# BD Home Theater System

HTB9245D/12

Service
Service
Service

# Service Manual

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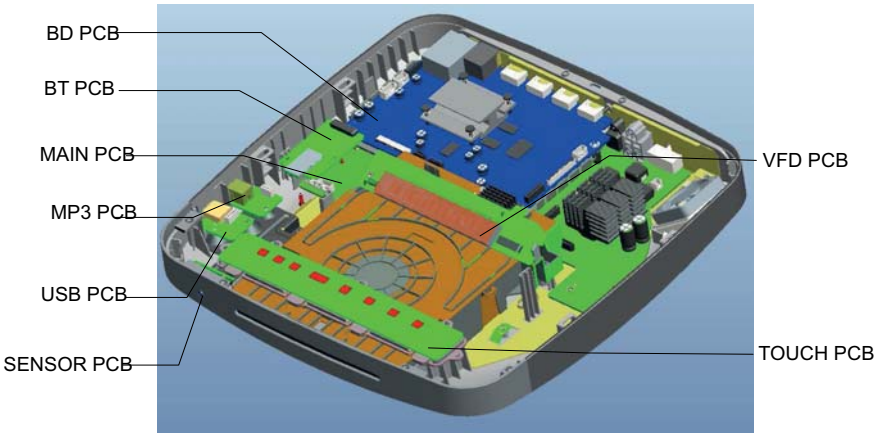
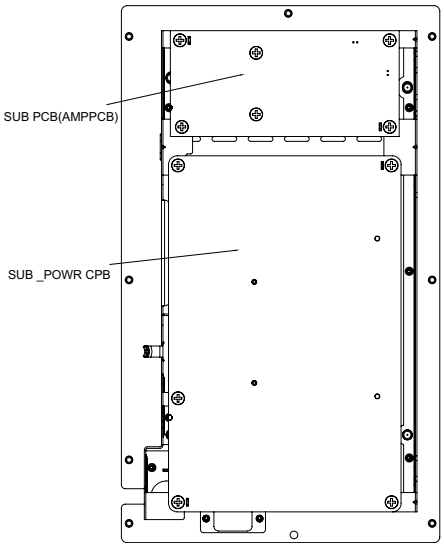
Version 1.0

PHILIPS

# LOCATION OF PCB BOARDS




Main Unit




Subwoofer

## VERSION VARIATION:

| Type/Versions / Features | HTB9245D /12 |
|---|---|
| Output Power - 500W | X |
| Voltage (220~240V) | X |
| Bluetooth | X |
| Subwoofer | X |

## SERVICE SCENARIO MATRIX:

| Type/Versions / Board in used | HTD9245D /12 |
|---|---|
| MAIN+VFD+SUB+USB+MP3+SENSOR+BT Board | C |
| Power Board(subwoofer) | C |
| BD Board | Bd |
| Touch Board | Bd |
| LCD Board | Bd |

*Bd= Board Level Replacement
*C = Component Level Repair

Note :there are bugs in the Bluetooth module SW, the module has to be replaced

# SPECIFICATIONS

## Region codes

The type plate on the back or bottom of the home theater shows which regions it supports.

| Country | DVD | BD |
|---|---|---|
| Europe, United Kingdom | ALL 2 | B |
| Asia Pacific, Taiwan, Korea | ALL 3 | A |
| Latin America | ALL 4 | A |
| Australia, New Zealand | ALL 4 | B |
| Russia, India | ALL 5 | C |
| China | ALL 6 | C |

## Media formats

- AVCHD, BD, BD-R/ BD-RE, BD-Video, DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture files, MP3 media, WMA media, DivX Plus HD media, USB storage device

## File formats

- Audio:
  - .aac, .mka, .mp3, .wma, .wav, .mp4, .m4a, .flac, .ogg
  - .ra (Available only in Asia Pacific and China)
- Video:
  - .avi, .divx, .mp4, .m4v, .mkv, .m2ts, .mpg, .mpeg, .flv, .3gp
  - .asf, .wmv, .rmvb, .rm, .rv (Available only in Asia Pacific and China)
- Picture: .jpg, .jpeg, .jpe, .jfif, gif, .png

## Audio formats

Your home theater supports the following audio files.

| Extension | Container | Audio codec | Bit rate |
|---|---|---|---|
| .mp3 | MP3 | MP3 | Upto 320 kbps |
| .wma | ASF | WMA | Upto 192 kbps |
| | | WMA Pro | Upto 768 kbps |
| .aac | AAC | AAC, HE-AAC | Upto 192 kbps |
| .wav | WAV | PCM | 27.648 Mbps |
| .m4a | MKV | AAC | 192 kbps |
| .mka | MKA | PCM | 27.648 Mbps |
| | | Dolby Digital | 640 kbps |
| | | DTS core | 1.54 Mbps |
| | | MPEG | 912 kbps |
| | | MP3 | Upto 320 kbps |
| | | WMA | Upto 192 kbps |
| | | WMA Pro | Upto 768 kbps |
| | | AAC, HE-AAC | Upto 192 kbps |
| .ra | RM | AAC, HE-AAC | Upto 192 kbps |
| | | Cook | 96469 bps |
| .flac | FLAC | FLAC | Upto 24 bps |
| .ogg | OGG | Vorbis | Variable bit rate, maximum block size 4096 |

| Extension | Container | Audio codec | Bit rate |
|---|---|---|---|
| | | FLAC | Upto 24 bps |
| | | OGGPCM | No limit |
| | | MP3 | Upto 320 kbps |

## Video formats

If you have a high definition TV, your home theater allows you to play your:

- video files with a resolution of 1920 x 1080 pixels (except DivX, which has a resolution of 77220 x 576) and frame rate of 6 ~ 30 frames per second.
- photo files with a resolution of 18 M pixels.

**.avi files in AVI container**

| Audio codec | Video codec | Bit rate |
|---|---|---|
| PCM, Dolby Digital, DTS core, MP3, WMA | DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.x | 10 Mbps max |
| | MPEG 1, MPEG 2 | 40 Mbps |
| | MPEG 4 SP / ASP | 38.4 Mbps |
| | H.264/AVC upto HiP@5.1 | 25 Mbps |
| | WMV9 | 45 Mbps |

.divx files in AVI container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| PCM, Dolby Digital, MP3, WMA | DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.x | 10 Mbps max |

.mp4 or .m4v files in MP4 container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| Dolby Digital, MPEG, MP3, AAC, HE-AAC, DD+ | MPEG 1, MPEG 2 | 40 Mbps |
| | MPEG 4 ASP | 38.4 Mbps |
| | H.264/AVC HiP@5.1 | 25 Mbps |

.mkv files in MKV container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| PCM, Dolby Digital, DTS core, MPEG, MP3, WMA, AAC, HE-AAC, DD+ | DivX Plus HD | 30 Mbps |
| | MPEG 1, MPEG 2 | 40 Mbps |
| | MPEG 4 ASP | 38.4 Mbps |
| | H.264/AVC HiP@5.1 | 25 Mbps |
| | WMV9 | 45 Mbps |

.m2ts files in MKV container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| PCM, Dolby Digital, DTS core, MPEG, MP3, WMA, AAC, HE-AAC, DD+ | MPEG 1, MPEG 2 | 40 Mbps |
| | MPEG 4 ASP | 38.4 Mbps |
| | H.264/AVC HiP@5.1 | 25 Mbps |
| | WMV9 | 45 Mbps |

.asf and .wmv files in ASF container (Available only in Asia Pacific and China)

| Audio codec | Video codec | Bit rate |
|---|---|---|
| Dolby Digital, MP3, WMA, DD+ | MPEG 4 ASP | 38.4 Mbps |
| | H.264/AVC HiP@5.1 | 25 Mbps |
| | WMV9 | 45 Mbps |

.mpg and .mpeg files in PS container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| PCM, DTS core, MPEG, MP3 | MPEG 1, MPEG 2 | 40 Mbps |

.flv files in FLV container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| MP3, AAC | H.264/AVC upto HiP@5.1 | 25 Mbps |
| | H.263 | 38.4 Mbps |
| | On2 VP6 | 40 Mbps |

.3gp files in 3GP container

| Audio codec | Video codec | Bit rate |
|---|---|---|
| AAC, HE-AAC | MPEG 4 ASP | 38.4 Mbps |
| | H.264/AVC upto HiP@5.1 | 25 Mbps max |

.rm, .rv, and .rmvb files in RM container (Available only in Asia Pacific and China)

| Audio codec | Video codec | Bit rate |
|---|---|---|
| AAC, COOK | RV30, RV40 | 40 Mbps |

## Amplifier

- Total output power: 500W RMS (+/- 0.5 dB, 30% THD) / 400W RMS (+/- 0.5 dB, 10% THD)
- Frequency response: 20 Hz-20 kHz / ±3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX: 650 mV
  - AUDIO-IN: 300 mV

## Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p, 1080p24

## Audio

- S/PDIF Digital audio input:
  - Optical: TOSLINK
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 32 kbps - 320 kbps
  - WMA: 48 kbps - 192 kbps

## Radio

- Tuning range:
  - Europe/Russia/China: FM 87.5-108 MHz (50 kHz)
  - Asia Pacific/Latin America: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 180 Hz-12.5 kHz / ±3 dB

## USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32, NTFS

## Main unit

- Dimensions (WxHxD): 304.4 x 68.8 x 307.2 mm
- Weight: 2.4 kg

## Subwoofer

- Power supply:
  - Europe/China: 220-240 V~, 50 Hz
  - Latin America/Asia Pacific: 110-127 V/220-240 V~, 50/60 Hz
  - Russia/India: 220-240 V~, 50 Hz
- Power consumption: 110 W
- Standby power consumption: ≤ 0.5 W
- Impedance: 3 ohm
- Speaker drivers: 165 mm (6.5") woofer
- Frequency response: 20 Hz-150 Hz
- Dimensions (WxHxD): 204 x 394 x 345 mm
- Weight: 6.1 kg

## Speakers

- Output power: 2 x 135W RMS (30% THD)
- Speaker impedance: 5 ohm
- Speaker drivers: 2 x 76.2 mm (3") woofer + 1 x 25.4 mm (1") tweeter
- Frequency response: 150 Hz-20 kHz
- Dimensions (WxHxD): 97 x 301 x 120 mm
- Weight: 1.45 kg/each

## Remote control batteries

- 2 x AAA-R03-1.5 V

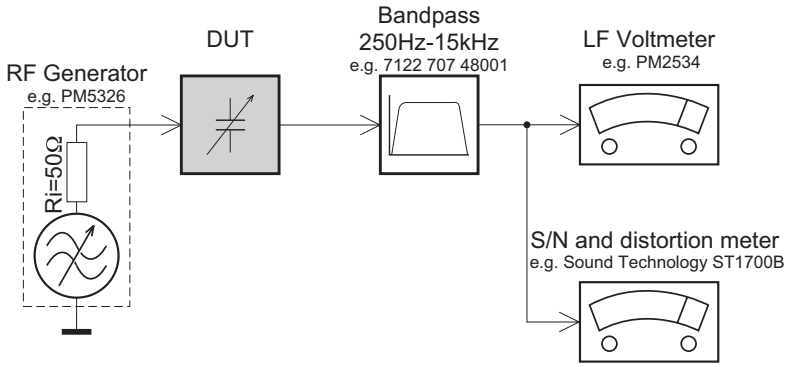
## Laser

- Laser Type (Diode): InGaN/AlGaN (BD), AlGaInP (DVD/CD)
- Wave length: 405 +7 nm/-7 nm (BD), 655 +10 nm/-10 nm (DVD), 790 +10 nm/-20 nm (CD)
- Output power (Max. ratings): 20 mW (BD), 6 mW (DVD), 7 mW (CD)

Specifications subject to change without prior notice.

# MEASUREMENT SETUP

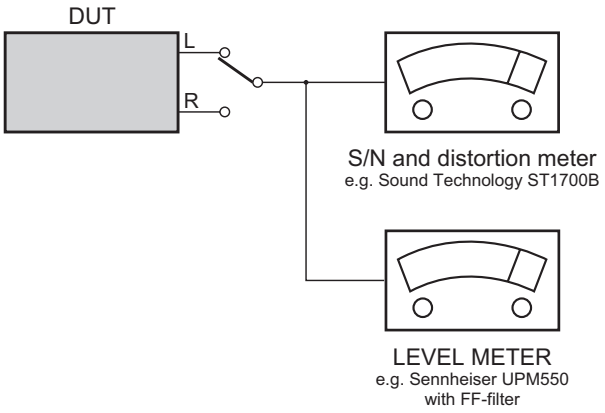
## *Tuner FM*




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

## *CD*

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



# SERVICE AIDS

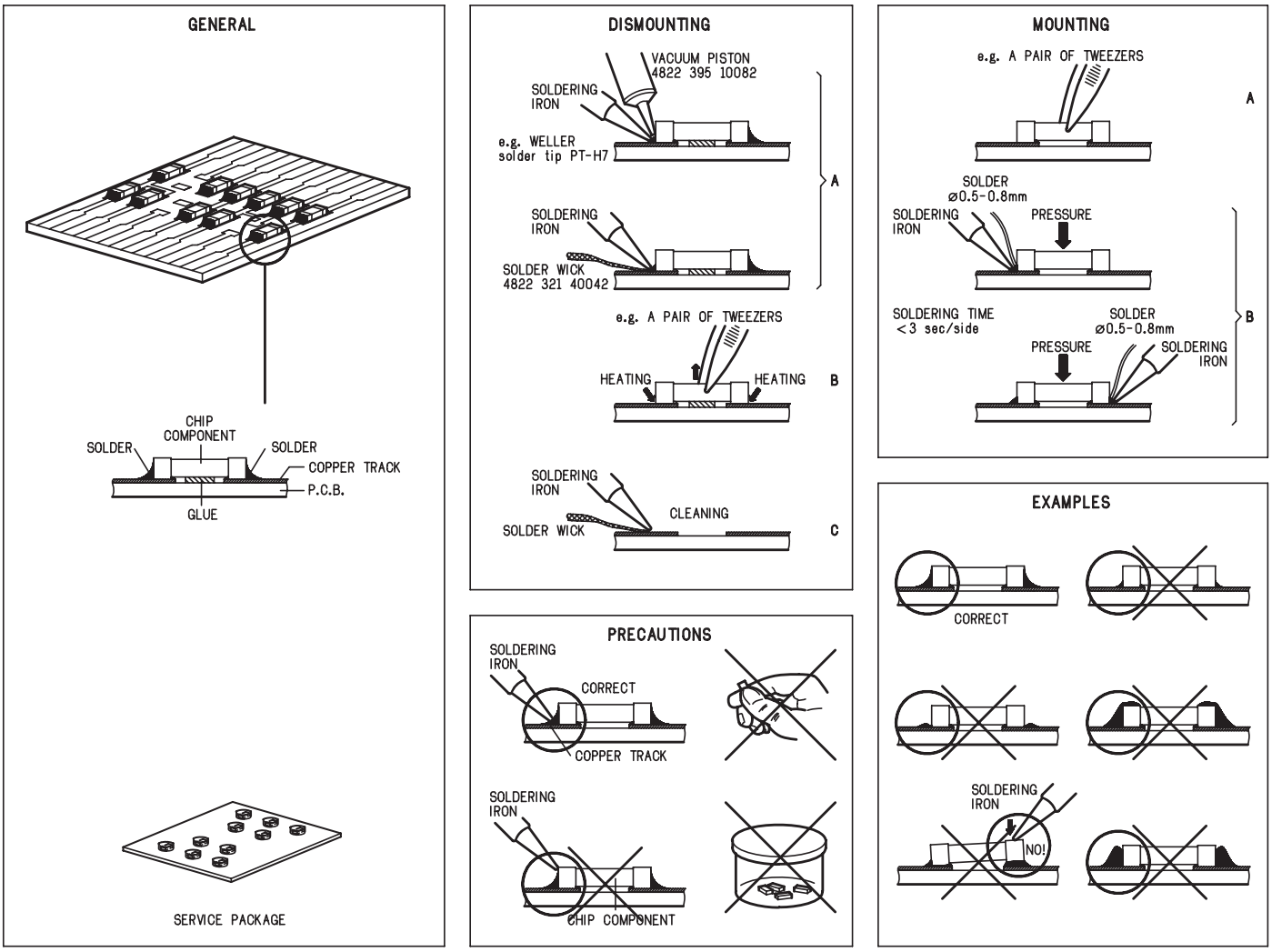
**Service Tools:**

Universal Torx driver holder .....4822 395 91019
Torx bit T10  150mm .....4822 395 50456
Torx driver set T6-T20 .....4822 395 50145
Torx driver T10 extended .....4822 395 50423

**Compact Disc:**

SBC426/426A Test disc 5 + 5A .....4822 397 30096
SBC442 Audio Burn-in test disc 1kHz .....4822 397 30155
SBC429 Audio Signals disc .....4822 397 30184
Dolby Pro-logic Test Disc .....4822 395 10216

## HANDLING CHIP COMPONENTS



# ESD

**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.

**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** **ESD PROTECTION EQUIPMENT**

Complete Kit ESD3 (small tablemat, wristband, connection box, estention cable and earth cable ..... 4822 310 10671
Wristband tester ..... 4822 344 13999

**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 ⚠ .

**NL**

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

De Veiligheidsonderdelen zijn aangeduid met het symbol ⚠ .

**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.

Less composants de sécurité sont marqués ⚠ .

**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.

Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

**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.

Componenty di sicurezza sono marcati con ⚠ .

**GB**

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.


**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.

**F**

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

***Pb(Lead) Free Solder***

When soldering , be sure to use the pb free solder.

**INDENTIFICATION:**
Regardless of special logo (not always indicated) 

one must treat all sets from **1 Jan 2005** onwards, according next rules:

**Important note:** In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400?C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360?C – 380?C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400?C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).
  If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:

– Always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)

– Lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
  Do not re-use BGAs at all.

- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website **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

  You will find this and more technical information within the "magazine", chapter "workshop news".

  For additional questions please contact your local repair-helpdesk.

# Software upgrade & Procedure to restore product setting

### 1)Restore factory setting

a) Press “⌂” <Home> button on R/C.
b) Select <SETUP>, then press “OK” button on R/C.
c) Select <Advanced>.
d) Select <Restore default settings>,then press <OK> to confirm.

### 2)Password change

a) Press “⌂” <Home> button on R/C.
b) Select <SETUP>, then press “OK” button on R/C.
c) Select <preference>.
d) Select <Change Password> <Confirm>, then press <OK> button on R/C.
“0000” is default password supplied.

### 3)Trade mode

a) In open model,press “⌂” <Home> button on R/C.
b) Press “2” “5” “9” on R/C,VFD will display “TRA ON” or “TRA OFF”.

### 4)Check software version

a) Press “⌂” <Home> button on R/C
b) Select <Setup>, then press <OK> button on R/C.
c) Select <Advanced Setup> <Version information>,then press <OK> button on R/C.
d) TV will show message as follow:

Model:HTB9245D/12
Versions
System SW:X.XX.XXX
Subsystem SW:XX-XX-XX-XX
Wireless(Wi-Fi):XX:XX:XX:XX:XX:XX
Extended unique Identifier(EUI64):0025d1fffeof3c15
PRODUCT ID:A5UDJSCREQVGSCG5
For information,frequently asked questions and software updates,please visit
www.philips.com/support
Close

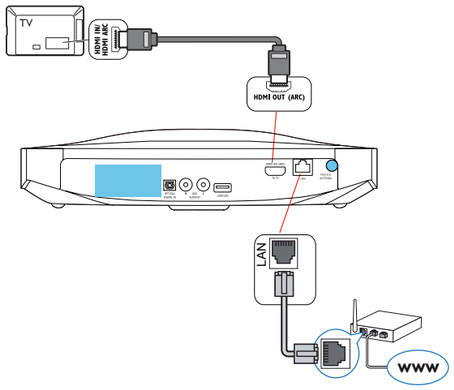
e) press <OK> button to exit .

### 5) Upgrading new software

Method 1: Update software from a USB storage device
a) Create a folder named “UPG” in your USB storage device, and Copy the latest upgrading software into the folder.
b) Connect the USB storage device to the home theater.
c) Press “⌂” <Home> button on R/C, and select <Setup>.
d) Select <Advanced> <Software Update> <USB>.
e)Follow the onscreen instructions to confirm the update.
»» Update process takes about 5 minutes to complete.
»» Once complete, the home theater automatically switches off and restarts.If it does not, disconnect the powercord for a few seconds and then reconnect it.

Method 2: Update software from the internet

Note: To check for new updates, compare the current software version of your home theater with the latest software version (if available) on the Philips web site, and for BD-Live application and software update, make sure that the network router has access to the Internet and the firewall is disabled.
a) The “LAN” jack at the back panel of the set must be connect to the network router via network cable and the set connect to TV, Prepare the connection as shown follow:




b) Press “⌂” <Home> button on R/C, and select <Setup>.
c) Select <Advanced> <Software Update> <Network>.
»» If an upgrade media is detected, you are prompted to start or cancel the update.
»» Downloading of the upgrading file maytake long, depending on your home network condition.
5 Follow the onscreen instructions to confirm the update.
»» Update process takes about 5 minutes to complete.
»» Once complete, the home theater automatically switches off and restarts.If it does not, disconnect the powercord for a few seconds and then reconnect it.



### 6)How to replace the defective Blu-ray Loader

a) Remove the defective Blu-ray Loader.
b) Remove the shield cover at the top of Blu-ray Loader as shown below:
i) Loosen 5 screws on the top of Blu-ray Loader as shown in figure1

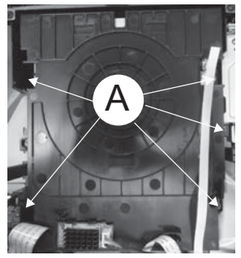
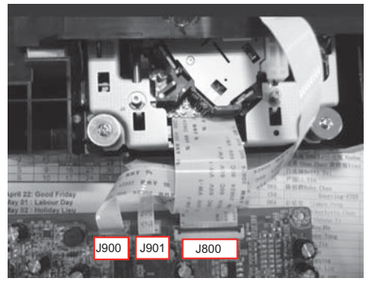



Figure 1

c) Assembly Blu-ray Loader to “J800”,”J900”,”J901” on the top of BD Board as shown below.




d) Remove soldered joint on the ESD protection points.


Bottom side view of OPU

Note: The ESD protection points must be soldered if
o the Blu-ray Loader is OK and needs to be disconnected from connector J800, J900 and J901 of the BD Board.
o the defective Blu-ray Loader is needed to be send back to supplier for failure analysis and to support backcharging evidence.

### 7) Update the onscreen help

If the current version of the onscreen help is lower than the latest version available on www.philips.com/support, download and install the latest onscreen help.
* A USB flash drive that is FAT or NTFS formatted, with at least 35MB of memory. Do not use a USB hard drive.
* A computer with internet access.
* An archive utility that supports the ZIP file format
a) Connect a USB flash drive to your computer.
b) In your web browser, go to www.philips.com/support.
c) At the philips support website, find your product and click on User manuals, and then locate the User Manual Upgrade Software. (The help update is available as a zip file).
d) Save the zip file in the root directory of your USB flash drive.
e) Use the archive utility to extract the help update file in the root directory. (A file named “HTSXXXXeDFU.zip” is extracted under the UPG folder of your USB flash drive, “xxxx” being the model number of your home theater.)
f) Disconnect the USB flash drive from your computer.
Caution: Do not switch off the home theater or remove the USB flash dirve during the update.
g) Connect the USB flash drive containing the downloaded file to your home theater. (Make sure that no disc is loaded inside the disc compartment)
h) Press “⌂” <Home> button on R/C.
i) Enter 338 on the remote control.
j) Follow the onscreen instructions to confirm the update.
k) Disconnect the USB flash drive from the home theater.

CAUTION!

This information is confidential and may not be distributed.Only a qualified service person should reprogram the Region Code.

2 - 2

# REPAIR INSTRUCTIONS(main unit)

## HTB7225/9225 REPAIR CHART

- A — All Function No Working
- B — Power Supply No Working
- C — All Function No Sound
- D — Key board No Function
- E — VFD board No Function
- F — AUX IN No Sound
- G — MIP3 In No Sound
- H — BT In No Sound
- I — Optical In No Sound
- J — Tuner No Sound
- K — Subwoofer No Sound

### A

All function No working

Check all system all cable is loose or bad INT — YES → Re-insert and fix the cable

NO

Panel stanby LED show working or Not — NO → Check back power PCB F901 bad cause damage — BAD → Change F901

OK

Check CN903 JK401 And Its Conjoint parts — NO → Check 3m cable REPAIR ok

YES

Check IC162 And Its Conjoint parts — OK → Check repair touch PCB Standby circuit

WORK

Check All DC TO DC IC OUT Voltage approx +5V +12V -12V -24V — NO → Check repair And Its Conjoint parts

CORRECT

Check IC721 IC162 OUT Voltage 3.3V — YES → Check IC101 Pin12 pin13 OSC frequency 8MHz — YES → Repair main pcb between IC201 Q202 And Its Conjoint parts

### B

Power Supply No working

All Voltage No Output — No → +32V Voltage No Output → Check Q902 Q903 IC905 D923 And Its Conjoint Part

+14V Voltage No Output → Check D921 Q901 And Its Conjoint Part

BKVCC Voltage No Output → Check R919 D921 Q914 And Its Conjoint Part

YES

Check F901 Bad Cause Damage

No

Check BKVCC Working or Not

No

Check Repair IC901 IC903 Q901 IC904 D921 And Its CONN CIRCUIT

### C

All Function No Sound

Yes

Check POWER IC Voltage +18V ~ +33V — No → See Contents B

OK

Check Power Ic Pin 1,2,22 Voltage 12V — YES → Check IC131 And Its Conjoint Part

OK

Check IC 4103 Pin9/14 Pin35/50 Voltage +3.3v — No → Check IC721 FB721 And Its Conjoint Part

OK

Check CN201 Pin And Its Conjoint Part

Yes

Check BD Board See Contents BD Board

### D

Key board No Function

Check the cable connect CN207 CN600 loose or bad INT — YES → Re-insert and fix the cable

OK

Check IC1 Pin12 Voltage approx +3.3V — No → Check R125 And Its Conjoint parts

OK

Check IC1 Pin7(DAT) Check IC1 Pin6(CLK) — No → Check CN601.CN1 And Their Conjoint Parts

OK

Check IC1 And Their Conjoint Parts

### E

VFD board No Function

Check the cable connect CN207 CN600 loose or bad INT — YES → Re-insert and fix the cable

OK

Check IC600 Pin14/33/45 Voltage approx +5V Check IC600 Pin34 Voltage approx -24V — No → Check IC600 And Its Conjoint parts

OK

Check IC600 Pin6(DAT) Check IC600 Pin8(CLK) Check IC600 Pin9(CE) — No → Check R604/603/602 And Their Conjoint Parts

OK

Check DP600 And Their Conjoint Parts

### F

AUX IN No Output

Check JK301 INT or No — INT → Change this jk

OK

Check IC304 Pin5/14/36 approx +5V Pin46 approx +3.3V Yes or No — No → Check R312 R313 R377 And Its Conjoint Parts

Yes

Check CN201 Loose or bad INT — Yes → Re-insert and fix the cable

OK

Check BD Board See Contents BD Board

### G

MP3 In No Sound

Check JK831 CN805 RB303 INT or No — INT → Change this jk

OK

Check IC304 Pin5/14/36 approx +5V Pin46 approx +3.3V Yes or No — No → Check R312 R313 R377 And Its Conjoint Parts

Yes

Check CN201 Loose or bad INT — Yes → Re-insert and fix the cable

OK

Check BD Board See Contents BD Board

### H

BT In No Sound

Check CN881 CN883 RB303 INT or No — INT → Change this jk

OK

Check BT881 Pin18 +3.3V Yes or No — NO → Check L300 And Its Conjoint Parts

Yes

Check BT881 Q881 Q882 And Its Conjoint Part

### I

Optical No Sound

Check JK303 INT OR NO — INT → REPAIR ok

OK

Check JK303 pin1 approx +3.3V Yes or No — No → Check And Repair R343

OK

Check IC305Pin11/12 f=24.576MHz

OK

Check IC305 Pin3 /19/22 approx +3.3V — No → Check R314 R358 R375

OK

Check BD Board See Contents BD Board

### J

Tuner No Sound Output

Check Check TUNER PAUK Pin5 approx +3.3V — No → Check CN3 CN301 And Its Conjoint Parts

Yes

Check IC304 Pin5/14/36 approx +5V Pin46 approx +3.3V Yes or No — No → Check R312 R313 R377 And Its Conjoint Parts

Yes

Check CN201 Loose or bad INT — Yes → Re-insert and fix the cable

OK

Check BD Board See Contents BD Board

### K

Subwoofer No Sound

Yes

Check POWER IC Voltage +18V ~ +33V — No → Check CN904 RB5201 INT or No

OK

Check Power Ic Pin 1,21,22,23,44 Voltage 12V — YES → Check R5226 And Its Conjoint Part

OK

Check IC 5202 Pin9/14 Approx Voltage +3.6v — No → Check IC721 ZD5201 And Its Conjoint Part

OK

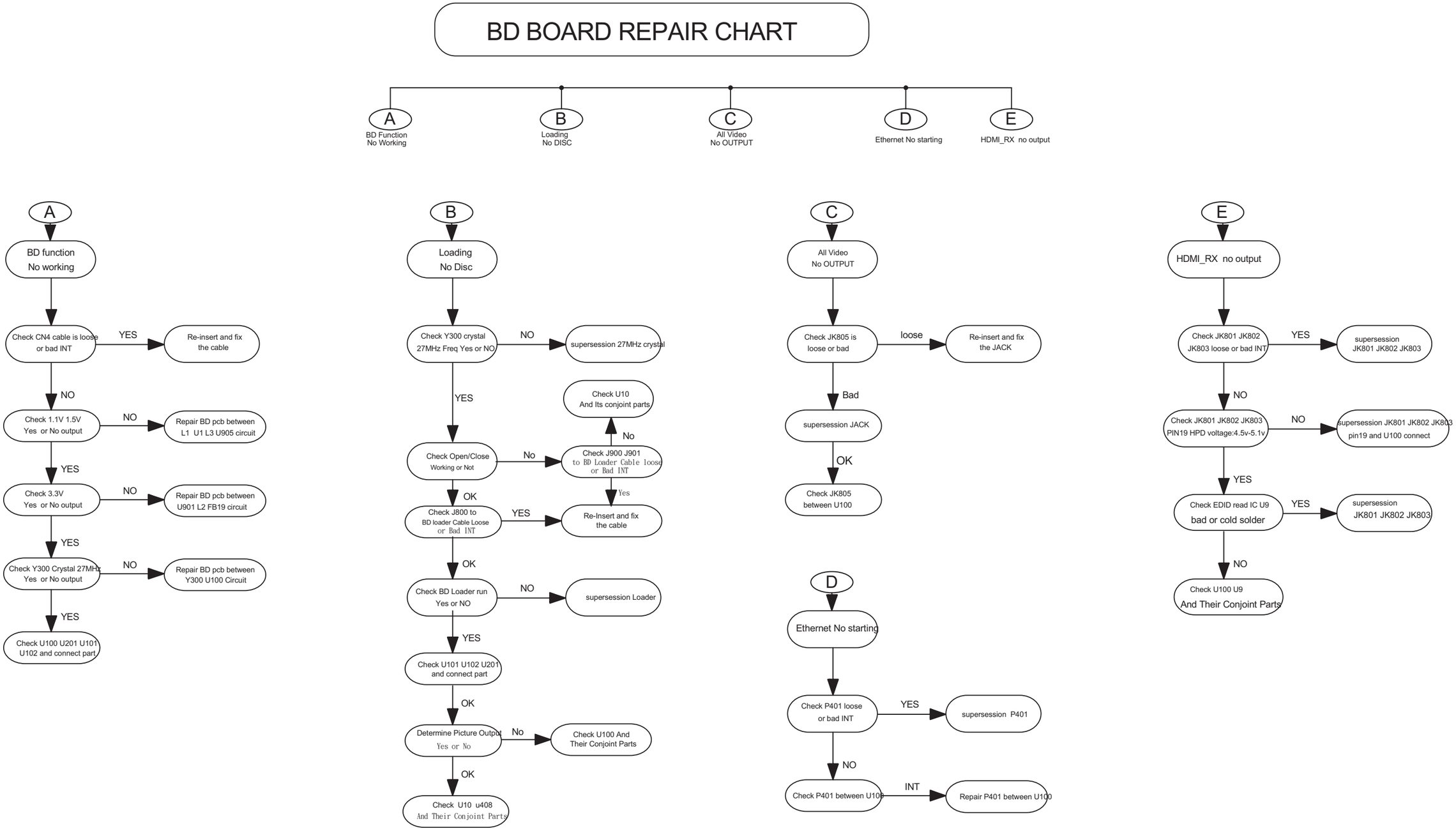
Check CN903 JK401 And Its Conjoint Part — INT → REPAIR ok

Yes

Check IC4013 See Contents C

2 - 3

# REPAIR INSTRUCTIONS(BD Board)



# DISASSEMBLY INSTRUCTIONS-MAIN UNIT

Note:In some service positions the components or copper patterns of one board may risk touching its neighbouring pc boards or metallic parts. To prevent such short-circuit use a piece of hard paper or other insulating material between them.

***Dismantling of the Top Cover***

1) Loosen 1 screw “A” at the back panel to remove the top cover as shown in figure 1.


Figure 1

***Dismantling of the BT Board***

1) Loosen 2 screws “B” on the top of BT board as shown in figure 2.

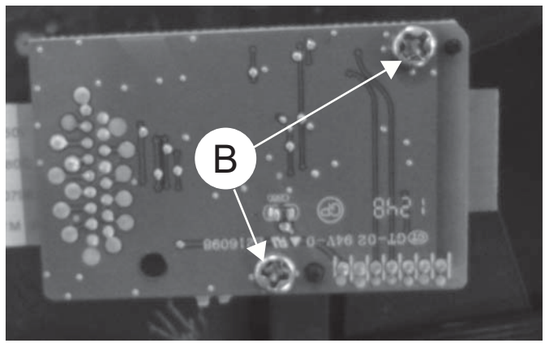



Figure 2

***Dismantling of the TOUCH Board***

1) Loosen 3 screws “C” at the bracket of Touch Board as shown in figure.

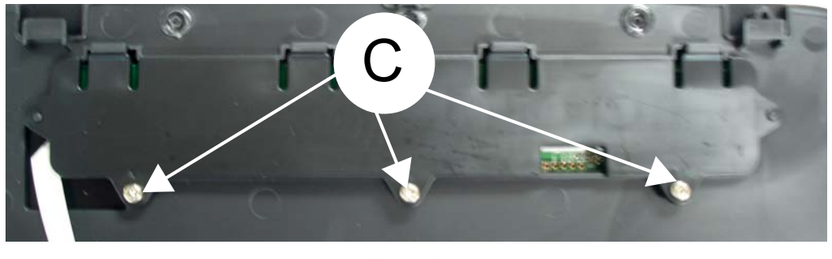



Figure 3

3 - 1

***Dismantling of the LCD Board***

1) Loosen 2 screws “D” on the top of LCD Board as shown in figure 4.

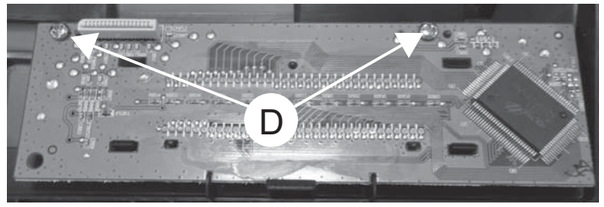



Figure 4

***Dismantling of the DVD Module***

1) Loosen 5 screws “E” at the DVD Module as shown in figure 5.

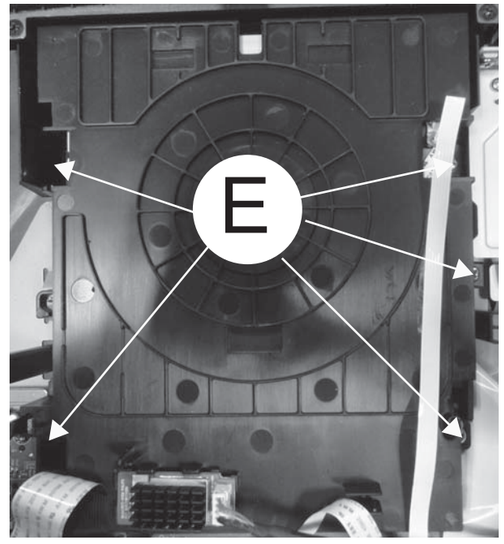



Figure 5

***Dismantling of the MP3 &USB &SENSOR Board***

1) Loosen 3 screws “F” on the top of MP3&USB Board as shown in figure 6.
2) Loosen 2 screws “G” on the top of SENSOR Board as shown in figure 7.

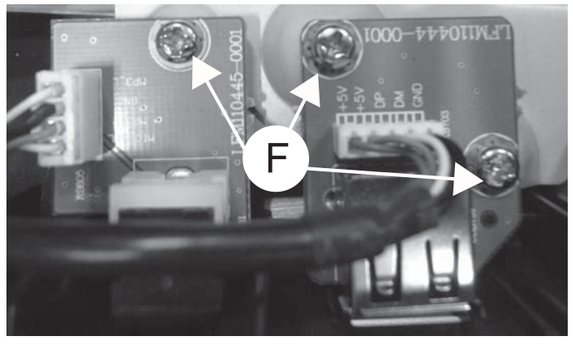



Figure 6

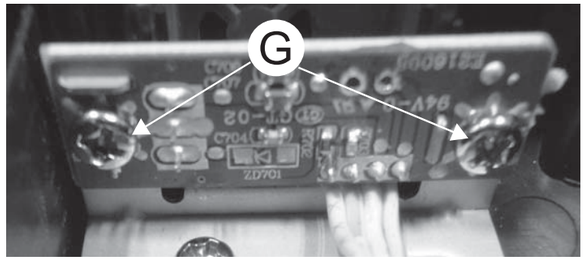



Figure 7

***Dismantling of the BD Board***

1) Loosen 4 screws “H” on the top of BD Board as shown in figure 8.
2) Loosen 1screw “I” at the back panel as shown in figure 9.

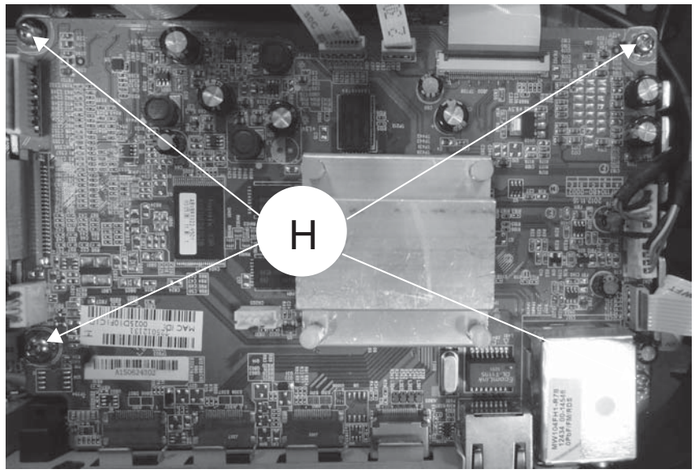



Figure 8


Figure 9

***Dismantling of the MAIN Board***

1) Loosen 6 screws “J” on the top of main board as shown in figure 10.
2) Loosen 2 screws “K” at the back panel as shown in figure 11

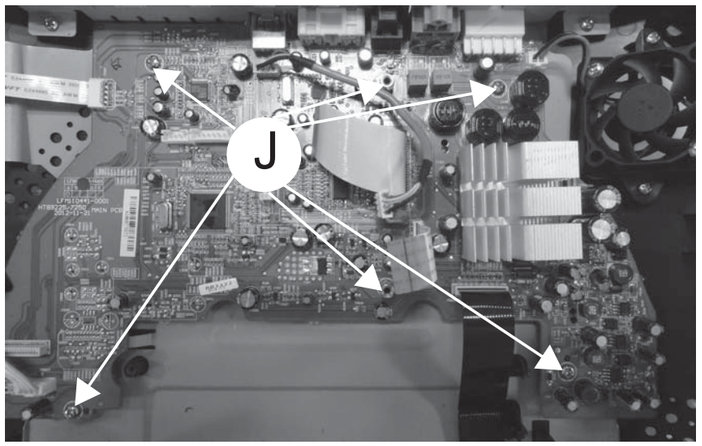


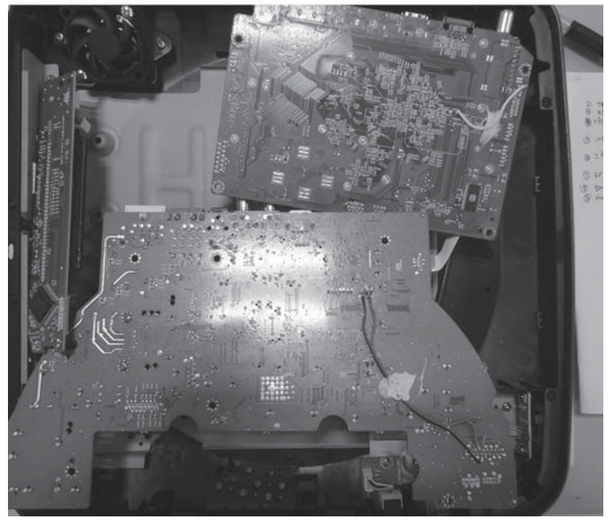

Figure 10



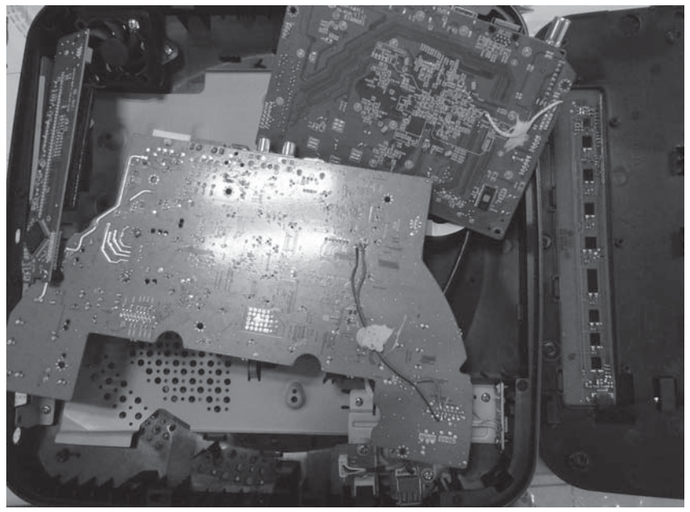

Figure 11

## SERVICE POSITIONS (MAIN UNIT)

### Service Position A - MAIN&BD Board



### Service Position E - All Boards



# DISASSEMBLY INSTRUCTIONS-SUBWOOFER

***Dismantling of the Subwoofer Rear Panel***

1) Loosen 9 screws “Q” at the subwoofer rear panel as shown in figure 17.

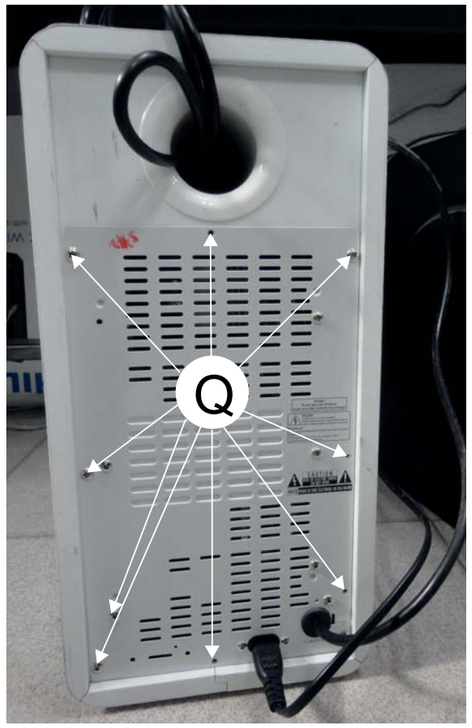



Figure 17

***Dismantling of the Power Board***

1) Loosen 5 screws “R” on the top of power board as shown in figure 18.

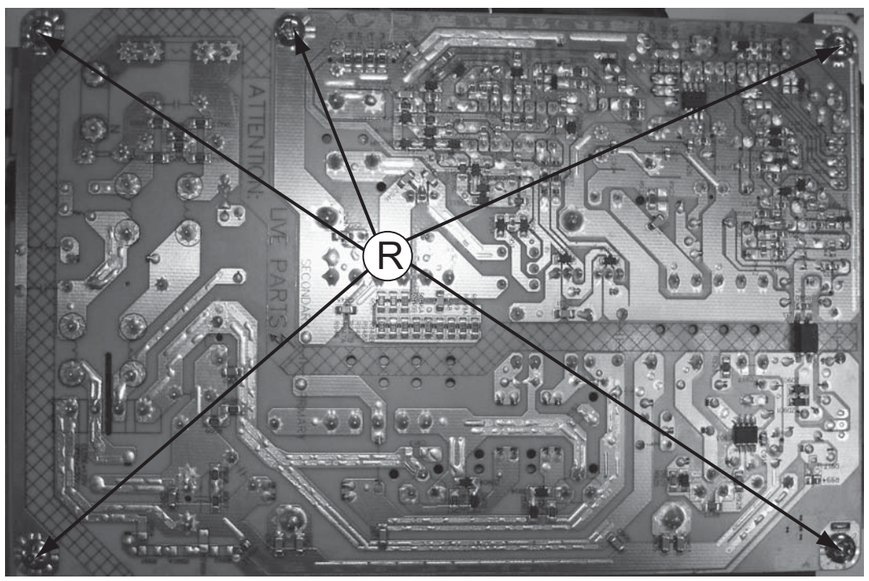



Figure 18



***Dismantling of the Subwoofer AMP Board***

1) Loosen 4 screws “S” on the top of subwoofer AMP board as shown in figure 19.

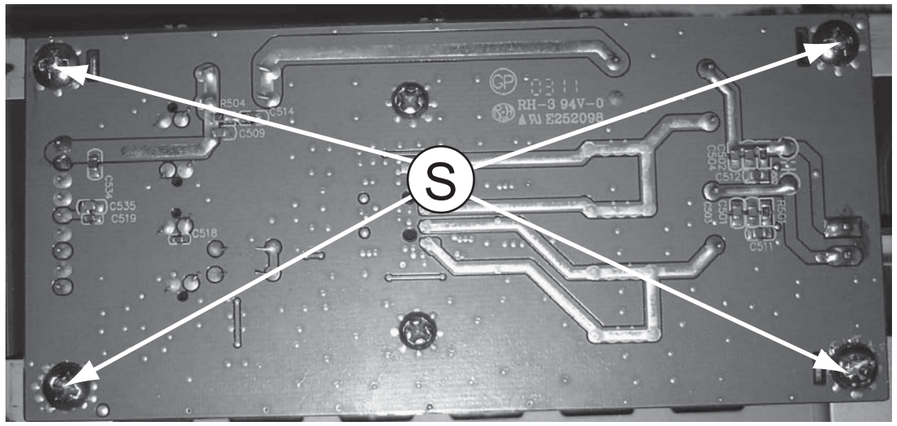
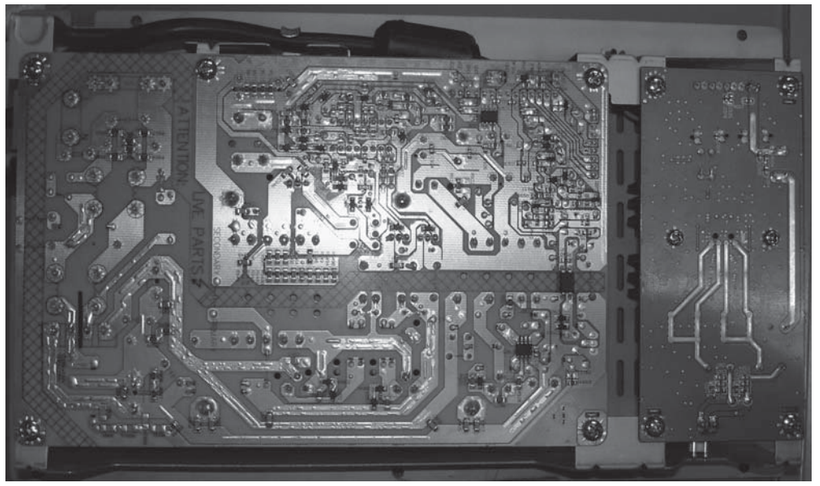


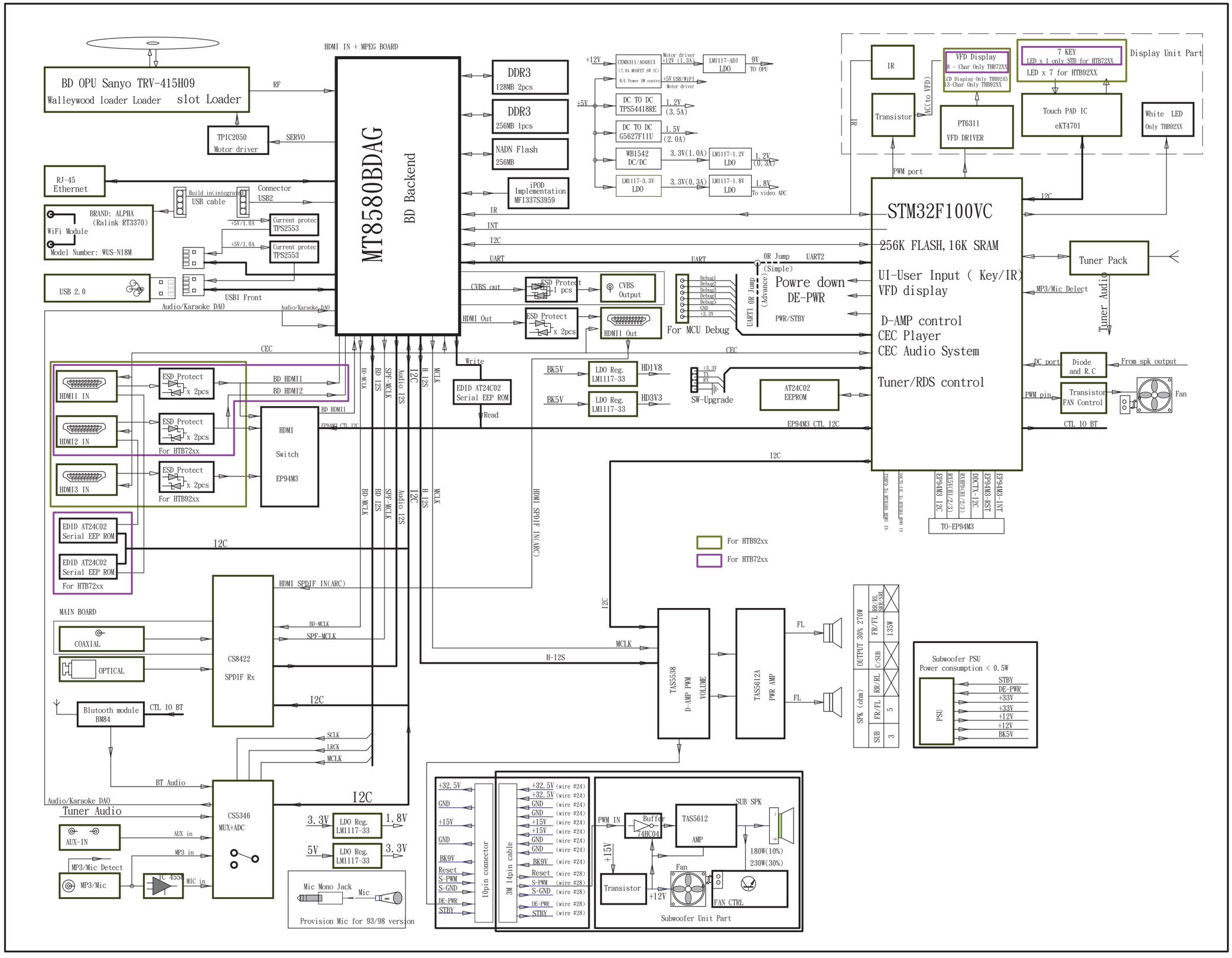

Figure 19

# SERVICE POSITIONS (SUBWOOFER)



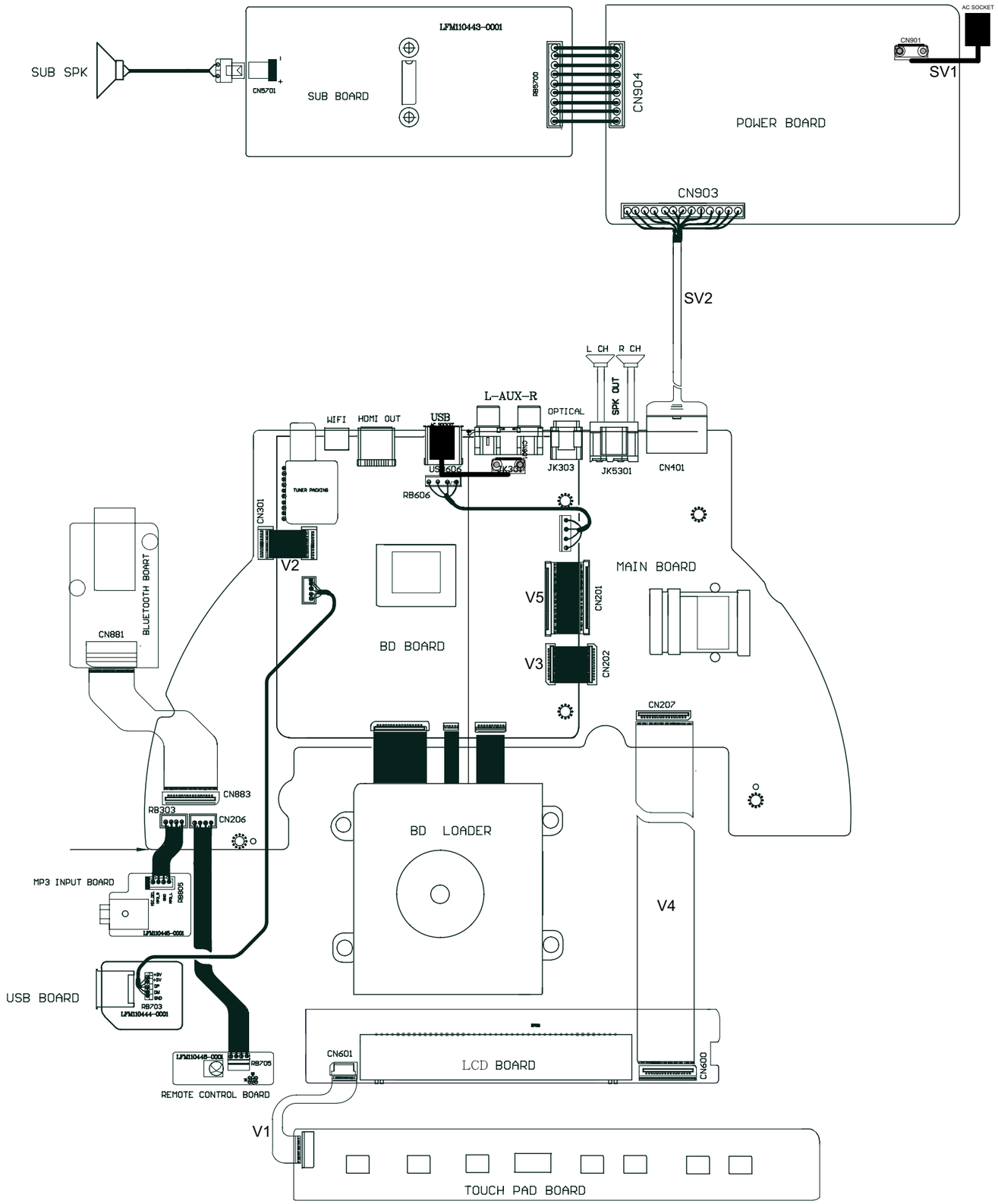
4 - 1

# BLOCK DIAGRAM



4 - 2

# WIRING DIAGRAM



# MAIN+SUB+USB+MP3+SENSOR+BT BOARD

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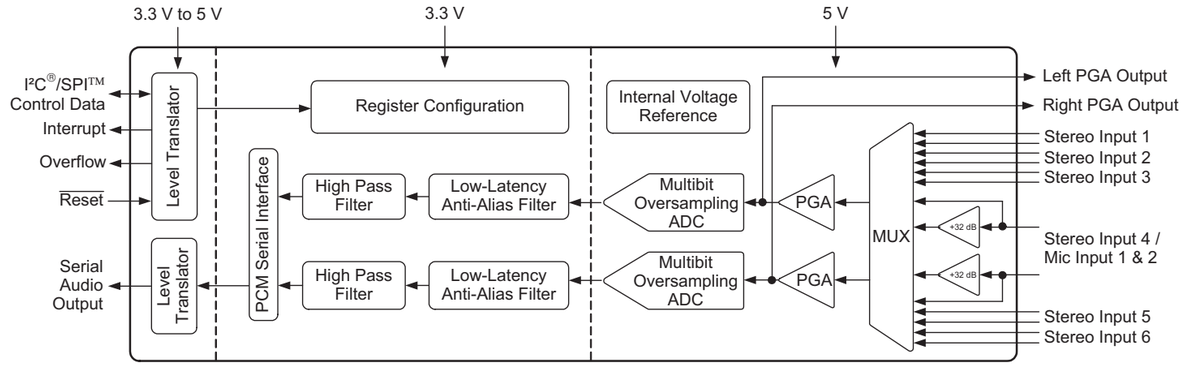
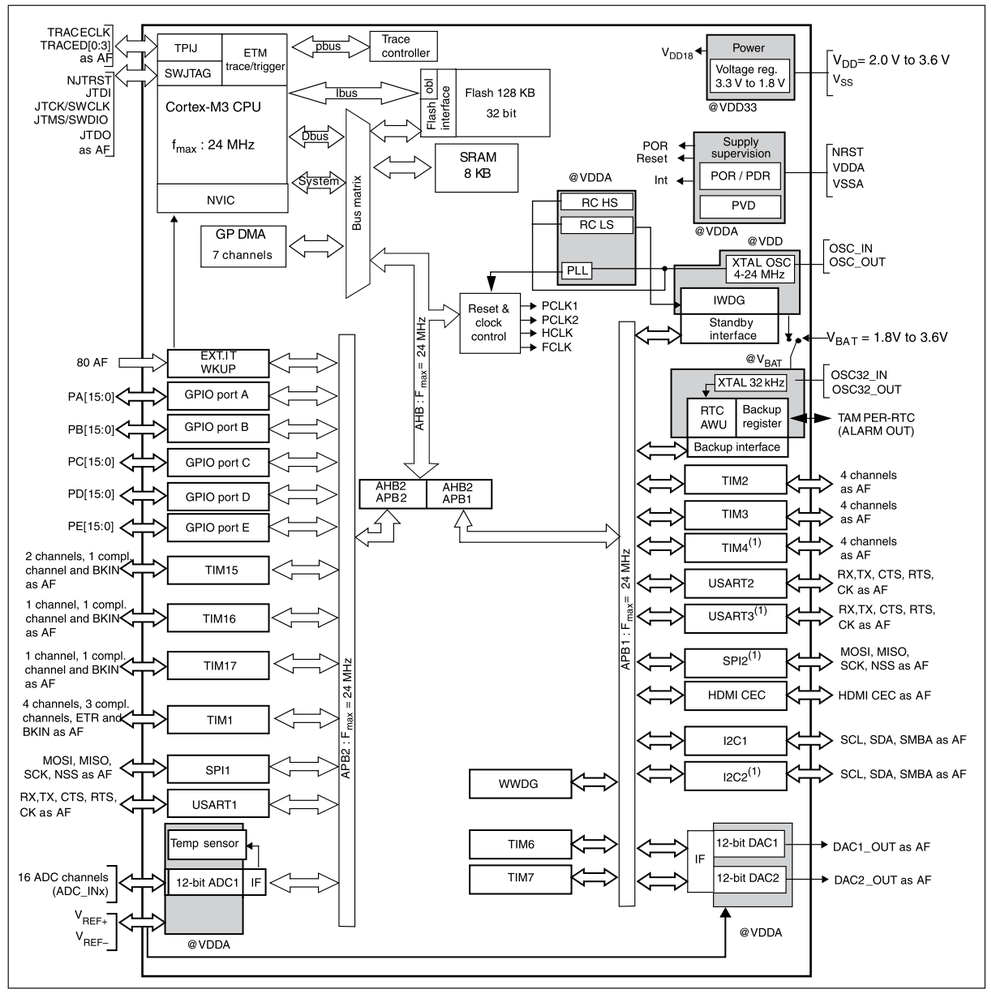
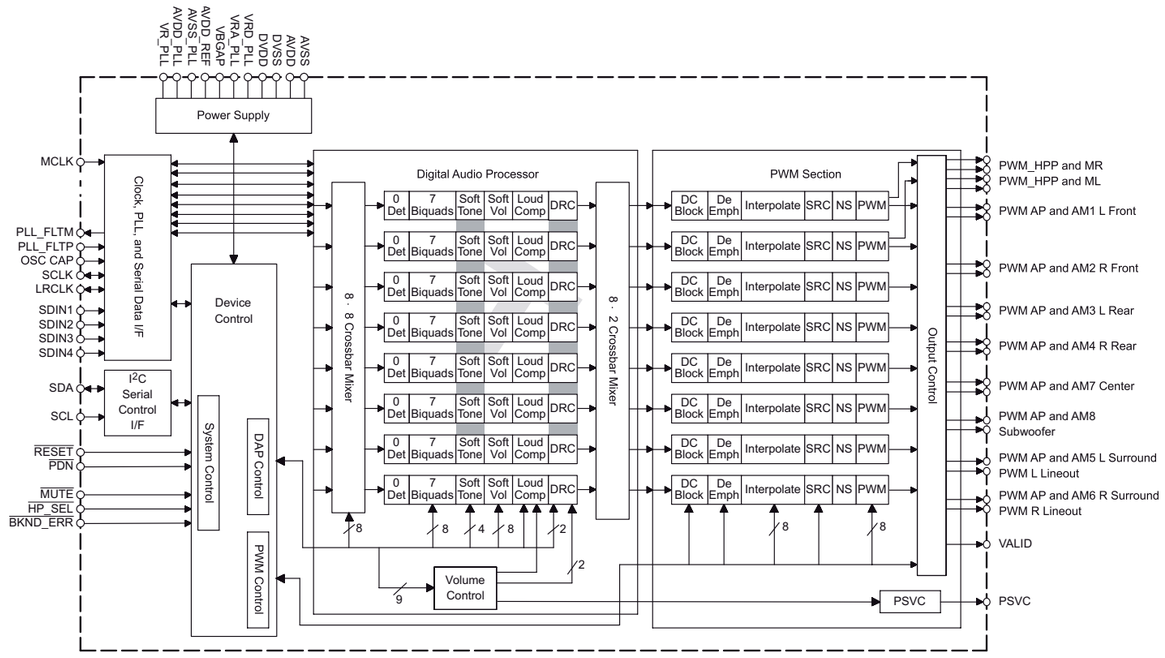
## IC304 INTERNAL IC DIAGRAM - CS5346 CQZ




## IC201 INTERNAL IC DIAGRAM - STM32F100VBT6BATR

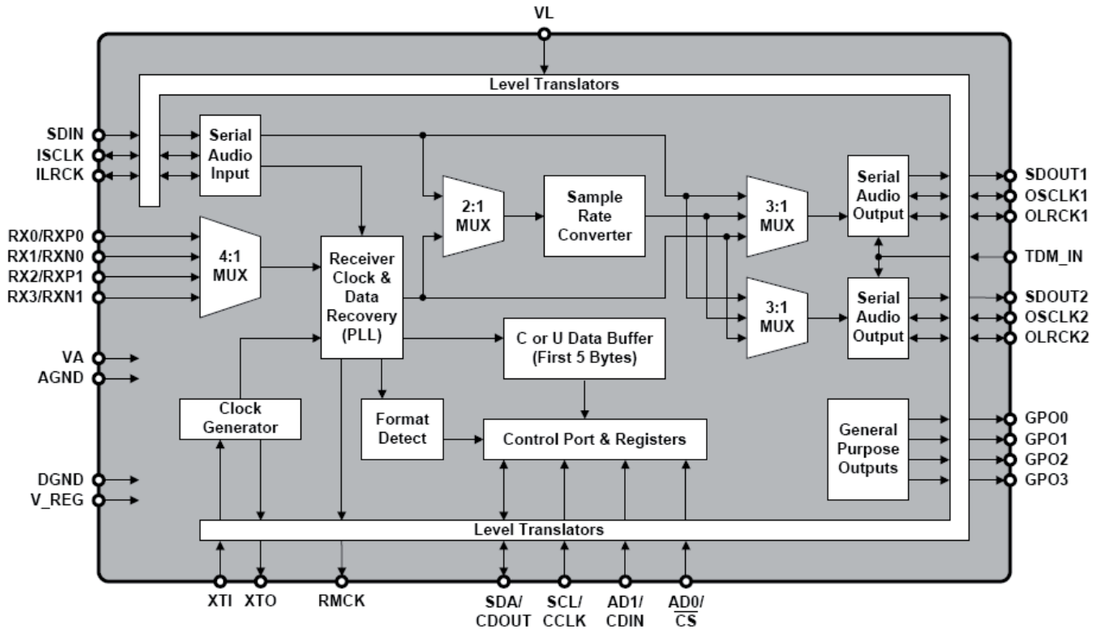


# IC4103 INTERNAL IC DIAGRAM - TAS5538 DGG



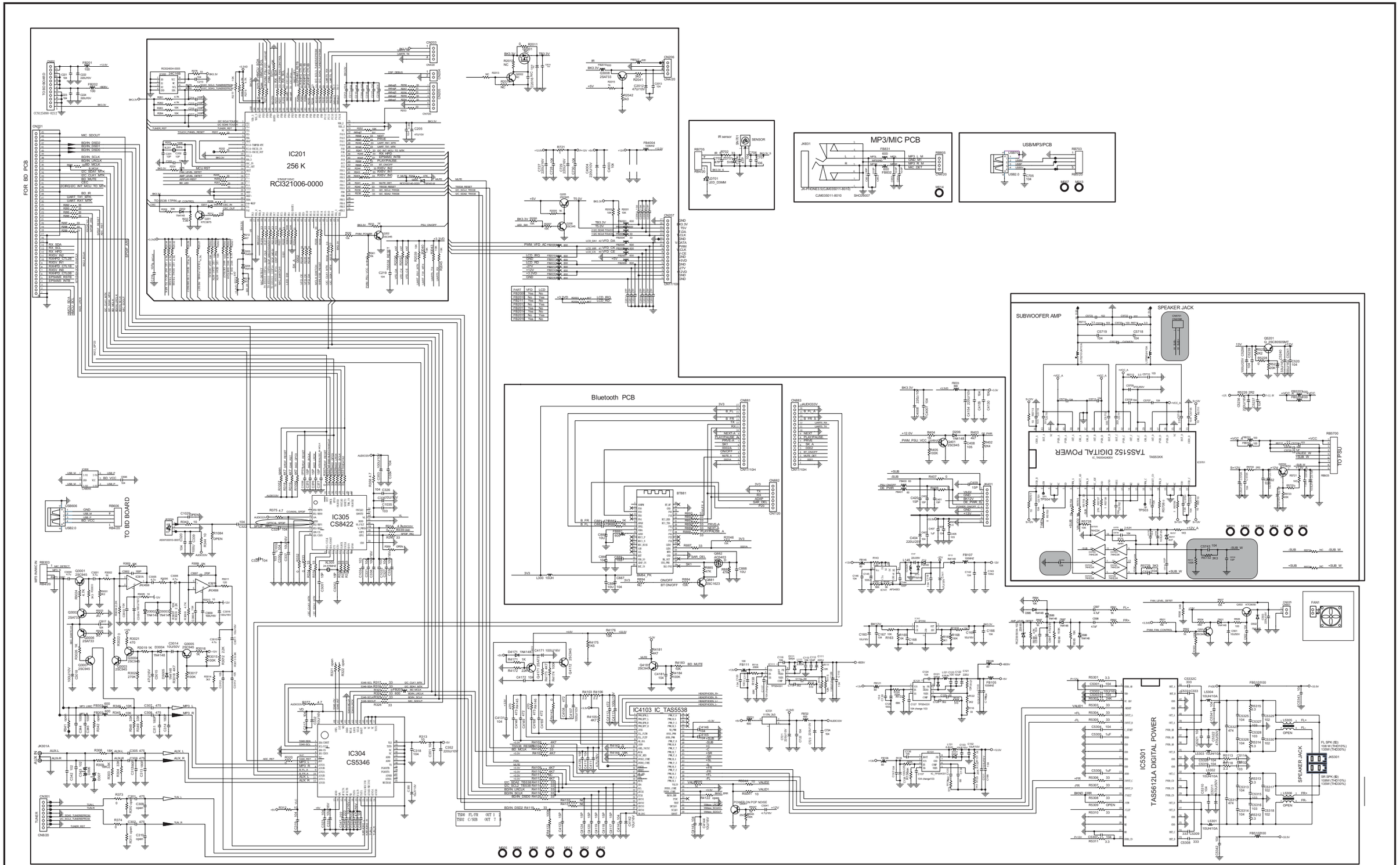

5 - 2

# IC305 INTERNAL IC DIAGRAM - CS8422-CNZR QFN



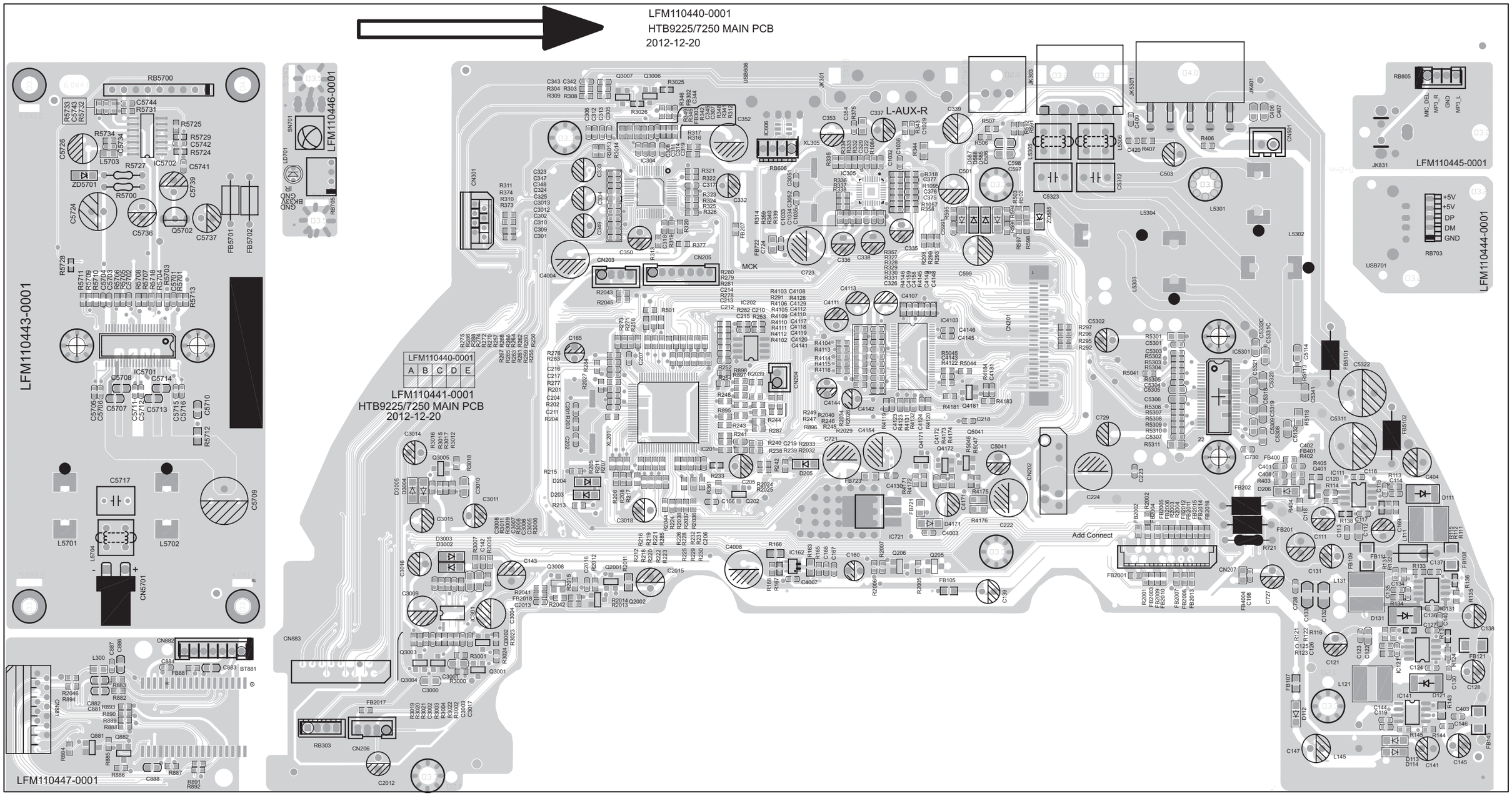
5 - 3

# CIRCUIT DIAGRAM



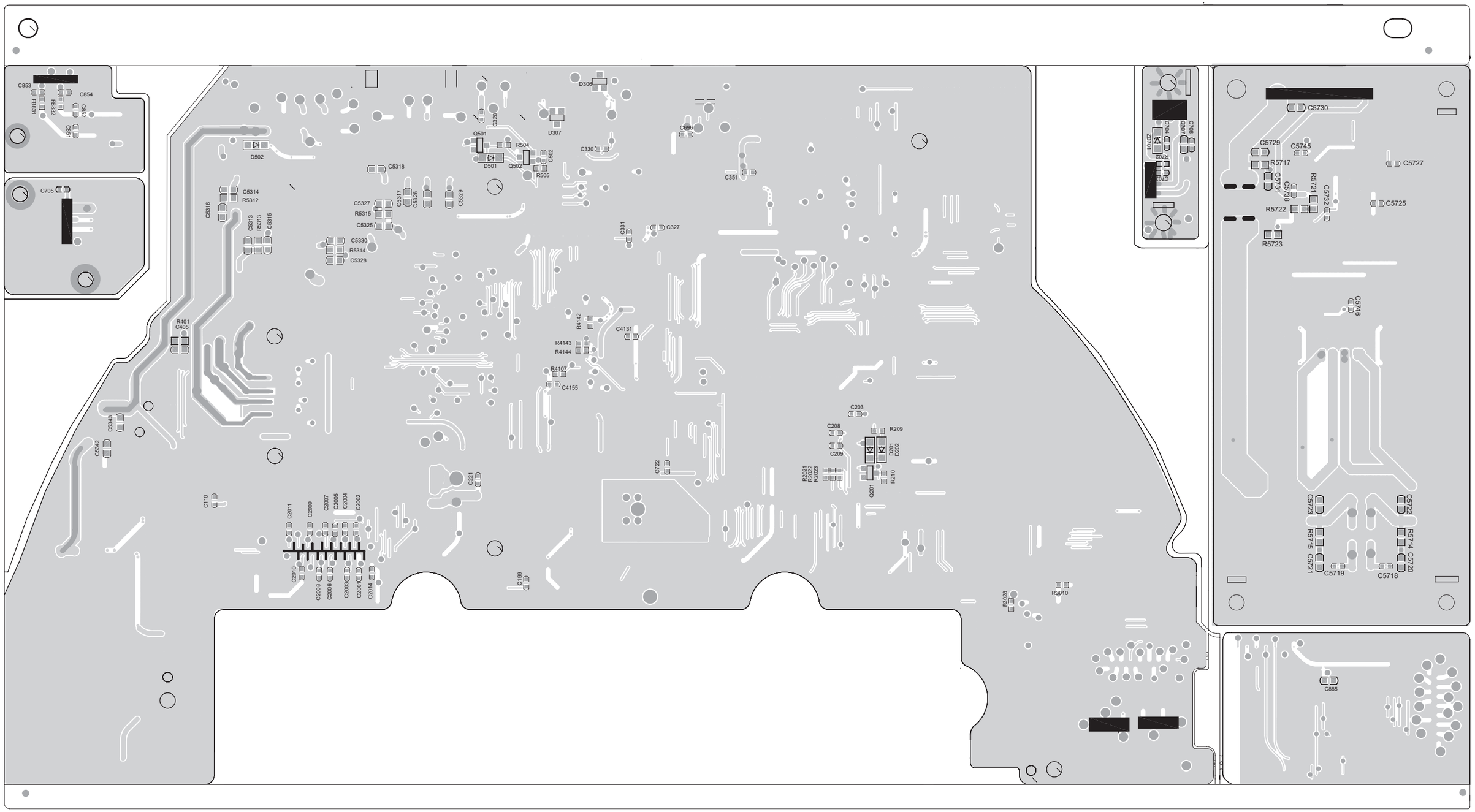
5 - 4

# PCB LAYOUT - TOP VIEW



5 - 5

# PCB LAYOUT - BOTTOM VIEW



# BD BOARD

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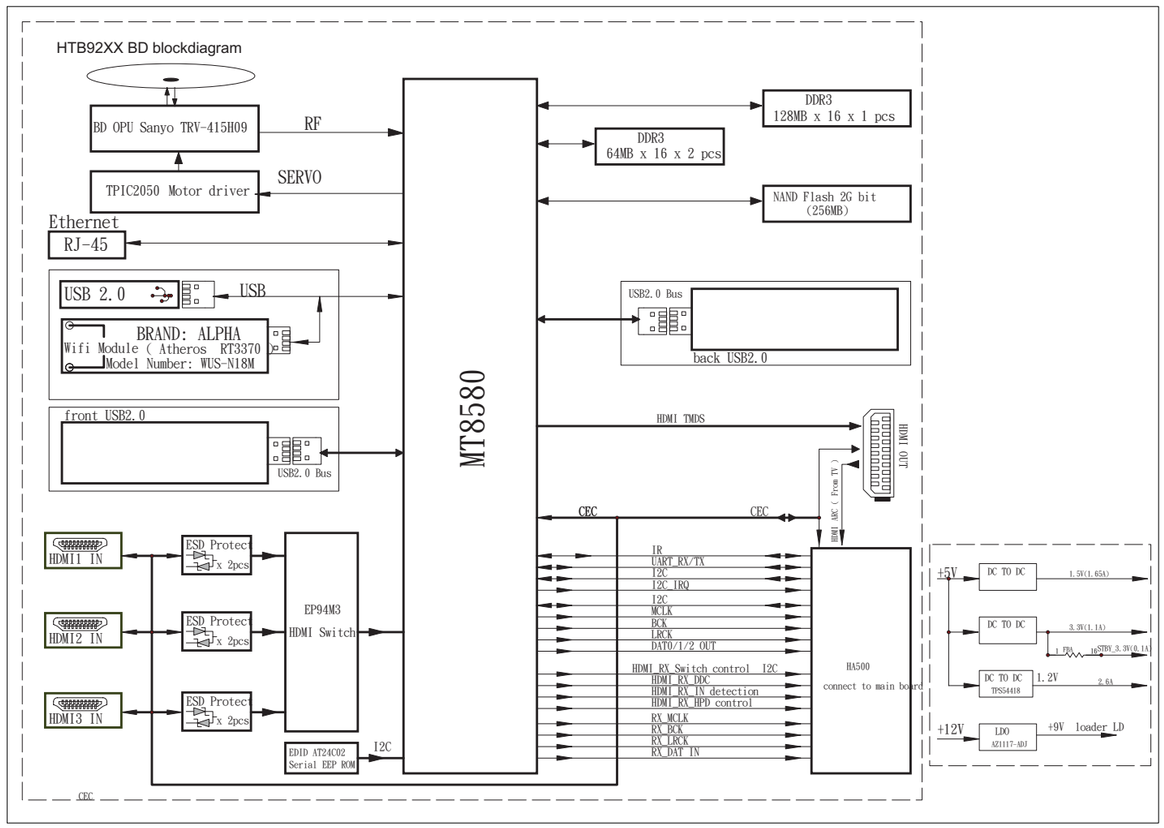
## BLOCK DIAGRAM



# Voltages for connector pin

1. HA501--->>from BD board connect to main board

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | GND | |
| 2 | MIC_IN | |
| 3 | GND | |
| 4 | DATA2 | |
| 5 | DATA1 | |
| 6 | DATA0 | |
| 7 | GND | |
| 8 | BCK | |
| 9 | LRCK | |
| 10 | MCLK | |
| 11 | GND | |
| 12 | SDA | |
| 13 | SCL | |
| 14 | AMUTE | high and low cotrol |
| 15 | CEC | |
| 16 | I2C_IRQ | high and low cotrol |
| 17 | GND | |
| 18 | IR | |
| 19 | IPOD_RXD | |
| 20 | IPOD_TXD | |
| 21 | ADC_RST | working High reset low |
| 22 | SPDIF_RST | working High reset low |
| 23 | SPDIF_IRQ | high and low cotrol |
| 24 | RX_DATA0 | |
| 25 | GND | |
| 26 | RX_BCK | |
| 27 | RX_LRCK | |
| 28 | RX_MCLK | |
| 29 | GND | |
| 30 | SPDIF_ARC | |
| 31 | GND | |
| 32 | HDMI_RX_SDA | |
| 33 | HDMI_RX_SCL | |
| 34 | HDMI_RX_HPD | high and low detection |
| 35 | RX5V_IN2 | high and low detection |
| 36 | RXHPD CTL2b | high and low cotrol |
| 37 | RX5V IN1 | high and low detection |
| 38 | RXHPD CTL1b | high and low cotrol |
| 39 | RX5V IN0 | high and low detection |
| 40 | RXHPD CTL0b | high and low cotrol |
| 41 | EP94M3 RSTb | working High reset low |
| 42 | EP94M3 INTb | high and low detection |
| 43 | HMCU SCL | |
| 44 | HMCU SDA | |
| 45 | GND | |

2. J800--->>from BD board connect to BD loader(SERVO use)

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | FOC2+ | |
| 2 | FOC2- | |
| 3 | TR- | |
| 4 | FOC1+ | |
| 5 | TR+ | |
| 6 | FOC1- | |
| 7 | CO_A- | |
| 8 | CO_B- | |
| 9 | CO_A+ | |
| 10 | CO_B+ | |
| 11 | GND | |
| 12 | SIG_PO | |
| 13 | GND | |
| 14 | INB | |
| 15 | INA | |
| 16 | IND | |
| 17 | INC | |
| 18 | ING | |
| 19 | INH | |
| 20 | INF | |
| 21 | INE | |
| 22 | LDO_SDIO | |
| 23 | RFO+ | |
| 24 | RFO- | |
| 25 | LDD_CLK | |
| 26 | FEGAINSW3 | |
| 27 | HAVCC | |
| 28 | VCC_PDIC | |
| 29 | GND | |
| 30 | GAINSW1 | |
| 31 | GND | |
| 32 | BD_LD | |
| 33 | CD_LD | |
| 34 | DVD_LD | |
| 35 | GND | |
| 36 | AUX1 | |
| 37 | VCC_HFM | |
| 38 | MDI_DVD | |
| 39 | MDI_BD | |
| 40 | DVD_VR | |
| 41 | CD_VR | |
| 42 | GND | |
| 43 | HFA_CD | |
| 44 | GND | |
| 45 | GND | |

3. CN201--->>from BD board connect to main board(Rear USB)

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | USB+5V | 4.75V-5.25V |
| 2 | USBM | High speed difference |
| 3 | USBP | |
| 4 | GND | |

6 - 2

4. CN203--->>from BD board connect to WIFI connect PCB

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | USB+5V | 4.75V-5.25V |
| 2 | USBM | High speed difference |
| 3 | USBP | |
| 4 | GND | |

5. CN202--->>from BD board connect to USB connect PCB(front USB)

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | USB+5V | 4.75V-5.25V |
| 2 | USB+5V | |
| 3 | USBM | High speed difference |
| 4 | USBP | |
| 5 | GND | |

6. J901 --->>from BD board connect to BD loader(SERVO use)

| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | _OAD- | |
| 2 | _OAD+ | |
| 3 | GND | |
| 4 | TYAY_IN | |
| 5 | TYAY_OUT | |

7. J900 --->>from BD board connect to BD loader(SERVO use)

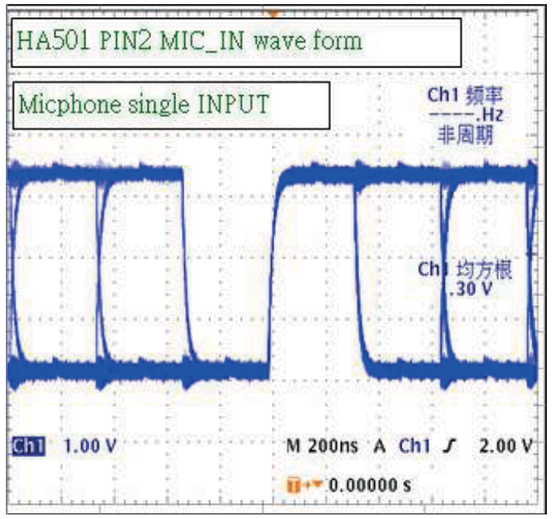
| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | U | |
| 2 | V | |
| 3 | W | |
| 4 | COMMON | |
| 5 | B+ | |
| 6 | B- | |
| 7 | A- | |
| 8 | A+ | |

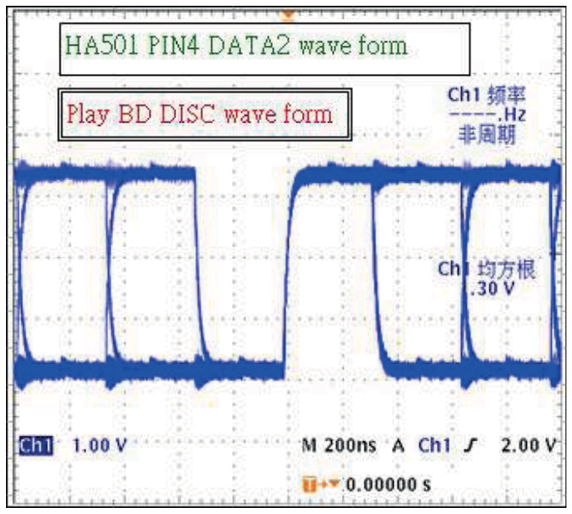
8. CN4 --->>from BD board connect to MAIN board

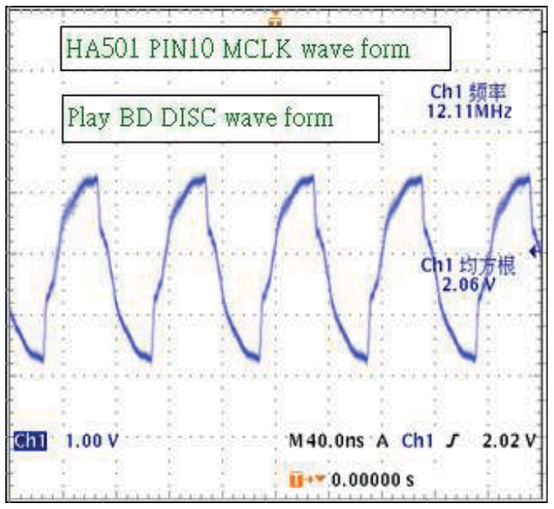
| PIN NO | PIN Assign | Remarks |
|---|---|---|
| 1 | BK3.3V | HDMI_RX Switch VCC: 2.97V-3.63V |
| 2 | GND | |
| 3 | GND | |
| 4 | GND | |
| 5 | GND | |
| 6 | +5V | BD main VCC+5V: 4.75V-5.25V |
| 7 | +5V | |
| 8 | +5V | |
| 9 | +5V | |
| 10 | +5V | |
| 11 | +5V | |
| 12 | +12V | motor driver VCC+12V :10.8-13.2V |

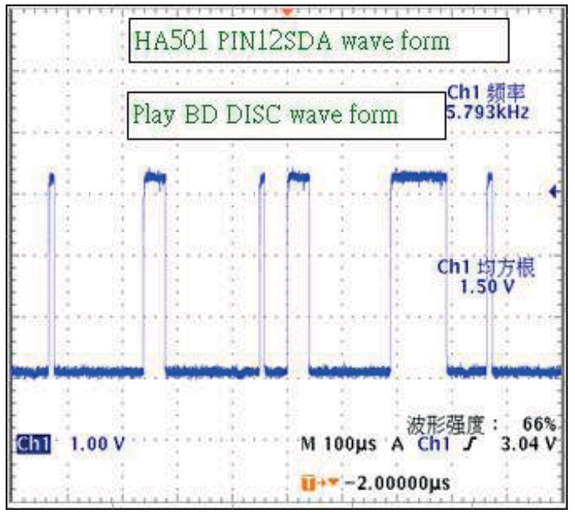
6 - 3

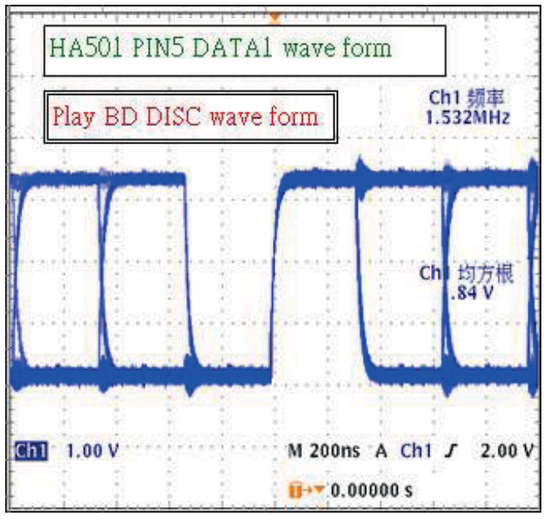
## Waveforms for measure point

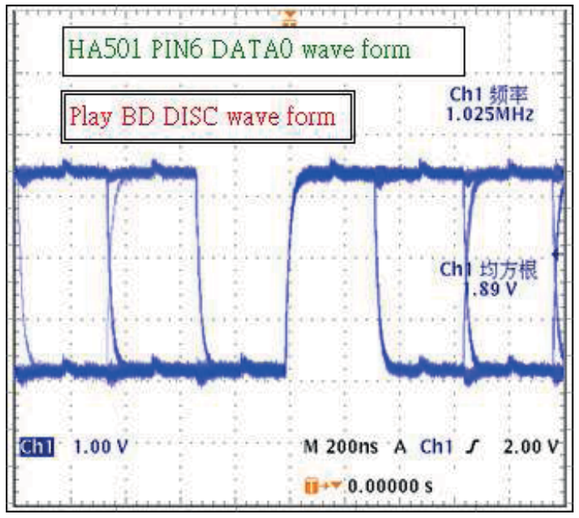


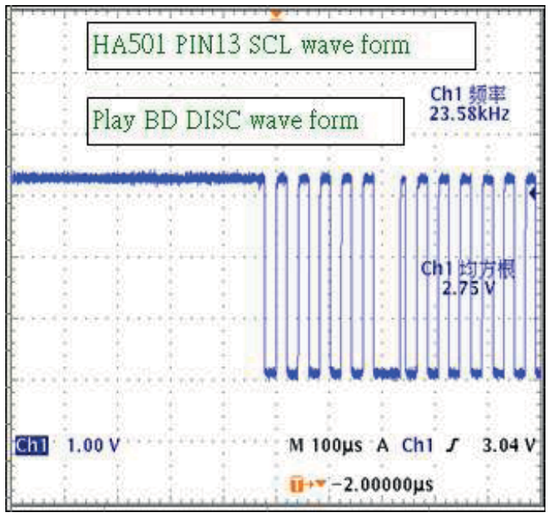



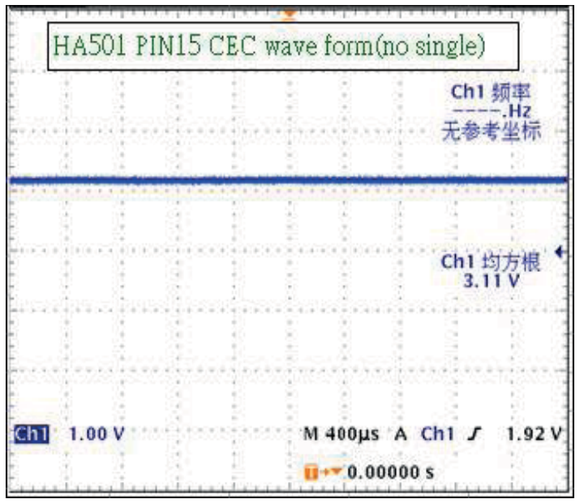



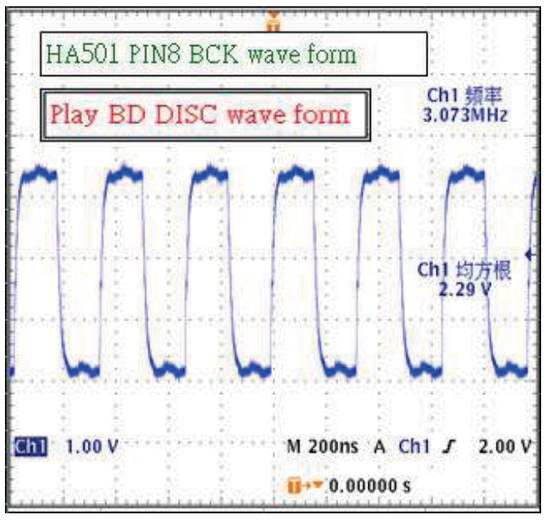



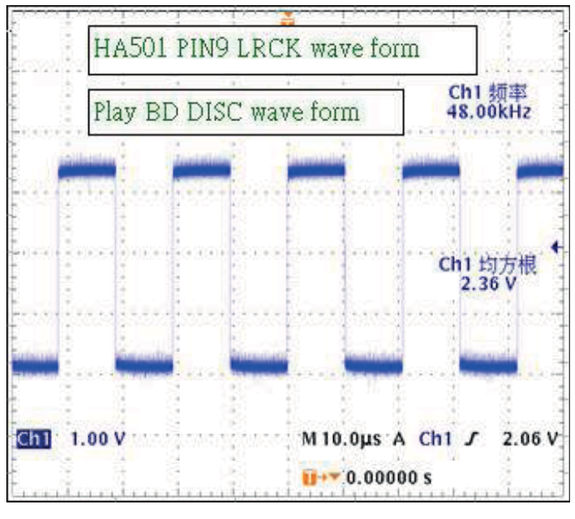



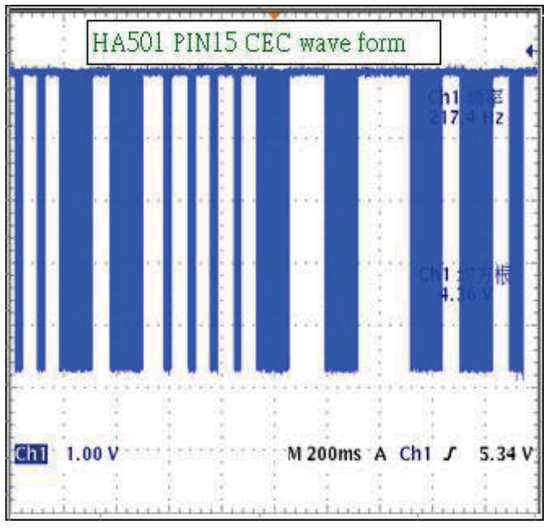



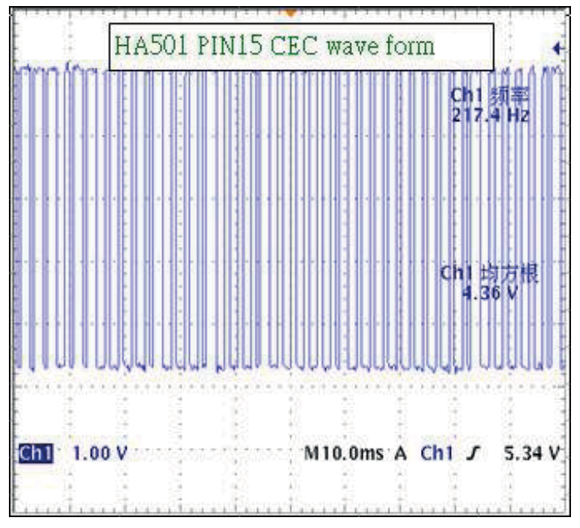



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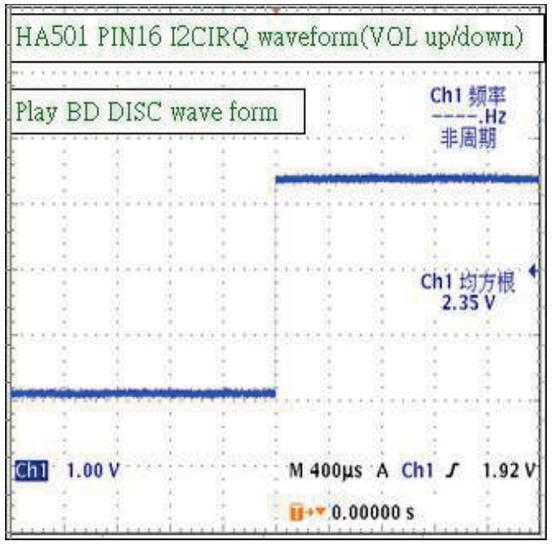
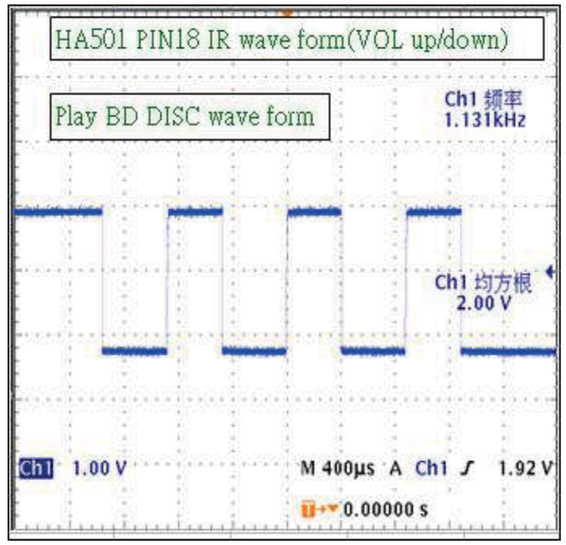
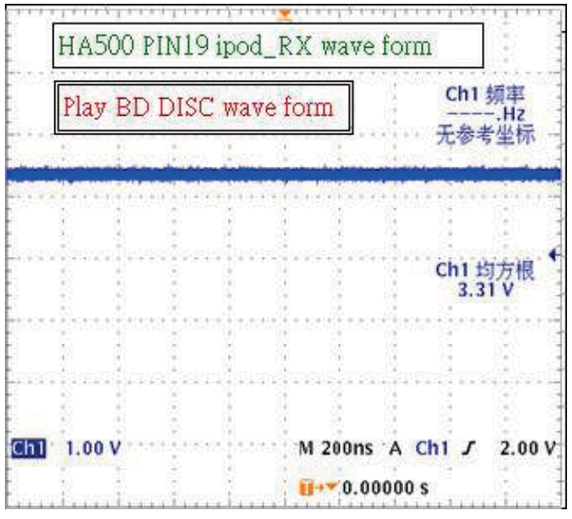
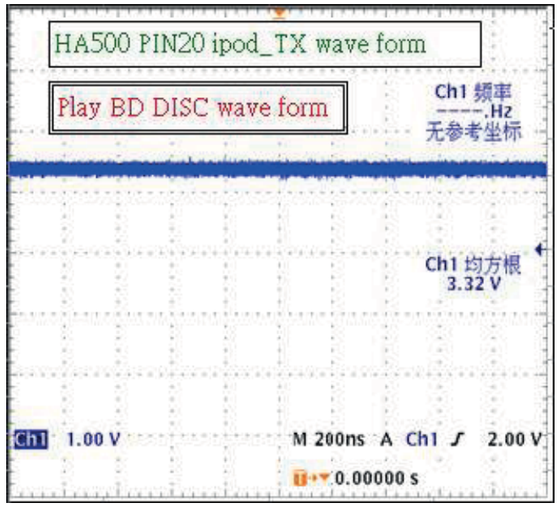
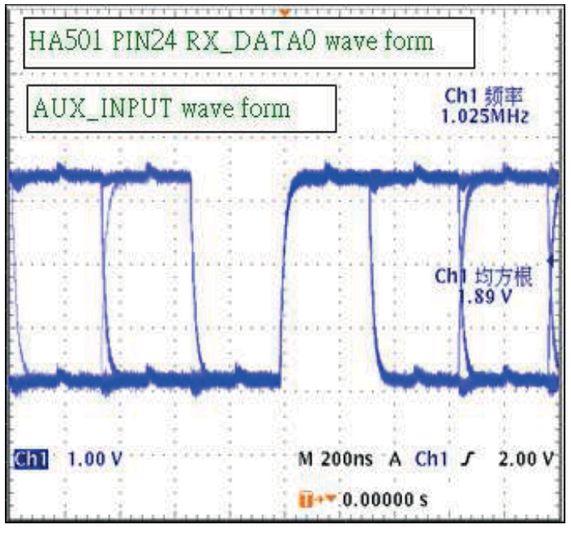
## Waveforms for measure point

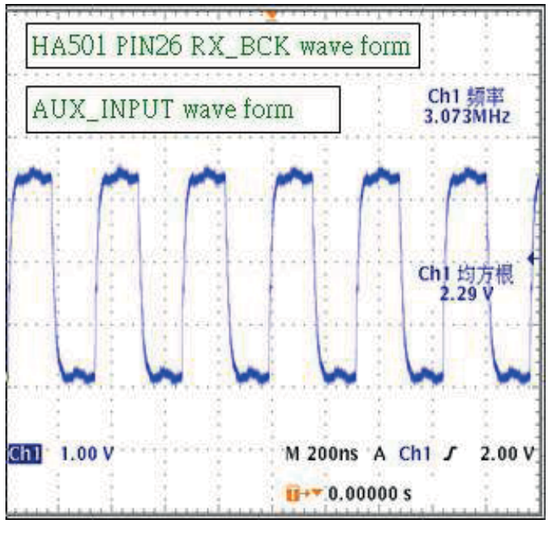


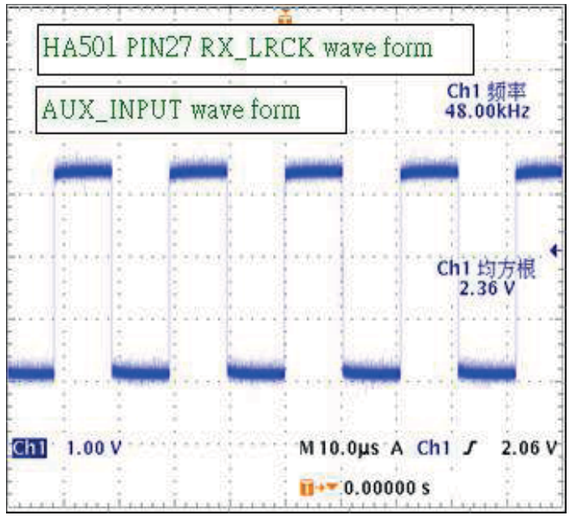



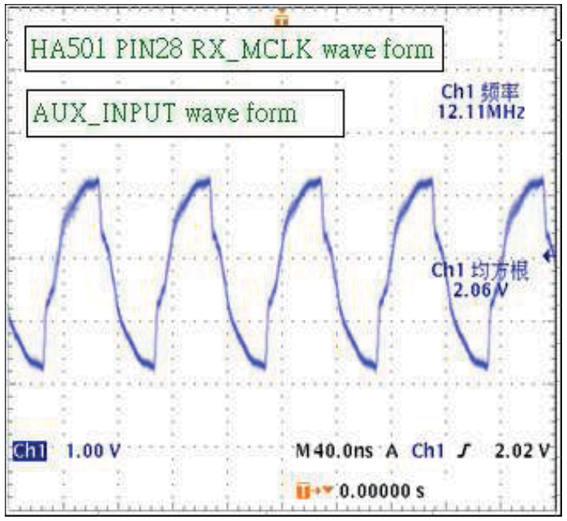



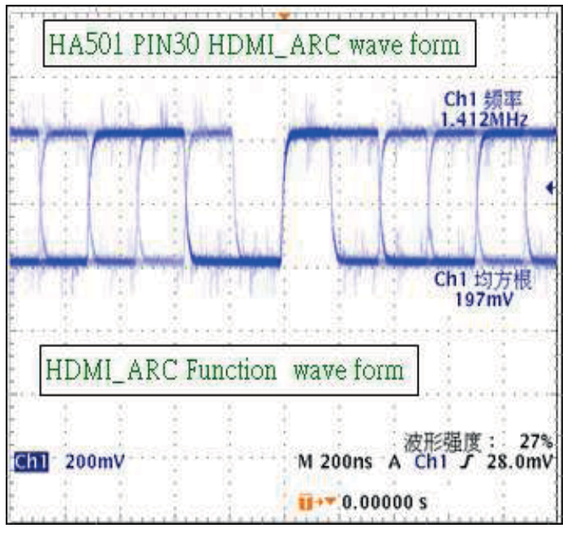



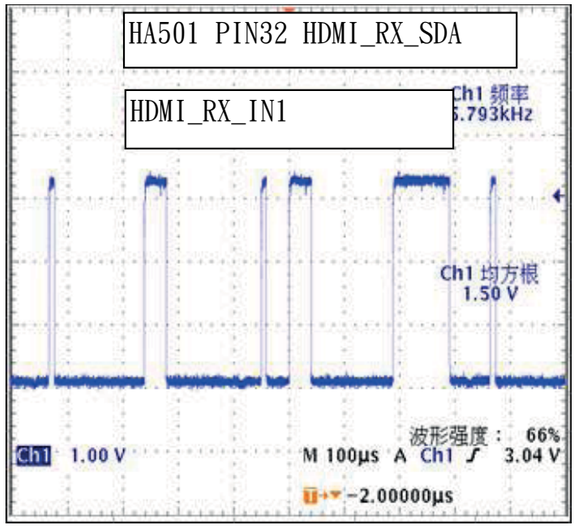



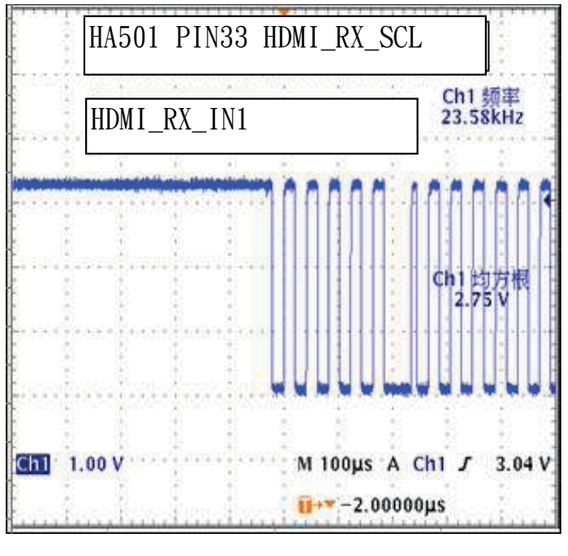



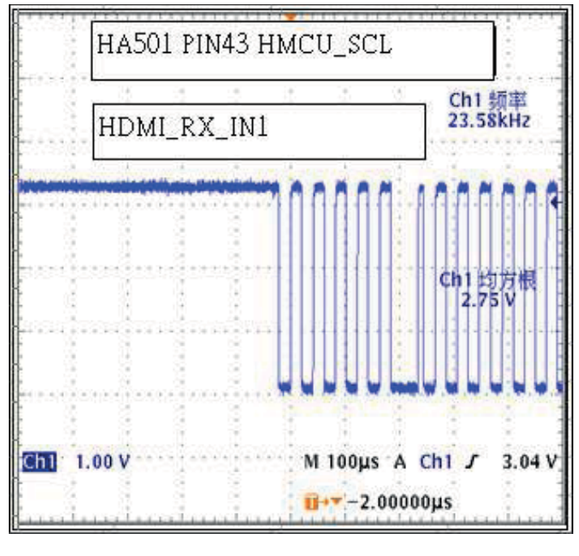



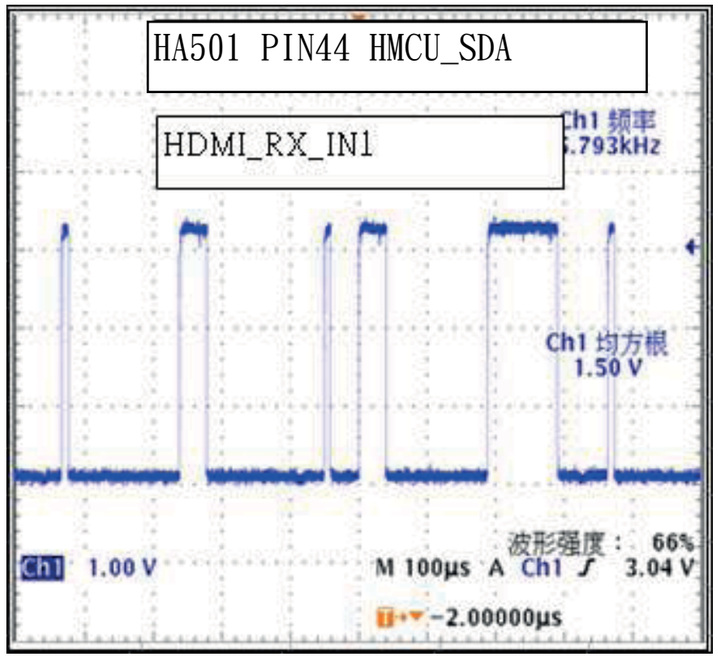



## Waveforms for measure point

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# TOUCH BOARD

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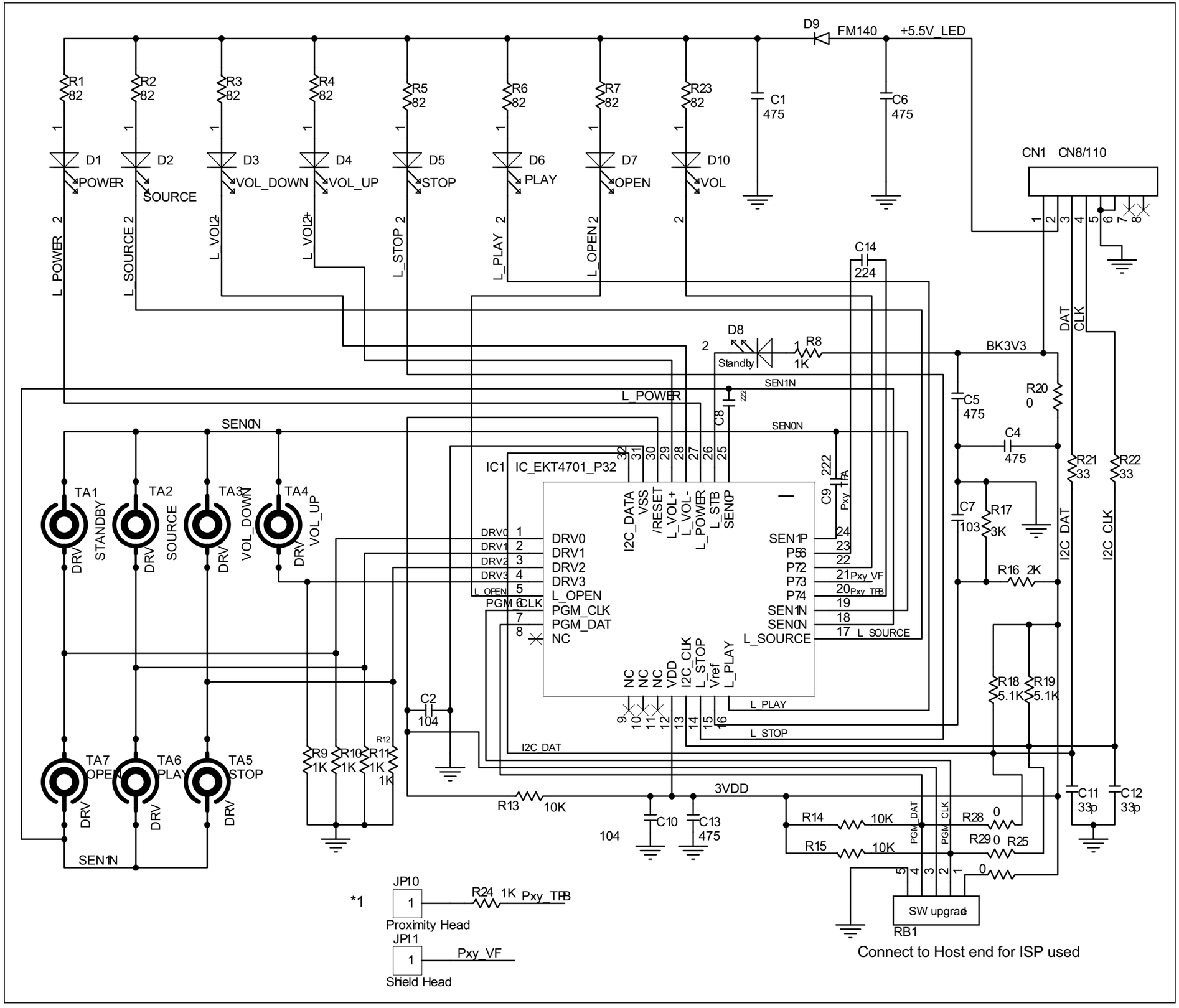
# CIRCUIT DIAGRAM



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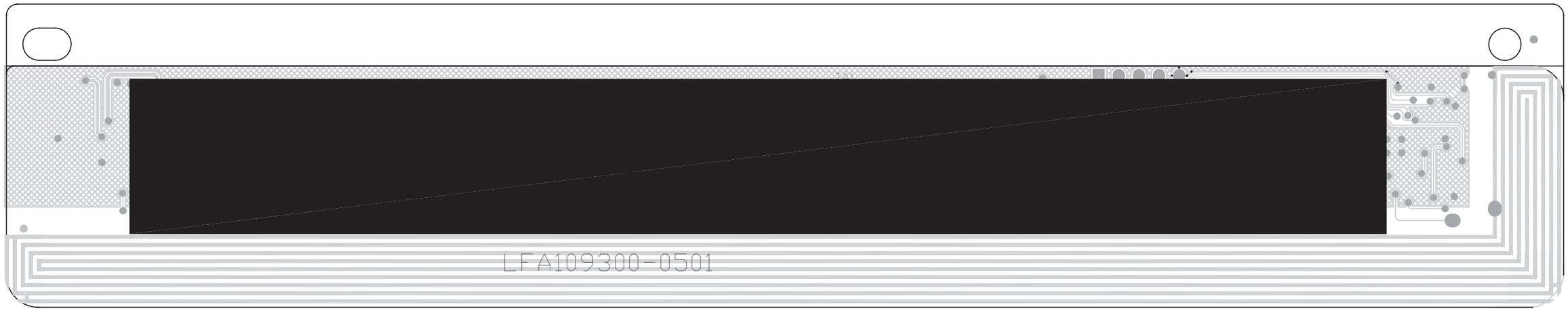
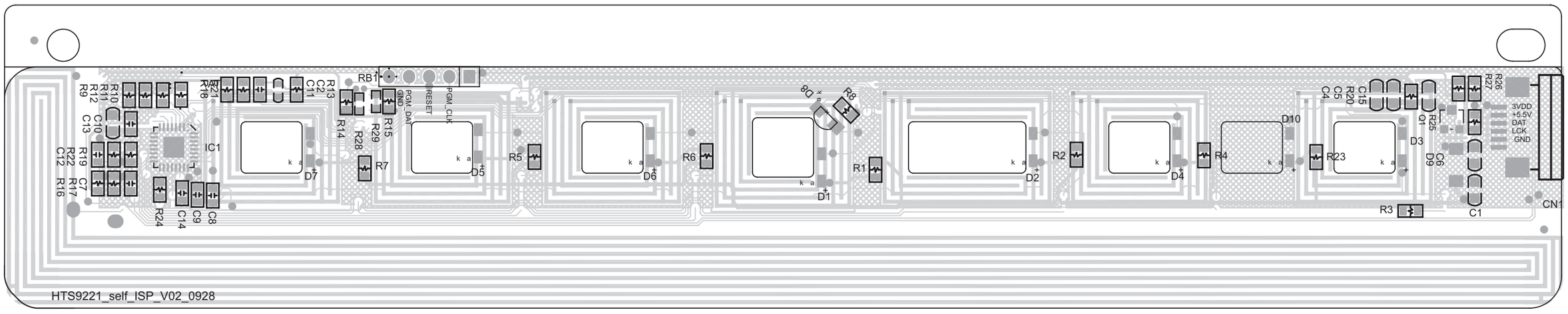
## PCB LAYOUT - TOP VIEW




## PCB LAYOUT - BOTTOM VIEW



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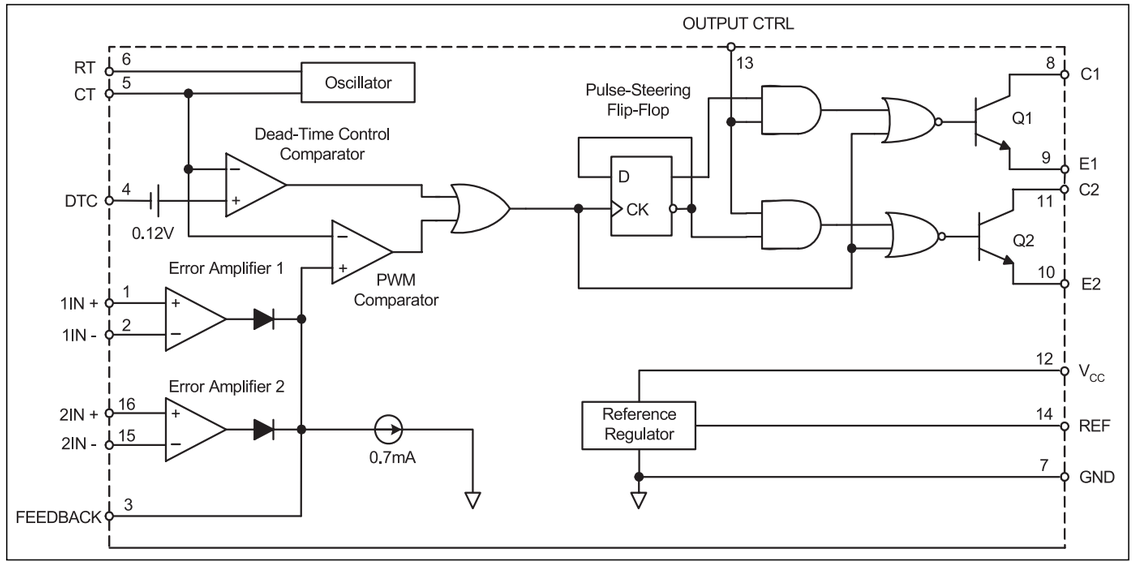
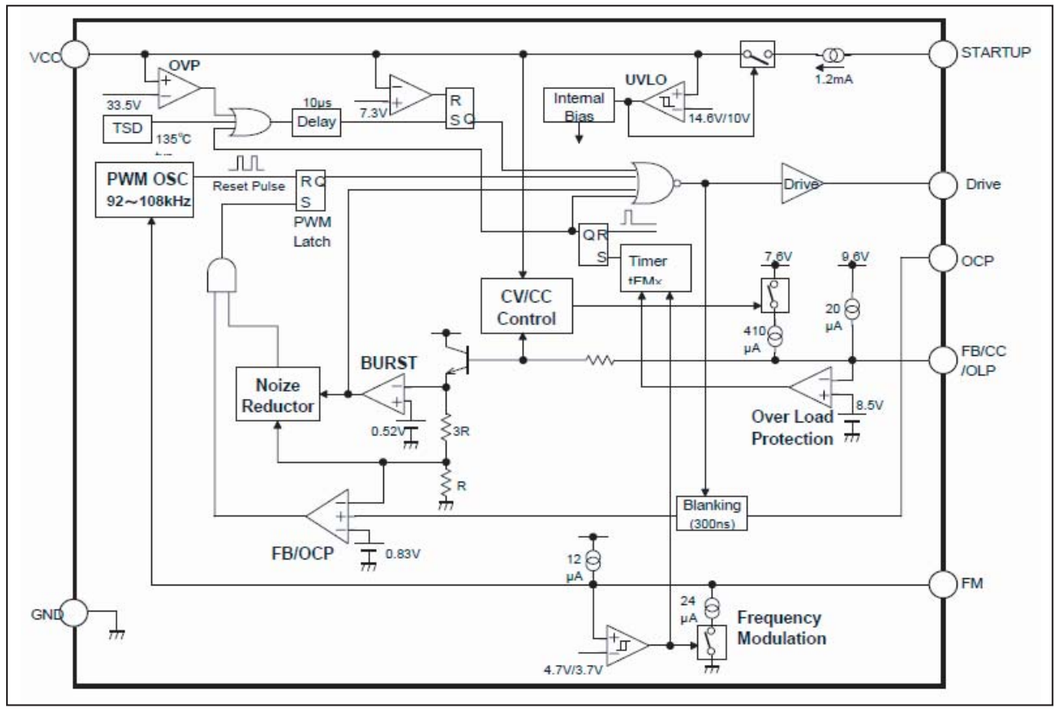
## IC905 INTERNAL IC DIAGRAM - AZ7500BP




## IC903 INTERNAL IC DIAGRAM - SSC620S



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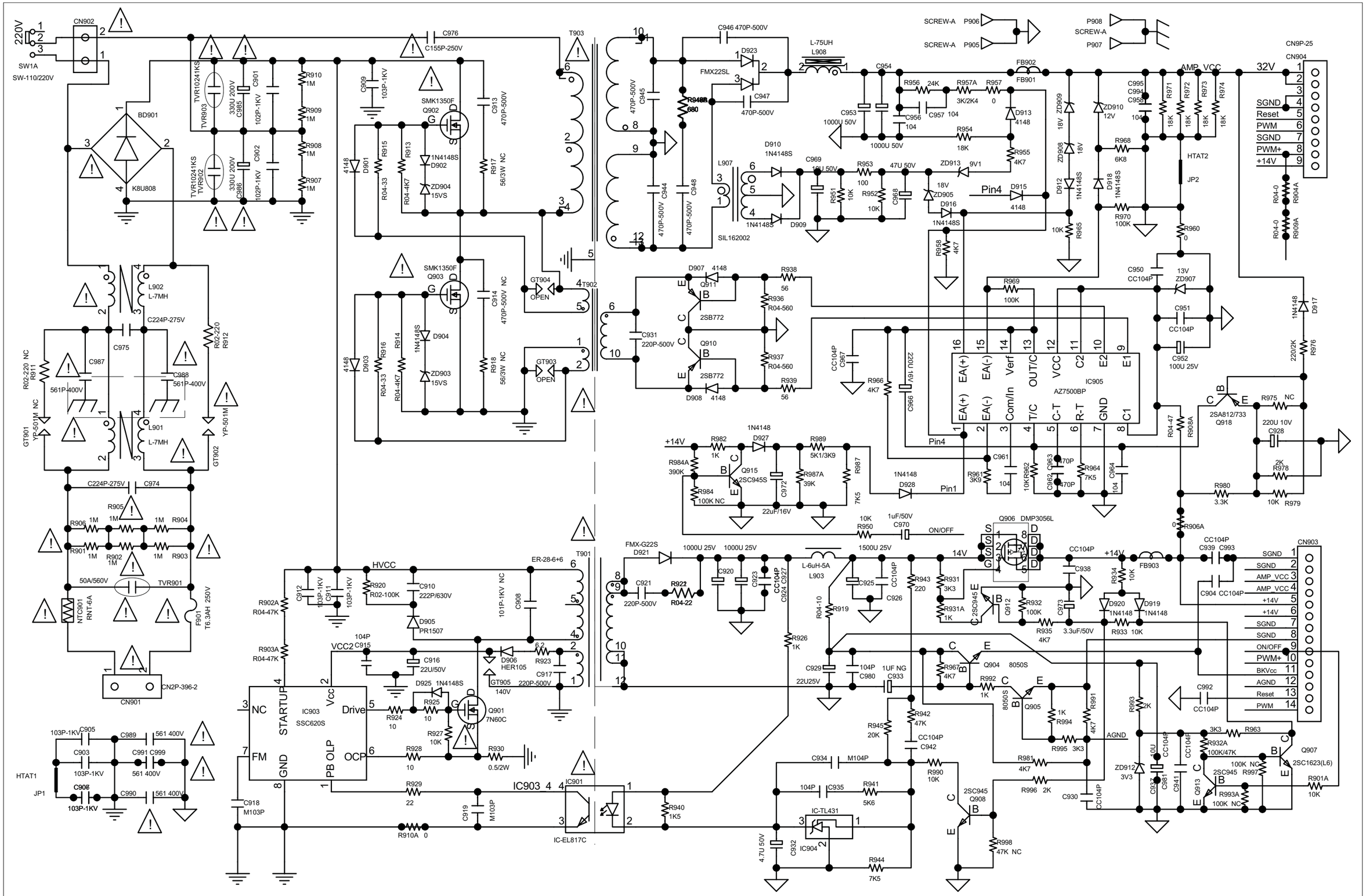
# CIRCUIT DIAGRAM



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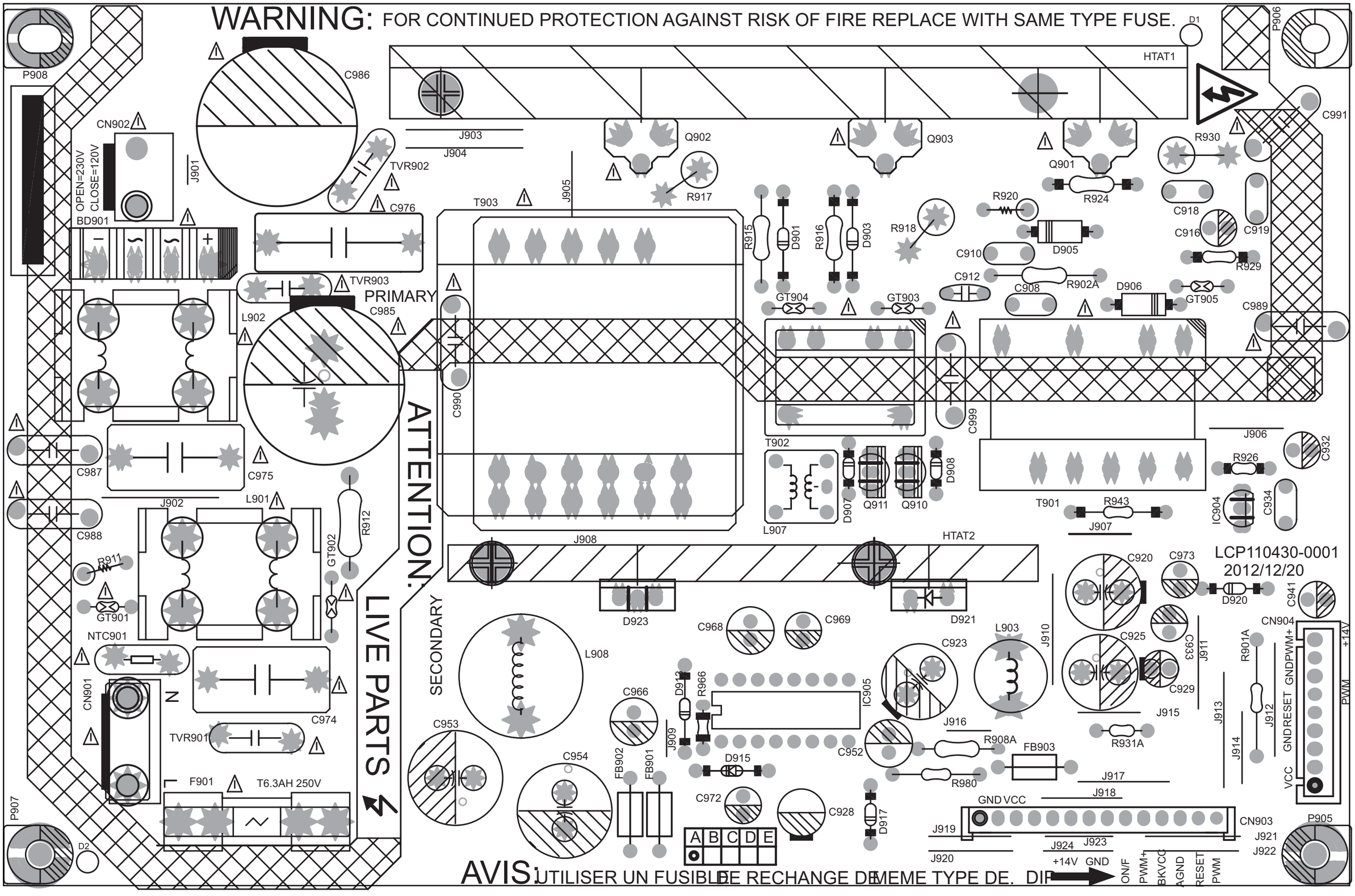
## PCB LAYOUT - TOP VIEW



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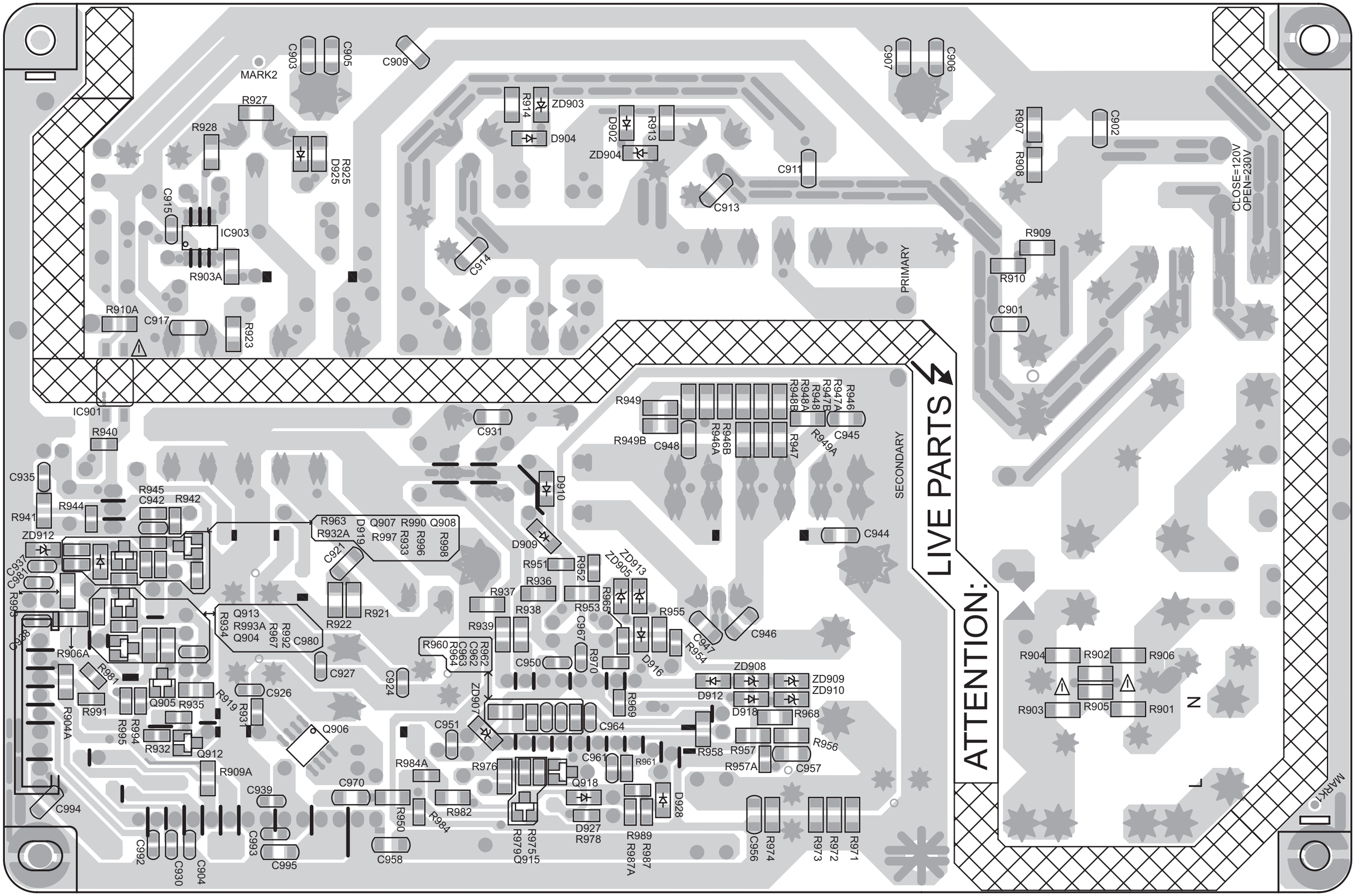
## PCB LAYOUT - BOTTOM VIEW



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# LCD BOARD

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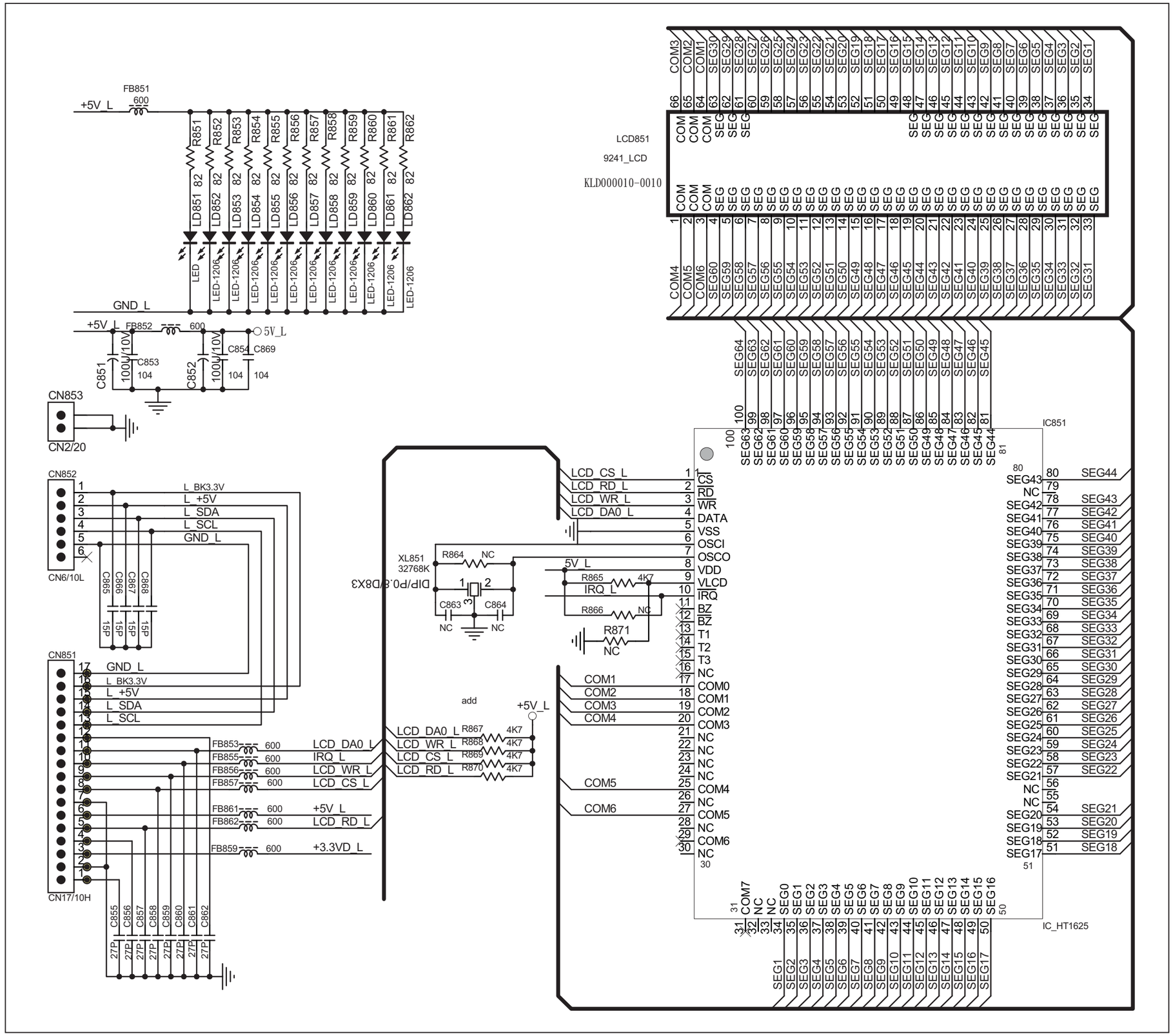

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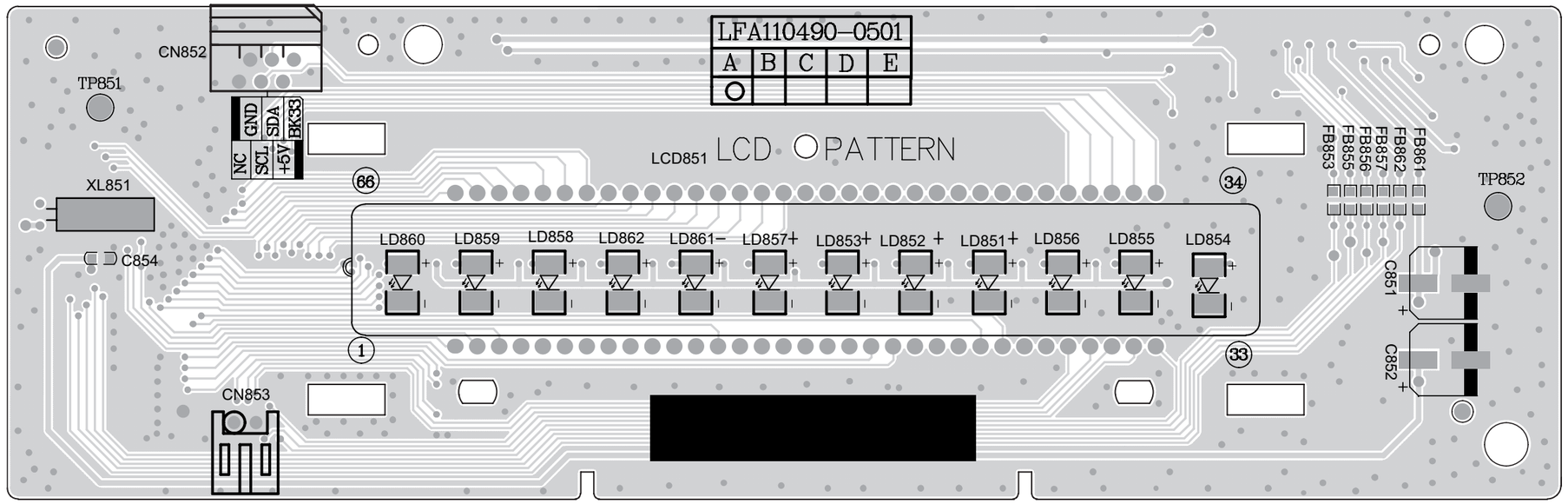
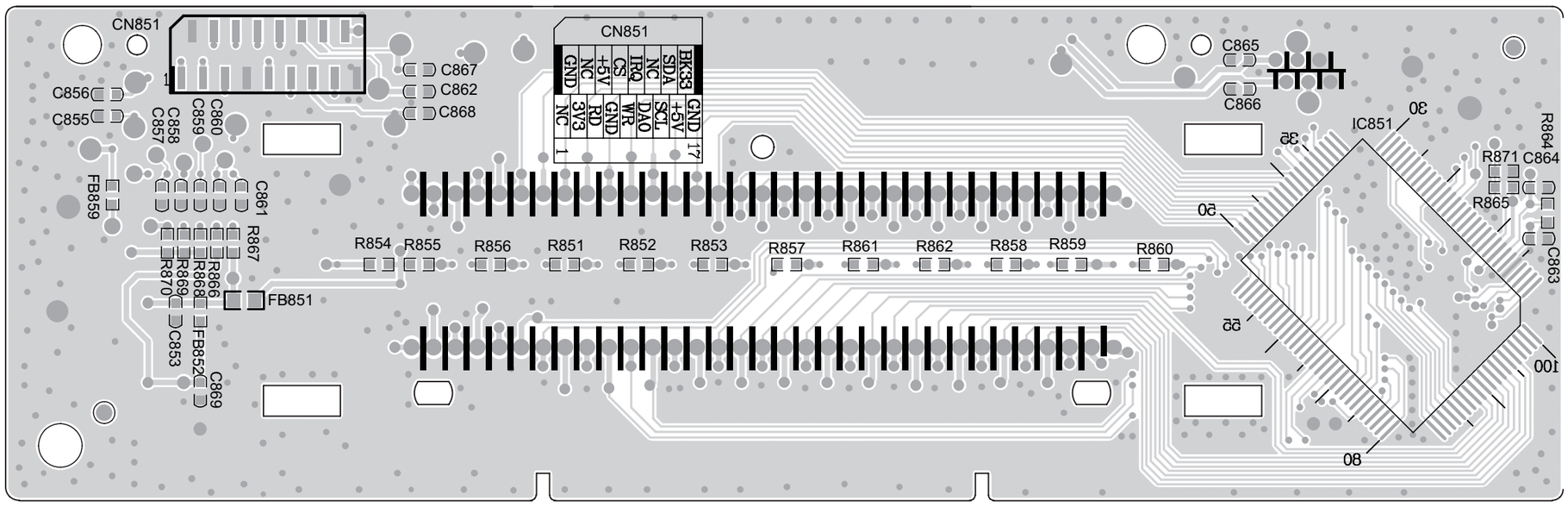
## PCB LAYOUT - TOP VIEW




## PCB LAYOUT - BOTTOM VIEW



# Mechanical Exploded View(Main Unit)

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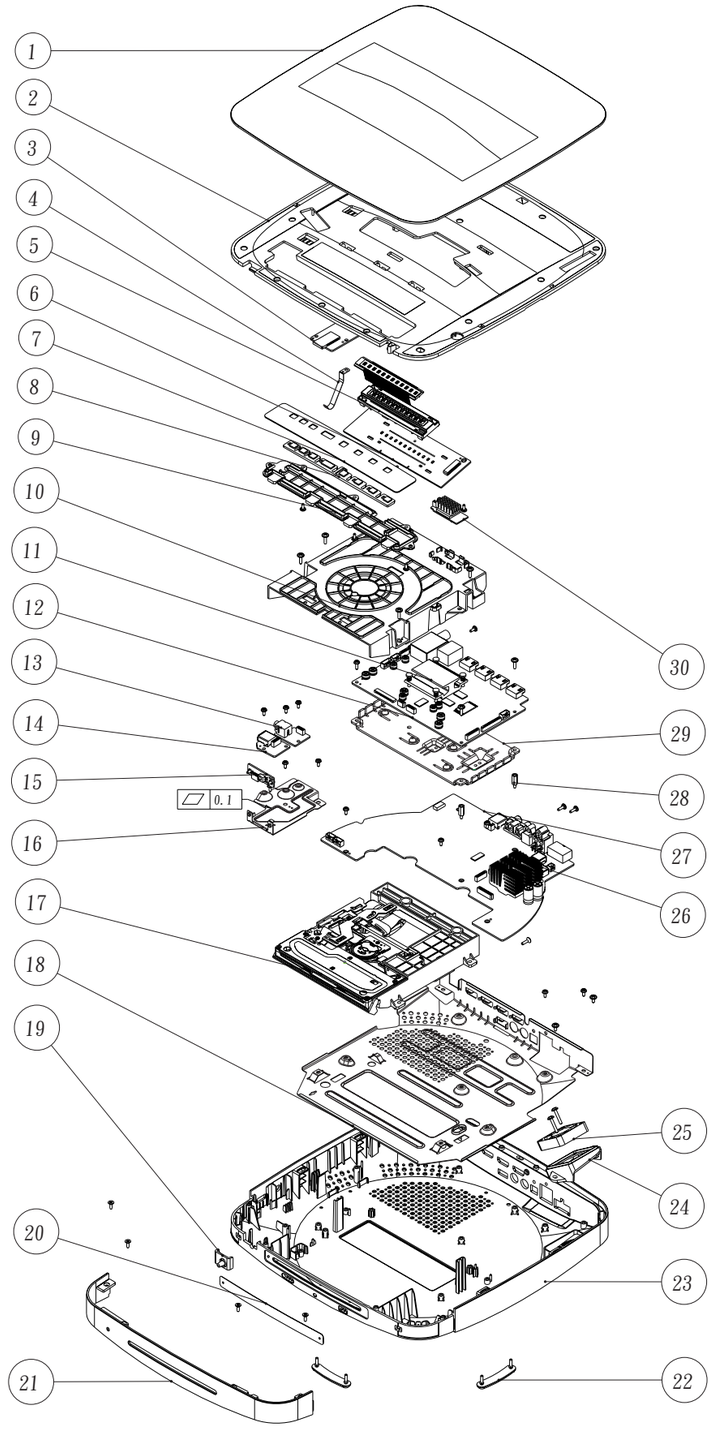



Note: A1=3+13+14+15+27+SW2

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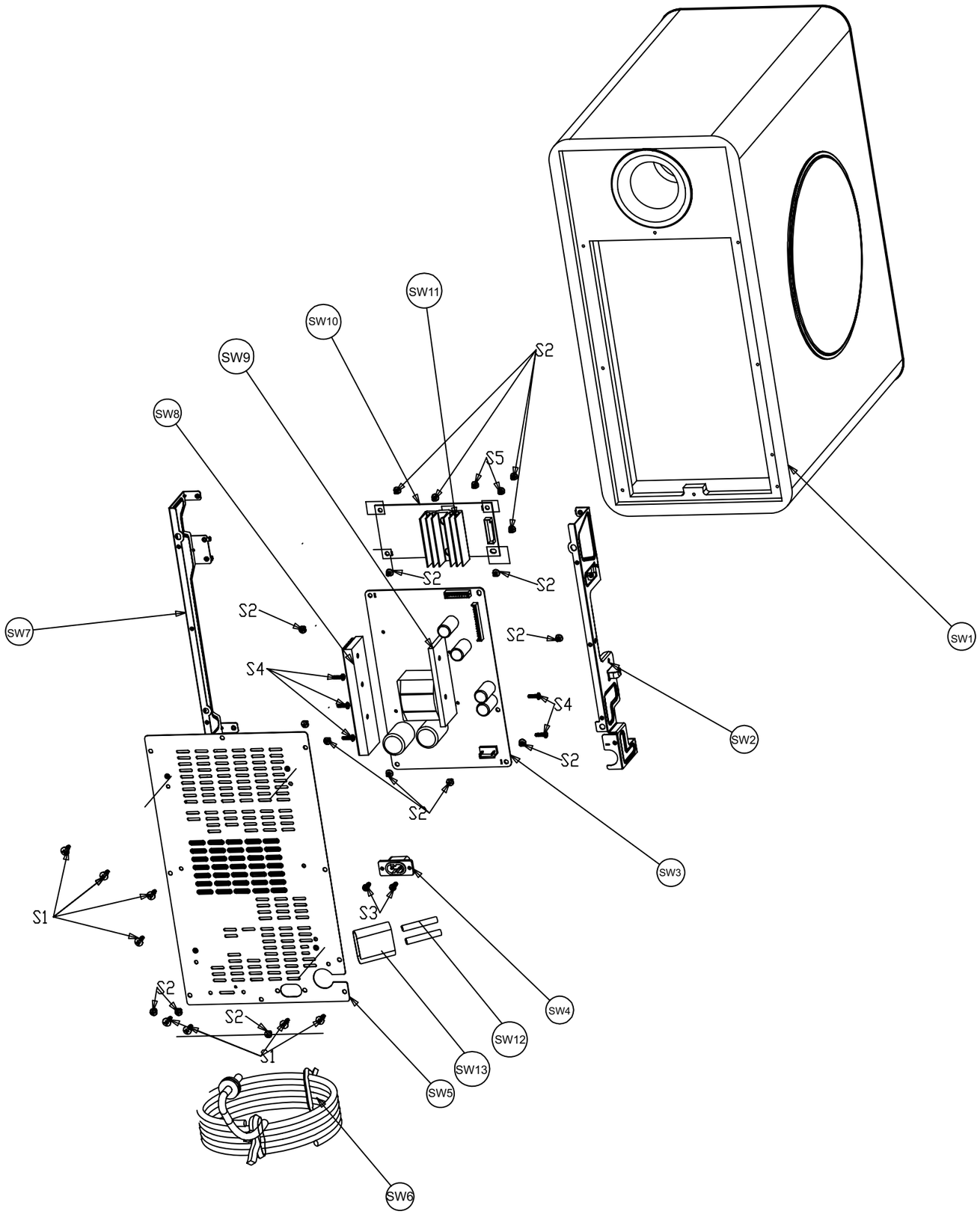
# Mechanical Exploded View(Subwoofer)



# REVISION LIST

Version 1.0
*Initial release