Vult Fuser Build Guide

Thank you very much for supporting the Vult project.

Fuser is a CV/Audio mixer that can be used in 6 channel or dual 3 channel configuration. Fuser is a simple but very useful module and it is packed in an 8 HP package with decent knob size.

Assembling Fuser is easy. But even if you are an experienced builder, we recommend you to read and follow this guide.

This guide is accompanied by an Interactive BOM (fuser.html). This web page will help you locate the positions of all the components in the main board. The traditional BOM includes the list of all necessary components and, when possible, the link to buy them.

I hope you enjoy the module, and if you like it, share the Vult love with friends and enemies.

Leonardo Laguna Ruiz

Disclaimer

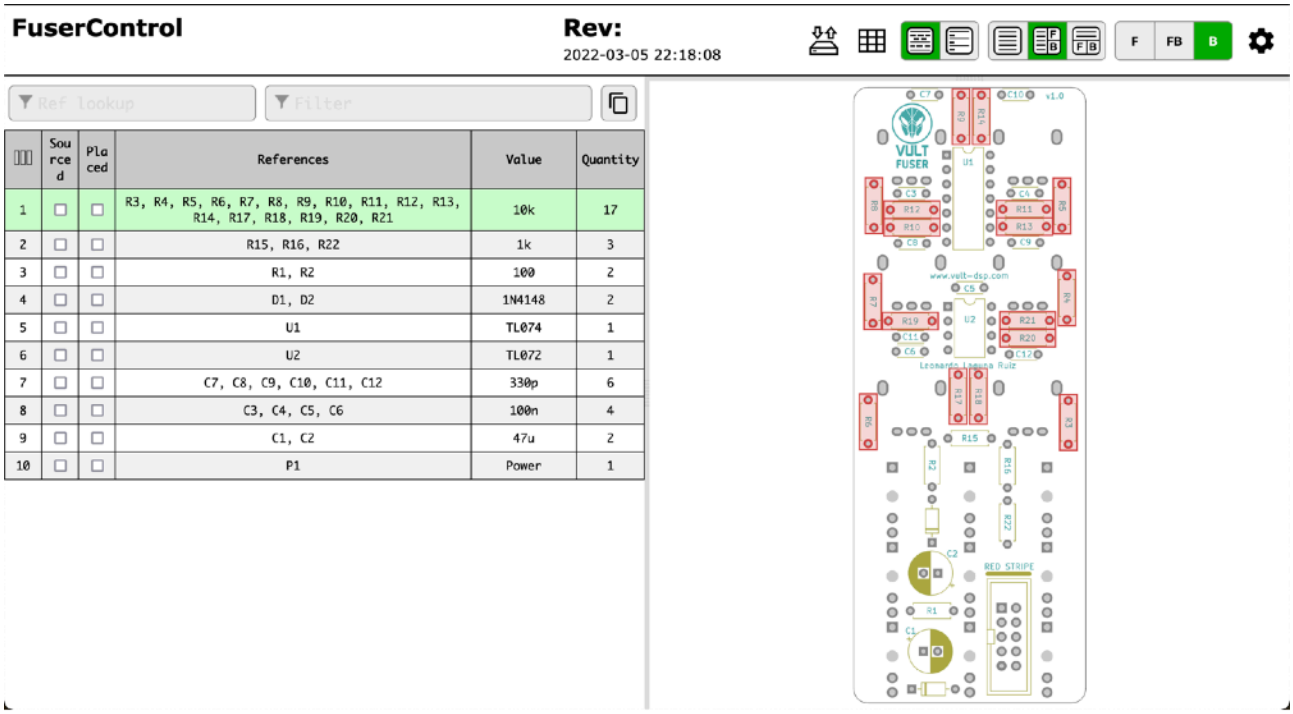
By purchasing a DIY kit or PCBs you are aware that you are responsible of the outcome of your build. Before starting, verify that none of the parts have been damaged during the transport.

If your build fails, we can provide a limited support and repair service.

We want you to succeed. For that reason we tried to make this guide as detailed as possible.

Assembling the back of the board

The back of the board holds all the resistors, diodes, capacitors and ICs. To find the locations you have to open the Interactive BOM file: fuser.html.

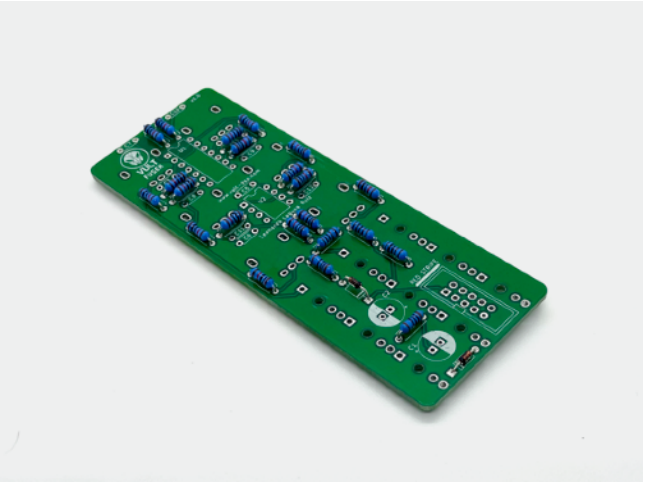


	Sourced	Placed	References	Value	Quantity
1	☐	☐	R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R17, R18, R19, R20, R21	10k	17
2	☐	☐	R15, R16, R22	1k	3
3	☐	☐	R1, R2	100	2
4	☐	☐	D1, D2	1N4148	2
5	☐	☐	U1	TL074	1
6	☐	☐	U2	TL072	1
7	☐	☐	C7, C8, C9, C10, C11, C12	330p	6
8	☐	☐	C3, C4, C5, C6	100n	4
9	☐	☐	C1, C2	47u	2
10	☐	☐	P1	Power	1

In order to simplify the steps, we recommend you to follow this order.

RESISTORS AND DIODES

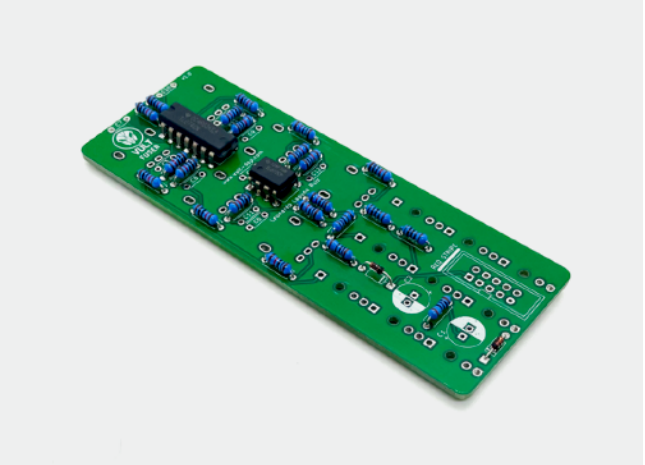
Placing the resistors is straightforward. Just find the locations using the Interactive BOM. For the diodes, remember that they have polarity and that the mark in the diode should match the mark on the silkscreen.



INTEGRATED CIRCUITS

The integrated circuits have a mark indicating the direction. Make sure the marking corresponds to the mark in the silkscreen.

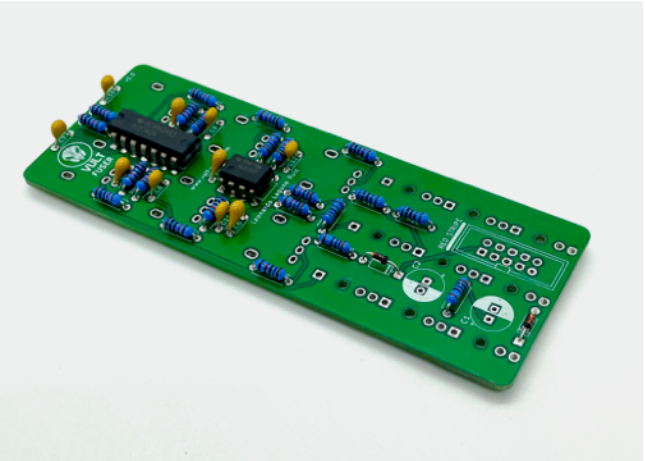
We recommend you to use sockets in order to simplify the maintenance in case any of ICs breaks.



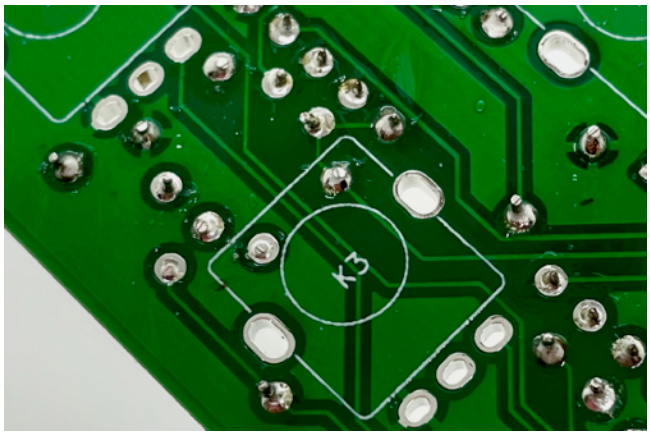
CAPACITORS

The ceramic capacitors are not polarised so they can be mounted in any direction. The two types of capacitors used look very similar. Just make sure you mount them in the correct location.

The electrolytic capacitors do have polarity. Make sure that the stripe marking the negative pin matches the marking in the silkscreen.

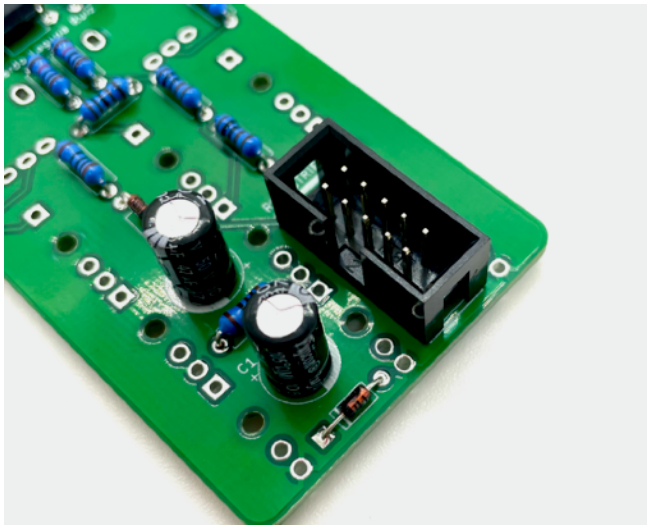


Two of the capacitors end up being below potentiometers. After soldering them, make sure that the pins are short enough so they avoid making contact with the potentiometer.

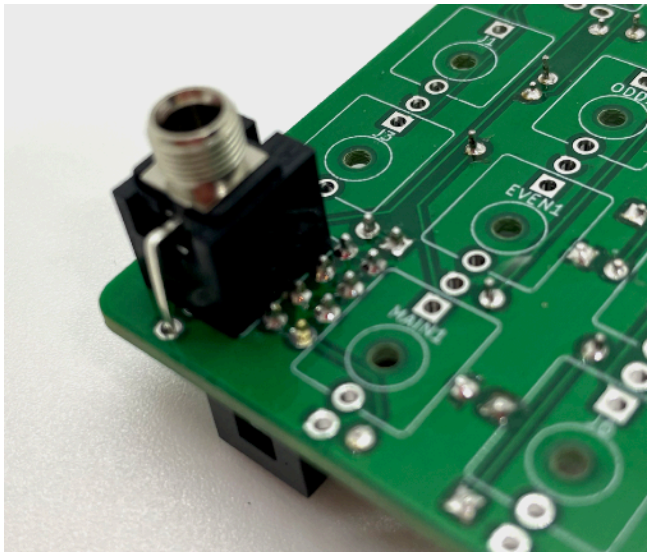


POWER CONNECTOR

We strongly recommend using a shrouded header for the power. If you do so, you need to mount it in the correct direction. The silkscreen shows where the correct direction. If this is mounted backwards the module will not work.

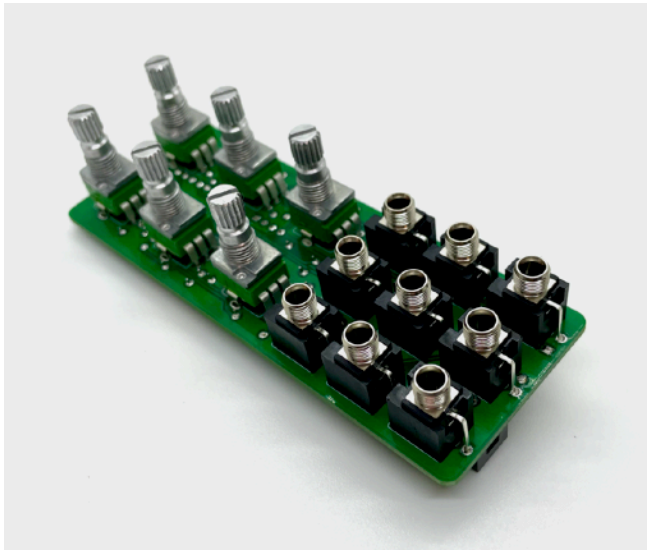


Since the power connector pins end up very close to a jack, you should remove any excess of solder so the jack fits nicely in the board.



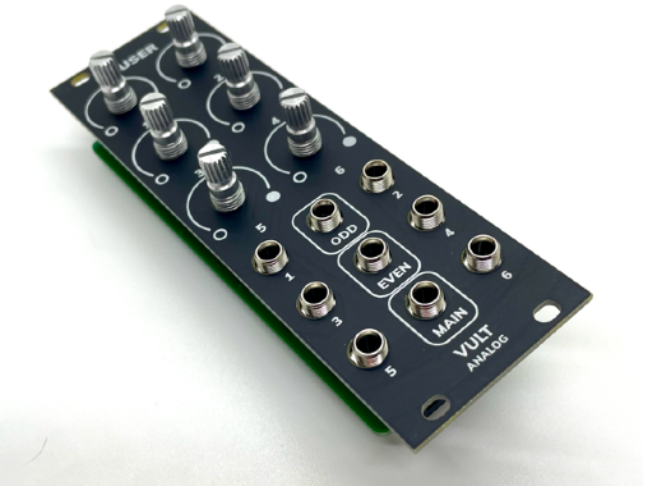
POTENTIOMETERS AND JACKS

Lastly, place all the potentiometers and jacks. The potentiometers have the same value. Make sure that both the jacks and potentiometers are sitting nicely on the board.



Before soldering them, place the panel just to make sure all the potentiometers and jacks go through the panel without problems.

After soldering them you can clean the board to remove flux residuals (if necessary). Just make sure to not pour any solvent on the potentiometers because the solvent could reduce the grip.



FINAL ASSEMBLY AND CHECKS

Before powering up the module, perform a visual inspections in order to verify that there are no short-circuits in the pins.

You can now screw all the nuts of the jacks and potentiometers and place the knobs.

At this point, your module should be ready to use. Take all the necessary precautions when powering your module for the first time.

Enjoy your module and let us know how the build went!