

Learn-to-Solder Exercise: “Flasher Circuit”

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Bag of parts with instructions, plus one extra part – an 8-pin socket for the chip.

PARTS LIST AND INSTRUCTION FOR LEI
*READ ALL INSTRUCTION BEFORE
STARTING THE PROJECT!*

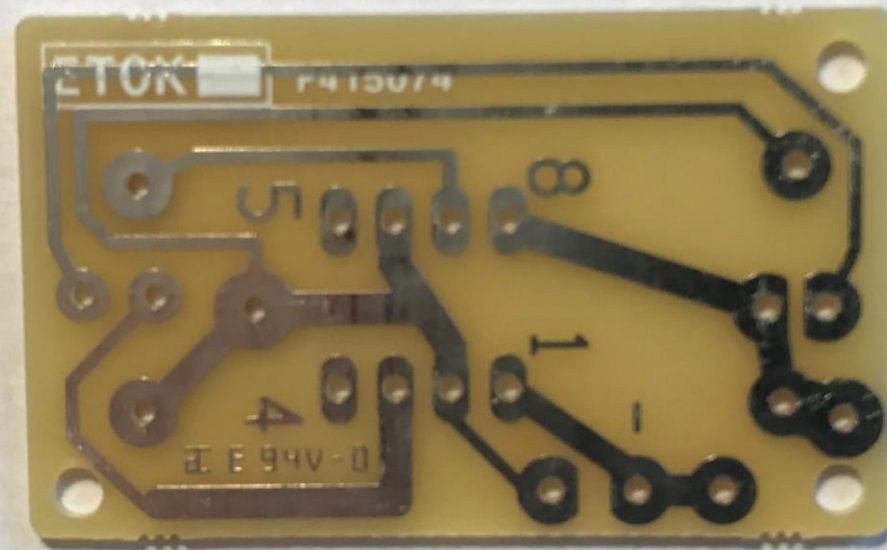
Your kit should include the following parts:

- 1 each - P.C. BOARD
- 1 each - 555 timer I.C.
- 1 each - 33K ohm resistor (orange, orange, orange)
- 1 each - 120K ohm resistor (brown, red, yellow)
- 1 each - 4.7 MFD capacitor with radial (P.C. leads)
- 2 each - L.E.D. (assorted colors)

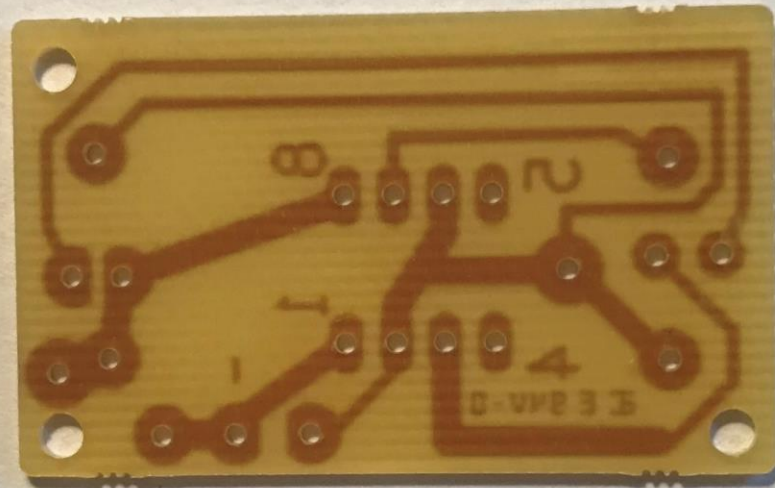
Instructions – use this photo slide deck instead.



555 Timer IC (Integrated Circuit AKA “chip”) plus 8-pin socket (the part added to the kit). Dot on lower left corner of chip indicates pin 1.



**“Bottom” of PCB (Printed Circuit Board)
(plastic, with metal “traces” between various holes)
Do all soldering on this side.**



**“Top” of PCB (Printed Circuit Board)
Place all components on this side, with
their “leads” (legs) poking through the holes.**



9-volt battery “snap”
The battery can only go on one way.



LEDs (light-emitting diodes)
Orientation/polarity is important.
The longer lead is positive. Also ridge at base of
plastic is ground off next to the negative lead.



Resistors (notice that they are not identical)

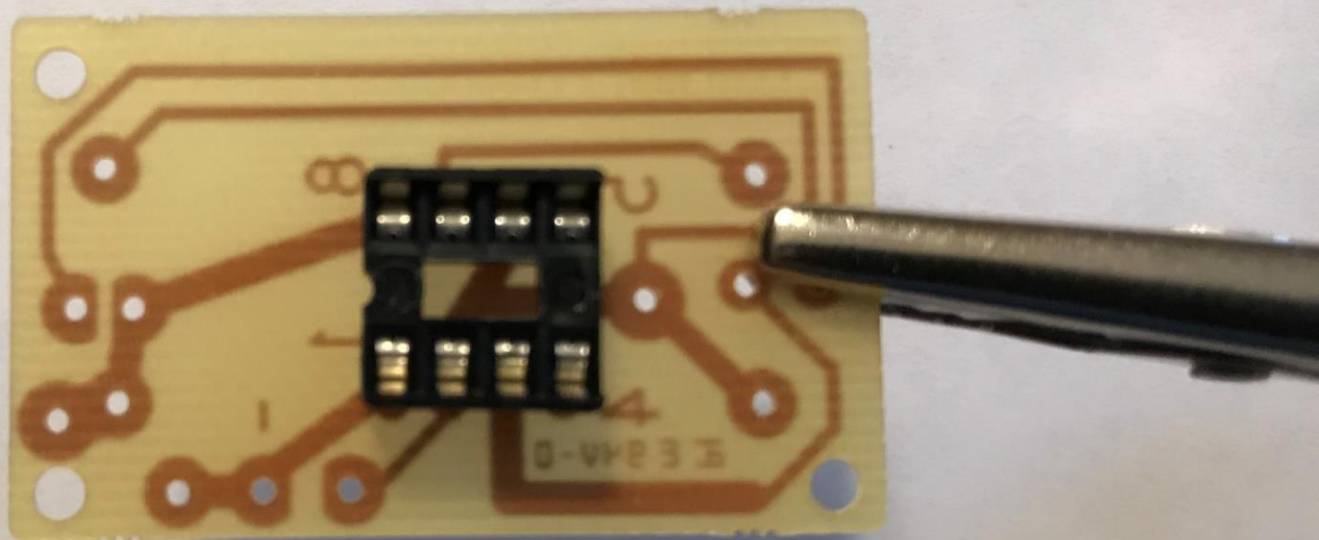
Orientation/polarity is not important.

33 kOhm: orange, orange, orange (gold – tolerance)

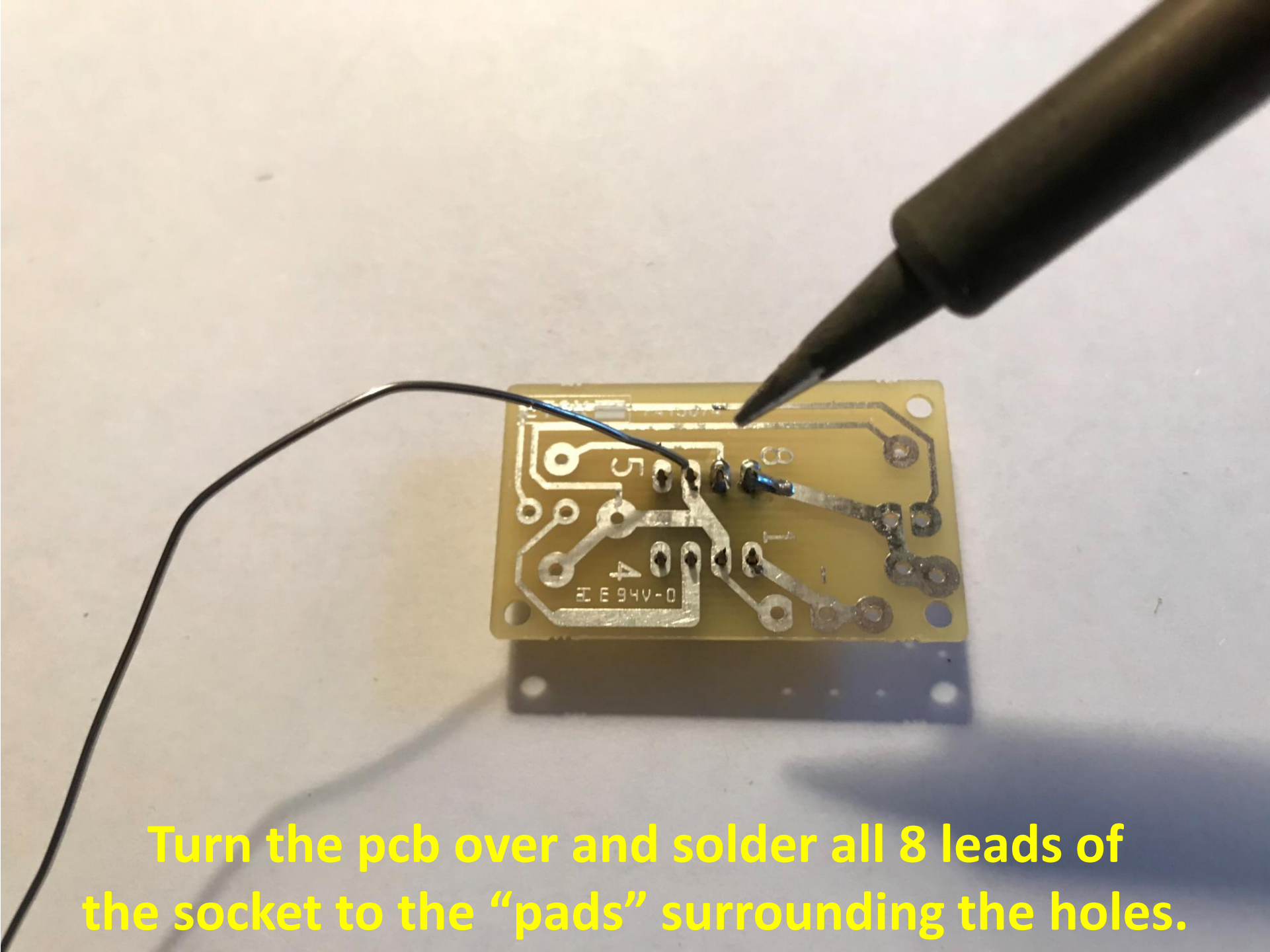
120 kOhm: brown, red, yellow (gold – tolerance)



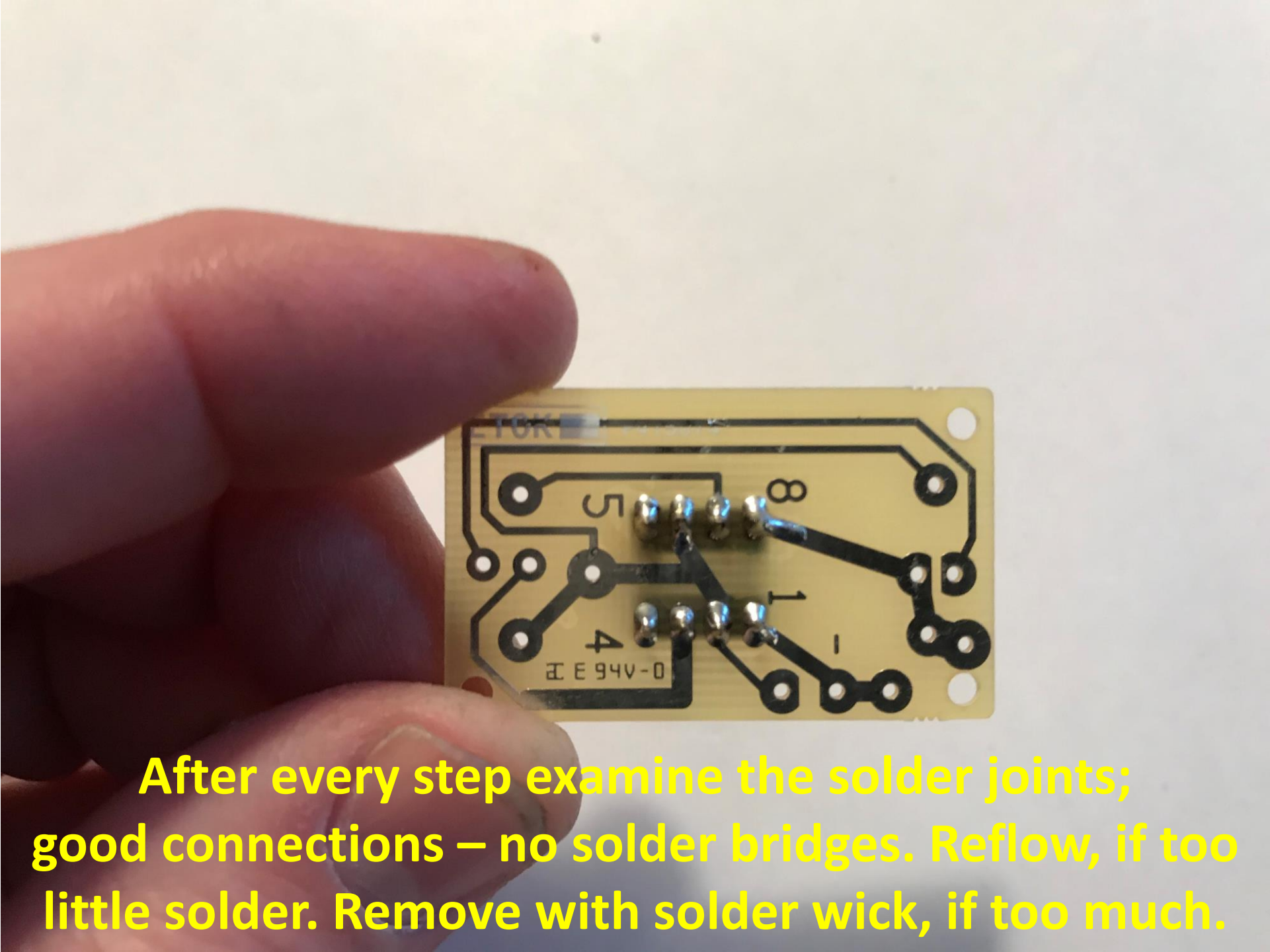
4.7 microfarad electrolytic capacitor
Orientation/polarity is important.
The negative lead is marked and is also shorter.



Place the socket (to hold the chip) on the top of the pcb with its leads extending through the holes.



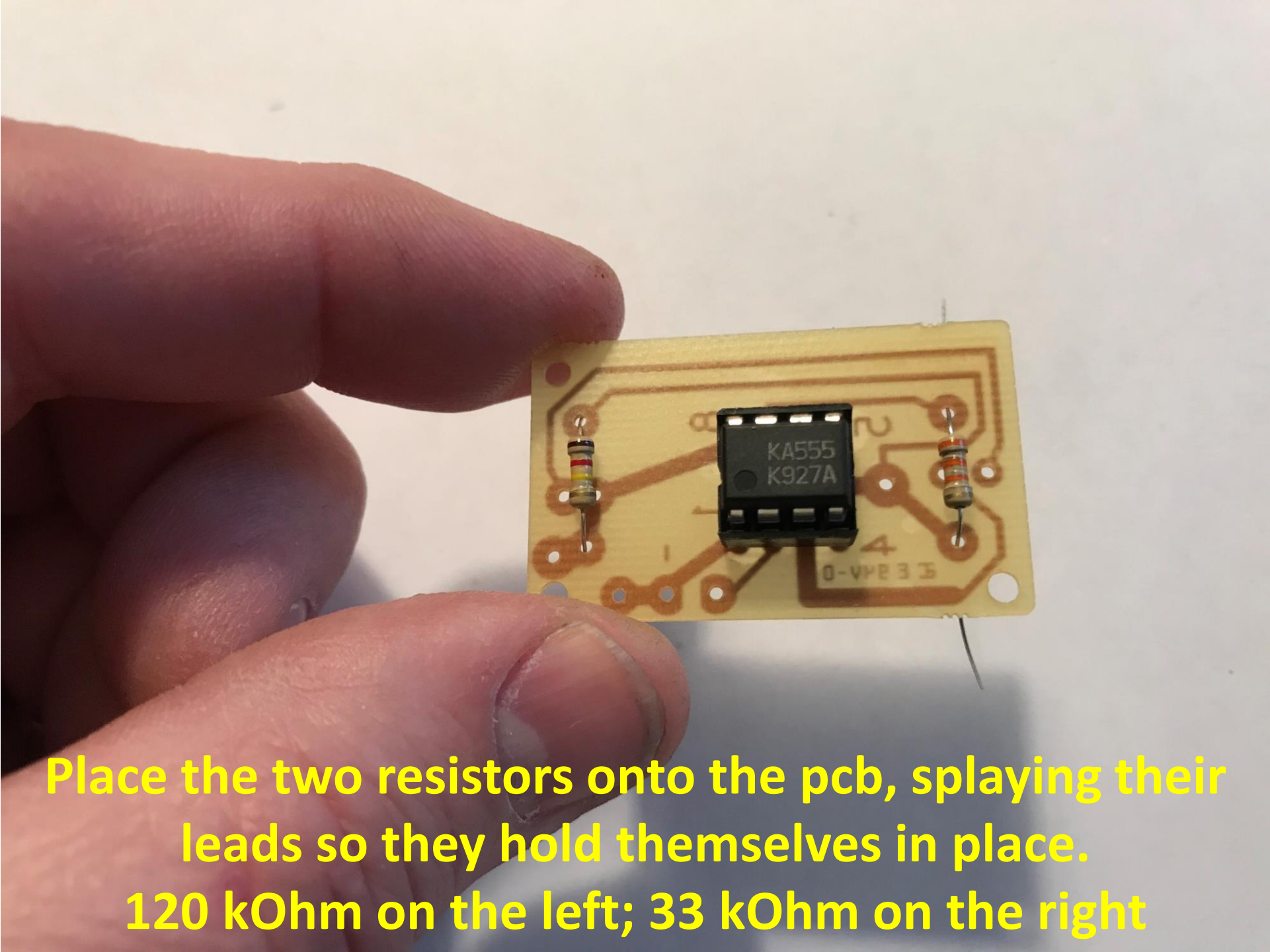
Turn the pcb over and solder all 8 leads of the socket to the “pads” surrounding the holes.



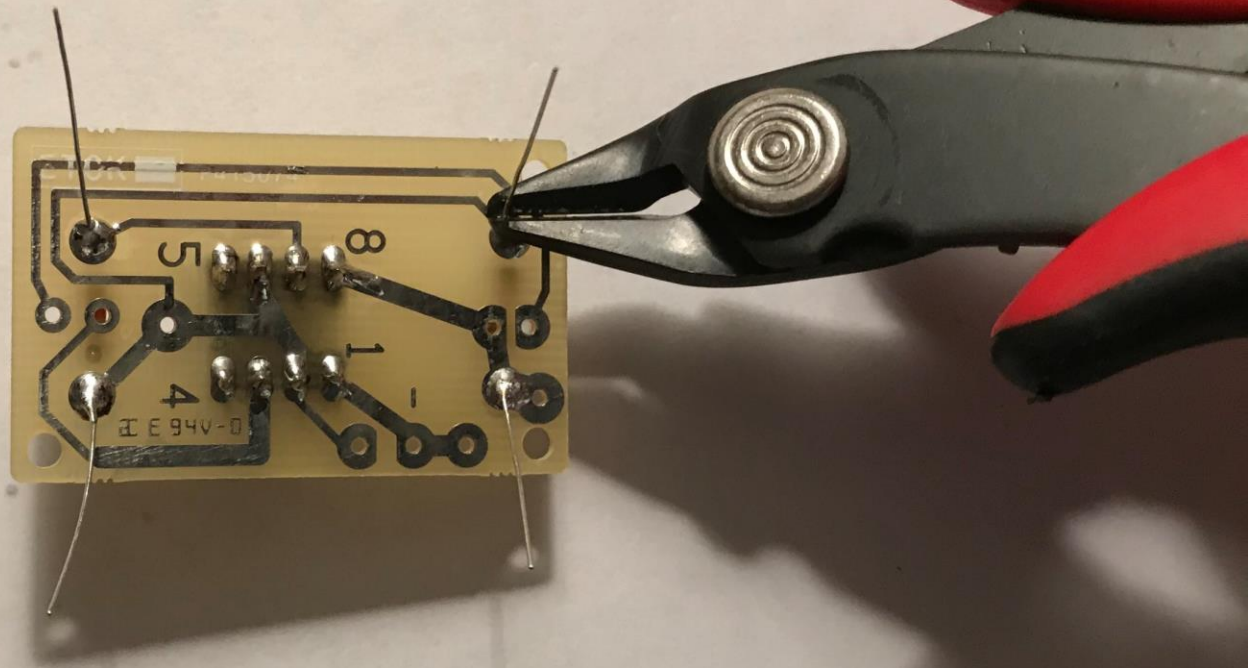
After every step examine the solder joints; good connections – no solder bridges. Reflow, if too little solder. Remove with solder wick, if too much.



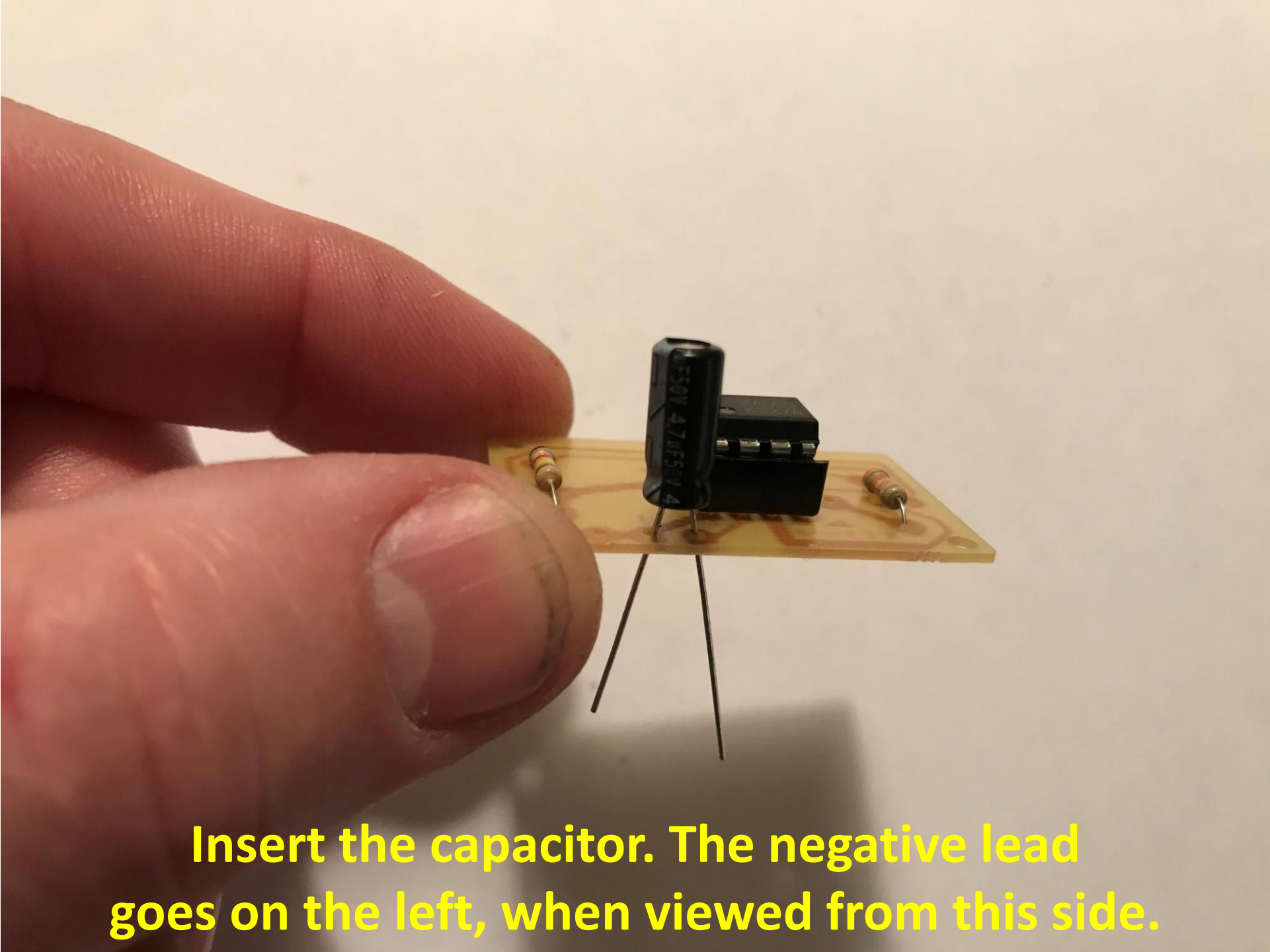
Place the 555 IC into the socket. You may need to pinch its leads together slightly to get it to fit.



**Place the two resistors onto the pcb, splaying their leads so they hold themselves in place.
120 kOhm on the left; 33 kOhm on the right**



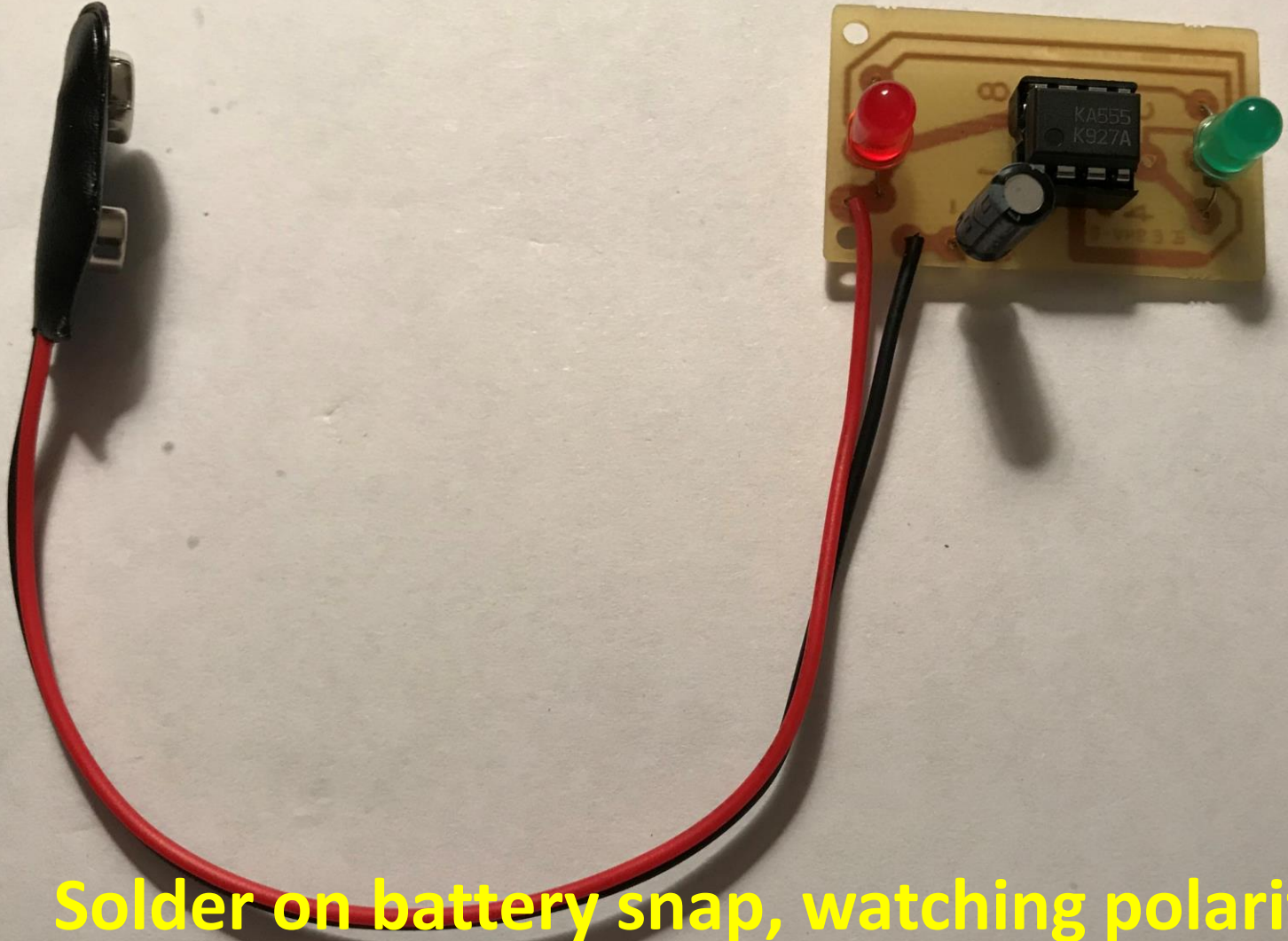
Solder the resistors in place then clip off the excess leads. Always cover (or hold) wires/leads while they are being clipped.



Insert the capacitor. The negative lead goes on the left, when viewed from this side.



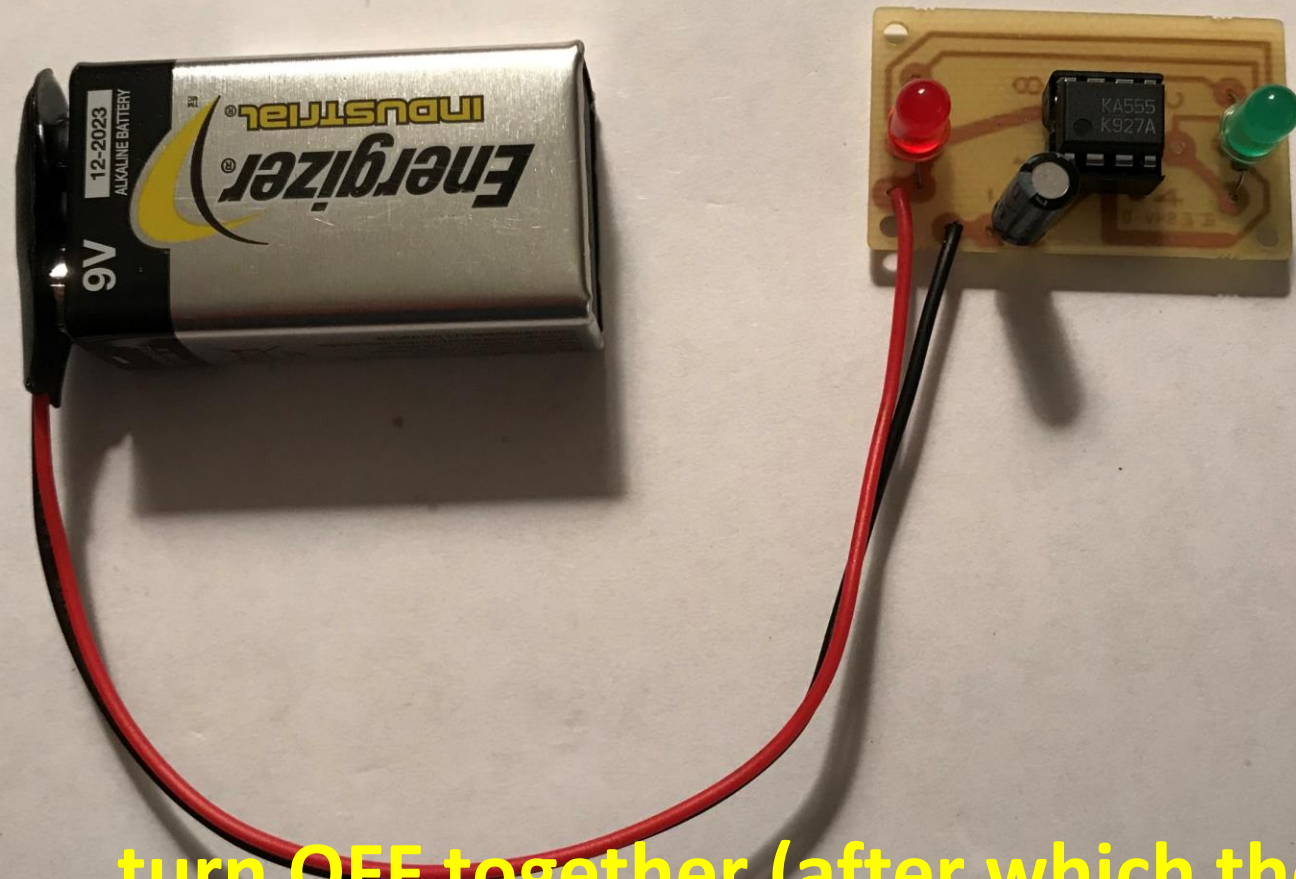
Insert the two LEDs. The negative leads both go on the left, when viewed from this side.



**Solder on battery snap, watching polarity.
Red is positive; Black is negative (AKA "ground")**



When a 9-volt battery is applied the two LEDs should turn ON together then...



...turn OFF together (after which the cycle repeats about once a second) – hence the name “flasher” circuit.