Parasite V1.2

BUILD GUIDE

www.beast-tek.com

Parasite IO Board BOM			
R2, R4, R5, R6	9mm Round shaft 10KB Potentiometer	104	4
R1, R3	9mm T18 shaft 10KB Potentiometer	104	2
R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18	100K Ohm Resistor 1%	Brown-Black-Black-Orange-Brown	12
C1	100nf Blue Monolithic Capacitor	104	1
SW1, SW2	SPDT Toggle Switch		2
SW3, SW4	1P4T Slider Switch		2
JP1, JP2	9 Way Pin Header Single Row MALE		2
	PJ301BM "Erthenvar" 3.5mm Mono Jack		6

Parasite Main (CPU) Board BOM			
IC2	7805 5v 1A Voltage Regulator	7805	1
IC4	79L05 -5v 0.1A Voltage Regulator	79L05	1
IC3	ATMEGA328P-PU		1
IC1, IC5, IC6	MCP602/MCP6022 High precision op-amp		3
Q1	20mhz Crystal		1
R1	100uH Inductor R.F. Choke		1
C8, C9	22pf Ceramic Capacitor	22	2
D1, D2	IN4004 Power Diode	IN4004	2
RX, TX	3mm Led		2
C1, C4, C5, C6 ,C7, C11, C12, C13	100nf Blue Monolithic Capacitor	104	8
C2, C10	100uf Electrolytic Capacitor	100uf	2
C3	10uf Electrolytic Capacitor	10uf	1
R11, R12	220 Ohm Resistor 1%	Red-Red-Black-Black-Brown	2
R2	10K Ohm Resistor 1%	Brown-Black-Black-Red-Brown	1
R3, R4, R5, R6, R7, R8, R9, R10, R14, R16, R17, R18	100K Ohm Resistor 1%	Brown-Black-Black-Orange-Brown	12
JP1, JP2	9 Way Pin Header Single Row FEMALE		2
RECEIVE, TRANSMIT	3 Way Pin Header Single Row MALE		2
ICSP	ICSP - do not populate		
POWER	Shrouded 10pin (2x5) IDC Header (Eurorack Power)		1

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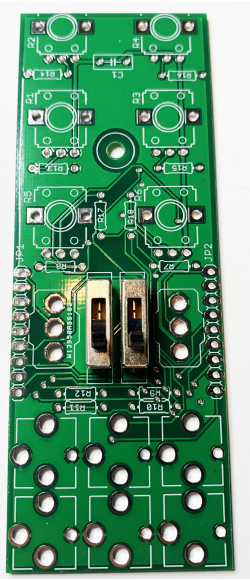
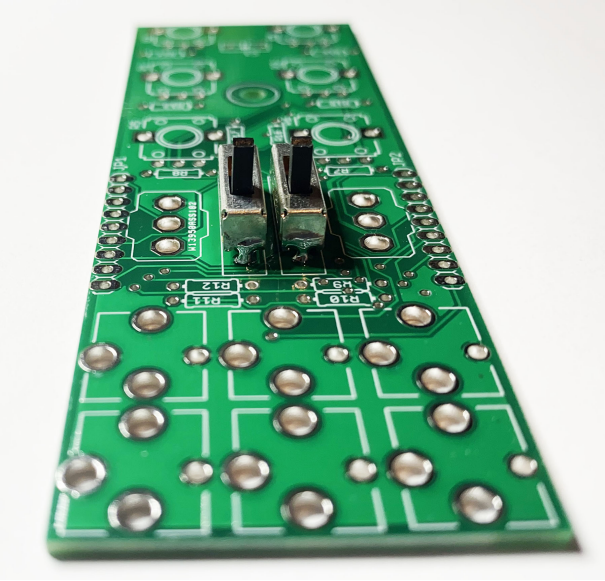
IO Board – Step 1

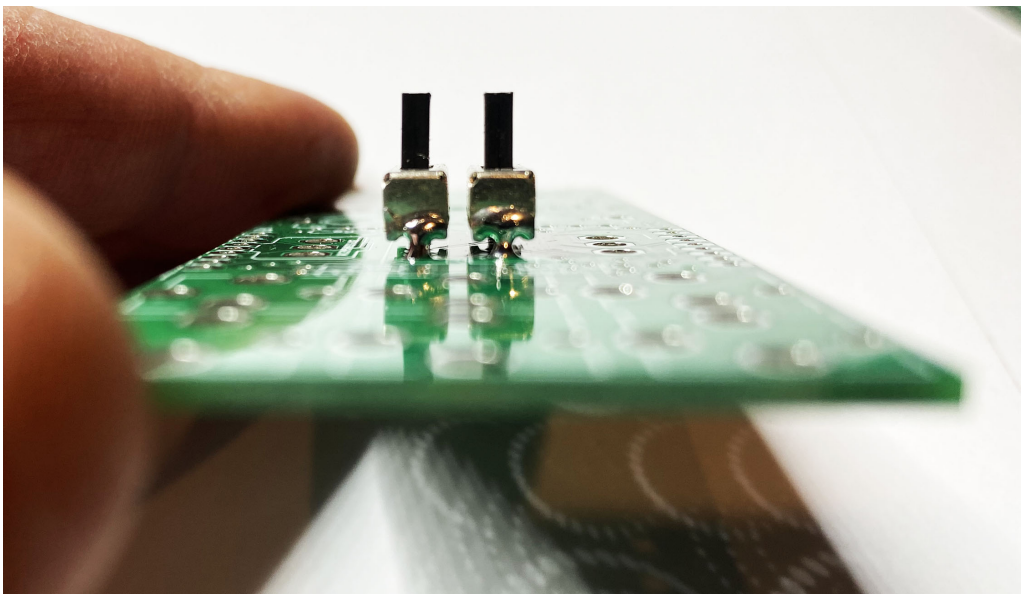
Lay the IO Board PCB down on a nice flat, even surface. Seat the two 1P4T switches so they are sitting above the PCB and the pins are resting on the surface under the PCB (These switches need to be raised slightly from the PCB so they are accessible).

Solder ONLY ONE side pin with the board sitting flat – DO NOT raise the PCB and push the switch down.



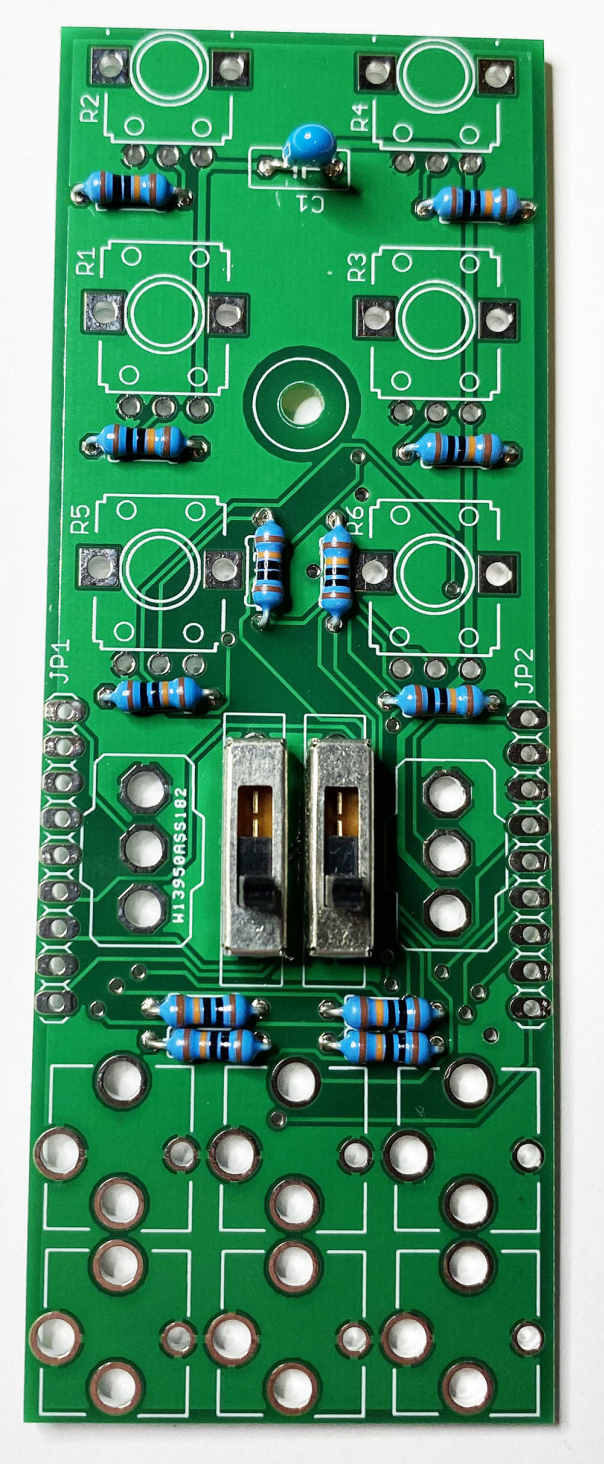


Once the soldered, reheat and adjust the switches so that they are at right angles and will align with panel. DO NOT solder any more pins until right at the end – **just in case you need to adjust them.**



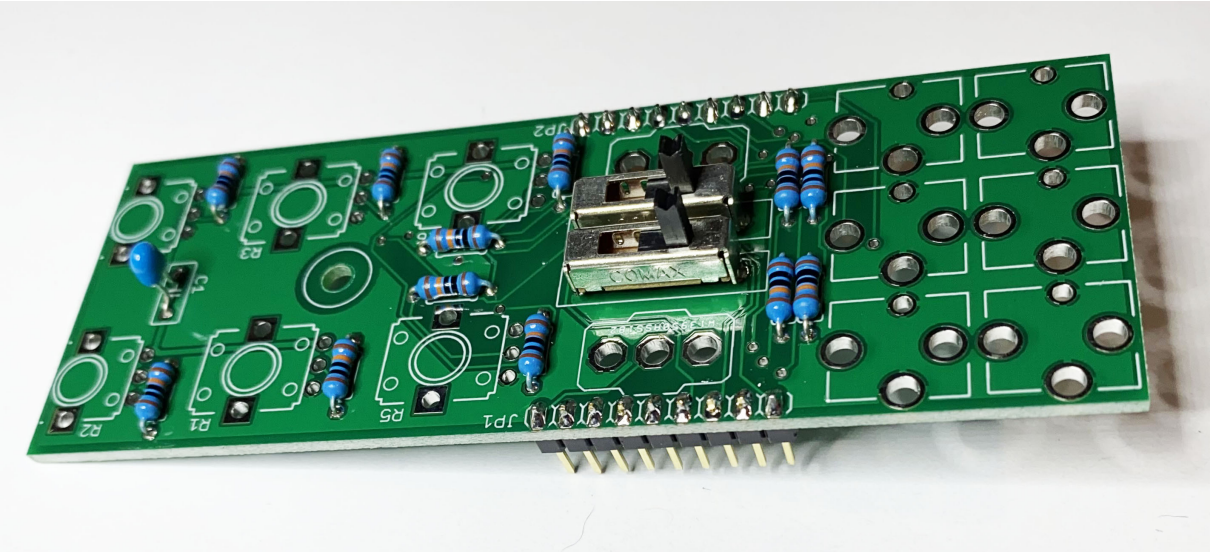
IO Board – Step 2

Install and solder the twelve 100K resistors and the 100nf capacitor C1.



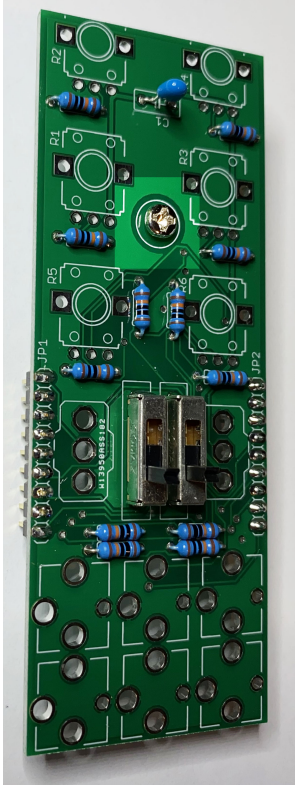
IO Board – Step 3

Cut two pieces of header from the male header pin strip. Install and solder one pin, inspect to make sure they are sitting even and at right angles, then solder the rest of the pins.



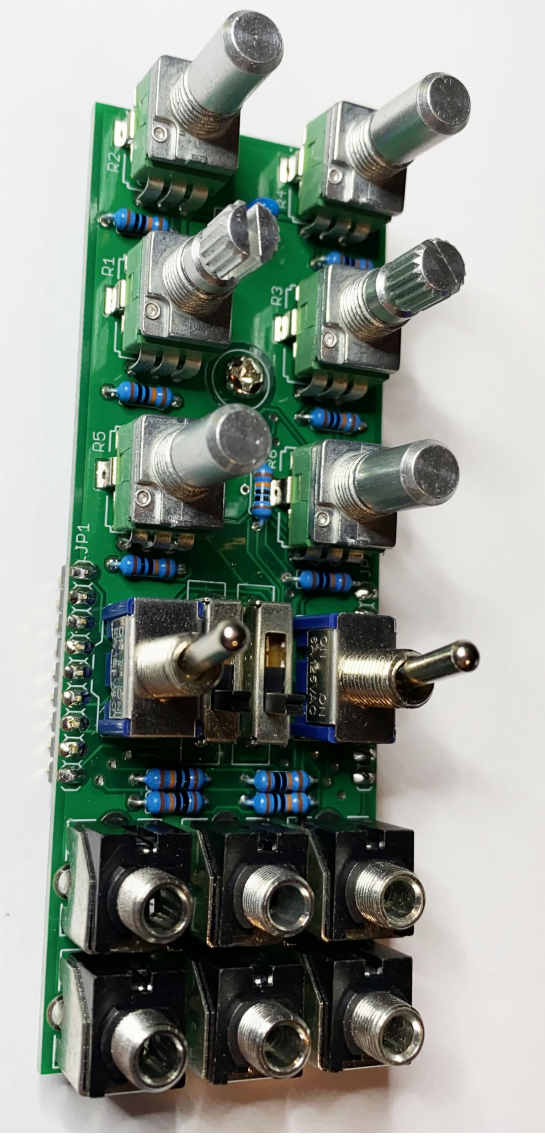
IO Board – Step 4

Install the brass stand-off using a 6mm M3 screw.



IO Board – Step 5

Seat the potentiometers, SPDT switches and jacks carefully on the PCB. Do NOT solder yet.



IO Board – Step 6

Carefully slide the panel over the components. Place the nuts onto the SPDT switches and **finger** tighten.

IO Board – Step 7

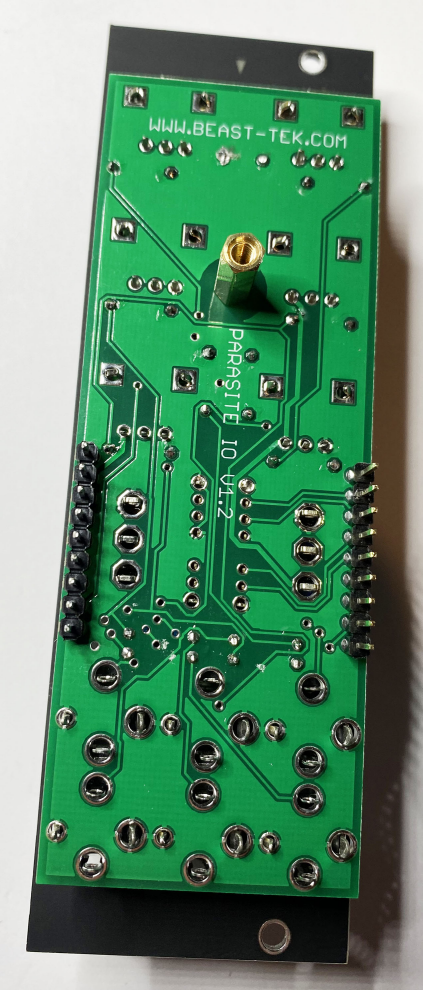
Make sure the 1P4T switches are aligned with the cut out holes on the front panel. If they were not at right angles then you will need to remove the nuts, panel and pots/jacks etc and revisit Step 1.

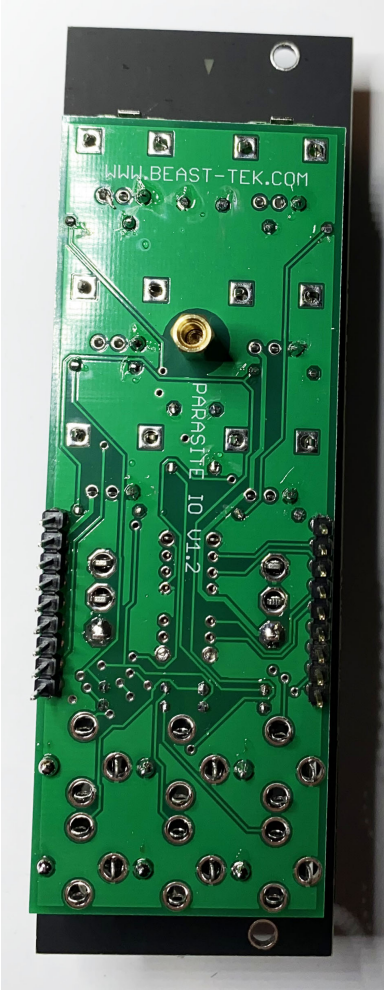
IO Board – Step 8

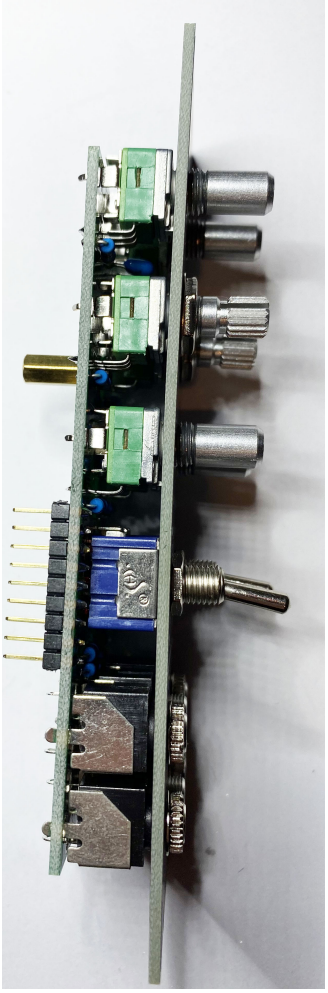
Place four jack nuts on to the outer jacks finger tighten only. Place washers and nuts onto the two T18 potentiometers and again finger tighten only. This should create enough tension so that you can flip the board over without everything falling apart. You may have to add additional nuts on to the pots if this is not the case.

IO Board – Step 9

Flip the module over (gently!) and solder one pin of each jack, pot and switch. Flip the module on its side and make sure everything is sitting flush and neatly. If something is misaligned, you can reheat the single pin and make adjustments as necessary.

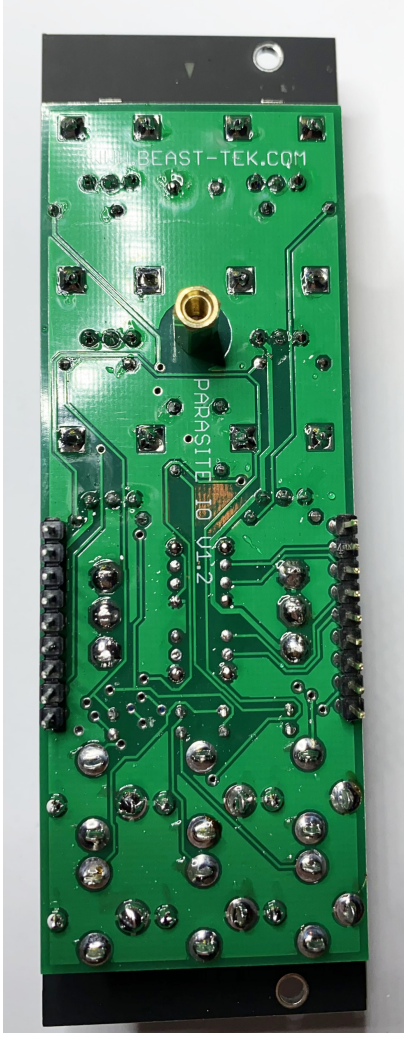


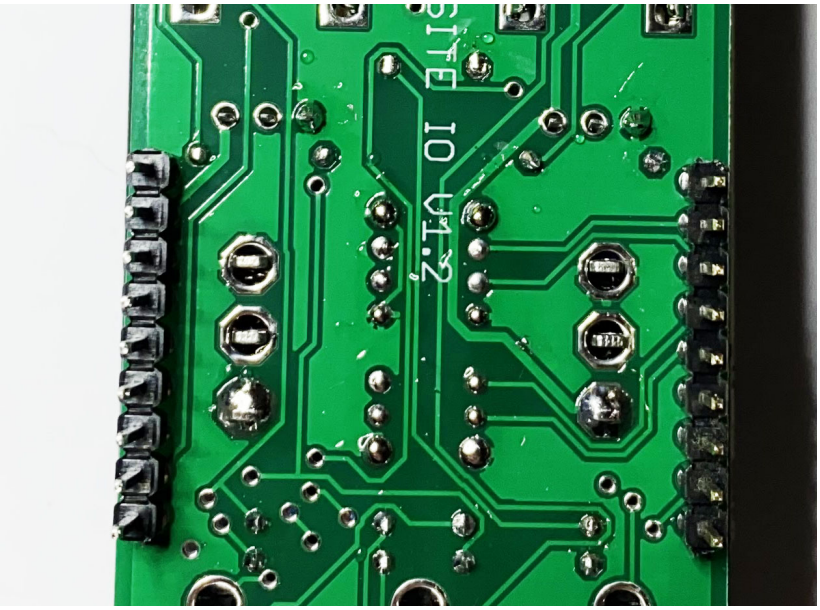




IO Board – Step 10

Now that everything is seated nicely, solder the rest of the pins. Pay close attention to the 1P4T switches – you don't want to solder the single pin holding it in until last – heating that pin will make the switch fall out and you will need to go back to step 1. Slowly and carefully solder the pins of the 1P4T switches – they are sitting flush with the bottom of the PCB so make sure you get a good solid solder joint.



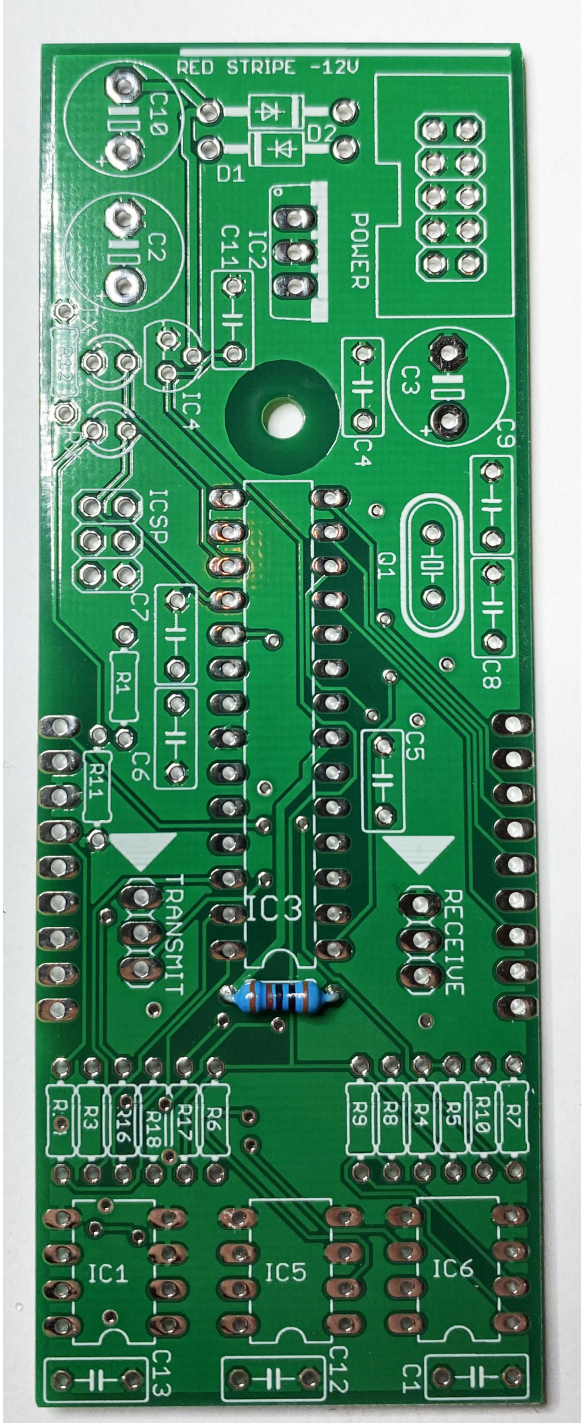


IO Board – Step 11

Once everything is soldered, flip the board back over and tighten all of the nuts past finger tight and then install all of the knobs.

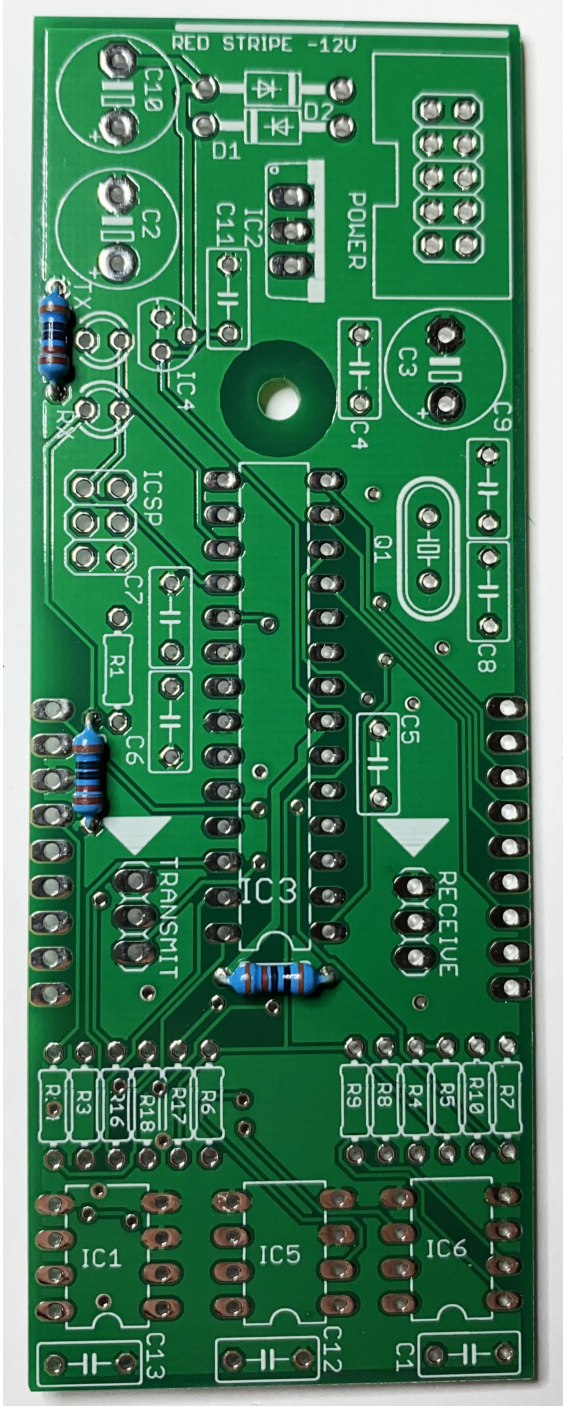
Main Board – Step 1

Install and solder the 10K resistor R2.



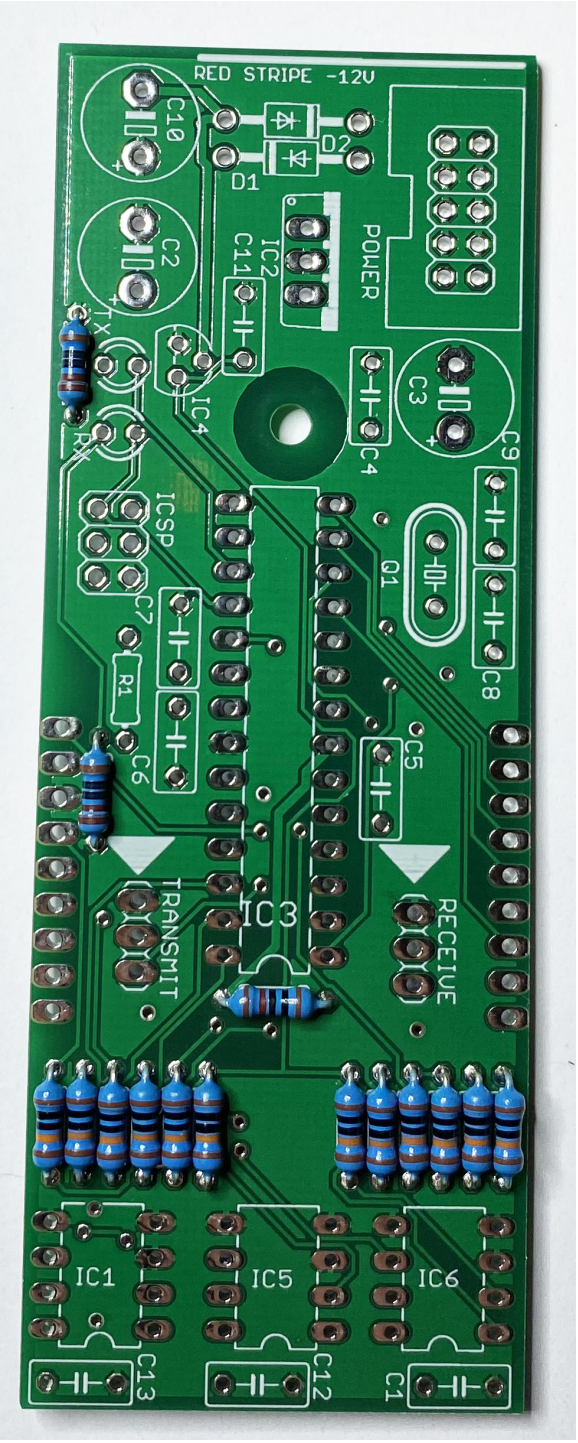
Main Board – Step 2

Install and solder the two 220R resistors R11 and R12.



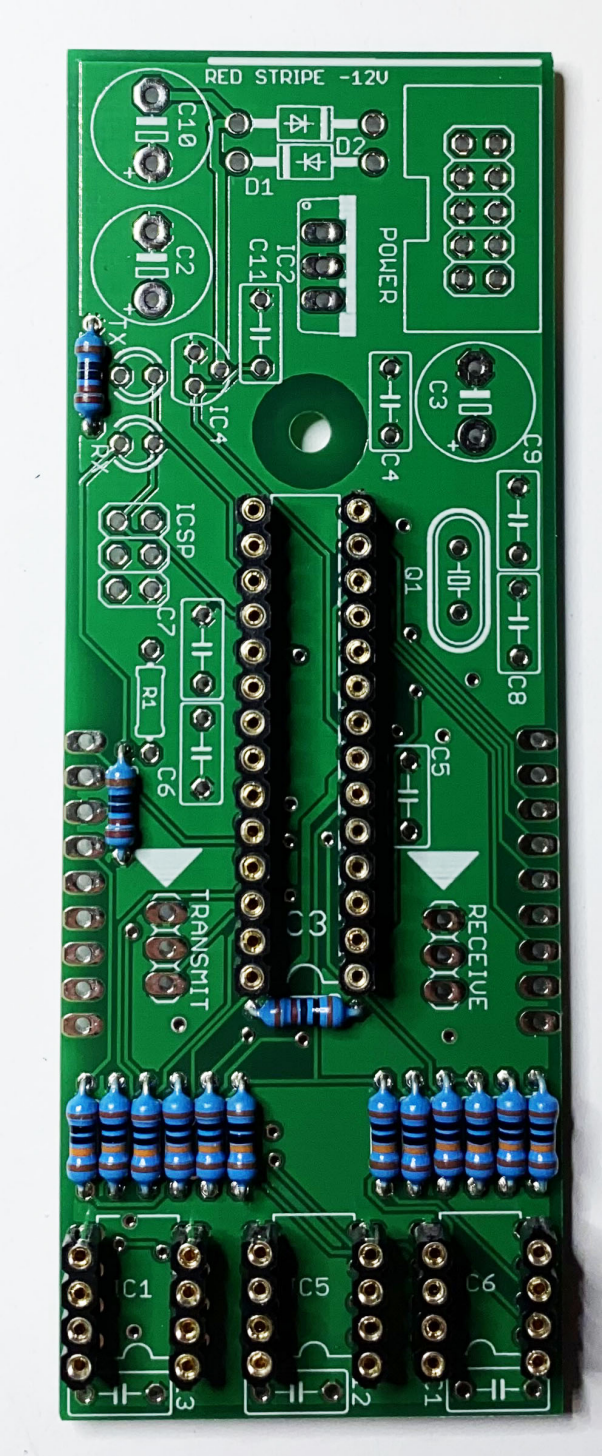
Main Board – Step 3

Install and solder the twelve 100K resistors R3, R4, R5, R6, R7, R8, R9, R10, R14, R16, R17 and R18.



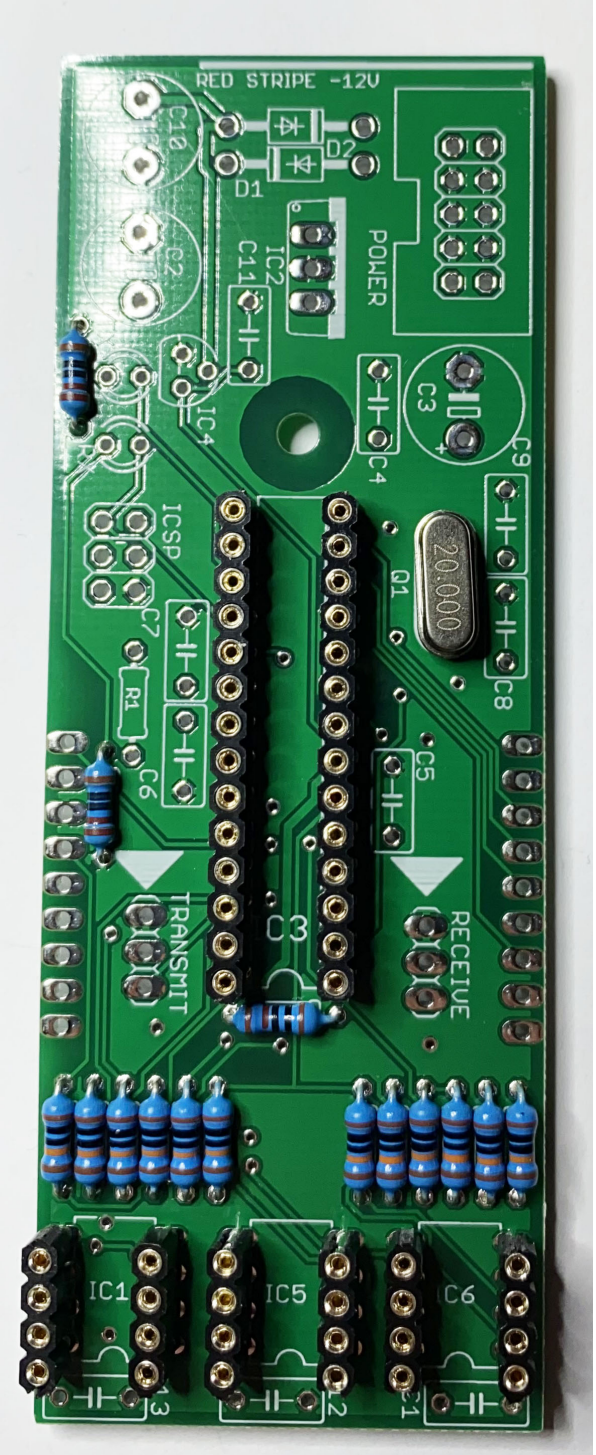
Main Board – Step 4

Cut the IC socket strips to the appropriate sizes. Install and solder them.



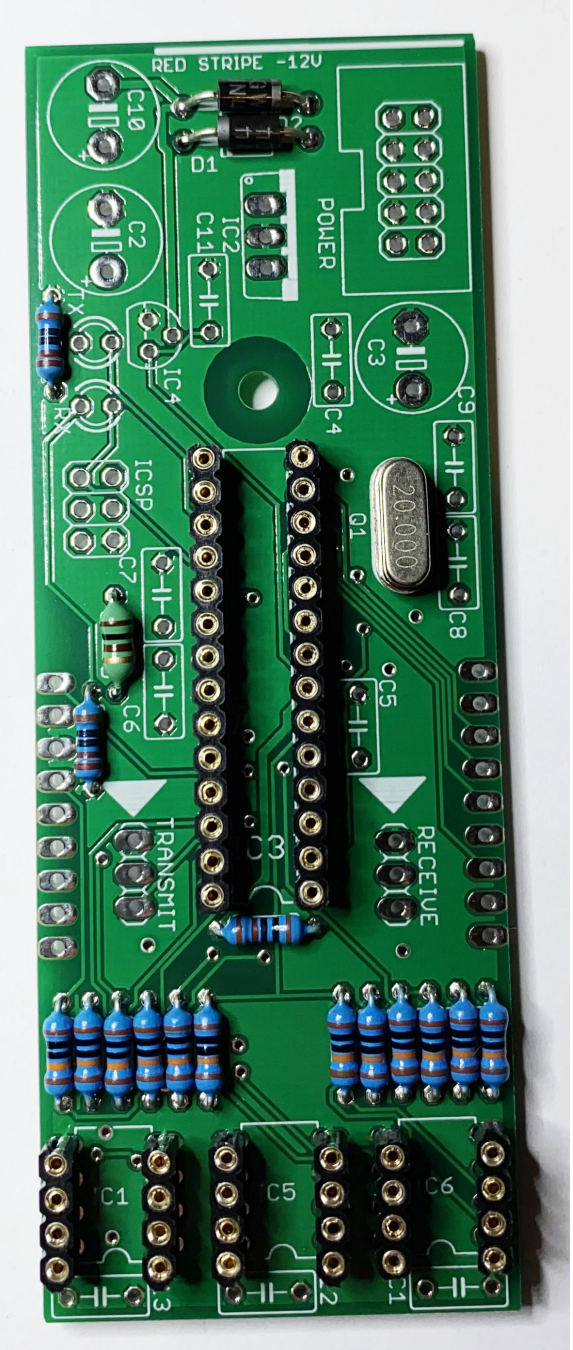
Main Board – Step 5

Install and solder the 20mhz crystal Q1.



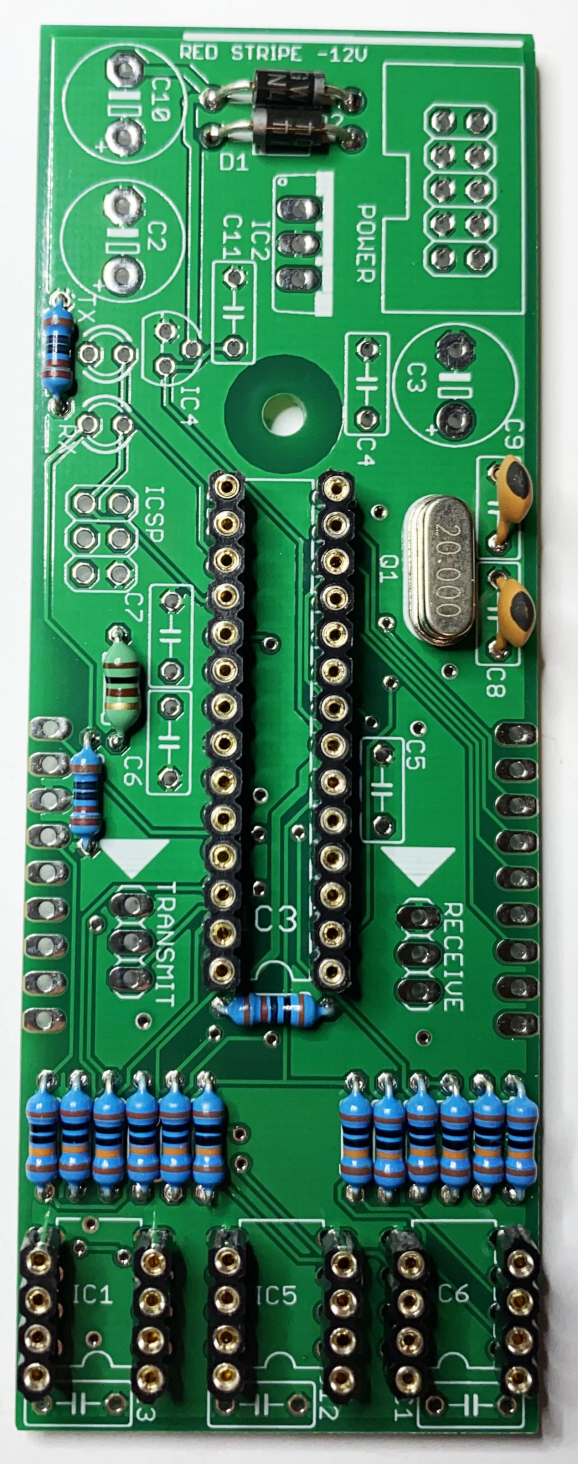
Main Board – Step 6

Install and solder the two 1N4004 power diodes D1 and D2 along with the 100uh inductor R1.



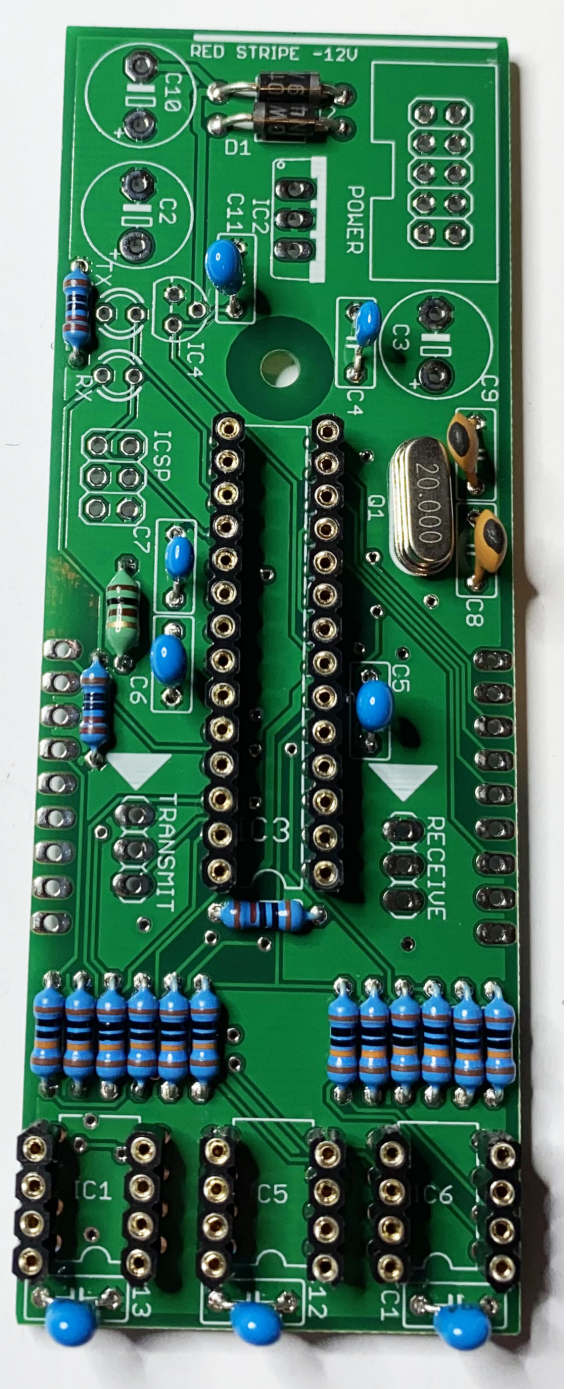
Main Board – Step 7

Install and solder the two 22pf capacitors C8 and C9.



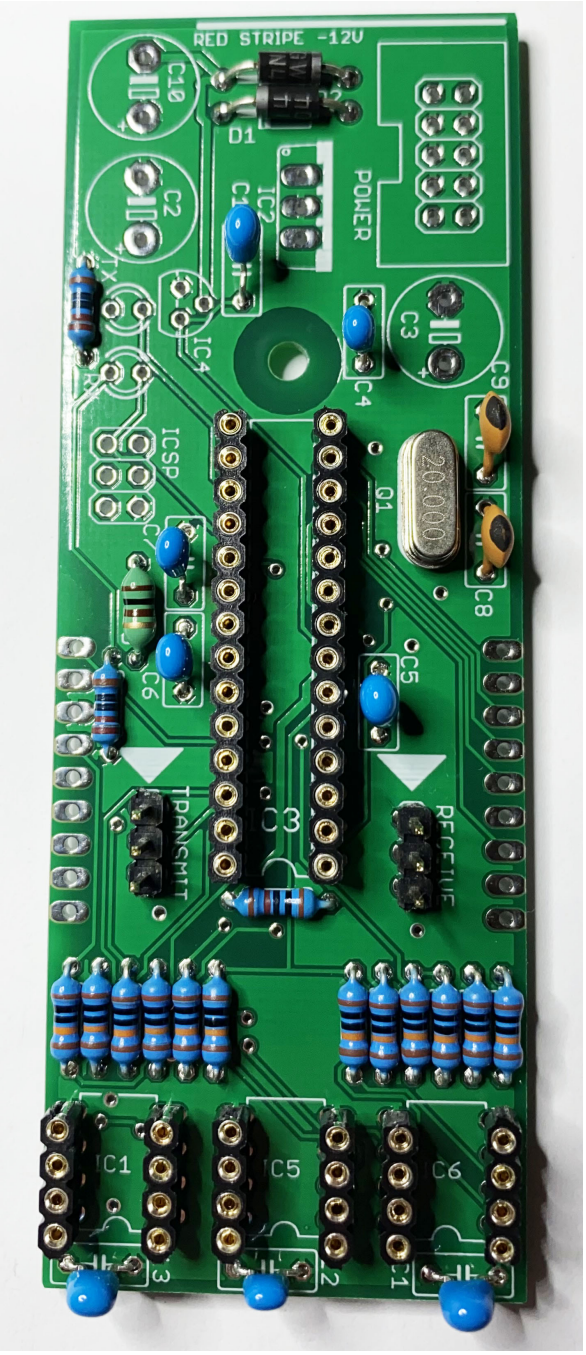
Main Board – Step 8

Install and solder the eight 100nf capacitors C1, C4, C5, C6, C7, C11, C12 and C13.



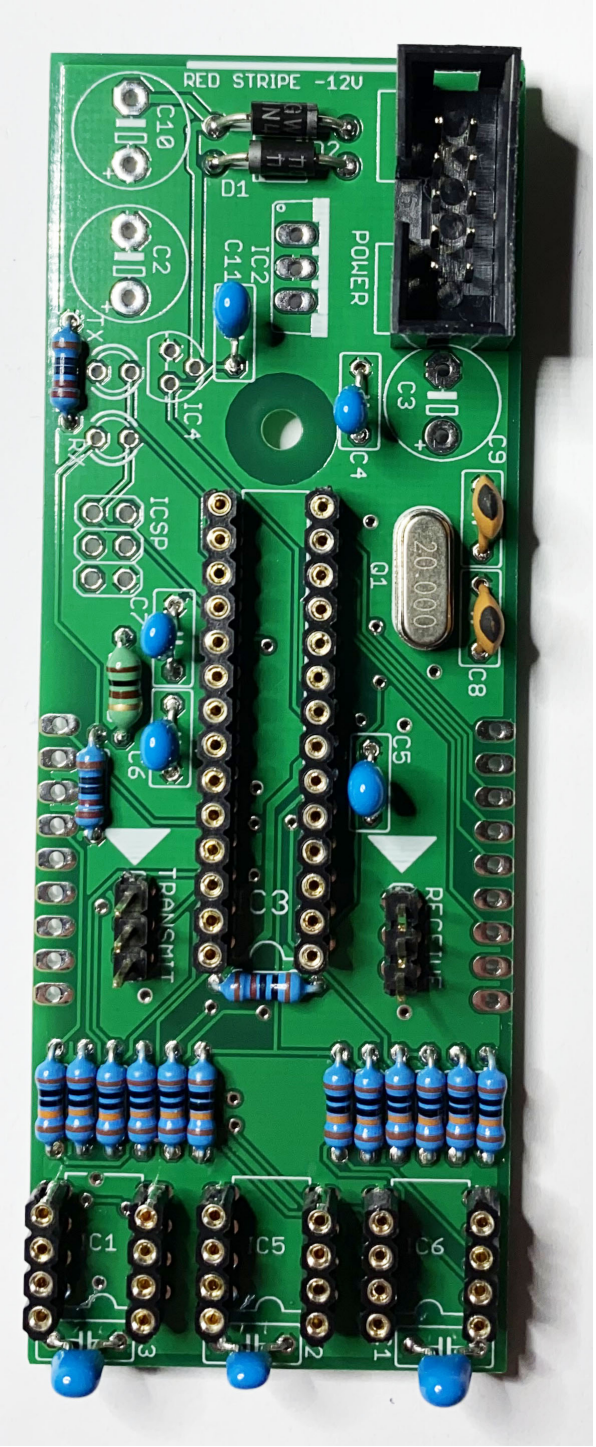
Main Board – Step 9

Cut two three pin pieces from the male header strip. Install and solder into “TRANSMIT” and “RECEIVE”.



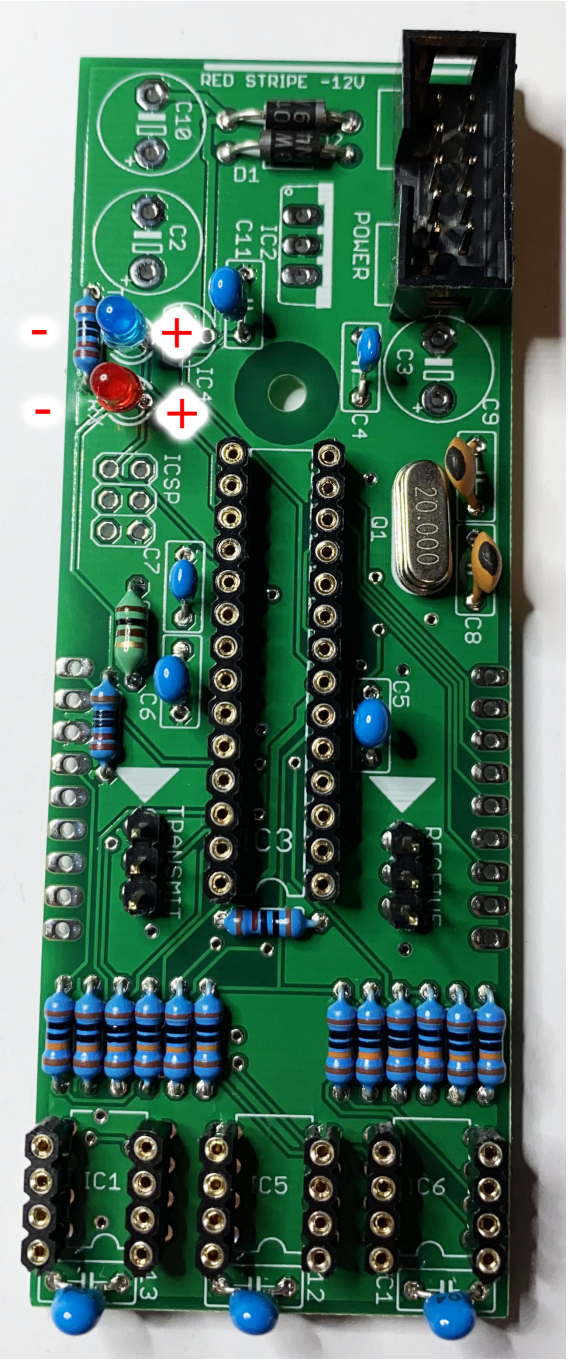
Main Board – Step 10

Install and solder the power header.



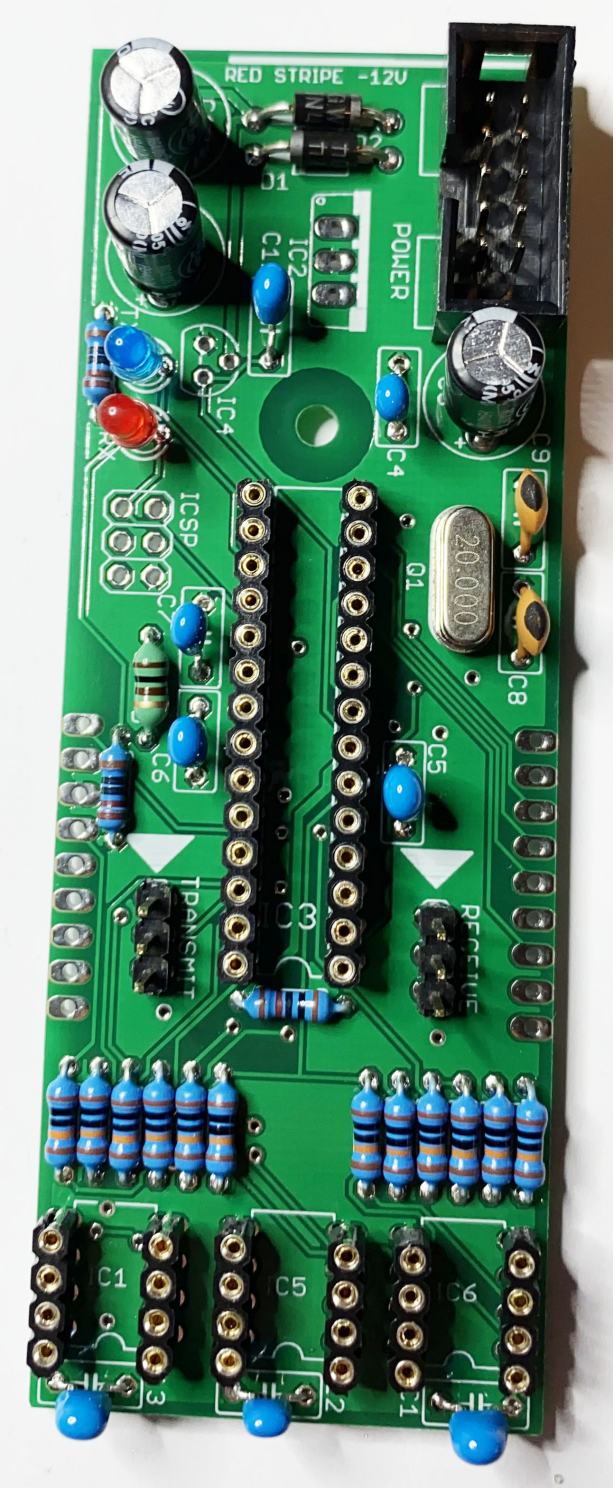
Main Board – Step 11

Install and solder the two LEDs, RX and TX. The picture below shows the orientation: the anode (+) is the longer pin and the cathode (-) is the shorter pin.



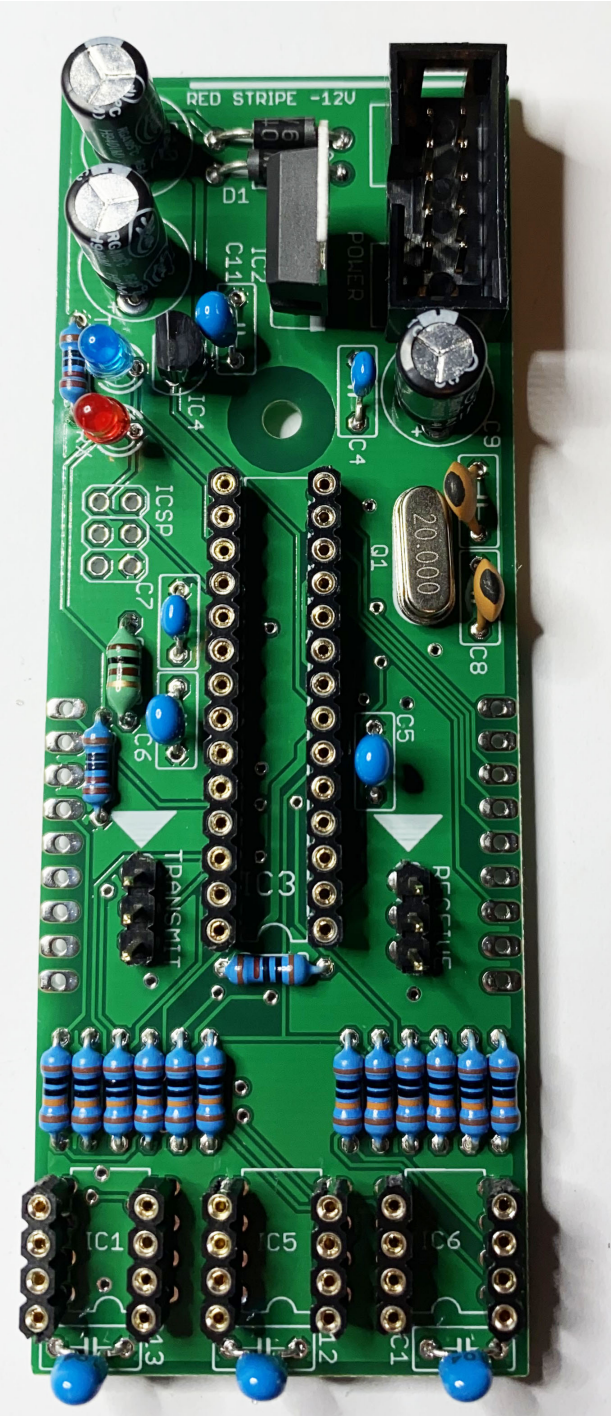
Main Board – Step 12

Install and solder the two 100uf capacitors C2 and C10 along with the 10uf capacitor C3.



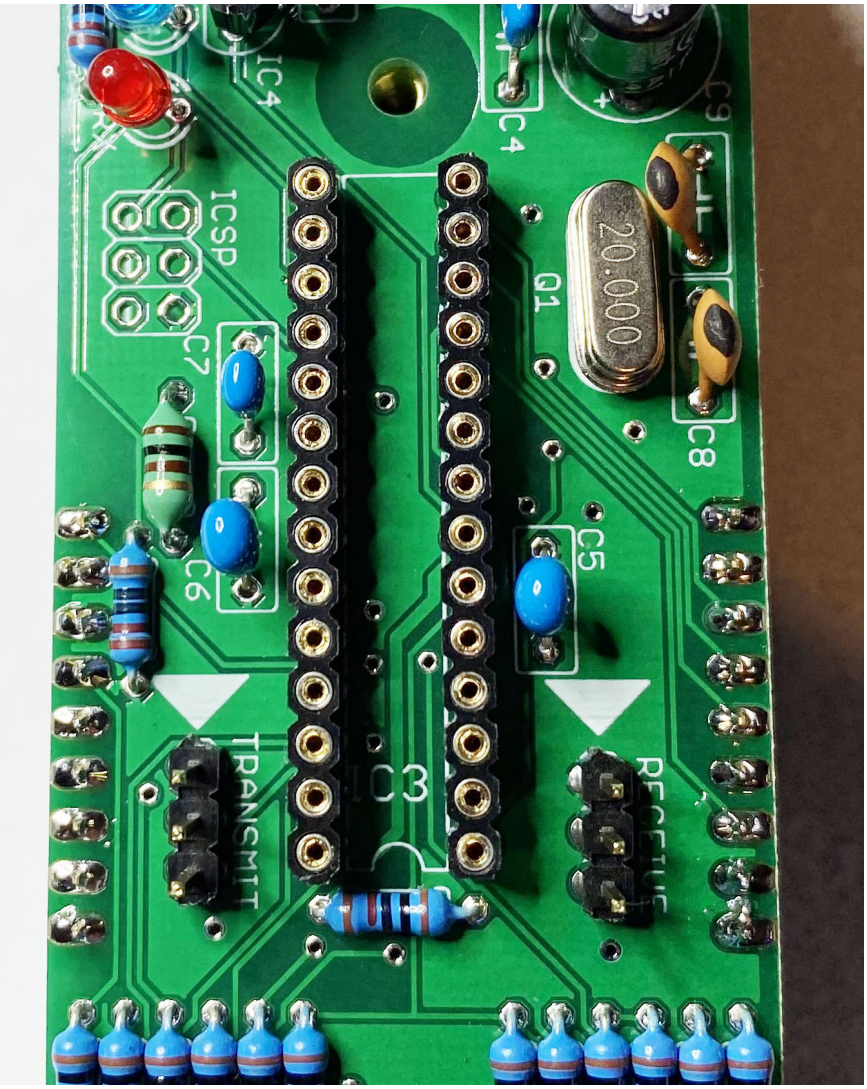
Main Board – Step 13

Install and solder the 7805 voltage regulator IC2 and the 7905 voltage regulator IC4. Pay close attention to the orientation on the silkscreen and the picture below.



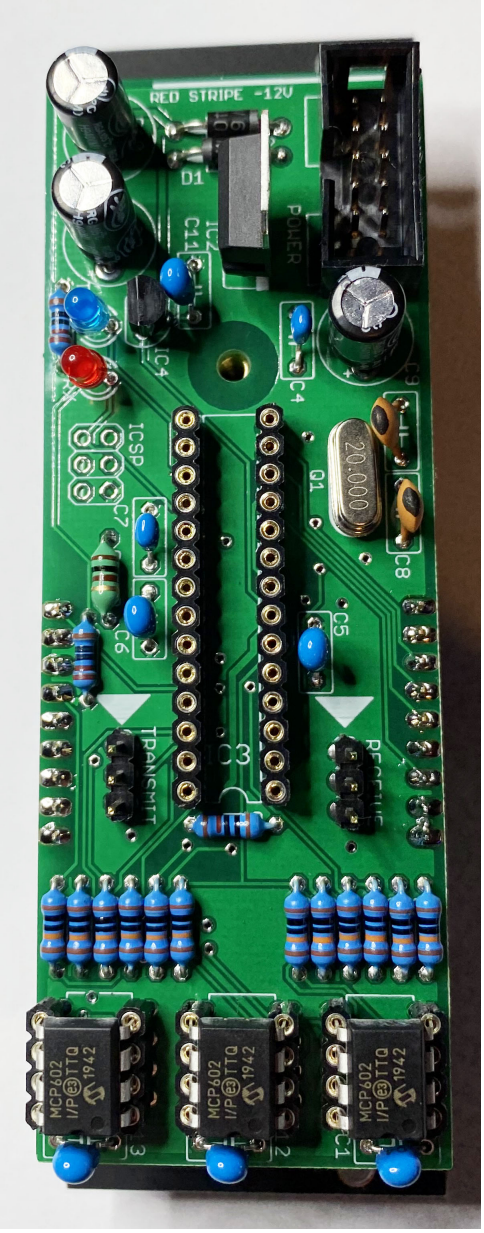
Main Board – Step 14

Cut two nine pin pieces of female header socket from the female header strip. Install and solder into place.



Main Board – Step 15

Install the three MCP602 op amps IC1, IC5 and IC6.



Main Board – Step 16

Install the ATMEGA328P CPU into IC3 socket. After a final check of all work for shorts, missing or poor solder joints etc, next join the boards together and secure with the 6mm M3 screw. Please refer to the user guide for instructions on connecting your Parasite to its Amoeba host.