

DUAL MULTIPLIER - Assembly Guide



snazzyfx.com



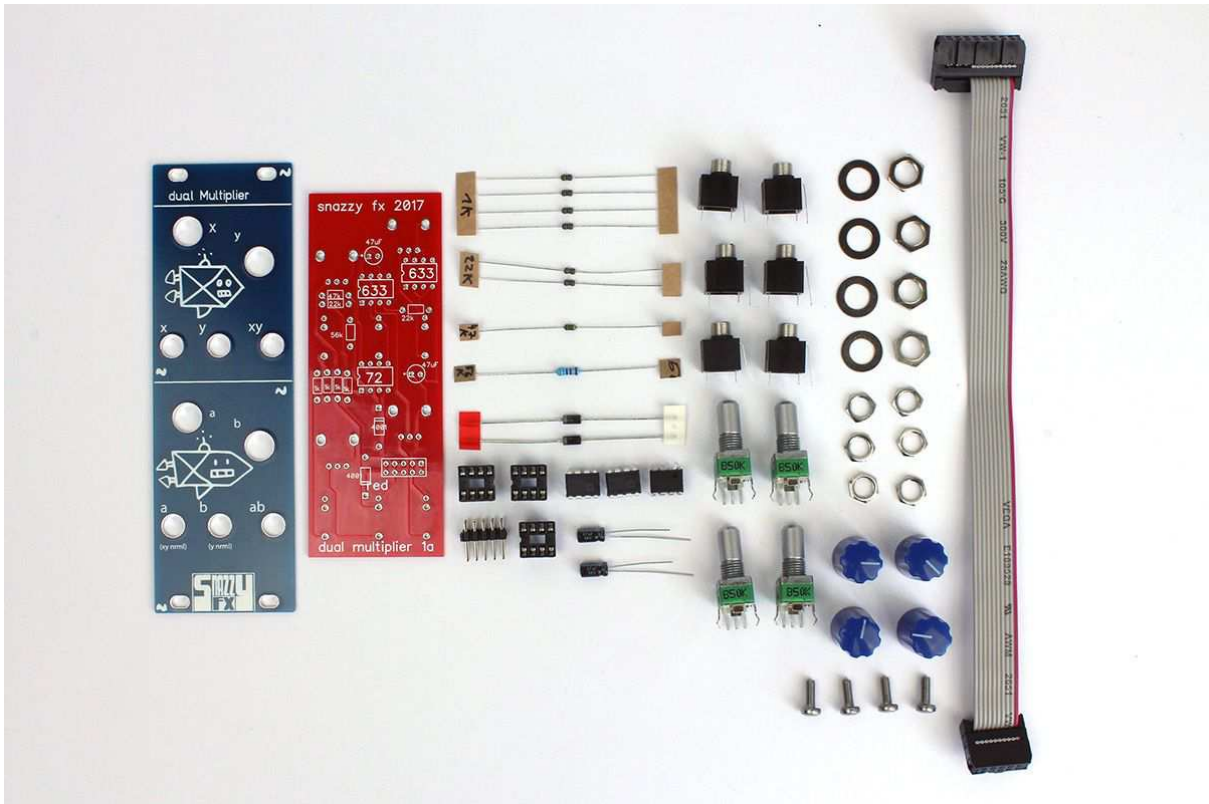
INTRODUCTION

This guide is for building **DUAL MULTIPLIER** eurorack module by **SNAZZY FX**. It is good to have basic soldering skills and to be able to identify electronic components before starting this kit. However if you have never soldered before, check out this [tutorial first](https://cdn-learn.adafruit.com/downloads/pdf/adafruit-guide-excellent-soldering.pdf)¹. We even included some of the best quality solder to help you solder everything faster and better.

This kit consists of just one printed circuit board (PCB). See the Bill of Materials (BOM) for detailed list of all components.

¹ <https://cdn-learn.adafruit.com/downloads/pdf/adafruit-guide-excellent-soldering.pdf>

DUAL MULTIPLIER BOM		
qty	value	part
RESISTORS		
4	1k	1/4W
2	22k	1/4W
1	47k	1/4W
1	56k	1/4W
CAPACITORS		
2	47uF	POLCAP
SEMICONDUCTORS		
2	4007	1N4001
1	TL072	TL072P
2	AD633JN	
POTS		
4	50k	BI pot
HARDWARE		
6	thonkiconn jack	
1	IDC2X5M	
3		8 PIN DIL
ASSEMBLY		
4		knob
4		pots nut
6		jack nut
1		front panel
1		power cable 10-16
4		panel screw



Before starting this kit, prepare the following tools:

- Soldering iron
- Multi-meter
- Flush cutters
- Phillips screwdriver
- Flat screwdriver
- Wrench No. 8
- Protective eyewear

We suggest that you work in a clean, well lit and ventilated environment to avoid accidents or losing any of the small components.

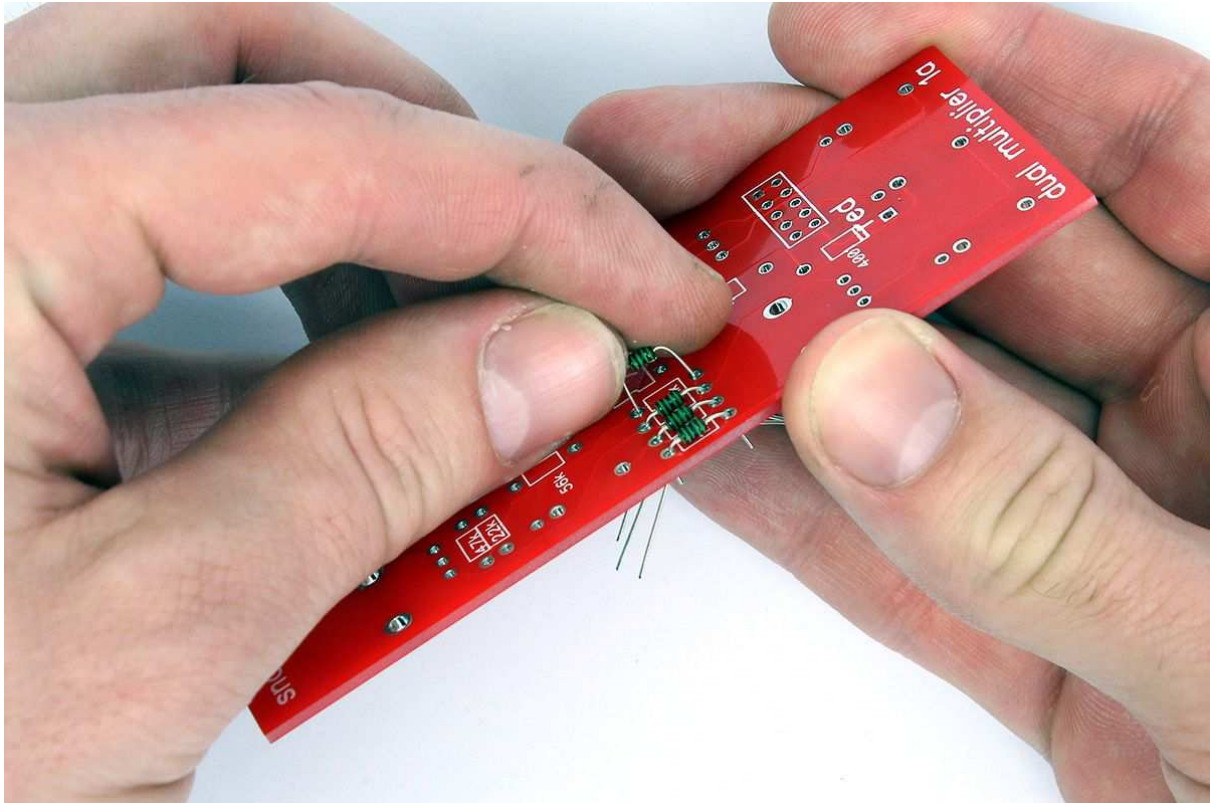
Also briefly go through this guide and make sure that you understand all the steps.

SOLDERING

Before you start soldering, take your time and find all the **resistors values** [using a multimeter](https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance)² (or you can check the color codes if you are seasoned enough).

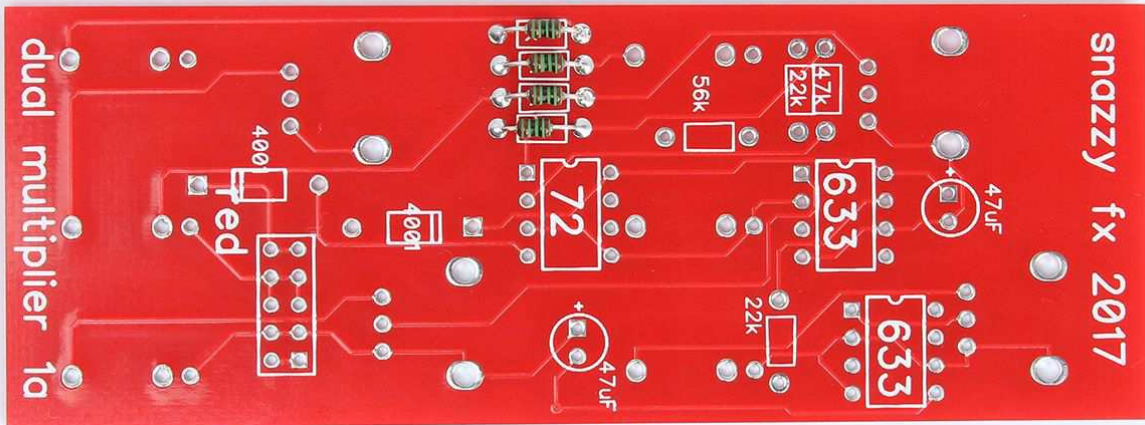
RESISTORS

There are eight **resistors** of different values: 4x **1k**, 2x **22k**, 1x **47k**, 1x **56k**). Be careful to insert these **resistors** on the right place (rectangular with appropriate value) and solder them. Then snip the overhanging leads (be sure to make this step on all remaining leads in the course of this guide).

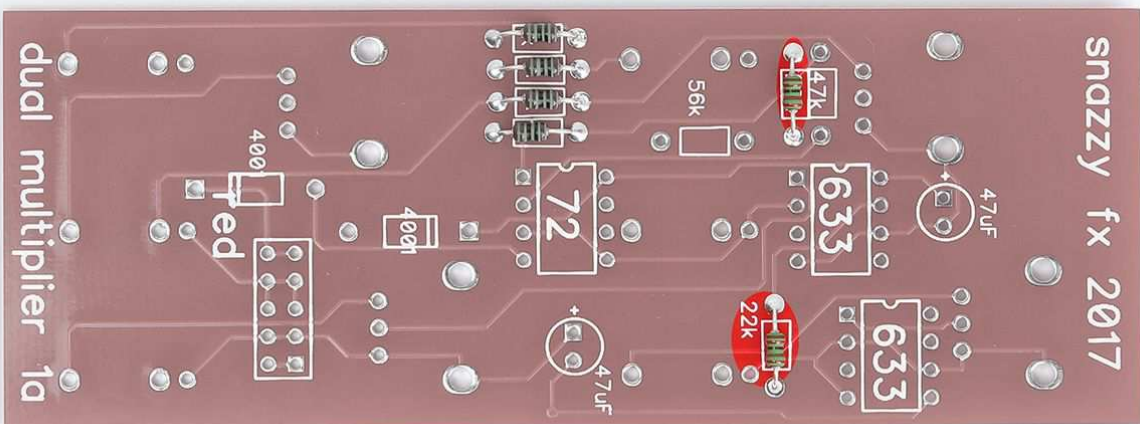


² <https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance>

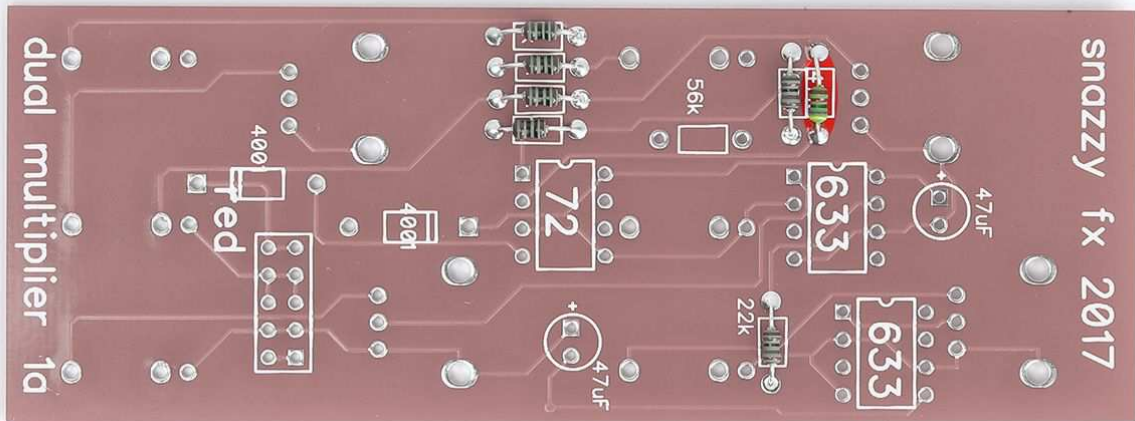
1k resistors (4x)



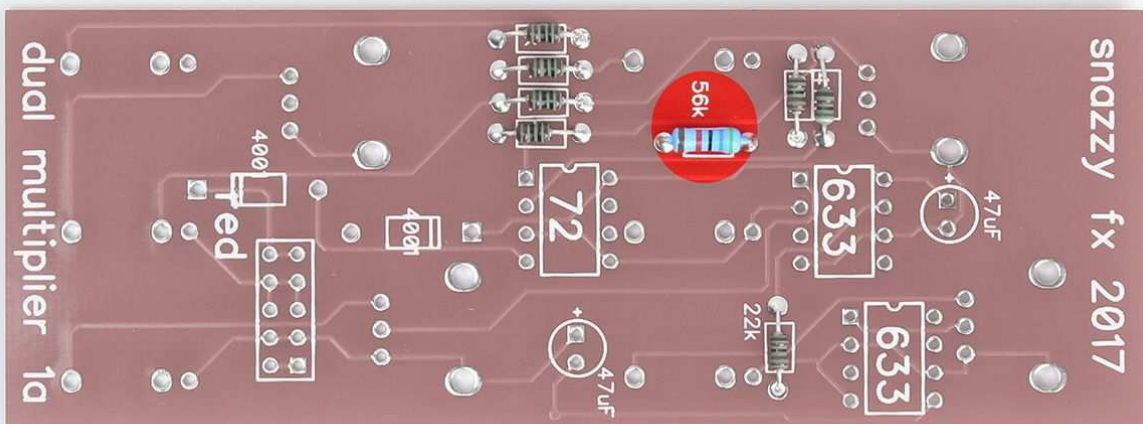
22k resistors (2x)



47k resistor (1x)

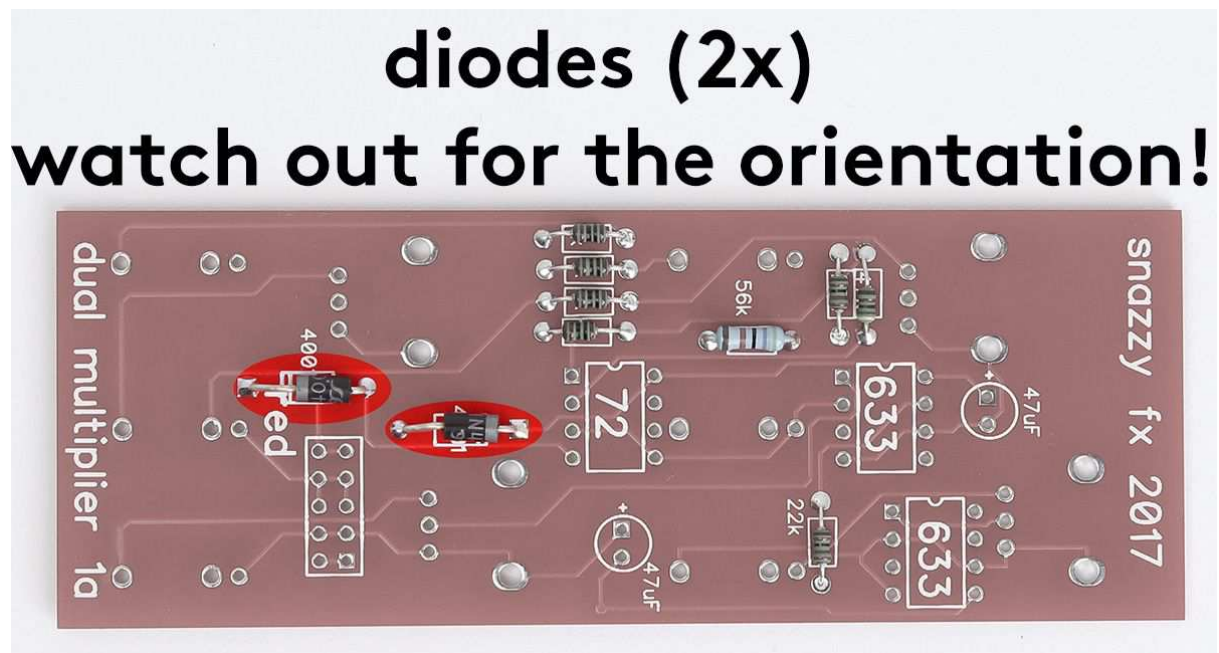


56k resistor (1x)



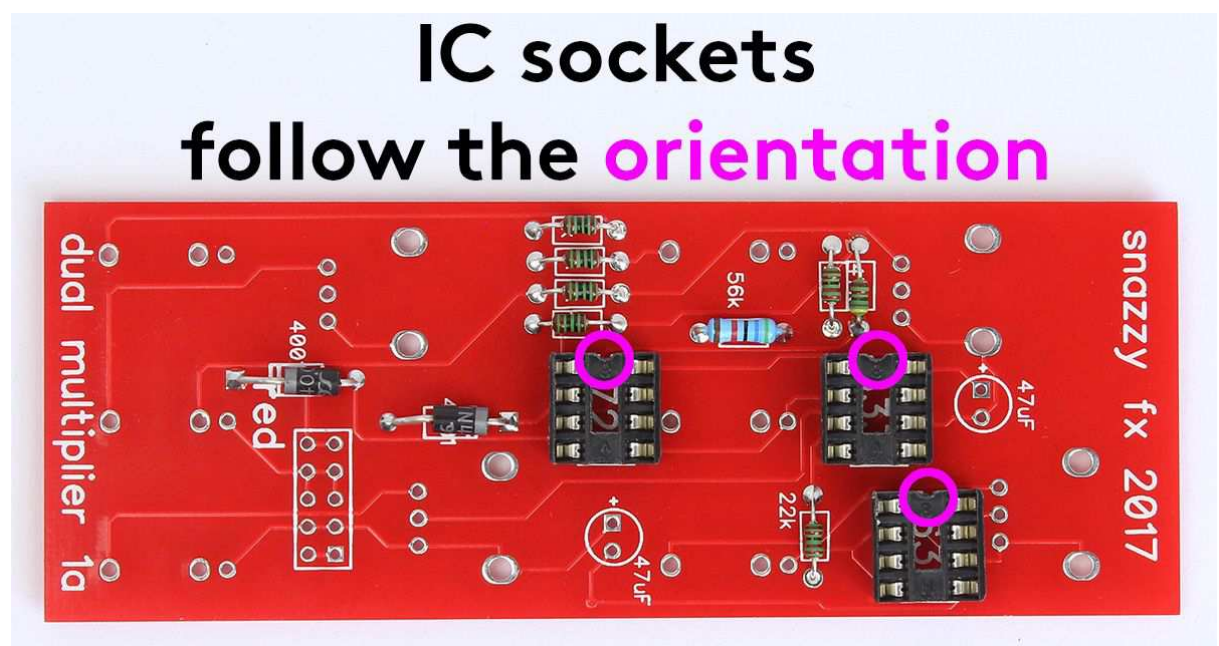
DIODES

After that solder the **diodes**. There are just two **1N4007** ones. Place them in "4001" rectangular. **Be careful, diodes are polarized!** Make sure that the stripe on the diode body matches the stripe on the PCB. Check the photo below.



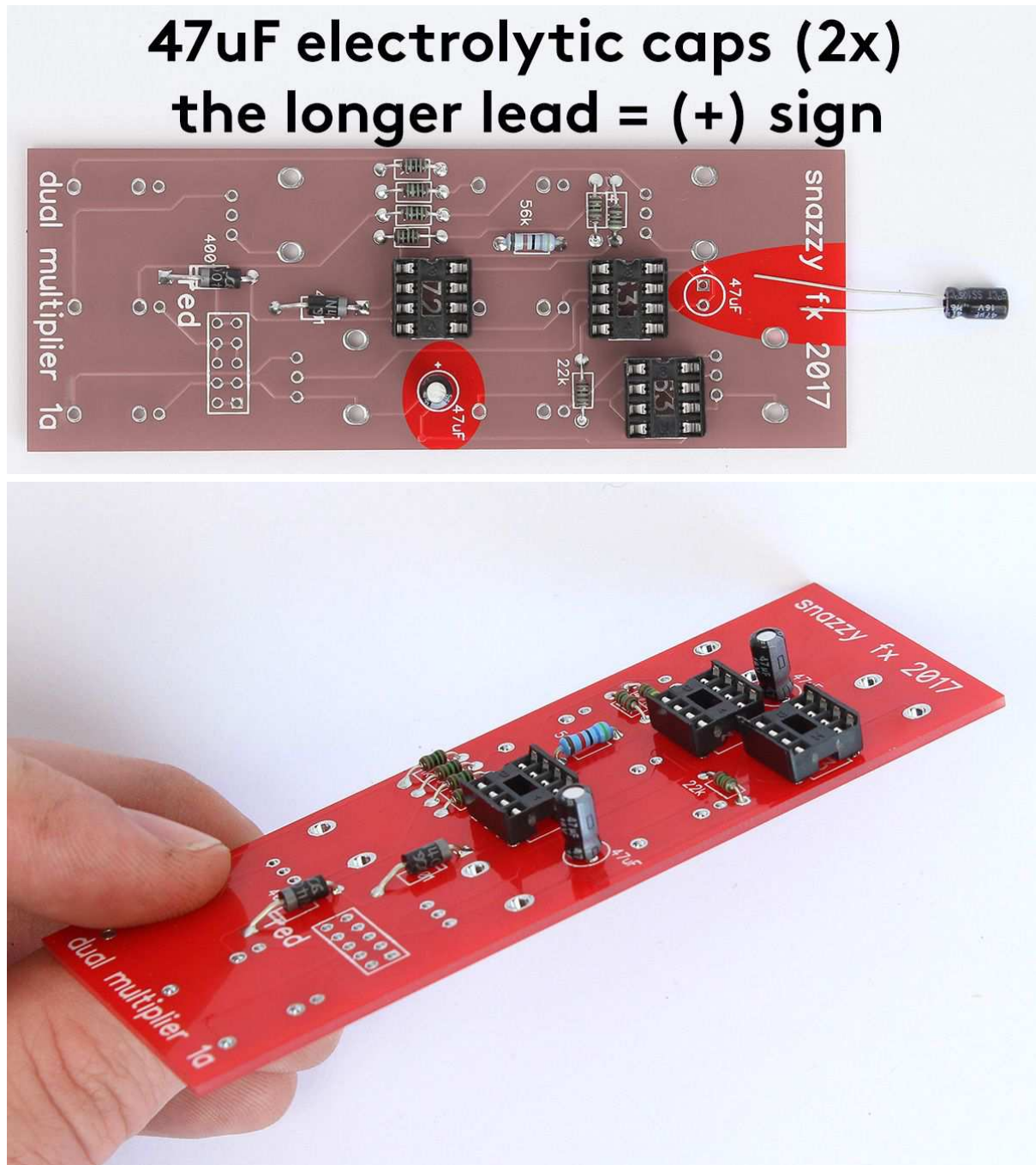
IC SOCKETS

Let's populate the PCB with the three **IC sockets** (8 pin). **Make sure that the notch on the socket matches the print on the board.**



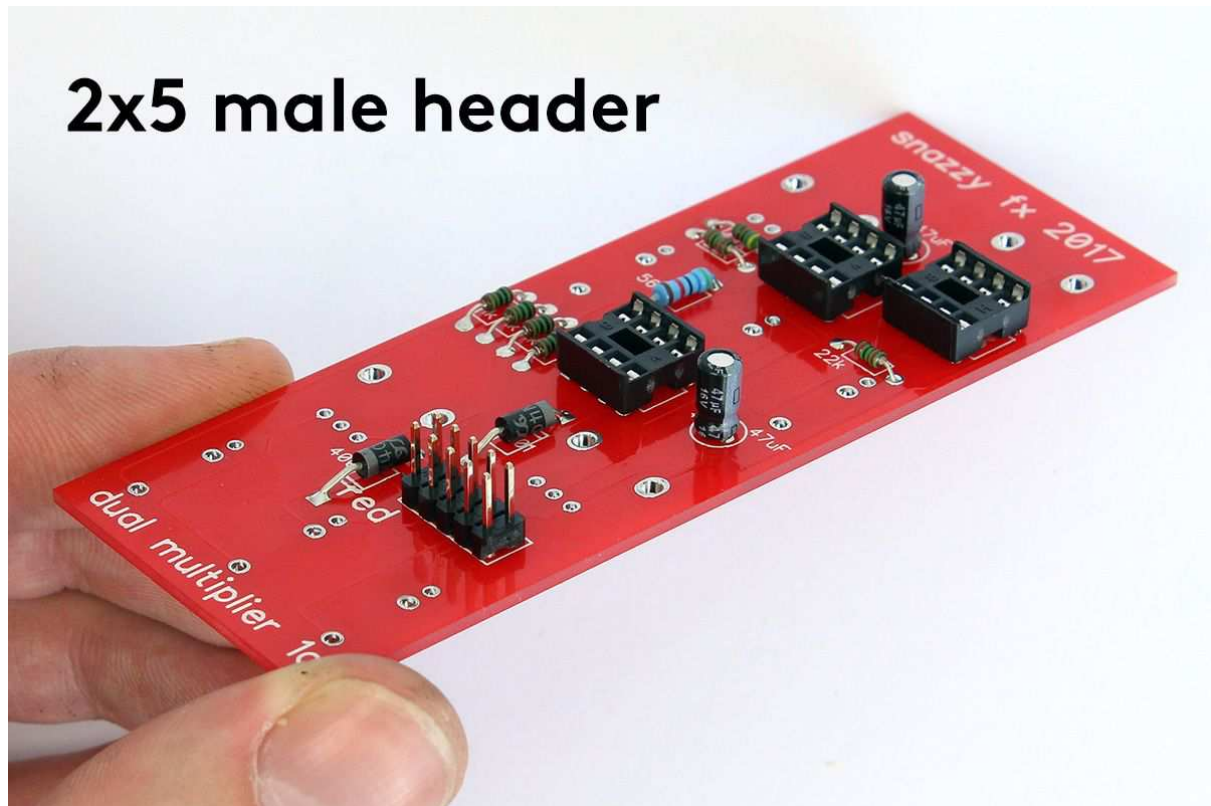
ELECTROLYTIC CAPACITORS

Don't forget to solder the two **electrolytic capacitors (47 μ F)**. These ones are **polarized!** There is a plus (+) sign on the PCB that should match the longer lead of the electrolytic capacitor (actually the minus (-) side is also marked on the body of the capacitor with a white strip).



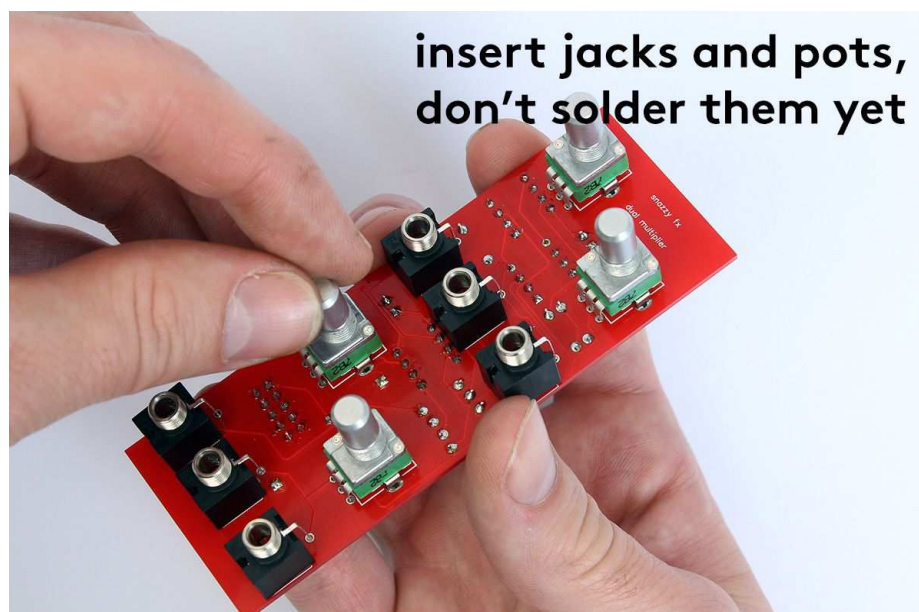
POWER CONNECTOR

Solder the **male pinheader** now. Be careful to solder it straight. You may first solder just one of the pin, take the board in your hand and re-heat that pin while pressing down on the header to align it (be careful, you don't want to touch the pin you are heating up). Wait for it to cool and solder the rest of the pins.

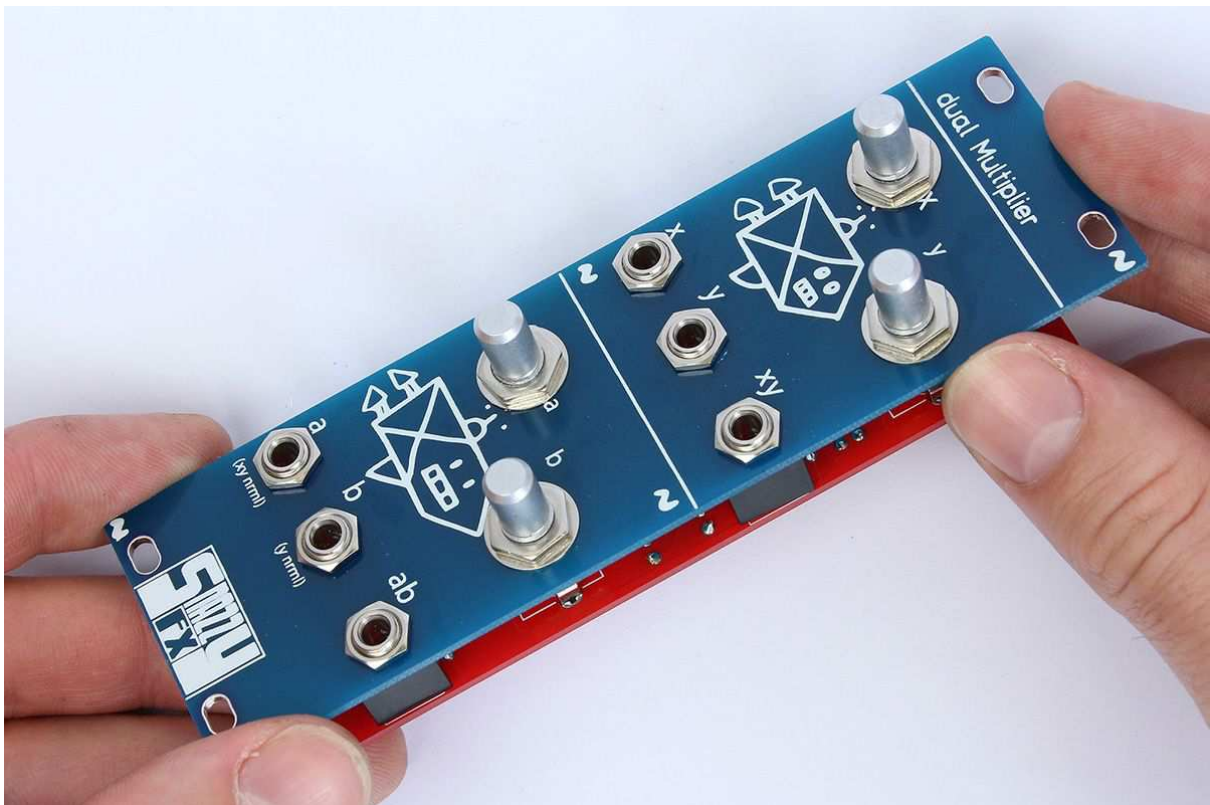
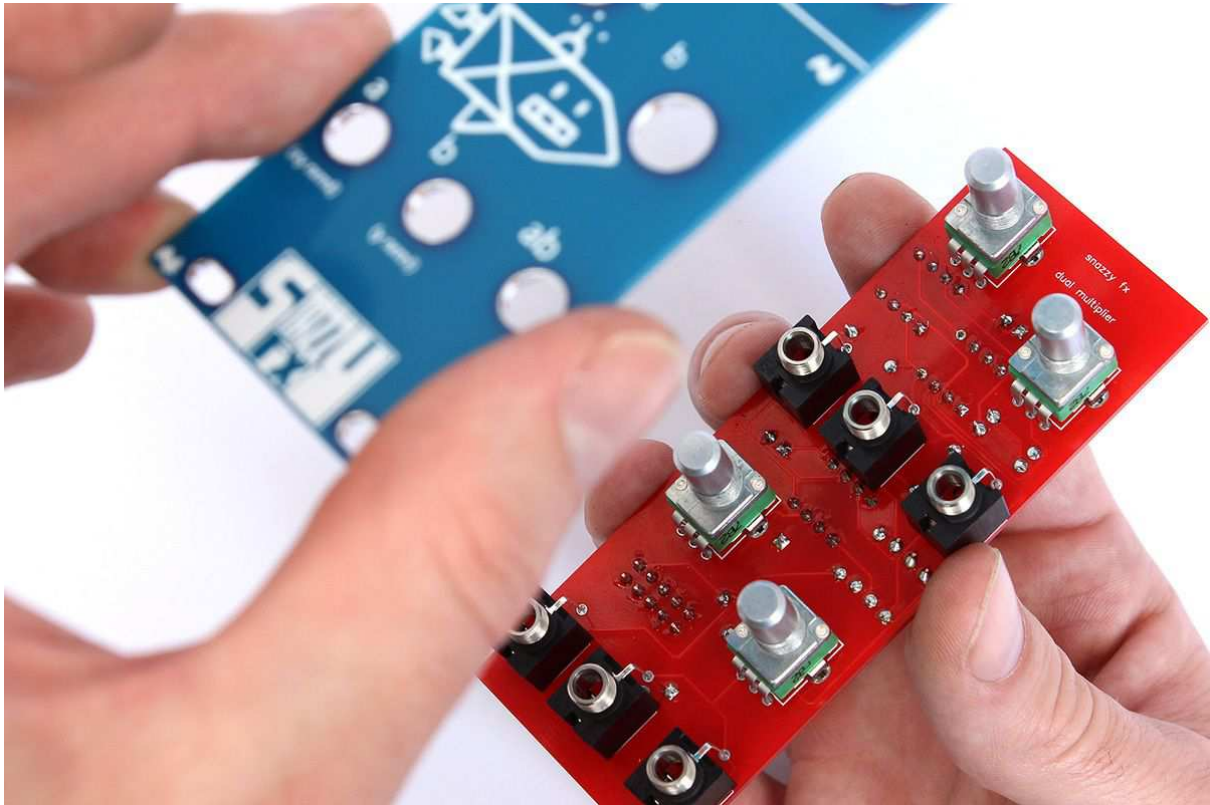


POTS AND JACKS WITH PANEL

You are almost done. Let's do the rest of the components. Turn the PCB around and just insert **jacks** (6x) and **potentiometers** (4x). **Don't solder these guys yet!**

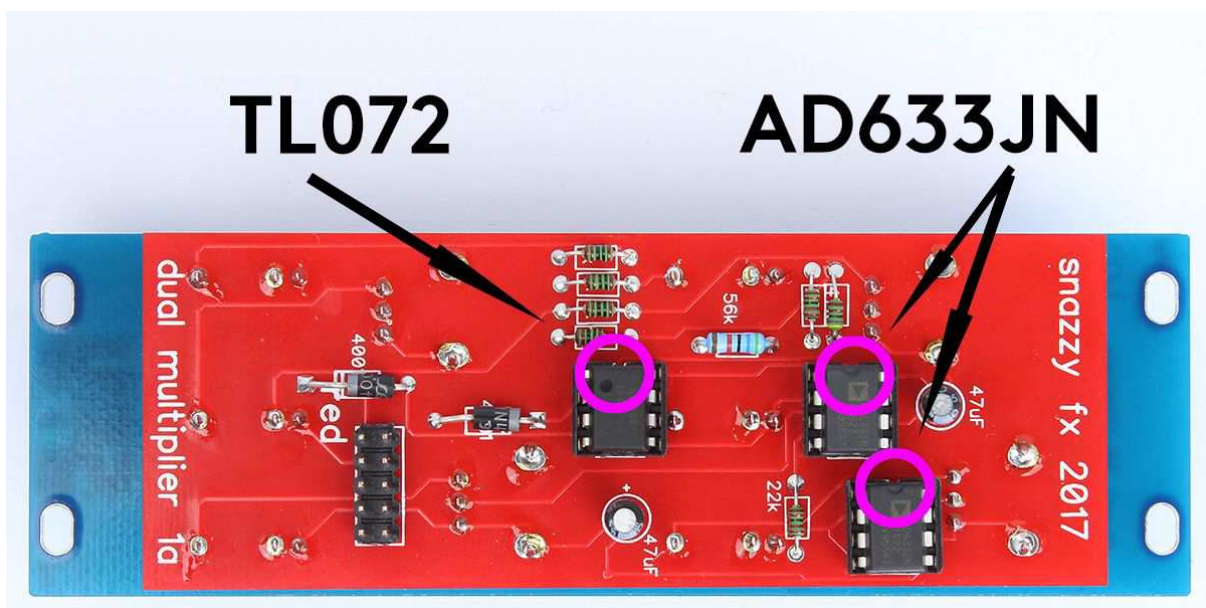


Place the **front panel** on and mount the pots and jacks with **nuts**. Check the position of all those components if they are flat on the board and solder them finally.



INSTALLING THE ICs

Now you have to insert the **ICs** into the sockets to the appropriate spot. There are two types: **TL072 (1x)** and **AD633JN (2x)**. Installing the ICs can be a little tricky. The IC leads are flared out a bit wider than the socket will accept. Bend them in slightly with your fingers, and then try to press all the leads into the sockets in one shot. **IMPORTANT: the notch/dot on ICs has to match with the notch on the sockets.**



FINISHING

Now just add the knobs and your DUAL MULTIPLIER is ready to go! Before you connect anything, make sure that your system is disconnected from power. Also double check the polarity of the ribbon cable, the red cable should match the -12V rail both on the module and on the bus board!

