

Cambridge Audio

Service Manual

851W



Specifications

Technical specifications

| | |
|------------------------------------|---|
| Power Output - Stereo/Mono | 200W per channel 8 Ohms 350W per channel 4 Ohms |
| Power Output - Bridged Mono | 500W 8 Ohms 800W 4 Ohms |
| THD (unweighted) | < 0.001% 1kHz < 0.005% 20Hz - 20kHz |
| Frequency Response | 5Hz - 80kHz \pm 1dB |
| S/N ratio (ref 1W/8 Ohm) | > 90 dB (unweighted) |
| Sensitivity | Stereo or Mono = (for 200W 8 Ohms) 1.5V rms unbalanced 1.5 + 1.5V rms balanced Bridged Mono = 0.775V rms unbalanced 0.775V + 0.775V rms balanced |
| Input impedances | Balanced input 38 kOhm Unbalanced input 68 kOhm |
| Damping factor | > 125 at 1 kHz |
| Trigger In | 5 - 12V AC or DC |
| Trigger Out | 12V DC @ 100mA |
| Power consumption | Maximum 2400W Active (no signal) < 180W |
| Standby | < 0.5W |
| Dimensions (H x W x D) | 148 x 430 x 365mm (5.8 x 16.9 x 14.4") |
| Weight | 19.1kg (42.1lbs) |

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This guide is designed to make installing and using this product as easy as possible. Information in this document has been carefully checked for accuracy at the time of printing; however, Cambridge Audio's policy is one of continuous improvement, therefore design and specifications are subject to change without prior notice.

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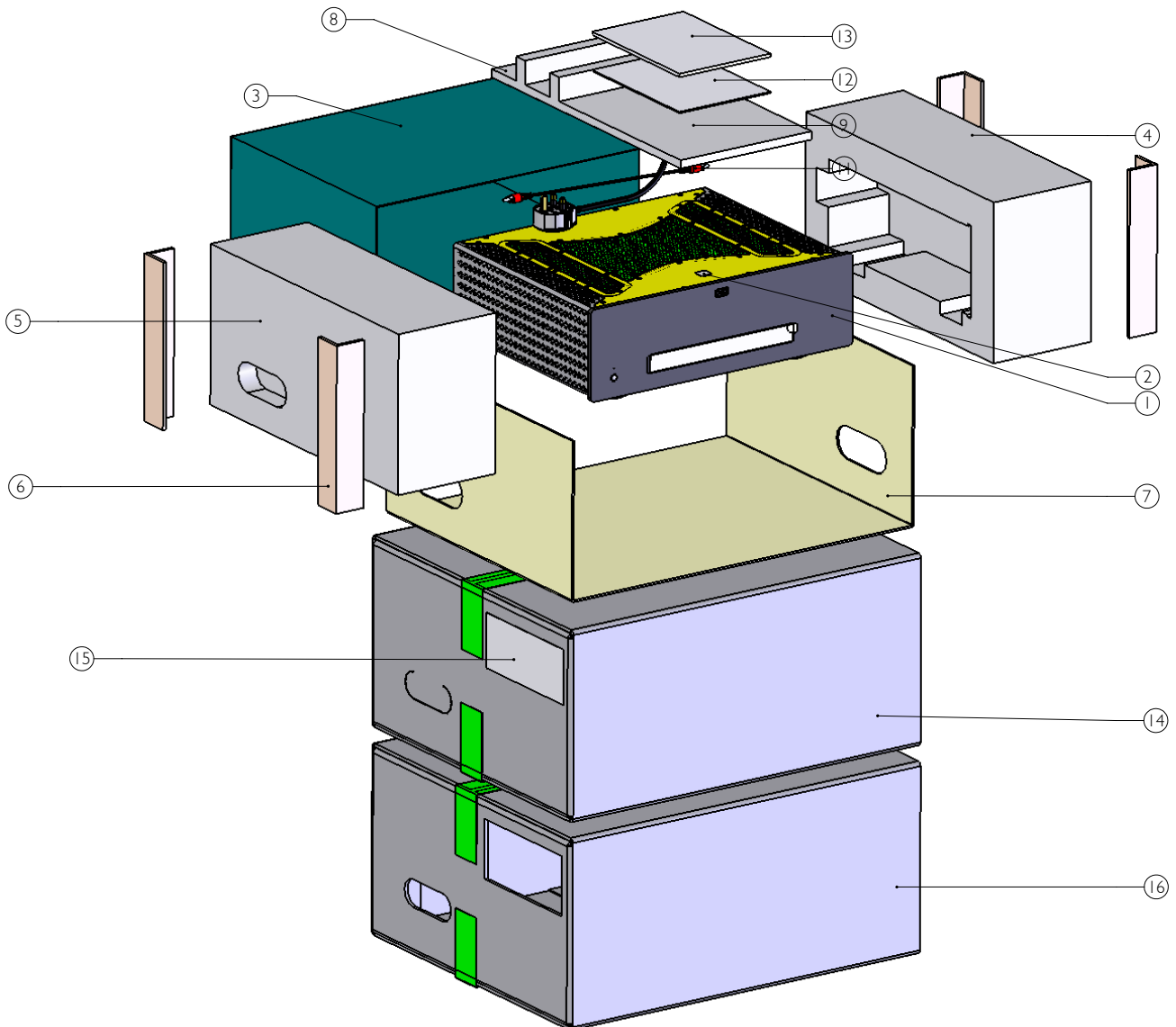
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Packaging Exploded Diagram

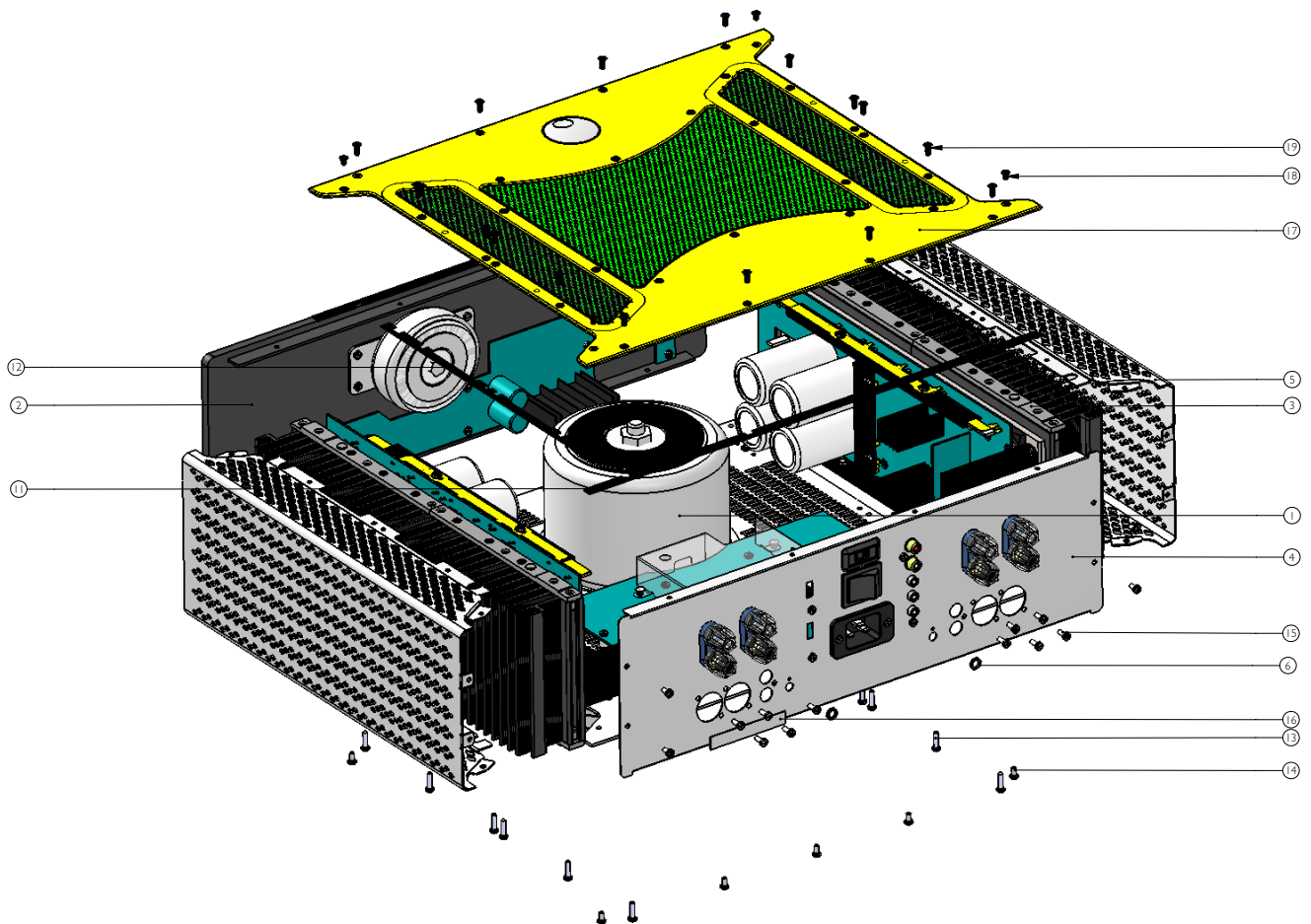
| Exploded view ref | Description | Service p/n |
|-------------------|--------------|-------------|
| 13 | User manual | PF627 |
| 4 | EPE pack | PF628 |
| 5 | EPE pack | PF628 |
| 8 | Top EPE pack | PF643 |
| 14 | Inner carton | PF629 |
| 16 | Outer carton | PF630 |



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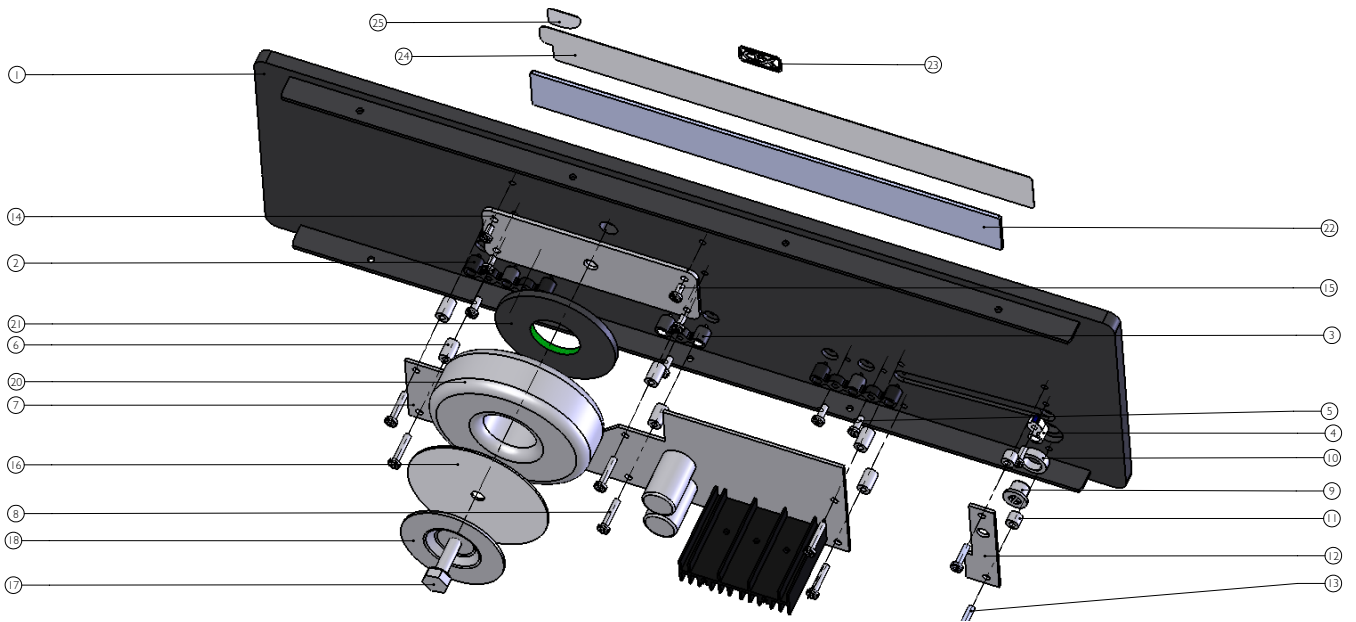
Unit Exploded Diagram

| view ref | Description | Service p/n |
|----------|------------------------|-------------|
| 5 | Side panel mesh silver | PF634 |
| 5 | Side panel mesh black | PF635 |
| 17 | Top panel silver | PF636 |
| 17 | Top panel black | PF637 |



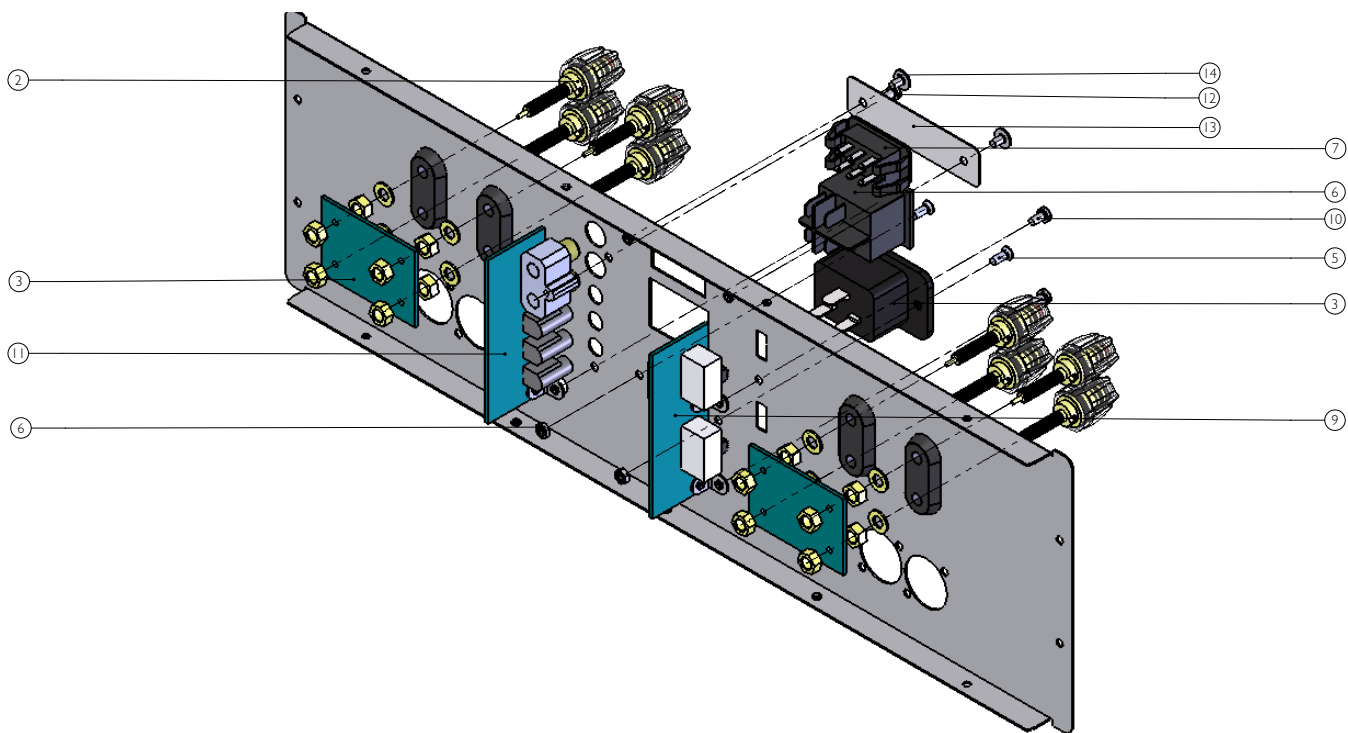
Front Panel Exploded Assembly

| Drawing ref | Description | Service Part Number |
|-------------|------------------------------------|---------------------|
| 1 | Front panel metal (Silver) | PF632 |
| 1 | Front panel metal (Black) | PF633 |
| 20 | Standby Transformer 110/115 V (US) | PF625 |
| 20 | Standby Transformer 230V (Europe) | PF626 |



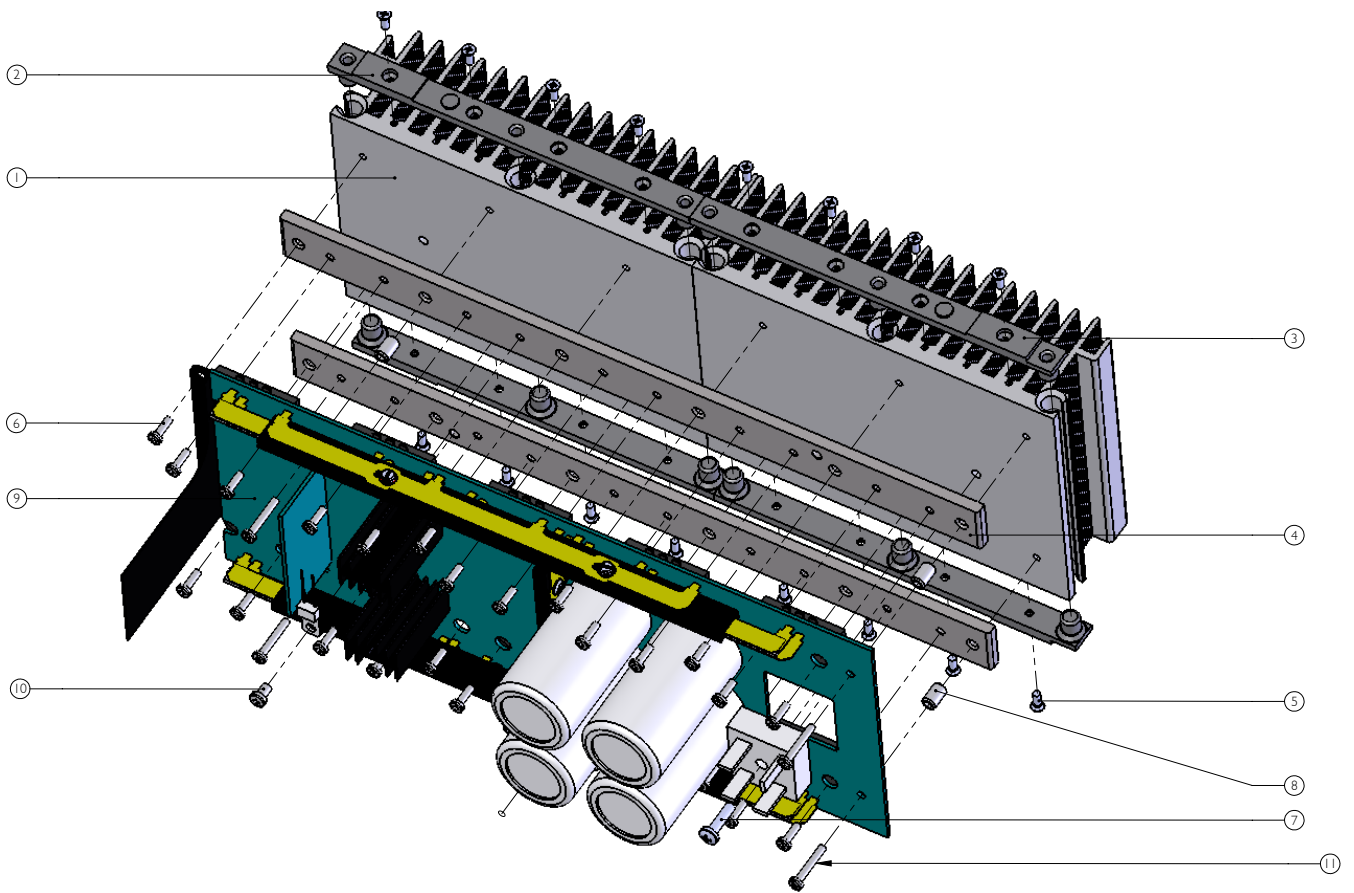
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Rear Panel Assembly Diagram



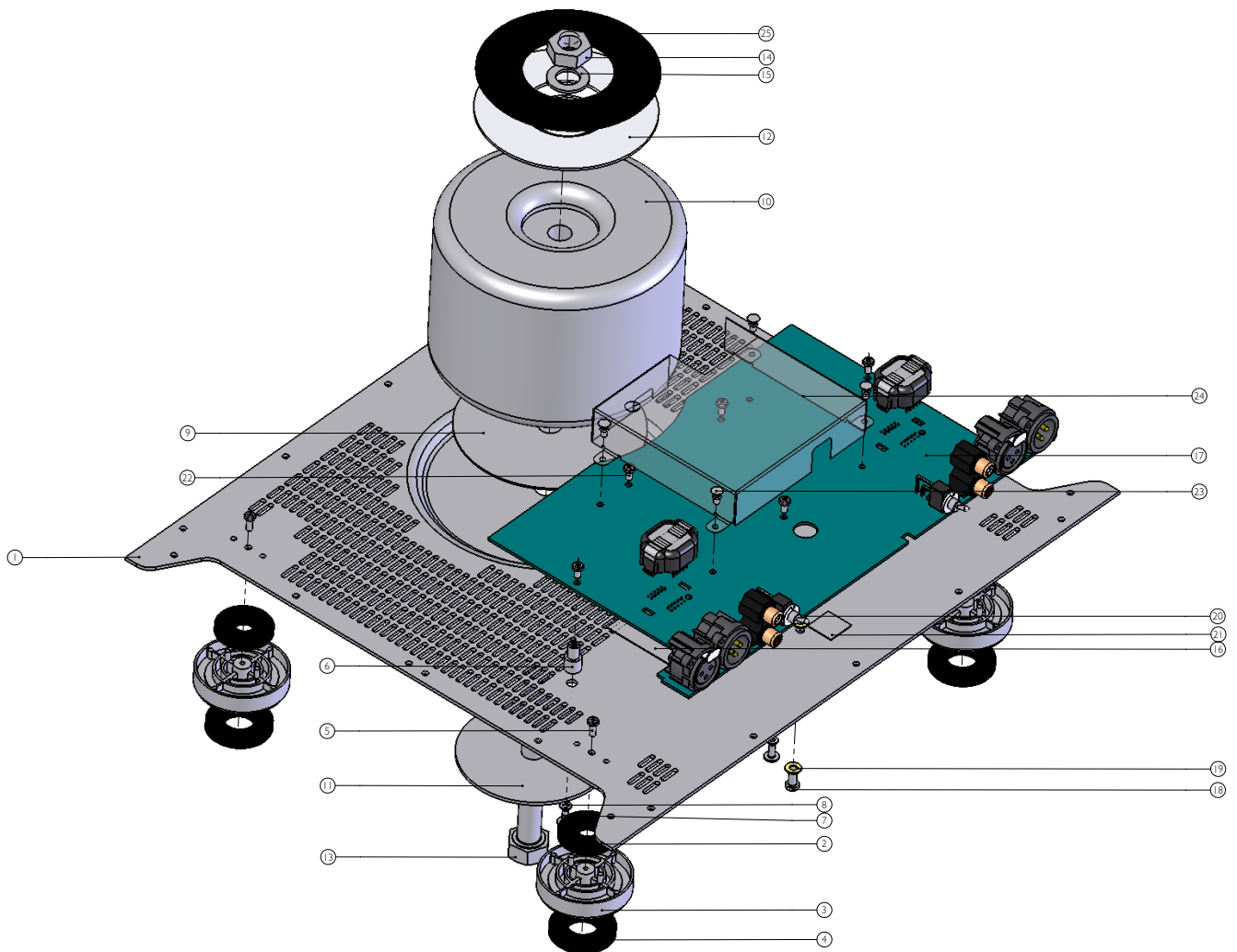
HEATSINK Assembly Diagram

| Drawing ref | Description | Service Part Number |
|-------------|---|---------------------|
| 9 | Power amplifier PCB Assy (same both channels) | PF638 |

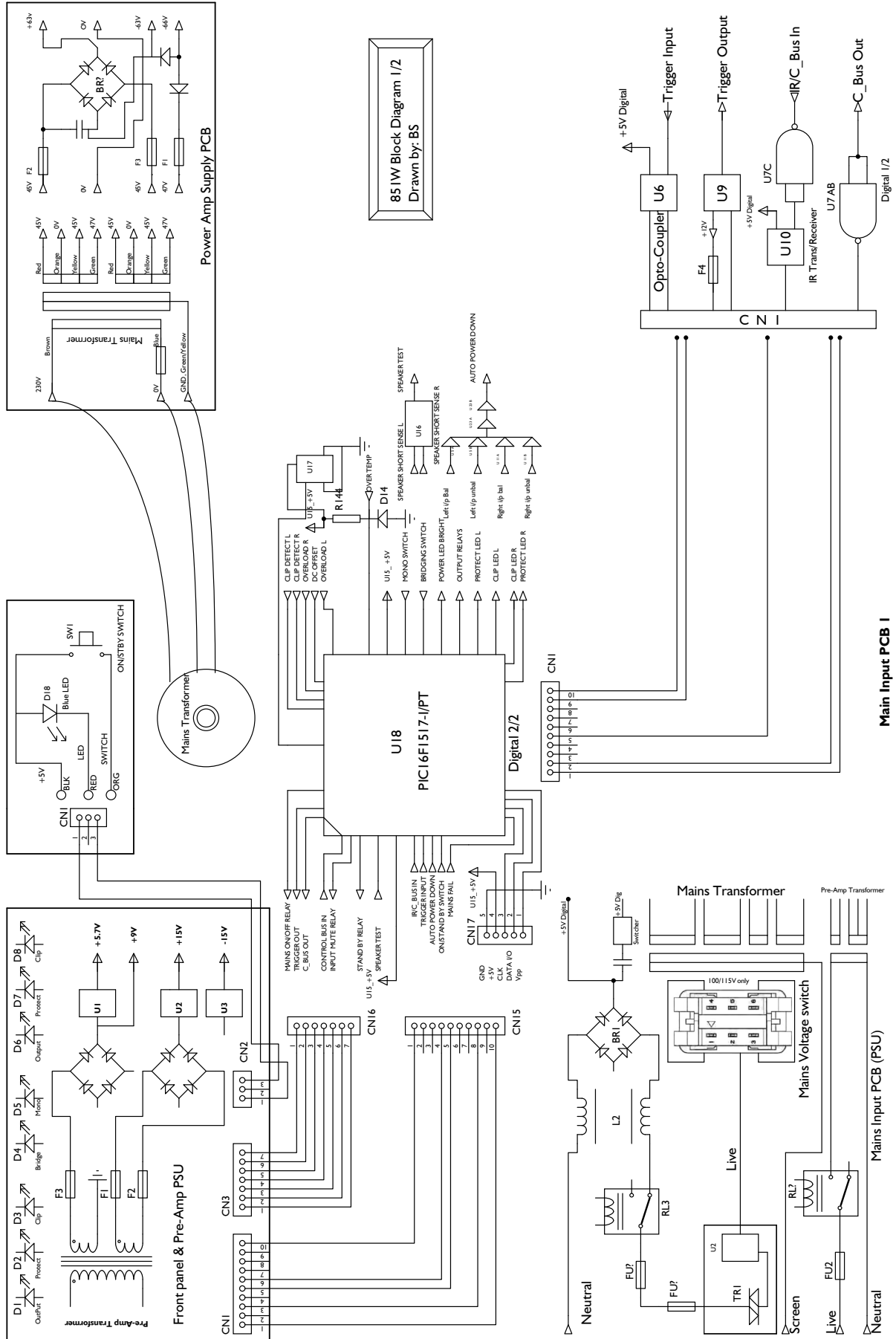


Bottom Panel Assembly Diagram

| Drawing ref | Description | Service Part Number |
|-------------|----------------------------------|---------------------|
| 10 | Mains transformer (US) 110/115 V | PZ749 |
| 10 | Mains transformer (Europe) 230 V | PZ750 |
| 17 | Input PCB assembly | PF642 |

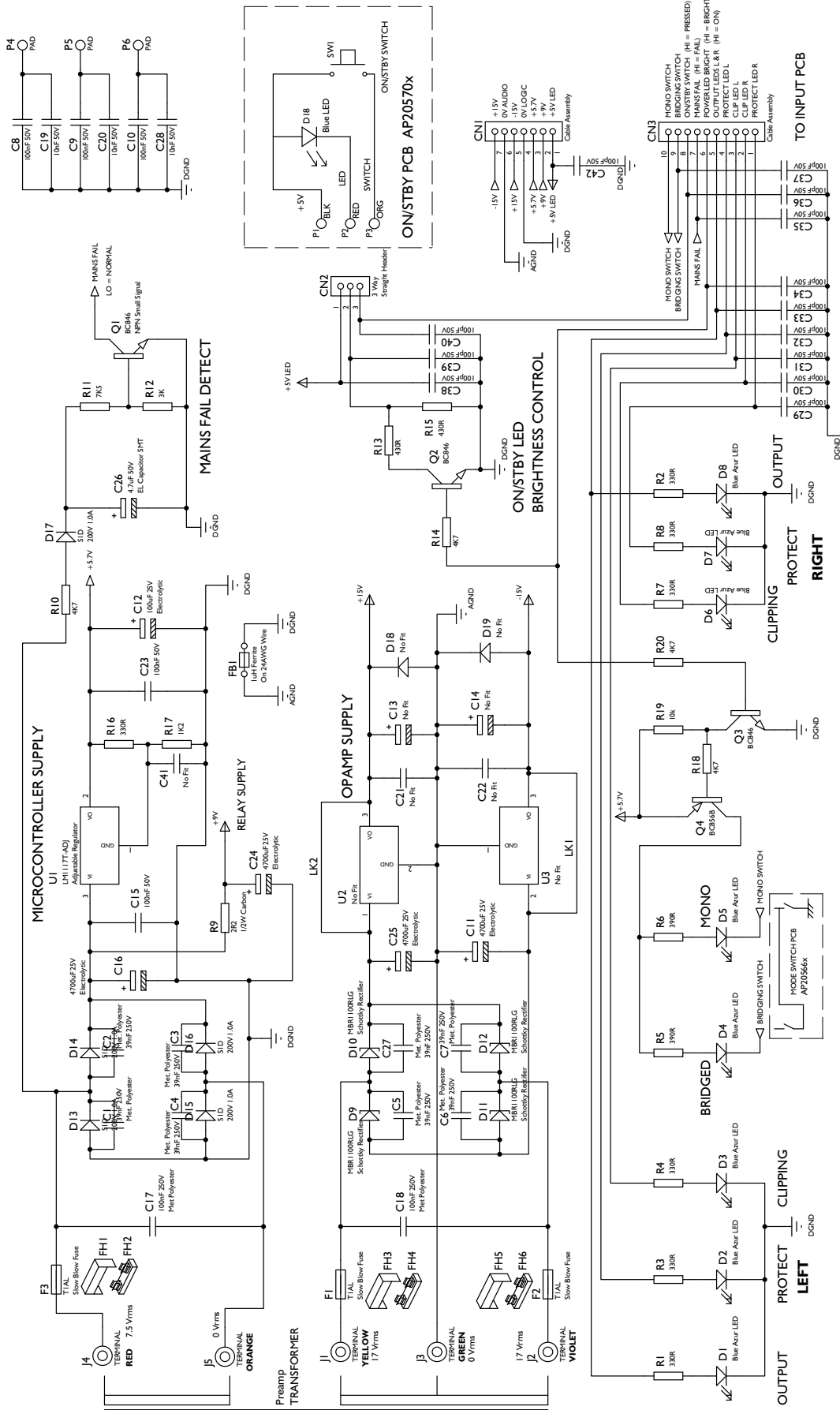


Main Board Block Diagram Input PCB

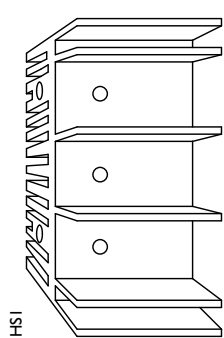
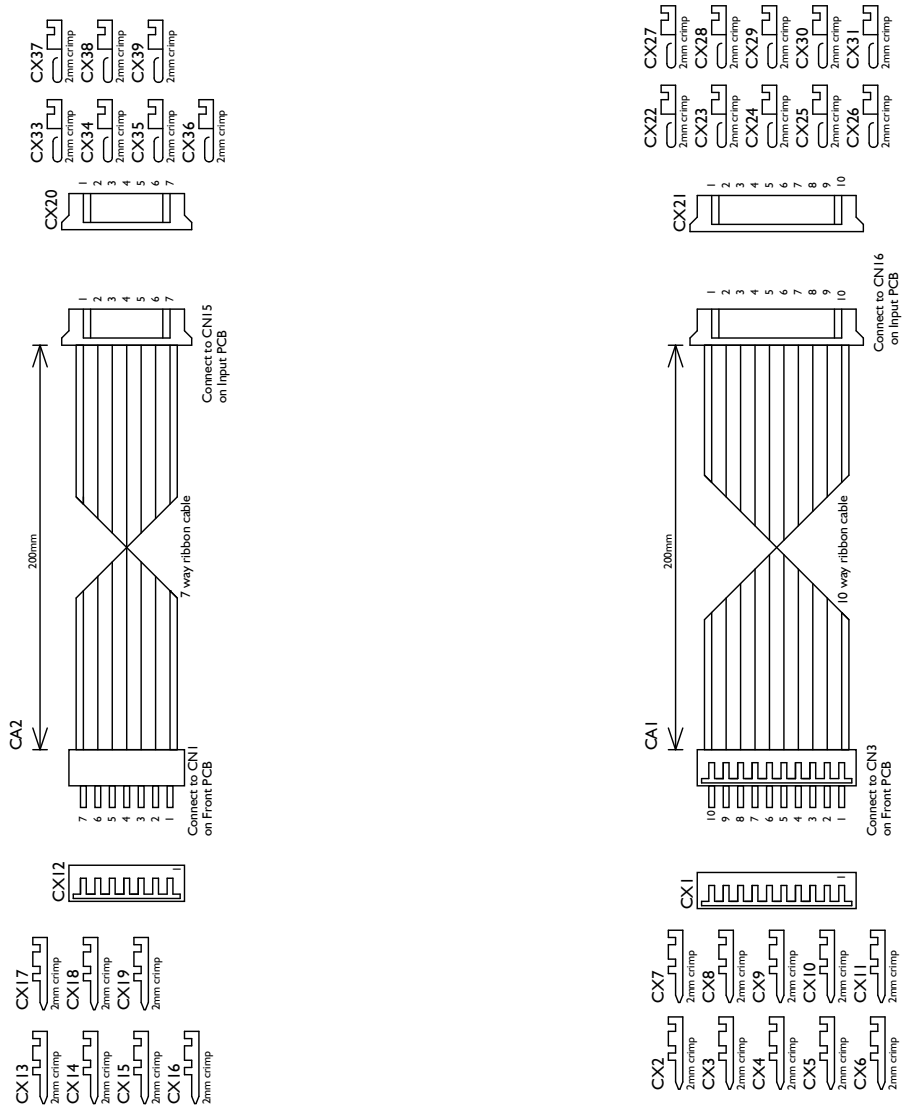


851W Block Diagram 1/2
Drawn by: BS

Front Panel PCBA Schematic - Power supply and LEDs



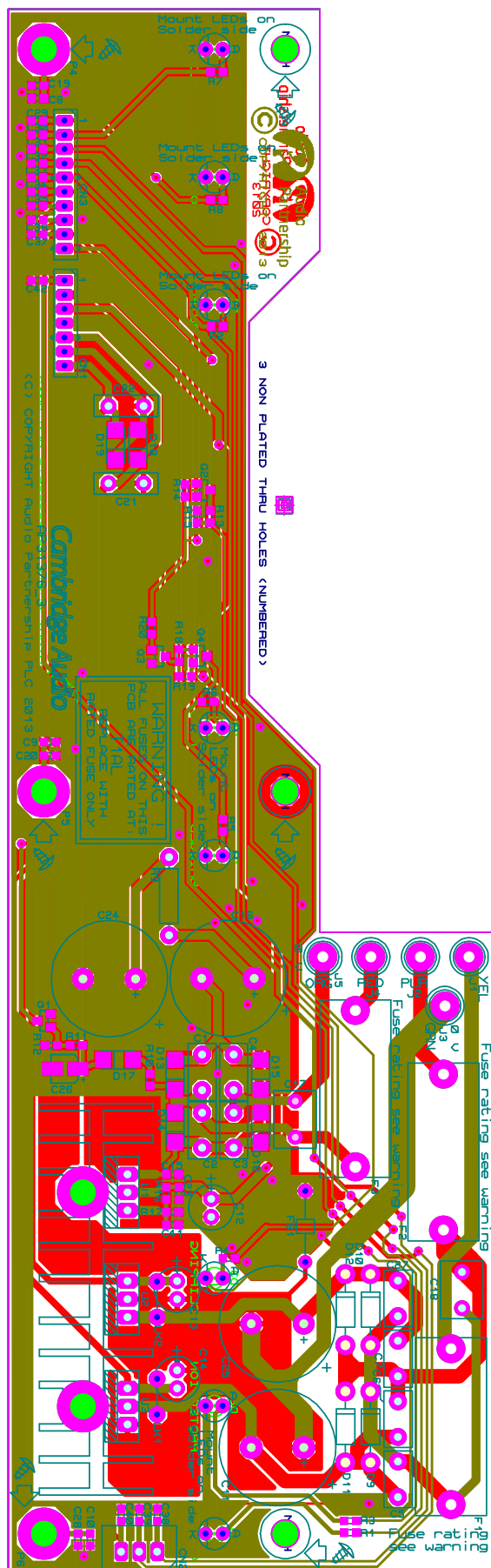
Front Panel PCBA Schematic - Mechanical parts



HSI
AP18773 / x
TO220 Heatsink 50mm, HEATSINK FOR THREE REGULATORS

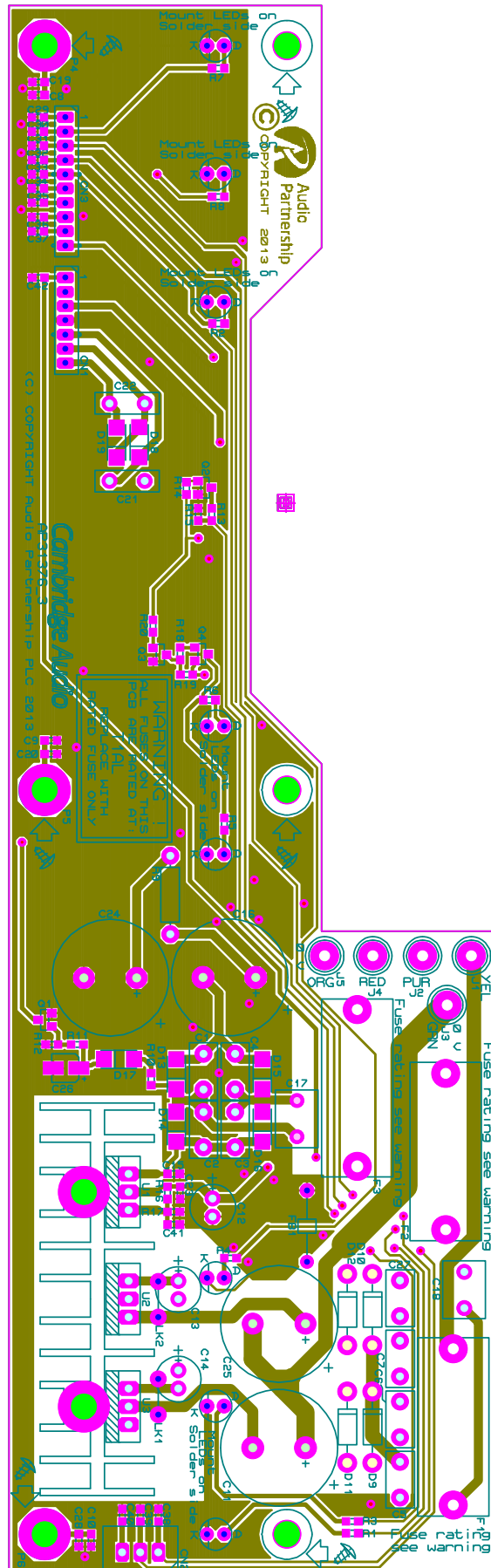
- SC4 13.6mm BTB
- SC5 13.6mm BTB
- SC3 13.6mm BTB
- SC2 13.6mm BTB
- SC1 13.6mm BTB
- S11 TO220
- S12 TO220
- S13 TO220
- TO220 SIL PADS x 3
- TO220 NYLON BUSHES x 3
- REGULATOR FIX SCREWS x 3
- BS1 nylon bush
- BS2 nylon bush
- BS3 nylon bush

Front Panel All Layer Gerbers -

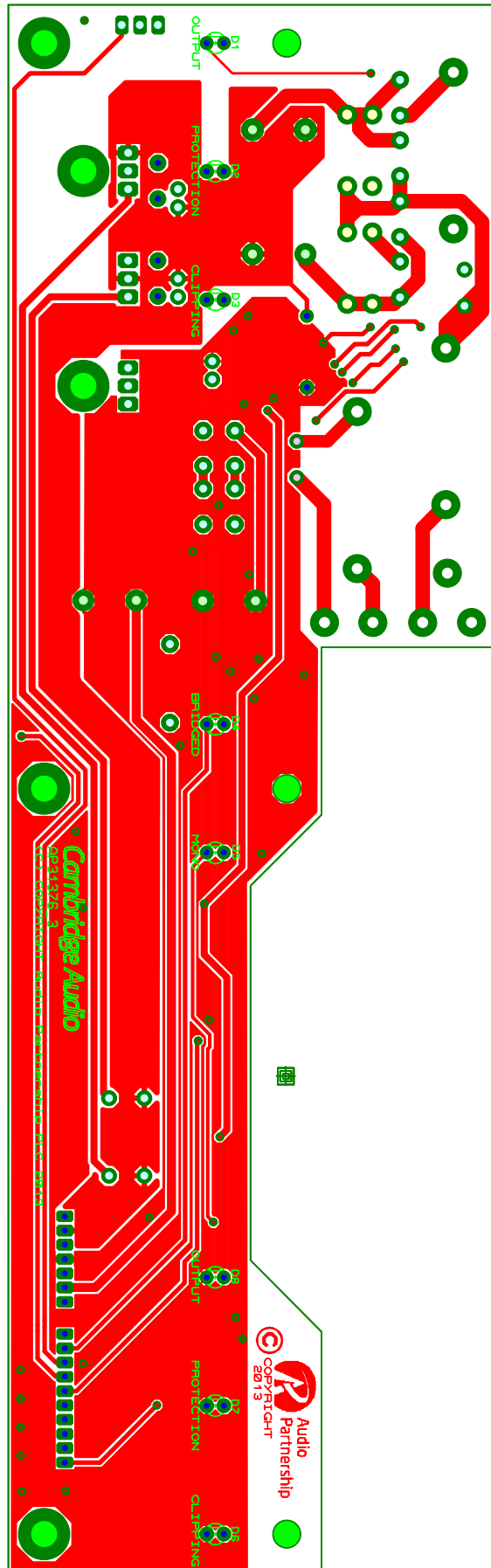


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Front Panel Gerbers - Top



Front Panel Gerbers - bottom



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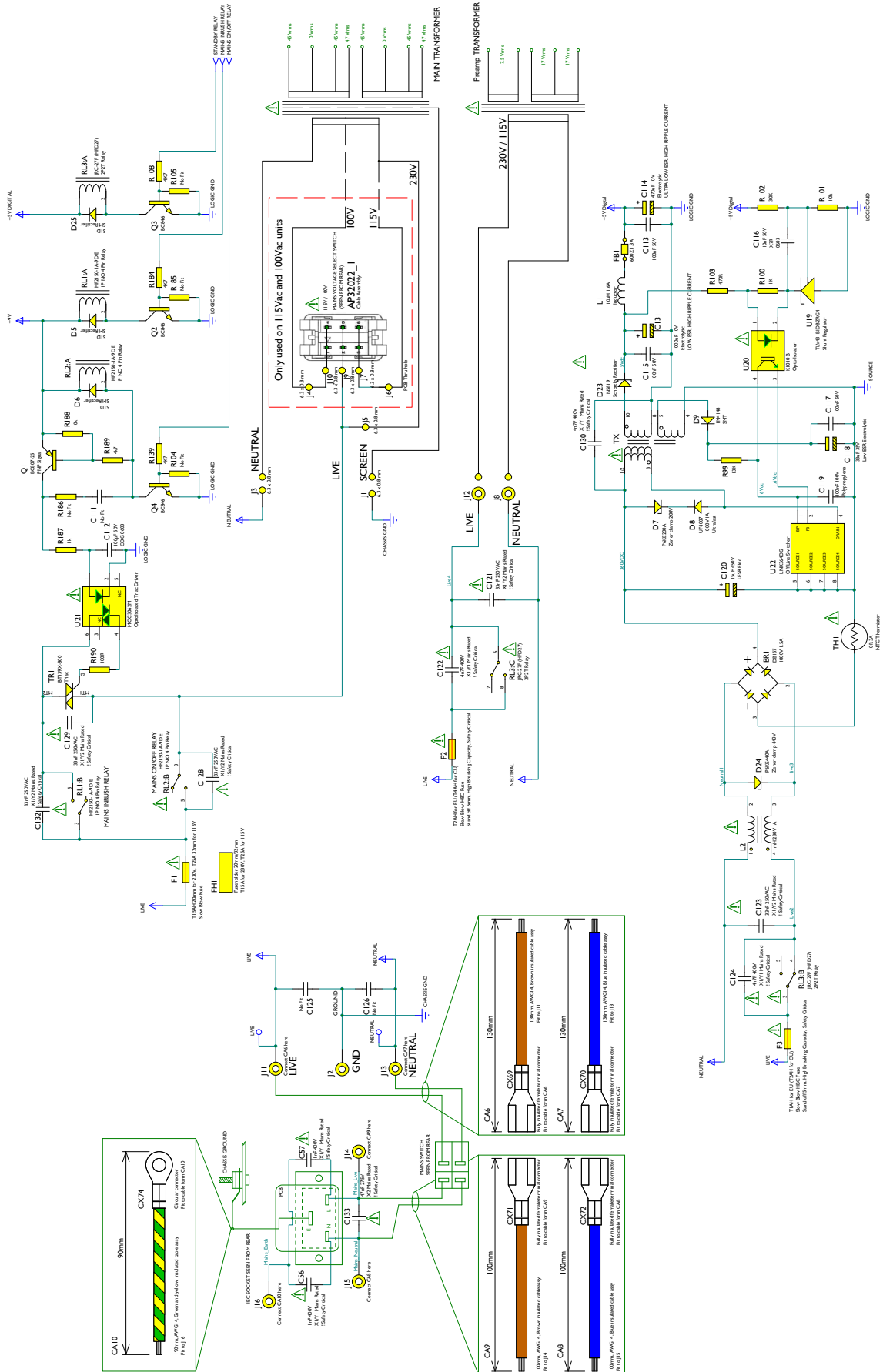
FRONT PANEL BOM

| Value | Description/Type | Qty | Component Ident | ManPN | Tolerance | PackageInfo | Factory ref | Service p/n |
|---------------------|----------------------|-----|--------------------|------------------|-----------|-----------------------------|-------------|-------------|
| CAPACITORS | | | | | | | | |
| 100pF 50V | NP0 0603 | 13 | C29-C40, C42 | | 5% | 0603 | | |
| 10nF 50V | X7R | 3 | C19, C20, C28 | | 10% | 0603 | | |
| 39nF 250V | Met. Polyester | 8 | C1-C7, C27 | CMEA393K250Rxxxx | 10% | 5mm Pitch Box | | |
| 100nF 50V | X7R 0603 | 5 | C8-C10, C15, C23 | | 10% | 0603 | | |
| 100nF 250V | Met Polyester | 2 | C17, C18 | CMEB104M250Rxxxx | 20% | 5mm Pitch Box | | |
| 4.7uF 50V | EL Capacitor SMT | 1 | C26 | | 20% | SMT Electrolytic 4mm dia | | |
| 100uF 25V | Electrolytic | 1 | C12 | | 20% | 6mm Dia | | |
| 4700uF 25V | Electrolytic | 4 | C11, C16, C24, C25 | | 20% | 16mm Dia | | |
| CONNECTORS | | | | | | | | |
| | | 1 | CN1 | | | Fit cable assembly CA2 | | |
| 3 Way | Straight Header | 1 | CN2 | B3B-XH-A | | 2.5mm Pitch | | |
| | | 1 | CN3 | | | Fit cable assembly CA1 | | |
| DIODES | | | | | | | | |
| Blue Azur LED | 3mm | 8 | D1-D8 | HFBA6303BMP | | | | |
| 100V 1A | Schottky Rectifier | 4 | D9-D12 | MBR1100RLG | | D041 | | |
| 200V 1.0A | SM Rectifier | 5 | D13-D17 | S1D | | D0214 | | |
| No Fit | | 2 | D18, D19 | | | | | |
| FUSES | | | | | | | | |
| T1AL | Slow Blow Fuse | 3 | F1-F3 | | | 20mm Glass | | |
| 2 Part | 20mm Fuse Cover | 3 | F1-F3 | | | | | |
| 2 Part | 20mm Fuse Holder | 3 | F1-F3 | | | | | |
| INDUCTORS | | | | | | | | |
| 1uH Ferrite | On 24AWG Wire | 1 | FB1 | FB-35608 | | 10mm Pitch | | |
| INTEGRATED CIRCUITS | | | | | | | | |
| ADJ | Adjustable Regulator | 1 | U1 | LM1117T-ADJ | | T0220 | | |
| TRANSISTORS | | | | | | | | |
| 65V 100mA | NPN Small Signal | 3 | Q1-Q3 | BC846 | | SOT23 | | PY1624 |
| -65V 100mA | PNP Small Signal | 1 | Q4 | BC856B | | SOT23 | | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

INPUT PCB Schematic - mains circuitry

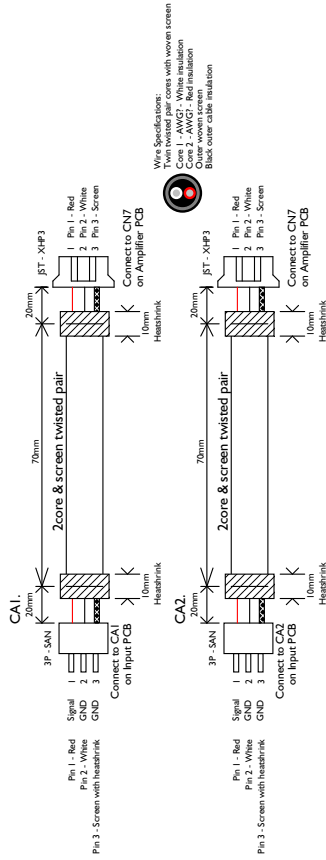
Mains



INPUT PCB Schematic - Cables

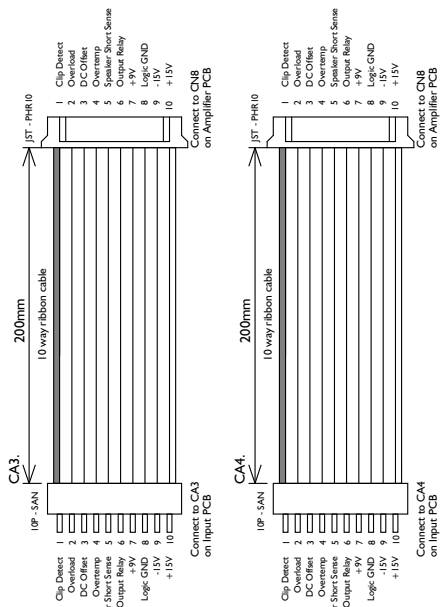
CABLES

CA1 & CA2
Two Cable Assemblies Required



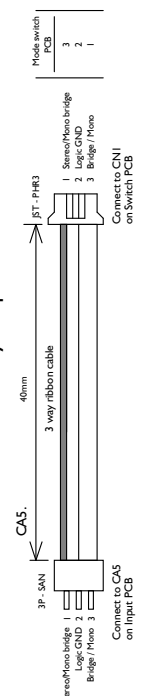
- CX30 2mm crimp
- CX21 2mm crimp
- CX22 2mm crimp
- CX33 2mm crimp
- CX34 2mm crimp
- CX35 2mm crimp
- CX51 3P-SAN
- CX53 3P-SAN
- CX36 2.5mm crimp
- CX37 2.5mm crimp
- CX38 2.5mm crimp
- CX4 2HP-3
- CX39 2HP-3

CA3 & CA4
Two Cable Assemblies Required



- CX5 2mm crimp
- CX6 2mm crimp
- CX7 2mm crimp
- CX8 2mm crimp
- CX9 2mm crimp
- CX10 2mm crimp
- CX11 2mm crimp
- CX12 2mm crimp
- CX13 2mm crimp
- CX14 2mm crimp
- CX15 PHR-10
- CX40 2mm crimp
- CX41 2mm crimp
- CX42 2mm crimp
- CX43 2mm crimp
- CX44 2mm crimp
- CX45 2mm crimp
- CX46 2mm crimp
- CX47 2mm crimp
- CX48 2mm crimp
- CX49 2mm crimp
- CX50 PHR-10

CA5
One Cable Assembly Required

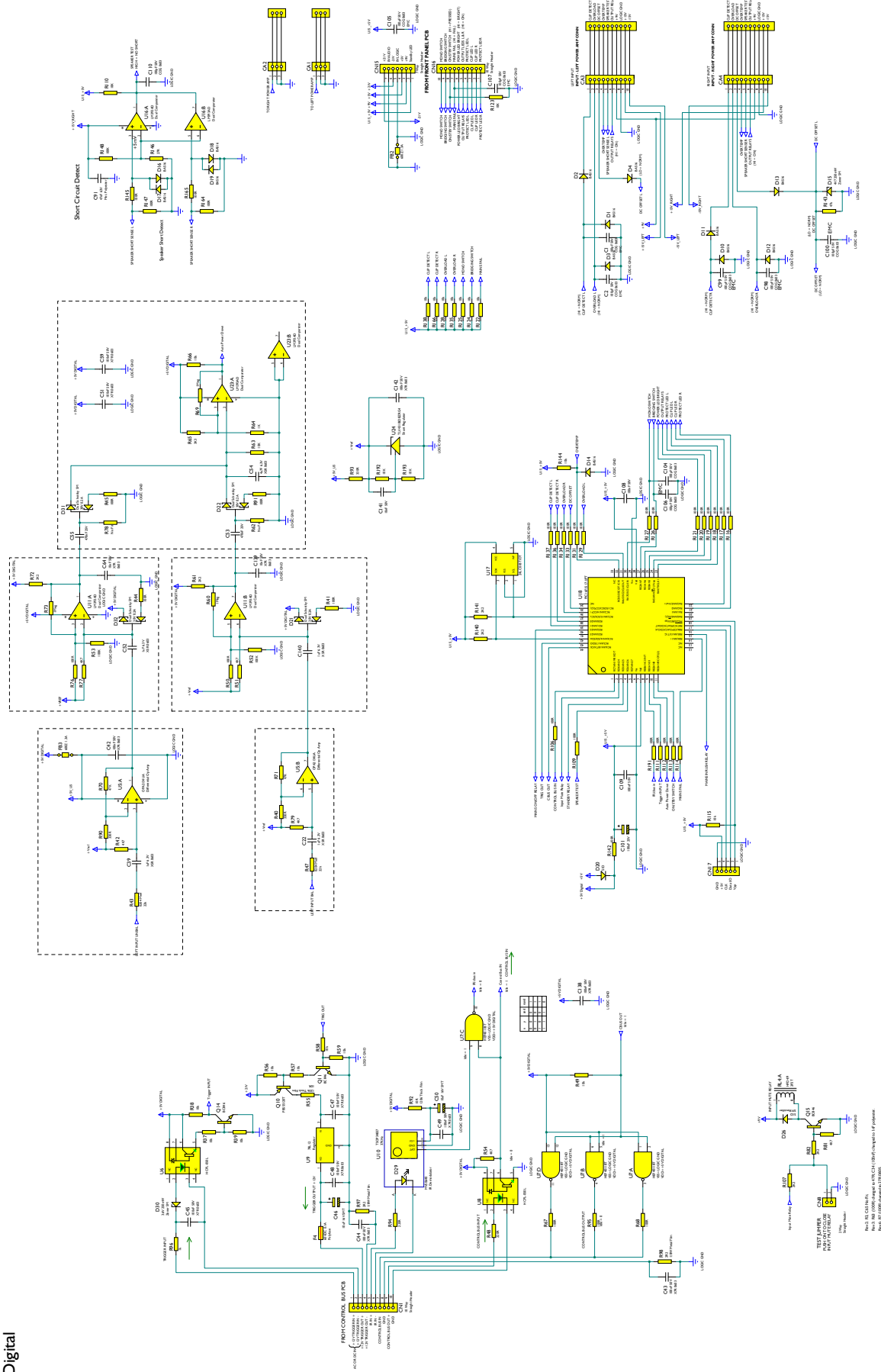


- CX16 2mm crimp
- CX17 2mm crimp
- CX18 2mm crimp
- CX19 PHR-3

- CX23 2mm crimp
- CX24 2mm crimp
- CX25 2mm crimp
- CX26 2mm crimp
- CX27 2mm crimp
- CX28 2mm crimp
- CX29 2mm crimp
- CX30 2mm crimp
- CX31 2mm crimp
- CX32 2mm crimp
- CX52 10P-SAN
- CX54 2mm crimp
- CX55 2mm crimp
- CX56 2mm crimp
- CX57 2mm crimp
- CX58 2mm crimp
- CX59 2mm crimp
- CX60 2mm crimp
- CX61 2mm crimp
- CX62 2mm crimp
- CX63 2mm crimp
- CX64 10P-SAN

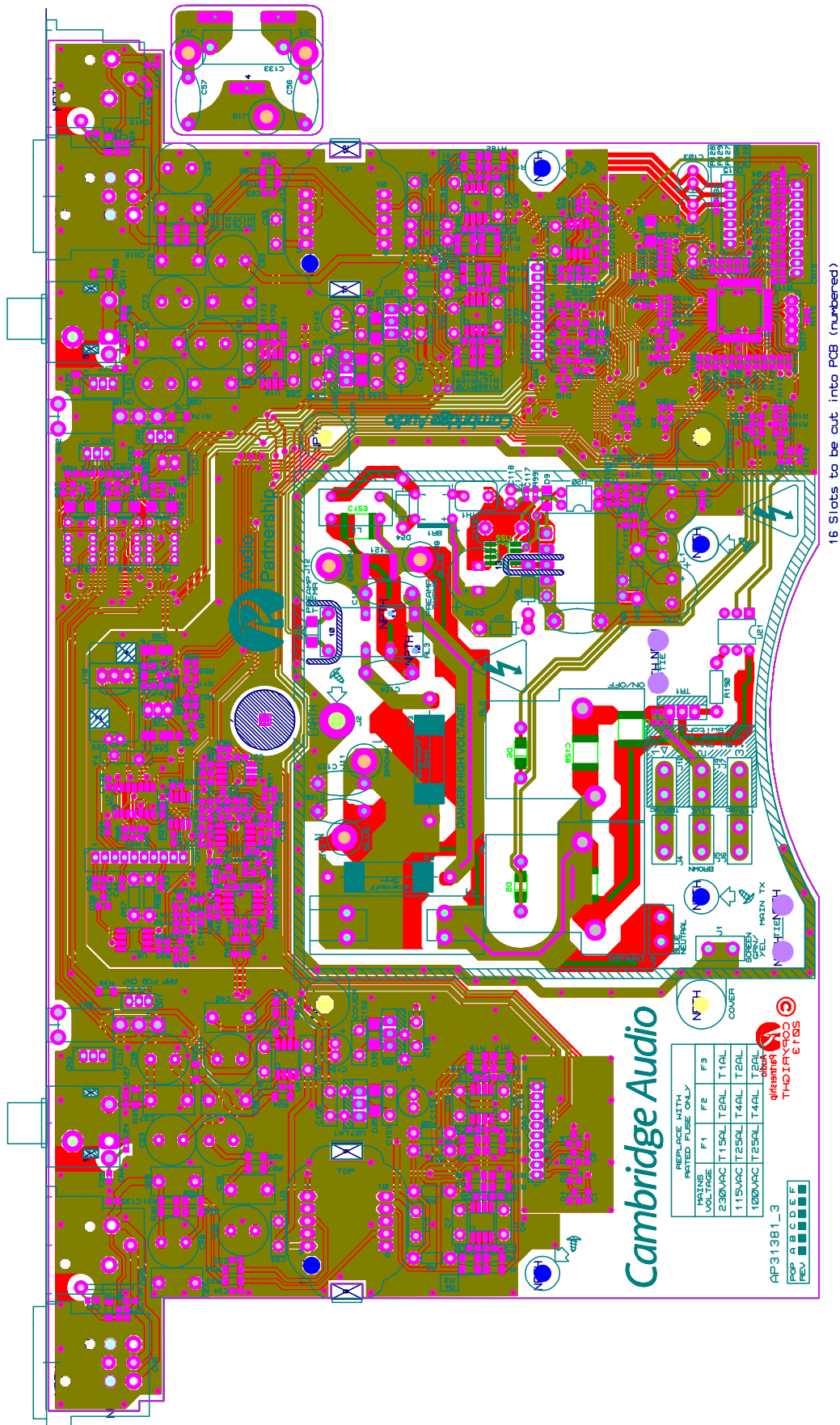
- CX65 2mm crimp
- CX66 2mm crimp
- CX67 2mm crimp
- CX68 3P-SAN

INPUT PCB Schematic - Microcontroller

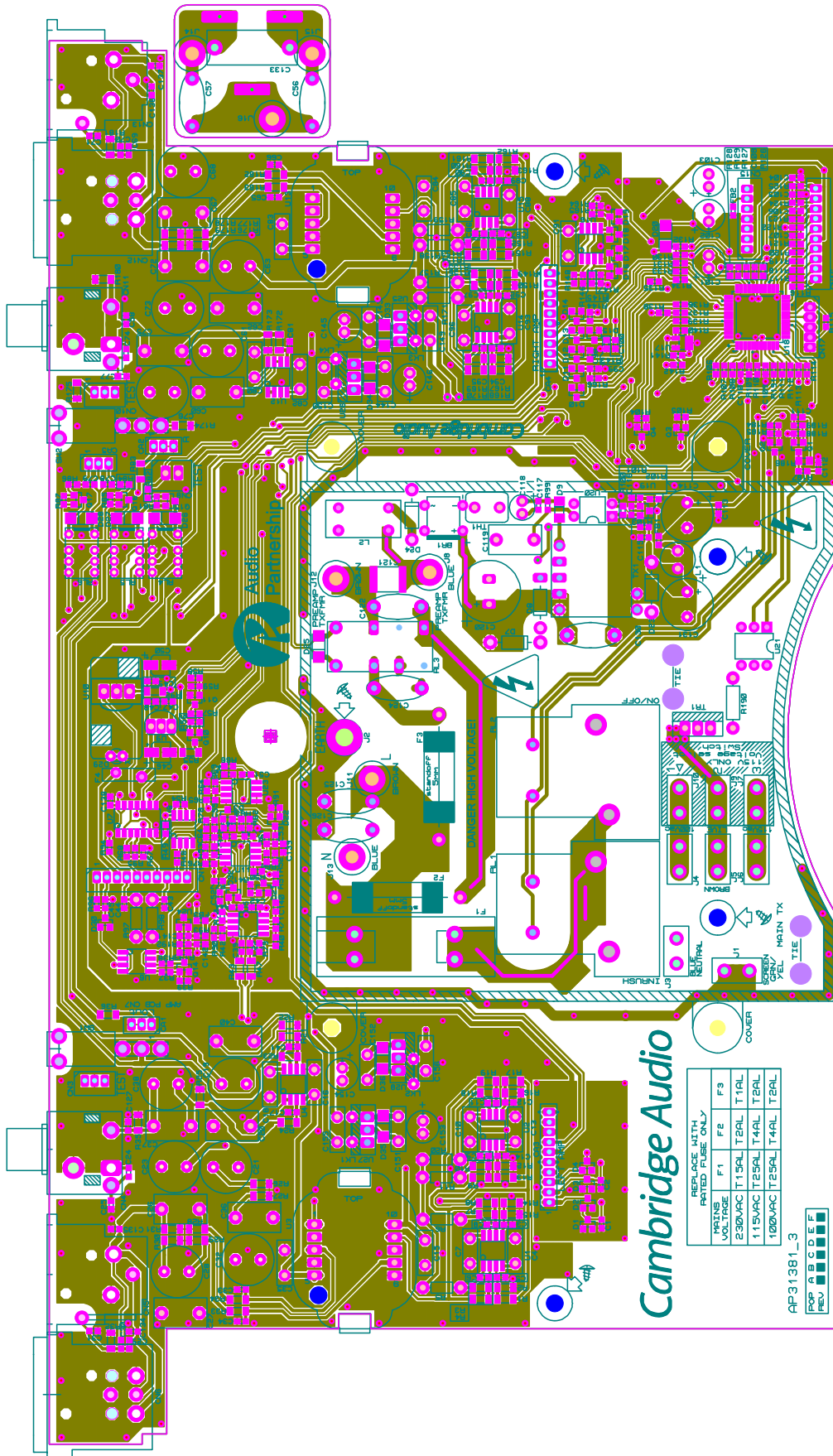


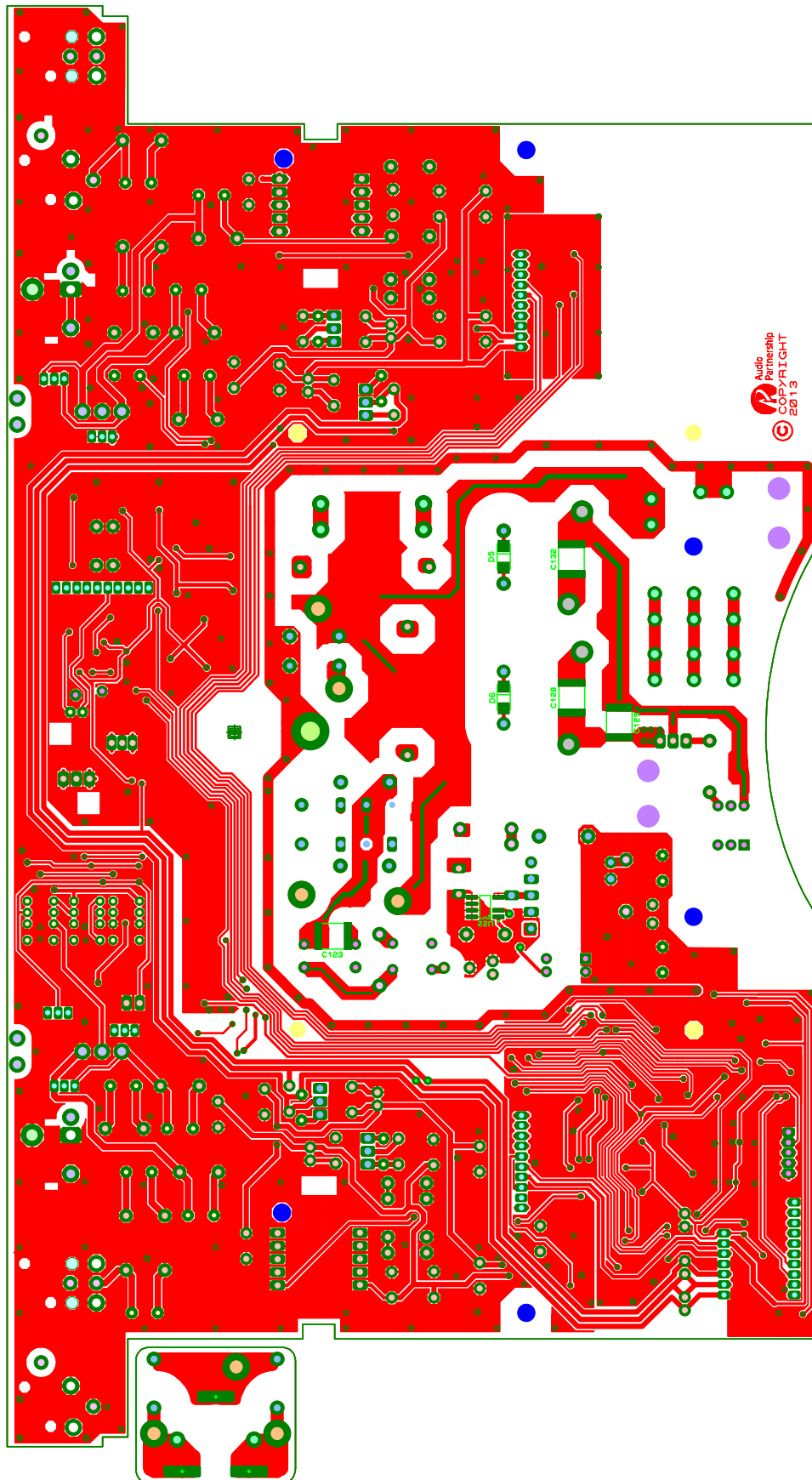
Digital

Input PCB all layer Gerbers



Input PCB TOP Gerbers





Input PCB Bottom BOM

| Value | Description/ Type | Qty | Component Ident | ManPN | Tolerance | PackageInfo | Factory P/N | Service P/N |
|-----------|----------------------|-----|---|-------|-----------|-------------|-------------|-------------|
| RESISTORS | | | | | | | | |
| No Fit | | 5 | R62, R78, R104, R105, R185 | | | | | |
| No Fit | | 1 | R186 | | | | | |
| 2R2 | 1/8W Metal Film | 10 | R5, R6, R11, R20, R97, R98, R157-R159, R171 | | 1% | 7.5mm Pitch | | |
| 10R | 1206 Thick Film | 2 | R55, R92 | | 1% | 1206 | | |
| 27R | 0603 Thick Film | 1 | R146 | | 1% | 0603 | | |
| 47R | 0204 Melf | 2 | R36, R83 | | 1% | 0204 | | |
| 100R | 0204 Melf | 2 | R32, R181 | | 1% | 0204 | | |
| 100R | 0603 Thick Film | 35 | R41, R44, R45, R50, R67, R68, R76, R91, R95, R106, R109, R111-R114, R116-R121, R126, R127, R129, R131, R133, R134, R136, R137, R142, R145, R147, R164, R165, R191 | | 1% | 0603 | | |
| 100R | 1/4W Metal Film | 1 | R190 | | 1% | 10mm Pitch | | |
| 220R | 0603 Thick Film | 2 | R48, R94 | | 1% | 0603 | | |
| 330R | 0603 Thick Film | 3 | R40, R90, R93 | | 1% | 0603 | | |
| 470R | 0603 Thick Film | 1 | R103 | | 1% | 0603 | | |
| 680R | 0204 Melf | 2 | R21, R23 | | 1% | 0204 | | |
| 750R | 0204 Melf | 16 | R2, R3, R7, R10, R12, R15, R16, R18, R150, R152, R153, R156, R160, R163, R167, R169 | | 1% | 0204 | | |
| 1K | 0204 Melf | 6 | R24, R33, R34, R172, R182, R183 | | 1% | 0204 | | |
| 1K | 0603 Thick Film | 4 | R64, R96, R100, R187 | | 1% | 0603 | | |
| 1k5 | 0204 Melf | 16 | R1, R4, R8, R9, R13, R14, R17, R19, R149, R151, R154, R155, R161, R162, R168, R170 | | 1% | 0204 | | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

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Input PCB Bottom BOM -1

| | | | | | | | | |
|------------|----------------------|----|---|-------------------------------|-----|-------------|-----------------|--|
| 2K2 | 0603 Thick Film | 6 | R61, R72, R82, R107, R140, R141 | | 1% | 0603 | | |
| 3K3 | 0603 Thick Film | 1 | R65 | | 1% | 0603 | | |
| 4K7 | 0603 Thick Film | 14 | R42, R51, R54, R77, R79, R81, R84-R87, R108, R139, R184, R189 | | 1% | 0603 | | |
| 10k | 0603 Thick Film | 27 | R37-R39, R49, R56-R59, R63, R66, R101, R110, R115, R122-R125, R128, R130, R132, R135, R138, R144, R166, R188, R192, R193 | | 1% | 0603 | | |
| 13K | 0603 Thick Film | 1 | R99 | | 1% | 0603 | | |
| 22K | 0204 Melf | 11 | R22, R25-R27, R29, R43, R47, R173-R175, R177 | | 1% | 0204 | | |
| 24k | 0204 Melf | 2 | R28, R176 | | 1% | 0204 | | |
| 30K | 0603 Thick Film | 1 | R102 | | 1% | 0603 | | |
| 47K | 0603 Thick Film | 3 | R70, R71, R143 | | 1% | 0603 | | |
| 100K | 0603 Thick Film | 3 | R52, R53, R148 | | 1% | 0603 | | |
| 220k | 0204 Melf | 6 | R30, R31, R35, R178-R180 | | 1% | 0204 | | |
| 1Meg | 0603 Thick Film | 3 | R60, R69, R73 | | 1% | 0603 | | |
| CAPACITORS | | | | | | | | |
| No Fit | | 16 | C3, C5, C6, C8, C9, C11, C12, C14, C86, C87, C89, C90, C92, C94, C95, C97 | | | | | |
| No Fit | | 1 | C111 | | | | | |
| No Fit | | 2 | C125, C126 | | | | | |
| 47pF 50V | NPO 0603 | 1 | C41 | | 5% | 0603 | | |
| 100pF 50V | COG 0603 | 25 | C1, C2, C17, C24, C29, C30, C33, C34, C65, C66, C69, C70, C74, C78, C79, C81, C98-C100, C104-C107, C110, C112 | | 5% | 0603 | | |
| 1nF 50V | NPO | 10 | C25, C31, C58, C71, C77, C127, C134-C137 | | 5% | 0603 | | |
| 1nF 400V | X1/Y1 Mains Rated | 2 | C56, C57 | YP1AH102K100 / JD102KY5PY1 | 20% | 9.5mm Pitch | Safety Critical | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Input PCB Bottom BOM -2

| | | | | | | | | |
|--------------|----------------------|----|--|-------------------------|------|--------------------------|------------------------------------|--|
| 4n7F 400V | X1/Y1 Mains Rated | 3 | C122, C124, C130 | CCDE472MBV09 | 20% | 9.5mm Pitch | Safety Critical | |
| 10nF 50V | X7R | 4 | C64, C116, C139, C141 | | 10% | 0603 | | |
| 33nF 250VAC | X1/Y2 Mains Rated | 5 | C121, C123, C128, C129, C132 | GA355XR7GB333KY06L | ±10% | X7R SMD Capacitor | Safety Critical | |
| 47nF 63V | Met. Polyester | 17 | C4, C7, C10, C13, C15, C16, C18, C35, C80, C82-C85, C88, C91, C93, C96 | | 10% | 5mm Pitch Box | | |
| 47nF 275V | X2 Mains Rated | 1 | C133 | | 20% | 15mm Pitch | Safety Critical | |
| 47nF 63V | Met. Polyester | 8 | C143, C144, C149-C152, C155, C156 | | 10% | 5mm Pitch Box | | |
| 100nF 100V | Polypropylene | 12 | C20, C26, C27, C36, C37, C40, C60, C62, C67, C72, C75, C119 | CMPA104K100RB075 | 10% | 7.5mm Pitch Box | | |
| 100nF 50V | X7R 0603 | 16 | C42-C45, C47-C49, C51, C59, C108, C109, C113, C115, C117, C138, C142 | | 10% | 0603 | | |
| 470nF 25V | X5R | 2 | C53, C55 | | 10% | 0603 | | |
| 1uF 6.3V | X5R 0603 | 4 | C22, C39, C52, C140 | | 10% | 0603 | | |
| 4u7F 6.3V | X5R 0603 | 1 | C54 | | 10% | 0603 | | |
| 10uF 16V SMT | EL Capacitor SMT | 2 | C46, C50 | | 10% | SMT Electrolytic 4mm dia | | |
| 15uF 450V | LESR Elec | 1 | C120 | EEUEE2W150 | 20% | 12.5mm Dia | High Reliability, Safety Critical | |
| 33uF 35V | Low ESR Electrolytic | 1 | C118 | LX | 20% | 5mm Dia | | |
| 100uF 50V | Nover RB NP Elec | 10 | C19, C21, C23, C32, C38, C61, C63, C68, C73, C76 | RB Bipolar 050058 | 20% | 10mm Dia, 5mm Pitch | | |
| 100uF 50V | Nover RB NP Elec | 1 | C28 | RB Bipolar 050058 | 20% | 10mm Dia, 5mm Pitch | | |
| 100uF 25V | Electrolytic | 7 | C101-C103, C145, C146, C153, C154 | | 20% | 6mm Dia | | |
| 470uF 10V | Electrolytic | 1 | C114 | | 20% | 8mm Dia | ULTRA LOW ESR, HIGH RIPPLE CURRENT | |
| 1000uF 10V | Electrolytic | 1 | C131 | TR series or equivalent | 20% | 10mm dia | LOW ESR, HIGH RIPPLE CURRENT | |
| DIODES | | | | | | | | |
| 1000V 1.5A | | 1 | BR1 | DB157 | | DIL | Safety Critical | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

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Input PCB Bottom BOM -3

| | | | | | | | | |
|---|-------------------------|----|-------------------------------|--------------------|--|------------------------------|---|--------|
| 75V 300mA | Signal | 13 | D1-D4, D10-D14, D16-D19 | BAS16 | | SOT23 | | PY1849 |
| 200V 1A | SM Rectifier | 5 | D5, D6, D20, D25, D28 | S1D | | | | |
| 200V TVS/ Zener | Zener clamp 200V | 1 | D7 | P6KE200A | | D041 | Safety Critical | |
| 1000V 1A | Ultrafast | 1 | D8 | UF4007 | | D041 | Safety Critical | |
| 1N4148 | SMT | 1 | D9 | | | SOD80 | | |
| 4V7 250mW | Zener SM | 1 | D15 | BZX84C4V7 | | SOT23 | | |
| 30V 0.2A | Dual Schottky SM | 4 | D21, D22, D31, D32 | BAT54S | | SOT23 | | |
| 40V 1A | Schottky Rectifier | 1 | D23 | 1N5819 | | D041 | | |
| 440V TVS/ Zener | Zener clamp 440V | 1 | D24 | P6KE440A | | D041 | Safety Critical | |
| 200V 1A | SM Rectifier | 2 | D26, D27 | S1D | | | | |
| | IR Demodulator | 1 | D29 | MV50640 | | | | |
| 3.6V 250mW | Zener SM | 1 | D30 | BZX84C3V6 | | SOT23 | | |
| 200V | 1.0A SM Rectifier | 4 | D33-D36 | S1D | | | | |
| | | | | | | | | |
| FUSES | | | | | | | | |
| T15AH 20mm for 230V, T25A 32mm for 115V | Slow Blow Fuse | 1 | F1 | | | | Glass fuse. Safety Critical | |
| T2AH for EU (T4AH for CU) | Slow Blow HBC Fuse | 1 | F2 | 50CT (P) 020H | | 20mm Axial solder in Fuse | Stand off 5mm. High Breaking Capacity, Safety Critical | |
| T1AH for EU (T2AH for CU) | Slow Blow HBC Fuse | 1 | F3 | 50CT (P) 010H | | 20mm Axial solder in Fuse | Stand off 5mm. High Breaking Capacity, Safety Critical | |
| 60VDC 0.1A | Polyfuse | 1 | F4 | | | | | |
| T15A for 230V, T25A for 115V | Fuseholder 20mm/32mm | 1 | FH1 | OGD | | | | |
| | | | | | | | | |
| INDUCTORS | | | | | | | | |
| 600Z 1.3A | Ferrite Bead 0603 | 3 | FB1-FB3 | BLM18KG601SN1D | | 0603 | 600Z @100MHz | |
| 10uH 1.6A | Inductor | 1 | L1 | PK0608-100K-UL-050 | | 7mm Dia | | |
| 1mH 230V 1A | Common Mode | 1 | L2 | 7.45E+08 | | 15x7.5mm | Safety Critical | |
| | SMPS TX | 1 | TX1 | SG2024 | | | Safety Critical | |
| | | | | | | | | |
| INTEGRATED CIRCUITS | | | | | | | | |
| | Dual Audio Op Amp | 6 | U1, U2, U4, U12, U14, U15 | NE5532D | | SOIC08 | | PY1162 |
| Unity gain | UNITY GAIN MODULE | 2 | U3, U13 | AP22639/x | | | Terrapin module | |
| | Differential Op Amp | 1 | U5 | OPA2134UA | | SOIC08 | | PMA055 |
| HCPL-050L | Optoisolator | 2 | U6, U8 | HCPL-050L | | S08 | | |

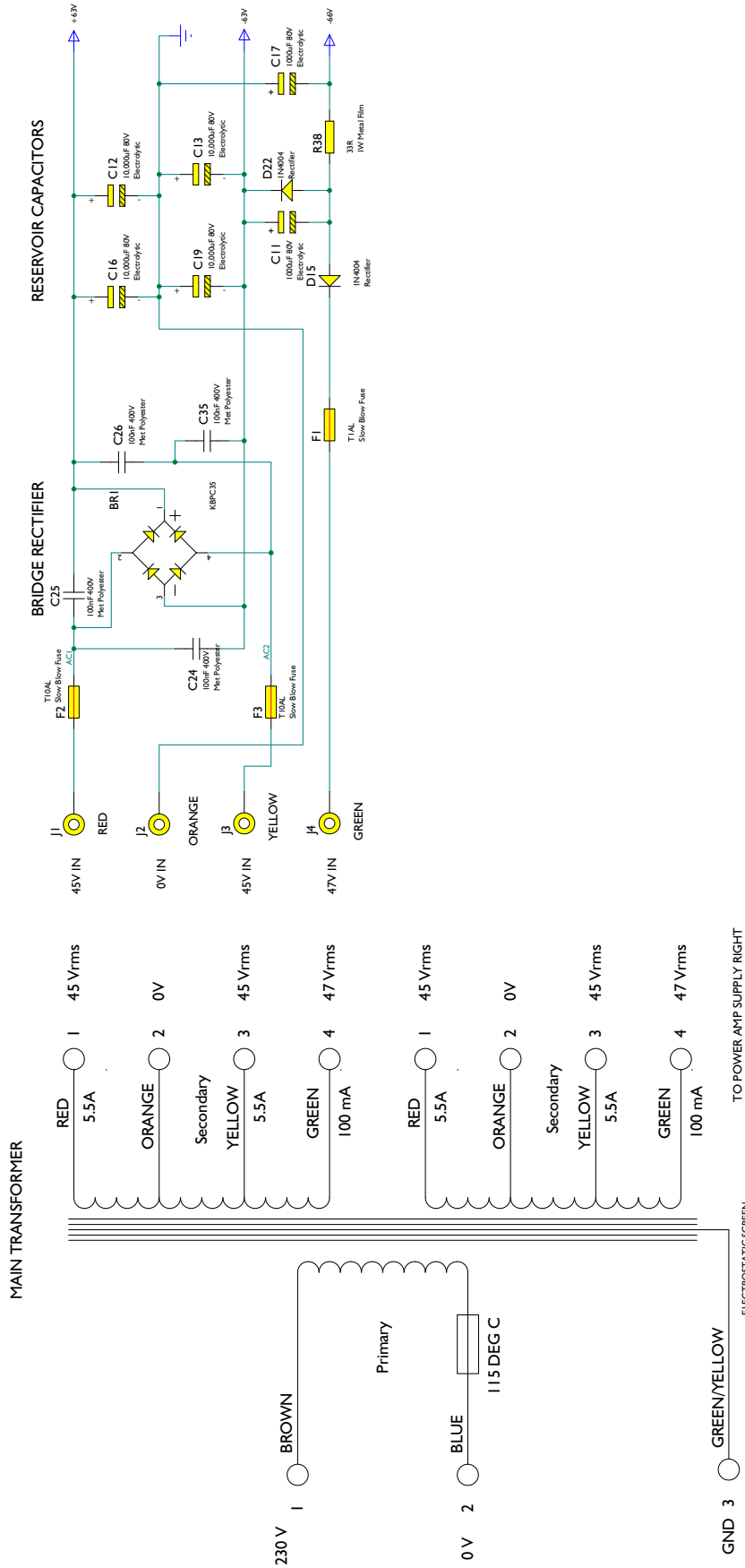
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Input PCB Bottom BOM -4

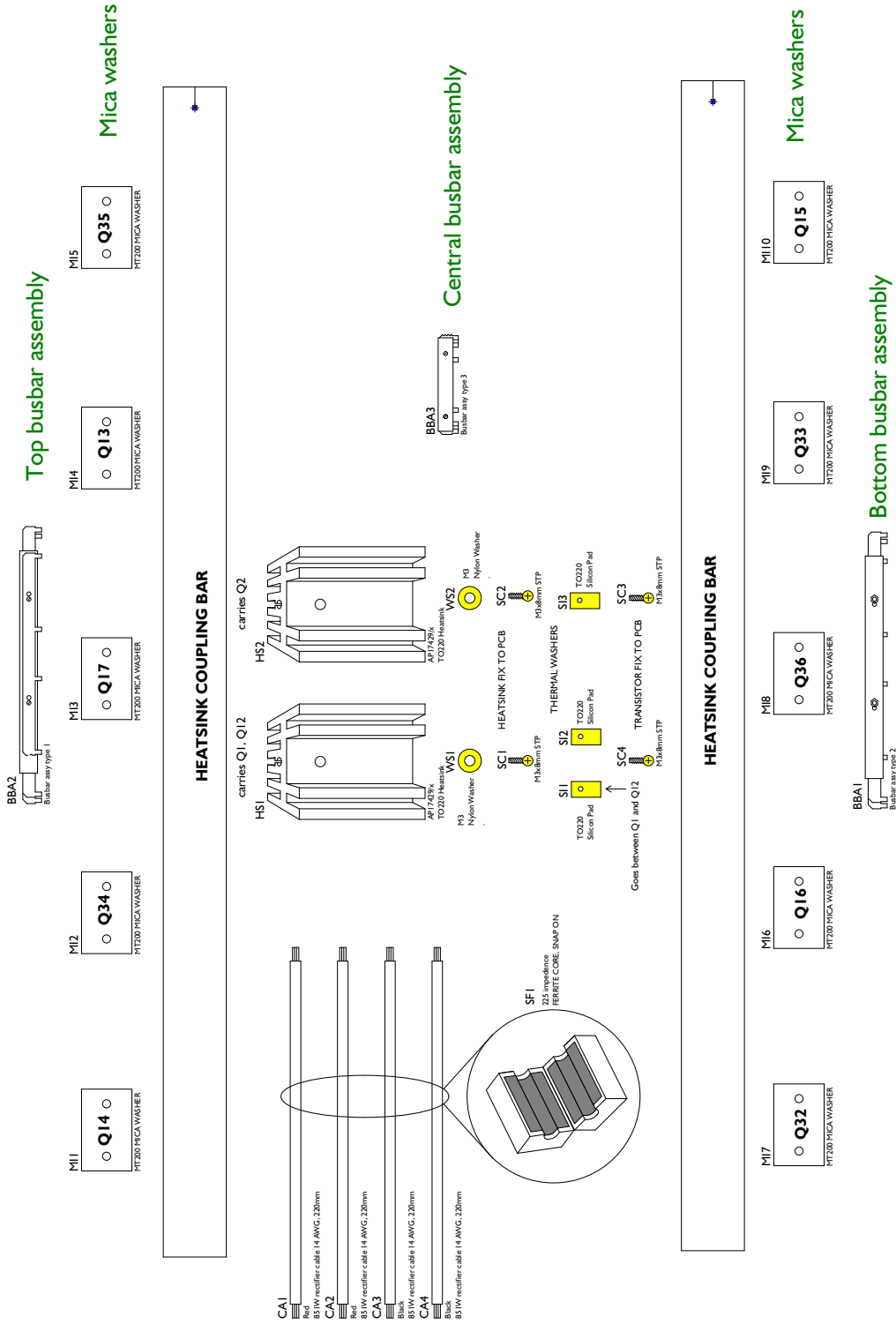
| | | | | | | | | |
|--------------------------------|------------------------------|---|-------------------------|---------------------|-------|--------------|--|--------|
| Quad 2 Input | NAND Gate | 1 | U7 | HEF4011BT | | SMD S014 | CD4011BCM Fairchild / MC14011BD ON | |
| 12V 100mA | Regulator | 1 | U9 | 78L12 | | T092 | | |
| 37KHz | IR Receiver | 1 | U10 | TSOP34837 | | Through Hole | | |
| | Dual Comparator | 3 | U11, U16, U23 | LM393AD | | S08 | | PY1152 |
| 1K EEPROM | 1K I2C EEPROM | 1 | U17 | 24LC01BT/OT | | SOT 23 | | |
| 16MHz , 8 bits | PIC16F1517-I/ PT | 1 | U18 | PIC16F1517-I/PT | | 44 pin TQFP | "Program with software: APxxxx/x | |
| Please add version label!" | | | | | | | | |
| Ind Temp | Shunt Regulator | 2 | U19, U24 | TLV431BIDBZRG4 | 0.50% | SOT23-3 | | |
| 60V Max Vce | Opto Isolator | 1 | U20 | K1010 B | | DIL04 | Safety Critical | |
| 250/400V Peak | Optoisolated Triac Driver | 1 | U21 | MOC3062M | | DIL06 | Safety Critical | |
| 700V | Off Line Switcher | 1 | U22 | LNK364DG | | S0-8C | Safety Critical | |
| +15V | Regulator | 2 | U25, U27 | L7815 | | T0220 | | |
| -15V | Regulator | 2 | U26, U28 | L7915 | | T0220 | | |
| RELAY | | | | | | | | |
| 9V - 30A Contacts | 1P NO 4 Pin Relay | 2 | RL1, RL2 | HF2150-1A-9D E | | Through Hole | Safety Critical (Alternative part is HF105F- 1/009D- 1HST(136) | PF640 |
| 5V 2A | 2P2T Relay | 1 | RL3 | JRC-27F (HFD27) | | Through Hole | Safety Critical | PF288 |
| 9V Coil, 2A Contacts | 2P2T | 3 | RL4-RL6 | HFD4/9 | | Through Hole | | PF639 |
| SWITCHES | | | | | | | | |
| 1 c/o right-angle PCB-mount | Toggle switch | 2 | SW1, SW2 | 1MS1 T2 B3 M7 R E S | | PCB Mount | Gold contacts | |
| TRANSISTORS | | | | | | | | |
| 45V 500mA | PNP Signal | 1 | Q1 | BC807-25 | | SOT23 | | PY1848 |
| 65V 100mA | NPN Small Signal | 6 | Q2-Q4, Q11, Q14, Q15 | BC846 | | SOT23 | | PY1624 |
| 20V 1A | PNP Small Signal | 1 | Q10 | PBSS5120T | | SOT23 | | |
| -65V 100mA | PNP Small Signal | 2 | Q16, Q17 | BC856B | | SOT23 | | |
| 10R 3A | | | | | | | | |
| | NTC Thermistor | 1 | TH1 | SCK10103 | | 5mm Pitch | Safety Critical | |
| | Triac | 1 | TR1 | BT139X-800 | | | Safety Critical | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

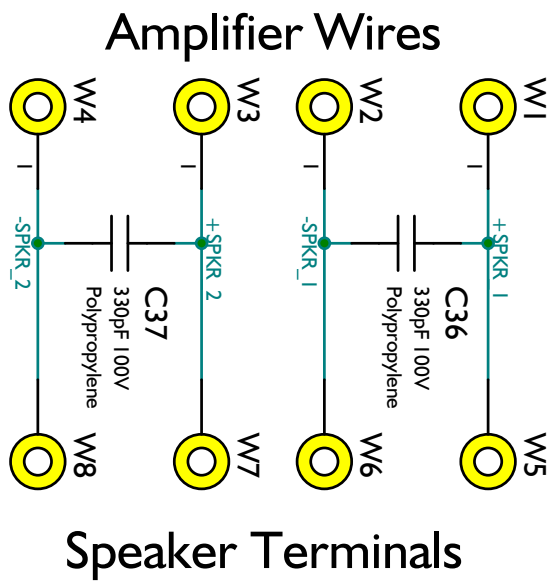
POWER AMP Schematic - Power Supply



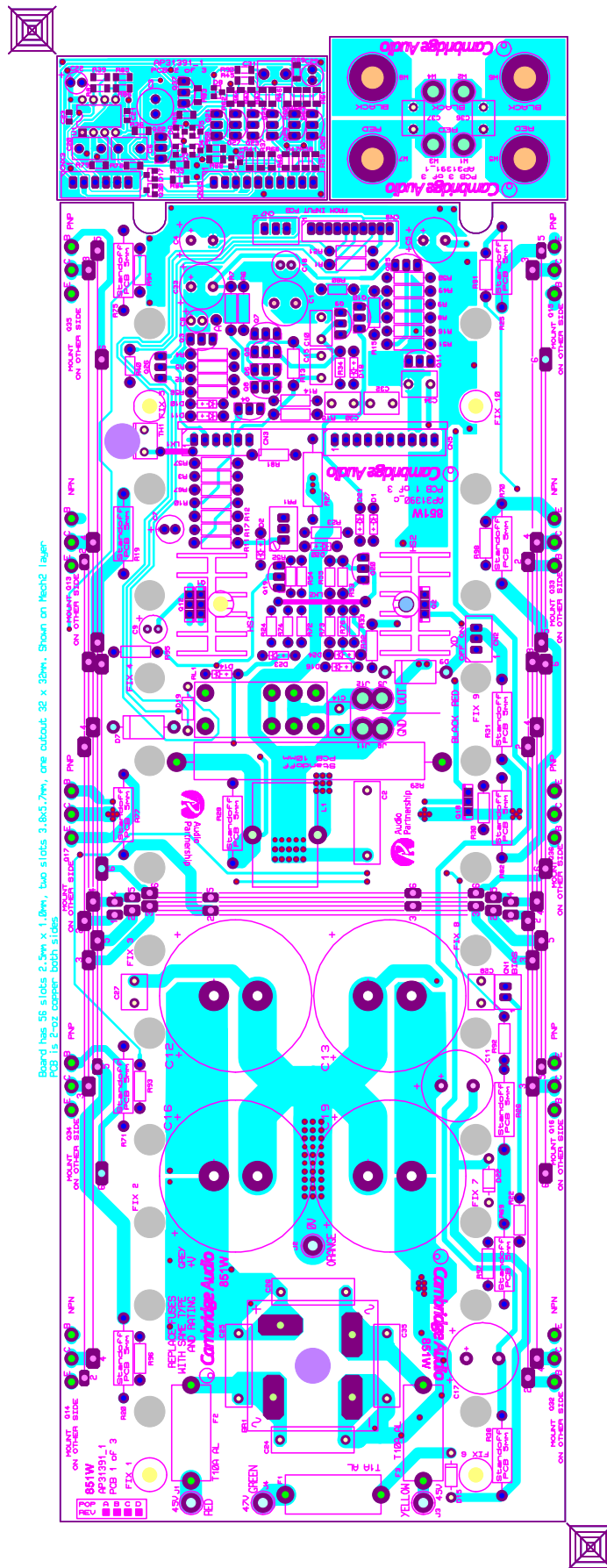
POWER AMP Schematic - Mechanical parts

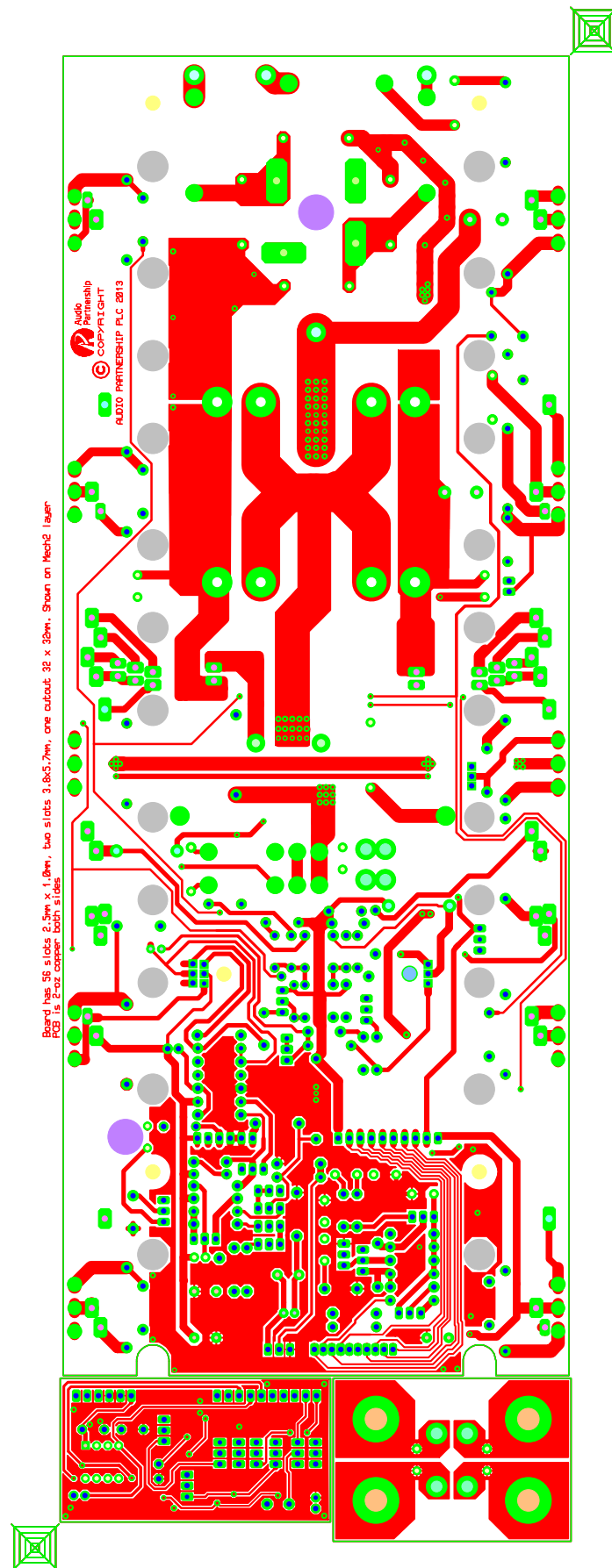


POWER AMP Schematic - Speaker connections



POWER AMP Gerbers - TOP





POWER AMP - Bom -1

| Value | Description/ Type | Qty | Component Ident | Manufacturer | ManPN | Tolerance | PackageInfo | Service Part Number |
|-------------------|----------------------|-----|----------------------------------|------------------------|------------------|-----------|-------------------|---------------------------|
| 1k | 25-turn | 1 | PR1 | Bochen | 3296W-1-102 | 10% | Through Hole | |
| CAPACITORS | | | | | | | | |
| 100pF 63V | Polypropylene | 1 | C30 | Wima | FKP2 series | 5% | Box 7.2x4.5mm | |
| 330pF 100V | Polypropylene | 4 | C14, C32, C36, C37 | C & C | | 5% | | |
| 1nF 63V | Polypropylene | 1 | C15 | WIMA | FKP2 | 5% | 5mm Pitch Box | |
| 47nF 100V | Met. Polyester | 2 | C27, C28 | C&C | CMEA473K100Rxxxx | 10% | 5mm Pitch Box | |
| 100nF 400V | Met Polyester | 5 | C2, C24-C26, C35 | | | 10% | 15mm Pitch Box | |
| 100nF 50V | 0805 Ceramic | 2 | C21, C23 | | | 10% | 0805 | |
| 470nF 63V | Met. Polyester | 2 | C6, C20 | | | 10% | 5mm Pitch Box | |
| 4.7uF 50V | Electrolytic | 1 | C22 | | | 20% | | |
| 10,000uF 80V | Electrolytic | 4 | C12, C13, C16, C19 | SINO-LIGHT CORP LTD | LLS1K103MELC | 20% | 35mm dia | |
| 10uF 25V | NP Electrolytic | 1 | C29 | | | 20% | 5mm Dia | |
| 22uF 50V | NP Electrolytic | 1 | C3 | | | 20% | 8mm Dia | |
| 47uF 50V | Electrolytic | 1 | C7 | | | 20% | 6mm Dia | |
| 47uF 16V | Electrolytic | 1 | C8 | | | 20% | 5mm Dia | |
| 47uF 16V | NP Electrolytic | 1 | C9 | | | 20% | 6mm Dia | |
| 220uF 16V | NP Electrolytic | 1 | C1 | | | 20% | 10mm Dia | |
| 220uF 80V | Electrolytic | 3 | C4, C5, C33 | | | 20% | 10mm Dia | |
| 1000uF 80V | Electrolytic | 2 | C11, C17 | | | 20% | 16mm Dia | |
| CONNECTORS | | | | | | | | |
| 2 Way | Straight Header | 1 | CN1 | JST | B2B-XH-A | | 2.5mm Pitch | |
| 3 Way | Straight Header | 2 | CN2, CN7 | JST | B3B-XH-A | | 2.5mm Pitch | |
| 6 Way 90 Deg | Pin Header | 1 | CN3 | NS Tech | 201R-1X6P | | 2.5mm Pitch | |
| 10 Way 90 Deg | Pin Header | 1 | CN5 | NS Tech | 201R-1X10P | | 2.5mm Pitch | |
| 10 Way | Straight Header | 1 | CN8 | JST | B10B-PH-KS | | 2mm Pitch | |
| DIODES | | | | | | | | |
| 400V 35A | Bridge Rectifier | 1 | BR1 | TIP Semiconductor | KBPC35 | | Spade Terminal | |
| 75V 150mA | Signal Diode | 6 | D1, D2, D10, D11, D20, D21 | | 1N4148 | | D035 | |
| 75V 300mA | Signal Diode SM | 6 | D3-D6, D8, D17 | | BAS16 | | SOT23 | PY1849 |
| 400V 3A | Rectifier | 2 | D7, D9 | | 1N5404 | | D027 | |
| 10V 500mW | Zener | 2 | D14, D16 | | BZX79C10 | | Through Hole | |
| 400V 1A | Rectifier | 3 | D15, D19, D22 | | 1N4004 | | D041 | |
| No Fit | | 1 | D18 | | | | | |
| 13V 500mW | Zener | 2 | D23, D24 | | BZX79C13 | | Through Hole | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

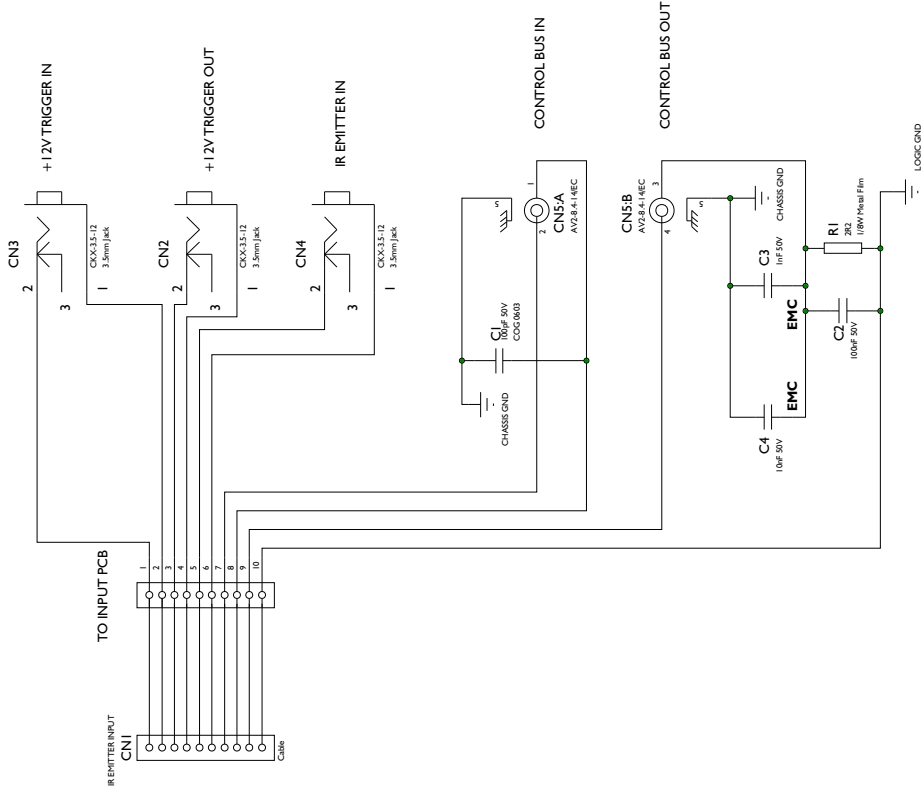
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POWER AMP - Bom -2

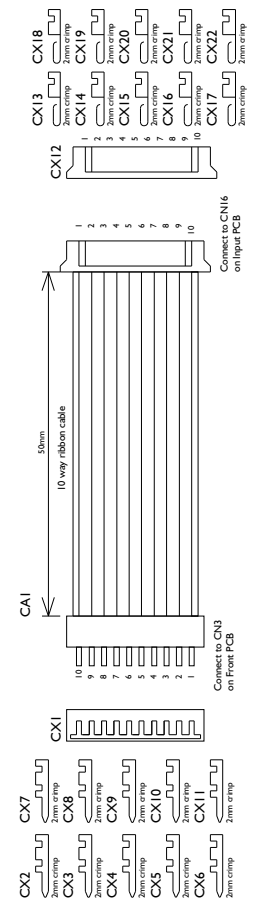
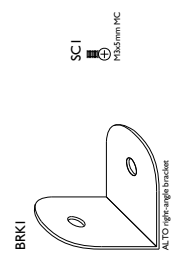
| | | | | | | | | |
|---------------------|---|----|--|----------------------|------------------|--|------------------------|--------|
| FUSES | | | | | | | | |
| T1AL | Slow Blow Fuse | 1 | F1 | | | | 20mm | |
| T10AL | Slow Blow Fuse | 2 | F2, F3 | | | | 20mm | |
| | 20mm Fuse Cover | 3 | F1-F3 | | | | | |
| | 20mm Fuse Holder | 3 | F1-F3 | | | | | |
| 1.7uH | 10 turns 1.5mm cu wire, diam 20mm | 1 | L1 | Treasure Electronics | 08-1950100-150 | | 15mm Pitch | |
| INTEGRATED CIRCUITS | | | | | | | | |
| | Op Amp | 1 | U1 | Texas Instruments | OPA2134PA | | Through Hole DIL8 | PY1152 |
| RELAY | | | | | | | | |
| 30V 16A | SPDT Relay | 1 | RL1 | Massuse | ME-14F-009-Z16S | | | PF641 |
| 30V 16A | SPDT Relay | 1 | RL1 | HongFa | HF115F/009-1ZS3A | | | |
| TRANSISTORS | | | | | | | | |
| 300V 500mA | NPN Low Power | 3 | Q1, Q12, Q18 | | MJE340 | | TO126 | PY1148 |
| 300V 500mA | PNP Low Power | 1 | Q2 | | MJE350 | | TO126 | PY1150 |
| -300V -500mA | PNP Signal | 11 | Q3-Q6, Q20, Q22, Q24, Q27-Q29, Q37 | | MPSA92 | | TO92 | PY220 |
| 300V 500mA | NPN Signal | 8 | Q7-Q10, Q19, Q21, Q23, Q25 | KEC | MPSA42 | | TO92 | PY537 |
| 45V 300mA | NPN Signal | 2 | Q11, Q26 | | BC337-25 | | TO92 | PY214 |
| 230V 17A | NPN Power | 4 | Q13, Q14, Q32, Q33 | Sanken | 2SC3264Y | | MT200 | PF591 |
| 230V 17A | PNP Power | 6 | Q15-Q17, Q34-Q36 | Sanken | 2SA1295Y | | MT200 | PF590 |
| No Fit | | 1 | Q30 | | | | | |
| 45V 500mA | NPN Signal | 1 | Q31 | Philips | BC817-25 | | SOT23 | PY1847 |
| MISCELLANEOUS | | | | | | | | |
| 50mm Height | TO220 Heatsink | 2 | HS1, HS2 | Fortex | AP17429/x | | | |
| 24AWG | Tinned Link Wire | 1 | LK1 | | | | 7.5m Pitch | |
| | Tinned Link Wire | 1 | LK2 | | | | 20mm Pitch | |
| 39 x 24 mm | MT200 mica washer | 10 | MI1-MI10 | | | | | |
| M3x8mm STP | P/H Black Screw | 4 | SC1-SC4 | | | | | |
| 225 impedance | FERRITE CORE, SNAP ON | 1 | SF1 | Fair Rite | 443167251 | | | |
| 90 Degree 100R | PTC Thermistor | 1 | TH1 | TKS | PTMS2101RP930Y | | Through Hole M3 Tab | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Control Bus PCB Schematic

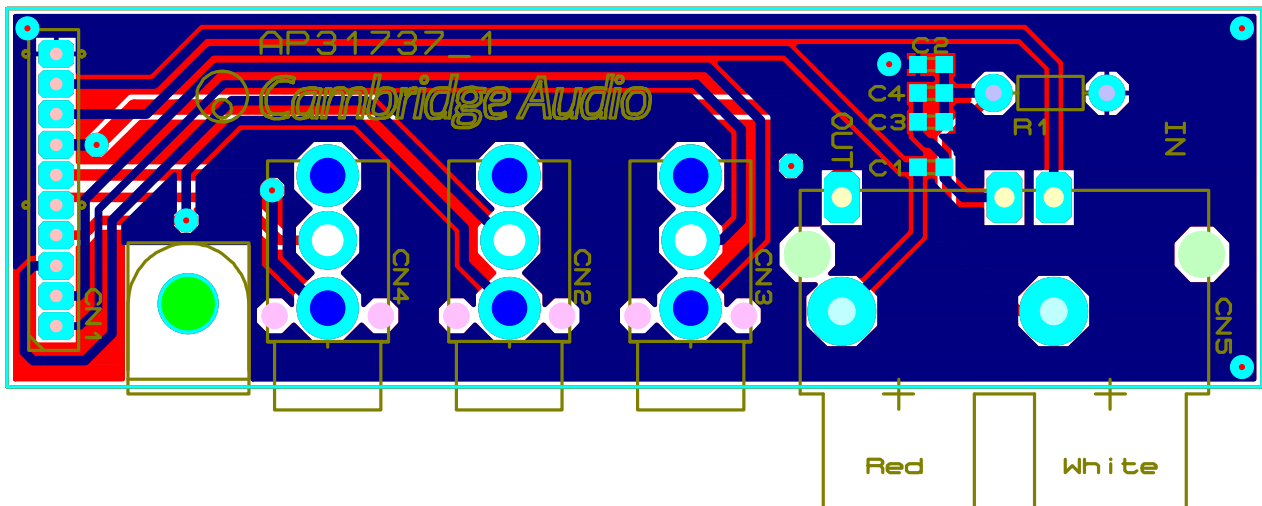


MECHANICAL PARTS

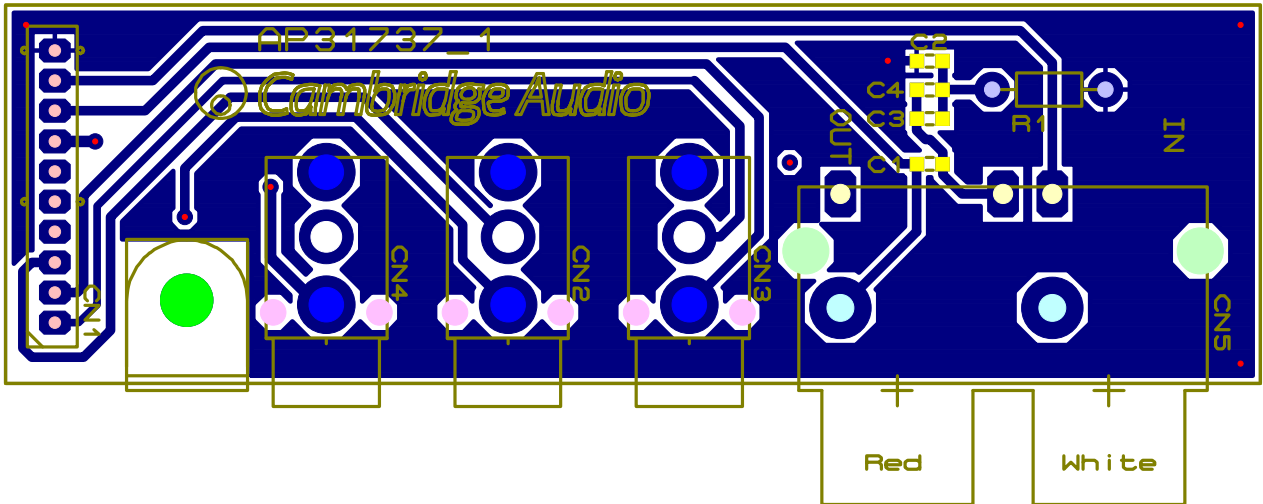


Cambridge Audio

Control Bus PCB Gerbers - all layer

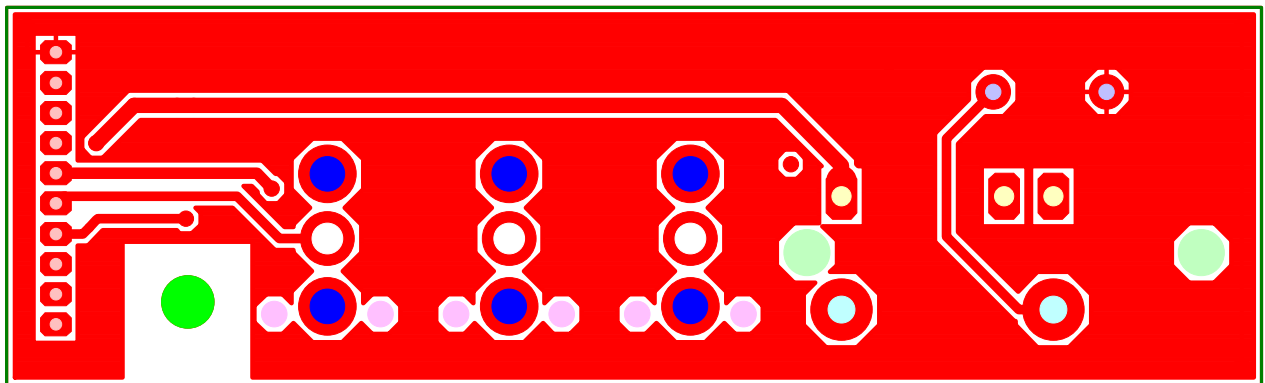


Control Bus PCB Gerbers - Top



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Control Bus PCB Gerbers - Bottom

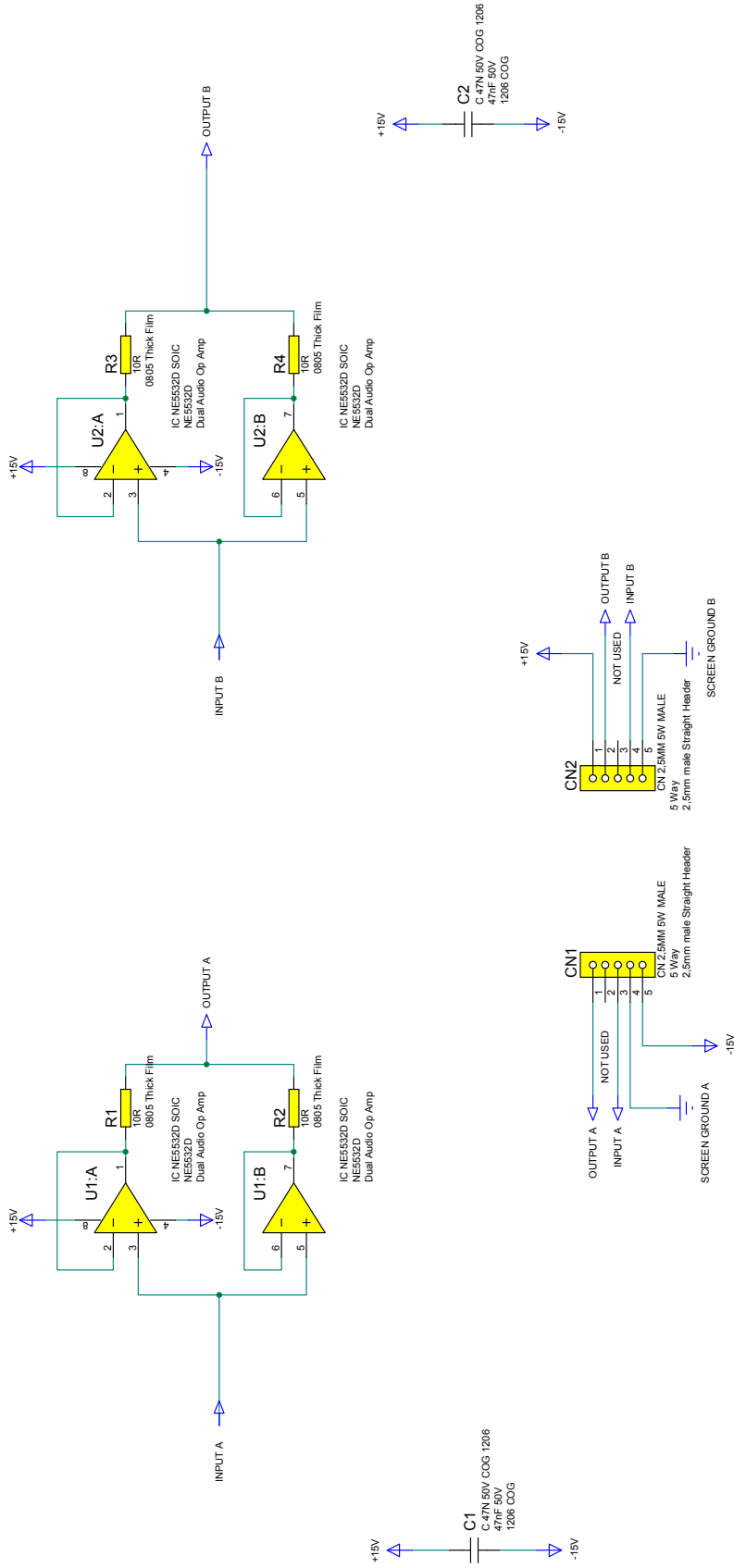


Control Bus PCB Gerbers - Bom

| Value | Description/ Type | Qty | Component Ident | ManPN | Tolerance | PackageInfo | Factory P/N | Comment | Service p/n |
|------------|----------------------------------|-----|--------------------|-------------------|-----------|---------------------------|-------------|-------------------------------|-------------|
| 100pF 50V | COG 0603 | 1 | C1 | | | 0603 | | | |
| | | | | | | | | | |
| CONNECTORS | | | | | | | | | |
| Cable | | 1 | CN1 | | | Fit cable assembly CA1 | | | |
| | 3.5mm Jack | 3 | CN2-CN4 | CKX-3.5-12 | | Through Hole | | | |
| | Horizontal Gold Plated RCA | 1 | CN5 | AV2-8.4-14/ EC | | Through Hole | | Orange Inserts with EMC | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

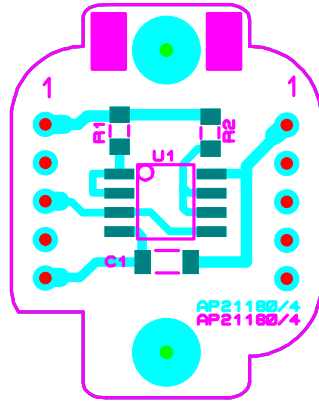
Unity Gain Buffer Module Schematic



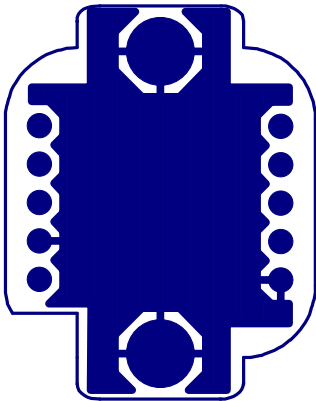
A: PCB TOP SIDE AMP

B: PCB BOTTOM SIDE AMP

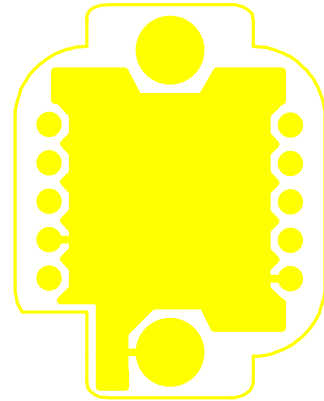
Unity Gain Buffer Module Gerbers



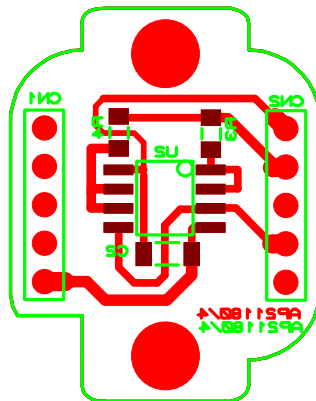
TOP



Inner1



Inner2



Bottom

Cambridge Audio

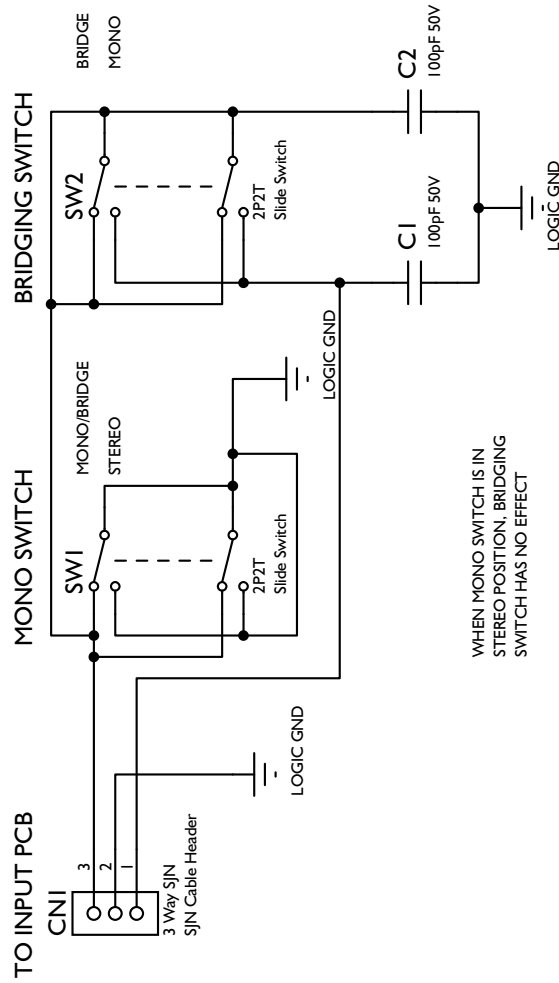
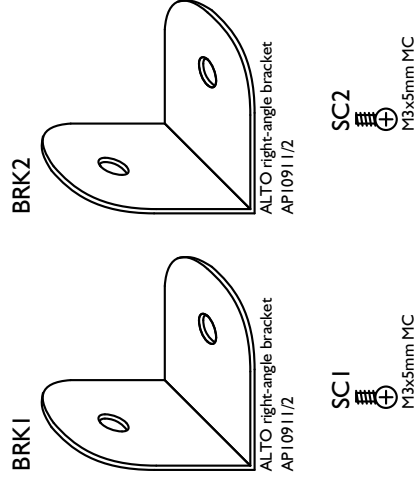
Unity Gain Buffer Module BOM

| Value | Description/ Type | Qty | Component Ident | ManPN | Tolerance | PackageInfo | Factory P/N | Comment | Service p/n |
|------------------------|----------------------------------|-----|--------------------|----------------------|-----------|-------------|-------------|------------------------------|------------------------------|
| RESISTORS | | | | | | | | | |
| 10R | 0805 Thick Film | 4 | R1-R4 | | 1% | 805 | | | |
| CAPACITORS | | | | | | | | | |
| 47nF 50V | 1206 COG | 2 | C1, C2 | | 10% | 1206 | | | |
| CONNECTORS | | | | | | | | | |
| 5 Way | 2,5mm male Straight Header | 2 | CN1, CN2 | 201-S-1X5-G 9.5/4 | | 2.5mm Pitch | | 9.5mm length from plastic | 9.5mm length from plastic |
| INTEGRATED CIRCUITS | | | | | | | | | |
| | Dual Audio Op Amp | 2 | U1, U2 | NE5532D | | SOIC08 | | | PY1162 |

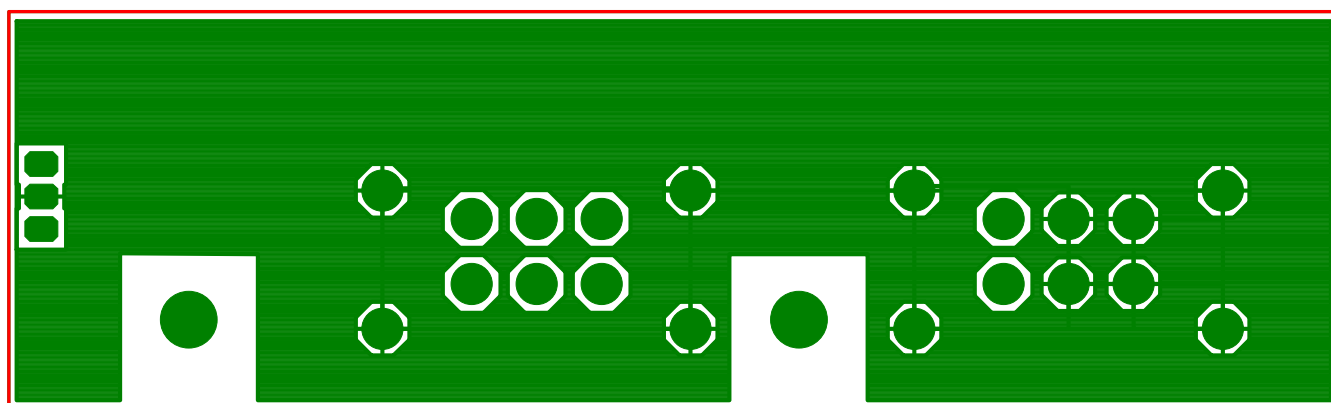
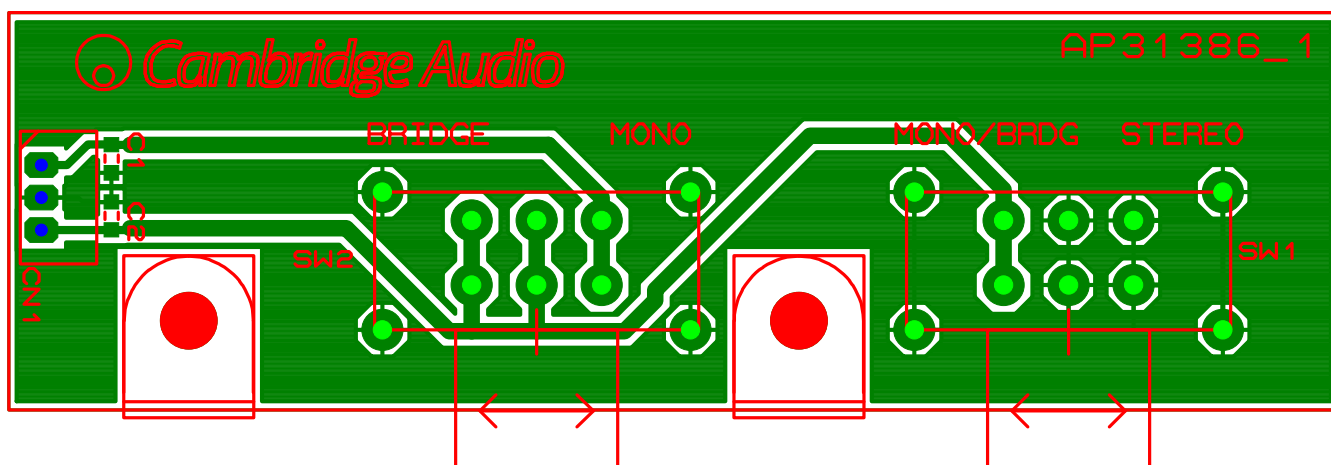
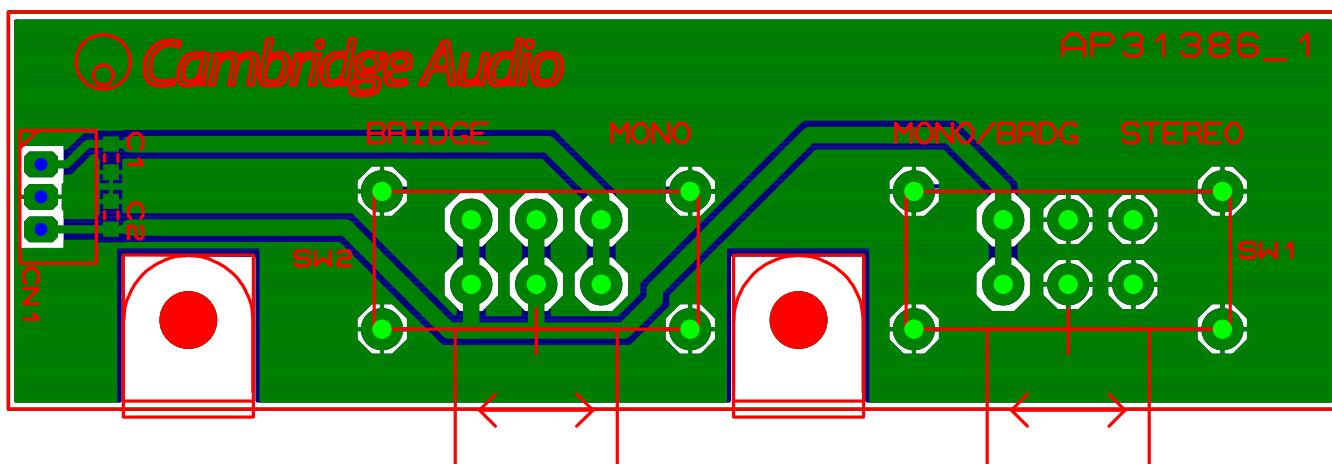
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

MODE SWITCH

MECHANICAL PARTS



MODE SWITCH GERBERS



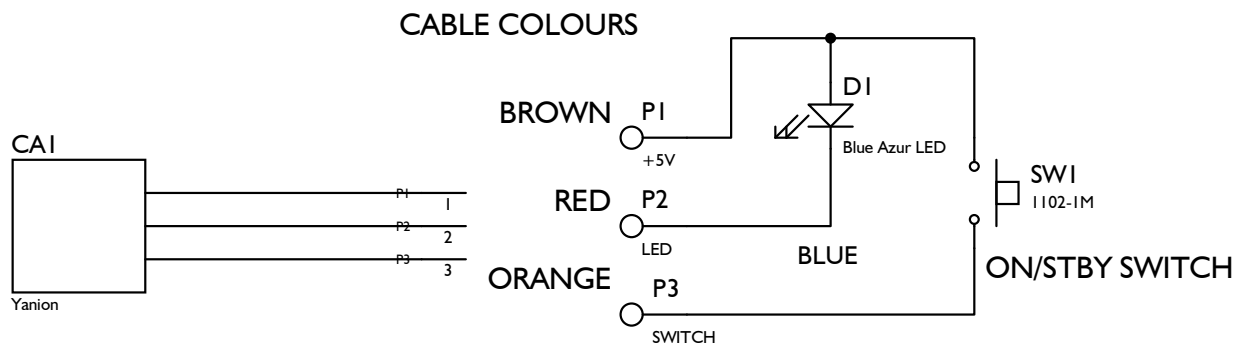
MODE SWITCH BOM

| Value | Description/ Type | Qty | Component Ident | Manufacturer | ManPN | Tolerance | PackagelInfo | Factory ref | Service Part Number |
|---------------|------------------------------|-----|--------------------|--------------|----------------------|-----------|--------------|----------------|------------------------|
| | | | | | | | | | |
| CAPACITORS | | | | | | | | | |
| | | | | | | | | | |
| 2P2T | Slide Switch | 2 | SW1, SW2 | Well Long | SS004- P022BY-PF8 | | PCB Mount | | PY1477 |
| | | | | | | | | | |
| MISCELLANEOUS | | | | | | | | | |
| 9mm x 9mm | ALTO right- angle bracket | 2 | BRK1, BRK2 | | AP10911/2 | | | | |
| M3x5mm MC | P/H Black Screw | 2 | SC1, SC2 | | | | | | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

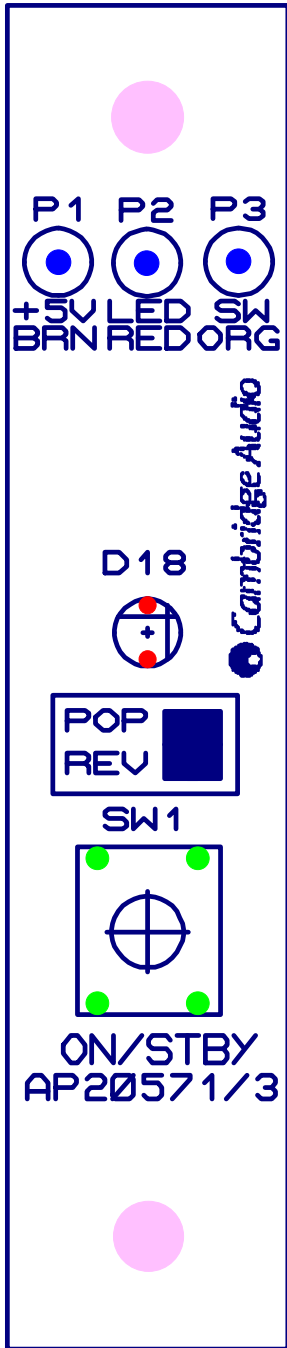
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ON Stby Switch PCB SCHEMATIC

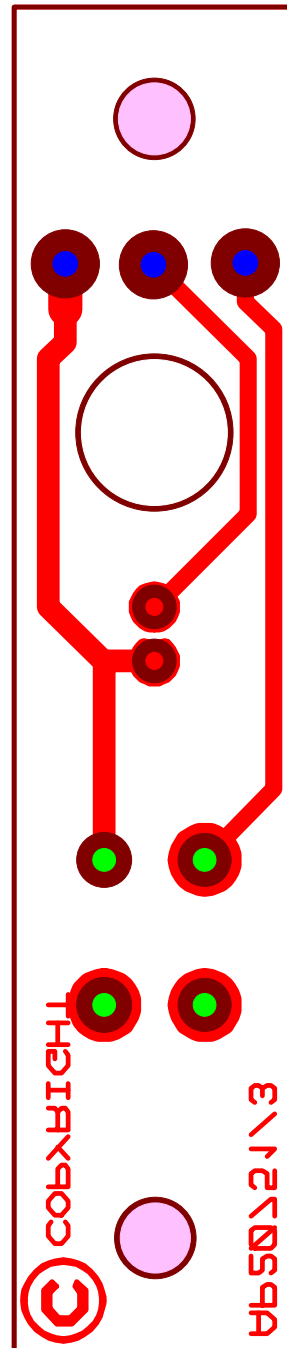


ON Stby Switch PCB GERBERS

Top



bottom



Cambridge Audio

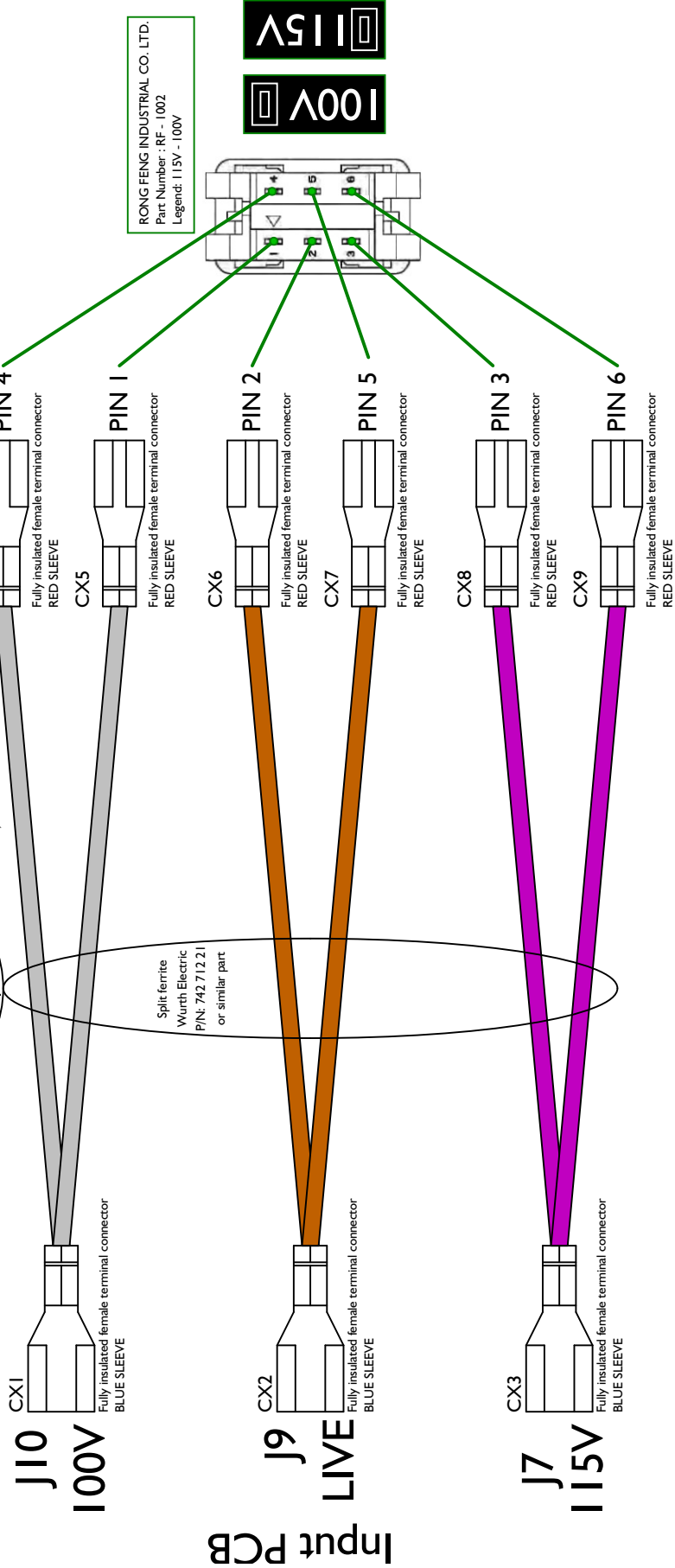
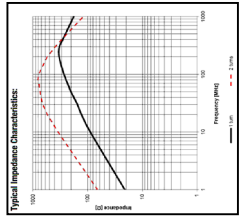
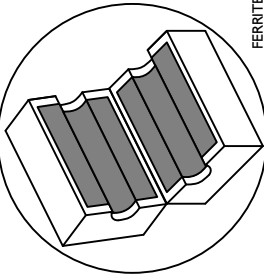
ON Stby Switch PCB BOM

| Value | Description/Type | Qty | Component Ident | ManPN | Tolerance | PackageInfo | Comment |
|---------------|------------------|-----|-----------------|-------------|-----------|-------------------------|-----------------------------|
| DIODES | | | | | | | |
| Blue Azur LED | 3mm | 1 | D1 | HFBA6303BMP | | Leads must have no ears | 4mm spacing LED base to PCB |
| | | | | | | | |
| SWITCHES | | | | | | | |
| | Tactile | 1 | SW1 | KPT-1105A | | Through Hole | |

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

CABLE ASSEMBLY

AP32022_I CA0545 Class XD Power Amp Cable Assembly For I15V I00V ONLY



RONG FENG INDUSTRIAL CO. LTD.
Part Number : RF - 1002
Legend: I15V - I00V