2 → 1V2 [2,3]

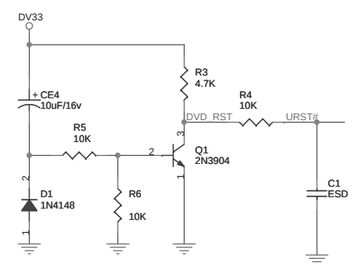
POWER

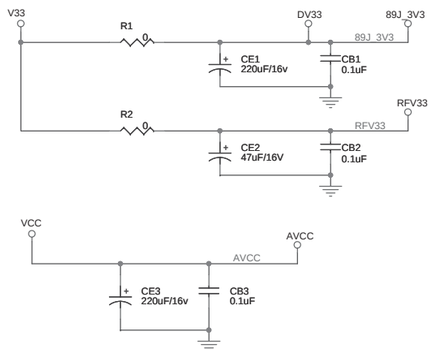
URST# → URST# [2]

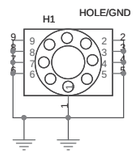
MISC

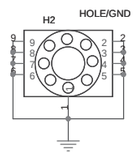


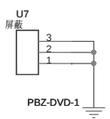






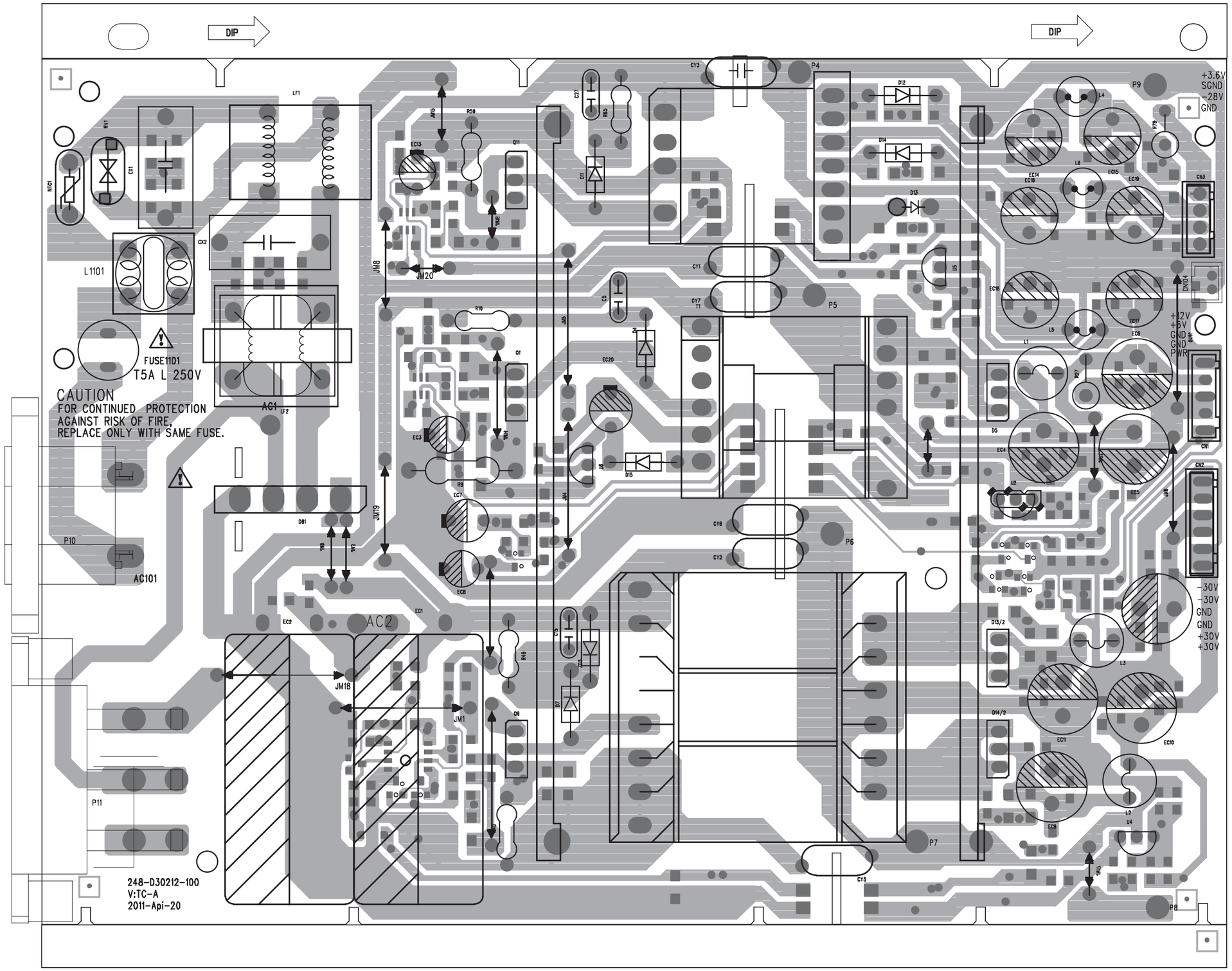






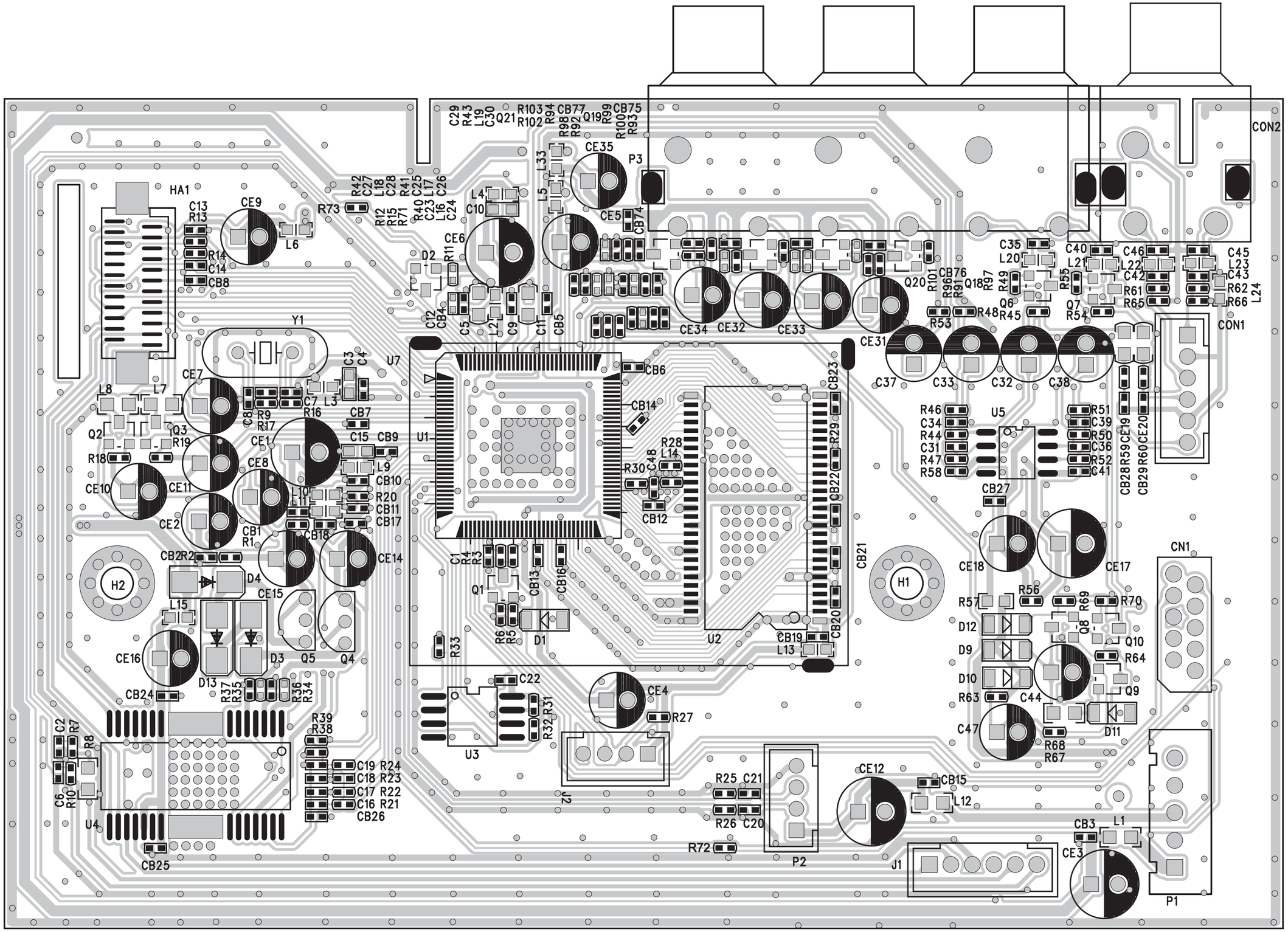
8 - 6

LAYOUT DIAGRAM - SMPS POWER BOARD
TOP SIDE



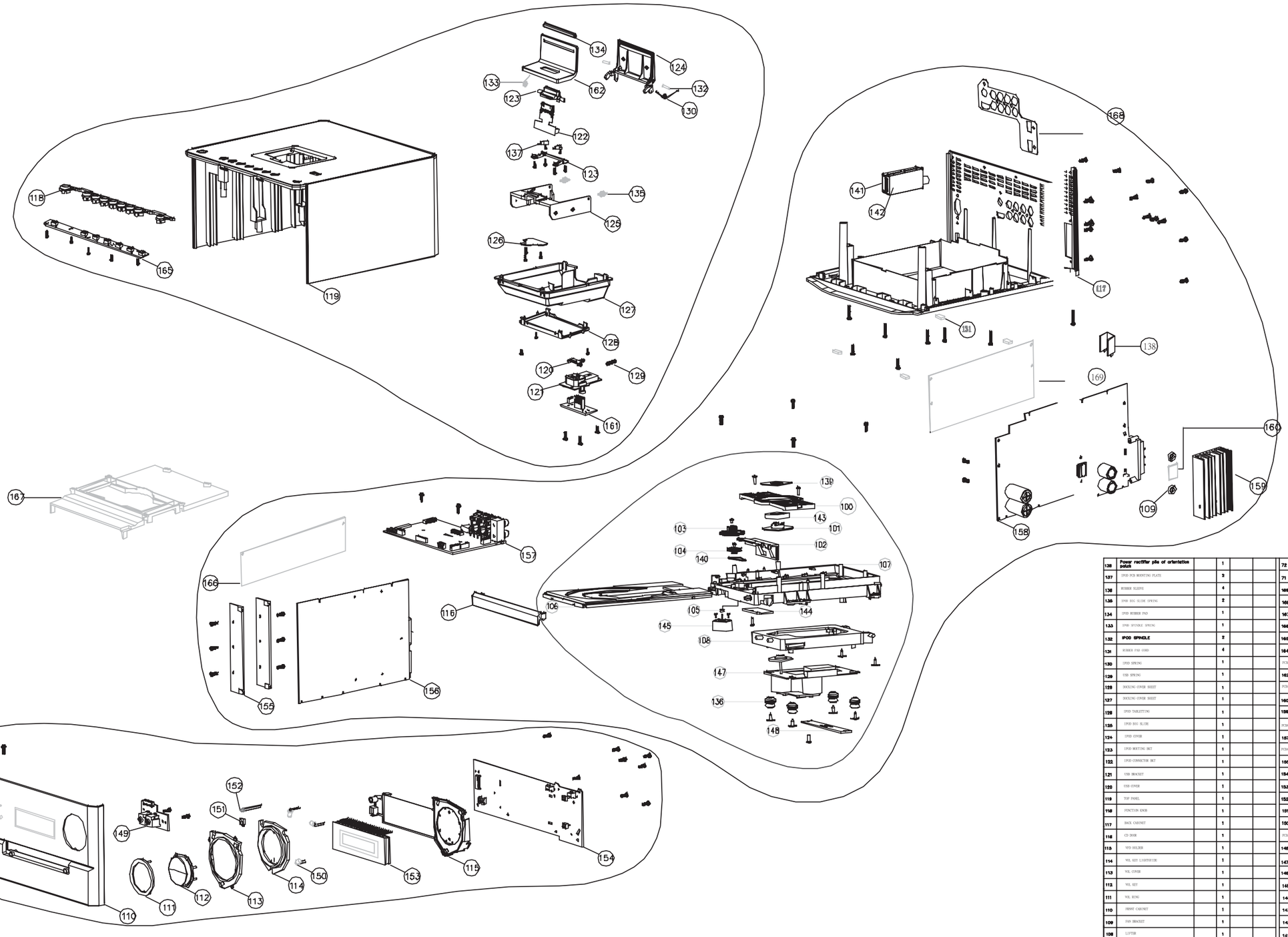
8 - 7

LAYOUT DIAGRAM - SMPS POWER BOARD
BOTTOM SIDE



9 - 1

EXPLODED VIEW DIAGRAM



138	Power rectifier pin of orientation notch		1		
137	DVD PCB MOUNTING PLATE		2		
136	RUBBER SLEEVE		4		
135	DVD EJC SLIDE SPRING		2		
134	DVD RUBBER PAD		1		
133	DVD SPINDLE SPRING		1		
132	DVD SPINDLE		2		
131	RIBBON PAD CORD		4		
130	DVD SPRING		1		
129	CSD SPRING		1		
128	DOCKING COVER SHEET		1		
127	DOCKING COVER SHEET		1		
126	DVD TABLETTING		1		
125	DVD EJC SLIDE		1		
124	DVD COVER		1		
123	DVD MOUTING BKT		1		
122	DVD CONNECTOR BKT		1		
121	USB BRACKET		1		
120	USB COVER		1		
119	TOP PANEL		1		
118	FUNCTION KNOB		1		
117	BACK CABINET		1		
116	CD DOOR		1		
115	VFD HOLDER		1		
114	VOL KEY LIGHTGUIDE		1		
113	VOL COVER		1		
112	VOL KEY		1		
111	VOL RING		1		
110	FRONT CABINET		1		
109	FAN BRACKET		1		
108	LIFTER		1		
107	BASE		1		
106	CD PLATE		1		
105	PULLEY		1		
104	BELT-GEAR		1		
103	DOUBLE-GEAR		1		
102	SLIDER		1		
101	CLAMPER		1		
100	MAGNET RING BRACKET		1		
NO.	PARTS NAME	MATER.	QTY.	SPEC	REMARK

72					
71					
169	shielding paper		1		
168	METAL PLATE		1		
167	SHIELD		1		
166	FC FILM		1		
165	FIN BRACKET		1		
164	FIN BRACKET		1		
PCB65	DVD8 PCB		1		
162	DVD PANEL		1		
PCB65	USB PCB		2		
160	CERAMIC WAFER		1		
159	MAINBOARD PCB FIN		1		
PCB61	MAINBOARD PCB		1		
PCB67	DECK RECOGNIZE PCB		1		
PCB67	POWER SUPPLY PCB		1		
155	POWER SUPPLY PCB FIN		2		
154	FUNCTION CONTROL PCB		1		
153	VFD		1		
152	LED		1		
151	MIDDLE RIBBON		1		
150	WHITE LIGHT		3		
PCB63	EARPHONE JACK PCB		1		
148	COLLECTING BOARD		1		
147	CD DECK		2		
146	TRAY		1		
145	SCREW		1		
144	PCB		1		
143	CD MAGNET RING		1		
142	RECEPTION TUBBING		1		
141	EXCEPTION TUBBING		1		
140	BELT		1		
139	CD METAL CHECK		1		
NO.	PARTS NAME	MATER.	QTY.	SPEC	REMARK

Version History

V1.0: initial release

V1.1: Add /79 version

V1.1: Add /58 version