

Service  
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# Service Manual



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GENERAL DESCRIPTION											
CD PLAYER W/PLL RADIO AUX 2X60W											
LIFETIME(according to XUT-0026)											
5 Years											
PERFORMANCE CLASSES											
Class	Tuner	Supply+Amplifier	Loudspeaker Boxes	Cassette Recorder	DVD/CD						
I	X		X								
II		X			X						
III											
SAFETY requirements											
IEC60065											
RADIATION/IMMUNITY requirements(EMC)											
CLIMATIC requirements(according to UAN-D1590)											
ALL climates	:	+5°C	till	+40	°C						
MODERATE climates	:		till		°C						
POWER SUPPLY											
MAINS (AC)											
Version	/12										
AC Voltage	230V ± 10%										
Voltage Selection	NA										
Frequency	50 Hz										
POWER CONSUMPTION											
		DCM3020									
Operation (1/8 Prated,Nom AC input)		50W									
Standby(Demo Mode"Off",Nom AC input)		<3W									
ECO Standby(No FTD Display,Nom AC input)		<1W									
<p>Q and R according to Product Division Rules</p> <table> <tr> <td>Quality</td> <td>0.4% (major)</td> <td>1.5%(minor)</td> </tr> <tr> <td>Reliability</td> <td>2.0% (C42)</td> <td></td> </tr> </table> <p>Tested according to General Test Instruction UAN-D1591  Measured According to UAN-L1059 unless otherwise stated  All not mentioned data, please refer to PQR XUW-0010-JUNE 2001</p>						Quality	0.4% (major)	1.5%(minor)	Reliability	2.0% (C42)	
Quality	0.4% (major)	1.5%(minor)									
Reliability	2.0% (C42)										
DERIVED VERSION					APPROBATION						
REMARKS											
GENERAL SPECIFICATION											
Revise		<b>CD MICRO SYSTEM</b>		SET SPECIFICATION							
Name:		Date:2010-11-15	Tot.Sh.:	7	SHEET 2						
Check:		Date:									

**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 8 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	
5	±3	±2	5±3
10	±3	±2	15±3
15	±3	±2	15±3
25	±3	±2	5±3
32(MAX)	0	0	±3

DSC	Frequency(Hz)	Response(dB)
Flat	100	0
	1K	0
	10K	0
Jazz	100	3±2
	1K	1±1
	10K	0±3
Pops	100	8±3
	1K	1±2
	10K	4±1
Rock	100	8±2
	1K	2±1
	10K	5±2
Classic	100	3±2
	1K	1±1
	10K	0±1

Revise		<b>CD MICRO SYSTEM</b>			SET SPECIFICATION	
Name:		Date:2010-11-15	Tot.Sh.:	7	SHEET 3	
Check:		Date:				

<b>TECHNICAL DESCRIPTION</b> 2X60W			
<b>GENERAL PART</b>			
Output Stage Protection:		Temperature:	Yes;
<b>INDICATORS</b>  VFD DISPLAY W/BACK-LIGHT			
Power Standby Mode:			
<b>ELECTRICAL DATA</b>			
DSC: NA	Support Disc CD-DA CD-R/RW MP3		
DBB Yes			
IS: NA			
MAX: NA			
VEC: NA			
Level Difference:	'+/-3 dB		
Tuner: FM 67.5 kHz Modulation.			
CD: -6 dB track(Audio Disc 1 ,Trk 35)			
Ipod&Iphone: 500mW			
Aux : 500mV; Rs=600Ω	Headphone Out: 2.5 mW - 2 dB , R Load = 32 ohm @ max		
Input Sensitivity (±3dB)for Rated Output Power at 1KHz	0dB, 1kHz CD		
Microphone Sens: NA	Acoustic Hum Noise in dB (Volume = 1):	30dB (Euro & Nafta)	33dB (Apac & Latam)
Channel Difference: 3 dB	ipod&iphone Compatibility: iPod 5G, iPod nano 1G/2G/3G, Classic, iPod Touch, iPhone included 3GS Iphone4 Ipad		
Hum (VOL1 to default value): 200 nW	ipod&iphone charging : 2100mA		
Residual Noise (Volume Minimum) : 60 nW	Shock sens.: >3g		
Channel Separation: 40dB at 1KHz /35dB at 16KHz /30 dB at 20KHz			
signal to noise ratio : 65 dBA			
<p>OUTPUT POWER(4 ohm Loading)</p> <p>Mains Operation : <math>2 \times 60W</math>(NORMAL) At cold condition with 10%THD 1KHz  <math>\leq</math> ^  55W(LIMIT)</p> <p>Frequency Response 100Hz ~ 16KHz within +3/-3dB (@ REF output )</p>			
<b>LOUDSPEAKER(BOXES)</b>			
Rated Impedance :	Left/Right:	4Ω @ 100 Hz ~ 15kHz	
Matrix:	NA		
<b>REMARKS</b>			
(*1) Deviations from PQR			
(*2) Electronical Parameters are to be measured at speaker terminal across ohm load with input signal in cd mode setting in DBB Off unless specified otherwise.			
Revise		<b>CD MICRO SYSTEM</b>	
		SET SPECIFICATION	
Name:		Date:2010-11-15	Tot.Sh.: 7 SHEET 4
Check:		Date:	

TECHNICAL DESCRIPTION DVD MINI SYSTEM							
GENERAL PART							
WAVE Range(-/21)				TOLERANCE			
FM	87.5--108MHz		MHz				
AM	N/A						
AERIAL							
FM	PIGTAIL ANTENNA WIRE 1.2M						
INDICATORS							
VFD							
ELECTRICAL DATA							
N/A	Limit	Unit	<b>FM</b>	Nom	limit	unit	
N/A			-3dB Limiting Point	: 17	23.5	dB	
N/A			Amplification Reserve(*1)	: 0			
N/A			Distortion(RF 1 mV, Freq.Dev.75kHz)	: 2	3	%	
N/A			26dB Quieting Sensitivity	: 18	22	dBf	
N/A			Crosstalk (RF 1mV Freq. Dev.40kHz)	: 30	26	dB	
N/A			Search time	24~30	19~35	dBf	
N/A			St Turn-on Point Ratio/Quad Detectors	: NA		dBf	
N/A			Search Tuning Sensitivity	---	≤60	Sec	
N/A			AM Suppression I/P: 48~82dBf	30	25	dB	
N/A			Modulation Hum	: 55	45	dB	
N/A			8th, 9th, 10th Harmonics Whistle	: 40	35	dB	
N/A			Overall Frequency Response(63~12.5kHz)	0	±3	dB	
N/A			FM 46dB Quiying sensitivity (Stereo)	45	50	dbf	
N/A			FM S/N Ratio(A weighted) Mono input 68d	55	50	dB	
N/A			FM Adjacent Channel selectivity	20	25	dB	
N/A			FM Image Rejection	30	20	dB *	
N/A			FM Channel Seperantion 1K	28	20	dB	
Wave Range		SENS		Image Rejection	IF Rejection	Large Signal Handling	Selectivity S9/300kHz
FM		Nom.	18	24	55	116 dBf	24
		Lim.	22	20	50	108 dBf	20
Units.		μV/m	dBf	dB	dB	mV/m	dB
REMARKS							
Revise				SET SPECIFICATION			
<b>CD MICRO SYSTEM</b>							
Name:				Date:2010-11-15		Tot.Sh.: 7	
Check:				Date:		<b>SHEET 5</b>	

Description	External DAC
CD MECH: DA11VF Sanyo	
Channel Unbalance Frequency Response(+0.5/-1.0dB) Signal to Noise Ratio(A-weighted) THD Noise(20 ~20,000Hz) (1kHz) Outband Attenuation Channel Separation 1K 16K 20K Emphasis(switched automatically by CD 10)	<math>\leq \pm 2\text{dB}</math> ( Vol 0 ~ -50dB ) 20Hz~20kHz 70dBA(Lim 65 dBA) 0.5%(Lim 2%) 0.1% at -20dBFS 35dB 40dB (Lim.30dB) 35dB(Lim.25dB) 30dB(Lim.25dB) 15 / 50 $\mu\text{s}$

**Mp3 performance**

description	
Bit rates	32K-320Kps
Sampling rates(MPEG-1 Layer 3)	32kHz/44.1KHZ/48kHz
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/999songs	

**ipod&iphone performance**

description	
Channel balance	Limit: 2dB
signal to noise ratio(unweighted)	Limit:60dB
Channel seperation	Limit:45dB
Max.volume noise(Bass off)	Limit:3mV
Max.volume noise(Bass on)	Limit:1mV
ipod&iphone Compatibility: iPod 5G, iPod nano 1G/2G/3G, iPodClassic, iPod Touch, iPhone&3G	
ipod&iphone charging : 1000mA	

DVD PART

Revise	CD MICRO SYSTEM	SET SPECIFICATION

Name:	Date:2010-11-15	Tot.Sh.:	7	SHEET 6
Check:	Date:			

**TECHNICAL SPECIFICATION**

**GENERAL PART**

Time Setting : Clock and Timer  
Timer Wakeup Mode : CD / Tuner/Aux (Depend on power off source)  
Remarks Time Setting : 24 Hrs  
Wake Up Volume Control : No  
Volume at Wakeup : NC  
No of Timer Settings : 1  
Clock Accuracy : Lim. +/- 2 sec / day

RC operating distance :

**INDICATORS**

Display Type : VFD

**REMARKS**

**VERSION OVERVIEW**

**Tape PART SPECIFICATION**

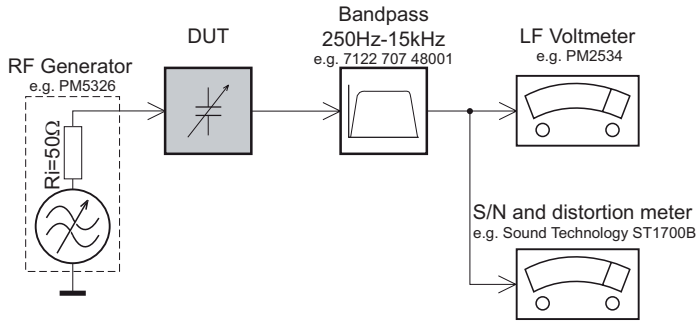
Revise	SET SPECIFICATION
<b>CD MICRO SYSTEM</b>	

Name:	Date:2010-11-15	Tot.Sh.:	7	<b>SHEET 7</b>
Check:	Date:			



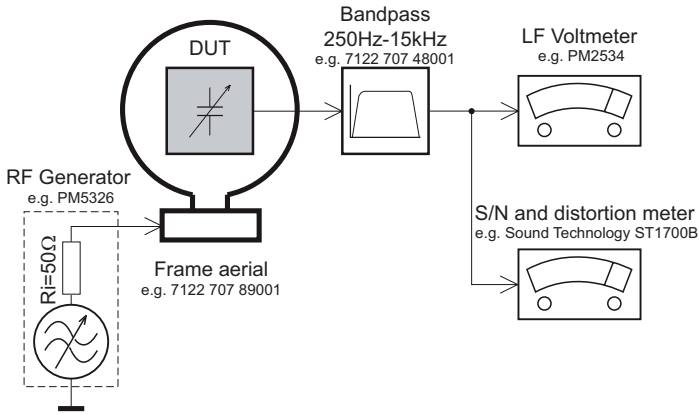
# MEASUREMENT SETUP

## Tuner FM



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

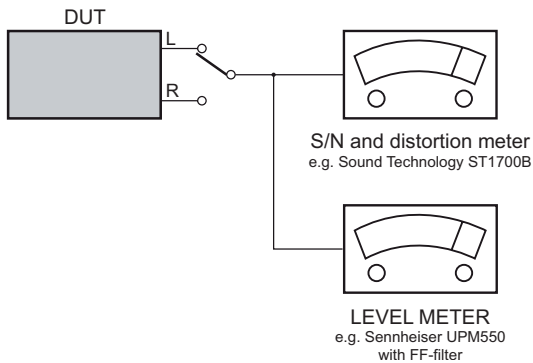
## Tuner AM (MW,LW)



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).

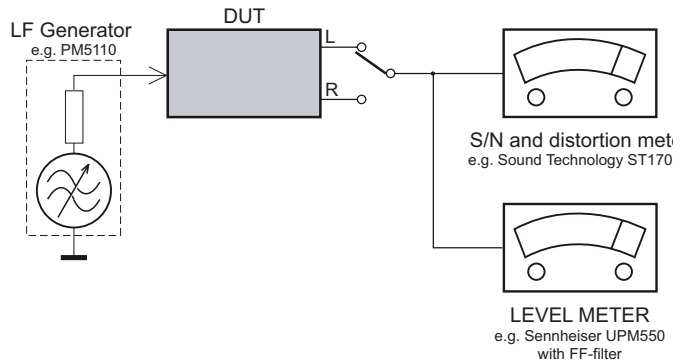
## CD

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  $\Delta$ .

**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".

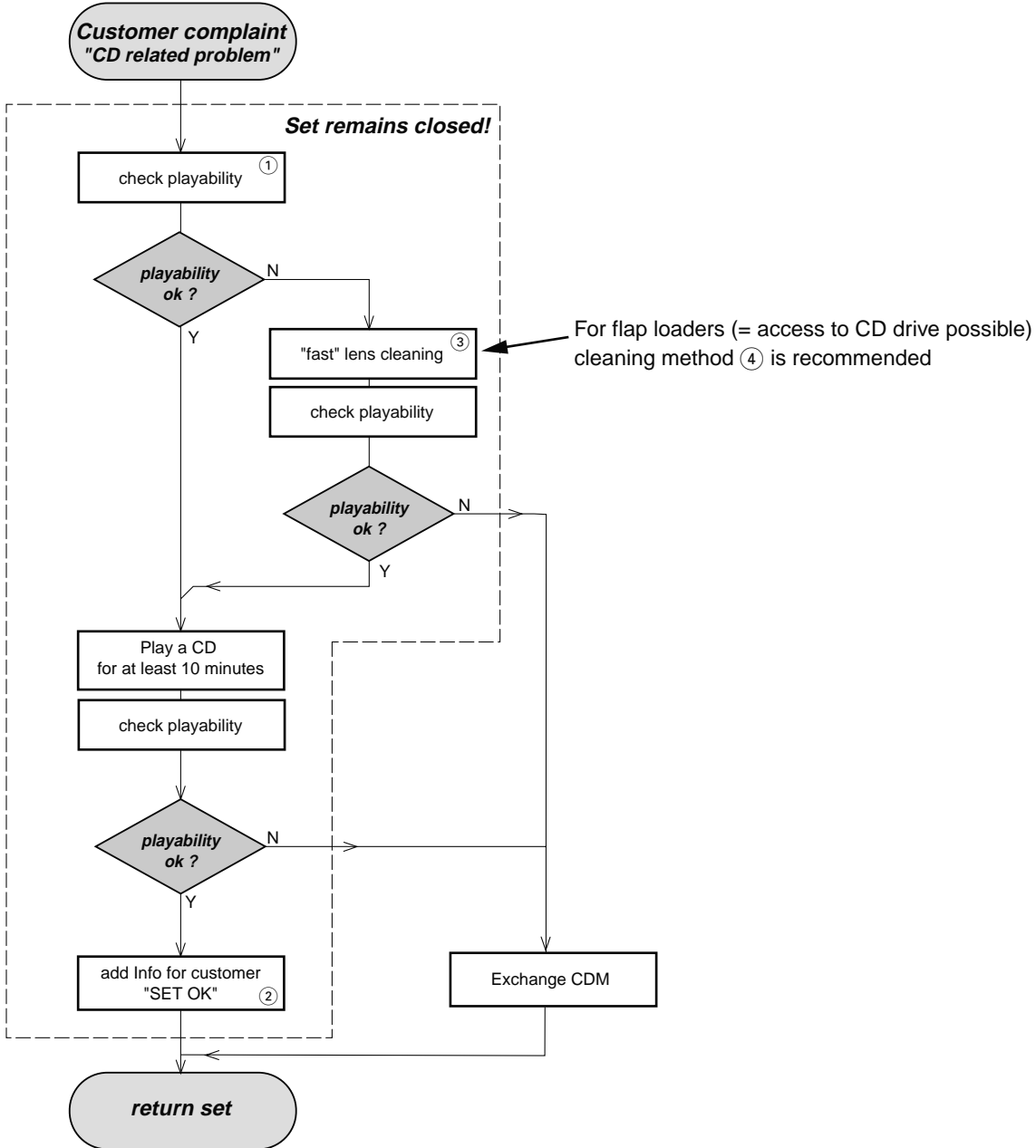
For additional questions please contact your local repair-helpdesk.

## 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



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

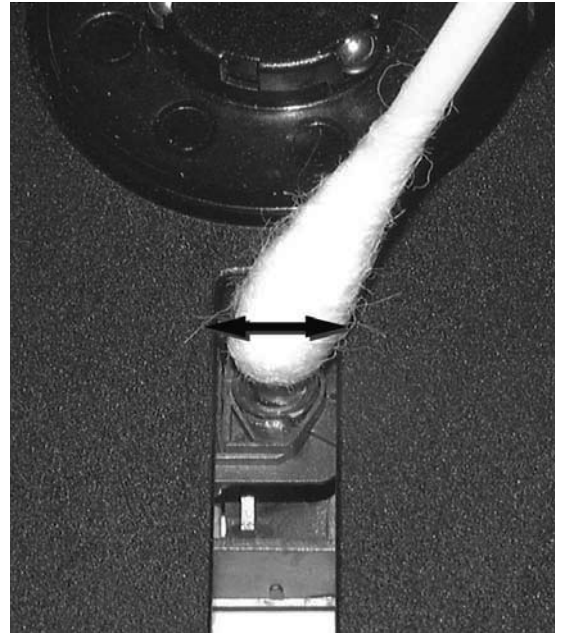
### LIQUID LENS CLEANING

**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.**

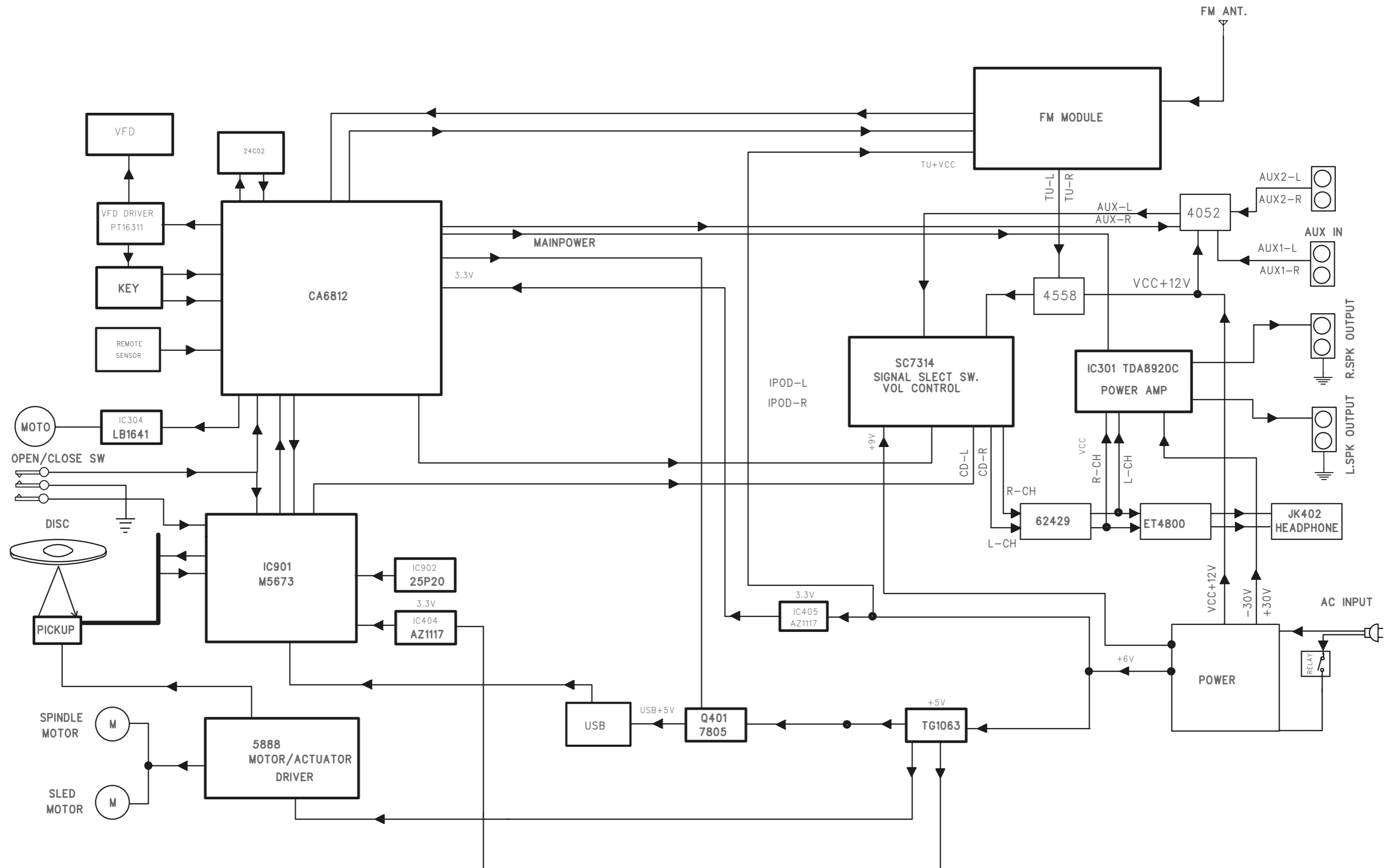
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent

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.

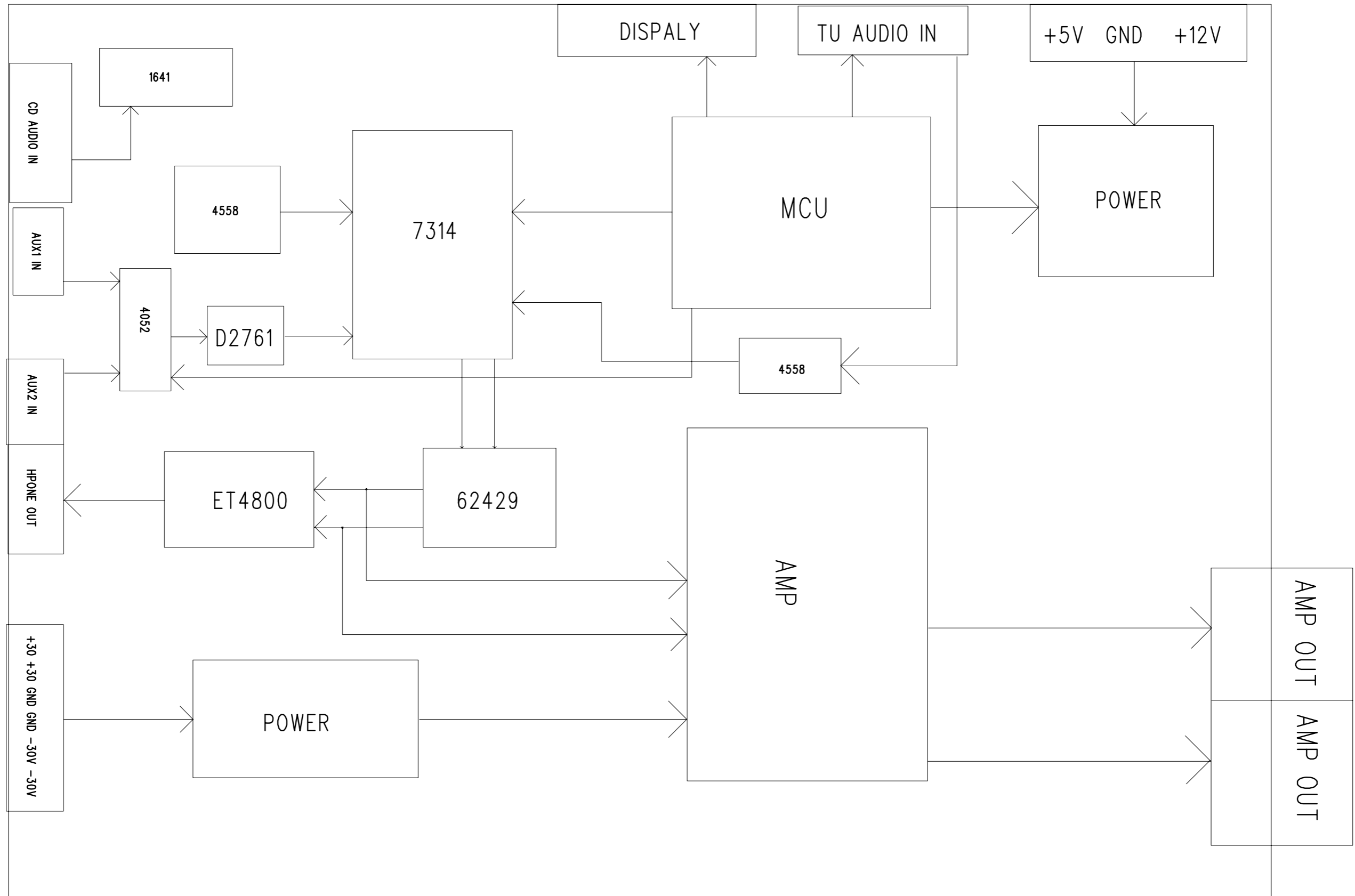
The direction of cleaning must be in the way as indicated in the picture below.



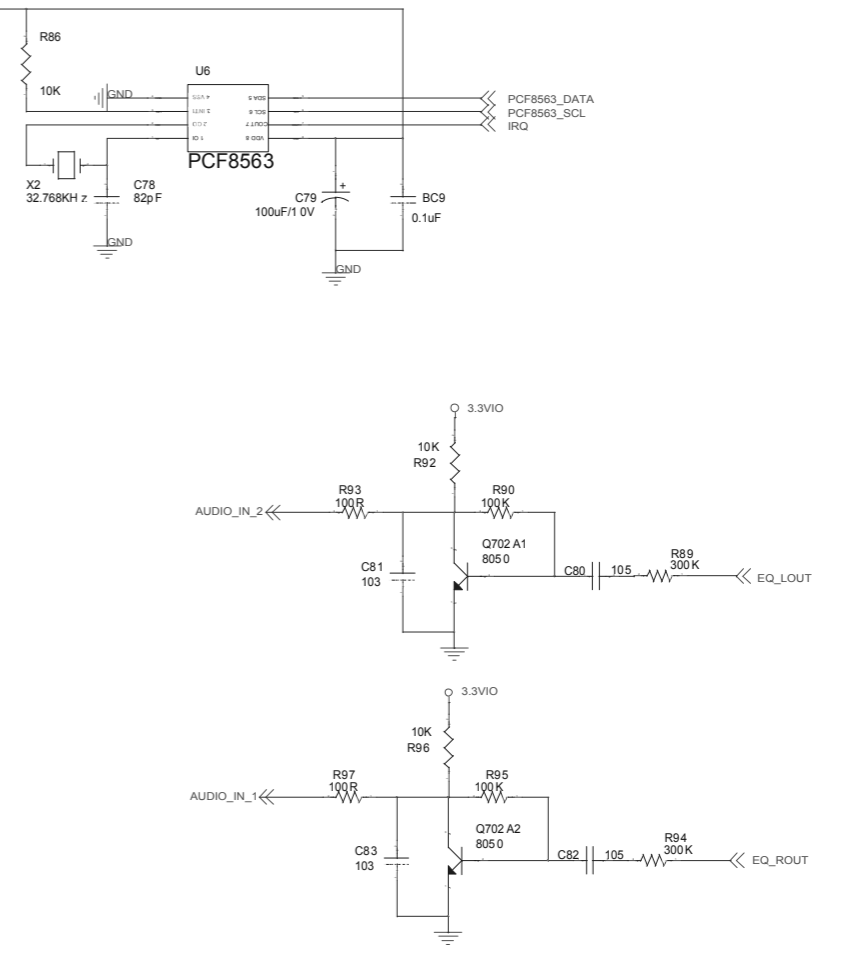
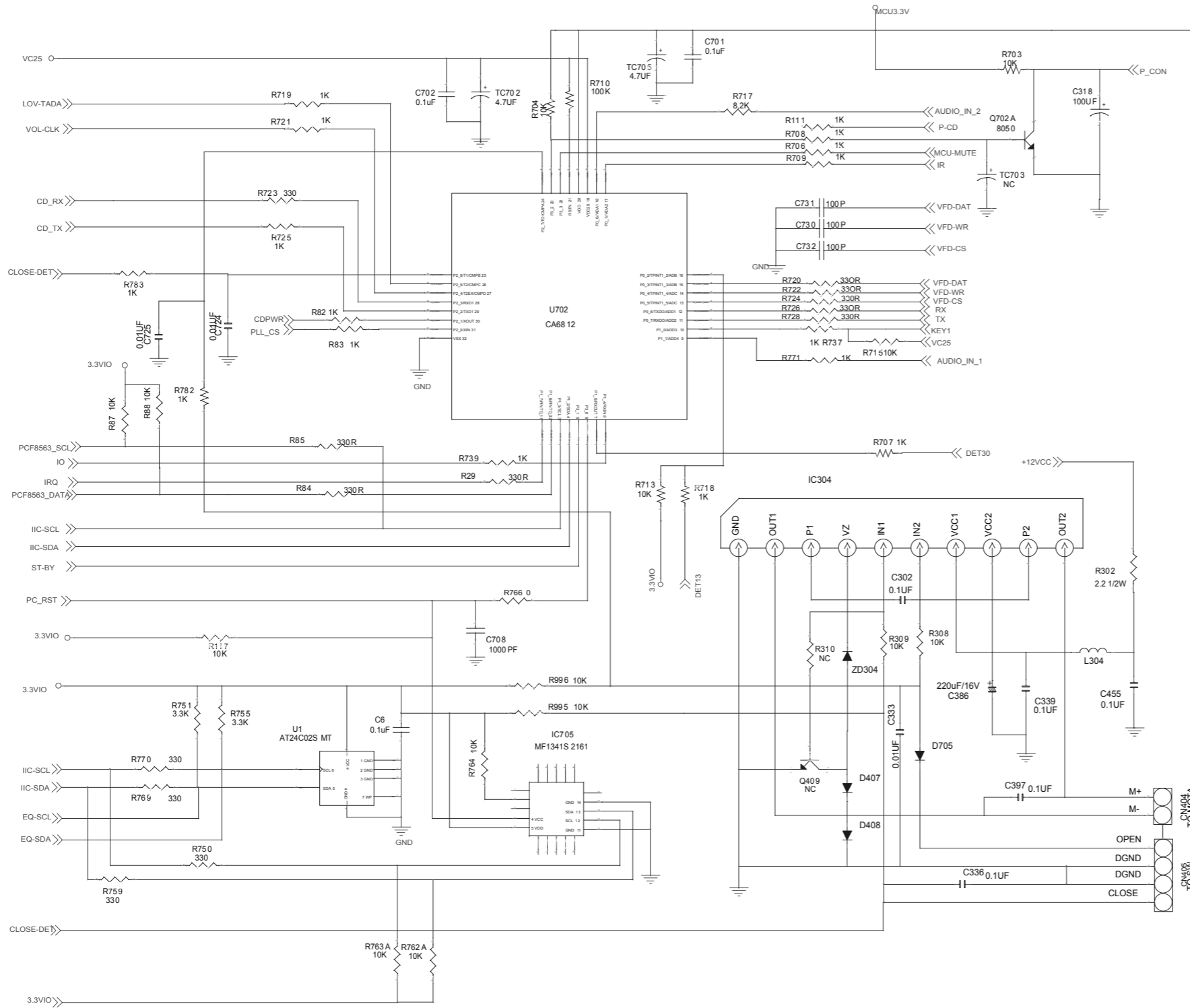
# SET BLOCK DIAGRAM



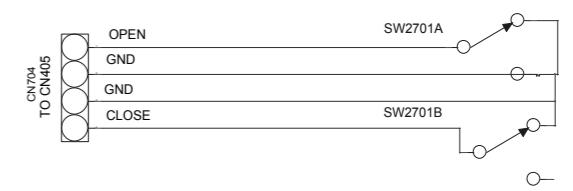
### SET WIRING DIAGRAM



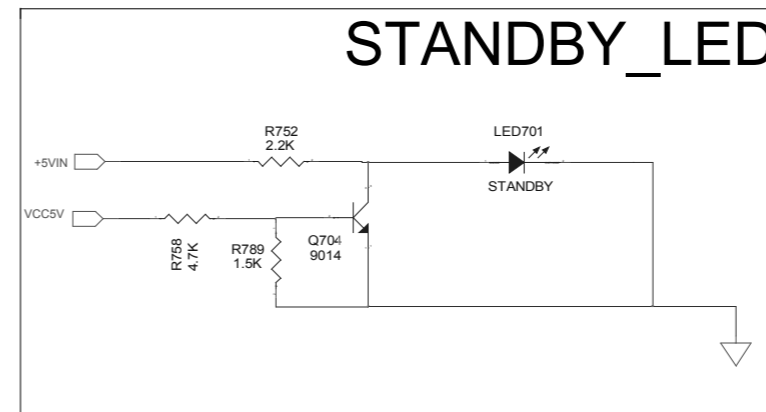
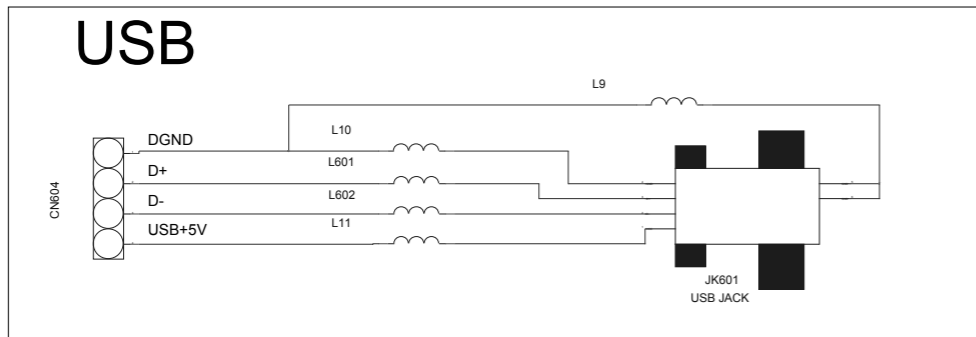
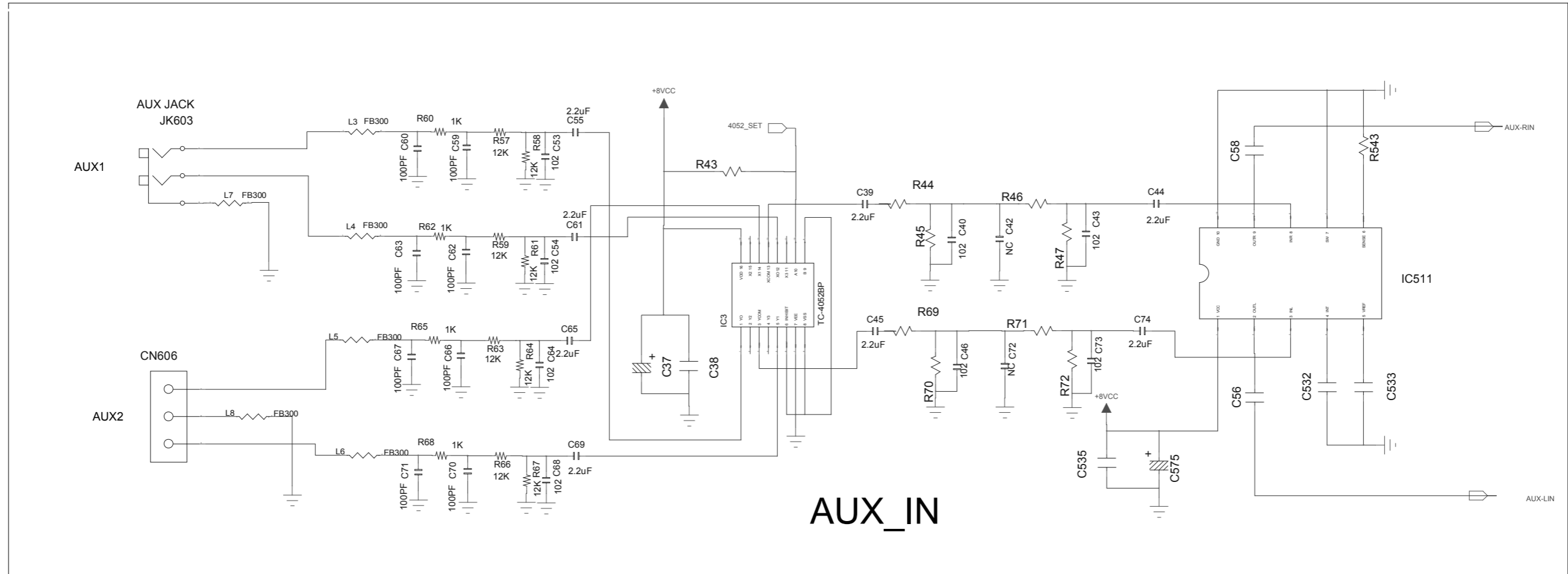
# CIRCUIT DIAGRAM - MAIN BOARD PART 1



## CD DOOR SWITCH BD.

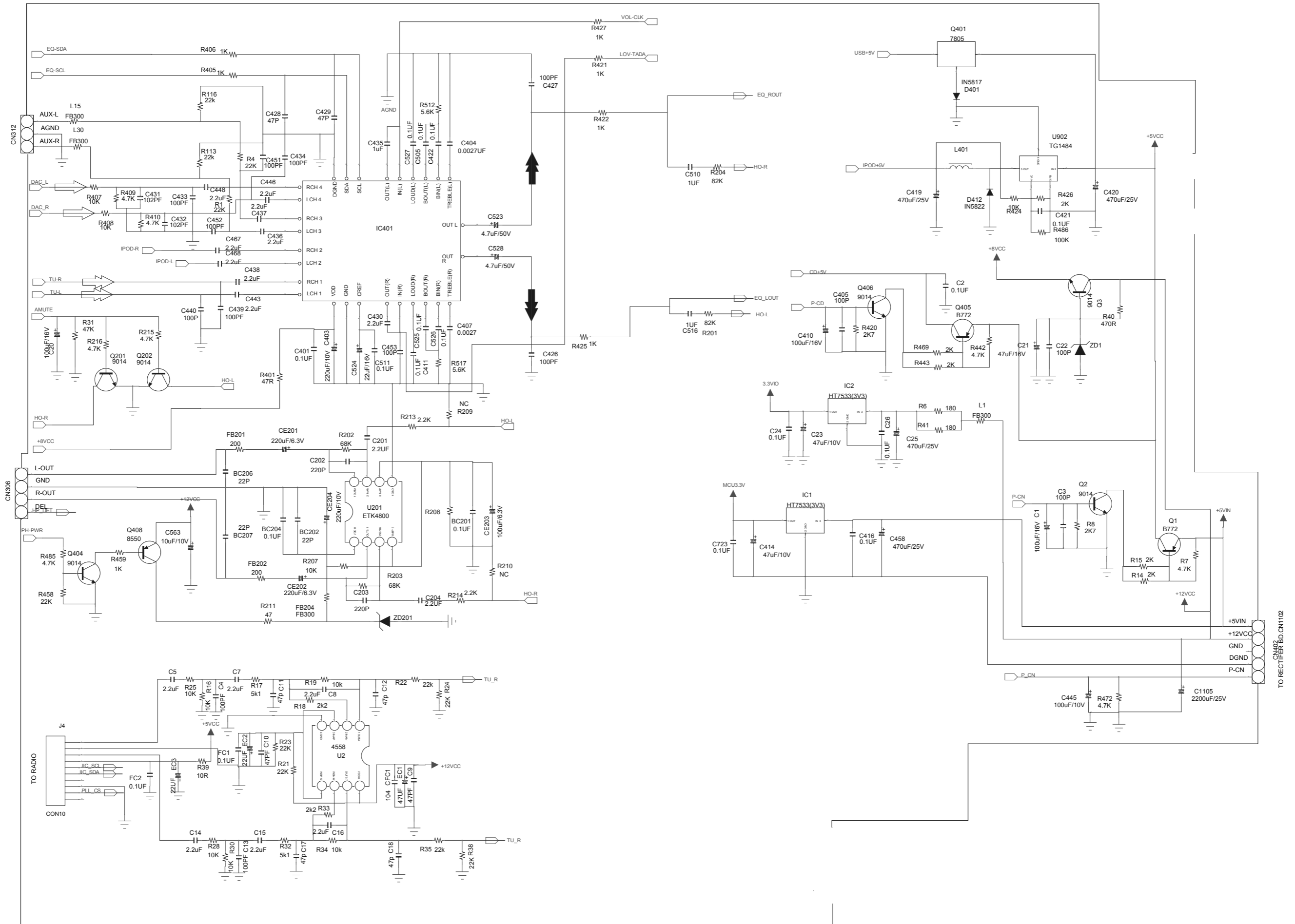


**CIRCUIT DIAGRAM - MAIN BOARD  
PART 2**

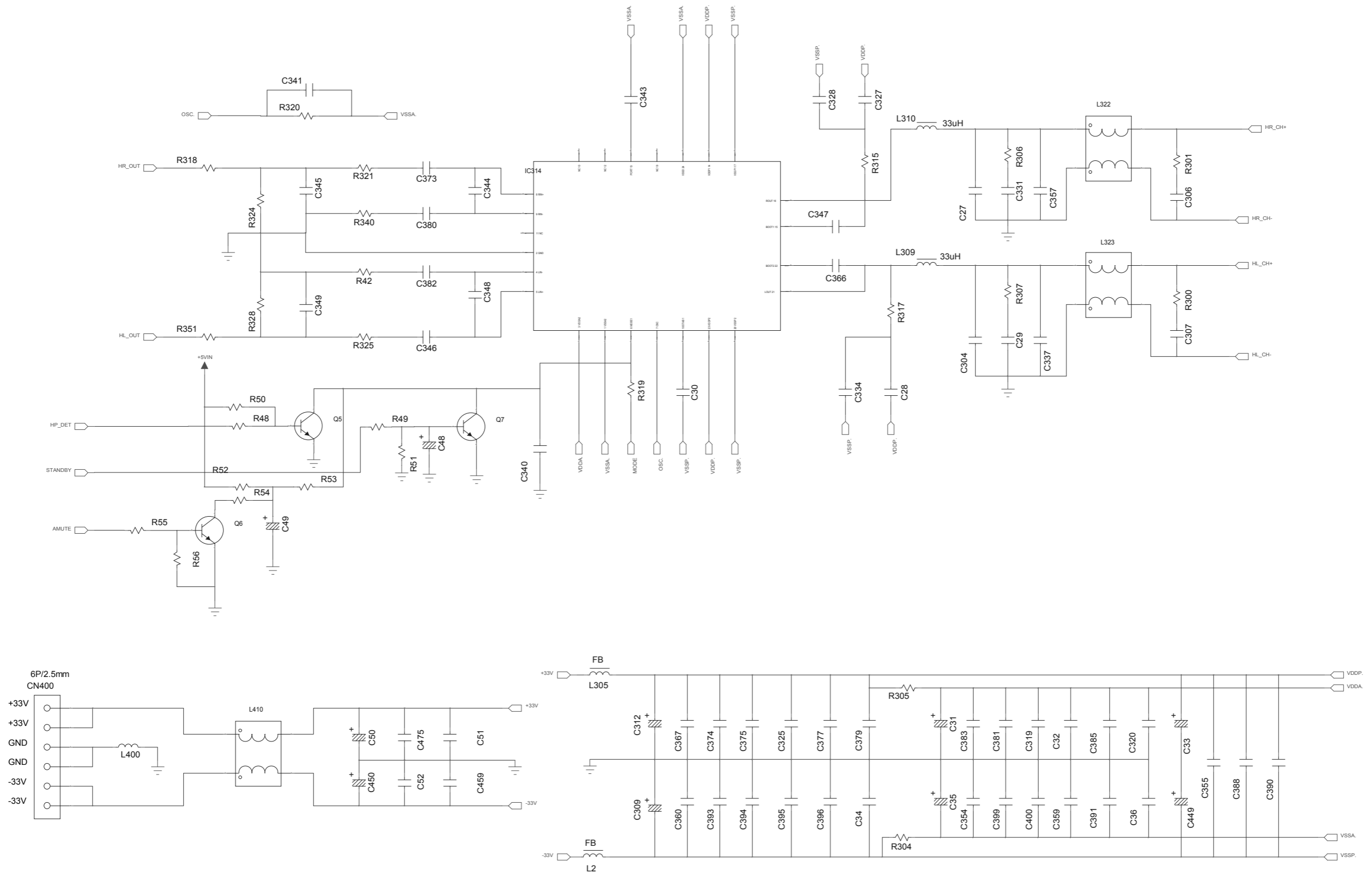




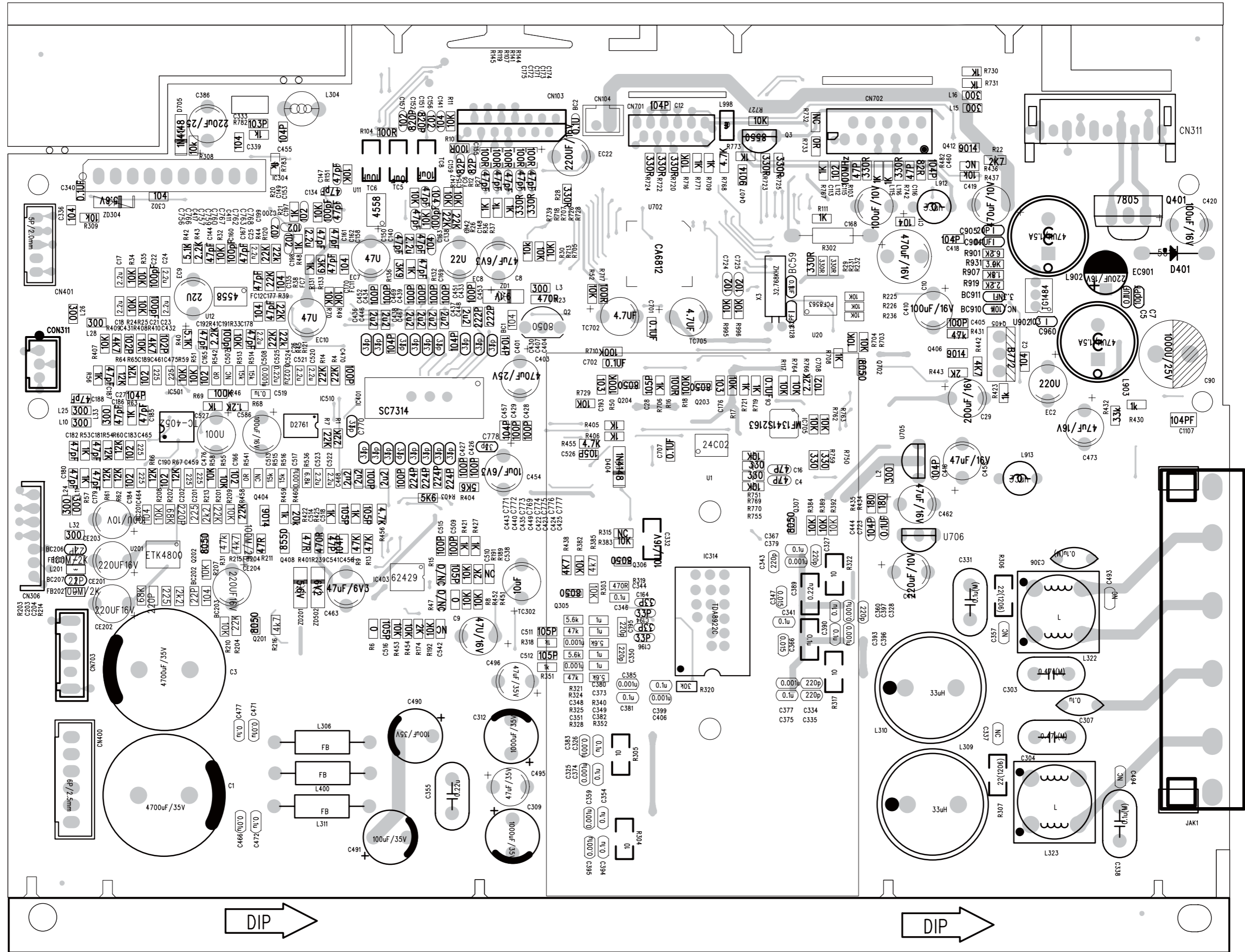
# CIRCUIT DIAGRAM - MAIN BOARD PART 3



# CIRCUIT DIAGARM - MAIN BOARD PART 4

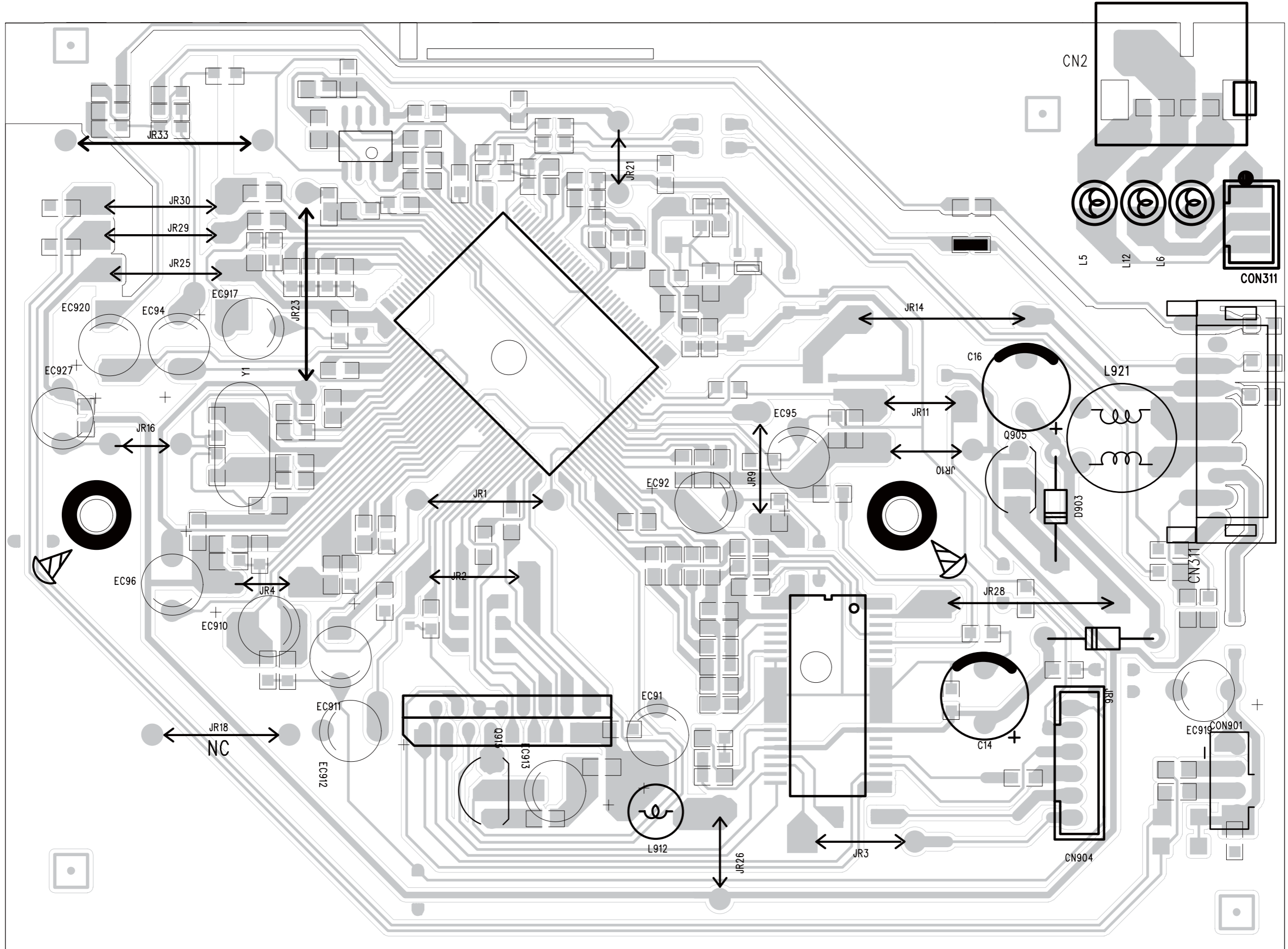


# LAYOUT DIAGRAM - MAIN BOARD

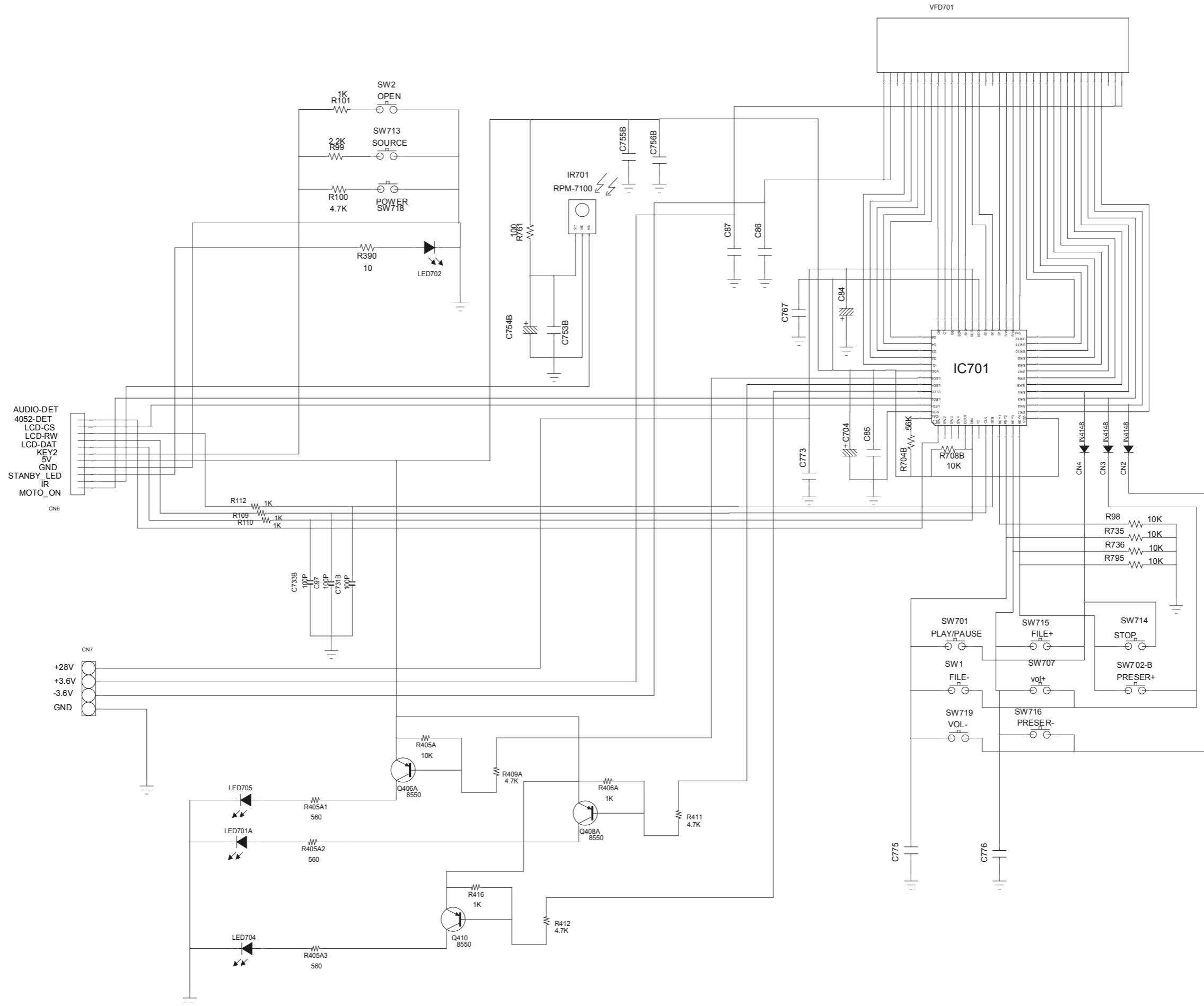




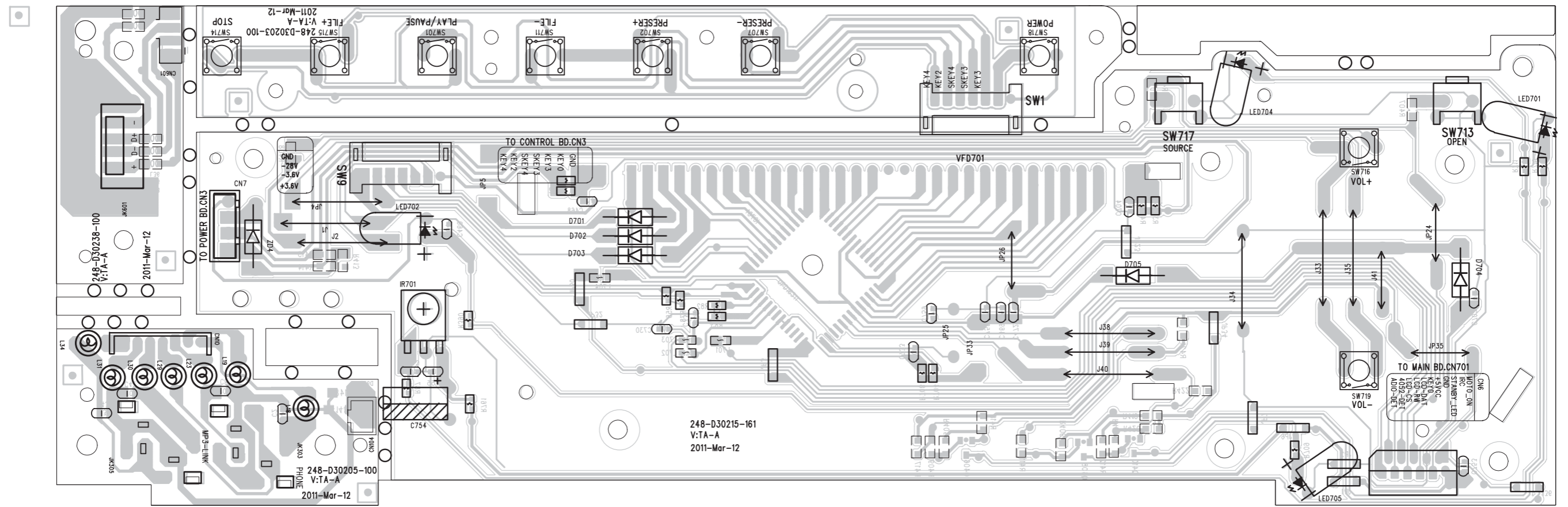
LAYOUT DIAGRAM - CD BOARD



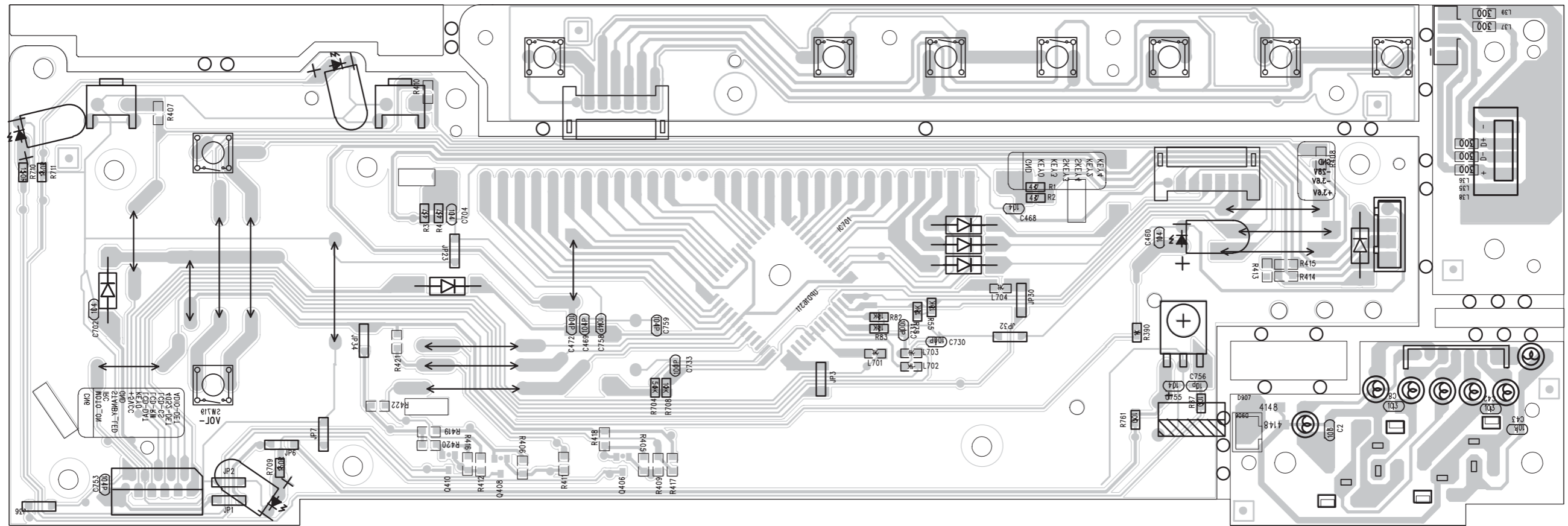
# CIRCUIT DIAGRAM - DISPLAY/KEY/JACK/USB BOARD



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

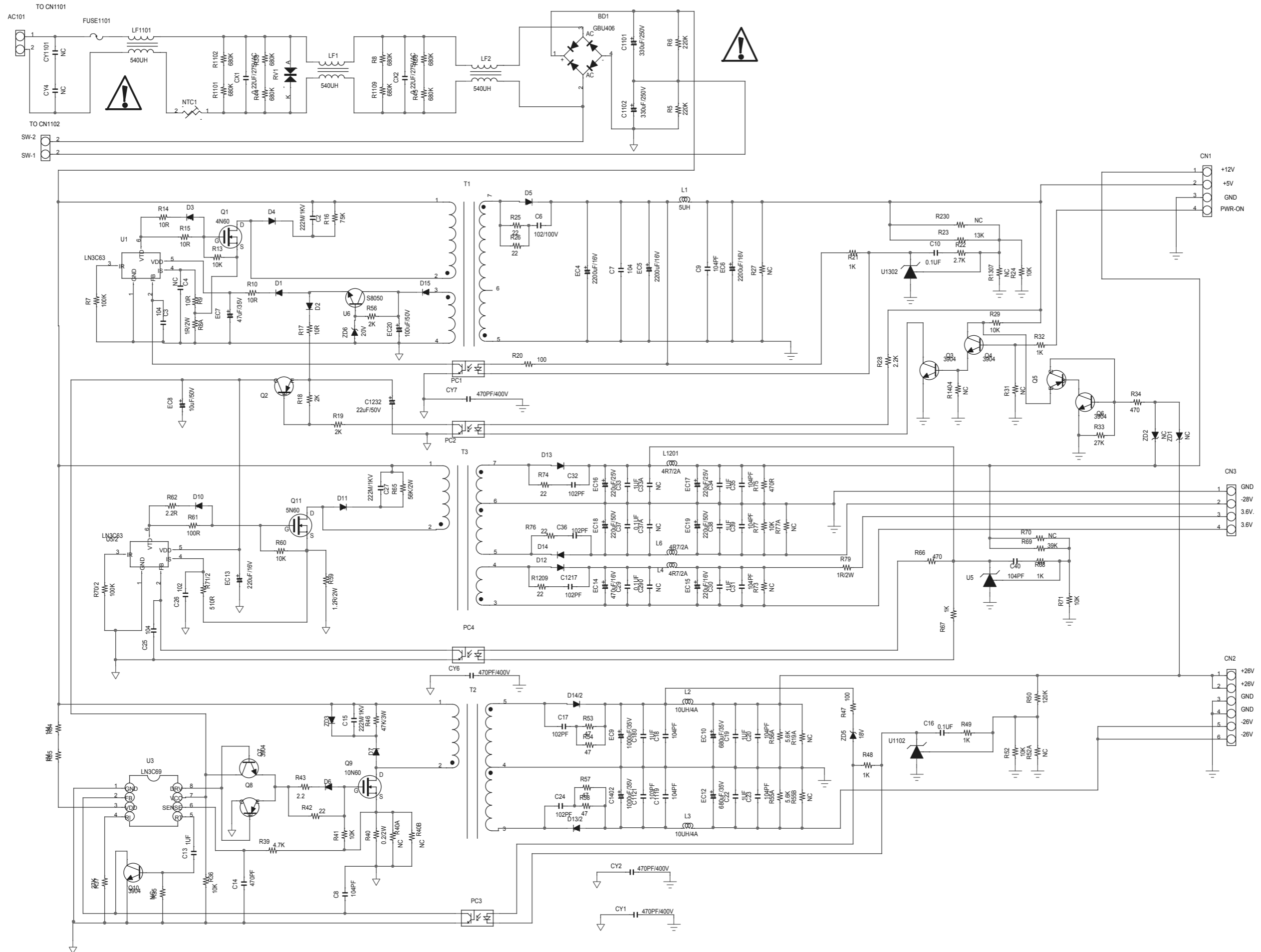


LAYOUT DIAGRAM - DISPLAY/KEY/JACK/USB BOARD  
BOTTOM

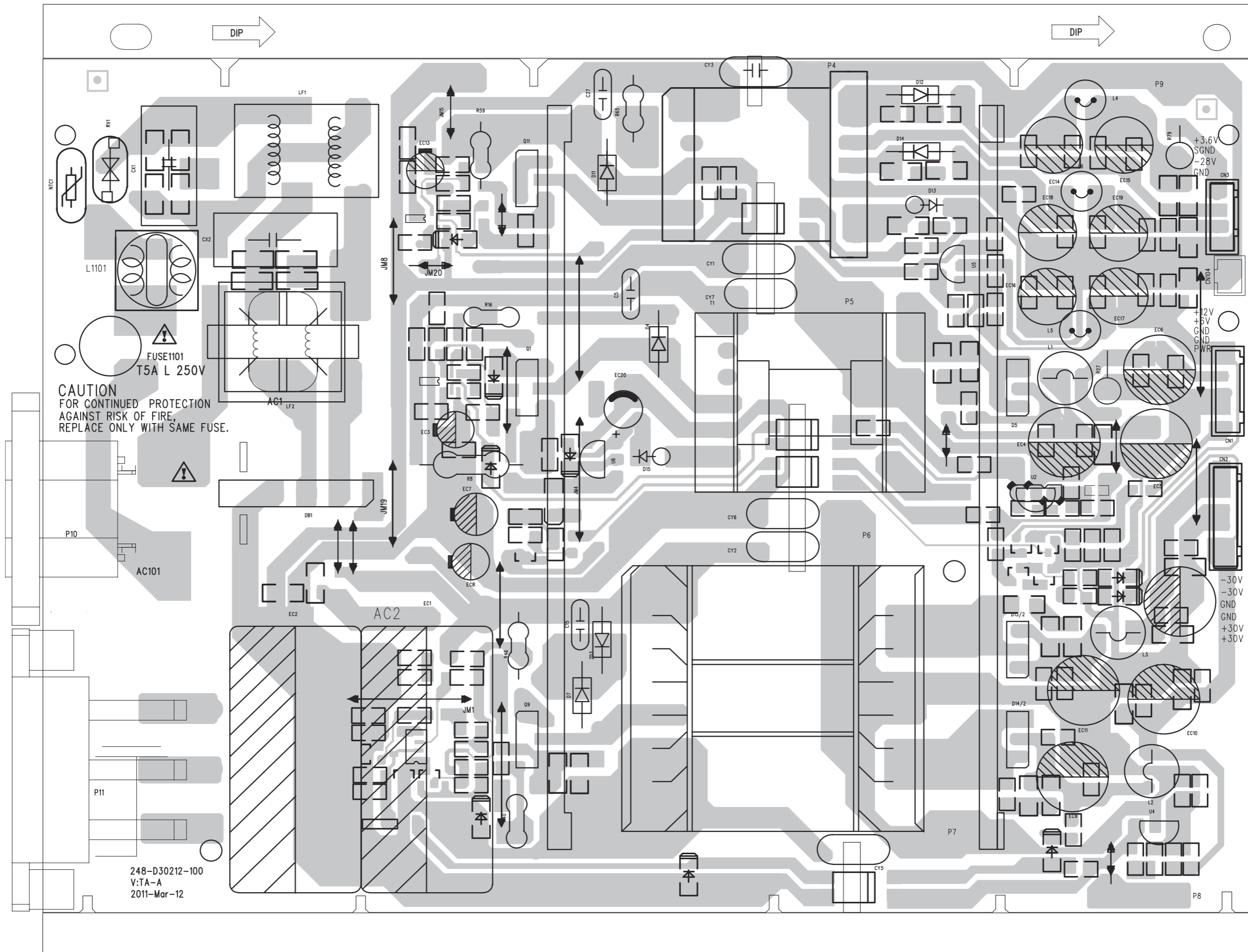




# CIRCUIT DIAGRAM - SMPS POWER BOARD



# LAYOUT DIAGRAM - SMPS POWER BOARD



CAUTION  
 FOR CONTINUED PROTECTION  
 AGAINST RISK OF FIRE,  
 REPLACE ONLY WITH SAME FUSE.

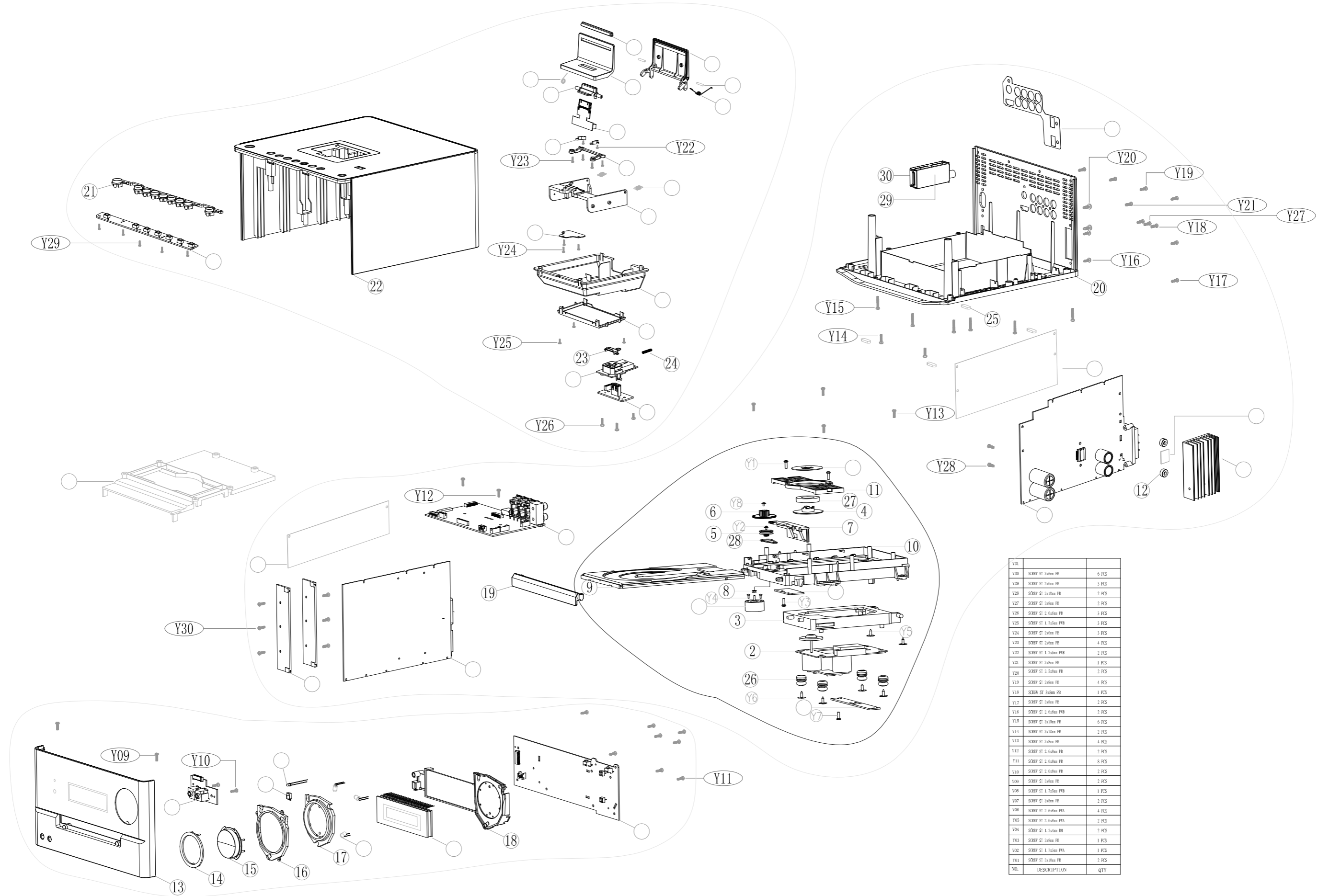
248-D30212-100  
 V:TA-A  
 2011-Mar-12

+3.6V  
 SGND  
 -28V  
 GND

+2V  
 +3V  
 GND  
 GND  
 PW

-30V  
 -30V  
 GND  
 GND  
 +30V  
 +30V

EXPLODED VIEW DIAGRAM



NO.	DESCRIPTION	QTY
Y31	SCREEN ST 3x10mm PB	6 PCS
Y30	SCREEN ST 3x10mm PB	5 PCS
Y29	SCREEN ST 3x10mm PB	2 PCS
Y28	SCREEN ST 3x10mm PB	2 PCS
Y27	SCREEN ST 3x10mm PB	2 PCS
Y26	SCREEN ST 2.5x10mm PB	3 PCS
Y25	SCREEN ST 1.7x10mm PB	3 PCS
Y24	SCREEN ST 3x10mm PB	3 PCS
Y23	SCREEN ST 3x10mm PB	4 PCS
Y22	SCREEN ST 1.7x10mm PB	2 PCS
Y21	SCREEN ST 3x10mm PB	1 PCS
Y20	SCREEN ST 3.5x10mm PB	2 PCS
Y19	SCREEN ST 3x10mm PB	4 PCS
Y18	SCREEN ST 3x10mm PB	1 PCS
Y17	SCREEN ST 3x10mm PB	2 PCS
Y16	SCREEN ST 2.5x10mm PB	2 PCS
Y15	SCREEN ST 3x10mm PB	6 PCS
Y14	SCREEN ST 3x10mm PB	2 PCS
Y13	SCREEN ST 3x10mm PB	4 PCS
Y12	SCREEN ST 2.5x10mm PB	2 PCS
Y11	SCREEN ST 2.5x10mm PB	8 PCS
Y10	SCREEN ST 2.5x10mm PB	2 PCS
Y09	SCREEN ST 3x10mm PB	2 PCS
Y08	SCREEN ST 1.7x10mm PB	1 PCS
Y07	SCREEN ST 3x10mm PB	2 PCS
Y06	SCREEN ST 2.5x10mm PB	4 PCS
Y05	SCREEN ST 2.5x10mm PB	2 PCS
Y04	SCREEN ST 1.7x10mm PB	2 PCS
Y03	SCREEN ST 3x10mm PB	1 PCS
Y02	SCREEN ST 1.7x10mm PB	1 PCS
Y01	SCREEN ST 3x10mm PB	2 PCS
NO.	DESCRIPTION	QTY