

Onyx Studio 7

SKU:

HKOS7BLKAM	HKOS7GRYAM	HKOS7BLUAM	HKOS7BLKUK	HKOS7BLKEP
HKOS7GRYEP	HKOS7BLUEP	HKOS7BLKAS	HKOS7GRYAS	HKOS7BLUAS
HKOS7BLKCN	HKOS7GRYCN	HKOS7BLUCN	HKOS7BLKIN	HKOS7GRYIN
HKOS7BLUIN	HKOS7BLKRU	HKOS7GRYRU	HKOS7BLURU	HKOS7BLKBR
HKOS7GRYBR	HKOS7BLUBR	HKOS7BLKSP	HKOS7GRYSP	HKOS7BLUSP
HKOS7BLKSG	HKOS7GRYSG	HKOS7BLUSG	HKOS7BLKSEP	HKOS7GRYSEP
HKOS7BLUSEP	HKOS7BLKBR	HKOS7GRYBR	HKOS7BLUBR	HKOS7BLKAR
HKOS7GRYAR	HKOS7BLUAR	HKOS7BLKJN	HKOS7GRYJN	HKOS7BLUJN



CONTENTS

Technical Specifications	2	Wiring Diagram	13
Safety Instruction	3	SCH Diagrams & PCBA Layout	14
Software upgrade Instruction & Reset Procedure	6	Mechanical Exploded View	30
Troubleshooting Charts	7	Spare Parts List	31
Disassembly Instruction	8	Revision List	33
Block Diagram	12		

TECHNICAL SPECIFICATIONS

- Bluetooth version: 4.2
- Support: A2DP 1.3, AVRCP 1.6
- Transducers: Woofer 1 x 120mm, Tweeter 2 x 25mm
- Rated Power: 1 x 50WRMS Bi-amp (AC mode)
- Frequency response: 50Hz - 20kHz (-6dB)
- Signal to noise ratio: 80dB A-weighted
- Power supply: 19V/2A
- Battery type: Lithium-ion (3.6V/3250mAh, 11.70Wh)
- Battery charge time: 5 hours
- Music playtime: up to 8 hours (Varies by volume level and music content)
- Bluetooth transmitter power: < 9dBm (EIRP)
- Bluetooth transmitter frequency range: 2400-2483.5MHz
- Bluetooth transmitter modulation: GFSK, $\pi/4$ - DQPSK, 8DPSK
- Dimension (H x W x D): 268.00 X 302.50 X 159.50mm
- Weight: 3295g

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, or the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.
18. Do not expose batteries to excessive heat such as sunshine, fire or the like.



CAUTION

RISK OF ELECTRIC SHOCK. DO NOT OPEN.



THE LIGHTNING FLASH WITH AN ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.



THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE PRODUCT.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

For Products That Transmit and Receive RF Energy:

FCC Regulations (USA Only)

FCC Information For Users

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference; and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radio and Television Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and then on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the equipment and receiver.
- Connect the equipment to a different outlet so that the equipment and receiver are on different branch circuits.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE: Changes or modifications not expressly approved by Harman could void the user's authority to operate the equipment.

IC Statement and Warning (Canada Only)

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

For Canadian Model

This Class B digital apparatus complies with Canadian ICES-003.

Modèle pour les Canadiens

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

For Products with Radio Receivers That Can Use an External Antenna:

CATV or Antenna Grounding

If an outside antenna or cable system is connected to this product, be certain that it is grounded so as to provide some protection against voltage surges and static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements of the grounding electrode.

Note to CATV System Installer:

This reminder is provided to call the CATV (cable TV) system installer's attention to article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

For CD/DVD/Blu-ray Disc™ Players:

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT
LUOKAN 1 LASER LAITE
KLASS 1 LASER APPARAT
CLASSE 1 PRODUIT LASER

Caution:

This product uses a laser system. To prevent direct exposure to the laser beam, do not open the cabinet enclosure or defeat any of the safety mechanisms provided for your protection. DO NOT STARE INTO THE LASER BEAM. To ensure proper use of this product, please read the owner's manual carefully and retain it for future use. Should the unit require maintenance or repair, please contact your local Harman Kardon service center. Refer servicing to qualified personnel only.

For Products That Include Batteries:



Instructions for Users on Removal and Disposal of Used Batteries.

CAUTION

Risk of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

Alkaline batteries are considered nonhazardous. Rechargeable batteries (i.e., nickel cadmium, nickel metal-hydride, lithium and lithium-ion) are considered hazardous household materials and may pose an unnecessary health and safety risk.

In the European Union and other locations, it is illegal to dispose of any battery with household trash. All batteries must be disposed of in an environmentally sound manner. Contact your local waste management officials for information regarding the environmentally sound collection, recycling and disposal of used batteries.

To remove the batteries from your equipment or remote control, reverse the procedure described for inserting batteries in the owner's manual.

For products with a built-in battery that lasts for the lifetime of the product, removal may not be possible for the user. In this case, recycling or recovery centers handle the dismantling of the product and the removal of the battery. If, for any reason, it becomes necessary to replace such a battery, this procedure must be performed by authorized service centers.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge build-up or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

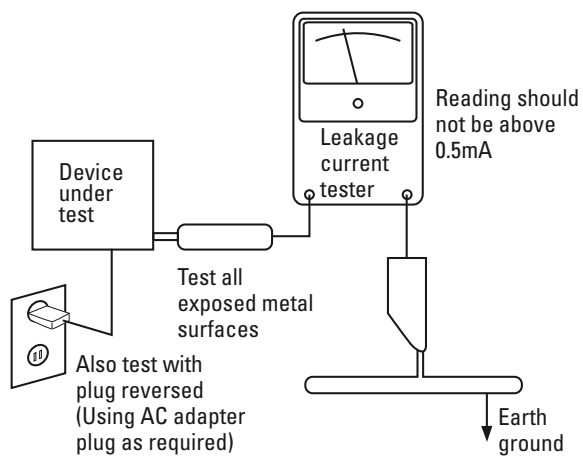
Components identified with the IEC symbol  in the parts list are of special significance to safety. When replacing a component identified with , use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

Software upgrade Instruction& Reset Procedure

1. Connects to PC by UART on the power off mode ;
2. Open firmware update PC Tool “main.exe” ;
3. Config: firstly we need choose a right uart port for updating by Port config menu ;
4. Bin path Config ;
5. Bin path Config: Browse new firmware “bin file” ;
6. After all config OK, save and exit, then click “start all” button of PC tool ,
ready for firmware update;
7. Lastly Plug-in AC 19V, then it will start to download firmware until to
100%. upgrade successful.

KEY COMBINATION FUNCTION

Button Pattern	Action	Indicator
Volume + & Bluetooth	Long press > 2s	Reset to factory default in On Mode.
Volume - & Bluetooth	Long press >10s	Toggle by-pass mode in On Mode.
Volume+ & Play/Pause	Long press >10s	Enter Regular DFU mode in On Mode (Charger connected).
Volume - & Play/Pause	Long press > 2s	Show SW version in On Mode.
Play/Pause & Bluetooth	Long press >10s	Toggle Demo mode in On Mode.

TROUBLE SHOOTING

TROUBLE	CHECKING POINTS
NO SOUND, NO WORKING	BATTERY MAY BE DAMAGED MAIN BOARD MAY BE DAMAGED WIRE CONNECT FAILED SPEAKER MAY BE DAMAGED
KEY BOARD NO WORK	KEY CONNECT WIRE FAILED KEY BOARD MAY BE DAMAGED MAIN BOARD MAY BE DAMAGED IO BOARD MAY BE DAMAGED
CAN NOT RECHARGE	IO CONNECT WIRE FAILED BATTERY MAY BE DAMAGED MAIN BOARD MAY BE DAMAGED
SPEAKER SYSTEM CAN NOT CONNECT BT	BT ANTENNA CONNECTION IS NOT GOOD BT MODULE ON THE MAIN BOARD IS NOT GOOD MAIN BOARD MAY BE DAMAGED

Disassembly Instructions

1: Cut the sealing tape	2:Take out gift box	3: Open the gift box
		
4: Take out the product	5: Unclench grill fabric 6 hook （upside）	6: Unclench grill fabric 6 hook （underneath）
		

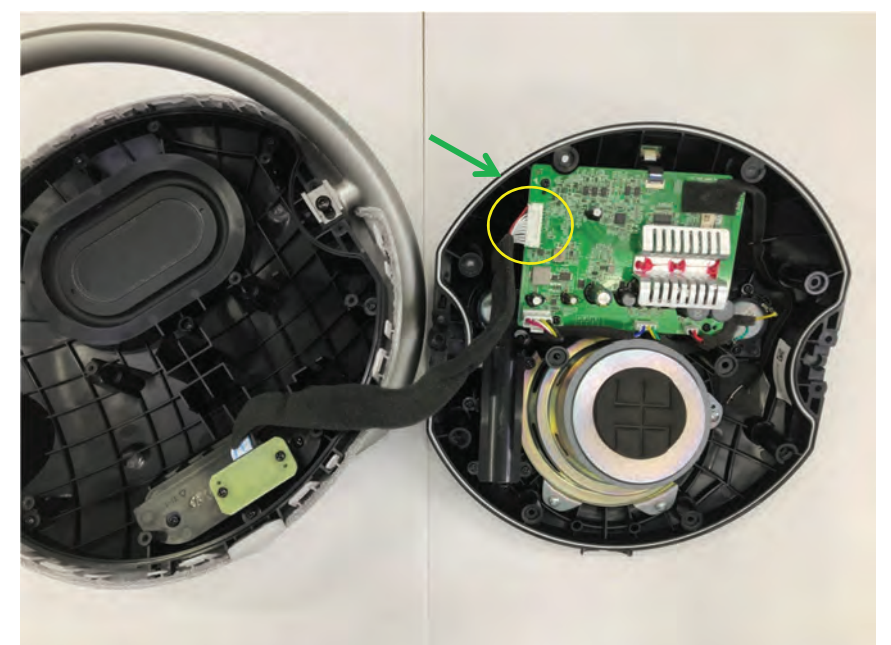
7: Remove 8 rubber plug



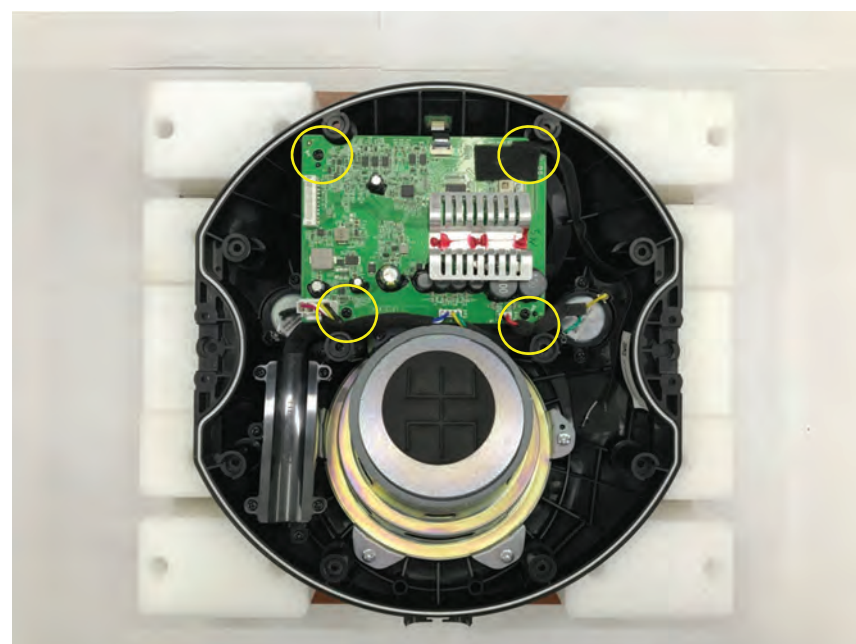
8: Remove Front Housing 14 screw



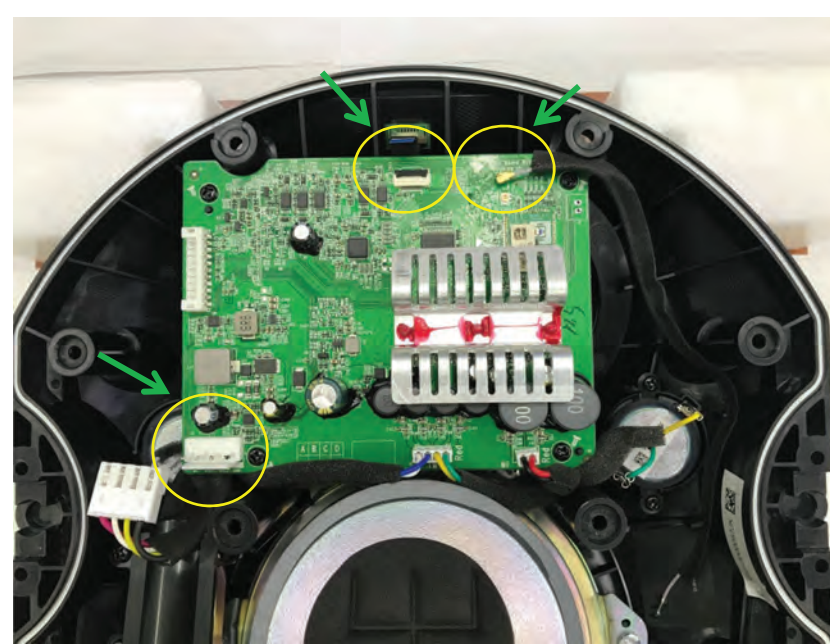
9: Remove Front Housing and J1 connector



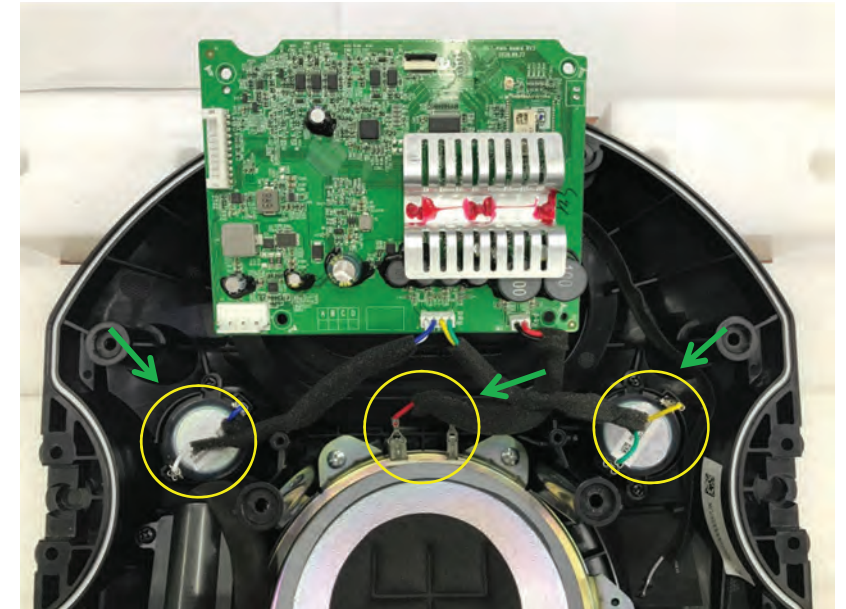
10: Remove maibord 4 screw



11: Remove J2/J3/J8 connector



12: Remove Tweeter and Woofer connector



13: Remove battery box 3 screws
and Tweeter/Woofer 10 screws



14: Remove battery box and Tweeter/Woofer



15: Remove the rubber button



16: Remove Key Board

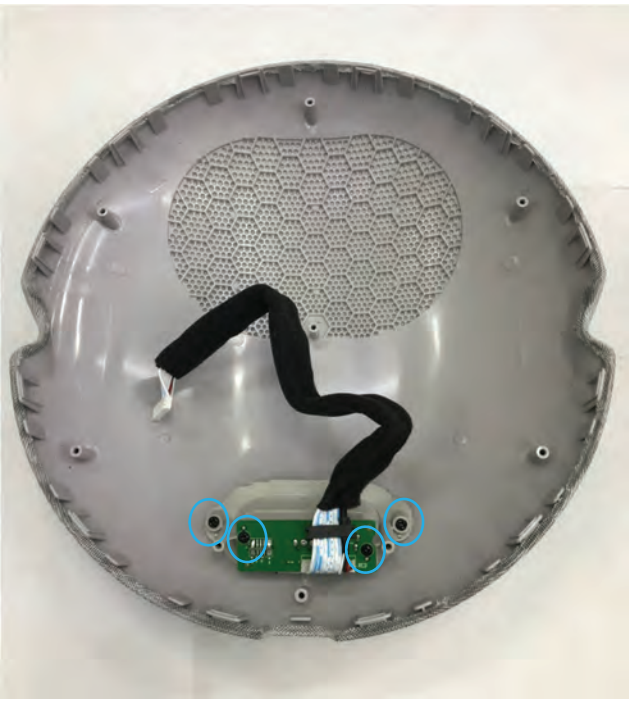


17: Remove handle 2 screws and grill fabric 11screws

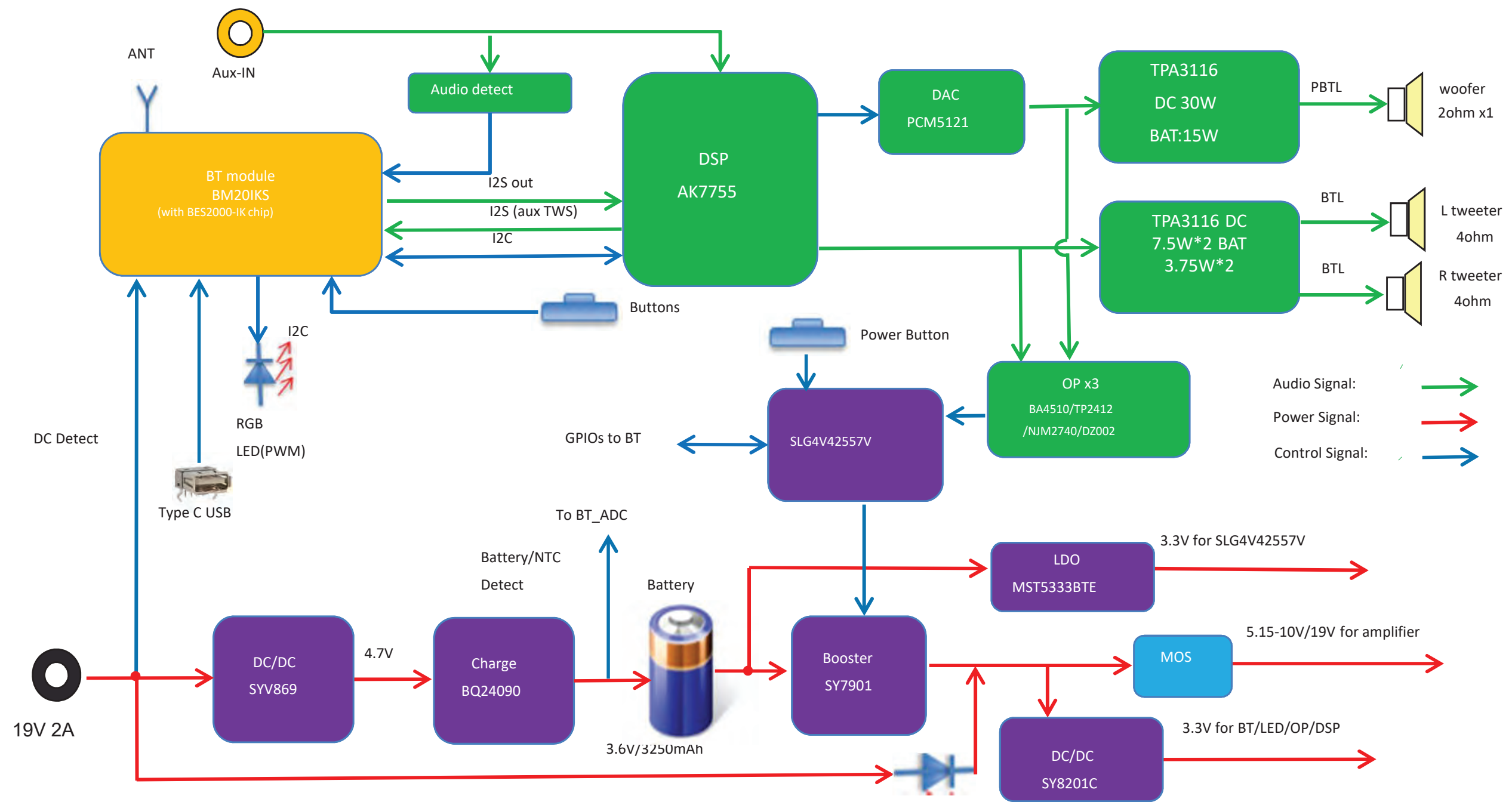


18: Remove handle and seal board

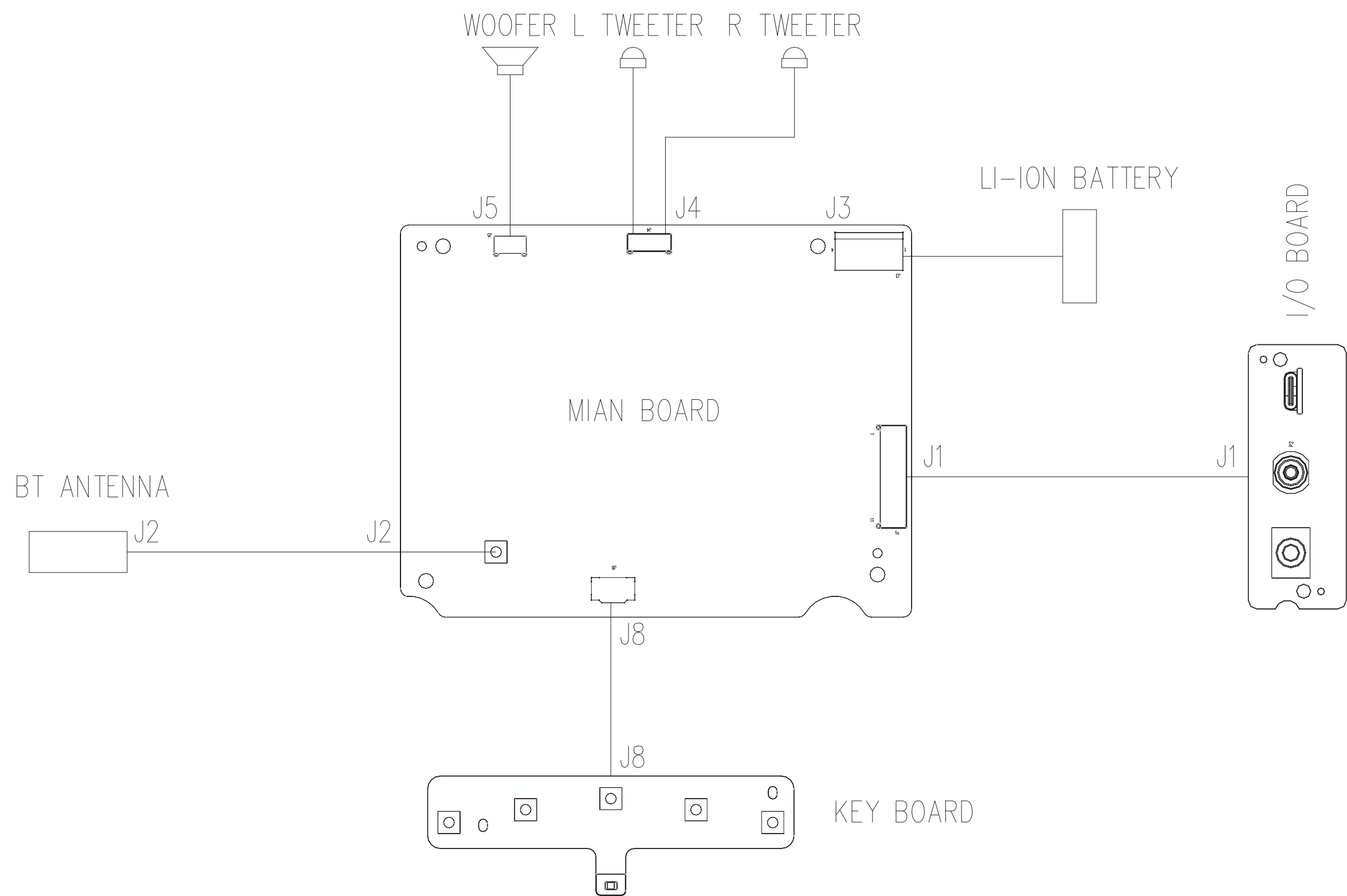


19: Remove real grill fabric	20: Remove I/O Board 2 screws and I/O Bracket 2 screws	21: Remove I/O Board and I/O Bracket
		
22: Remove battery box 4 screws	23: Remove battery	
		

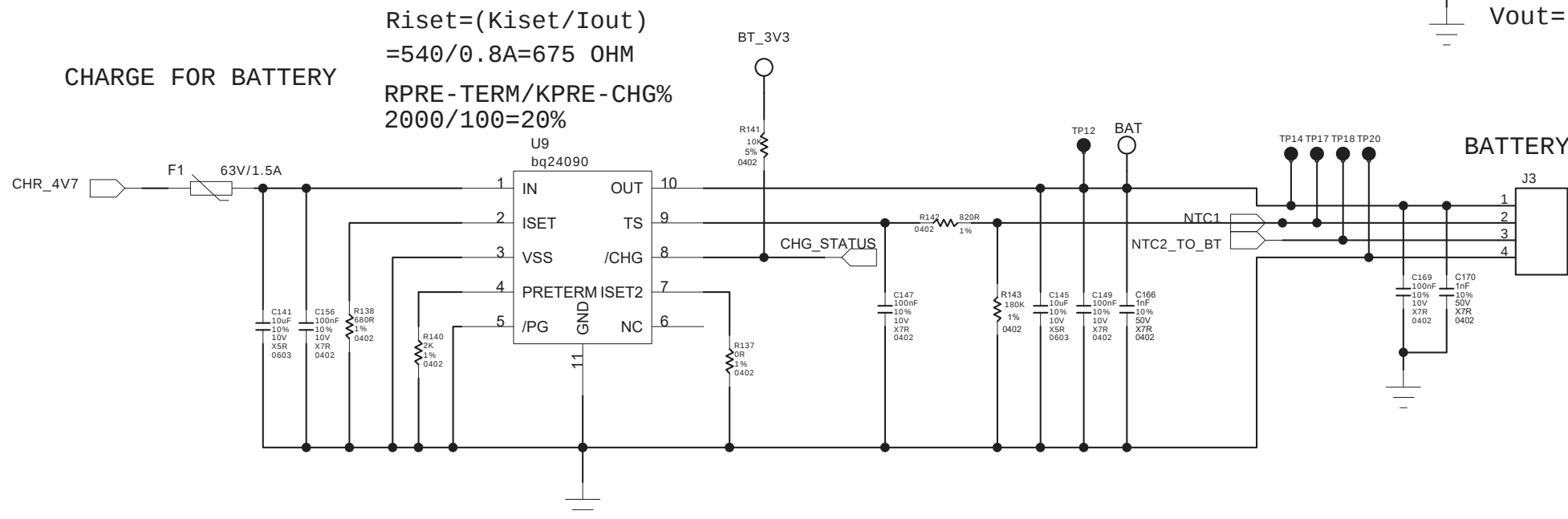
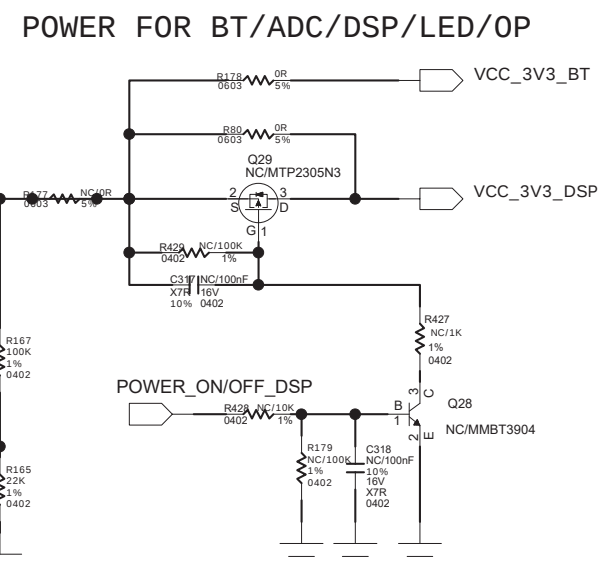
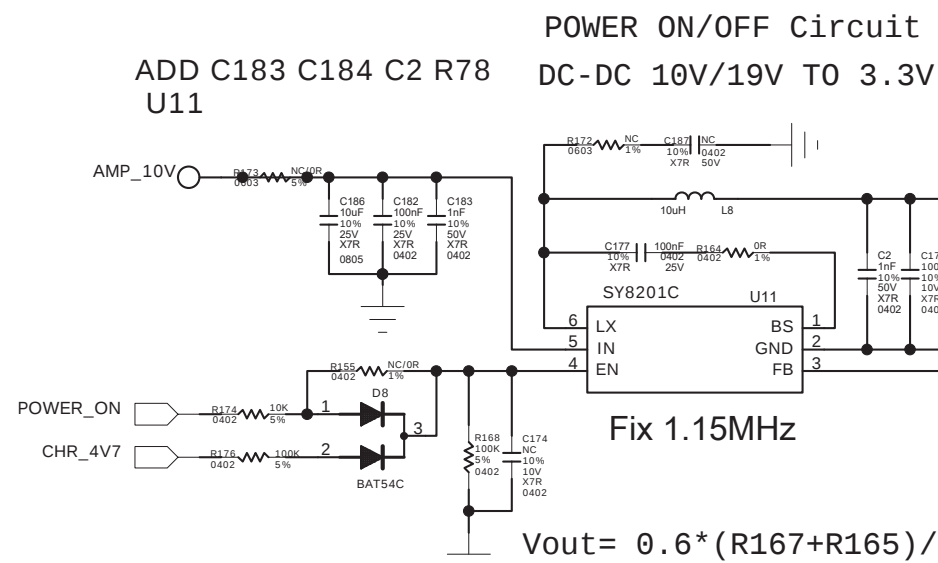
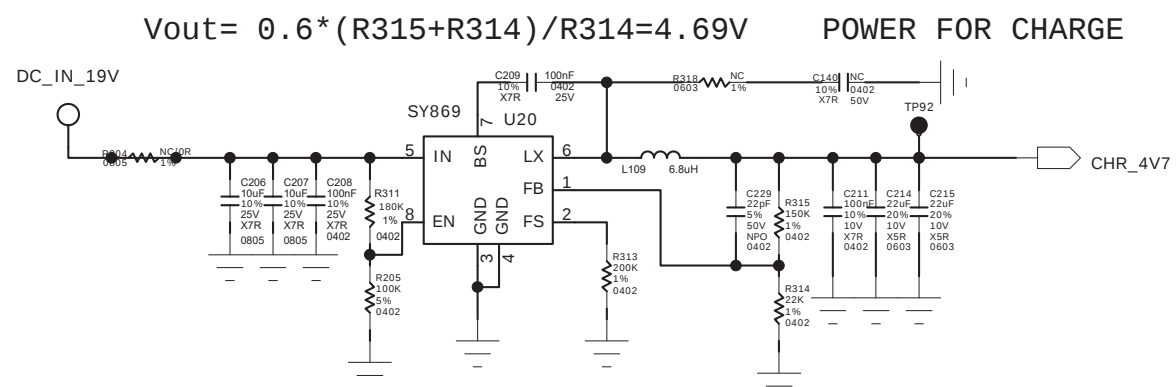
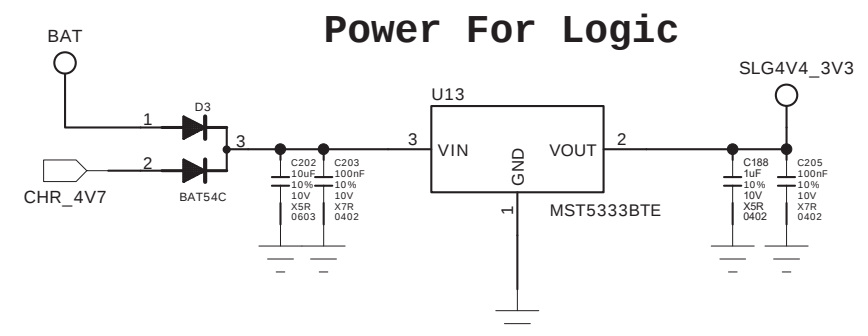
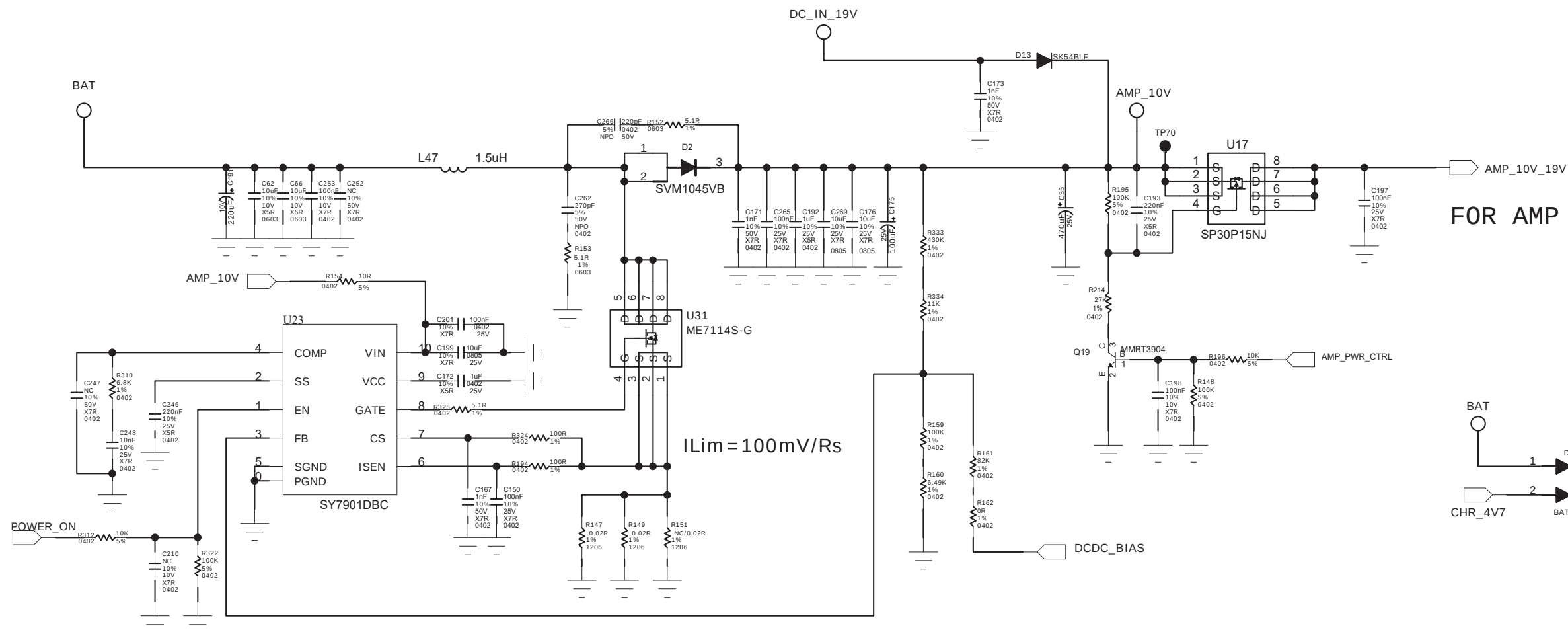
BLOCK DIAGRAM



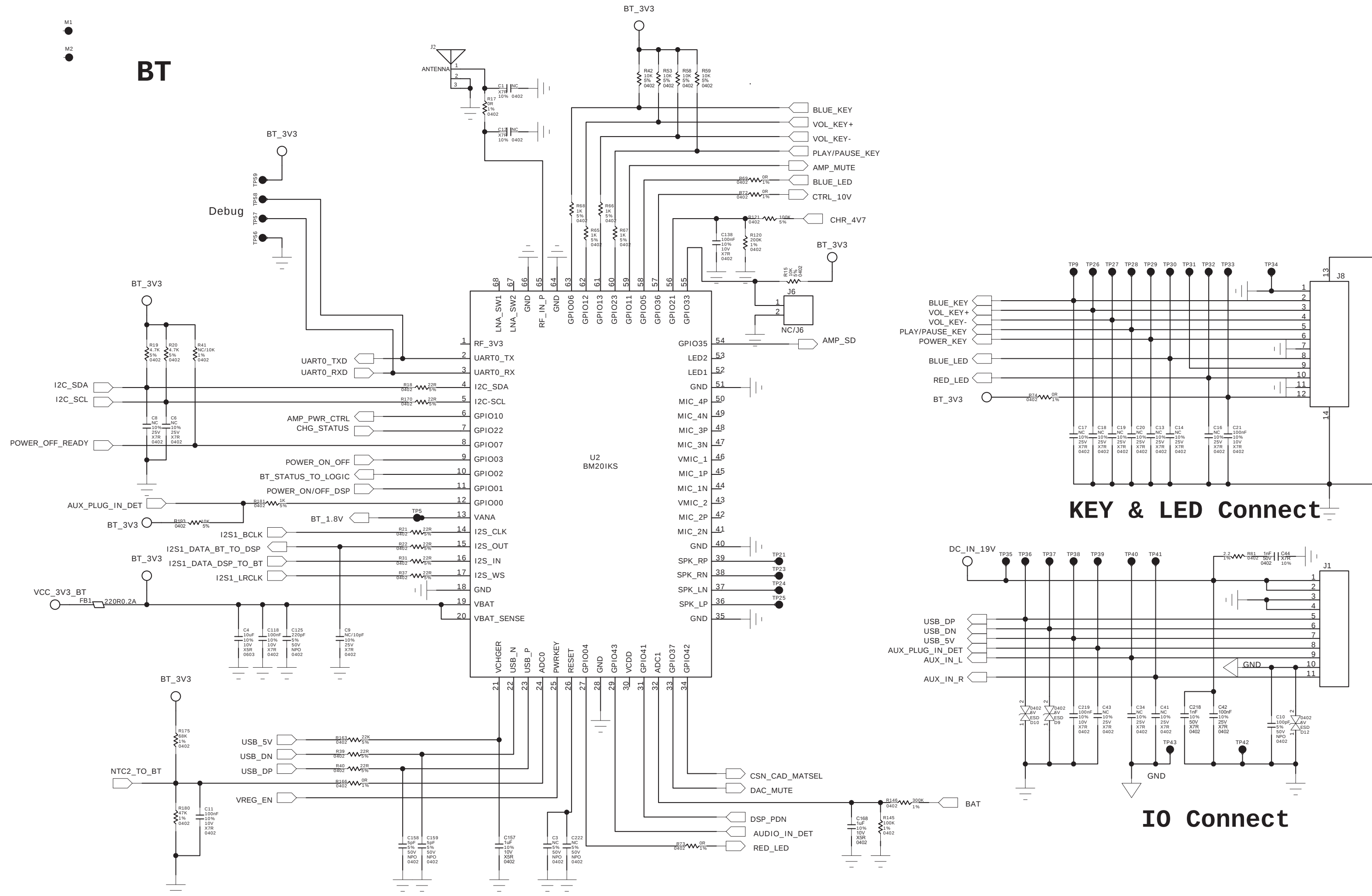
Wiring Diagram



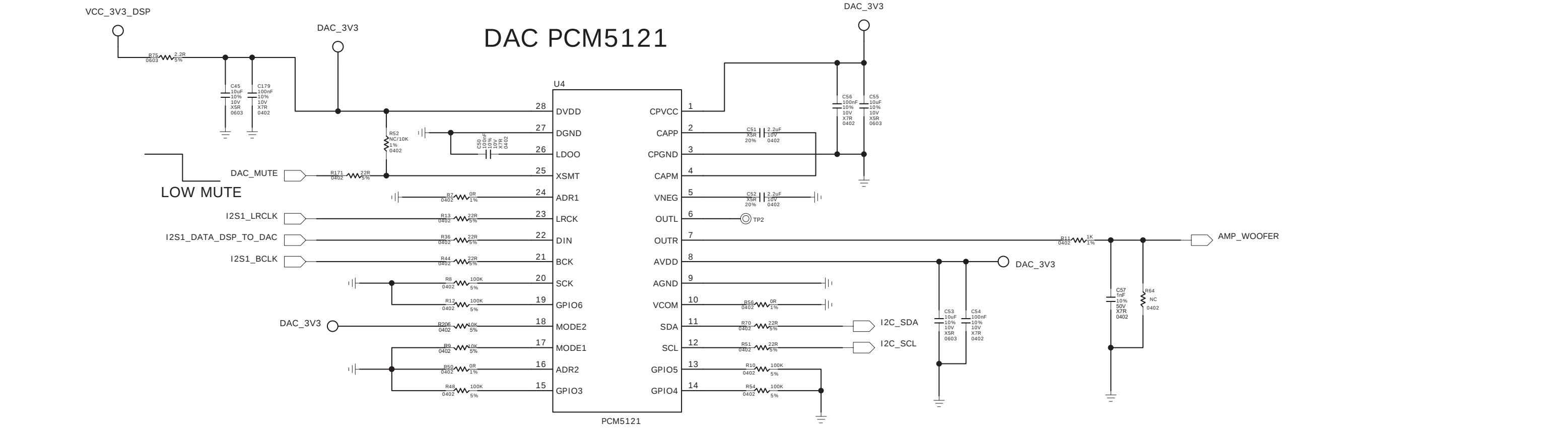
Main Board SCH



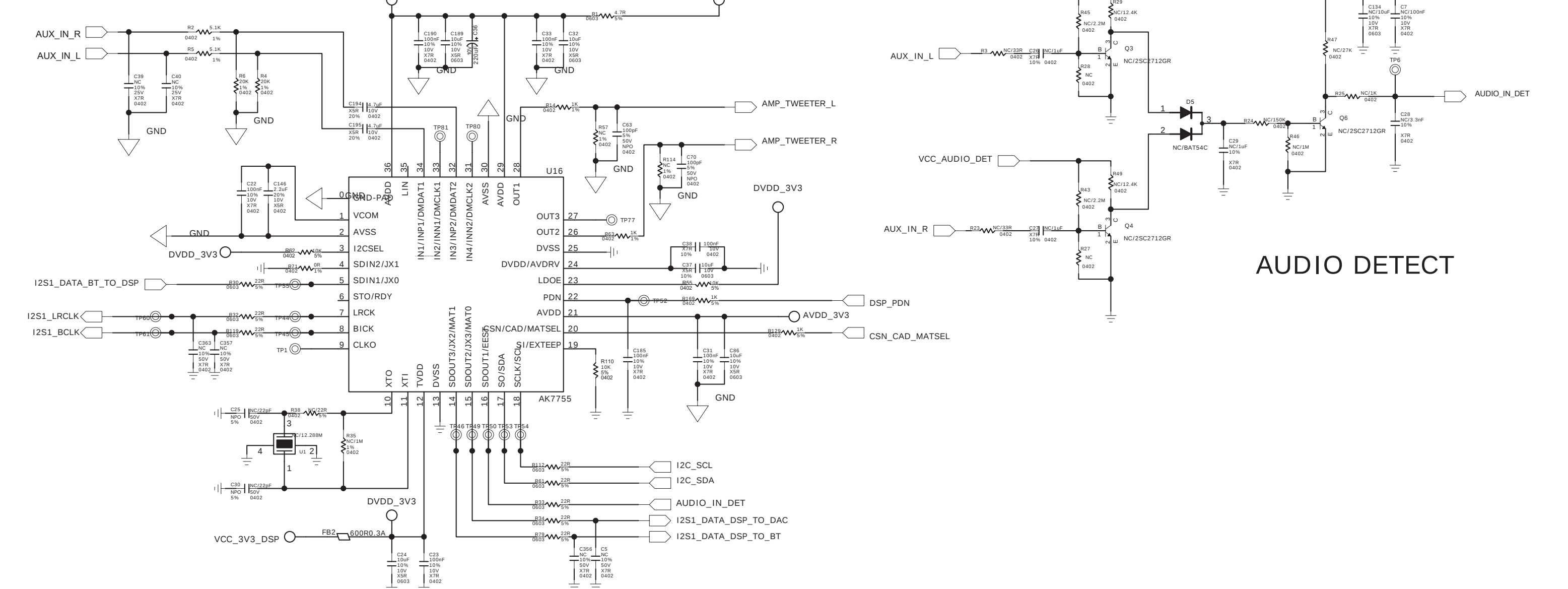
Main Board SCH



Main Board SCH

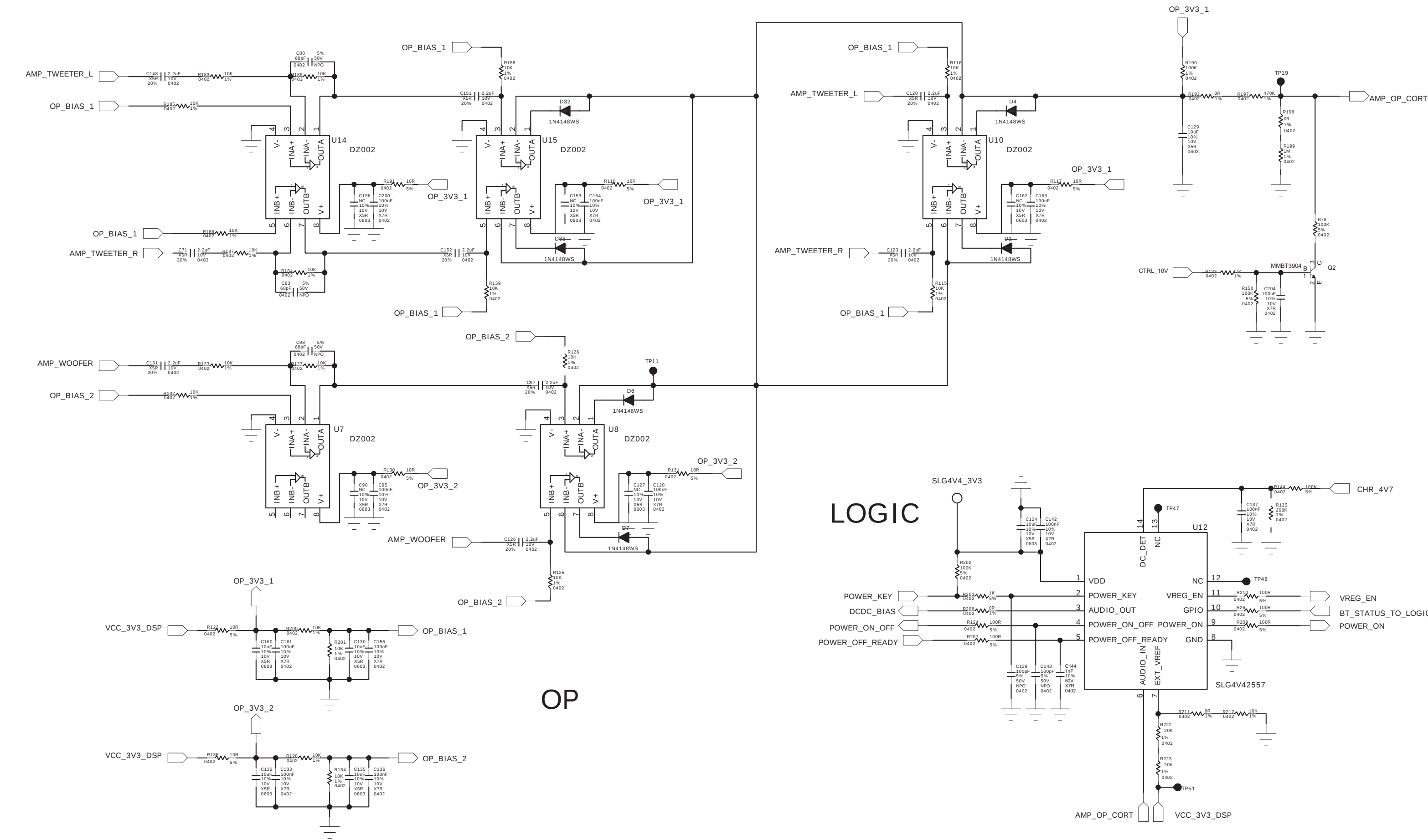


DSP AK7755

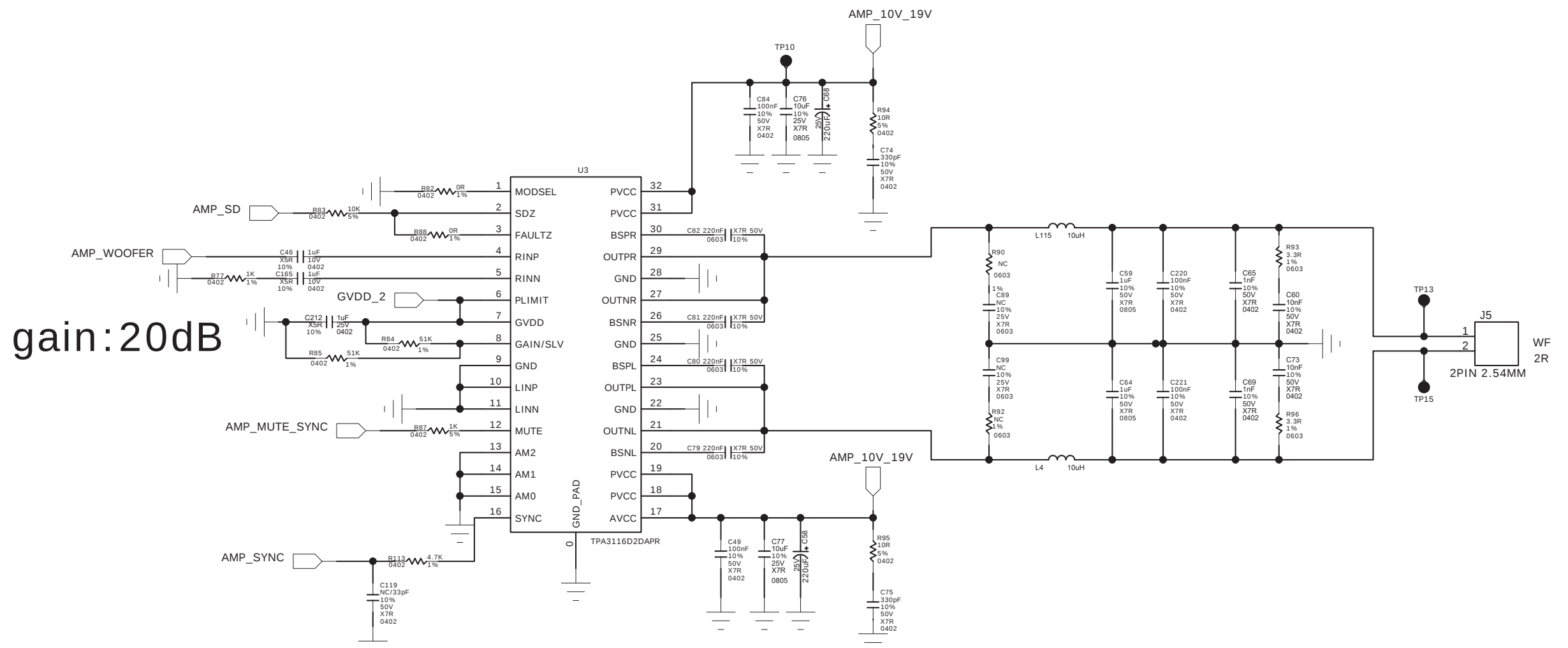
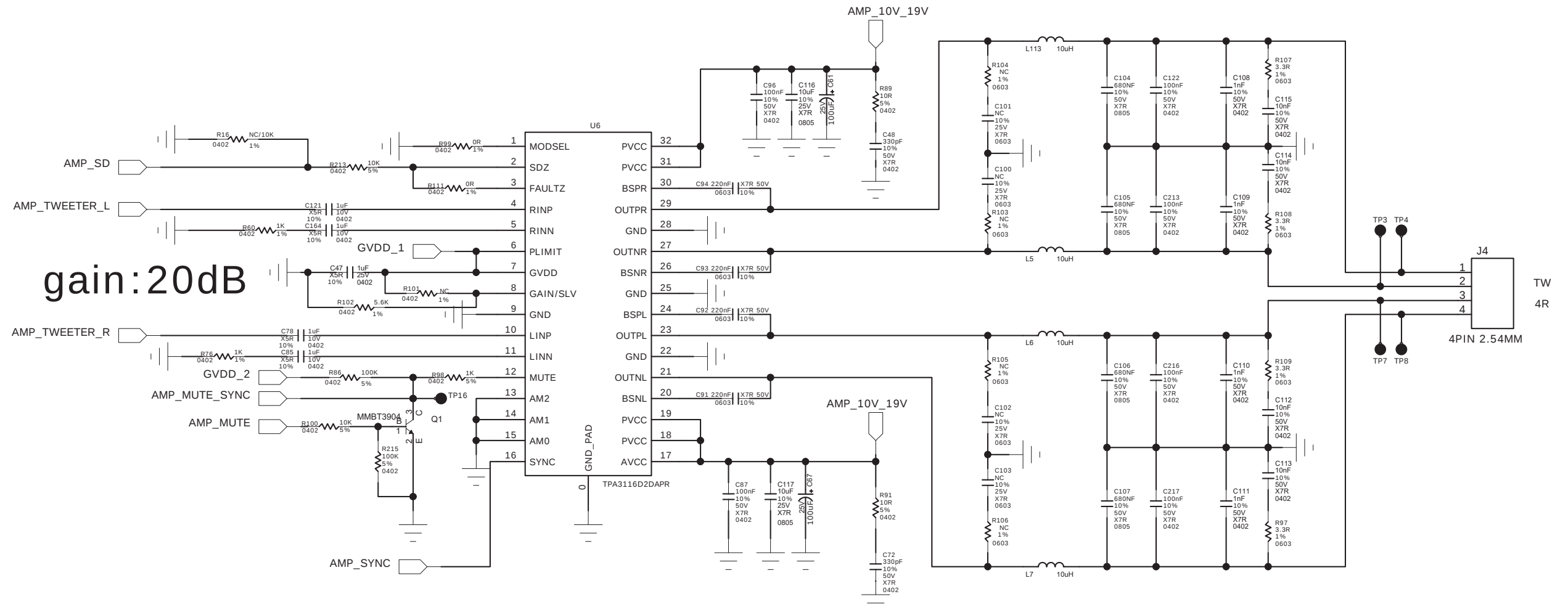


AUDIO DETECT

Main Board SCH



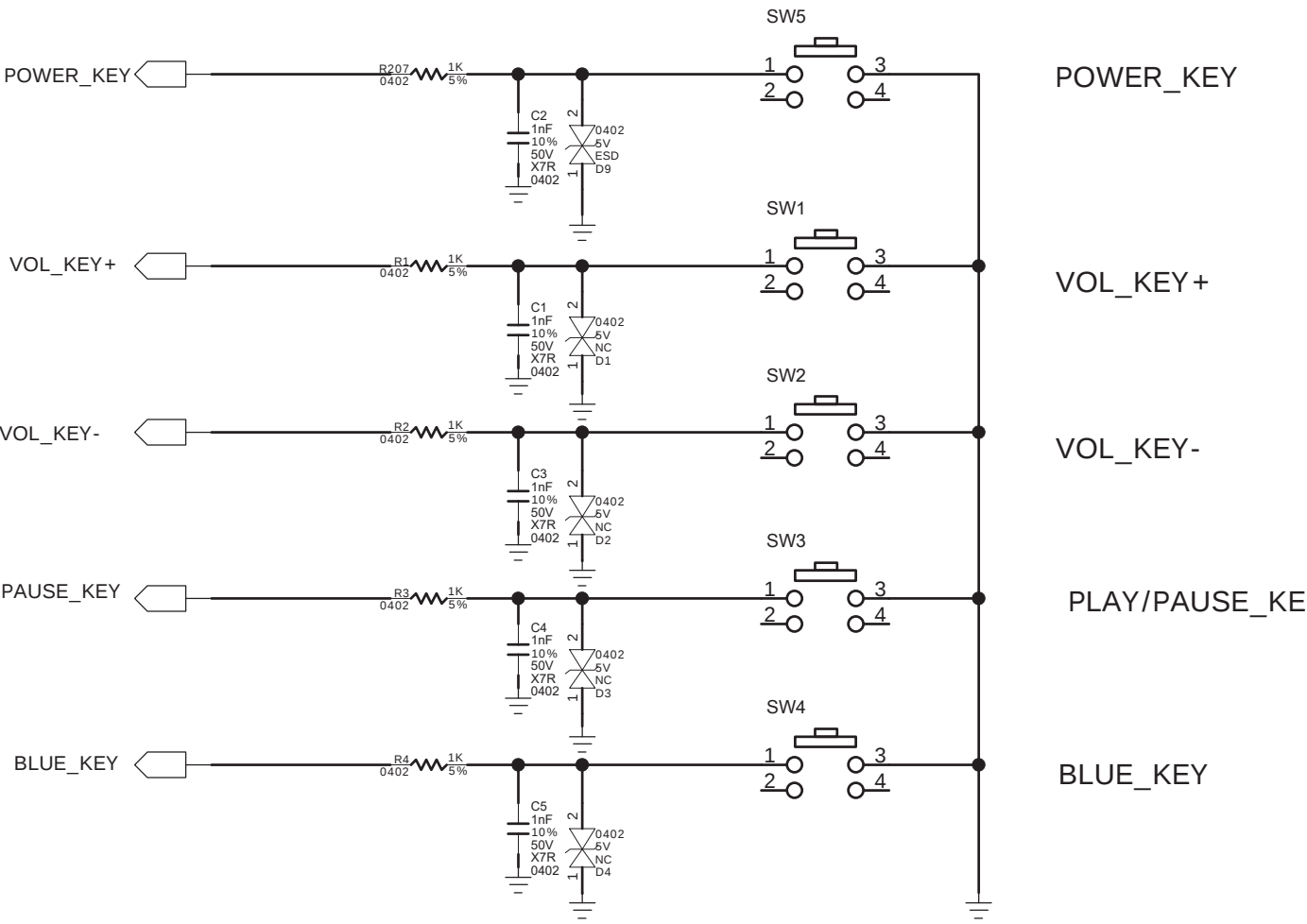
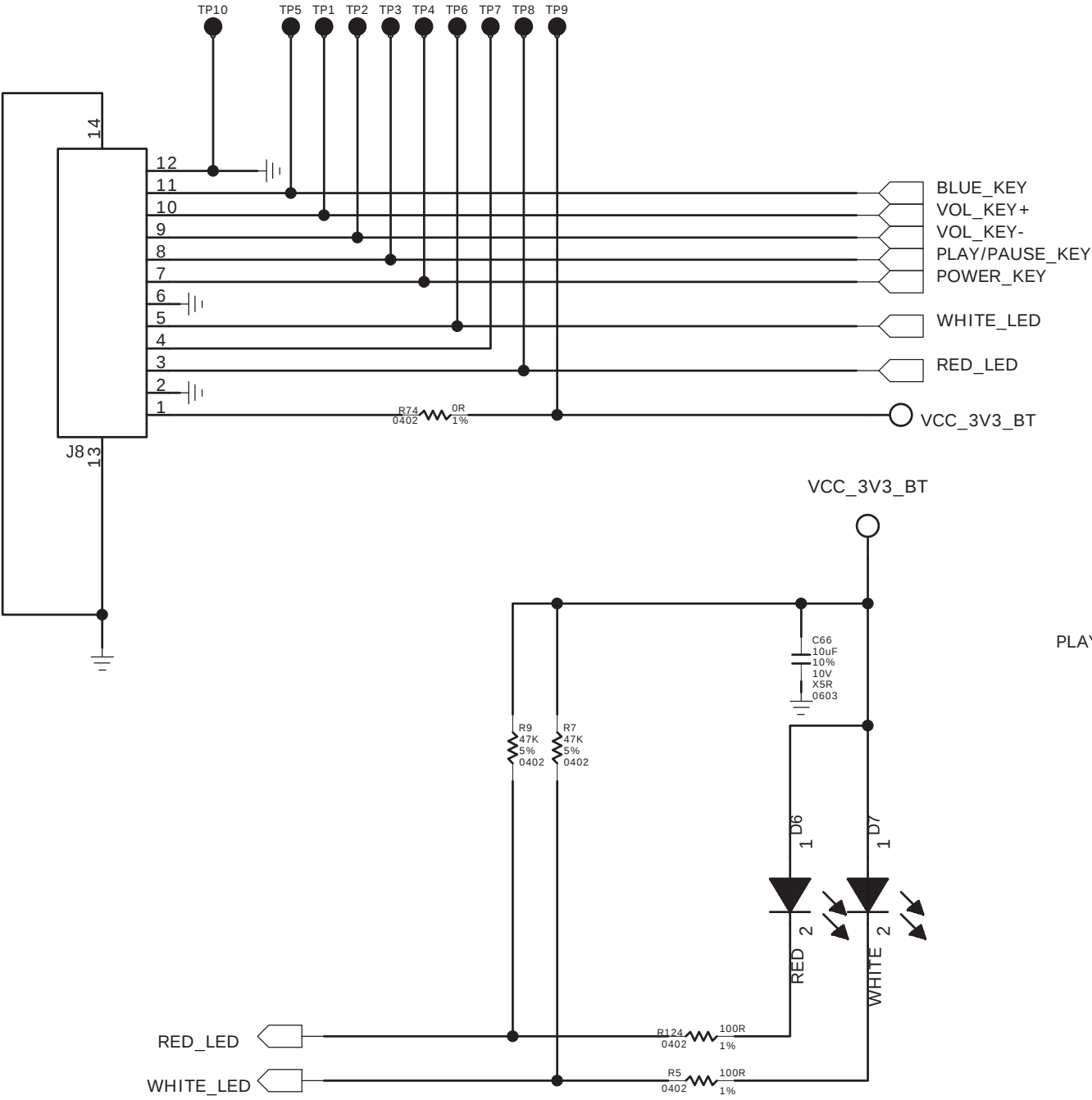
Main Board SCH



Key Board SCH

M1

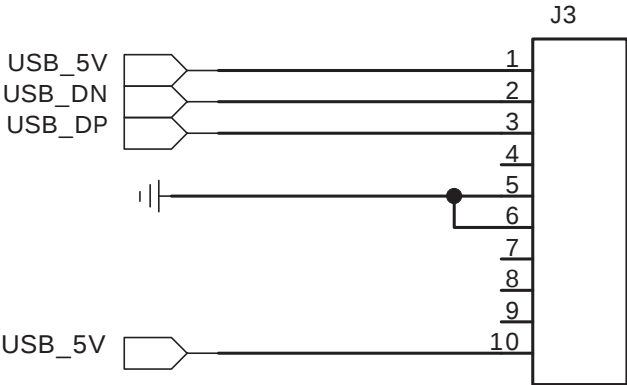
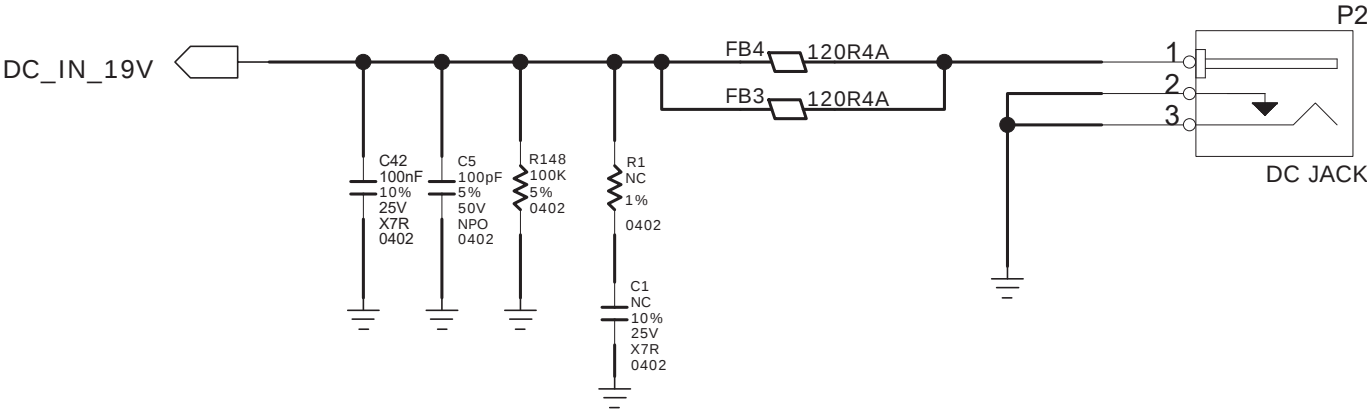
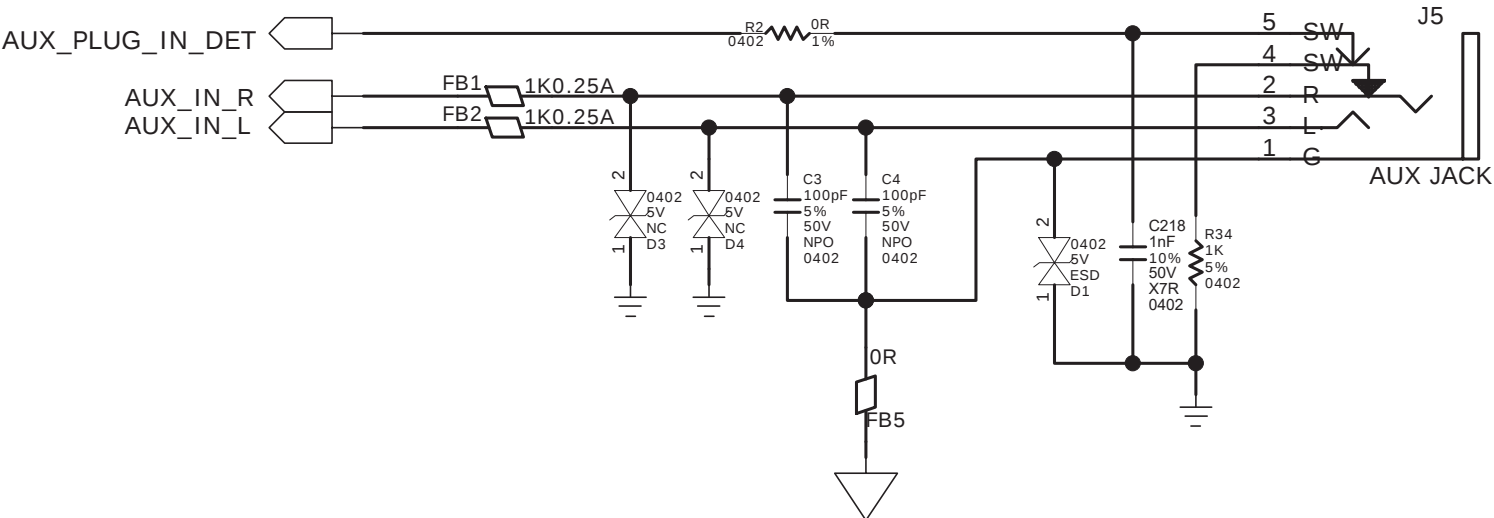
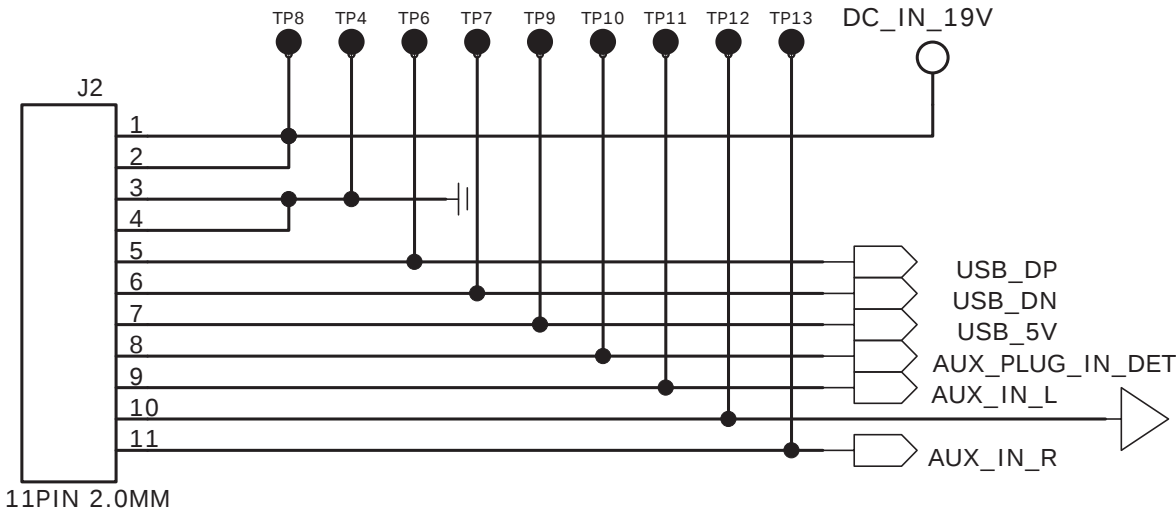
M2



IO Board SCH

M1

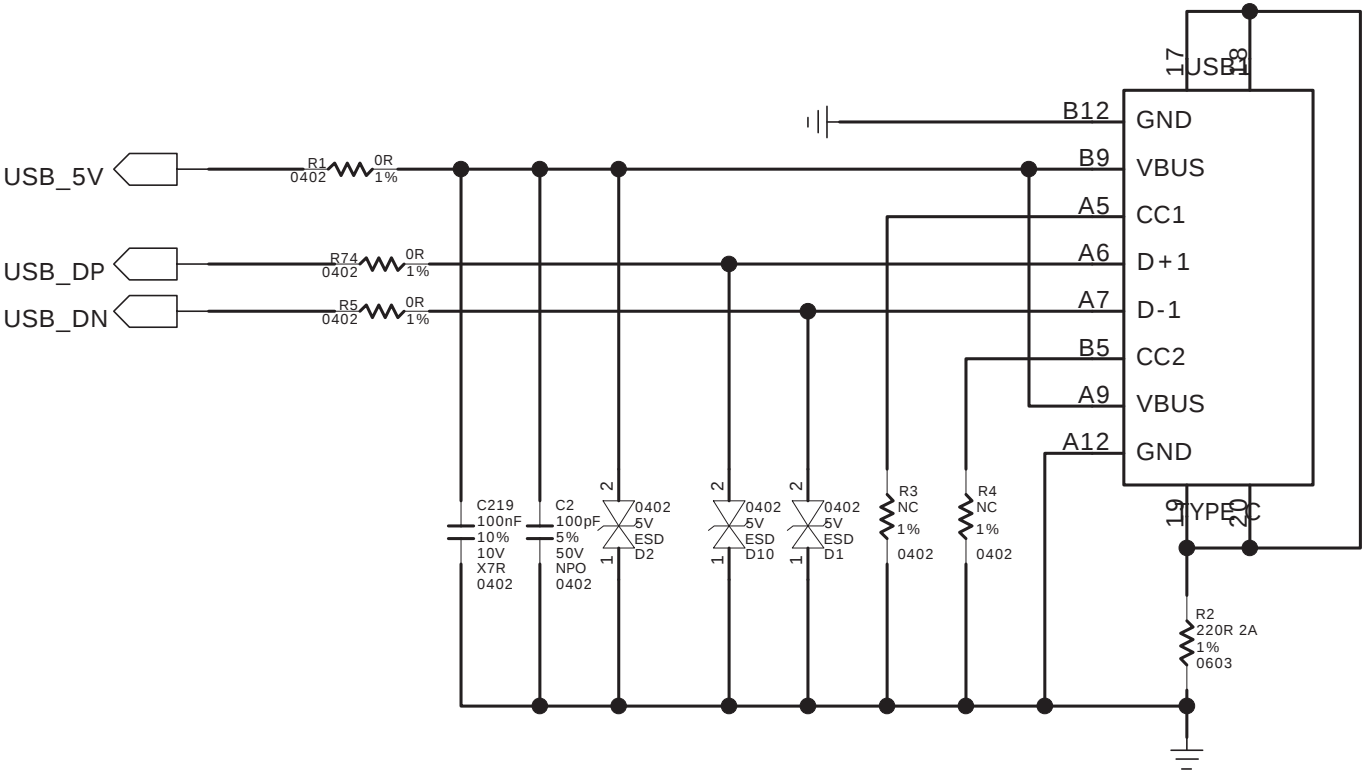
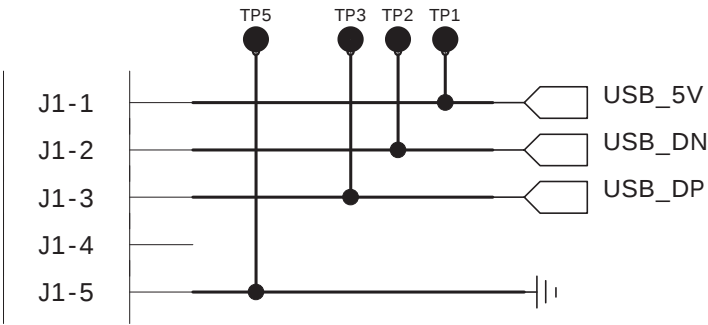
M2



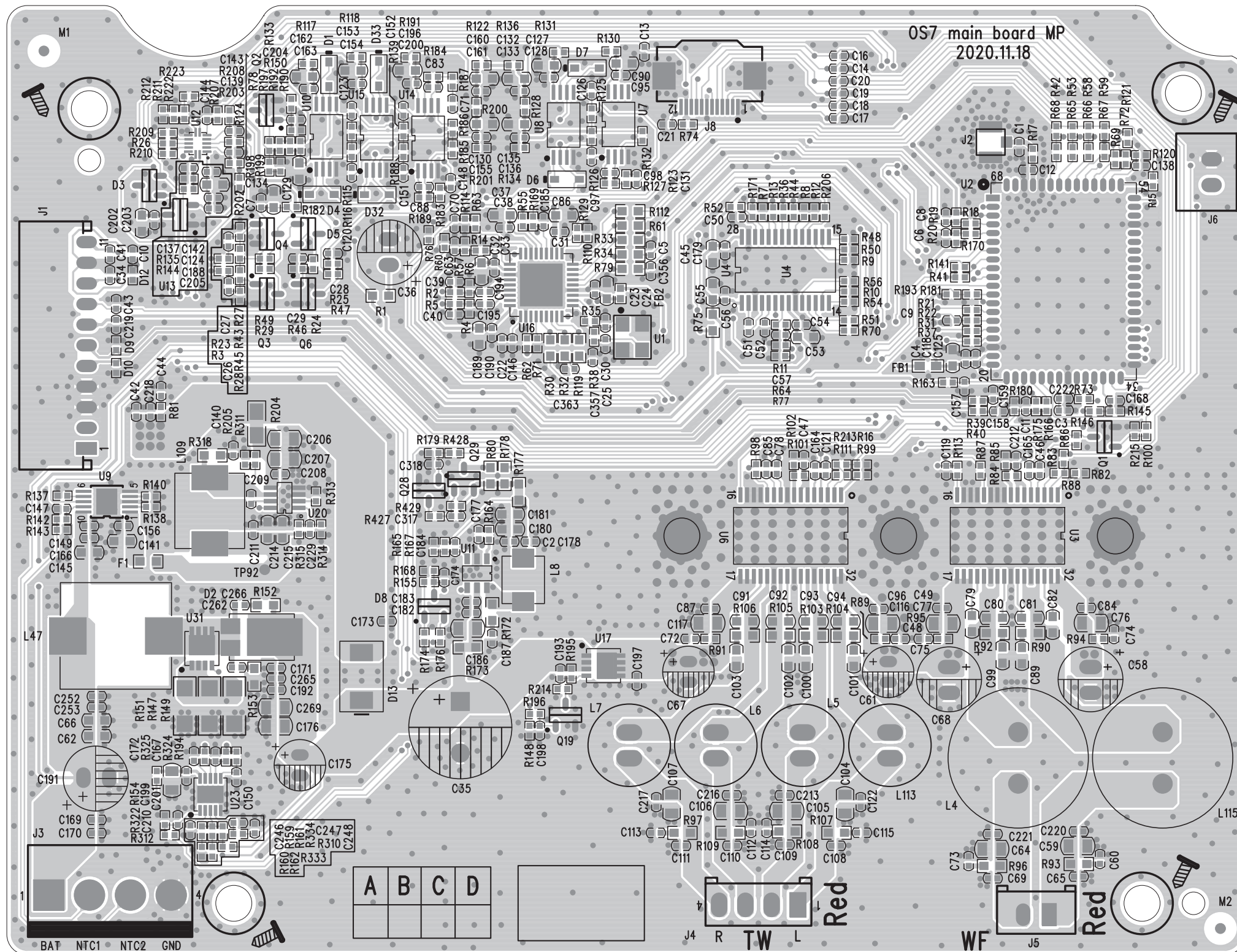
USB Board SCH

M1

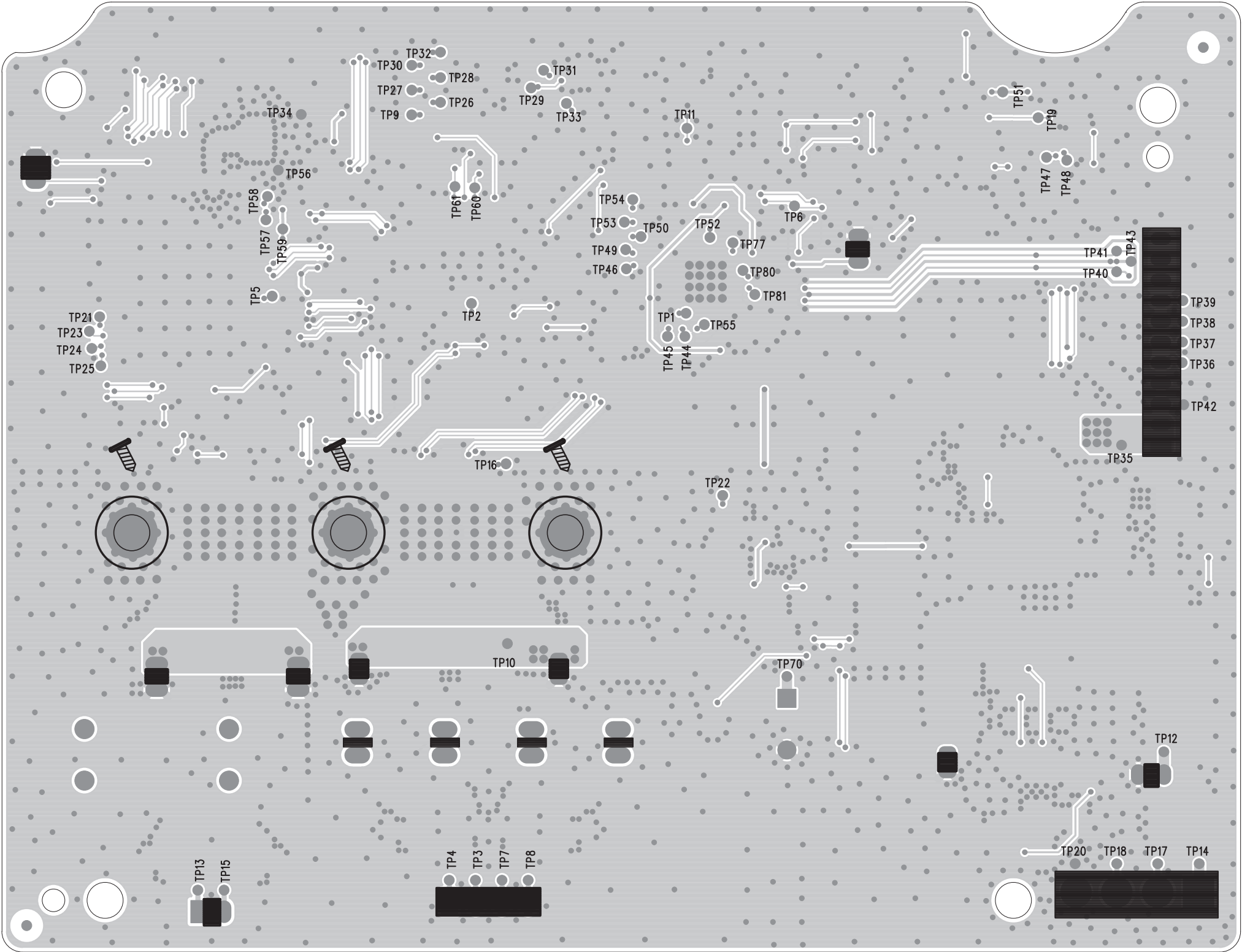
M2



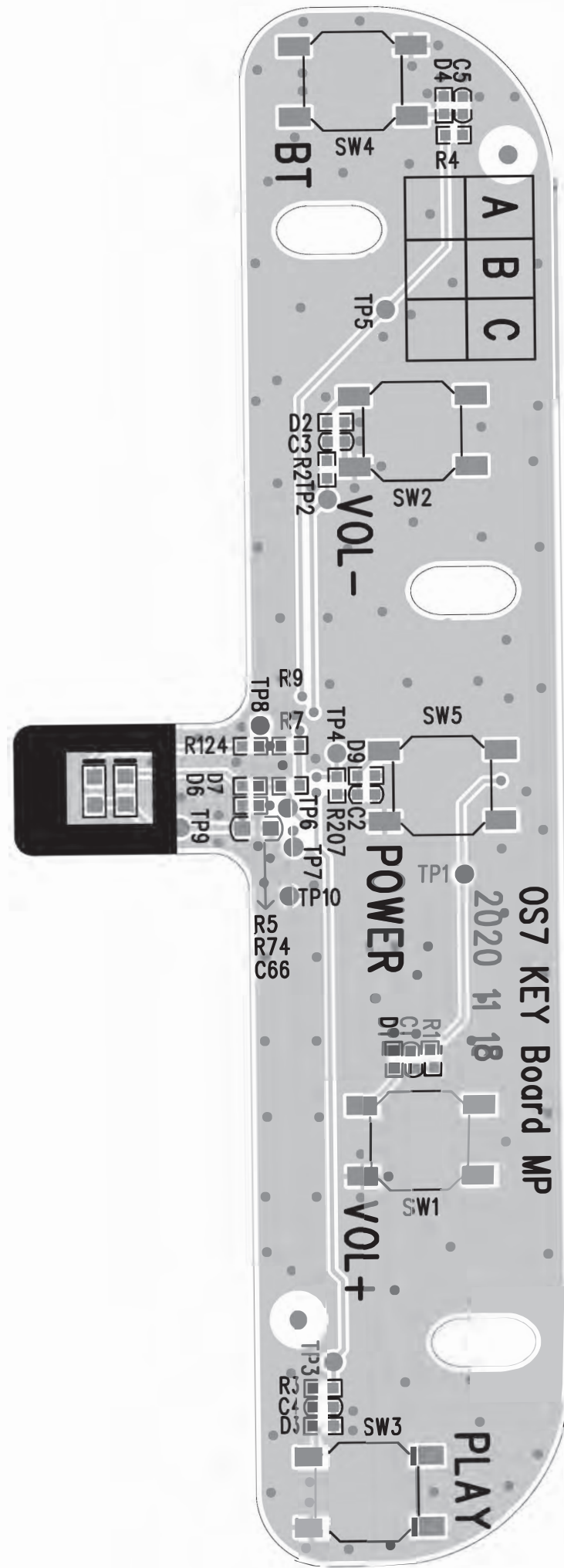
MAIN BOARD LAYOUT



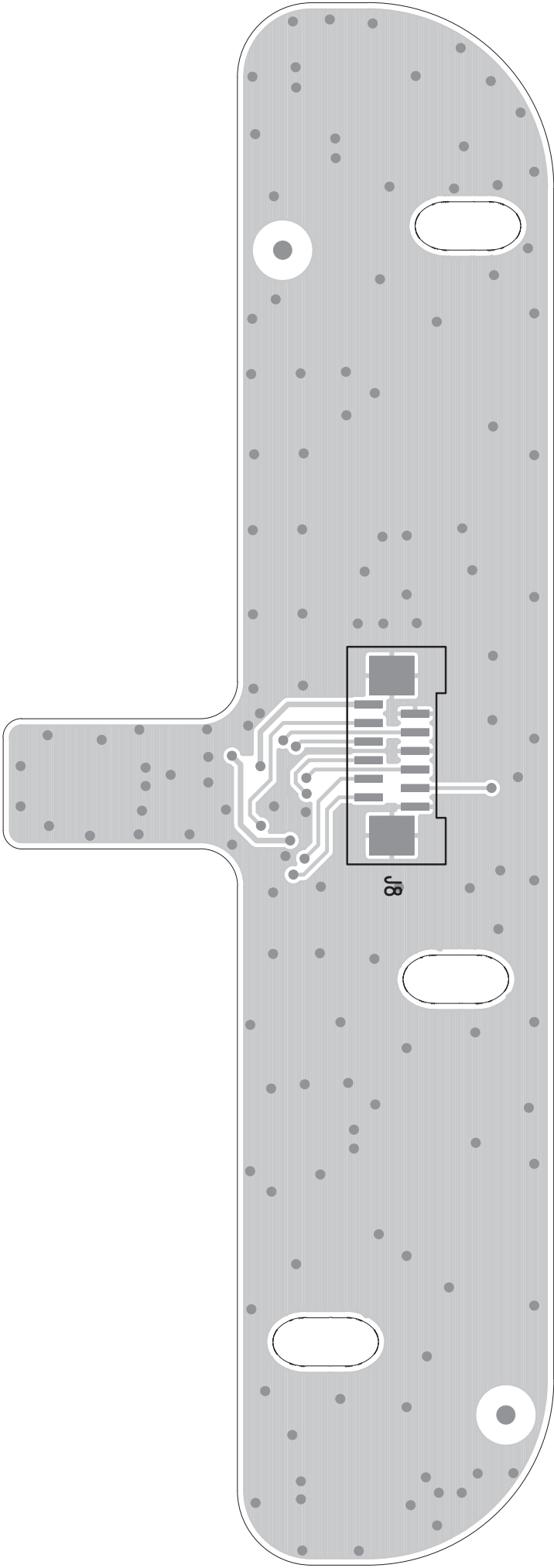
MAIN BOARD LAYOUT



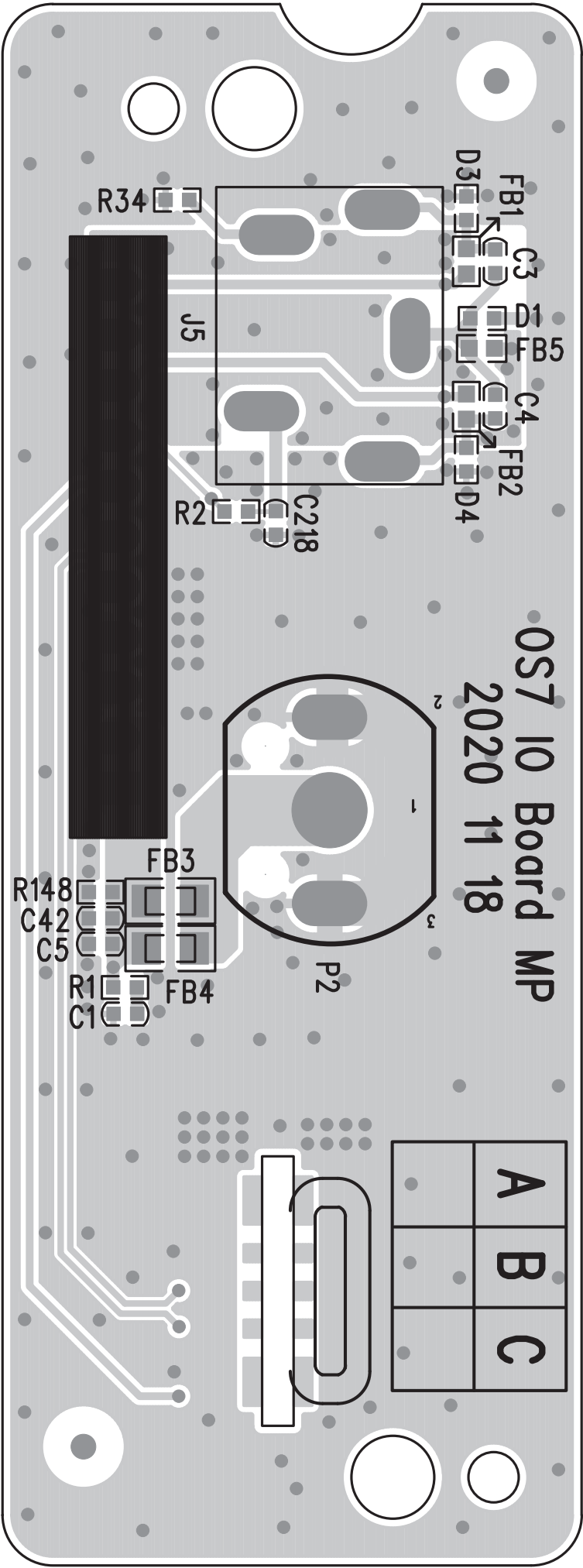
KEY BOARD LAYOUT



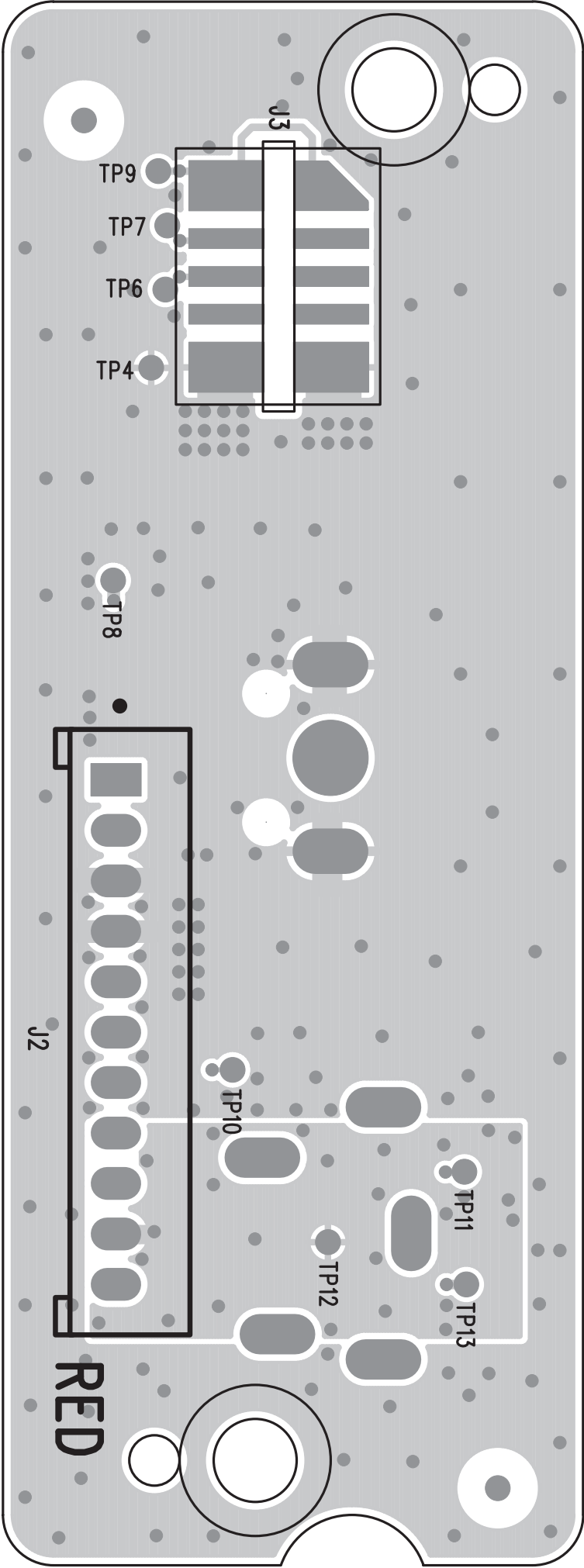
KEY BOARD LAYOUT



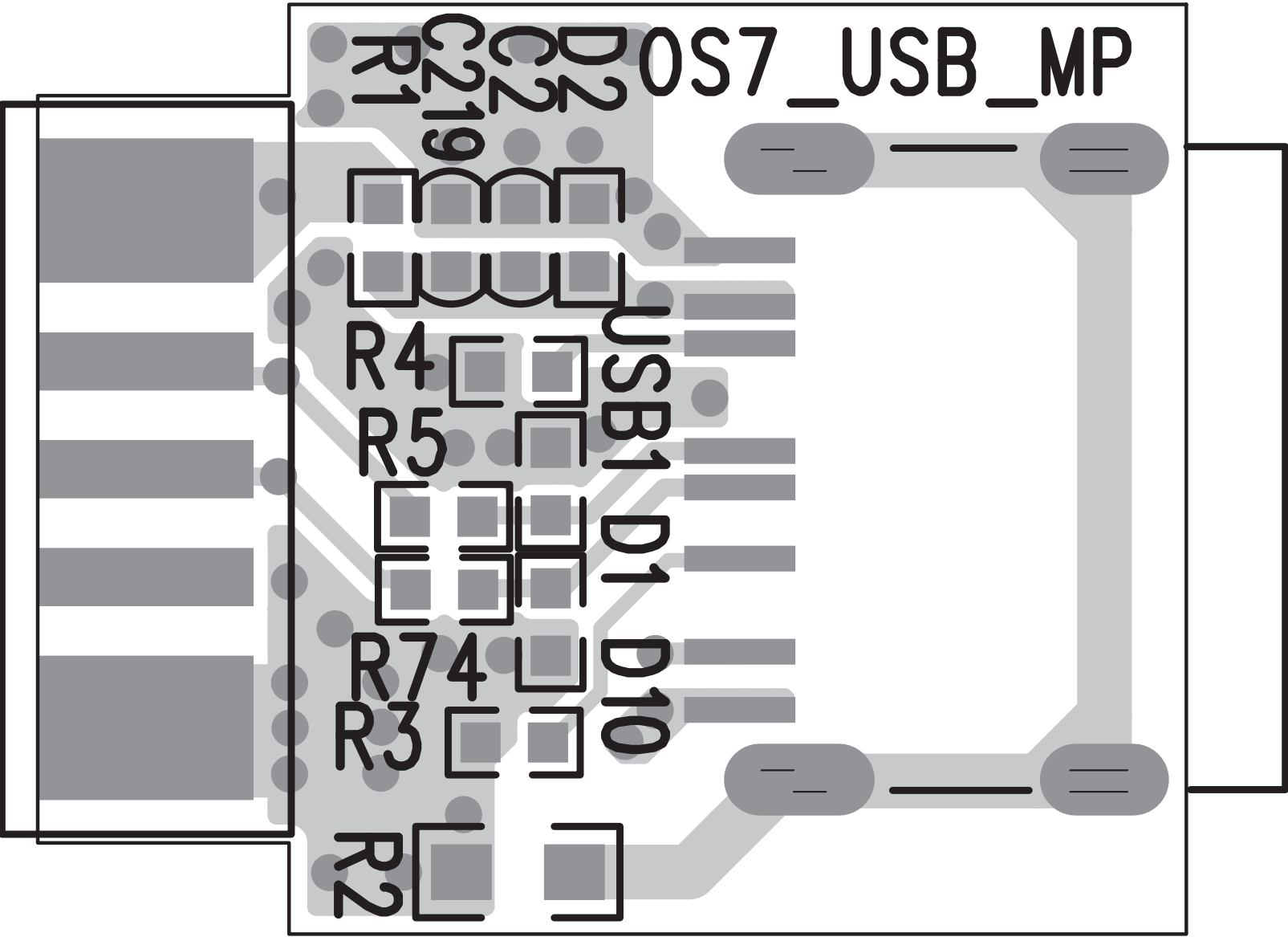
IO BOARD LAYOUT



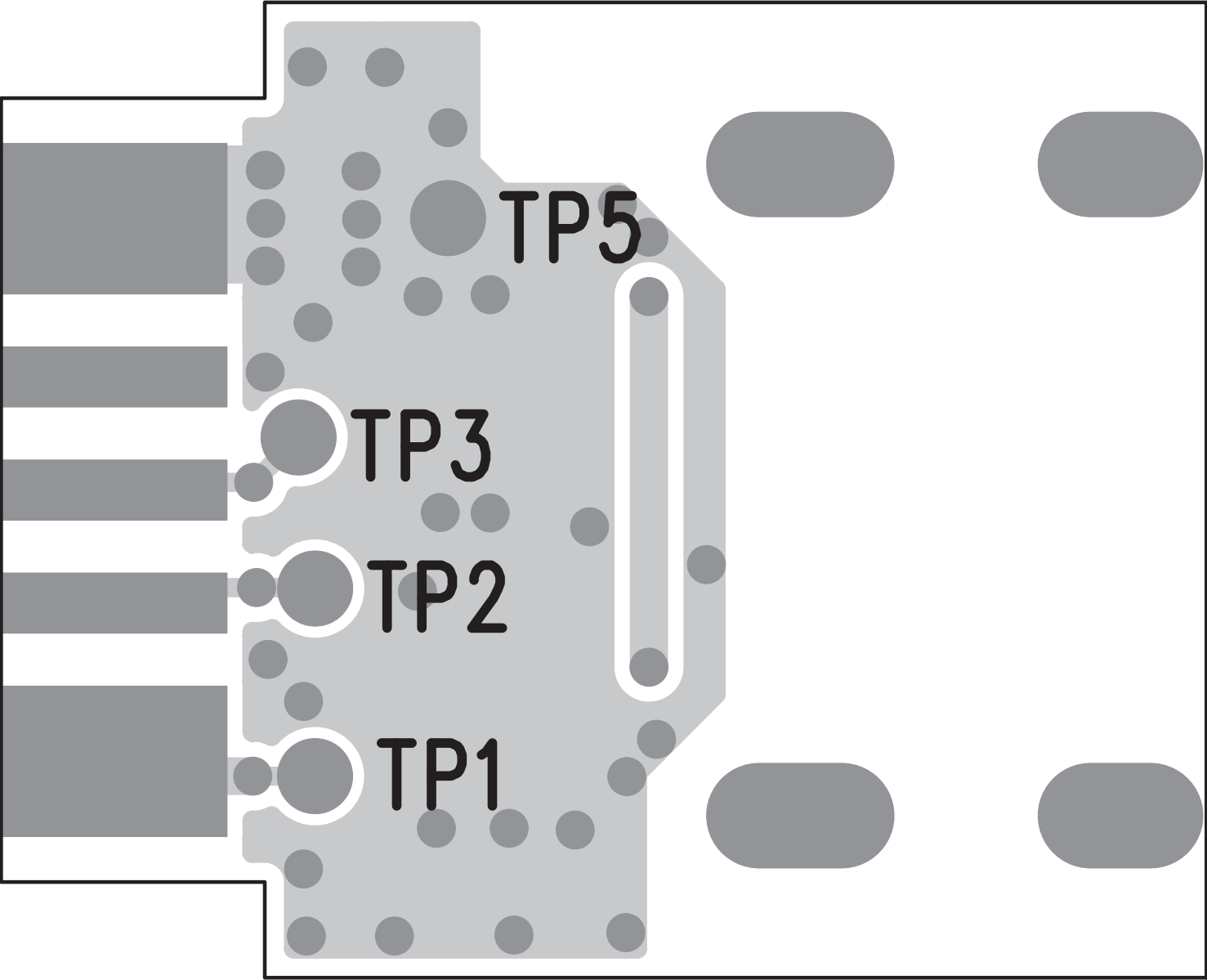
IO BOARD LAYOUT



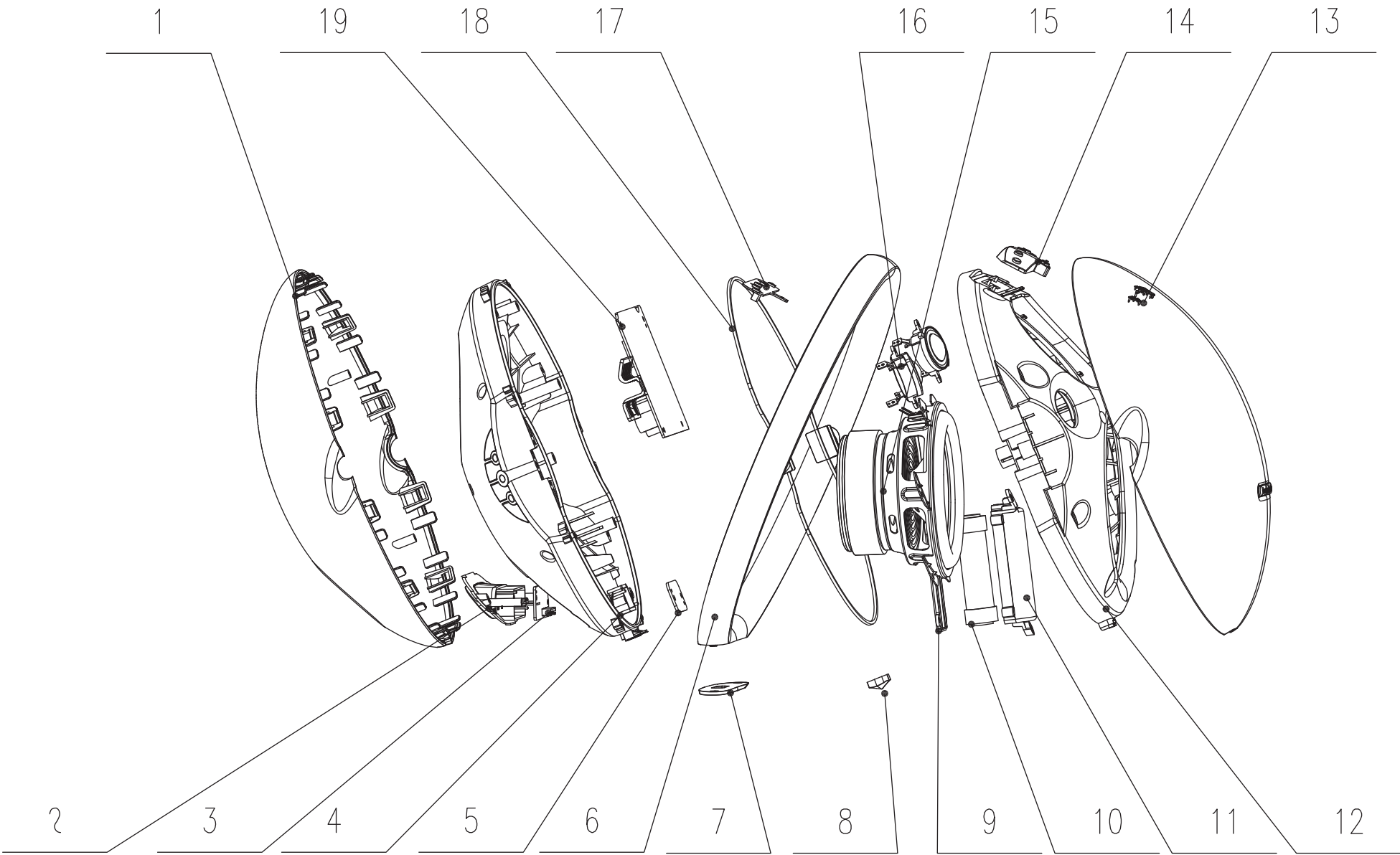
USB BOARD LAYOUT



USB BOARD LAYOUT



MECHANICAL EXPLODED VIEW



Pos. No.	Part Number	Description	Usage
1, 13	PAS02613001	FRONT GRILLE+REAR GRILLE ASSY BLK	1
1, 13	PAS02614001	FRONT GRILLE+REAR GRILLE ASSY GRY	1
1, 13	PAS02615001	FRONT GRILLE+REAR GRILLE ASSY BLU	1
2	PAS02512001	I/O BRACKET BLK	1
2	PAS02528001	I/O BRACKET GRY	1
2	PAS02536001	I/O BRACKET BLU	1
3	PAS02504001	IO BOARD BLK	1
3	PAS02524001	IO BOARD GRY	1
3	PAS02532001	IO BOARD BLU	1
4	PAS02523001	REAR PR ASSY	1
5	PAS02513001	BOARD	1
6	PAS02508001	METAL HANDLE CHARCOAL BLACK	1
6	PAS02525001	METAL HANDLE WINTER GRAY	1
6	PAS02533001	METAL HANDLE MARINE BLUE	1
7	PAS02516001	REAR FOOT BLK	1
7	PAS02529001	REAR FOOT GRY	1
7	PAS02537001	REAR FOOT BLU	1
8	PAS02518001	FRONT FOOT BLK	1
8	PAS02530001	FRONT FOOT GRY	1
8	PAS02538001	FRONT FOOT BLU	1
9	PAS02514001	BATTERY LID SEAL	1
10	PAS02507001	LI-ION BATTERY	1
11	PAS02515001	BATTERY HOUSING	1
12	PAS02522001	FRONT PR ASSY	1
14	PAS02517001	RUBBER BUTTONS	1
15	PAS02520001	WOOFER	1
16	PAS02519001	DOME TWEETER	2
17	PAS02503001	KEY BOARD	1
18	PAS02586001	SEALING RINGS	1
19	PAS02502001	MAIN BOARD TI	1
19	PAS02502002	MAIN BOARD ESMT	1
19	PAS02502003	MAIN BOARD ESMT+ MST/MT/SGM	1

HK ONYX STUDIO 7 SPARE PARTS LIST V1.1

Pos. No.	Part Number	Description	Usage	UoM
1, 13	PAS02613001	FRONT GRILLE+REAR GRILLE ASSY BLK OS7	1	SY
1, 13	PAS02614001	FRONT GRILLE+REAR GRILLE ASSY GRY OS7	1	SY
1, 13	PAS02615001	FRONT GRILLE+REAR GRILLE ASSY BLU OS7	1	SY
2	PAS02512001	I/O BRACKET BLK OS7	1	EA
2	PAS02528001	I/O BRACKET GRY OS7	1	EA
2	PAS02536001	I/O BRACKET BLU OS7	1	EA
3	PAS02504001	IO BOARD BLK OS7	1	EA
3	PAS02524001	IO BOARD GRY OS7	1	EA
3	PAS02532001	IO BOARD BLU OS7	1	EA
4	PAS02523001	REAR PR ASSY OS7	1	EA
5	PAS02513001	BOARD OS7	1	EA
6	PAS02508001	METAL HANDLE CHARCOAL BLACK OS7	1	EA
6	PAS02525001	METAL HANDLE WINTER GRAY OS7	1	EA
6	PAS02533001	METAL HANDLE MARINE BLUE OS7	1	EA
7	PAS02516001	REAR FOOT BLK OS7	1	EA
7	PAS02529001	REAR FOOT GRY OS7	1	EA
7	PAS02537001	REAR FOOT BLU OS7	1	EA
8	PAS02518001	FRONT FOOT BLK OS7	1	EA
8	PAS02530001	FRONT FOOT GRY OS7	1	EA
8	PAS02538001	FRONT FOOT BLU OS7	1	EA
9	PAS02514001	BATTERY LID SEAL OS7	1	EA
10	PAS02507001	LI-ION BATTERY OS7	1	EA
11	PAS02515001	BATTERY HOUSING OS7	1	EA
12	PAS02522001	FRONT PR ASSY OS7	1	EA
14	PAS02517001	RUBBER BUTTONS OS7	1	EA
15	PAS02520001	WOOFER OS7	1	EA
16	PAS02519001	DOME TWEETER OS7	2	EA
17	PAS02503001	KEY BOARD OS7	1	EA
18	PAS02586001	SEALING RINGS OS7	1	SY
19	PAS02502001	MAIN BOARD TI OS7	1	EA
19	PAS02502002	MAIN BOARD ESMT OS7	1	EA
19	PAS02502003	MAIN BOARD ESMT+ MST/MT/SGM OS7	1	EA
	PAS02500001	POWER ADAPTER OS7	1	EA
	PAS02501001	POWER CORD US L1000MM OS7	1	EA
	PAS02501002	POWER CORD CN L1000MM OS7	1	EA
	PAS02501003	POWER CORD EP L1000MM OS7	1	EA
	PAS02501004	POWER CORD UK L1000MM OS7	1	EA
	PAS02501005	POWER CORD KR L1000MM OS7	1	EA
	PAS02501006	POWER CORD THA L1000MM OS7	1	EA
	PAS02501007	POWER CORD AUS L1000MM OS7	1	EA
	PAS02501008	POWER CORD JP L1000MM OS7	1	EA
	PAS02501009	POWER CORD ARG L1000MM OS7	1	EA
	PAS02501010	POWER CORD BR L1000MM OS7	1	EA
	PAS02501011	POWER CORD RU L1000MM OS7	1	EA
	PAS02501012	POWER CORD IN L1000MM OS7	1	EA
	PAS02505001	FFC CABLE 12PIN OS7	1	EA
	PAS02506001	ANTENNA 200MM OS7	1	EA
	PAS02510001	TPE PLUG OS7	8	EA
	PAS02847001	CARTON BOX OS7	1	EA

	PAS02876001	GIFT BOX BLK EP/IN/RU/BR/SG OS7	1	EA
	PAS02877001	GIFT BOX GRY EP/IN/RU/BR/SG OS7	1	EA
	PAS02878001	GIFT BOX BLU EP/IN/RU/BR/SG OS7	1	EA
	PAS02879001	GIFT BOX BLK AS/CN/JN OS7	1	EA
	PAS02880001	GIFT BOX GRY AS/CN/JN OS7	1	EA
	PAS02881001	GIFT BOX BLU AS/CN/JN OS7	1	EA
	PAS02521001	GIFT BOX BLK AM/SP OS7	1	EA
	PAS02531001	GIFT BOX GRY AM/SP OS7	1	EA
	PAS02539001	GIFT BOX BLU AM/SP OS7	1	EA

REVISION LIST

Version 1.0

*** Initial release for HK Onyx Studio 7 2020-12**

Version 1.1

- 1) Add 2 main boards due to new IC solutions phasing in.**
- 2) Update the descriptions for gift boxes.**
- 3) Add more power cords and carton box 2022-08**