

SERVICE MANUAL

NAD

D3020

Hybrid Digital Amplifier

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PRODUCT SAFETY SERVICING GUIDELINES

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM AC LINE SHOCK.

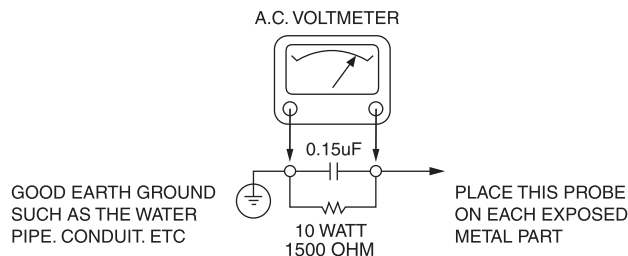
SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING AC CORD). AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUDING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN AC LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFET TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN AC VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD, 150V AC TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME.
MEASURE THE AC VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR.
REVERSE THE AC PLUG AND REPEAT AC VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART.

VOLTAGE MEASURE MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMP AC ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT : GRAPHIC SYMBOLS



THE LIGHTNING FLASH WITH 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.



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 APPLIANCE.

SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PLACEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

SERVICING PRECAUTIONS

CAUTION : Before servicing the A/V Receiver covered by this service data and its supplements and addends, read and follow the **SAFETY PRECAUTIONS**. **NOTE** : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remember Safety First:

General Servicing Precautions

1. Always unplug the A/V Receiver AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.**Caution** : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this A/V Receiver or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cottontipped swab, or comparable soft applicator.
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this A/V Receiver and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect test instrument ground lead to the appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

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 buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified a "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freonpropelled 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 handing unpackaged replacement ES devices. (Normally 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 device.)

Specifications

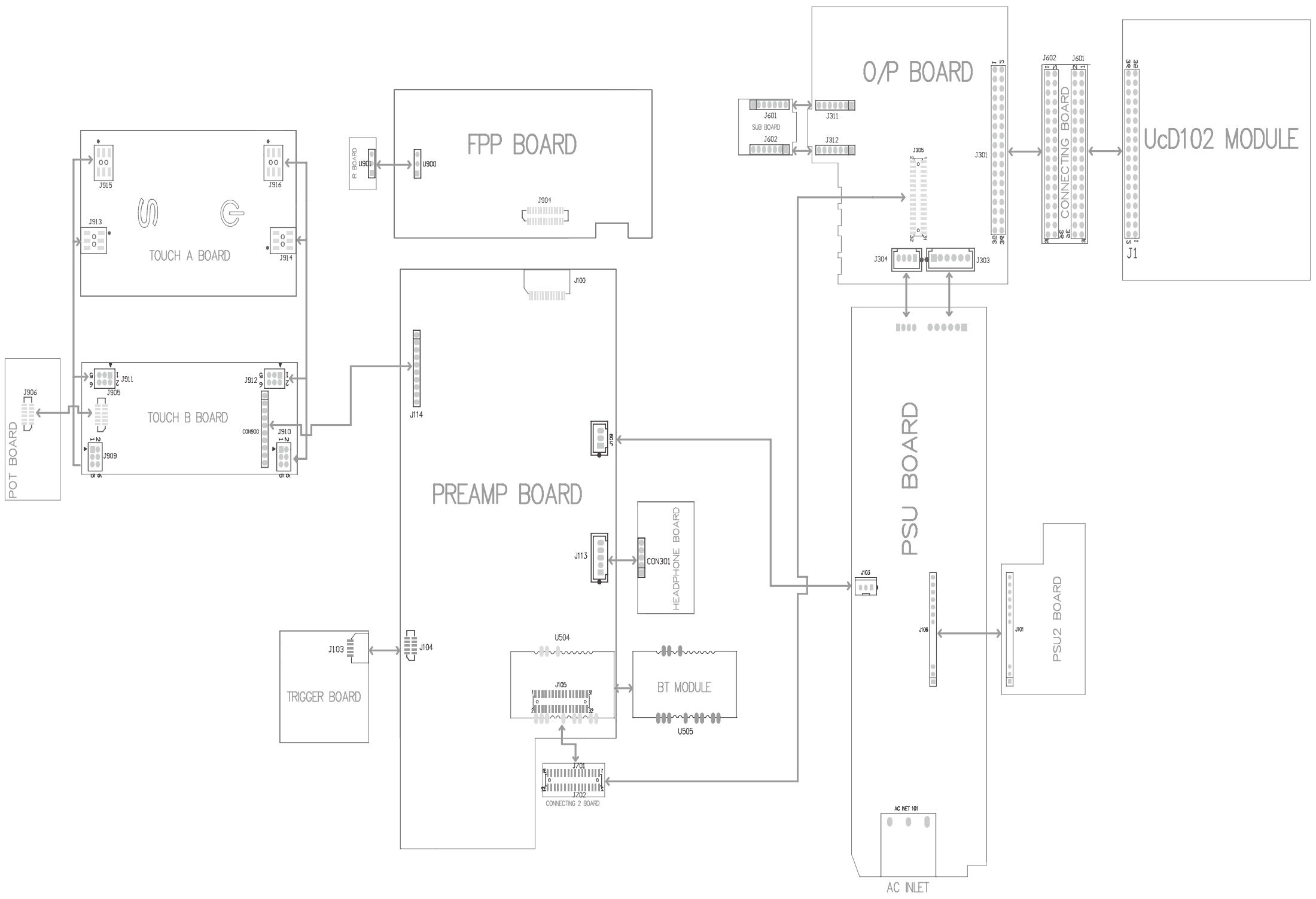
AUDIO SPECIFICATIONS		D 3020
Rated Power at	8 ohms	2 x 30 Watts
IHF Dynamic Power	8 ohms	2 x 65 Watts
	4 ohms	2 x 105 Watts
	2 ohms	2 x 150 Watts
Signal/Noise Ratio (A-weighted)		≥90dB
Channel Separation	1kHz	≥75dB
	10kHz	≥65dB
Channel Balance		0 ±0.3dB
Frequency Response (20Hz - 20kHz)		0dB to -0.3dB
Total Harmonic Distortion		≤0.005%
Maximum input level		5V
IMD (SMPTE)		0.02%
IMD (CCIF)		0.003%
GENERAL SPECIFICATIONS		
Standby Power		≤0.5 Watts
Supports bit rate/sample rate		up to 24/192 (via Digital Audio input) up to 24/96 (via Computer/Type B USB input)
Unit Dimensions (W x H x D) Gross*		58 x 186 x 219mm 2 5/16 x 7 3/8 x 8 5/8" **
Net Weight		1.38kg (3.05lb)
Shipping Weight		2.1kg (4.6lb)

* Gross dimensions include extended buttons and rear panel terminals.

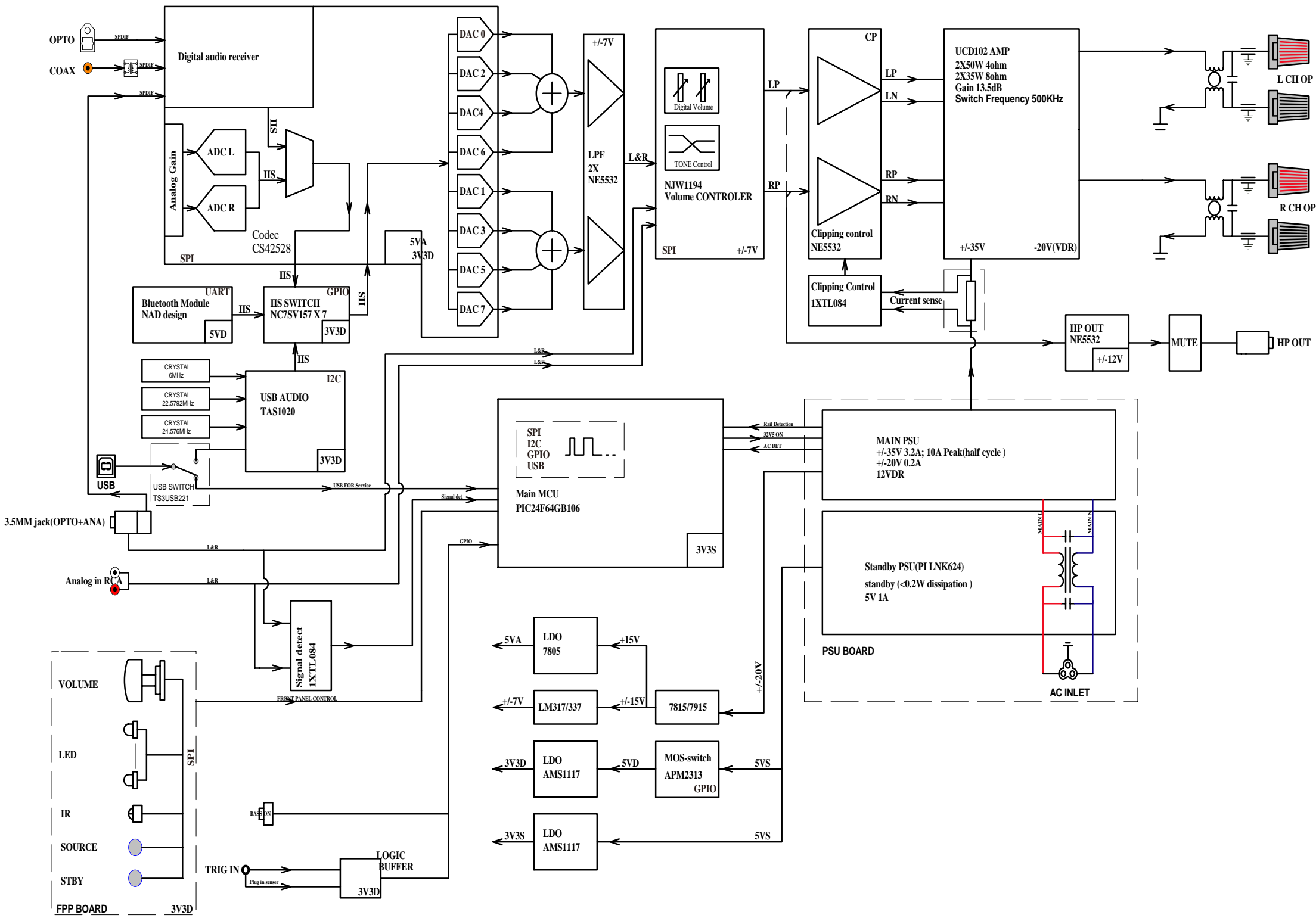
** Non-metric measurements are approximate. NAD Electronics will not assume any liability for errors being made by retailers, custom installers, cabinet makers, or other end users based on information contained in this document.

Note: Installers should allow a minimum clearance of 55mm for wire/cable management.

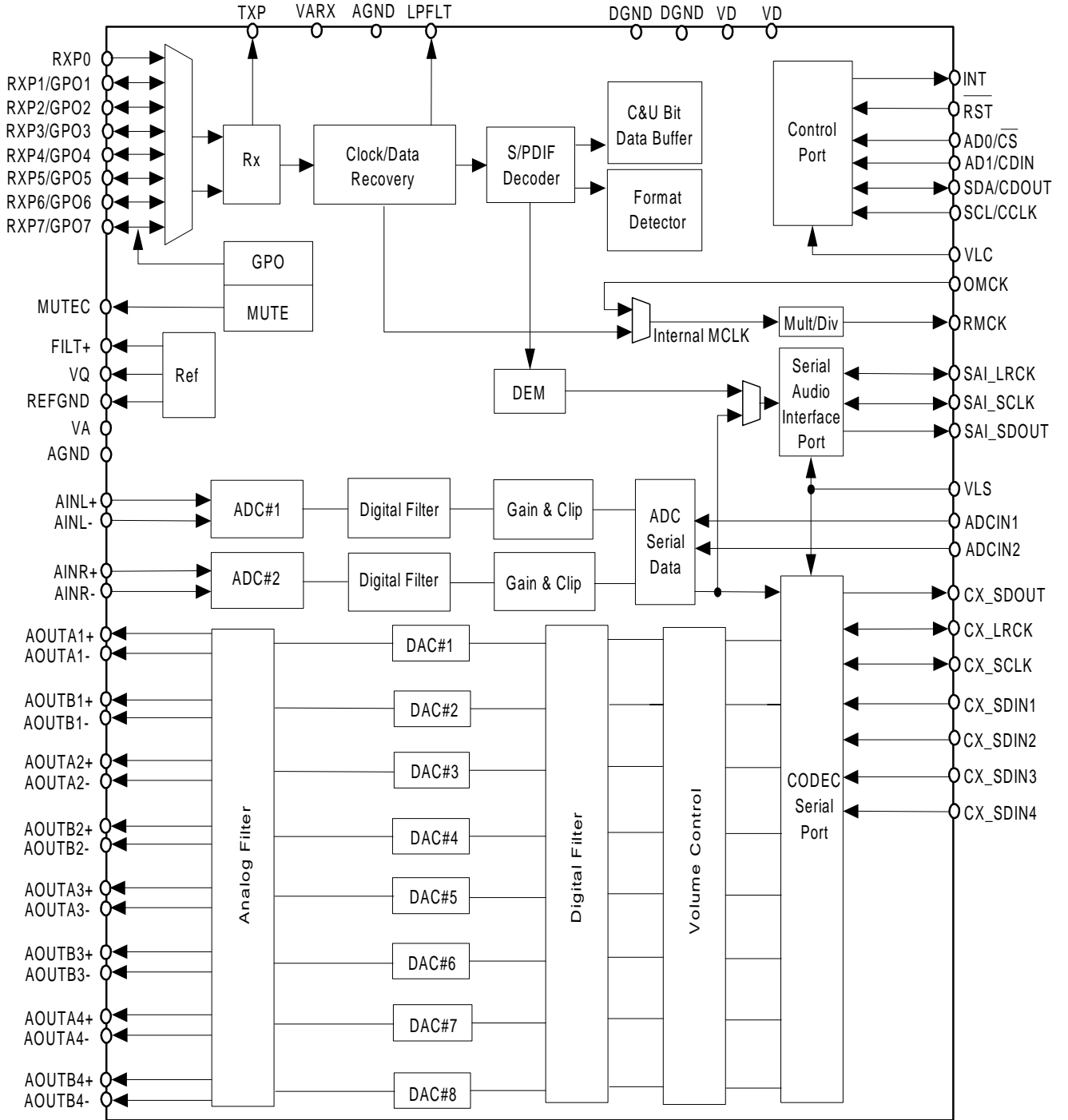
WIRING DIAGRAM



BLOCK DIAGRAM

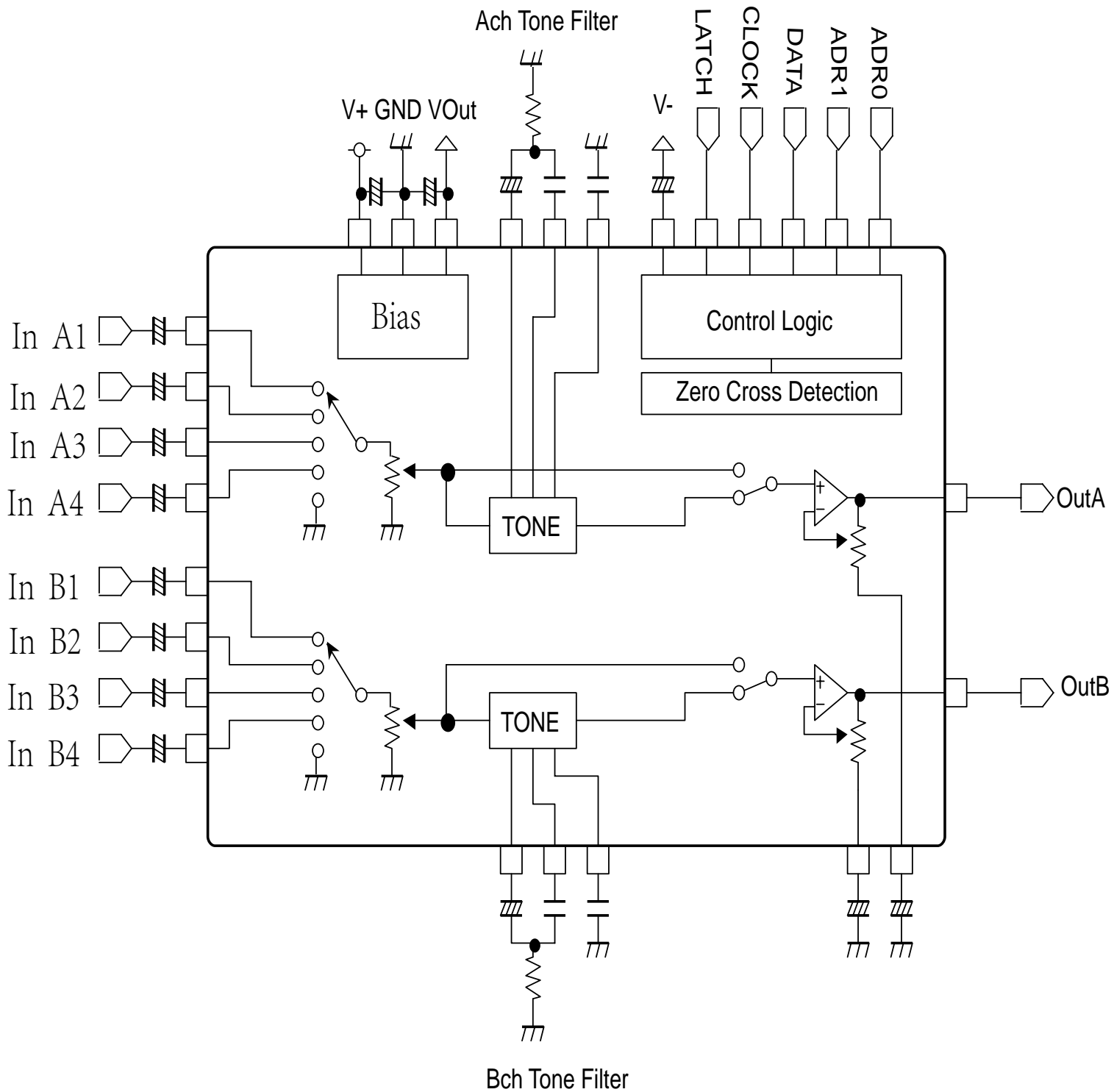


PREAMP BOARD

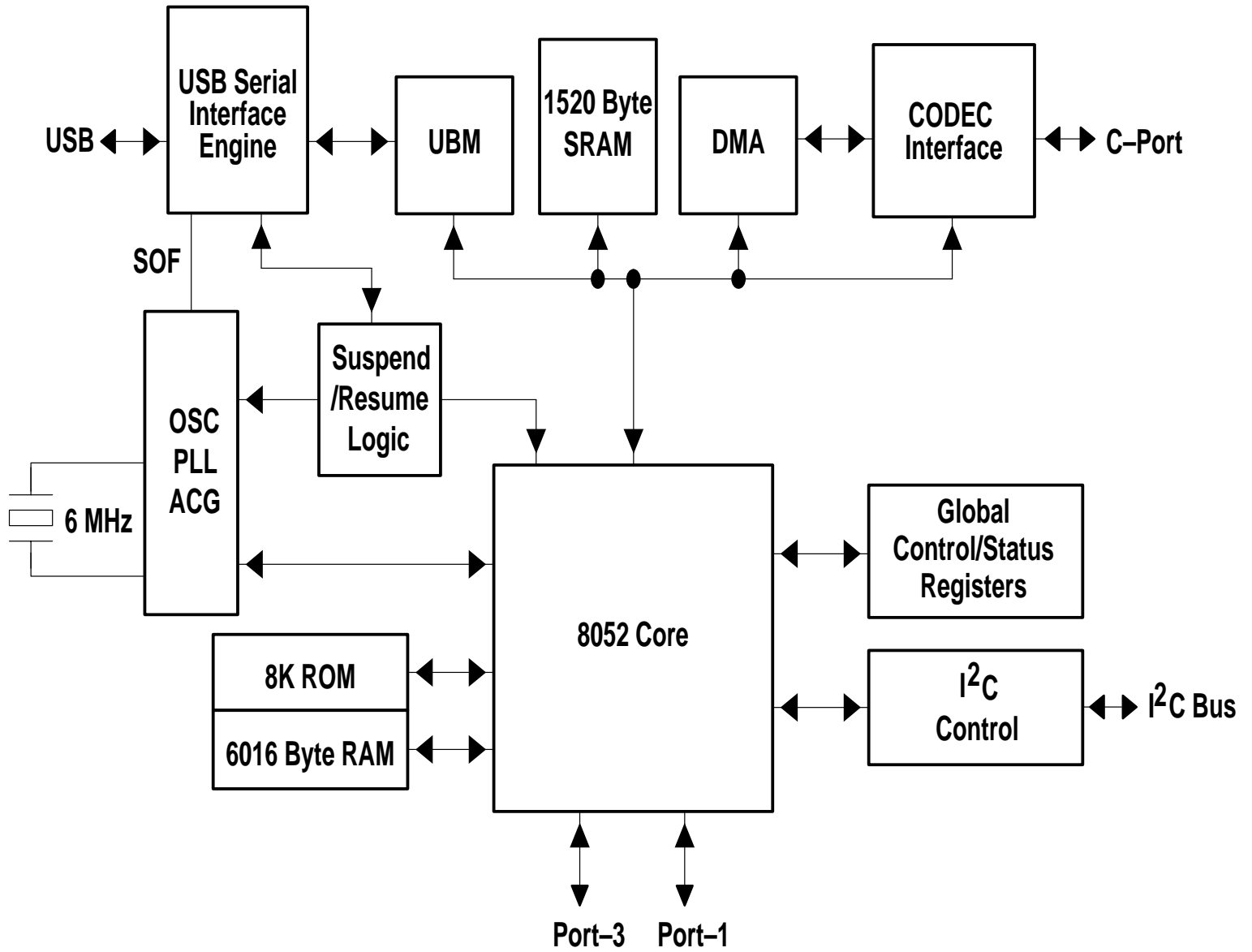


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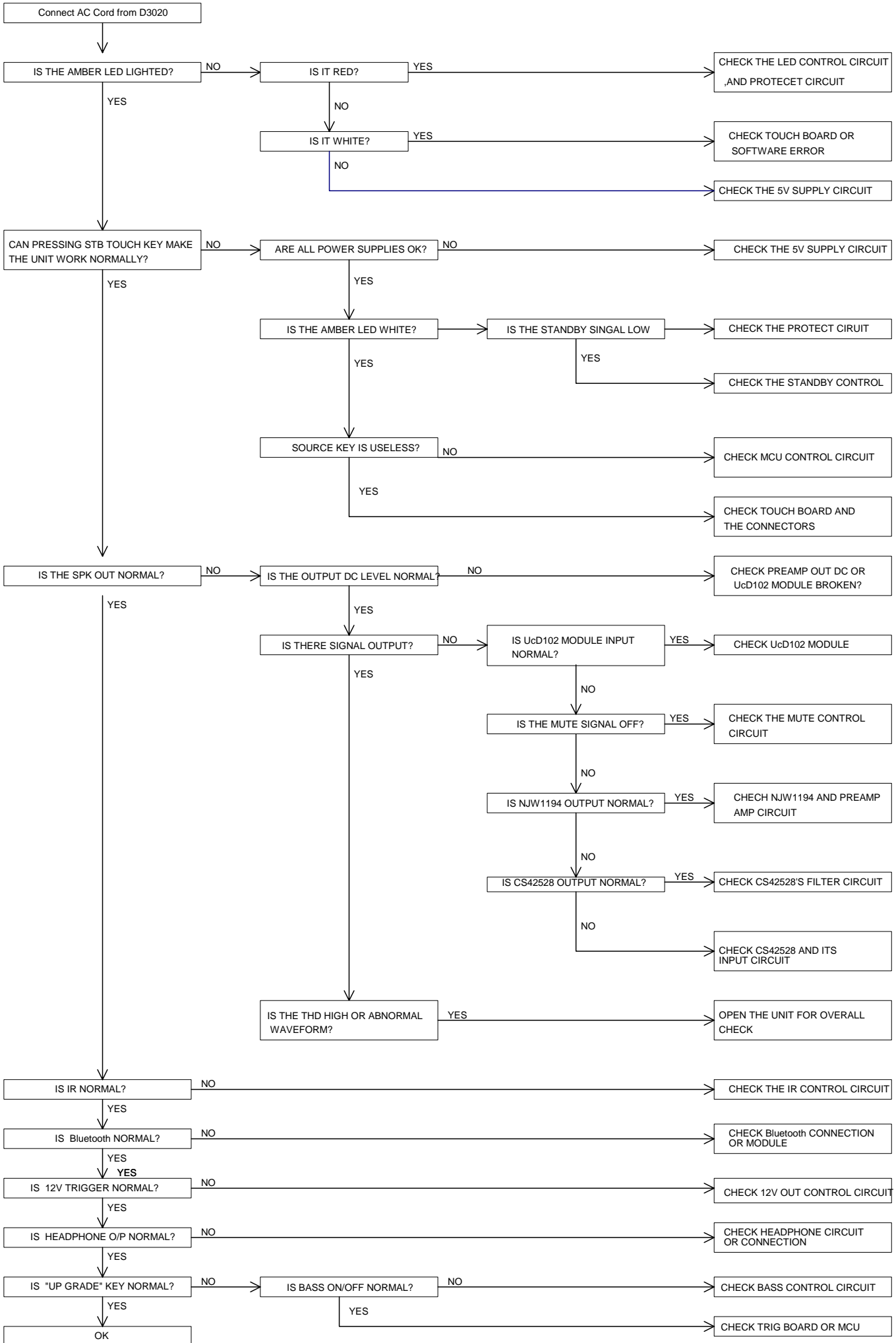
PREAMP BOARD



TAS1020APFB
PREAMP BOARD

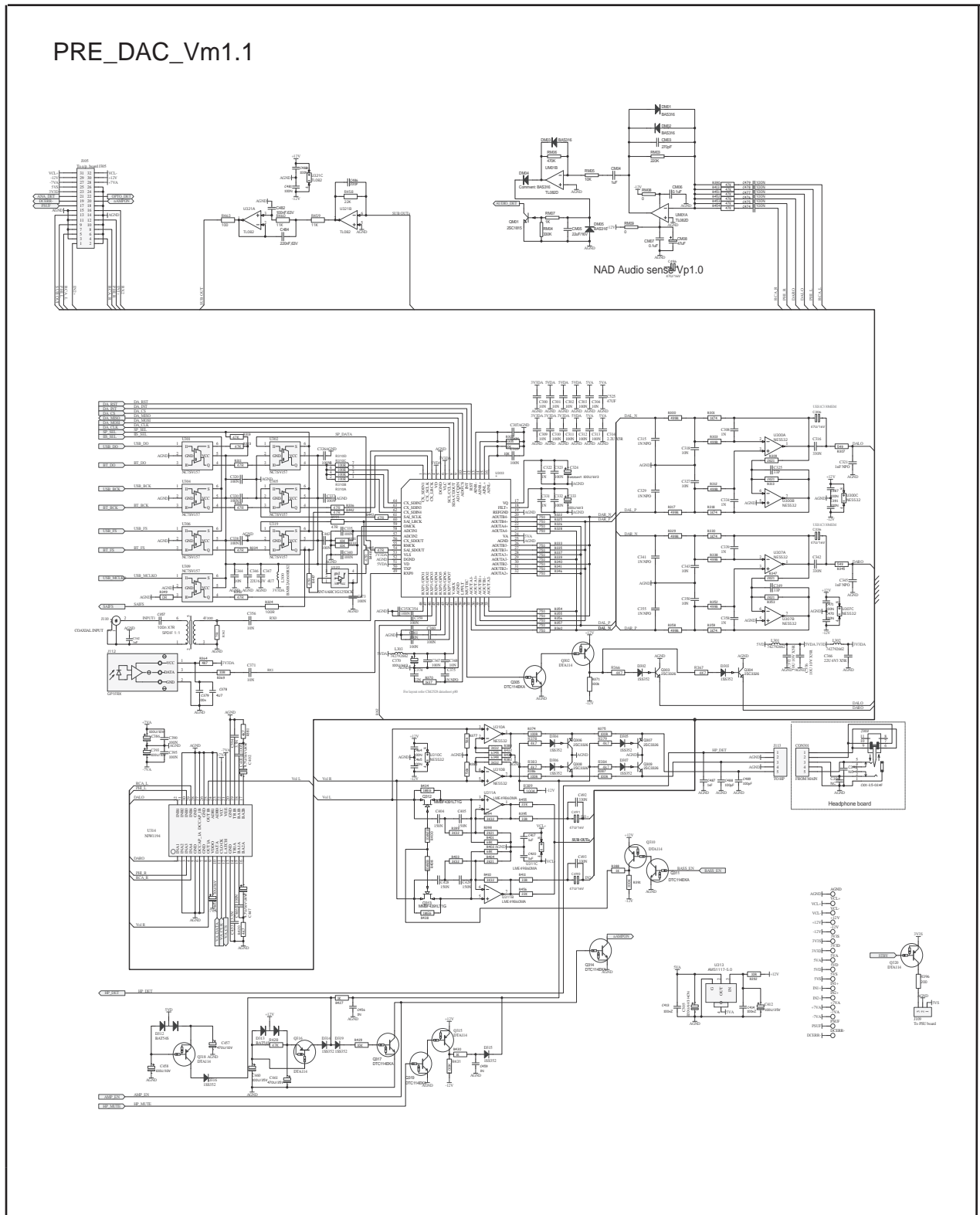


TROUBLESHOOTING GUIDE



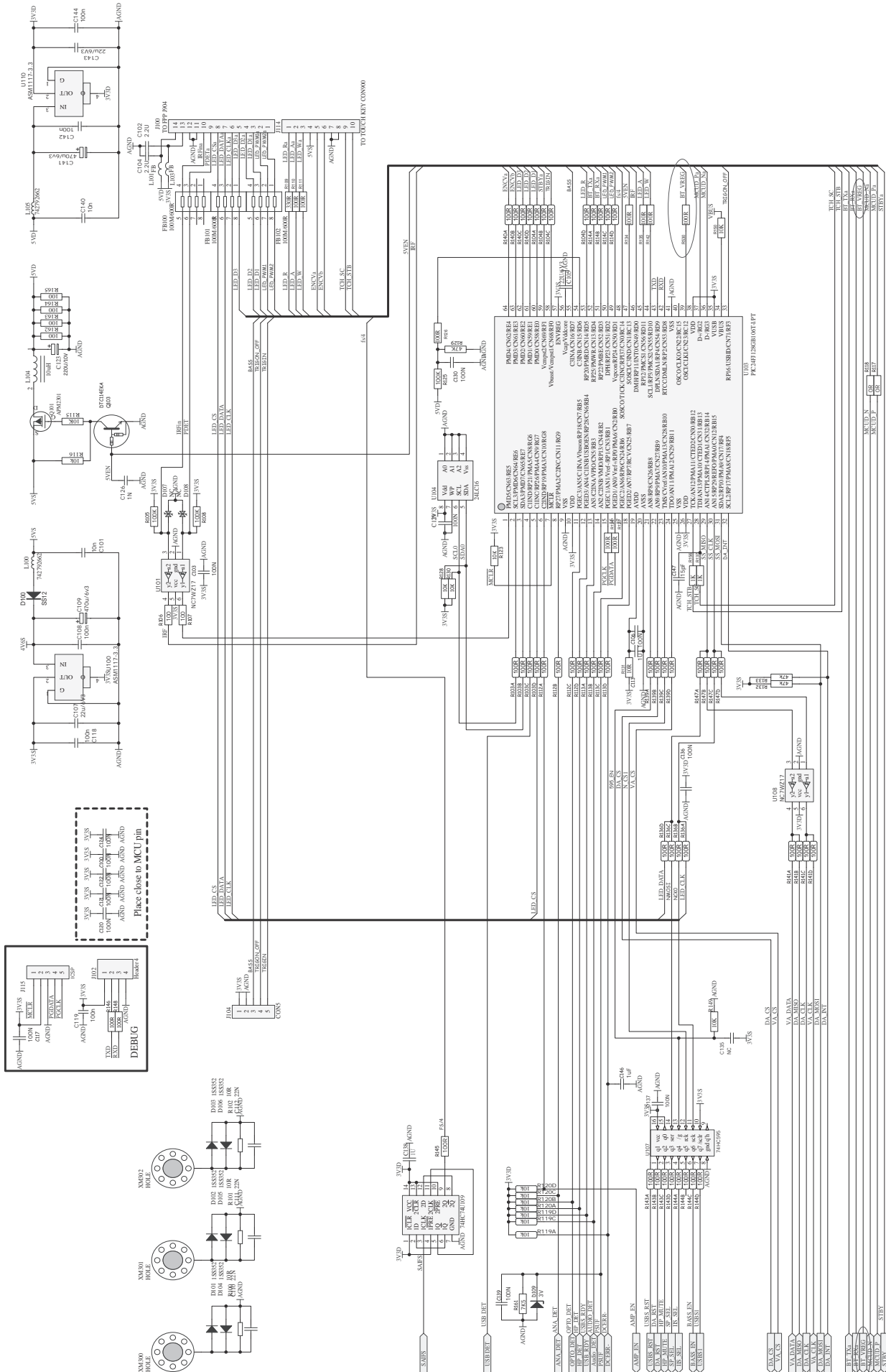
CIRCUIT DIAGRAMS

1.PREAMP VM2.1(1/3)



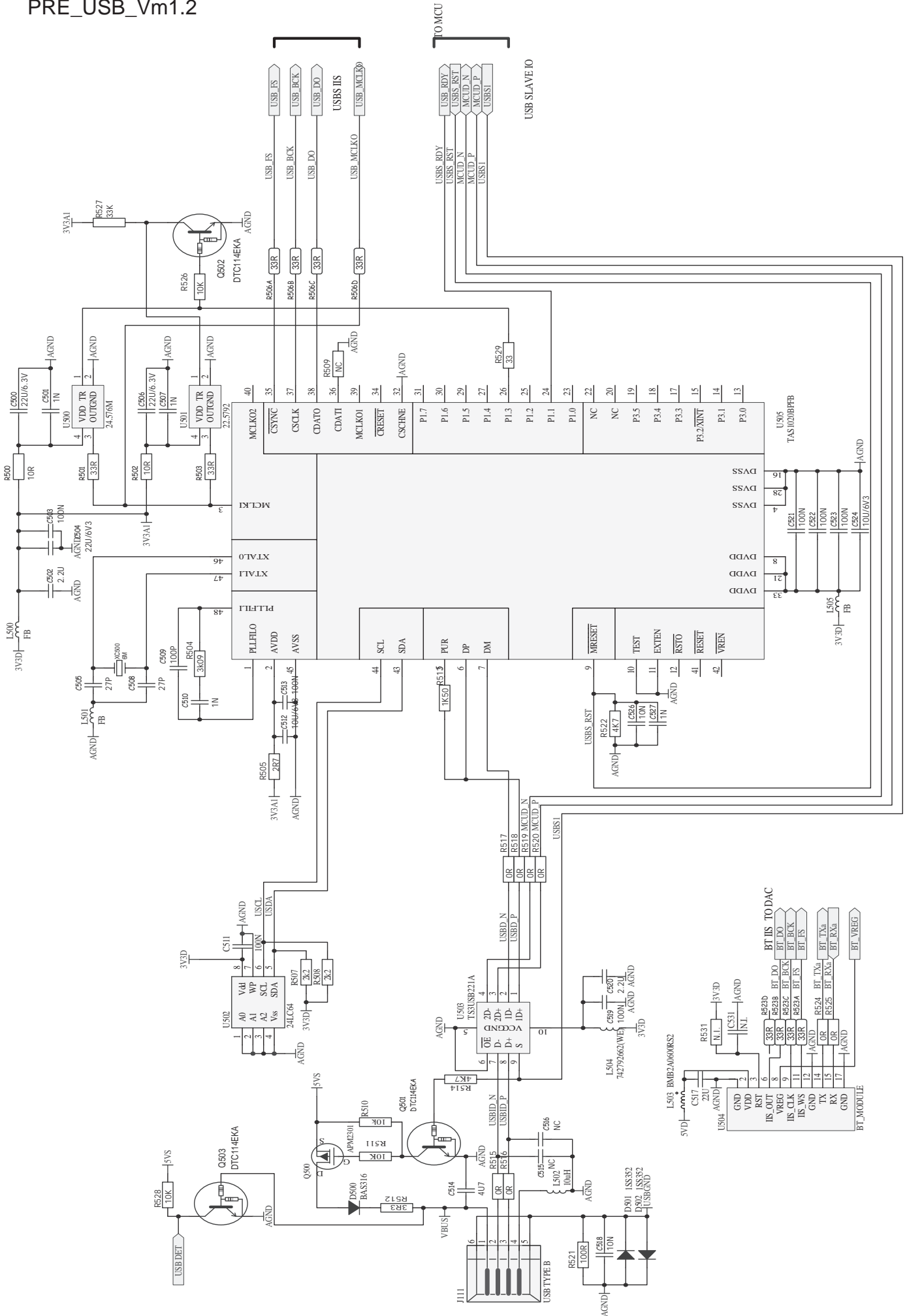
1.PREAMP VM2.1(2/3)

PRE_MCU_Vm1.2

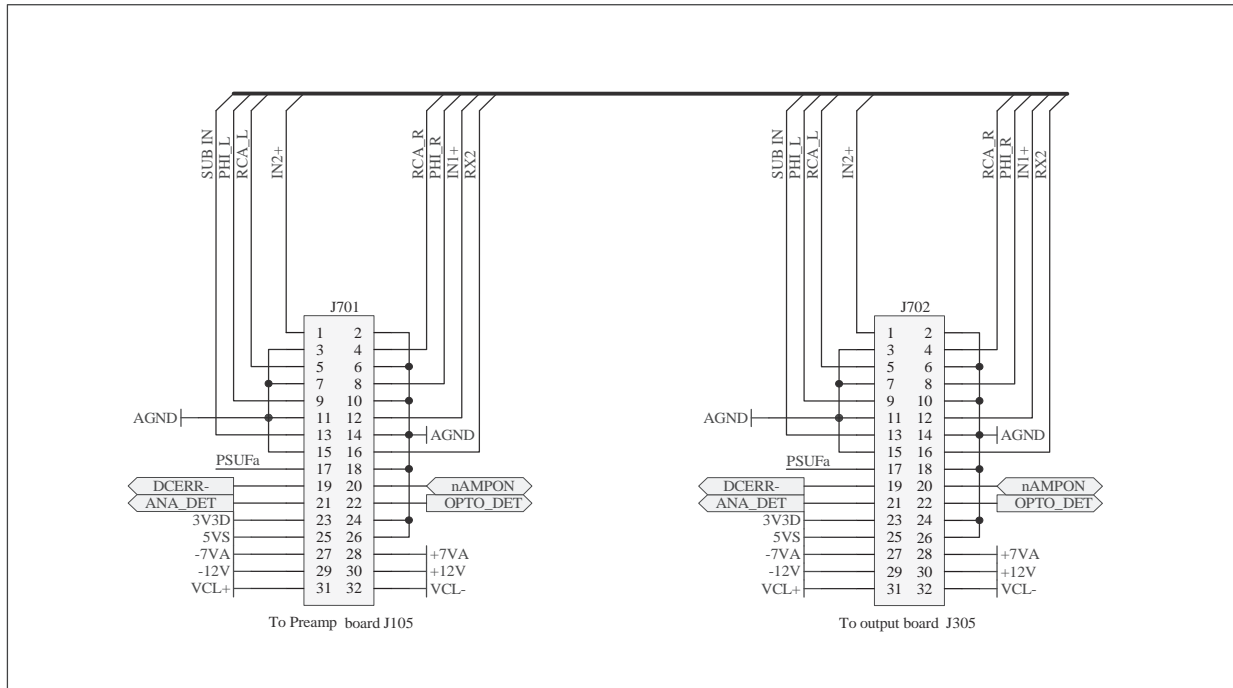


1.PREAMP VM2.1(3/3)

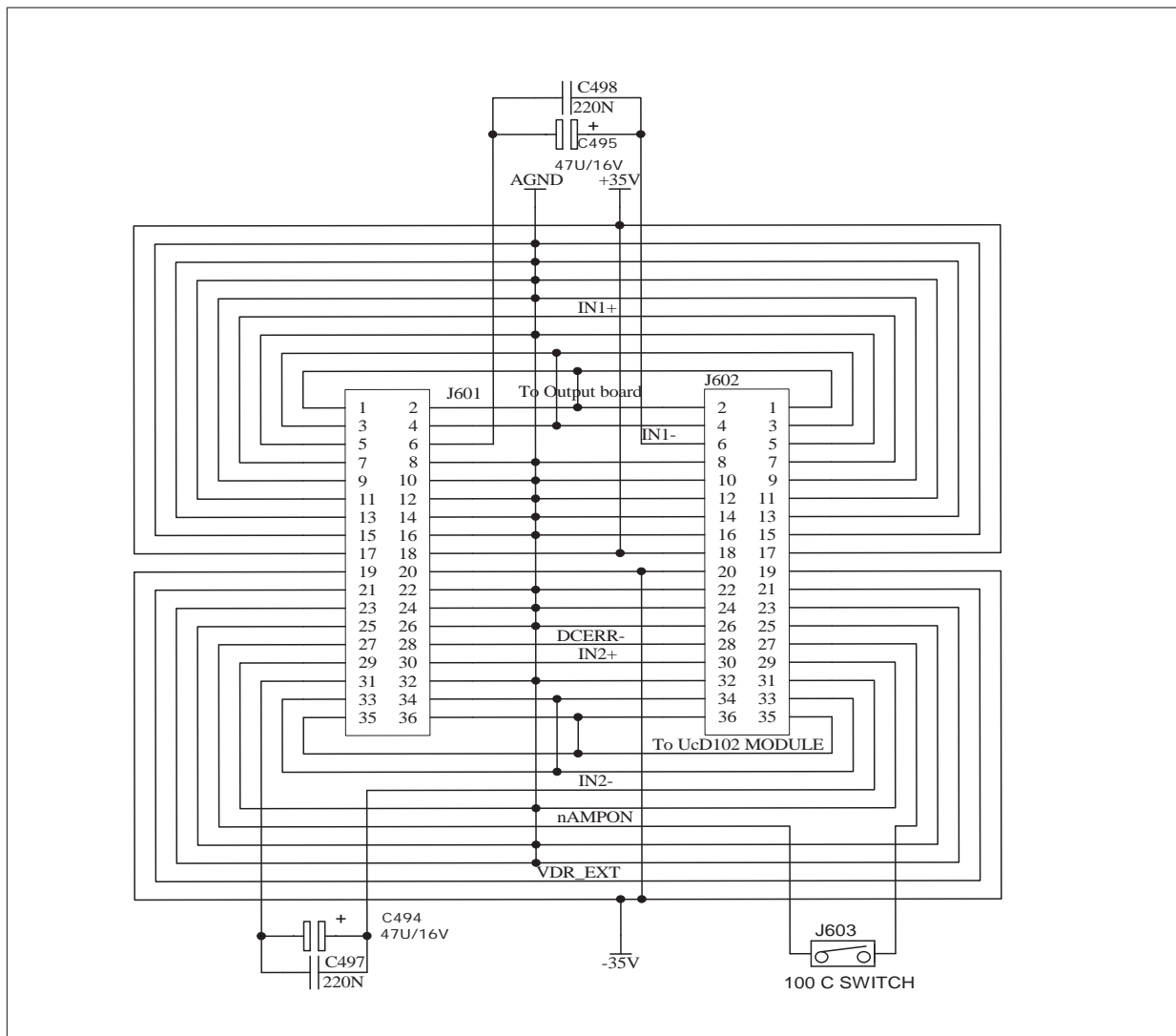
PRE_USB_Vm1.2



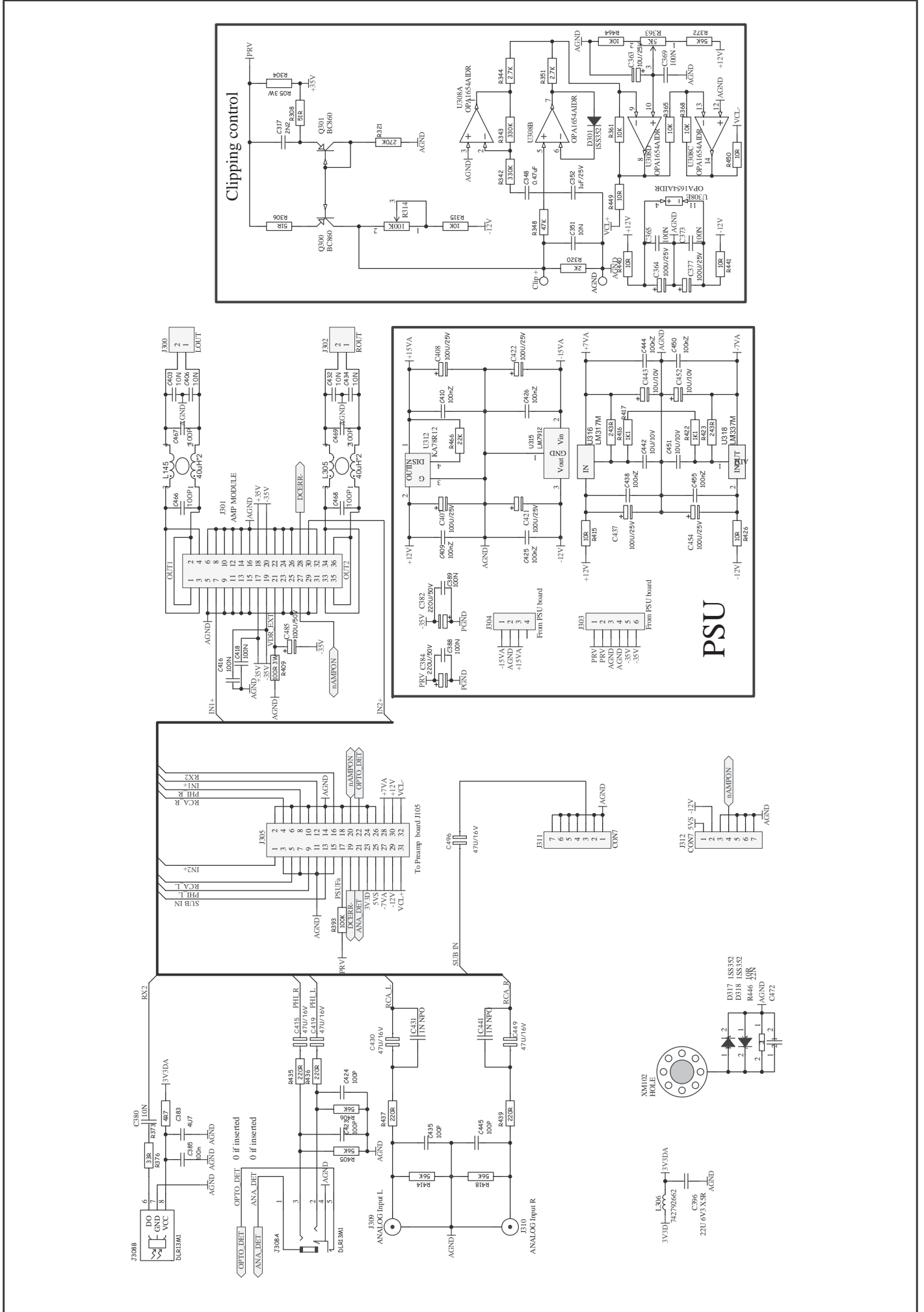
2. CONNECTING 2 BOARD



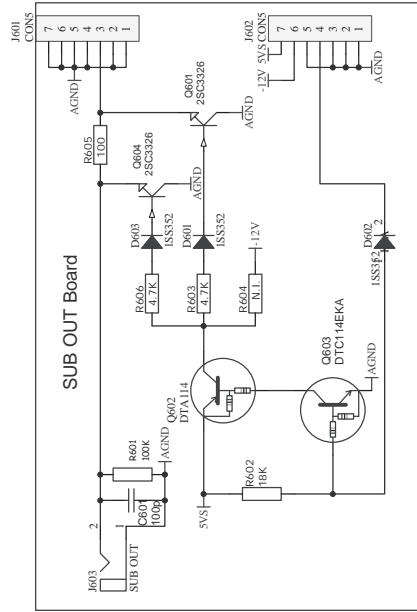
3. CONNECTOR BOARD



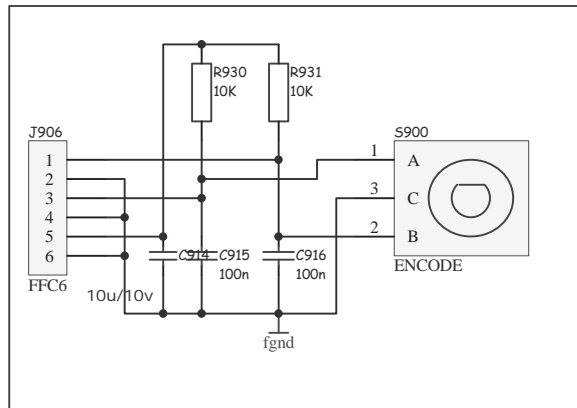
4. OUT PUT AND HEADPHONE BOARD



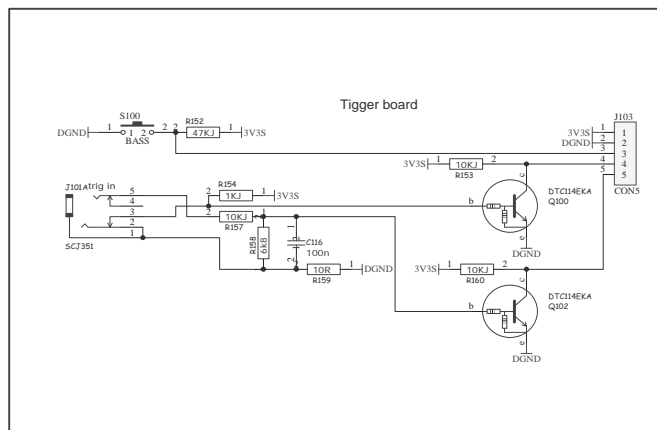
5.SUB OUT BOARD



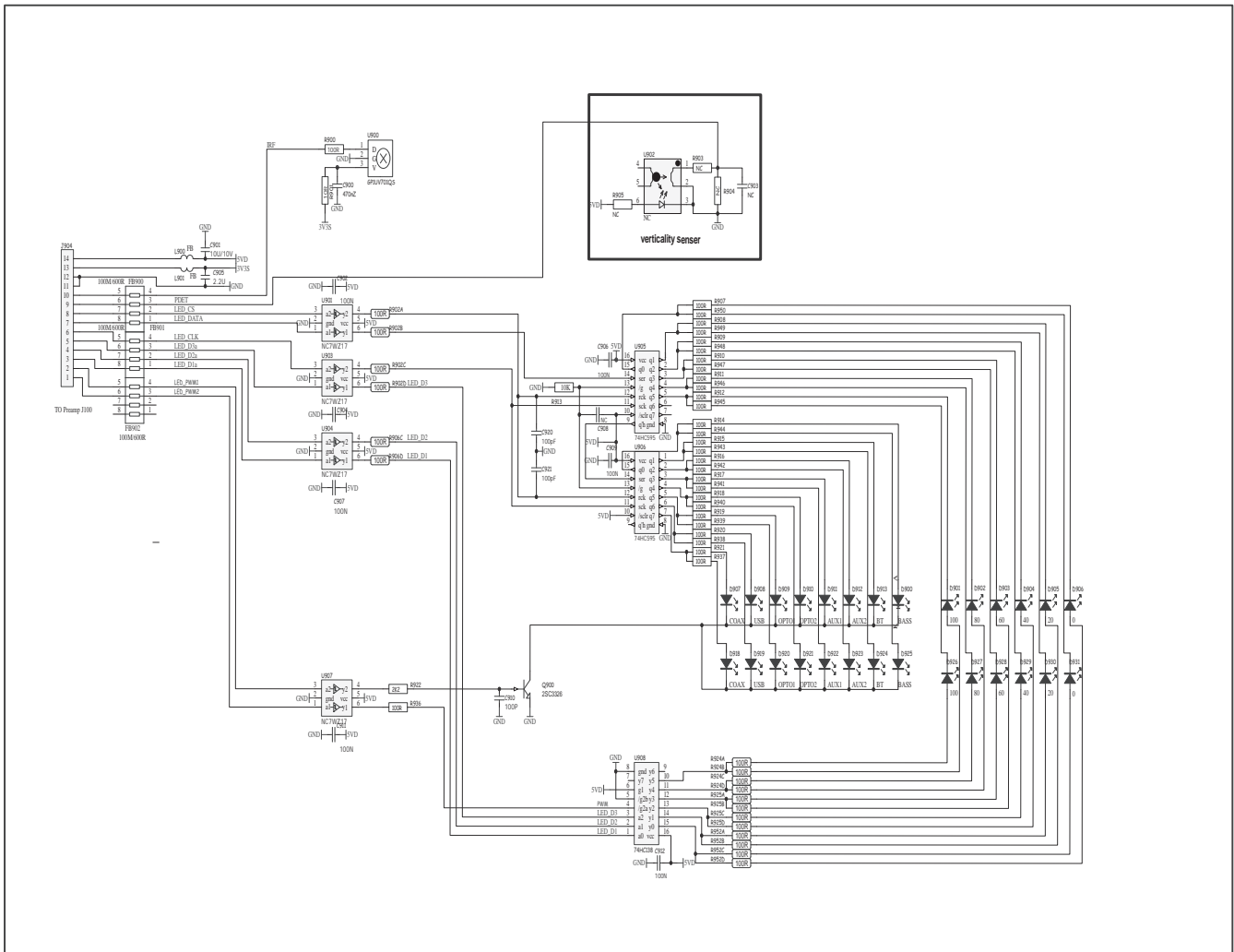
6.POT BOARD



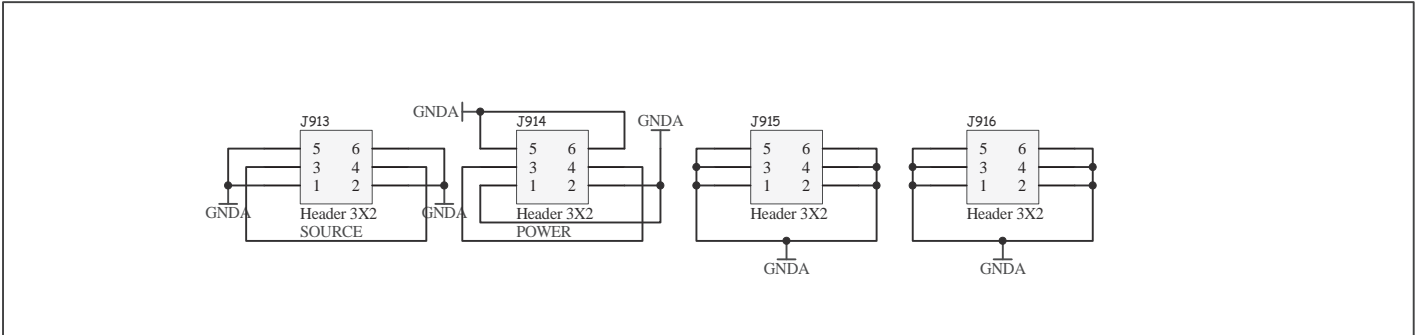
7.TRIGGER BOARD



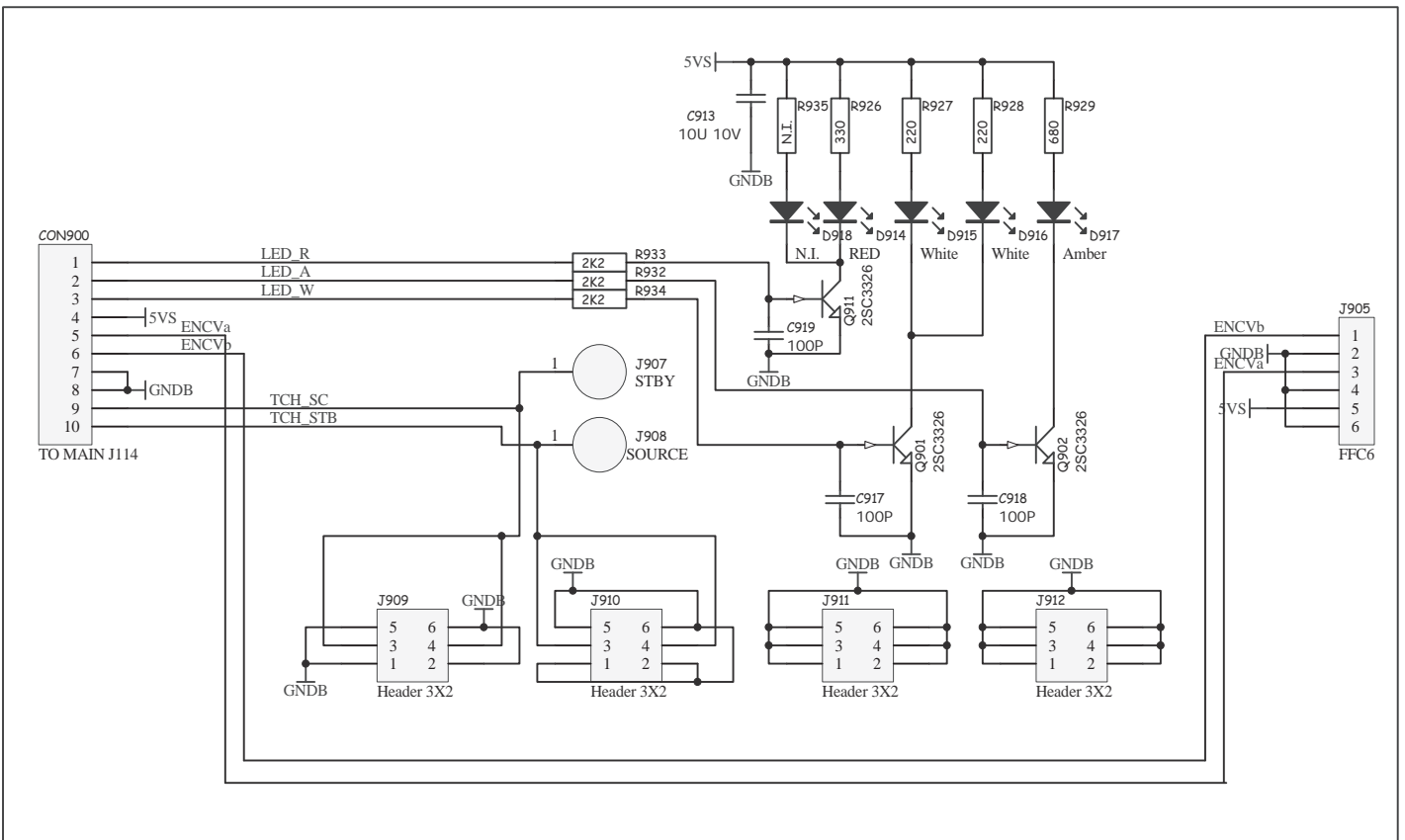
8.FPP BOARD



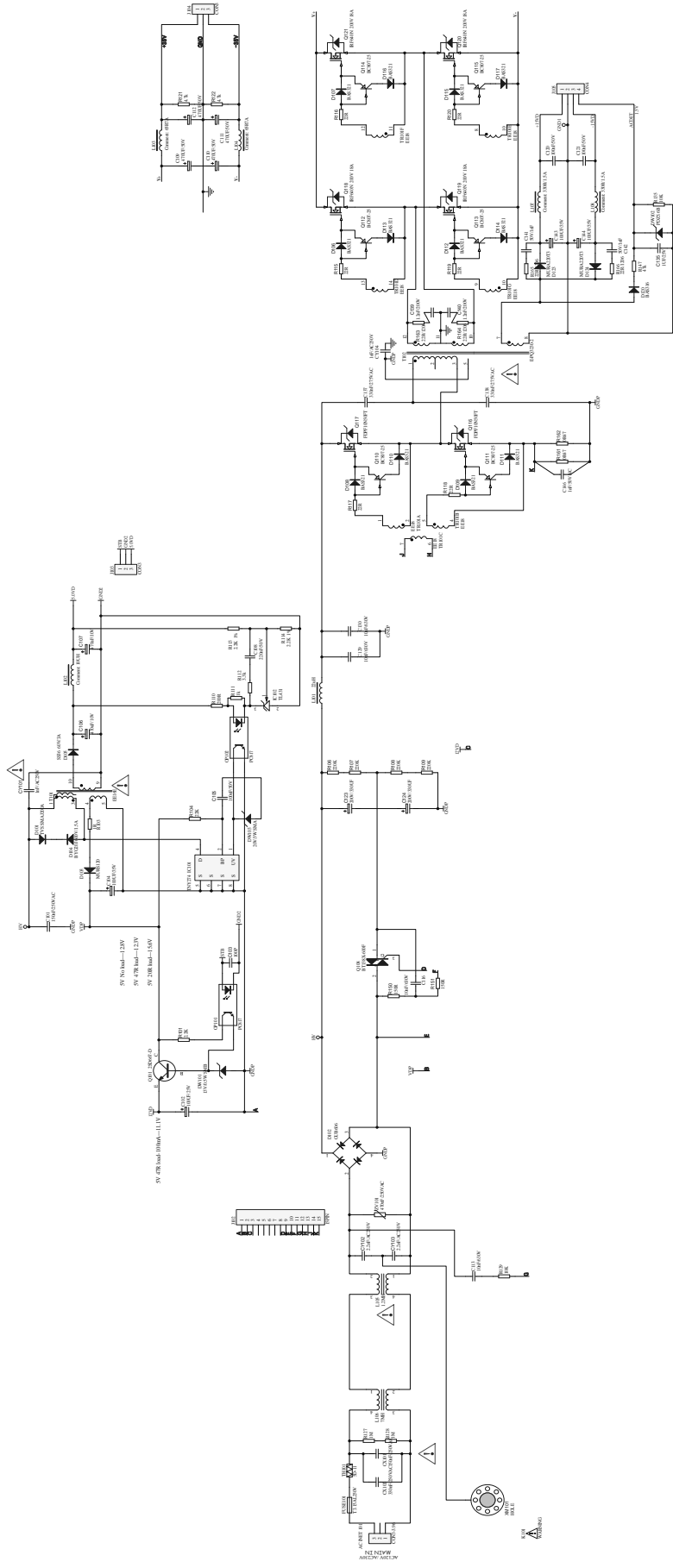
9.TOUCH A BOARD



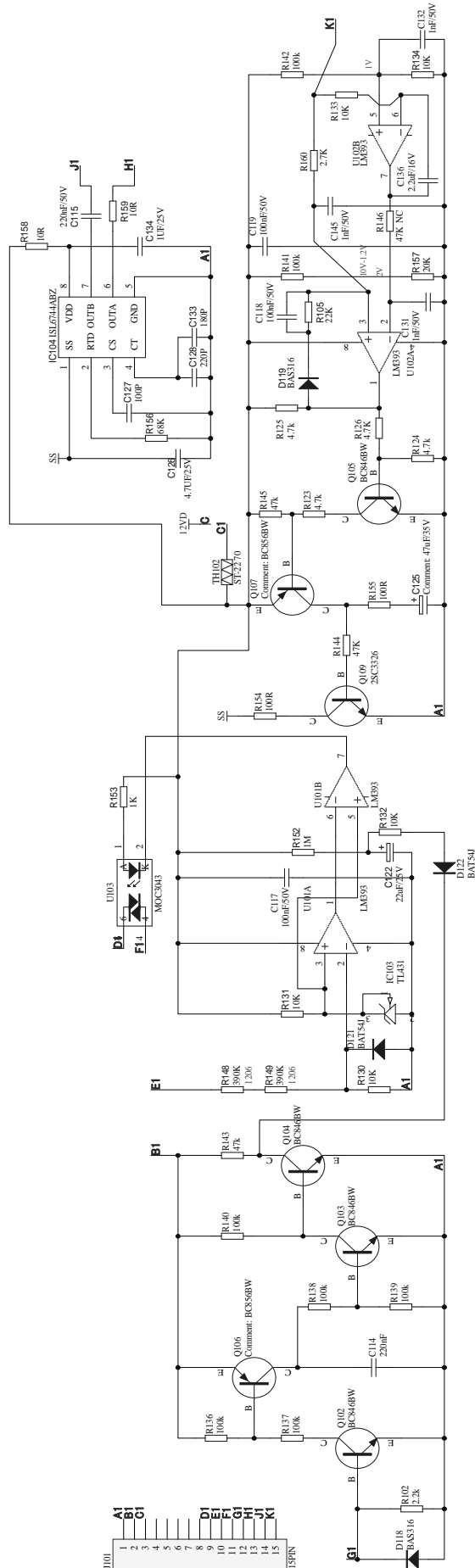
10.TOUCH B BOARD



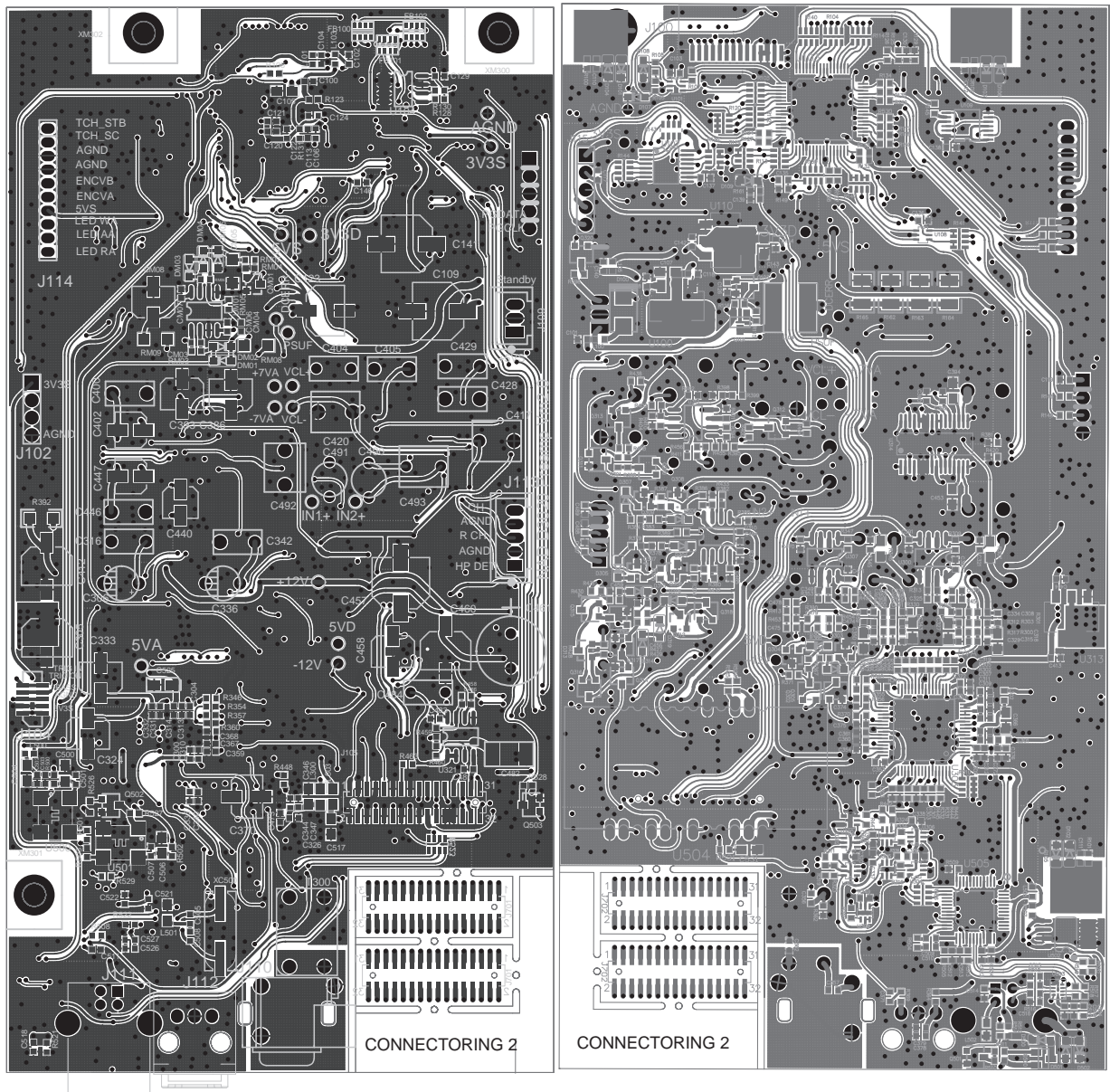
11.PSU-1 BOARD



12.PSU-2 BOARD



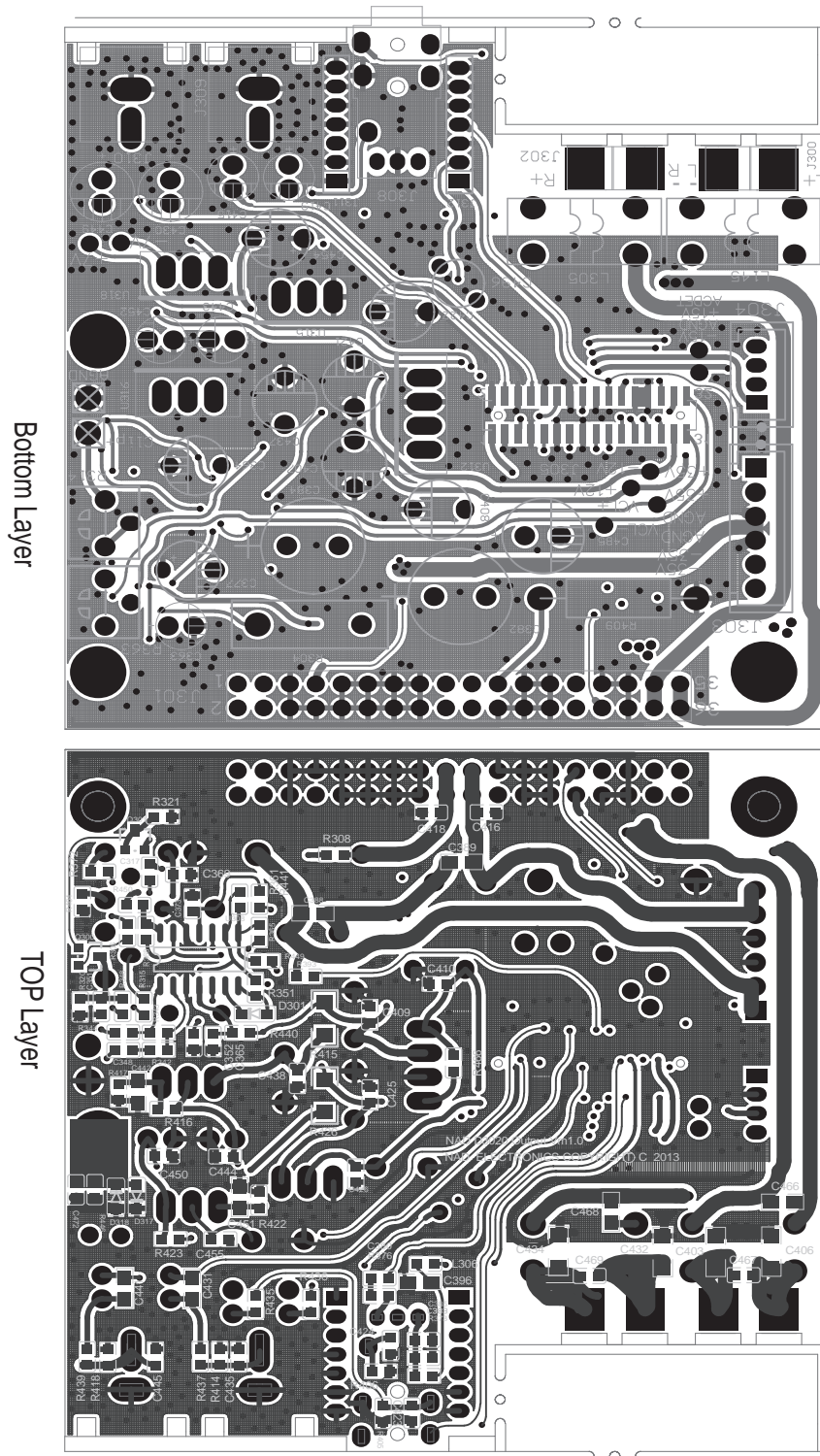
1.PREAMP BOARD AND CONNECTING 2 BOARD



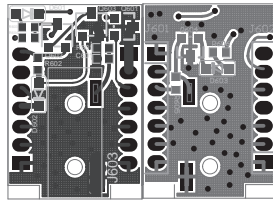
Top Layer

Bottom Layer

2.OUTPUT BOARD



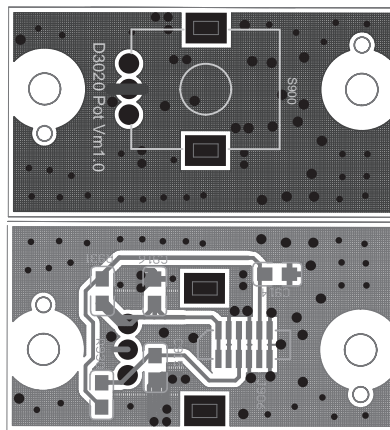
3.SUB OUT BOARD



Top Layer Bottom Layer

4.POT BOARD

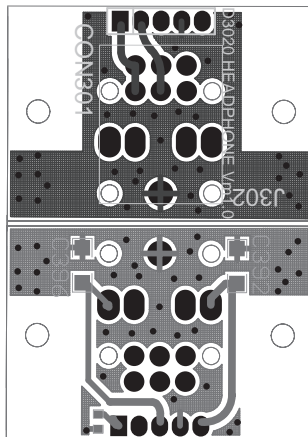
Top Layer



Bottom Layer

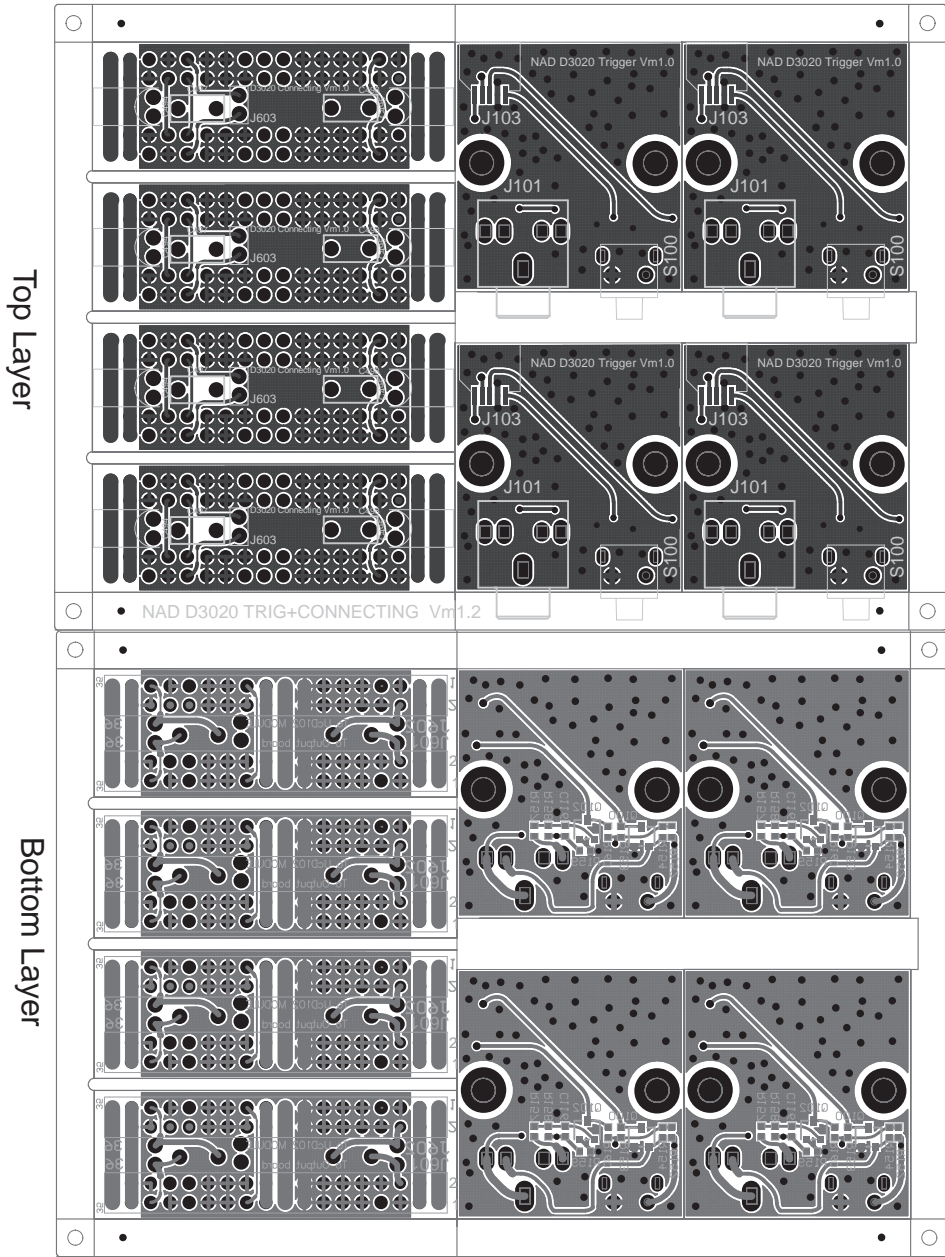
5.HEADPHONE BOARD

Top Layer

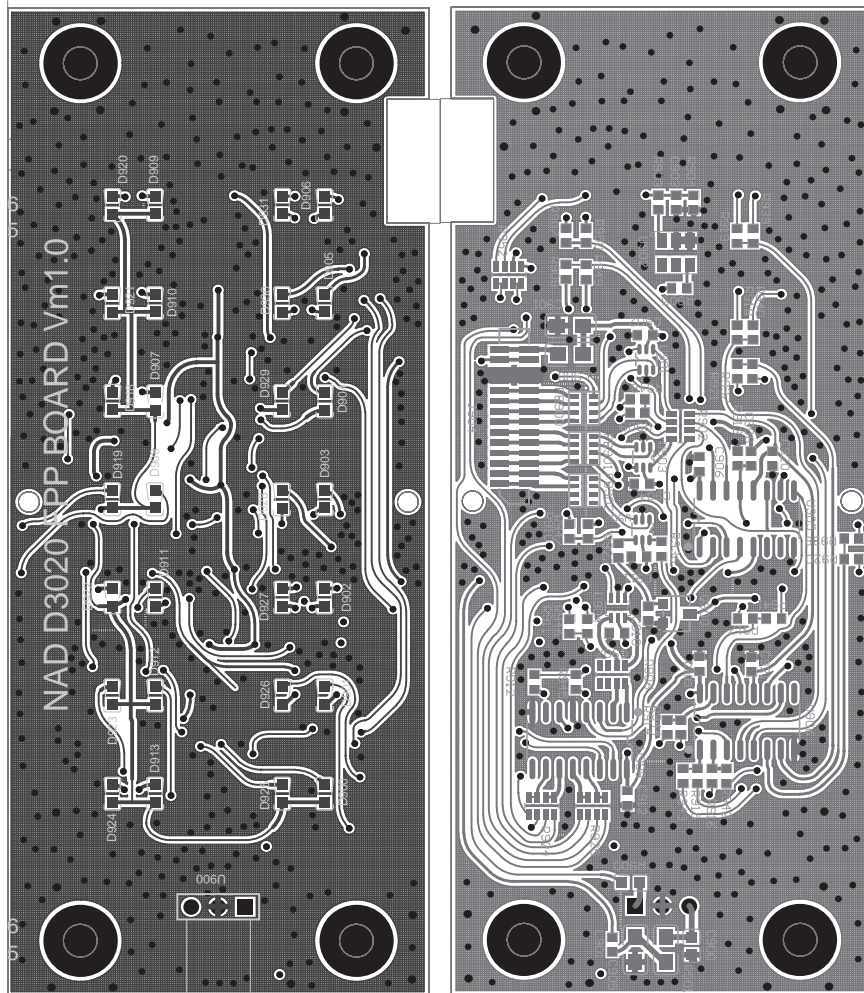


Bottom Layer

6. TRIGGER AND CONNECTING BOARD



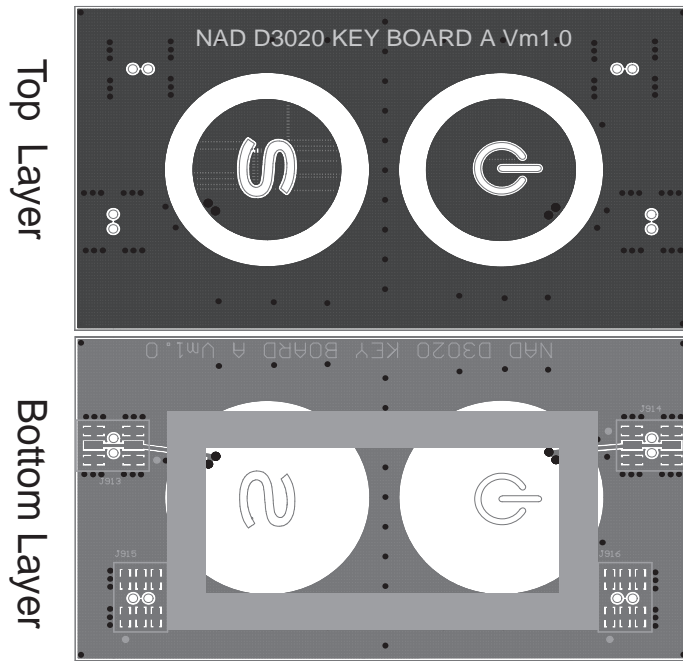
7. FPP BOARD



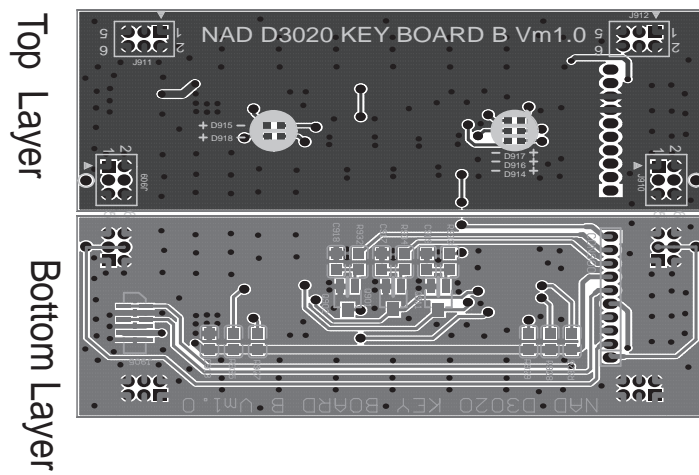
Top Layer

Bottom Layer

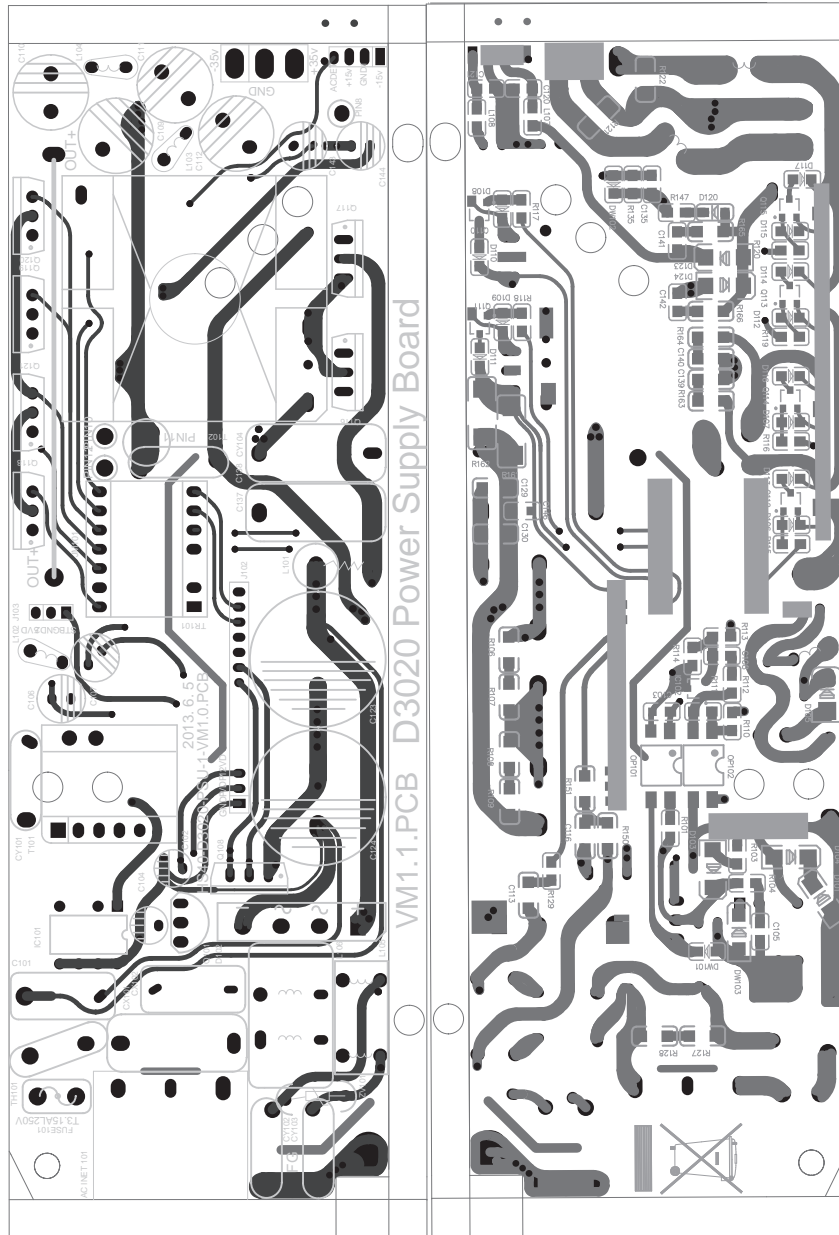
8. TOUCH A BOARD



9. TOUCH B BOARD



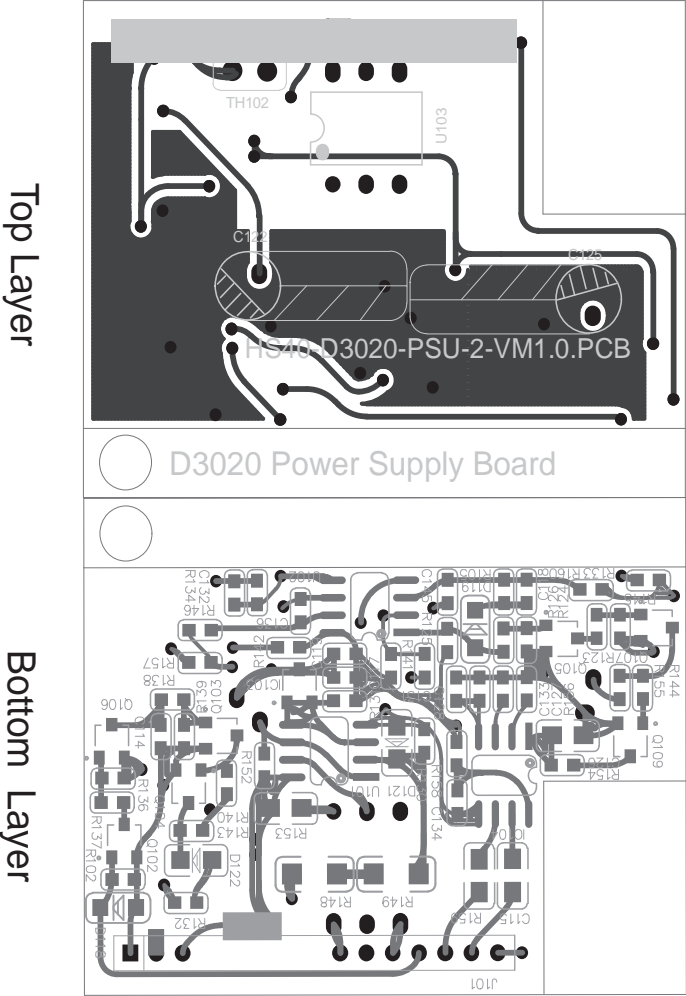
10.PSU-1 BOARD



Top Layer

Bottom Layer

11.PSU-2 BOARD



ELECTRICAL PARTS LIST

CIRCUIT NO.	PART NO.		DESCRIPTION
	A16-32301-21	UcD102 PCB	V1,FR-4,1.6mm,TG140,70x70mm
	A16-32310-21	TON BOARD	V1,FR-4,1.6mm,TG140,150x79.8mm
	DIODES		
D2, D4, D9, D14, D21, D26,D28, D29, D41, D42	33-20316-01	High speed Diode	BAS316
D3, D10, D15, D22	33-40070-00	High speed Diode	BAV70W
D1, D7, D13, D19, D35, D36, D37, D38	33-40099-02	High speed Diode	BAV99W-7-F
D6, D8	33-40056-00	High-speed double diode	BAW56W SOT323
D6, D8	or 33-40056-01	High-speed double diode	BAW56W-7-F
D11, D16, D18, D23, D31, D32, D33, D34, D43, D44	33-11000-03	Zener Diode	10V 0.4W, PDZ10B
D27	33-11200-05	Zener Diode	PDZ12B 12V 0.4W SOD323
D27	or N33-11200-06	Zener Diode	UDZ12B-7
D5, D12, D17, D24, D25, D30	33-15609-06	Zener Diode	PDZ5.6B 5.6V,0.4W,SOD323
	TRANSISTOR		
T3, T7, T14, T21	31-00807-40	Transistors	BC807-40W PNP
T8, T17, T28, T37	31-00817-01	Transistors	BC817-40W, 45V 500mA
T13, T19, T30, T33, T35, T36, T38, T39, T47, T48	31-00846-02	Transistors	BC846BW SOT323
T13, T19, T30, T33, T35, T36, T38, T39, T47, T48	or N31-00846-06	Transistors	BC846BW-7-F
T9, T18, T29, T45, T46	31-00846-05	Transistors	BC846AS-7,100mA 65V
T9, T18, T29, T45, T46	or 31-00846-03	Transistors	BC846S
T1, T23, T27, T31, T34	31-00856-03	Transistors	BC856BW SOT323
T1, T23, T27, T31, T34	or N31-00856-06	Transistors	BC856BW-7-F
T11, T16, T41, T44	31-00856-05	Transistors	BC856AS-7,100mA 65V
T11, T16, T41, T44	or 31-00856-02	Transistors	BC856S
T15, T42	31-00856-04	Transistor	BCM856S SOT363
T4, T10, T20, T24	31-03906-02	Transistor	MBT3906DW1T1G
T4, T10, T20, T24	or N31-03906-05	Transistor	MMDT3906W-7-F
T2, T22, T40	31-05401-01	Transistors	MMBT5401 PNP
T2, T22, T40	or N31-05401-04	Transistors	MMBT5401-7-F
T6, T26	31-05551-01	Transistors	MMBT5551 NPN
T6, T26	or N31-05551-05	Transistors	MMBT5551-7-F
	ICS		
U1	03-04093-00	Gate	HEF4093 SO14
U2	03-00393-03	Dual Differential Comparator	LM393DR
U2	or 03-00393-01	Dual Differential Comparator	LM393D
	INDUCTOR		
L3, L7	08-04601-11	Ferriet Bead	600R/100MHz,0.2A,0805,CBG20120 9U601T
	RESISTORS		
R4, R45, R51, R92	07-96806-06	Chip Resistor	0.068Ω,2512,1W,±1%,MCR100JZHFSR068
R44, R91	07-92208-00	Chip Resistor	2.2Ω,0603,1/10W,±1%,RC0603FR-072R2L
R65, R67, R74, R80	07-94708-00	Chip Resistor	4.7Ω,0603,1/10W,±1%,RC0603FR-074R7L
R42, R126	07-91009-00	Chip Resistor	10Ω,0603,1/10W,±1%,RC0603FR-0710RL

R90, R141	07-91000-00	Chip Resistor	100Ω,0603,1/10W,±1%,RC0603FR-07100RL
R88, R139	07-91200-00	Chip Resistor	120Ω,0603,1/10W,±1%
R8, R37, R55, R84	07-91800-00	Chip Resistor	180Ω,0603,1/10W,±1%,RC0603FR-07180RL
R14, R29, R33, R61	07-92000-00	Chip Resistor	200Ω,0603,1/10W,±1%,RC0603FR-07200RL
R18, R27, R36, R41, R76, R94, R125, R143	07-92200-00	Chip Resistor	220Ω,0603,1/10W,±1%,RC0603FR-07220RL
R53, R57, R133, R134	07-92700-00	Chip Resistor	270Ω,0603,1/10W,±1%,RC0603FR-07270RL
R9, R24, R56, R71, R149, R150	07-94700-00	Chip Resistor	470Ω,0603,1/10W,±1%,RC0603FR-07470RL
R49, R50, R60, R87, R131, R132, R135, R138	07-95600-00	Chip Resistor	560Ω,0603,1/10W,±1%,RC0603FR-07560RL
R17, R23, R64, R70	07-98200-00	Chip Resistor	820Ω,0603,1/10W,±1%,RC0603FR-07820RL
R5, R19, R30, R35, R52, R66, R77, R82, R83, R86, R108, R109, R111, R112, R136, R137, R145, R146	07-91001-00	Chip Resistor	1KΩ,0603,1/10W,±1%,RC0603FR-071K
R16, R22, R63, R69	07-91801-00	Chip Resistor	1.8KΩ,0603,1/10W,±1%,RC0603FR-071K8L
R47, R48, R129, R130	07-92701-00	Chip Resistor	2.7KΩ,0603,1/10W,±1%,RC0603FR-072K7L
R89, R93, R118, R140, R142	07-94701-00	Chip Resistor	4.7KΩ,0603,1/10W,±1%,RC0603FR-074K7L
R105, R107, R114, R116	07-96801-00	Chip Resistor	6.8KΩ,0603,1/10W,±1%,RC0603FR-076K8L
R12, R25, R59, R72	07-97501-00	Chip Resistor	7.5KΩ,0603,1/10W,±1%,RC0603FR-077K5L
R11, R21, R26, R39, R58, R68, R73, R85, R97, R106, R115, R117, R147, R148	07-91002-00	Chip Resistor	10KΩ,0603,1/10W,±1%,RC0603FR-0710K
R119, R120, R124	07-92702-00	Chip Resistor	27KΩ,0603,1/10W,±1%
R46, R128	07-94702-00	Chip Resistor	47KΩ,0603,1/10W,±1%,RC0603FR-0747K
R10, R13, R40, R102, R104, R113, R121, R122, R123	07-91003-00	Chip Resistor	100KΩ,0603,1/10W,±1%,RC0603FR-07100K
R96	07-91005-00	Chip Resistor	10MΩ,0603,1/10W,±1%,RC0603FR-0710M
R99, R100, R101, R103, R110	07-91004-00	Chip Resistor	1MΩ,0603,1/10W,±1%,RC0603FR-071M
R1, R2, R3, R6, R31, R32, R78, R79	07-91504-00	Chip Resistor	1.5MΩ,0603,1/10W,±1%,RC0603FR-071M5L
R15, R28, R62, R75	07-91209-01	Chip Resistor	12Ω,0805,1/8W±1%,RC0805FR-0712RL
R43, R127	07-96801-01	Chip Resistor	6.8KΩ,0805,1/8W,±1%,RC0805FR-076K8L
R7, R34, R54, R81, R98	07-91802-01	Chip Resistor	18KΩ,0805,1/8W,±1%,RC0805FR-0718K
	CAPACITORS		
C2, C4, C21, C25, C29, C46, C52, C53, C54, C55, C56, C58, C59, C69, C70, C71, C74	26-10451-10	Ceramic Chip Capacitor	100nK,50V,X7R,0603
C7, C15, C32, C40	26-10112-11	Ceramic Chip Capacitor	100pF,100V,0805,NPO
C8, C33	26-15051-00	Ceramic Chip Capacitor	15pJ,50V,0603,NPO
C17, C42	26-18051-00	Ceramic Chip Capacitor	18pJ,50V,0603,NPO

C60, C61	26-10511-20	Ceramic Chip Capacitor	1uK,16V,0603,X7R,C1608X7R1C105K
C57, C68	26-22421-00	Ceramic Chip Capacitor	220nK,25V,0603,X7R,C1608X7R1E224KT
C9, C12, C34, C37	26-22251-10	Ceramic Chip Capacitor	2n2J,50V,0603,NPO
C6, C16, C31, C41	26-39151-00	Ceramic Chip Capacitor	390PJ,50V,0603,NPO
C11, C18, C19, C20, C36, C43, C44, C45, C51	26-47421-20	Ceramic Chip Capacitor	470nK,25V,0603,X7R,C1608X5R1E474KT
C3, C23, C28, C48	26-47151-00	Ceramic Chip Capacitor	470pJ,50V,0603,NPO
C64, C65, C66, C67	26-47251-00	Ceramic Chip Capacitor	4n7K,50V,0603,X7R
C13, C14, C38, C39	25-10561-06	Polyester capacitor	1uF, ±5%, 63V, Pitch=7.5mm C211J105J31A30A
C13, C14, C38, C39	or25-10561-04	Polyester Capacitor	1uF, ±5%, 63V, ECQV1J105JM2
C10, C35	06-22111-36	Alu Electrolytic Capacitor	WF1C227M6L011BB,220uF,16V,±20%,F2.5, 6.3*11mm
C1, C24, C26, C49	06-22151-06	Alu Electrolytic Capacitor	WF1H227M10016BB,220uF,50V,±20%,105°C,F5.0 10*16mm
C5, C22, C30, C47, C72, C73	06-22051-06	Alu Electrolytic Capacitor	WF1H226M05011, 22uF, 50V, ±20%, 105°C, F2.0 5*11mm
	RESISTOR		
R95, R144	J09-01251-00	Potentiometer	Potm 250 PT10LV10251A2020-S
	MOSFET		
T5, T12, T25, T32	31-04019-00	N-ch MOSFET	IRFB4019PbF
T43	31-00139-01	Transistors	BD139
	INDUCTOR		
L2, L6	08-01100-02	Inductor	T80-2,10uH,0.8mm wire
L2, L6	J19-00802-00	Ferrite Ring	T80-2
L1, L4, L5, L8	08-02065-00	Ferriet Bead	65R/100MHZ 7A,BL01RN1A1F1J
	CONNECTORS		
J1 (To connector board J602)	13-12536-02	2.54 connector	2.54mm,2x18Pin, CNT-M254-2*18-GS-6/3-N
	MECHANISM PARTS		
HS1	70-366001-0	Heat sink	AL 1050, (Hsink SAA7L2W0H3T1)
	FASTENERS		
MECH1, MECH5, MECH9, MECH13, MECH17	61-063510-1	Machine Screw	MF3x10
MECH2, MECH6, MECH10, MECH14, MECH18	62-010302-0	Nut M3 DIN934	GB6170, M3
MECH4, MECH8, MECH12, MECH16, MECH20	63-020309-0	Spring Washer M3 DIN127B	GB/T 93 Φ3
MECH21	78-238001-0	Insupad TO126 Silpad	11x10x0.2
MECH22, MECH24, MECH26, MECH28	78-359008-0	Insupad TO220 Silpad	56x16x0.2mm
MECH23, MECH25, MECH27, MECH29	78-015002-0	SCREWINSULATOR M3	TW-5
MECH3, MECH7, MECH11, MECH15, MECH19	63-010308-0	Plain Washer	Φ3xΦ8mm,thickness 0.8mm
PCB-2: PREAMP BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION

	PCB INFO		
	A16-32302-23	Preamp PCB	VM2.1,FR-4,1.6mm,TG130,155.7x80mm
4xconnecting2,2xPreamp	A16-32320-23	Preamp+connecting2 ASSY	VM2.1,FR-4,1.6mm,TG130,170x165.7mm
	DIODES		
D101, D102, D103, D104, D105, D106, D302, D303, D304, D305, D306, D307, D314, D315, D316, D319, D501, D502	33-40352-01	Diodes	1SS352
D500	33-20316-01	High speed Diode	BAS316
D312, D313	33-40054-00	Schottky Diode	BAT54S, SOT23
D100	33-20012-01	Surface Mount Schottky Barrier Rectifier	SS12 SMA
D109	33-13309-04	Zener Diode SMD	PDZ3.3B
DM01, DM02, DM03, DM04, DM05	33-20316-01	High speed Diode	BAS316
	TRISISTORS		
Q312,Q313	31-00108-02	N-CHANNEL JFET	MMBFJ108,SOT23
Q312, Q313	or 31-04391-00	N-CHANNEL JFET	MMBF4391LT1G
Q101, Q500	31-02301-01	P-CH MOSFET	APM2301
Q303, Q304, Q306, Q307, Q308, Q309	31-03326-01	Transistor	2SC3326-A(TE85L,F), SC-59
Q302, Q310, Q315, Q316, Q318, Q320	31-00114-01	Digital transistor	DTA114EKA
Q103, Q305, Q311, Q314, Q317, Q319, Q501, Q502, Q503	31-00114-05	Digital transistor	DTC114EKA
QM01	31-01815-03	Transistor	C1815
	ICS		
U103	03-24128-13E	micorcontroller	PIC24FJ128GB106T-I/PT
U103	03-24128-01	micorcontroller	PIC24FJ128GB106T-I/PT
U505	03-01020-01	USB Streaming Controller	TAS1020BPFB
U303	03-42528-01	8 Ch codec with S/PDIF Receiver	CS42528-CQZ
U311	03-49860-01	Dual OPAMP	LME49860MA/NOPB
U301, U302, U304, U305, U306, U309, U319	03-07157-02	2:1 multiplexer	NC7SV157P6X
U101, U108	03-00717-01	SCHMITT DRIVER	NC7WZ17P6X
U502	03-02464-18	BUS EEPROM	24LC64-I/SN
U502	03-02464-02	BUS EEPROM	24LC64-I/SN
U503	03-00221-02	High-Speed USB 2.0 (480 Mbps) 1:2 Multiplexer/Demultiplexer Switch With Single Enable	TS3USB221ARSER
U300, U307, U310	03-05532-02	Dual OpAmp	NE5532ADR
U104	03-02416-02	EEPROM	24LC16A / 24LC16BT-I/SN, SO8
U100, U110	03-01117-06	Linear Regulator	AMS1117-3.3
U100, U110	orN03-01117-17	Linear Regulator	TLV1117LV33DCY
U313	03-01117-01	Linear Regulator	AMS1117-5.0
U320	03-00125-06	Buffer	SN74AHC1G125DCK
U109	03-07474-02	POSITIVE-EDGE-TRIGGERED DUAL-D FLIP-FLOP	SN74HC74PWR
U107	03-00595-05	Shift Register	74HC595PW,118
U314	03-01194-01	Audio Attenuator	NJW1194V-TE1
UM01, U321	03-00082-02	Dual OpAmp	TL082CDR

	RESISTORS		
R117, R118, R349, R515, R516, R517, R518, R519, R520, R524, R525	07-90000-00	Chip resistor	0Ω, 0603, ±5%
R505	07-92708-00	Chip Resistor	2.7Ω,0603,1/10W,±1%,RC0603FR-072R7L
R512	07-90339-00	Chip Resistor	3.3Ω,0603,1/10W,±5%,RC0603JR-073R3L
R364	07-94708-00	Chip Resistor	4.7Ω,0603,1/10W,±1%,RC0603FR-074R7L
R100, R101, R102, R131, R500, R502	07-91009-00	Chip resistor	10Ω,0603,1/10W,±1%,RC0603FR-0710RL
R369, R395, R411, R501, R503, R529	07-93309-00	Chip resistor	33Ω,0603,1/10W,±1%,RC0603FR-0733RL
R311, R316, R334, R336, R350, R442, R443, R444, R445, R447, R448	07-94709-00	Chip resistor	47Ω,0603,1/10W,±1%,RC0603FR-0747RLT
R362	07-97509-00	Chip resistor	75Ω,0603,1/10W,±1%,RC0603FR-0775RL
R106, R107, R110, R111, R124, R126, R127, R134, R135, R142, R145, R146, R148, R324, R374, R375, R386, R387, R463, R521, R530	07-91000-00	Chip resistor	100Ω,0603,1/10W,±1%,RC0603FR-07100RL
R396	07-92000-00	Chip resistor	200Ω,0603,1/10W,±1%,RC0603FR-07200RL
R109	07-93300-00	Chip Resistor	330Ω,0603,1/10W,±1%,RC0603FR-07330RL
R300, R303, R312, R317, R329, R338, R352, R358	07-94990-00	Chip Resistor	499Ω,0603,1/10W,±1%,RC0603FR-07499RL
R432, R433	07-96340-00	Chip Resistor	634Ω,0603,1/10W,±1%,RC0603FR-07634RL
R322, R325, R326, R328, R333, R335, R337, R339, R340, R341, R346, R354, R355, R356, R357, R360	07-97500-00	Chip Resistor	750Ω,0603,1/10W,±1%
R137, R156, R388, R427, R430, RM07	07-91001-00	Chip resistor	1KΩ,0603,1/10W,±1%,RC0603FR-071KL
R370	07-91371-00	Chip resistor	1.37KΩ,0603,1/10W,±1%,RC0603FR-071K37L
R513	07-91501-00	Chip resistor	1.5KΩ,0603,1/10W,±1%,RC0603FR-071K5L
R301, R318, R330, R359	07-91741-00	Chip resistor	1.74KΩ,0603,1/10W,±1%,RC0603FR-071K74L
R507, R508	07-92201-00	Chip resistor	2.2KΩ,0603,1/10W,±1%,RC0603FR-072K2L
R309, R313, R347, R353, R398, R404	07-92211-00	Chip resistor	2.21KΩ,0603,1/10W,±1%,RC0603FR-072K21L
R504	07-93091-00	Chip resistor	3.09KΩ,0603,1/10W,±1%,RC0603FR-073K09L
R380, R382, R394, R399, R403, R410	07-93321-00	Chip resistor	3.32KΩ,0603,1/10W,±1%,RC0603FR-073K32L
R366, R367, R378, R379, R381, R383, R384, R420, R514, R522	07-94701-00	Chip resistor	4.7KΩ,0603,1/10W,±1%,RC0603FR-074K7L
R161	07-97501-00	Chip Resistor	7.5KΩ,0603,1/10W,±1%,RC0603FR-077K5L

R115, R116, R123, R128, R130, R149, R150, R302, R305, R331, R332, R429, R510, R511, R528, RM05, R526	07-91002-00	Chip resistor	10K Ω ,0603,1/10W, \pm 1%,RC0603FR-0710KL
R459, R460	07-91102-00	Chip resistor	11K Ω ,0603,1/10W, \pm 1%, RC0603FR-0711KL
R458	07-91542-00	Chip resistor	15.4K Ω ,0603,1/10W, \pm 1%,RC0603FR-0715K4L
R455, R456	07-92202-00	Chip resistor	22K Ω ,0603,1/10W, \pm 1%,RC0603FR-0722KL
R527	07-93302-00	Chip resistor	33K Ω ,0603,1/10W, \pm 1%,RC0603FR-0733KL
R129, R132, R133, R319, R323, R390, R413, R428, R451, R452, R453, R454	07-90473-00	Chip resistor	47K Ω ,0603,1/10W, \pm 5%,RC0603JR-0747KL
R377, R385	07-90563-00	Chip resistor	56K Ω ,0603,1/10W, \pm 5%,RC0603JR-0756KL
R401, R402	07-90683-00	Chip resistor	68K Ω ,0603,1/10W, \pm 5%,RC0603JR-0768KL
R105, R108, R125, R371, R389, R391, R431	07-90104-00	Chip resistor	100K Ω ,0603,1/10W, \pm 5%,RC0603JR-07100KL
RM03	07-92203-00	Chip Resistor	220K Ω ,0603,1/10W, \pm 1%,RC0603FR-07220KL
RM04	07-93303-00	Chip Resistor	330K Ω ,0603,1/10W, \pm 1%,RC0603FR-07330KLT
RM06	07-94703-00	Chip Resistor	470K Ω ,0603,1/10W, \pm 1%,RC0603FR-07470KL
R434, R438	07-91004-00	Chip resistor	1M Ω ,0603,1/10W, \pm 1%,RC0603FR-071ML
R400, R408	07-91005-00	Chip resistor	10M Ω ,0603,1/10W, \pm 1%,RC0603FR-0710ML
R506, R523	07-90330-10	Chip Resistor Network	33 Ω , \pm 5%,R0603X4
R103, R104, R112, R113, R114, R136, R139, R140, R141, R143, R144, R147, R310	07-90101-10	Chip Resistor Network	100 Ω , \pm 5%,R0603X4
R119, R120	07-90103-10	Chip Resistor Network	10K Ω \times 4, \pm 5% 0603 \times 4
R307, R345	07-95490-01	Chip Resistor	549 Ω ,1/8W, \pm 1%,0805,RC0805FR-07549RL
RM08, RM09	07-90000-02	Chip Resistor	0 Ω ,1206,1/4W, \pm 5%
R392	07-91009-02	Chip Resistor	10 Ω ,1206,1/4W, \pm 1%,RC1206FR-0710RL
R162, R163, R164, R165	07-90101-03	Chip Resistor	100 Ω ,1210,1/2W, \pm 5%,RC1210JR-07100RL
	CAPACITORS		
C505, C508	26-27051-00	Ceramic Chip Capacitor	27pJ,50V,0603,NPO
C325, C349	26-33051-00	Ceramic Chip Capacitor	33pJ,50V,0603,NPO
C488, C489, C509	26-10151-00	Chip capacitor	100pJ, NPO, 50V,0603
C486	26-22151-00	Chip capacitor	220PJ,50V,0603,NPO
CM03	26-27151-00	Ceramic Chip Capacitor	270pJ,50V,0603,NPO
C126, C308, C315, C321, C322, C329, C331, C334, C339, C341, C345, C355, C358, C362, C375, C456, C459, C487, C501, C507, C510, C527	26-10251-10	Chip capacitor	1nJ,50V,0603,NPO
C101, C140, C300, C301, C302, C304, C309, C344, C368, C518, C526	26-10351-00	Chip capacitor	10nK,50V,0603,X7R,C2012X7R1H103KT

C356, C371	26-10321-00	Chip capacitor	10nK,25V,0603,NPO
C110, C111, C112, C374	26-22351-00	Chip capacitor	22nK,50V,0603,X7R
C100, C103, C106, C108, C117, C118, C119, C120, C121, C122, C124, C129, C130, C136, C137, C139, C142, C144, C303, C307, C310, C311, C312, C313, C319, C320, C323, C326, C330, C332, C335, C337, C338, C340, C353, C354, C357, C359, C360, C361, C367, C379, C387, C390, C395, C391, C413, C414, C463, C464, C465, C470, C471, C473, C474, C475, C476, C477, C478, C479, C481, C483, C503, C511, C513, C519, C521, C522, C523	26-10451-10	Ceramic Chip Capacitor	100nK,50V,0603,X7R
CM06, CM07	26-10421-10	Ceramic Chip Capacitor	100nK,25V 0603,X7R
C113, C138, C146, CM04	26-10521-00	Ceramic Chip Capacitor	1uFZ,25V,0603,Y5V
C102, C104, C314, C502, C520	26-22511-10	Ceramic Chip Capacitor	2.2uK, 0603, 10V, X5R,CC0603KRX5R6BB225
C347, C378, C514	26-47511-00	Ceramic Chip Capacitor	4.7uK,10V,0603,X5R,C1608X5R1A475KT
C372, C376, C512, C524	26-10611-10	Ceramic Chip Capacitor	10uK,10V,0603,X7R
C394, C453	26-33251-01	Ceramic Chip Capacitor	3n3K,50V,0805,NPO
C318, C327, C343, C350	26-10351-11	Chip capacitor	10nK,50V,0805,NPO
C105, C107, C143, C346, C366, C500, C504, C506, C517	26-22611-01	Ceramic Chip Capacitor	22uM,10V,0805,X5R
CM05	26-22611-22	Ceramic Chip Capacitor	22uF,16V,X5R,1206,±20%,EMK316BJ226ML-T
C525	27-47060-01	Chip Tan Electrolytic Capacitor	47uF, 6.3V, ±
C440	06-10011-20	Chip Alu Electrolytic Capacitor	10uF,16V,±20%,105°C,VZH100M1C0406-TR0
C402, C447	06-47951-10	Chip Alu Electrolytic Capacitor	4.7uF,50V,±20%,105°C,VZH4R7M1HTR-0506
C324, C333, C370, C386, C393, C458	06-10111-51	Chip Alu Electrolytic Capacitor	100uF,10V,±20%,105°C,VZH101M1ATR-0605
C412, C460	06-10121-23	Chip Alu Electrolytic Capacitor	100uF,25V,±20%,105°C,VZH101M1ETR-0607
C123, C305	06-22111-24	Chip Alu Electrolytic Capacitor	220uF,16V,±20%,105°C,VZH221M1C0607-TR0
C109, C141, C457	06-47111-27	Chip Alu Electrolytic Capacitor	470uF,10V,±20%,105°C,VZH471M1ATR-0810
CM08	06-47021-18	Chip Alu Electrolytic Capacitor	47uF,25V,±20%,105°C,VZH470M1ETR-0605
	INDUCTOR		
FB100, FB101, FB102	08-04601-10	Ferrite Bead SMD	CBA321609-4U-601
L501	08-04100-27	Ferrite Bead SMD	742792011,10ohm@100MHz, ±25%, 3A
L502	08-04609-01	BEAD	CBY201209A601T
L300, L503	08-04601-16	Ferrite Bead SMD	742792042,600ohm@100MHz, ±25%, 0.2A
L100, L101, L103, L105, L301, L302, L303, L500, L504, L505	08-04102-31	Chip Ferrite Bead	742792662, 1000ohm@100MHz,Imax=600mA
L104	08-04100-16	Power Inductor	744053100,10uH,1.5A
	CRYSTAL		
U500	04-22452-09	Oscillator	SRTD3T-24.576MHZ TR

U500	or 04-22452-06	VCXO	24.576MHz, C3391-24.576MHz,SMD 5*7
U501	04-22252-05	Oscillator	SRTD3T-22.5792MHZ TR
U501	or 04-22252-03	VCXO	22.5792MHz, C3398-22.579200MHz,SMD 5*7
XC500	04-16000-01	CRYSTAL	6.000000 MHZ HCM49,HCM49-6.000MABJT
CONNECTORS			
J104	13-21005-00	FFC Connector	1.0mm,5pin,CNT-JX1.0-B2-5PLT
J100	13-21014-02	FFC Connector	1.0mm,14pin,1.0B-14PWB
J105	13-11232-00	Connector Socket	1.27mm,2x16Pin, CNT-M127-2*16-GM-4/8/5/0-150-P-TR
PCB-3: Bluetooth Module BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
PCB INFO			
	A16-23309-21	Bluetooth PCB	VM1.0,FR-4,1.0mm,TG130,38.3mmX17.7mm
	A16-23390-21	Bluetooth PCB	VM1.0,FR-4,1.0mm,TG130,116.84mmX125.18mm
DIODES			
D1	33-51616-00	three color LED	WE-SP195UBURUGW
TRANSISTORS			
D2	33-20054-10	Schottky Rectifier Diode	BAT54CW
ICS			
U3	03-02464-11	EEPROMS	AT24C64D-XHM-B
U3	03-02464-05	EEPROMS	BR24T64FVT-WGE2
U3	OR 03-02464-04	EEPROMS	AT24C64D-XHM-B
U1	03-08645-04	Bluetooth IC	CSR8645A04-IBBC-R, 5.5 x 5.5 x 1.0mm
RESISTORS			
R5, R6, R21	07-94701-08	Chip Resistor	4.7KΩ,0402,1/16W,±1%,RC0402FR-074K7L
R18	07-91002-08	Chip Resistor	10KΩ,0402,1/16W,±1%,RC0402FR-0710KL
CRYSTAL			
Y1	04-12602-01	Crystal SMD	X32-26.000-9P-10/20Y, 26.000MHz,CL=9pF,FL=10PPM
INDUCTORS			
L1, L2	08-04479-00	Inductor SMD	4u7H, 10%, 0805, Tape
L3	22-02080-00	Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN	DEA252450BT-2080B2
CAPACITORS			
C2	26-22511-20	Ceramic Chip Capacitor	2.2uK,16V,0603,X7R
C3, C6, C7, C8, C16, C21, C20	26-47560-08	Ceramic Chip Capacitor	4.7uM,6.3V,0402,X5R
C13, C17, C18	26-10351-08	Ceramic Chip Capacitor	10nF,50V,0402,X7R,±10%,CC0402KRX7R9BB103
C15	26-15051-08	Ceramic Chip Capacitor	15pF,50V,0402,NPO,±5%,C1005COG1H150JT

C14, C24	26-10411-08	Ceramic Chip Capacitor	100nF,16V,0402,X7R,±10%,C1005X7R1C104KT
C1, C4, C5, C9, C23	26-47411-08	SMD Capacitor	470nF,10V,0402,X5R,C1005X5R1A474KT000E
C400, C446	25-10451-02	Metallized Polyester Film Capacitor	CL23B-50V-104J RA,100nF
C482	25-10461-08	Metallized Polyester Film Capacitor	CL21X-63V-104J R5.0
C484	25-22461-02	Metallized Polyester Film Capacitor	CL23B-63V-224JR, C241J224J20A201
C316, C342	25-33451-01	Metallized Polyester Film Capacitor	CL23B-50V-334J RA,330nF
C404, C405, C428, C429	25-15461-02	Metallized Polyester Film Capacitor	CL23B-63V-154J RA,150nF
C417, C420	25-10561-02	Metallized Polyester Film Capacitor	1u, 63V ±5%
C492, C493	25-33412-04		MKP2,330nF / 100V
C461	06-47111-29	Alu Electrolytic Capacitor	WF1C477M1012MBB,470uF,16V,±20%,F5.0,10*12.5mm
C306, C336, C490, C491	06-47011-09	Bi-polarized Alu Electrolytic Capacitor	CD71H,47uF,16V,±20%,F5.0,5x11.5mm
	CONNECTORS		
J1	17-05001-14	RF Connector SMD	KFM110Z-1002-7F
	TRANSFORMERS		
T300	22-22133-00	Transformer	PE-65612NL
	CONNECTORS		
J112	17-06001-07	Optical Receive	DLR2180/25M
J110	17-01001-23	1RCA	AV-8.4-8,
J111	J17-08001-58	USB connector	292304-1
J102	13-12504-28	Connector	2.54mm,4pin,CNT-M254-1*4-GS-5/3-N
J113	13-22005-04	SOCKET	HY-5A,2.0mm,5pin
J109	13-22003-06	SOCKET	HY-3A,2.0mm,3pin
J114	13-22010-04	Connector Socket	HY2.0A-10A
	14-32314-00	Connector Wire	1.0mm,14pin,L=30mm,105℃
	14-32305-01	5PIN CABLE	1.0mm,5pin,L=45mm,105℃
	29-04601-02	wifi antenna	ONE END CONNECTOR MHF-13-Antena Head, OTHER CONNECTOR WPB214, Mini 1.13, L=150mm
	17-03001-25	binding post	HD-301-2 RED
	17-03001-26	binding post	HD-301-2 BLACK
	69-359001-0	copper bar A	H62
	69-359002-0	copper bar B	H62
	69-359003-0	copper bar C	H62
	86-351001-0	button adhesive	YS247D,BLACK,70x44.5mm
	86-018001-0	Non-woven Cloth	24x14x0.5mm
	79-351002-0	PORON bar	PORON,73x3x0.5mm
	66-351001-0	bar bracket	SECC-N5, T=1.5mm
	66-018005-0	Clamper	65Mn HRC48-52 HS4-C372B009V1M014
	70-359001-0A	inner plate	AL 1050, T=2.0mm

	66-359001-0	U type bracket	SECC-N5 T=0.8
	70-359002-0	Heatsink	AL 6063
	61-023504-0	Machine Screw	MB3x4
	61-063506-0	Machine Screw	MF3x6
	61-063506-1	Machine Screw	MF3x6
	61-062506-5	Machine Screw	MF2.5X6mm
	61-023506-0	Machine Screw	MB3x6
	61-023508-2	Machine Screw	MB3x8
	61-023510-0	Machine Screw	MB3x10
	85-359002-0	Plastic Screw	M3-6FN
	85-359001-0	Plastic Spacer	HP-5
	90-325002-0	non clothes bag	BLACK,40x20mm
	78-359007-0	insulpad G	GK-17, 130×18×0.4mm
	61-063208-0	Self Tapping Screw	BTF3×8
	79-296104-0	CR gasket D	CR BLACK, 12×4.5×1mm
	63-110305-0	Washer	φ3xφ7x0.5
PCB-4: CONNECTING 2 BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32318-23	Connecting2 PCB	VM2.1,FR-4,1.6mm,TG130,23x9mm
4xconnecting2,2xPreamp	A16-32320-23	Preamp+connecting2 ASSY	VM2.1,FR-4,1.6mm,TG130,170x165.7mm
	CONNECTORS		
J701	13-11232-01	Connector Socket	1.27mm,2x16Pin, CNT-M127-2*16-GM-4/16/5/0-150-P
J702	13-21232-00	Connector Socket	1.27mm, 2x16Pin, CNT-F127-2*16-GM-430/4.8-P-TR
PCB-5: OUTPUT BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32304-24	Output BOARD	VM1.2,FR-4,1.6mm,TG130
	A16-32340-24	Output BOARD ASSY	VM1.3,FR-4,1.6mm,TG130,159x168.6mm
	DIODES		
D301, D317, D318	33-40352-01	Diodes	1SS352
	TRANSISTORS		
Q300, Q301	31-00860-00	Transistor	BC860B,215
	ICS		
U308	03-01654-01	QUAD OPAMP	OPA1654AIDR
	RESISTORS		
R373	07-90479-00	Chip resistor	4.7Ω,0603,1/10W,±5%,RC0603JR-074R7L
R440, R441, R446, R449, R450	07-91009-00	Chip resistor	10Ω,0603,1/10W,±1%,RC0603FR-0710RL
R376	07-93309-00	Chip resistor	33Ω,0603,1/10W,±1%,RC0603FR-0733RL
R306, R308	07-95109-00	Chip resistor	51Ω,0603,1/10W,±1%,RC0603FR-0751RL
R435, R436, R437, R439	07-92200-00	Chip Resistor	220Ω,0603,1/10W,±1%,RC0603FR-07220RL
R416, R423	07-92430-00	Chip Resistor	243Ω,0603,1/10W,±1%,RC0603FR-07243RL
R320	07-92001-00	Chip Resistor	2KΩ,0603,1/10W,±1%,RC0603FR-072KL

R417, R422	07-91101-00	Chip resistor	1.1K Ω ,0603,1/10W, \pm 1%,RC0603FR-071K1L
R344, R351	07-92701-00	Chip Resistor	2.7K Ω ,0603,1/10W, \pm 1%,RC0603FR-072K7L
R464	07-91002-00	Chip Resistor	10K Ω ,0603,1/10W, \pm 1%,RC0603FR-0710KL
R315, R361, R365, R368	07-91002-00	Chip resistor	10K Ω ,0603,1/10W, \pm 1%,RC0603FR-0710KL
R466	07-92202-00	Chip resistor	22K Ω ,0603,1/10W, \pm 1%,RC0603FR-0722KL
R348	07-94702-00	Chip resistor	47K Ω ,0603,1/10W, \pm 1%,RC0603FR-0747KL
R372, R405, R406, R414, R418	07-95602-00	Chip resistor	CRCW060356K0FKEA,56K Ω 0603,1/10W, 1%
R393	07-91003-00	Chip resistor	100K Ω ,0603,1/10W, \pm 1%,RC0603FR-07100KL
R342, R343	07-93303-00	Chip Resistor	330K Ω ,0603,1/10W, \pm 1%,RC0603FR-07330KLT
R321	07-92703-00	Chip resistor	270K Ω ,0603,1/10W, \pm 1%,RC0603FR-07270KL
R415, R426	07-91009-02	Chip resistor	10 Ω ,1206,1/4W, \pm 1%,RC1206FR-0710RL
CAPACITORS			
C423, C424, C435, C445	26-10151-00	Chip capacitor	100pJ, NPO, 50V, 0603
C467, C469	26-10112-10	Chip capacitor	100pJ,100V,0603,NPO
C317	26-22251-10	Ceramic Chip Capacitor	2n2J,50V,0603,NPO
C351	26-10351-00	Chip capacitor	10nK,50V,0603,X7R
C380	26-10321-00	Chip capacitor	10nK,25V,0603,NPO
C472	26-22351-00	贴片瓷片电容	22nK,50V,0603,X7R
C365, C369, C373, C385, C409, C410, C416, C418, C425, C426, C438, C444, C450, C455	26-10451-10	Ceramic Chip Capacitor	100nK,50V,0603,X7R
C352	26-10551-00	Ceramic Capacitor SMD	1uZ, 50V, Y5V, 0603
C348	26-47421-20	Ceramic Chip Capacitor	470nK,25V,0603,X5R,C1608X5R1E474KT
C383	26-47511-00	Chip capacitor	4.7uK,10V,0603,X5R,
C466, C468	26-10112-11	Ceramic Chip Capacitor	100pF,100V,0805,NPO
C431, C441	26-10251-11	Chip capacitor	1nF,10%,50V,NPO,0805
C388, C389	26-10451-11	Chip capacitor	100nF, 50V, X7R
C442, C451	26-10611-01	Ceramic Chip Capacitor	10uF,0805,10V,C0805C106M8PACTU/C2012X5R1A106M
C396	26-22611-01	Ceramic Chip Capacitor	22uM,10V,0805,X5R
C403, C406, C432, C434	26-10312-02	Chip capacitor	1206, 10nF, 100V, X7R
INDUCTORS			
L306	08-04102-31	Ferrite Bead SMD	742792662, 1000ohm@100MHz,I _{max} =600mA
CONNECTORS			
J305	13-21232-00	Connector	1.27mm, 2x16Pin, CNT-F127-2*16-GM-430/4.8-P-TR
ICS			
U316	03-00317-00	3-Terminal Adjustable Regulator	LM317T
U312	03-07812-10	3-Terminal Regulator	KA78R12CTU/KA278R12CTU
U318	03-00337-00	Ragulator	LM337T
U315	03-07912-00	3-Terminal Regulator	LM7912CT/MC7912CT/KA7912/L7912CV
RESISTORS			

R409	07-30101-11	Metal Oxide Film Resistor	RY21, 100Ω, 3W, ±5%
R304	07-40507-03	Cement Resistor	0.05Ω,3W,±5%,Pitch=10mm
CAPACITORS			
C415, C419, C430, C449	06-47011-21	Bi-polarized Alu Electrolytic Capacitor	CD71H,47uF,16V,±20%,F2.5
C496	06-47011-09	Bi-polarized Alu Electrolytic Capacitor	CD71H,47uF,16V,±20%,F5.0,5x11.5mm
C363, C443, C452	06-10051-20	Alu Electrolytic Capacitor	10uF,50V,±20%,105℃,EEUFC1H100L(H)
C364, C377, C407, C408, C421, C422, C437, C454	06-10121-12	Alu Electrolytic Capacitor	CD284, 100uF, 25V, ±20%, 105℃, F5.0
C485	06-10151-13	Alu Electrolytic Capacitor	RD-series,100uF,50V,±20%,105℃,F3.5
C382, C384	06-22151-06	Alu Electrolytic Capacitor	WF1H227M10016BB,220uF,50V,±20%,105℃,F5.0 10*16mm
INDUCTORS			
L145, L305	22-00150-04	Common Mode Choke	T13x7x5,Φ0.6
POT			
R363	09-02502-02	Variable Resistor	5KΩ,W206-1ALB-5KΩ
R314	09-02104-01	Variable Resistor	100KΩ,W206-1ALB
CONNECTORS			
Clip+, clip-	13-10001-22	Test Pin	CNT-M254-1*1-GS-GS-6/3-N
J309	17-01001-53	1RCA	AV-8.4-05,WHITE
J310	17-01001-54	1RCA	AV-8.4-05,RED
J308	17-02001-83	3.5mm Phone Jack	DLR23M1
J301 (To Connector J601)	13-22536-01	Connector	2.54mm, 2x18Pin, CNT-F254-2*18-GS-850/3.0-N
J304	13-22004-10	Connector	HY-4A,2.0mm,4pin
J303	13-22506-00	Connector	XHB2.5A-6A
PCB-6:SUB OUT BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32305-21	SUB out PCB	VM1.0,FR-4,1.6mm,TG130
	A16-32350-21	SUB out PCB ASSY	VM1.0,FR-4,1.6mm,TG130,100x80.5mm
DIODES			
D601, D602, D603	33-40352-01	Switch Diode	1SS355TE-17
TRANSISTORS			
Q601, Q604	31-03326-01	Transistor	2SC3326-A(TE85L,F), SC-59
Q602	31-00114-01	Digital transistor	DTA114EKA
Q603	31-00114-05	Digital transistor	DTC114EKAT146
CAPACITORS			
C601	26-10151-00	Ceramic Chip Capacitor	100pF, 50V, 5%, NPO
RESISTORS			
R605	07-91000-00	Chip Resistor	100Ω,0603,1/10W,±1%
R603, R606	07-94701-00	Chip Resistor	4.7KΩ,0603,1/10W,±1%
R602	07-91802-00	Chip Resistor	18KΩ,0603,1/10W,±1%
R601	07-91003-00	Chip Resistor	100KΩ, ±1%
CONNECTORS			
J603	17-02001-81	3.5mm socket	PJ-304-05-EP
J601, J602	13-12007-01	Connector Socket	2.0mm,7pin,CNT-M200-1*7-GS-3/8.5/3

PCB-7:TRIGGER BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32312-23	Trigger PCB	VM1.2,FR-4,1.6mm,TG130,30x
	A16-32321-23	Trigger+Connecting PCB	VM1.2,FR-4,1.6mm,TG130,118x 82.77mm
	TRANSISTORS		
Q100, Q102	31-00114-05	Digital transistor	DTC114EKA
	RESISTORS		
R159	07-91009-00	Chip resistor	10Ω,0603,1/10W,±1%,RC0603FR-0710RL
R154	07-91001-00	Chip resistor	1KΩ,0603,1/10W,±1%,RC0603FR-071KL
R158	07-96801-00	Chip resistor	6.8KΩ,0603,1/10W,±1%,RC0603FR-076K8L
R153, R157, R160	07-91002-00	Chip resistor	10KΩ,0603,1/10W,±1%,RC0603FR-0710KL
R152	07-94702-00	Chip resistor	47KΩ,0603,1/10W,±1%,RC0603FR-0747KL
	CAPACITORS		
C116	26-10451-10	Ceramic Chip Capacitor	100nK,50V,0603,X7R
	CONNECTORS		
J103	13-21005-01	FFC Connector	1.0mm,5pin,1.0B-5PWB
J101	17-02001-55		CKX-3.5-36(5P),BLACK
	SWITCHES		
S100	11-04101-13	Tact Switch	IT-1102VLD-1160
PCB-8:POT BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32313-22	POT PCB	VM1.1,FR-4,1.0mm,TG130,20.5x 38mm
	A16-32360-22	FPP PCB ASSY	VM1.1,FR-4,1.0mm,TG130,113.5x 126.2mm
	RESISTORS		
R930, R931	07-91002-01	Chip Resistor	10KΩ,0805,1/8W,±1%,RC0805FR-0710KL
	CAPACITORS		
C914	26-10611-01	Ceramic Chip Capacitor	10uF,0805,10V,C0805C106M8PACT U/C2012X5R1A106M
C915, C916	26-10411-01	Ceramic Chip Capacitor	100nK,16V,0805,X7R
	CONNECTORS		
J906	13-21006-05	FFC Connector	1.0-9-6PB/ F10009Y-6-A013
S900	28-24308-03	ENCODER	EC12E2430803
PCB-9:HEADPHONE BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32315-22	Headphone PCB	VM1.1,FR-4,1.0mm,TG130,21x
	A16-32360-22	FPP PCB ASSY	VM1.1,FR-4,1.0mm,TG130,113.5x 126.2mm
	CONNECTORS		
J302	17-02001-70	Phone Jack	CKX-3.5-02AF
CON301	14-32305-00	wire	UL1569#24AWG,UL2547#24AWG,ONE END JOIN SAN-5Y,OTHER JOIN HY-5Y,L=145mm

	66-359003-0	3.5 bracket	SECC-N5 T=0.8
	61-022506-5	Machine screw	MB2.5x6
	61-022504-1	Machine screw	MB2x4
PCB-10:CONNECTING BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32316-23	Connecting PCB	VM1.2,FR-4,1.6mm,TG130,17x
	A16-32321-23	Trigger+Connecting PCB	VM1.2,FR-4,1.6mm,TG130,118x 82.77mm
	CONNECTORS		
C494, C495	06-47011-21	Bi-polarized Alu Electrolytic Capacitor	CD71H,47uF,16V,±20%,F2.5
C497, C498	25-22461-02	Metallized Polyester Film Capacitor	CL23B-63V-224JR, C241J224J20A201
J602	13-22536-01	SOCKET	2.54mm, 2x18Pin, CNT-F254-2*18- GS-850/3.0-N
J601	13-12536-02	SOCKET	2.54mm,2x18Pin, CNT-M254-2*18- GS-6/3-N
	A07-70022-10	Thermal Protector	ST-22 100°C W TYPE, L150
PCB-11:FPP BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32306-22	FPP PCB	VM1.1,FR-4,1.0mm,TG130,95.7x 39.7mm
	A16-32360-22	FPP PCB ASSY	VM1.1,FR-4,1.0mm,TG130,113.5x 126.2mm
	DIODES		
D900, D901, D902, D903, D904, D905, D906, D907, D908, D909, D910, D911, D912, D913, D918, D919, D920, D921, D922, D923, D924, D925, D926, D927, D928, D929, D930, D931	33-50603-91	white ChipLED	WR-PB1608UW-M58,WHITE
	TRANSISTORS		
Q900	31-03326-01	Transistor	2SC3326-A(TE85L,F), SC-59
	ICS		
U901, U903, U904, U907	03-00717-01	TinyLogic UHS Dual Buffer with Schmitt Trigger	NC7WZ17
U905, U906	03-00595-01	Shift Register	SN74HC595D/74HC595D/MM74HC595M
U908	03-00138-01	Line Decoder	SN74HCT138DR
U900	03-34838-00	IR Receiver	TSOP34838
	RESISTORS		
R907, R908, R909, R910, R911, R912, R914, R915, R916, R917, R918, R919, R920, R921, R936, R937, R938, R939, R940, R941, R942, R943, R944, R945, R946, R947, R948, R949, R950, R900	07-91000-00	Chip Resistor	100Ω,0603,1/10W,±1%,RC0603FR-07100RL
R922	07-92201-00	Chip Resistor	2.2KΩ,0603,1/10W,±1%,RC0603FR-072K2L
R913	07-91002-00	Chip Resistor	10KΩ,0603,1/10W,±1%,RC0603FR-0710KL
R901	07-91009-01	Chip Resistor	10Ω,0805,1/10W,±1%,RC0805FR-0710RL

R902, R906, R924, R925, R952	07-90101-10	Chip Resistor NET	100Ω, ±5% R0603X4
	CAPACITORS		
C910, C920, C921	26-10151-00	Ceramic Chip Capacitor	100pF,50V 0603,NPO
C902, C904, C906, C907, C909, C911, C912	26-10411-00	Ceramic Chip Capacitor	100nF,16V 0603, X7R
C900	26-47411-10	Ceramic Chip Capacitor	470nK,16V,0603,X7R
C905	26-22521-01	Ceramic Chip Capacitor	2.2uF,±10%,25V,X5R,0805
C901	26-10611-01	Ceramic Chip Capacitor	10uF,0805,10V,C0805C106M8PACT U/C2012X5R1A106M
	INDUCTANCE		
L901	08-04102-31	Chip Ferrite Bead	742792662, 1000ohm@100MHz,lmax=600mA
L900	08-04102-11	Chip Bead	74279205 1000ohm@100MHz
FB900, FB901, FB902	08-04601-10	Bead	CBA321609-4U-601
	CONNECTORS		
J904	13-21014-03	Connector Socket	1.0mm,14Pin,CNT-JX1.0-B2-14PLT
	75-359001-0	LED bracket	ABS765B BLACK
	76-351012-0A	film	PET
	90-351001-1	diffusible film A	MB-533,69x29x0.2mm
	78-359005-0	LED Foam	EVA,72x34x5mm
	61-063512-0	Machine Screw	MF3x12
	85-320001-0	Nylon Spacer	3-5mm
	86-108020-0	IR Receiver Foam	EVA,Black, 6.5x7.5x2.5
PCB-12:Touch B BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32307-22	Touch B PCB	VM1.1,FR-4,1.0mm,TG130,80x
	A16-32360-22	FPP PCB ASSY	VM1.1,FR-4,1.0mm,TG130,113.5x 126.2mm
	DIODES		
D917	33-50603-40	AMBER LED	WR-PB1608uY-F10,SUPER BRIGHT YELLOW
D914	33-50603-21	red LED	RED,WR-PB1608UE-L08
D915, D916	33-50603-91	LED	WR-PB1608UW-M58,WHITE
	TRANSISTORS		
Q901, Q902, Q911	31-03326-01	Transistor	2SC3326-A(TE85L,F), SC-59
	RESISTORS		
R927, R928	07-92200-01	CHIP Resistor	220Ω,0805,1/8W,±1%,RC0805FR- 07220RL
R926	07-93300-01	CHIP Resistor	330Ω,0805,1/8W,±1%,RC0805FR- 07330RL
R929	07-96800-01	CHIP Resistor	680Ω,0805,1/8W,±1%,RC0805FR- 07680RL
R932, R933, R934	07-92201-01	Chip Resistor	2.2KΩ,0805,1/8W,±1%,RC0805FR- 072K2L
	CAPACITORS		
C917, C918, C919	26-10151-01	Ceramic Chip Capacitor	100pJ,50V,0805,NPO,C2012C0G1H 101JT
C913	26-10151-02	Ceramic Chip Capacitor	10uF,0805,10V,C0805C106M8PACT U/C2012X5R1A106M
	CONNECTORS		
J905	13-21006-05	FFC Connector	1.0-9-6PB/ F10009Y-6-A013

CON900	14-32310-00	wire	UL1569#26AWG*6C,UL1691#24AWG*2C白+GROUND WIRE*2C,ONE END JOIN HY-10Y,OTHER JOIN SAN-10,L=80mm
J909, J910, J911, J912	13-22006-06	Connector	2.0mm, 2x3pin, CNT-F200-2*3-GS-430/2.4
PCB-13:Touch A BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32308-22	Touch A PCB	VM1.1,FR-4,1.0mm,TG130,80x44.5mm
	A16-32360-22	FPP PCB ASSY	VM1.1,FR-4,1.0mm,TG130,113.5x126.2mm
	CONNECTORS		
J913, J914, J915, J916	13-12006-05	Connector	2.0mm, 2x3Pin,CNT-M200-2*3-GM-4/6/0-2.0-TR
	90-325003-0	diffusible film	MB-533,16x16x0.3mm
	79-351001-1	button EVA	EVA,56x30x7
PCB-14:PSU-1 BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32309-22	PSU-1 PCB	VM1.1,FR-4,1.6mm,TG150
	A16-32390-22	PSU-1 PCB	VM1.1,FR-4,1.6mm,TG150,163x115.6mm
	DIODES		
DW102	33-15609-06	Zener Diode	PDZ5.6B 5.6V 0.4W SOD323
DW103	33-12000-03	Zener Diode SMD	20V, 3W, BZG03C20
DW101	33-11300-04	Zener Diode	PDZ13B 13V 0.4W SOD323
D120	33-20316-01	High speed Diode	BAS316
D106, D107, D108, D109, D110, D111, D112, D113, D114, D115, D116, D117	33-40321-00	Switch Diode	BAS321
D103	33-20120-01	DIODE SMD	MURS120/MURS120T3G
D123, D124	33-20220-01	Ultrafast Power Rectifier	MURA220T3G
D105	33-20036-00	Schottky Rectifier Diode	SS36B
D104	33-20020-00	Super Fast Rectifier Diode	BYG20J-E3/TR3
D101	33-00200-01	Transient Voltage Suppressor	P4SMA200A
D102	33-30662-02	Rectifier Bridge	GBU606
	TRANSISTORS		
Q110, Q111, Q112, Q113, Q114, Q115	31-80725-00	transistor	BC807-25 45V 500mA
	ICS		
IC102	03-00431-11	Regulator	TL431BCDBZR
OP101, OP102	A03-00817-03	Photo Coupler	PC817X2NIP
	RESISTORS		
R103	07-90109-01	Chip Resistor	1Ω,0805,1/8W,±5%,RC0805JR-071RL
R115, R116, R117, R118, R119, R120	07-92209-01	Chip resistor	22Ω,0805,1/8W,±1%,RC0805FR-0722RL
R110	07-92000-01	Chip resistor	200Ω,0805,1/8W,±1%,RC0805FR-07200RL
R111	07-91001-01	Chip resistor	1KΩ,0805,1/8W,±1%,RC0805FR-071KL
R101, R113, R114	07-92201-01	Chip resistor	2.2KΩ,0805,1/8W,±1%,RC0805FR-072K2L

R112	07-93301-01	Chip resistor	3.3K Ω ,0805,1/8W, \pm 1%,RC0805FR-073K3L
R129, R135	07-91002-01	Chip resistor	10K Ω ,0805,1/8W, \pm 1%,RC0805FR-0710KL
R104	07-92202-01	Chip resistor	22K Ω ,0805,1/8W, \pm 1%,RC0805FR-0722KL
R147	07-94702-01	Chip resistor	47K Ω ,0805,1/8W, \pm 1%,RC0805FR-0747KL
R163, R164, R165, R166	07-92209-02	Chip resistor	22 Ω ,1206,1/4W, \pm 1%,RC1206FR-0722RL
R150, R151	07-91500-02	Chip Resistor	150 Ω ,1206,1/4W, \pm 1%,RC1206FR-07150RL
R106, R107, R108, R109	07-92203-02	Chip resistor	220K Ω ,1206,1/4W, \pm 1%,RC1206FR-07220KL
R121, R122	07-94701-02	Chip resistor	4.7K Ω ,1206,1/4W, \pm 1%,RC1206FR-074K7L
R127, R128	07-91004-02	Chip Resistor	1M Ω ,1206,1/4W, \pm 1%,RC1206FR-071ML
R161	07-94707-06	Chip resistor	2512, 0R47, 1%, 2W
R162	07-91008-16	Chip resistor	2512, 1R, 1%, 2W
TH101	A07-70050-06	NTC	SCK13055LFY
	CAPACITORS		
C103	26-10151-01	Chip capacitor	0805, 100PF, 50V, NPO
C141, C142	26-10251-01	Chip capacitor	1nK,50V,0805,X7R
C105, C120, C121	26-10451-11	Chip capacitor	100nK,50V,0805,X7R,C2012X7R1H104KT
C108	26-22421-01	Chip capacitor	220nK,25V,0805,X7R
C135	26-10521-01	Chip capacitor	1uK,25V,0805,X7R
C139, C140	26-12222-12	Ceramic Chip Capacitor	1.2nF,200V, \pm 5%,NPO, C1206N122J201T / MA1206CG-122J-201ERG /
C113, C116, C129, C130	26-10362-12	Chip capacitor	10nK,630V,X7R,1206,1206CC103KA Z1A
CX102, C101	A25-15422-00	Interfernece Suppression Cap	MKP62, 150nF, 275VAC, X2, \pm 10%
C137, C138, CX101	A25-33422-08	Interfernece Suppression Cap	MKP62, 330nF,275VAC, \pm 20%
ZV101	A25-47422-08	Interfernece Suppression Cap	MPX,470nF,275VAC,X2, \pm 20%,Pitch=15mm,W18
CY101, C104	A05-10242-00	Hign Voltage Cermatic Capacitor	1nF, 400V(X1), 250V(Y1), \pm 20% CT81-400VAC-08b-2E4-102M-YA
CY102, CY103	A05-22242-00	High Voltage Ceramic Disc Capacitor	2.2nF, 400V(X1), 250V(Y1), \pm 20%
C104, C143, C144	06-10131-03	Alu Electrolytic Capacitor	CD286,100uF,35V, \pm 20%,105 $^{\circ}$ C
C106, C107	06-47111-25	Electrolytic Capacitor	RZW, 470uF,10V, \pm 20%,105 $^{\circ}$ C, F2.5
C102	06-10121-12	Alu Electrolytic Capacitor	CD284, 100uF, 25V, \pm 20%, 105 $^{\circ}$ C, F5.0
C123, C124	06-33122-06	Alu Electrolytic Capacitor	BL2D337M1835MBB,BL-series,330uF,200V, \pm 20%,105 $^{\circ}$ C,10000H 18*35.5mm
C109, C110, C111, C112	06-47151-08	Alu Electrolytic Capacitor	WL1H477M10020, 470uF,50V, \pm 20%,105 $^{\circ}$ C,5000hours.
ZV101	A78-000010-1	Heat Shrinking Tube	Φ 1,CB-HFT,BLACK
	INDUCTORS		
IC101	03-00274-00	Power controller IC	TNY274PN
	MOSFET		
Q116, Q117	31-01850-02	N-ch POWER MOSFET	FDPF18N50, 500V, 18A
Q118, Q119, Q120, Q121	31-00640-01	N-ch POWER MOSFET	IRF640NPbF, 200V
(Q118, Q119, Q120, Q121)用	78-251007-0	Insupad	Silicon,30X55X0.5mm

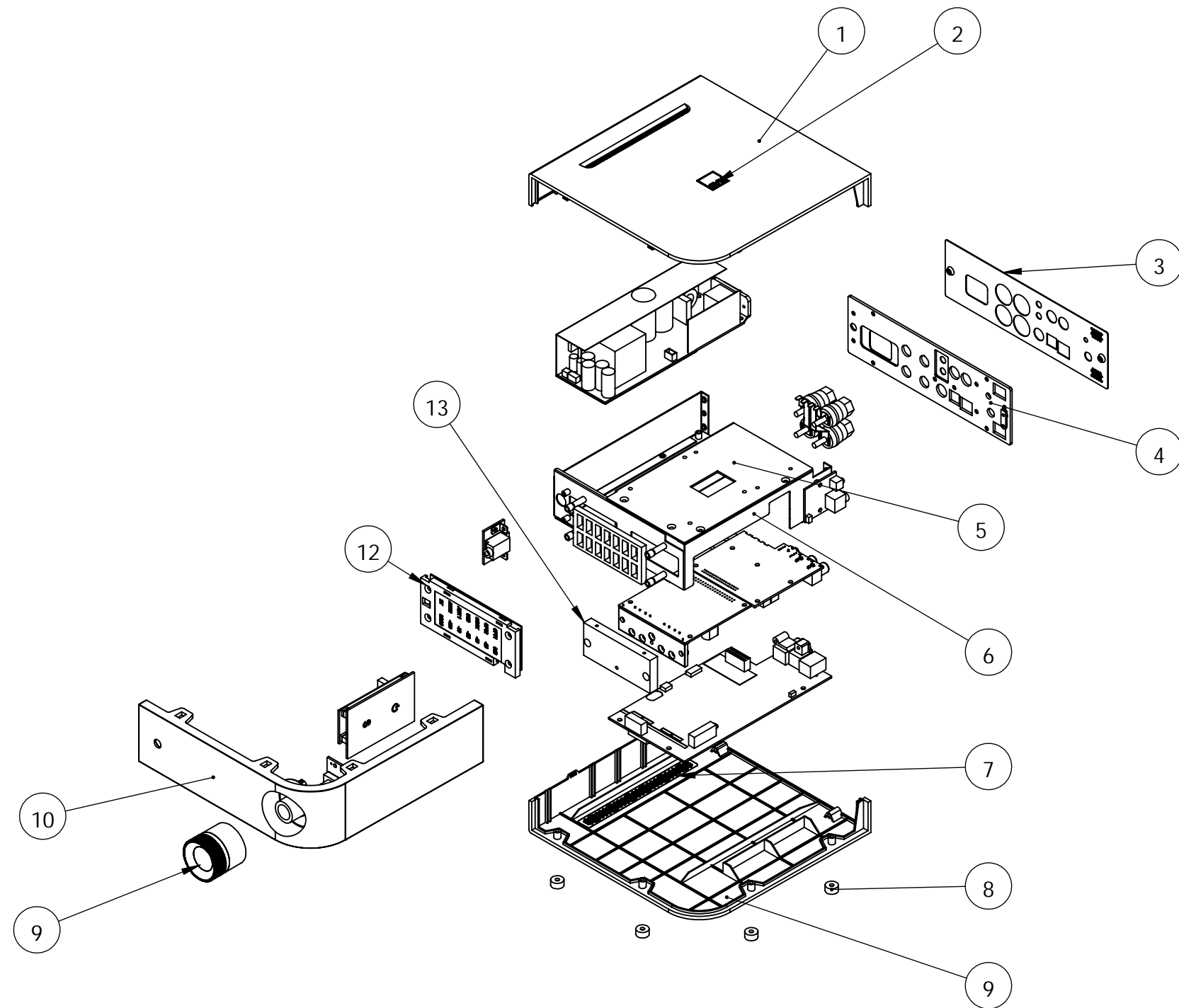
Q118, Q119, Q120, Q1210用	66-359002-0	Clamper	TRK-2
Q108	31-00139-03	16A four-quadrant triacs	BT139X-600E,127
Q101	31-00667-01	transistor	2SD667-D
	INDUCTORS		
L101	08-05220-00	INDUCTOR	22uH 3A, MESC-220M-01
L101	A78-000080-0	Heat Shrinking Tube	Φ8
L106	22-00016-26	INDUCTOR	HJ-7.0mH*2,T16x12x8C
L105	22-00127-00	Common Mode Choke	T12.7*7.9*6.3-1.2mH
L102	08-02100-01	INDUCTOR	10uH LGK0305-200N, Pitch=5mm
L103, L104	08-02065-00	Ferriet bead	65R/100MHZ 7A,BL01RN1A1F1J
L107, L108	08-04331-01	Ferriet Bead	BLM21AG331SH1D, 330R/100MHz 1.5A,0805
	TRANSFORMERS		
	66-018005-0	Clamper	65Mn HRC48-52
T102	A22-03230-01	Transformer	HJ-D3020-PQ3230
T101	A22-00016-31	Transformer	HJ-CA631 EE16
TR101	J22-07316-00	Transformer	SC7316-145A
	FUSES		
FUSE101	A20-12312-06	FUSE	5ET-032HA,T3.15A/250V
	CONNECTORS		
JM101	14-32301-00	Cabel	60227IEC01 BV1mm,L=55±3mm
(TO o/p BOARD J304)	14-32304-00	4 PIN WIRES	UL1569#26AWG,L=180mm
(TO o/p BOARD J303)	14-32306-00	6 PIN WIRES	UL1569#22AWG,L=165mm
J103	14-32303-01	3 PIN WIRES	UL1569#26AWGL=80mm
AC INET 101	A17-07103-20	AC Inlet	RF-190-ES 2.5A250VAC
	A78-000040-1	Heat Shrinking Tube	Φ4,CB-HFT,BLACK
	A14-23301-00	1PIN CBALE	UL1672#18WAG,
	METAL PARTS		
	70-359003-0	heatsink E	AL 1050
	70-359004-0	heatsink F	AL1050
	78-359006-1	insulpad A	GK-17,T=0.4mm
	78-359002-0	insulpad B	GK-17,48x34x0.4mm
	61-063512-1	Machine Screw	MF3x12
	61-063510-1	Machine Screw	MF3x10
	61-023506-0	Machine Screw	MB3x6
	62-010302-0	Nut	GB6170, M3
	63-020308-1	Spring Washer	φ3
PCB-15:PSU-2 BOARD			
CIRCUIT NO.	PART NO.		DESCRIPTION
	PCB INFO		
	A16-32317-21	PSU-2 PCB	VM1.0,FR-4,1.6mm.,TG150
	DIODES		
D118, D119	33-20316-01	High speed Diode	BAS316
D121, D122	33-40054-02	Schottky Rectifier Diode	BAT54J
	TRANSISTORS		
Q109	31-03326-01	Transistor	2SC3326-A(TE85L,F)
Q102, Q103, Q104, Q105	31-00846-02	Transistors	BC846BW 65V 100mA
Q106, Q107	31-00856-03	Transistor	BC856BW 65V 100mA
	ICS		
IC104	03-06477-02	IC DRIVER	ISL6744AABZ
U101, U102	03-00393-03	Dual Differential Comparator	LM393DR
U101, U102	or 03-00393-01	Dual Differential Comparator	LM393D
IC103	03-00431-11	Regulator	TL431BCDBZR
	RESISTORS		
R158	07-91009-00	Chip Resistor	10Ω,0603,1/10W,±1%,RC0603FR-0710RL

R154, R155	07-91000-00	Chip Resistor	100Ω,0603,1/10W,±1%,RC0603FR-07100RL
R102	07-92201-00	Chip Resistor	2.2KΩ,0603,1/10W,±1%,RC0603FR-072K2L
R160	07-92701-00	Chip Resistor	2.7KΩ,0603,1/10W,±1%,RC0603FR-072K7L
R123, R124, R125, R126	07-94701-00	Chip Resistor	4.7KΩ,0603,1/10W,±1%,RC0603FR-074K7L
R130, R131, R132, R133, R134	07-91002-00	Chip Resistor	10KΩ,0603,1/10W,±1%,RC0603FR-0710KL
R157	07-92002-00	Chip Resistor	20KΩ,0603,1/10W,±1%,RC0603FR-0720KL
R105	07-92202-00	Chip Resistor	22KΩ,0603,1/10W,±1%,RC0603FR-0722KL
R143, R144, R145	07-94702-00	Chip Resistor	47KΩ,0603,1/10W,±1%,RC0603FR-0747KL
R156	07-96802-00	Chip Resistor	68KΩ,0603,1/10W,±1%,RC0603FR-0768KL
R136, R137, R138, R139, R140, R141, R142	07-91003-00	Chip Resistor	100KΩ,0603,1/10W,±1%,RC0603FR-07100KL
R152	07-91004-00	Chip Resistor	1MΩ,0603,1/10W,±1%,RC0603FR-071ML
R159	07-91009-01	Chip resistor	10Ω,0805,1/10W,±1%,RC0805FR-0710RL
R153	07-91001-01	Chip resistor	1KΩ,0805,1/8W,±1%,RC0805FR-071KL
R148, R149	07-93903-02	Chip Resistor	390KΩ,1206,1/4W,±1%,RC1206FR-07390KL
	CAPACITORS		
C127	26-10151-20	Ceramic Chip Capacitor	100pF 50V X7R 0603
C133	26-18151-00	Ceramic Chip Capacitor	180pJ,50V,0603,NPO
C128	26-22151-10	Ceramic Chip Capacitor	220pF,50V,0603, 10%, X7R
C131, C132, C145	26-10251-10	Ceramic Chip Capacitor	1nJ,50V,0603,NPO,C1608C0G1H10 2JT
C117, C118, C119	26-10451-10	Ceramic Chip Capacitor	100nK,50V,0603,X7R
C114	26-22421-00	Ceramic Chip Capacitor	220nK,25V,0603,X7R
C134	26-10521-10	Ceramic Chip Capacitor	1uK,25V,0603,X5R
C136	26-22511-20	Chip capacitor	2.2uK,16V,0603,X7R
C115	26-22421-01	Chip capacitor	220nK,25V,0805,X7R
C126	26-47521-11	Ceramic Chip Capacitor	4.7uFK, 25V,0805,X5R
C122	06-22021-05	Alu Electrolytic Capacitor	CD284, 22uF, 25V, ±20%,F2.5
C125	06-47031-01	Alu Electrolytic Capacitor	CD286,47uF,35V,±20%,F2.5
	ICS		
U103	03-03043-01	ZERO-CROSS OPTOISOLATORS TRIAC DRIVER OUTPUT	MOC3043M
	CONNECTORS		
J101	13-12015-01	Connector	2.0mm,15pin,CNT-M200-1*15-GD-4/2.8/1.0-V45678
	14-32306-01	6PIN CABLE	1.0mm,6pin,L=40mm,105℃
TH102	A07-70022-12	Thermal Circuit Brake	ST-22 100℃ W TYPE L=100
	REMOTE		
	30-12330-01	Remote	XHY 971F52-1
	(N66-325010-0)	weight R	SPCC,,40.4x19.6x3mm
	PLASTIC PARTS		
	76-351011-0B	front panel	PC
	77-351001-1	top cover	ABS765B

	77-351002-1	bottom cover	ABS765B
	75-351002-0	round cover	ABS765B
	78-359004-0	insulpad D	GK-17,45x55x0.4mm
	METAL PARTS		
	66-351002-0	vent plate	SUS 304
	70-351003-1	Badge	AL,17x17mm
	J71-325002-0	knob_sec assy	ABS+AL+ABS
	66-325009-1	weight C	SPCC,27x20x2mm
	FASTENERS		
	61-062506-5	Machine Screw	MF2.5X6mm
	61-063208-0	Self Tapping Screw	BTf3x8
	61-023208-0	Self Tapping Screw	BTB3x8
	61-022206-6	Self Tapping Screw	BTB2.6x6,
	PACKING		
	88-351011-0A	gift box	BLACK PRINTING
	88-351012-1A	shipping box	INNER DIAMETER:445x278x
	88-351003-2	egg_A	BLACK PLUP
	90-351003-1	non clothes bag	360x260
	88-351015-0A	sleeve box	IMPORT KRAFT PAPER
	88-351006-0A	accessory box	BLACK PLUP
	88-351007-0	clap board A	296x250mm
	88-351008-1	clap board B	442x276mm
	88-325009-0	Remote box	BLACK
	90-351004-1	shink film	500x400mm
	79-351003-0	Feet	BLACK
	90-040002-0	Polybag	60x90mm
	94-359001-0	S/N Label	46x8mm
	86-000167-0	Copper plate Label	46x8mm
	94-359002-0	S/N Label	53x12mm
	86-000065-0	Copper plate Label	53x12mm
	94-359004-0	Shipping Box S/N Label	53x12mm
	86-000065-0	Copperplate Label	53x12mm
	94-359005-0	MAC ID label	20x8mm
	86-000148-0	Copper plate Label	20x8mm
	90-359002-0		PET T=0.07
	90-001013-0	AC Cord Polybag	105x280mm
	78-325008-0	insulpad F	GK-17,30x5x0.4mm,
	17-06001-05	Optical adaptor	AX-A03
	67-359001-0B	rear plate	SECC-N5, T=0.6mm
	80-359001-0	rear plate	SECC-N5, T=0.6mm
	65-359001-0	rear plate	SECC-N5, T=0.6mm
	A15-07125-10	AC Cord	DTII-3P-11+SVT 18#3C 60°C 1800mm BLACK+DTIII-3P-04
	orJA15-07125-08	AC Cord	LP-30B & SVT 18AWG 3C 60°C 1800mm BLACK & LS-15
	30-51500-01	Guarantee Card	AH
	94-359003-1	shipping box version Label	115x85mm,R=1mm
	30-43230-03	Quick start Gudie	157g Two-sided art paper 420X297mm,Fold After 210X297mm,BLACK
	67-359001-0B	rear plate	SECC-N5, T=0.6mm
	80-359001-0	rear plate	SECC-N5, T=0.6mm
	65-359001-0	rear plate	SECC-N5, T=0.6mm
	A15-16250-10	AC Cord	DTIII-2P-05+H03VV-F 3G0.75 1800mm BLACK+DTIII-3P-04

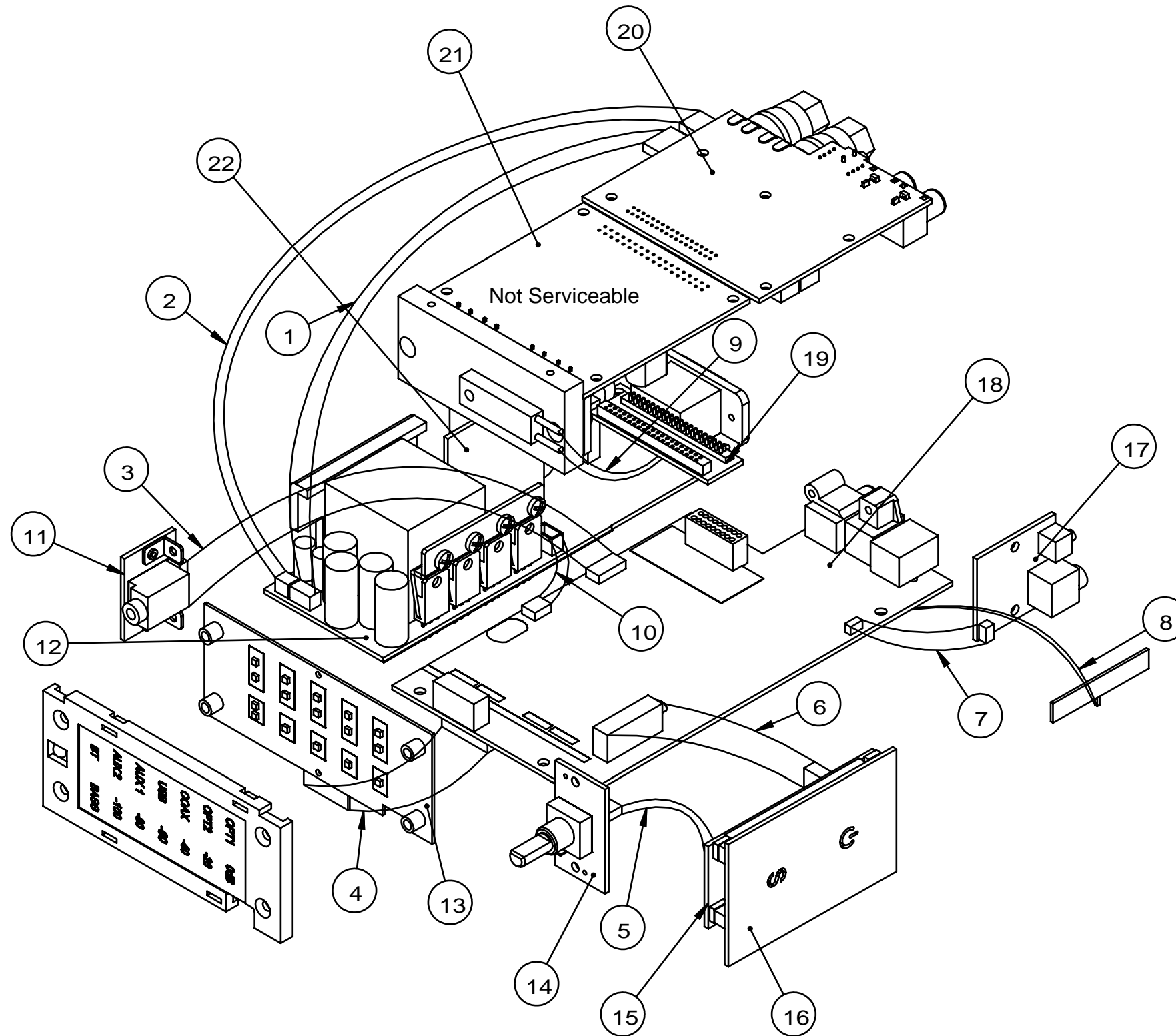
	orJA15-16250-09	AC Cord	LP34& H03VV-F 0.75mm ² 3C 1800mm BLACK & LS15
	94-359013-0	shipping box version Label	115x85mm,R=1mm
sleeve box(1)	94-359006-1	Version Label	46x25mm
sleeve box(1)	86-000169-0	Copperplate Label	46x25mm
	30-43230-03	Quick start Guide	157g Two-sided art paper,420X297mm,210X297mm, BLACK
	ACCESSORIES		
	M67-359011-0A	rear plate	SECC-N5, T=0.6mm
	80-359001-0	rear plate	SECC-N5, T=0.6mm
	65-359001-0	rear plate	SECC-N5, T=0.6mm
	A15-10250-38	AC Cord	DTII-3P-L2+CCC 53RVV 3x0.75mm ² 1800mm BLACK+DTIII-3P-04
	or JA15-10250-39	AC Cord	PC323M & RVV 300/300V 0.75mm ² 3C 1800mm Black & LS-15
	N94-359023-0	shipping box version Label	115x85mm,R=1mm
	M30-43231-00	Quick start Guide	157g Two-sided art paper,420X297mm, 210X297mm,BLACK

Exploded View Mechanical



D3020 PART LIST				
ITEM	PART NO.	PART NAME	QTY	REMARK
1	77-351001-1	TOP PANEL	1	
2	70-351003-1	BADGE	1	
3	67-359001-0B	REAR PLATE	1	
4	70-359001-0	INNER PLATE	1	
5	70-359003-0	HEAT SINK E	1	
6	66-359001-0	U TYPE BRACKET	1	
7	66-351002-0	VENT PLATE	2	
8	75-351002-0	ROUND COVER	4	
9	77-351002-1	BOTTOM COVER	1	
10	J71-325002-0	KNOB_SEC	1	
11	76-351011-0B	FROTN PANEL	1	
12	75-359001-0	LED BRACKET	1	
13	70-359002-0	HEAT SINK C	1	

Exploded View Electrical



ITEM	PN.	NAME
1	14-32306-00	
2	14-32304-00	
3	14-32305-00	FFC 5P 45mm
4	14-32314-00	FFC 14P 30mm
5	14-32306-01	FFC 6P 40mm
6	14-32310-00	
7	14-32305-01	
8	29-04601-02	
9	A07-70022-10	
10	14-32303-01	
11	01-32315-00	HEADPHONE BOARD
12	01-32309-00	PSU BOARD
13	01-32306-00	FPP BOARD
14	01-32313-00	POT BOARD
15	01-32307-00	TOUCH B BORAD
16	01-32308-00	TOUCH A BOARD
17	01-32312-00	TRIGGER BOARD
18	01-32302-00	PREAMP BOARD
19	01-32316-00	CONNECTIING BOARD
20	01-32304-00	OUTPUT BOARD
21	01-32310-00	UCD102 BOARD
22	01-32317-00	PSU-2 BOARD