

Service
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Service Manual

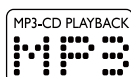


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**CLASS 1
LASER PRODUCT**

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Version 1.0



PHILIPS

Technical Specification

MCM1150 Elec parameter Test Report**TEST CONDITIONS:**

- 1.POWER SUPPLY: AC.Accordiing to Ver
 2.REF OUTPUT:8Ω 1W , Sound effect off
 3.FM MONO: 22.5KHz Dev,1KHz MODULATION ,75Ω IMPEDANCE ,60dBu
 4.FM STEREO : MAIN+SUB = 50KHz, PILOT : 10KHz,COMPOSITE: 40.0KHz

FM SECTION:

NO	TEST ITEMS		UNIT	NOM.	LIMIT	TEST DATA			
						1#	2#		
1	Fvequency Range		MHz		87.5	87.5	87.5		
					108	108	108		
2	26dB QUENTING SENSITIVITY		dBf	18	22	19	16		
				18	22	19	16		
				18	22	20	17		
3	-3dB LIMITING POINT				17	25	18	14	
4	FM IF REJECTION 98MHZ S/N=26dB					55	50	>55	>55
5	IMAGE REJECT 98MHZ S/N=26dB					24	20	>24	>24
6	SELECTIVITY S 0.3					40	33	/	/
7	S/N		MONO			55	50	58	59
			ST			55	50	/	/
8	OVERALL DISTERTION					3	5	0.7	0.8
9	MODULATION HUM					45	40	44	40
10	FREQUENCY RSEPOUSE		63Hz			±3		/	/
			12.5K			±3		/	/
11	TUNING SENS		90MHz			24-32	19 - 35	30	31
			98MHz			24-32	19 - 35	30	31
			106MHz			24-32	19 - 35	30	31
12	AUTO TUNING SENG					24-32	19 - 35	31	31
13	TUNING ACCURAY		<91	MHz			0	0	0
			>91	MHz			0.5	0	0
14	STEREO CHANNEL SEPARATION		400Hz			21	18	46	46
			1KHz			25	20	30	30
			5KHz			18	15	26	26
15	THD 10% POWER					8		7.2w	7.3w

CD SECTION:

NO	TEST ITEMS		UNIT	NOM.	LIMIT	TEST DATA						
						1#	2#					
1	TOTAL HARMONIC DISTORTION		1KHz	%	≤1.5	≤2	0.7	0.6				
2	S/N (1KHz,A-weightde)						76	70	94	94		
3	FREQUENCY RESPONSE AT LOUDSPEAKER OUT		L/R	40Hz			±3	0.4	0.4			
				16KHz			±3	2.2	2.4			
4	CHANNEL DIFFERENCE (1KHz)						0	≤2	0.2	0.3		
5	CHANNEL SEPARATION		1K	L				40	26	73	75	
				R				40	26	67	71	
			10K	L					30	16	57	58
				R					30	16	41	45

Technical Specification

6	Residual noise (Vol min)		nW		≤40	8	10	
7	HUM		nW		≤200	5	6	
8	10% THE POWER		W	8		7.8w	7.9w	
AUX SECTION:								
NO	TEST ITEMS			UNIT	NOM.	LIMIT	TEST DATA	
							1#	2#
1	L/R OUTPUT POWER (10% THD, Ohm,1KHz)			W	25		7.4w	7.5w
2	FREQUENCY RESPONSE AT LOUDSPEAKER OUT	L/R	40Hz	dB		±3	0.58	-1.7
			16KHz	dB		±3	2.4	0.24
3	AMPLIFIER DISTORTION			%	≤1.5	≤2	0.7	0.7
4	CHANNEL SEPARATION	1K	L	dB	40	26	71	65
			R	dB	40	26	63	57
		10K	L	dB	30	16	56	56
			R	dB	30	16	44	45
5	CHANNEL DIFFERENCE (1KHz)			dB	0	≤2	0.14	0.2
6	LEVEL DIFFERENCE (RATED OUTPUT POWER AT 1KHz)	FM 1KHz 67.5KHz DEV,68dBf		dB	-	±5	4	4
		CD disc1-6dB track35		dB	-	±3	3	3
7	INPUT SENSITIVITY(RATED OUTPUT POWER AT 1KHz,10%THD)			mV	600	±200	540	560
8	S/N RATIO (1KHz,A-WEIGHTED)			dB	≤76	≤70	78	78
9	HUM (VOL.MIN-MAX-20dB,without signal)			nW	-	≤200	8	15
10	RESIDUAL NOISE (VOL.MIN.with signal) A-WEIGHTED			nW	-	≤40	3.7	4

Safety instruction

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 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.

GB Warning !

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

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.

S Varning !

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

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.

SF Varoitus !

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

DK Advarse !

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

"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.

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.

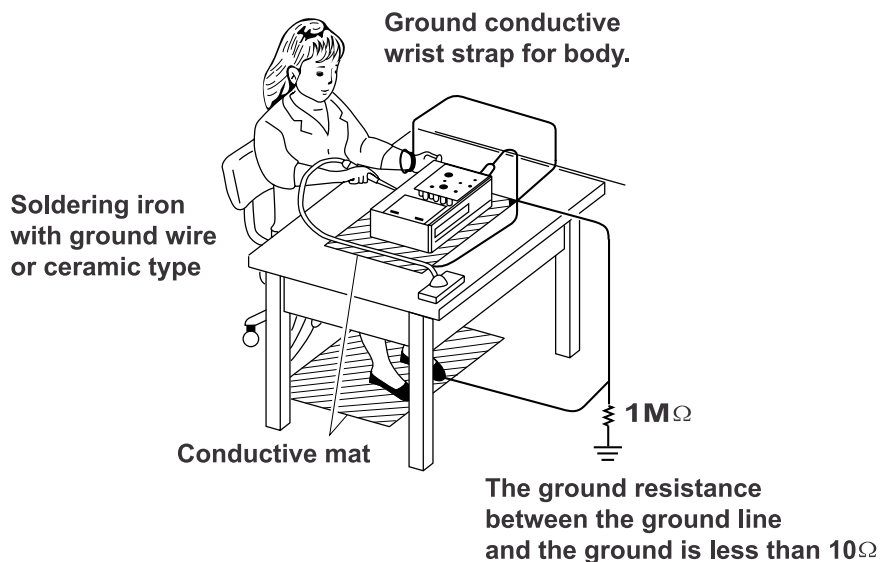
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of laser may be received.

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.



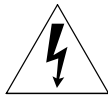
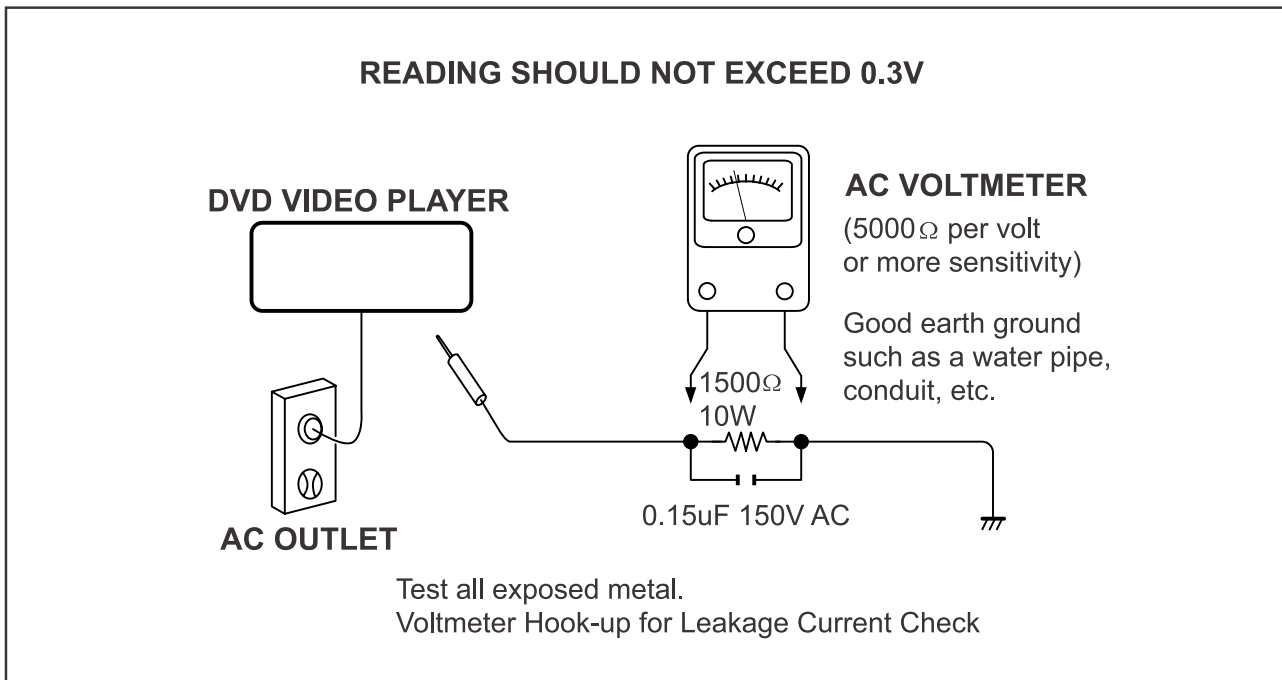
Safety Precaution

SAFETY NOTICE

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 $0.15\mu\text{F}$ 150V AC capacitor between a known 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.

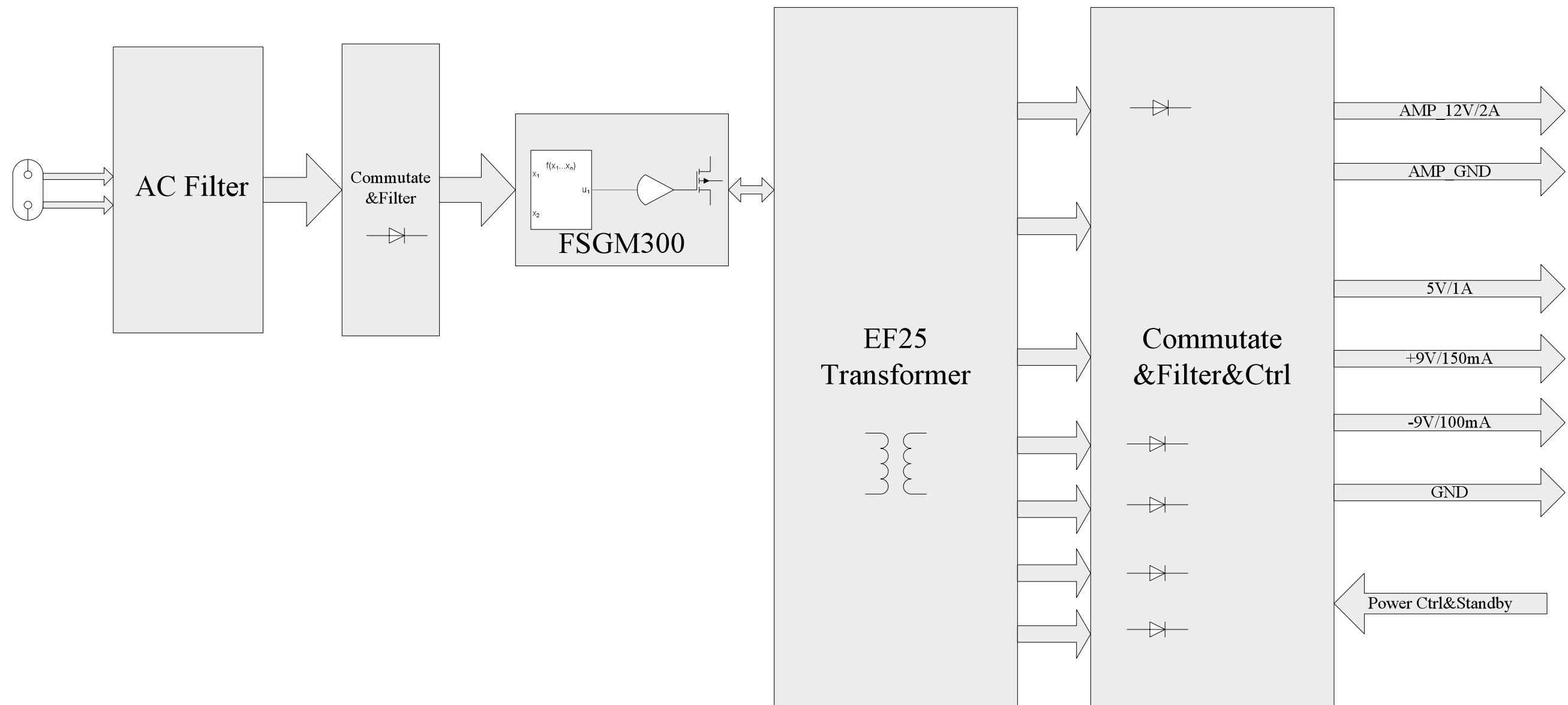


The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

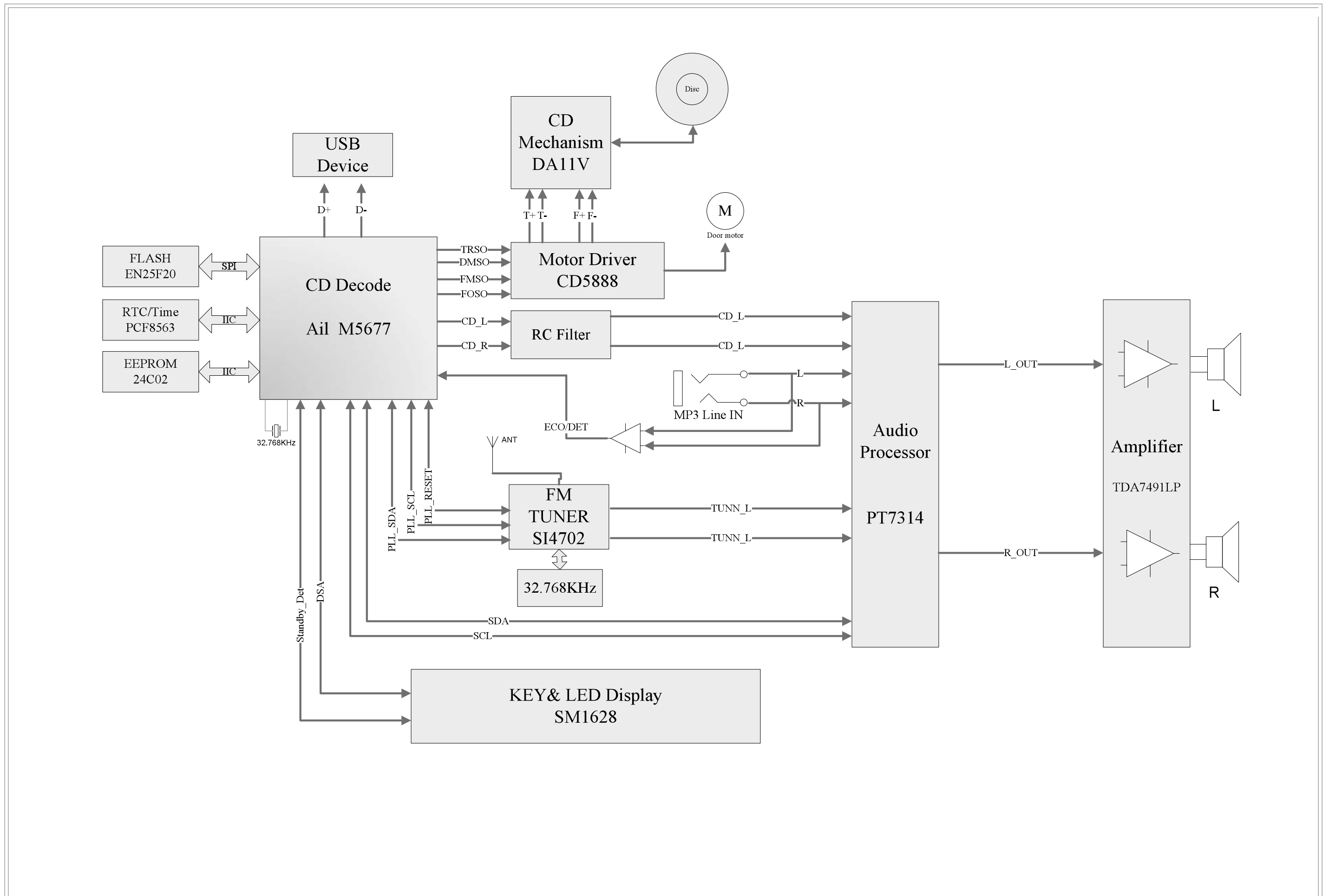


The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

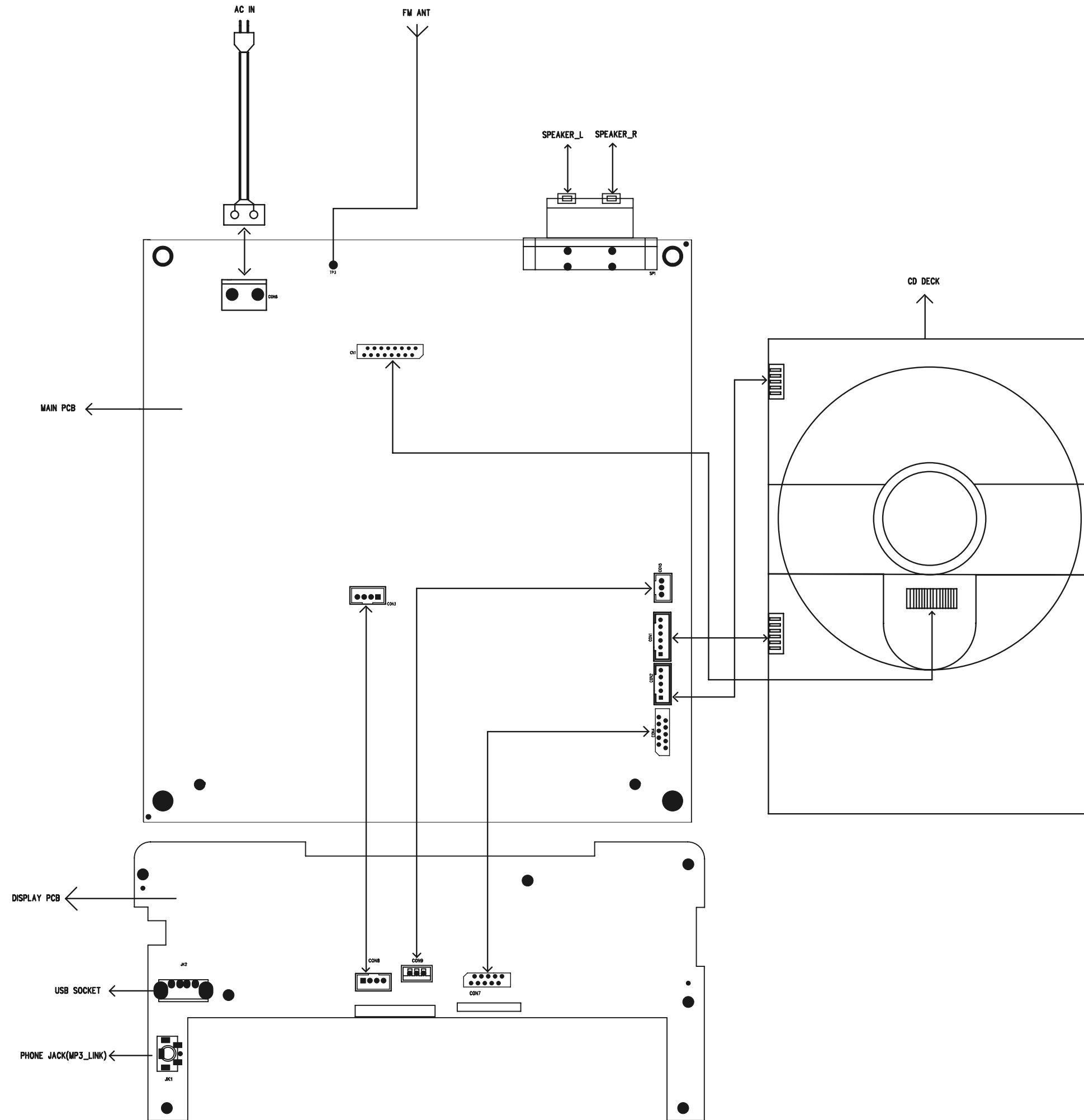
MCM1150 System Block Diagram



Set Block diagram



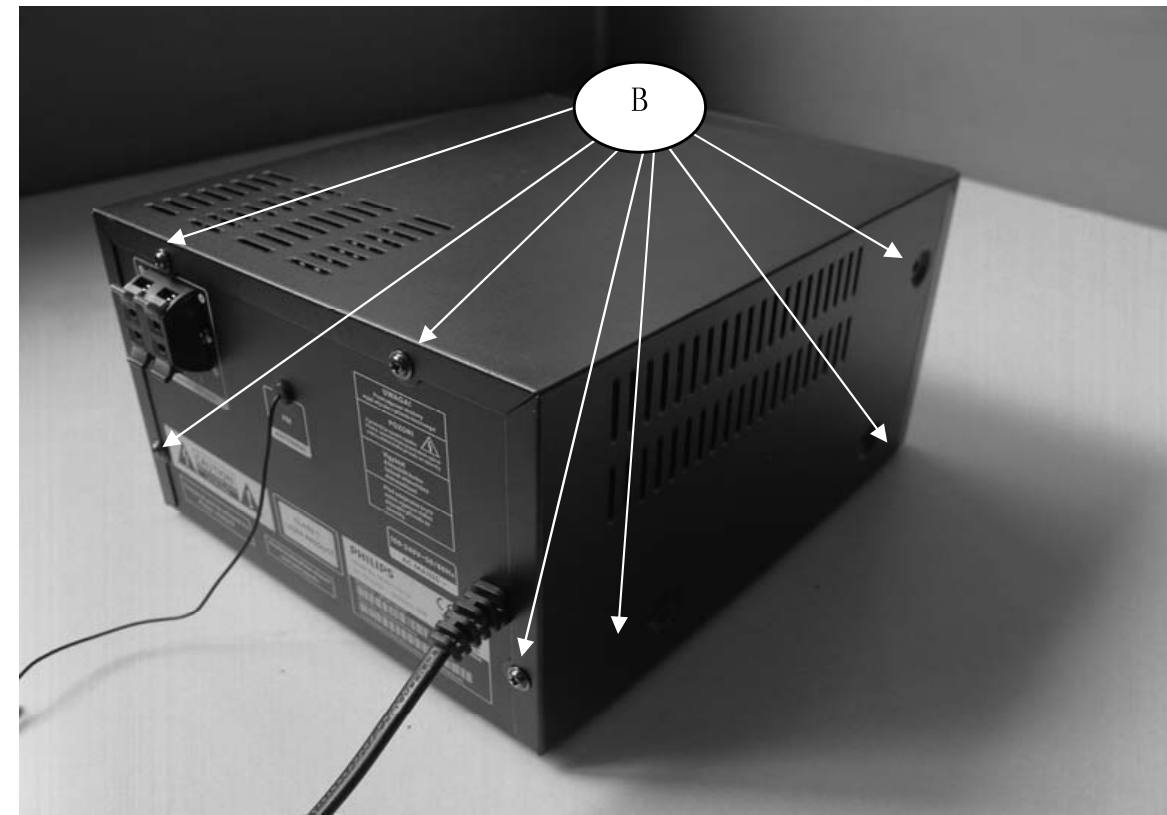
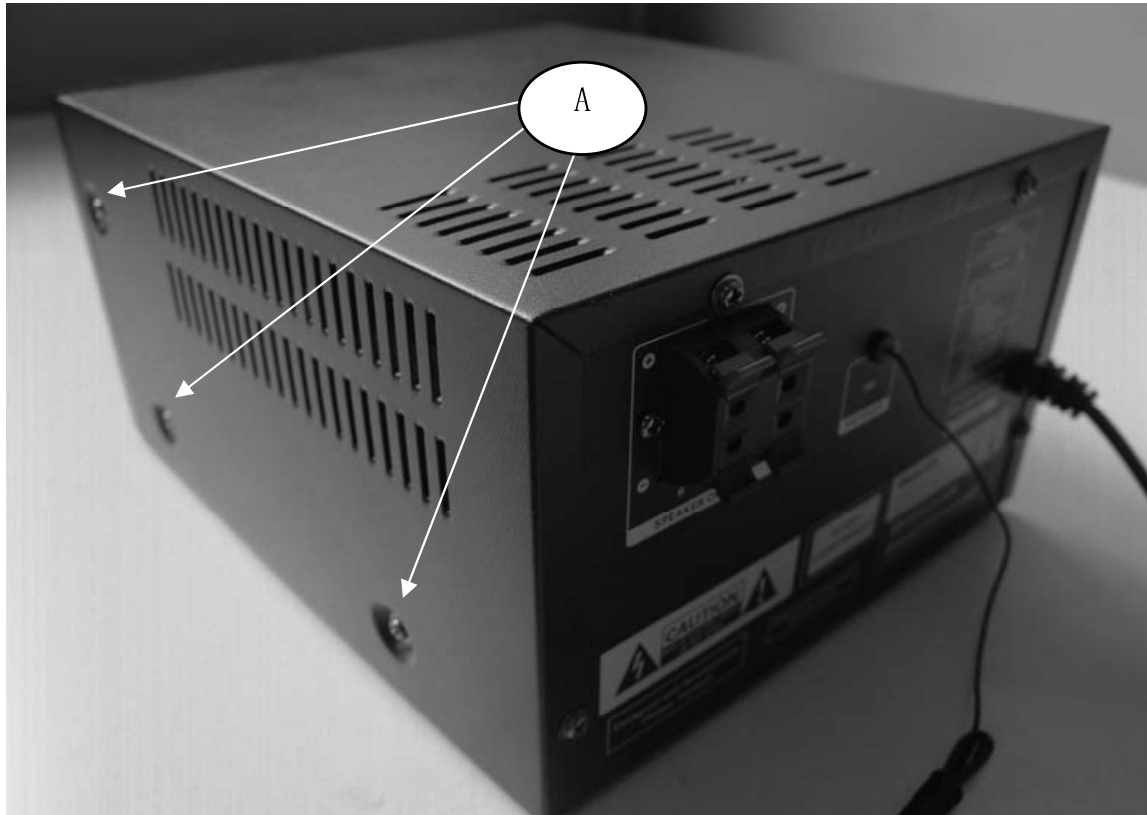
Set wiring diagram



Disassembly diagram

DISMANTLING DIAGRAM

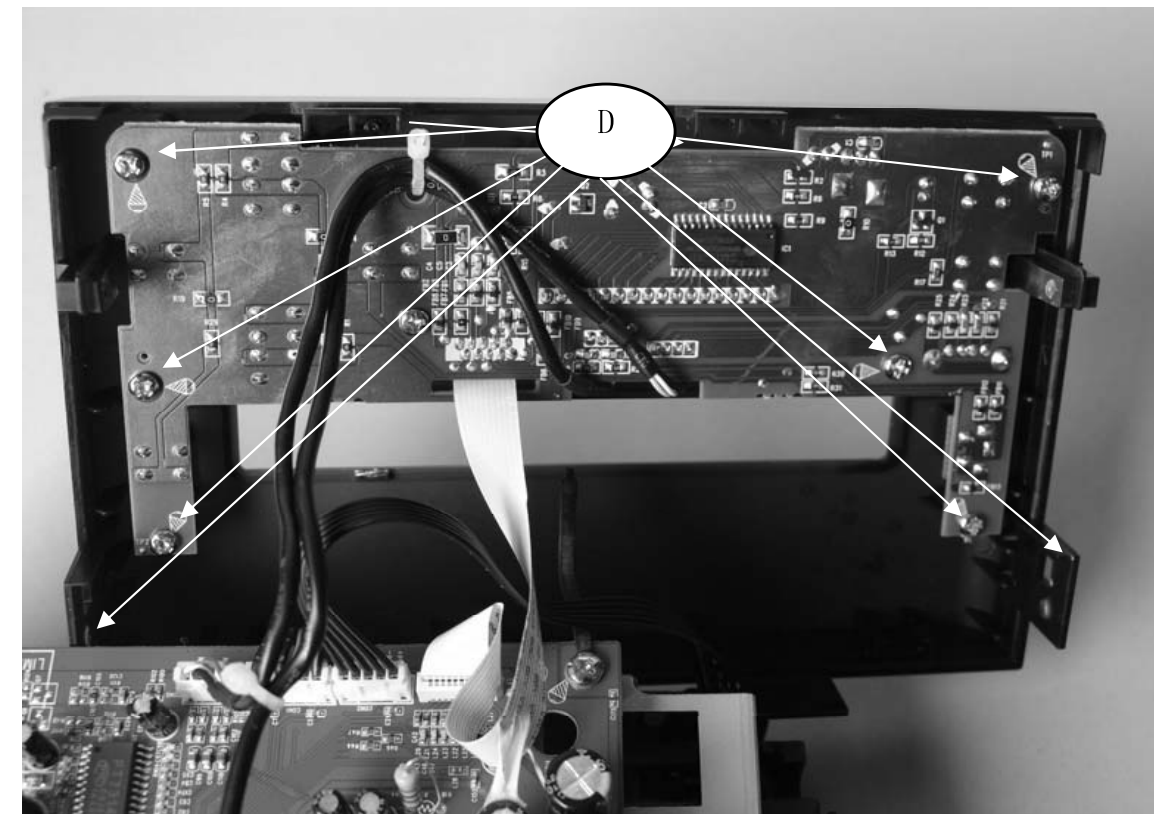
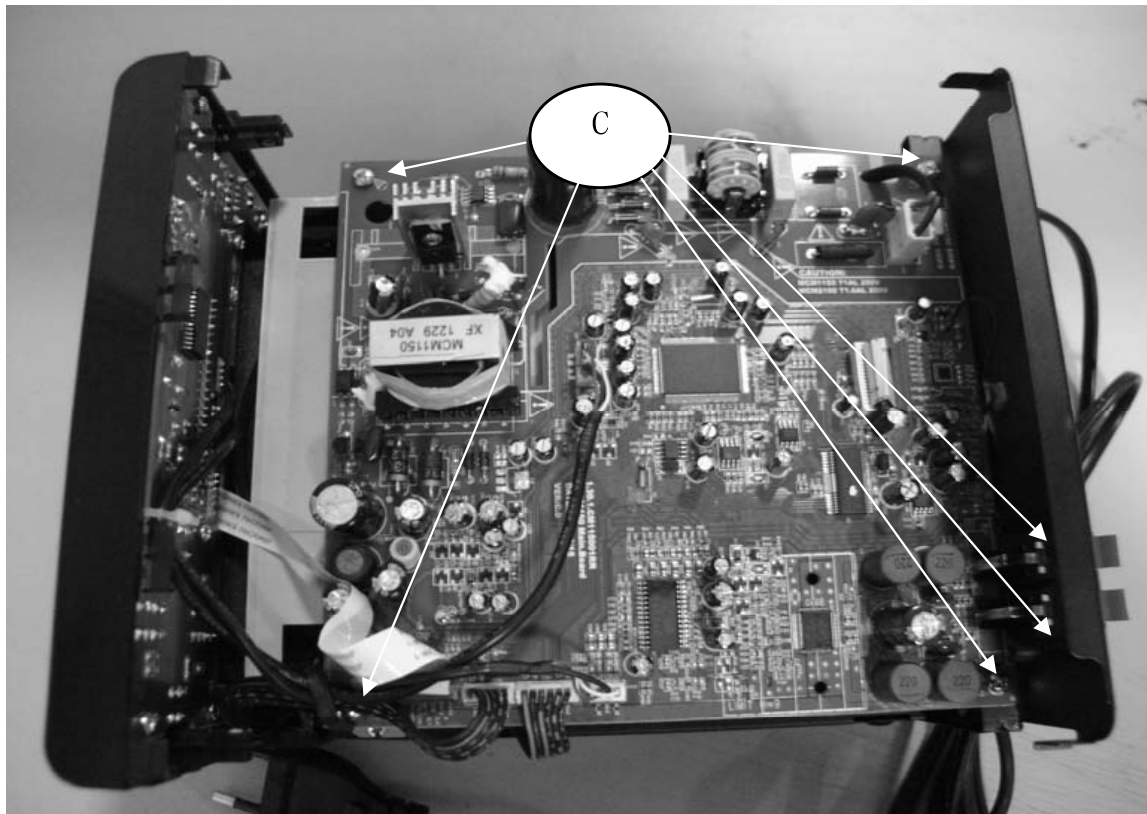
1) Dismantling of the top cabinet: Remove 10 screws A&B as indicated to loosen the top cabinet



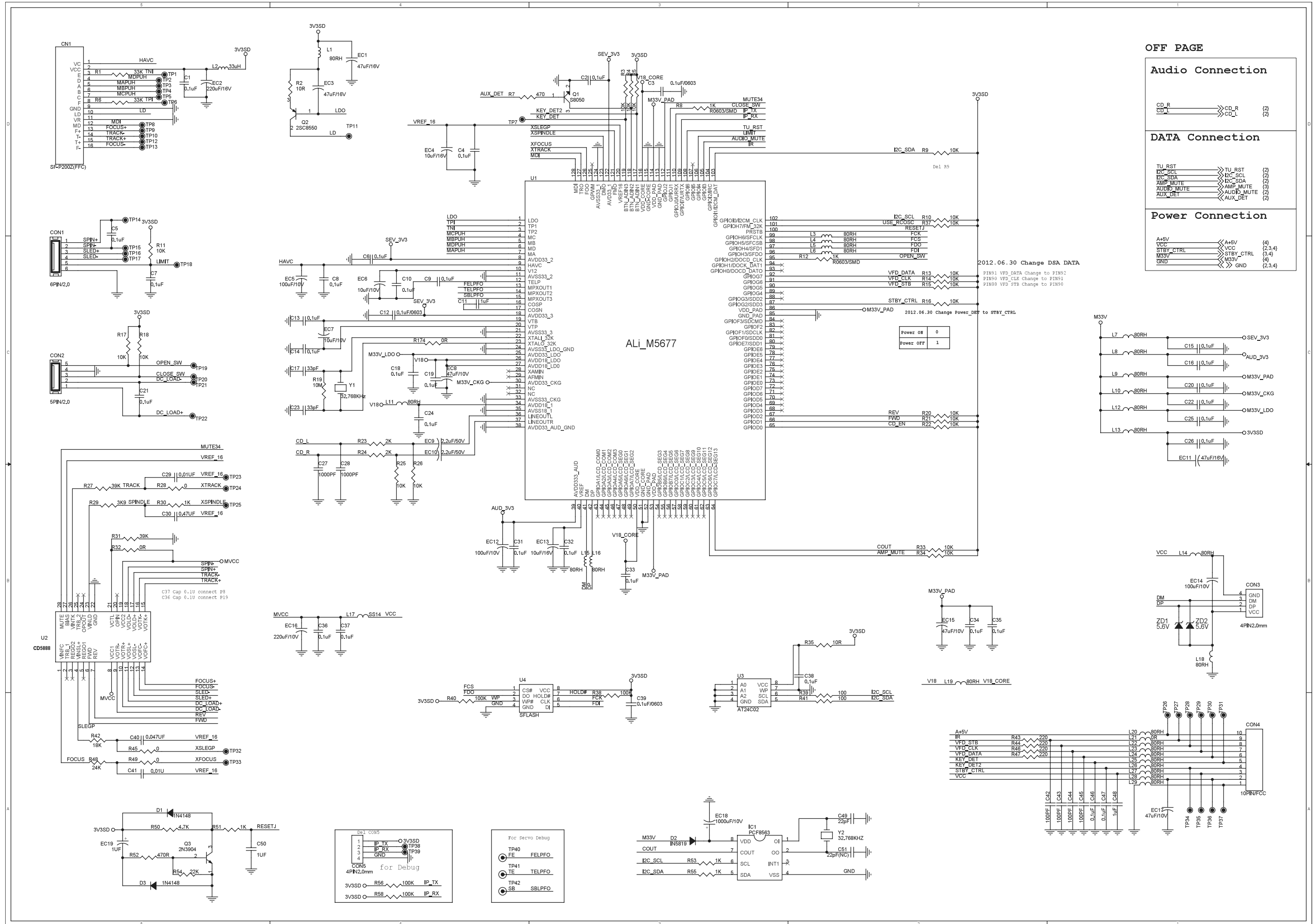
2) Dismantling of the PCB board:

a: Remove 6 screws C as indicated to loosen the main board

b: Remove 9 screws D as indicated to loosen the display board



Main board Circuit diagram

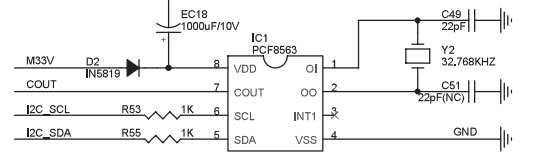
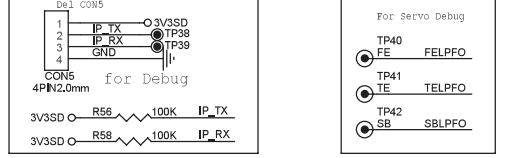
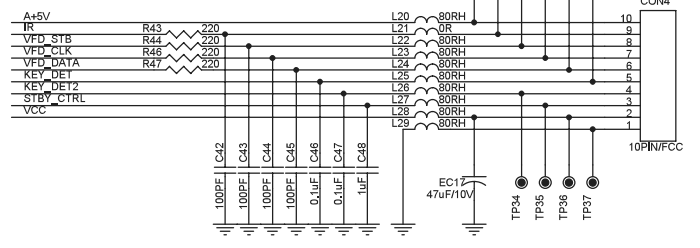
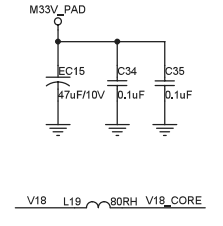
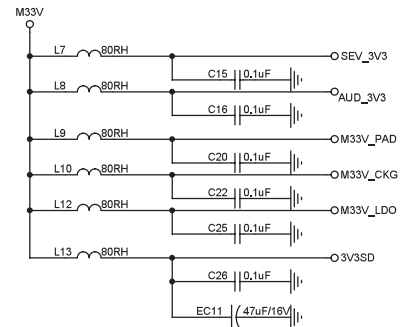


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Audio Connection		
CD_R	CD_R	(2)
CD_L	CD_L	(2)

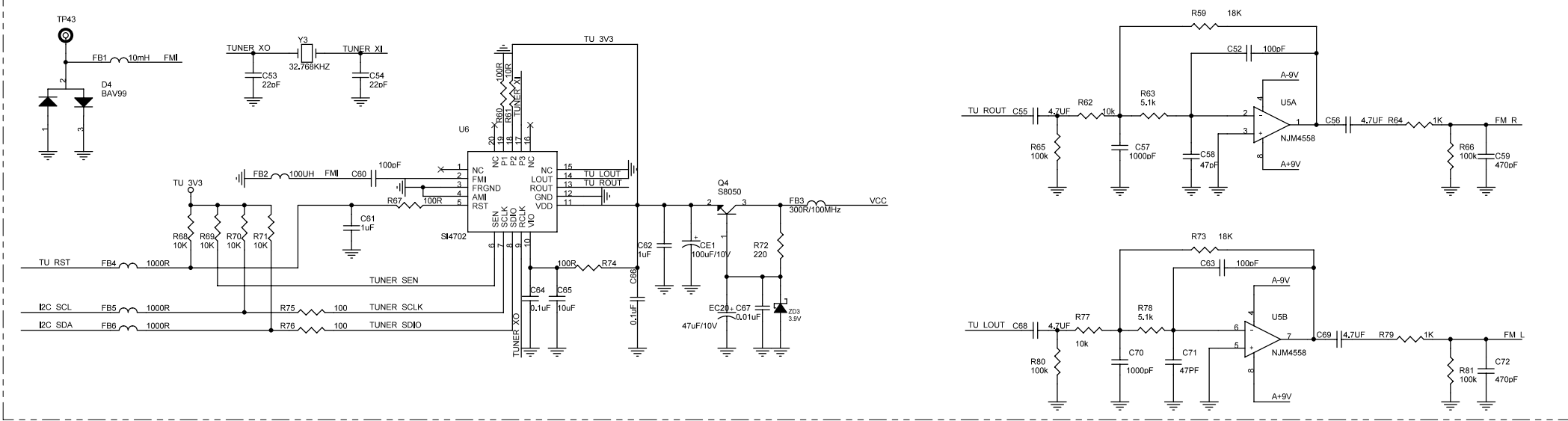
DATA Connection		
TU_RST	TU_RST	(2)
I2C_SDA	I2C_SDA	(2)
I2C_SCL	I2C_SCL	(2)
AMP_MUTE	AMP_MUTE	(2)
AUDIO_MUTE	AUDIO_MUTE	(2)
AUX_DET	AUX_DET	(2)

Power Connection		
A+5V	A+5V	(4)
VCC	VCC	(2,3,4)
STBY_CTRL	STBY_CTRL	(3,4)
M33V	M33V	(4)
GND	GND	(2,3,4)

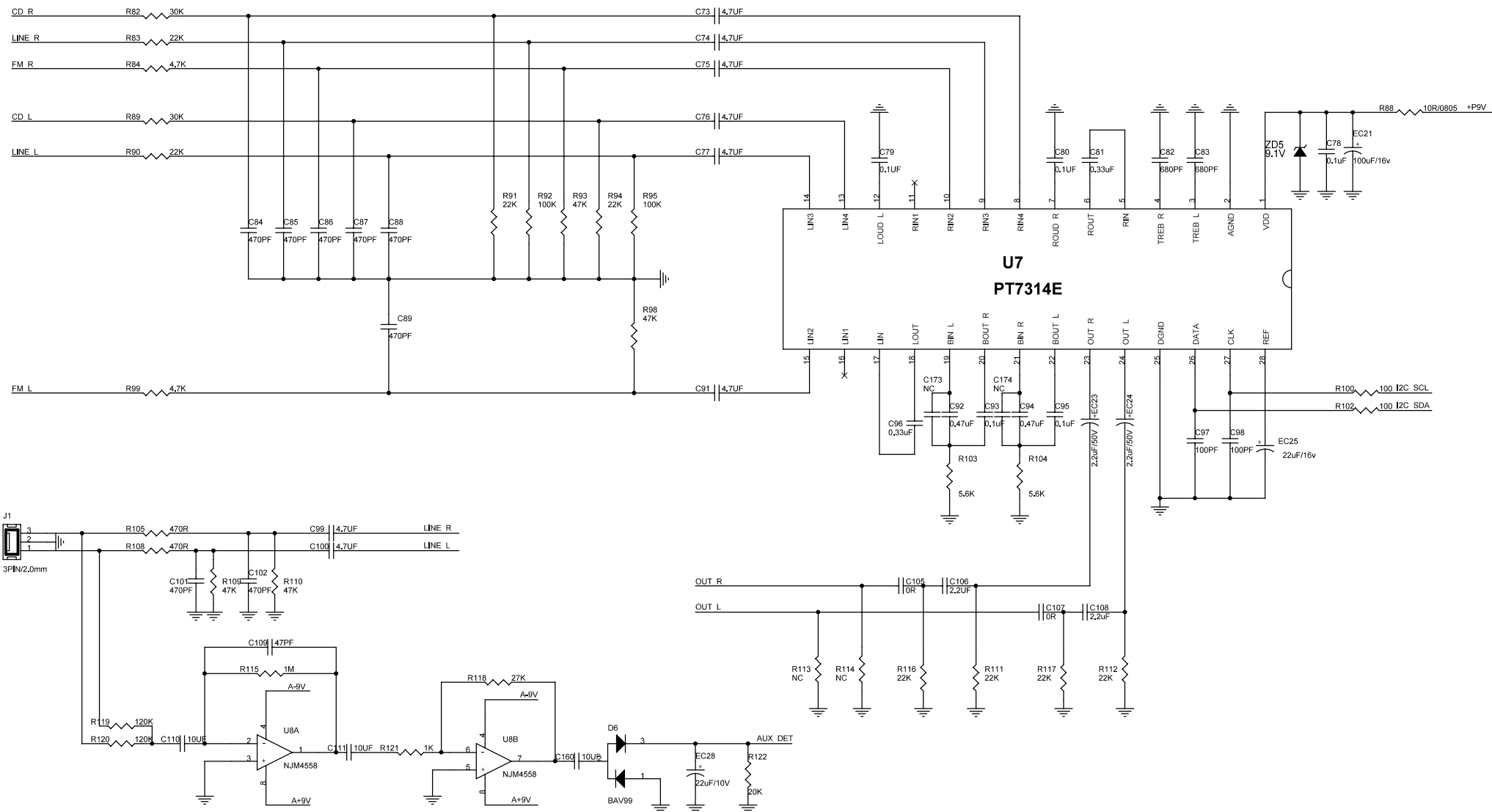
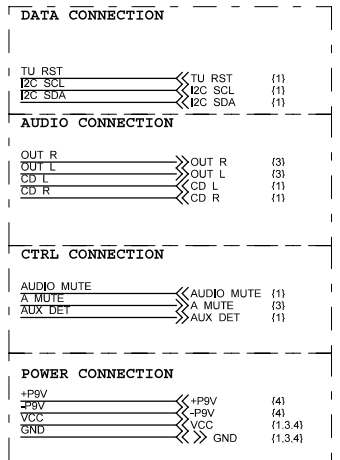


Main board Circuit diagram

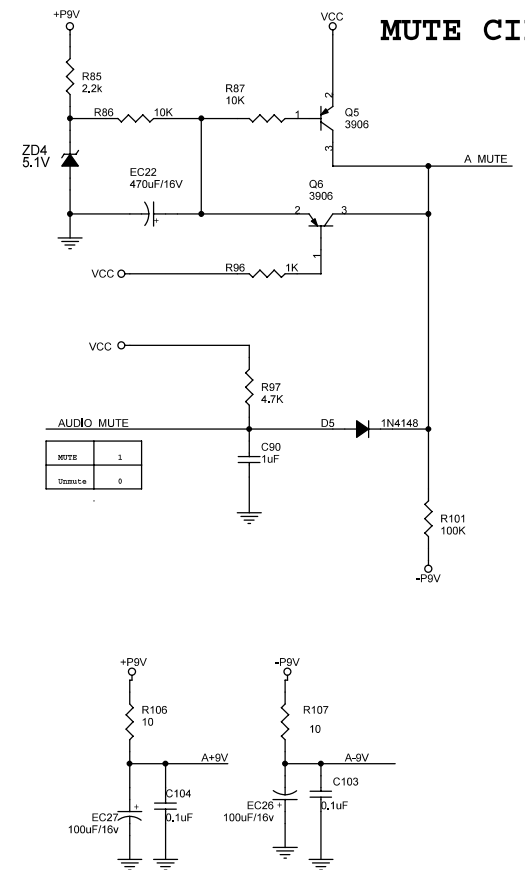
TUNER Audio OP



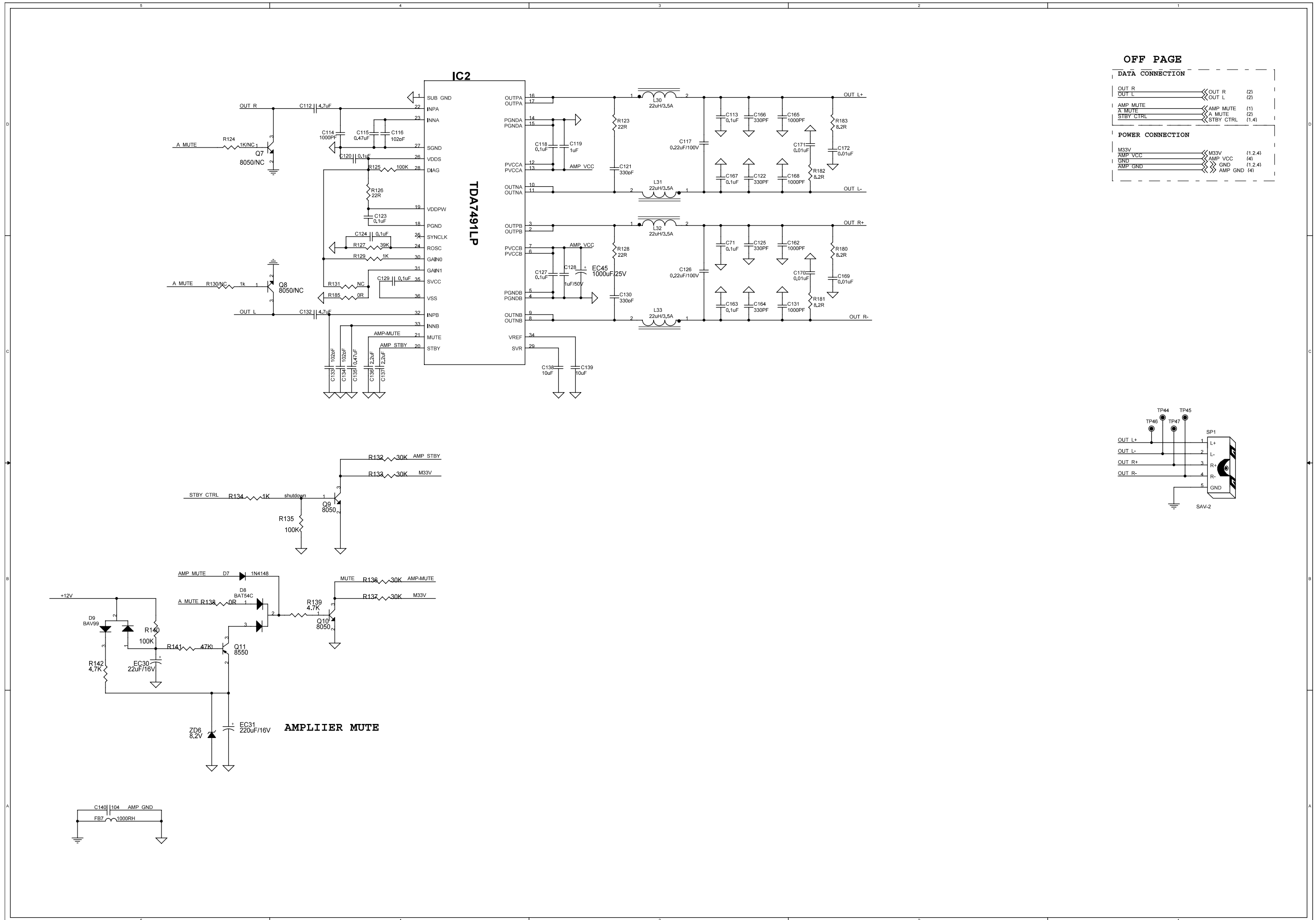
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MUTE CIRCUIT



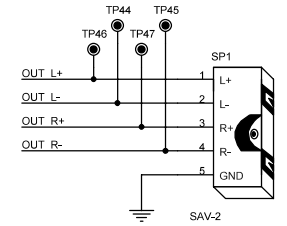
Main board Circuit diagram




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DATA CONNECTION		
OUT R	OUT R	(2)
OUT L	OUT L	(2)
AMP MUTE	AMP MUTE	(1)
A MUTE	A MUTE	(2)
STBY CTRL	STBY CTRL	(1,4)

POWER CONNECTION		
M33V	M33V	(1,2,4)
AMP VCC	AMP VCC	(4)
GND	GND	(1,2,4)
AMP GND	AMP GND	(4)



Main board Circuit diagram

*** CAUTION :**
 THE PARTS MARKED WITH  ARE IMPORTANT PARTS ON THE SAFETY.
 PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

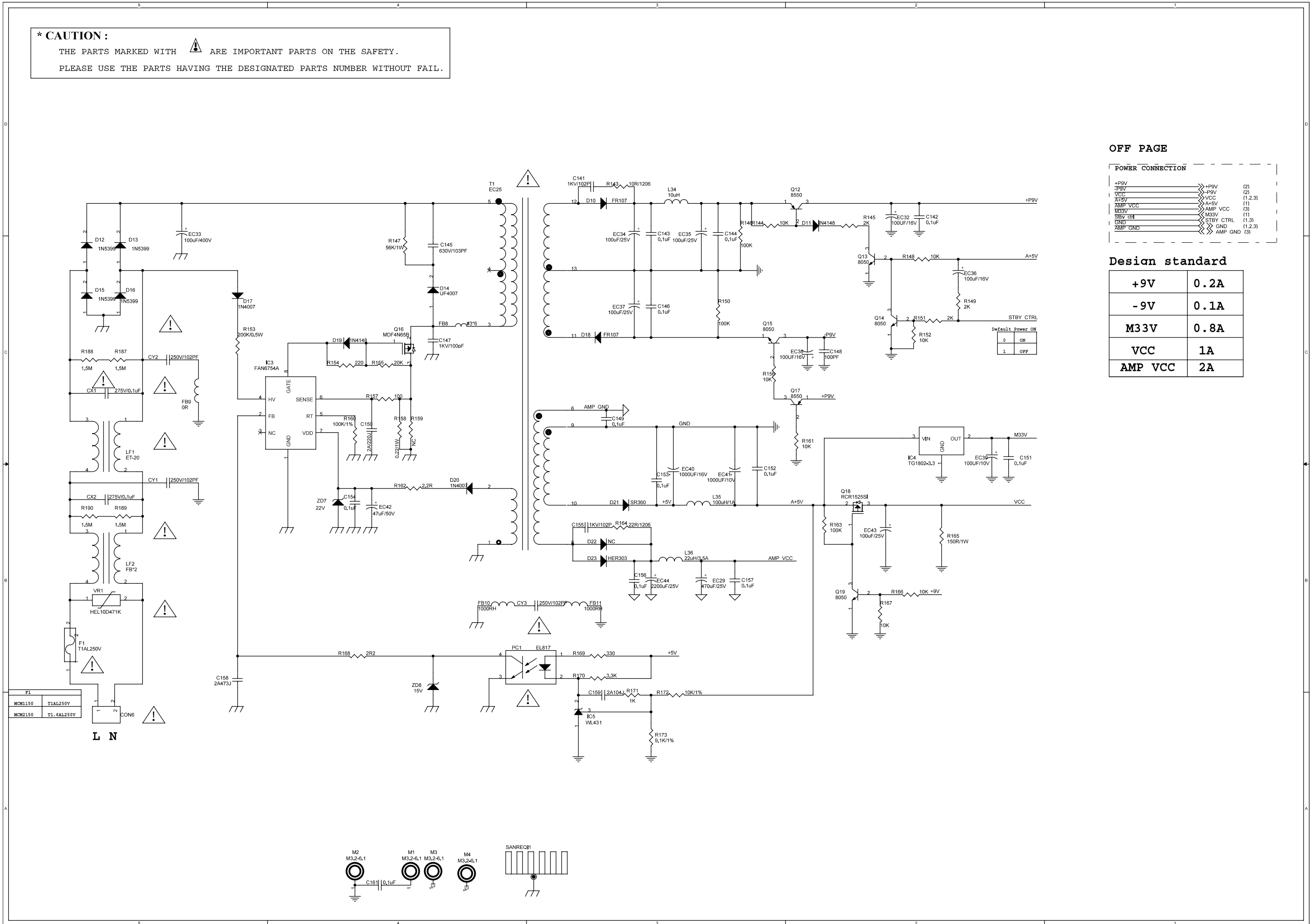
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POWER CONNECTION

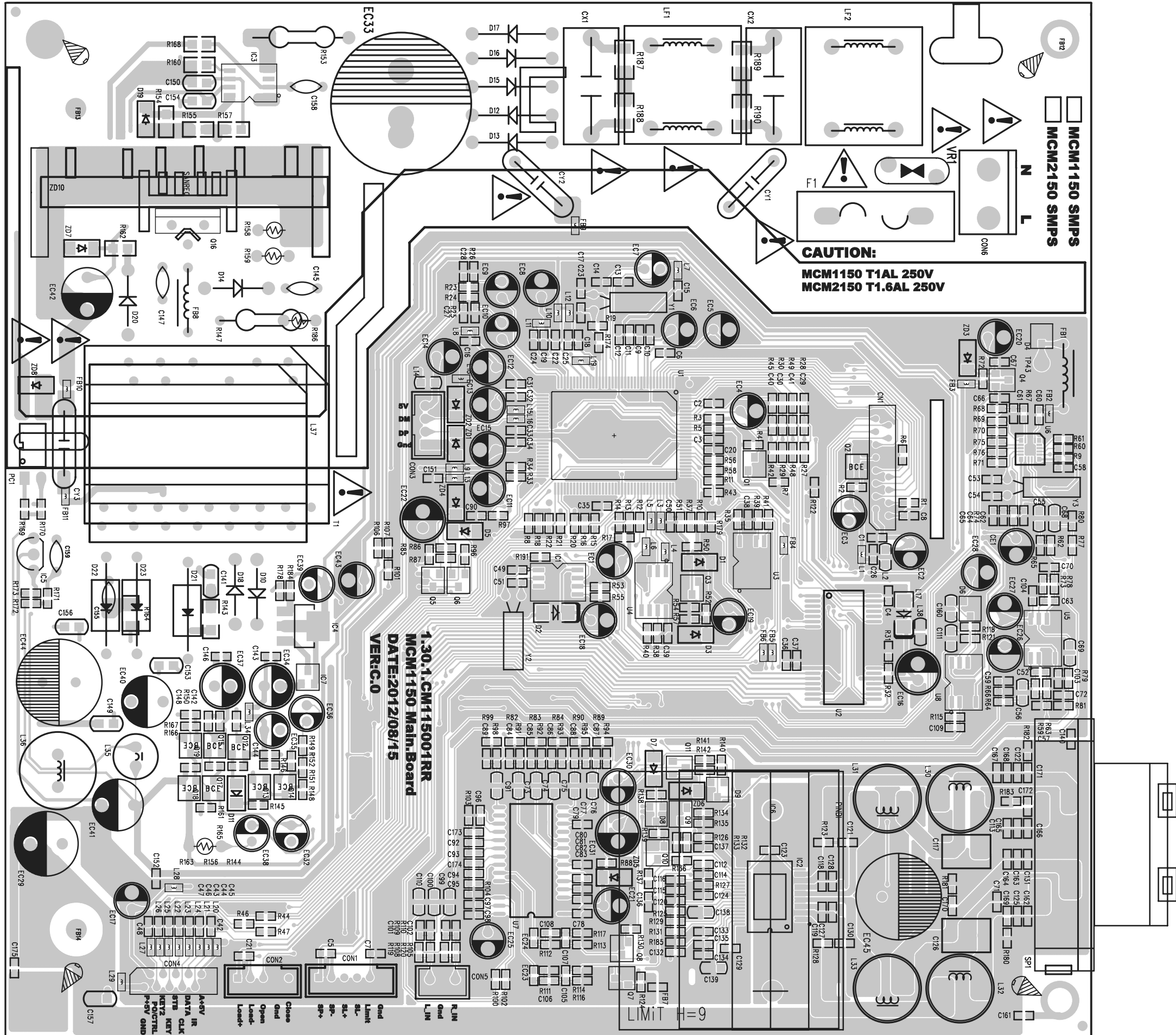
+9V	+9V	(2)
-9V	+9V	(2)
VCC	VCC	(1,2,3)
A+5V	+5V	(1)
AMP VCC	AMP VCC	(3)
M33V	M33V	(1)
STBY CTRL	STBY CTRL	(1,3)
GND	GND	(1,2,3)
AMP GND	AMP GND	(3)

Design standard

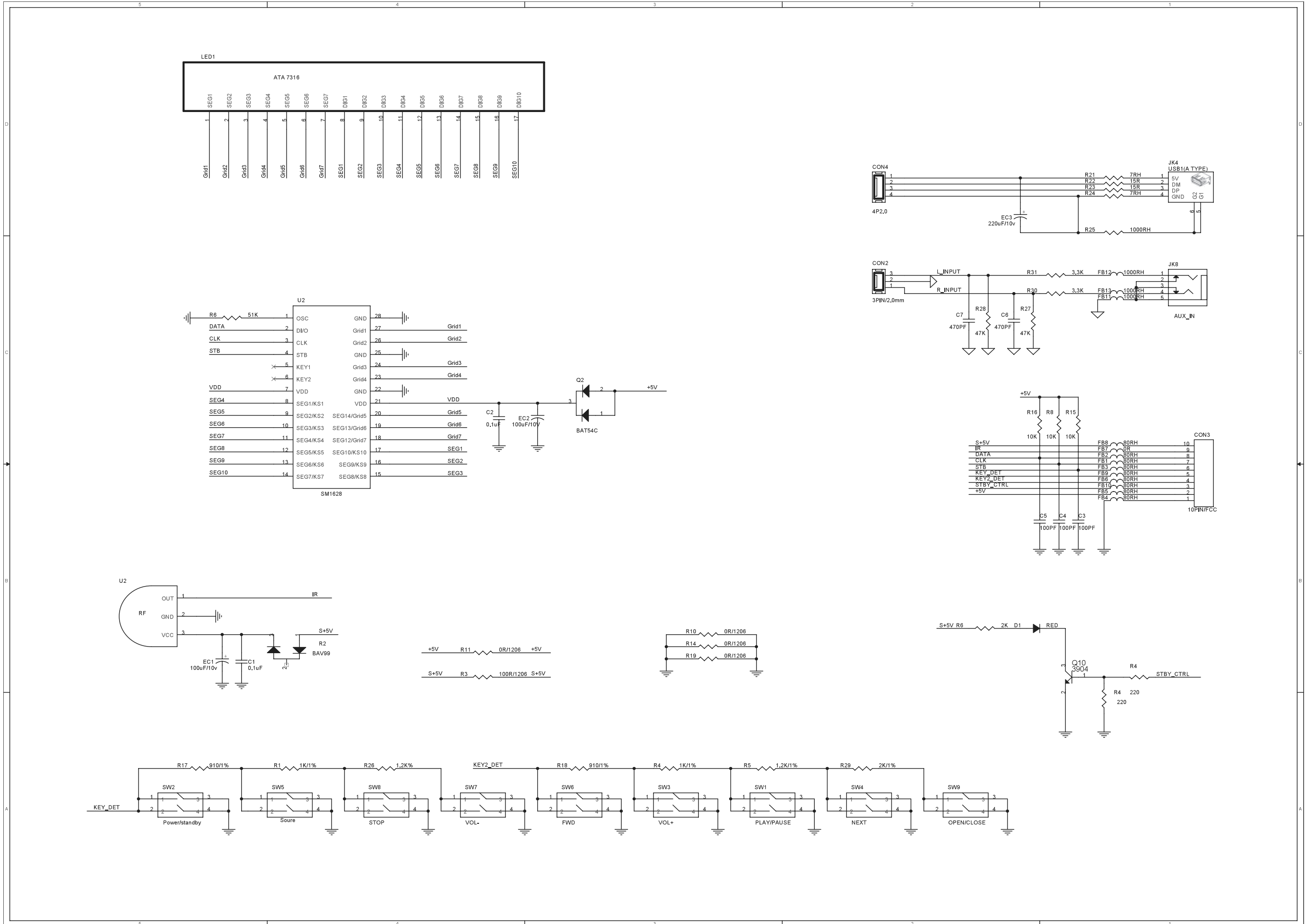
+9V	0.2A
-9V	0.1A
M33V	0.8A
VCC	1A
AMP VCC	2A



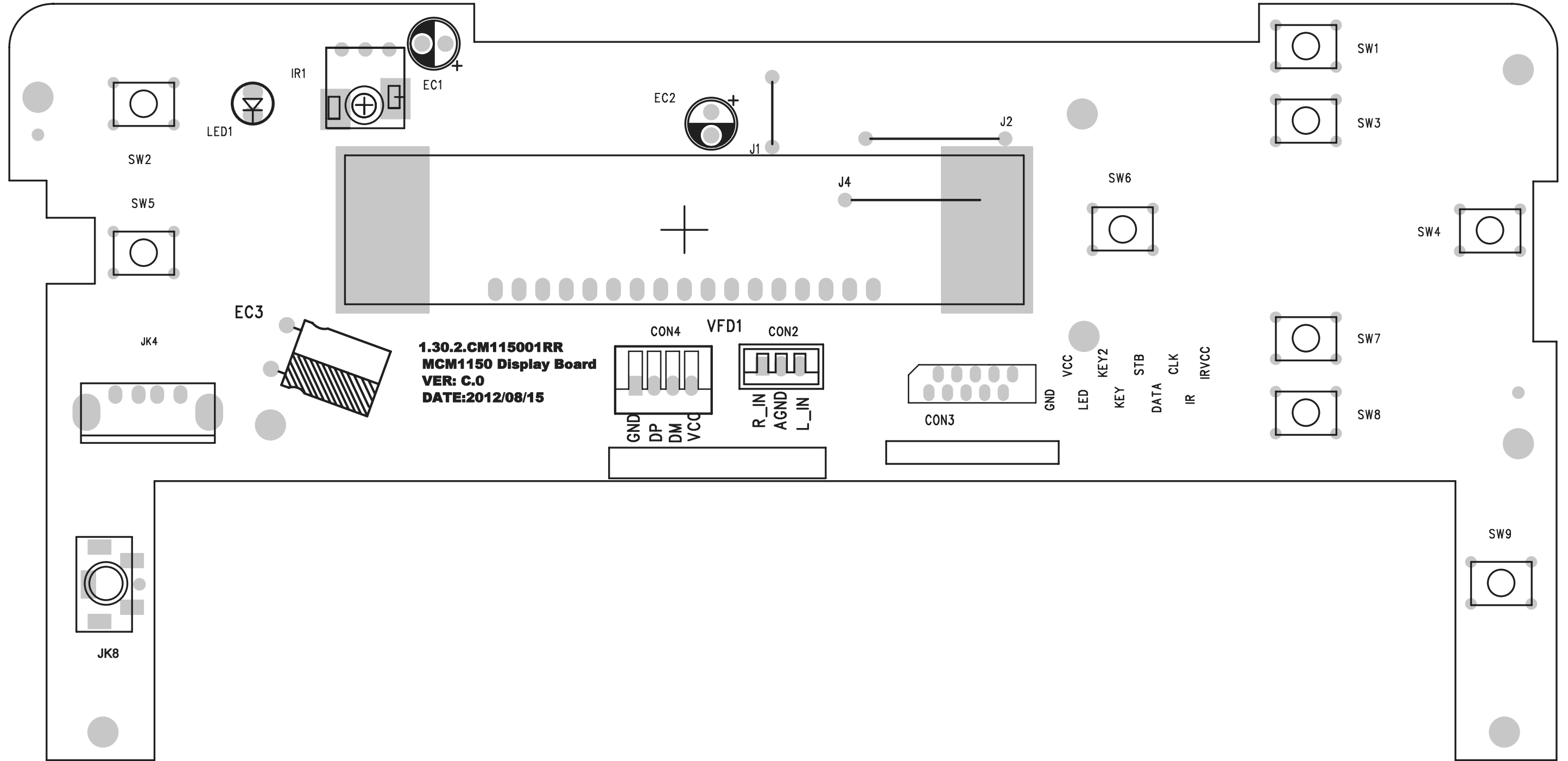
Main board Layout diagram



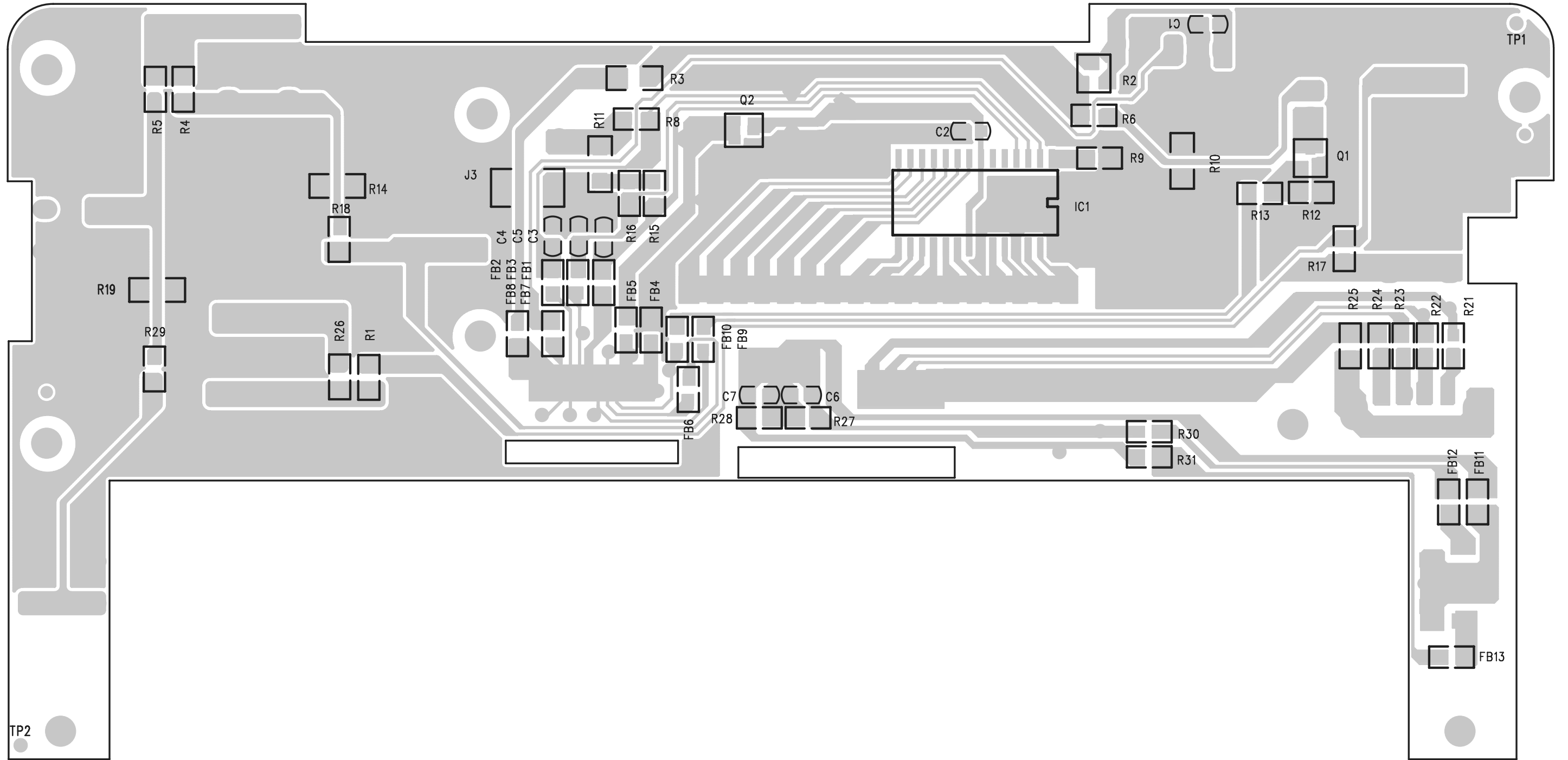
Display board Circuit diagram



Display board Layout diagram



Display board Layout diagram



Mechanical Exploded view

