

reSEMble RingFolder v1.2 – Assembly Guide

This module is also used in the RingFolder Eurorack module. **YOU DO NOT NEED TO AND SHOULD NOT INSTALL THE PARTS** that are specific to the RingFolder module. These parts are not included in the BOM. These are the parts marked on the PCB that are not required:

J1-6

The module is designed and sized for **Eurorack** systems. You will need a 16-10 pin eurorack power ribbon connector with -12/0/+12 which is connected to a synth power supply.

Follow the parts lists, these instructions and the PCB silkscreen text to build the module.

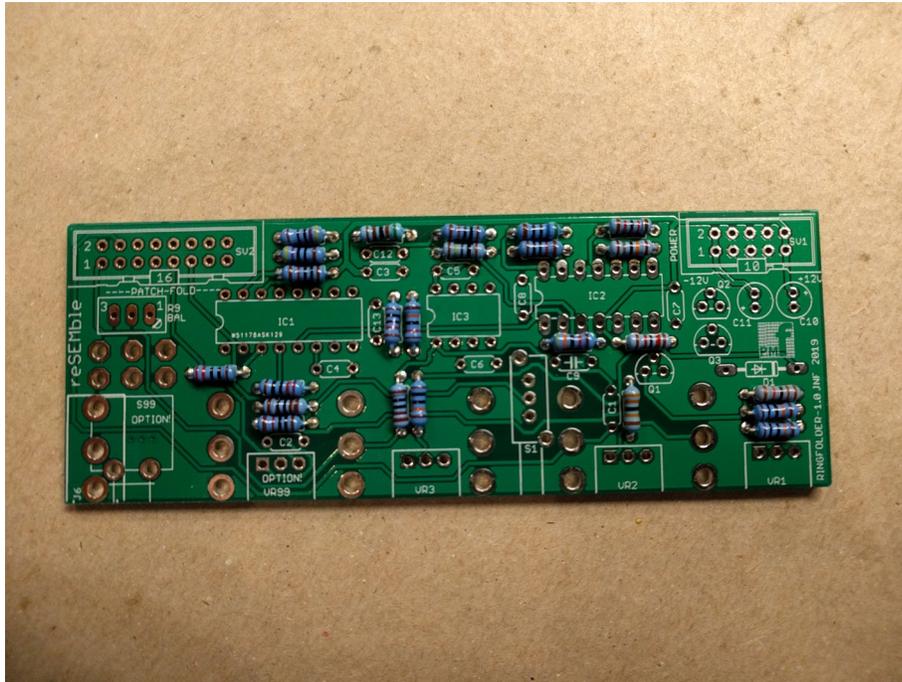
The module consists of 1 PCB board.

You must follow the order of assembly as described below since some components will be soldered underneath other components.

Constructing the board

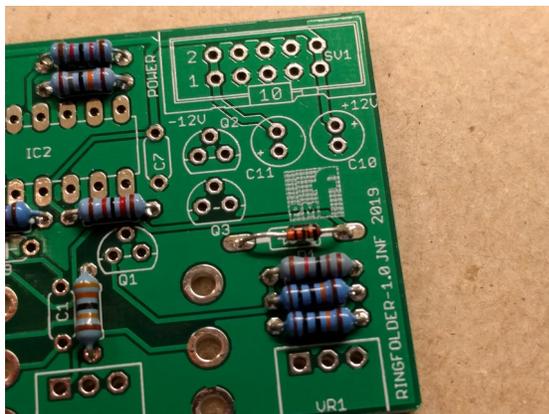
Resistors

Install the flat resistors on the TOP of the board. Solder and clip the leads.



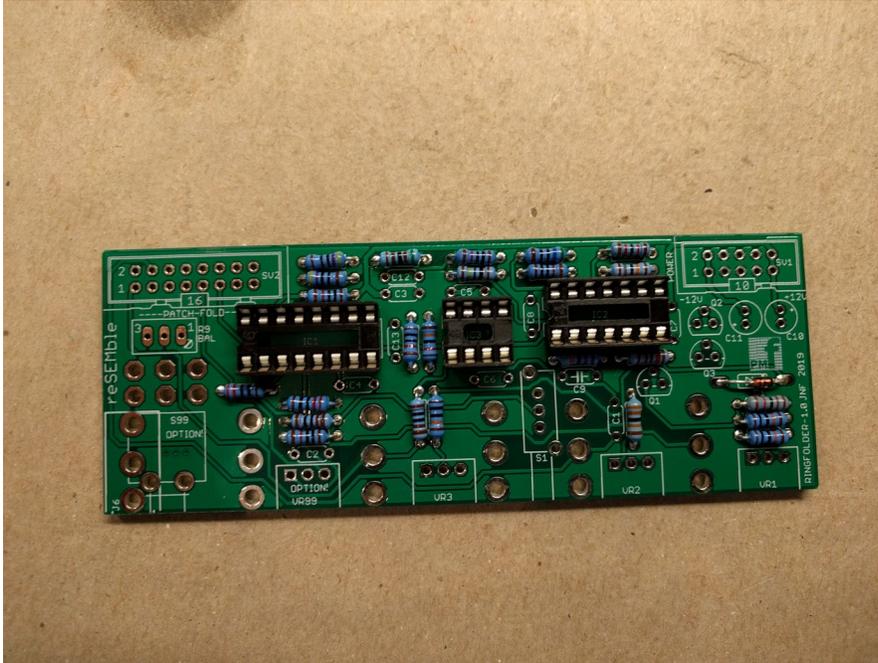
Diodes

Install the diodes on the TOP of the board. Align the stripe on each diode with the stripe marked on the board. Solder and clip the leads. Now go back and check the polarity against the silk screen for each diode.



IC Sockets

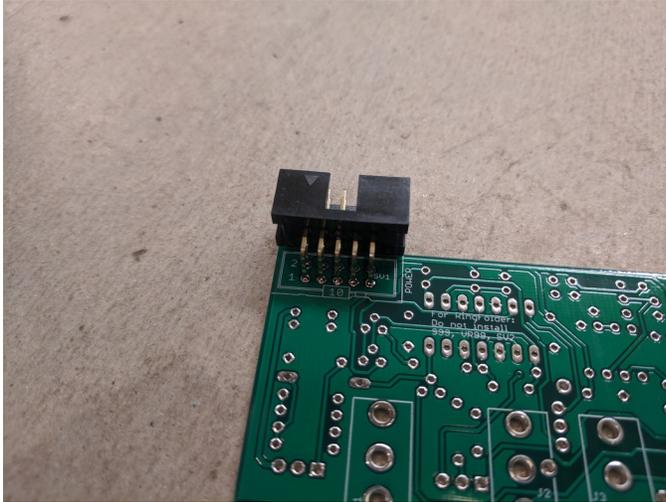
Install the sockets on the TOP of the board. Observe the notch or mark on the sockets and align with the notch or mark on the board. Solder.



Power socket

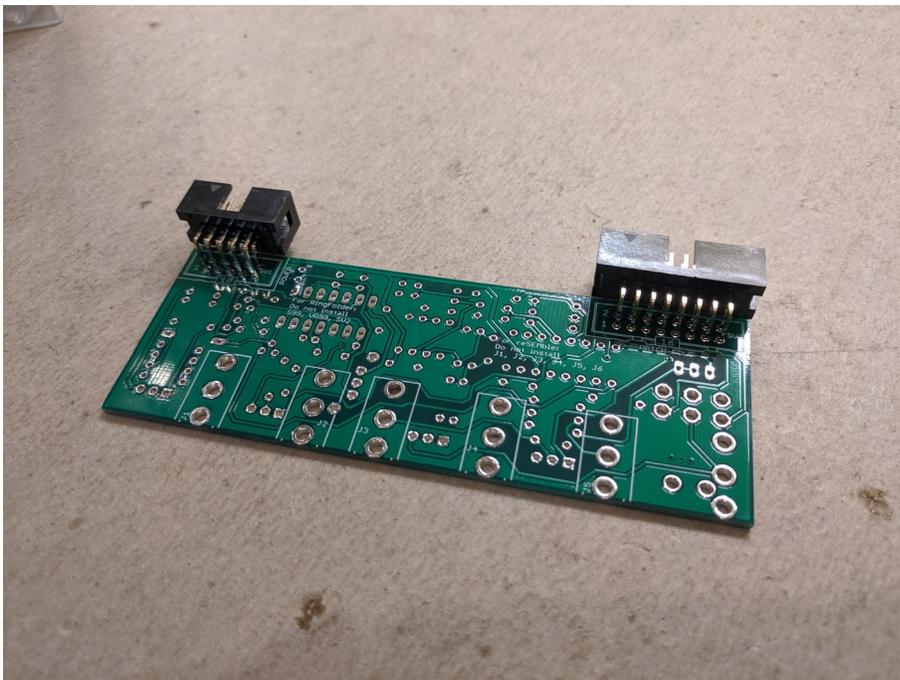
Install the 10 pin power socket on the BOTTOM of the board. **This must be installed with the correct orientation or the module will be damaged when the power is connected.**

The cut-out in the socket should face away from the PCB surface and the pins should face the back as shown in the photo.



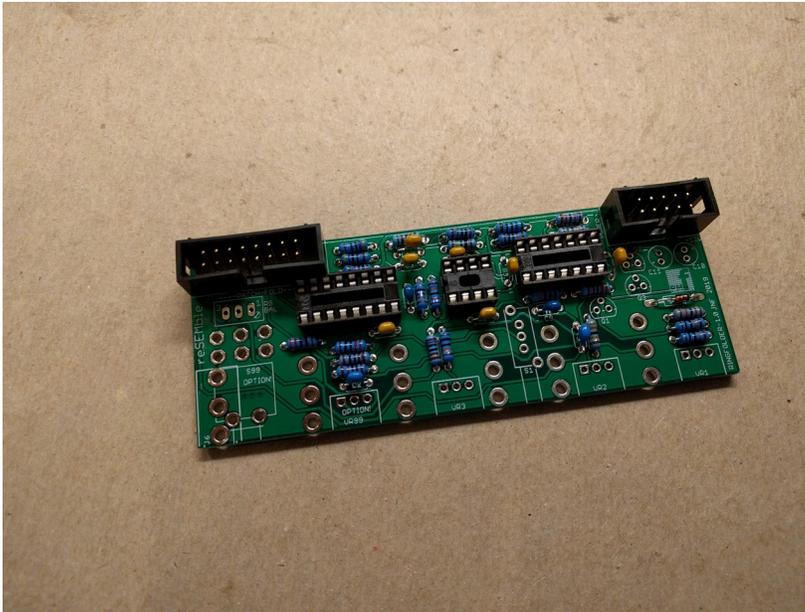
Patch socket

Install the 16 pin patch socket on the **BOTTOM** of the board. The cut-out in the socket should face away from the PCB surface and the pins should face the back as shown in the photo..



Ceramic/film capacitors

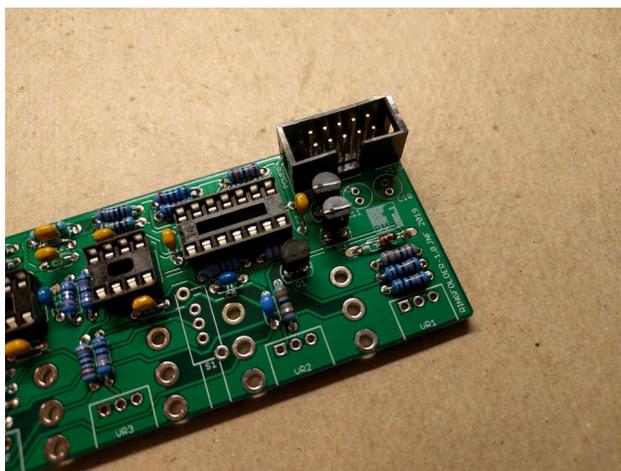
Install the ceramic/film capacitors on the TOP of the board. Solder and clip the



leads.

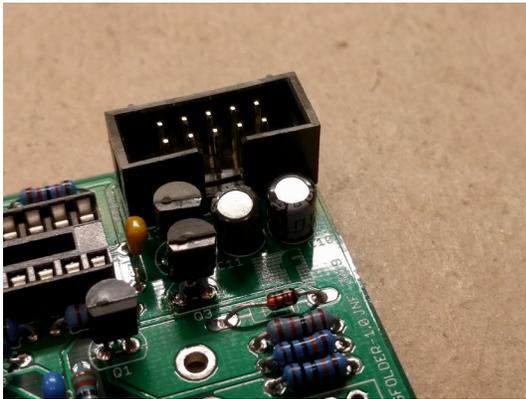
Bipolar Transistors

Install the transistors on the TOP of the board. Do not mix up the NPNs with the PNPs. These are polarized components. Align the outline with the outline on the board. They should be raised off the board surface slightly and at the same height. Solder and clip the leads.



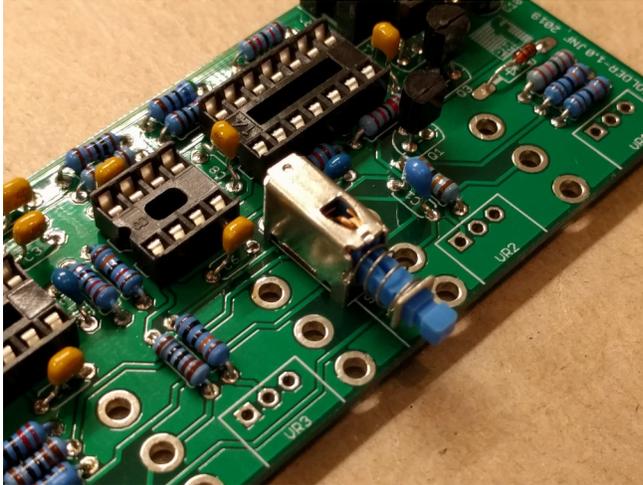
Electrolytic capacitors

Install these on the TOP. Make sure you orient these capacitors correctly. The longer lead and/or the lead marked with a + needs to be inserted into the hole that has the "+" marking near it. Leads marked with "-" go in the board hole WITHOUT the "+". Solder and clip the leads.



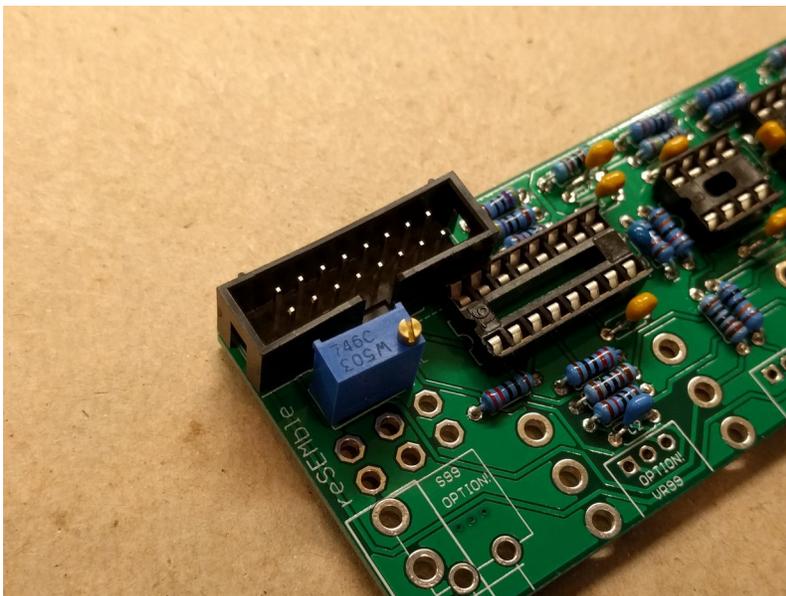
Push Switch

Insert the switch on the TOP so that the plunger faces the front of the PCB. Tack one pin of the switch, then solder all the remaining pins and the locating lugs. The switch is on the TOP. Do not bridge the contacts to nearby components. Finally trim the leg that is next to the center pad of the nearby kack location so that it is flush with the board.



Trimmer resistor

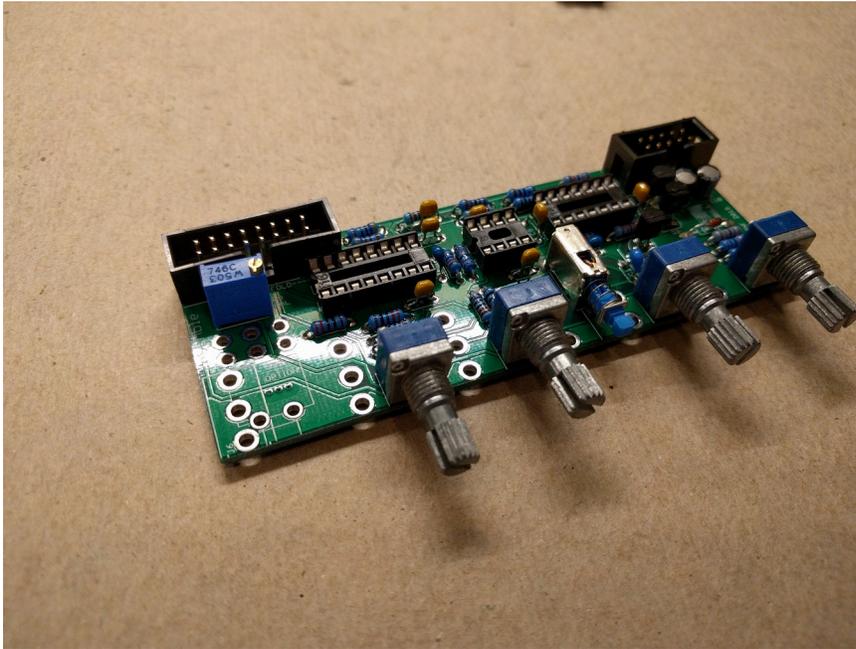
Now populate the trimmer on the PCB. This should be a horizontal adjust trimmer so that it can be adjusted when the board is installed. Make sure it is oriented so that the screw points away from the enter of the board. (new photo required)



Potentiometers

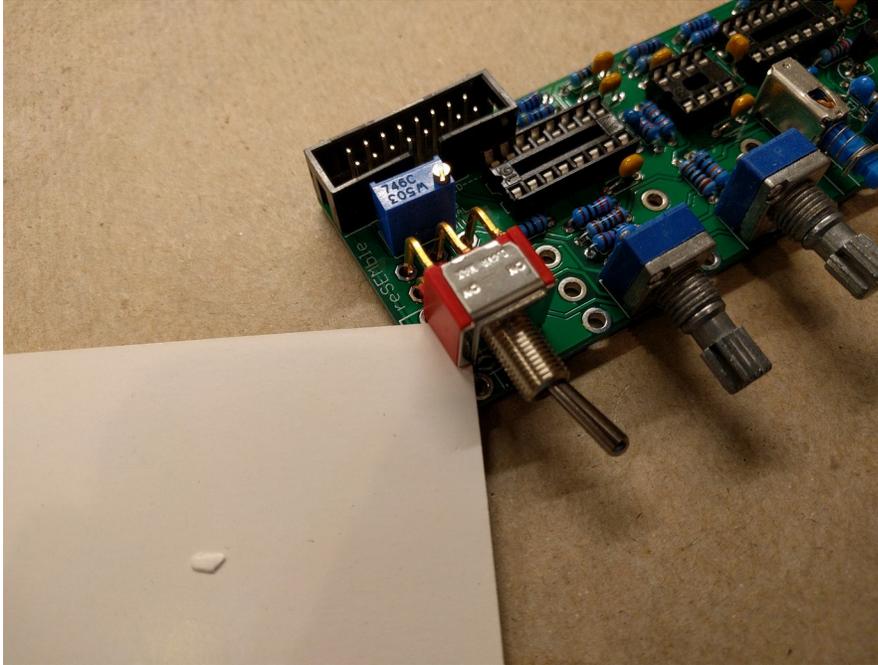
If the pots have positioning lugs on the front, cut these off with a sharp pair of flush cutting pliers. The front of the pot (where the shaft protrudes) needs to be flat.

Carefully align the pots so they are flush with the edge of the board and perfectly upright and tight to the board surface. Please ensure they are on the CORRECT SIDE OF THE BOARD before soldering otherwise PCB tracks and pads may be damaged if they are desoldered. See Photo.



Toggle Switch

Insert the switch on the TOP so that the toggle faces the front of the PCB. Before soldering insert a thin temporary spacer such as a business card to keep the metal switch body from contacting pads underneath it. The switch is on the TOP. Do not bridge the contacts to nearby components.



Do not install the ICs until the voltage tests are complete.

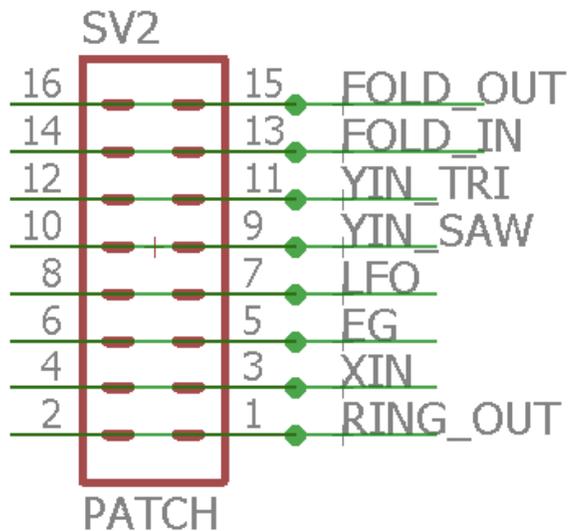
If you do not trust all your soldering and connections, carry out the voltage tests below before installing the ICs

Voltage tests

1. You do not have to do these tests if you are completely happy with your soldering and are sure there are no bridges or incorrectly placed components. However, these tests will ensure that the correct power supplies are sent to the IC pins to ensure they will not be damaged on power up.
2. Plug in the power supply and connect the -VE probe of a multimeter (set to the 20V DC range) to one of the GROUND pins of the jacks. The GROUND pin is nearest to the edge of the board.
3. Check the voltage at the following points on the board:
 - a. At IC1 pin 6 approx = -12V
 - b. At IC1 pin 11, 15 approx = +12V
 - c. At IC1 pin 3, 14 = 0V
 - d. At IC2 pin 4 approx = +12V
 - e. At IC2 pin 11 approx = -12V
 - f. At IC2 pin 3, 5, 10, 12 = 0V

- g. At IC3 pin 8 approx = +12V
 - h. At IC3 pin 4 approx = -12V
 - i. At IC3 pin 5 = 0V
4. If any of these tests fail to match the readings given, you should check the components and soldering before progressing and/or check with us for further analysis.

Patch connector map



Calibrating the Ring Modulator

1. Double check again that you have installed the power socket the correct way around.
2. Connect the power supply from the synth.
3. Connect the Ring Mod out jack to a mixer or other output device.

4. Supply an approximately 200Hz sine wave into the X IN input.
5. Turn up the mixer until you hear the sine wave.
6. Adjust the Balance trimmer left and right until the signal volume is minimized. There should be very minimal feedthrough when there is no signal on Y IN.