

Aleph Mini Clone Build Notes

Thank you for participating the Classic Aleph Group Buy!

The idea for this PCB is to bring back the classic Aleph circuit for DIY builders in a flexible and expandable format. This document focuses on building the Aleph Mini Clone circuit in a stereo / 2 channel chassis.

Project Difficulty: **NOVICE** **INTERMEDIATE** **EXPERT**



Questions?

You're probably not alone!

Post your question(s) on the DIYAudio forums.

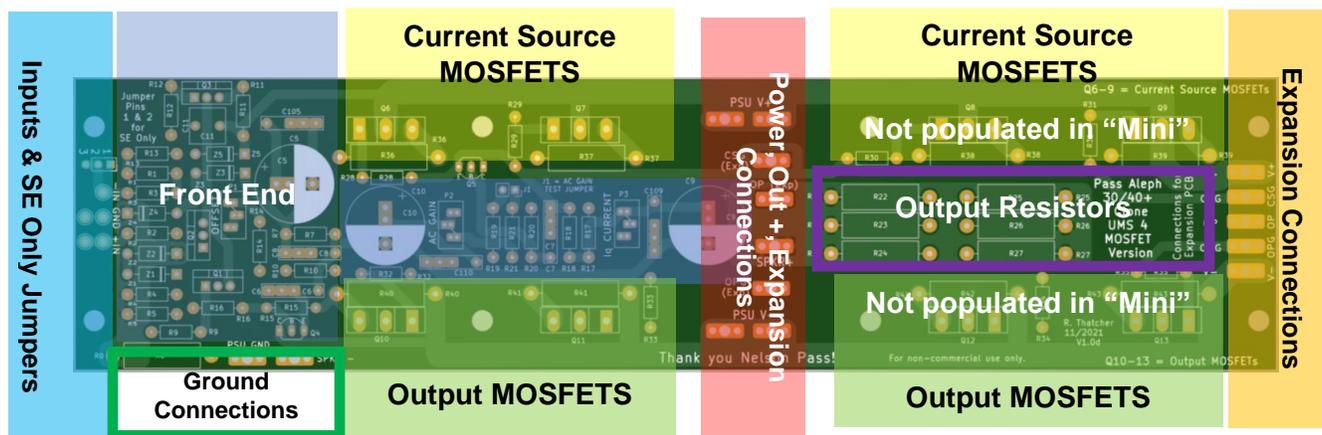


This project uses line/mains voltages and has a power supply with large capacitors. The voltages in this amplifier can kill – even at miniscule current. If you are not competent / confident with working with these voltages, please seek advice from either a qualified electrician, or an audio DIYer who is competent and experienced in this area. Always work safe and work smart!

The original schematic has been updated and a new PCB layout devised. The PCBs for this project are offered without any warranty, guarantee provided, or liability taken.

| Version / Date | Revision History |
|-------------------|---|
| V1.0a 28 Nov 2022 | Original Release. "Mini" circuit is adapted to this PCB set from the original BrianGT design. Thank you to DIYAudio user " Mikerodrig27 " for encouragement, input, and review of this document! |
| V1.0b 12 Apr 2023 | <ul style="list-style-type: none">• Added pinout diagrams for ZTX450 & 2N4401• Updated PSU BOM based on current stock levels |

Getting to know the Amp PCB



PCB Revisions

| PCB | Version / Date | Revision History |
|----------------|-----------------|---|
| Main Aleph PCB | V1.0d – 11/2021 | Group Buy #1 Version <ul style="list-style-type: none"> Q4 & Q5 CBE / EBC markings are backwards on PCB. |
| Main Aleph PCB | V1.0f – 3/2022 | Group Buy #2 Version <ul style="list-style-type: none"> Q4 & Q5 corrected CBE / EBC markings on PCB Added C20 & C21 |

Resistors

Resistors are either 1/4W or 3W rated.

- For 1/4W resistors use your favorite brand metal film resistors. Yaego, etc.
 - Higher wattage is OK. Less is not OK
 - Hole spacing on PCB is 10mm for 1/4 W resistors.
- For 3W MOSFET Source Resistors and Output resistors use 3W metal oxide, and avoid wire wounds unless non-inductive.
- Solder all 3W resistors on amp PCBs and Power supply PCBs so they are elevated from the PCB. Put a spacer underneath them (like a piece of cardboard) to create an air gap of a few mm, and remove it after soldering them in place.
- For Ground / Hum Breaker resistor (R0), any brand 3W Metal Oxide resistor will work. Value is not critical, 2R7 to 4R will be fine.

Trimpots & Adjustments

Trimpot positions are included for adjusting output DC Offset, AC Gain, and bias current. In the original circuit these were fixed resistors. It is recommended to install the trimpots to make easy adjustments to your build. The values below are chosen so that midrange of the trimpot value (factory default) + associated resistor equals approximately the original Aleph Mini resistor value. This allows for range for adjustment.

BUILD NOTE: Set trimpot prior to installation

| Parameter | Original Fixed Resistor Value | This PCB Values: Trimpot + Resistor | Initial Trimpot value Set before Installing |
|------------|-------------------------------|-------------------------------------|---|
| DC Offset | R14 = 392R | P1 @ 242R + R14 @ 150R = 392R | P1 = 242R |
| AC Gain | R21 = 750R | P2 @ 500R + R21 @ 250R = 750R | P2 = 500R |
| Iq Current | R19 = 47k5 | P3 @ 17k5 + R19 @ 30k = 47k5 | P3 = 17k5 |

Bias Current Measurement

Option 1 – Measure voltage of each source resistor (R36 & R40), divide by source resistor values.
Example: R36: $550\text{mV} / 0R47 = 1.17\text{A}$

Option 2 – use a clamp ammeter on positive and negative voltage rail wires from power supply.

Initial target value is 1.0 – 1.4 A. See table in power supply / Transformer section for more information.

AC Gain Setting Procedure

See Posts 2 & 3 here for guidance

<https://www.diyaudio.com/forums/pass-labs/38033-proper-current-source-adjustment.html>

Post 3 - From Nelson:

If you set the amplifier driving a sine wave into a load (let's say 10 Vrms into 8 ohms at 100 Hz), you can measure the current variation of the gain N channel Mosfets (whose Sources attach through power resistors to the - supply rail) with a cheap AC voltmeter placed across one of these Source resistors.

With R21 taken out of the circuit, you will get one AC value across the Source resistor (say 470 mV, for example). As you put a value for R21 in the circuit, this will decline, and when it measures ½ the value without R21, you have reached 50%.

If it measures 1/4 the value, the current gain of the Aleph source is 75%, and this figure is too high for a standard Aleph. Most listeners like the Alephs at 50% or lower, so I recommend between 50% and 100% of the AC voltage value compared with no R21.

NOTE: The PCB has an AC Gain Setting jumper that allows for pulling R21 out of circuit temporarily by removing the jumper.

| Step | Procedure | Measurements | |
|------|---|--------------------------------------|--------------------------------------|
| | | Left Channel | Right Channel |
| 1 | Remove AC Gain Jumper | | |
| 2 | Set the amplifier driving a sine wave into a dummy load (let's say 10 Vrms into 8 ohms at 100 Hz). | V = _____ into 8R Freq = _____ Hz | V = _____ into 8R Freq = _____ Hz |
| 3 | Measure voltage on source resistor on Amp / V- Side (R40) Set meter to read AC Volts. Confirm it's AC, not DC. | R40 = _____ mV | R40 = _____ mV |
| 4 | Calculate 50% of voltages in Step 3 | R40 = _____ mV | R40 = _____ mV |
| 5 | Install AC Gain Jumper | | |
| 6 | Set the amplifier driving a sine wave into a load (let's say 10 Vrms into 8 ohms at 100 Hz) | V = _____ into 8R Freq = _____ Hz | V = _____ into 8R Freq = _____ Hz |
| 7 | Measure Source resistors on Amp / V- Side. Adjust P2 to match Step 4 values Set meter to read AC Volts. Is it set for AC, not DC? | R40 = _____ mV | R40 = _____ mV |

Capacitors

| Positions | Value | Size & Notes |
|------------------|---|--|
| C5, C9, C10 | 220uF 16V or greater | 5.0 or 7.5mm Lead Spacing, up to 16mm Diameter Use your favorite brand here |
| C105, C109, C110 | 0.1uF Film Cap | OPTIONAL - Bypass for each of the above Electrolytic Caps 5.0, 7.5, or 10.0 mm Lead Spacing |
| C6, C7 | 1nF / 1000pf / 0.001uF | 5.0, 7.5, or 10.0 mm Lead Spacing |
| C8 | 10pF Mica | 5.0, 7.5, or 10.0 mm Lead Spacing |
| C11 | 1.0uF to 4.7uF will do, value is not critical | 5mm LS 7.2x7.2 Film |
| C20, C21 | 1,000 uF or greater | 5.0 or 7.5mm Lead Spacing, up to 16mm Diameter Use your favorite brand here |

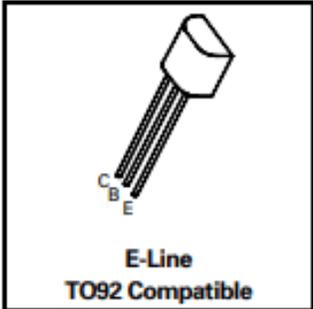
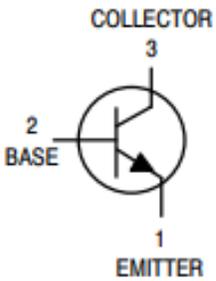
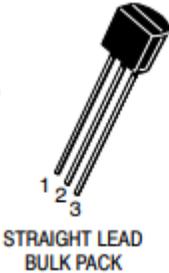
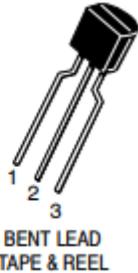
Minimum DC Voltage rating for capacitors should at minimum be rail voltage. Greater is OK, lower is NOT OK.

The exception is C5/105, C9/109, C10/110. For these caps the minimum Voltage rating = $\frac{1}{2}$ rail voltage + 4V. Therefore >15V for Aleph Mini. 16V and 25V are the next larger standard sizes. Greater is OK, lower than 16V rating is NOT OK.

Semiconductors

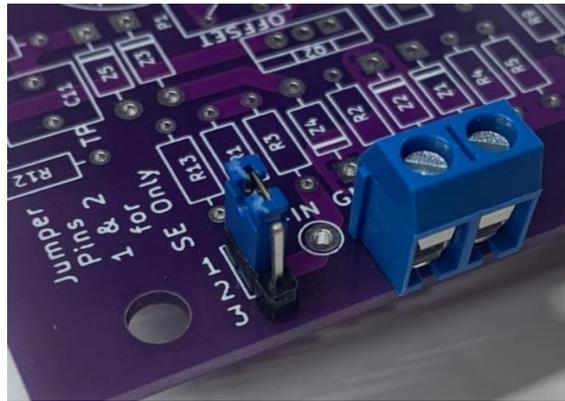
The Aleph Mini clone will use 1 of the 4 MOSFET positions on the top and bottom of the PCB.

| Positions | Semiconductors | Matching & Notes |
|-----------|---|---|
| Q1 & Q2 | IRF9610 or SFP9610 Alternate: 2SJ313 Alternate: FQP3P20 | Must be matched |
| Q3 | IRF9610 or SFP9610 | No need to match |
| Q4 & Q5 | ZTX450 Alternate: 2N4401 | No need to match NOTE for PCB version 1.0d: Q4 shows "C B E" on PCB rev V1.0d. This is backwards, it should read "E B C". Q5 shows "E B C" on PCB rev V1.0d. This is backwards, it should read "C B E". Markings have been corrected on PCB version 1.0f |
| Q6 | IRFP240 | Qty 1. Must populate Q6 position. The remaining MOSFET positions on PCB and associated gate and source resistors will NOT be populated. |
| Q10 | IRFP240 | Qty 1. Must populate Q10 position. The remaining MOSFET positions on PCB and associated gate and source resistors will NOT be populated. |

| ZTX450 Pinout | 2N4401 Pinout |
|---|---|
|  <p>E-Line TO92 Compatible</p> |  <p>COLLECTOR 3 BASE 2 EMITTER 1</p> <p>TO-92 CASE 29 STYLE 1</p>  <p>STRAIGHT LEAD BULK PACK</p>  <p>BENT LEAD TAPE & REEL AMMO PACK</p> |

Connections to PCB

You have several options for wire connections to the board including Quick Disconnect Spades, bare wire, or Euroblock type 5mm / 5.08 mm connectors.



Grounding

Input Signal Ground(s) attach here.

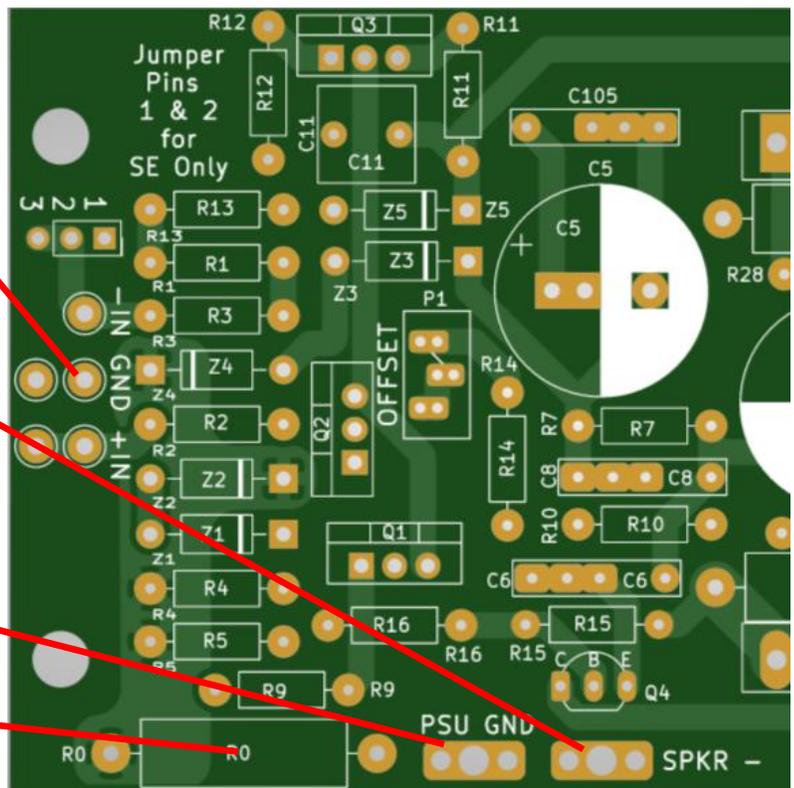
Option 1 – Connect Power supply / star ground to Negative Speaker Terminal.

Option 2 – Connect from here to Negative Speaker Terminal.

See which option sounds better in your setup

Power Supply Ground attaches here.

R0 = hum breaker resistor



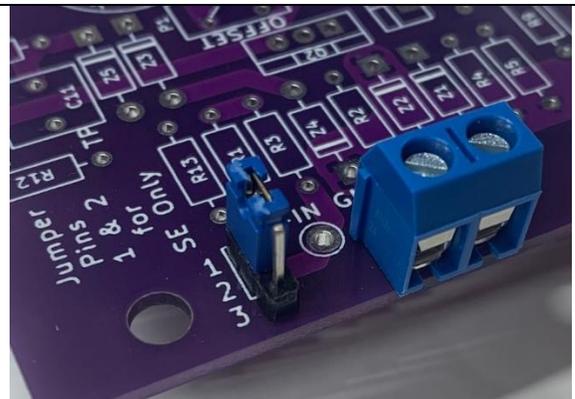
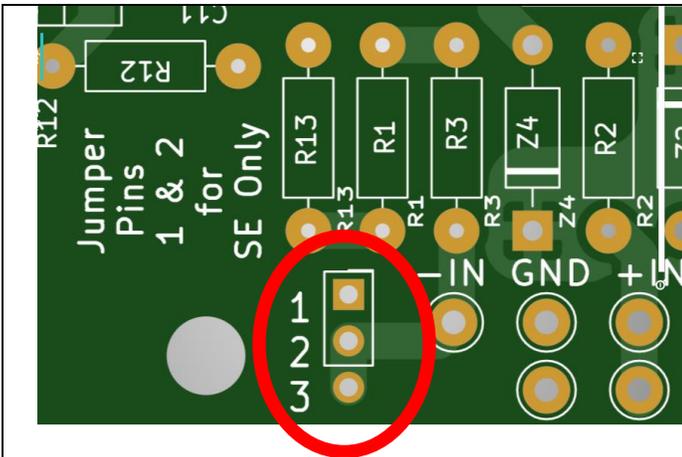
Single Ended vs. Balanced & SE Only Jumper

The Aleph 30 can be operated in balanced or single ended mode. When operating in Singled ended mode, XLR- must be connected to ground.

Option 1: Install a shorting plug/wire in the XLR jack that connects XLR Pin 1 (Ground) to XLR Pin 3 (negative)

Option 2: install a jumper header pins and use a jumper on the PCB between Pins 1 & 2 as marked on the PCB. You can store the jumper on Pins 2 & 3 when operating in Balanced mode.

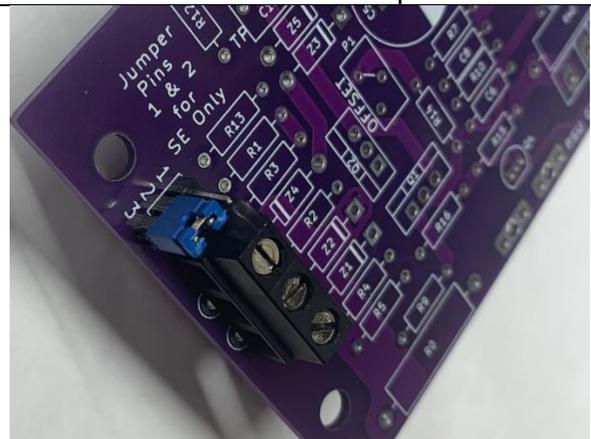
Option 3: SE only mode ONLY - Solder in a clipped resistor lead from your discard pile as a jumper wire between the point 1 & 2.



Example: Jumper installed for SE Only Operation
Euroblock for SE inputs

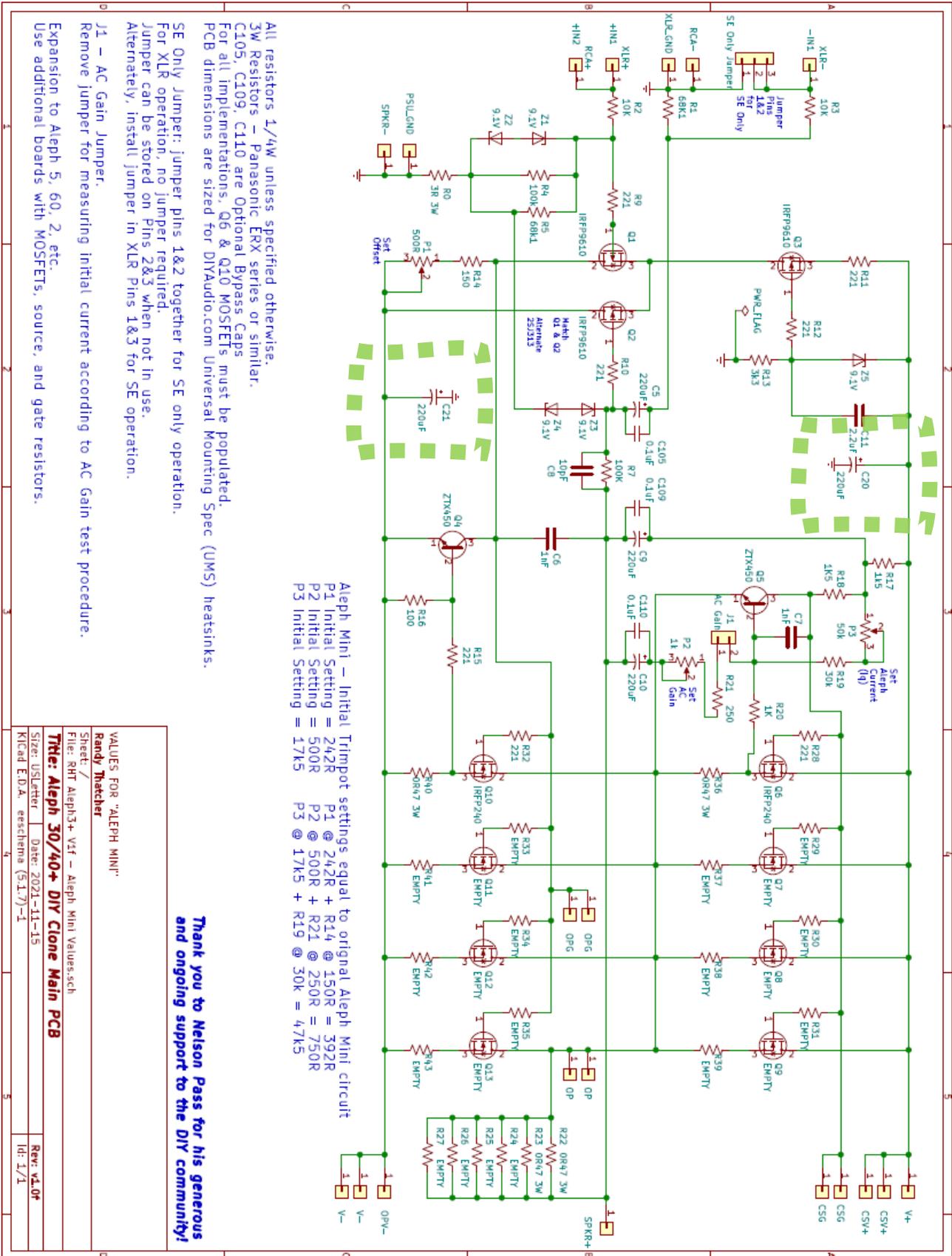


Example: Hardwire jumper installed for SE Only
Hardwired SE Input



Example: Jumper installed for Balanced Operation
Euroblock for Balanced inputs

PCB Schematic – Main PCB – Version 1.0f – Includes Aleph Mini Values



Aleph Mini BOM

BOM for Aleph 30+ Front End PCBs - The quantities below are for 1 MOSFET output (Aleph Mini)

BOM Version: v1.0a

NOTE: Assumes 2 channels in stereo amp chassis configuration

This table contains example part numbers and part recommendations. Any good quality similar parts will work with no detriment to the sound.

| Per Chan | 2 Chan | Designation | Description | Add'l Detail / Comment | Digikey |
|----------|--------|-----------------------------|---|---|---|
| 1 | 2 | R0 | 2R7-4R 3W | | A131577CT-ND |
| 2 | 4 | R1, R5 | 68k1 1/4W | | 68.1KXBK-ND |
| 2 | 4 | R2, R3 | 10k 1/4W | | 10.0KXBK-ND |
| 2 | 4 | R4, R7 | 100k 1/4W | | 100KXBK-ND |
| 7 | 14 | R9-12, R15, R28-32 | 221R 1/4W | | 221XBK-ND |
| 1 | 2 | R13 | 3k3 1/4W | | MFR-25FBF52-3K3-ND |
| 1 | 2 | R14 | 150R 1/4W | | 150XBK-ND |
| 1 | 2 | R16 | 100R 1/4W | | 100XBK-ND |
| 1 | 2 | R21 | 250R 1/4W | This part number is 249R. Close Enough | 249XBK-ND |
| 2 | 4 | R17, 18 | 1k5 1/4W | | RNF14FTD1K50CT-ND |
| 1 | 2 | R19 | 30k 1/4W | | MFR-25FBF52-30K-ND |
| 1 | 2 | R20 | 1k 1/4W | | 1.00KXBK-ND |
| 4 | 8 | R22-23, R36, R40 | 0R47 3W | Panasonic ERX or similar Metal Oxide | A138094CT-ND |
| 5 | 10 | Z1-5 | 9.1V Zener | | 1N5239B-ND |
| 3 | 6 | Q1-3 | IRF9610 / SFP9610 | Q1&2 Matched | IRF9610PBF-ND |
| 2 | 4 | Q1-2 Alternate Option | 2SJ313 or FQP3P20 | Q1&2 Matched | |
| 2 | 4 | Q4-5 | ZTX450 | | ZTX450-ND |
| 2 | 4 | Q6, Q10 | IRFP240 | | IRFP240PBF-ND |
| 3 | 6 | C5, C9, C10 | 220uF 25V | 5.0 or 7.5mm Lead Spacing, up to 16mm Diameter | 604-1056-ND |
| 3 | 6 | C105, C109, C110 (Optional) | 0.1uF Film Cap | 5.0, 7.5, or 10.0 mm Lead Spacing | 1928-1538-ND |
| 2 | 4 | C6, C7 | 1nF / 1000pf / 0.001uF | 5.0, 7.5, or 10.0 mm Lead Spacing | 1928-1384-ND |
| 1 | 2 | C8 | 10pF Mica | 5.0, 7.5, or 10.0 mm Lead Spacing | 338-1061-ND |
| 1 | 2 | C11 | 1.0uF to 4.7uF will do, value is not critical | 5mm LS 7.2x7.2 Film | 399-12660-ND 495-1127-ND |
| 2 | 4 | C20, C21 | 1,000uF or more, 25V | 5.0 or 7.5mm Lead Spacing, up to 16mm Diameter (PCB V1.0f only) | P10278-ND 1000uF P123950-ND 2000uF 478CKE025MQV-ND 4700uF |
| 1 | 2 | P1 | 500R Multi-turn pot | Initial Setting = 242R | 3296Y-501LF-ND or 3296W-501LF-ND |
| 1 | 2 | P2 | 1k Multi-turn pot | Initial Setting = 500R | 3296Y-102LF-ND or 3296W-102LF-ND |
| 1 | 2 | P3 | 50k Multi-turn pot | Initial Setting = 17k5 | 3296Y-503LF-ND or 3296W-503LF-ND |
| 2 | 4 | Jumpers | 2.54mm jumper | | 1849-09200-71-BBGB00-ND |
| 1 | 1 | Jumper Header | 2.54mm jumper header pins | Buy a long strip and cut for J1 and SE Only Jumpers | 2057-PH1-15-UA-ND |
| 2 | 4 | Heatsink pads | Pads for MOSFETS | | Keratherm (DIYAudio Store) |
| 1 | 2 | PCB | | | Group Buy |
| | | OPTIONAL: QD Connectors | Quick Disconnect Spades | | 36-1287-ST-ND |
| | | OPTIONAL: QD Connectors | 3 Position Terminal Block | Screw disconnect for inputs | A98077-ND |

Chassis

The DIY 3U chassis is a perfect candidate for Aleph Mini Stereo Amplifier. You can order UMS heatsinks as an upgrade option. Refer to the DIY Audio store or Modushop for details.

Power Supply – Transformer Options. VA Ratings are based on single transformer for stereo amp.

| Rail Voltage | Transformer Secondary Voltage | Bias Current | Per Channel Heatsink Dissipation (Watts) | Transformer Sizing (2x Factor) | Transformer Sizing (3x Factor) | Power Output into 8 Ohms (RMS) |
|--------------|-------------------------------|--------------|--|--------------------------------|--------------------------------|--------------------------------|
| ~20V | 15V | 1.0A | 41 | 160VA | 250VA | 16 |
| | | 1.2A | 50 | 200VA | 300 VA | 19 |
| | | 1.4A | 57 | 230VA | 350 VA | 19 |
| ~16V | 12V | 1.0A | 33 | 130VA | 200VA | 11 |
| | | 1.2A | 40 | 160VA | 230VA | 11 |
| | | 1.4A | 46 | 180VA | 275VA | 11 |

The following are some Antek Transformer options. Select a VA rating anywhere between the 2x and 3x factor above based on your desired bias point.

12V Secondaries

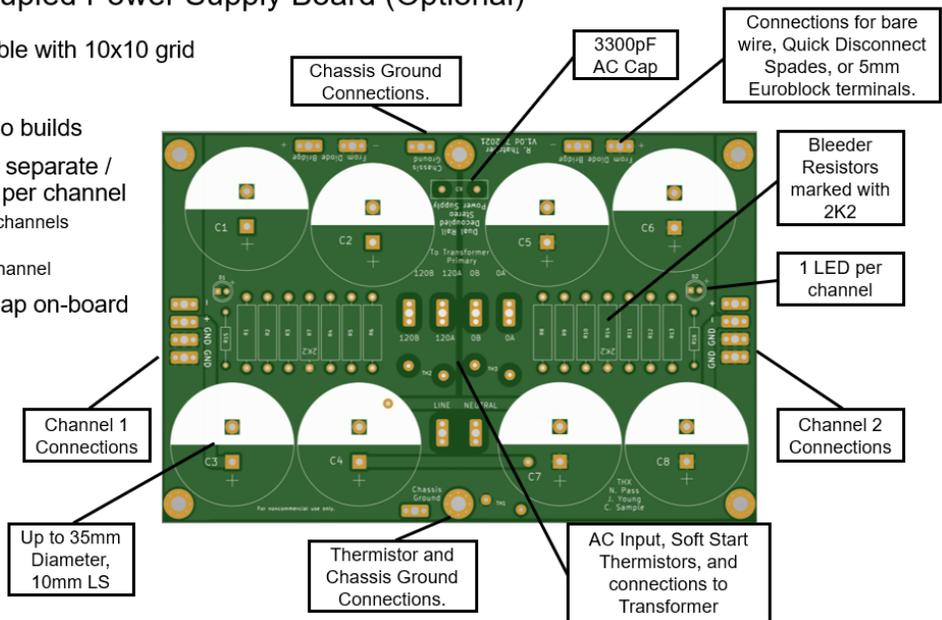
- Antek AS-2212 - 200VA 12V Transformer
- Antek AS-3212 - 300VA 12V Transformer

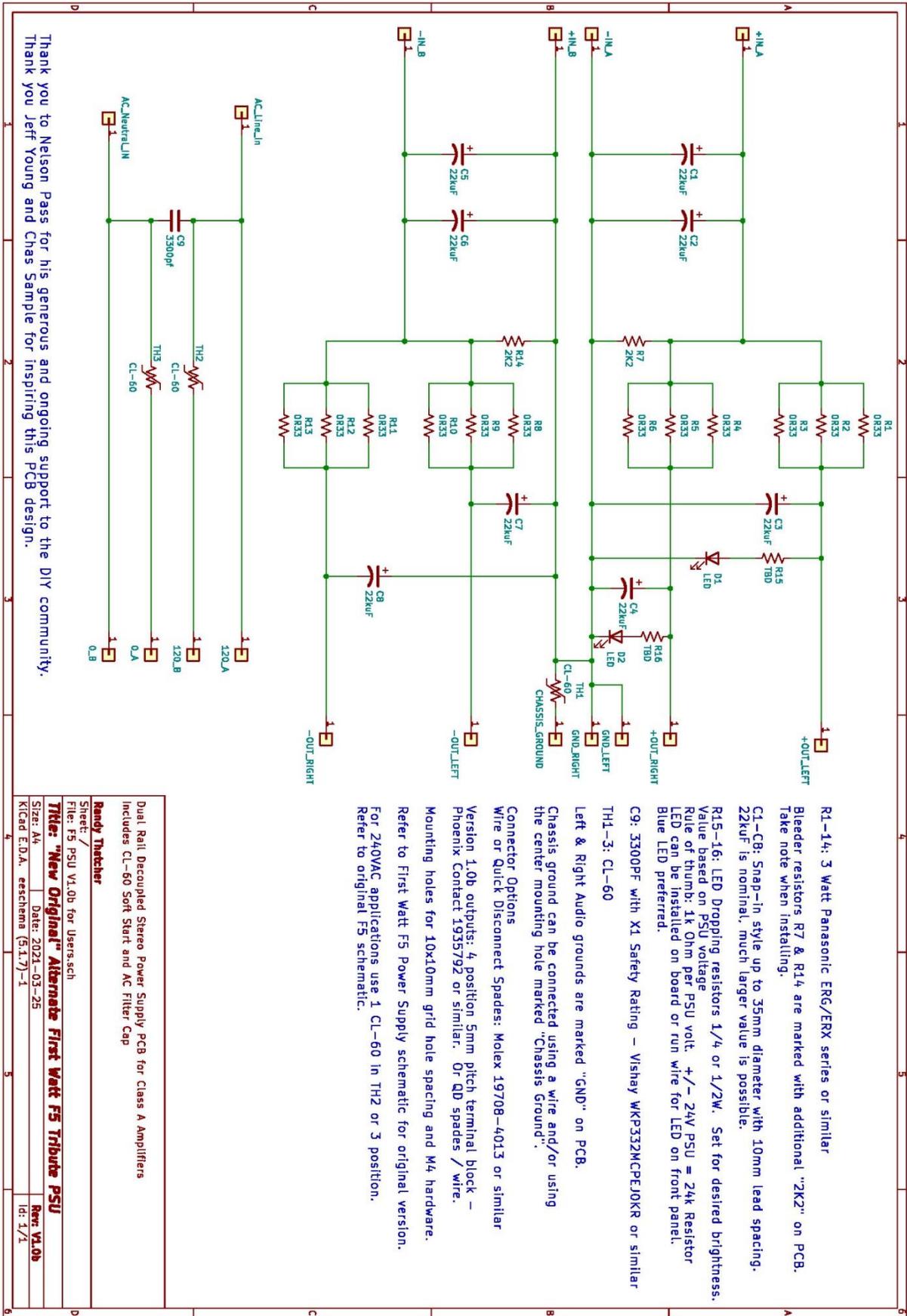
15V Secondaries

- Antek AS-2215 - 200VA 15V Transformer
- Antek AS-3215 - 300VA 15V Transformer

“New Original” F5 Power Supply – Recommended for Stereo builds
Classic Aleph for UMS Chassis Group Buy
Dual Rail Decoupled Power Supply Board (Optional)

- Mounting holes compatible with 10x10 grid
- 112 x 170mm
- Recommended for stereo builds
- CRC Power Supply with separate / decoupled 2nd cap bank per channel
 - 1st bank of caps for both channels
 - Last bank of caps: 1 cap per rail for each channel
- CL-60 Soft Start & AC Cap on-board





Thank you to Nelson Pass for his generous and ongoing support to the DIY community.
Thank you Jeff Young and Chas Sample for inspiring this PCB design.

R1-14: 3 Watt Panasonic ERG/ERX series or similar
Bleeder resistors R7 & R14 are marked with additional "2K2" on PCB.
Take note when installing.

C1-C8: Snap-in style up to 35mm diameter with 10mm lead spacing.
22kuf is nominal, much larger value is possible.

R15-16: LED Dropping resistors 1/4 or 1/2W. Set for desired brightness.
Value based on PSU voltage
Rule of thumb: 1k Ohm per PSU volt. +/- 24V PSU = 24k Resistor
LED can be installed on board or run wire for LED on front panel.
Blue LED preferred.

C9: 3300PF with X1 Safety Rating - Vishay WKP332MCPJ0KR or similar
TH1-3: CL-60

Left & Right Audio grounds are marked "GND" on PCB.

Chassis ground can be connected using a wire and/or using the center mounting hole marked "Chassis Ground".

Connector Options

Wire or Quick Disconnect Spades: Molex 19708-4013 or similar
Version 1.0b outputs: 4 position 5mm pitch terminal block - Phoenix Contact 1935792 or similar. Or QD spades / wire.

Mounting holes for 10x10mm grid hole spacing and M4 hardware.

Refer to First Watt F5 Power Supply schematic for original version.

For 240VAC applications use 1 CL-60 in TH2 or 3 position.
Refer to original F5 schematic.

| | |
|---|-------------------|
| Dual Rail Decoupled Stereo Power Supply PCB for Class A Amplifiers Includes CL-60 Soft Start and AC Filter Cap | |
| Ready Thatcher | |
| Sheet: / | |
| File: F5 PSU V1.0b for Users.sch | |
| Title: "New Original" Alternate First Watt F5 Tribute PSU | Rev: V1.0b |
| Size: A4 | Date: 2021-03-25 |
| Kicad E.A. eeschema (5117)-1 | Id: 1/1 |

Power Supply BOM for "New Original" F5 Dual Rail Decoupled Power Supply PCB

NOTE: Assumes 2 channels in stereo amp chassis configuration

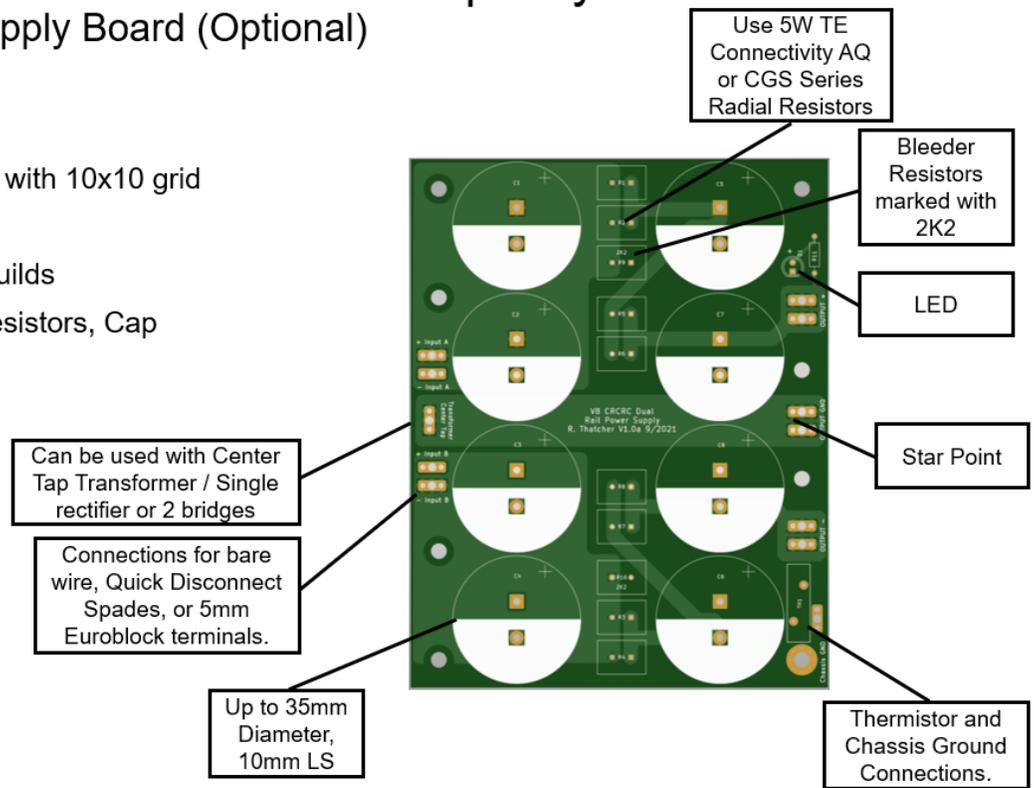
This table contains example part numbers and part recommendations. Any good quality similar parts will work with no detriment to the sound.

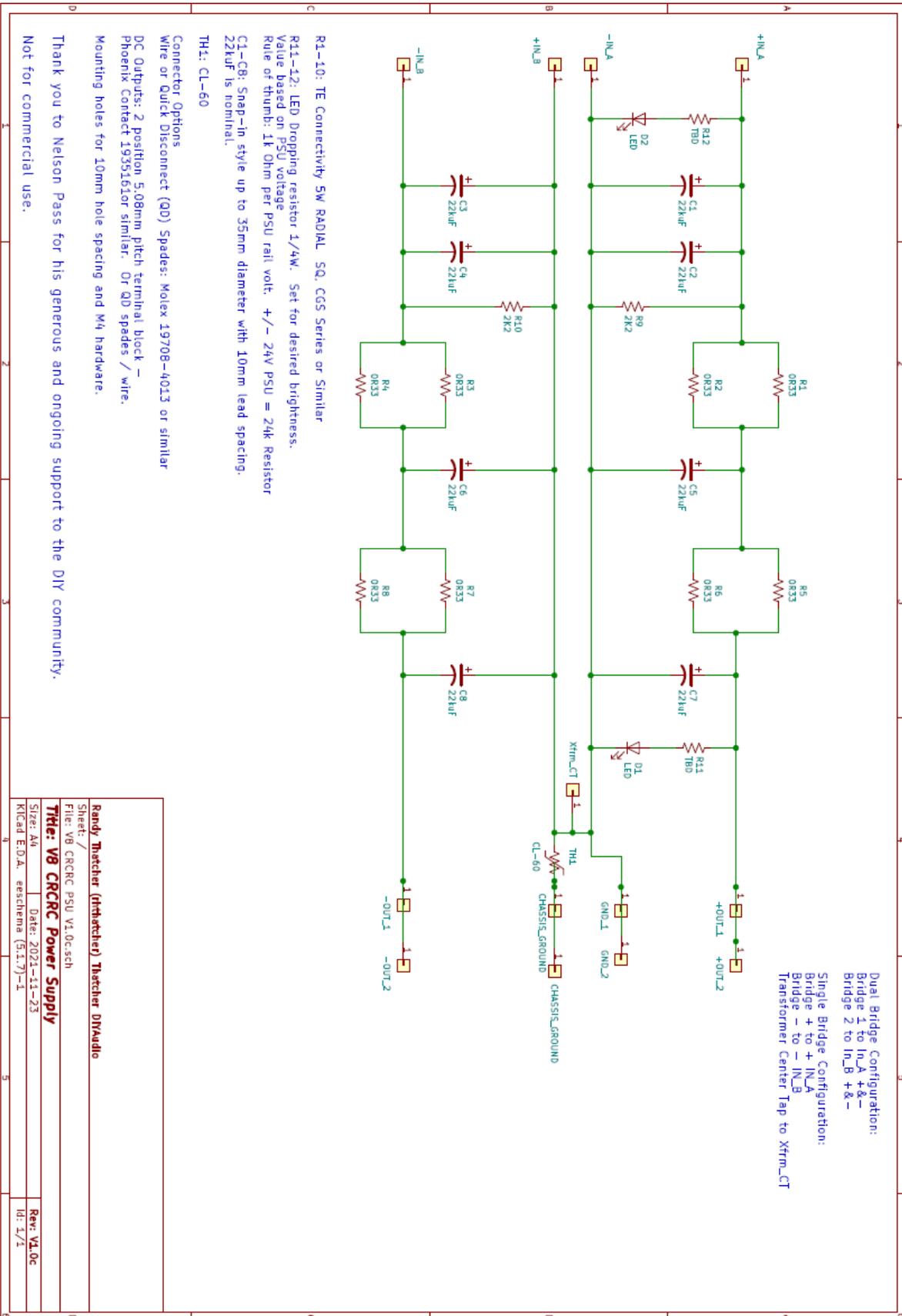
| ID | Qty | Value | Digikey Part Number | Comment |
|----------------------------------|------|---|--|--|
| Power Supply Board | | | | |
| R1-6, R8-13 | 12 | 0R33 - 1R 3W | P0.47W-3BK-ND WHDR50FETCT-ND 0.33AECT-ND A131659CT-ND | Panasonic EGR/ERX or similar Alternate: use inductive wirewound resistors in this position. Inductive resistors add filtration in powers supply CRC filter. |
| R7, R14 | 3 | 2k2 3W | ERG-3SJ222 | Panasonic EGR/ERX or similar |
| R15-16 | 2 | 20k 1/4W | 20.0KXBK-ND | "Rule of Thumb" - 1k Ohm per PSU volt Increase R for dimmer LED. |
| C1-8 | 8 | 22k uF or greater, 25V or greater | 338-2431-ND | 10mm Lead Spacing, up to 35mm Diameter. Voltage rating must be greater than rail voltage! |
| C1-8 (alternate) | | 27k uF, 25V | 338-2255-ND | |
| C1-8 (alternate) | | 33k uF, 25V | 338-1613-ND | |
| C1-8 (alternate) | | 47k uF, 25V | 338-2267-ND | |
| C9 | 1 | 3300pF, X1 Safety Rated | 399-9513-1-ND | |
| TH1-3 | 3 | CL-60 | KC006L-ND | |
| D1,2 | 2 | Blue LED | 732-5019-ND | This is a Pass clone – blue is required! |
| Other | 2 | Screw Terminal Blocks 4 position | 277-1579-ND | OPTIONAL - For connection to amp PCBs |
| Other | 3 | Screw Terminal Blocks 2 Position 35 Degree | 277-5941-ND | OPTIONAL - for AC Connections (Mains + Transformer) |
| Other | 6-16 | Quick Disconnect Blades | WM14275CT-ND 36-1287-ST-ND | OPTIONAL - 6 if AC only, up to 16 total if not using screw terminal blocks |
| Rectifiers / Snubber PCBs | | | | |
| Rectifier Bridges | 2 | | GBPC3510-E4/51GI- ND 641-1380-ND | |
| Snubber C | 2 | FILM 10000PF / 10nF / .01uF | 495-4975-1-ND | |
| Snubber C | 2 | FILM 150nF / .15uF | 495-77011-1-ND | |
| Snubber R | 2 | Metal Film 1/4W - Value TBD | | Use Quasimodo test jig to determine value. 22R is a good 'rule of thumb' for Antek Transformers |
| MISC | | | | |
| Fuses | TBD | 2.0 or 2.5 Amp Slow Blow | | Calculate Transformer VA / Mains voltage, then go to next standard size. 200VA / 120V = 1.667A - go with 2A Fuse 300VA / 120V = 2.5A Fuse |

V8 CRCRC Power Supply – Recommended for Mono builds

Classic Aleph for UMS Chassis Group Buy V8 CRCRC Power Supply Board (Optional)

- Mounting holes compatible with 10x10 grid
- 115 x 146mm
- Recommended for mono builds
- 2 Caps, Resistors, Cap, Resistors, Cap





Power Supply BOM for V8 CRCRC Power Supply PCB

NOTE: BOM is for SINGLE CHANNEL. Multiply Quantity x 2 for 2 channels!

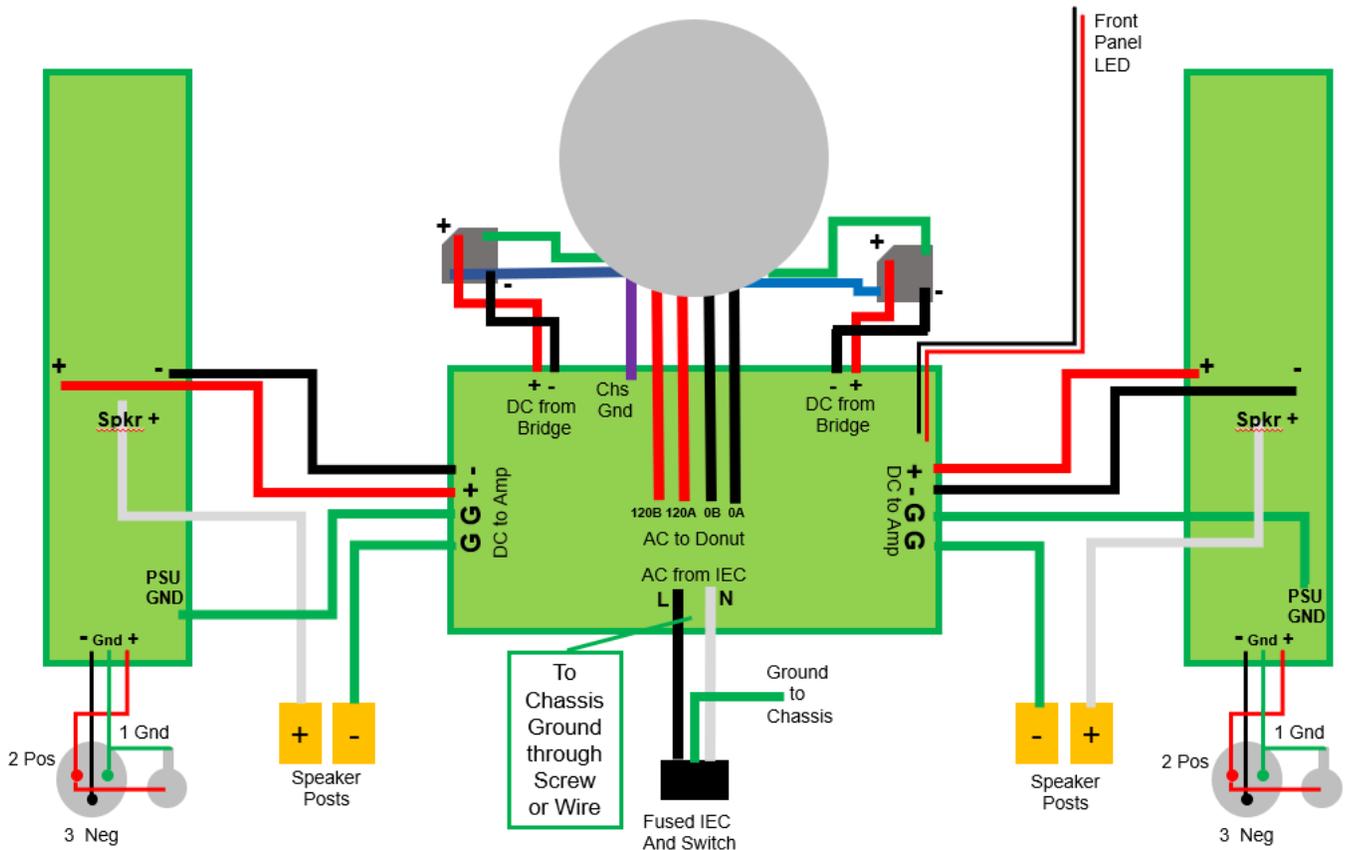
This table contains example part numbers and part recommendations. Any good quality similar parts will work with no detriment to the sound.

| ID | Qty | Value | Digikey Part Number | Comment |
|----------------------------------|-----|-------------------------------------|--|--|
| Power Supply Board | | | | |
| R1-8 | 8 | 0R22 – 0R33 5W | A103689-ND A137379-ND A102472-ND | Use TE Connectivity 5W Radial Resistors for this PCB 13.00mm x 9.00mm 5mm Lead Spacing |
| R9-10 | 2 | 2k2 5W (3k3 is also OK) | A102461-ND A131251-ND | Use TE Connectivity 5W Radial Resistors for this PCB 13.00mm x 9.00mm 5mm Lead Spacing |
| R11, 12 | 2 | 20k 1/4W | 20.0KXBK-ND | "Rule of Thumb" - 1k Ohm per PSU volt Increase R for dimmer LED. |
| C1-8 | 8 | 22k uF or greater, 25V or greater | 338-2431-ND | 10mm Lead Spacing, up to 35mm Diameter. Voltage rating must be greater than rail voltage! |
| C1-8 (alternate) | | 27k uF, 25V | 338-2255-ND | |
| C1-8 (alternate) | | 33k uF, 25V | 338-1613-ND | |
| C1-8 (alternate) | | 47k uF, 25V | 1189-3900-ND | |
| TH1 | 1 | CL-60 | KC006L-ND | |
| D1-2 | 2 | Blue LED | 732-5019-ND | This is a Pass clone – blue is required! LEDs are both on positive rail. Use one for on-board and another for front panel |
| Other | 5 | Screw Terminal Blocks 2 position | 277-1667-ND | OPTIONAL - For connection to amp PCB and/or Bridges |
| Other | 10 | Quick Disconnect Blades | WM14275CT-ND 36-1287-ST-ND | |
| CL-60 / AC Cap PCB | | | | |
| C1 | 1 | 3300pF, X1 Safety Rated | 399-9513-1-ND | |
| TH1-2 | 2 | CL-60 | KC006L-ND | |
| Other | 3 | Screw Terminal Blocks 2 position | 277-1667-ND | |
| Other | 6 | Quick Disconnect Blades | WM14275CT-ND 36-1287-ST-ND | |
| Rectifiers / Snubber PCBs | | | | |
| Rectifier Bridges | 2 | | GBPC3510-E4/51GI-ND 641-1380-ND | |
| Snubber C | 2 | FILM 1000PF / 10nF / .01uF | 495-4975-1-ND | |
| Snubber C | 2 | FILM 150nF / .15uF | 495-77011-1-ND | |
| Snubber R | 2 | Metal Film 1/4W - Value TBD | | Use Quasimodo test jig to determine value |

Amplifier Wiring – Aleph Mini Stereo Configuration with “New Original” F5 Power Supply PCB

- Twist wires!!!
- If using Antek shielded transformer, attach purple wire to Chassis.
 - Option 1: Direct to Chassis
 - Option 2: Connect to “Chassis Ground” termination point on PSU PCB
- Confirm transformer wiring pairs (120A / 0 A, 120B / 0B, secondary pairs)

Classic Aleph for UMS Chassis Group Buy Aleph 30 Stereo Wiring using “New Original” PSU PCB – 120VAC Mains

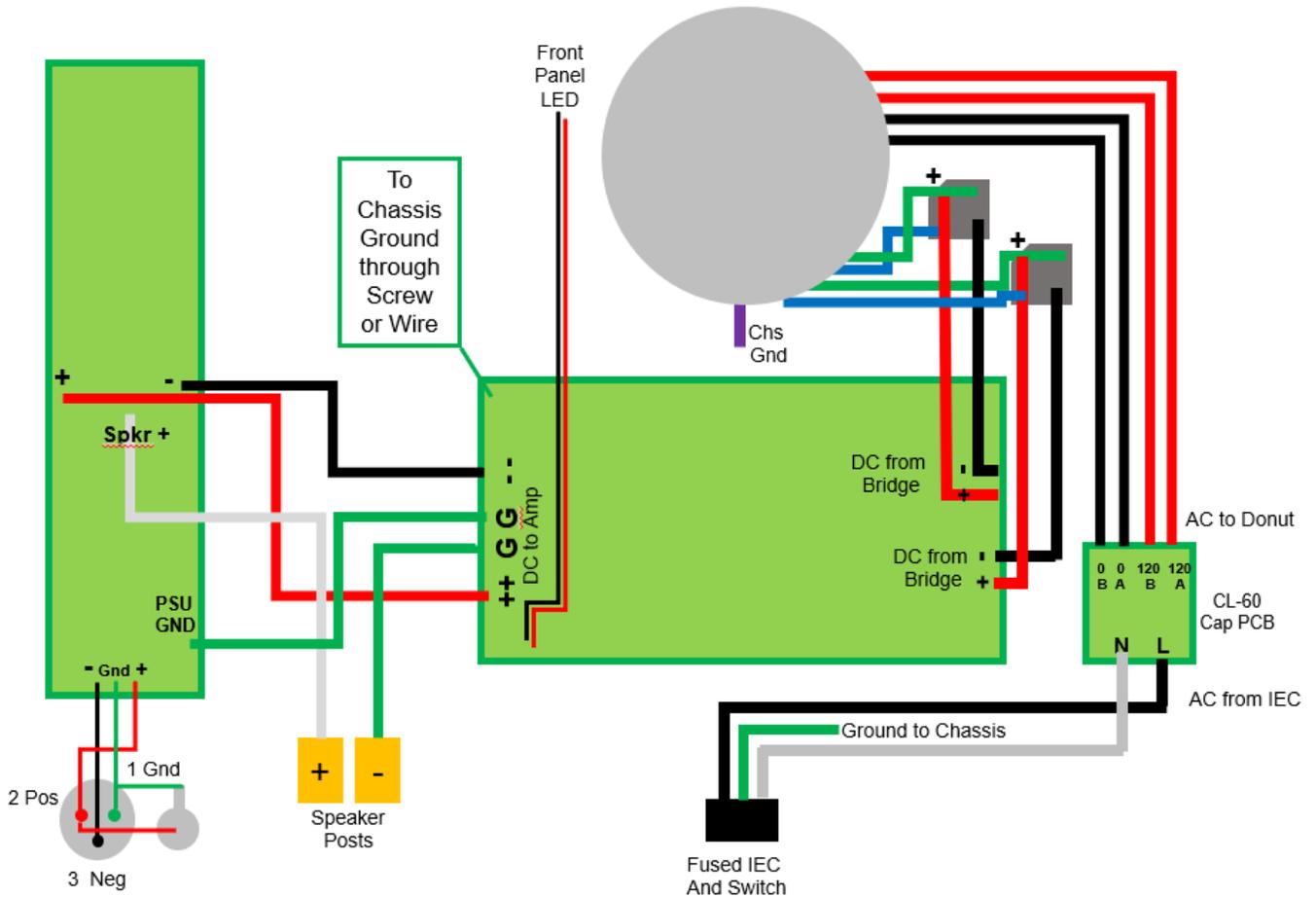


Amplifier Wiring – Aleph Mini Monoblock Configuration with V8 Power Supply PCB

- Twist wires!!!
- If using Antek shielded transformer, attach purple wire to Chassis.
 - Option 1: Direct to Chassis
 - Option 2: Connect to “Chassis Ground” termination point on PSU PCB
- Confirm transformer wiring pairs (120A / 0 A, 120B / 0B, secondary pairs)

Classic Aleph for UMS Chassis Group Buy

Aleph 30 Monoblock Wiring using V8 CRCRC Power Supply – 120VAC Mains



Final Test / Checkout Sheet

| | Unloaded | Loaded |
|-----------------|----------|--------|
| Power Supply V+ | | |
| Power Supply V- | | |

| | Initial / Cold | | Warm (After ~1 Hour) | | After Adjustment | |
|---|----------------|-------|-------------------------|-------|---------------------|-------|
| | Left | Right | Left | Right | Left | Right |
| DC Offset (mV) Target < 100 mV | | | | | | |
| Current Source MOSFET Current (Q6) Target = 1.0 - 1.4A | | | | | | |
| Output MOSFET Current (Q10) Target = 1.0 - 1.4A | | | | | | |

See AC Gain setting section for testing / recording AC Gain.