

Service
Service
Service



Service Manual



TABLE OF CONTENTS

| | Chapter |
|--|---------|
| Technical Specifications | 1-2 |
| Safety Instructions | 1-3 |
| Location of PCB Boards | 2-1 |
| Version Variation | 2-2 |
| Measurement Setup | 2-3 |
| Service Aids | 2-4 |
| Setting procedure & Repair Instructions..... | 3 |
| Fireware Upgrade Recovery Mode..... | 3-4 |
| Disassembly Instructions & Service positions | 4 |
| Block & Wiring Diagram | 5 |
| CD Servo Board | 6 |
| DSP Board | 7 |
| Key Board | 8 |
| AMP Board | 9 |
| USB Board | 10 |
| Wireless Board | 11 |
| Eject Board | 12 |
| Exploded View | 13 |

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1. Technical Specifications, Directions for Use

Index of this chapter:

[1.1 Technical Specifications](#)

[1.2 Directions for Use](#)

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

For on-line product support please use the following website:

http://www.p4c.philips.com/cgi-bin/dcbint/cpproduct_selector.pl

Here is product information available, as well as getting started, user manuals, frequently asked questions and software & drivers.

1.2 Directions for Use

You can download this information from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>

2. Safety Instructions, Warnings, Notes, and Abbreviation List

Index of this chapter:

[2.1 Safety Instructions](#)

[2.2 Warnings](#)

[2.3 Notes](#)

[2.4 Abbreviation List](#)

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

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 Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
 1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
 2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
 3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ.
 4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⊥), or hot ground (↗), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).

- Where necessary, measure the waveforms and voltages with (⊥) and without (↗) aerial signal. Measure the voltages in the power supply section both in normal operation (⊥) and in stand-by (↗). These values are indicated by means of the appropriate symbols.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kΩ).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 Ω).
- All capacitor values are given in micro-farads ($\mu = \times 10^{-6}$), nano-farads ($n = \times 10^{-9}$), or pico-farads ($p = \times 10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 BGA (Ball Grid Array) ICs

Introduction

For more information on how to handle BGA devices, visit this URL: www.atyourservice.ce.philips.com (needs subscription, not available for all regions). After login, select "Magazine", then go to "Repair downloads". Here you will find Information on how to deal with BGA-ICs.

BGA Temperature Profiles

For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website www.atyourservice.ce.philips.com (needs subscription, but is not available for all regions)

You will find this and more technical information within the "Magazine", chapter "Repair downloads".

For additional questions please contact your local repair help desk.

2.3.4 Lead-free Soldering

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

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering 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 soldering tin. The solder tool must be able:
 - To reach a solder-tip temperature of at least 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 of 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 increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to **avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

Safety Instructions, Warnings, Notes, and Abbreviation List

2.3.5 Alternative BOM identification

It should be noted that on the European Service website, "Alternative BOM" is referred to as "Design variant".

The **third digit** in the serial number (example: KX2B0835000001) indicates the number of the alternative B.O.M. (Bill Of Materials) that has been used for producing the specific AV set. In general, it is possible that the same AV model on the market is produced with e.g. two different types of display, coming from two different suppliers. This will then result in sets which have the same CTN (Commercial Type Number; e.g. MCM394/12) but which have a different B.O.M. number.

Also, it is possible that same model on the market is produced with two production centers, however their partslist is the same. In such case, no alternative B.O.M. will be created.

By looking at the third digit of the serial number, one can identify which B.O.M. is used for the set he is working with. If the third digit of the serial number contains the number "1" (example: KX1B033500001), then the set has been manufactured according to B.O.M. number 1. If the third digit is a "2" (example: KX2B033500001), then the set has been produced according to B.O.M. no. 2. This is important for ordering the correct spare parts!
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26= 35 different B.O.M.s can be indicated by the third digit of the serial number.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 1 and 2 refer to the production centre (e.g. LM is Arts), digit 3 refers to the B.O.M. code, digit 4 refers to the Service version change code, digits 5 and 6 refer to the production year, and digits 7 and 8 refer to production week (in example below it is 2008 week 50). The 6 last digits contain the serial number.

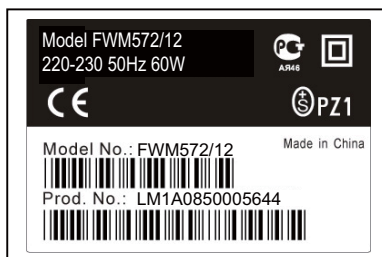


Figure 2-1 Serial number (example)

2.3.6 Module Level Repair (MLR) or Component Level Repair (CLR)

If a board is defective, consult your repair procedure to decide if the board has to be exchanged or if it should be repaired on component level.

If your repair procedure says the board should be exchanged completely, do not solder on the defective board. Otherwise, it cannot be returned to the O.E.M. supplier for back charging!

2.3.7 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

2.4 Abbreviation List

| | |
|----------|--|
| 0/6/12 | SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16 : 9 format, 12 = play 4 : 3 format |
| 2DNR | Spatial (2D) Noise Reduction |
| 3DNR | Temporal (3D) Noise Reduction |
| AARA | Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeps the original aspect ratio |
| ACI | Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page |
| ADC | Analogue to Digital Converter |
| AFC | Automatic Frequency Control: control signal used to tune to the correct frequency |
| AGC | Automatic Gain Control: algorithm that controls the video input of the feature box |
| AM | Amplitude Modulation |
| ANR | Automatic Noise Reduction: one of the algorithms of Auto TV |
| AP | Asia Pacific |
| AR | Aspect Ratio: 4 by 3 or 16 by 9 |
| ASF | Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information |
| ATSC | Advanced Television Systems Committee, the digital TV standard in the USA |
| ATV | See Auto TV |
| Auto TV | A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way |
| AV | External Audio Video |
| AVC | Audio Video Controller |
| AVIP | Audio Video Input Processor |
| B/G | Monochrome TV system. Sound carrier distance is 5.5 MHz |
| BLR | Board-Level Repair |
| BTSC | Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries |
| B-TXT | Blue Teletext |
| C | Centre channel (audio) |
| CEC | Consumer Electronics Control bus: remote control bus on HDMI connections |
| CL | Constant Level: audio output to connect with an external amplifier |
| CLR | Component Level Repair |
| COLUMBUS | COLOR LUMinance Baseband Universal Sub-system |
| ComPair | Computer aided rePair |
| CP | Connected Planet / Copy Protection |
| CSM | Customer Service Mode |
| CTI | Color Transient Improvement: manipulates steepness of chroma transients |
| CVBS | Composite Video Blanking and Synchronization |
| DAC | Digital to Analogue Converter |
| DBE | Dynamic Bass Enhancement: extra low frequency amplification |
| DDC | See "E-DDC" |

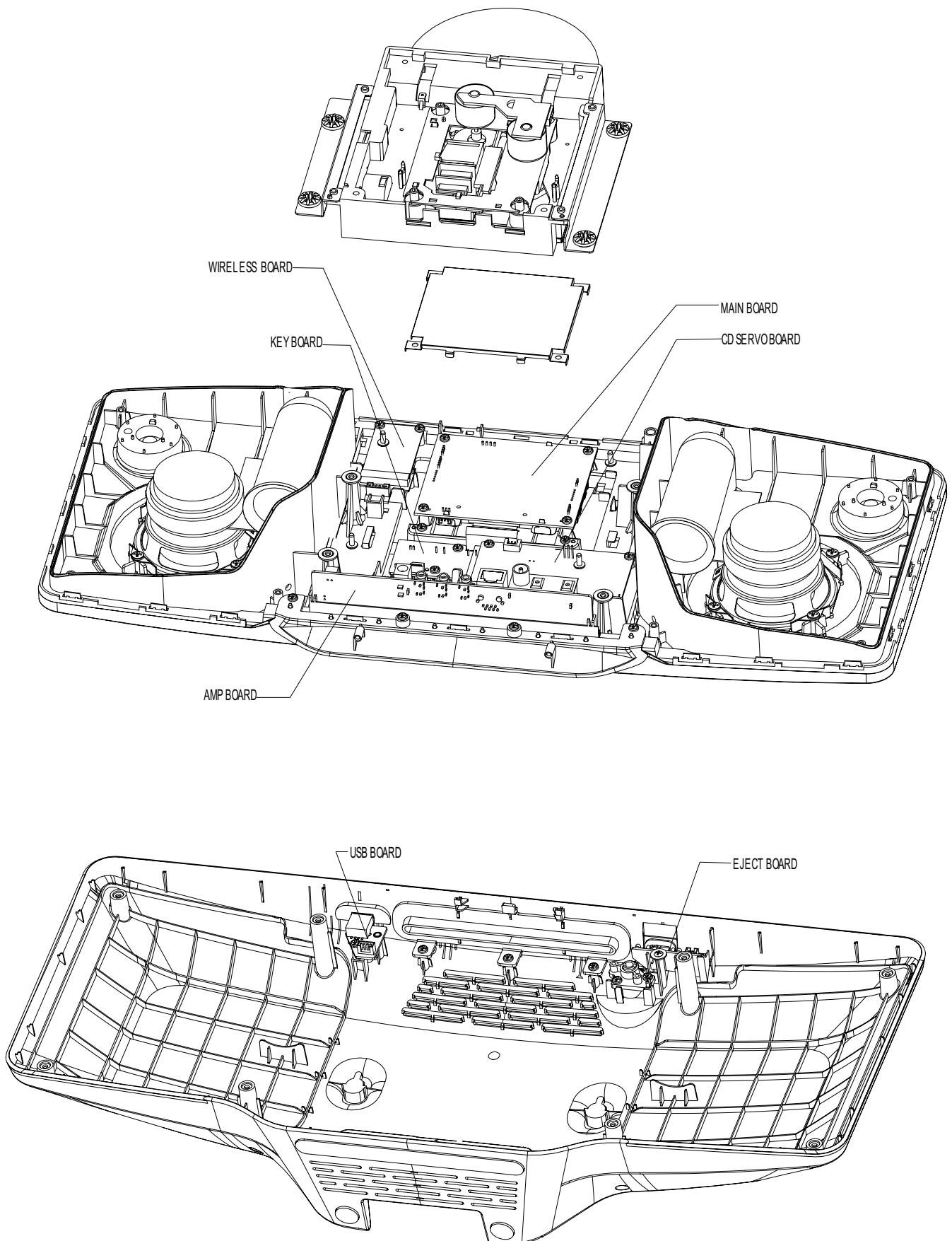
Safety Instructions, Warnings, Notes, and Abbreviation List

| | | | |
|------------------|--|---------|---|
| D/K | Monochrome TV system. Sound carrier distance is 6.5 MHz | | lines. The fields are written in "pairs", causing line flicker. |
| DFI | Dynamic Frame Insertion | IR | Infra Red |
| DFU | Directions For Use: owner's manual | IRQ | Interrupt Request |
| DMR | Digital Media Reader: card reader | ITU-656 | The ITU Radio communication Sector (ITU-R) is a standards body subcommittee of the International Telecommunication Union relating to radio communication. ITU-656 (a.k.a. SDI), is a digitized video format used for broadcast grade video. |
| DMSD | Digital Multi Standard Decoding | | Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing, uses 8 bit or 10 bit data words, and has a maximum data rate of 270 Mbit/s, with a minimum bandwidth of 135 MHz. |
| DNM | Digital Natural Motion | | |
| DNR | Digital Noise Reduction: noise reduction feature of the set | | |
| DRAM | Dynamic RAM | | |
| DRM | Digital Rights Management | | |
| DSP | Digital Signal Processing | | |
| DST | Dealer Service Tool: special remote control designed for service technicians | | |
| DTCP | Digital Transmission Content Protection; A protocol for protecting digital audio/video content that is traversing a high speed serial bus, such as IEEE-1394 | ITV | Institutional TeleVision; TV sets for hotels, hospitals etc. |
| DVB-C | Digital Video Broadcast - Cable | JOP | Jaguar Output Processor |
| DVB-T | Digital Video Broadcast - Terrestrial | LS | Last Status; The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences |
| DVD | Digital Versatile Disc | | Latin America |
| DVI(-d) | Digital Visual Interface (d= digital only) | | Liquid Crystal Display |
| E-DDC | Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information from the display. | LCD | |
| EDID | Extended Display Identification Data (VESA standard) | LED | Light Emitting Diode |
| EEPROM | Electrically Erasable and Programmable Read Only Memory | L/L' | Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I |
| EMI | Electro Magnetic Interference | LORE | Local Regression approximation |
| EPLD | Erasable Programmable Logic Device | | noise reduction |
| EU | Europe | LPL | LG.Philips LCD (supplier) |
| EXT | EXternal (source), entering the set by SCART or by cinches (jacks) | LS | Loudspeaker |
| FBL | Fast BLanking: DC signal accompanying RGB signals | LVDS | Low Voltage Differential Signalling |
| FDS | Full Dual Screen (same as FDW) | Mbps | Mega bits per second |
| FDW | Full Dual Window (same as FDS) | M/N | Monochrome TV system. Sound carrier distance is 4.5 MHz |
| FLASH | FLASH memory | MIPS | Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor |
| FM | Field Memory or Frequency Modulation | MOP | Matrix Output Processor |
| FPGA | Field-Programmable Gate Array | MOSFET | Metal Oxide Silicon Field Effect Transistor, switching device |
| FTV | Flat TeleVision | | |
| Gb/s | Giga bits per second | MPEG | Motion Pictures Experts Group |
| G-TXT | Green TeleteXT | MPIF | Multi Platform InterFace |
| H | H_sync to the module | MUTE | MUTE Line |
| HD | High Definition | NC | Not Connected |
| HDD | Hard Disk Drive | NICAM | Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe. |
| HDCP | High-bandwidth Digital Content Protection: A "key" encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a "snow vision" mode or changed to a low resolution. For normal content distribution the source and the display device must be enabled for HDCP "software key" decoding. | NTC | Negative Temperature Coefficient, non-linear resistor |
| HDMI | High Definition Multimedia Interface | NTSC | National Television Standard Committee. Color system mainly used in North America and Japan. Color carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air) |
| HP | HeadPhone | NVM | Non-Volatile Memory: IC containing TV related data such as alignments |
| I | Monochrome TV system. Sound carrier distance is 6.0 MHz | O/C | Open Circuit |
| I ² C | Inter IC bus | OSD | On Screen Display |
| I ² D | Inter IC Data bus | OTC | On screen display Teletext and Control; also called Artistic (SAA5800) |
| I ² S | Inter IC Sound bus | P50 | Project 50: communication protocol between TV and peripherals |
| IF | Intermediate Frequency | PAL | Phase Alternating Line. Color system mainly used in West Europe (color carrier= 4.433619 MHz) and South America (color carrier PAL M= |
| Interlaced | Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of | | |

Safety Instructions, Warnings, Notes, and Abbreviation List

| | | | |
|------------------|--|---------|---|
| | 3.575612 MHz and PAL N= 3.582056 MHz) | V | V-sync to the module |
| PCB | Printed Circuit Board (same as "PWB") | VCR | Video Cassette Recorder |
| PCM | Pulse Code Modulation | VESA | Video Electronics Standards Association |
| PDP | Plasma Display Panel | VGA | 640x480 (4:3) |
| PFC | Power Factor Corrector (or Pre-conditioner) | VL | Variable Level out: processed audio output toward external amplifier |
| PIP | Picture In Picture | VSB | Vestigial Side Band; modulation method |
| PLL | Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency | WYSIWYR | What You See Is What You Record: record selection that follows main picture and sound |
| POR | Power On Reset, signal to reset the uP | WXGA | 1280x768 (15:9) |
| Progressive Scan | Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution. | XTAL | Quartz crystal |
| PTC | Positive Temperature Coefficient, non-linear resistor | XGA | 1024x768 (4:3) |
| PWB | Printed Wiring Board (same as "PCB") | Y | Luminance signal |
| PWM | Pulse Width Modulation | Y/C | Luminance (Y) and Chrominance (C) signal |
| QRC | Quasi Resonant Converter | YPbPr | Component video. Luminance and scaled color difference signals (B-Y and R-Y) |
| QTNR | Quality Temporal Noise Reduction | YUV | Component video |
| QVCP | Quality Video Composition Processor | | |
| RAM | Random Access Memory | | |
| RGB | Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced. | | |
| RC | Remote Control | | |
| RC5 / RC6 | Signal protocol from the remote control receiver | | |
| RESET | RESET signal | | |
| ROM | Read Only Memory | | |
| R-TXT | Red TeleteXT | | |
| SAM | Service Alignment Mode | | |
| S/C | Short Circuit | | |
| SCART | Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs | | |
| SCL | Serial Clock I ² C | | |
| SCL-F | CLock Signal on Fast I ² C bus | | |
| SD | Standard Definition | | |
| SDA | Serial Data I ² C | | |
| SDA-F | DAta Signal on Fast I ² C bus | | |
| SDI | Serial Digital Interface, see "ITU-656" | | |
| SDRAM | Synchronous DRAM | | |
| SECAM | SEquence Couleur Avec Mémoire. Color system mainly used in France and East Europe. Color carriers= 4.406250 MHz and 4.250000 MHz | | |
| SIF | Sound Intermediate Frequency | | |
| SMPS | Switched Mode Power Supply | | |
| SoC | System on Chip | | |
| SOG | Sync On Green | | |
| SOPS | Self Oscillating Power Supply | | |
| S/PDIF | Sony Philips Digital InterFace | | |
| SRAM | Static RAM | | |
| SRP | Service Reference Protocol | | |
| SSB | Small Signal Board | | |
| STBY | STand-BY | | |
| SVGA | 800x600 (4:3) | | |
| SVHS | Super Video Home System | | |
| SW | Software | | |
| SWAN | Spatial temporal Weighted Averaging Noise reduction | | |
| SXGA | 1280x1024 | | |
| TFT | Thin Film Transistor | | |
| THD | Total Harmonic Distortion | | |
| TMDs | Transmission Minimized Differential Signalling | | |
| TXT | TeleteXT | | |
| TXT-DW | Dual Window with TeleteXT | | |
| UI | User Interface | | |
| uP | Microprocessor | | |
| UXGA | 1600x1200 (4:3) | | |

LOCATION OF PCB BOARDS



VERSION VARIATION:

| Type/Version Features | MCi298 | |
|------------------------------|--------|-----|
| | /12 | /05 |
| Output Power - 10W x 2 | X | X |
| Voltage (220V~240V) | X | X |

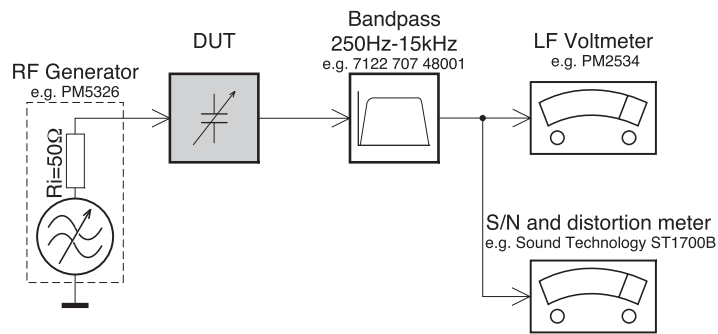
SERVICE SCENARIO MATRIX:

| Type /Versions: Board in used: | MCi298 | | | | | | |
|-----------------------------------|----------------|-----|-------------|------------|--|--|--|
| | Service policy | /05 | /12(EUROPE) | /12(APMEA) | | | |
| CD SERVO BOARD | | M | M | C/M | | | |
| MAIN BOARD | | M | M | C/M | | | |
| KEY BOARD | | M | M | C/M | | | |
| AMP BOARD | | M | M | C/M | | | |
| USB BOARD | | M | M | C/M | | | |
| WIRELESS BOARD | | M | M | C/M | | | |
| EJECT BOARD | | M | M | C/M | | | |
| | | | | | | | |

* TIPS : C -- Component Lever Repair.
M -- Module Lever Repair
x -- Used

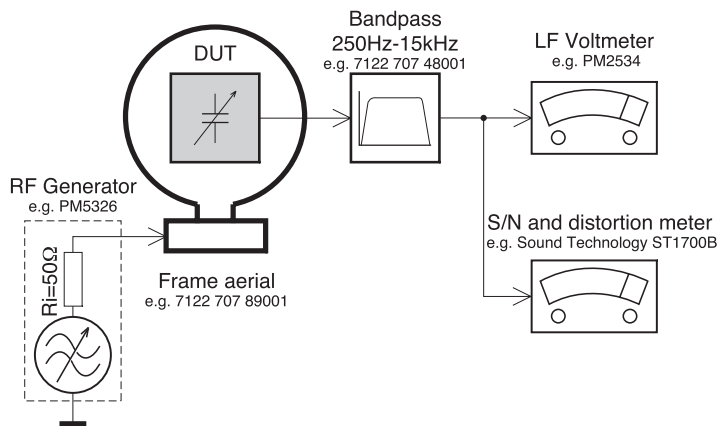
Measurement Setup

Tuner FM



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

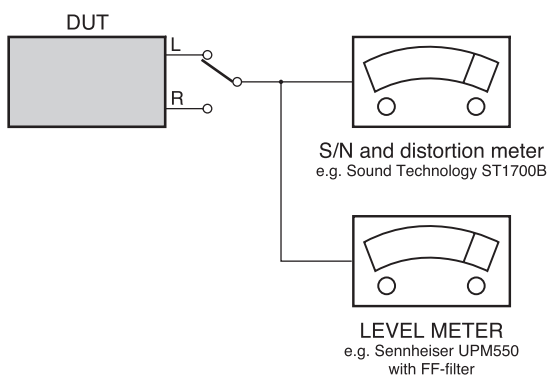
Tuner AM (MW,LW)



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).

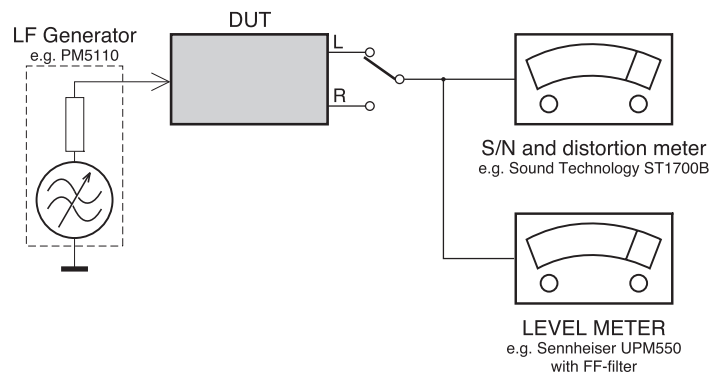
CD

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



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

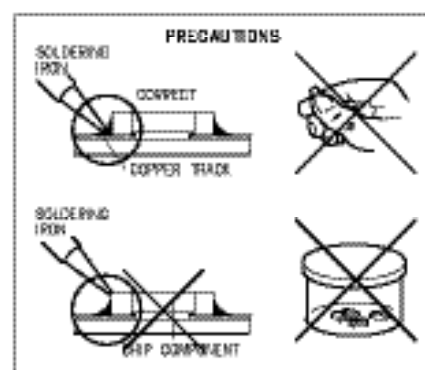
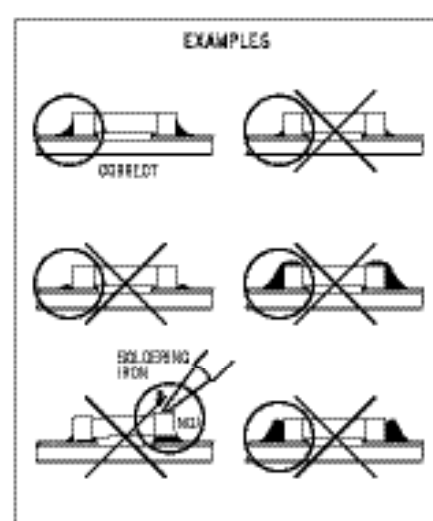
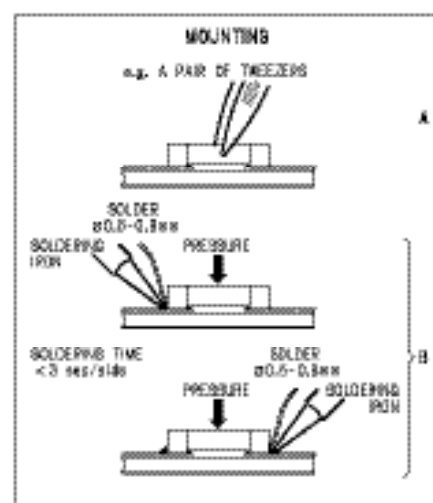
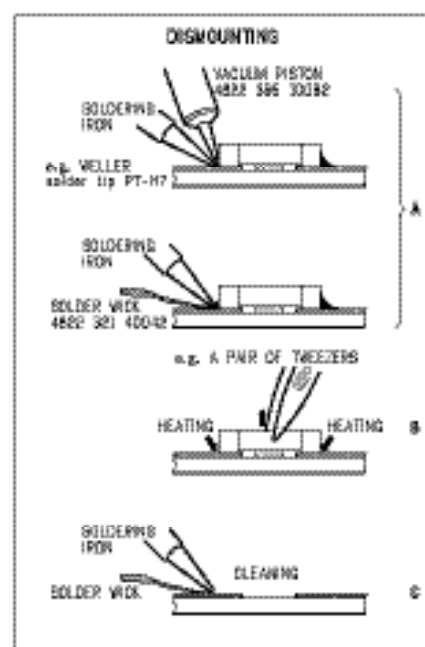
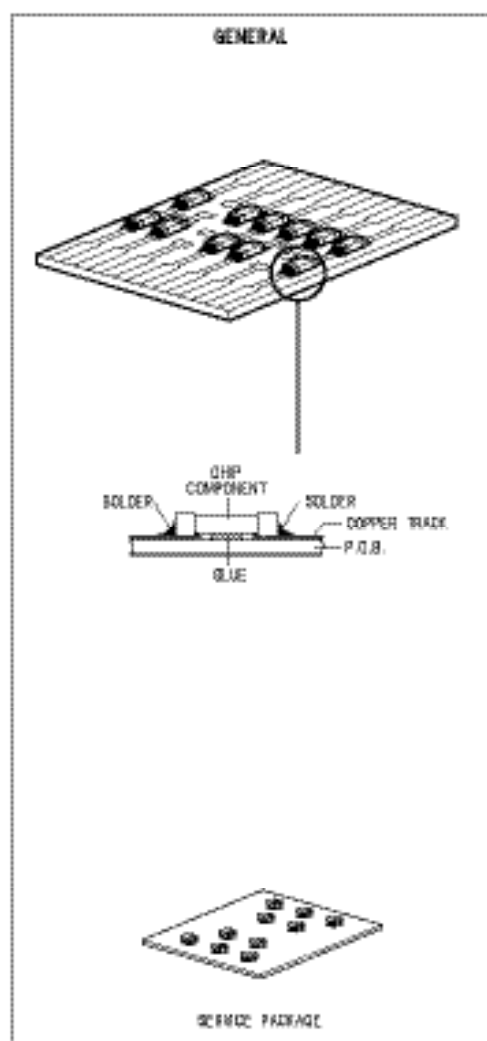
Service Tools:

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



System , Region Code , etc. Setting Prochure

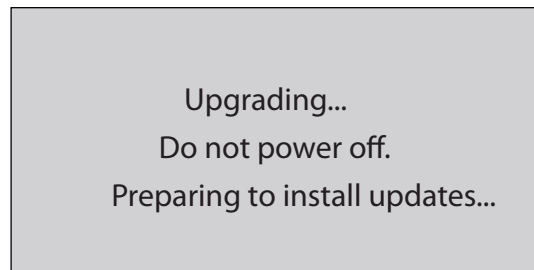
1) Check on the Software Version

- a) Go "Settings" page when home menu shown.
- b) Select "Device ID and Information".
- c) Select "Software Version" .
- d) VFD will show:



6)Upgrading new sofeware

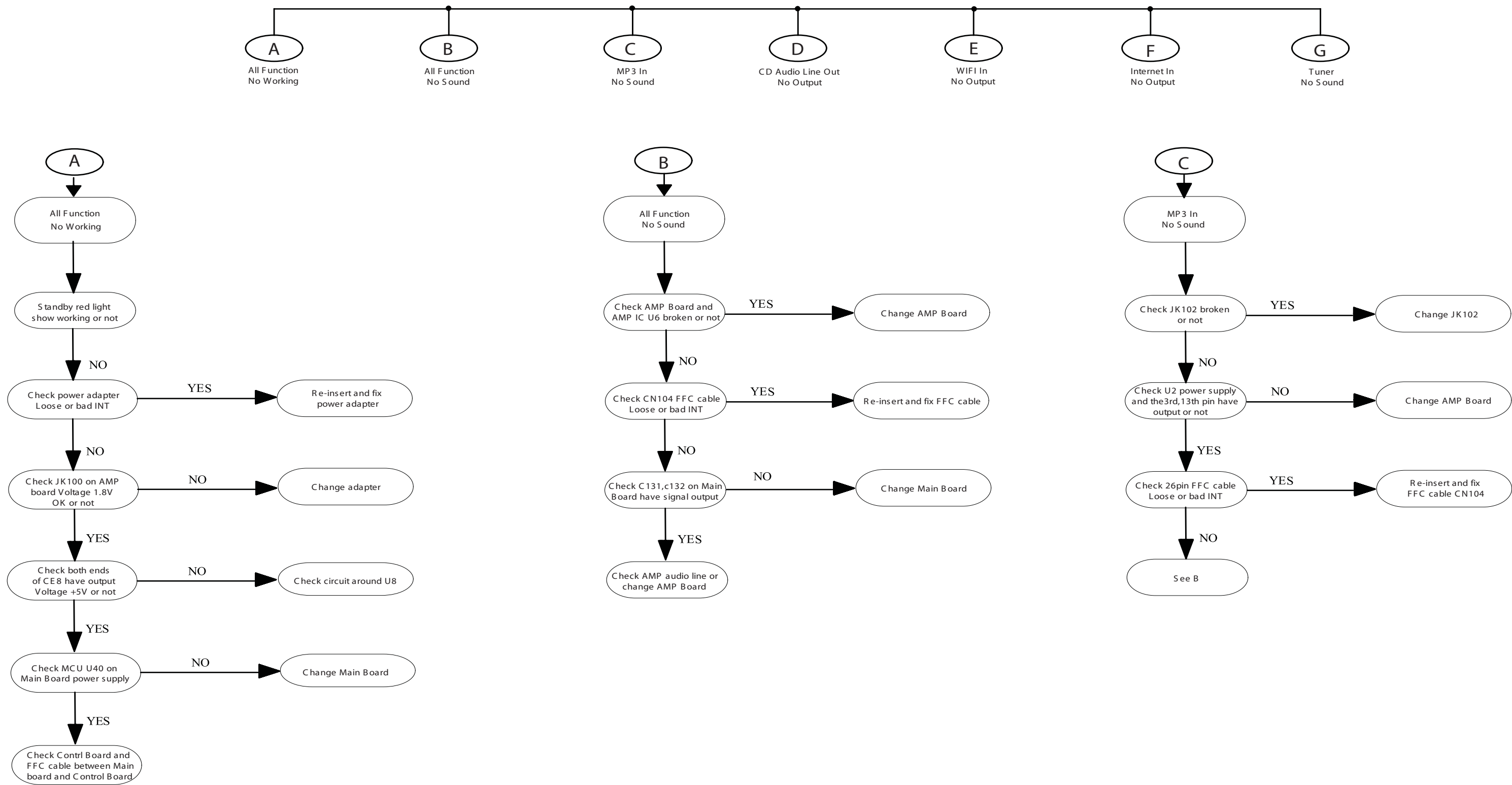
- a) Copy "software files" into USB.
- b) Put USB into USb jack.
- c) Press "USB" button on R/C.
- d) VFD will show:



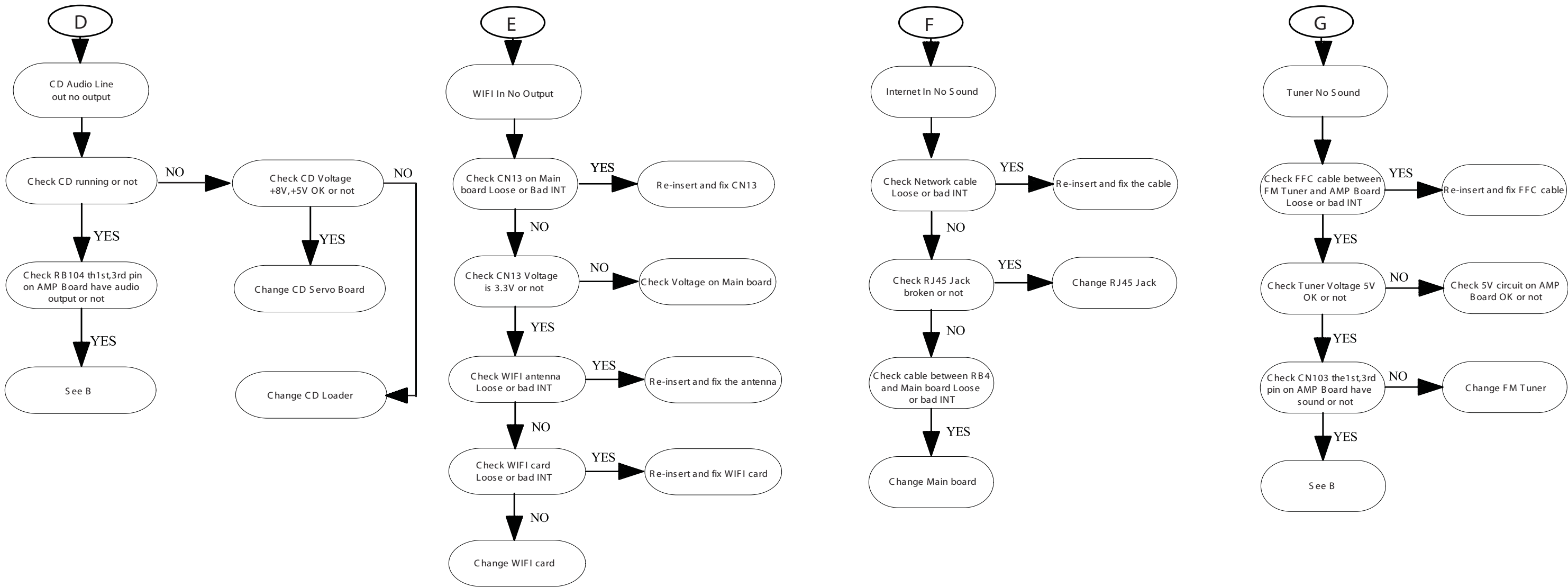
CAUTION !

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

MAIN UNIT REPAIR CHART 1/2



MAIN UNIT REPAIR CHART 2/2



Firmware Upgrade Recovery Mode

The MCi298/MCi730 will enter into the hang-up mode in case the user has unplugged the power in the middle of software upgrade. During hang-up mode, the device LCD will always show the “PHILIPS” logo after power-on.

To get the device back to working:

- 1/ One has to keep previous network settings unchanged in the access point or router, since the device will try to use previous stored network settings to connect to the Internet, either wireless or wired. If previous network settings are lost, please connect the MCi298/MCi730 unit via a network cable directly to the Internet.
- 2/ Press and hold CD eject button on the device during power on. Release the button when a “beep” sound is heard after around 10 to 15 seconds.
- 3/ Unit will boot up into the Firmware Upgrade mode and try to upgrade to the latest available software through Internet, Please wait sufficient time for the software upgrade to finish. Device will reboot by itself after successfully upgraded.

Note:

After software upgrade the unit will return to the user's original network.

DISASSEMBLY INSTRUCTIONS

3.1 Dismantling of Main Unit

- 1) Before dismantling Main Unit, loosen 9 screws "A" as shown in figure 1.
- 2) Loosen 2 screws "B" as shown in figure 2 to detach rear cabinet.



Figure 1



Figure 2

Dismantling of Eject Board

- 1) Loosen 1 screw "C" to detach Eject Board as shown in figure 3.

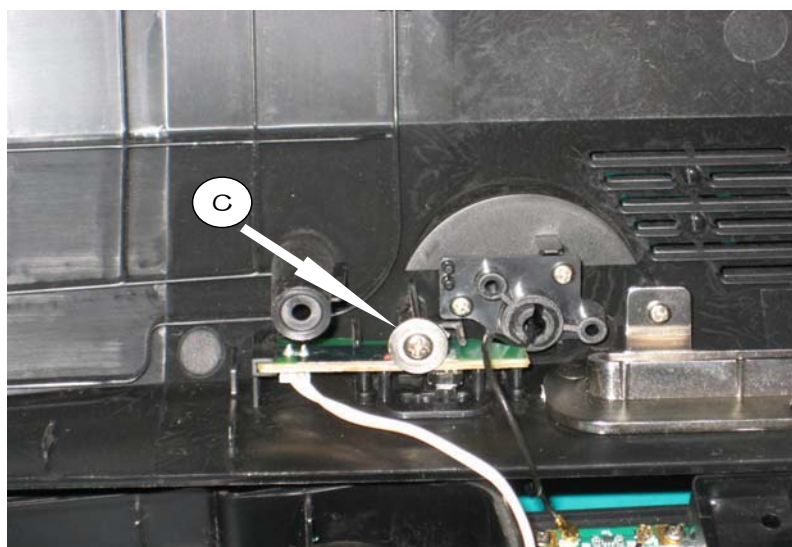


Figure 3

Dismantling of USB Board

- 1) Loosen 1 screw "D" to detach USB Board as shown in figure 4.



Figure 4

Dismantling of Main Board

- 1) Loosen 4 screws "E" to detach CD Loader as shown in figure 5.
- 2) Loosen 4 screws "F" to detach Main Board as shown in figure 6.



Figure 5

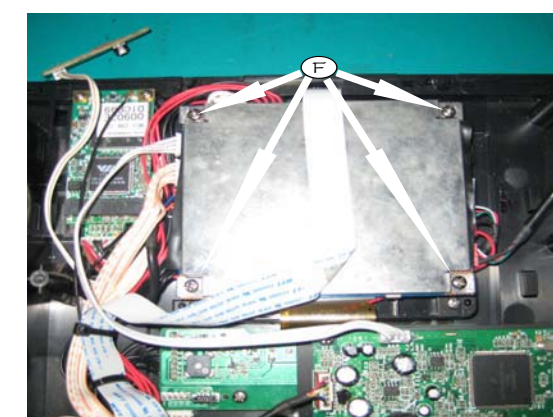


Figure 6

Dismantling of CD Servo Board

- 1) Loosen 4 screws "G" to detach CD Servo Board as shown in figure 7.

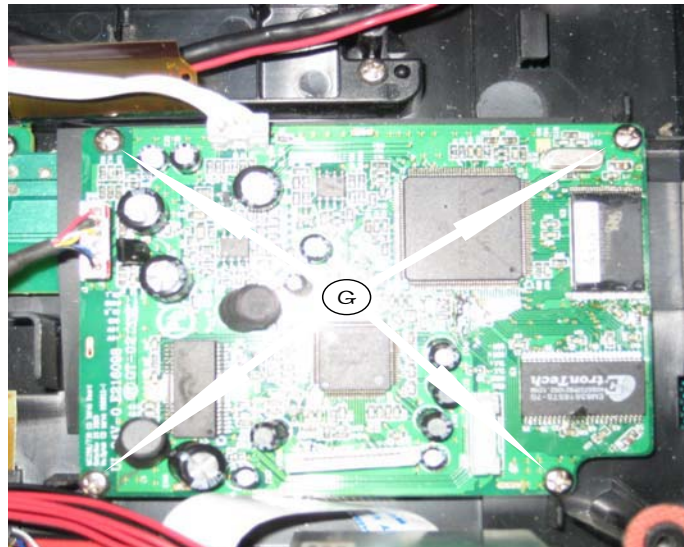


Figure 7

Dismantling of AMP Board

- 1) Pull out AMP Board upwards as shown in figure 10.

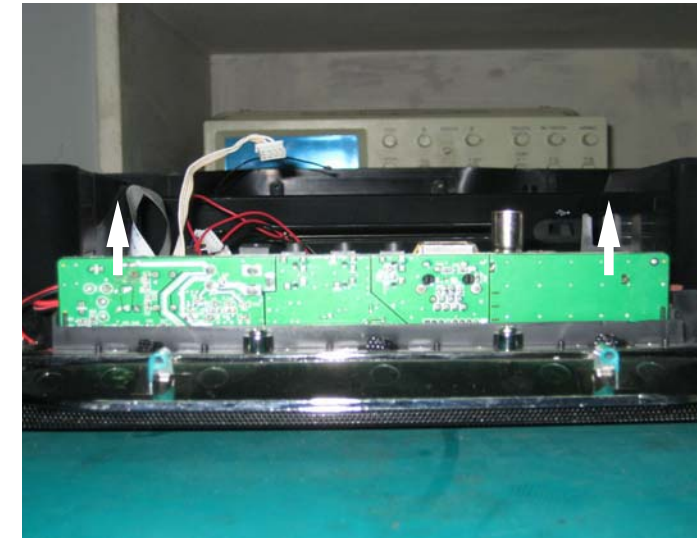


Figure 10

Dismantling of Control Board

- 1) Loosen 1 screw "H" to detach PVC sheet as shown in figure 8.
- 2) Loosen 3 screws "I" to detach Control Board as shown in figure 9.

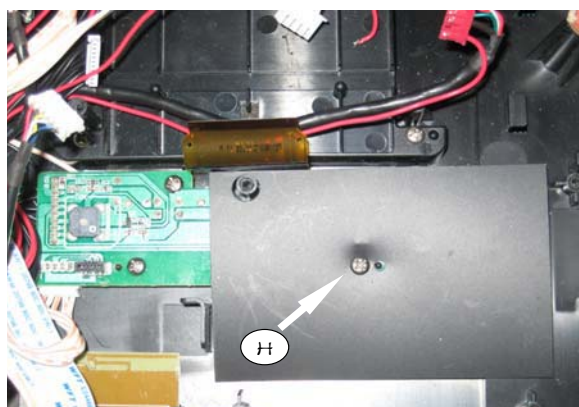


Figure 8

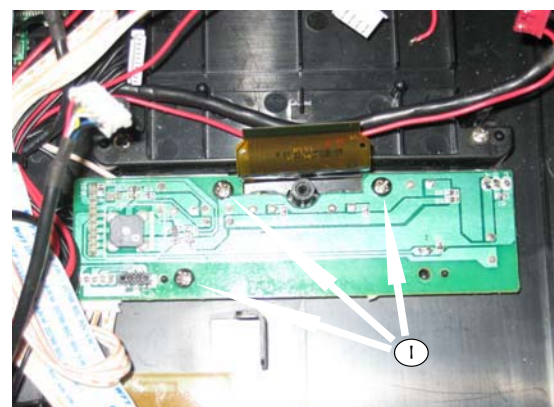


Figure 9

Dismantling of WIFI Board

- 1) Loosen 2 screws "J" to detach WIFI Card as shown in figure 11.
- 2) Loosen 2 screws "K" to detach WIFI Board as shown in figure 12.

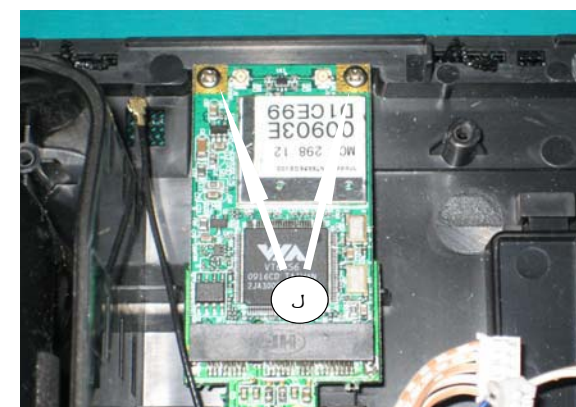


Figure 11

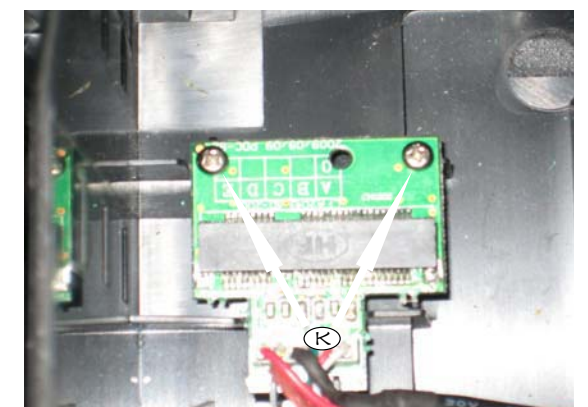
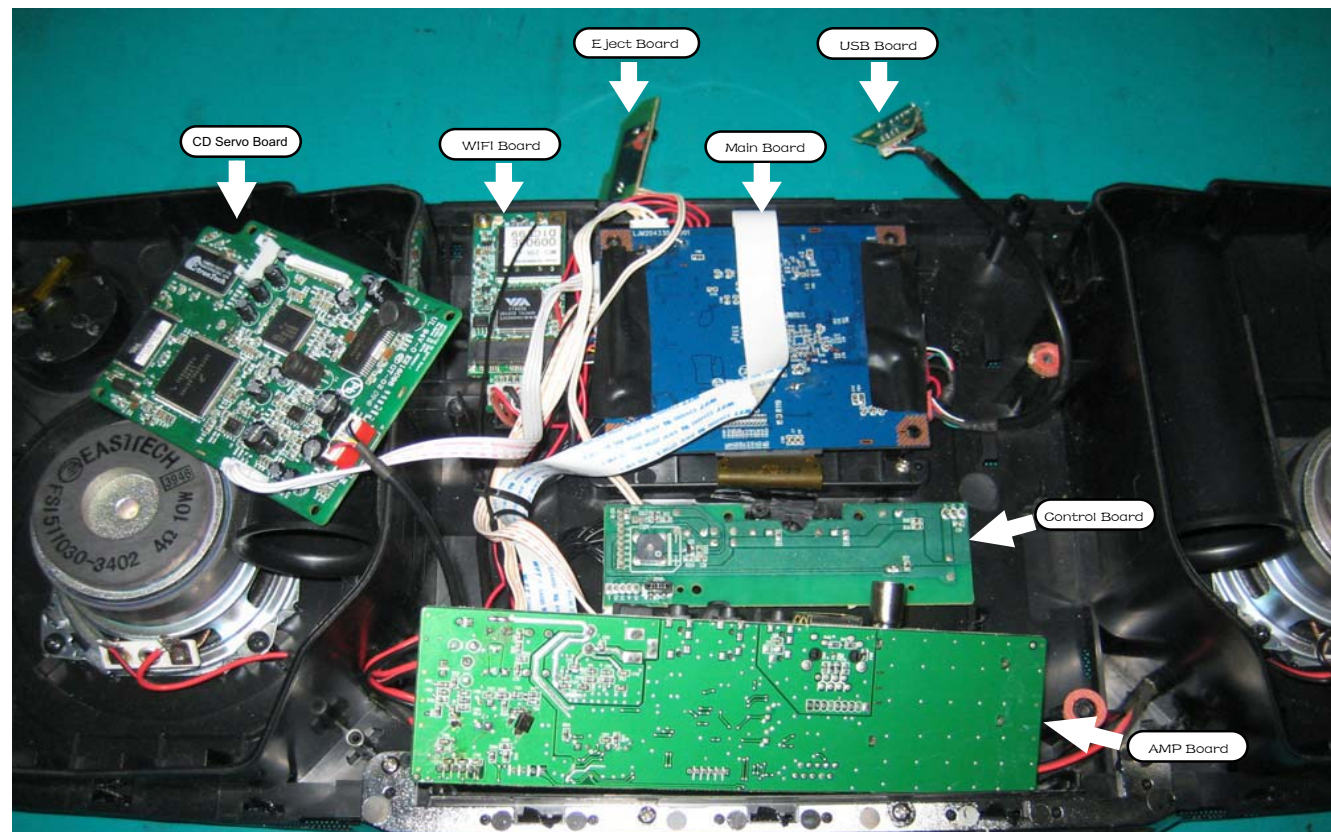


Figure 12

3.2 Service Position

Note: Refer to the Wiring Diagram for the correct cable connection between boards.

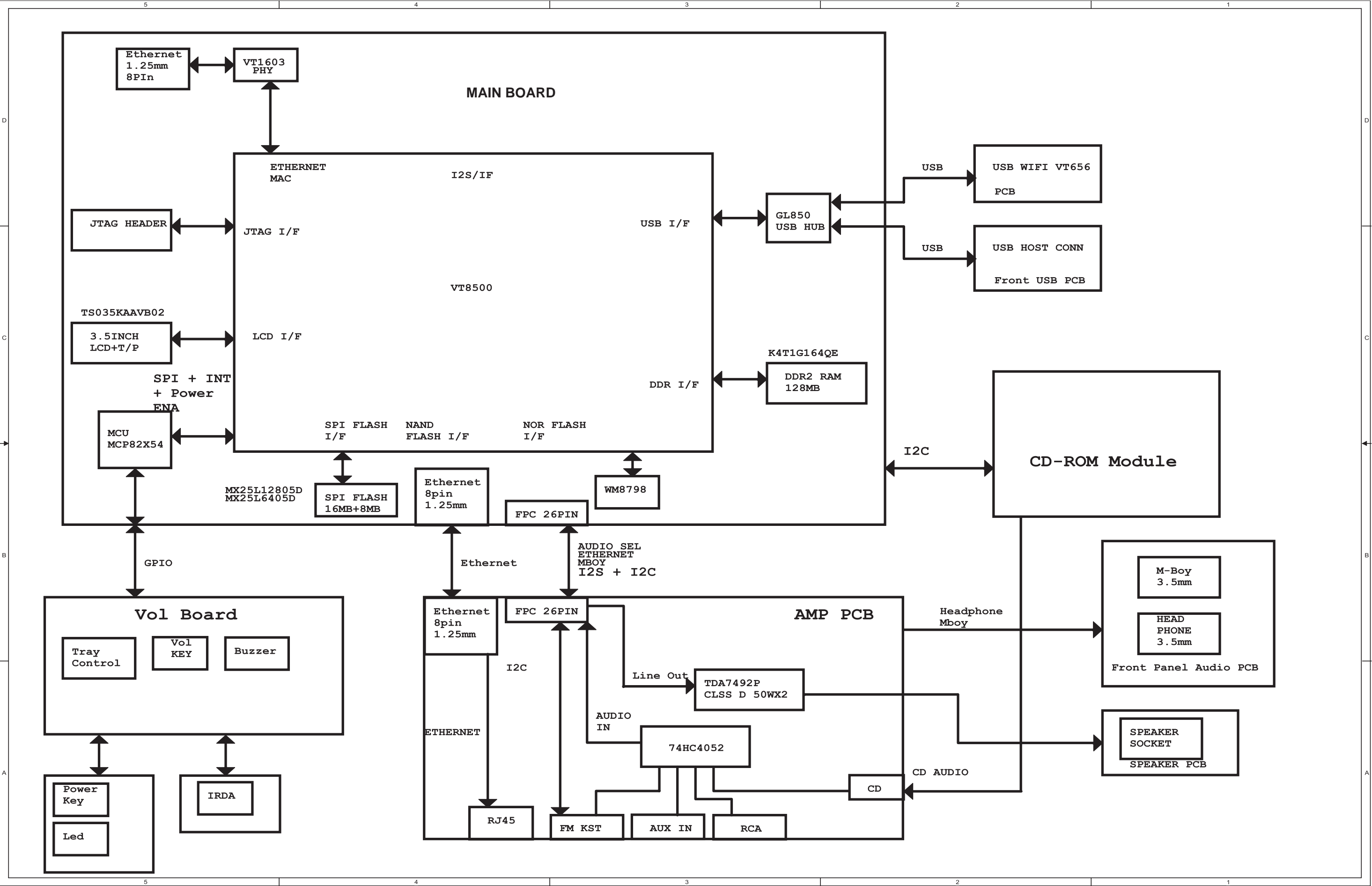


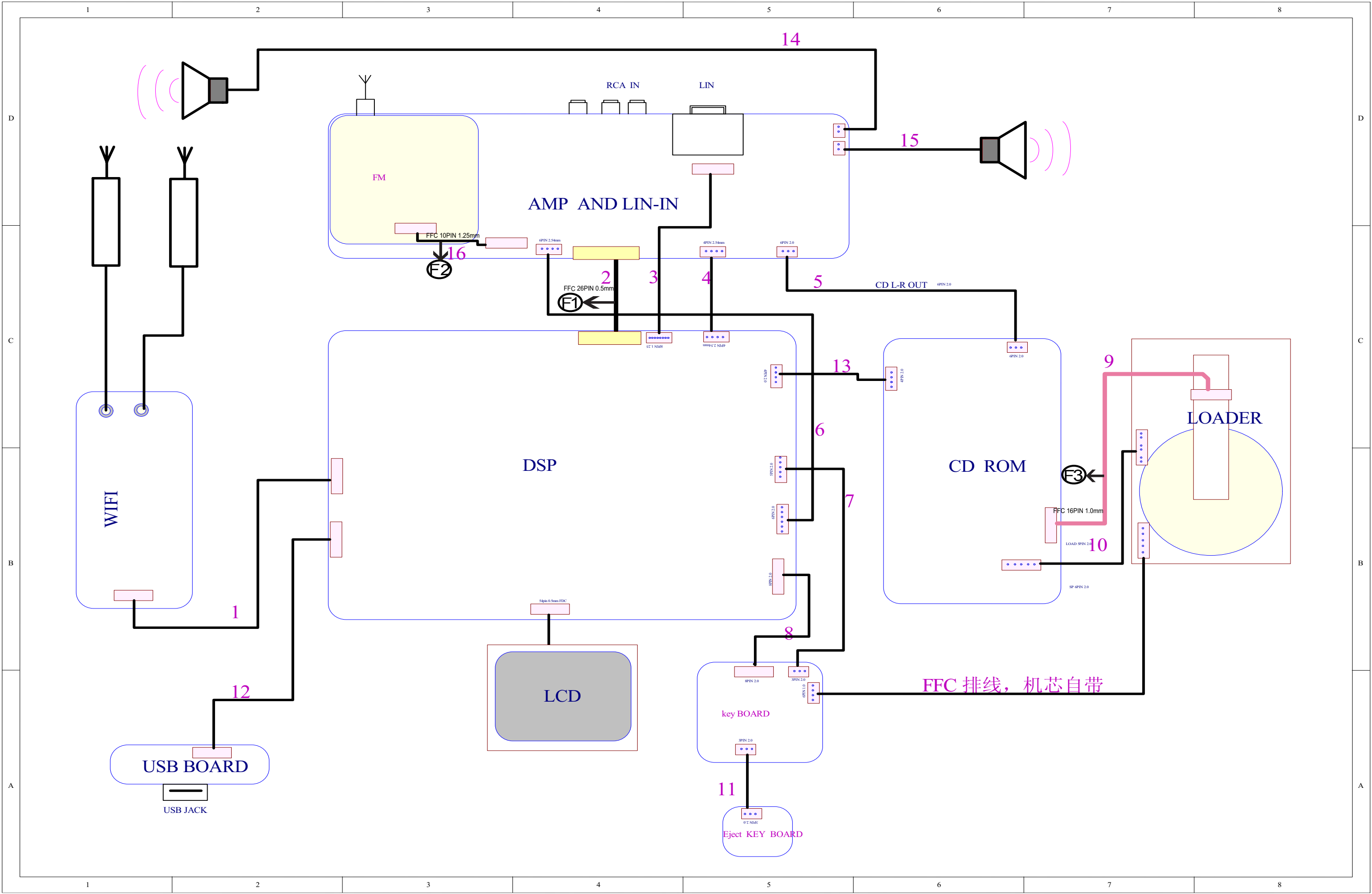
Service A

Service Position

Main Board, CD Servo Board, AMP Board, USB Board, WIFI Board, Eject Board, Control Board

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.

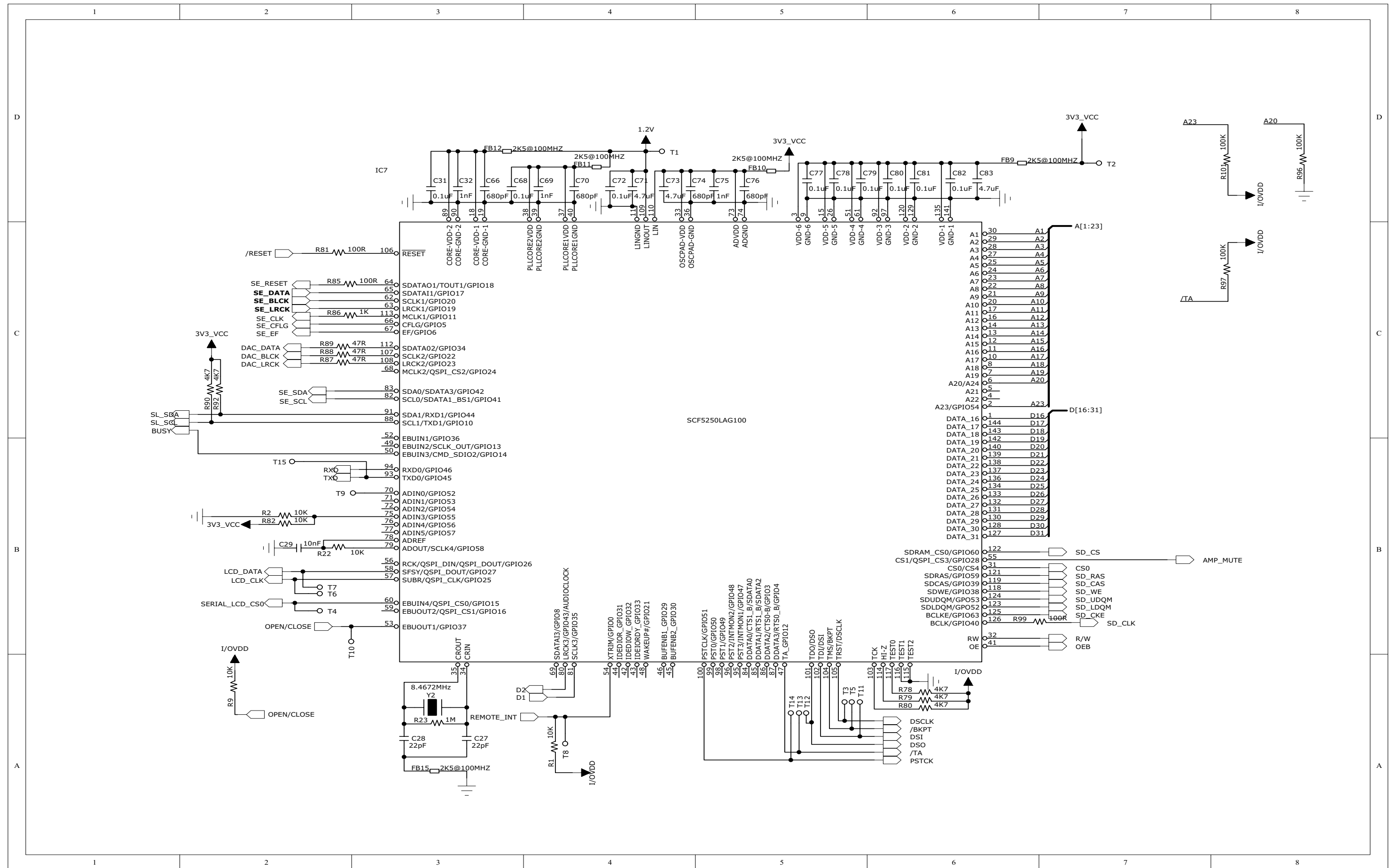


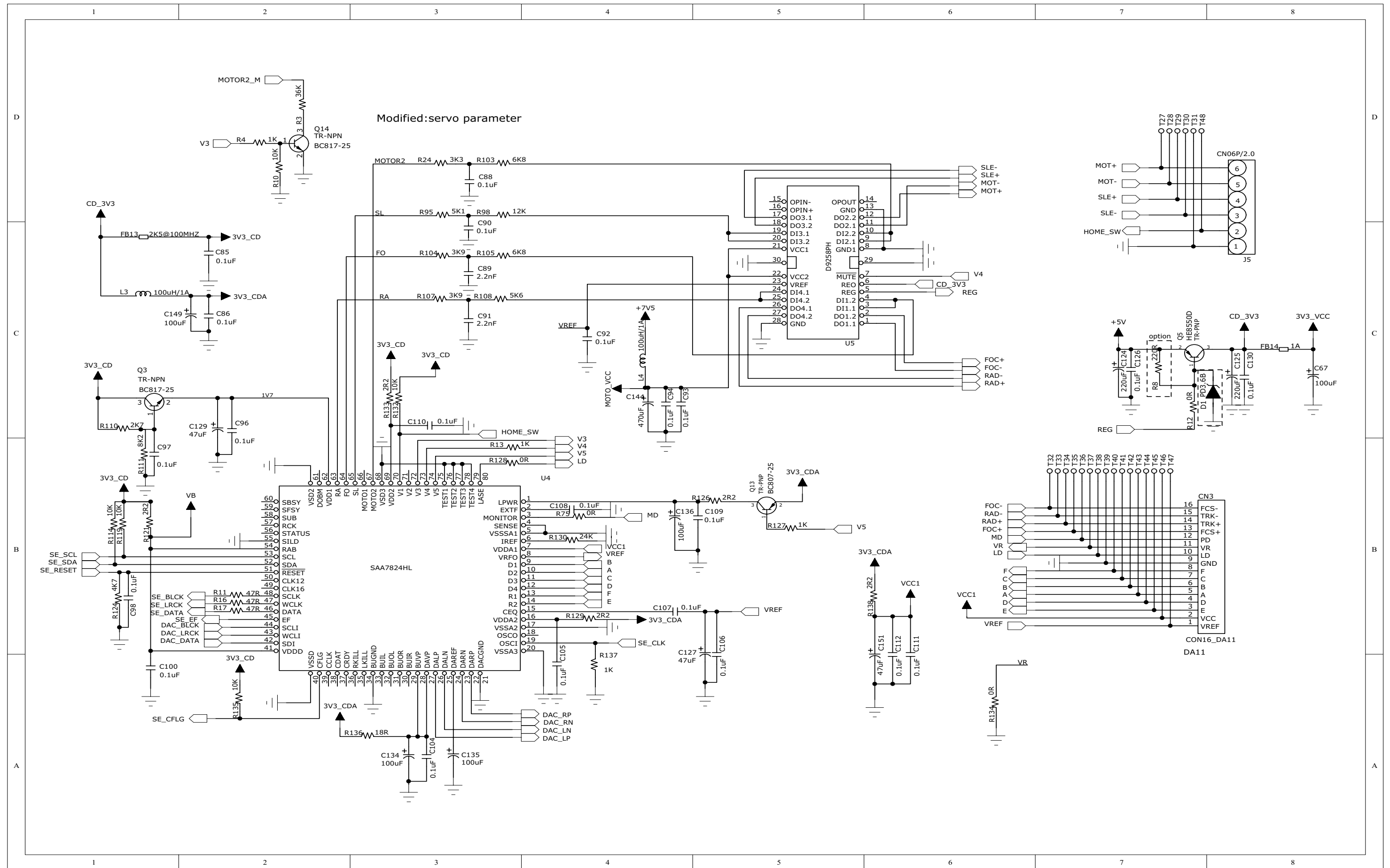


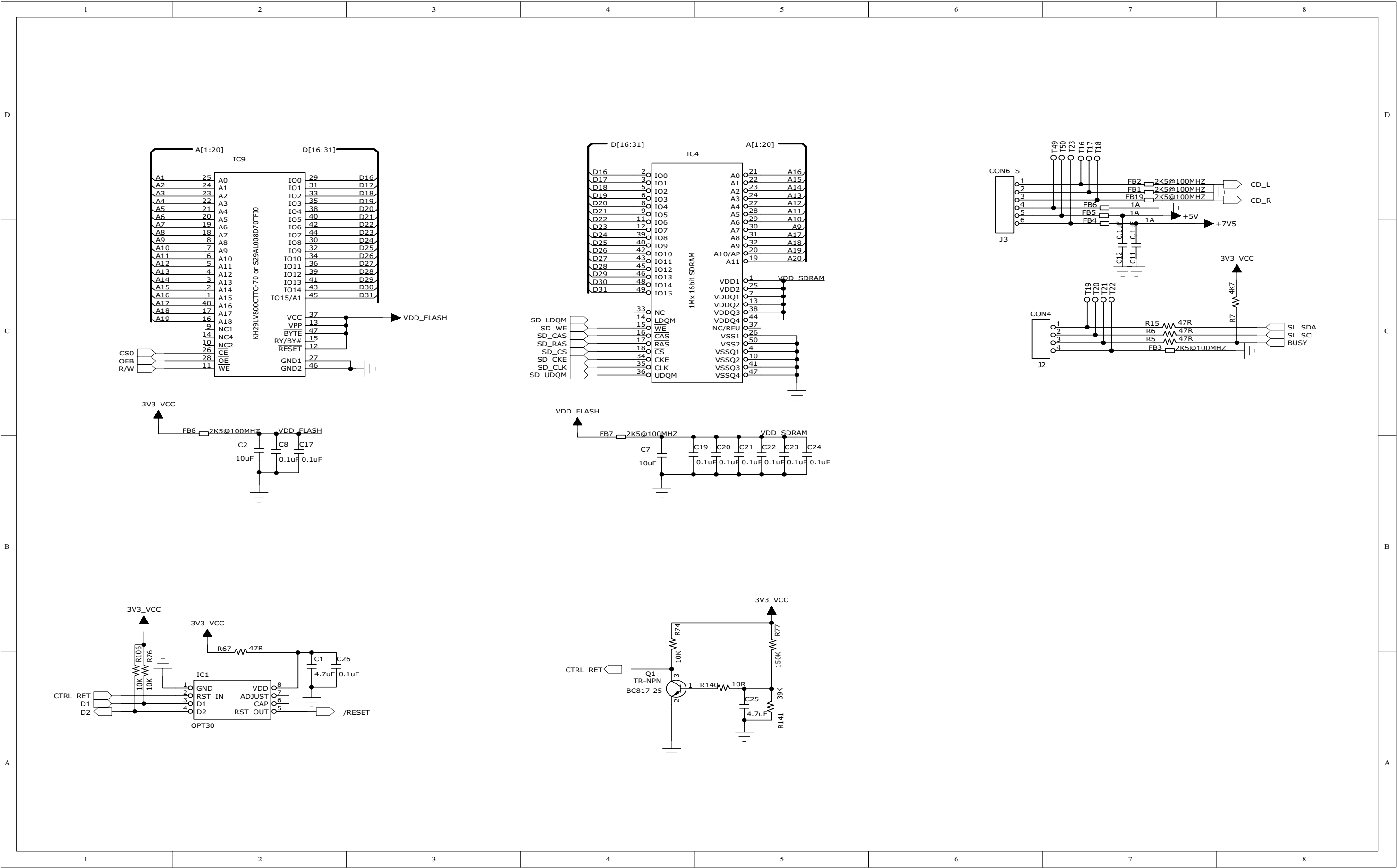
CD Servo Board

TABLE OF CONTENTS

| | |
|-----------------------------|-----|
| Circuit Diagram..... | 6-2 |
| PCB Layout Top View | 6-6 |
| PCB Layout Bottom View..... | 6-7 |







Modified Minutes:

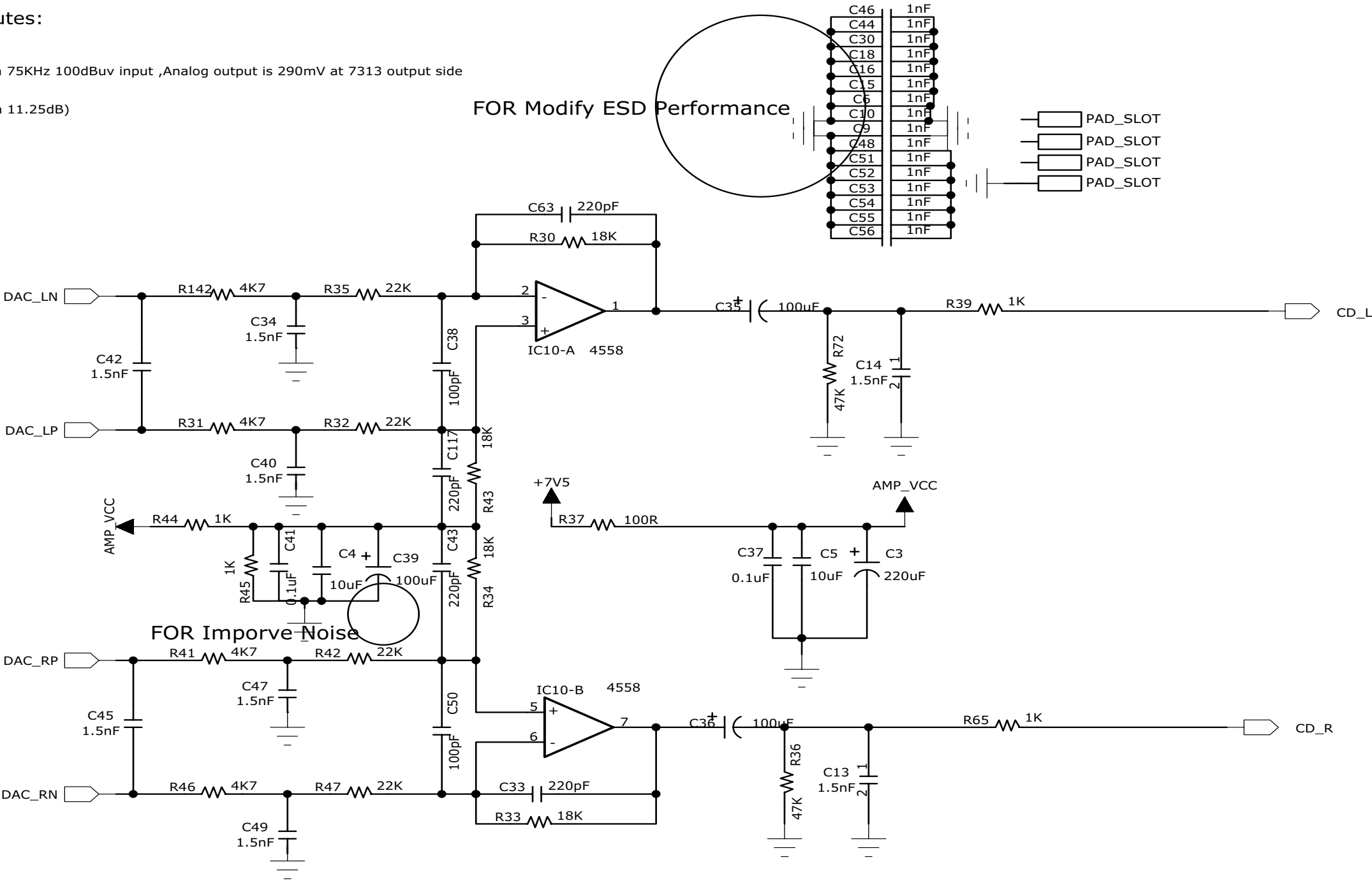
Feb 27 08

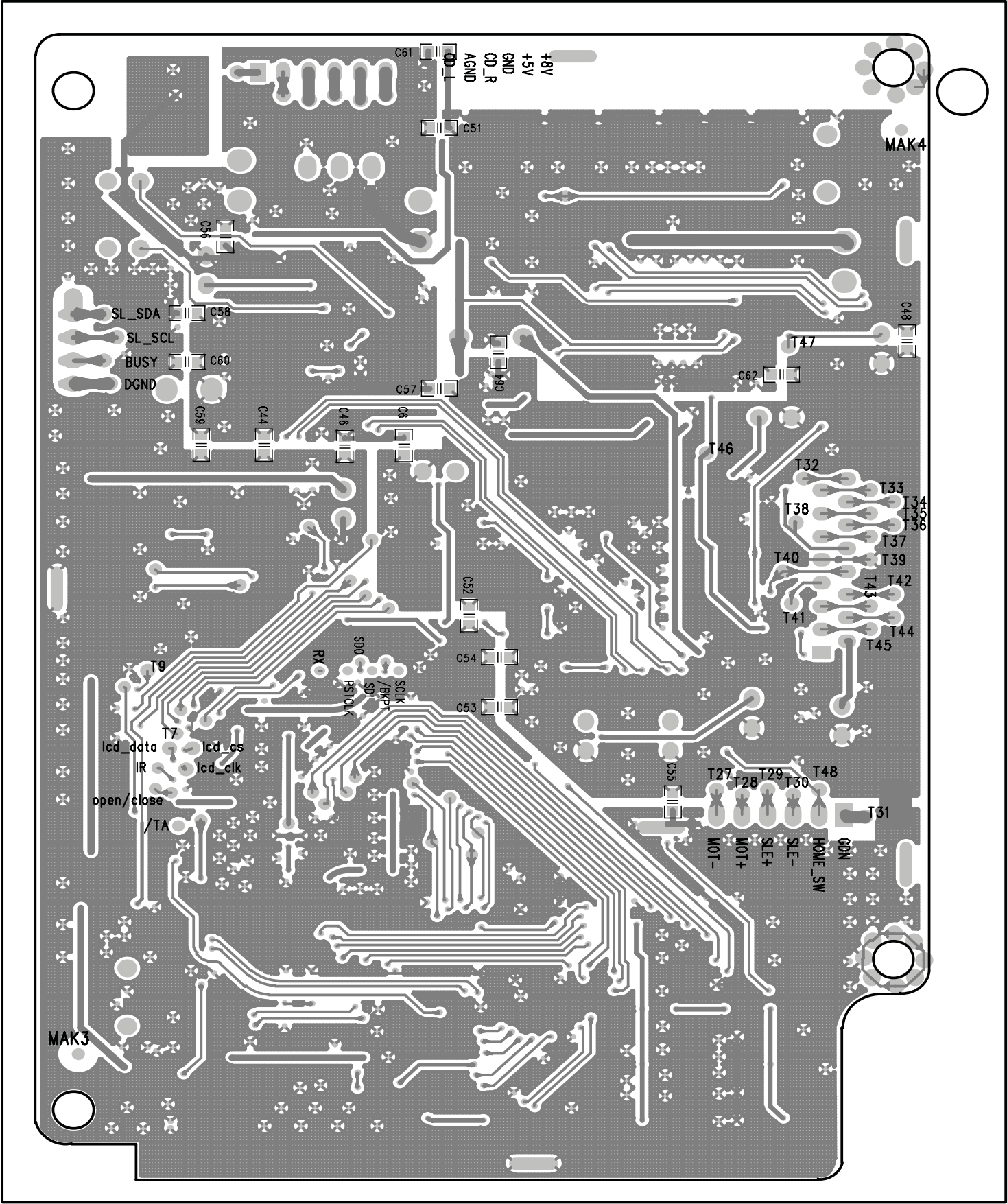
1.FM Modulation 75KHz 100dBuv input ,Analog output is 290mV at 7313 output side

2.7313 root gain 11.25dB)

FOR Modify ESD Performance

FOR Improve Noise





Main Board

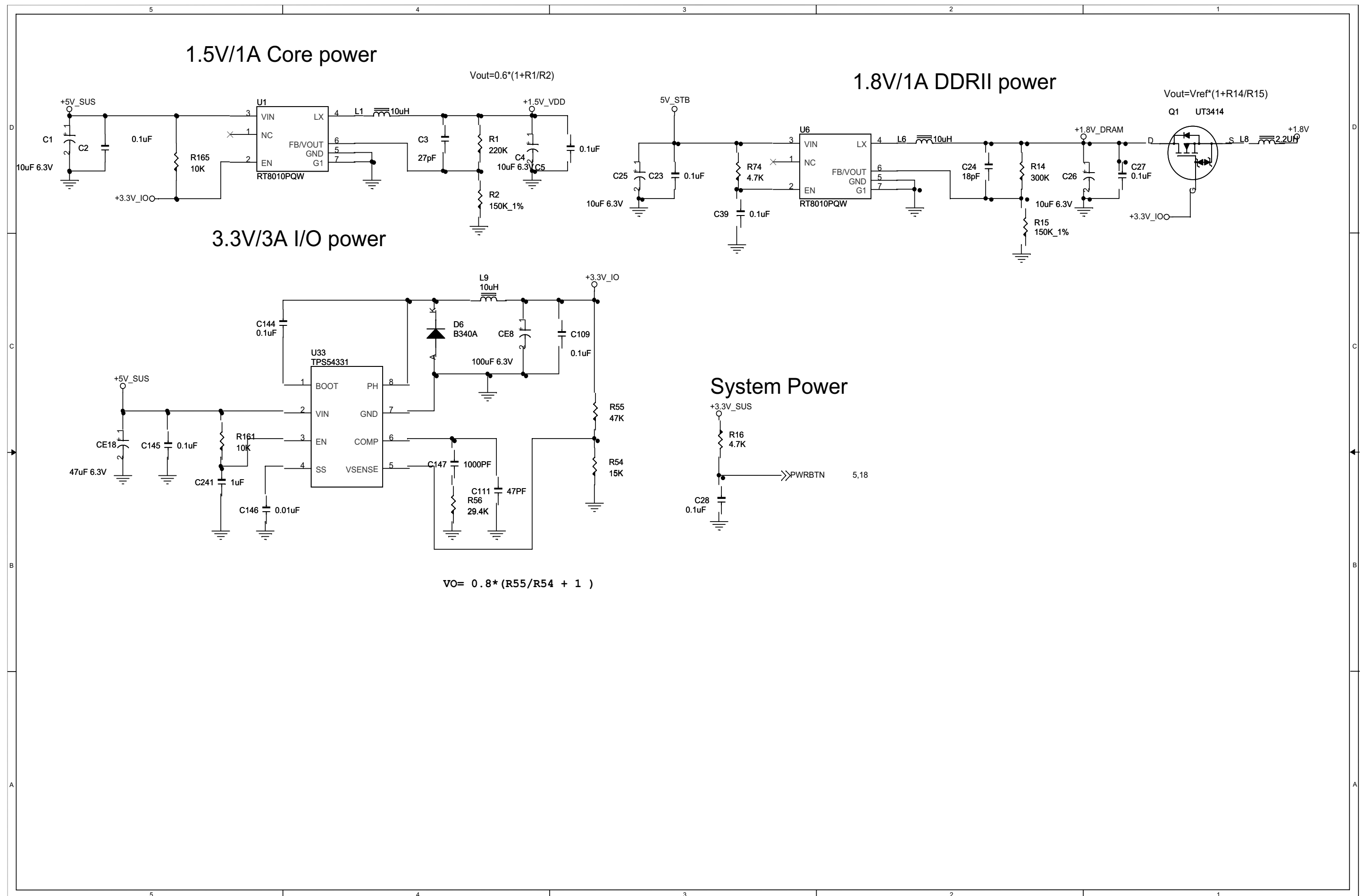
TABLE OF CONTENTS

| | |
|-----------------------------|------|
| IC Diagram | 7-1 |
| Circuit Diagram..... | 7-2 |
| PCB Layout Top View | 7-19 |
| PCB Layout Bottom View..... | 7-20 |

INTERNAL IC DIAGRAM -VT8500



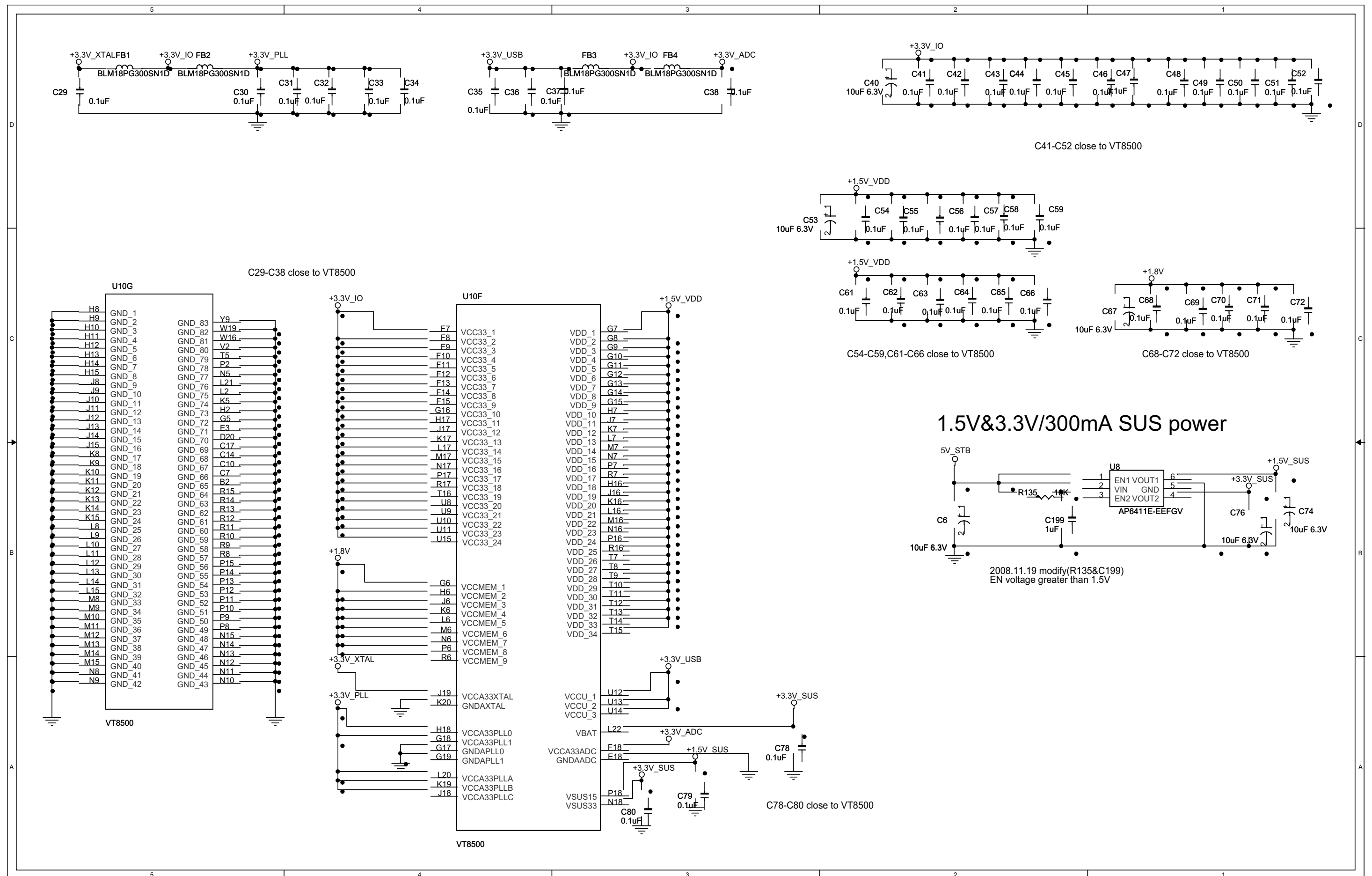
Figure 1 - VT8500 System Block Diagram



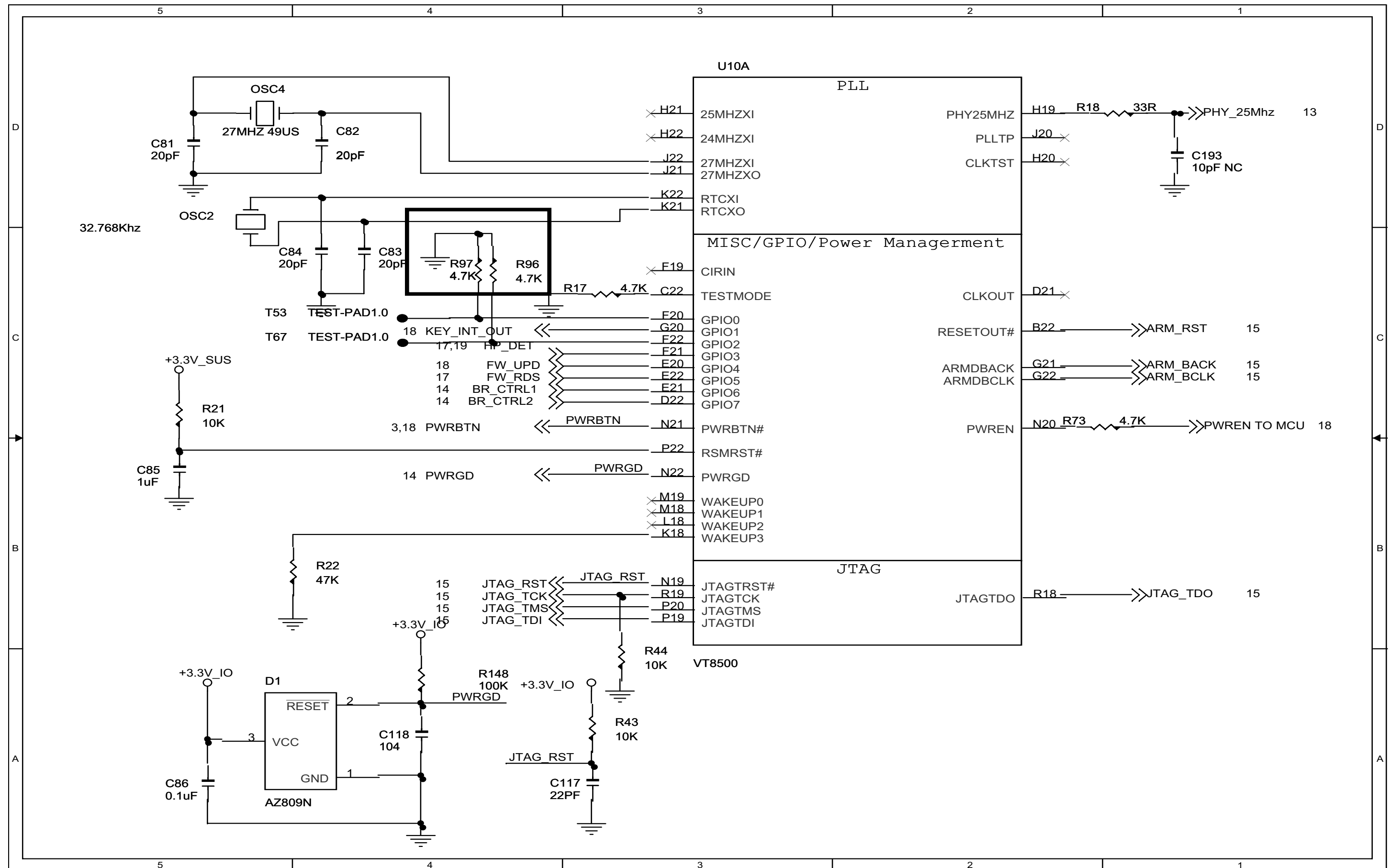
CIRCUIT DIAGRAM - Part 2

7 - 3

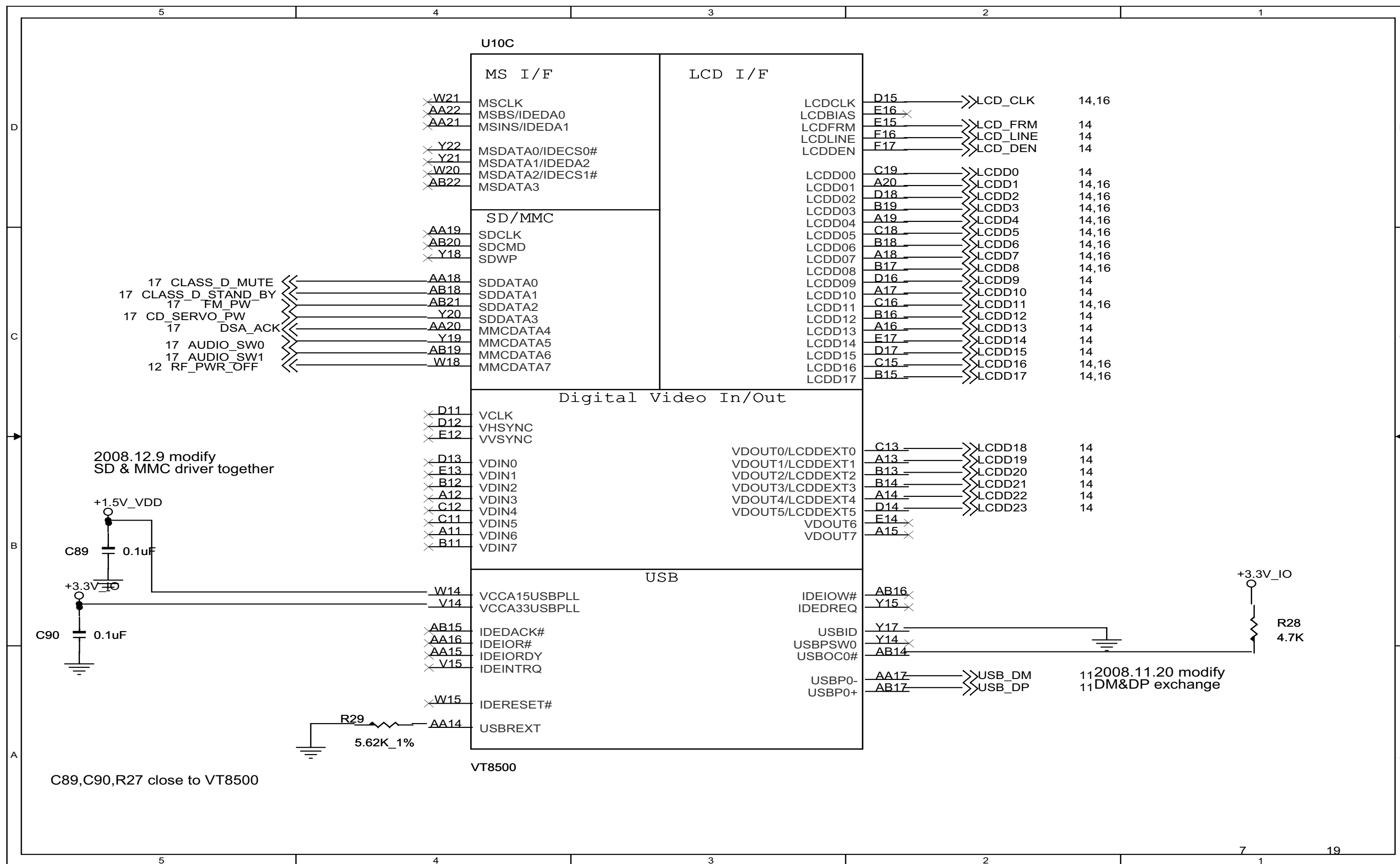
7 - 3

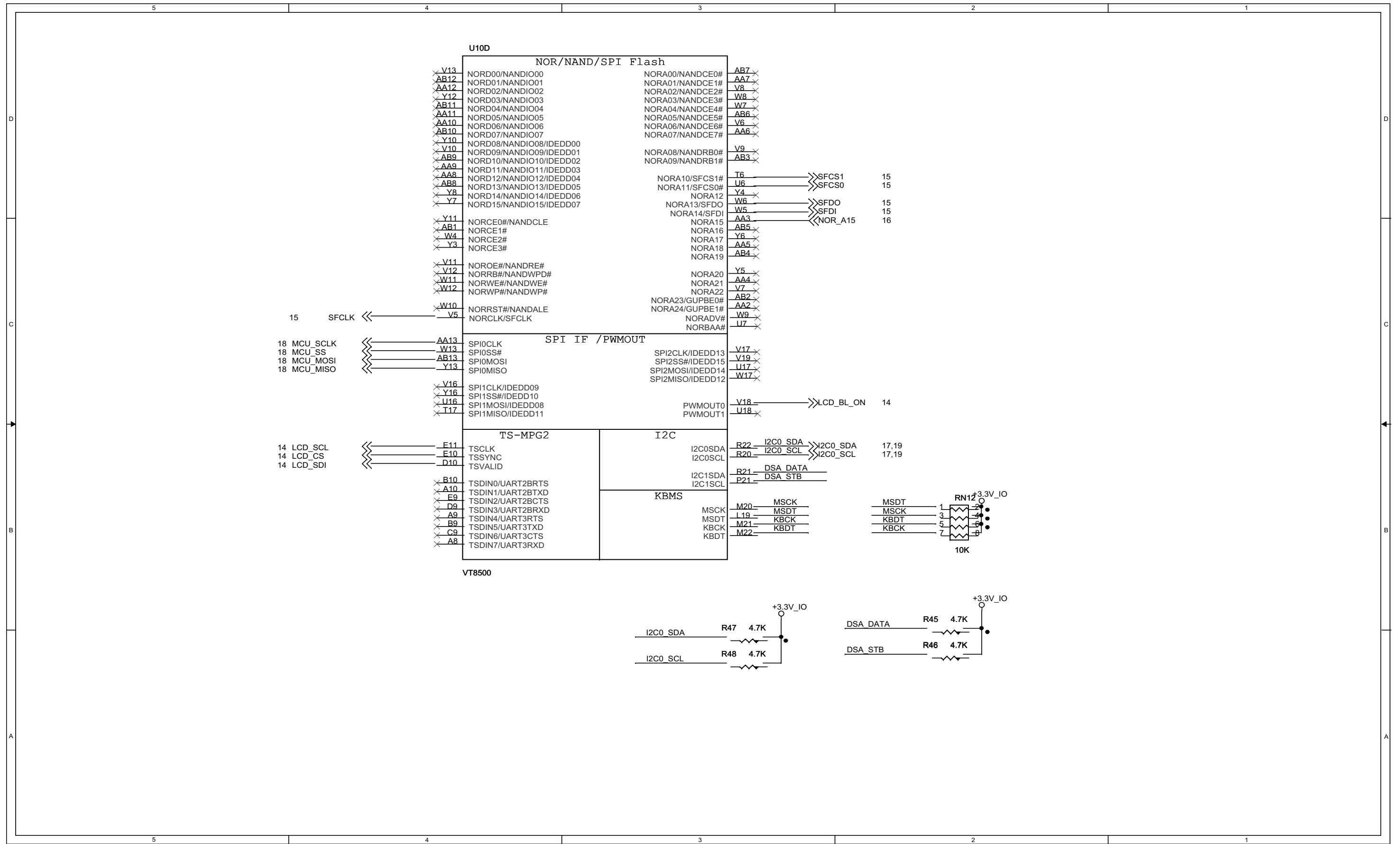


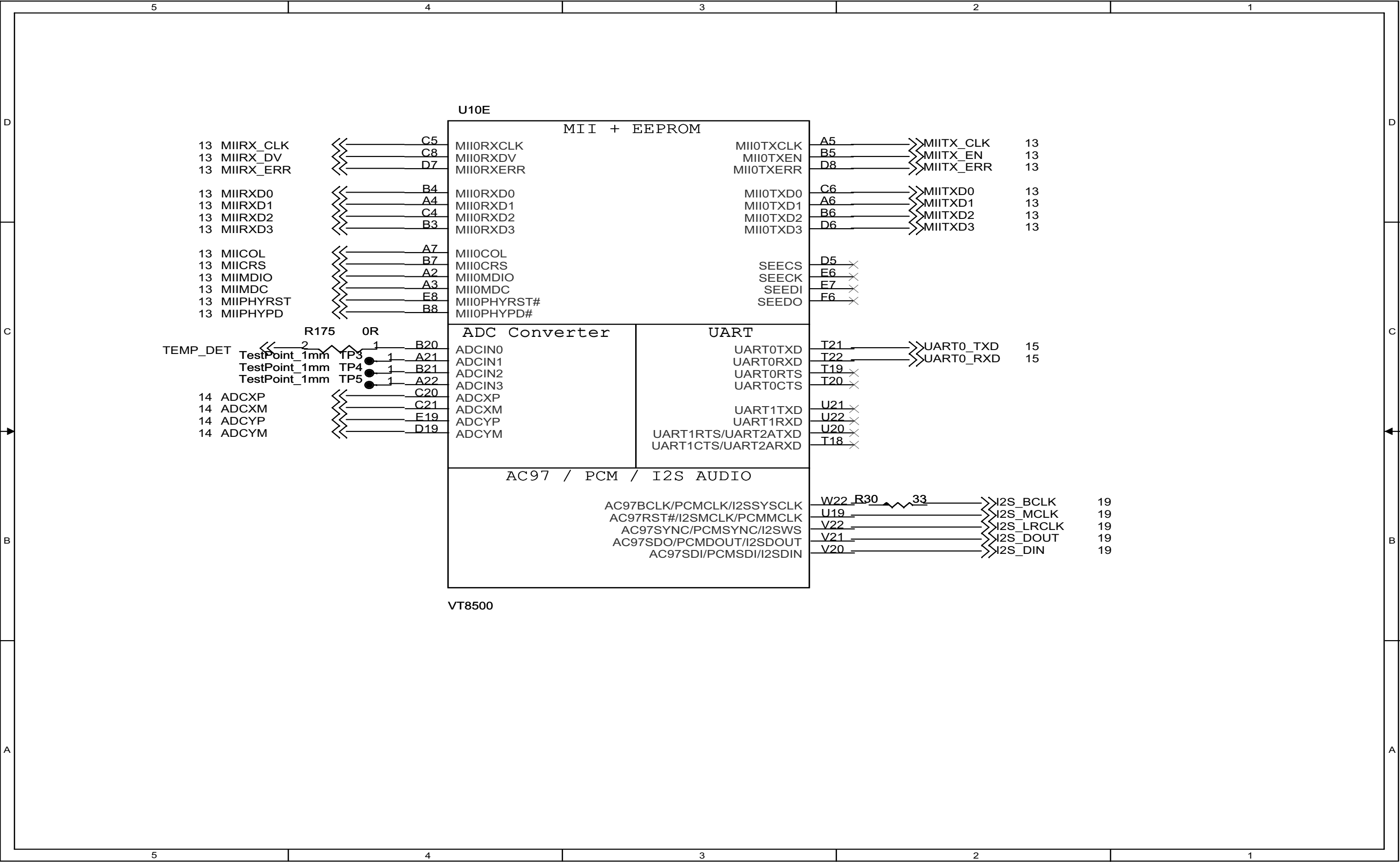
CIRCUIT DIAGRAM - Part 3





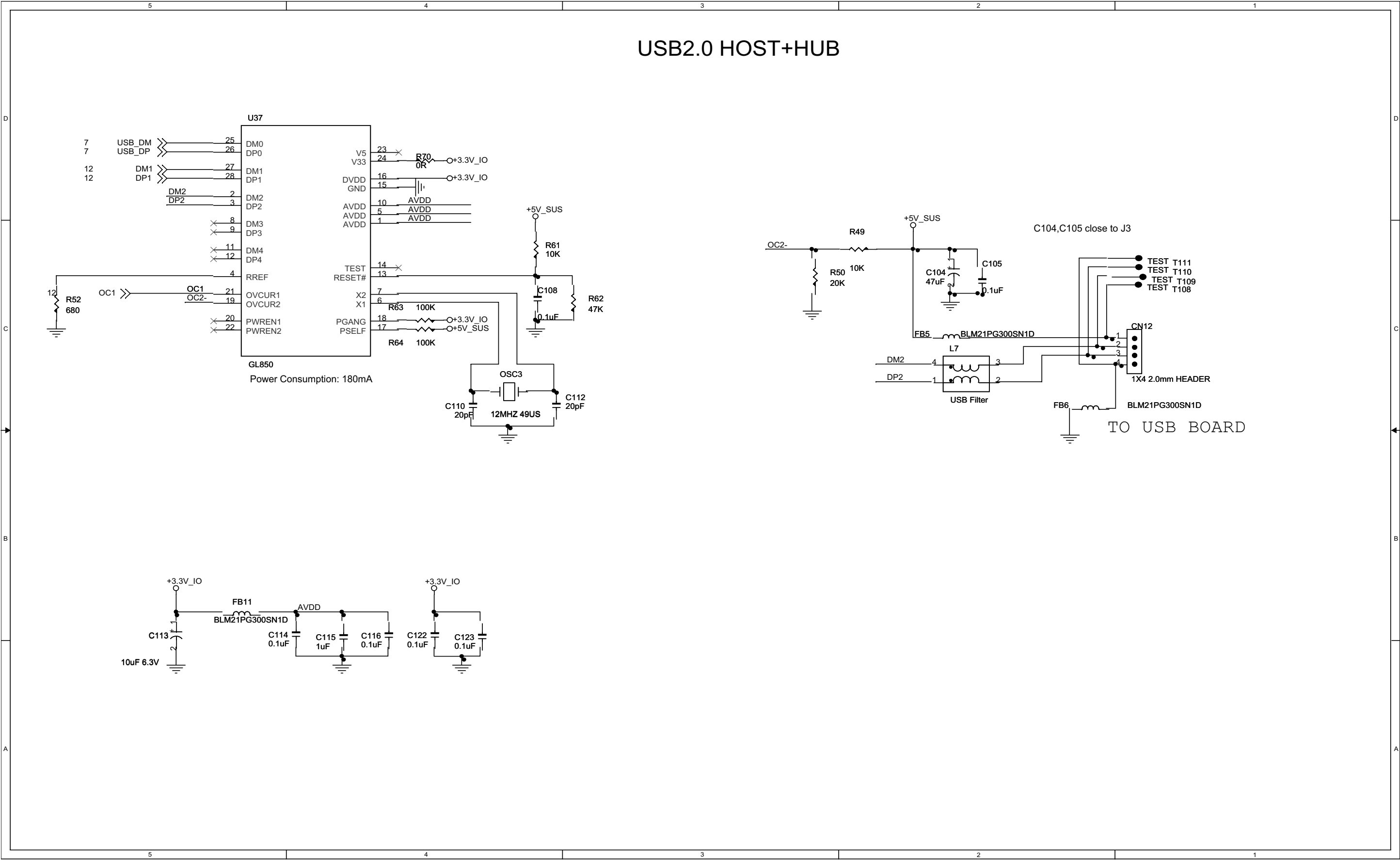


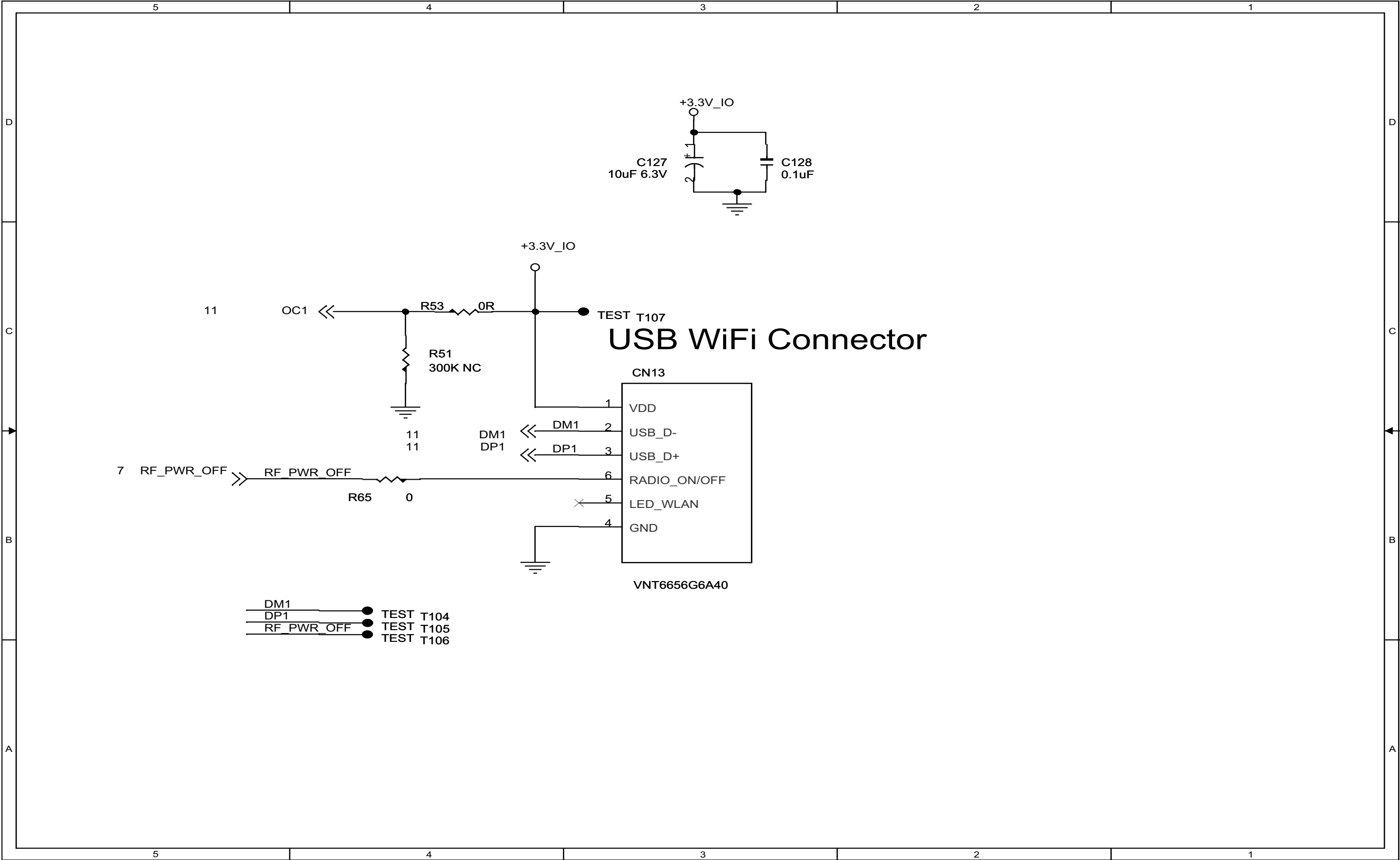






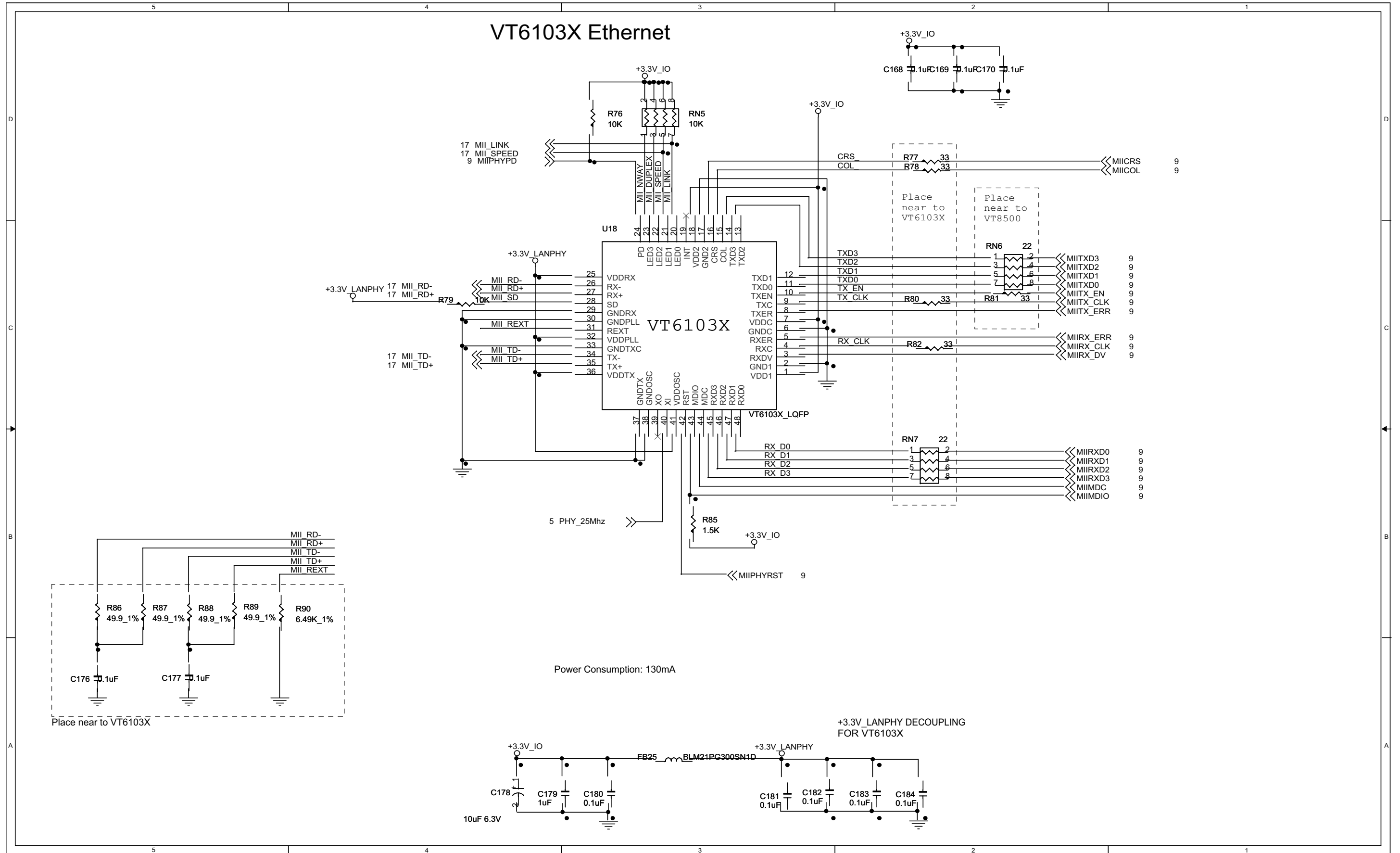
USB2.0 HOST+HUB



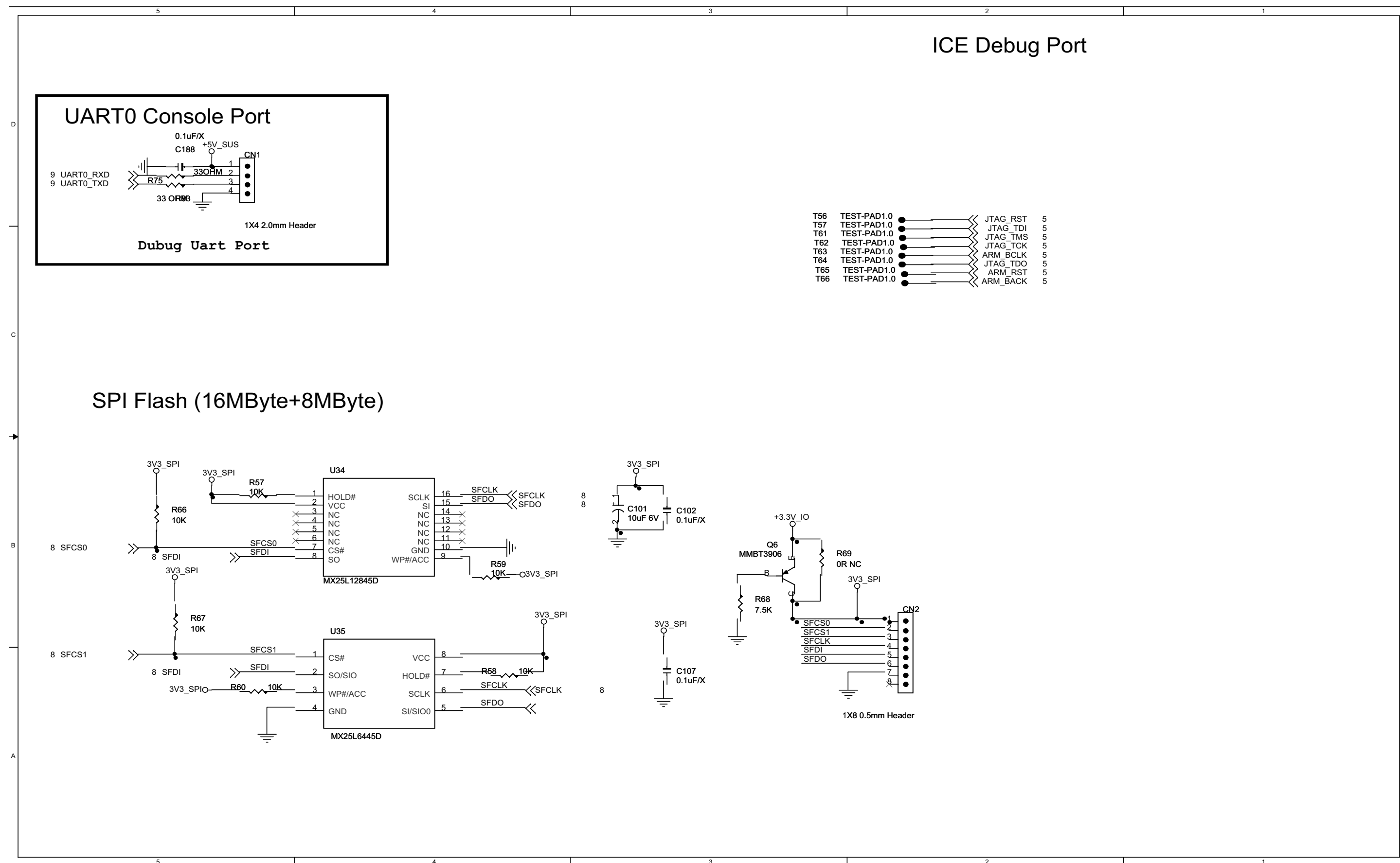


CIRCUIT DIAGRAM - Part 11

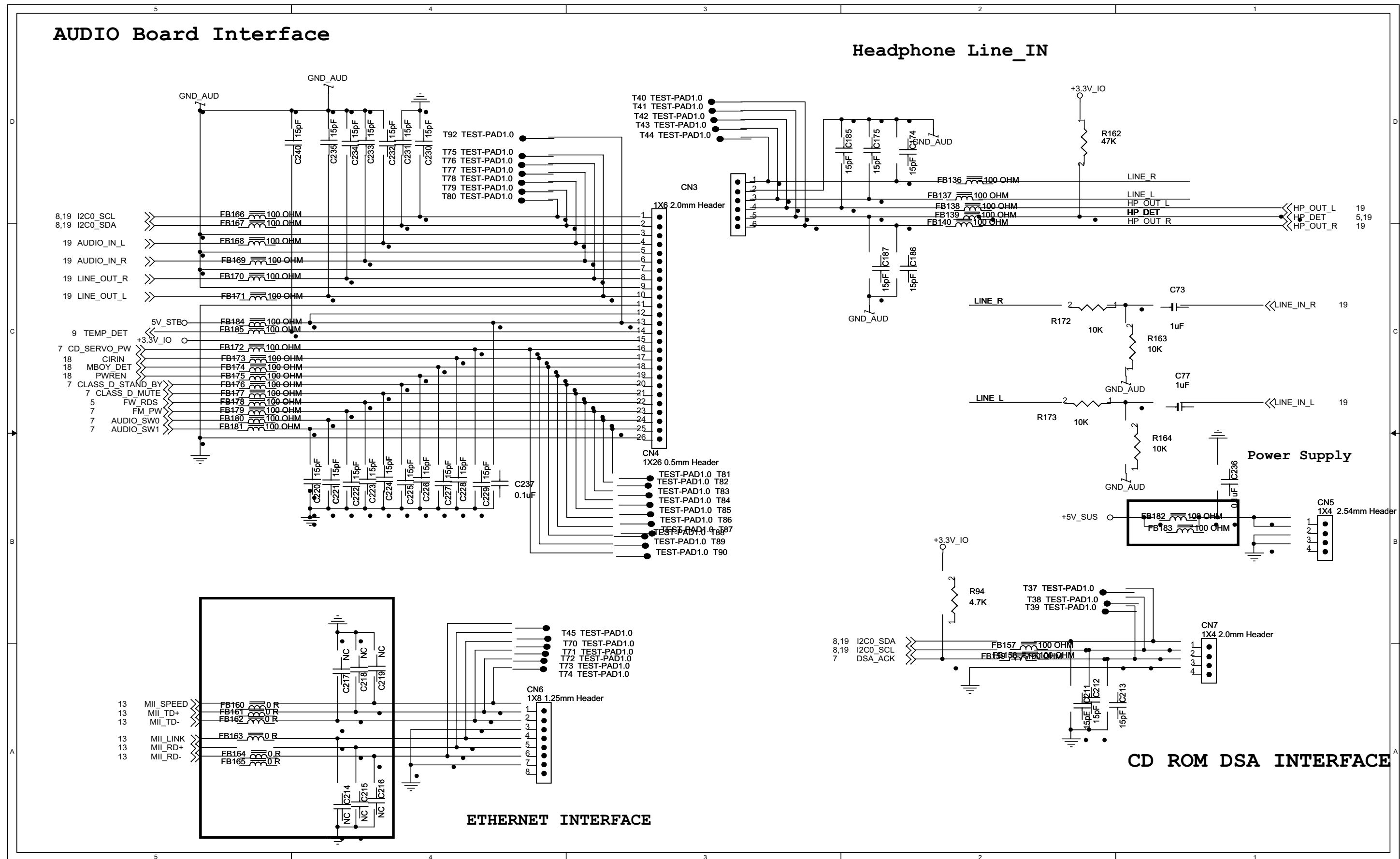
VT6103X Ethernet



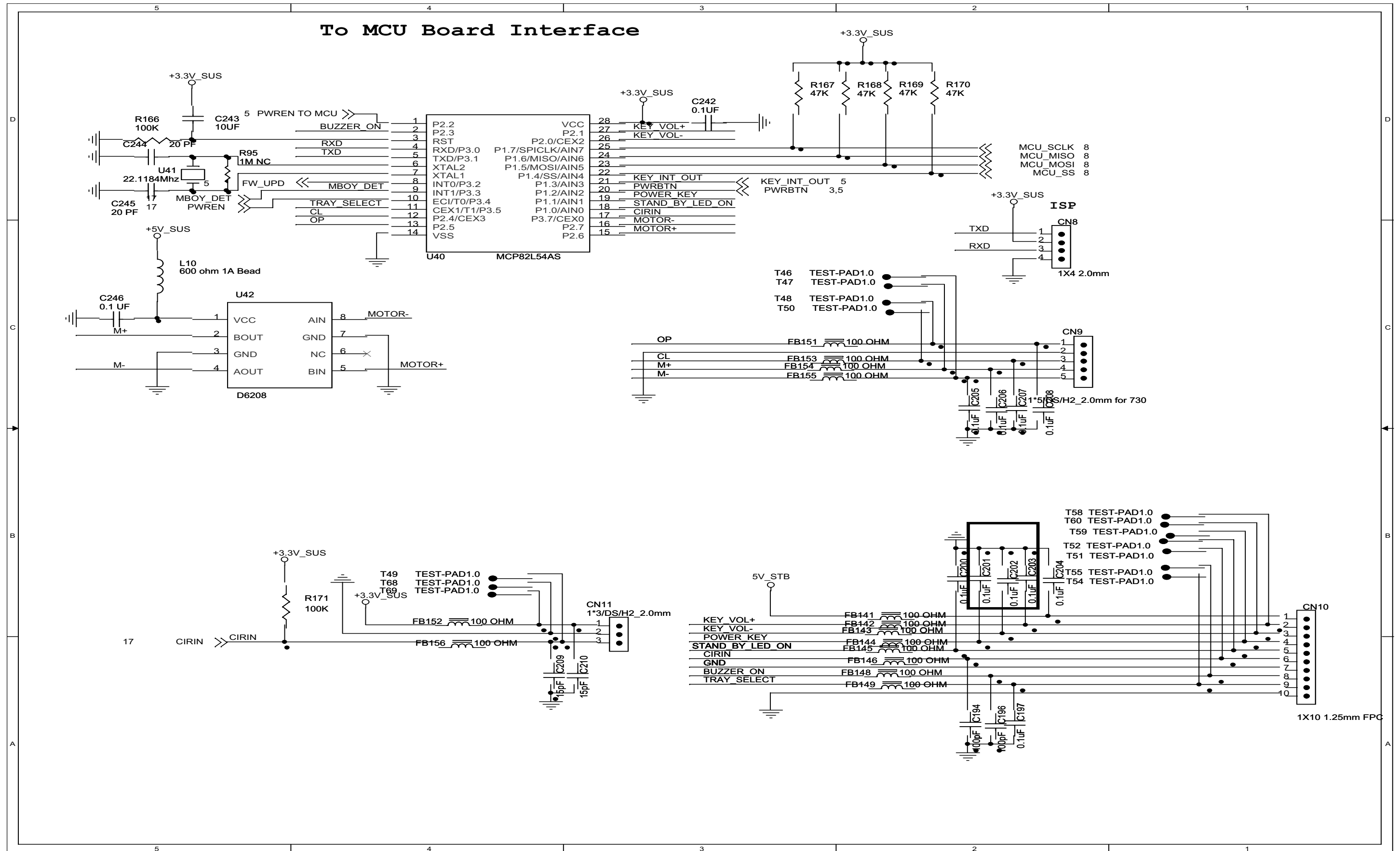


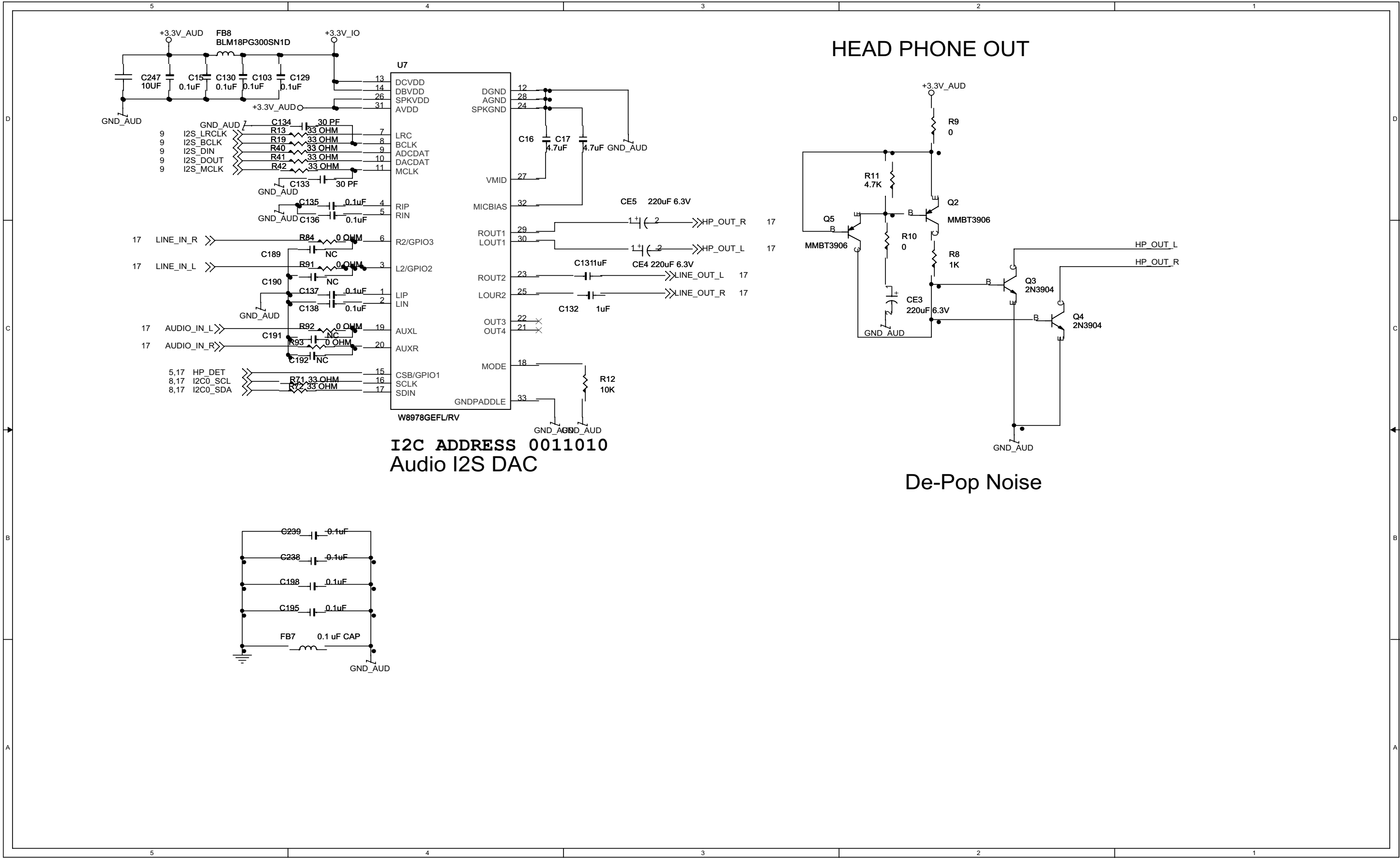


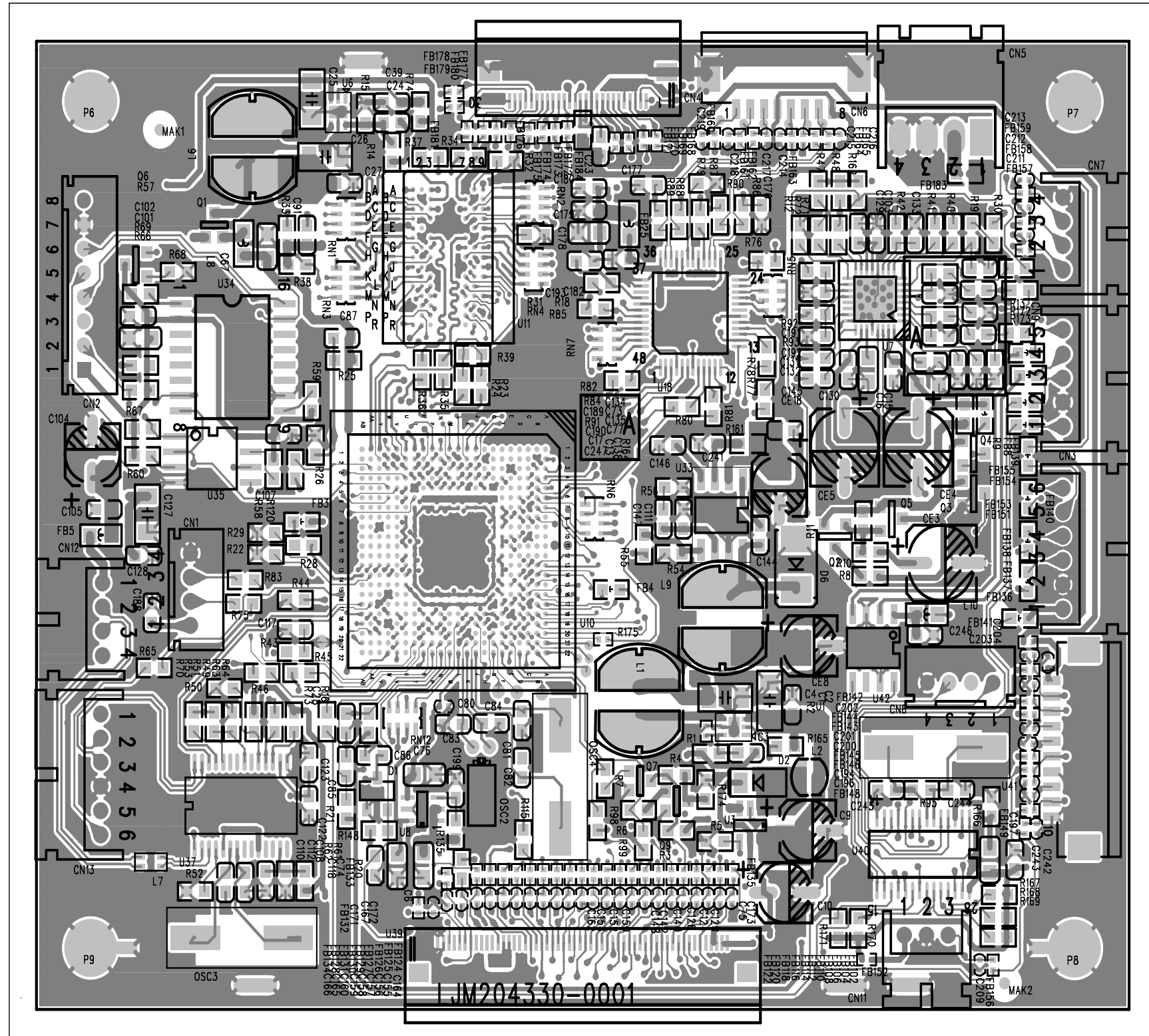


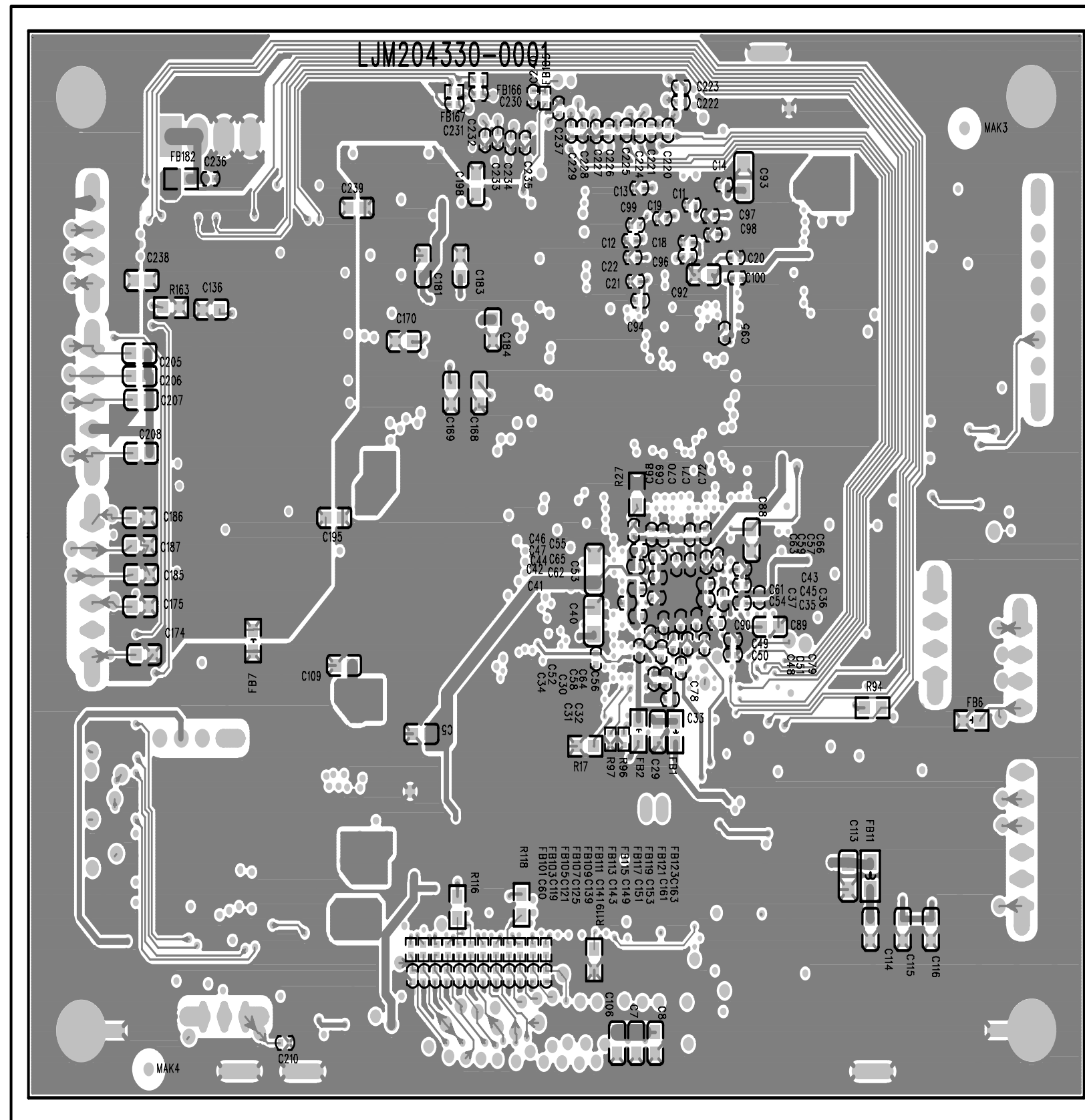


CIRCUIT DIAGRAM - Part 16





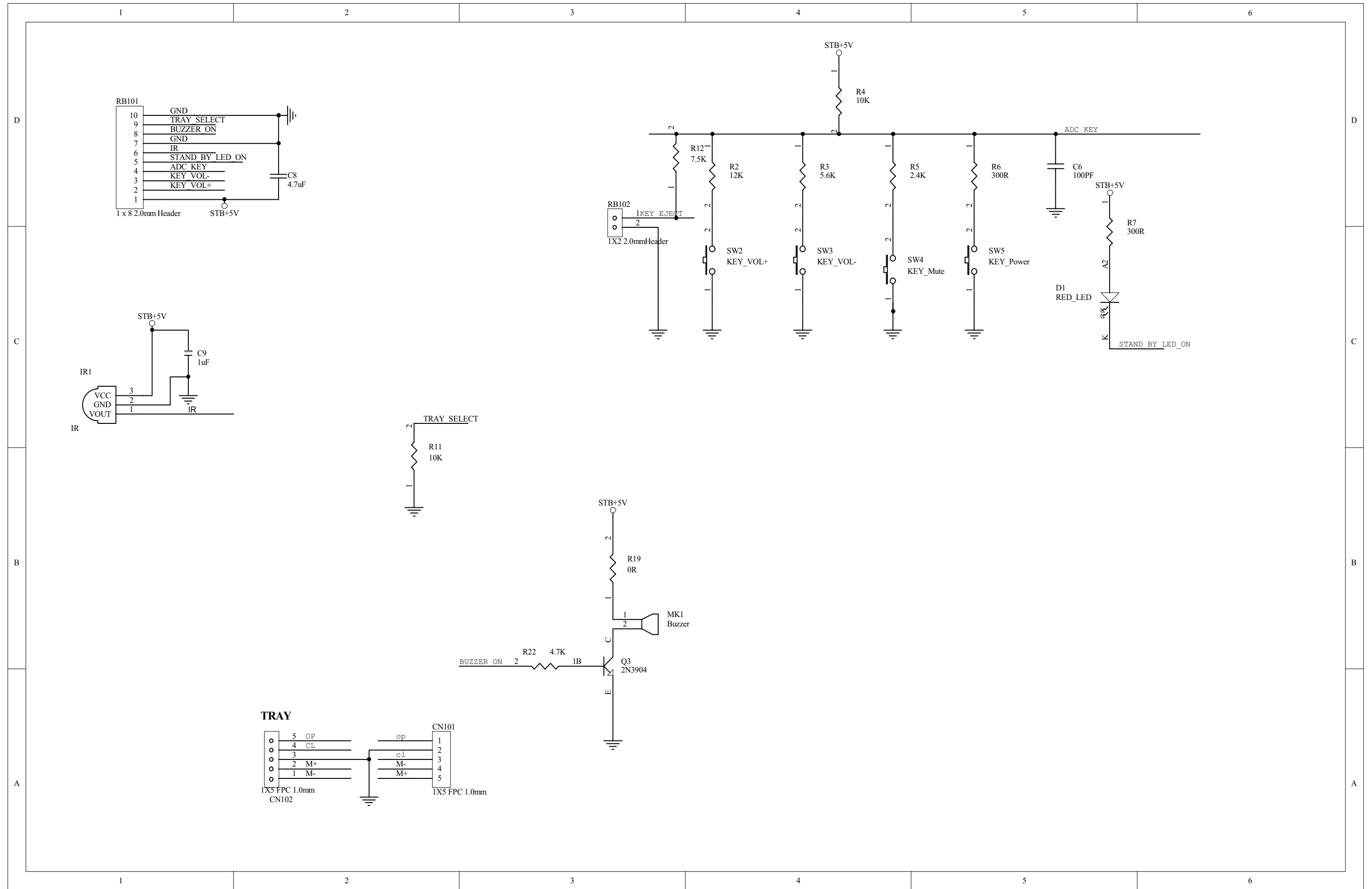


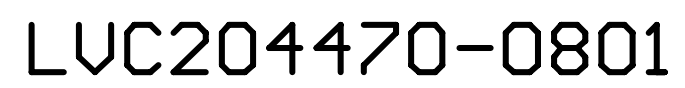


Control Board

TABLE OF CONTENTS

| | |
|-----------------------|-----|
| Circuit Diagram | 8-2 |
| PCB Layout View | 8-3 |

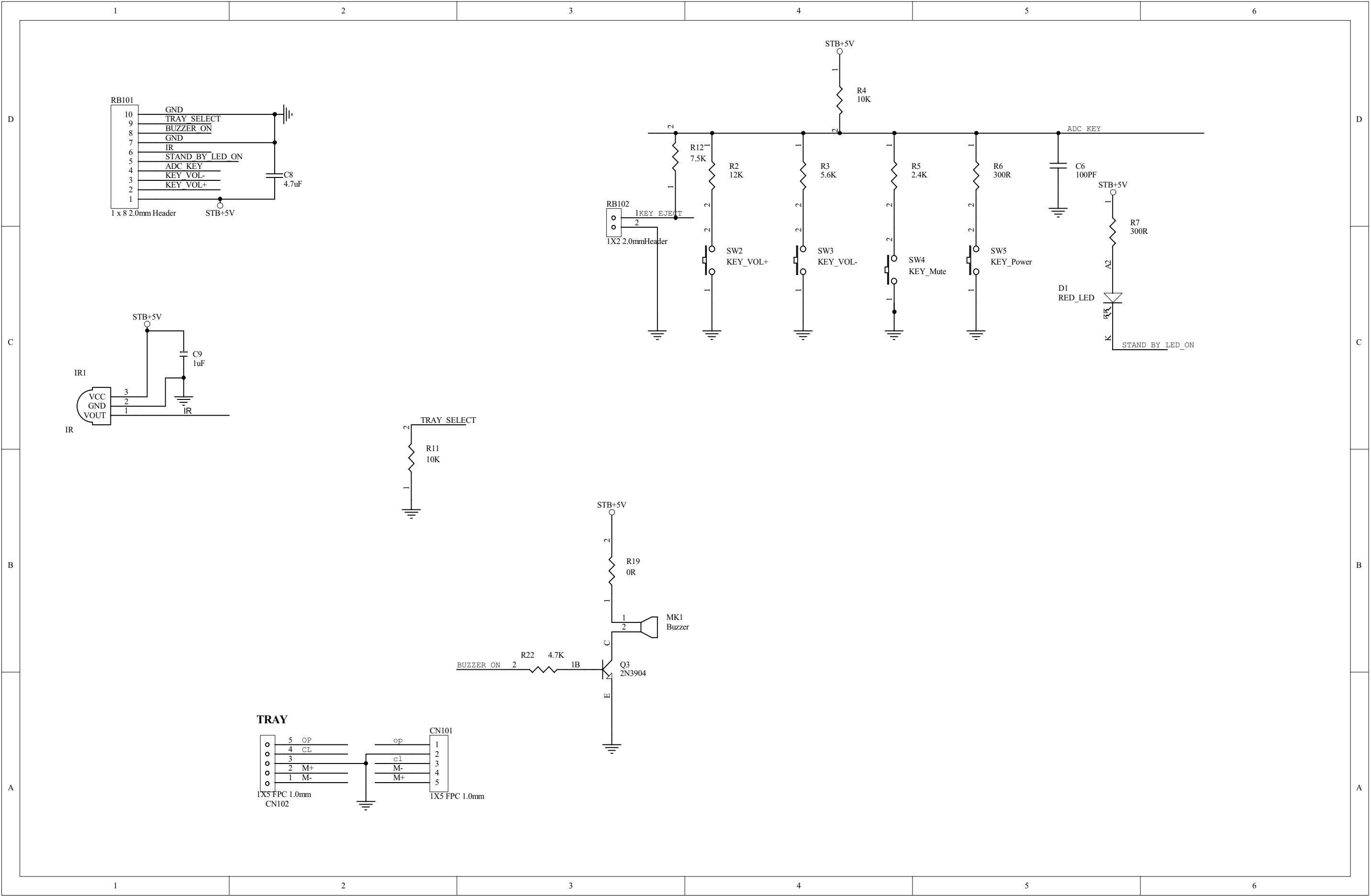


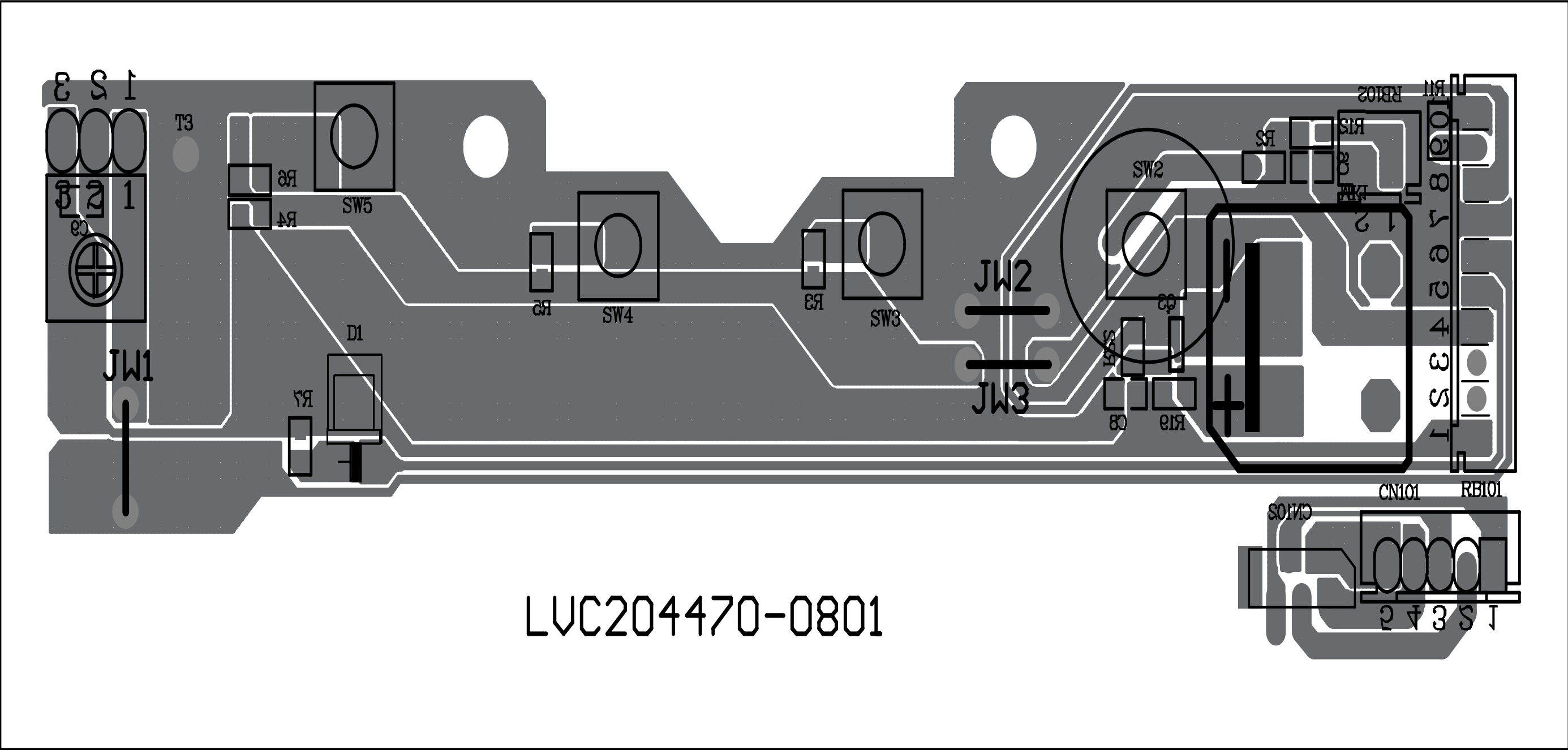


Key Board

TABLE OF CONTENTS

| | |
|-----------------------|-----|
| Circuit Diagram | 8-2 |
| PCB Layout View | 8-3 |

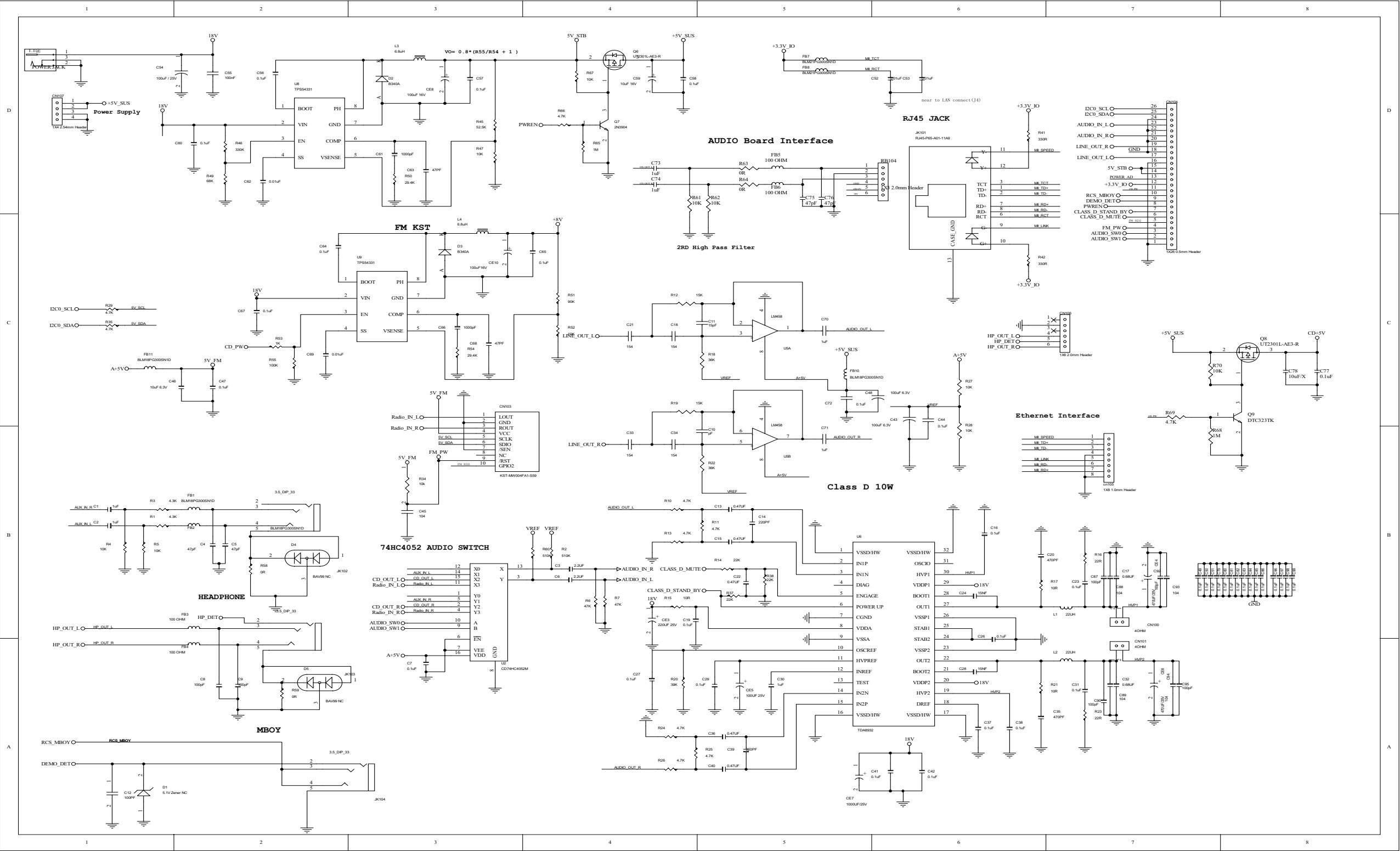


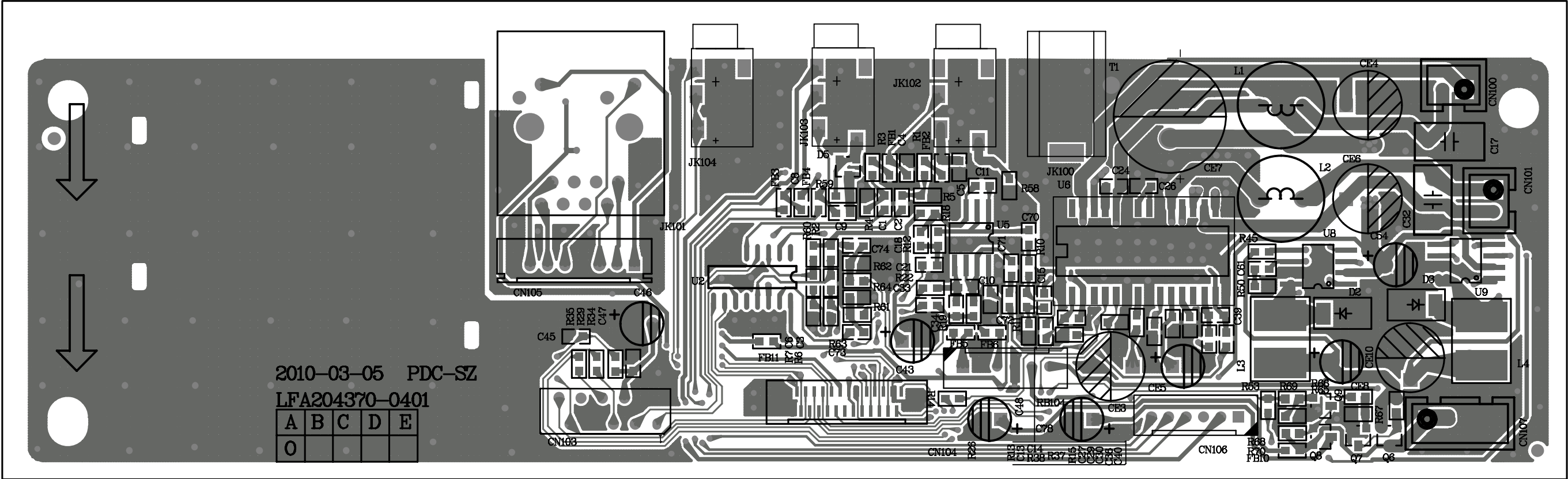


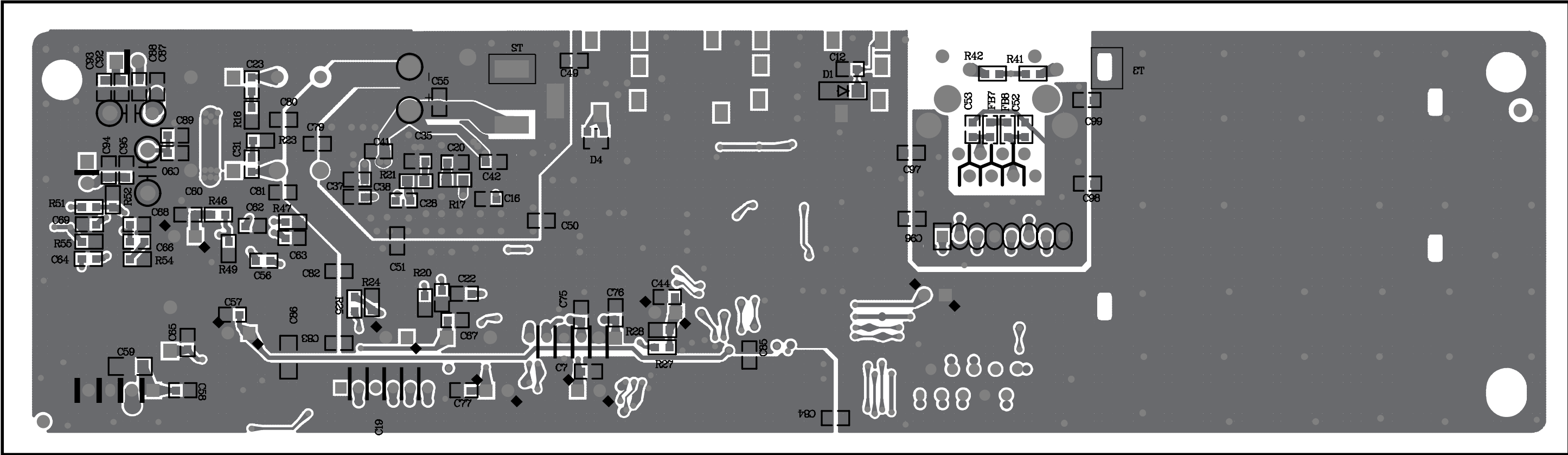
AMP Board

TABLE OF CONTENTS

| | |
|------------------------------|-----|
| Circuit Diagram | 9-2 |
| PCB Layout Top View | 9-3 |
| PCB Layout Bottom View | 9-4 |



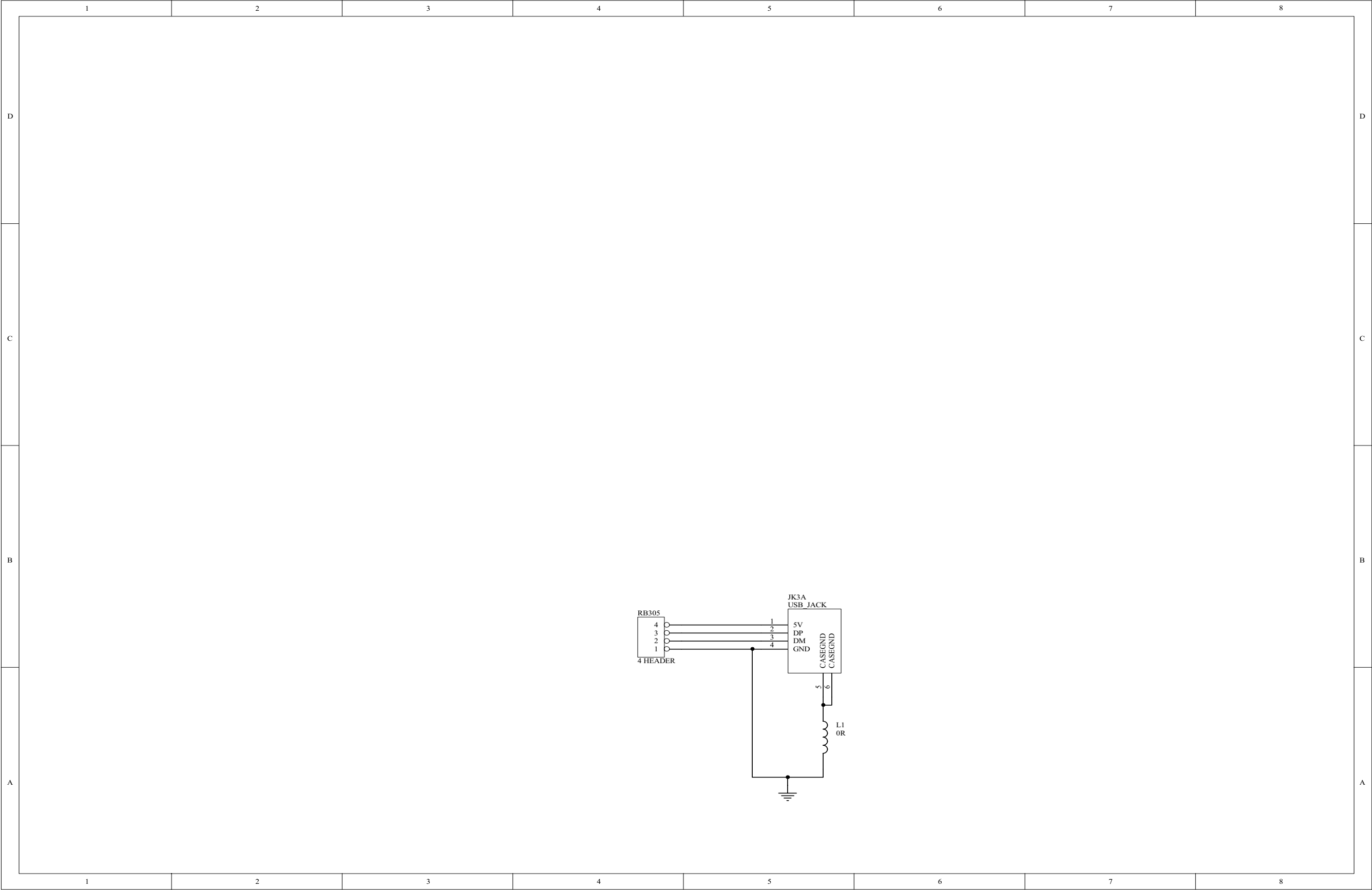


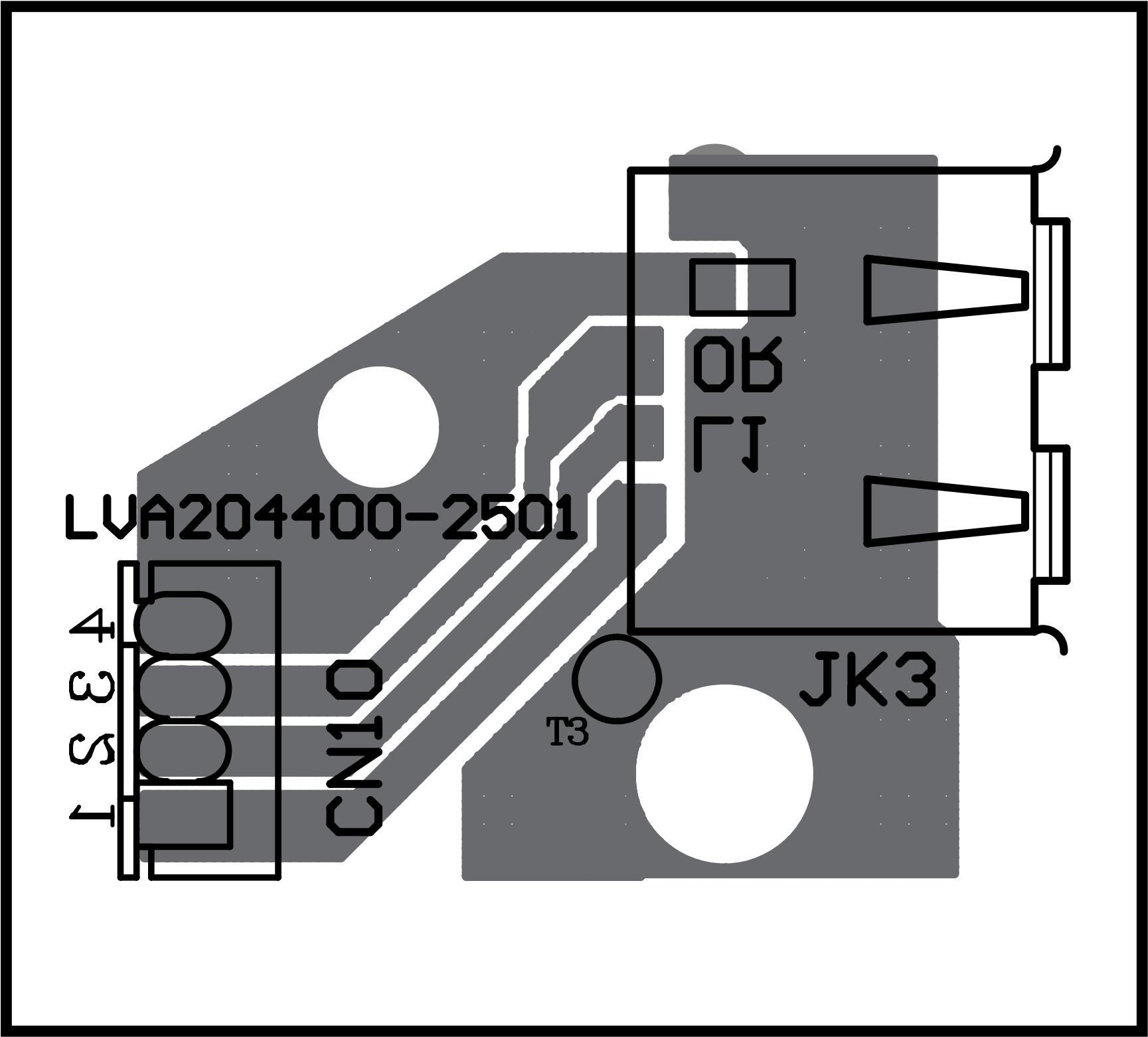


USB Board

TABLE OF CONTENTS

| | |
|-----------------------|------|
| Circuit Diagram | 10-2 |
| PCB Layout View | 10-3 |

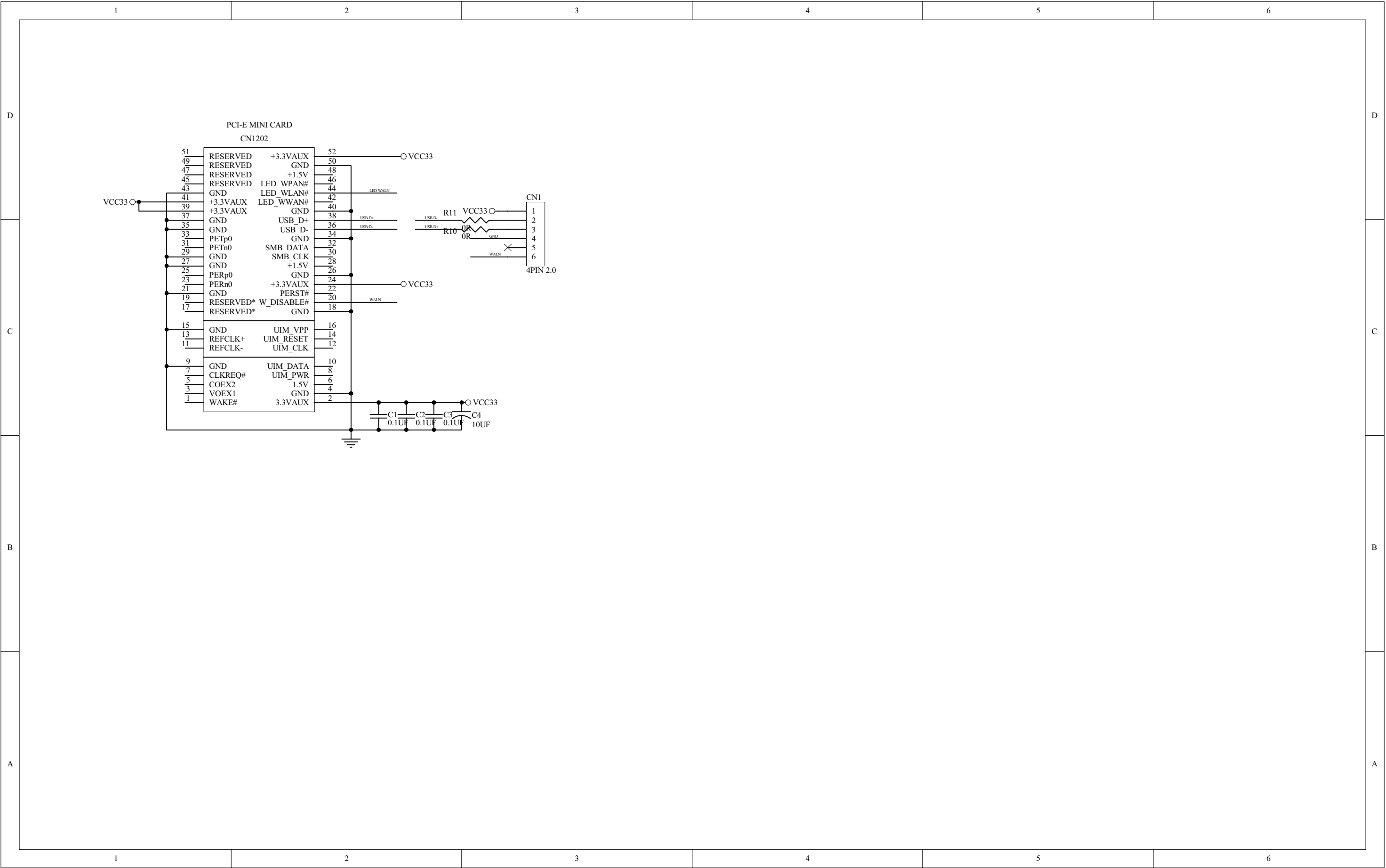


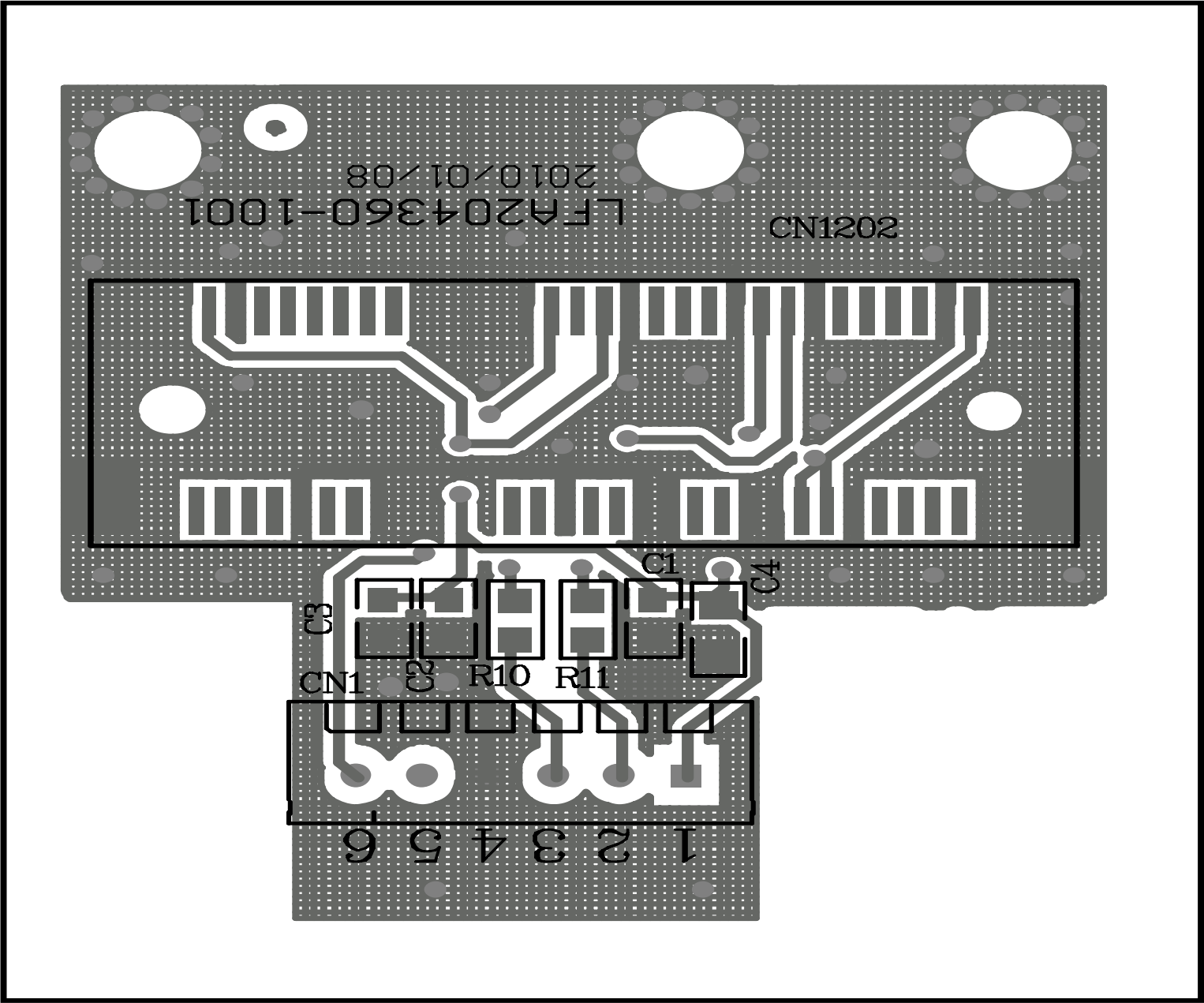


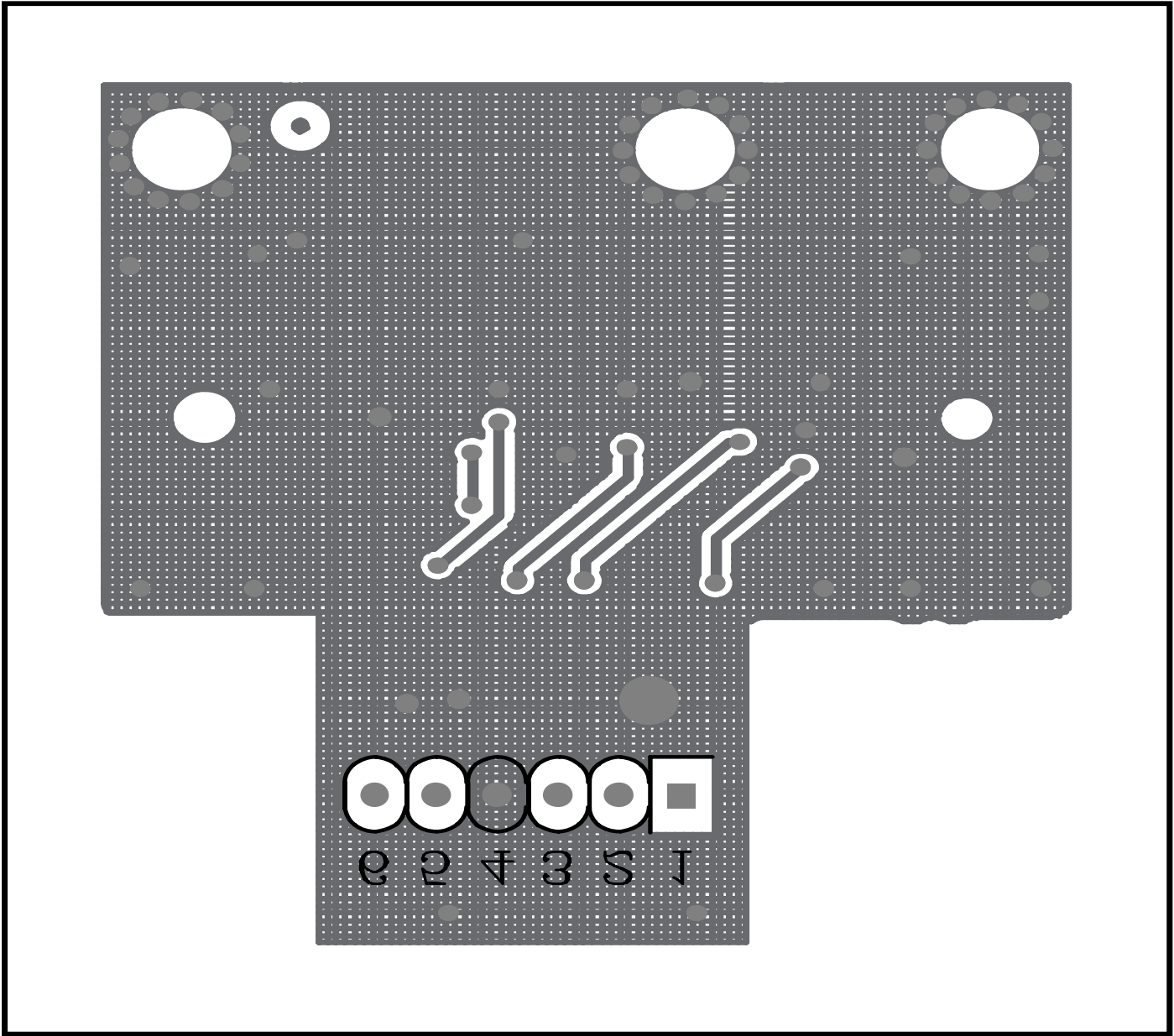
Wireless Board

TABLE OF CONTENTS

| | |
|-----------------------------|------|
| Circuit Diagram..... | 11-2 |
| PCB Layout Top View | 11-3 |
| PCB Layout Bottom View..... | 11-4 |



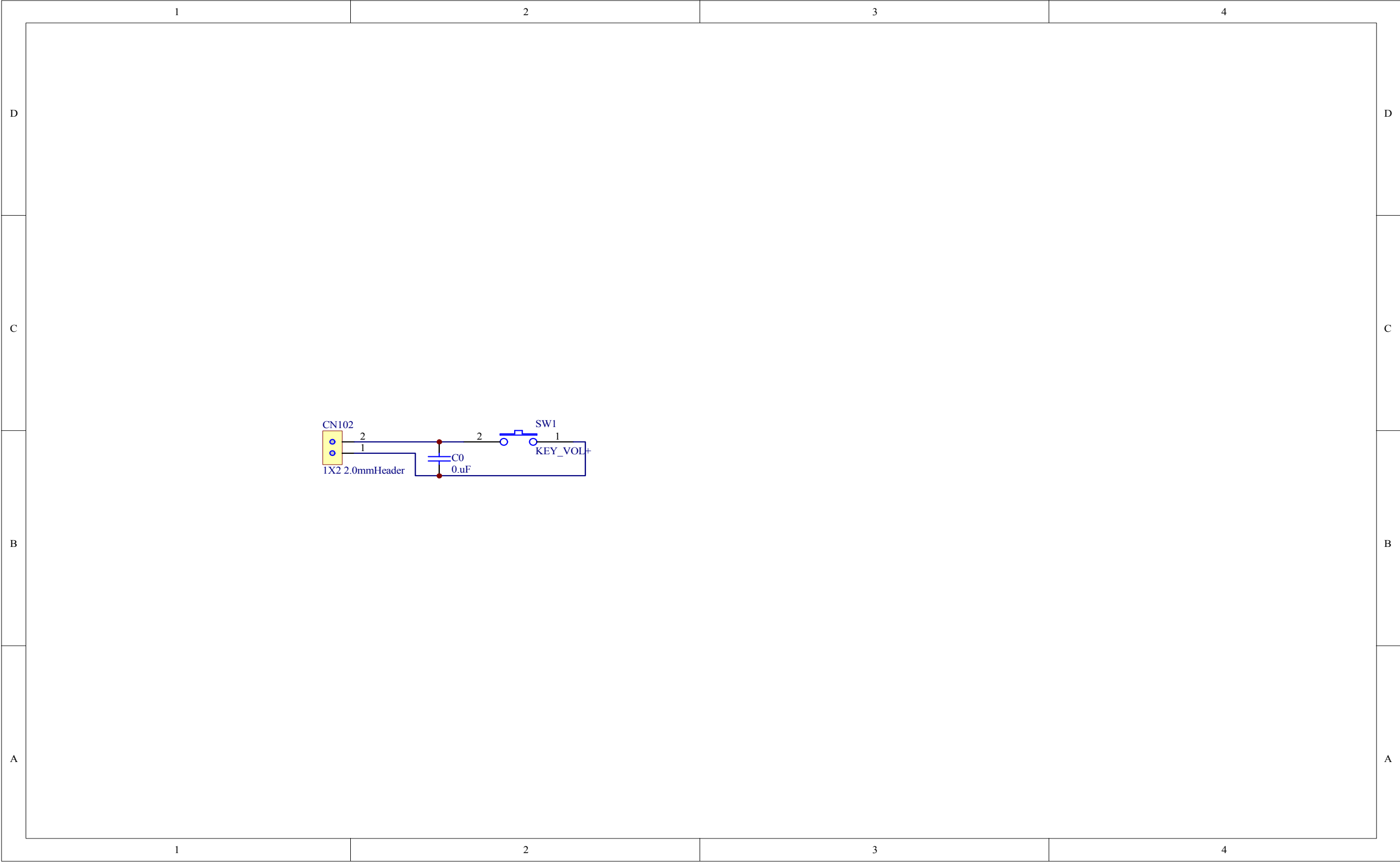


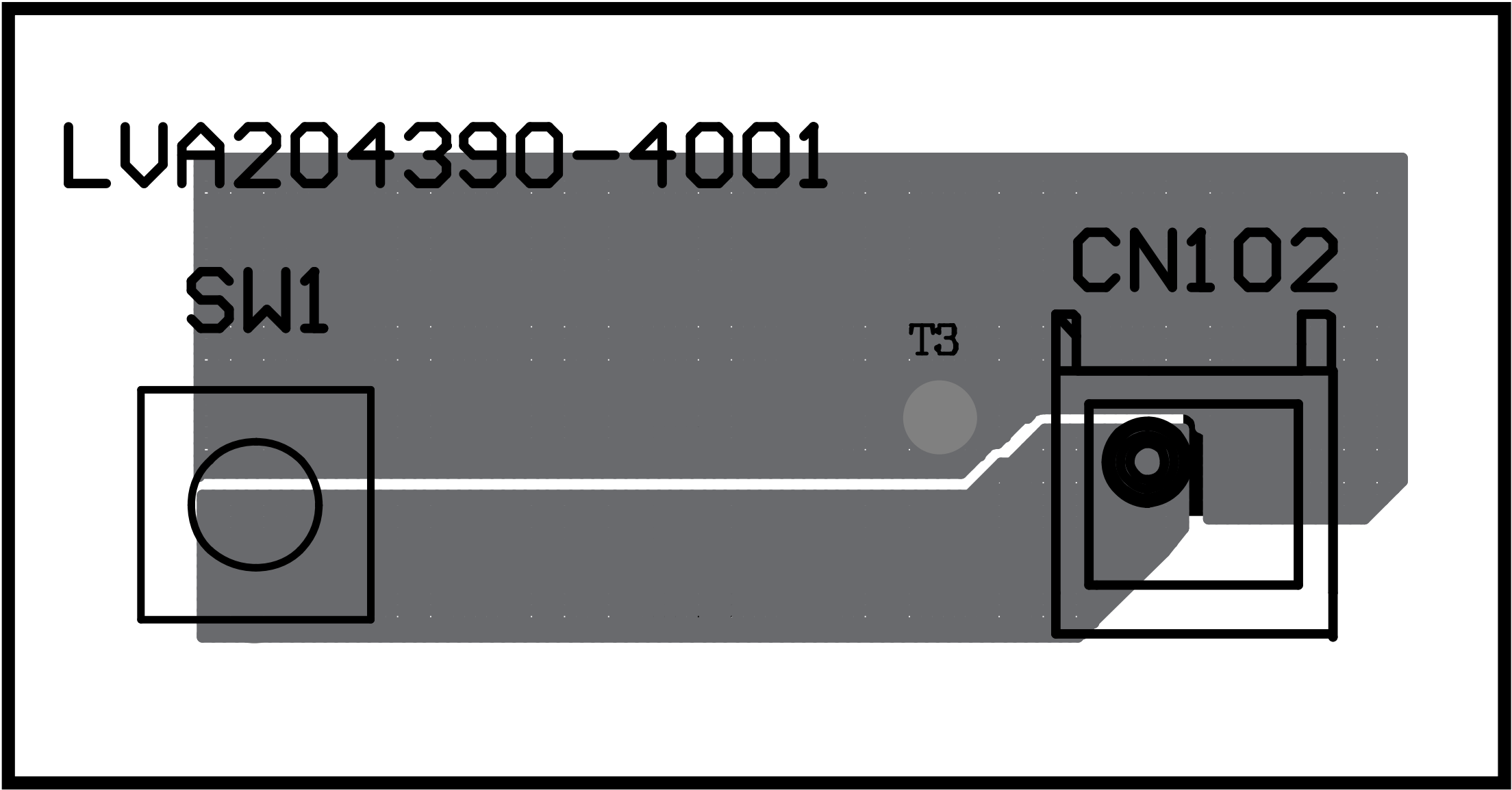


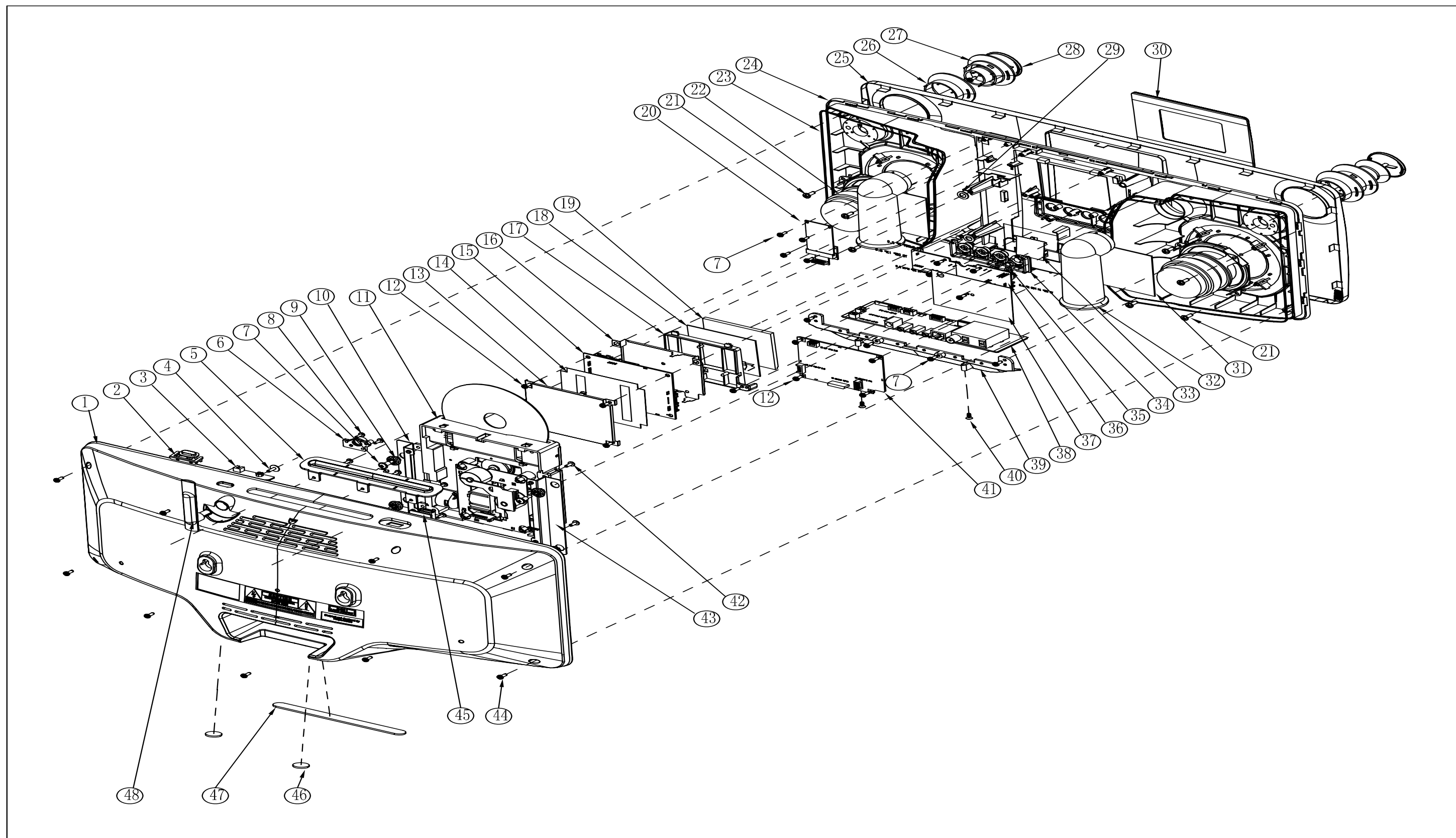
Eject Board

TABLE OF CONTENTS

| | |
|-----------------------|------|
| Circuit Diagram | 12-2 |
| PCB Layout View | 12-3 |







REVISION LIST

1.0 Manual 3141 785 34970

Initial Service Manual released.

1.1 Manual 3141 785 34971

In this version, Page 3-4 Fireware Upgrade Recovery Mode added.