

Ø ANTUMBRA

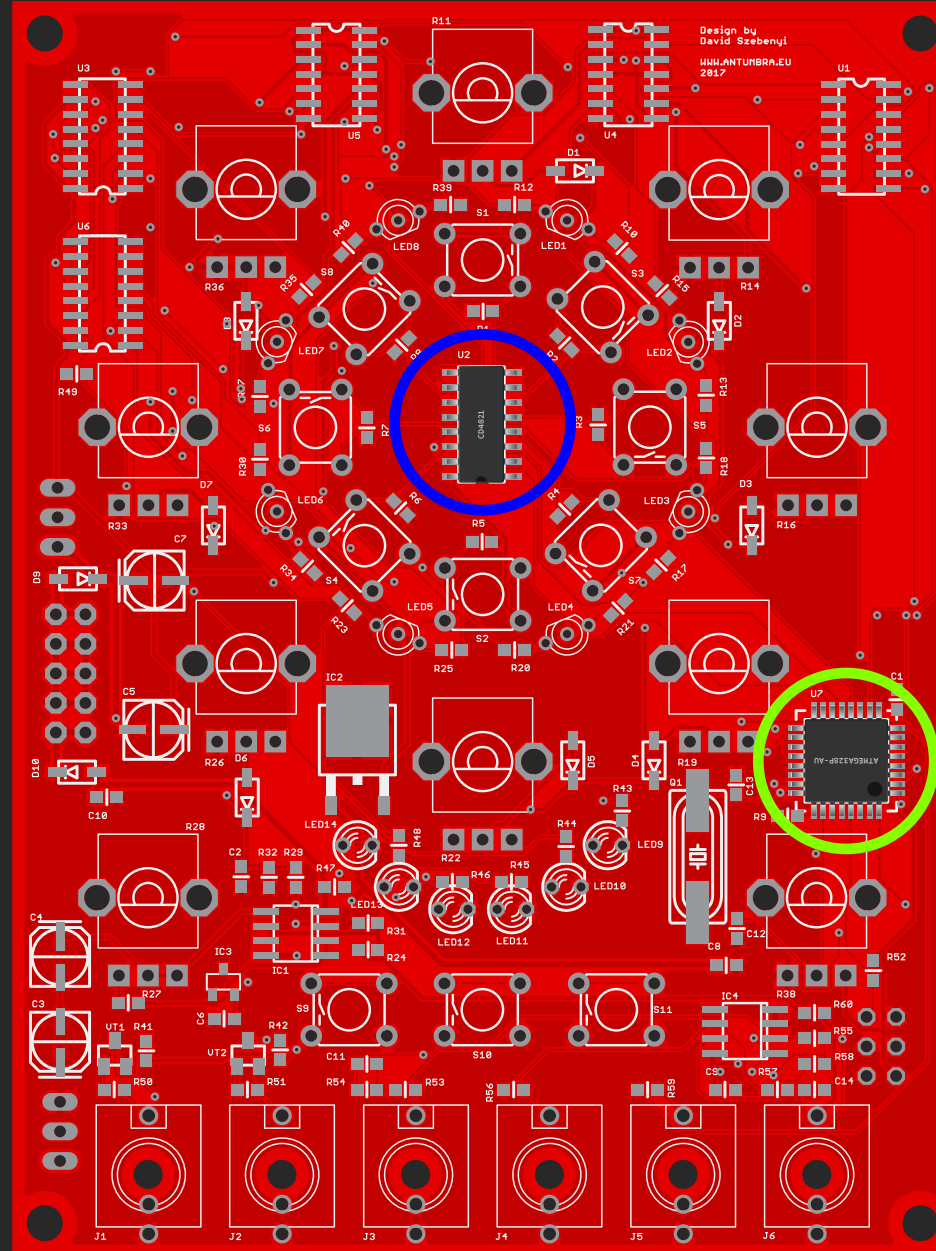
ROT8

BUILDING INSTRUCTIONS

PCB V1.1

01. BUILD NOTES

Before you start building look through the build manual so that you'll be familiar with the building process and you won't run into any surprises! :)

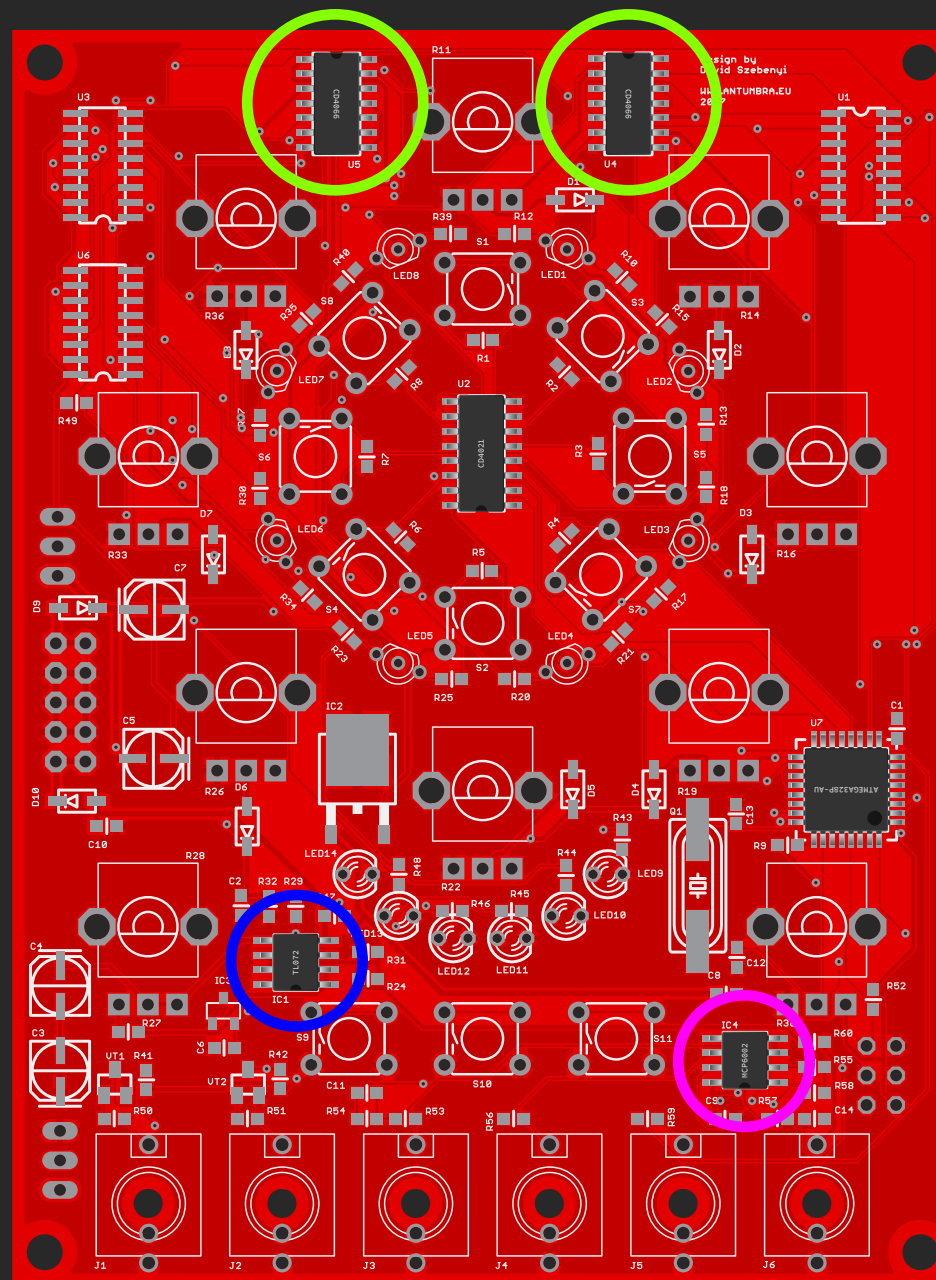


02. BUILD

00. Orient the PCB as seen on the left

01.  Solder the ATMEGA328P-AU in place
(The dot should be on the bottom right)

02.  Solder the CD4021 in place
(Oriented to the bottom)

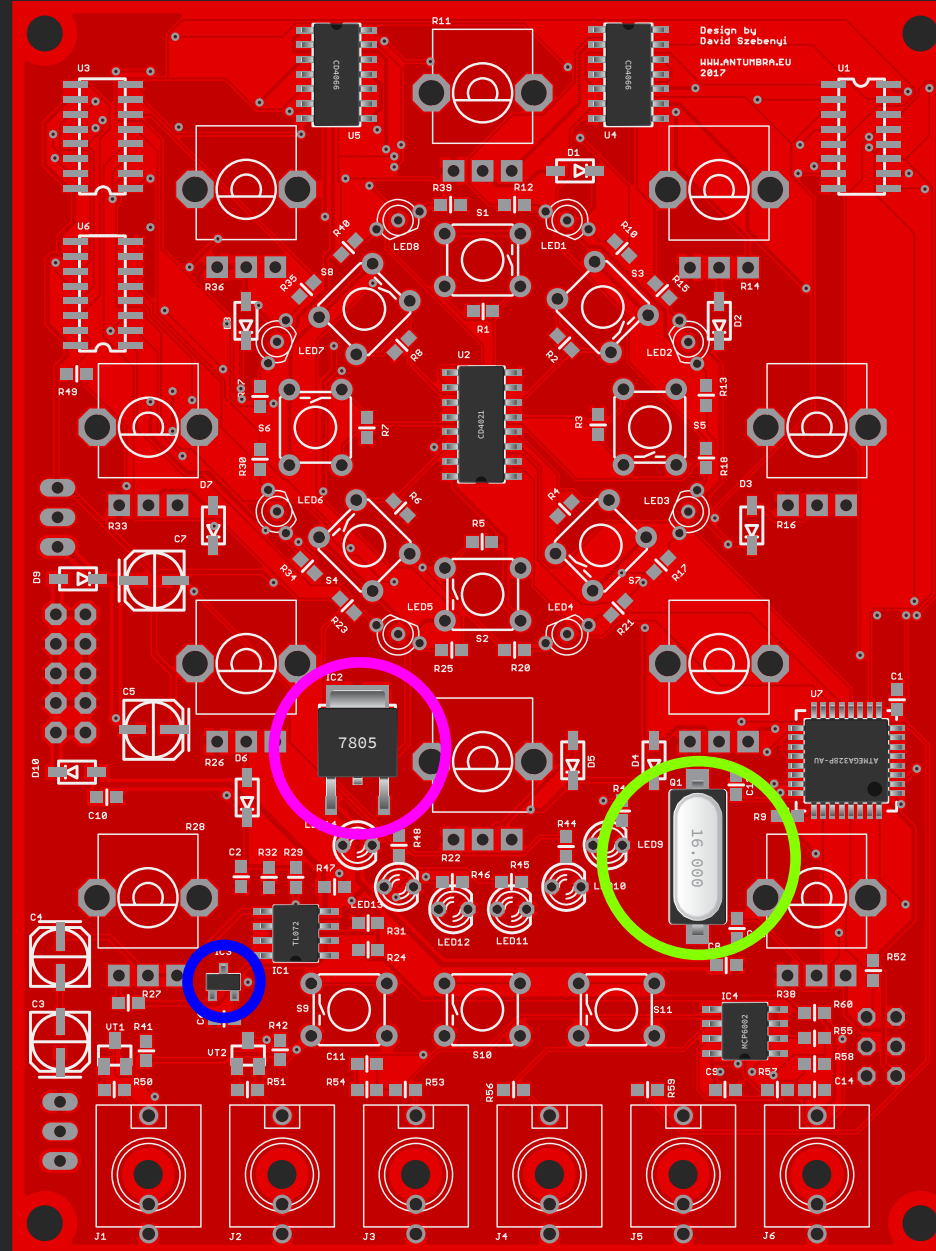


02. BUILD

03.  Solder the two CD4066s
(Oriented to the top)

04.  Solder the TL072 opamp
(Oriented to the bottom, cut edge on the right)

05.  Solder the MCP6002 opamp
(Oriented to the bottom, cut edge on the right)

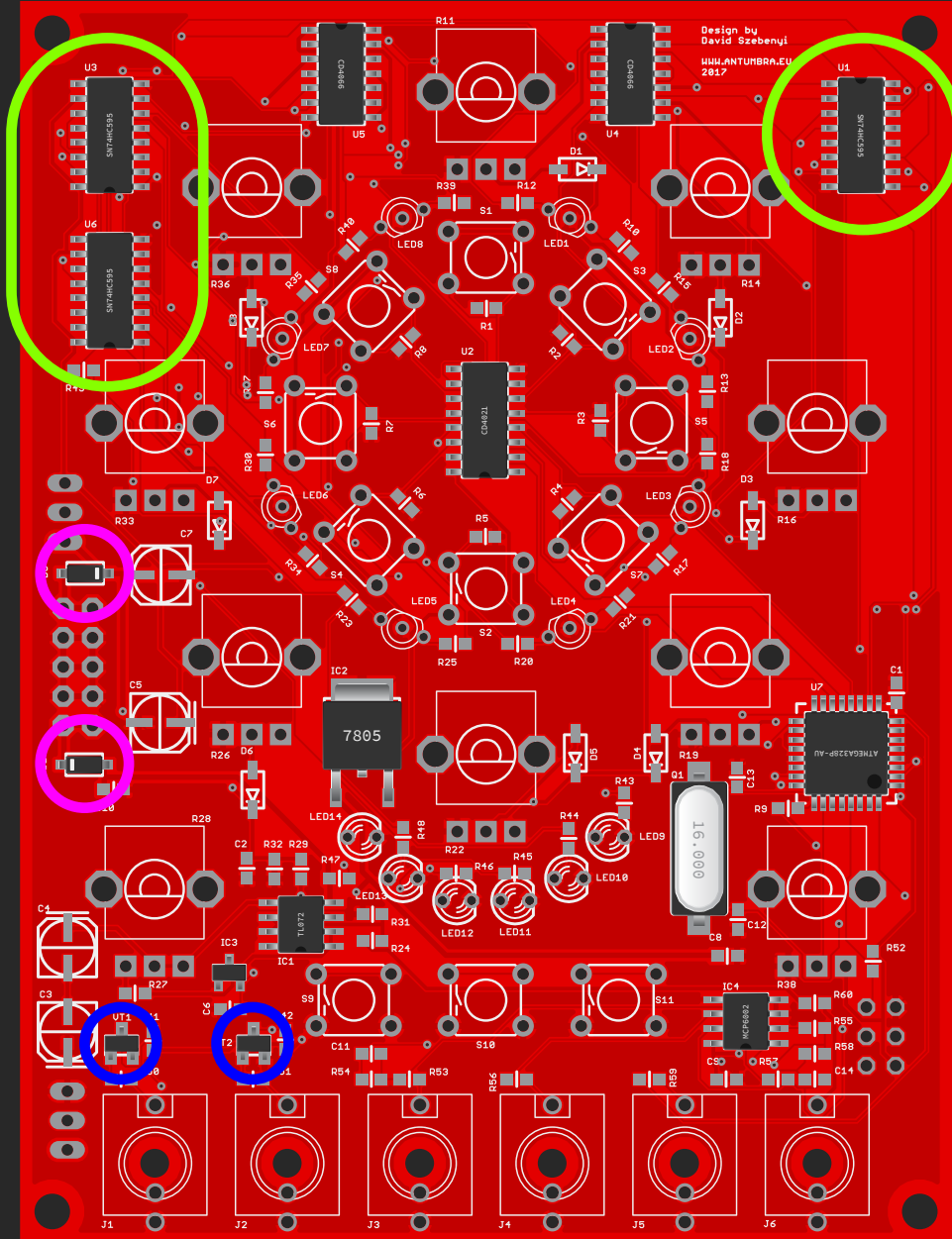


02. BUILD

06.  Solder the 16MHZ crystal

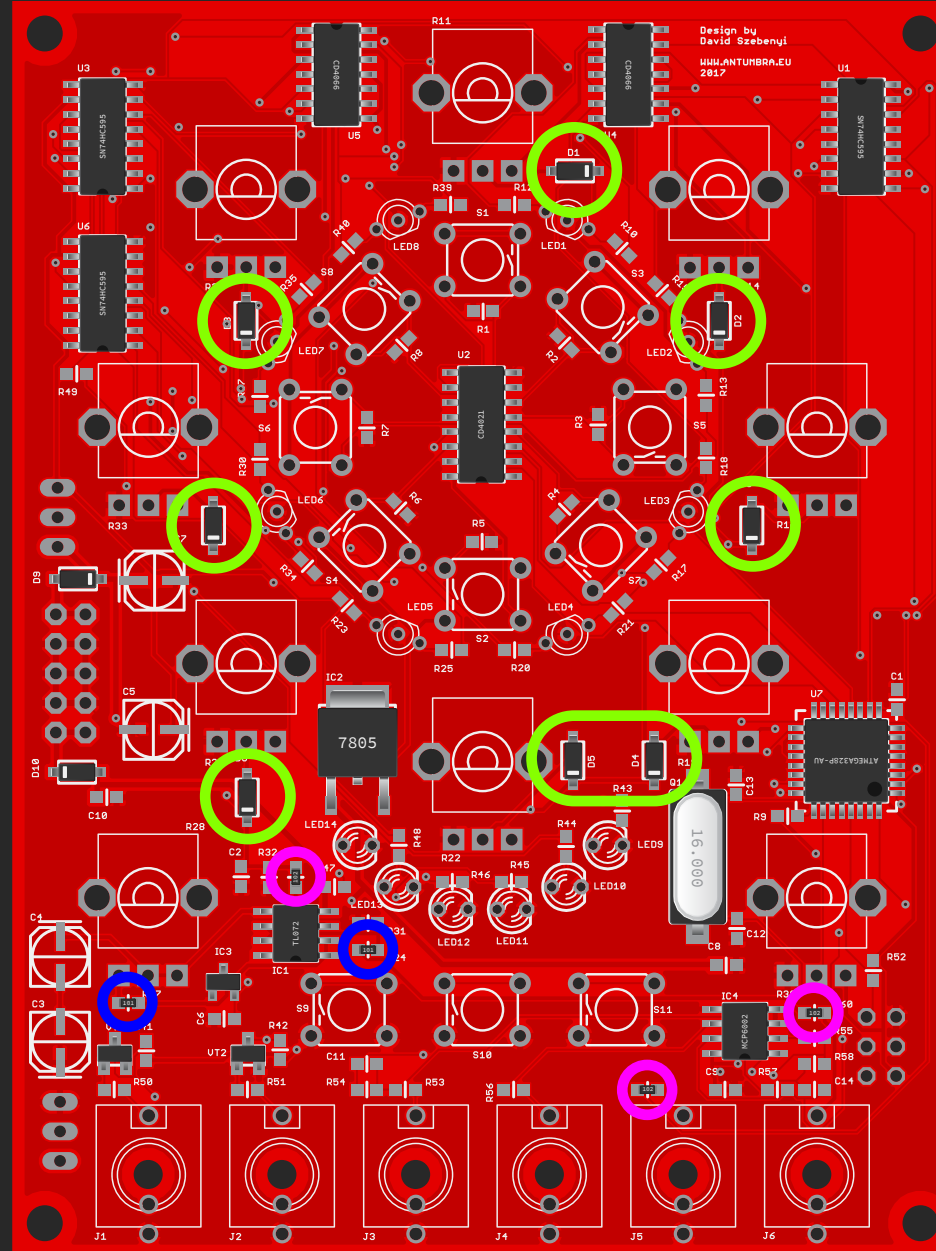
07.  Solder the LM4040 IC

08.  Solder the 7805 voltage regulator



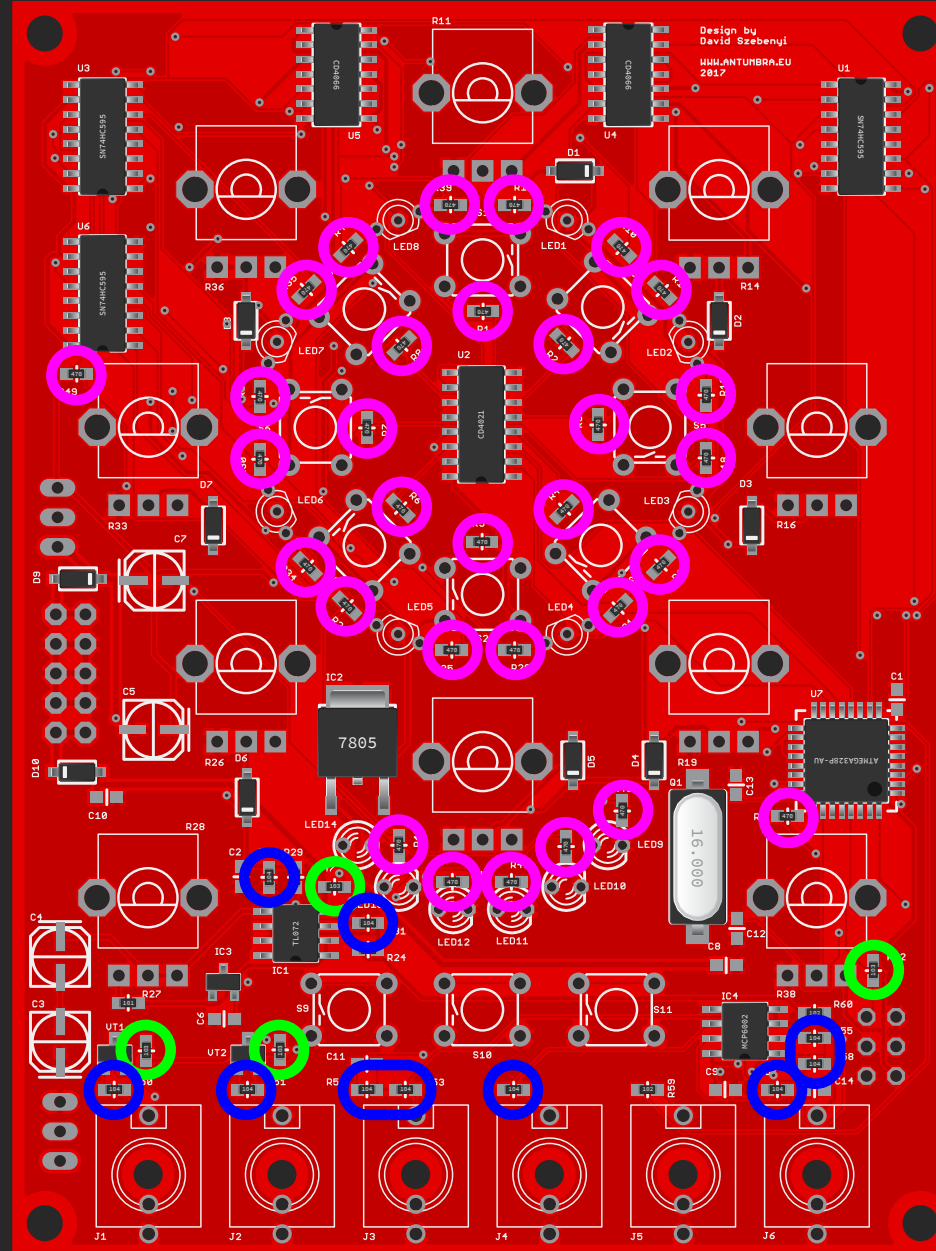
02. BUILD

09. ● Solder the three SN74HC595s
(Left two facing down, right one facing up)
10. ● Solder the two MMBT3904s
11. ● Solder the two 1N5819 diodes
(Check their orientations, lines should match up with silkscreen drawing)



02. BUILD

12. ● Solder the eight 1N4148 diodes
(Check their orientations, lines should match up with silkscreen drawing)
13. ● Solder the two 100ohm resistors
14. ● Solder the three 1k resistors

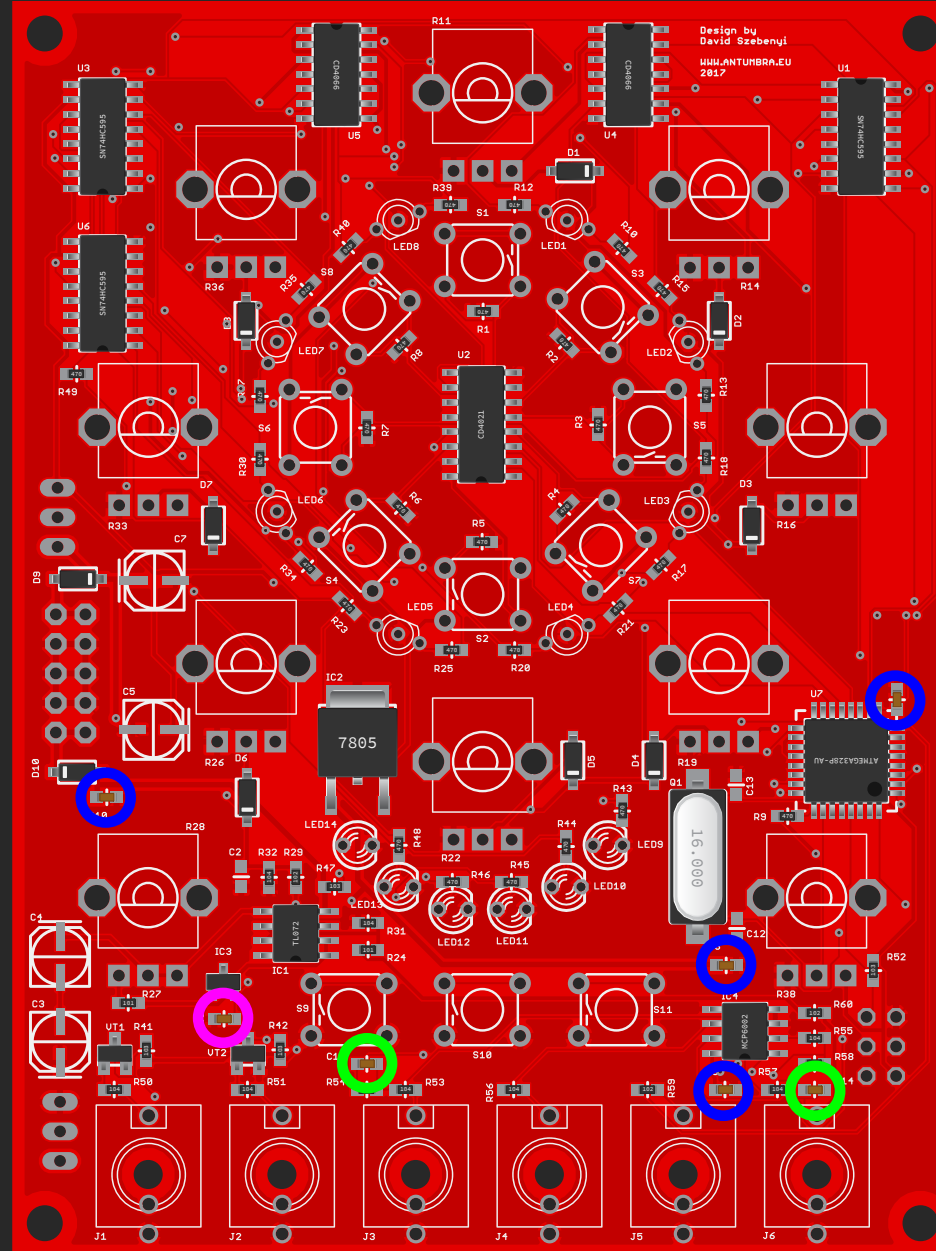


02. BUILD

15.  Solder the four 10k resistors

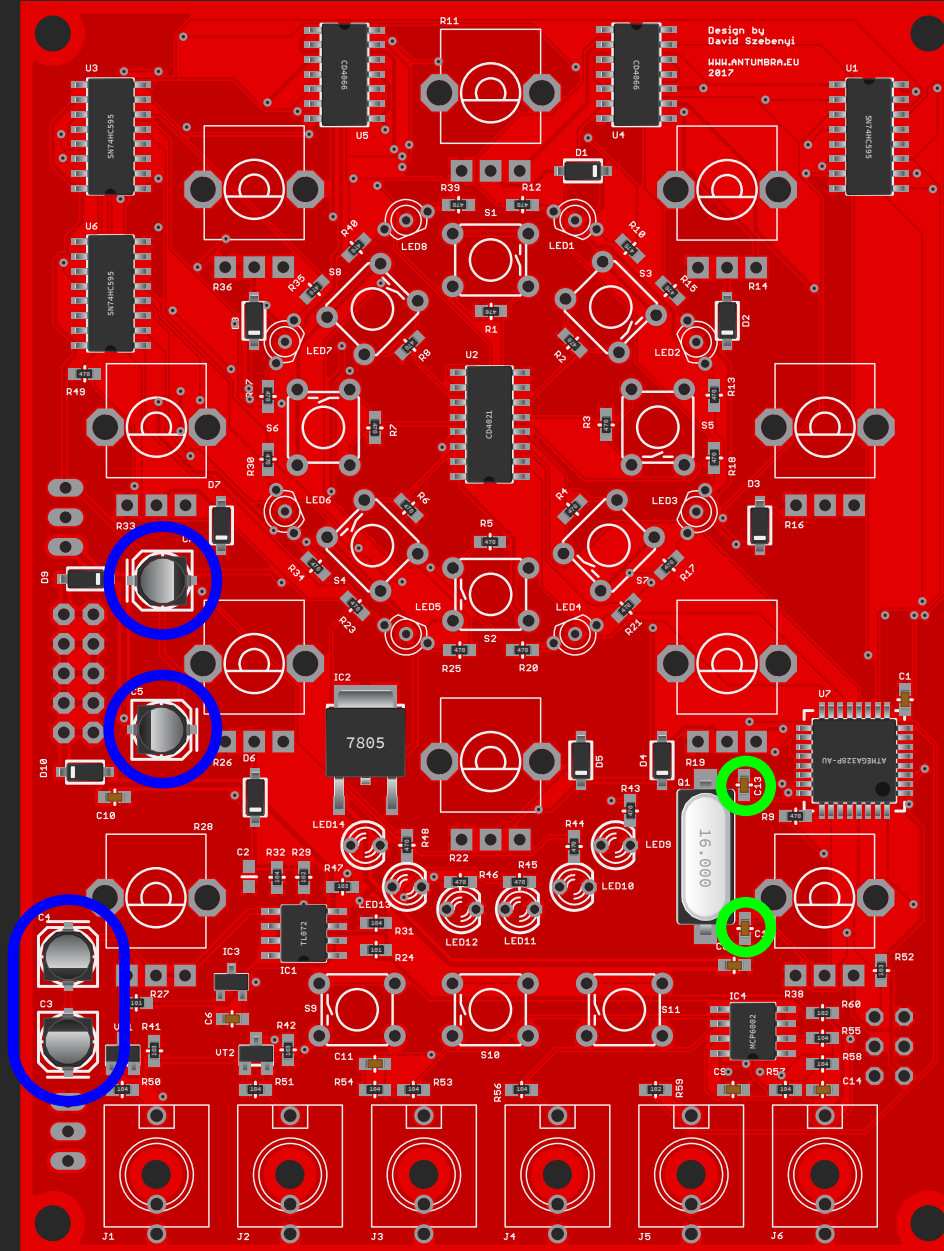
16.  Solder the ten 100k resistors

17.  Solder the 31x470 resistors



02. BUILD

15.  Solder the two 10nF capacitors
16.  Solder the four 100nF capacitors
17.  Solder the single 470nF capacitor

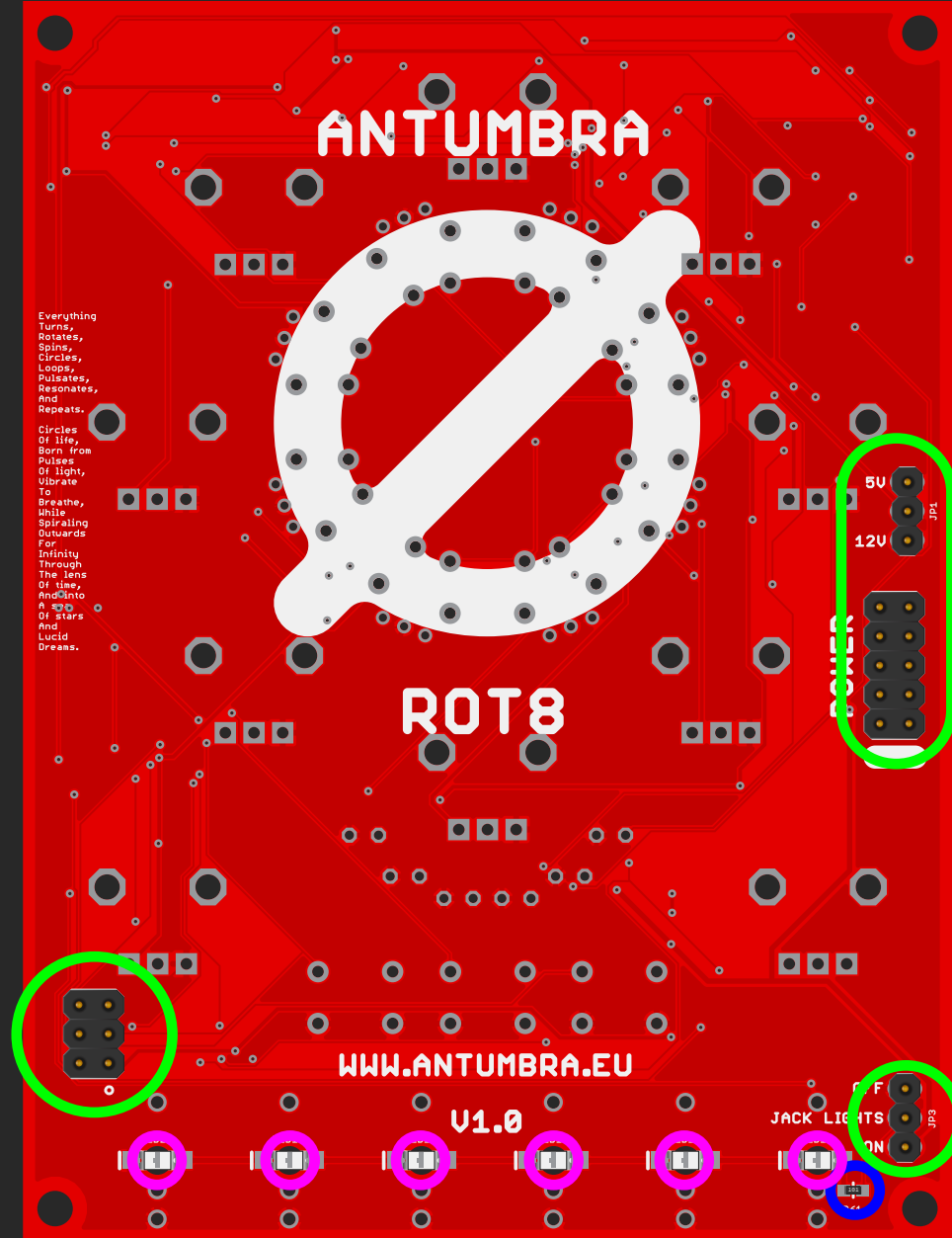


02. BUILD

18.  Solder the two 22pF capacitors

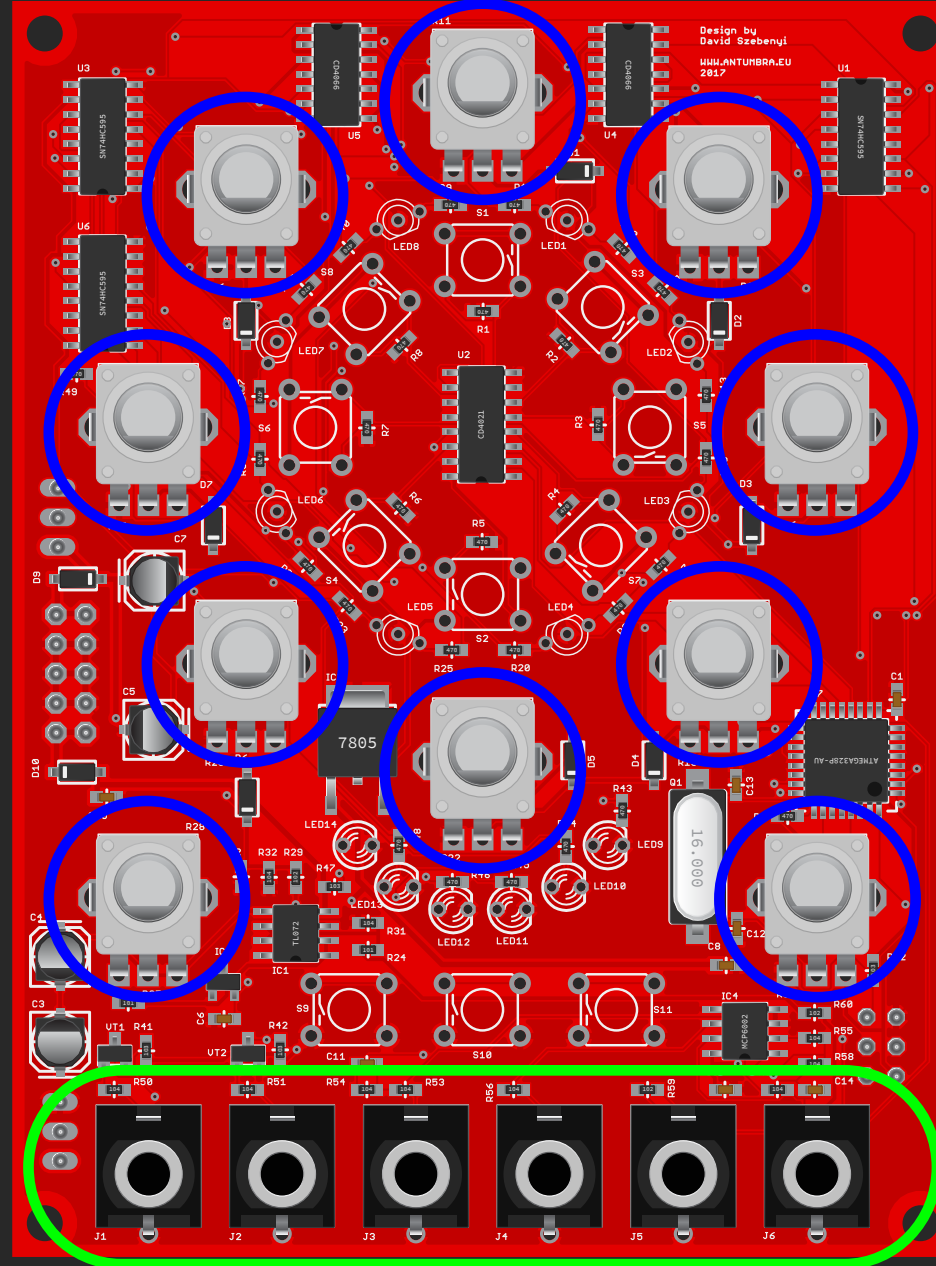
19.  Solder the four 10uF capacitors
(Make sure to match up it's orientation with the silk-screen drawing)

20. Flip the board!



02. BUILD

21.  Solder the pin headers
22.  Solder the single 100ohm resistor
23.  Solder the six SMD LEDs
(They have to be soldered upside down, so that the LED part is in the hole. Marker should face left)



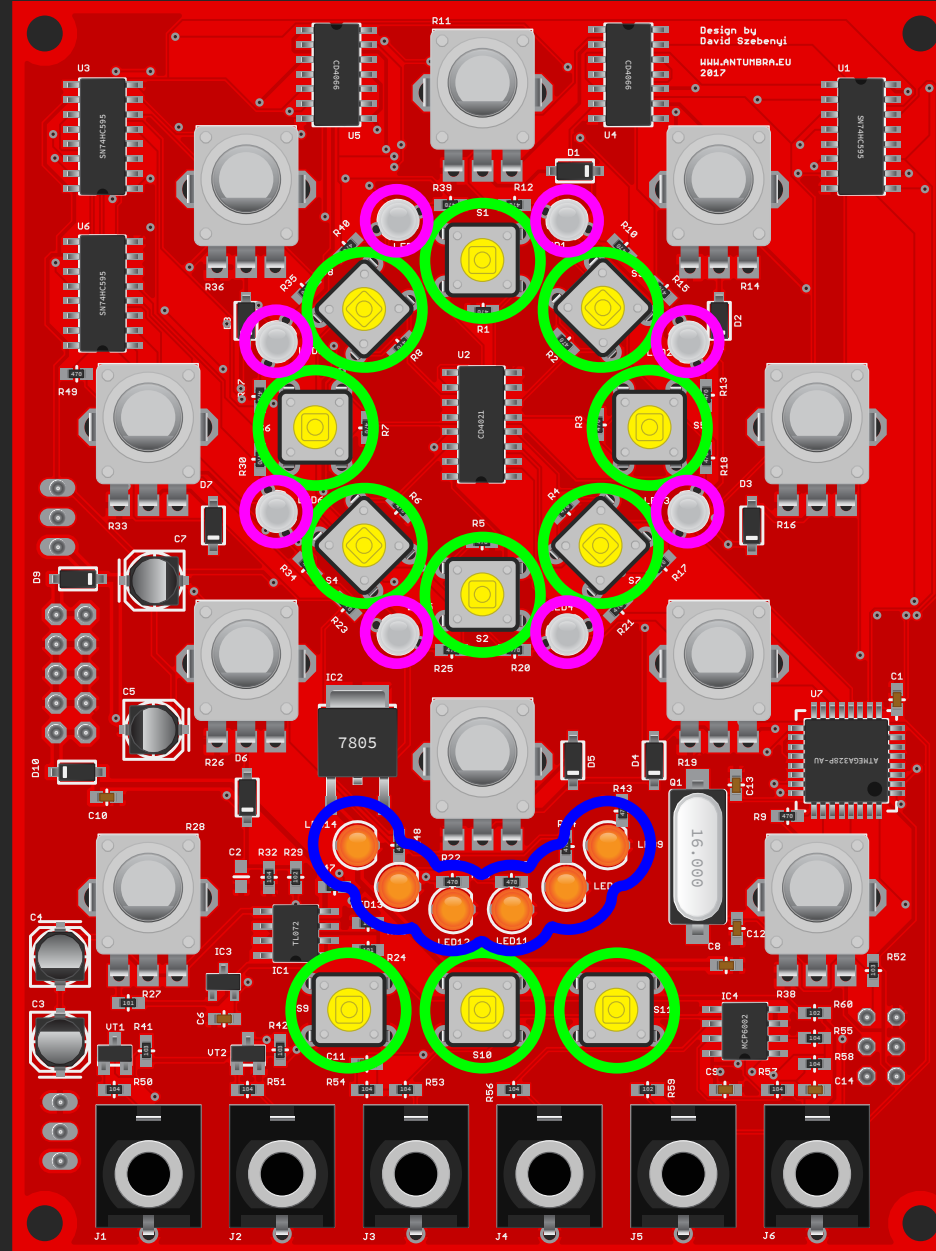
02. BUILD

24. Flip the board back

DO NOT SOLDER YET!

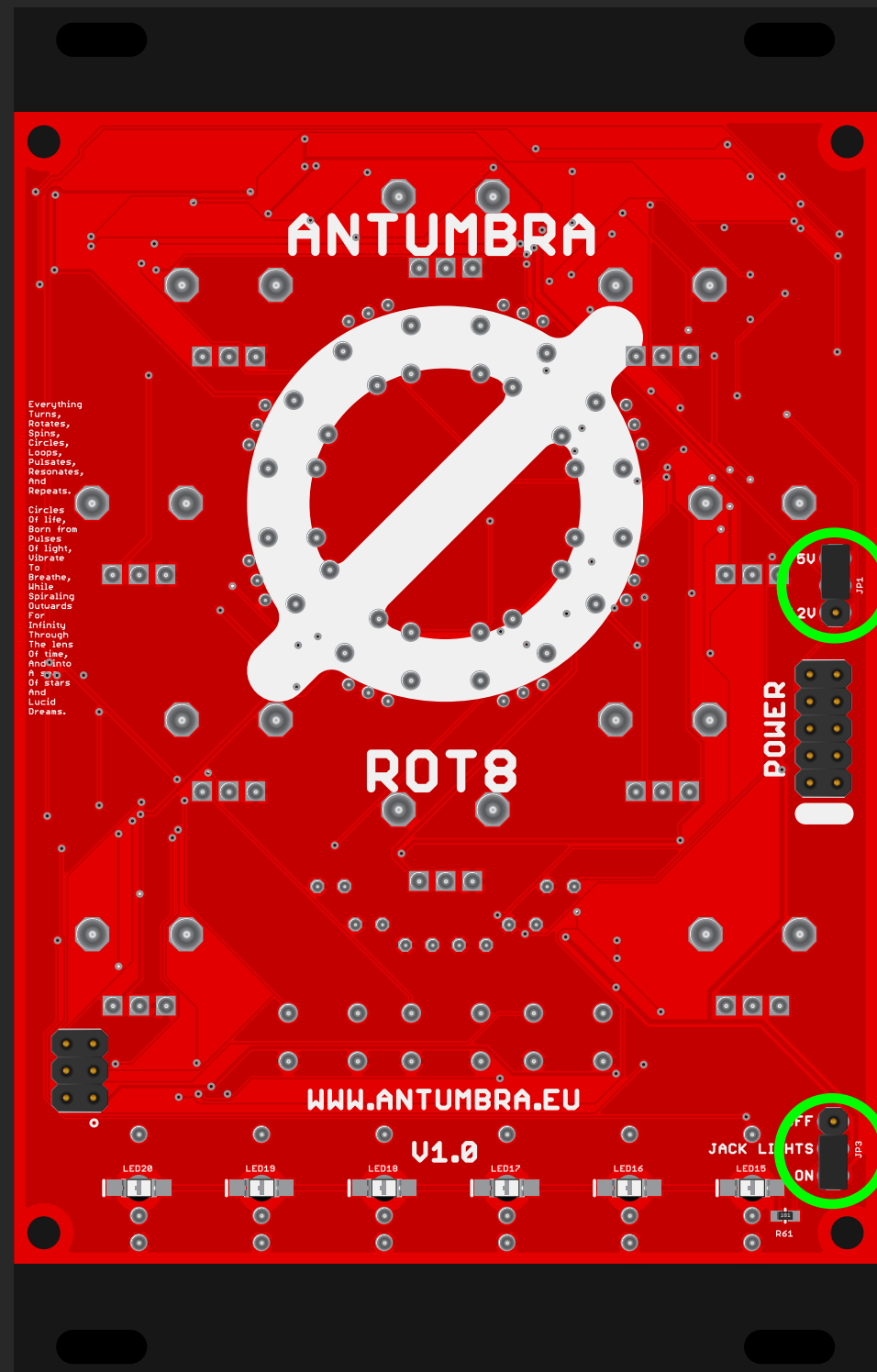
25.  Place the 6 jacks

26.  Place the 10 pots



02. BUILD

- 27.  Place the 11 buttons
- 28.  Place the 6 single color LEDs
(Long leg goes in the hole with the + mark)
- 29.  Place the 8 dual color LEDs
(Flat side of LED faces inwards)



02. BUILD

30. Put on the caps of the buttons on.

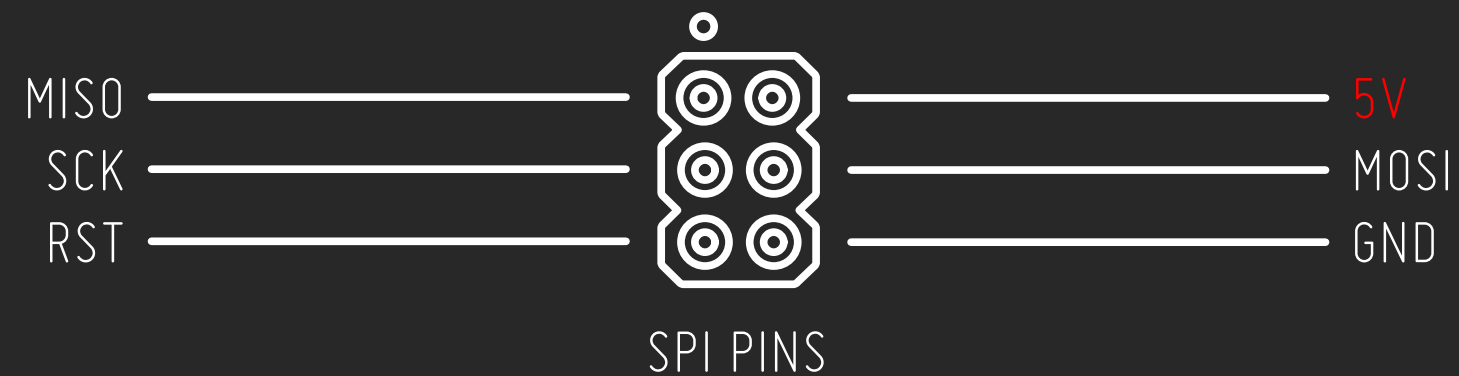
31. Place the front panel on top, tighten the jack and pot nuts, make sure that everything is nice and vertical.

Adjust the LEDs in the holes as you like.

32. Now solder all the components on the back side.

33.  Place the jumpers in the desired positions

You are done with building! Congratulations! 😊



03. UPLOADING SOFTWARE

1. Download the zip file from [here](#).
2. Connect your AVR ISP device to the 6 pin ISP header on the module. Pin 1 is marked with a dot.
3. Use an AVR programmer, like AVR ISP MKII with for example [AVRDUDESS](#) to upload the code.
Fuse settings should be set to:
L-fuse: `0xff` • H-fuse: `0xde` • E-fuse: `0x05`
3. After you've uploaded the firmware with bootloader, connect the module to your power supply. If you were successful, you should see the welcome animation.

On the first run, you have to reset the module.



ROT8 is designed by David Szebenyi under Antumbra.

www.antumbra.eu

Manual by David Szebenyi (www.aman.hu)

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