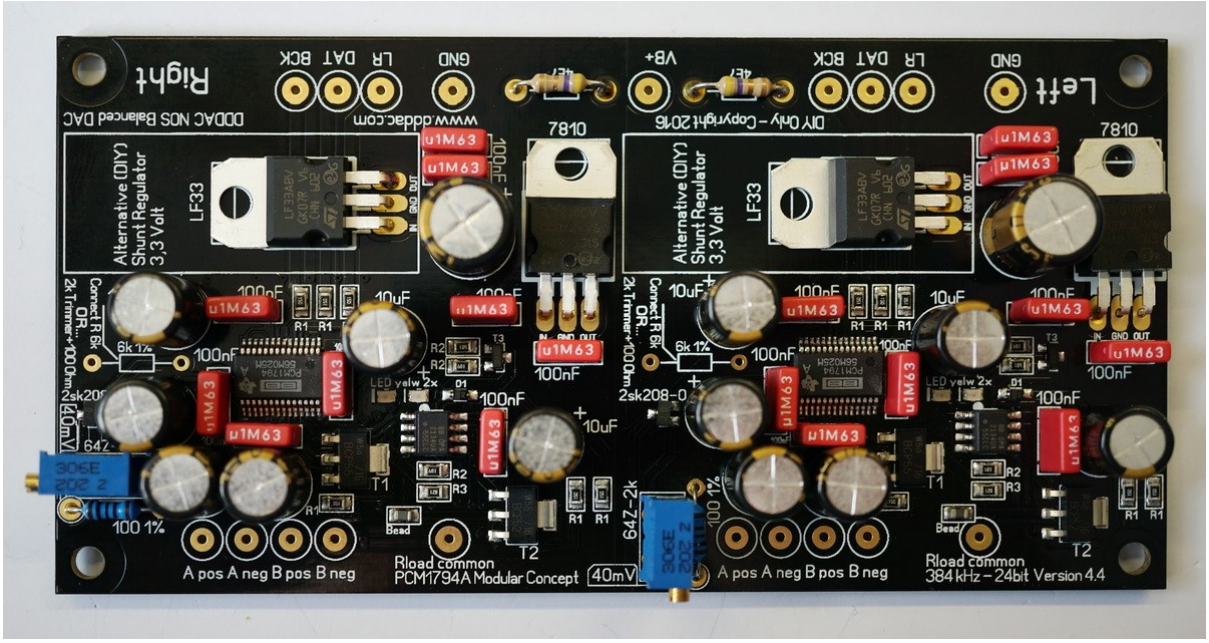
DDDAC1794

"Powered by TENT"



Finally !! The new, highly improved '2016' DDDAC1794 module! De voltage regulation at the analog side of the system has now an embedded Tentlabs Shunt regulator. The Bias through the much discussed 'pin 20' got a constant current source (CCS) which replaces the fixed 6K1 resistor. All resulting in the next stage of superb sound reproduction

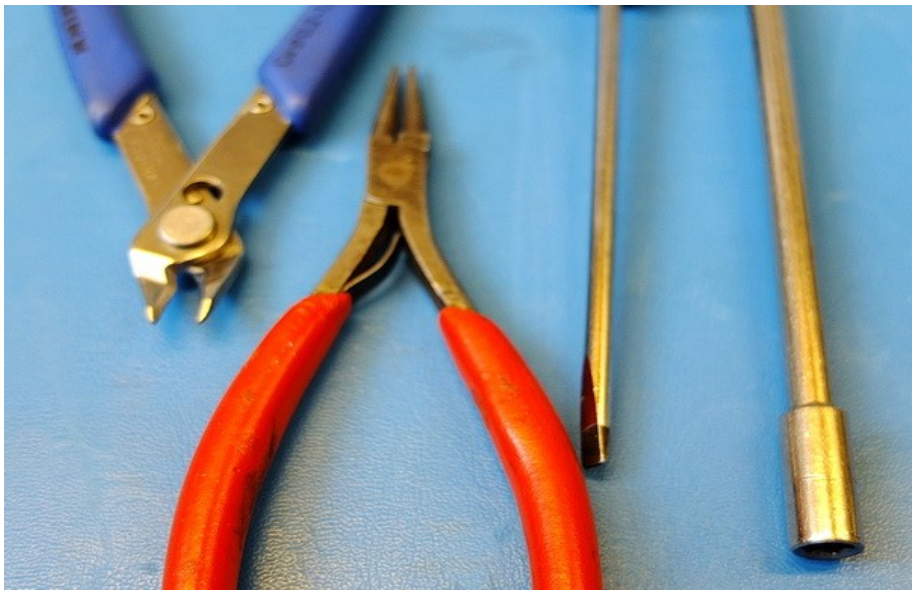
Version 1.1

Few tips before the work starts...

Of course you will need a good soldering station. Use one with variable temperature or at least one with a thermostat to keep the temperature constant. Keep the tip clean by wiping every time across a wet sponge. Only keep a lot of tin on it when you let it cool of. This will increase the life time of the tip.

Further necessary tools are a fine cable cutter, beak tang and tweezers (or platbek tang). For easy mounting of the module on the mainboard it is good to use a screwdriver and a socket spanner.

The construction time of one module is approximately 30 minutes.



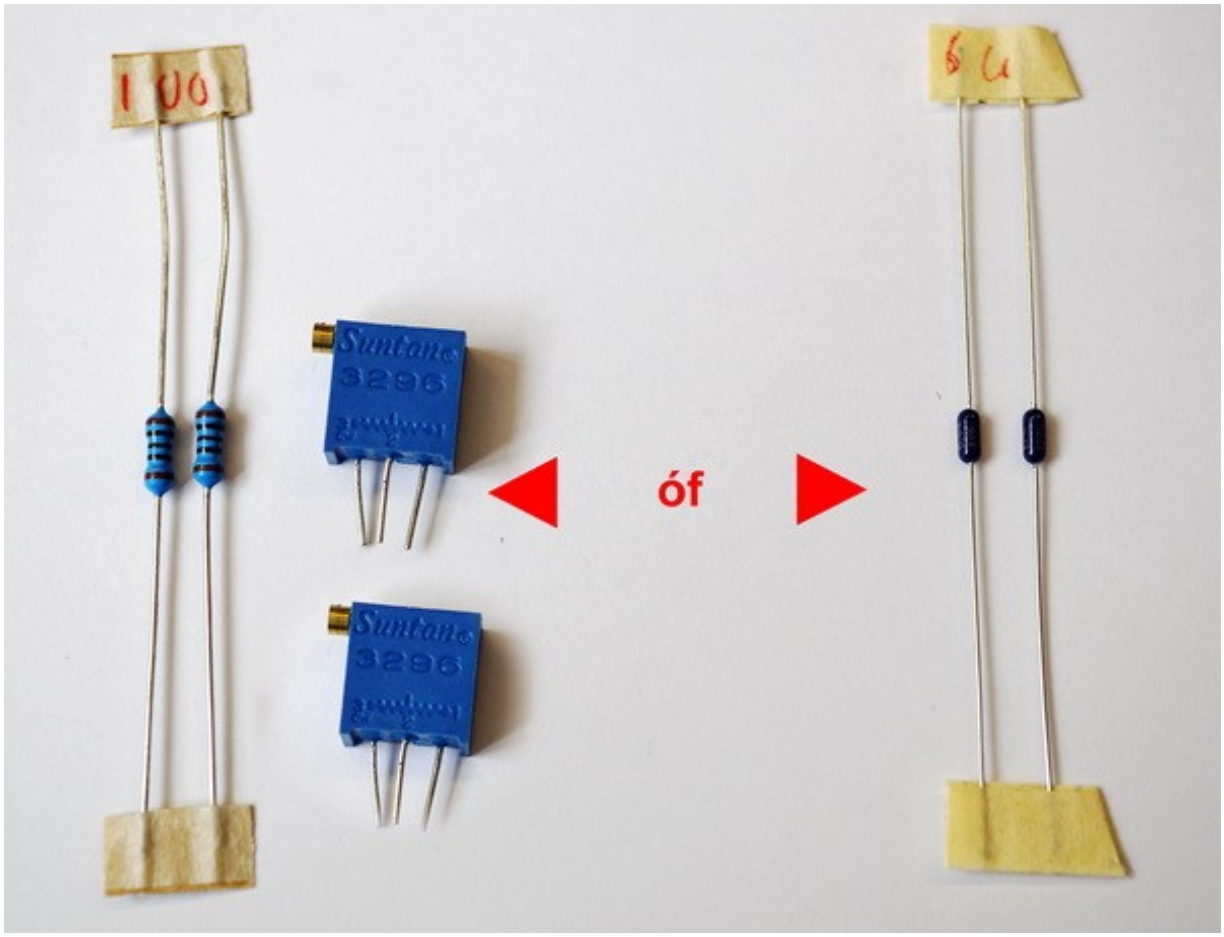
The construction

We will start with soldering the resistors. Important point: do not place the 6k1 resistor. ONLY when you want to experiment with ‘pin 20’ by not using the CCS, in which case you should NOT install the trimmer and 100Ohm resistors… The SMD parts are already mounted so you only have to install the resistors and trimmer.

De original 6k1 is an option **in STEAD of the CCS**.

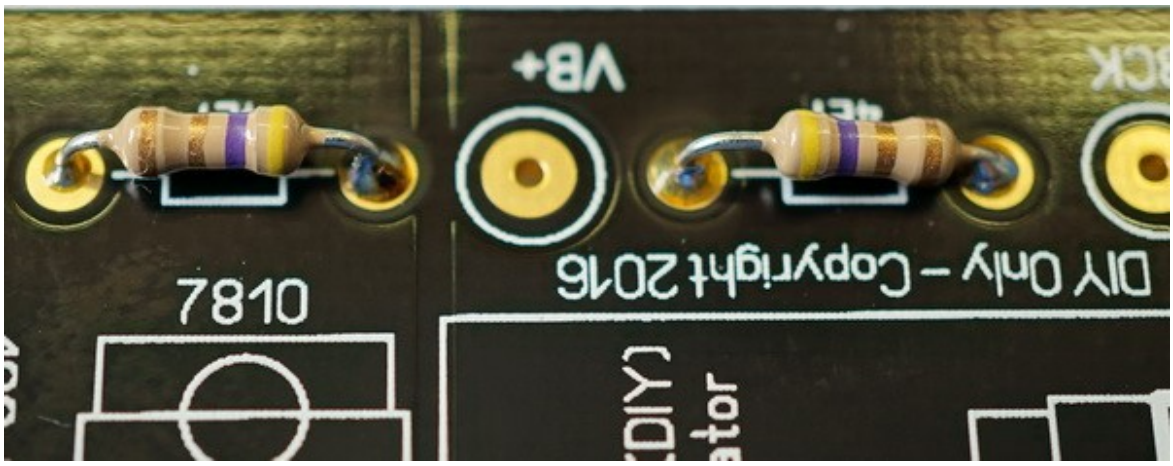
TIP: only do this to experiment. The CCS is a very nice upgrade you most likely want.

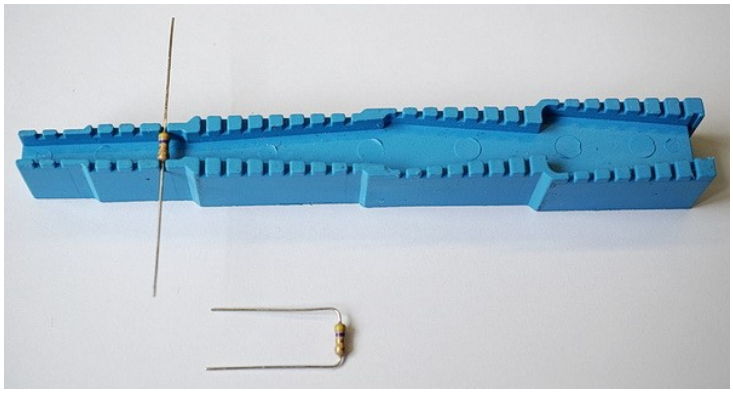
Combining old and new DAC Module boards is no problem at all. They are fully backwards compatible. To do this is up to you of course. But technically it is no problem.



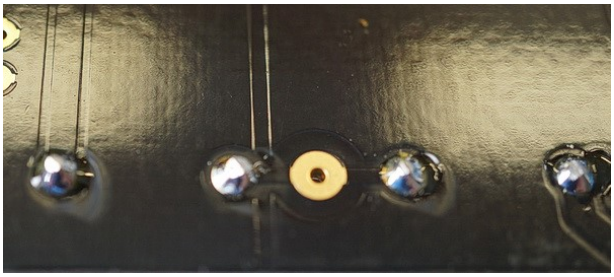
Let’s start...

First we solder the two 4,7 Ohm resistors on the PCB ...



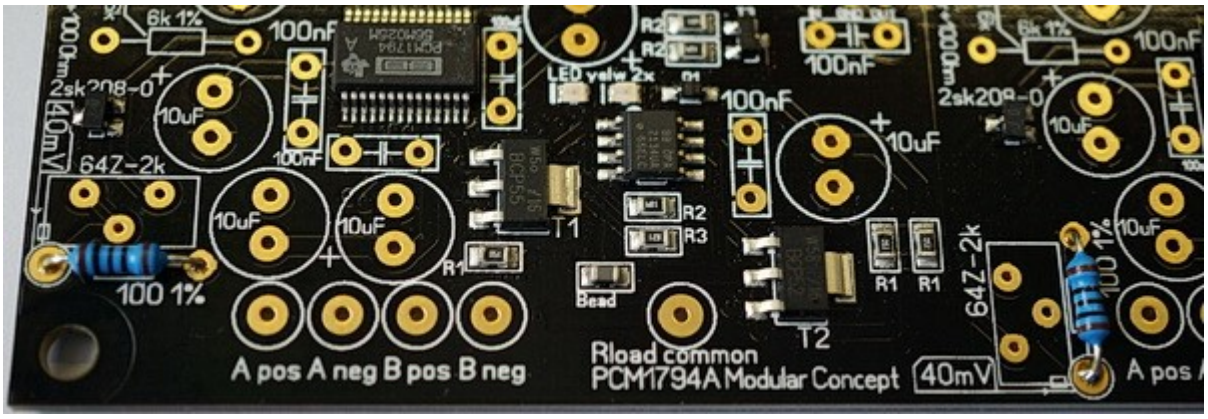


The bending tool, see picture above, is a very handy tool to make a perfect fit. The PCB has exact this distances.



Let the solder flow nicely round the wires (must be shiny) and cut the wires with the cable cutter. Cut them directly above the solder pad.

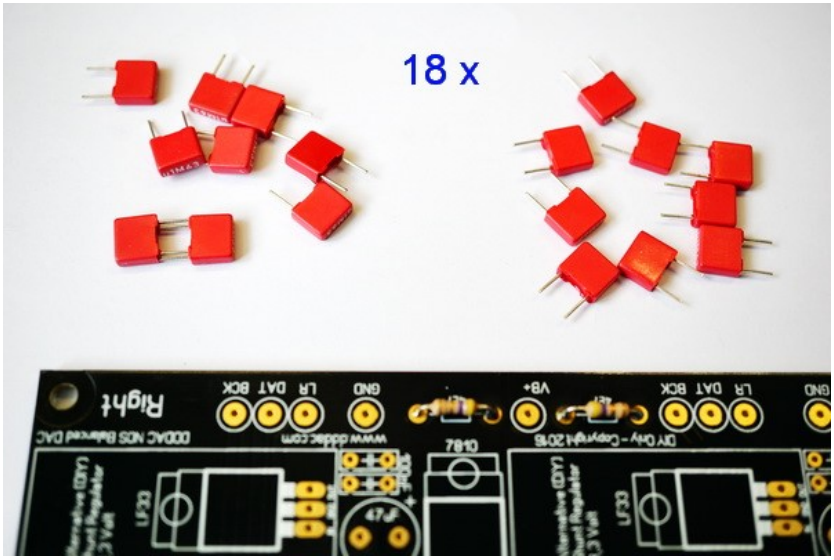
Than solder the two 100Ohm resistors.



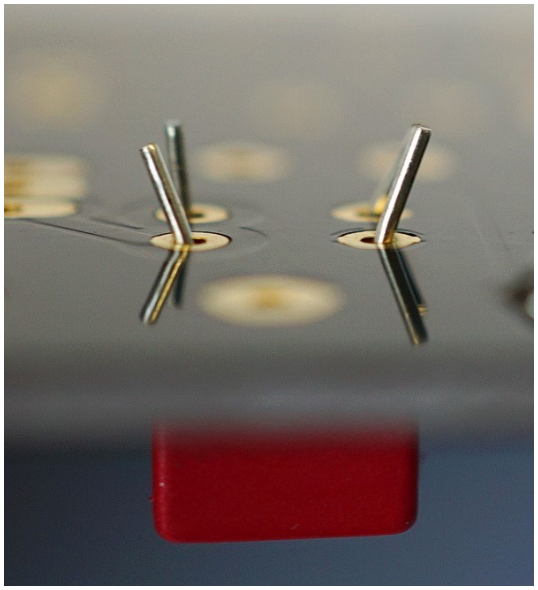
Heat it well and take the time needed to have the solder flow nicely.

Cut the wires and you might want to re-heat /re-solder shortly the connections, so it even looks better. This is not a must, just some perfection thing …

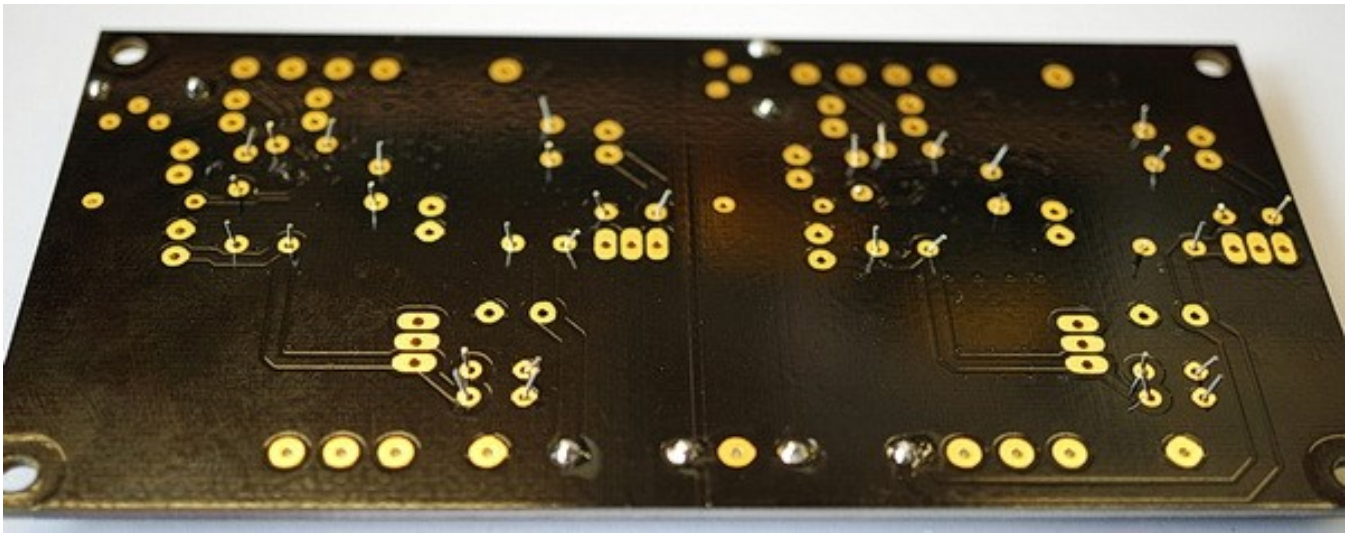
Capacitors



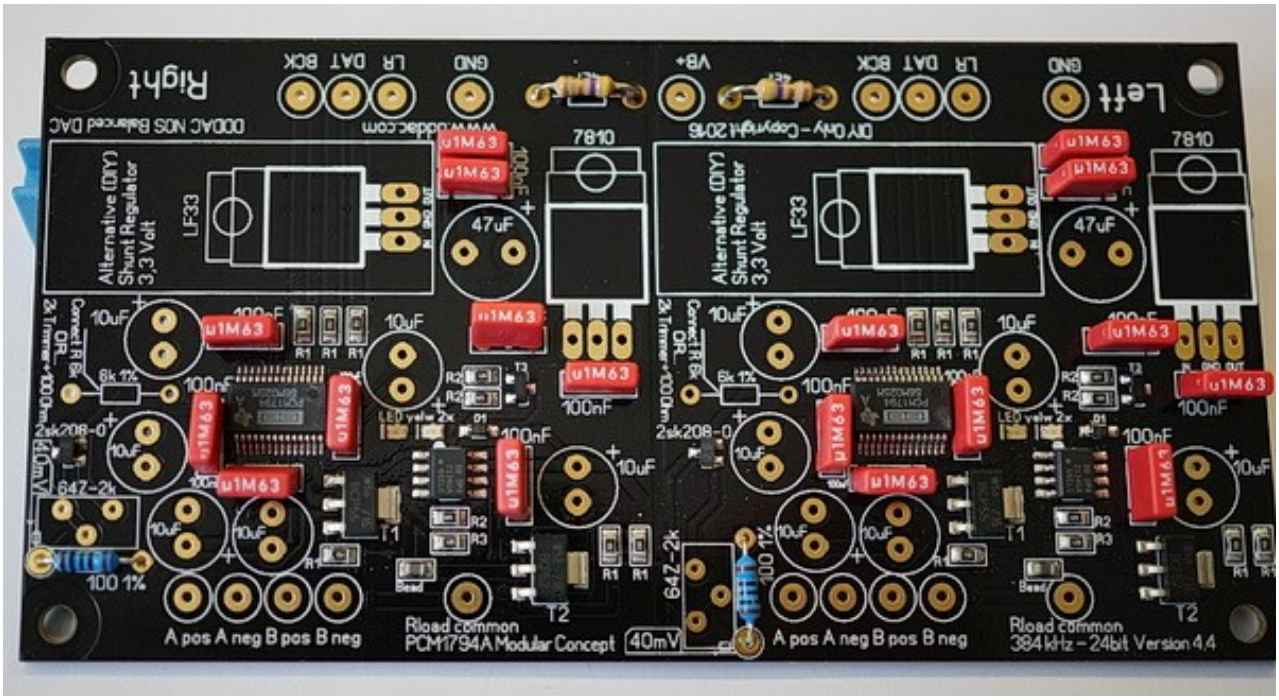
Next we will solder the 18 pcs of the 100nF capacitors. Best is to put them on the pcb and slightly bend the two wires to the outside so they will not fall off the board anymore.



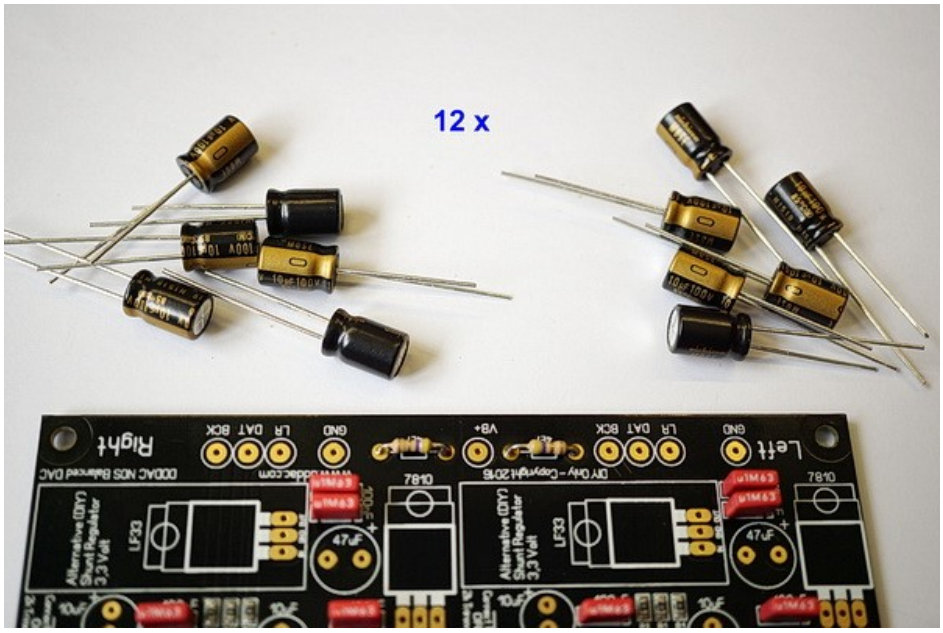
Place the PCB on its back on a flat working space. Make sure all capacitors are placed correctly. Press slightly to make sure this is the case. Now solder all 36 connections. Cut them short with the cable cutter.



It will look like this at this stage...



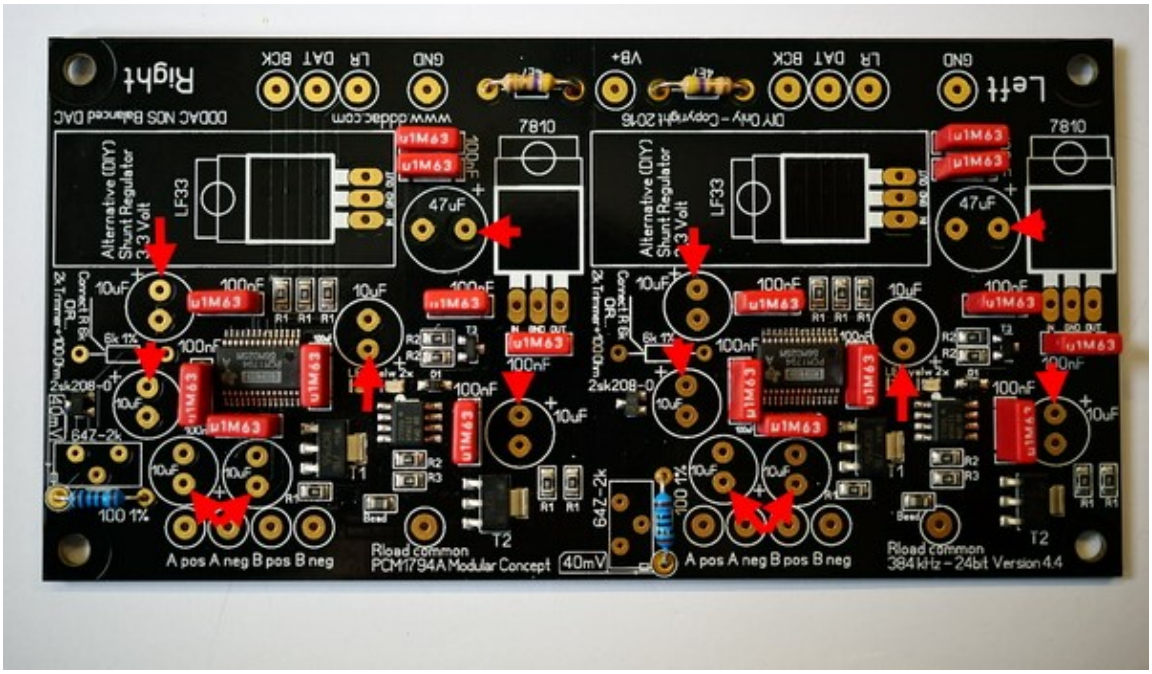
The electrolytic capacitors (elcos)

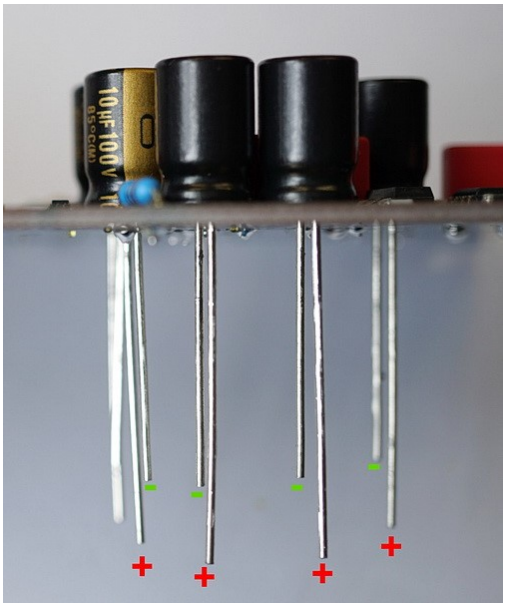


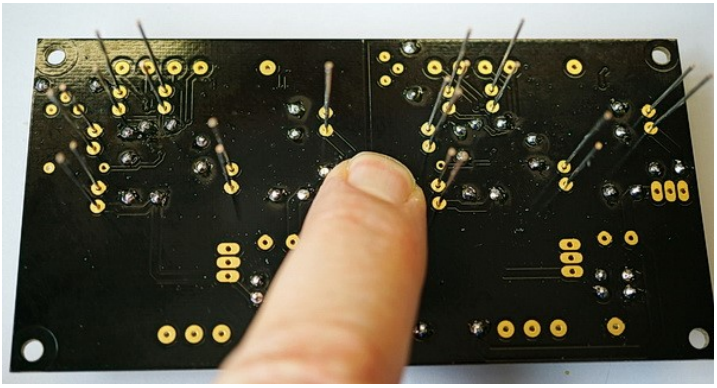
There are 12 pcs of the 10uF and 2 pcs of the 47uF Elcos to be mounted.

When placing the elcos make sure (check **AND** double check) that the polarization (plus and minus wires) are correct!

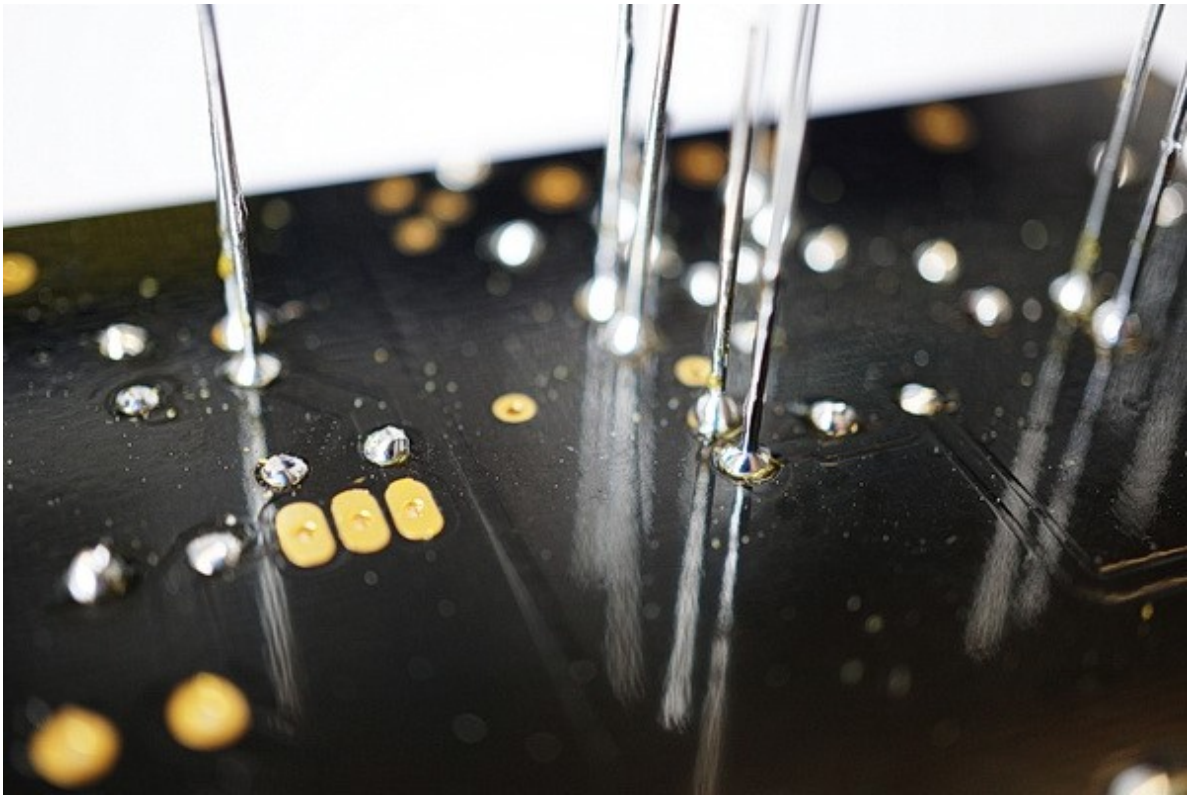
A wrong connection is very difficult to correct after they are soldered.



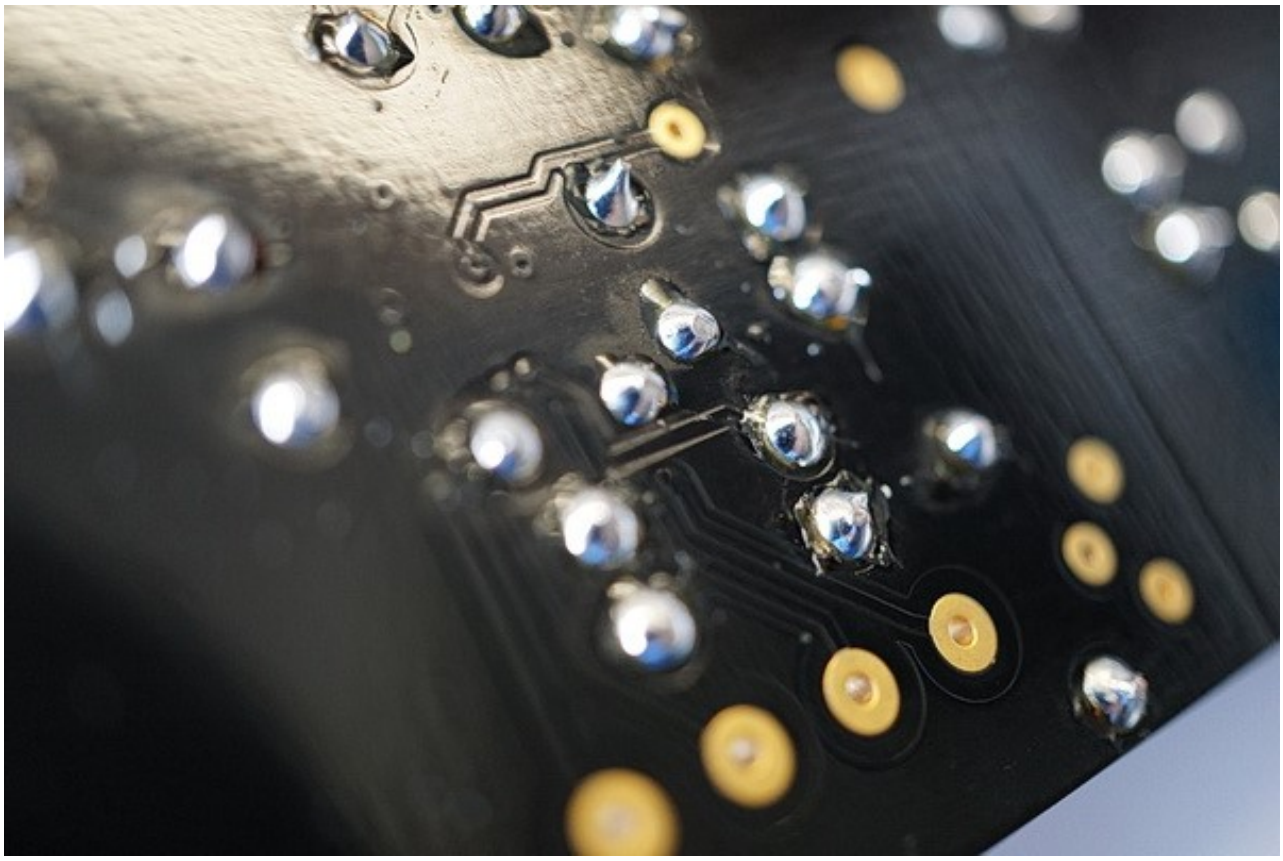




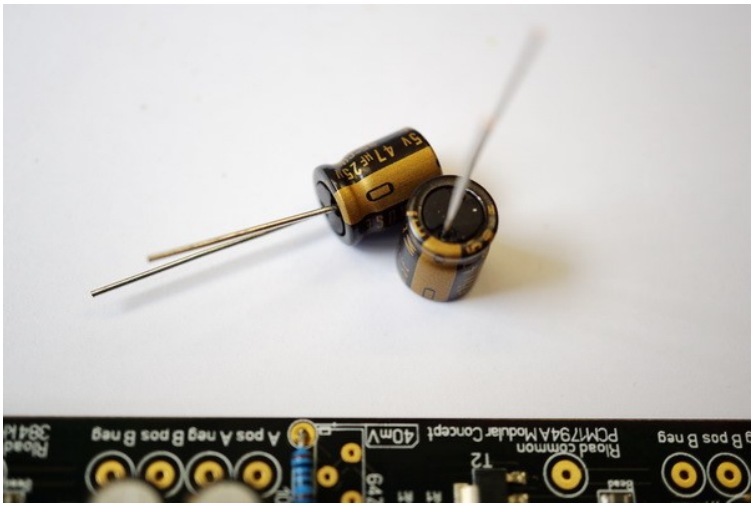
Again, take your time to let the solder flow. Specially the “minus” poles are at the ground plane which will attract quite some heat in the first few seconds when the solder tip is placed. So do not “bake” the solder on the pads. Let it flow.



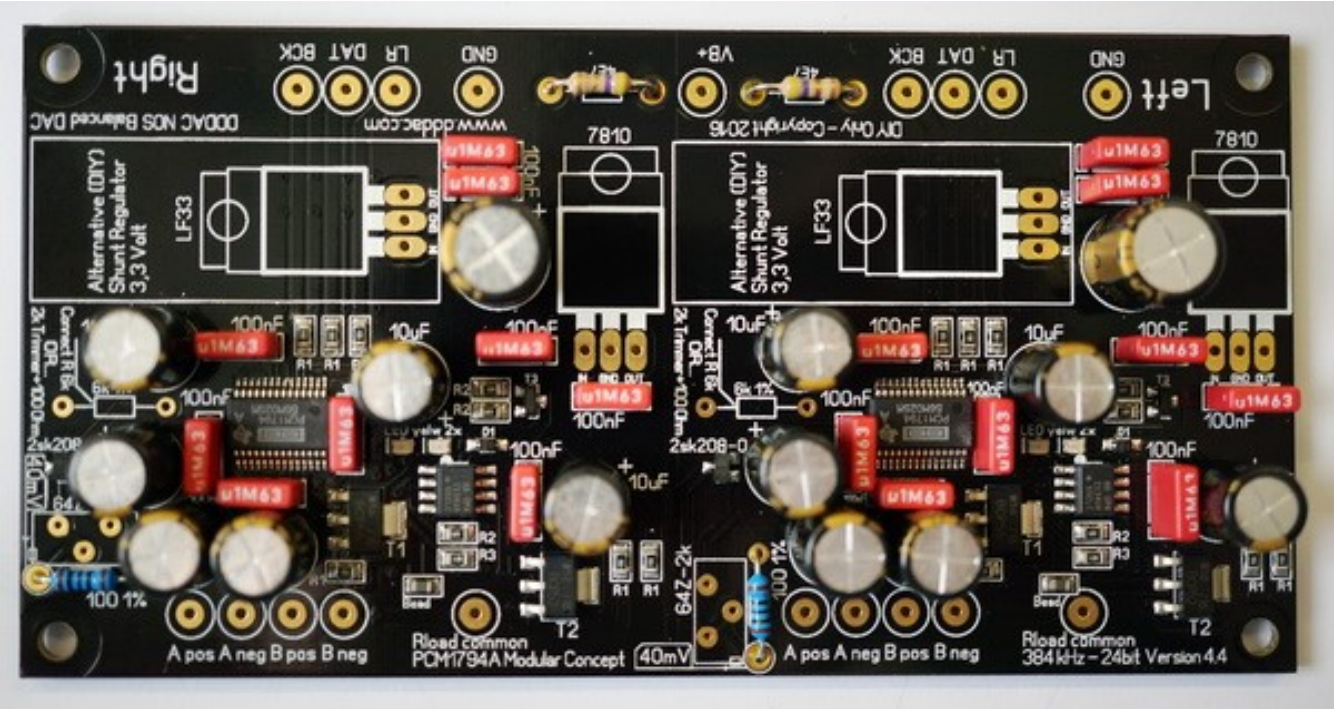
Specially here it make sense to cut very short (2mm above PCB area) and (optionally) resolder the connections. If more modules are mounted above each other we must avoid that long wires sticking out are shortcutting against the capacitores on the below deck.



Now the same with the two 47uF capacitors

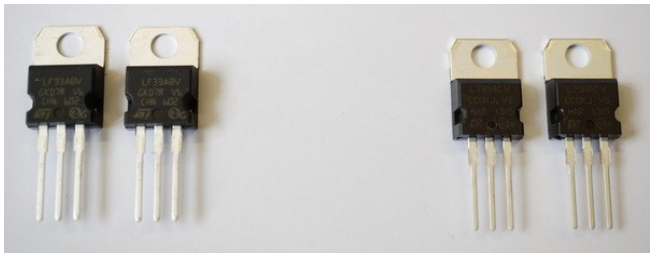


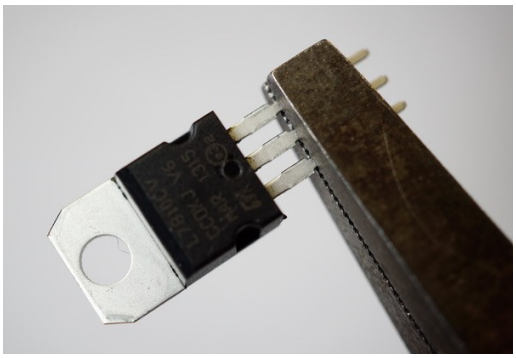
In between view of the PCB

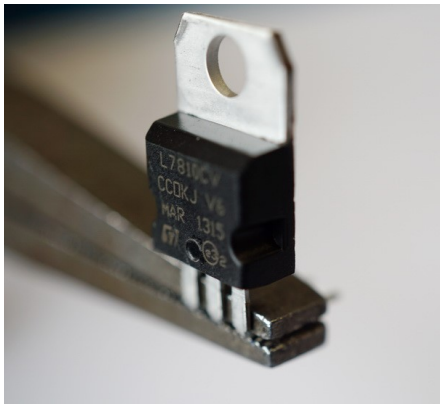


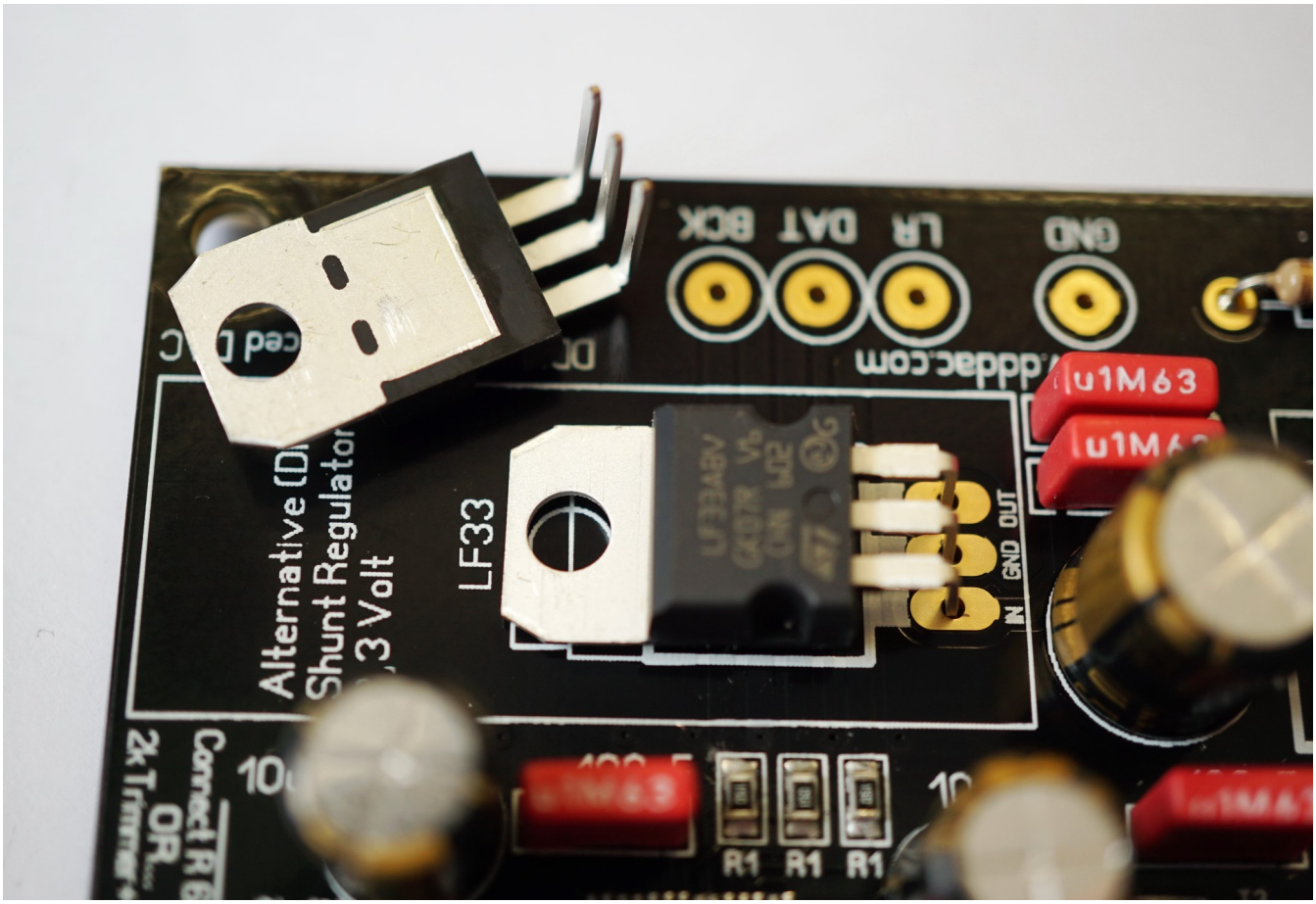
The voltage regulators

Before mounting we bend the pins with the platbek tang. Directly after the thicker part of the pins.

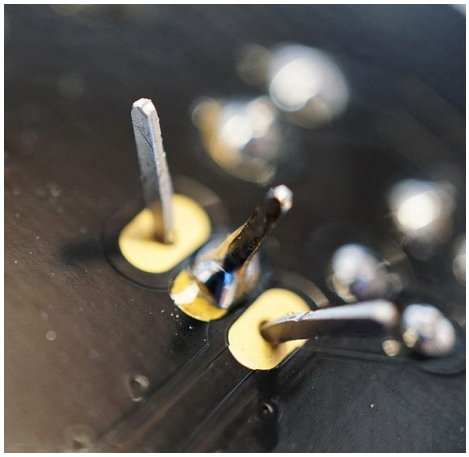


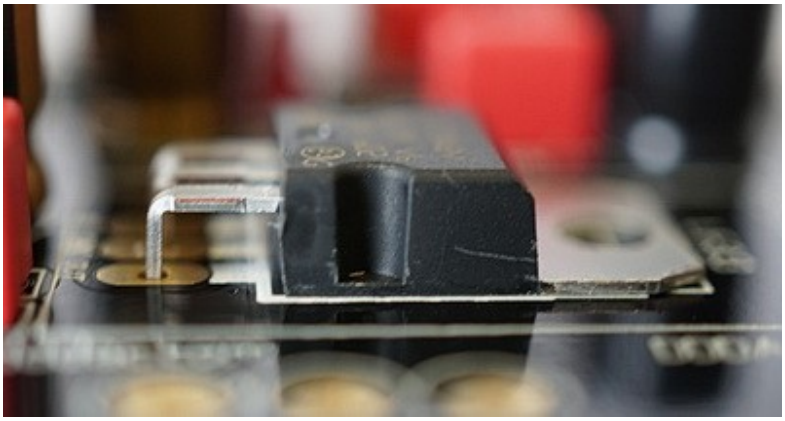




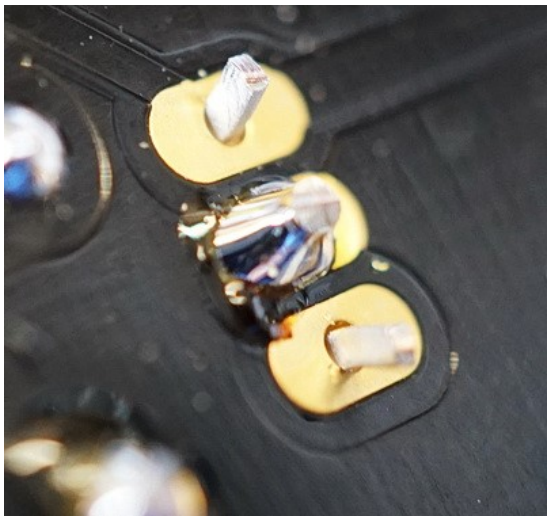


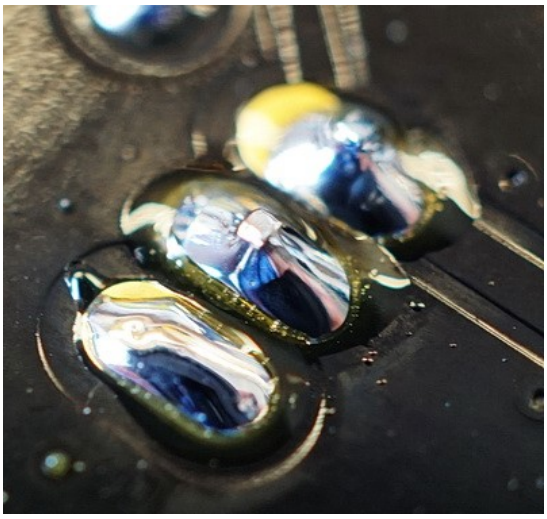
Press the connection pins through the PCB. Solder the middle pin with a small drop while making sure the voltage regulator is nicely placed on the PCB. (See image).



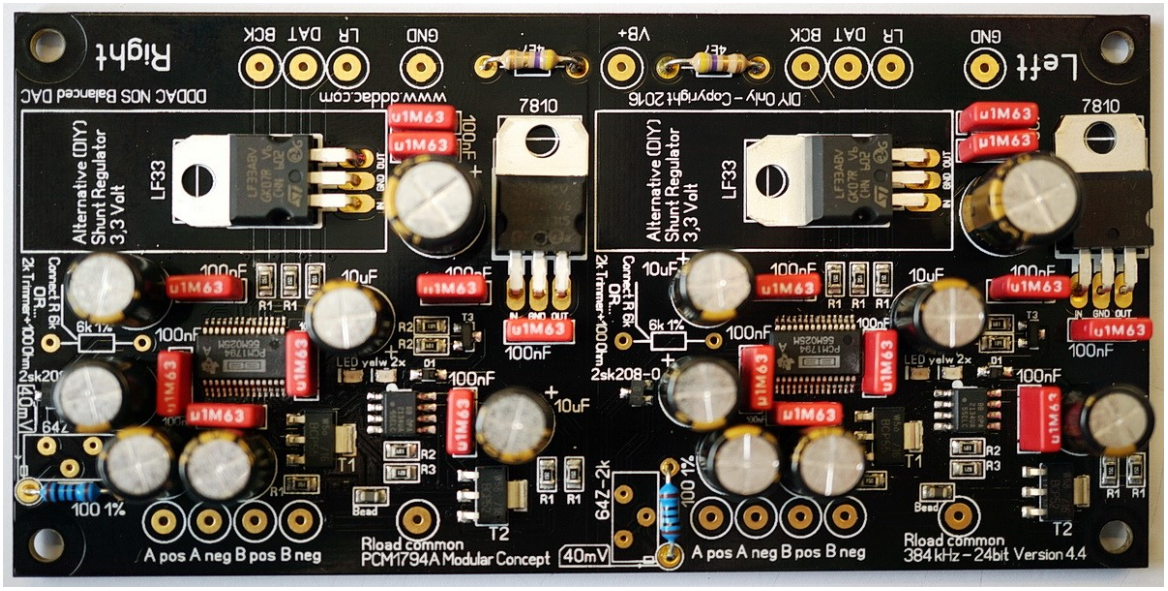


Here it is best to cut the wires first a few mm above the PCB and than solder the two out-side pins. Do not forget to re-solder the middle pin...



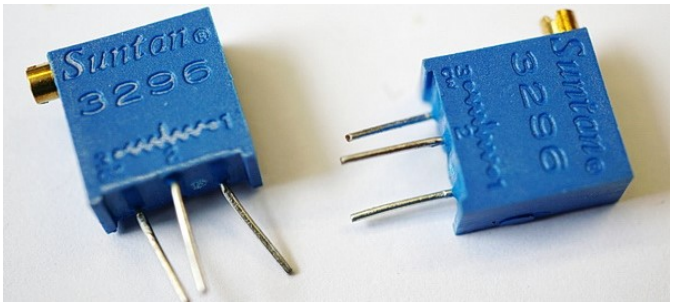


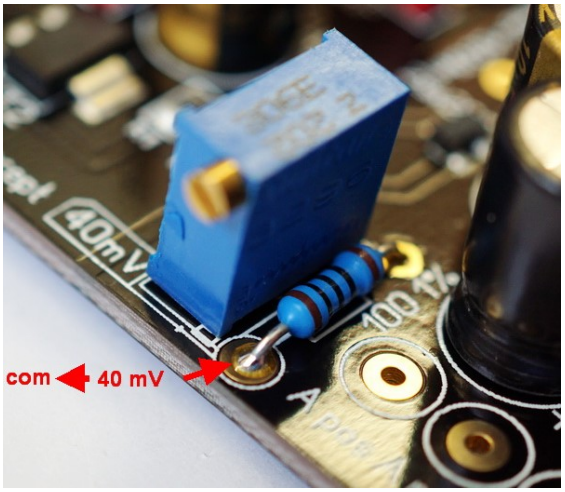
Trimmers

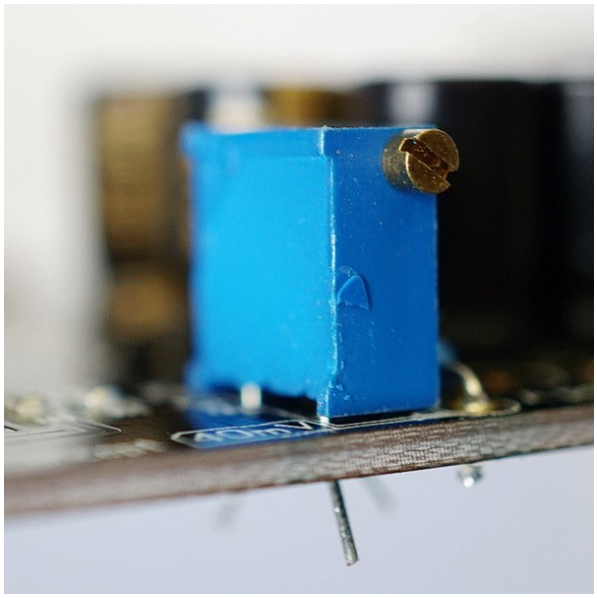


As you can see, the only thing missing are the two blue multi turn trimmers for the CCS...

Place the trimmers in the correct holes and bend the wires a little bit to the outside. Solder the wires and cut them short.







The adjusting of the CSS can only be done after the dac module is installed on the main board. The measurement control point is the solder pad directly next to the trimmer. Here we need a DC voltage of + 40mV (hold the red 'plus' of your DMM at this point)

Hold the minus (black) of the multi meter (DMM) to the analog output pin 'com' from the main board. Note that if you adjust the 'left' channel you also use the 'com' of the left channel and vise versa for the right channel of course

The adjustment is not critical. Nothing can go wrong. Just turn till you have approximately 40mV. Wait 20 minutes till the DAC is warm and check and re-adjust a bit if needed.

IMPORTANT!! It is not allowed to connect a sole DAC module to a 12 volt power supply just to "quickly test" it. This can ONLY be done after it is mounted and connected on the main board where the Rload resistors (Ra / Rb combination) are also installed

Unless we tried to be as clear and complete as possible in this construction manual, we cannot exclude that still something is unclear.

In that case just email Audio Creative or DDDAC for further help!

Also feedback to improve on text or image is more than welcome

Dick van de Merwe
Audio Creative

Doede Douma
DDDAC Audio Design