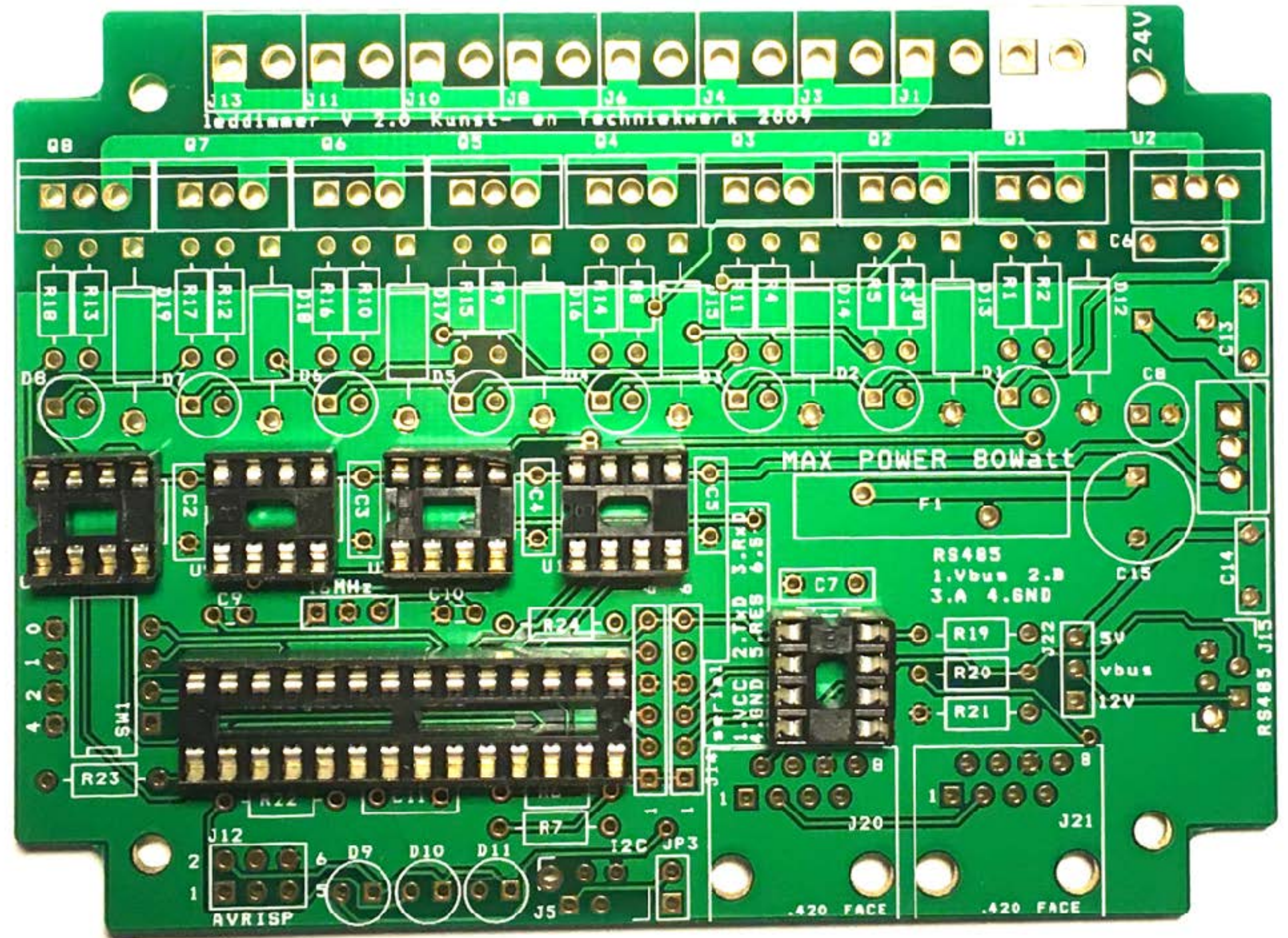# 8 channel RS485 control card

assembly manual

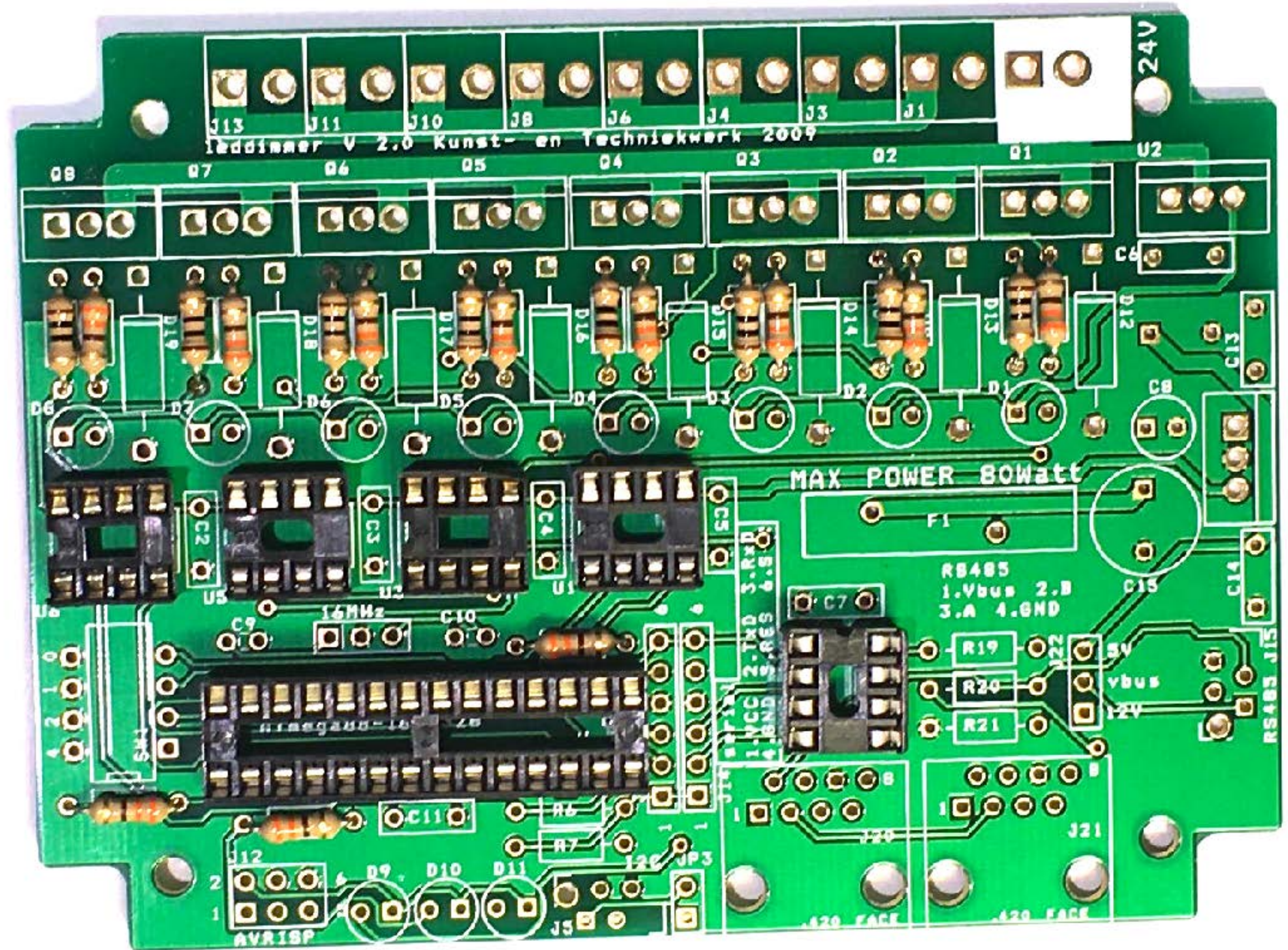**Edwin Dertien - V1.0 - October 2021**

step 1: IC sockets

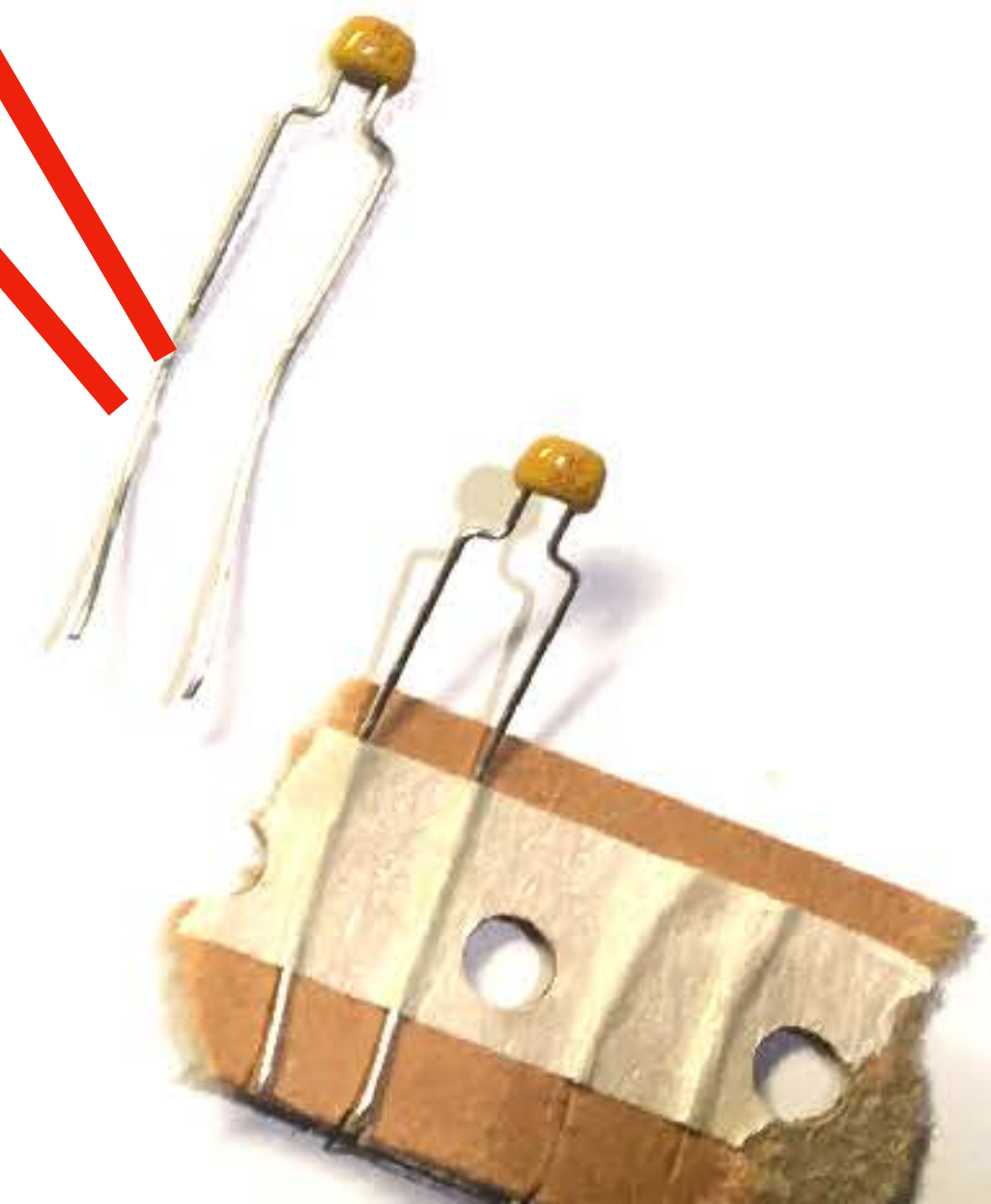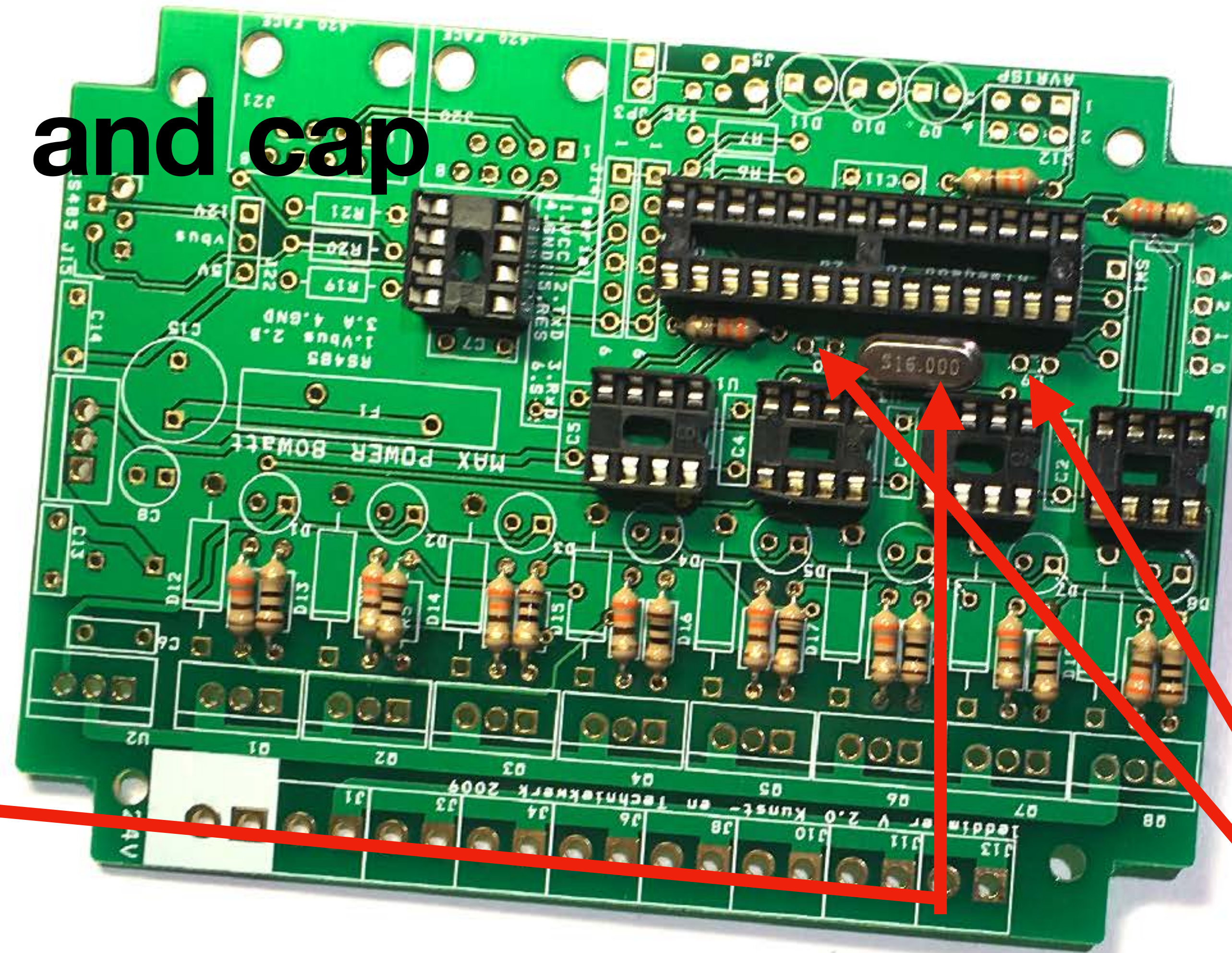- 5 x 8 pin, 1 x 28 pin

- watch orientation

step 2: resistors

- 8 + 3 x 330R (orange, orange brown)

- 8 x 10R (brown, black, black)
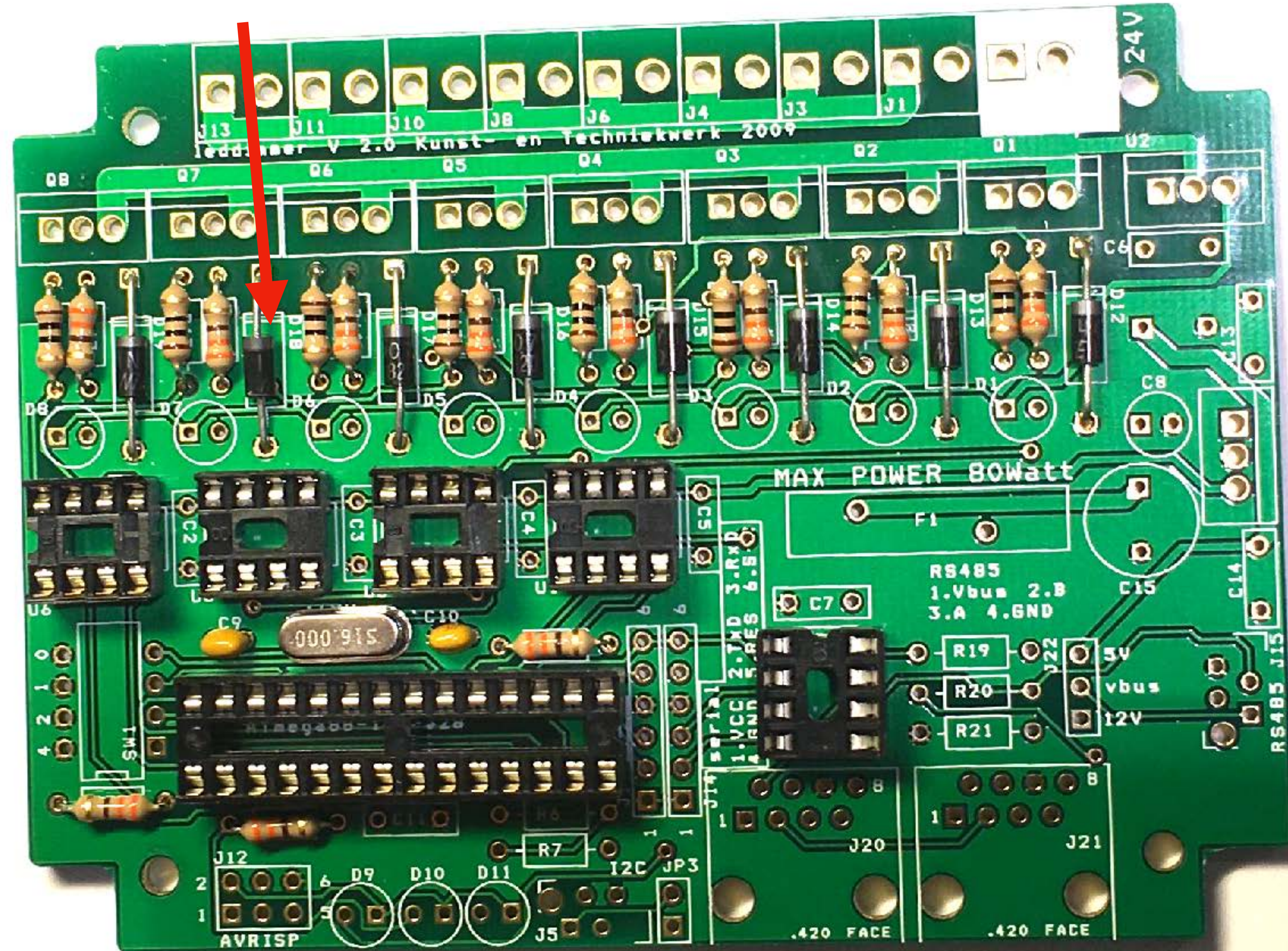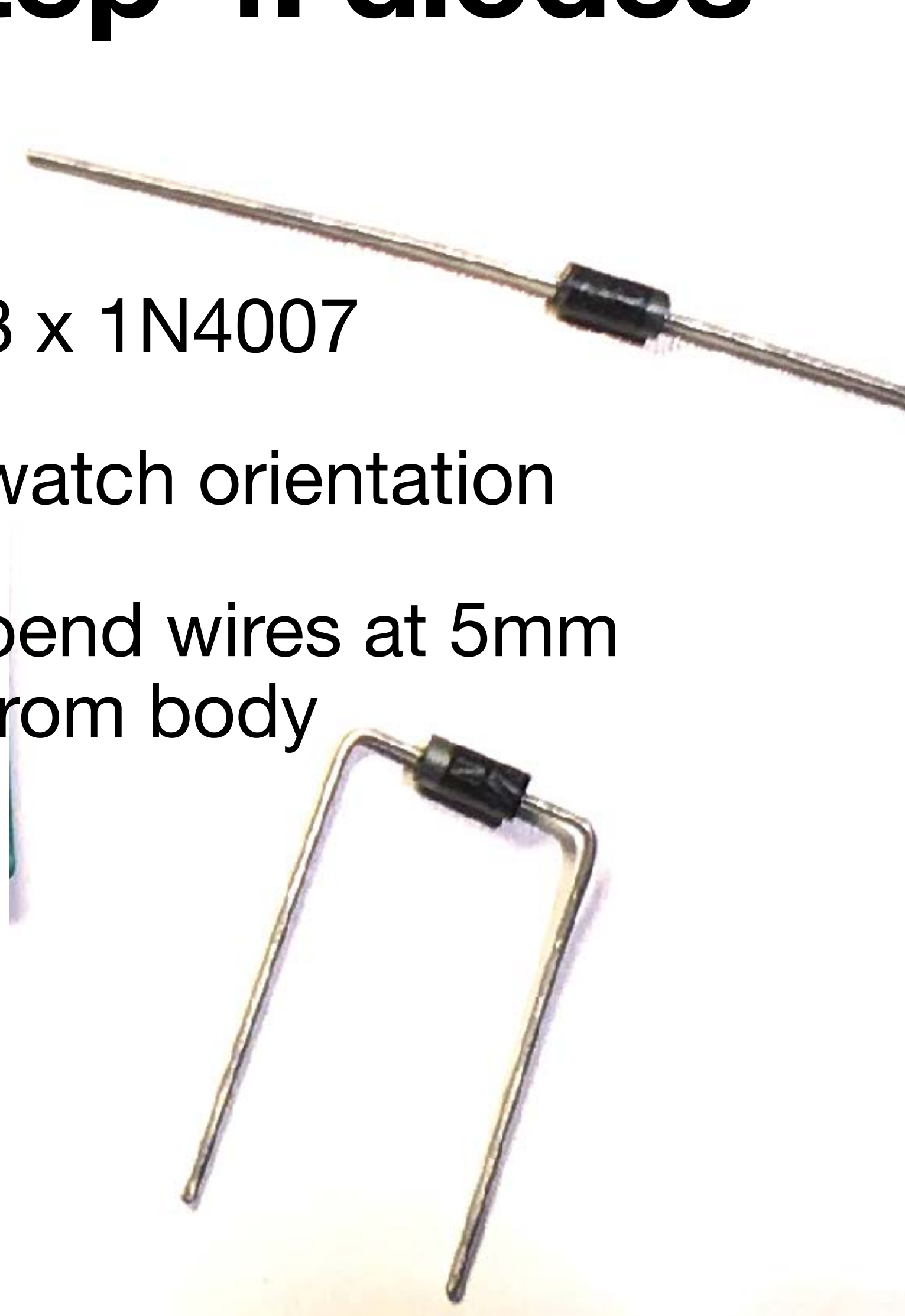
step 3: xtal and cap

- 2 x 22pF capacitors, don't confuse with 100nF

- 16MHz xtal, solder briefly!

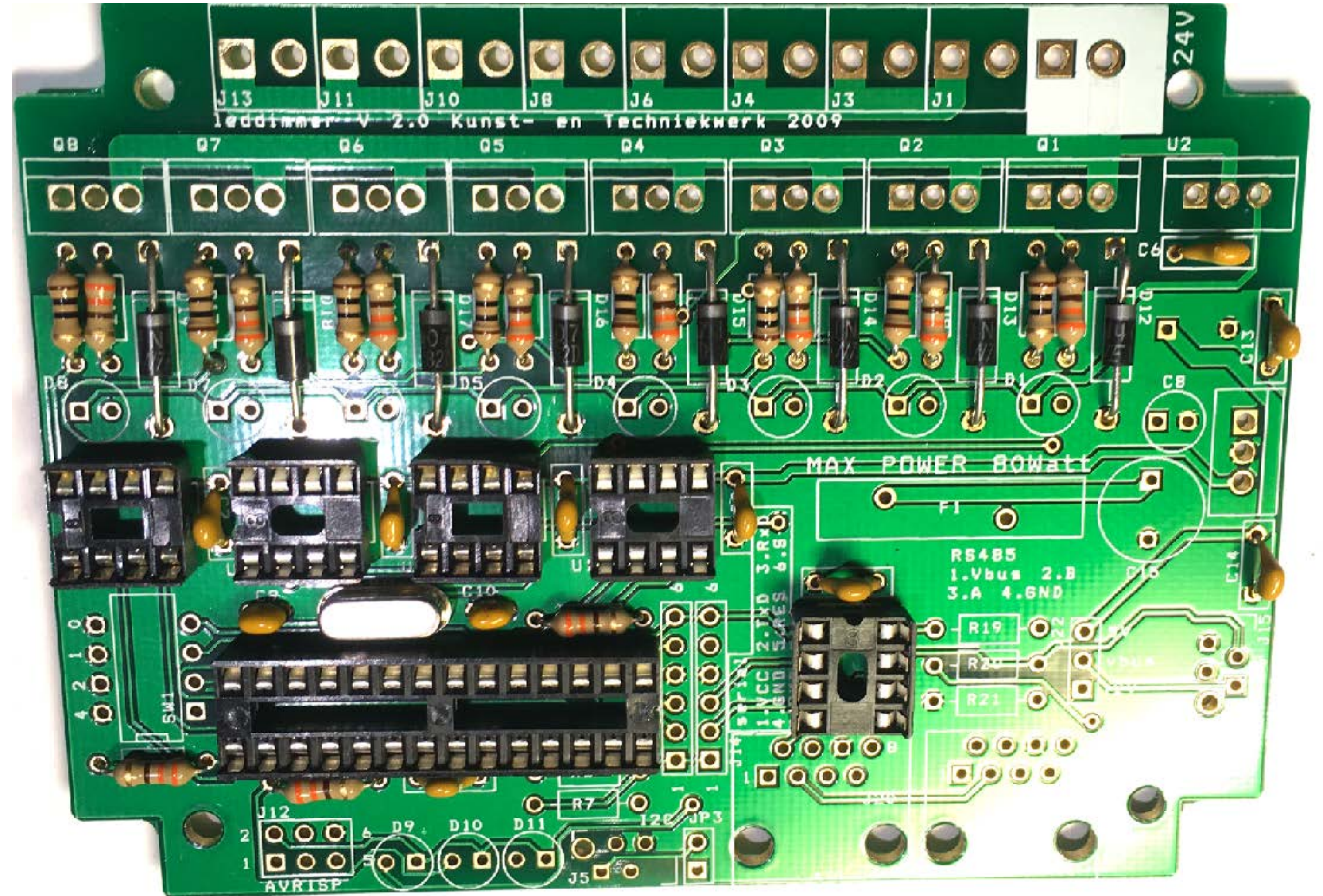- bend wires to fit 2.54 mm space

step 4: diodes

stripe on this side

- 8 x 1N4007

- watch orientation

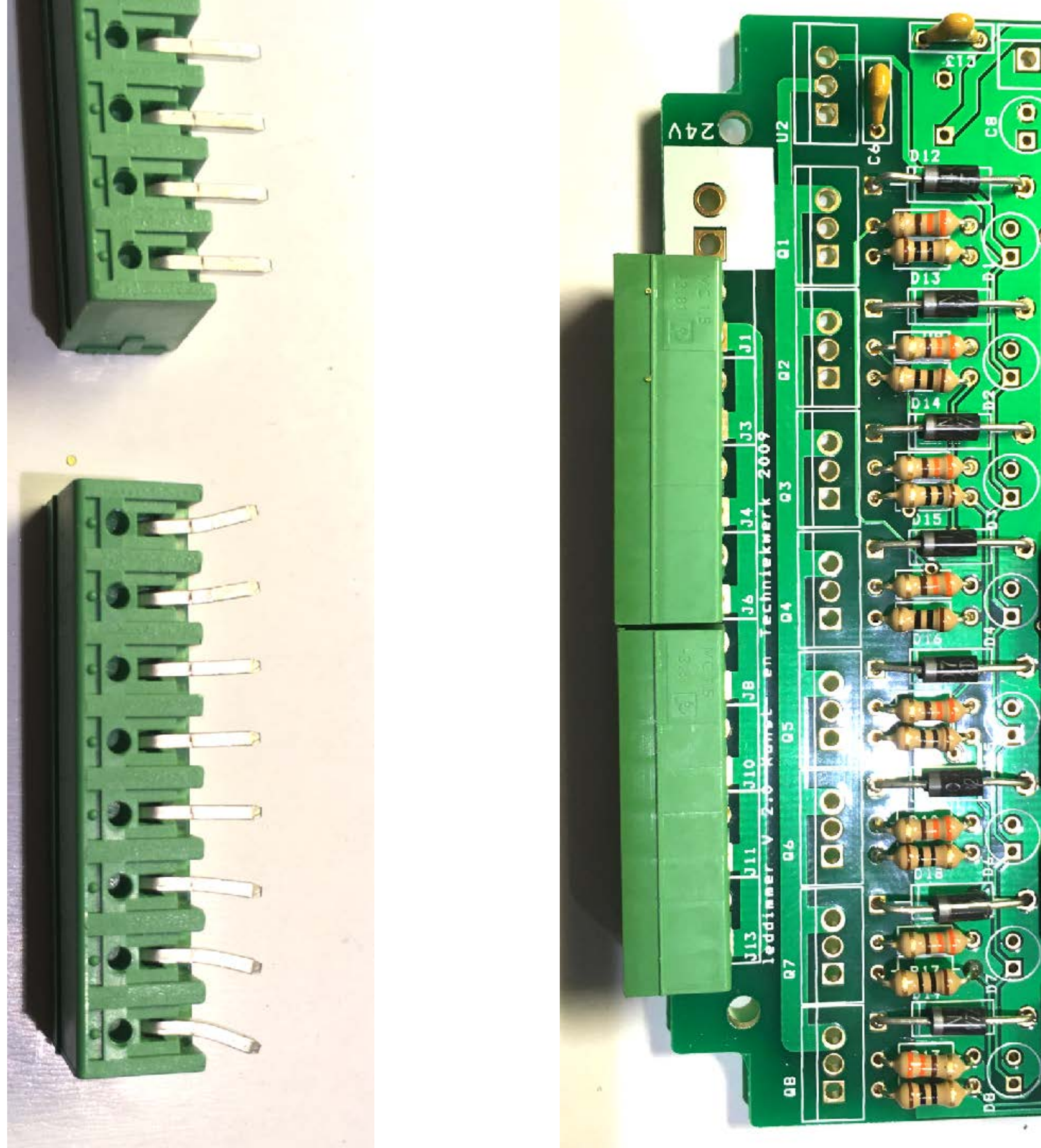- bend wires at 5mm from body

step 5, 100n cap

- 9 x 100 nF capacitor

- 6 x next to IC socket, 3 x in power supply section
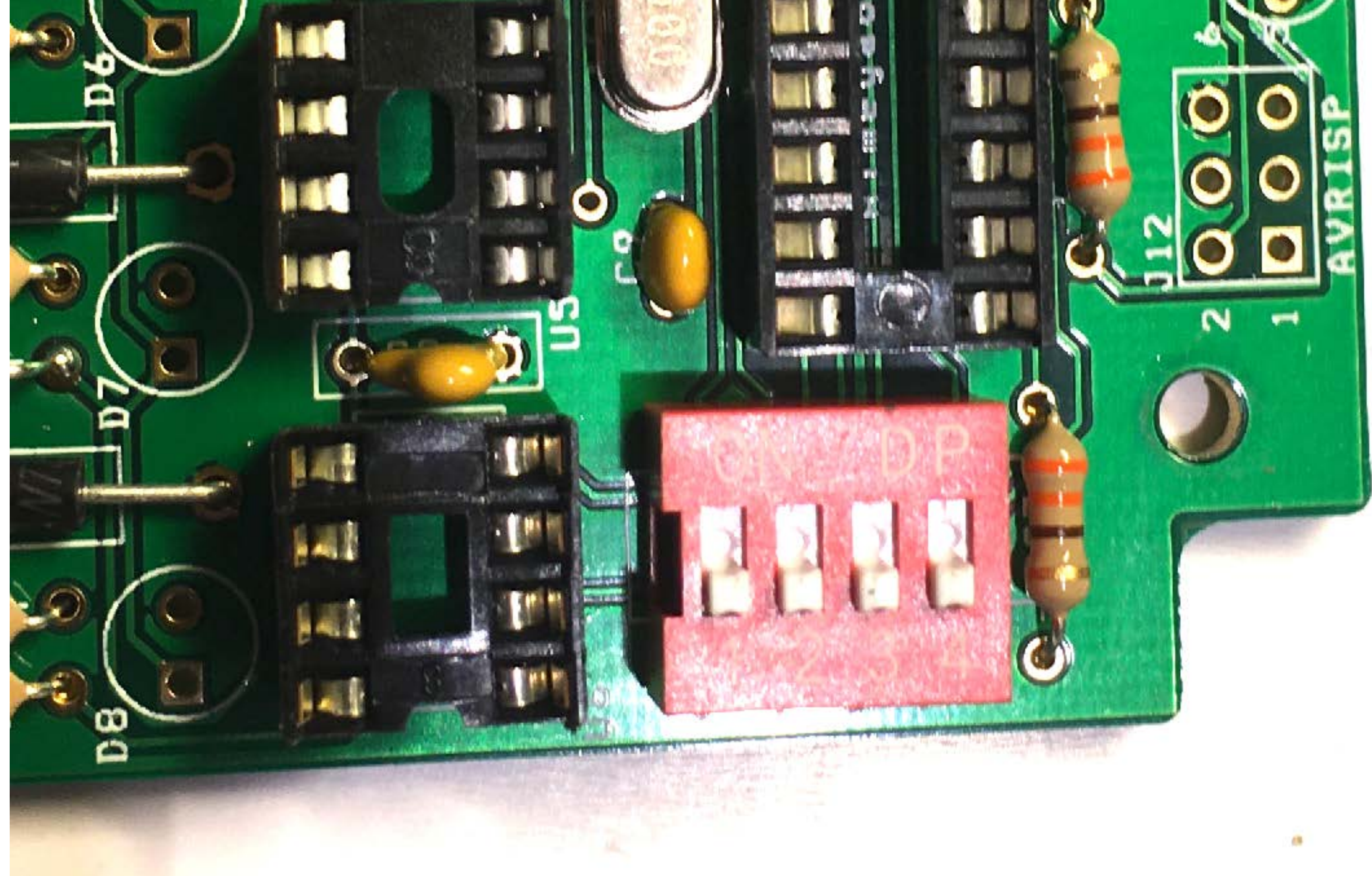
step 6: connector

- 2 x 8 pin or 1 x 16 pin

- need to bend legs a bit outwards to fit, since the PCB is intended for 8 x 2 pins
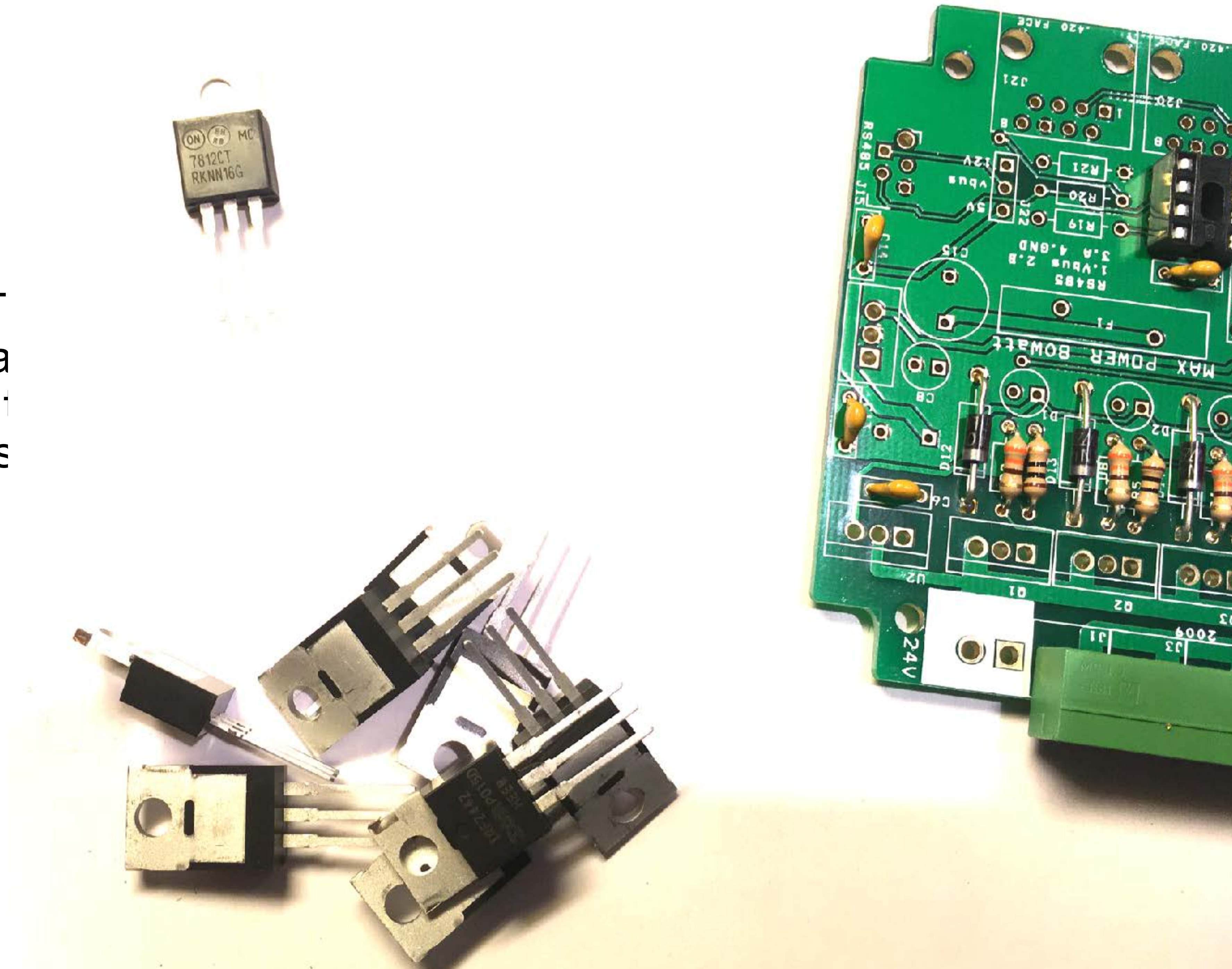
step 7: dip switch

- check orientation, the unit will work but reversal is highly confusing :)

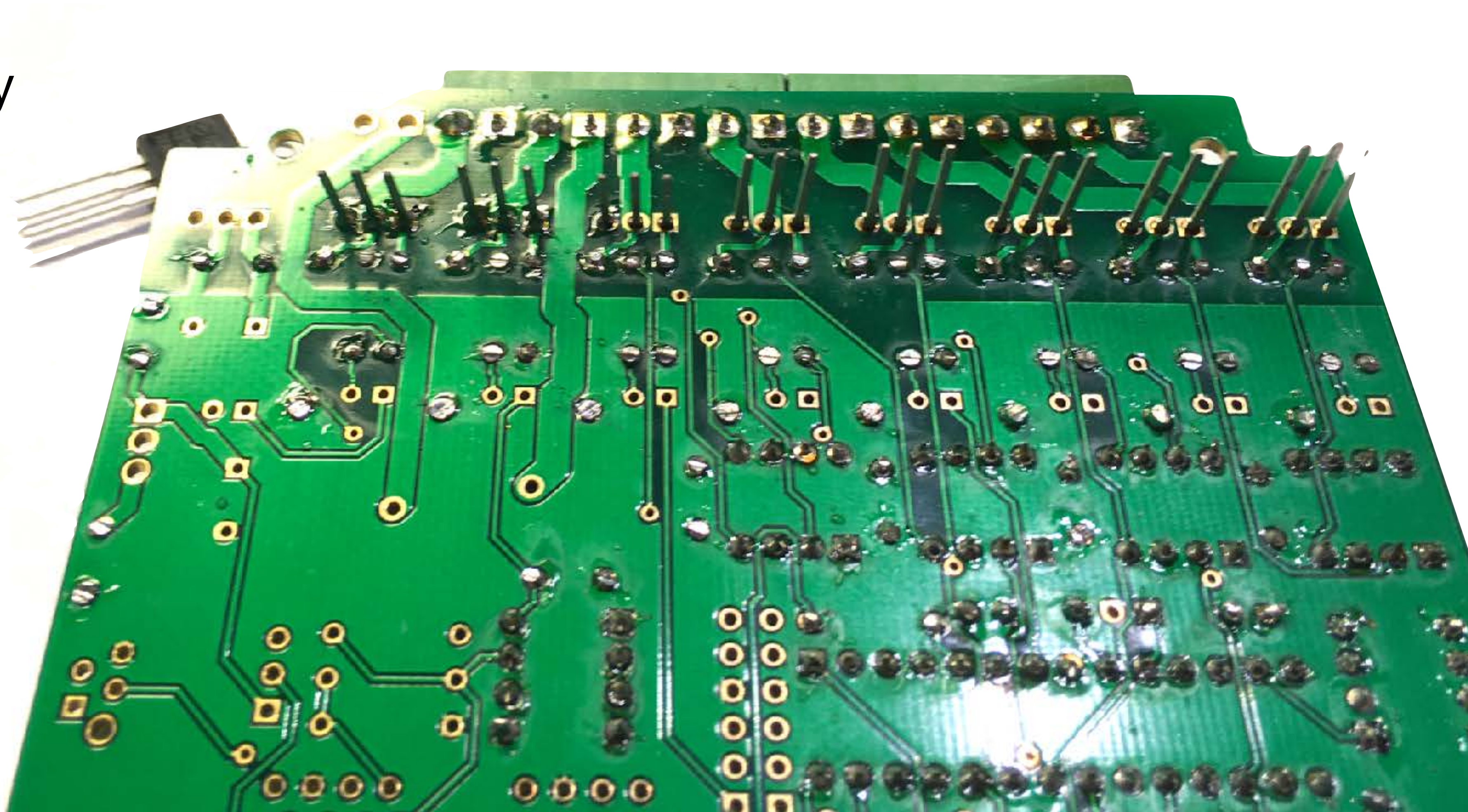- (so, the text should be legible from the side)

step 8a

- collect 8 IRFZ44 FET
  and 1 LM7812 regula
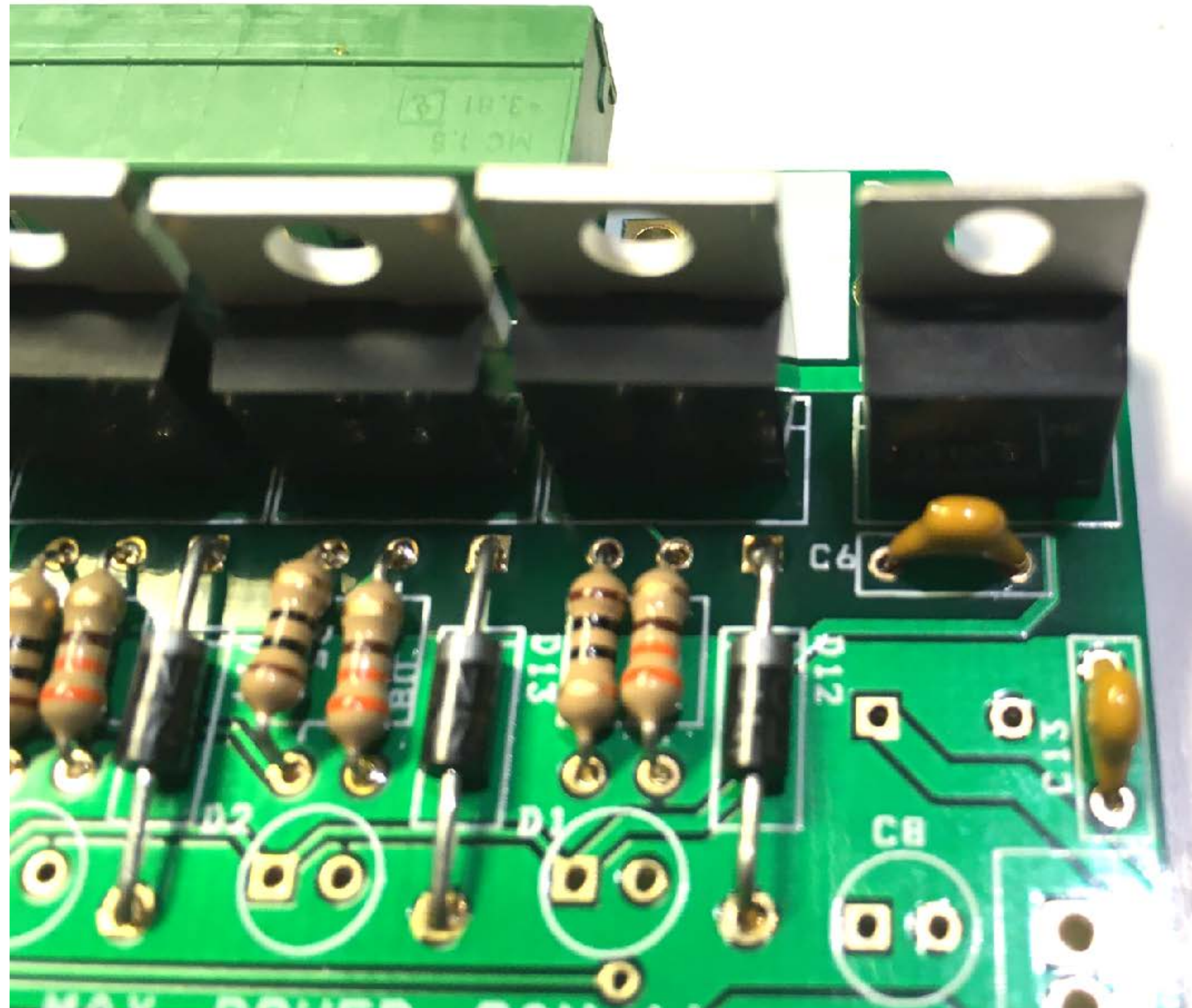 (both TO220 but the
  has different thickne

step 8b

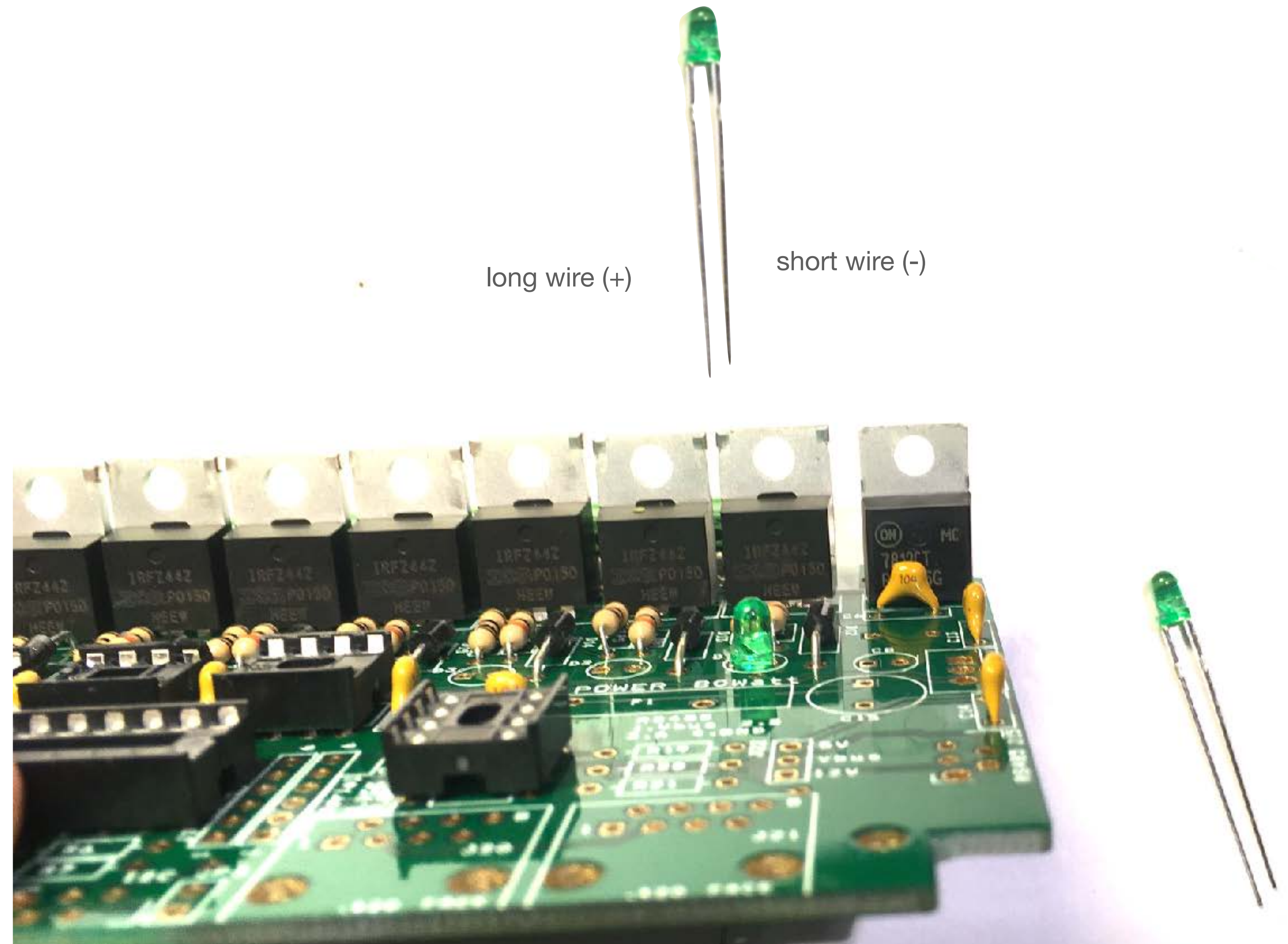- mount 8 FETs, legs can get in all the way (mount flush at PCB side)

step 9: LM7812

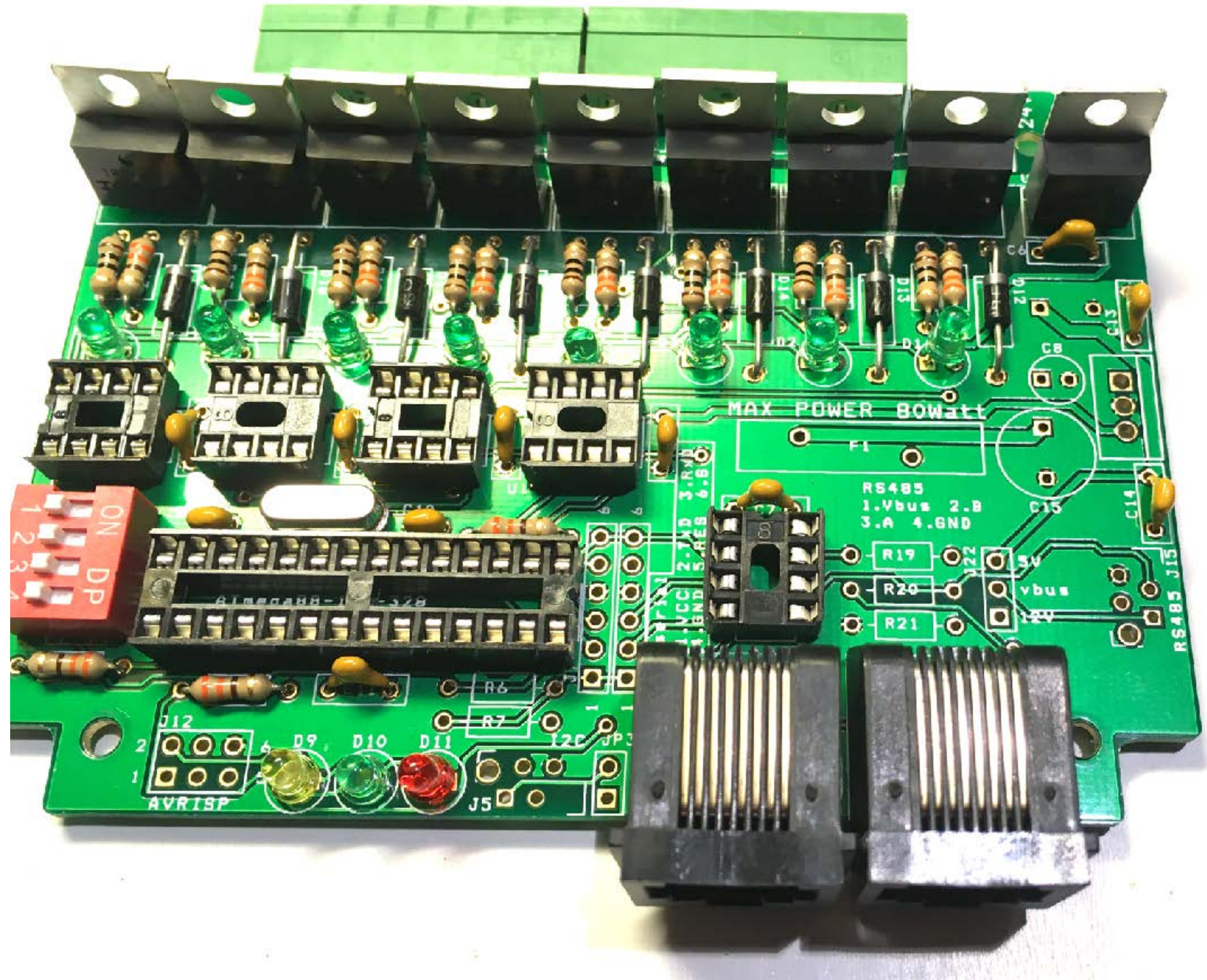- mount the linear regulator (LM7812)

step 10: LEDs

- watch orientation! long wire (+) should go in square pad!

- 8 green LEDs at the FET side have the (+) left as shown ->

- three leds, (yellow, green, red) at the bottom have the (+) right. Please keep this order!
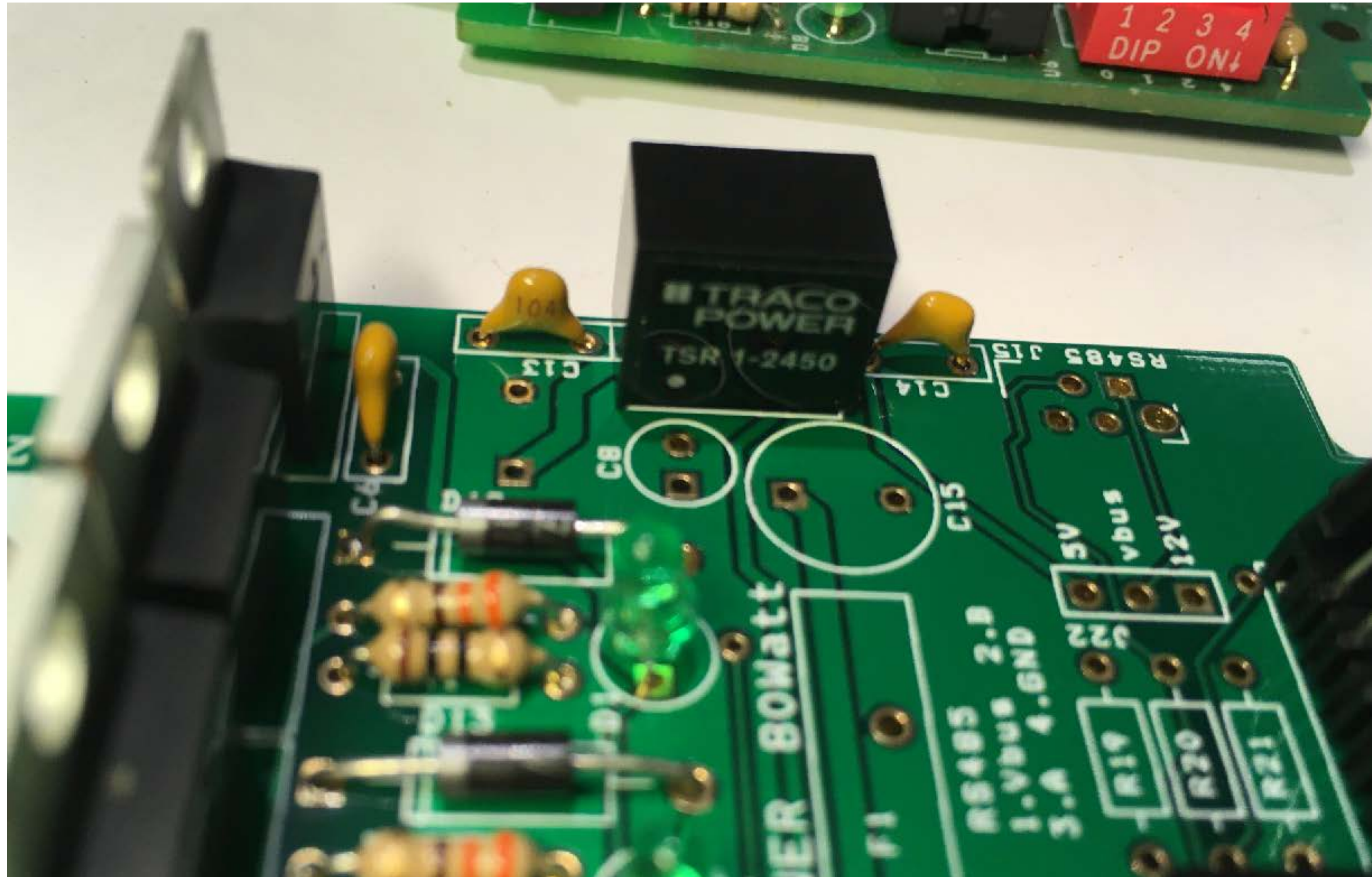
long wire (+)   short wire (-)

step 11: RJ45

- Two RJ 45 sockets

- plastic strip on side of ONE of the sockets need to be taken off (knife, pliers) in order to fit
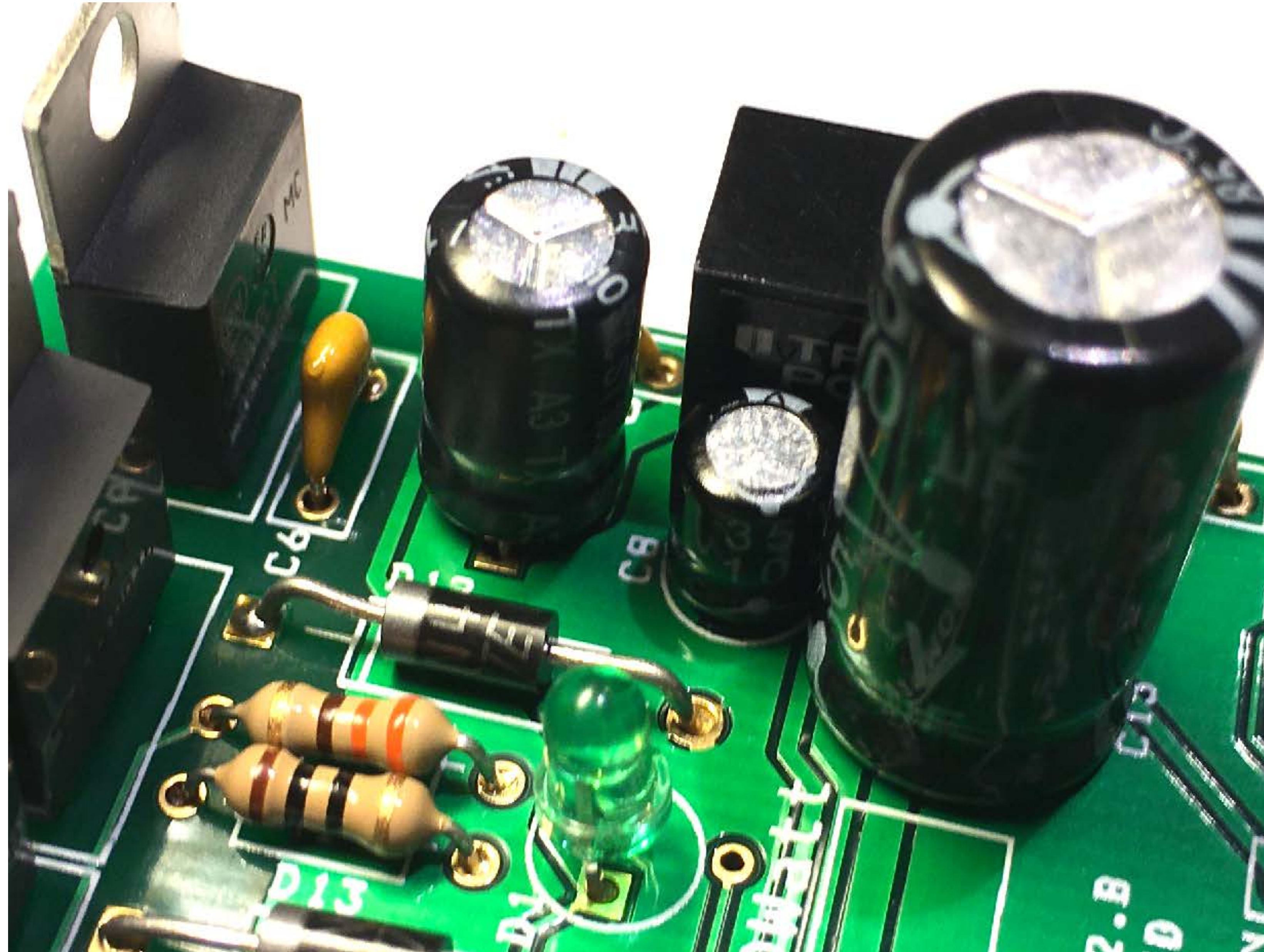
step 12 regulator

- Traco Power TSR 1-2450 regulator

- sloppy pin fit: mount as much on the PCB as possible
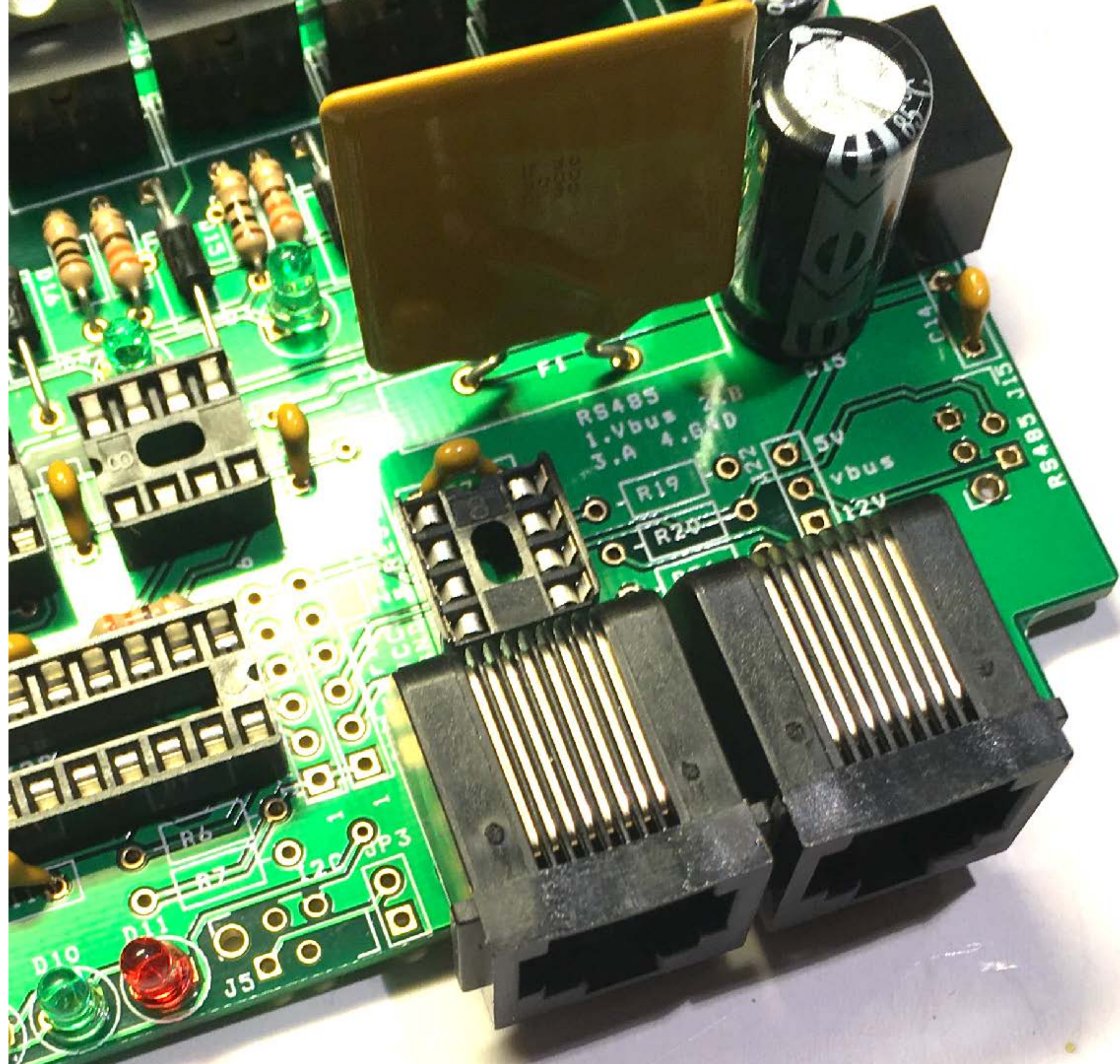
step 13 elcos

- mount three elco's

- watch polarisation: stripe on side is (-)

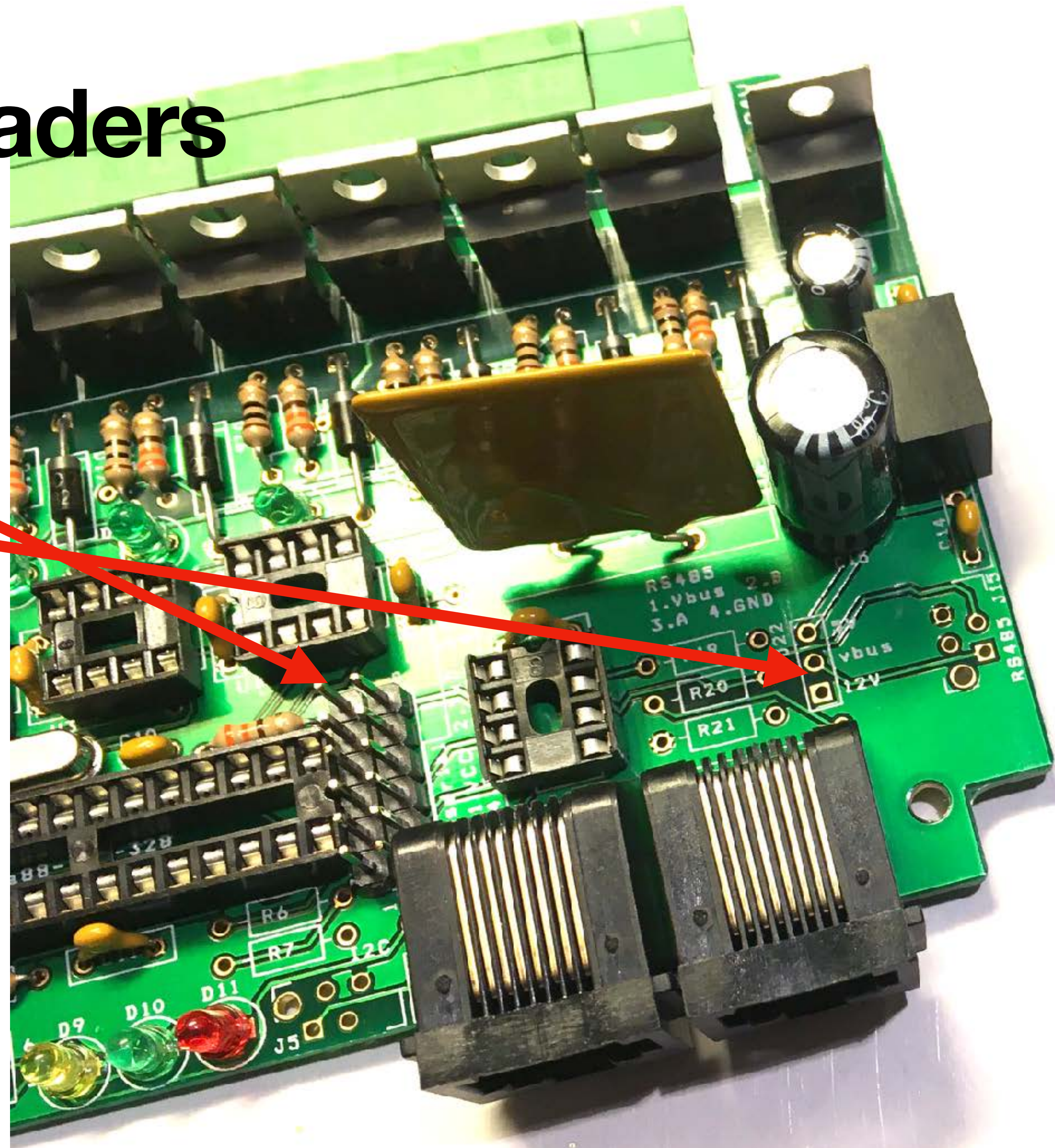- (+) side should go in square pad

- check sizes

step 14: fuse

- mount the fuse

step 15: pin headers

- 2 x (1x6 pin)

- 1 x (1x3 pin)

- 1 x (2x3 pin) ISP (not in this picture)

step 16 IC's

- (check!) 4 x TC4423 (in a row)

- 1 x MAX485 (or sipex or similar) next to the RJ45 sockets

- 1 x ATmega88

- carefully bend the legs a bit (on the side on table)

- check orientation!