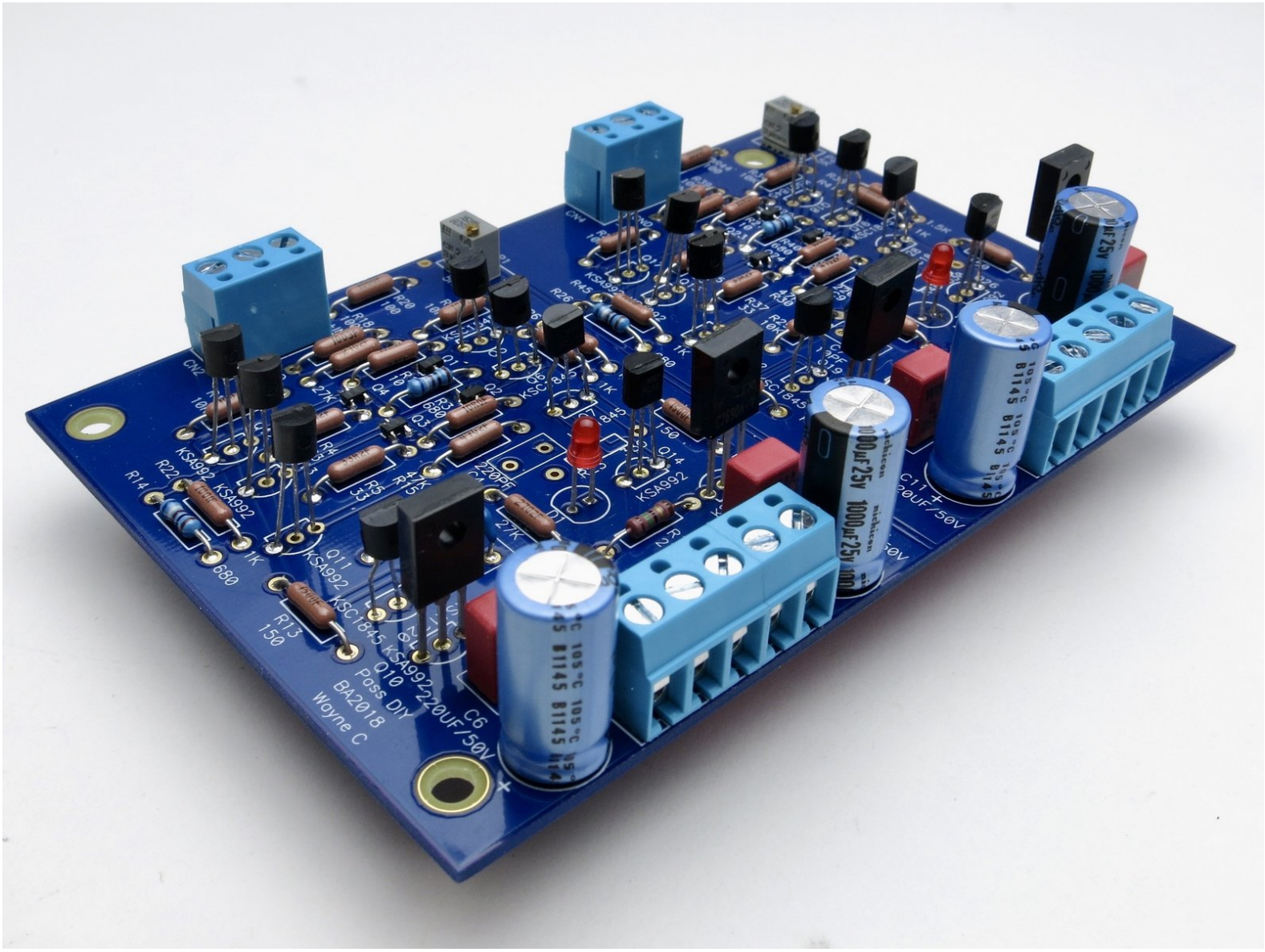
diyAudio Guides

# BA2018 linestage

Guide for Wayne Colburn's Linestage from Burning Amp 2018 - the "BA2018"

Written By: 6L6

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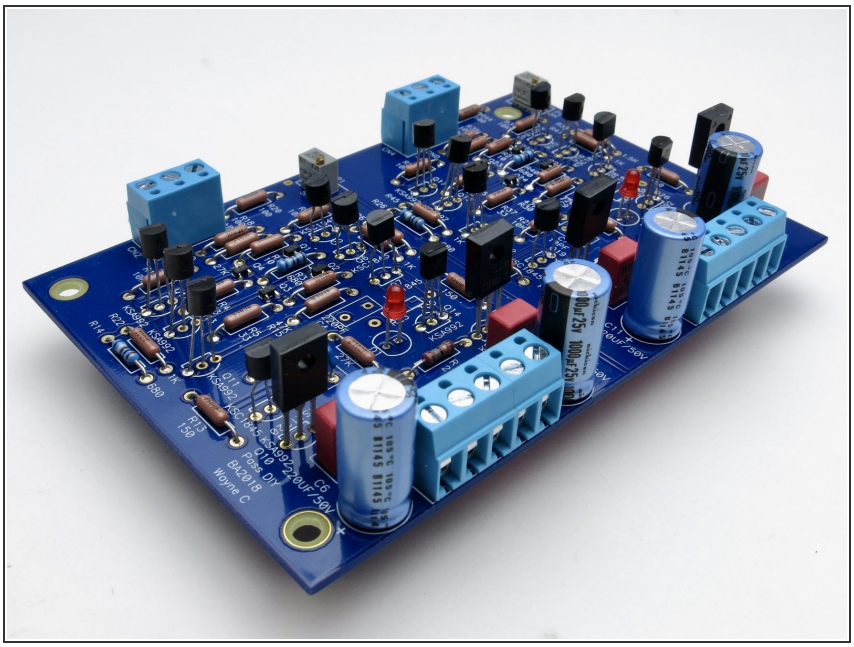
## Step 1 — Wayne's BA2018 linestage

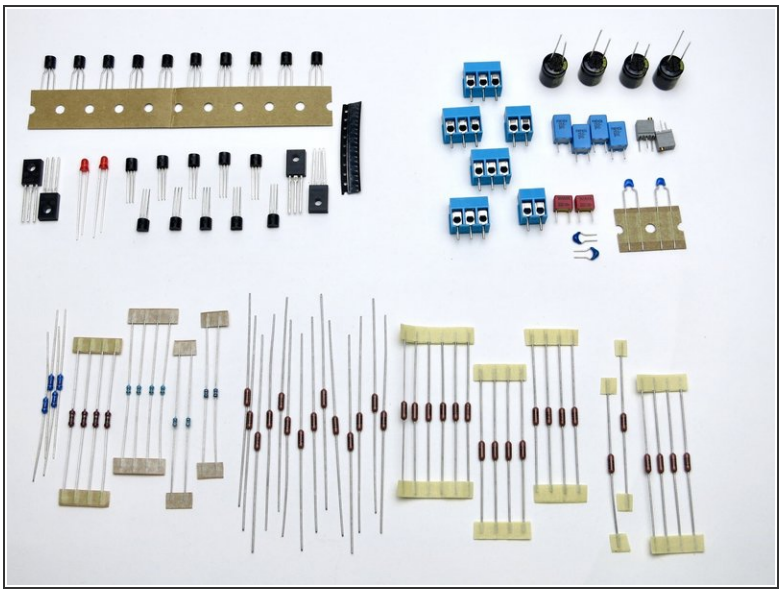


- Wayne Colburn's Linestage from Burning Amp Festival 2018.
- Absolutely fantastic sounding circuit, can even drive headphones (very nicely) with optional big output transistors.

## Step 2 — Read The Friendly Manual

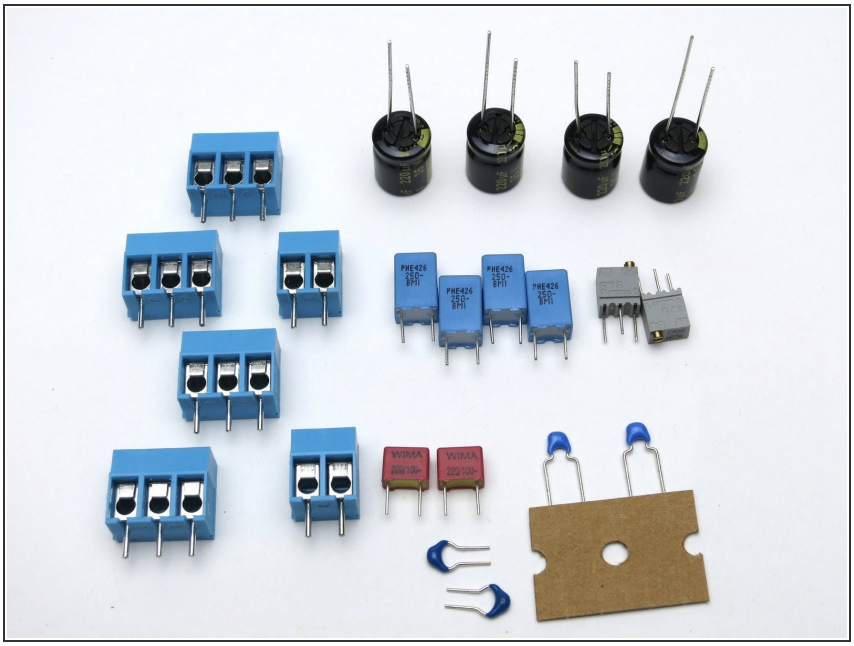

- Read the text.
- Look at all the photos (Mouseover or touch to view thumbnails)
- **Read the text again :)**
- You can click into the photos and they will open at maximum resolution in a new window.

## Step 3 — PCB parts kit



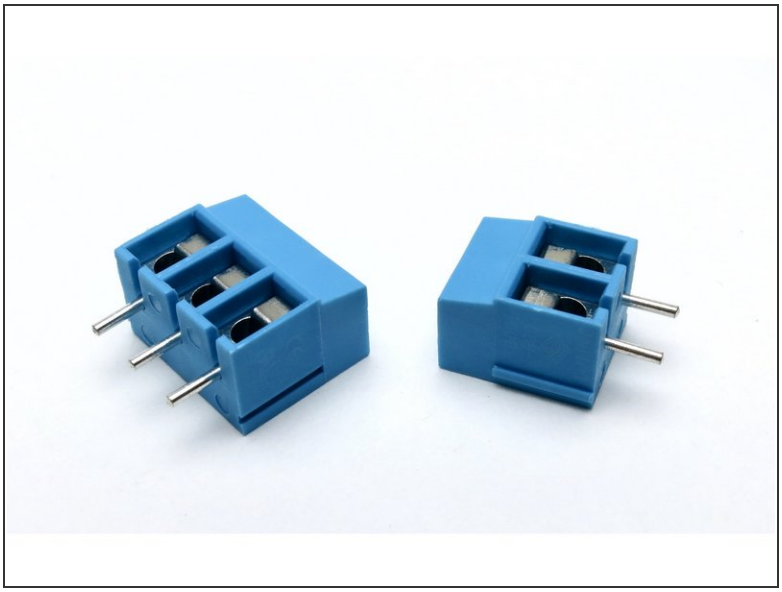
- This kit contains all the parts to stuff the audio circuit PCB.
- It contains extra parts so you can choose to use the big output transistors or the standard.
- Not all included parts are exactly as-shown in the photos, substitutions of equal or better quality will be made depending on what is available at the time kits are packaged.

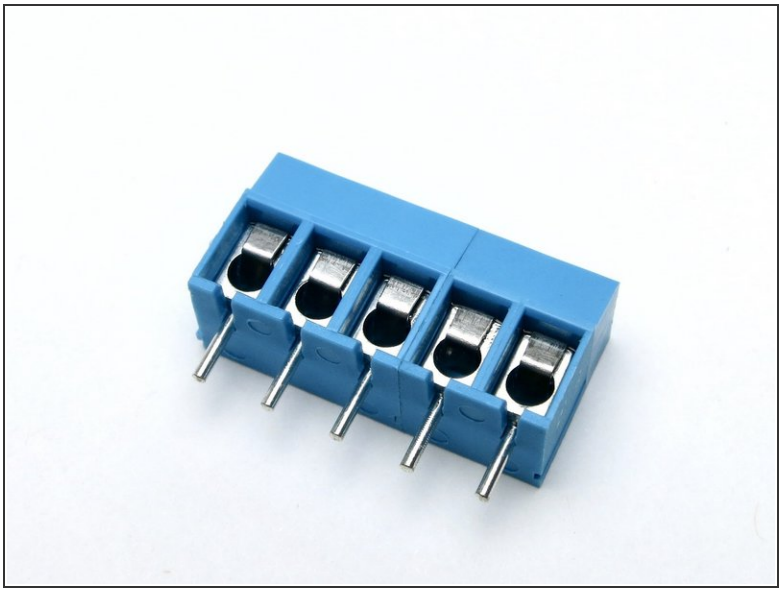
## Step 4 — Capacitors and Euroblocks



- Please note the 10pF capacitors are the two on the tape, the 5pF are loose.

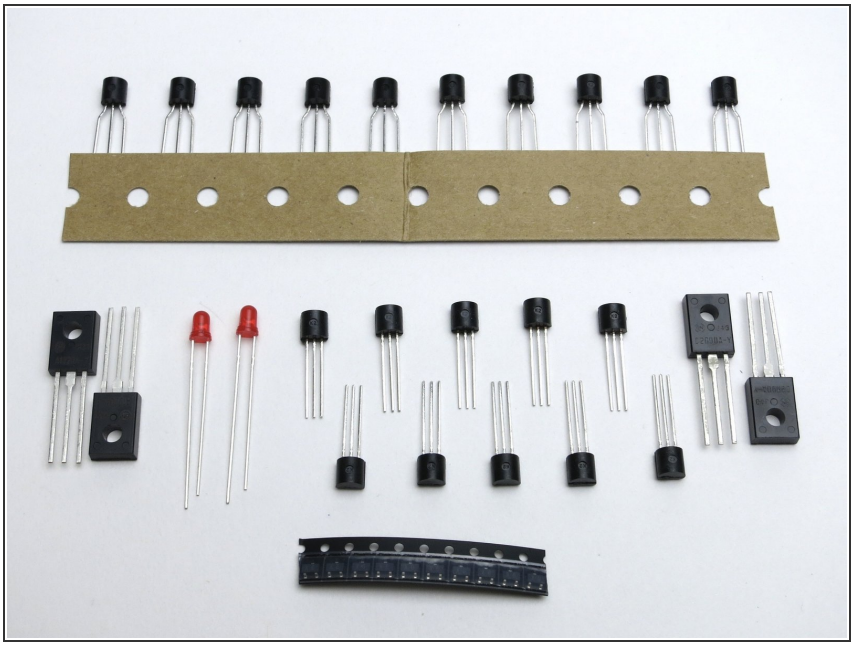
## Step 5 — Terminal blocks





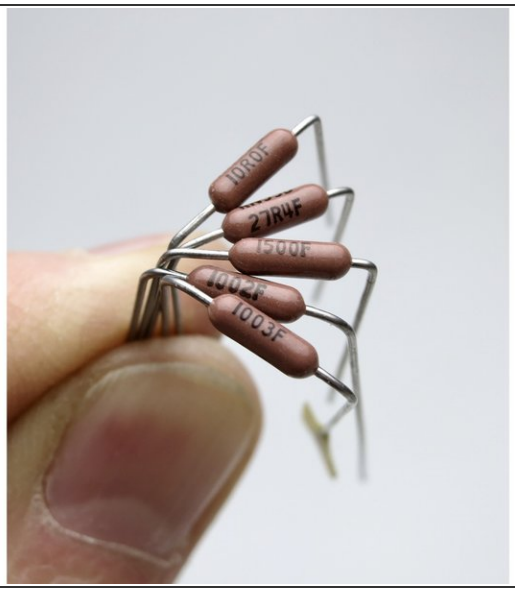
- The blocks all have small dovetails to interlock together.

## Step 6 — Transistors



- Yes, there are ten of the small SMD transistors. In case you drop one on the floor or, god forbid, sneeze...

## Step 7 — Resistors

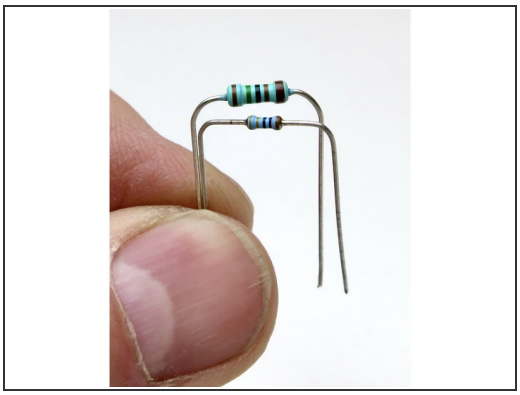


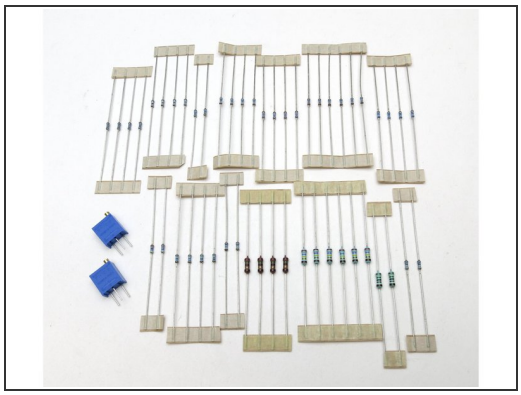

- The Dale RN/CMF series are 3-digit + multiplier.
- The bottom, marked "1003" is 100K, since you have 100 and three zeroes. The one marked "1002" is 10K.
- "1500" is 150 ohm, as the value is 150 plus *zero* zeroes. This is not 1.5K
- Below 100 ohm the letter "R" is placed at the decimal place, "27R4" is 27.4 ohms, and "10R0" os 10 ohms.
- Banded resistors follow the 5-band standard code.
- But even with that easy system, *Measure All Resistors before stuffing and soldering.*

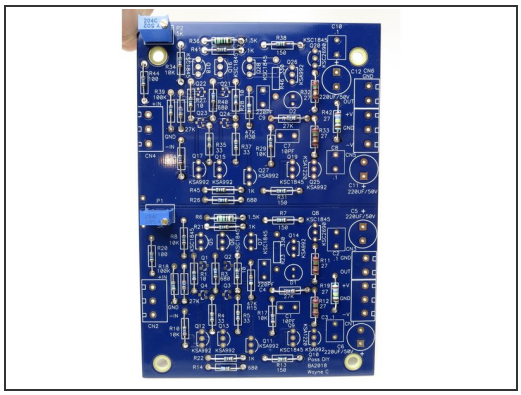


## Step 8 — Resistors II

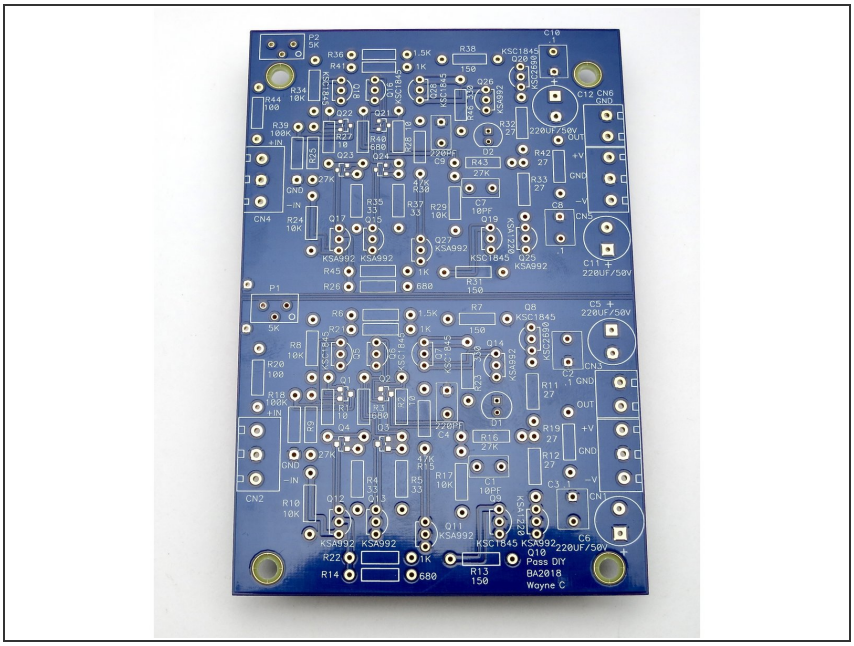






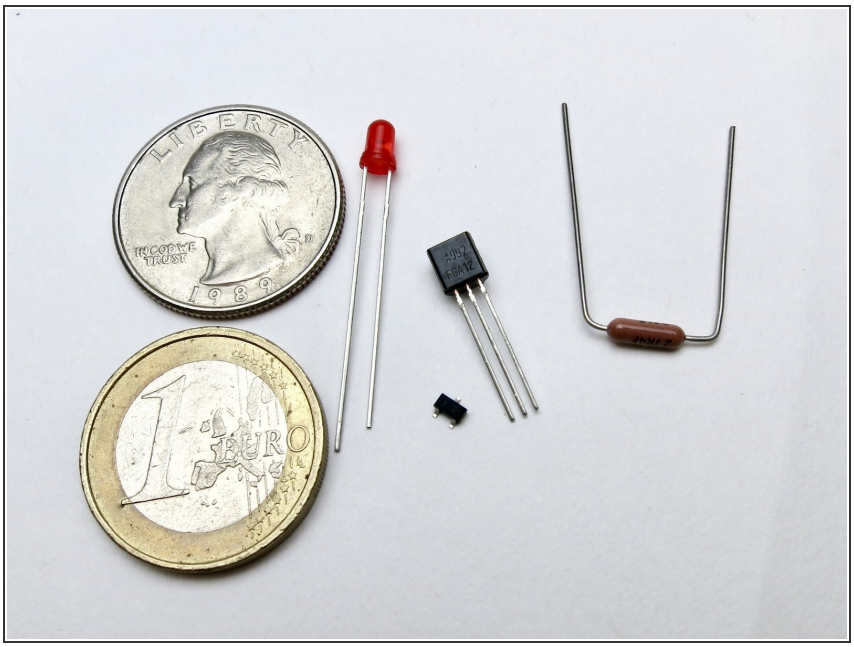
- Kits packages in spring of 2022 include the the very nice, but small, premium, European-made, Vishay MBA series resistors. Albeit a small package, these are ceramic bodied and 0.4W (almost 1/2W) max dissipation, and we are using them in lieu of the more common 1/4W (0.25W).
- The “large” resistors in the photos are normal-sized 1/4W (although the brown ones are 0.4W…)
- Please note that the PCB shown stuffed is setup for using the “big” output transistors, where R11,12, 32, 33 are 15ohm, and R23, 46 are omitted.

## Step 9 — PCB



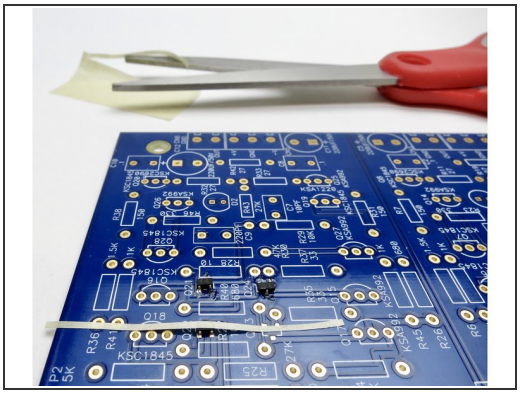

- Insert wisdom here.

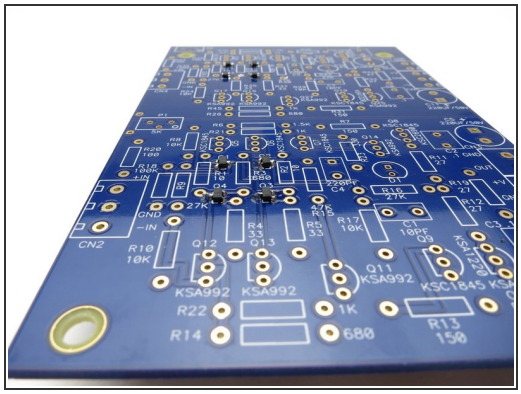
## Step 10 — Scale

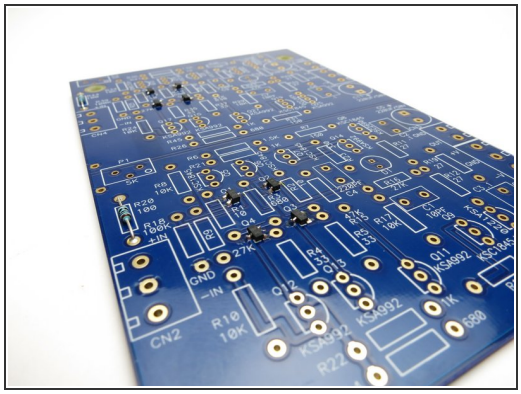



- Yes, the SMD transistors are very small. It's not a big deal though, we'll show you how to position and secure them for soldering in the next step.

## Step 11 — Secure SMD for soldering

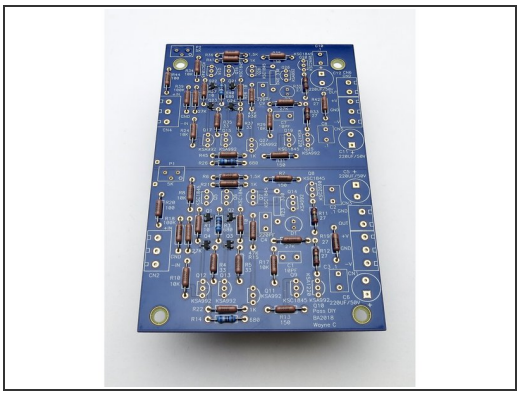


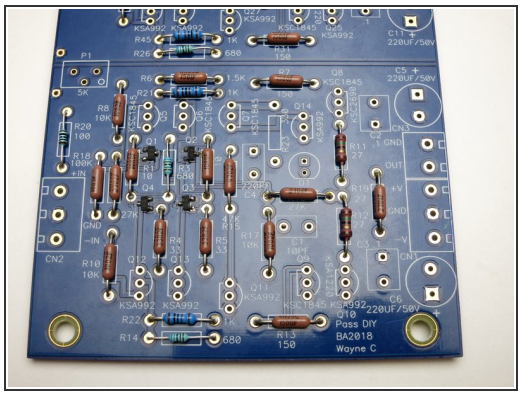


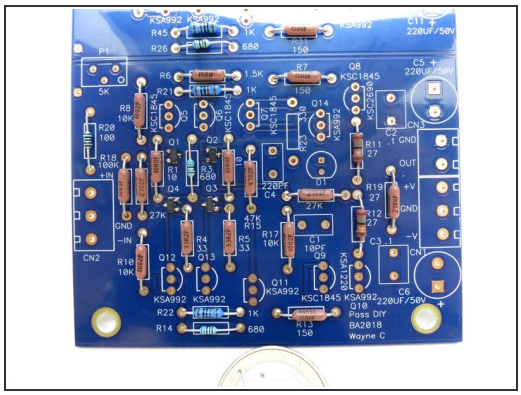


- Get some masking or painter's tape and cut into a 2-3" (50-75mm) strip that is very thin.
- Tape the transistor in the middle of the tape, feet down, and use the rest of the tape to align it on the pads.
- Secure the transistor with the longer pieces of tape and solder one leg.
- Once you have one leg soldered, the other two are easy as it won't move around anymore.
- All three legs of each transistor must be soldered for proper operation.

## Step 12 — Stuff resistors

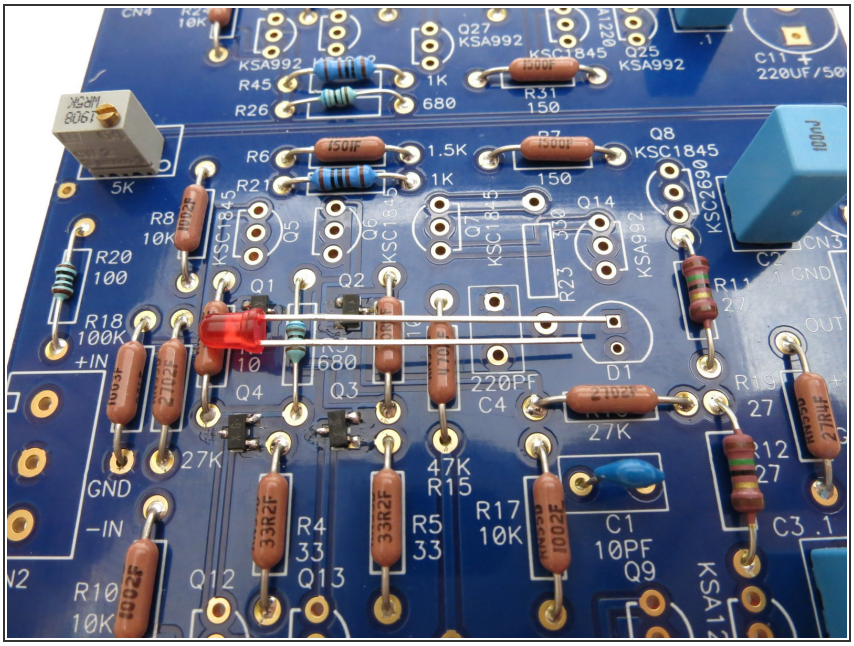






- Resistors are next.
- Neatness counts, bend the leads so the value is showing on the top and align them in the holes so they read *left to right* and *bottom to top*.
- Banded resistors put the brown tolerance band on the *bottom* or the *right*.
- Doing this greatly aids troubleshooting in the forum. (Because we can read the values in the photos)

## Step 13 — LED

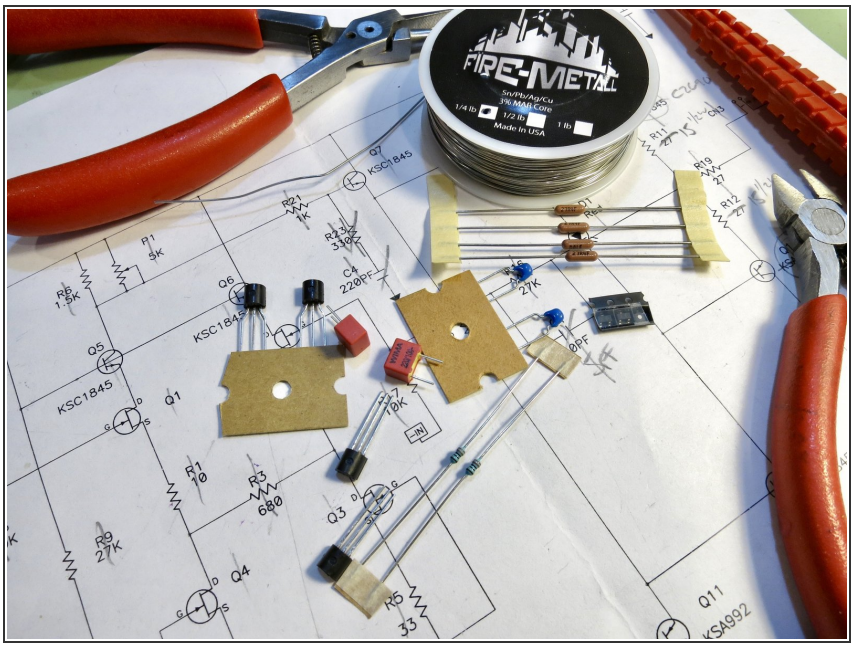



- Long leg in the square hole.
- Also note that looking into the structure of the LED itself, the cathode is the parts that actually lights up and it's physically bigger than the anode.



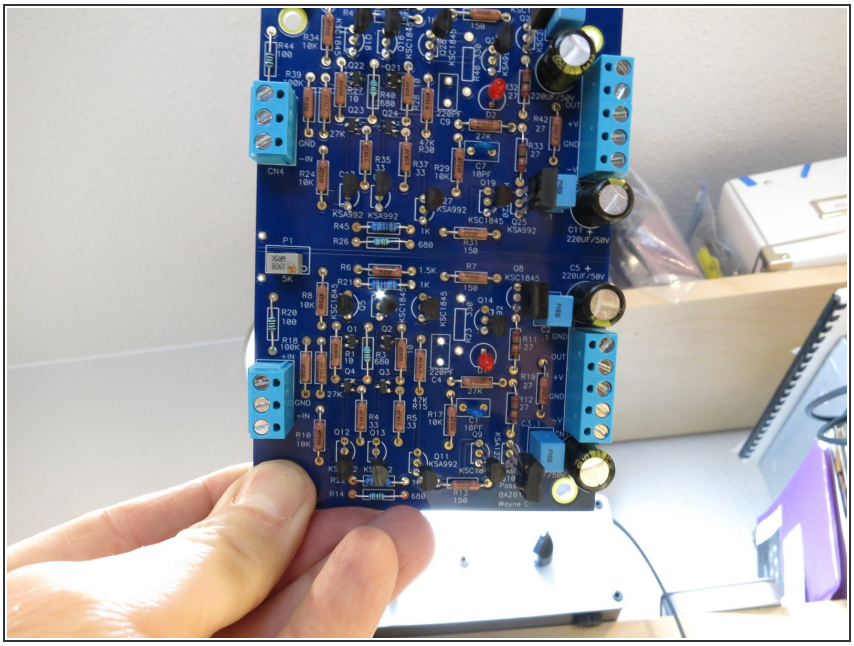
 

## Step 14 — Left over parts???



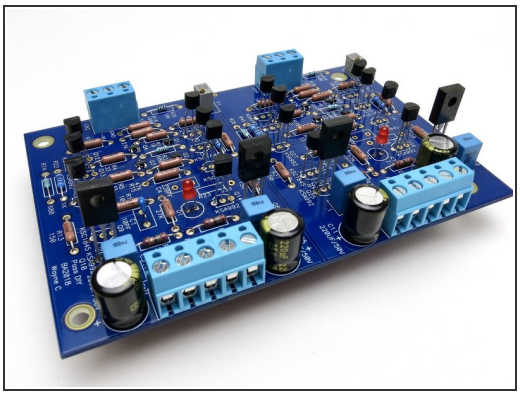
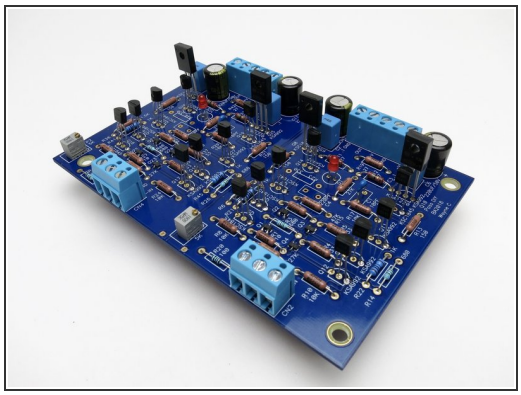
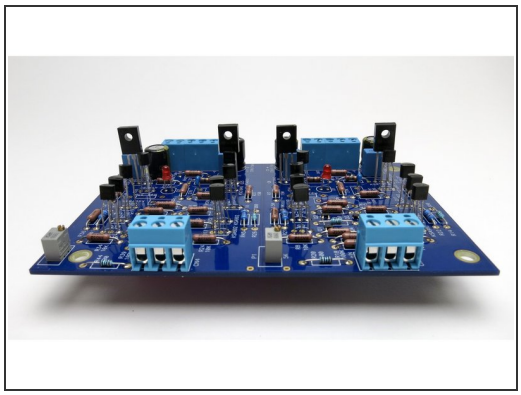

- Yes. There will be parts left over. This is normal.
- The store kit includes parts for both the standard configuration and the 'large output' option. As well as two extra 2SK209 SMD transistors. (Extras provided just in case you sneezed...)

## Step 15 — Check for missed soldering



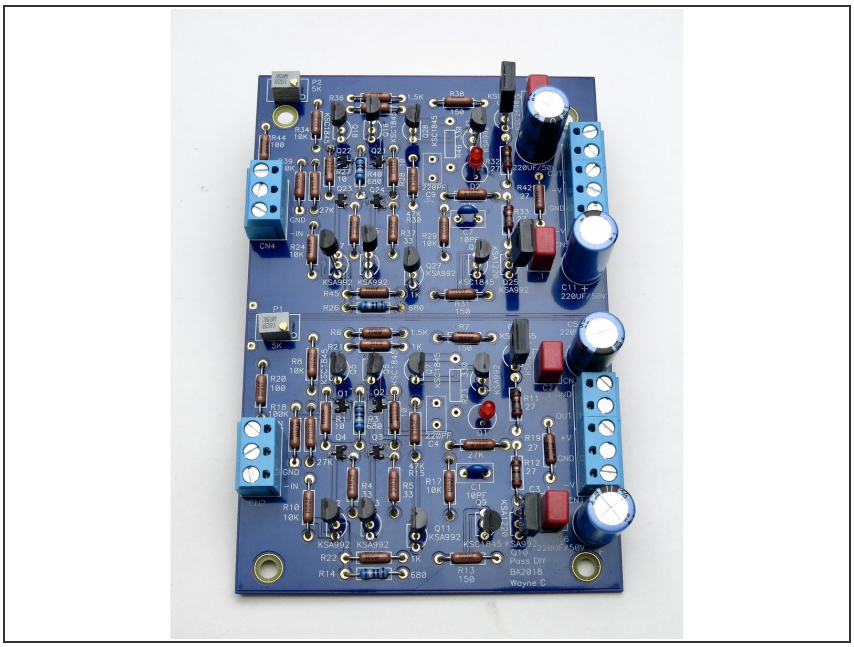
- Hold the PCB up to a light and look at all the holes. If you miss any solder joints they will be obvious.
- You can see the pad I missed soldering on one of the central transistors,

## Step 16

- Insert wisdom here.

## Step 17



- Insert wisdom here.