

Service
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Service Manual



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Published by LZ1133 Service Audio Subject to modification

3141 785 36652

Version 1.2



PHILIPS

TECHNICAL SPECIFICATION

GENERAL DESCRIPTION							
Micro Hi-Fi System with PLL Tuner , CD-MP3, USB 10W * 2							
MP3 LINK , Remote Control							
LIFETIME : 7 Years							
Class	Tuner	Supply + Amplifier	Loudspeaker Boxes	USB	CD	Clock	MP3 LINK
I			X				
II	X	X		X	X	X	X
III							
Page	9	4,5	4	6	7	8	10
SAFETY requirements							
Version	Safety			EMC			
/12/05/79	IEC60065			EN55013			
RADIATION / IMMUNITY requirments (EMC)							
CLIMATIC requirements							
ALL climates	: + 5 Dregree		till	+ 35 Degree			
MODERATE climates	: + N.A		till	N.A Degree			
PERFORMANCE CLASSES							
POWER SUPPLY							
MAINS (A.C.)				100/240 Vac(AC/DC Adaptor)			
Version				/12/05/79			
Voltage Selection				NO			
Frequency				60/50Hz			
POWER CONSUMER							
				MCM2050/12/05/79			
Stadby :							
(DEMO mode " OFF ") , NOM. A, INPUT							
Maximum :				/			
@ 1/8 Prated , NOM. A, INPUT							
ECO Power mode :				/			
Q and R according to Product Division Rules							
Quality	: 0.4 % (Major)		1.5 % (Mirror)				
Reliability	: 2.0 % (C 42)						
Tested according to General Test Instruction refer to PHILIPS standary (UAN -D1591)							
Measured according to PHILIPS standary (UAN - L1059) unless other wise stated							
All not mentioned date, please refer to PHILIPS standary (XUW - 0010 - jun 2001)							

TECHNICAL SPECIFICATION

TECHNICAL DESCRIPTION					
Total power 20W, matching LOUDSPEAKER of 2 x6 R. TWO INPUT SOURCE, (Digital Sound Control)					
GENERAL PART					
OUTPUT stage Protection	: Yes	Temperature	: YES	Shorrcircuit	: Yes
LoudSpeaker D.C. Protection	: Yes.				
INDICATORS					
Standby Mode Indicator	: LCD display Clock active, LED backlight turn ON				
ECO Mode Indiicator	: NC				
ELECTRICAL DATA					
DSC :	ON/OFF	Channel Differencer at -46dB	3	dB	
DBB	ON/OFF	Hum (Volume Minimun -)	< 0.5	μ W	
SIS :	N/A	Residual Noise (Volume Minium)	0.06	μ W	
VAC :	N/A	Channel Separation (at 1 kHz)	\geq 35	dB	
WOOX :	N/A	Signal / Noise (weighted)	\geq 55	dB	
INTERCONNECTS					
Input Sensitivity(\pm 2 dB)rated ouput power at 1 kHz and 10kHz.		Line Output Voltage (*1)			
Tuner	: FM MODE 75KZH /(CD -6dB)	Line Out (Left / Right)	N.A		
CD / USB	: 0 dB track (Audio Disc 1, Trk 35)	Subwoofer Out	N.A		
TAPE	: NC	Headphone	700mV \pm -1dB, RL = 32 Ω		
MP3 Link	: Nor: 500mV Lim: 350mV ~ 800mV CD 0dB	Digital Coaxial Out	N.A		
AUX IN	: NC	Booster Out	N.A		
OUTPUT POWER (* 1) At THD = 10% (Measured with 20Hz-22KHz filter),					
Power output (RMS)	channel	10W*2 \pm -1dB (1*)			
LOUDSPEAKER (BOXES)		Please to package document of Speaker Box Assy			
Rated Impedance					
: 6 Ohms at Bass driver,					
Remarks :Radio Power output (RMS) Limit:-3dB					
(*1) Electrical parameters are to be measurement at specker terminals across 6 Ohm load (pure resistor)					
with rated input signal in AUX mode; DSC OFF mode with DBB OFF					
IS off unless specified otherwise					

TECHNICAL SPECIFICATION

TECHNICAL DESCRIPTION	
USB	
See also SH 190 USB Audio Module (300605)	
Measurement are directly done at the connector on the board	
GENERAL PART	
Measurement are directly done at the connector on CDC board	
Description	Specification
Output Resistance	$\leq 1.5 \text{ k}\Omega$
Output Voltage RL = 33 k ohm ()dB, 1 KHz)	830mVrms +/- 1.5dB
Channel Unbalance	$\leq \pm 3 \text{ dB}$
THD + Noise (0dB, 1KHz)	$\leq 0.3 \%$
Channel Crosstalk (100Hz - 16,000 Hz)	$\geq 35 \text{ dB}$
(0 dB, 1 KHz)	$\geq 40 \text{ dB}$
Signal to Noise Ratio (0dB,1kHz)	$\geq 60\text{dBA}$ (A - weighted)
(100 - 16,000 Hz)	$\geq 55\text{dBA}$ (A - weighted)
Frequency Response (5dB+/- 3dB), reference 1kHz	100Hz - 16kHz

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Signal to Noise Ratio (0dB,1kHz)	$\geq 60\text{dBA}$ (A - weighted)
(100 - 16,000 Hz)	$\geq 55\text{dBA}$ (A - weighted)
Frequency Response (5dB+/- 3dB), reference 1kHz	100Hz - 16kHz

TECHNICAL SPECIFICATION

TECHNICAL DESCRIPTION				
CD + MP3 - Part Specifications				
CD mechanism refer to Philips standard specification				
GENERAL PART				
Measurement are directly done at the connector on CDC board				
Description	Extern	Nom	Lim	Unit
Output Resistance	No		< 100	Ohms
Output Voltage - Unloaded (0dB , 1 kHz)	No	0.5	± 1	Vrms
Channel Unbalance	No		< ± 2	dB
Frequency Response (125 Hz - 16 kHz)	No	5	± 3	dB
Signal to Noise Ratio (Unweighted)	Yes	60	50	dB
Signal to Noise Ratio (A - weighted)	Yes	65	55	dB
Crosstalk (1kHz)	Yes	65	55	dB
Crosstalk (125Hz to 16kHz)	No	<u>36</u>	<u>30</u>	dB
Hum & Noise (*1)	No	400	500	nW
Emphasis	-	/	/	/

TECHNICAL DESCRIPTION				
SOFTWARE IMPLEMENTED CLOCK / TIMER FUNCTION WITH 75.000kHz QUARTZ OSCILLATOR.				
GENERAL PART				
Timer Setting	:	Clock and Timer		
Timer Wakeup Mode	:	LAST SETTING (MODE)		
Remarks Time Setting	:	for 24hrs		
Volume at Wakeup	:	Last Setting		
No of Timer Settings	:	1		
Clock Accuracy	:	Normal: 0.5 sec/day	Limit : 1 sec/day	
INDICATORS				
Display Type	:	LCD		

TECHNICAL SPECIFICATION

TECHNICAL DESCRIPTION			
MP3 Link			
MP3 Link Part			
	Nom.	Limit	Condition
SNR unwt'd.	60dB	50dB	500mV 1KHz input
SNR wtd. dBA	62dBA	57dBA	500mV 1KHz input
Crosstalk (different source, 1KHz)	60dB	50dB	500mV input
Crosstalk (different source, 10KHz)	45dB	35dB	500mV input
L, R Channel Separation	36dB	30dB	500mV input
Frequency response (5+/-3dB)	100 to 10KHz (overall)		150mV input
THD (1KHz, 0dB)	2%	3%	500mV 1KHz input
AUX IN Part			
SNR unwt'd.	/	/	/
SNR wtd. dBA	/	/	/
Crosstalk (different source, 1KHz)	/	/	/
Crosstalk (different source, 10KHz)	/	/	/
L, R Channel Separation	/	/	/
Frequency response (-3dB)	/	/	/
THD (1KHz, 0dB)	/	/	/

VERSION VARIATION

Type /Versions: Service policy		DCM2060								
		/12	/93	/96	/79					
Board in used:										
LCD BOARD		C	M+C	M+C	M+C					
Main BOARD		C	M+C	M+C	M+C					
KEY BOARD		C	M+C	M+C	M+C					
USB BOARD		C	M+C	M+C	M+C					
DC BOARD		C	M+C	M+C	M+C					
REMOTE BOARD		C	M+C	M+C	M+C					
Type /Versions: Feature difference		DCM2060								
Features		/12	/93	/96	/79					
RDS										
VOLTAGE SELECTOR										
ECO STANDBY - DARK		√	√	√	√					
<p>* TIPS : C -- Component Lever Repair. M -- Module Lever Repair √ -- Used</p>										

2.0 SAFETY 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 enfilez 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 kann 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 ridotta 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.

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

(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 utilisés les pièces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand 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."

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.

**(GB)** Warning !

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

(S) Varning !

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

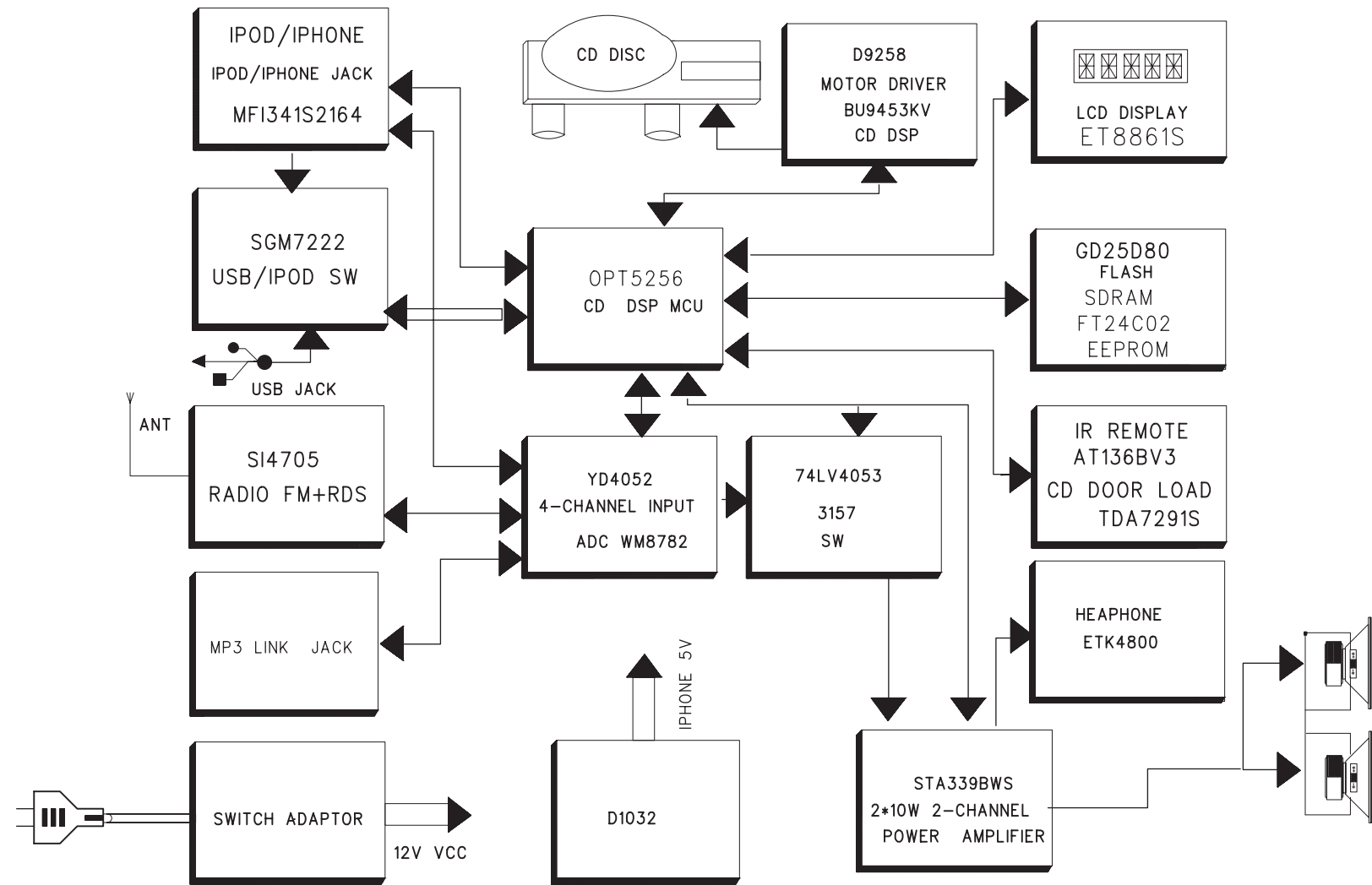
(SF) Varoitus !

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

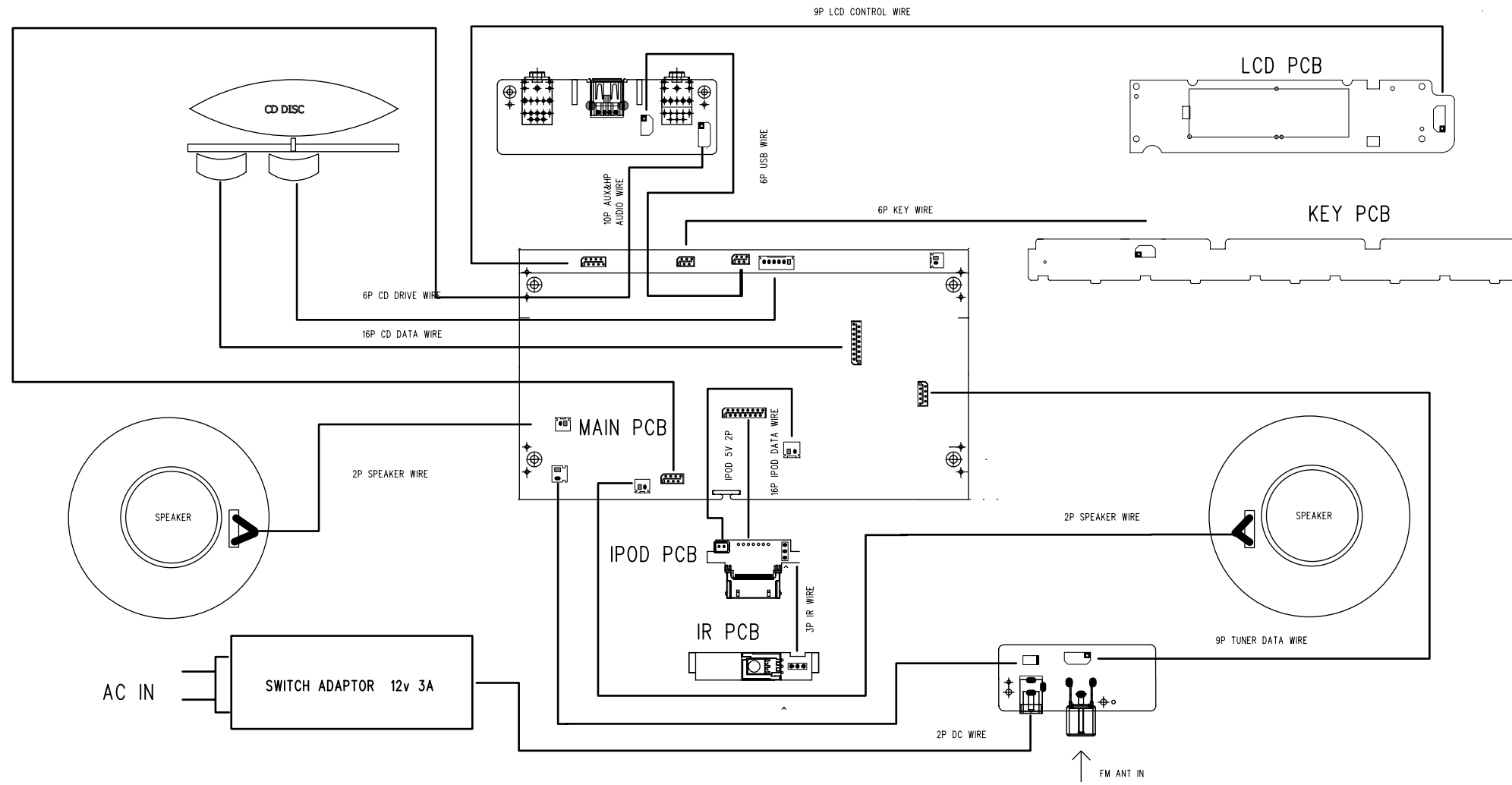
DK Advarsel !

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

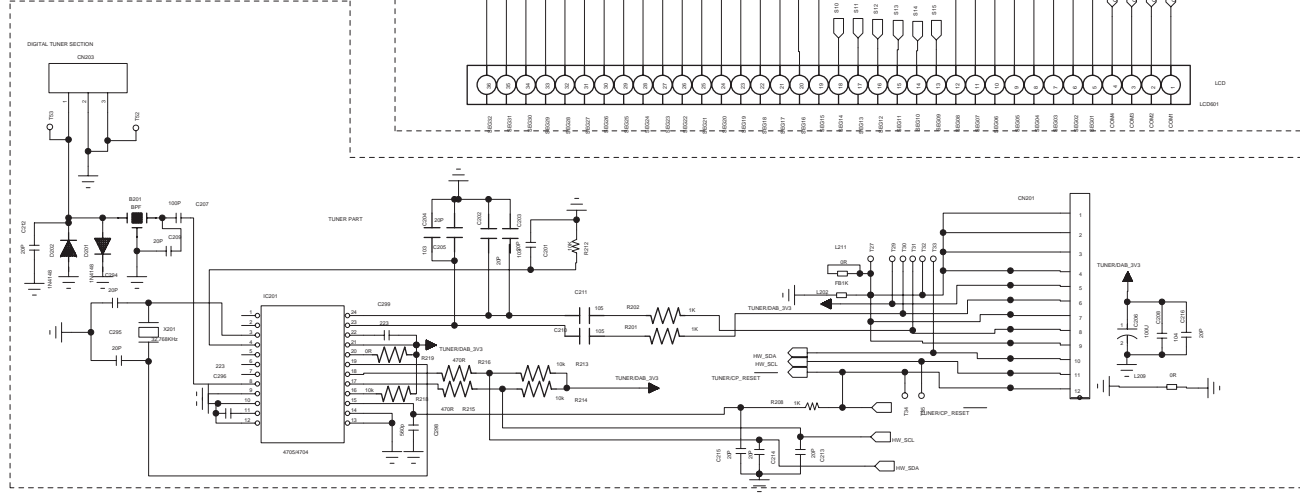
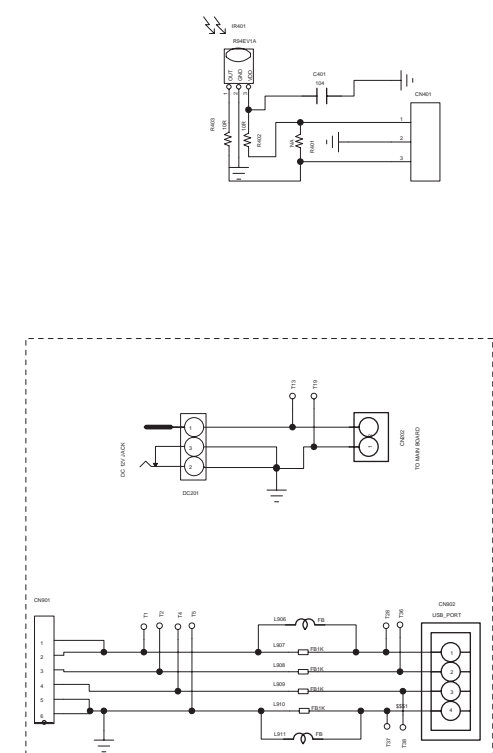
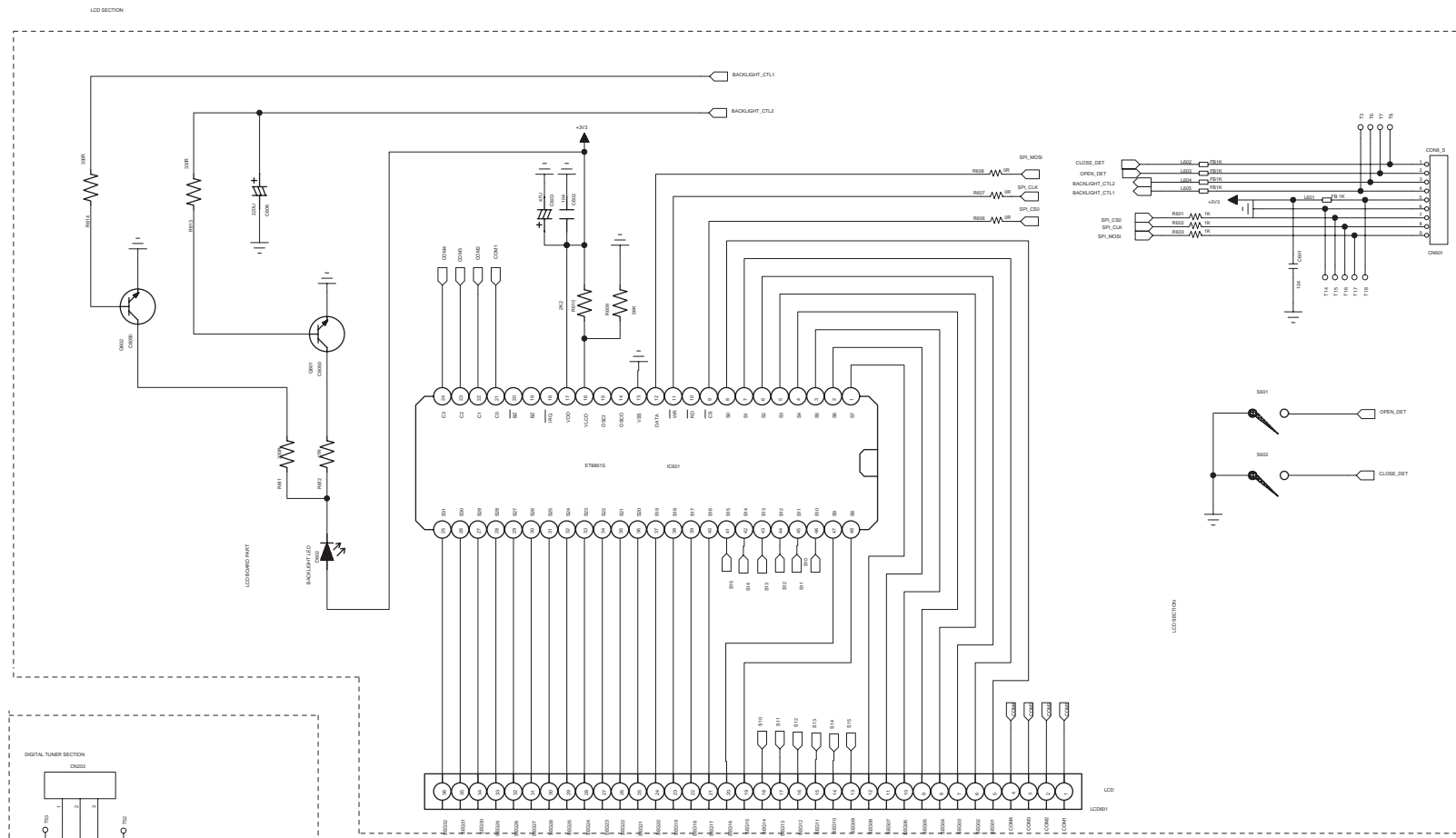
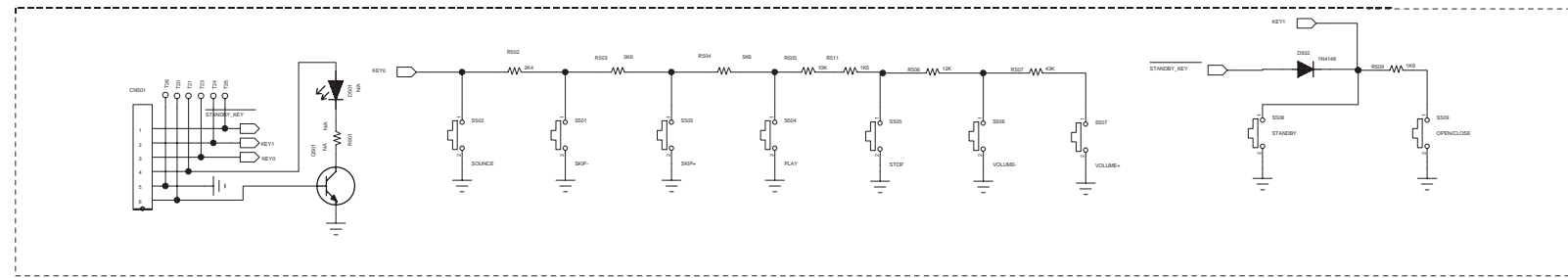
SET BLOCK DIAGRAM

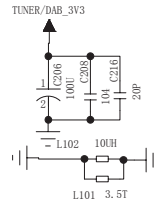


WIRE CONNECT DIAGRAM

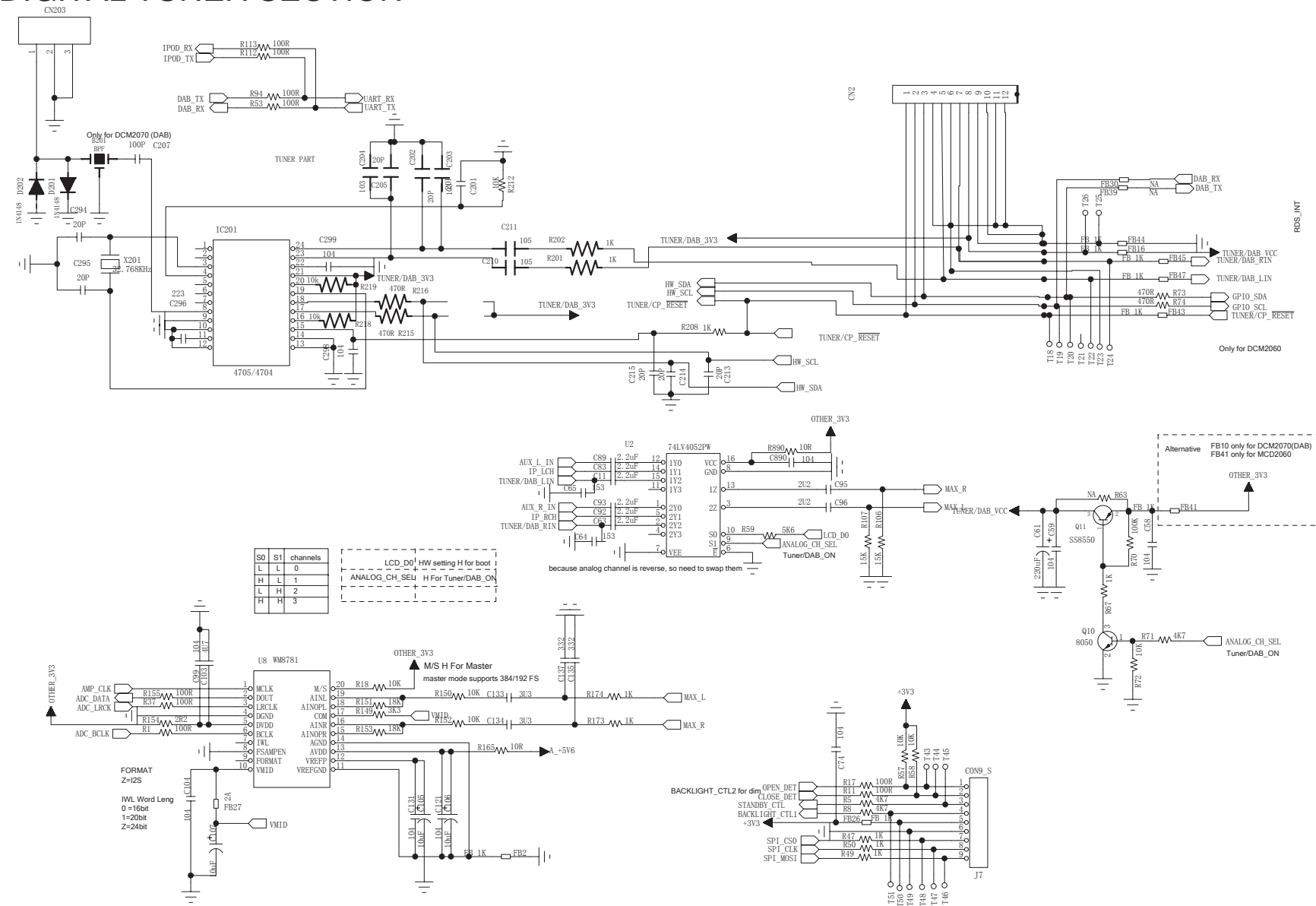


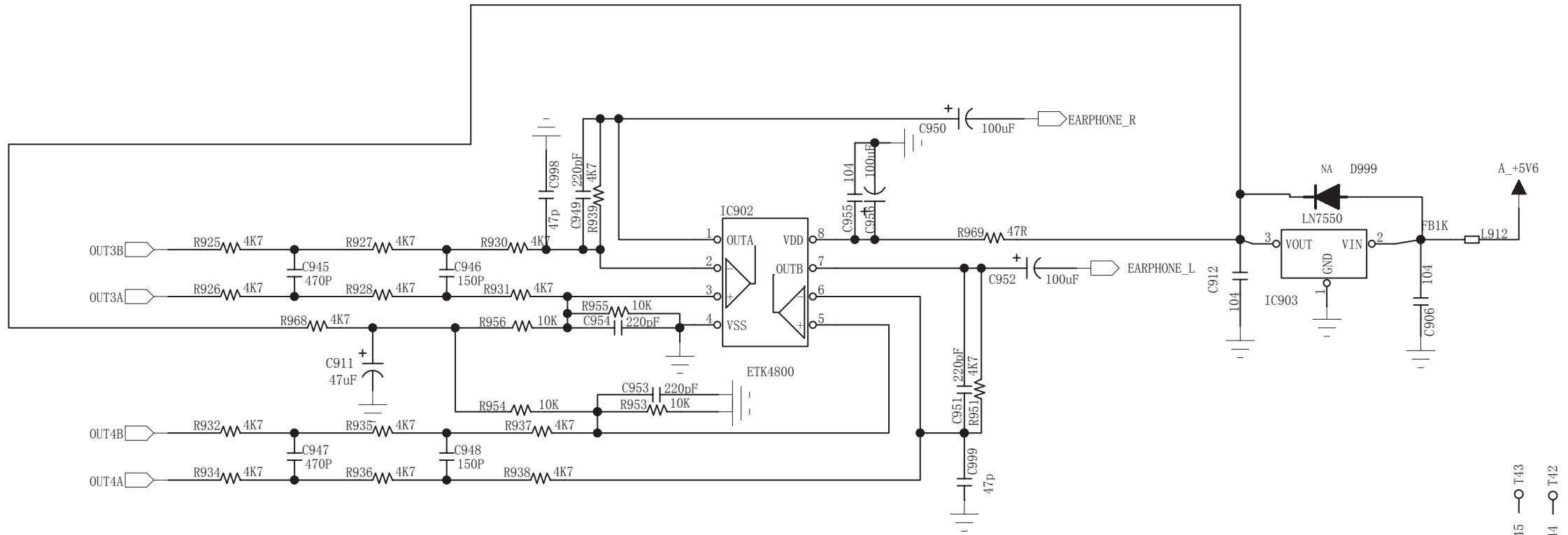
CIRCUIT DIAGRAM - LCD + KEY + REOMOTE INCEPT BOARD



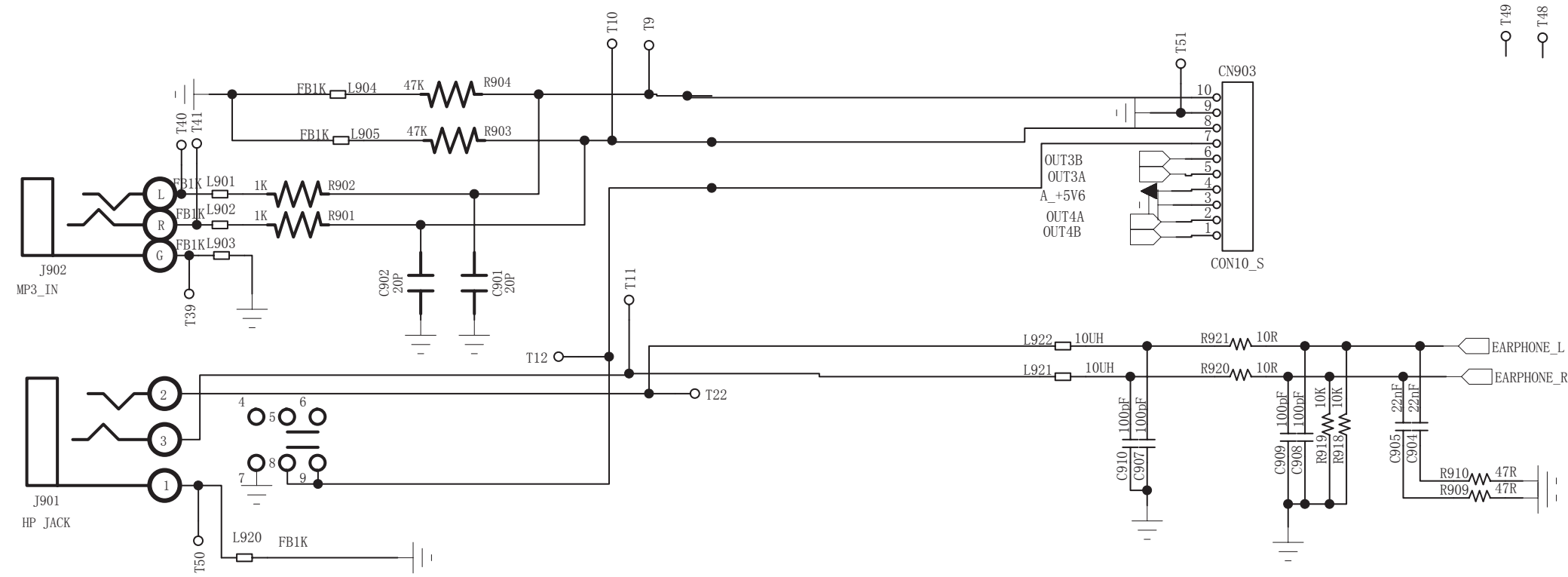


DIGITAL TUNER SECTION

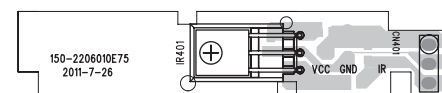
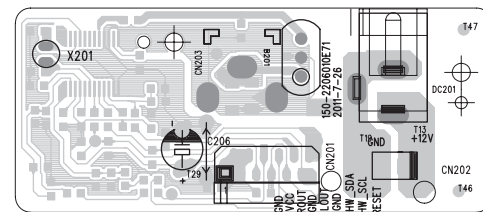
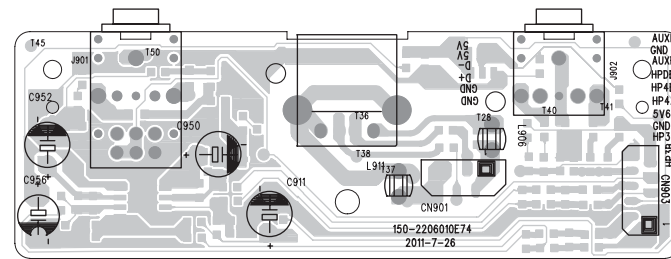
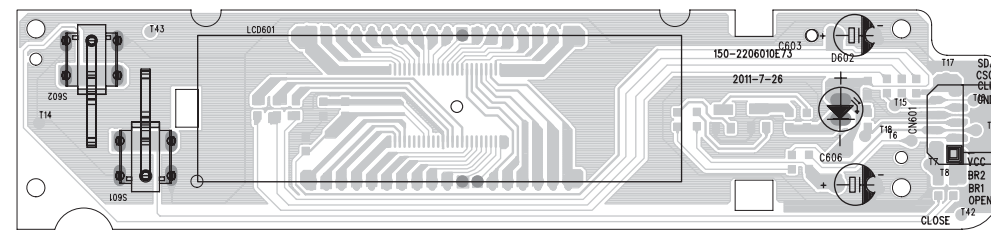
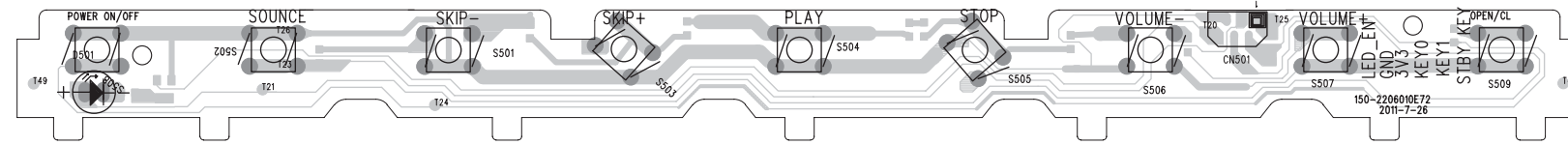




- T43
- T45
- T47
- T48
- T44
- T46

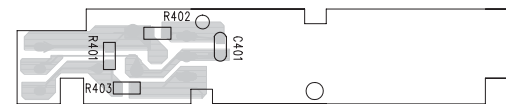
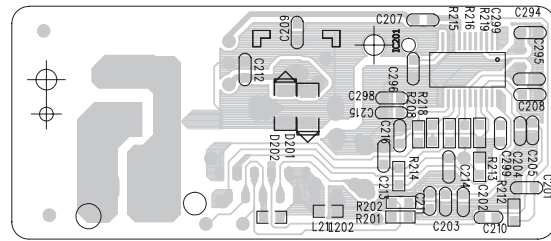
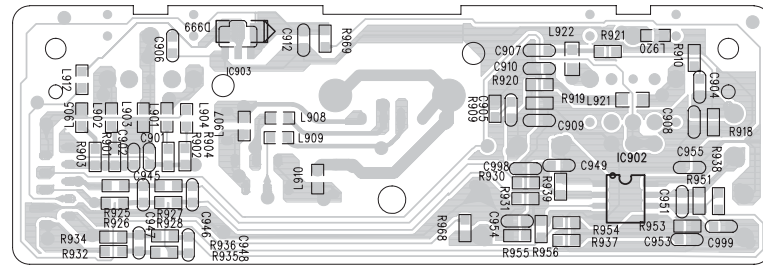
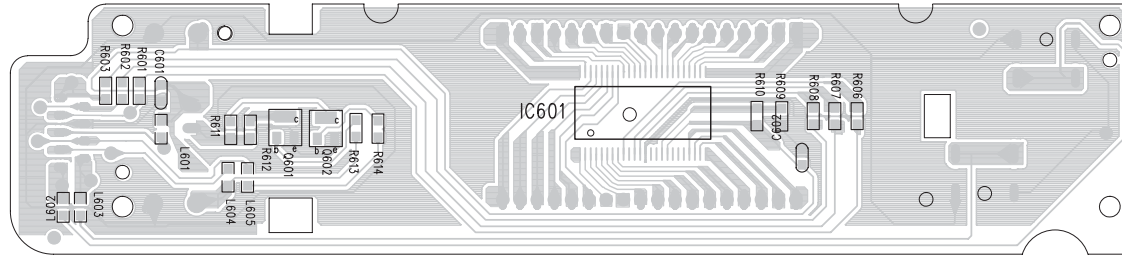
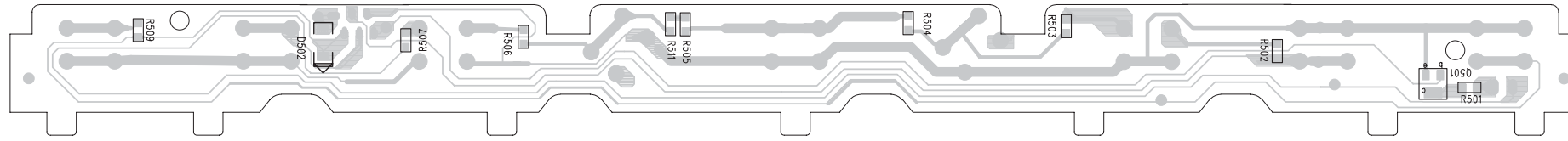


LAYOUT DIAGARM - LCD + DC + USB + KEY + RE-MOTE INCEPT BOARD TOP VIEW

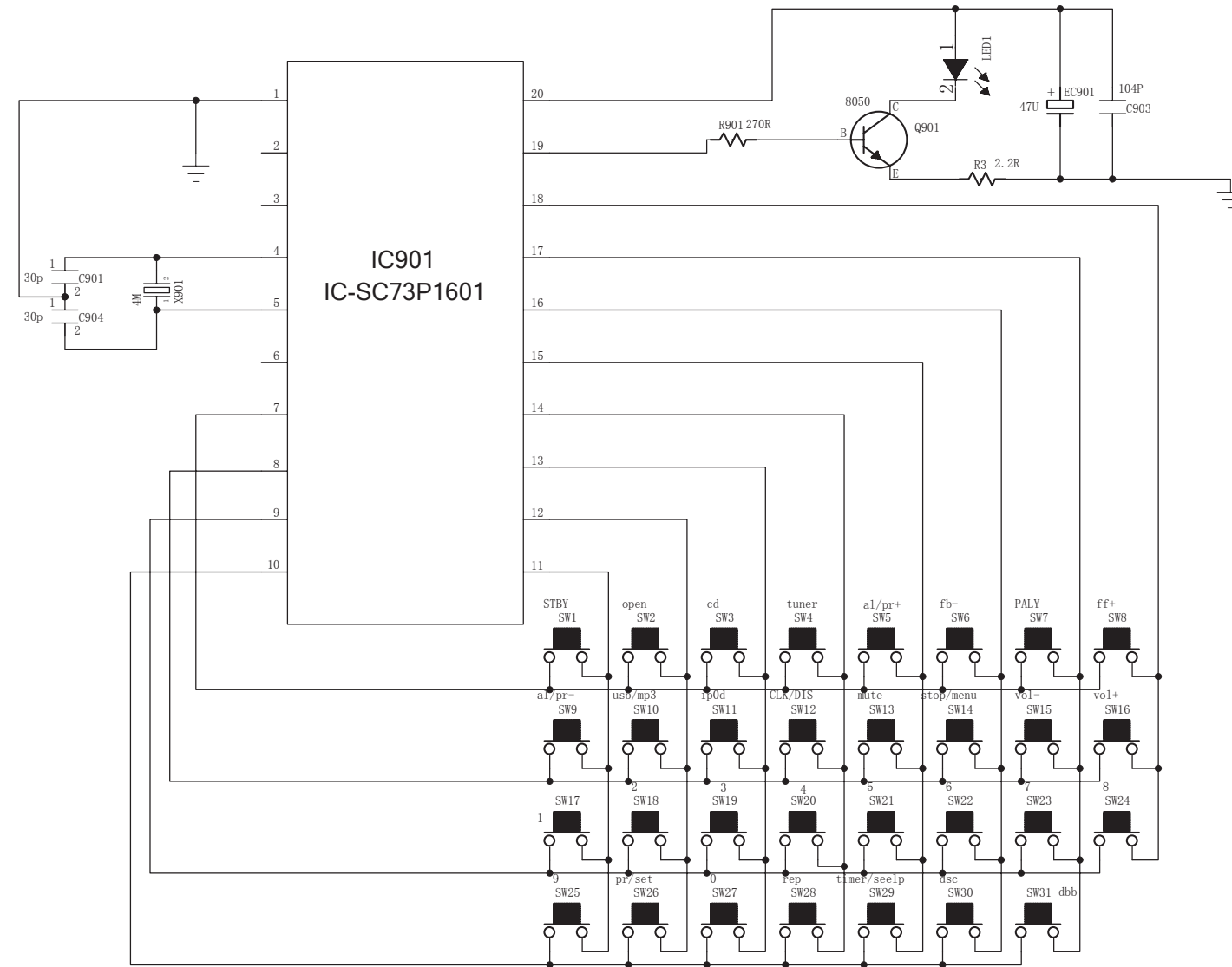


4-5
LAYOUT DIAGARM - LCD + DC + USB + KEY + RE-
MOTE INCEPT BOARD BOTTOM VIEW

4-5



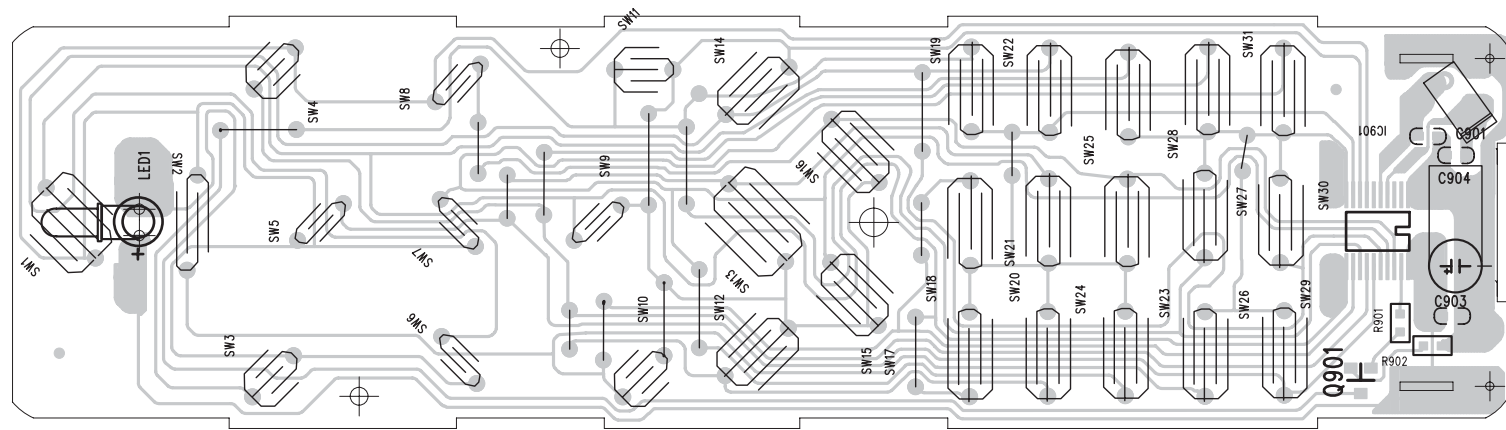
CIRCUIT DIAGARM - REMOTE HANDSET BOARD



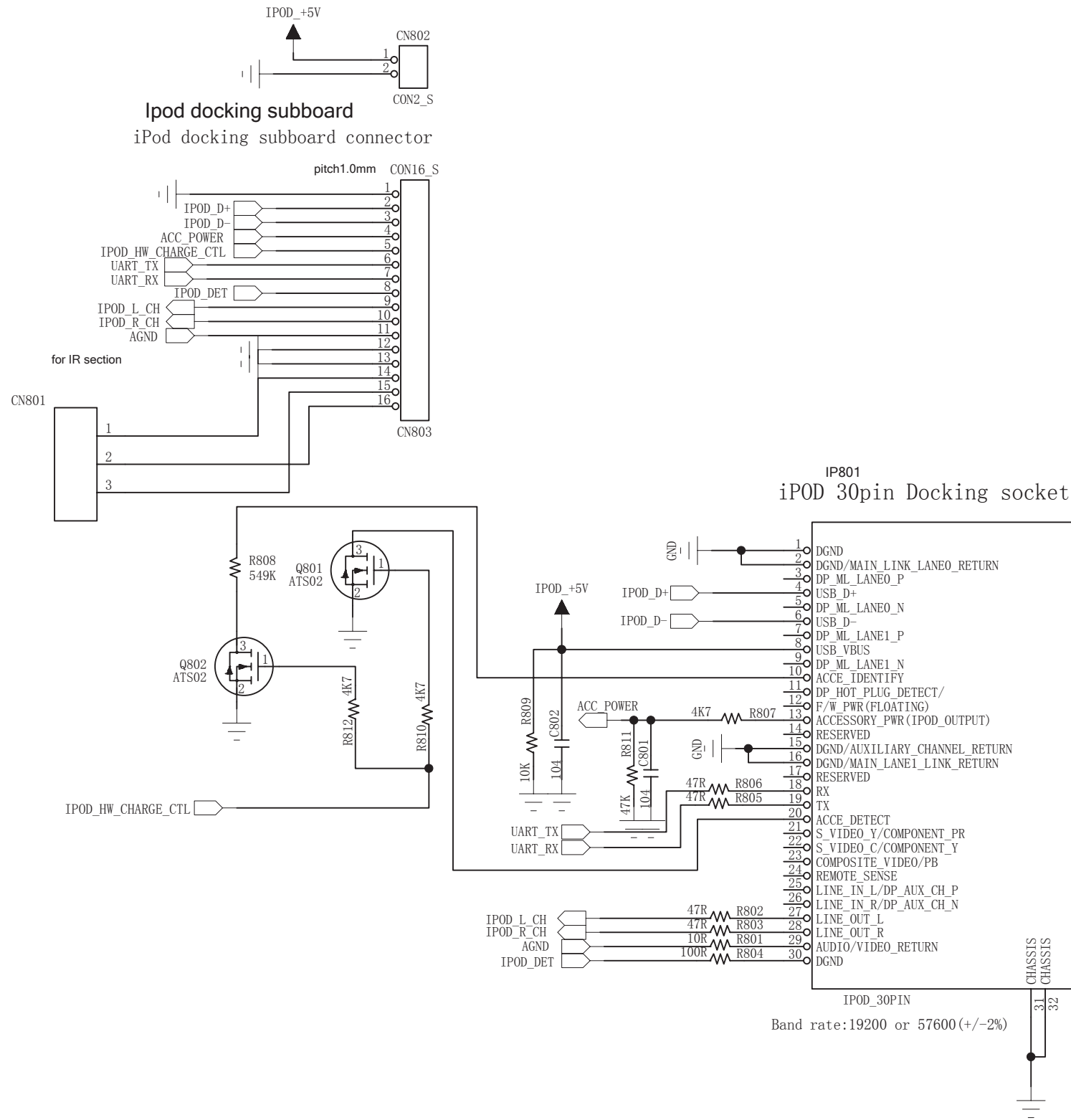
LAYOUT DIAGARM - REMOTE HANDSET BOARD

4-7

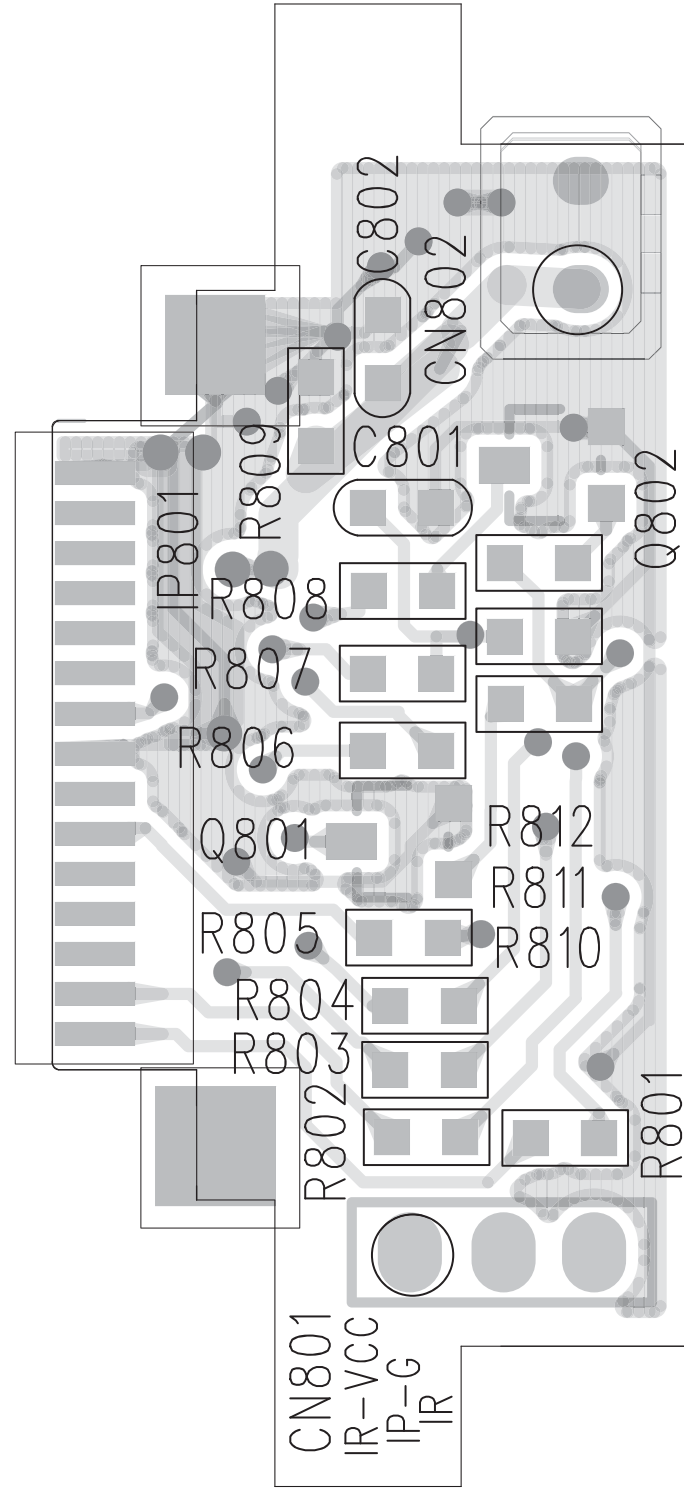
4-7



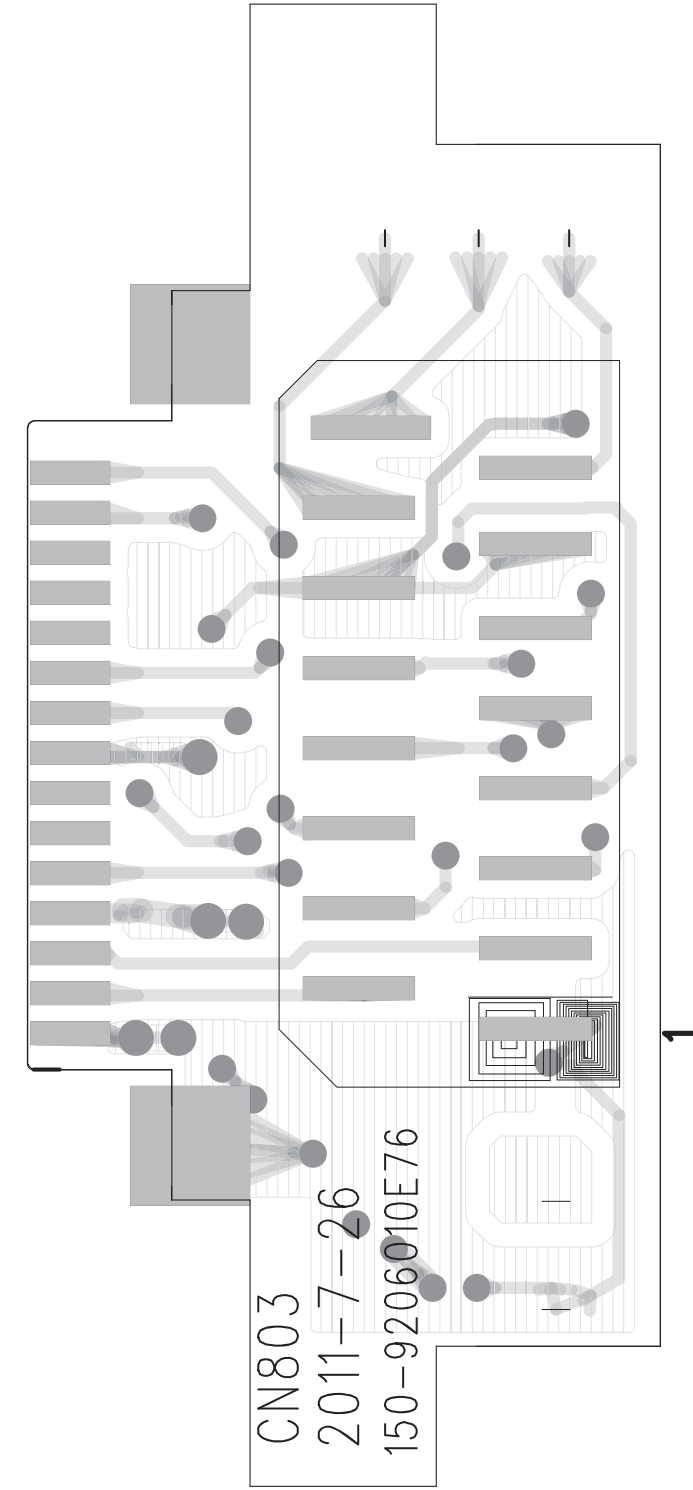
CIRCUIT DIAGARM -IPOD BOARD



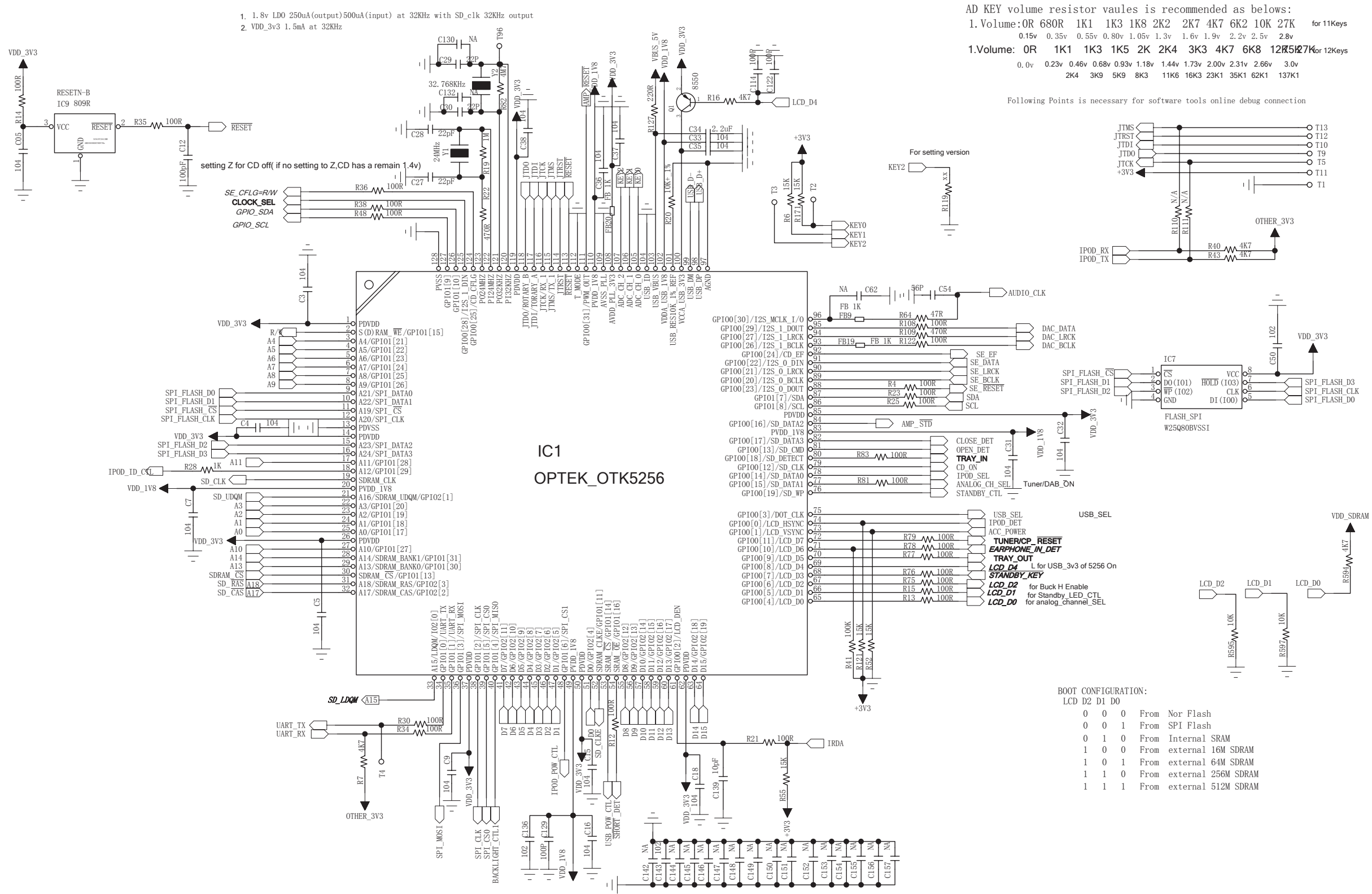
LAYOUT DIAGARM -IPOD BOARD
TOP VIEW



LAYOUT DIAGARM -IPOD BOARD
BOTTOM VIEW



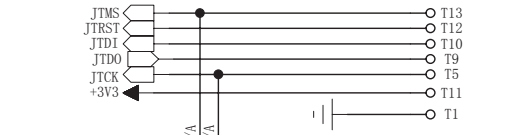
CIRCUIT DIAGARM -MAIN BOARD PART1



1. 1.8v LDO 250uA(output)500uA(input) at 32KHz with SD_clk 32KHz output
2. VDD_3v3 1.5mA at 32KHz

AD KEY volume resistor vaules is recommended as belows:
 1. Volume: 0R 680R 1K1 1K3 1K8 2K2 2K7 4K7 6K2 10K 27K for 11Keys
 0.15v 0.35v 0.55v 0.80v 1.05v 1.3v 1.6v 1.9v 2.2v 2.5v 2.8v
 1. Volume: 0R 1K1 1K3 1K5 2K 2K4 3K3 4K7 6K8 12K5 127K for 12Keys
 0.0v 0.23v 0.46v 0.68v 0.93v 1.18v 1.44v 1.73v 2.00v 2.31v 2.66v 3.0v
 2K4 3K9 5K9 8K3 11K6 16K3 23K1 35K1 62K1 137K1

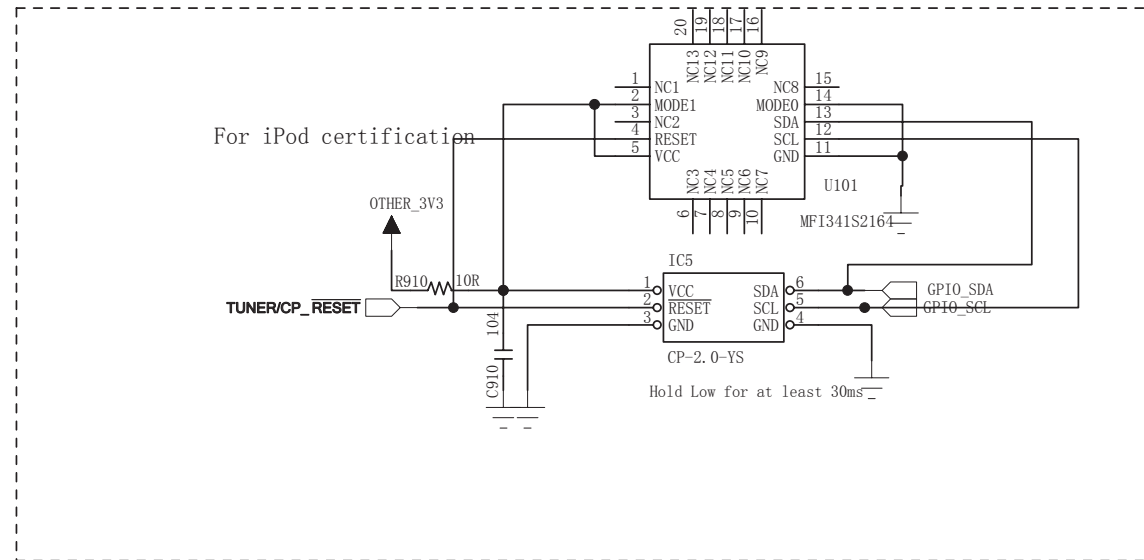
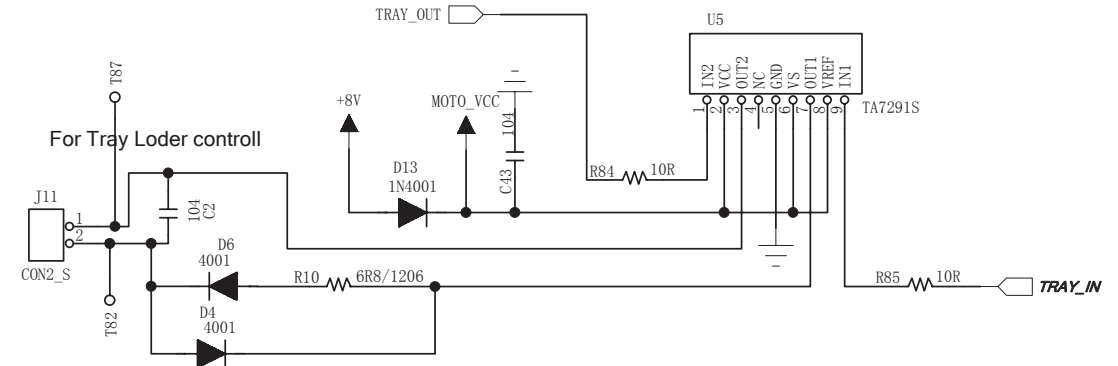
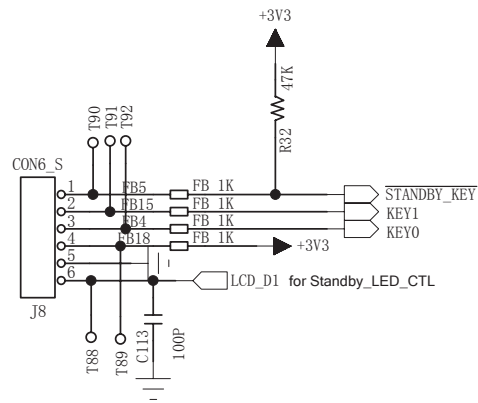
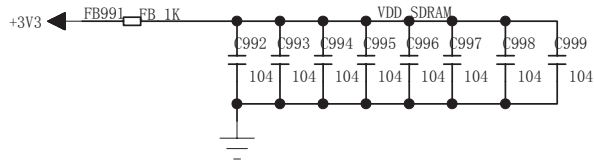
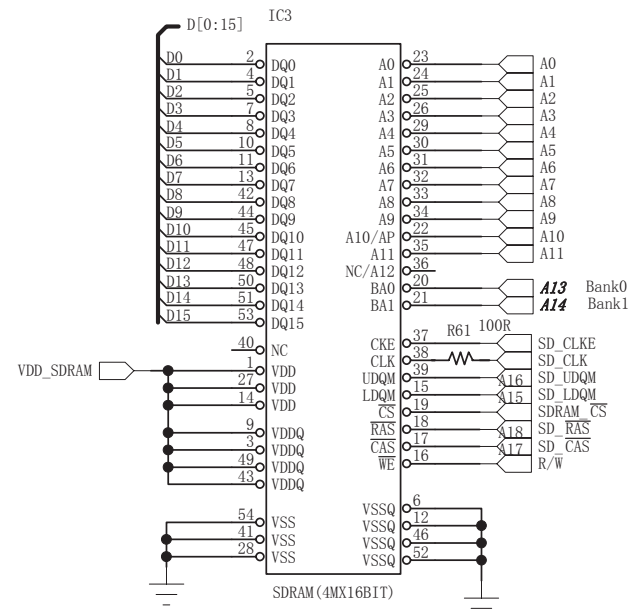
Following Points is necessary for software tools online debug connection



IC1
 OPTEK_OTK5256

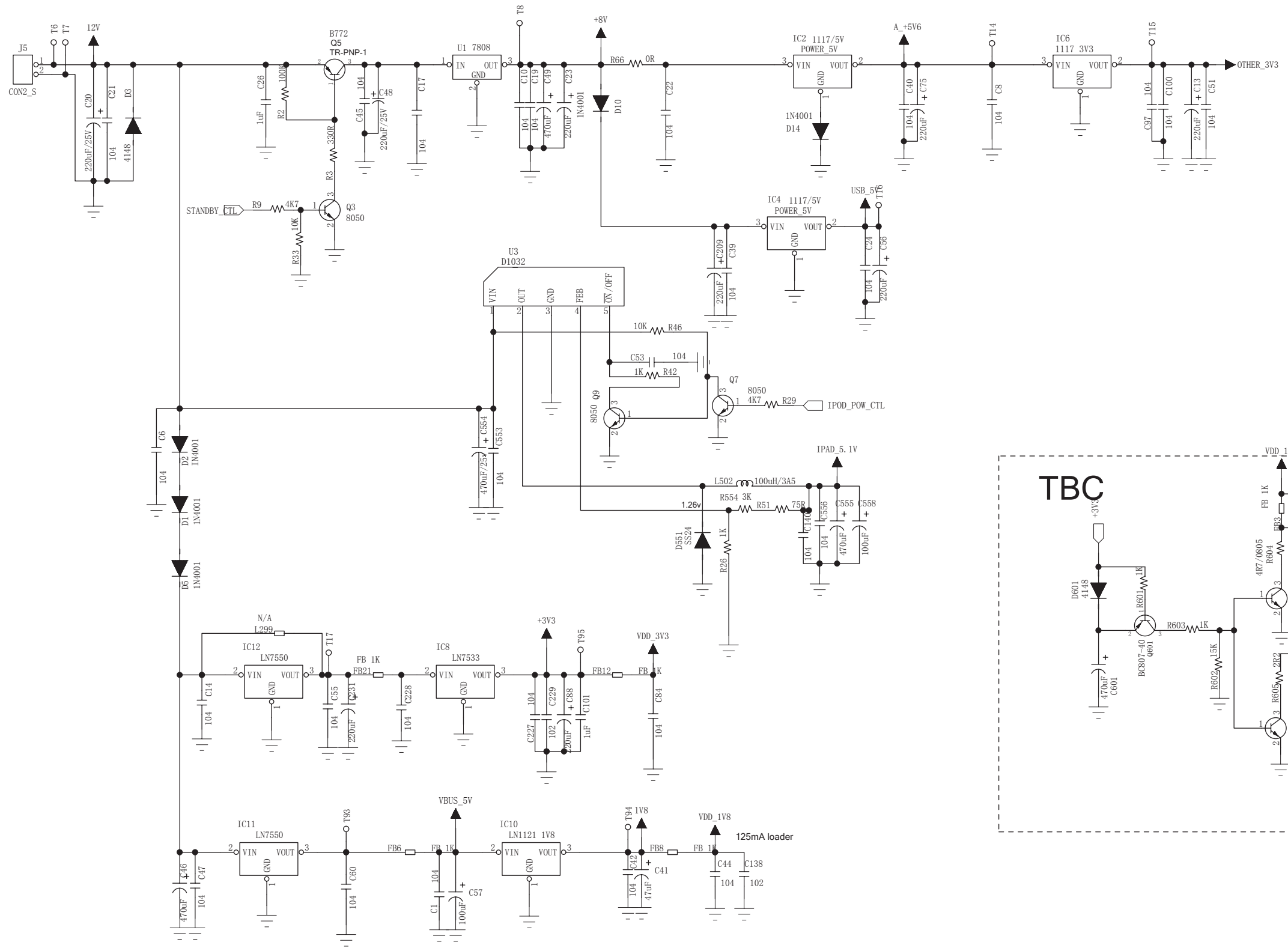
BOOT CONFIGURATION:
 LCD D2 D1 D0

0	0	0	From Nor Flash
0	0	1	From SPI Flash
0	1	0	From Internal SRAM
1	0	0	From external 16M SDRAM
1	0	1	From external 64M SDRAM
1	1	0	From external 256M SDRAM
1	1	1	From external 512M SDRAM

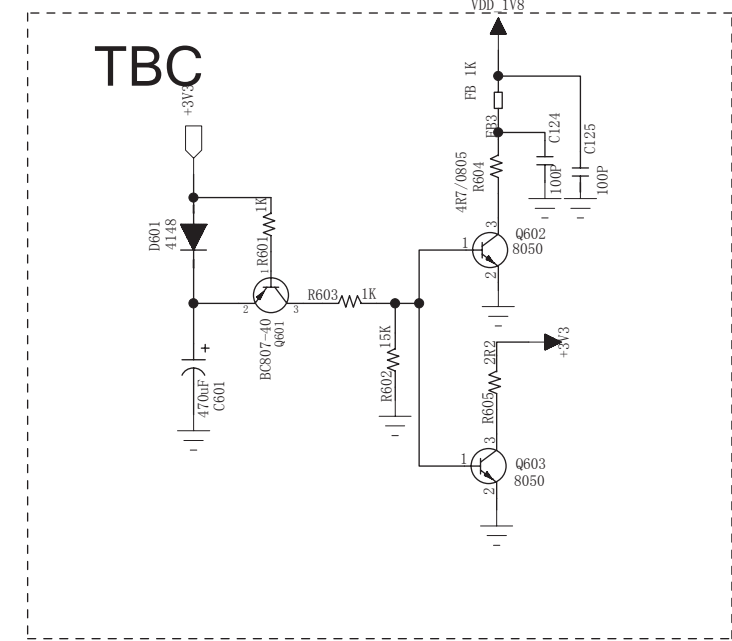


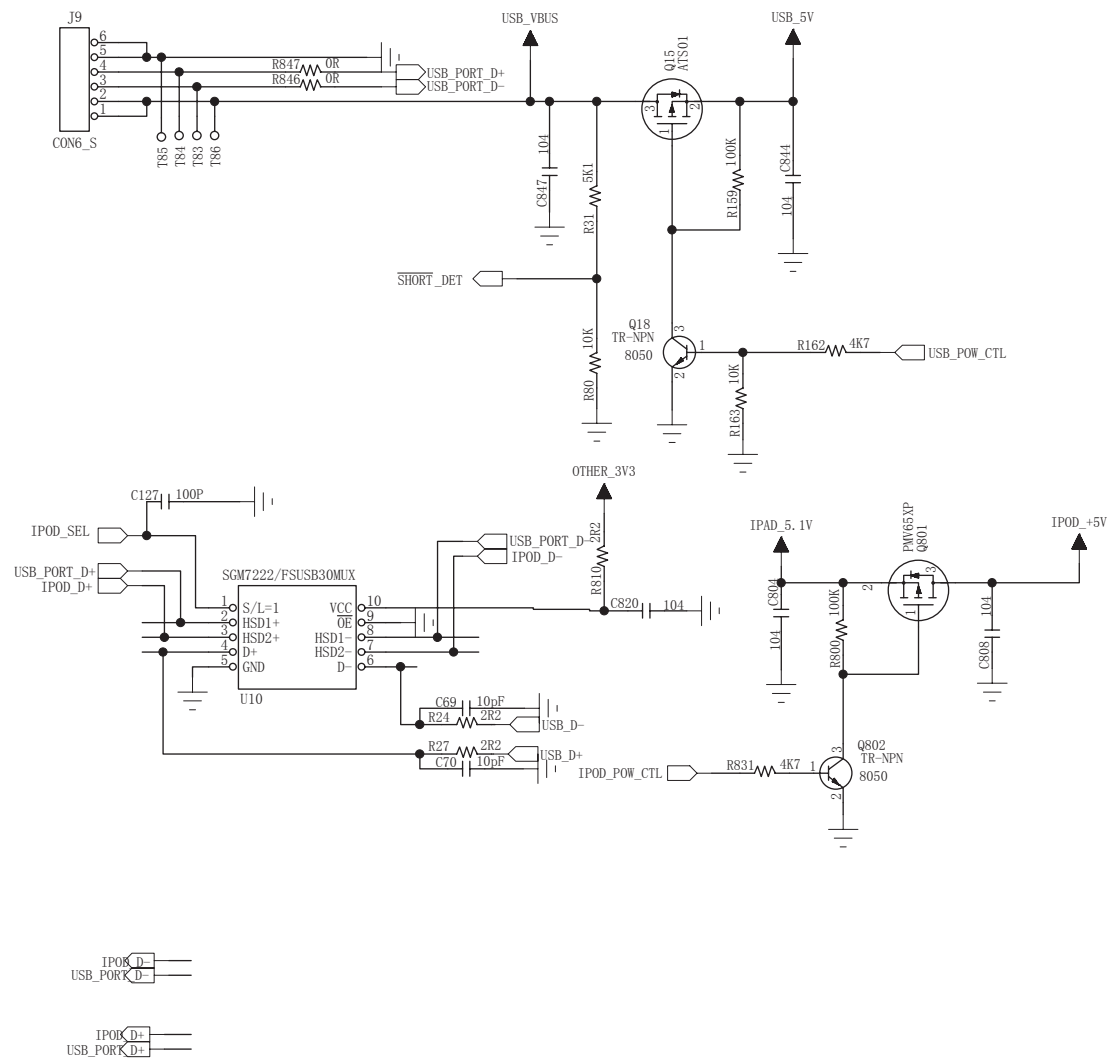
CIRCUIT DIAGRAM -MAIN BOARD PART 3

5-3



5-3



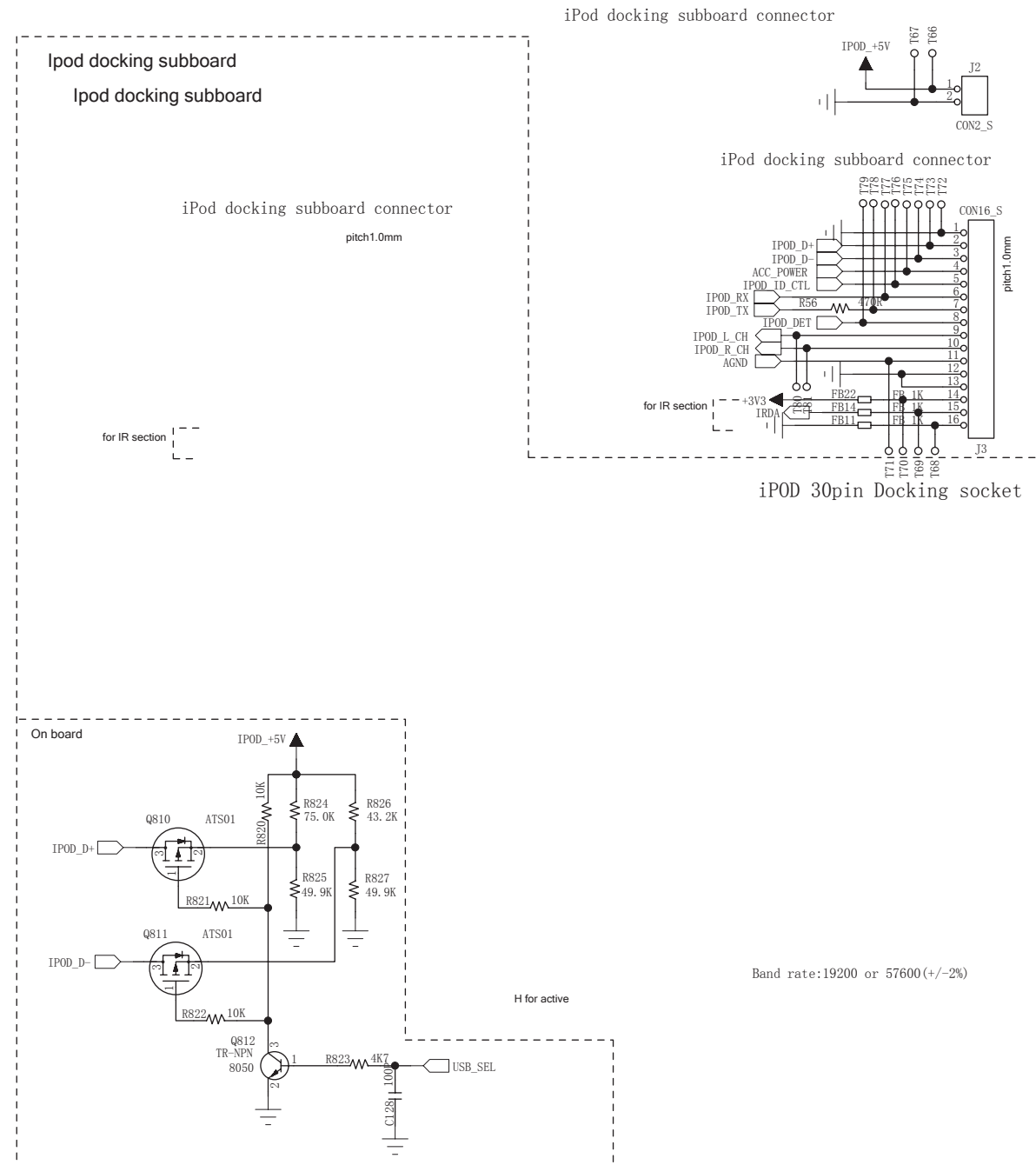


S0	S1	channels
L	L	0
H	L	1
L	H	2
H	H	3

before USB is connection to 0 channel

PIN/FUNCTION	DEFAULT	AUDIO_USB	iPod_USB	Non_USB/iPod mod Analog Mode
IPOD_SEL S0	L	L	H	H
USB_SEL S1	H	H	L	H

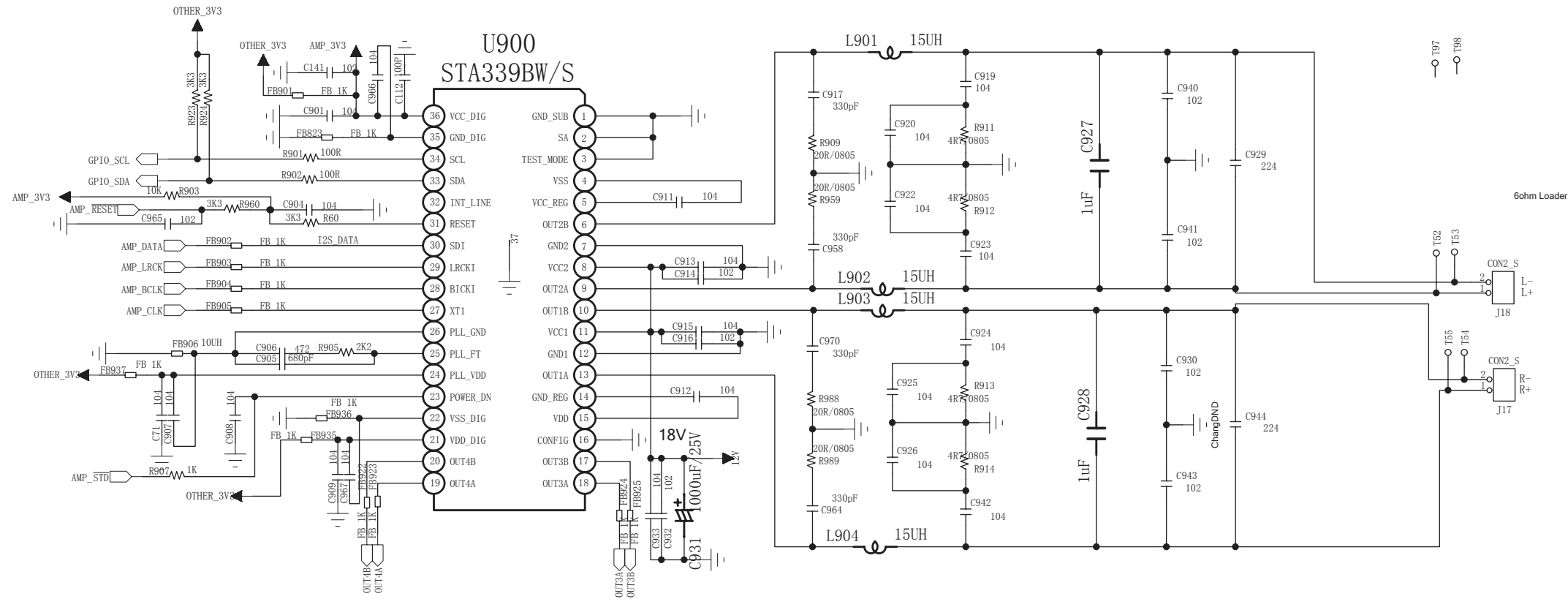
Note: IPOD_SEL=USB_HW_CHARGE
DVD_USB_SEL=IPOD_HW_CHARGE



Band rate: 19200 or 57600 (+/-2%)

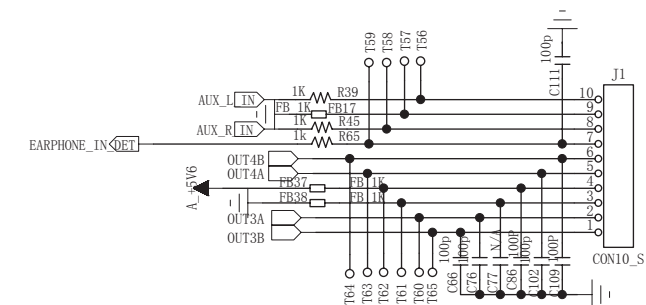
Class_D_AMP

10uH,1uF,220uF value for 4ohm speak

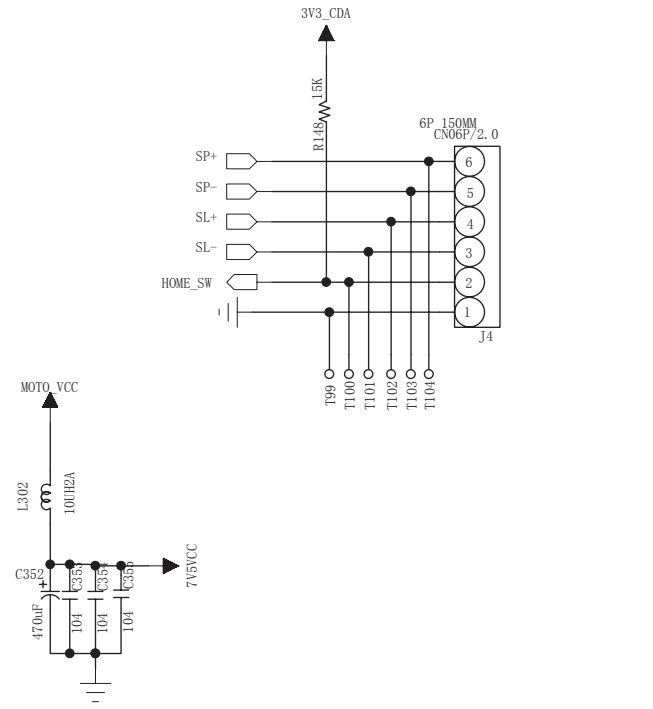
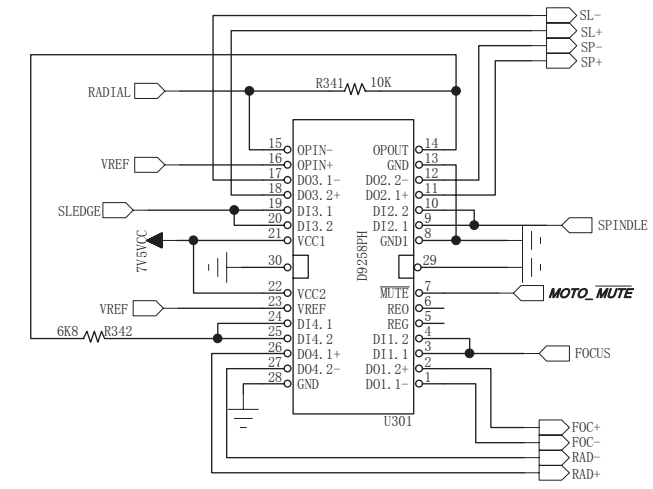
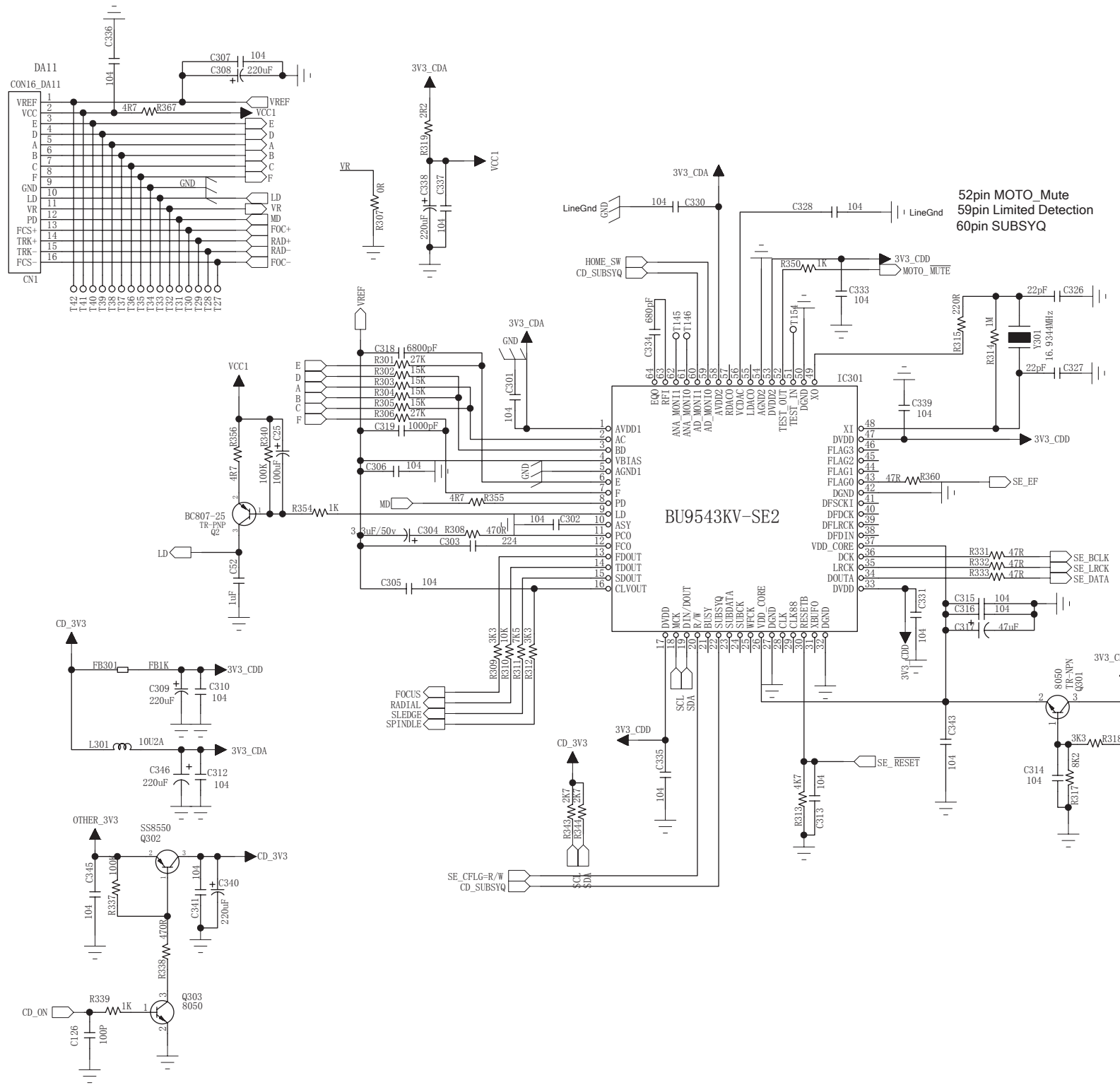


Headphone circuit section

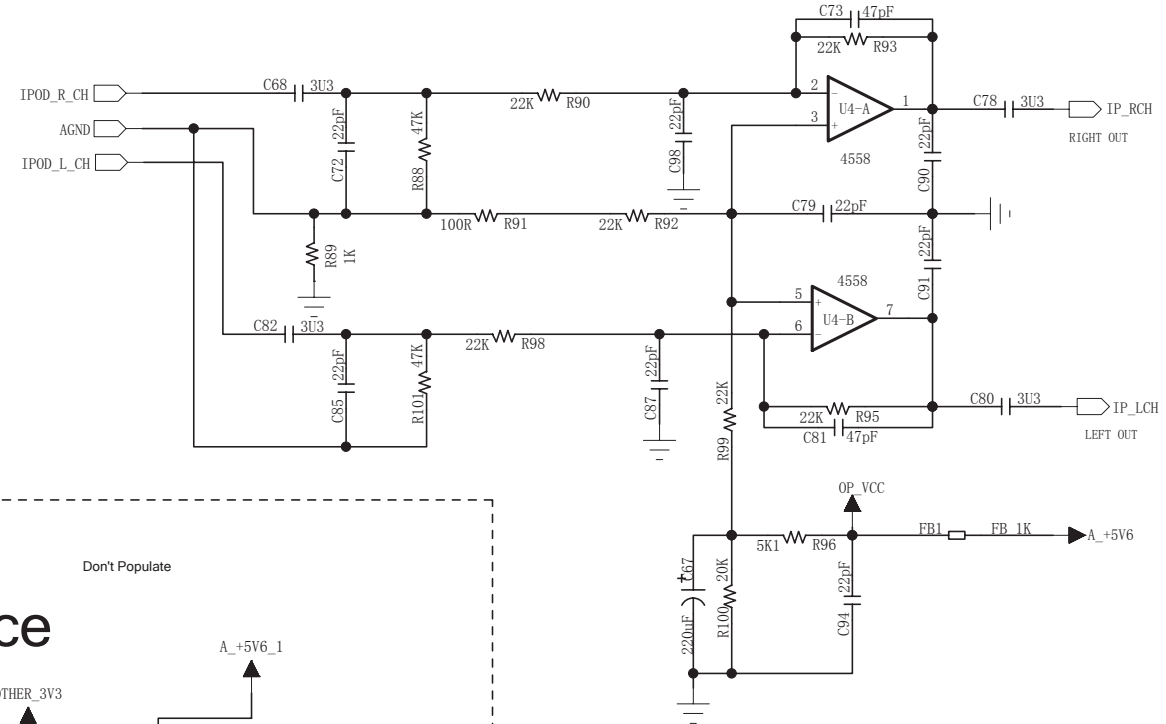
In order to ensure headphone SN,pls use isolation Gnd and clean(low ripple) 5v



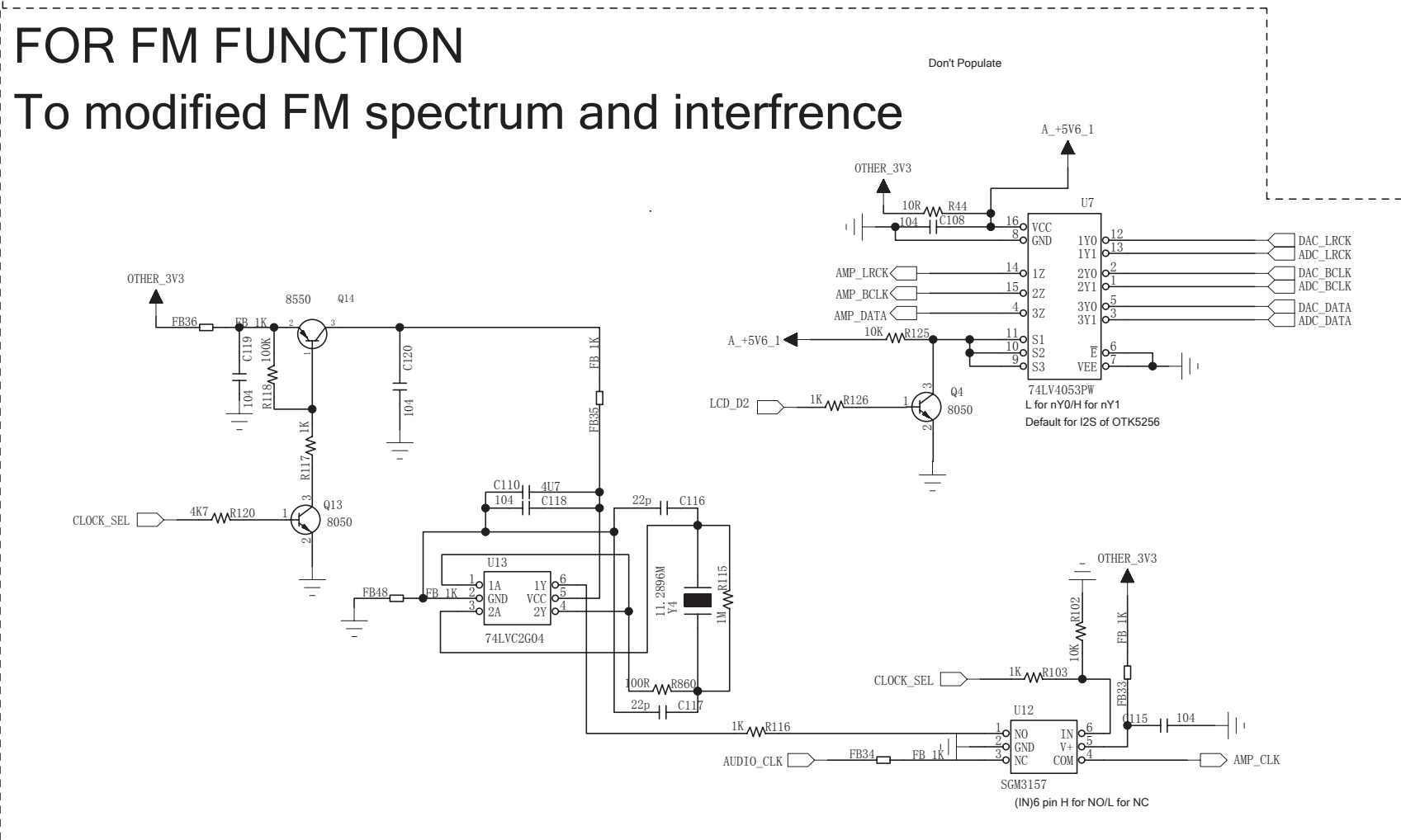
Parts number assigned from 901 to 960



FOR iPod ANALOG AUDIO ONLY



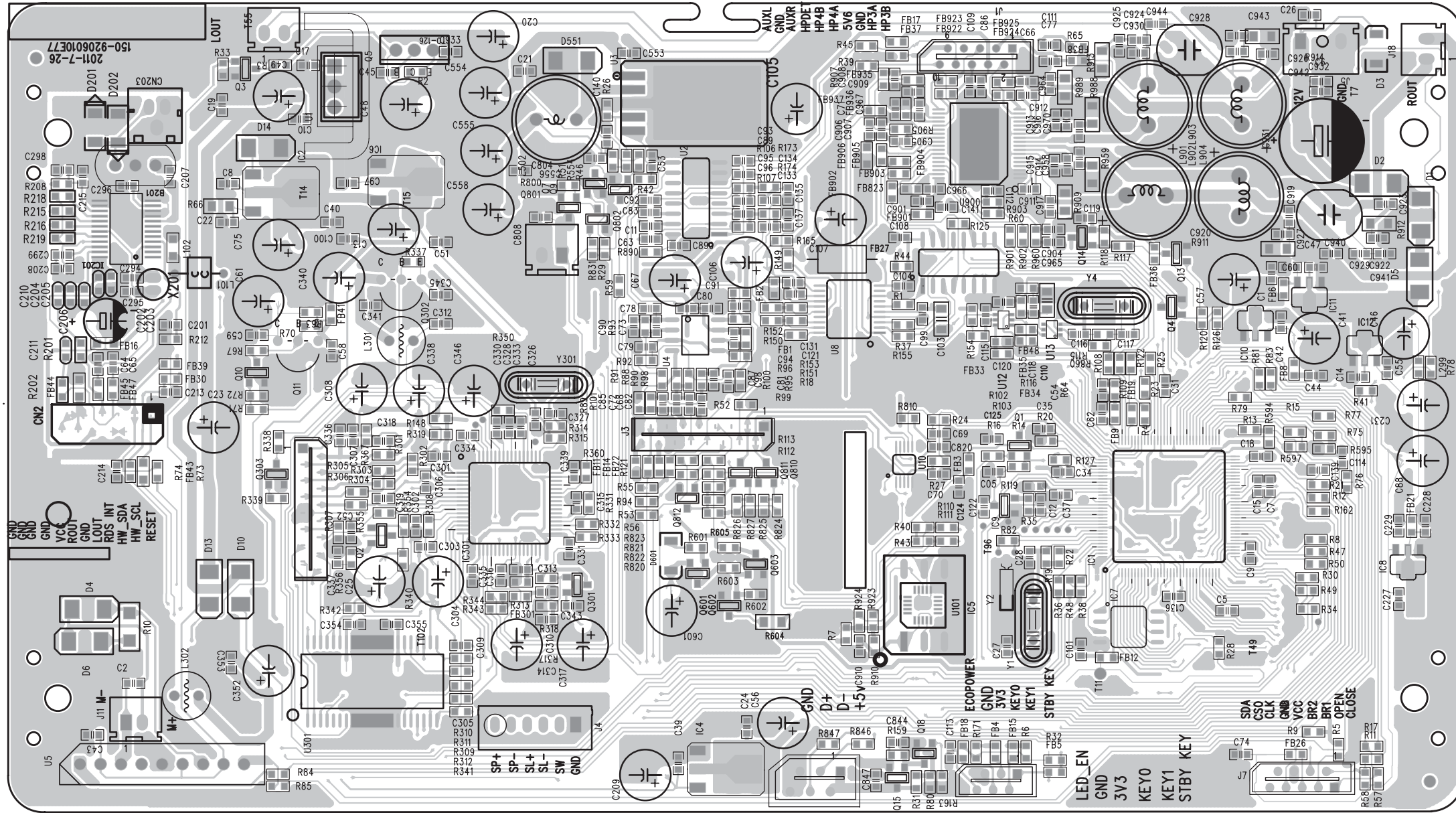
FOR FM FUNCTION To modified FM spectrum and interference



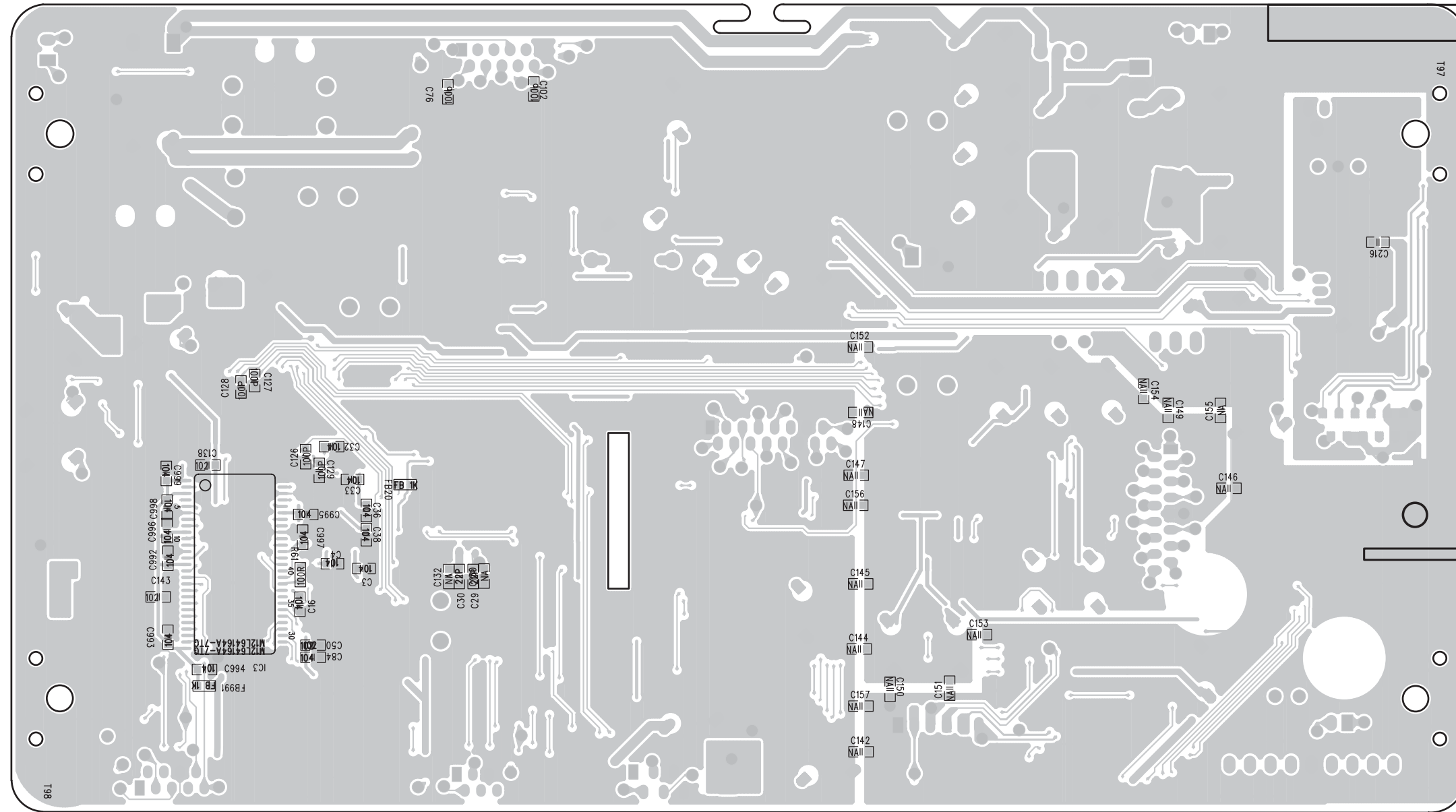
LAYOUT DIAGARM - MAIN BOARD
TOP SIDE VIEW

5-8

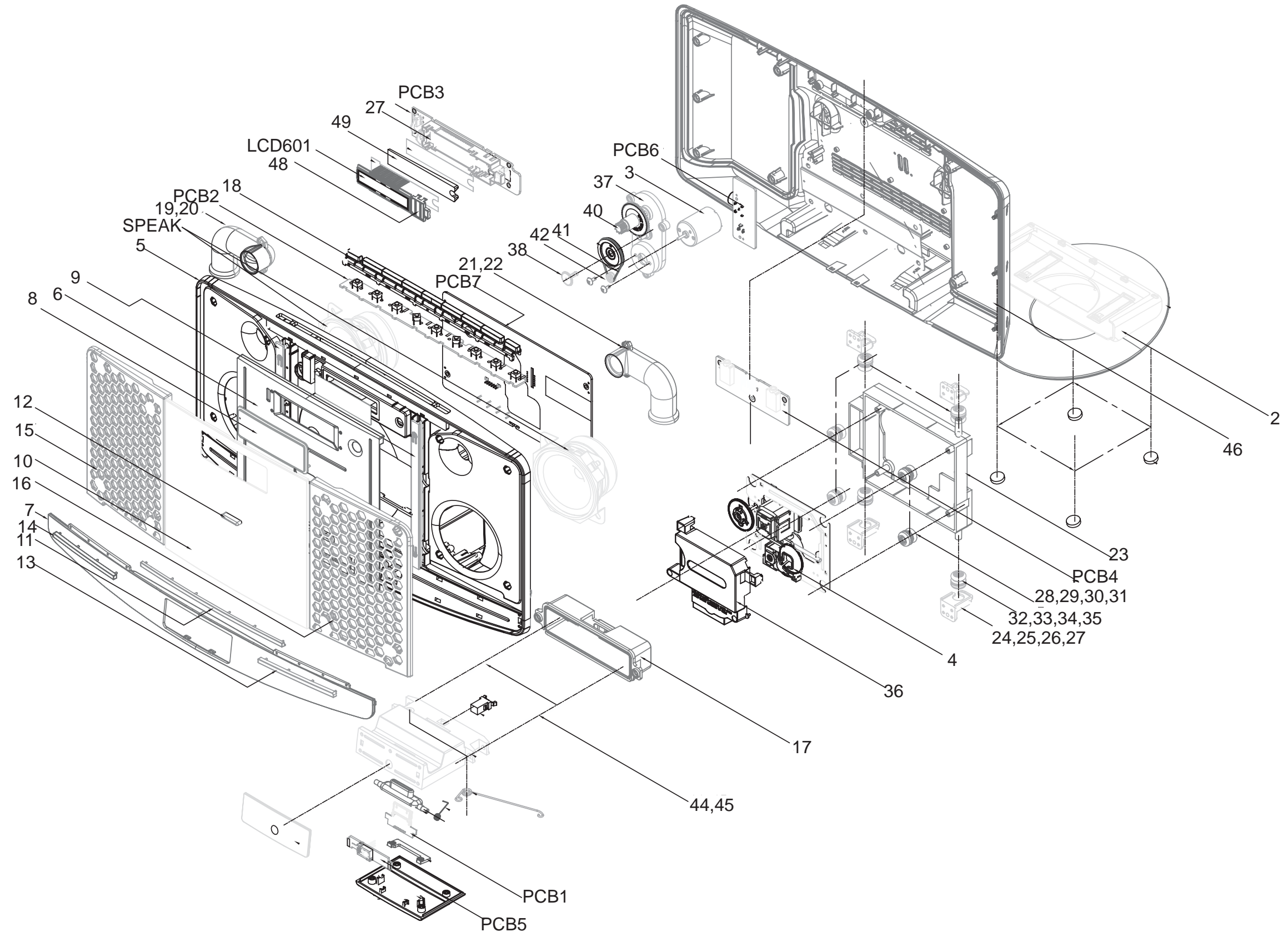
5-8



LAYOUT DIAGRAM - MAIN BOARD BOTTOM SIDE VIEW



EXPLODED VIEW DIAGRAM



Version History

V1.0: initial release

V1.1: Add /96 version

V1.2: Add /79 version