



Midiverse Modular

MVM006 – LFO

Build Guide

Thanks for choosing this kit and supporting Midiverse Modular!

This guide provides basic instructions to build your MVM006 LFO module.

Module size: 8HP

Power consumption: draws 10mA from the +12V rail and 10 mA from the -12V rail.

For this build, basic soldering equipment is required. This module is an intermediate build due to the close proximity of many parts.

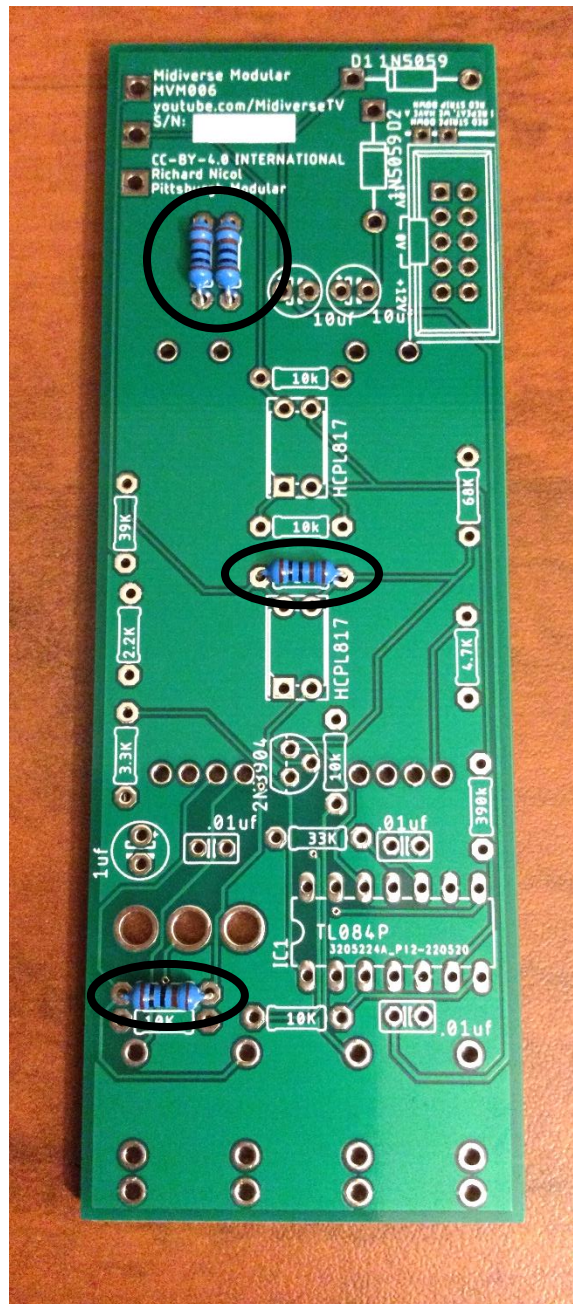
This kit comes with the following parts:

Reference	Qty	Value	Notes
LFO PCB	1		
LFO Panel	1		
R1	1	3.3K	Orange, orange, black, brown, brown
R2	1	2.2K	Red, red, black, brown, brown
R3, R4, R12, R13, R14	5	10K	Brown, black, black, red, brown
R5	1	33K	Orange, orange, black, red, brown
R6, R8, R11, R15	4	1K	Brown, black, black, brown, brown
R7	1	39K	Orange, white, black, red, brown
R9	1	68K	Blue, gray, black, red, brown
R10	1	390K	Orange, white, black, orange, brown
R16	1	4.7K	Yellow, violet, black, brown, brown
D1, D2	2	1N5059	
C1, C2	2	10uf	Electrolytic
C3, C4, C5	3	0.01uf	Ceramic
C6	1	1uf	Electrolytic
Q1, Q2	2	HCPL817	
Q3	1	2N3904	
IC1	1	TL084P	
IC Socket	1	14 pin	
J2, J3, J4, J5	4	3.5mm Jacks	
VR1	1	B100K Potentiometer	
VR2, VR3	2	B100K Sliders	
S1	1	SPDT ON-ON Toggle Switch	
J1	1	10 pin Power Connector	2x5 shrouded header

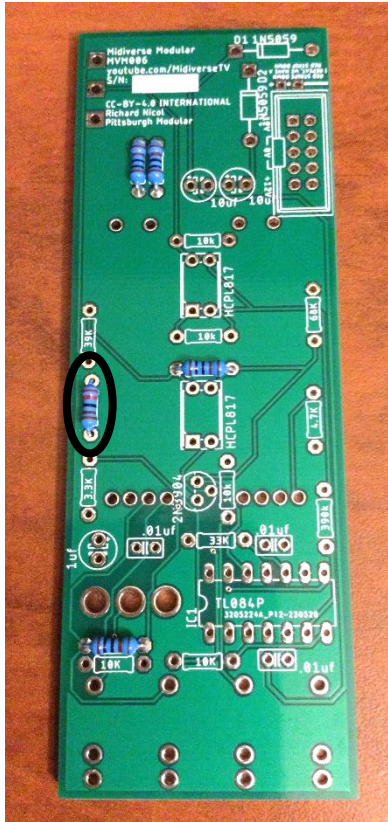
Red LED	1	3mm	
White Switch Cap	1		
White Slider Caps	2		
White Knob	1		
Power Cable	1	10 pin – 16 pin	

Build Instructions:

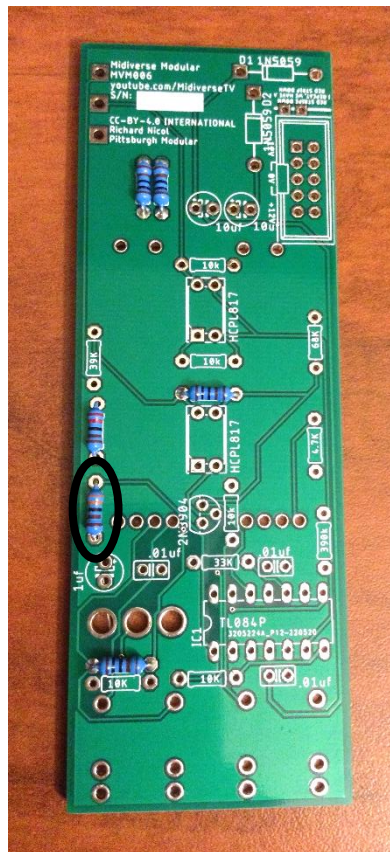
Start by populating and soldering the resistors. First, the four 1K resistors.



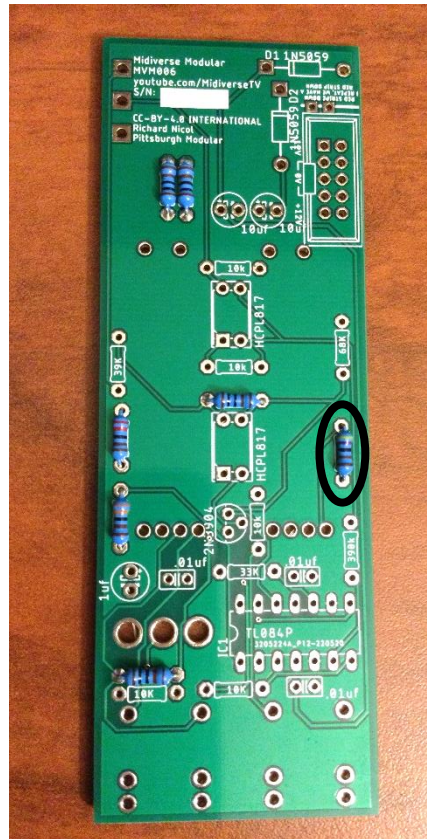
Next, the 2.2K resistor.



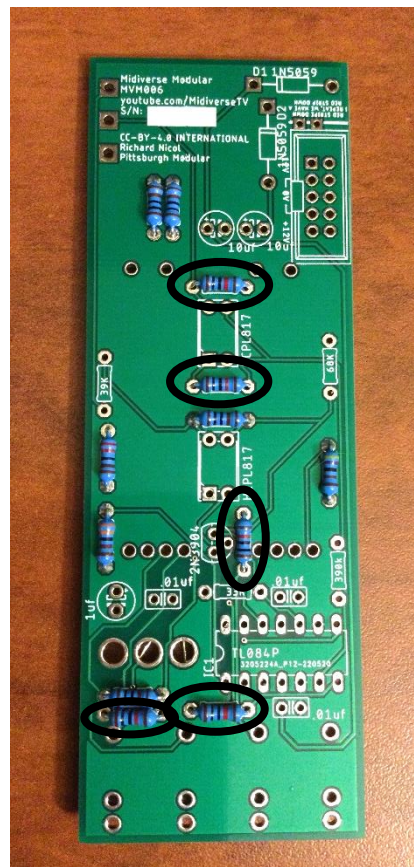
3.3K resistor



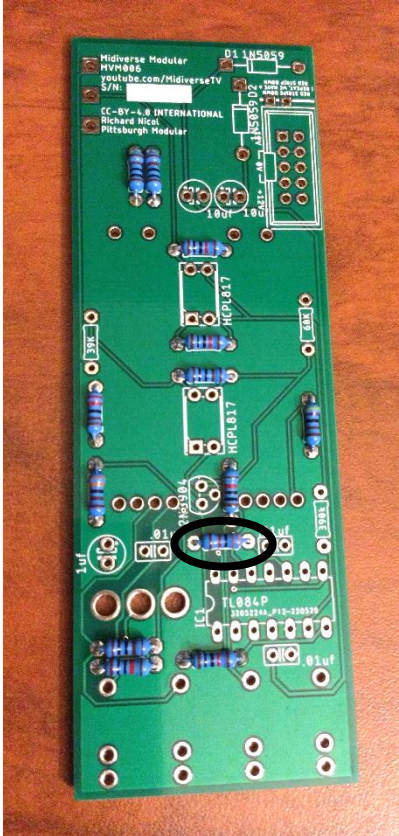
4.7K resistor



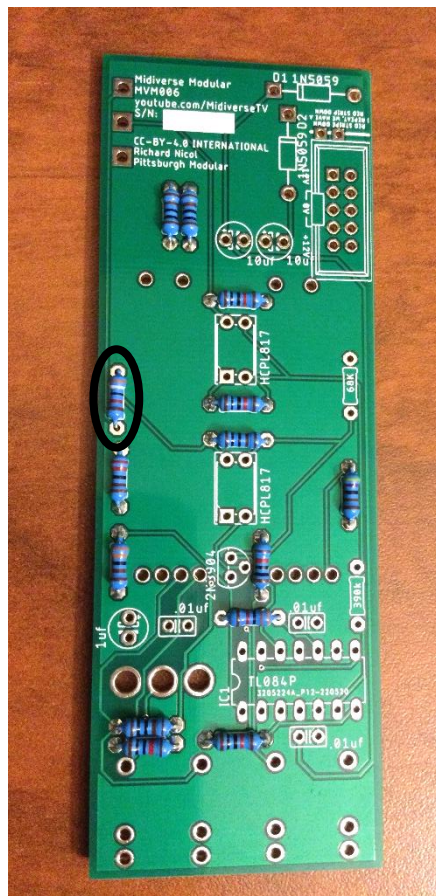
Five 10K resistors



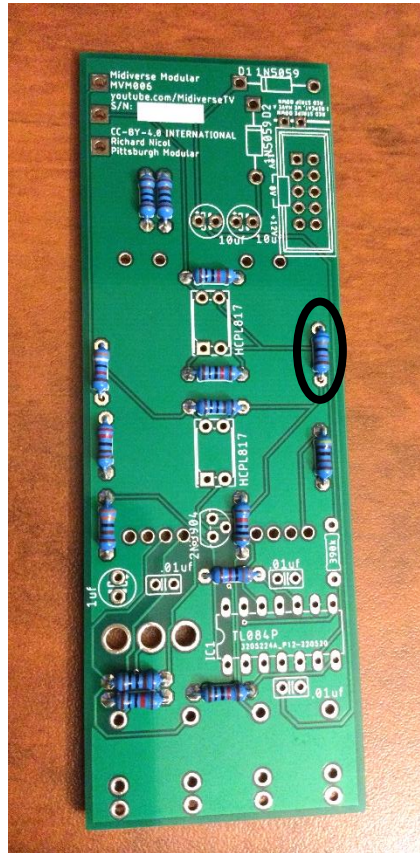
33K resistor



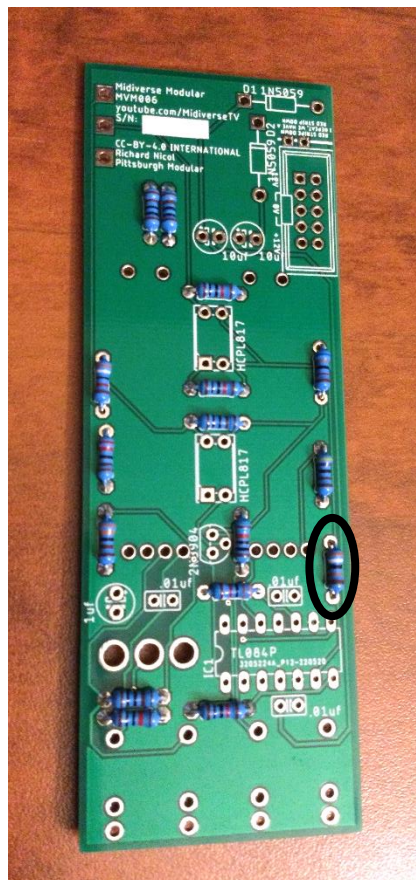
39K resistor



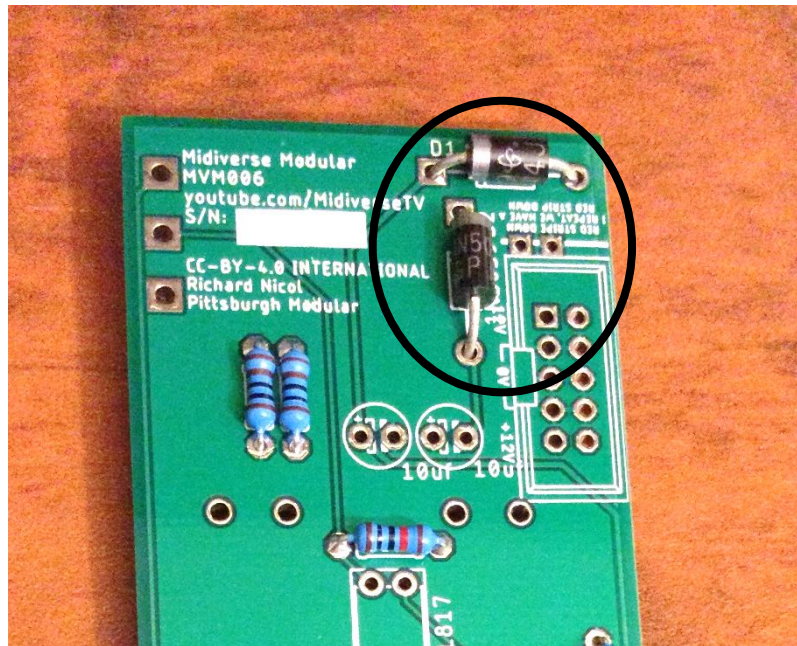
68K resistor



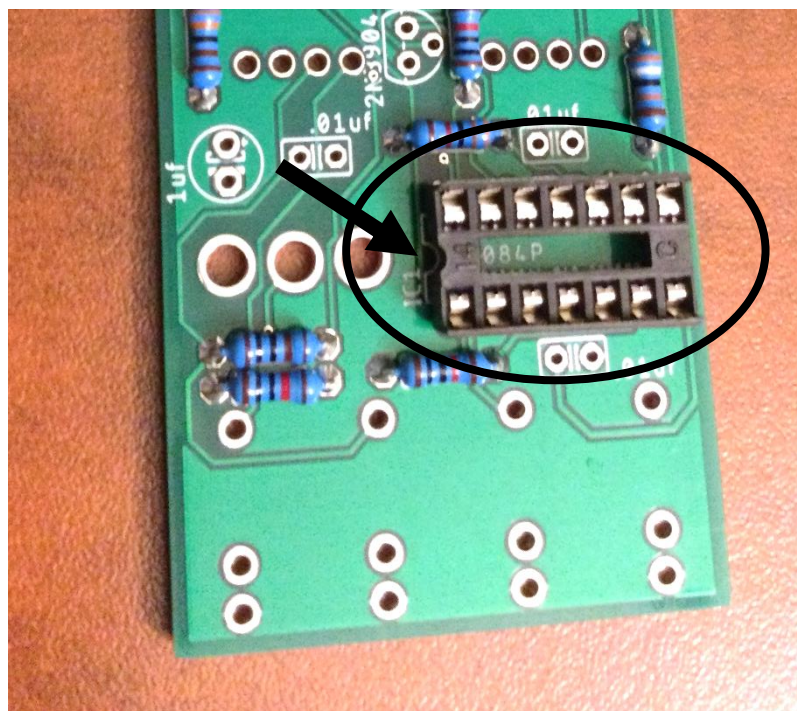
390K resistor



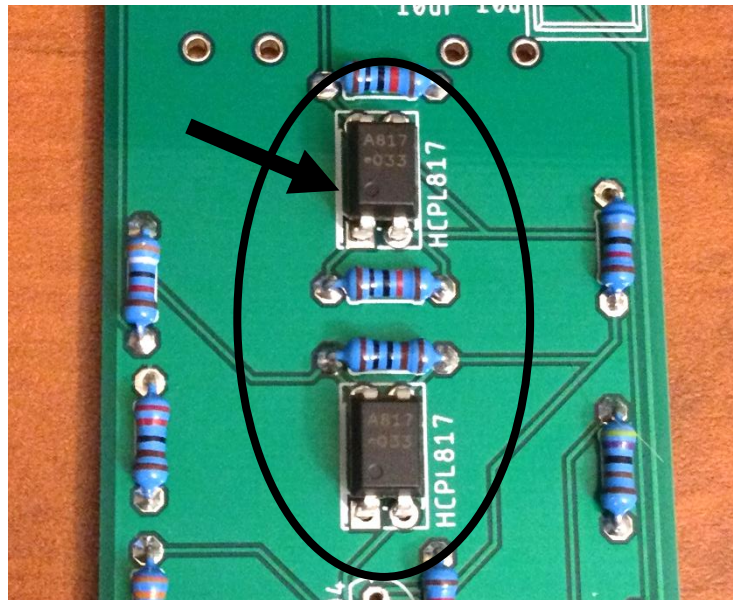
Next, populate and solder the two 1N5059 diodes. Be sure to pay attention to the orientation. The gray line on the diode should align with the white line on the PCB.



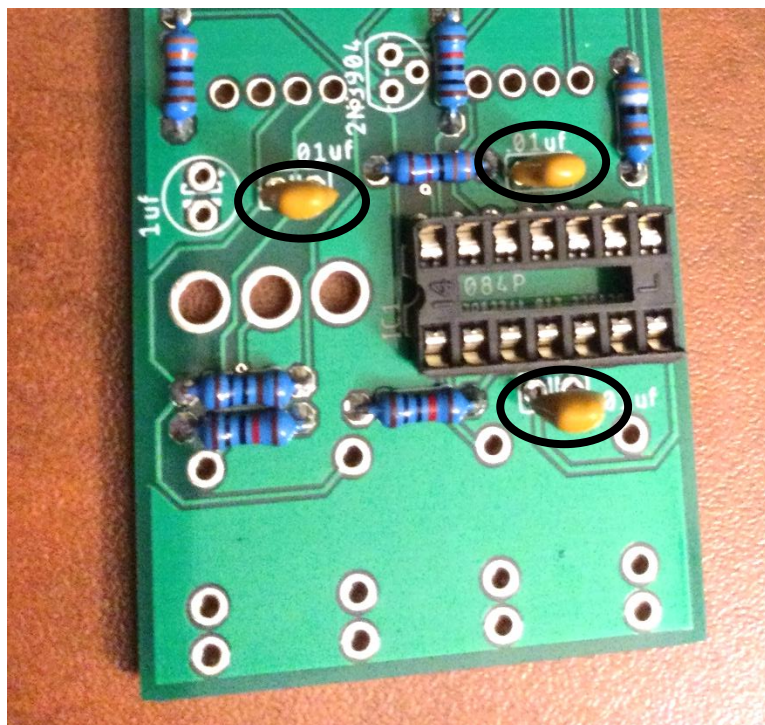
Next, populate and solder the 14-pin socket. Notice the orientation of the socket. The notch on the socket should align with the notch shown on the PCB. The notch is towards the left in the photo.



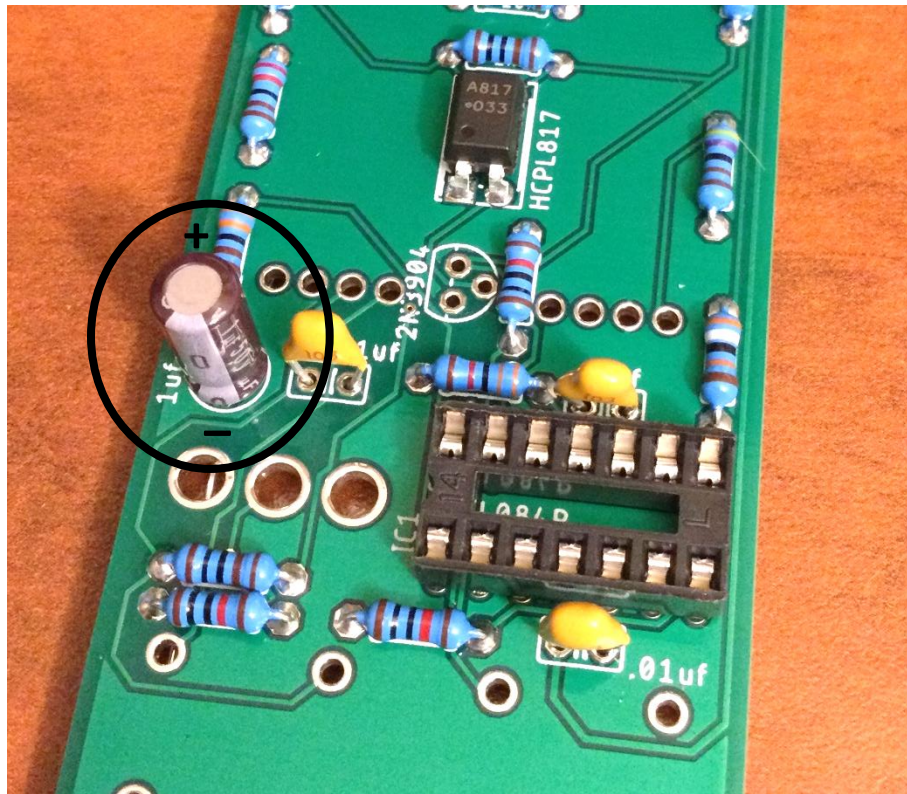
Next, populate and solder the two HCPL-817 integrated circuits (IC). Orientation matters, the circle on the IC should align with the square pad (see arrow). Make sure the ICs stay flush with the board while soldering. Be careful not to overheat the ICs.



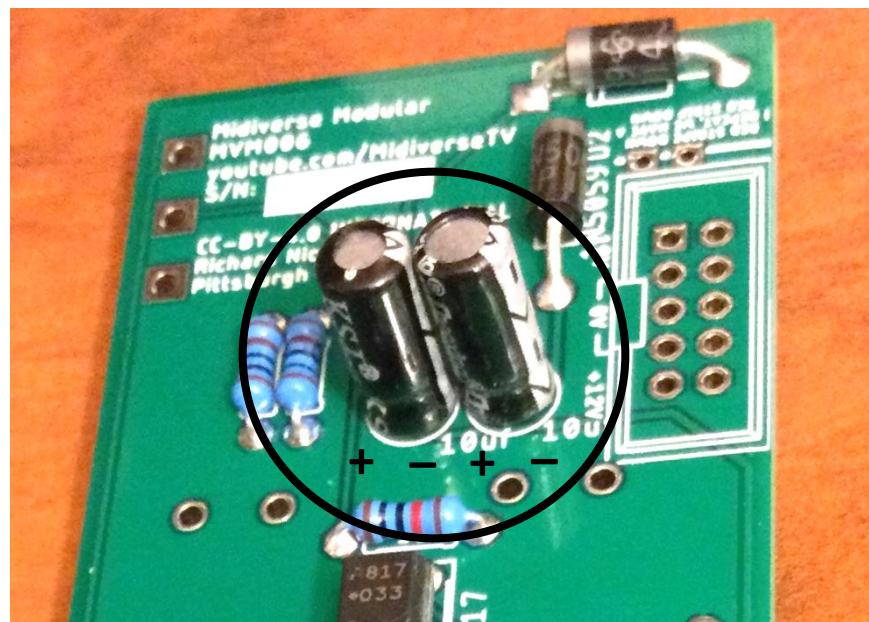
Then, populate and solder the capacitors. Start with the three 0.01uf ceramic capacitors. These do not fit flush to the board, just bend the legs in and get them close.



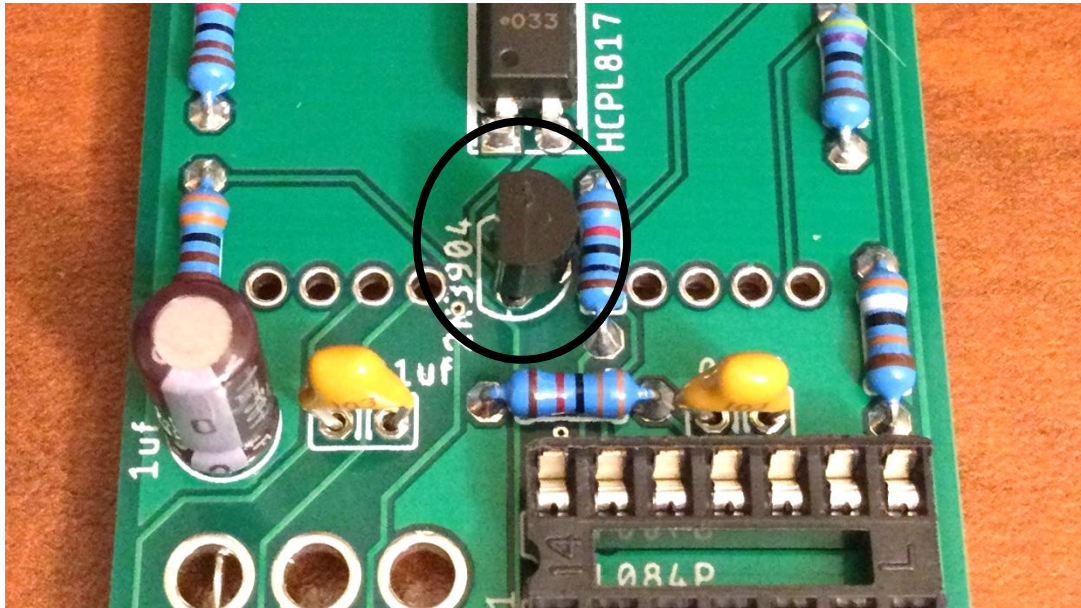
Next, the 1uf electrolytic capacitor. Be sure to pay attention to the orientation. The long leg of the capacitor should go through the pad with the + sign. Make sure that the negative stripe on the capacitor aligns with the picture below.



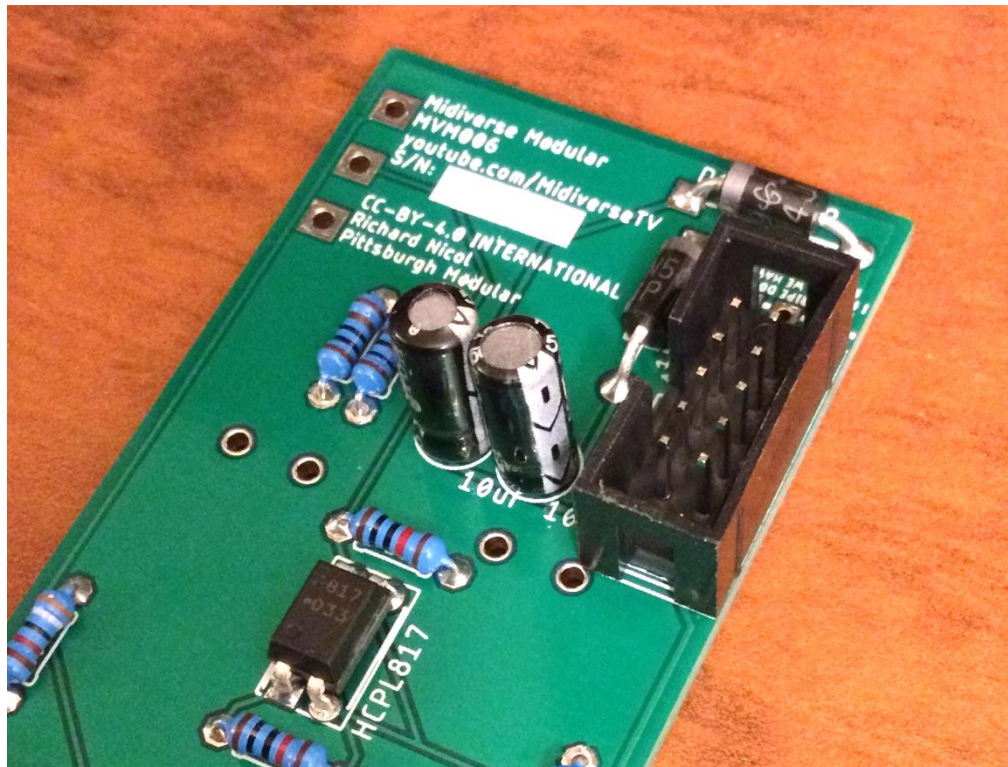
Now, the two 10uf electrolytic capacitors. Again, be sure to pay attention to the orientation. The long leg of the capacitor should go through the pad with the + sign (opposite the power connector). Make sure that the negative stripe on the capacitors align with the picture below.



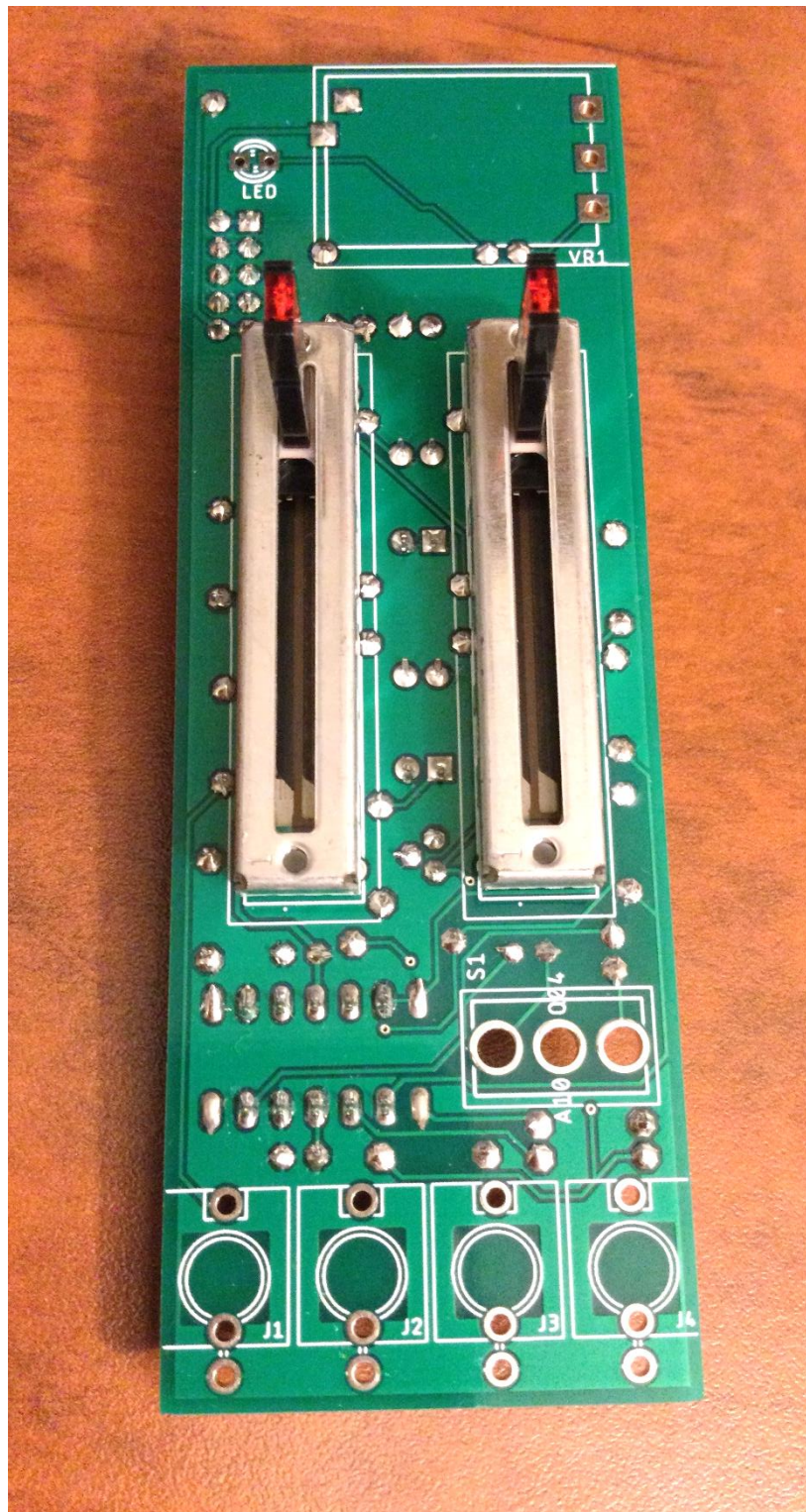
Next, populate and solder the 2N3904 transistor. Be sure to pay attention to the orientation. The shape of the transistor should align with the shape on the PCB. The flat side of the transistor is towards the left in the photo.



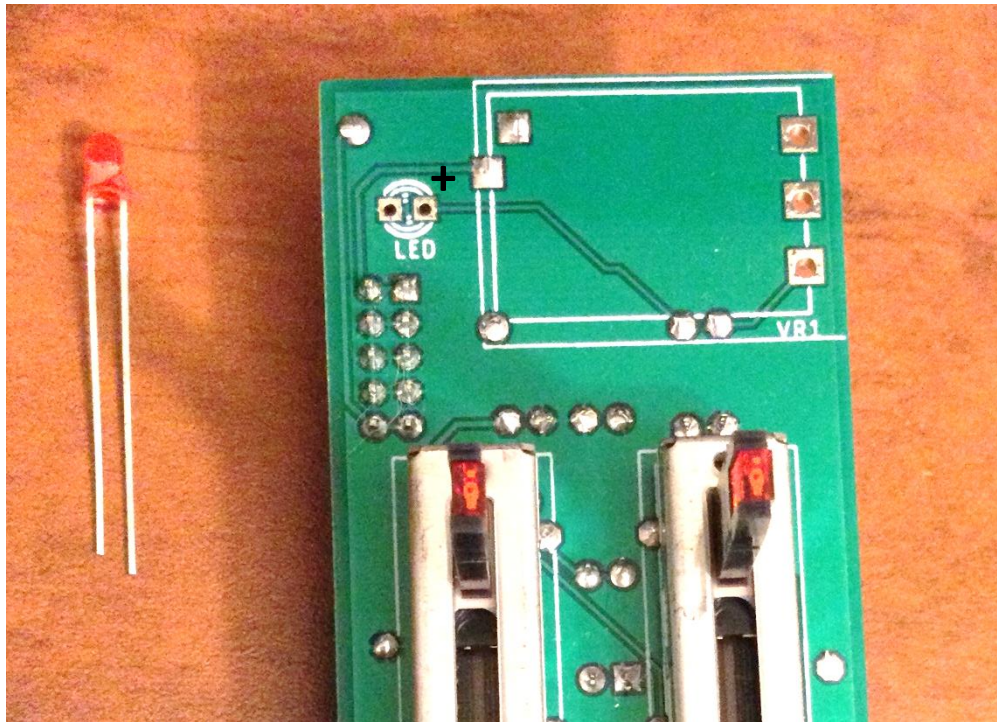
Next, solder in the 2 x 5 power connector. Be sure to pay attention to the orientation. The notch should be oriented away from the edge of the PCB, as shown in the picture below. **At this point, reflow all the solder joints and make sure that all connections are good.**



Next, populate the two sliders and solder ONLY a single leg. Be sure that the sliders are flush with the PCB.



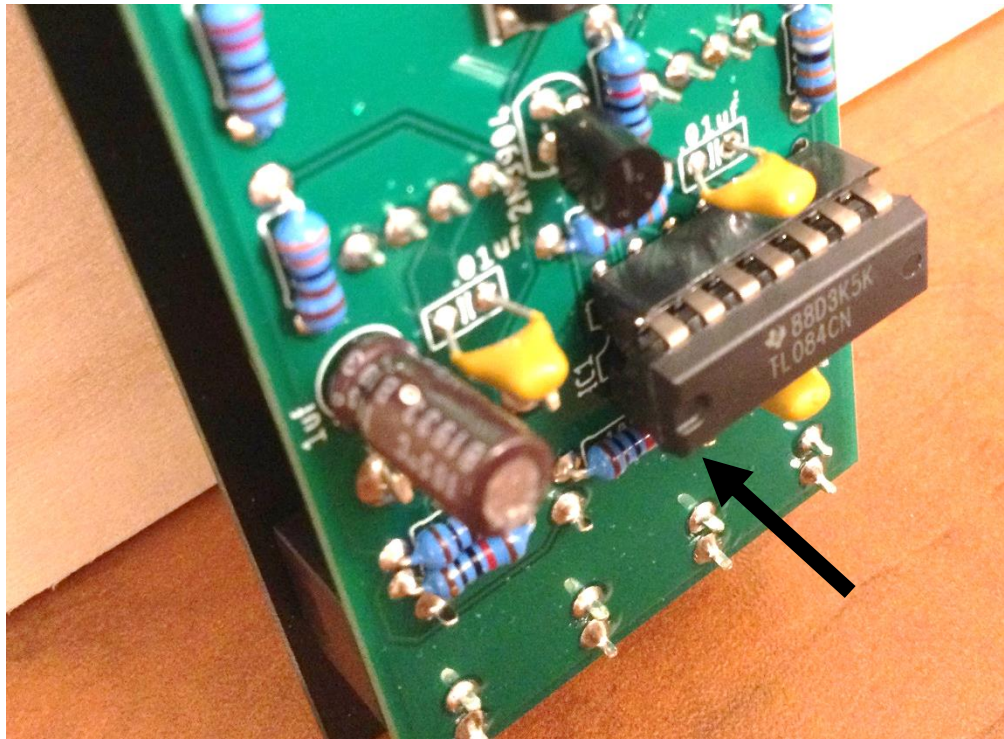
Then, populate the potentiometer, the jacks, switch, and LED, but **DO NOT** solder yet. The orientation of the LED matters. See the photo below, the long leg (+) should be oriented on the right.



Before soldering the components, be sure to attach the front panel by hand tightening the nuts. This step is very important as it is difficult to align these components with the holes if the front panel is not attached. Push the LED through the hole in the panel and bend the legs to secure the position. Once the panel is attached, flip the module over and solder the components in place, including the remaining legs of the sliders. The LED pads are very close to the power connector. Be careful when soldering, don't touch the tip of the iron to the connector and melt the plastic! This applies to one of the slider legs, too.



Next, populate the TL084 IC into the 14-pin socket. Orientation of the IC matters. Be sure to align the notch on the IC with the notch on the socket. See the photo below, the notch is towards the left.



Tighten down the nuts on the jacks, switch, and potentiometer on the front panel. Finally, put the white knob on the potentiometer, and the white caps on the switch and sliders. You can use the ridge of the potentiometer and the screw on the knob to assist with the alignment of the knob. You're finished!

