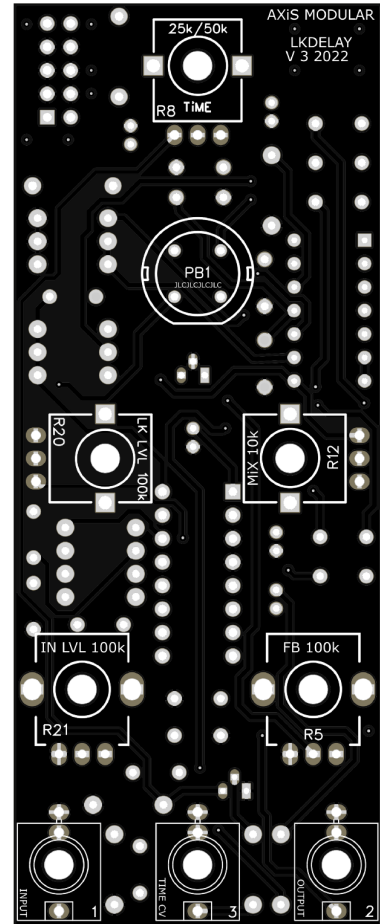
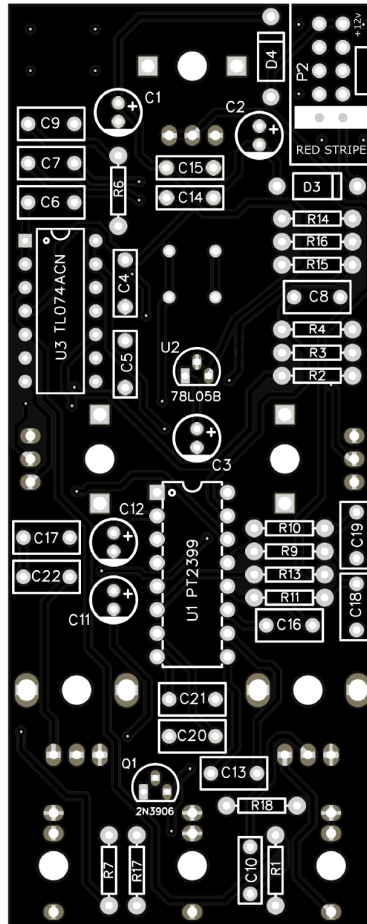
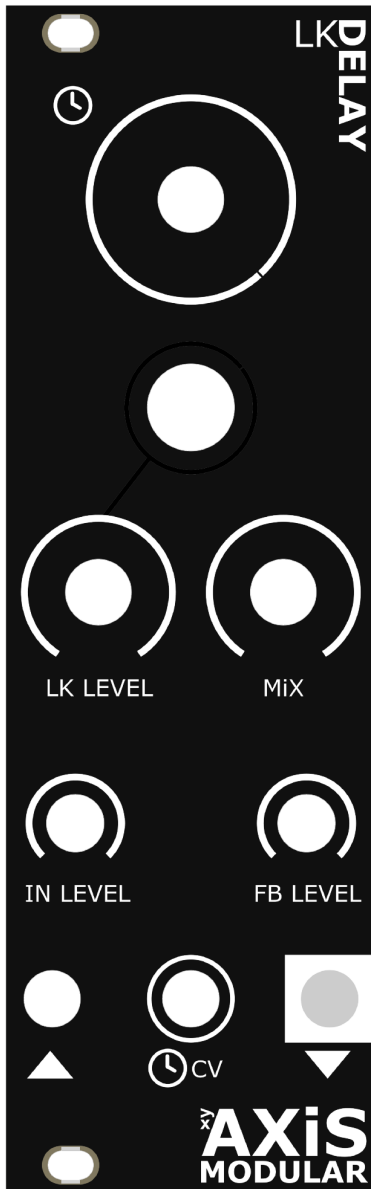


LK DELAY Build Guide and Manual



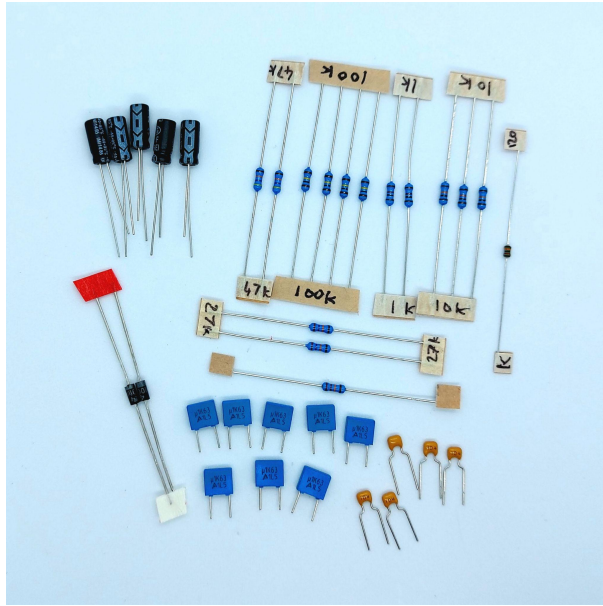
Hello fellow DIYer! Thank you for purchasing the LK DELAY DIY Kit!

This is an ideal intermediate DIY soldering project. It's not too difficult however as the components are populated on both sides of one board please read through the manual carefully. There are certain steps you need to take to make a successful build.

Also, as there are IC's (PT2399 and TL074) please take precautions for antistatic discharge such as an antistatic band.

It is recommended that you have some soldering experience however, if this is your first time soldering please check out these useful guides [here](#).

By undertaking the construction and soldering yourself you agree that it is your responsibility to complete the final build safely and confidently. This kit is sold exclusively through Think and you can find full terms and conditions [here](#).



Bill Of Materials

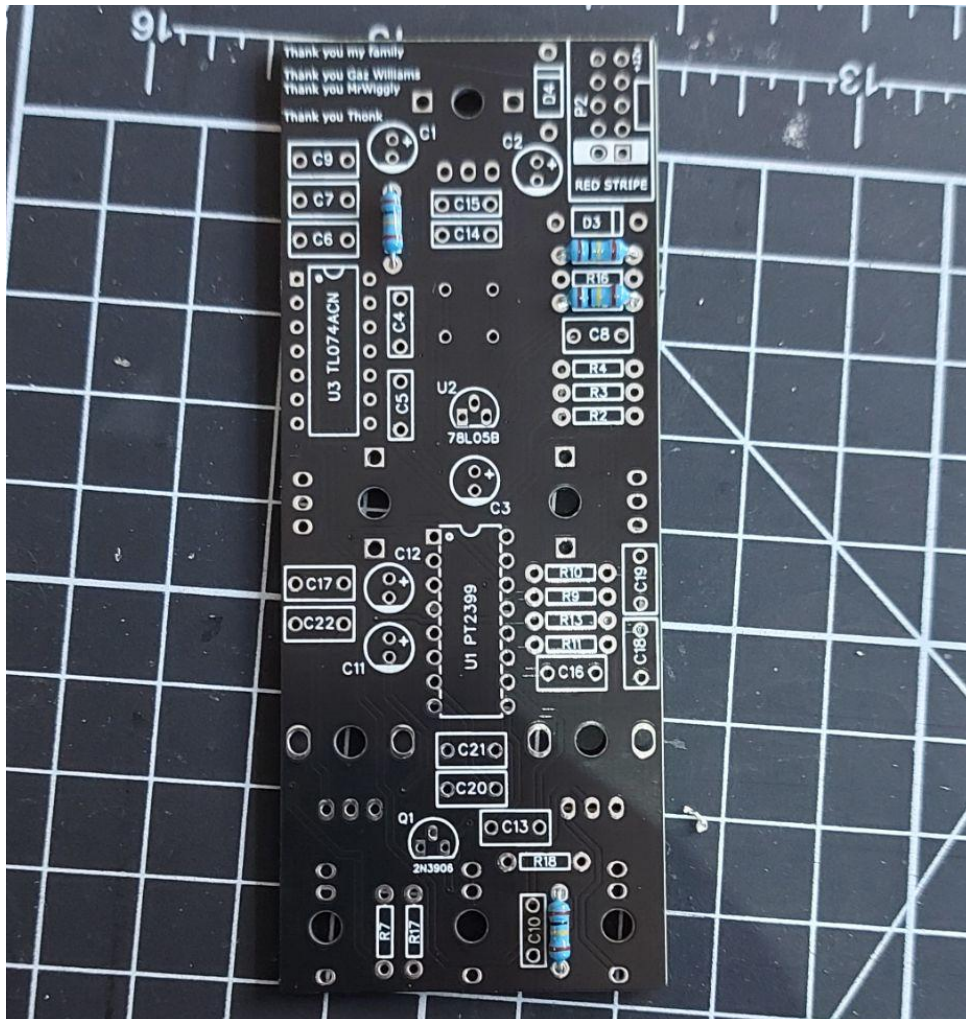
Listed in build order but please read the manual first as parts get populated on both sides of the PCB.

ID	Name	Designator	Footprint	Quantity	Check
1	100k	R1,R6,R14,R15	RESISTOR	4	
2	120k	R2	RESISTOR	1	
3	27k	R3,R18	RESISTOR	2	
4	22k	R4	RESISTOR	1	
5	1k	R7,R13	RESISTOR	2	
6	10k	R9,R11,R17	RESISTOR	3	
7	47k	R10,R16	RESISTOR	2	
8	4001	D3,D4	4001 DIODE	2	
9		U1	16 PIN IC SOCKET	1	
10		U3	14 PIN IC SOCKET	1	
11	100nf	C4,C5,C10,C14,C15	CERAMIC CAPACITOR 100NF #3	5	
12	10nF	C18	CERAMIC CAPACITOR	1	
13	100nF	C6,C9,C13,C16,C17,C20,C21,C22	BOX CAP	8	
14	1nF	C8,C19	BOX CAP	2	
15	78L05B	U2	POWER REGULATOR	1	
16	2N3906	Q1	NPN TRANSISTOR	1	
17	68nF	C7	GREEN MYLAR	1	
18	Power	P2	2x5 PIN BOX HEADER	1	
19	10uF	C1,C2,C3,C11,C12	ELECTROLYTIC CAP	5	
20	INPUT	1	THONK MONO JACK	1	
21	OUTPUT	2	THONK MONO JACK	1	
22	Time CV	3	THONK MONO JACK	1	
23	Time 25k	R8	ALPHA 9MM POTENTIOMETE	1	

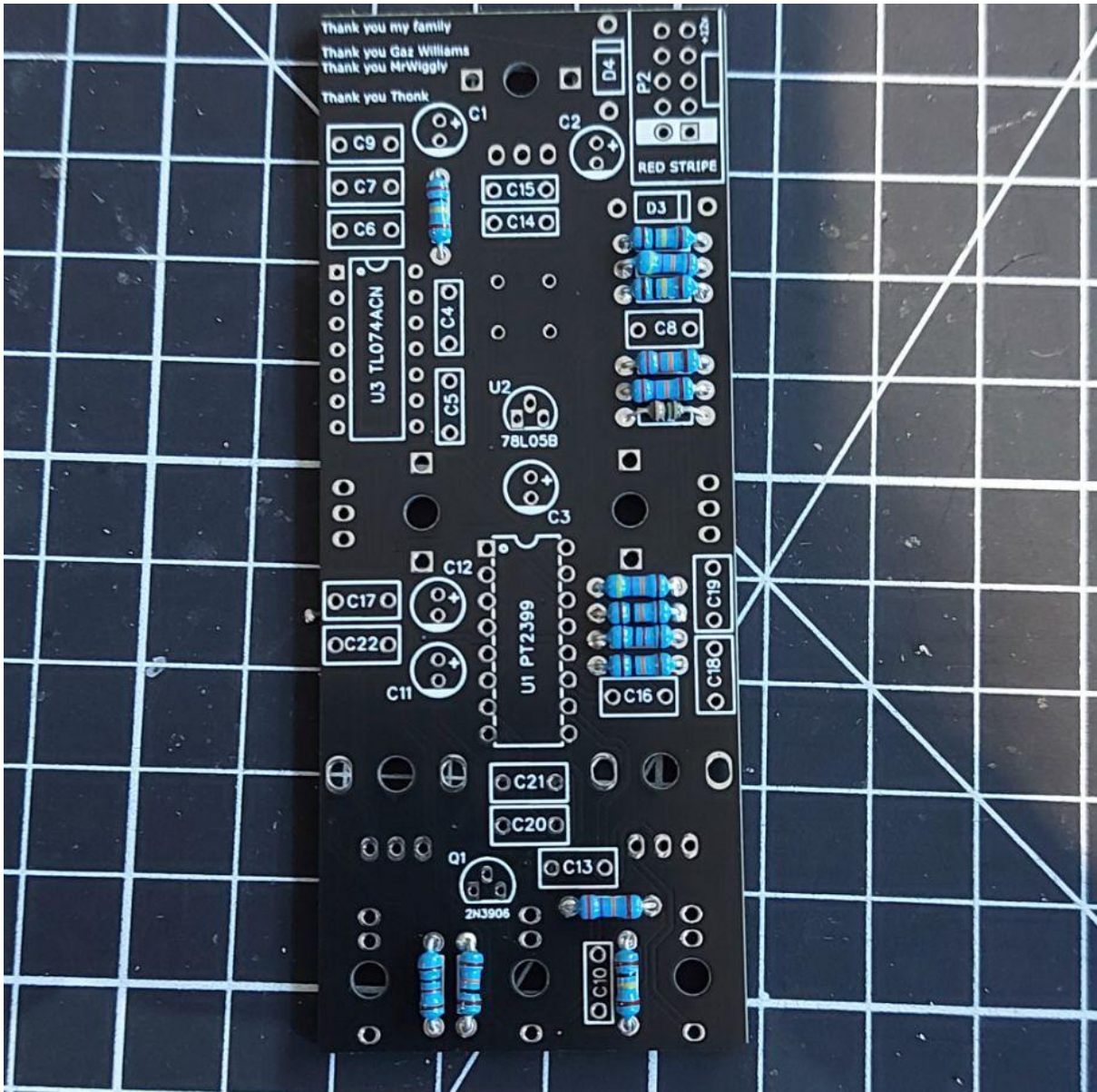
			R		
24	Mix 10k	R12	ALPHA 9MM POTENTIOMETE R	1	
25	LbK LEVEL 100K	R20	ALPHA 9MM POTENTIOMETE R	1	
26	FB 100k	R5	SONG HUEI 9MM TRIMMER POT	1	
27	In Lvl 100k	R21	SONG HUEI 9MM TRIMMER POT	1	
28	PUSHBUTTO N_MOMENTA RY_C_AND_K _THONK	PB1	PUSHBUTTON_M OMENTARY	1	
29	PT2399	U1	PT2399 DELAY IC	1	
30	TL074ACN	U3	TL074 OP AMP IC	1	
31			1900 DAVIES KNOB	2	
32			MINI MXR KNOB	1	
33			EURO POWER CABLE	1	

Build Process

1. Resistors.

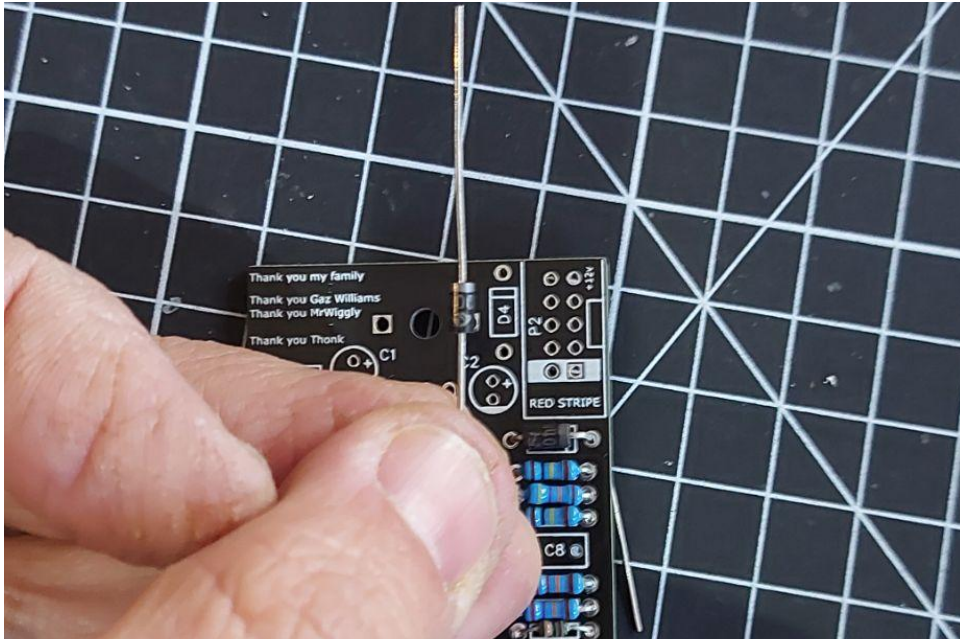


Begin your build by populating and soldering all the resistors. Although I've written the values for you it's still wise to check each one before placing and soldering in its designated location on the PCB.



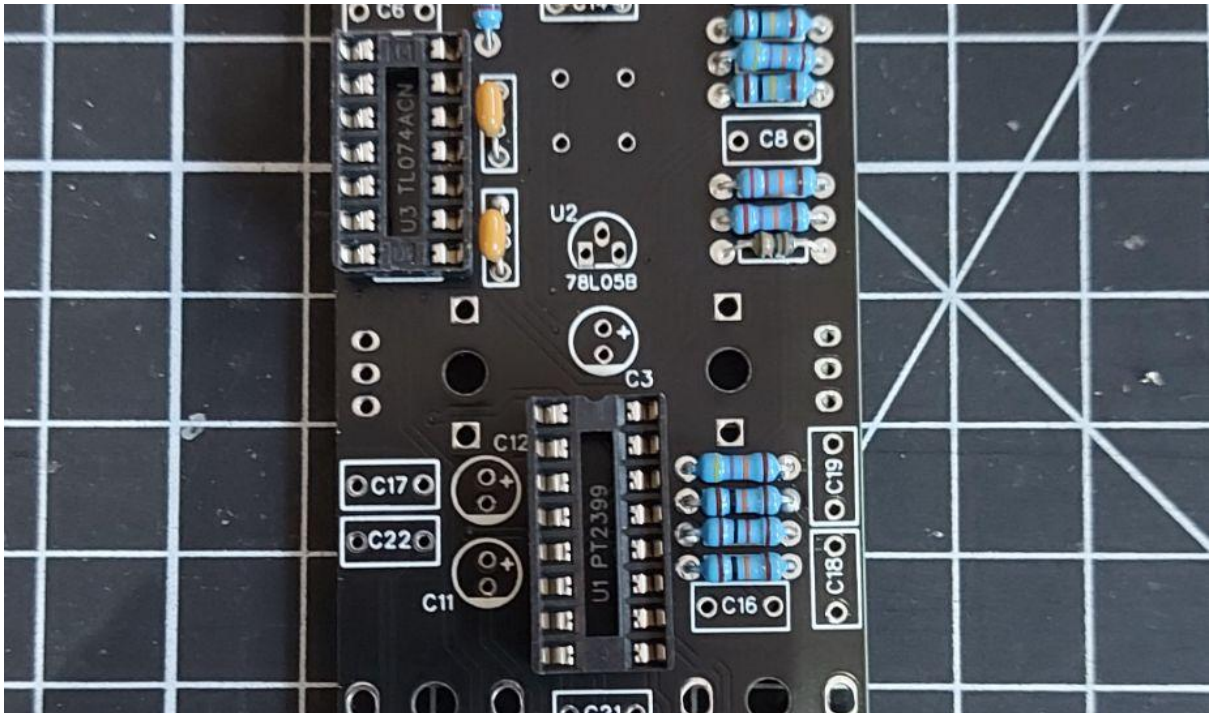
Done? Trim and reflow any(or all) solder joints of the resistors. I find it more successful to do this rather than wait until the whole PCB is populated.

2. Diodes.

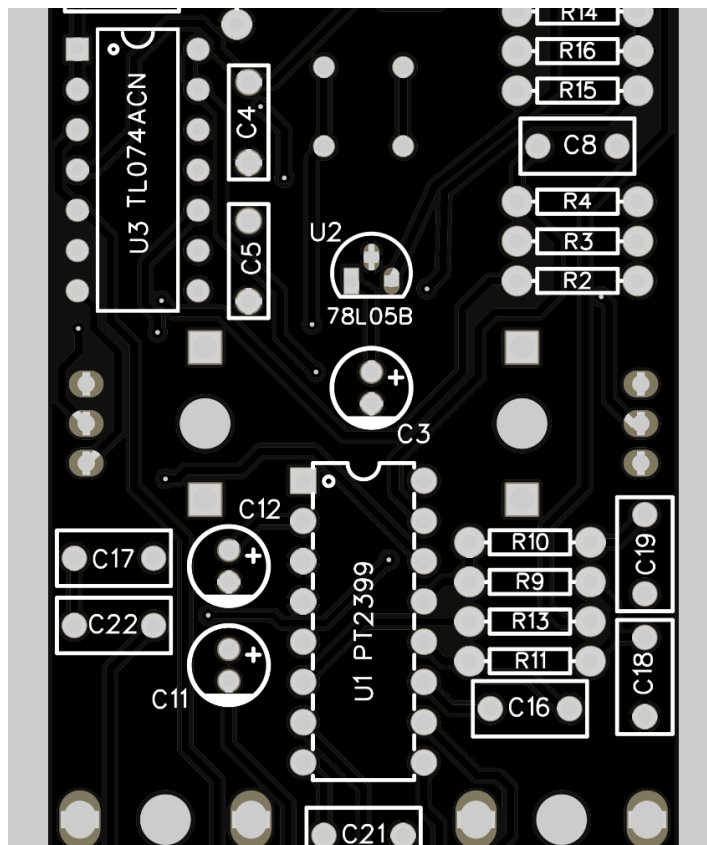


Find the two 4001 diodes and locate D3 and D4. The line on the component should match the line on the PCB silkscreen(as shown in the image above).

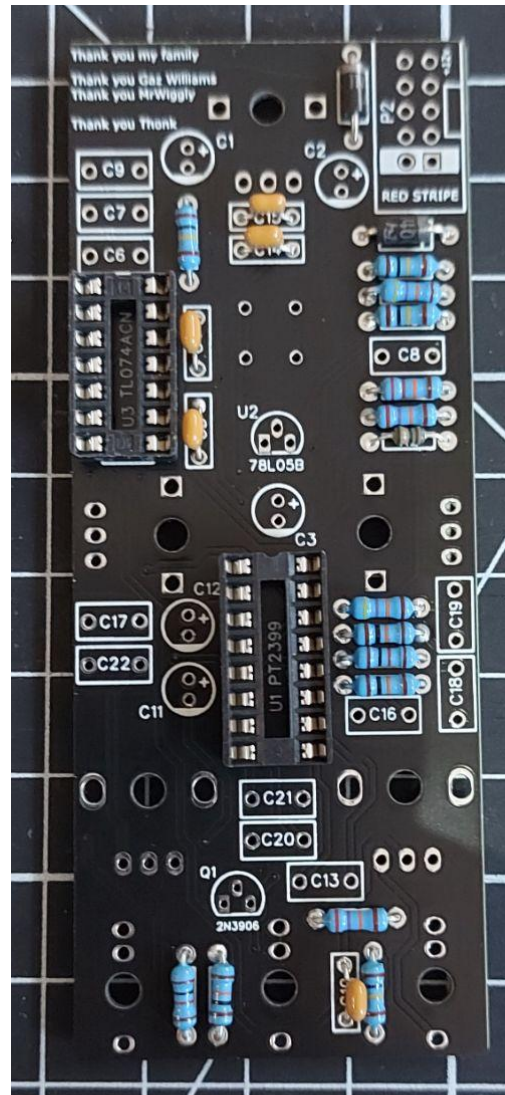
3. IC Sockets



Place the 2 IC sockets in the board, either tape or use the panel to enable you to flip the PCB over to solder without them falling out. Don't forget to match up the notch with the silkscreen image(as shown).

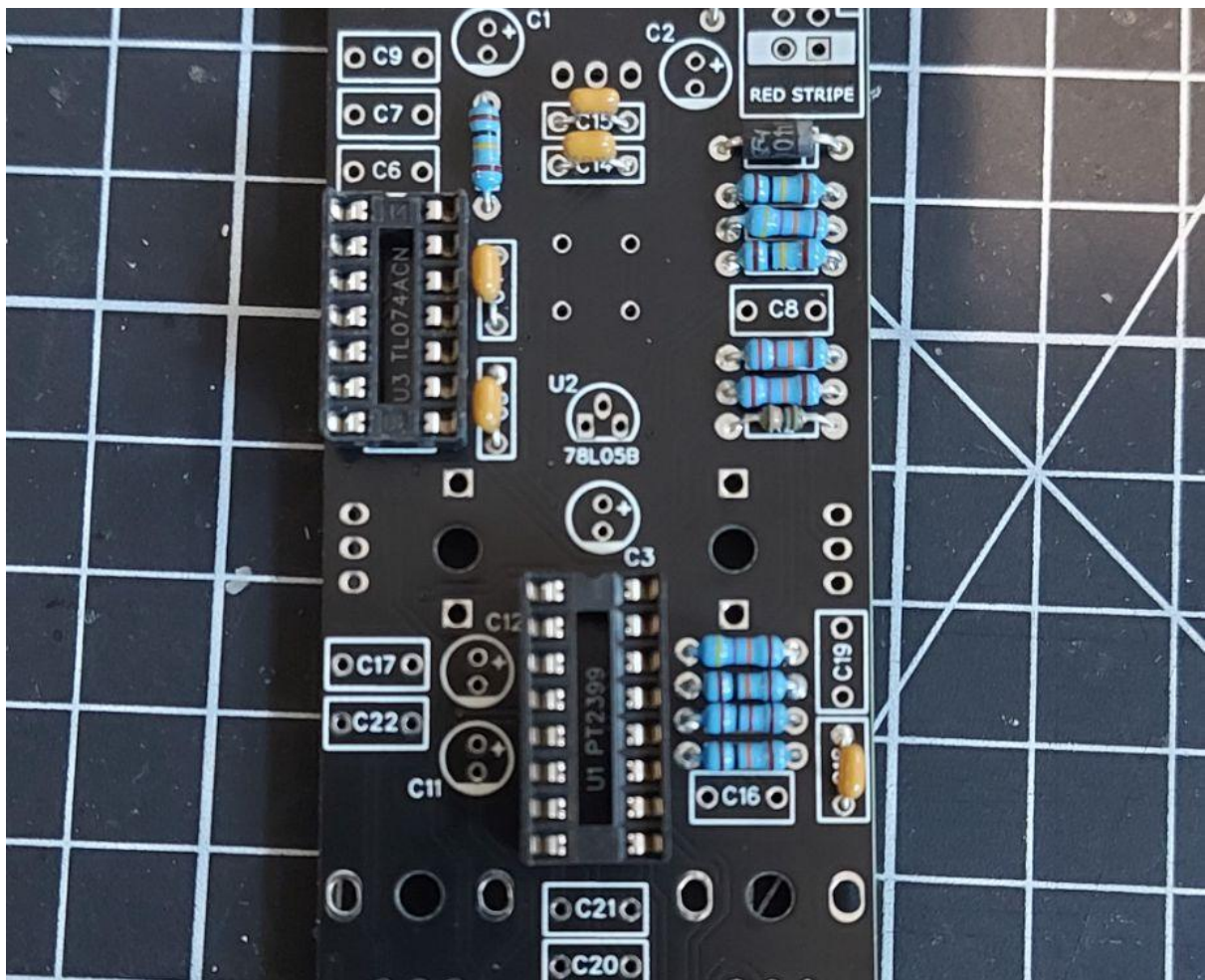
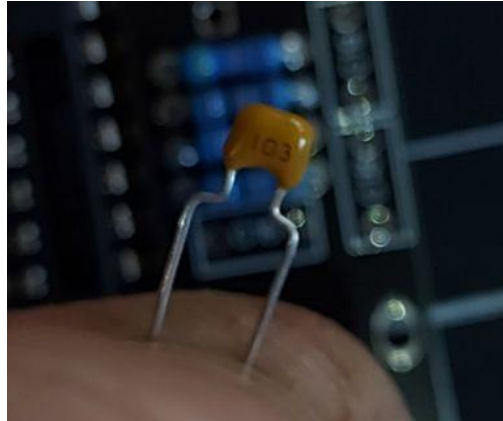


4. Ceramic capacitors

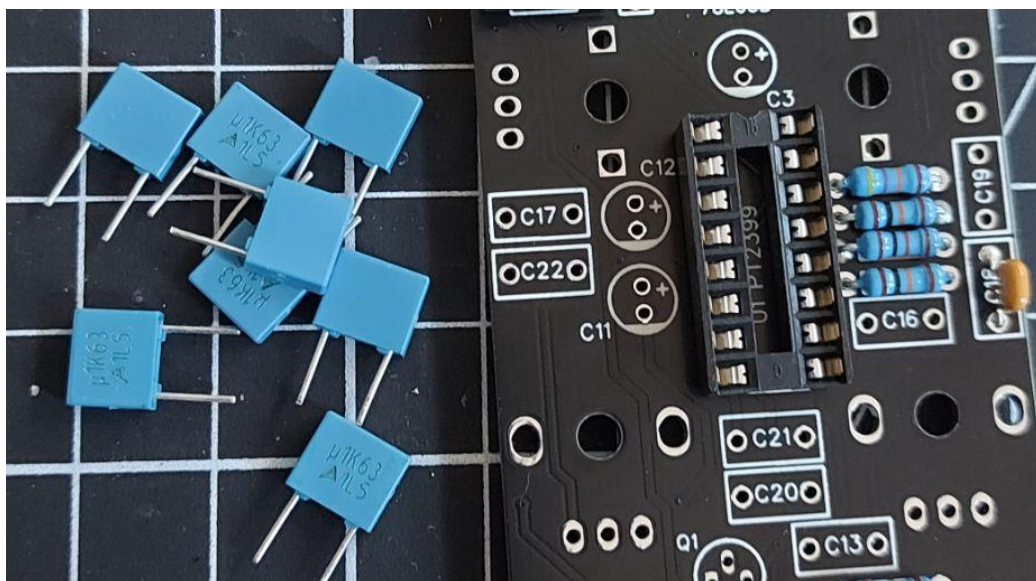


Locate the five 100nf capacitors(labelled 104) and place at C4,C5,C10,C14,C15.
Solder them in place.

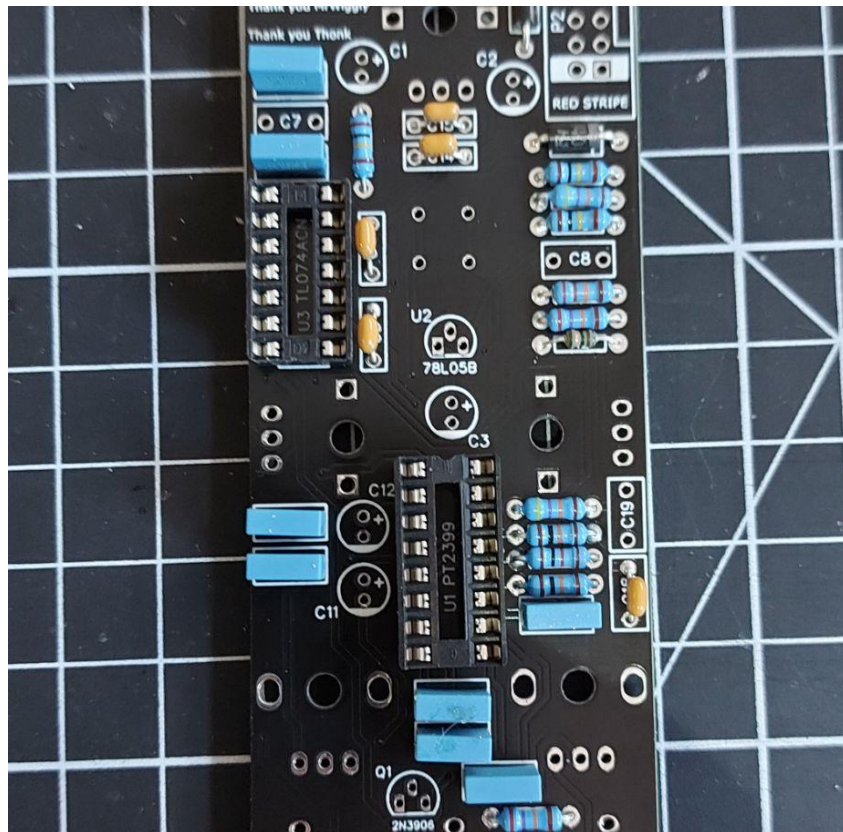
Next locate the single 10nf capacitor(labelled 103) and place it at C18. Solder, trim all the legs and reflow if needed.



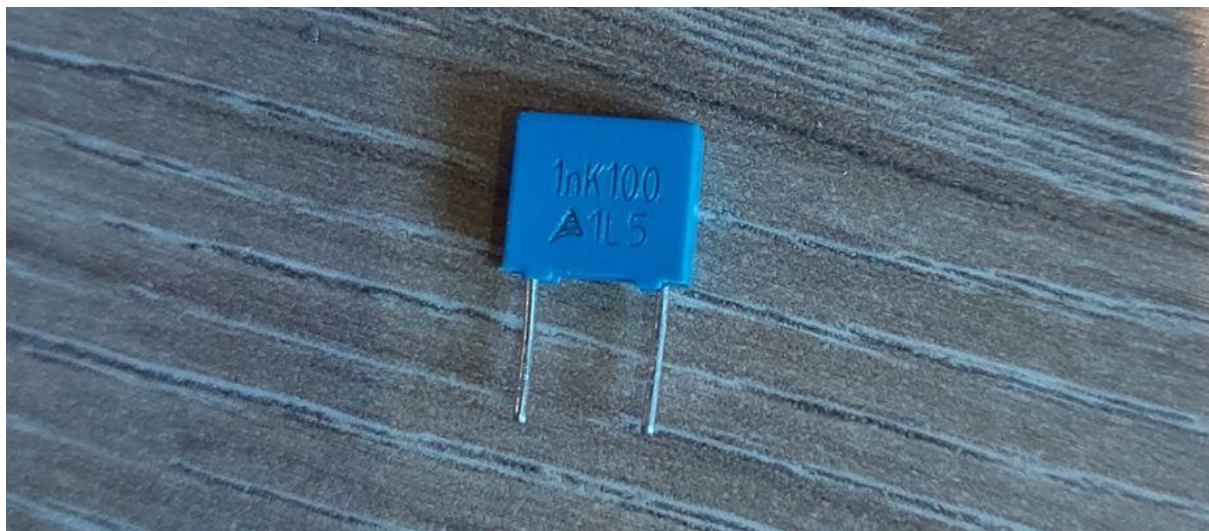
5. Box capacitors.

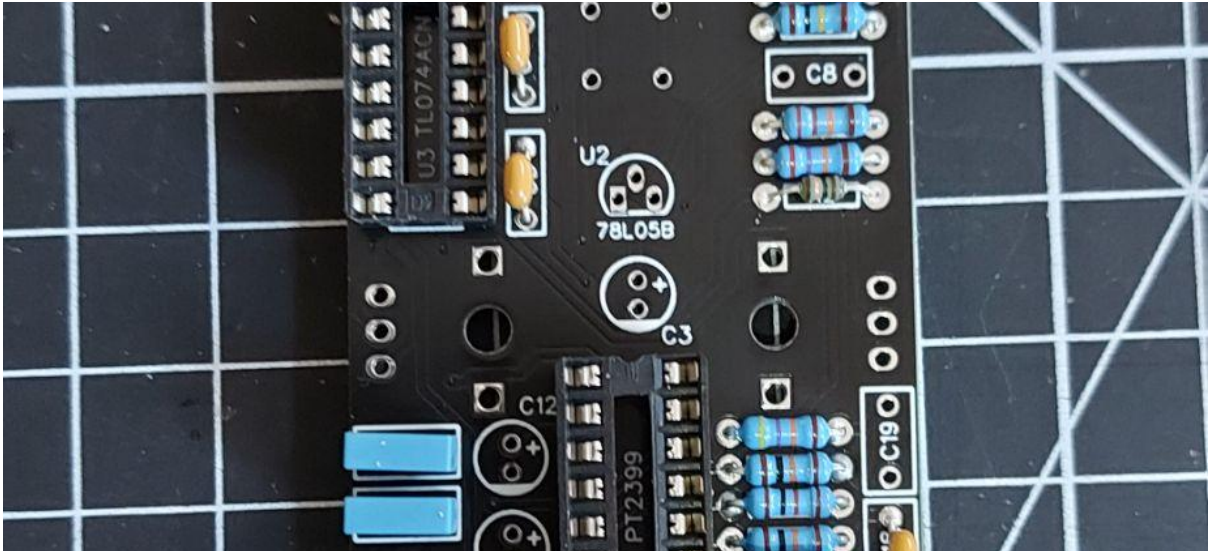


Next up you have the 100nf box capacitors(marked 1k63) and populate C6,C9,C13,C16,C17,C20,C21,C22. Solder, trim, reflow if needed.

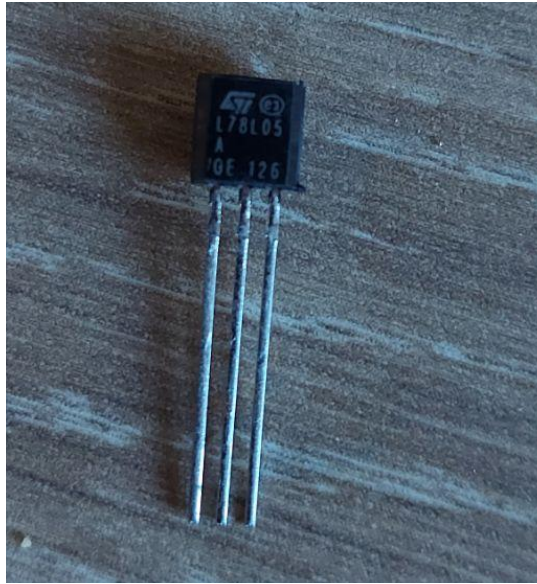


Find the two 1nf box capacitors(marked 1nk100) and populate C8, C19. Solder, trim, reflow if needed.

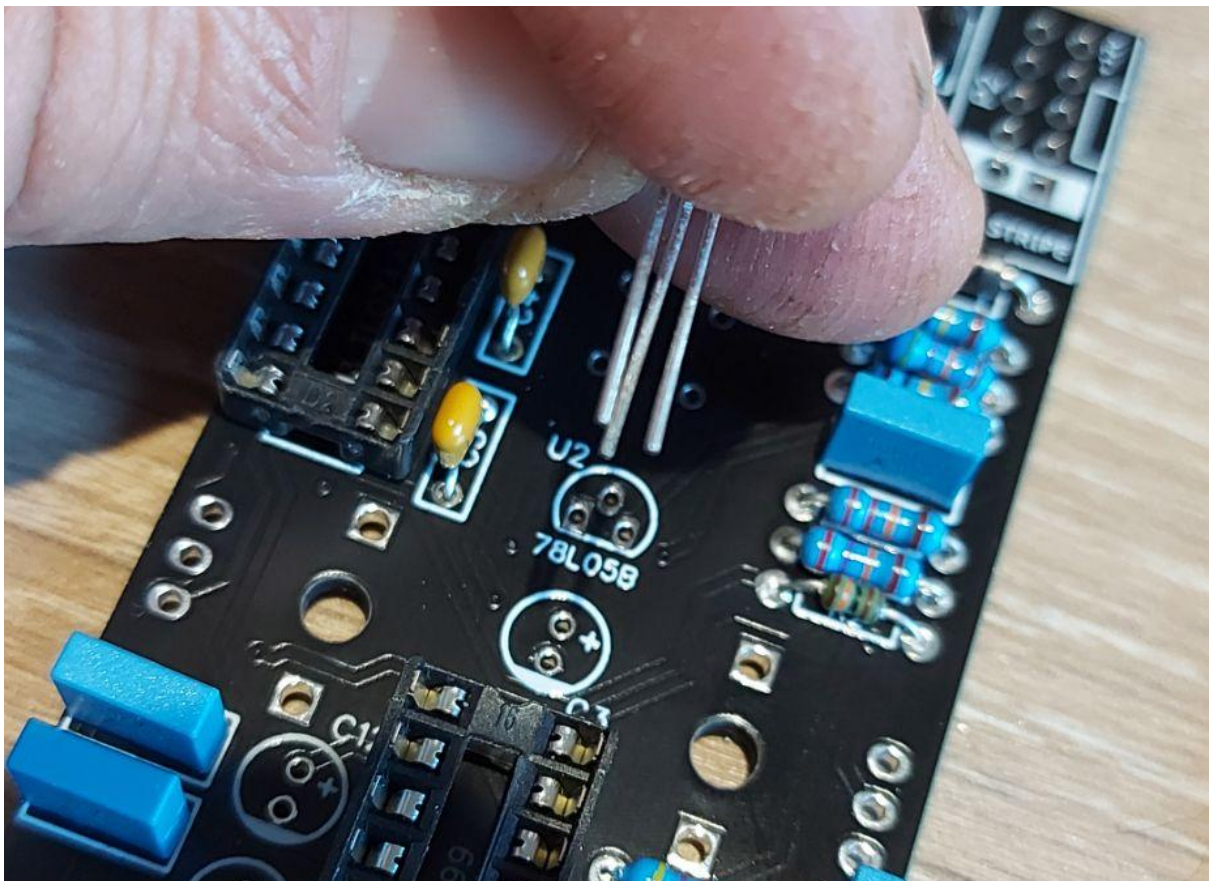




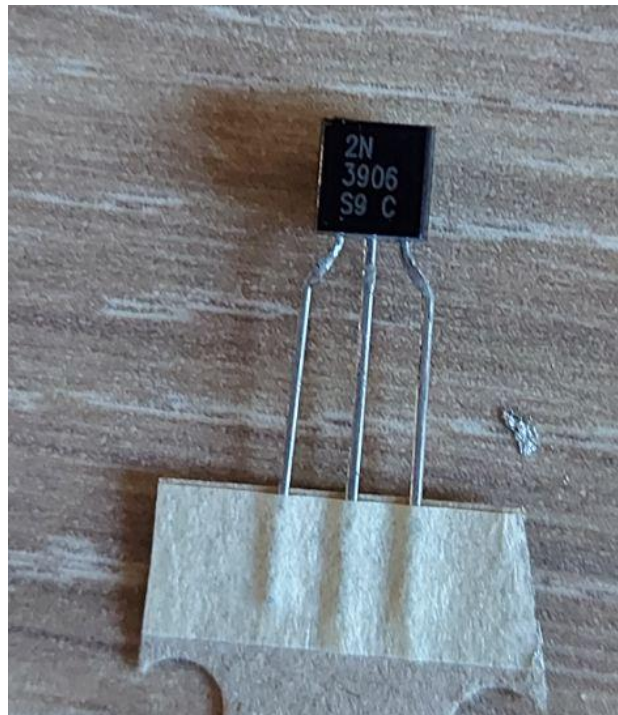
6. Power regulator.



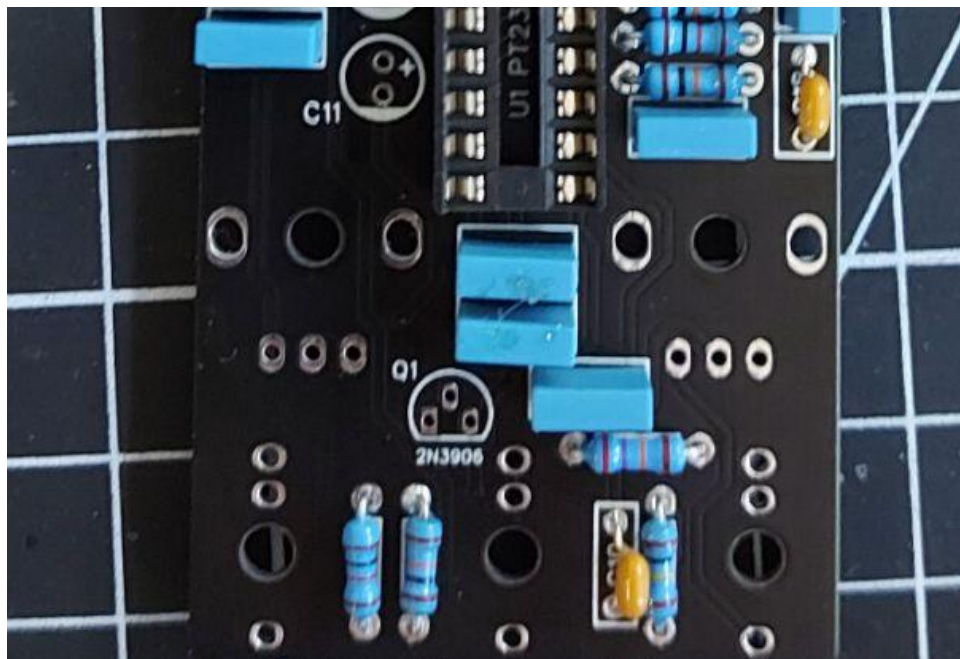
Find the 78L05 5V power regulator. Don't mix this up with the transistor(see below)). bend the middle leg back slightly and place it in the PCB. Follow the silkscreen to match the orientation and solder in place. The pads are close together for this component so be careful not to bridge them. If you do, don't panic, trim the legs and try a simple reflow. If too much solder is present use a solder sucker or wick to remove the excess.



7. PNP transistor.

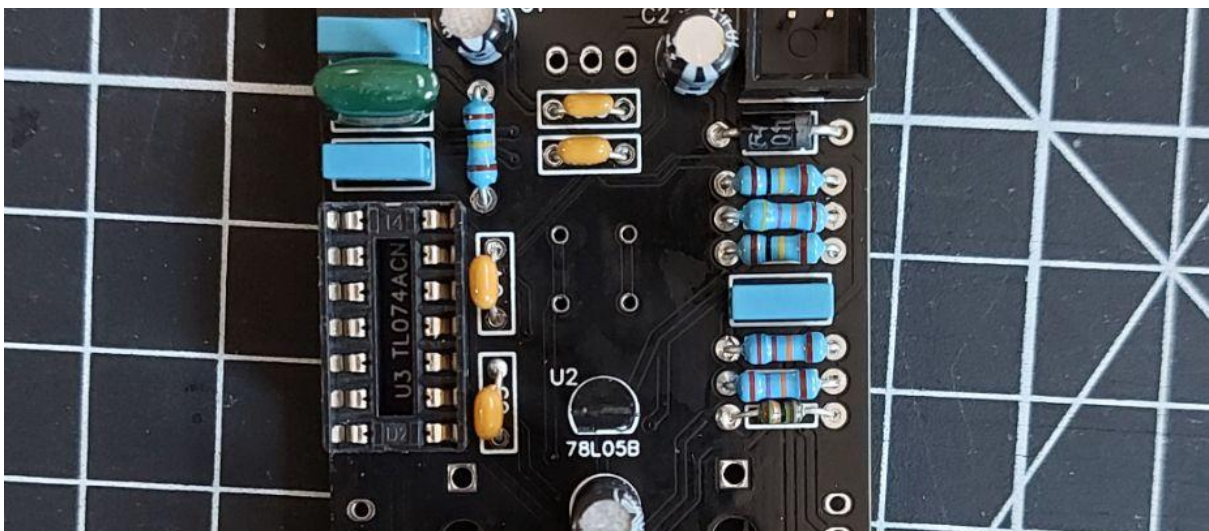


Find the 2N3906 transistor and fit the same way as the power regulator, following the silkscreen for the correct orientation. Careful not to force this in as you may end up twisting the legs and cause a short. Once happy with the position solder, trim, reflow if needed.

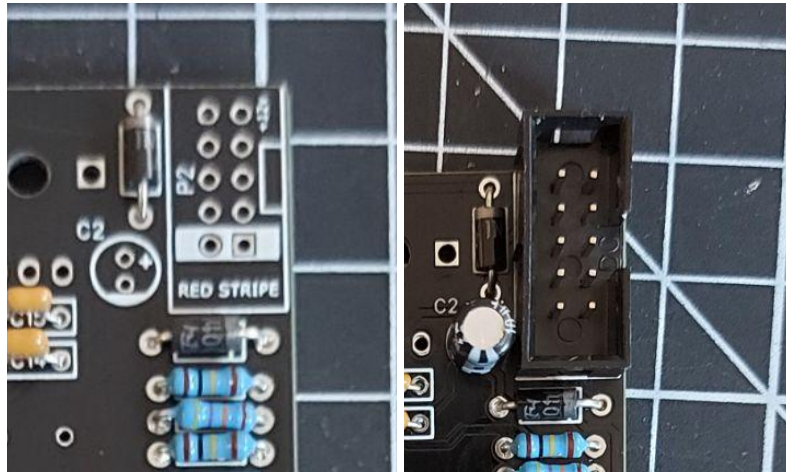


8. Mylar capacitor.

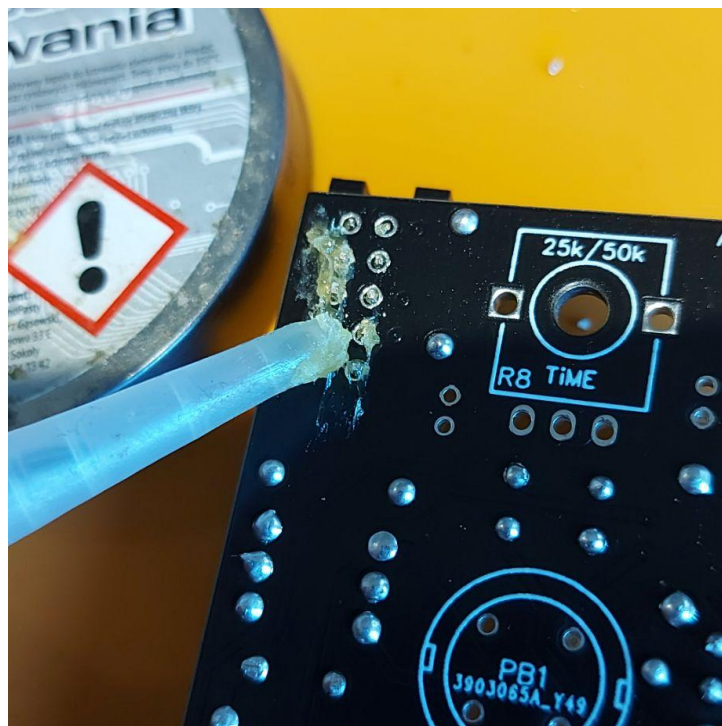
This one is easy to spot. Find the 68nf mylar capacitor and place at C7, solder, trim, reflow.....



9. Box header.



Place Box header as shown with the notch in the side facing out from the PCB. Turn over and before you solder in place use some flux on the pins. This will aid solder flow around the power header. It's a good idea to get some extra flux on parts like this where it takes longer for the heat from the soldering iron to transfer. Also useful to use when you have a solder bridge.



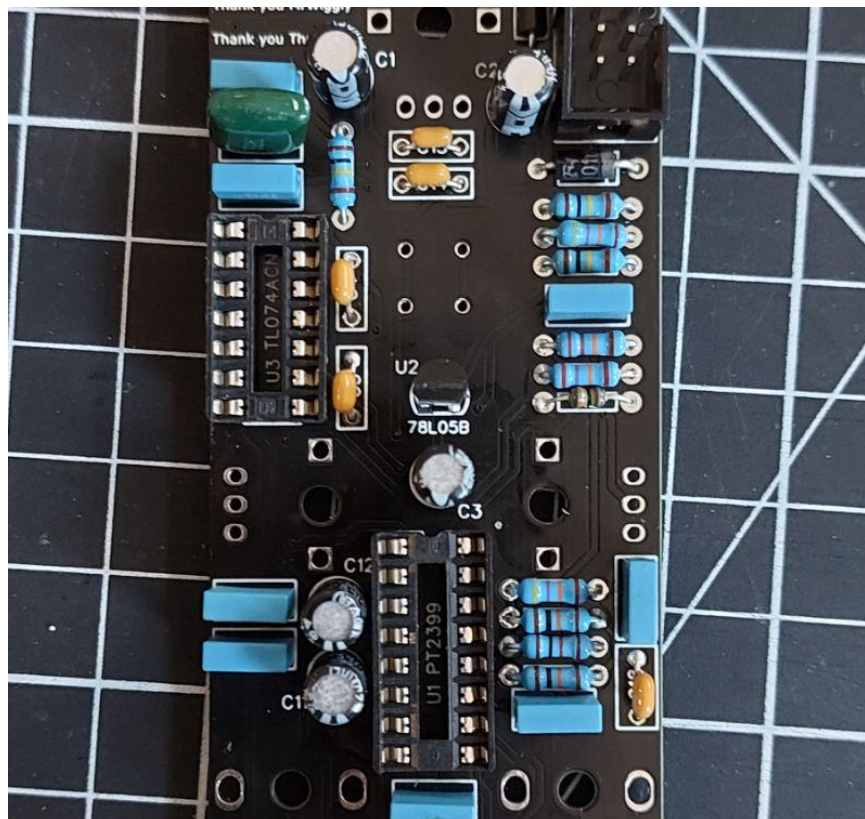
10. Electrolytic capacitors.



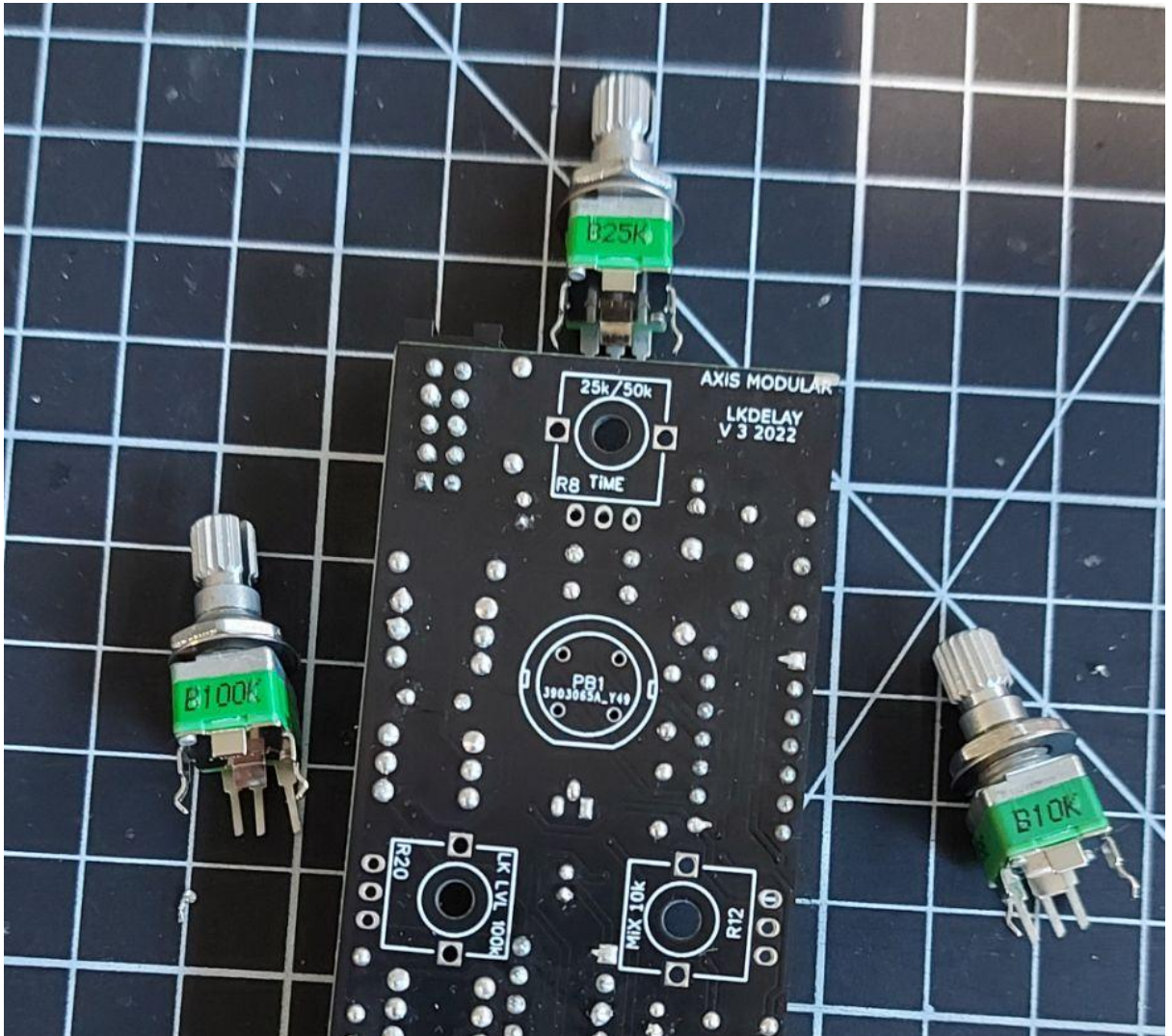
The electrolytic capacitors are polarised and need to be placed correctly. Long leg is positive and the short leg is negative. The negative side also usually has a stripe on the body of the capacitor. Make sure you match up the part to the silkscreen on the PCB.

I usually solder one leg on these first and reposition them (by reflowing the solder) to stand up nice and straight (have you ever taken an old amplifier apart and seen how drunk a lot of the components look??).

Once happy with their placement, solder the other leg. Trim, reflow if needed.



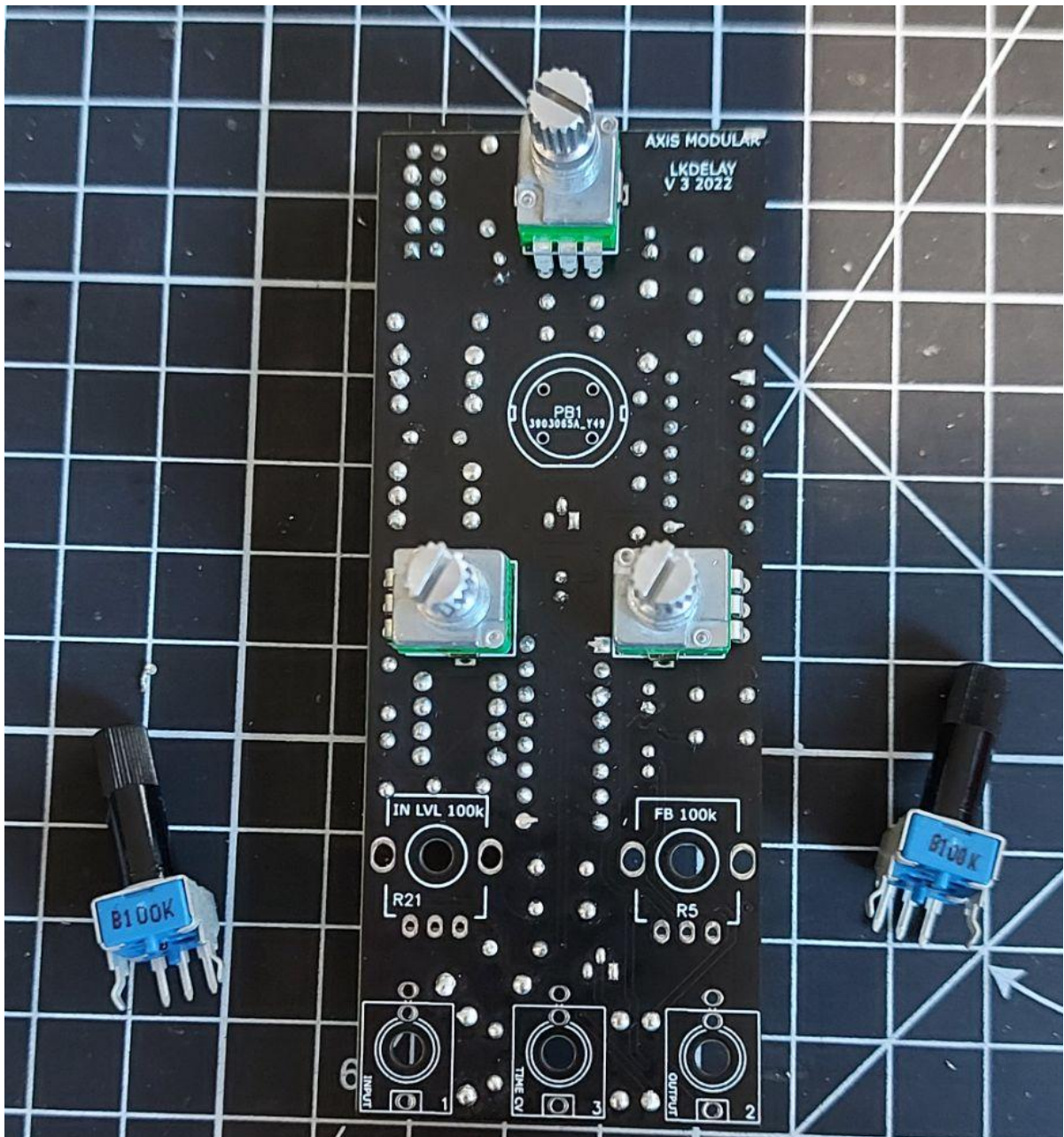
11. Potentiometers.



In your kit you'll find three metal t18 potentiometers and two plastic shafted song huei potentiometers.

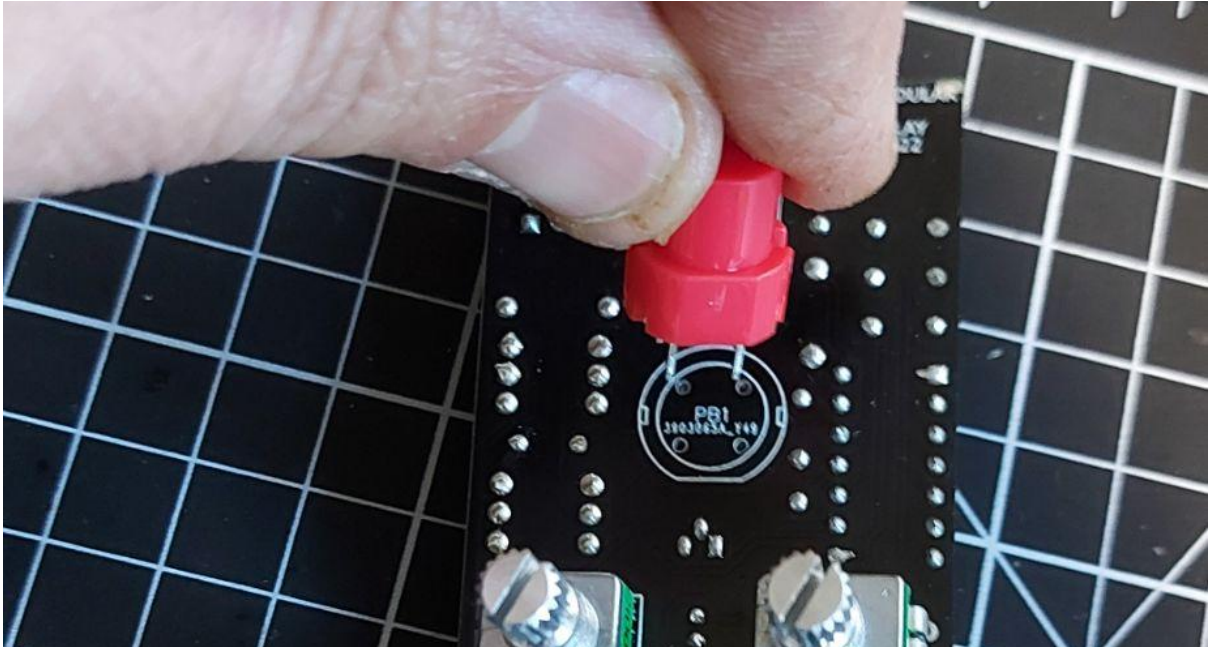
Place the B100k one at R20, the B10K one at R12 and the B25k one at R8 at the top of the board. **Do not solder yet.**

The Time potentiometer included with the kit is 25k which gives a nice 'clean' delay but you can swap it out if you wish for a 50k(not supplied) which will give more 'noisy' slower delay times.



Locate and place the two B100k song huei potentiometers. Do not solder yet.

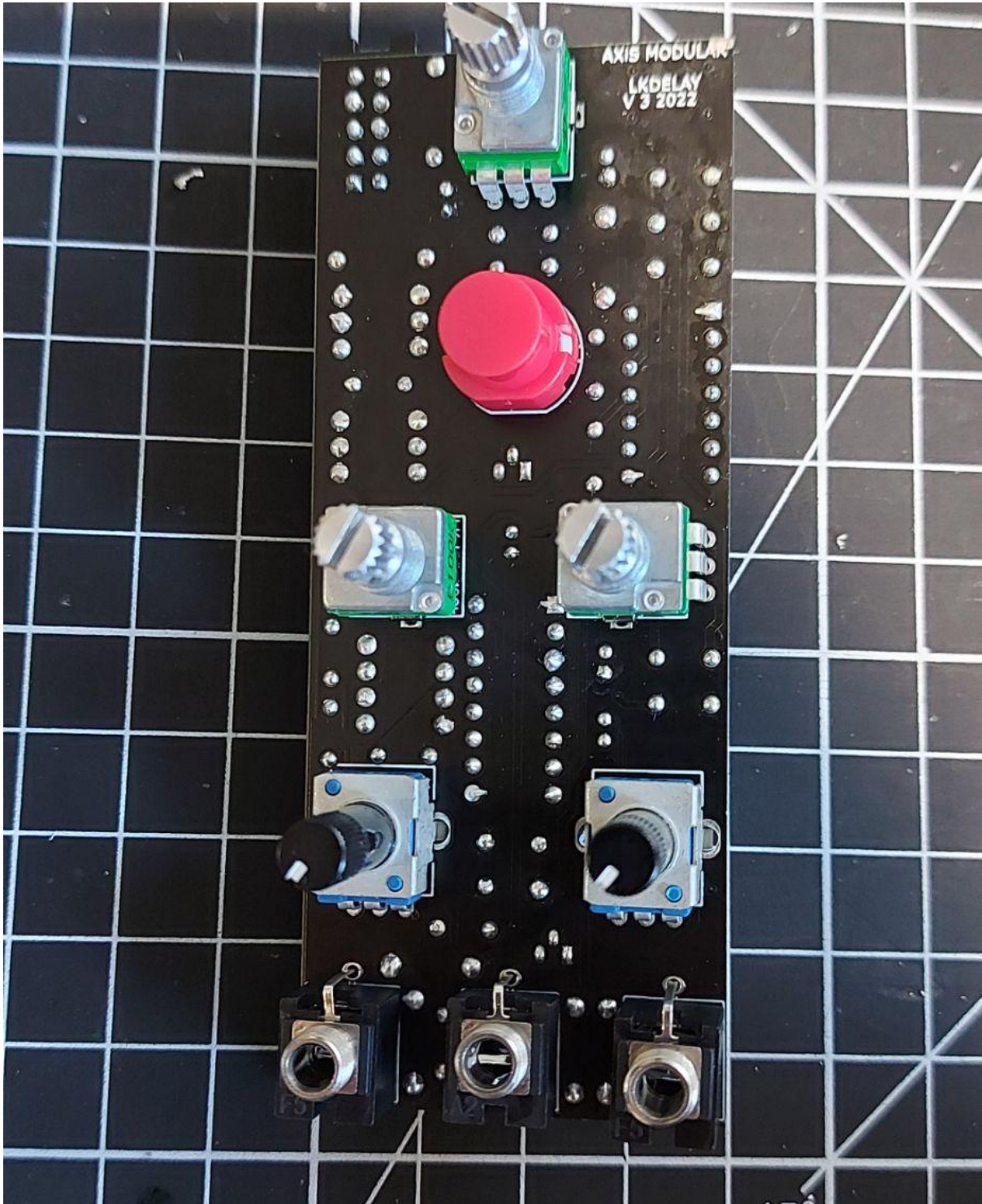
12. Momentary switch/button.



Locate and place in the momentary button. **Do not solder yet. Make sure the flat edge matches the silkscreen image on the PCB.**

13. Mono jacks.

Remove the nuts from the supplied jacks and place on the PCB as shown. **Do not solder yet.**



14. Panel.

Place the panel over the parts you just mounted and fix it all in place using the nuts and finger tighten.



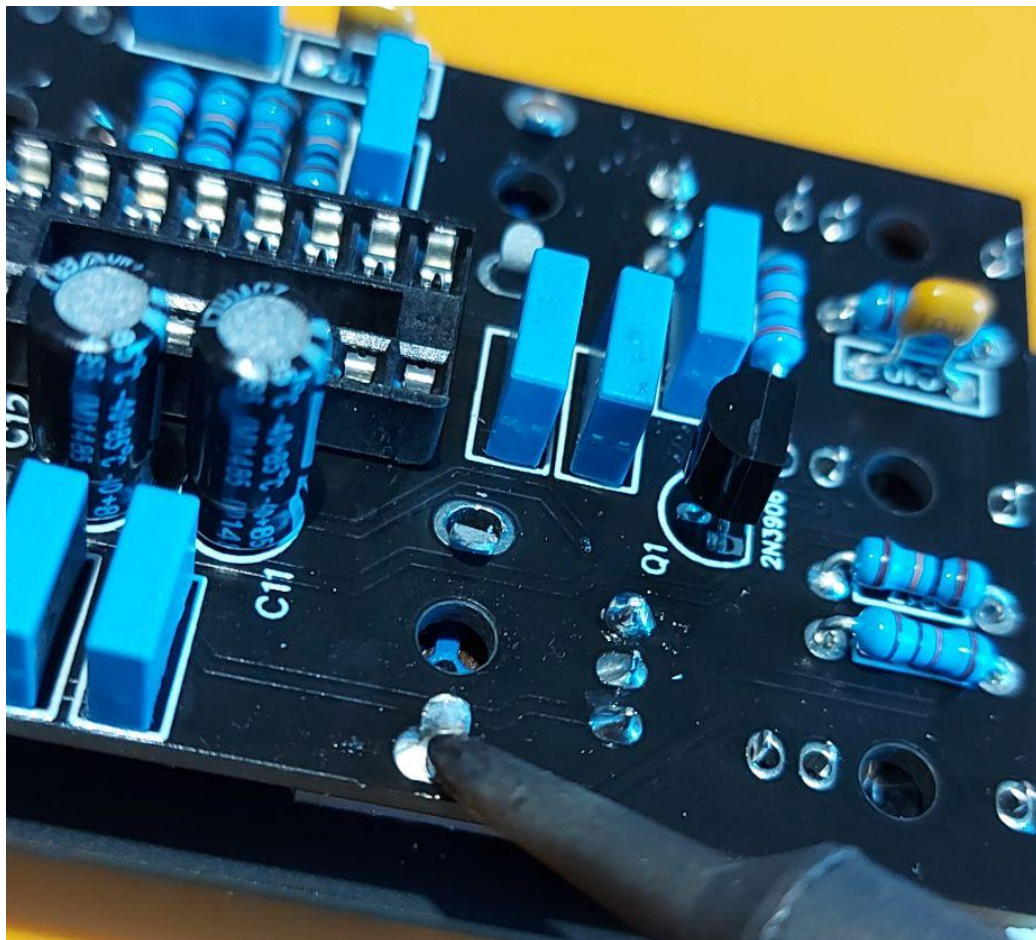
Stick a bit of electrical tape over the button to stop it from slipping forward, turn the whole module over and start soldering the parts in place.

With the mono jacks solder one leg first on each, check position, reflow and adjust if needed then once happy solder the other legs.

The metal potentiometers should be OK to solder all legs straight away but double check first. If you are using your own potentiometer make sure there is no metal tab on the base of the shaft. If there is, you will need to trim that off.

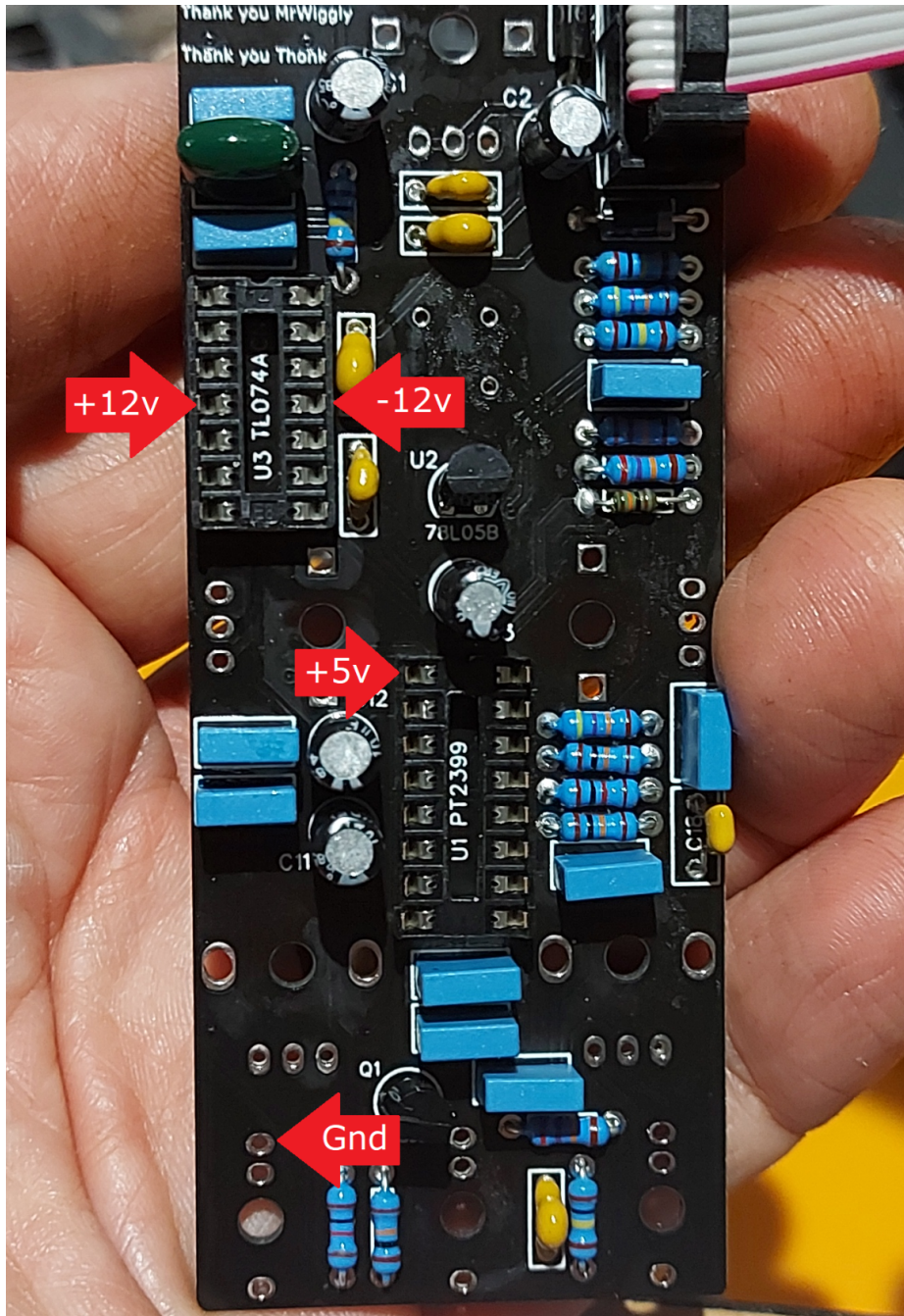
The plastic song huei potentiometers I always solder just one leg and then check the position and alignment with the panel before soldering the rest.

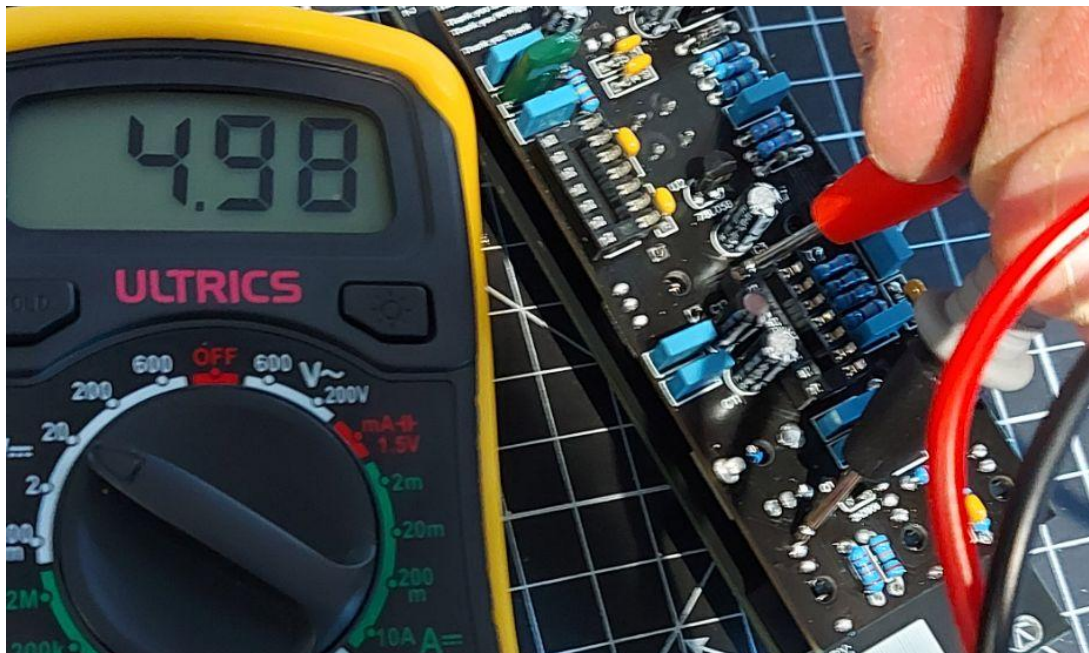
I also like to bend down the legs on the plastic potentiometers and solder down for mechanical stability for the part.



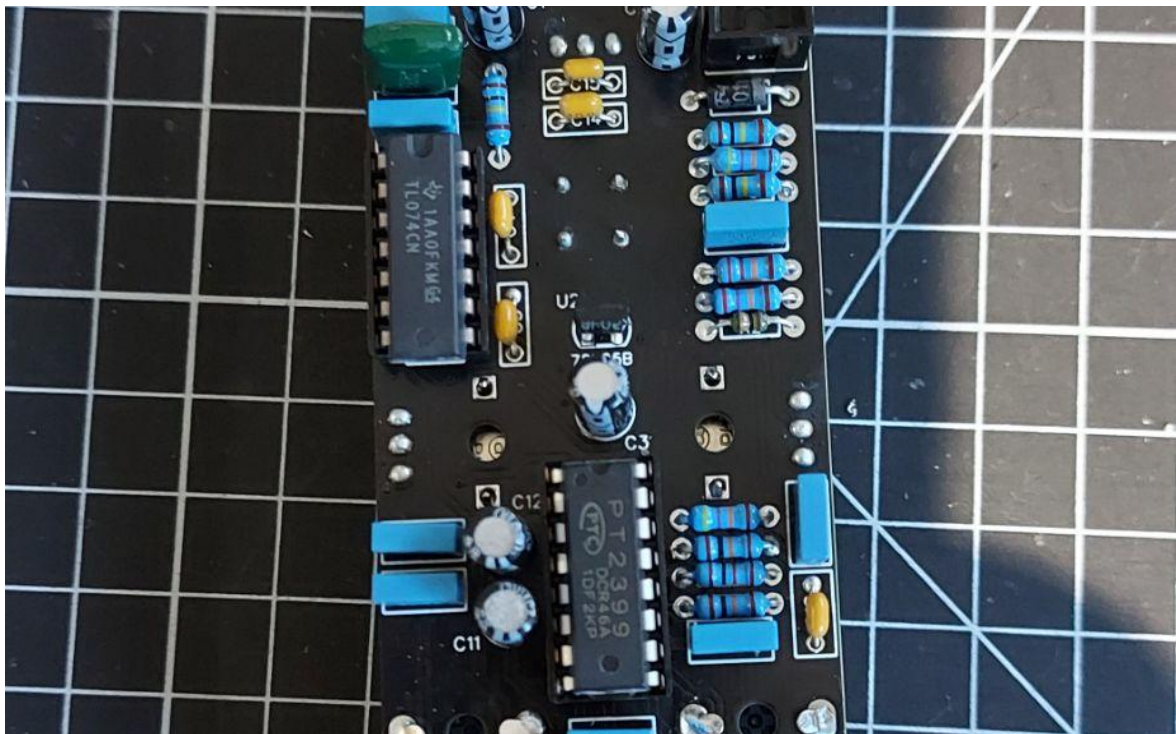
15. IC's.

If you have your trusty Digital MultiMeter(DMM) handy now would be a great time to check that the correct power is going to the correct places and that there are no shorts. Plug in the Eurorack cable into the module and preferably on its own using a bench power supply or small powered case. You should get +12v and -12v(pin 4 and pin 11) on the 14 pin socket where the TL074 will go and +5v on the socket where the PT2399 will go(pin 1).





Checked and all OK? Good, now plug the IC's into their sockets carefully making sure the indent is at the top matching the socket indent, and move on to finishing the module.



16. Finally turn all the potentiometers to the left and fit the knobs with their pointers to around the 00:35 clock position.



Well done! You've now completed the build! build! build! buil bui bu bu b b b

.....

LK DELAY USER MANUAL



The diagram shows the LK DELAY module layout. At the top left is a blue LED indicator. Below it is a clock icon and a large hexagonal knob labeled 'TIME'. To the right of the knob is the text 'LK DELAY'. Below the knob is a red circular button labeled 'Lock'. Below the red button are two knobs: 'LK Level' and 'MiX'. Below these are two more knobs: 'In Level' and 'FB Level'. At the bottom left are three jack sockets: an input socket, a 'CV' socket with a clock icon, and an output socket. At the bottom right is the 'AXIS MODULAR' logo. The entire diagram is set against a blue background with white text.

TIME - 30ms -800ms.

Lock - Hold for almost instant locking of the feedback.

LK Level - Amount of Lock
MiX - Level of dry/wet mix. Center=50/50

In Level - Input level
FB Level - Amount of feedback

Input Jack socket
Time CV Input
Output

(Order from left to right)

LK DELAY is a 'playable' delay using the well known PT2399 digital delay IC which is usually found in guitar pedals and its popular feedback effect can be heard on countless dub/reggae tracks.

I've taken this delay a bit further by adding a 'lock' button which when pressed and held locks the feedback in place for really cool creative effects. Combine holding this down with moving the Time control and you have quite a cool playable delay!

If things get too distorted for you you can dial back the amount of 'Lock' volume for a more subtle effect.

Give it a go and you won't be able to stop pressing that red button! Enjoy!

Module size 8 HP

Current draw:

+12v 30ma

-12v 7ma