

Service
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Service



Service Manual



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3141 785 36150

Version 1.3



PHILIPS

TECHNICAL SPECIFICATION

| GENERAL DESCRIPTION | |
|--|---------------------------------|
| Total power 100W, matching SPEAKER of 50W x 2 channel - 4 ohm load. | |
| GENERAL PART OUTPUT stage Protection : Yes Temperature : YES Shortcircuit : Yes Loudspeaker D.C. Protection : Yes | |
| INDICATORS Standby Mode Indicator : LCD display Clock active ECO Mode Indicator : LCD turns off, ECO - Standby LED turn on (Only for 12/05/37) | |
| ELECTRICAL DATA | |
| DSC : Rock, Jazz, Optimal, Techno | Channel Difference at -46dB |
| DBB OFF | Hum (Volume Minimum -) |
| SIS : N/A | Residual Noise (Volume Minimum) |
| VAC : N/A | Channel Separation (at 1 kHz) |
| WOX : N/A | Signal / Noise (weighted) |
| INTERCONNECTS | |
| Input Sensitivity (±2, dB) rated output power at 1 kHz and 10kHz. Line Output Voltage (*) | |
| Tuner : FM MODE 75KHZ - CD 6dB | Line Out (Left / Right) |
| CD : 0 dB track (Audio Disc 1, TRK 35) | Subwoofer Out |
| USB : 0 dB track (1K 0dB) | Headphone |
| AUX : Nor:2000mV | Digital Coaxial Out |
| TAPE : NC | Booster Out |
| mp3 in : Nor:500mV Lim: 350mV ~ 800mV | Digital Coaxial Out |
| OUTPUT POWER (* 1ch) At THD = 10% (Measured with 20Hz-22KHz filter), Power output (RMS) : 2 channel 50W*2 Measure 1ch | |
| Rated Impedance: 4 ohm | |
| Remarks (*) Electrical parameters are to be measurement at speaker terminals across 4 Ohm load (pure resistor) with rated input signal in AUX mode, DSC OFF mode with DBB OFF IS off unless specified otherwise | |

| GENERAL DESCRIPTION | | | | | | |
|---|-------------------|--------------------|-------------------|-------------|-------------|----------|
| MP3-USB Mini Hi Fi System with Digital PLL Tuner , CD-MP3, 50 W *2 /per channel Universal Class D Power Amplifier | | | | | | |
| Aux In, mp3 paly in , Remote Control | | | | | | |
| LIFETIME : 7 years | | | | | | |
| Class | Tuner | Supply + Amplifier | Loudspeaker Boxes | USB | Clock | CD / MP3 |
| I | | | X | | | |
| II | X | X | | | X | X |
| III | | | | | | |
| Page | 8 | 4,5 | 4 | 9 | 6 | 7 |
| SAFETY requirements | | | | | | |
| Version | Safety | | | EMC | | |
| 55 | EN 60065 | | | | | |
| 78 | EN 60065 | | | | | |
| RADIATION / IMMUNITY requirements (EMC) | | | | | | |
| CLIMATIC requirements | | | | | | |
| ALL climates | : + 5 Degree | | till | + 35 Degree | | |
| MODERATE climates | : + N.A | | till | N.A Degree | | |
| PERFORMANCE CLASSES | | | | | | |
| POWER SUPPLY | | | | | | |
| MAINS (A.C.) | | 127/230 Vac | | 127/230 Vac | | |
| Version | /55 | | /78 | /77 | | |
| Voltage Selection | YES | | YES | YES | | |
| Frequency | 60/50Hz | | 60/50Hz | 60/50Hz | | |
| POWER CONSUMER | | | | | | |
| Standby : | FWM210/55 | | FWM210/78 | | FWM210/77 | |
| (DEMO mode " OFF ") , NOM. A, INPUT | <= 8W | | <= 8W | | <= 8W | |
| Maximum : | / | | / | | / | |
| @ 1/8 Rated, NOM. A, INPUT | ?W (264V) | | ?W (264V) | | ?W (264V) | |
| 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 standard (UAN - D1591) | | | | | | |
| Measured according to PHILIPS standard (UAN - L1059) unless other wise stated | | | | | | |
| All not mentioned date, please refer to PHILIPS standard (XUW - 0010 - jun 2001) | | | | | | |
| DERIVED | | | REMARKS | | APPROBATION | |
| Remarks | | | | | | |

* 55/78/77 power out W * /per channel

TECHNICAL SPECIFICATION

AUDIO SIGNAL PROCESSING

Micro Hi-Fi System with PLL Tuner ,USB, CD-MP3, 50W*2 channel (1 speaker load) Class D Digital Power Amplifier

1) DSC (Digital Sound Control)

Input sinewave 2000mV at 1kHz to R/L channel of AUX-IN socket

Set DSC to Flat mode

Adjust volume to obtain 500mW across 4 ohm load at 1ch speaker output

The 500mW will be used as 0dB reference

Inject sinewave 2000MV to AUX - IN socket with frequencies indicated below :

Inject sinewave 500MV to MP3-LINK socket with frequencies indicated below :

Tabel 1a (Tolerance ± 3dB)

| Frequency | DSC Modes with DBB Off | | |
|-----------|------------------------|--------------|---------------|
| | JAZZ DBB Off | ROCK DBB Off | TECHNO DBB ON |
| 100 Hz | +2dB | +12 Db | +6 dB |
| 1 kHz | 0 dB | + 3 dB | +2 dB |
| 10 kHz | -2dB | + 6 dB | +2 dB |

| OPTIMAL DBB ON | |
|----------------|---------|
| | + 10 dB |
| | + 2 dB |
| | + 4dB |

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

2) DBB (Dynamic Bass Boost)

Play CD testing signal of 1KHZ

Set DSC to FLAT mode and switch off DBB

Adjust volume level will be as 0 dB reference.

Tabel 2 (Tolerance ± 3dB)

| | | |
|-----------|---------|--------|
| Frequency | DBB OFF | DBB ON |
| 100HZ | 0 | +14dB |

TECHNICAL DESCRIPTION

SOFTWARE IMPLEMENTED CLOCK /TIMER FUNCTION WITH 32.768KHz QUARTZ OSCILLATOR.

GENERAL PART

| | |
|----------------------|--|
| Timer Setting | : Clock and Timer |
| Timer Wakeup Mode | : LAST SETTING (MODE) |
| Remarks Time Setting | : for 24hrs (05/12/98:55/79/96) ,for 12 hrs (37/) |
| Volume at Wakeup | : Last Setting |
| No of Timer Settings | : 1 |
| Clock Accuracy | : Normal: 1 sec/day Limit : 2 sec/day |

INDICATORS

| | |
|--------------|-------|
| Display Type | : LCD |
|--------------|-------|

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 | / | / | Ohms |
| Output Voltage - Unloaded (0dB , 1 kHz) | No | / | / | Vrms |
| Channel Unbalance | YES | 0 | -3 | dB |
| Frequency Response (125 Hz - 16 kHz) | YES | 0 | -3 | dB |
| Signal to Noise Ratio (Unweighted) | Yes | 60 | 50 | dB |
| Signal to Noise Ratio (A - weighted) | Yes | 65 | 55 | dBA |
| Crosstalk (1kHz) | YES | 60 | 50 | dB |
| Crosstalk (125Hz to 16kHz) | YES | 55 | 45 | dB |
| Hum & Noise (* 1) | No | / | / | nW |
| Emphasis | - | / | / | / |

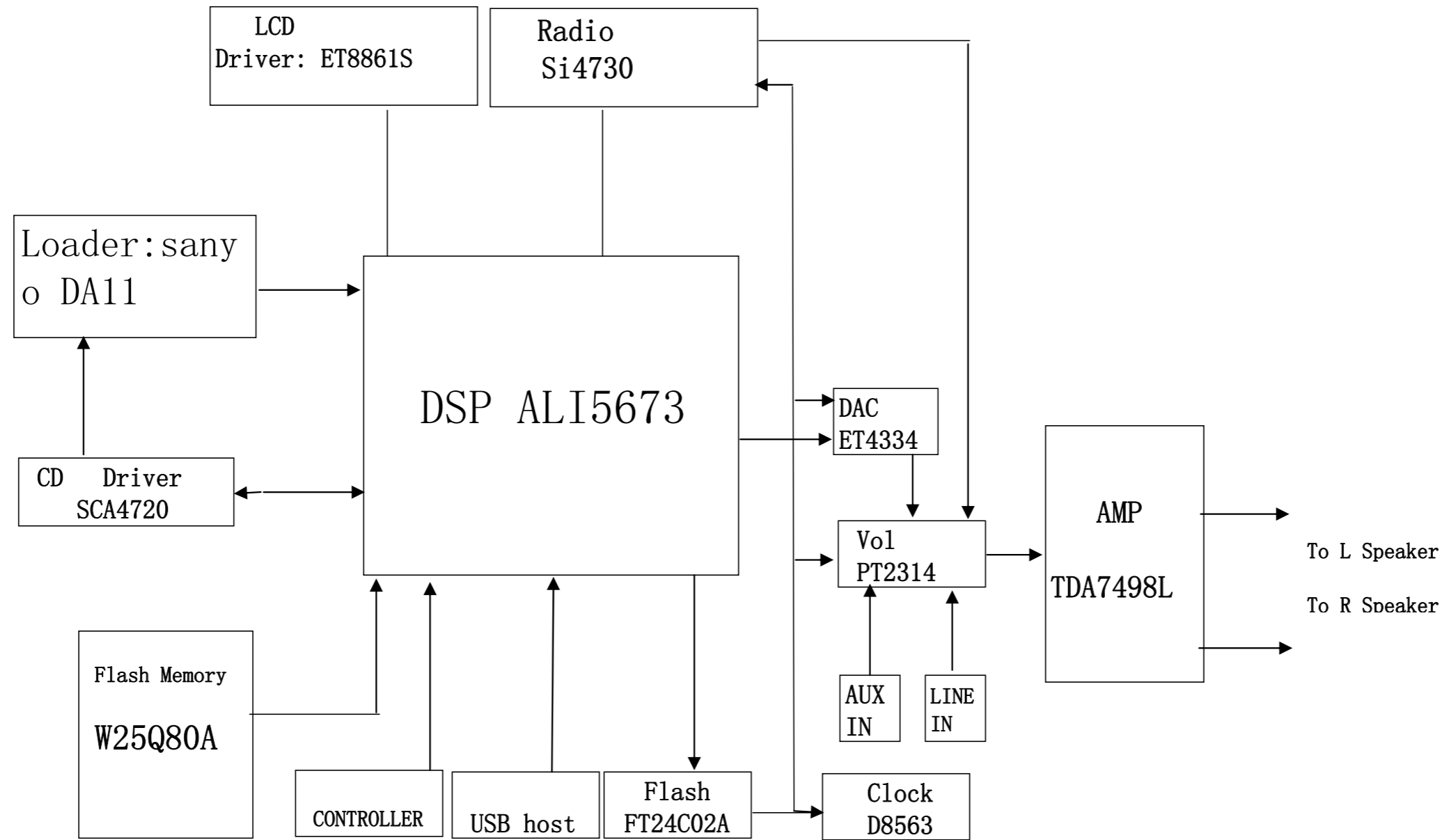
TECHNICAL SPECIFICATION

| TECHNICAL DESCRIPTION | |
|---|-------------------------|
| USB | |
| 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 | <= 1.5 kOhm |
| Output Voltage RL = 33 k.ohm (0dB, 1 KHz) | 830m Vrms +/- 1.5dB |
| Channel Unbalance | <= +/- 3. dB |
| THD + Noise (0dB, 1KHz) | <= 0.3 5 % |
| Channel Crosstalk (100Hz - 16,000 Hz) | >= 35 dB |
| (0 dB, 1 KHz) | >= 40 dB |
| Signal to Noise Ratio (0dB, 1KHz) | >= 65dBA (A - weighted) |
| (100 - 16,000 Hz) | >= 60dBA (A - weighted) |
| Frequency Response (+/- 3dB), reference 1kHz | 100Hz - 16kHz |

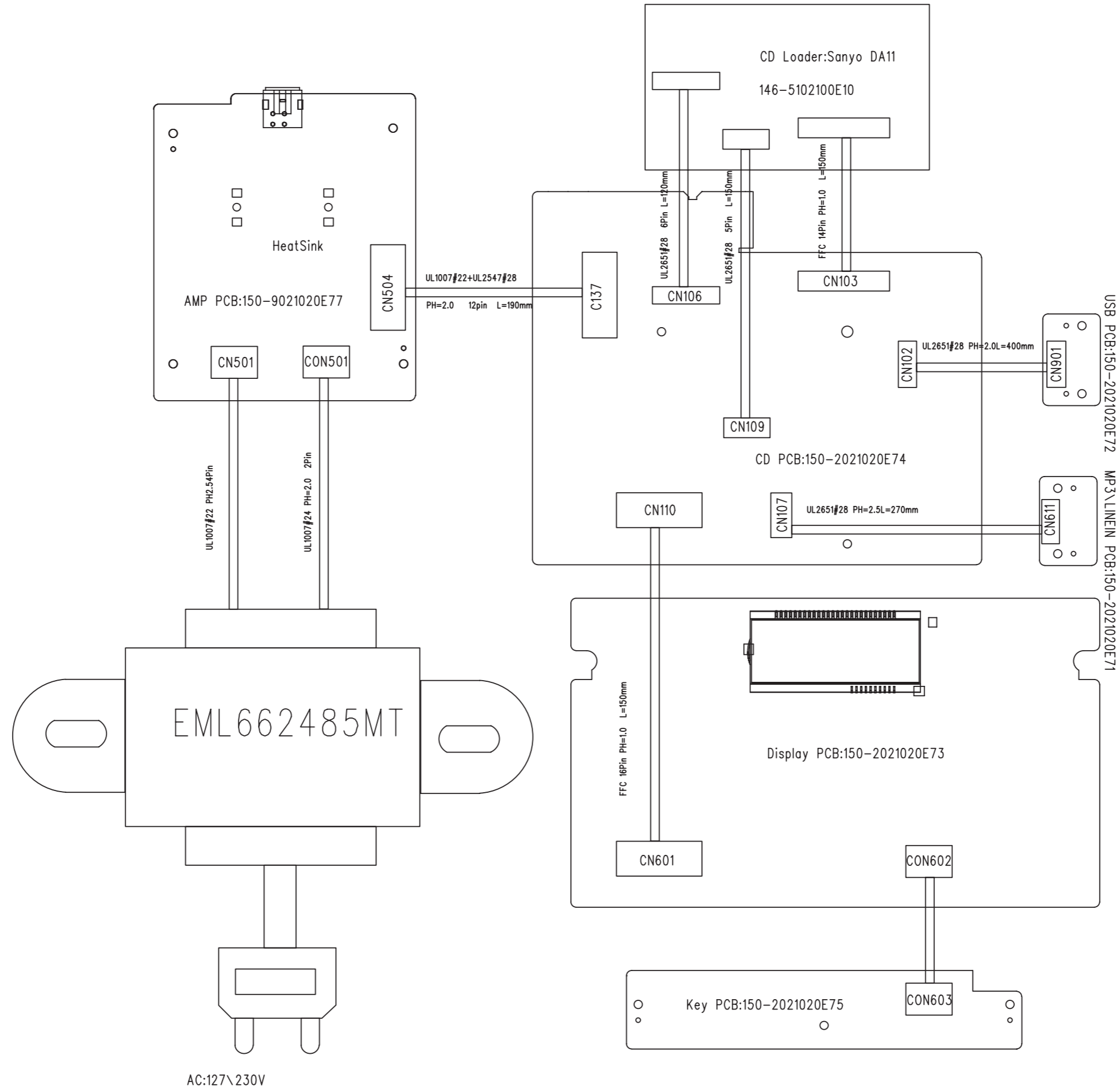
| TECHNICAL DESCRIPTION | |
|---------------------------|-------------------------------|
| AUX IN | |
| AUX Part | |
| 10% THD Output Power | Nom. Limit Condition |
| (0 dB, 1 KHz) | 50W 45W 2000mV 1KHz input |
| SNR unwd. | 60dB 50dB 2000mV 1KHz input |
| SNR wrd. dBA | 65dBA 55dBA 2000mV 1KHz input |
| Crosstalk (1KHz) | 60dB 50dB 2000mV input |
| Crosstalk (10KHz) | 60dB 50dB 2000mV input |
| Frequency response (-3dB) | 100 to 10KHz (overall) |
| THD (1KHz, 0dB) | 2% 3% 2000mV 1KHz input |
| MP3 LINK | |
| 10% THD Output Power | Nom. Limit Condition |
| (0 dB, 1 KHz) | 50W 45W 500mV 1KHz input |
| SNR unwd. | 60dB 50dB 500mV 1KHz input |
| SNR wrd. dBA | 65dBA 55dBA 500mV 1KHz input |
| Crosstalk (1KHz) | 60dB 50dB 500mV input |
| Crosstalk (10KHz) | 60dB 50dB 500mV input |
| Frequency response (-3dB) | 100 to 10KHz (overall) |
| THD (1KHz, 0dB) | 2% 3% 500mV 1KHz input |

| TECHNICAL DESCRIPTION | | | | | | | |
|---|--------------------------------|-----------------|-----------------|-------------------------------------|------------------------------|-------|------|
| TUNER using Digital PLL Tuner S14730C40 | | | | | | | |
| GENERAL PART | | | | | | | |
| TOLERANCE | | | | | | | |
| TUNING GRID | | | | | | | |
| 50KHz | | | | | | | |
| 10KHz | | | | | | | |
| AERIAL | | | | | | | |
| FM : DIGITAL ANT 1200MM | | | | | | | |
| MW : AM LOOP ANTENNA AH42-2000(P-A, D)145x120mm | | | | | | | |
| INDICATORS | | | | | | | |
| ELECTRICAL DATA | | | | | | | |
| A.M | Nom | Limit | Unit | F.M. | Nom | Limit | Unit |
| Channel Unbalance | : 0 | -3 | dB | -3 dB Limiting Point | / | / | dB |
| AGC Figure of Merit | : 30 | 25 | dB | Channel Unbalance | : 0 | -3 | dB |
| Distortion (RF 50mV, M 80%) | : 3 | 5 | % | Distortion (RF 1mV, Frq Dev:75 kHz) | : 2 | 3 | % |
| IF | / | / | kHz | Stereo -46 dB Quieting | : 46 | 49 | dB |
| Search tuning sensitivity | 60 | 72 | dBV/m | Crosstalk (RF 1mV, Frq Dev:40kHz) | : 25 | 18 | dB |
| | | | | IF | / | / | MHz |
| | | | | Search tuning sensitivity | 28 | 37 | dB |
| Wave Range | Nom. Limited Sensitivity 26 dB | IF Rejection dB | IF Rejection dB | Large Signal | Selectivity S3 / S9 / 300kHz | | |
| MW 600 kHz | Nom. 1500uV/M | / | / | 1000mV/M | / | | |
| | Lim. 4000uV/M | / | / | 500mV/M | / | | |
| MW 1400 kHz | Nom. 1500uV/M | / | / | 1000mV/M | / | | |
| | Lim. 4000uV/M | / | / | 500mV/M | / | | |
| FM 98 MHz | Nom. 16dBf | / | / | 116 dBf | / | | |
| | Lim. 22dBf | / | / | 108 dBf | / | | |

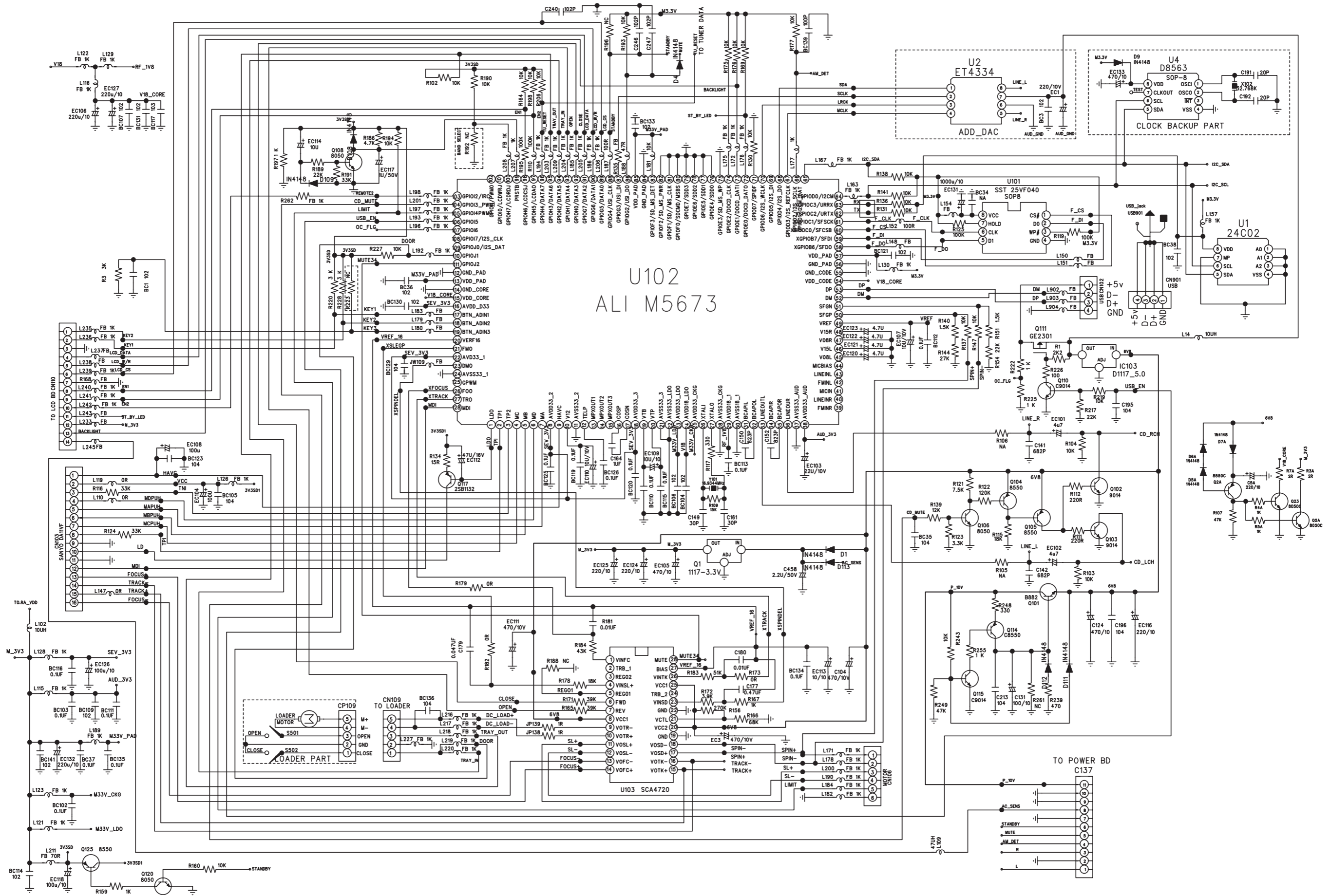
SET BLOCK DIAGRAM



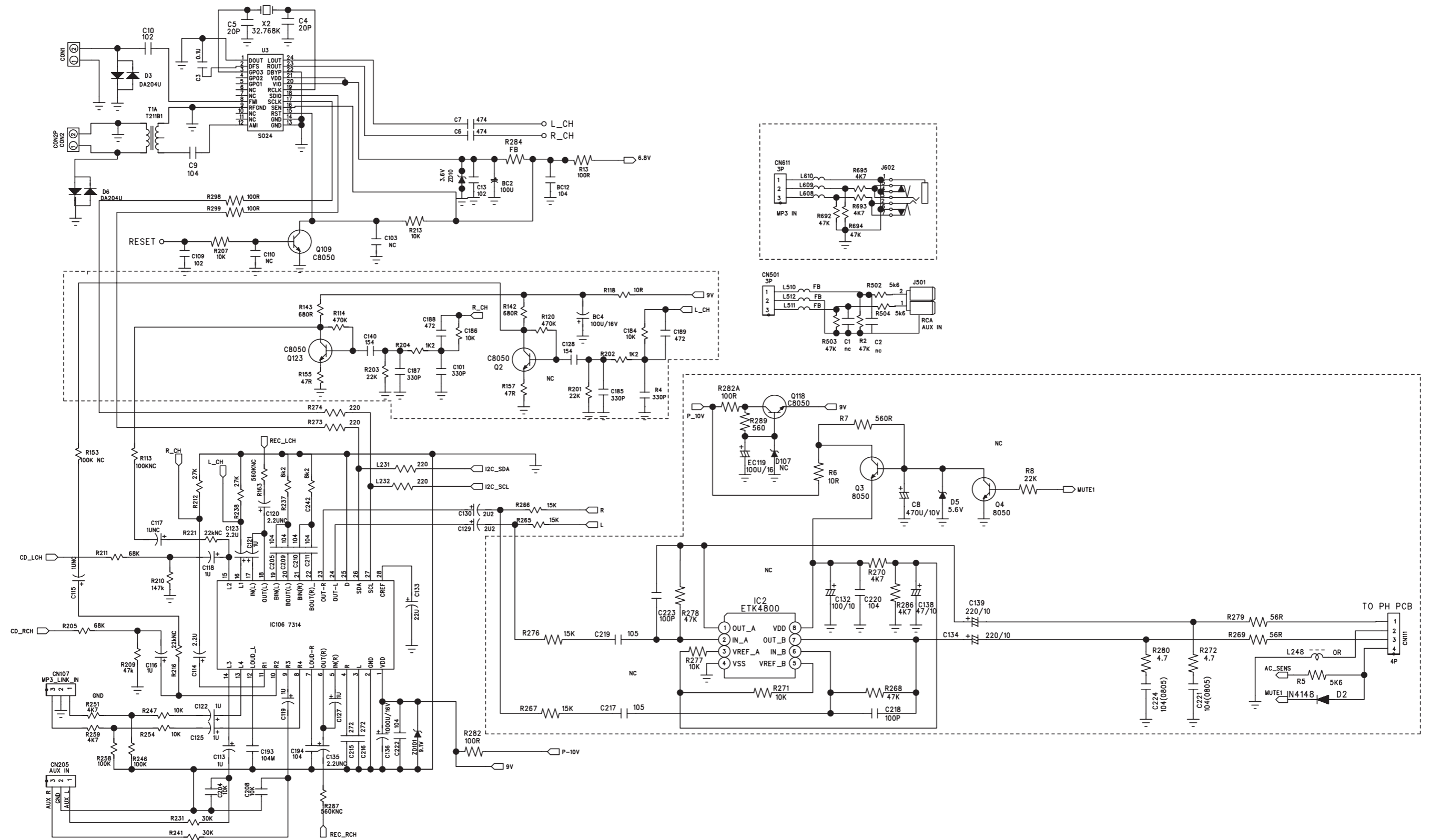
SET WIRING DIAGRAM



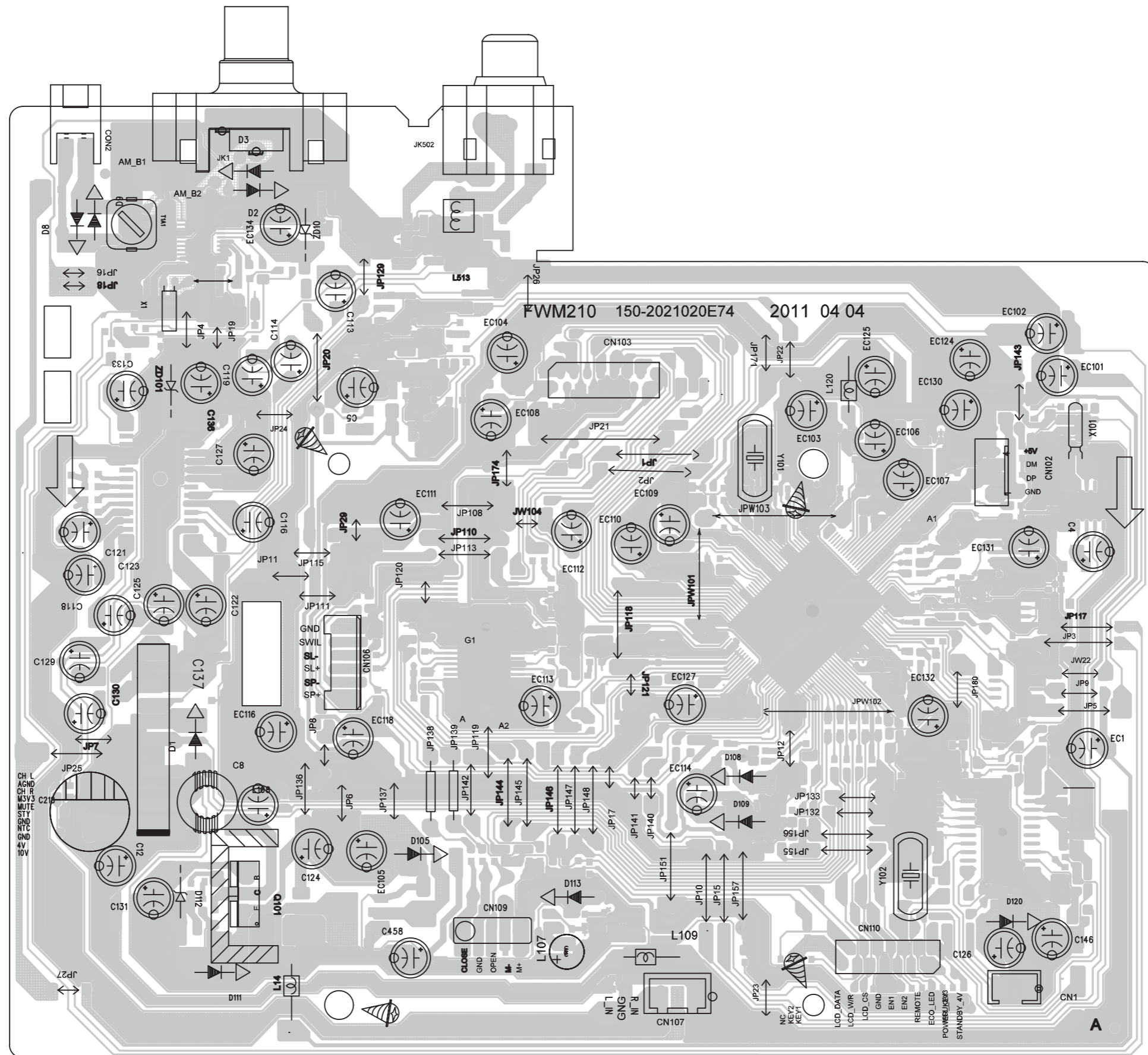
CIRCUIT DIAGRAM - MAIN BOARD PART1



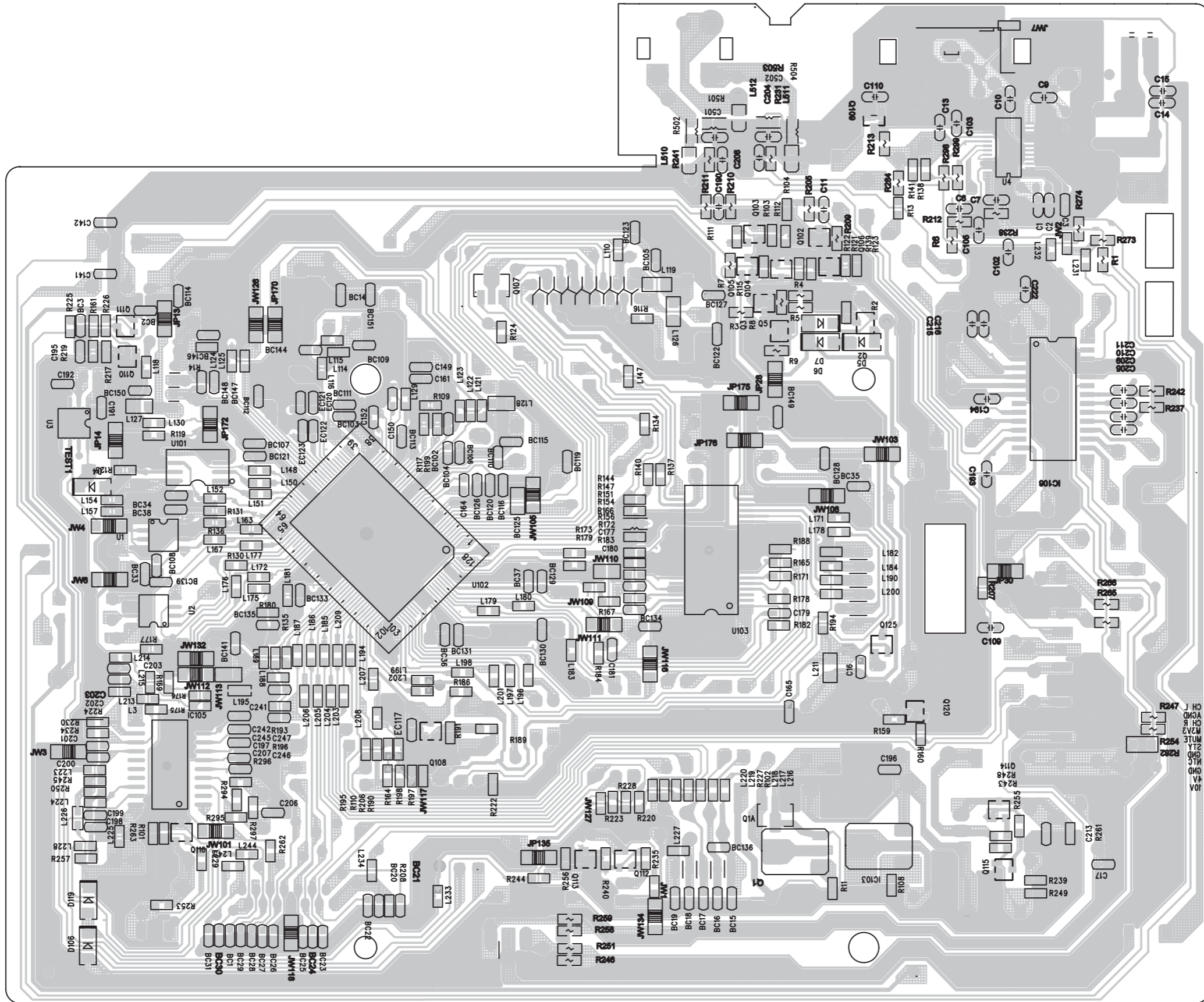
CIRCUIT DIAGRAM - MAIN BOARD PART2



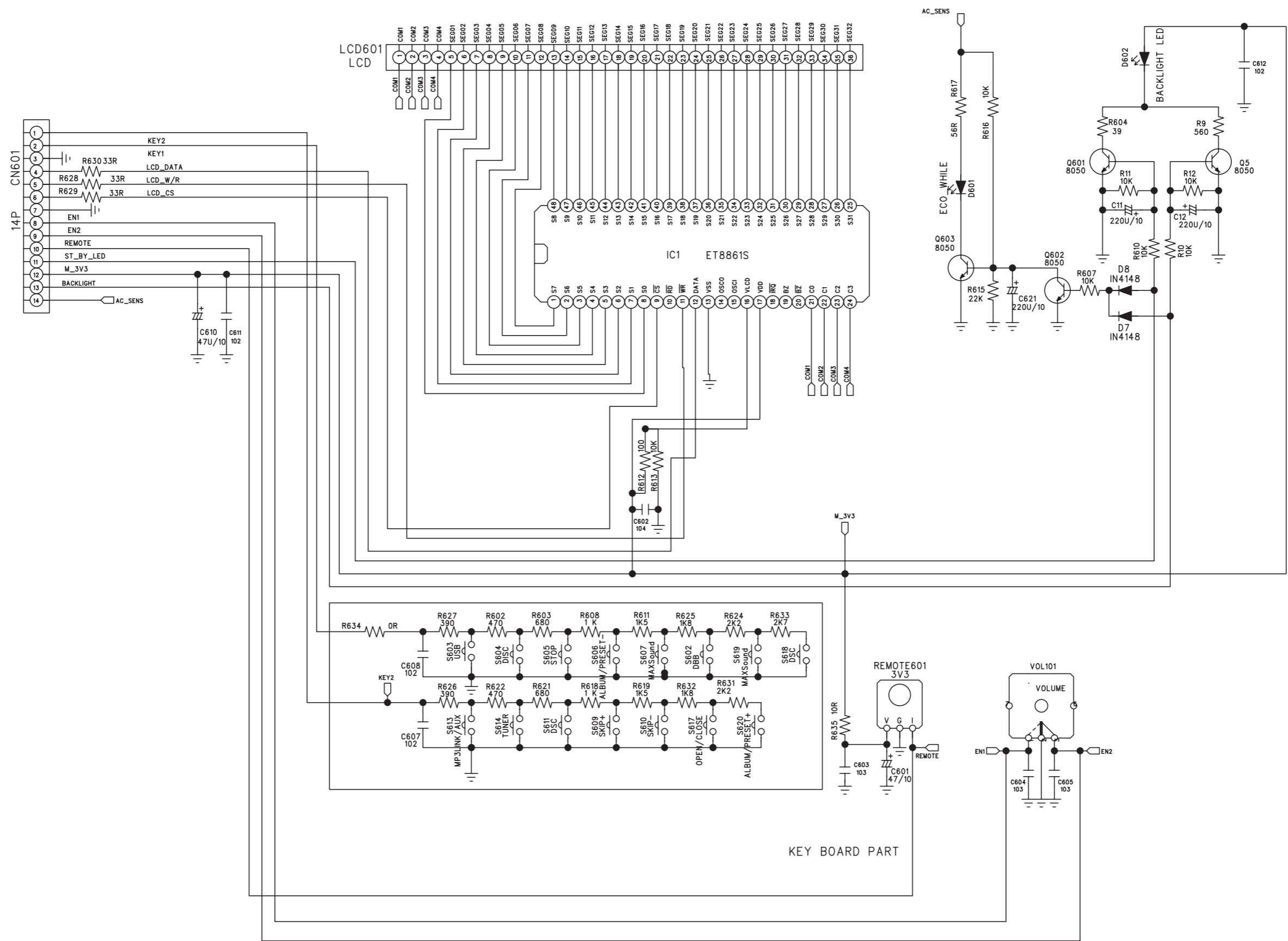
LAYOUT DIAGARM - MAIN BOARD
TOP SIDE VIEW



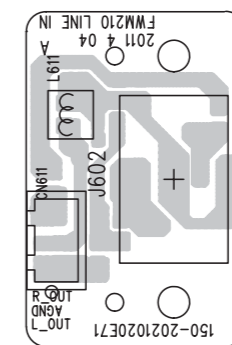
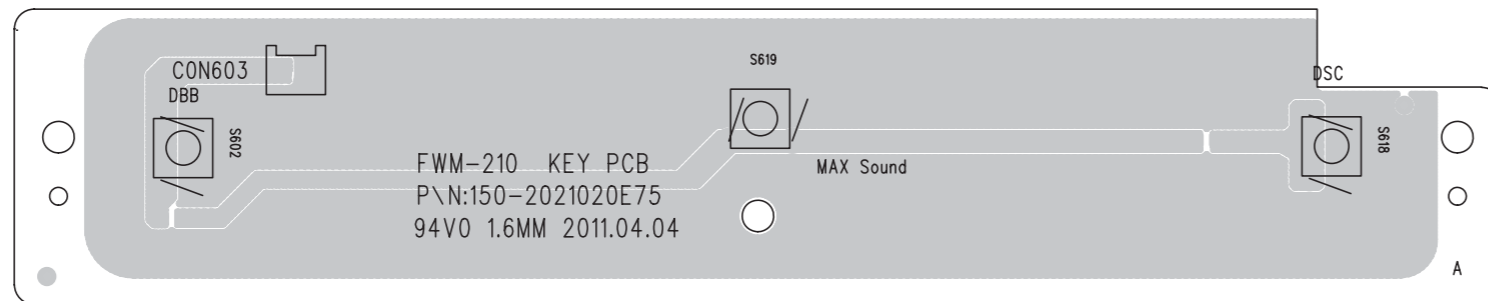
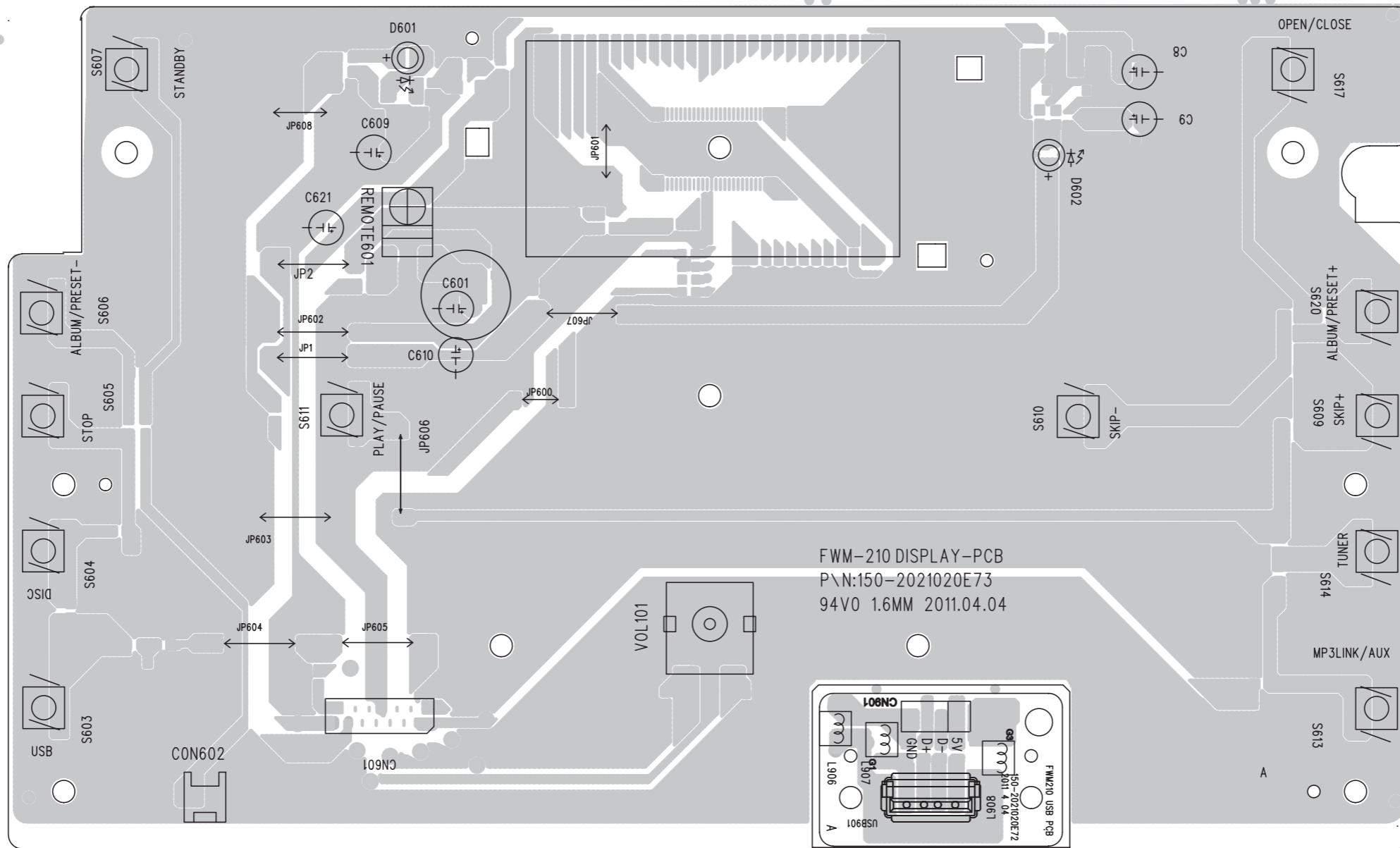
LAYOUT DIAGRAM - MAIN BOARD
BOTTOM SIDE VIEW



CIRCUIT DIAGARM - DISPLAY BOARD



LAYOUT DIAGARM - DISPLAY BOARD
TOP SIDE VIEW

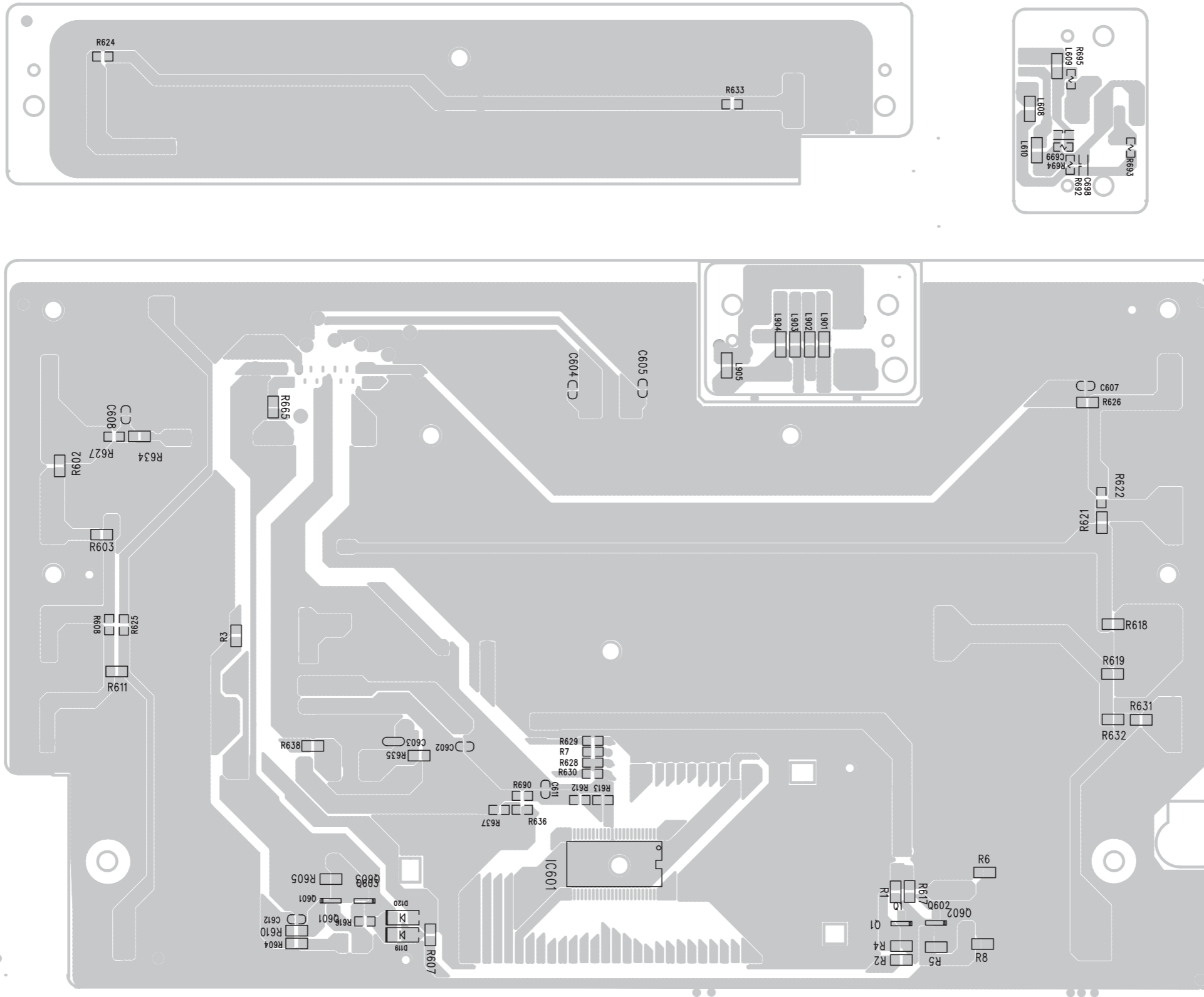


LAYOUT DIAGRAM - DISPLAY BOARD
BOTTOM SIDE VIEW

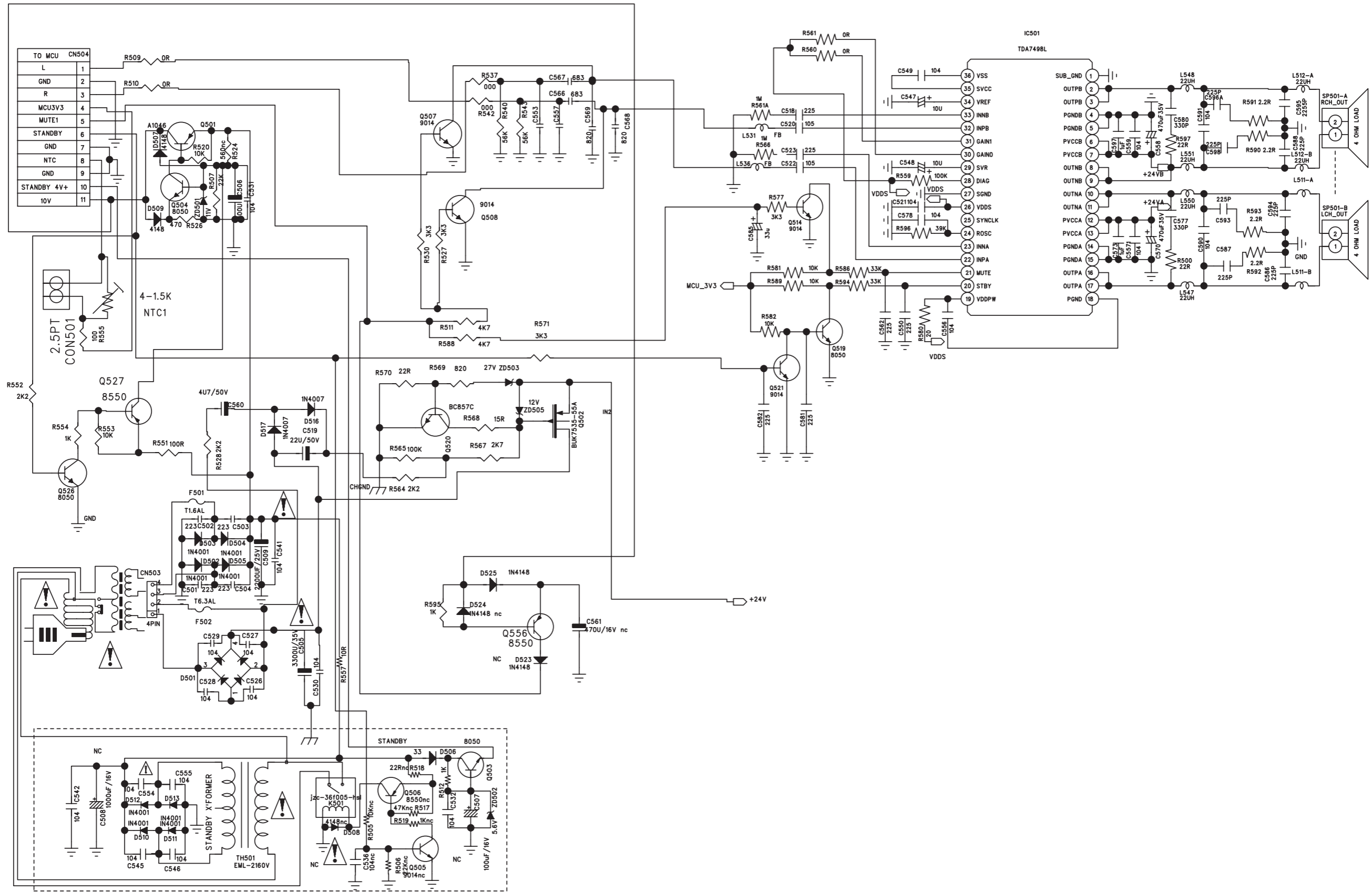
5-3

5-3

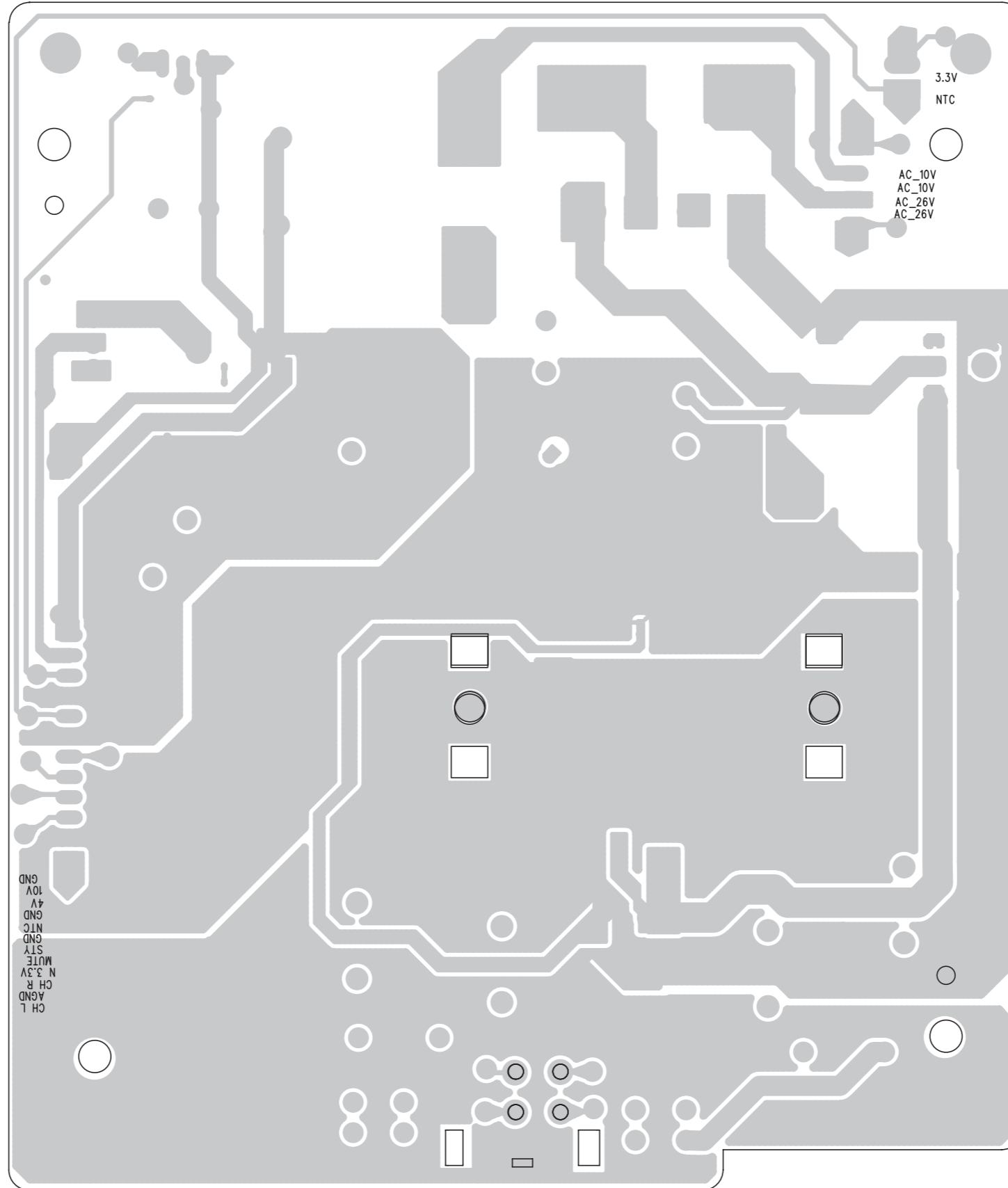
5-2



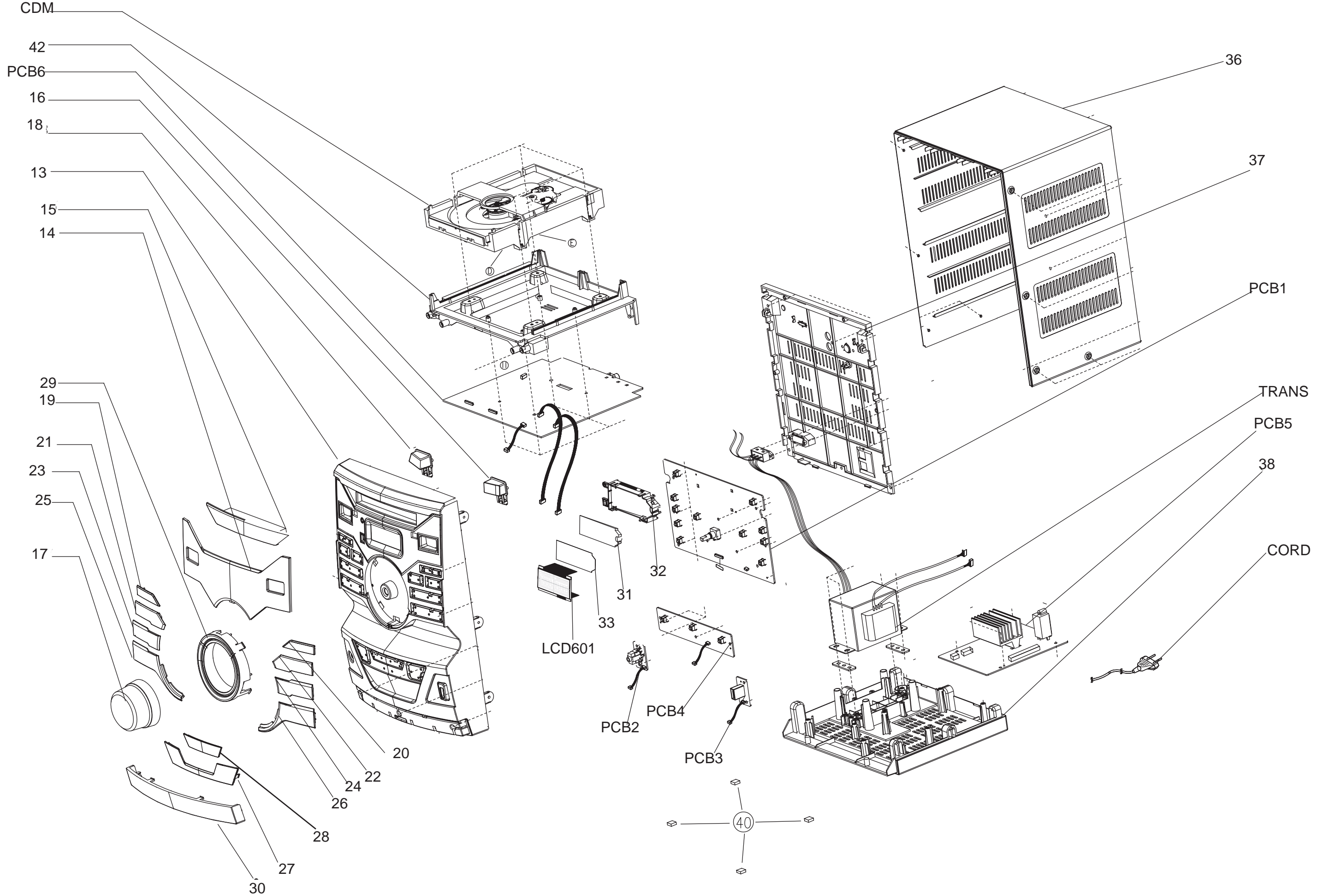
CIRCUIT DIAGRAM - POWER+AMP BOARD



LAYOUT DIAGARM - POWER+AMP BOARD
BOTTOM SIDE VIEW



EXPLODED VIEW DIAGRAM



Version History

V1.0: Initial release

V1.1: Add /78 version

V1.2: Add /12 version

V1.3: Add FWM211X/77 version