

ONYX STUDIO 8

PORTABLE STEREO BLUETOOTH SPEAKER

SKU: HKOS8BLKAM, HKOS8BLUAM, HKOS8CPNAM, HKOS8BLKAS, HKOS8BLUAS, HKOS8CPNAS, HKOS8BLKBR, HKOS8BLUBR, HKOS8CPNBR, HKOS8BLKEP, HKOS8BLUEP, HKOS8CPNEP, HKOS8BLKUK, HKOS8BLUUK, HKOS8CPNUK



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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.

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 change 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 or your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

POODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

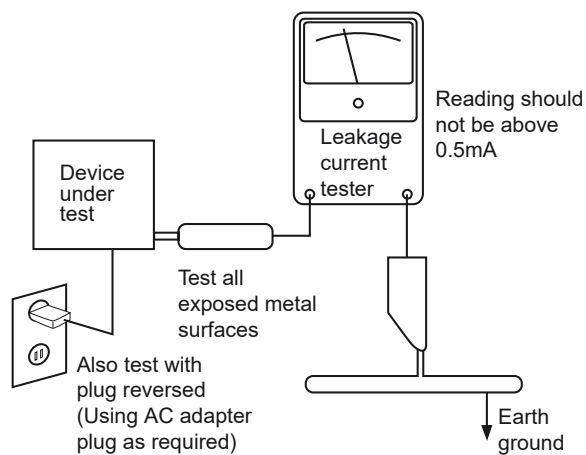
Components identified with the IEC symbol  in the parts list are special significance to safety. When replacing a component identified with , use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. 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.

Onyx Studio 8

ONYX STUDIO 8 WITH PORTABLE STEREO BLUETOOTH SPEAKER

What's in the box:

- Onyx Studio 8 unit
- Power cable
- Quick start guide
- Warranty card
- Safety sheet

Features and Benefits:

- Superior stereo performance
- Wireless bluetooth streaming
- 8 hours of playtime
- Wireless dual sound

Technical Specification:

- Bluetooth version: 5.2
- Support: A2DP 1.3, AVRCP 1.6
- Transducers: Woofer 1x120mm, tweeter 2x25mm
- Rated Power: 1x50WRMS 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: < 12dBm (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 159.50 mm
- Weight: 3.30kg/7.26lbs



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Software upgrade Instruction& Reset Procedure

1. Restore factory setting

- 1) Hold down <Bluetooth>, <Volume +>for 5 seconds.
- 2) Then hear the sound of a power off, DUT turned off.
- 3) After factory settings restored, press <power>, restore factory to complete.

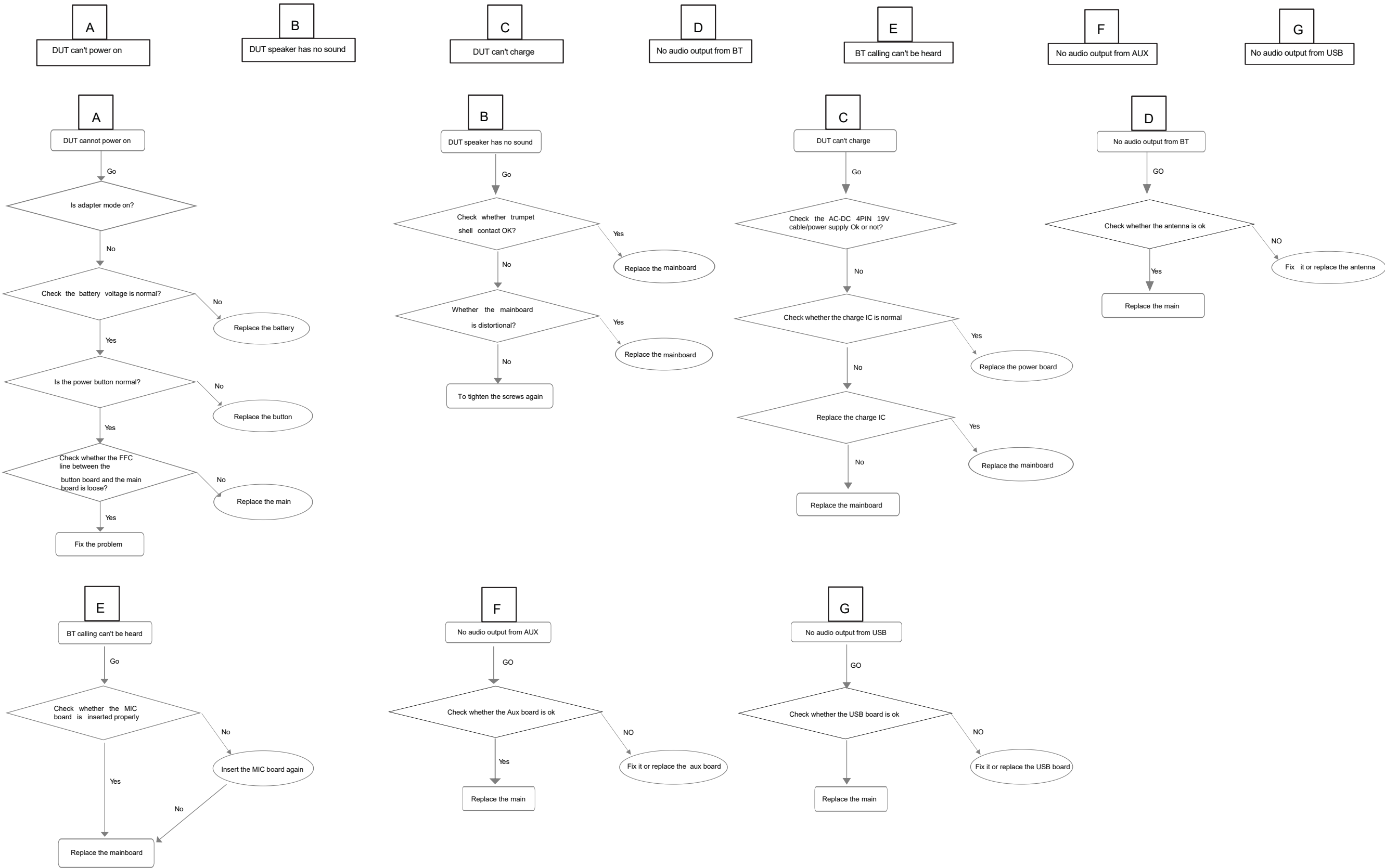
2. Check software version

- 1) Hold down <Play>, <Volume ->&<Bluetooth>for 5 seconds.
- 2) Speaker automatically announces the current software version number

3. Software Upgrade

- 1) DUT connecting power cables, press< Volume +>, <Volume->&<Play> for 10 seconds, then DUT enter DFU mode and led turn off.
- 2) Plug in a USB cable to connect computer.
- 3) Open the upgrade software“dld_main.exe”, select the correct serial com and choose correct software version, press “Run”to upgrade software.
- 4) After the upgrade is completed, press <power> to restarts the system.

Onyx Studio 8 REPAIR CHART



Disassembly instruction(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.

DISASSEMBLY INSTRUCTIONS (Main unit)

Dismantling of the Front Grille ASSY

- 1) Use a hammer to hit the connection of the front grille ASSY as shown in the figure 1.

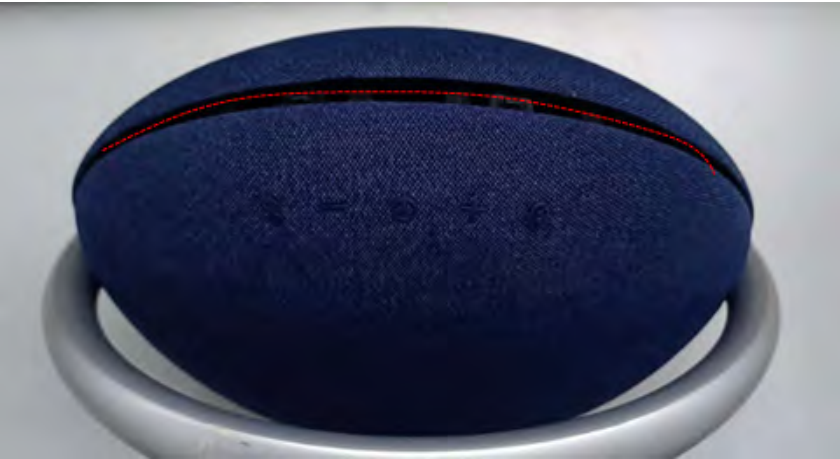


Figure 1

Dismantling of battery

- 1) Remove the 6 TPU Rubber Plug as shown in the figure2.
- 2) Remove the 13 screws as shown in the figure3, then carefully open the front grille ASSY and unplug 1 cable in the figure 4.
- 3) Loosen the battery cover screw as shown in the figure 5 and take out the battery as shown in the figure 6.



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

Dismantling of the Main Board

- 1) Unplug the 2 cables as shown in the figure7, unplug the 10 cables as shown in the figure 8,
- 2) Loosen 4 screws as shown in the figure 9 to remove the main board.



Figure 7

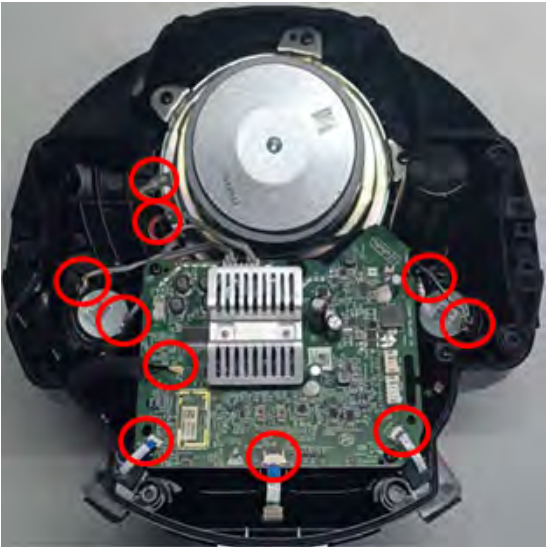


Figure 8



Figure 9

Dismantling of the Woofer & tweeter

- 1) Loosen 5 screws of the woofer and 4 screws of the tweeter as shown in figure 10.



Figure 10

Dismantling of MIC Board

1) Loosen 2 screws as shown in the figure 11 and then remove the MIC board as shown in the figure 12 & figure 13.



Figure 11



Figure 12



Figure 13

Dismantling of KEY Board

1) Tearing off the silicone button as shown in the figure 14, remove the key board with tweezers as shown in the figure 15 & 16.



Figure 14



Figure 15



Figure 16

Dismantling of Handle

1) Loosen 2 screws as shown in the figure 17 to remove the handle, and use tweezers to remove the handle rubber feet in the figure 18 & 19.

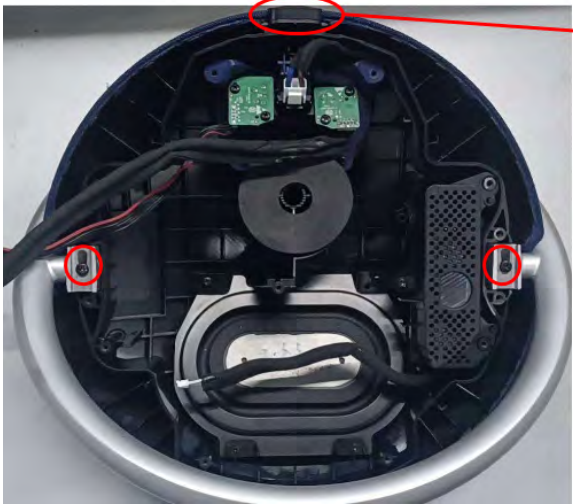


Figure 17



Figure 18



Figure 19

Dismantling of Power Board

1) Loosen 1 screw as shown in the figure 20 and unplug 1 cable to remove the power board as shown in the figure 21.

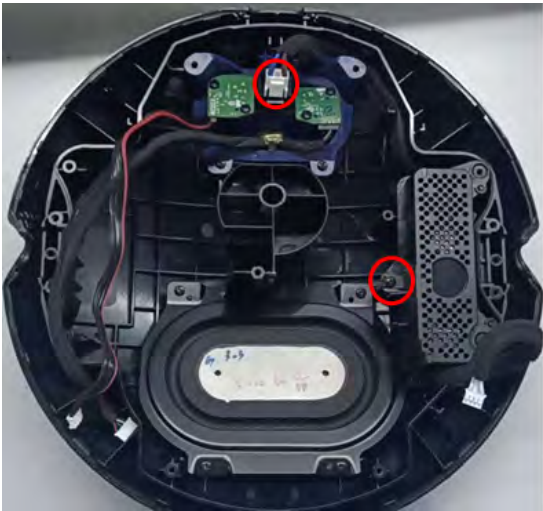


Figure 20

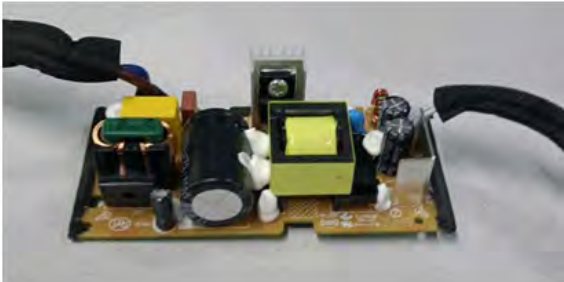


Figure 21

Dismantling of the AUX Board & USB Board & AC socket

1) Loosen 2 screws as shown in the figure 22 to remove the terminal cover, and then remove 5 screws as shown in the figure 23 to remove the AUX board, USB board and AC socket.

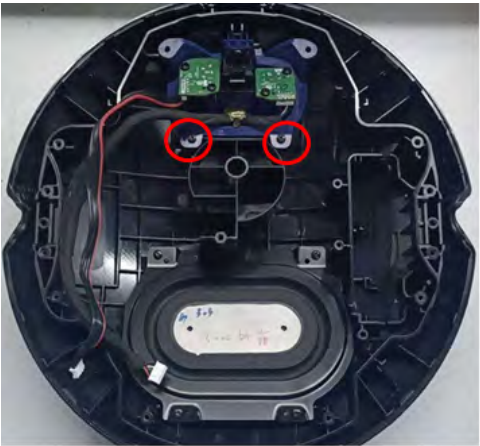


Figure 22

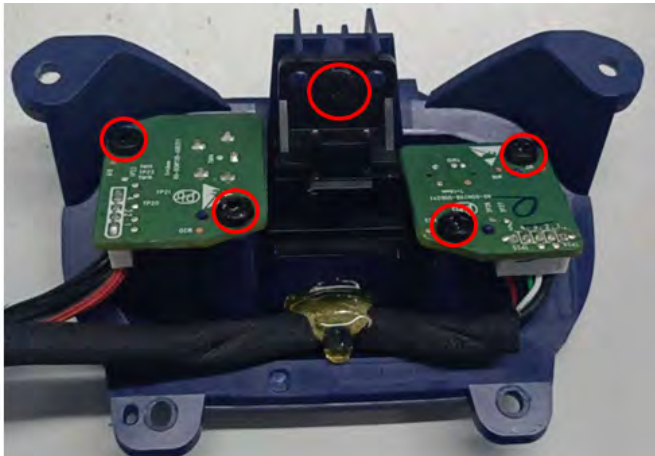
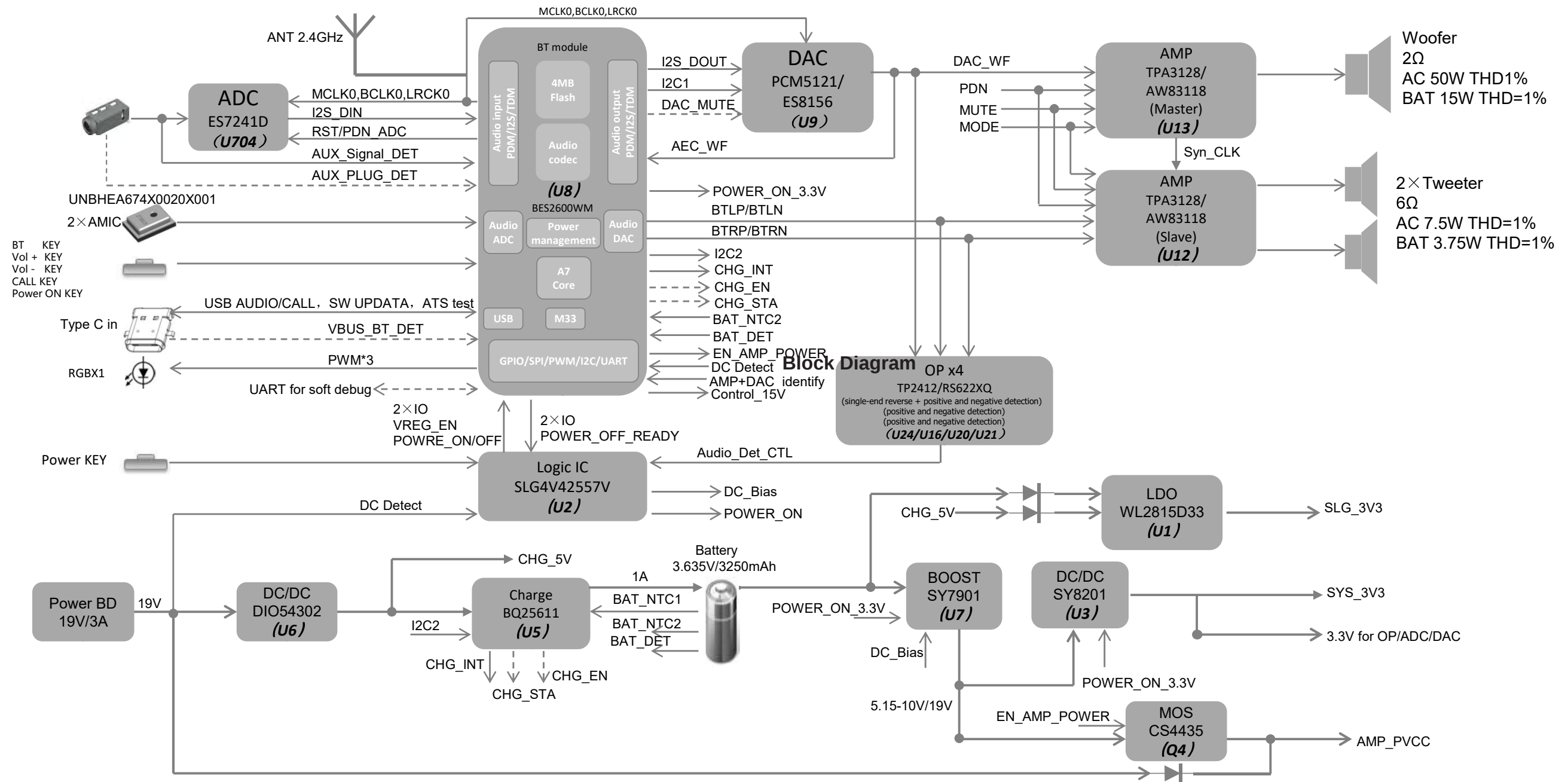
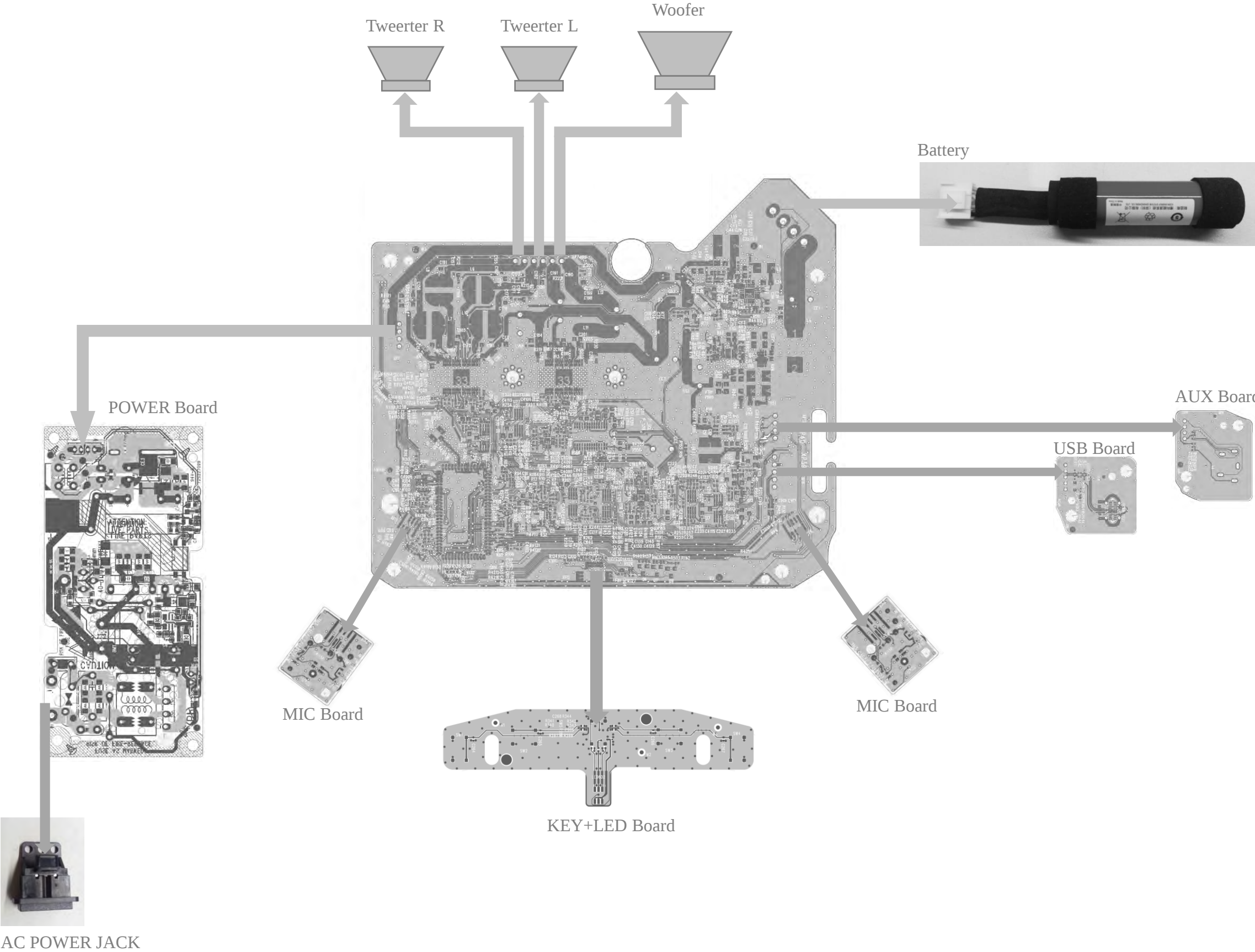


Figure 23

Block Diagram



Wiring Diagram



2



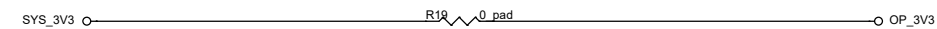
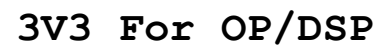
1



3

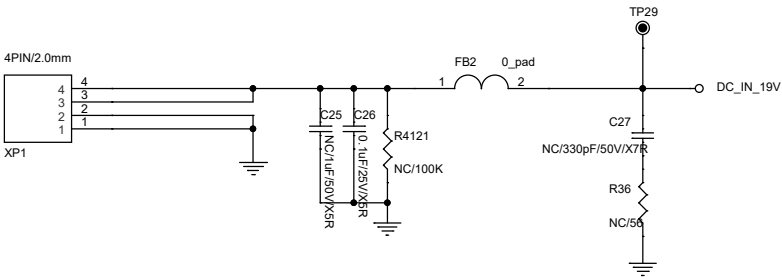


4

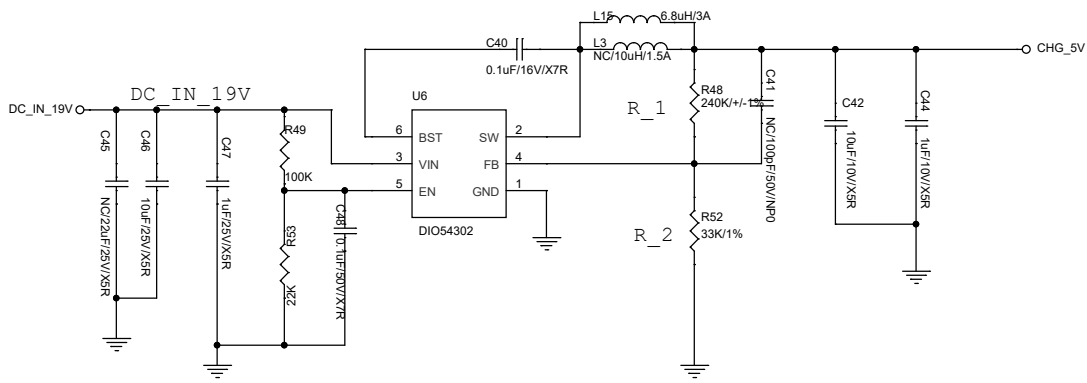


Circuit Diagram-MAIN PCBA

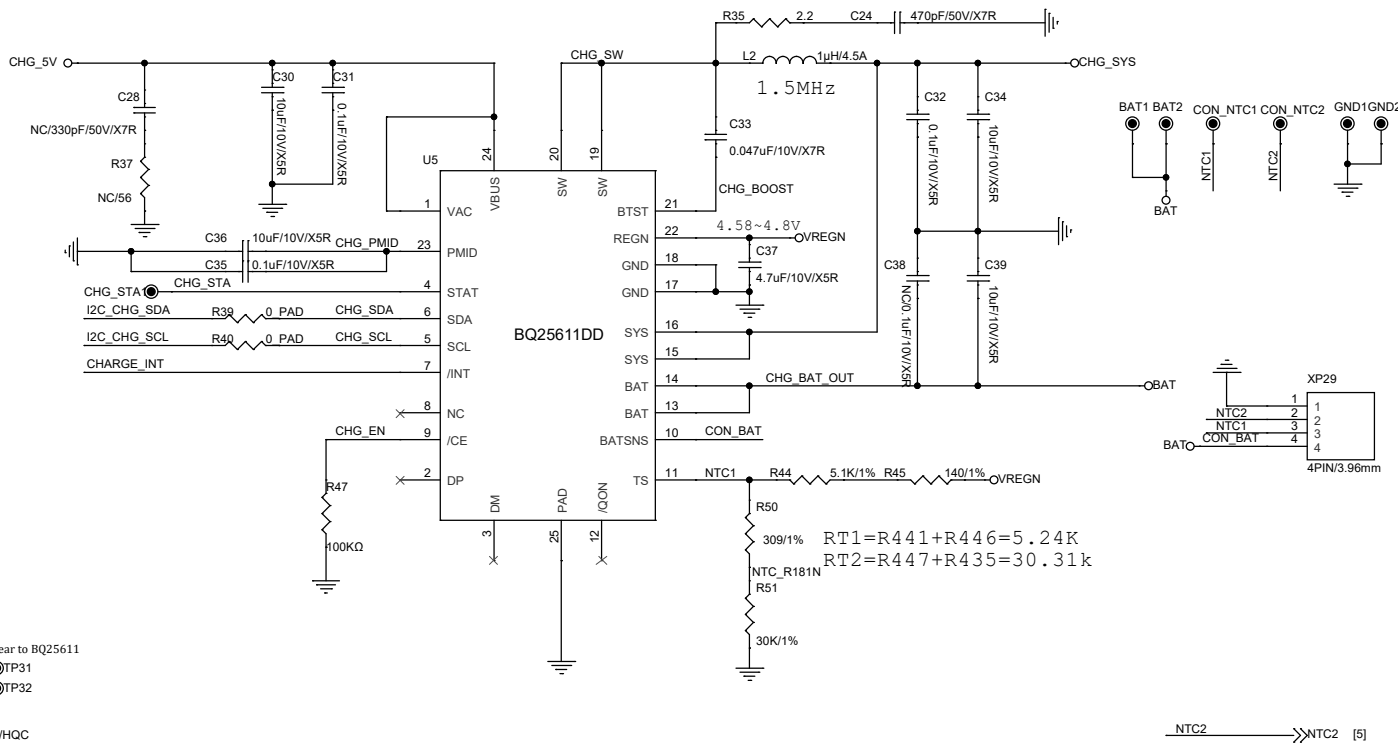
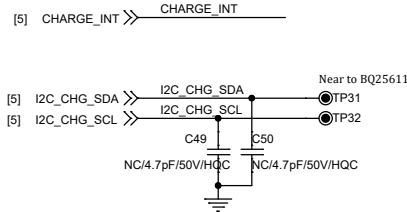
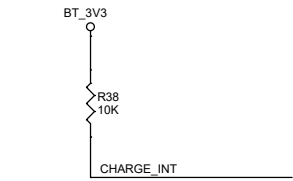
19V DC CON



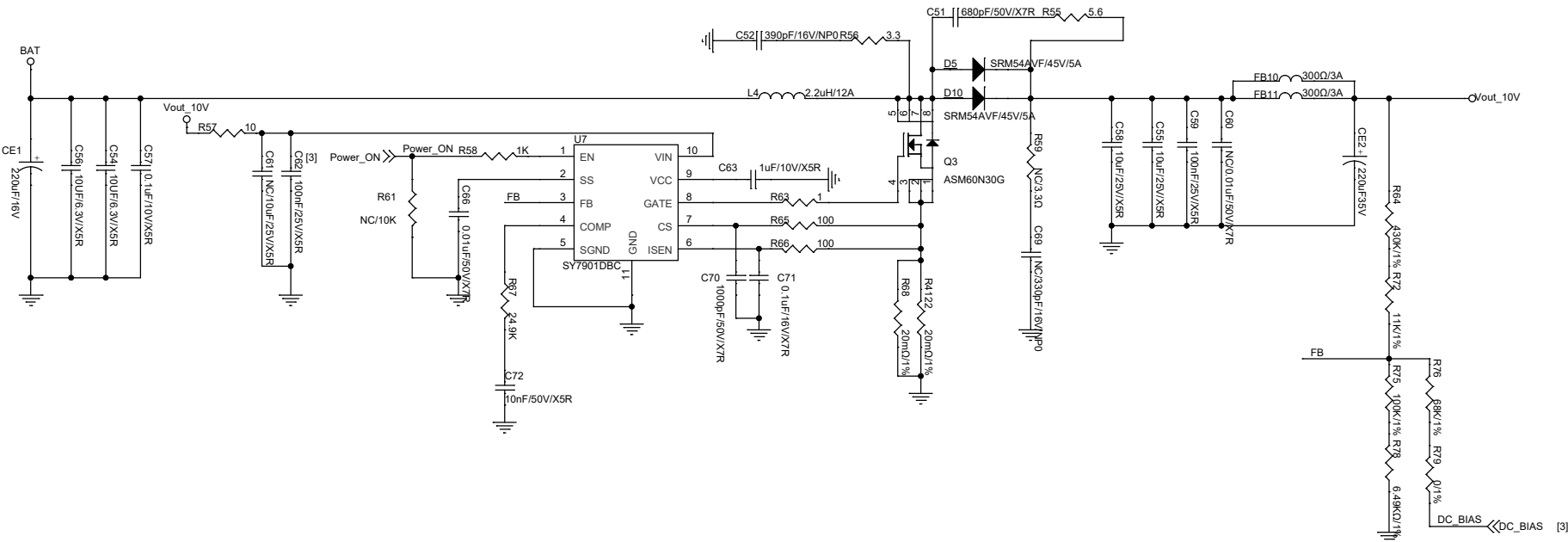
19V_DC_IN to 5V



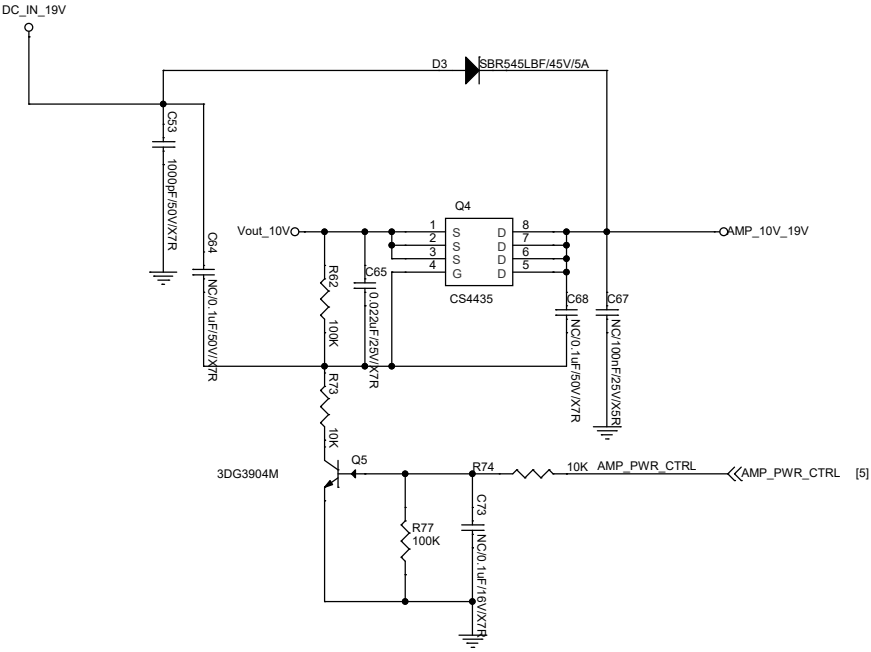
Charge Model



BATTERY BOOST 5.15V TO 10V



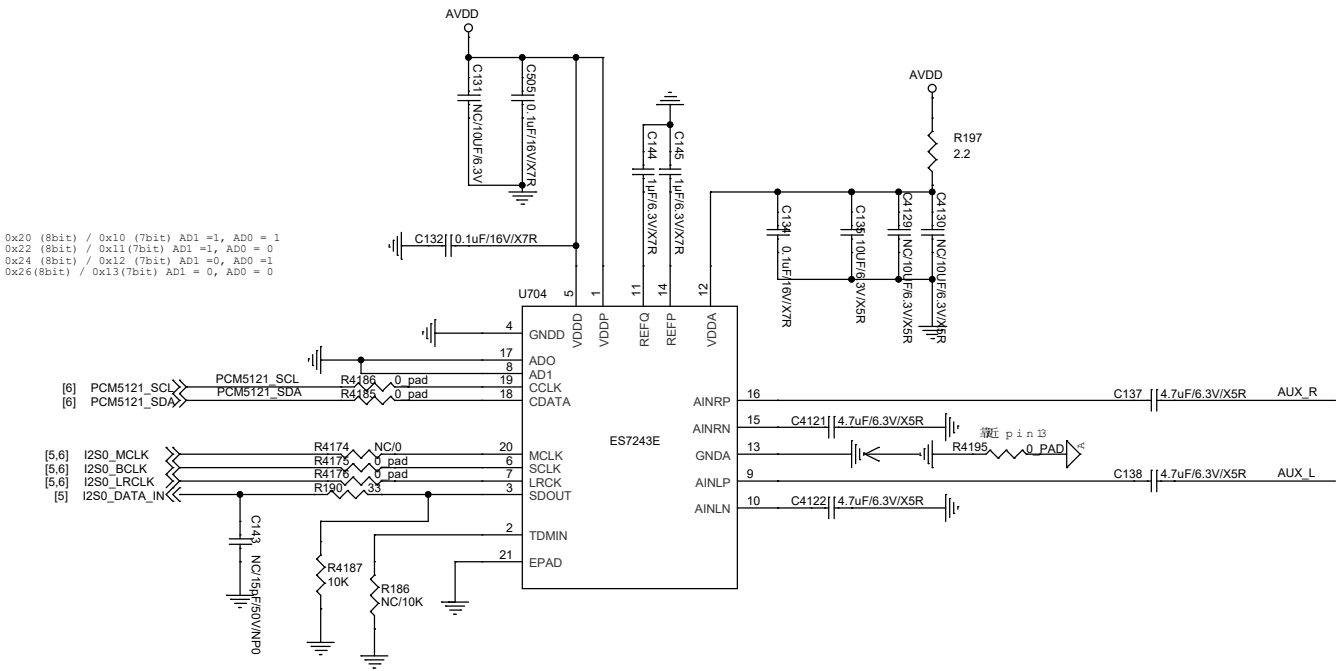
AMP Switch



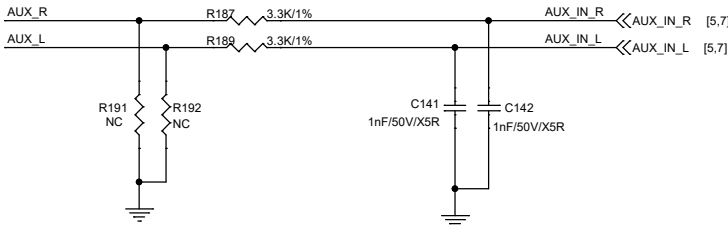


Circuit Diagram-MAIN PCBA

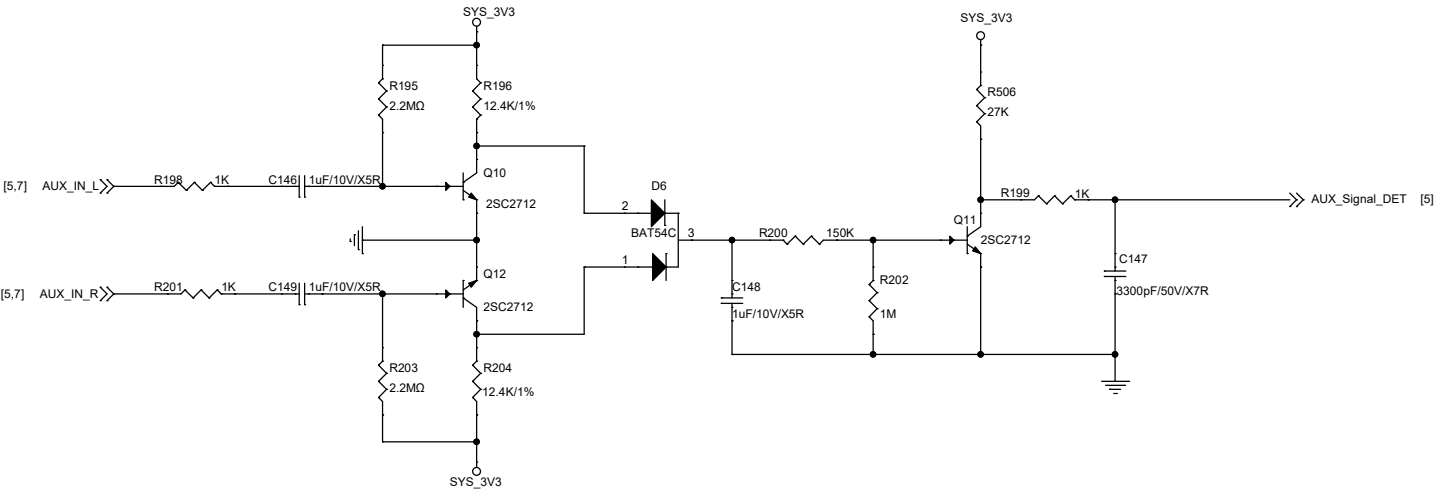
ADC Circuit



Audio IN Vlotage Divition Circuit



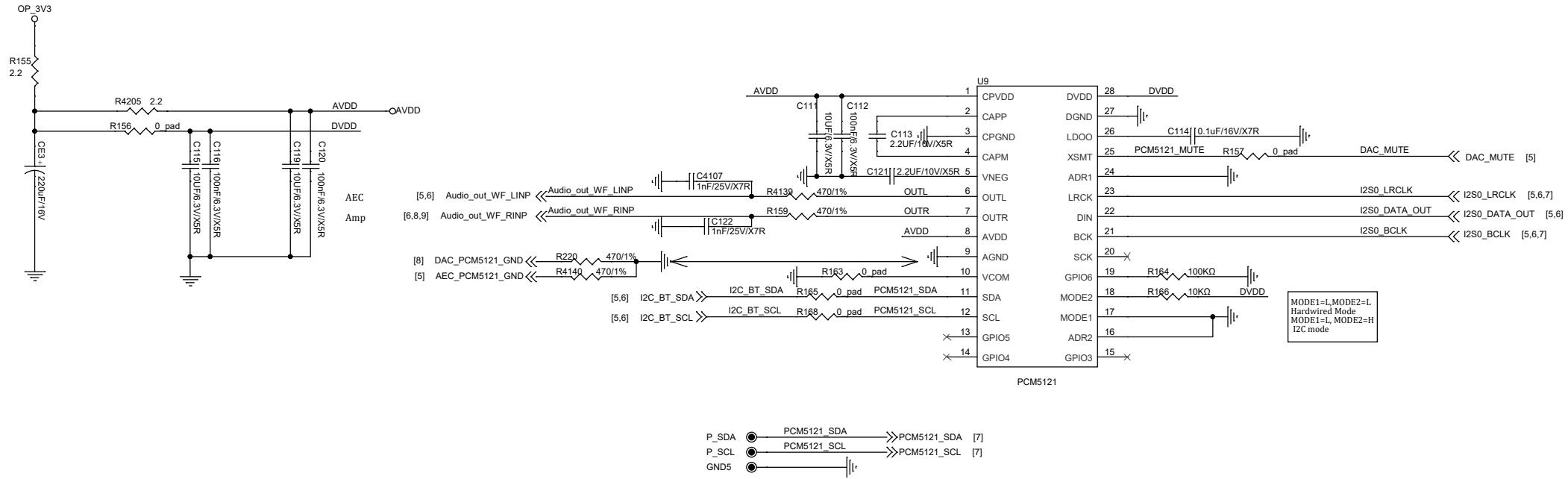
Audio In Detection



Circuit Diagram-MAIN PCBA

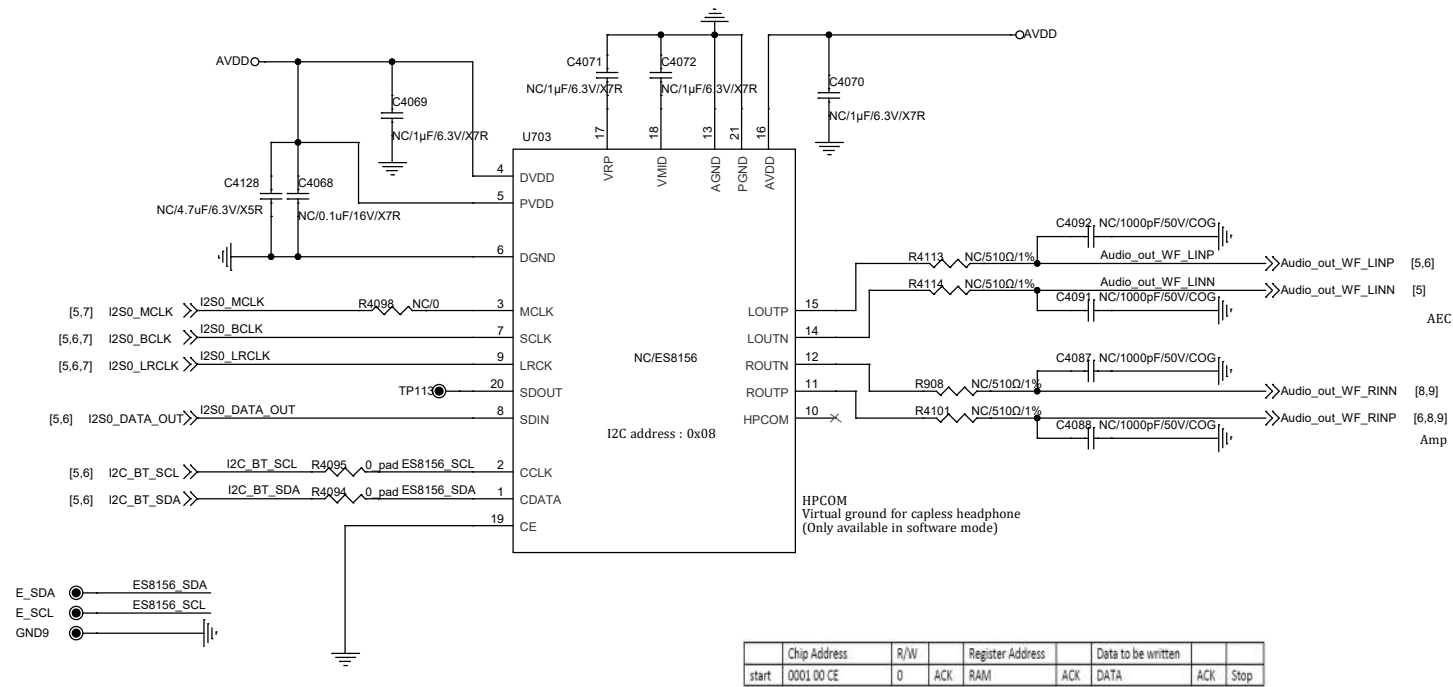
DAC Circuit

PCM5121

Table 49. I²C Slave Address

MSB							LSB
1	0	0	1	1	ADR2	ADR1	R/ $\overline{W}$

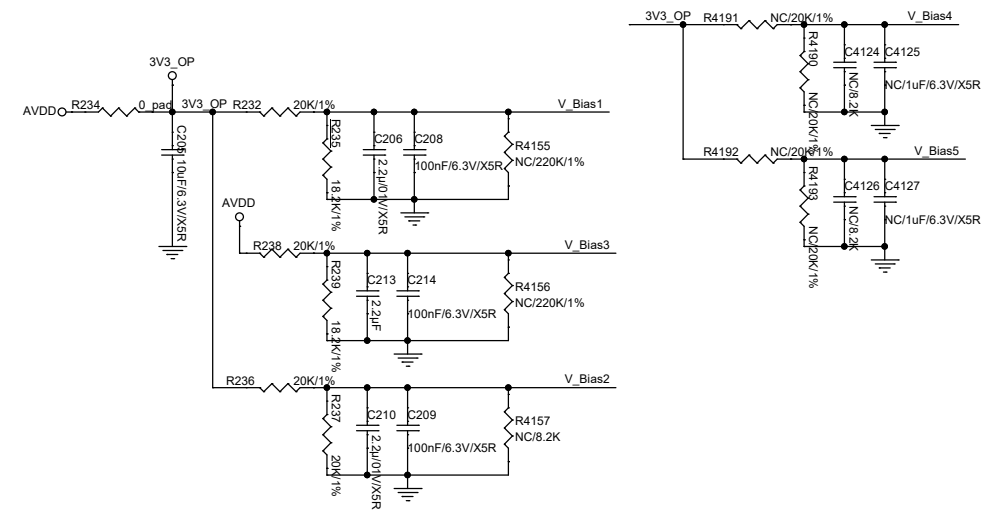
ES8156



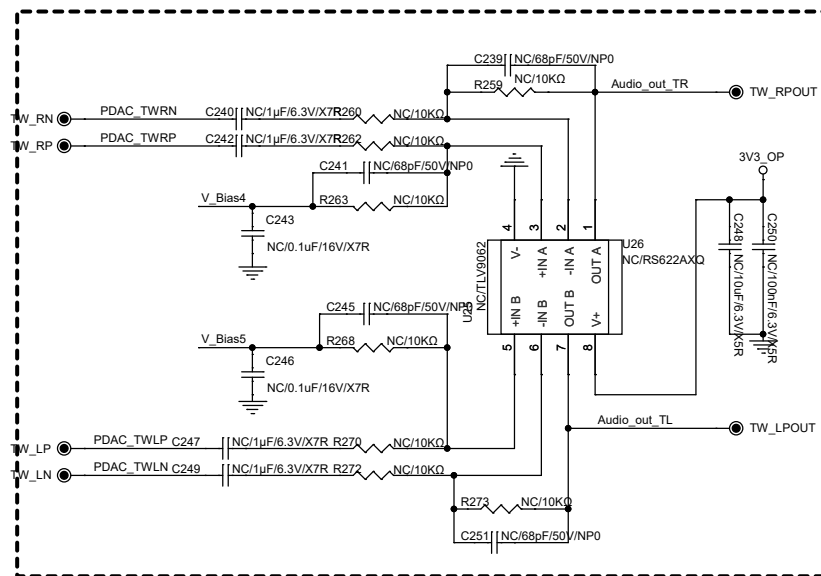
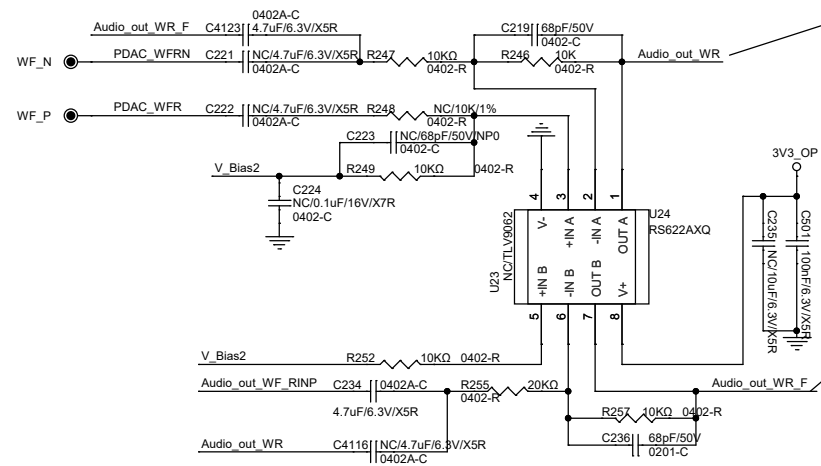
	Chip Address	R/W		Register Address		Data to be written		
start	0001 00 CE	0	ACK	RAM	ACK	DATA	ACK	Stop

Circuit Diagram-MAIN PCBA

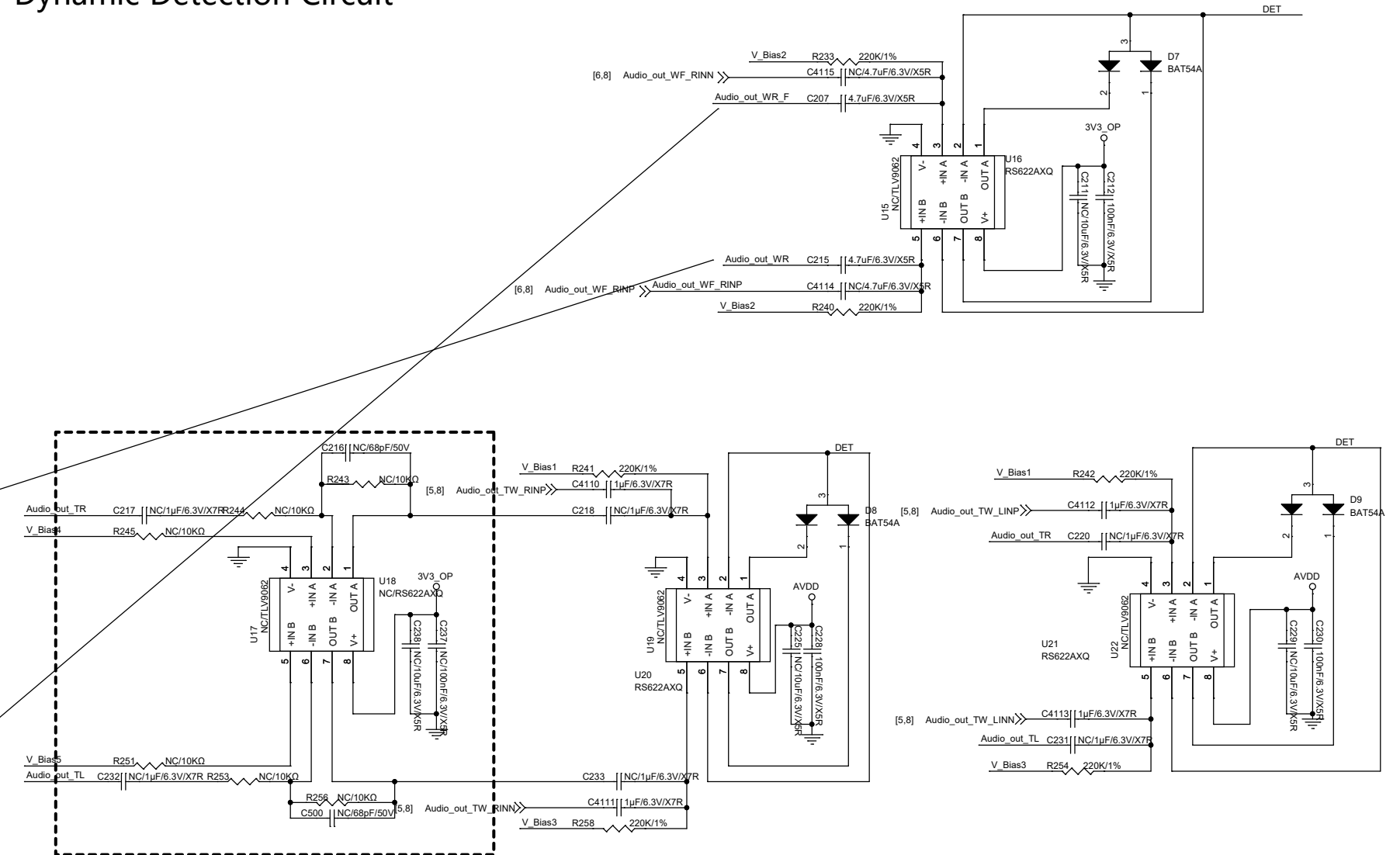
DC Bias



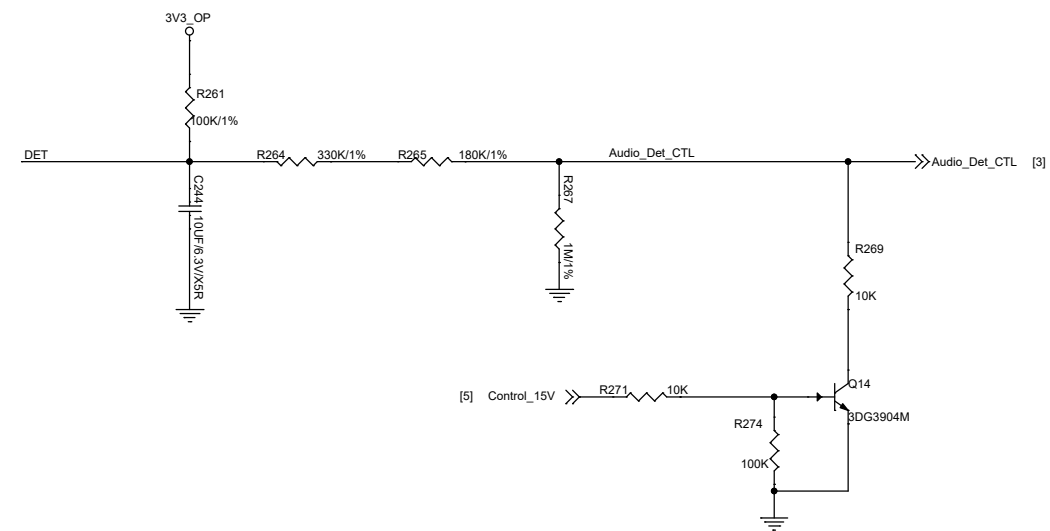
Diff to single signal



Dynamic Detection Circuit



Sampling Circuit

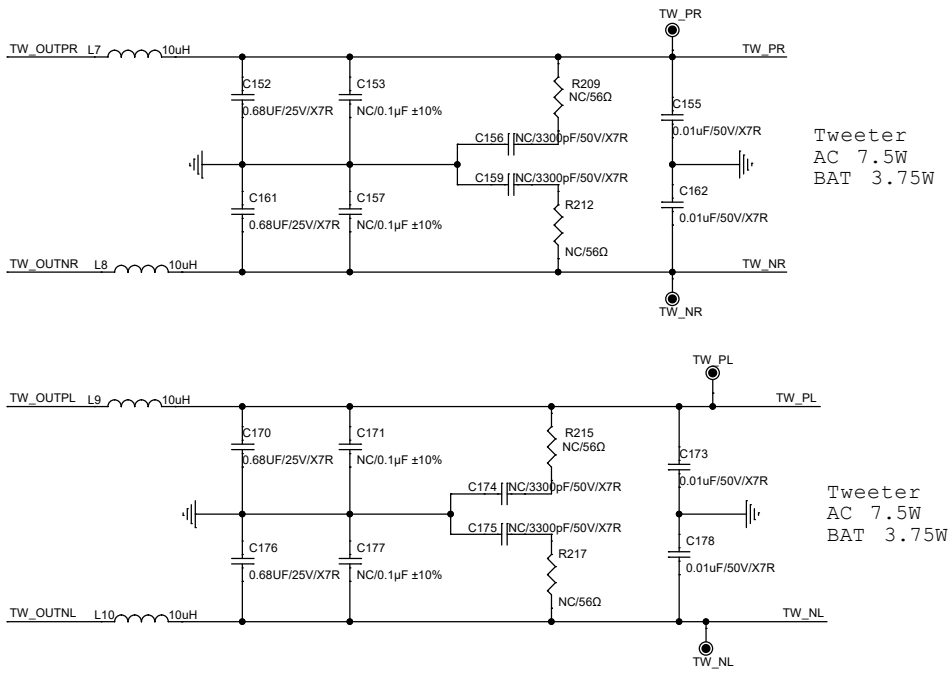
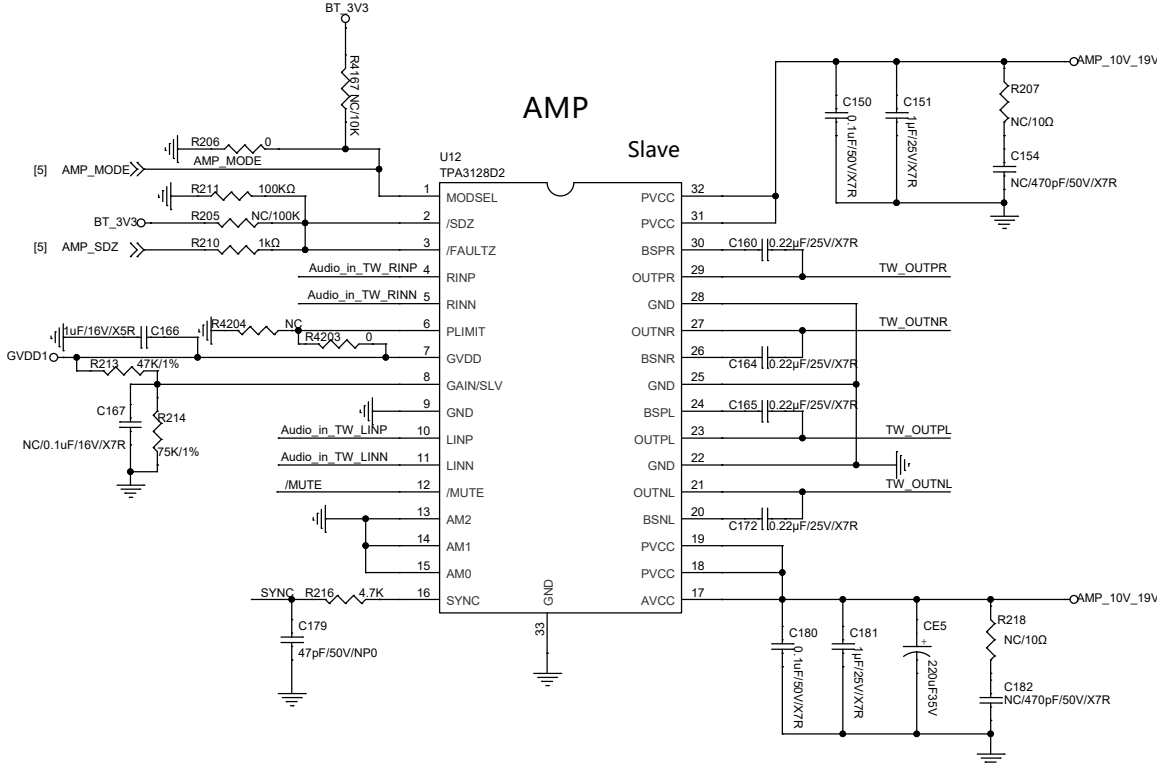
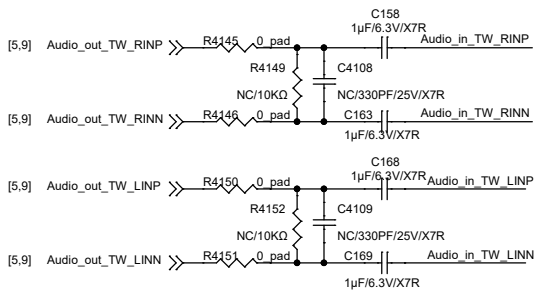


Circuit Diagram-MAIN PCBA

AMP	TPA3128	AW83118
MODEL=0	Low Idle	BD
MODEL=1	BD	Low Idle

SDZ:
Shutdown logic input for audio amp
LOW = outputs Hi-Z, HIGH = outputs enabled

Tweeter
6Ω * 2



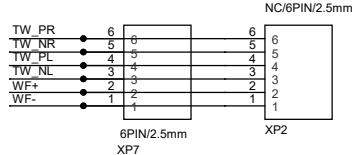
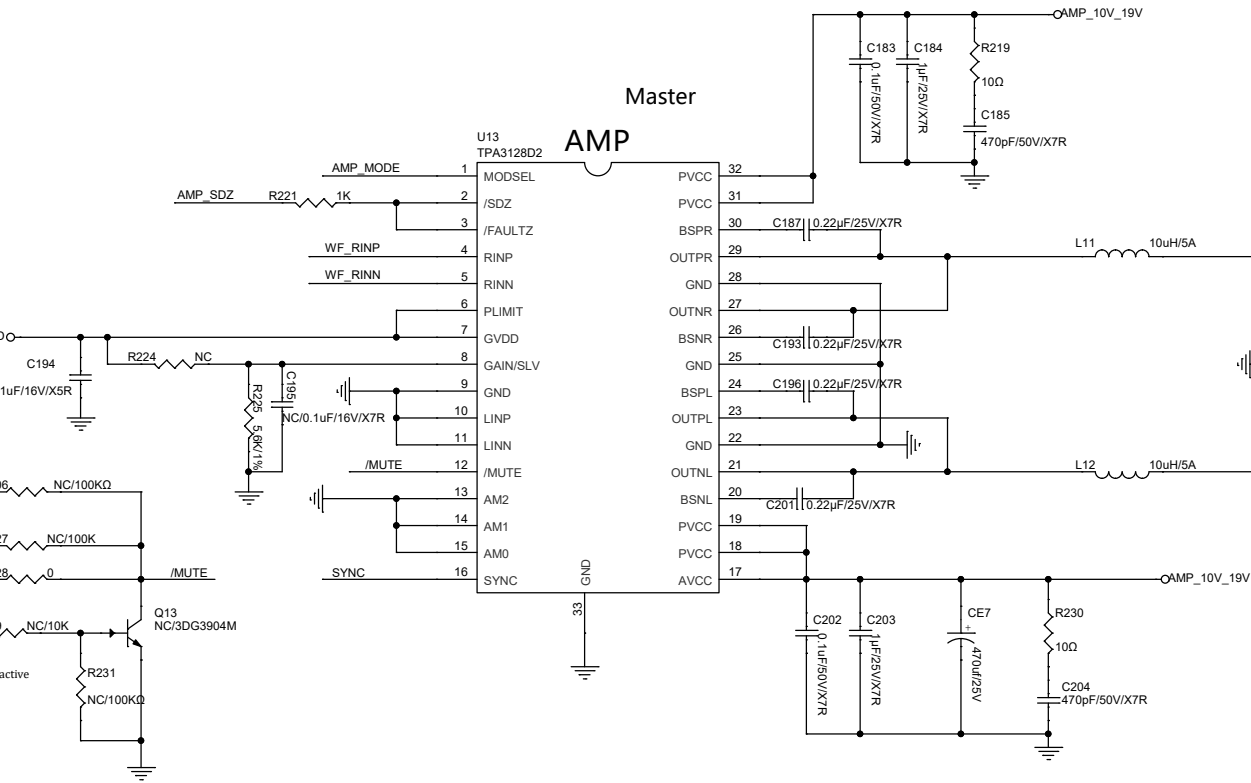
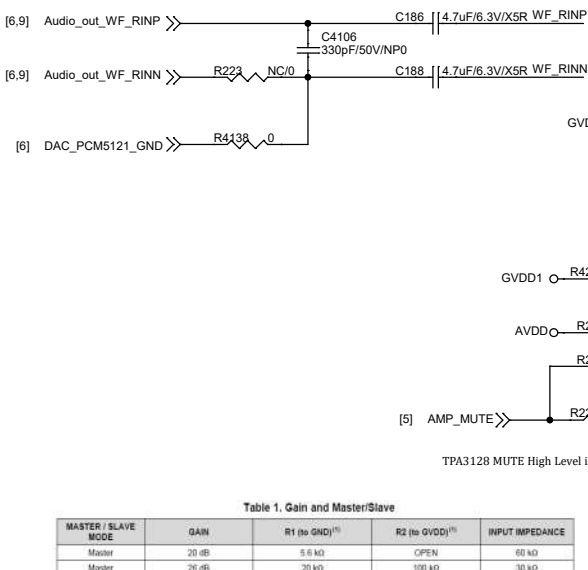
Tweeter
AC 7.5W
BAT 3.75W

Tweeter
AC 7.5W
BAT 3.75W

AMP GAIN=20dB

DAC	PCM5121	ES8156
R4138	0	NC
R223	NC	0

Woofers
2Ω * 1

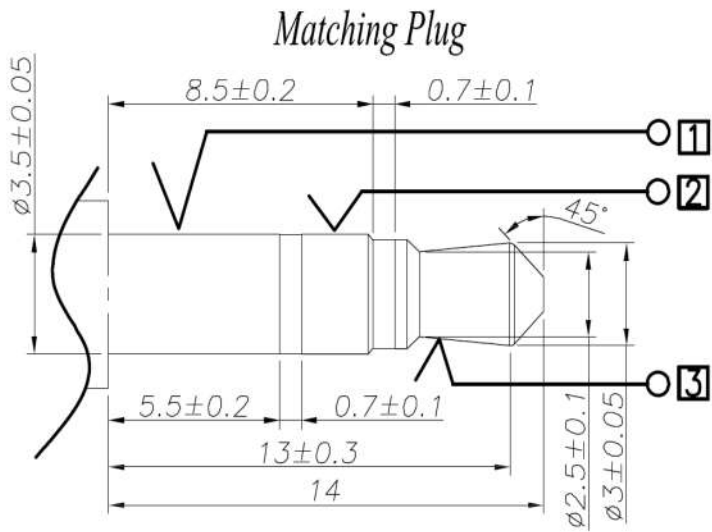
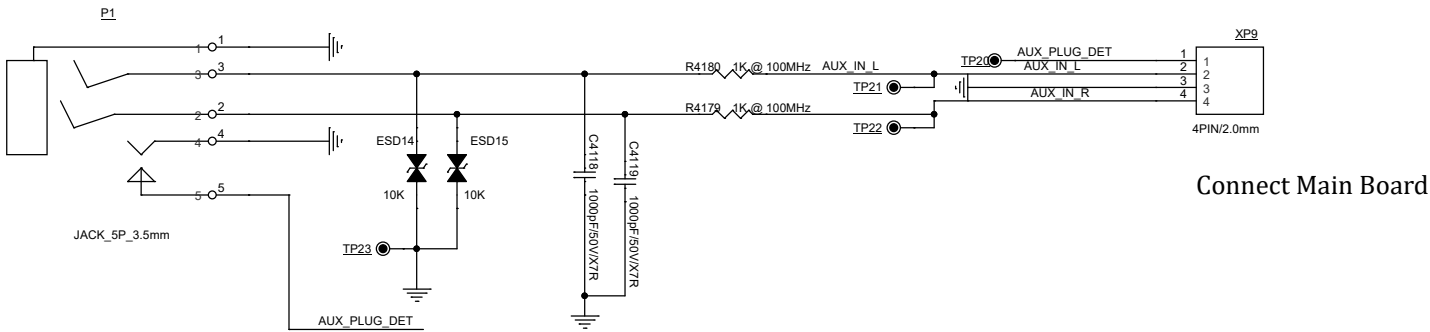


Woofer
AC 50W
BAT 15W
2Ω

Table 1. Gain and Master/Slave				
MASTER / SLAVE MODE	GAIN	R1 (to GND) ⁽¹⁾	R2 (to GVDD) ⁽¹⁾	INPUT IMPEDANCE
Master	20 dB	5.6 kΩ	OPEN	60 kΩ
Master	20 dB	20 kΩ	100 kΩ	30 kΩ
Master	32 dB	39 kΩ	100 kΩ	15 kΩ
Master	36 dB	47 kΩ	75 kΩ	9 kΩ
Slave	20 dB	5.1 kΩ	10 kΩ	60 kΩ
Slave	20 dB	75 kΩ	47 kΩ	30 kΩ
Slave	32 dB	100 kΩ	39 kΩ	15 kΩ
Slave	36 dB	100 kΩ	15 kΩ	9 kΩ

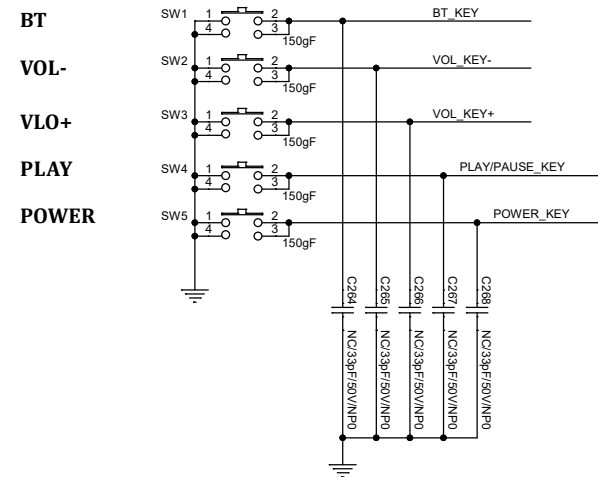
Circuit Diagram-AUX PCBA

AUX IN

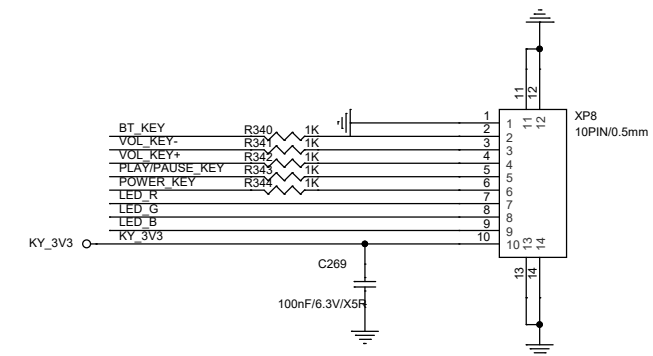


Circuit Diagram-KEY+LED Board

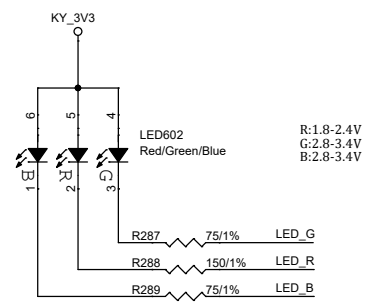
KEY



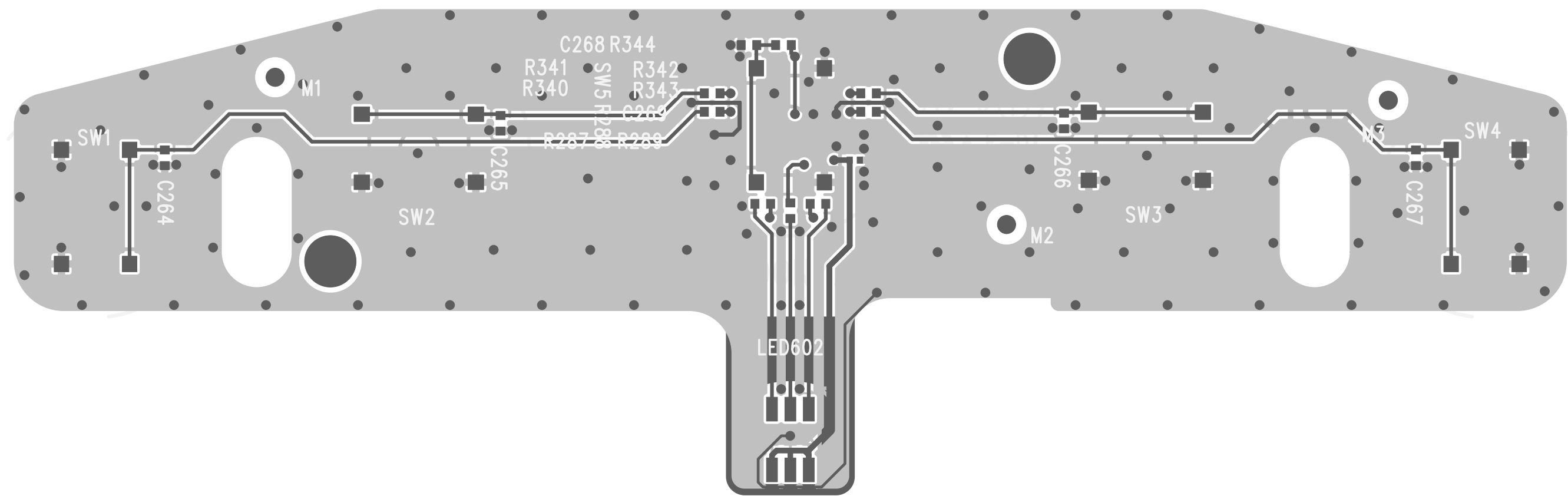
CONNECT TO MAIN BOARD



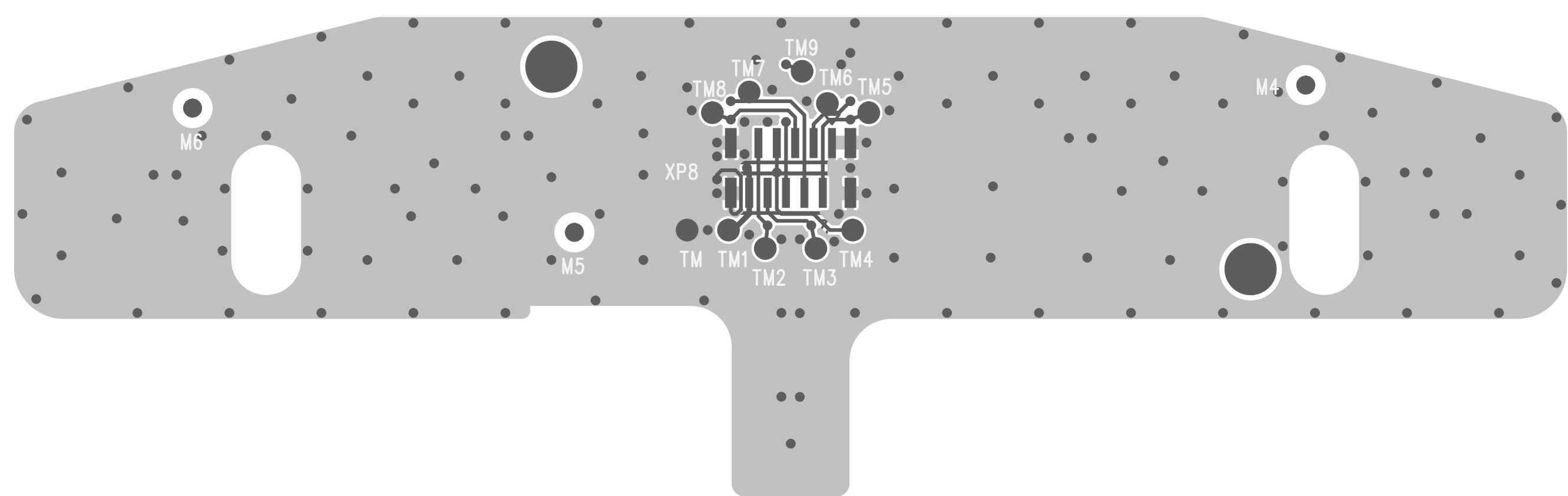
LED(RGB)



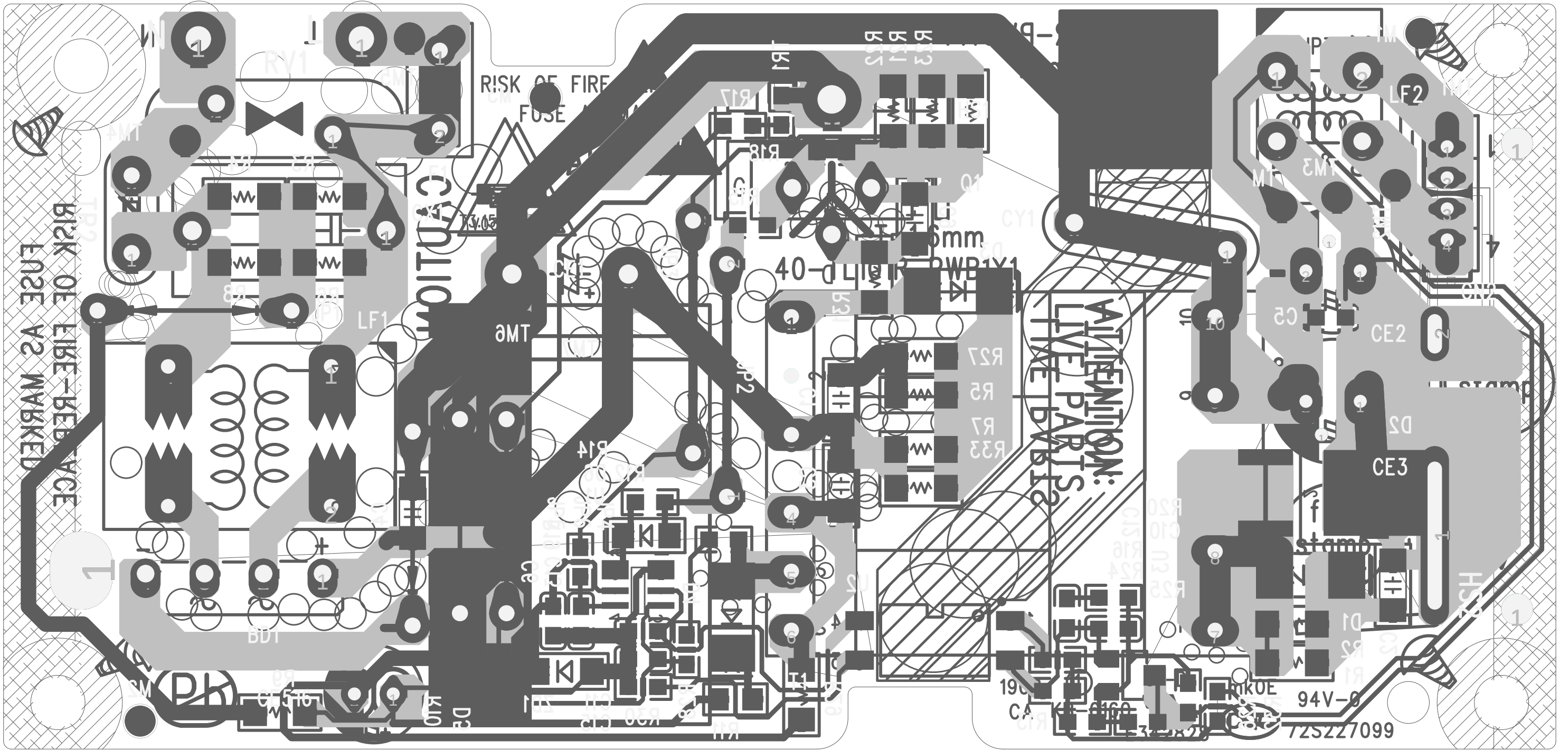
Layout Top View Diagram--KEY+LED PBCA



Layout Bottom View Diagram--KEY+LED PBCA

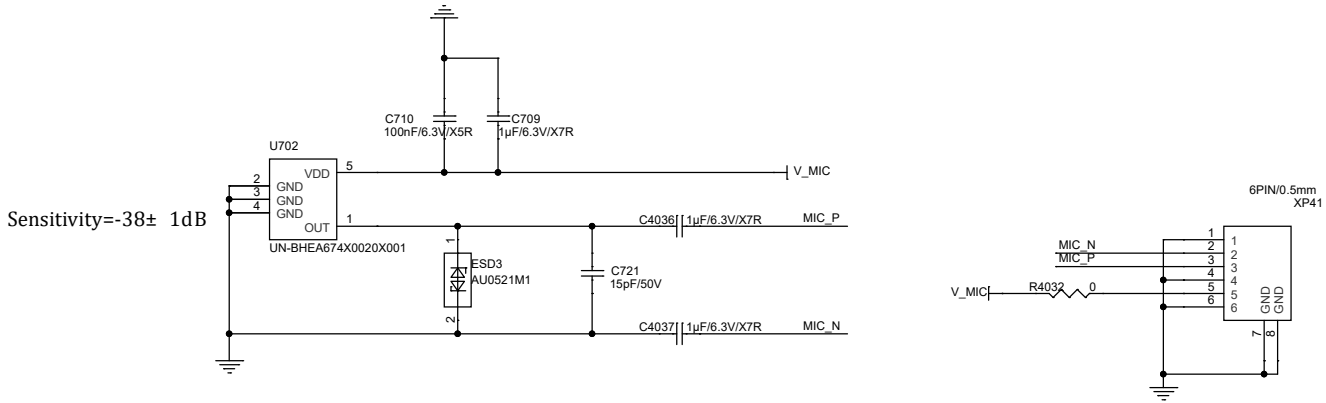


Layout View Diagram--POWER PCBA

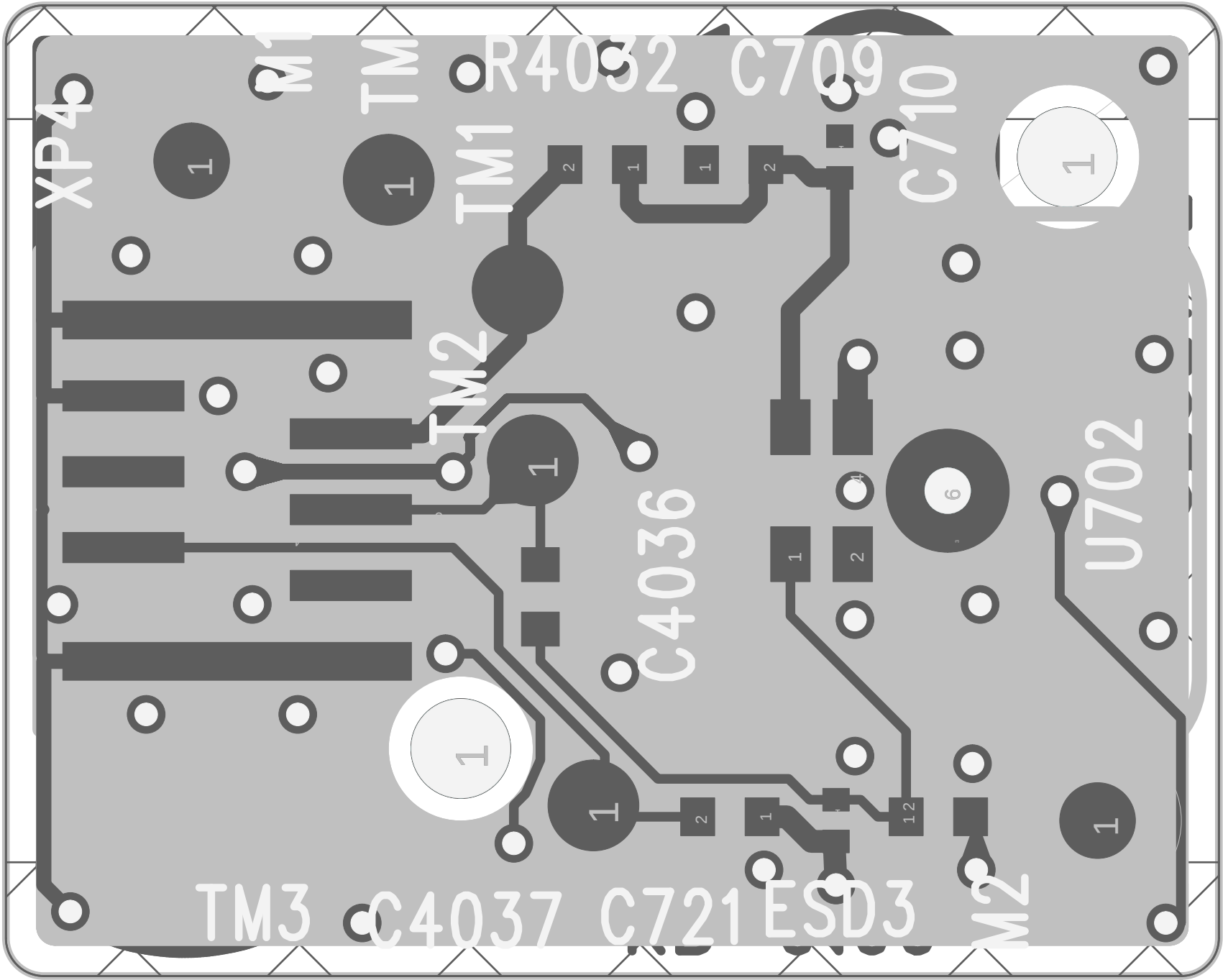


Circuit Diagram-MIC Board

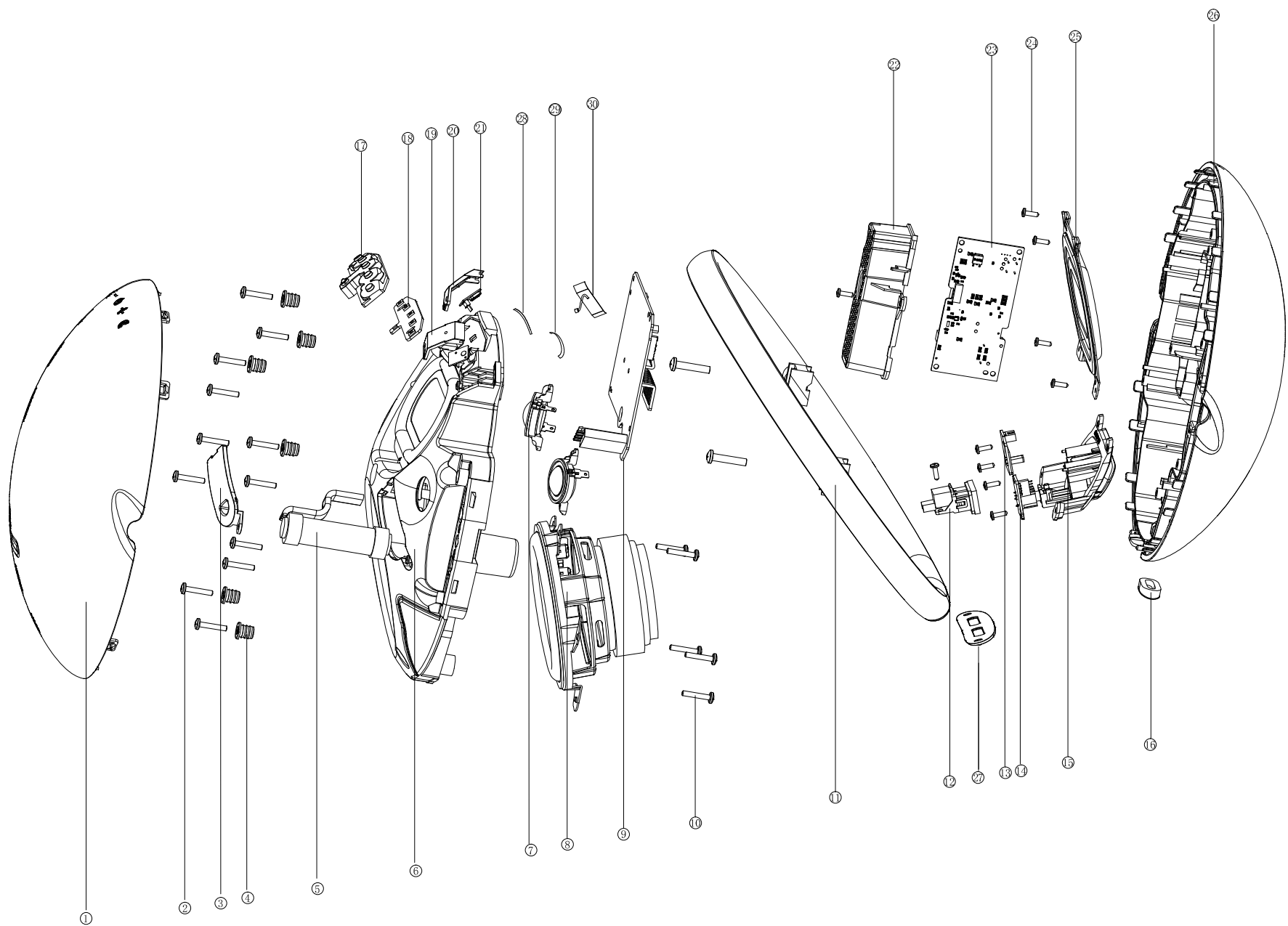
AMIC



Layout View Diagram--MIC PCBA



Mechanical Exploded View



Spare Part List

Part Number	SAP Description	Usag	Uo	Pos.
081400-047182	FRONT GRILLE ASSY BLK OS8	1	EA	1
081400-047183	FRONT GRILLE ASSY BLU OS8	1	EA	1
081400-047184	FRONT GRILLE ASSY CHAMPAGNE OS8	1	EA	1
081400-047190	BATTERY COVER OS8	1	EA	3
550499-000133	TPU RUBBER PLUG OS8	6	EA	4
490000-000146-1	LI-ION BATTERY 3.635V 3250MAH OS8	1	EA	5
081400-047181	SEALING ASSY OS8	1	EA	6
420000-000507	TWEETER SPEAKER OS8	2	EA	7
420000-000508	WOOFER SPEAKER 5 INCH OS8	1	EA	8
940205-010019	MAIN BOARD OS8	1	EA	9
670401-020149	HANDLE BLK OS8	1	EA	11
670401-020150	HANDLE CHAMPAGNE OS8	1	EA	11
670401-020151	HANDLE BLU OS8	1	EA	11
081400-047177	AC SOCKET 250V 2.5A OS8	1	EA	12
081400-047173	USB BOARD OS8	1	EA	13
081400-047168	AUDIO BOARD BLK OS8	1	EA	14
081400-047169	AUDIO BOARD CHAMPAGNE OS8	1	EA	14
081400-047170	AUDIO BOARD BLU OS8	1	EA	14
020499-000101	TERMINAL COVER BLK OS8	1	EA	15
020499-000103	TERMINAL COVER CHAMPAGNE OS8	1	EA	15
020499-000102	TERMINAL COVER BLU OS8	1	EA	15
590103-000500	RUBBER FOOT BLK OS8	1	EA	16
590103-000501	RUBBER FOOT CPN OS8	1	EA	16
590103-000502	RUBBER FOOT BLU OS8	1	EA	16
590101-000223	RUBBER BUTTON OS8	1	EA	17
081400-047172	KEY BOARD OS8	1	EA	18
081400-047188	MIC BRACKET B OS8	1	EA	19
081400-047189	MIC BRACKET A OS8	1	EA	20
081400-047175	MIC BOARD OS8	2	EA	21
081400-047176	FIREPROOF COVER OS8	1	EA	22
081400-047174	POWER BOARD NON BR OS8	1	EA	23
940205-009934	POWER BOARD BR OS8	1	EA	23
590401-000049	PASSIVE RADIATOR OS8	1	EA	25
081400-047185	REAR GRILLE ASSY BLK OS8	1	EA	26
081400-047186	REAR GRILLE ASSY BLU OS8	1	EA	26
081400-047187	REAR GRILLE ASSY CHAMPAGNE OS8	1	EA	26
590103-000695	HANDLE RUBBER FOOT BLK OS8	1	EA	27
590103-000696	HANDLE RUBBER FOOT CPN OS8	1	EA	27
590103-000697	HANDLE RUBBER FOOT BLU OS8	1	EA	27
410002-000673	FFC CABLE 10P 30MM OS8	1	EA	28
410002-000747	FFC CABLE 6P 60MM OS8	1	EA	29
290000-019487-1	BLUETOOTH ANTENNA 90MM OS8	1	EA	30
760101-003261	GIFT BOX BLK AM OS8	1	EA	
760101-003256	GIFT BOX BLU AM OS8	1	EA	
760101-003257	GIFT BOX CPN AM OS8	1	EA	
760101-003454	GIFT BOX BLK EP OS8	1	EA	
760101-003455	GIFT BOX BLU EP OS8	1	EA	
760101-002456	GIFT BOX CPN EP OS8	1	EA	
760101-003129	GIFT BOX BLK AS OS8	1	EA	
760101-003131	GIFT BOX BLU AS OS8	1	EA	
760101-003126	GIFT BOX CPN AS OS8	1	EA	
760101-003130	GIFT BOX BLK UK OS8	1	EA	
760101-003132	GIFT BOX BLU UK OS8	1	EA	
760101-003127	GIFT BOX CPN UK OS8	1	EA	

760101-003258	GIFT BOX BLK BR OS8	1	EA	
760101-003259	GIFT BOX BLU BR OS8	1	EA	
760101-003260	GIFT BOX CPN BR OS8	1	EA	
540302-000534	CLOTH BAG OS8	1	EA	
510101-000105	POWER CORD AM BLK 2M OS8	1	EA	
510102-019467	POWER CORD EP BLK 2M OS8	1	EA	
510102-019466	POWER CORD EP WHT 2M OS8	1	EA	
510102-000111	POWER CORD AS-EU/ID BLK 2M OS8/A300	1	EA	
510103-000059	POWER CORD UK BLK 2M OS8	1	EA	
510103-000060	POWER CORD UK WHT 2M OS8	1	EA	
510105-000022	POWER CORD AS-KO BLK 2M OS8	1	EA	
510106-000101	POWER CORD AS-AU BLK 2M OS8	1	EA	
510107-000028	POWER CORD BR BLK 2M OS8	1	EA	
510110-000028-1	POWER CORD AS-THA BLK 2M OS8	1	EA	

KEY COMBINATION BEHAVIOR

Button Pattern	Action	Indicator
Volume + & Bluetooth	Long press > 5s	Reset to factory default in On Mode. Power off after factory reset.
Volume - & Volume	Long press >10s	Toggle by-pass mode in On Mode.
Volume+ & Volume- & Play/Pause	Long press >10s	Enter Regular DFU mode in On Mode (AC Charger connected). Exit with removal of AC charger & USB cable
Volume - & Play/Pause & Bluetooth	Long press > 2s	Playback SW version in On Mode.
Play/Pause & Bluetooth	Long press >10s	Toggle Demo mode in On Mode. (AC Charger connected).
Volume - & Bluetooth	Long press >10s	Toggle Hotel mode in On Mode. (AC Charger connected).
Volume+ & Play/Pause	Long press >5s	Toggle CDC (APP configuration) in Hotel On Mode. (AC Charger connected) Can also exit CDC (The device will be powered off) with removal of AC charger
Volume - & Volume+	Long press > 1s	Mute, unmute the mic
Volume - & Play/Pause	Long press >2s	Toggle self-tuning

REVISION LIST

Version 1.0

* Initial release. May 2022

Version 1.1

* Add missing gift boxes and power cords in parts list. May 2022

Version 1.2

* Correct descriptions to indicate 3 colors for rubber foot and handle rubber foot on page 29 and 30.
Jul. 2022

Version 1.3

* Add 6 Position Numbers in parts list and exploded view.on page 28 and 29. Jul. 2022

Version 1.4

* Update Main Board to add packing, divided Terminal Cover and Power Board into Non-Brazil and Brazil version. Sep. 2022

Version 1.5

* Update Main Board and handle in parts list, and exploded view. Aug. 2023