Sketching with Hardware

03: Soldering

Soldering Iron

Soldering Iron Stand

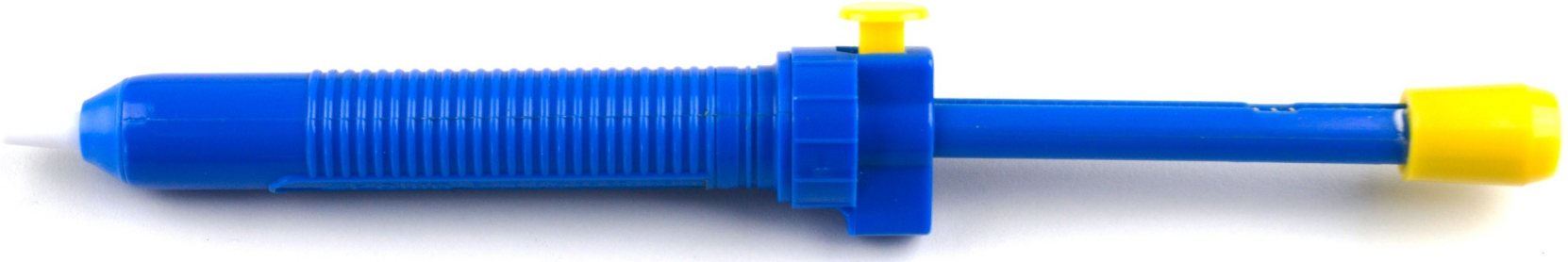
Soldering Tip Cleaner

Solder

Solder Flux


FELDER
LÖTTECHNIK
Lötfett
nach DIN EN 29454.1, 3.1.1.C
zum Weichlöten und Verzinnen
Grasa para soldar
para soldar en blando y para estañar
Soldering grease
for soldering and tinning
Graisse à souder
pour la soudure tendre et l'étamage
4 005796 243019
Nettoinhalt :
net/content:
50 g
Made in Germany
Im Lipperfeld 11 • D-46047 Oberhausen
Tel.: 0208/65035-0 • www.felder.de

Desoldering Pump



Safety Instructions

- The soldering iron gets hot (over 300 °C)
  - Do not touch metal parts
  - Use the soldering iron stand
  - Unplug if not needed anymore
- Solder contains lead (which is poisonous)
  - Wash you hands after using it (and especially before eating)
- Do not inhale the soldering smoke

Preparation

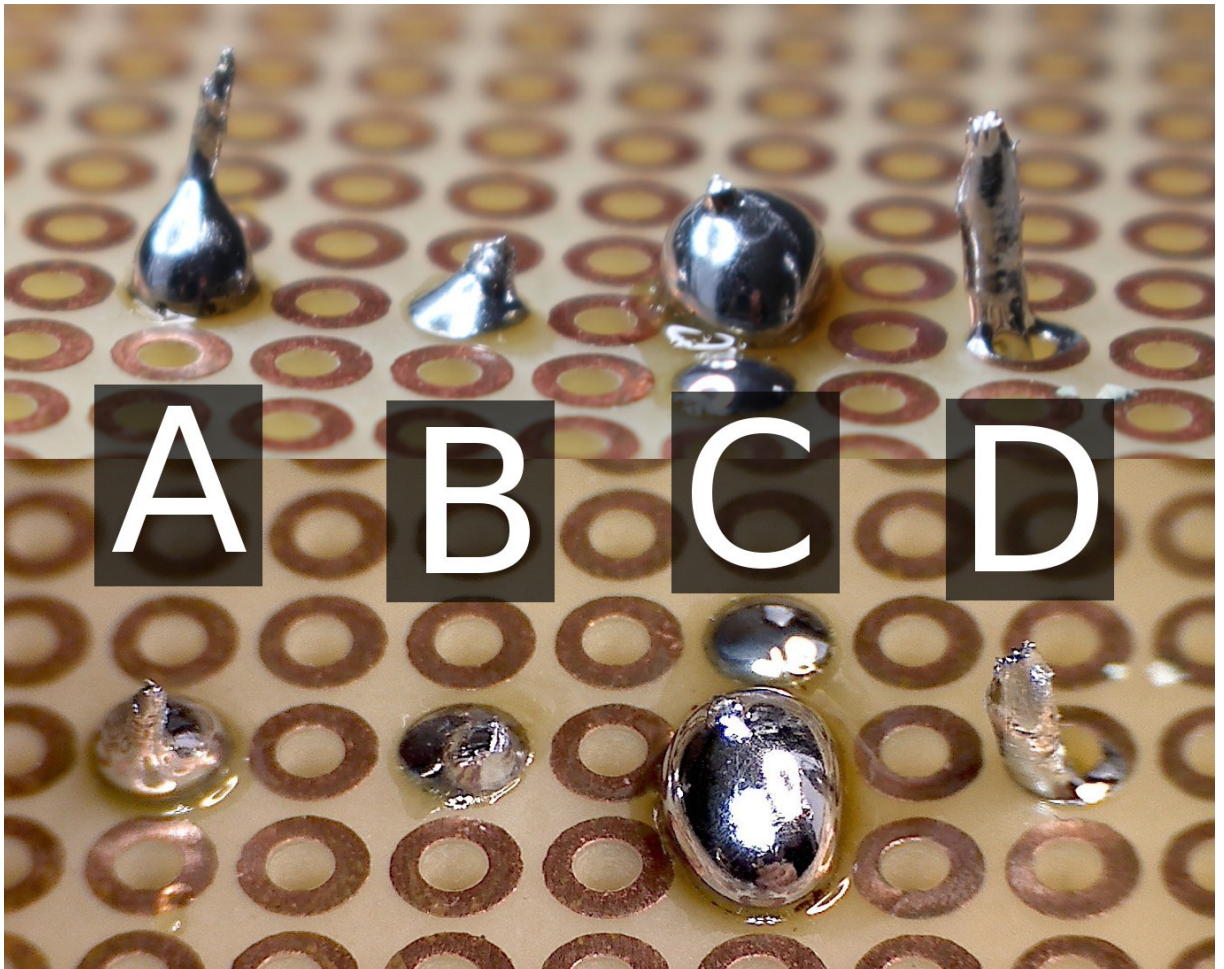
- Make room on your table
- Prepare your soldering tools:
  - Soldering iron + stand (do not plug it in yet)
  - Solder
  - Soldering tip cleaner
  - Working surface
  - Desoldering pump
  - Solder flux

Placeholder: Closeup soldering

Some tips

- Bigger contact area → faster heat transfer
- Many components are heat sensitive
  - → Try to solder them quickly
- Cover wire with solder beforehand (solder flux helps)
- Clean the soldering iron before and after use

Good vs Bad Soldering...

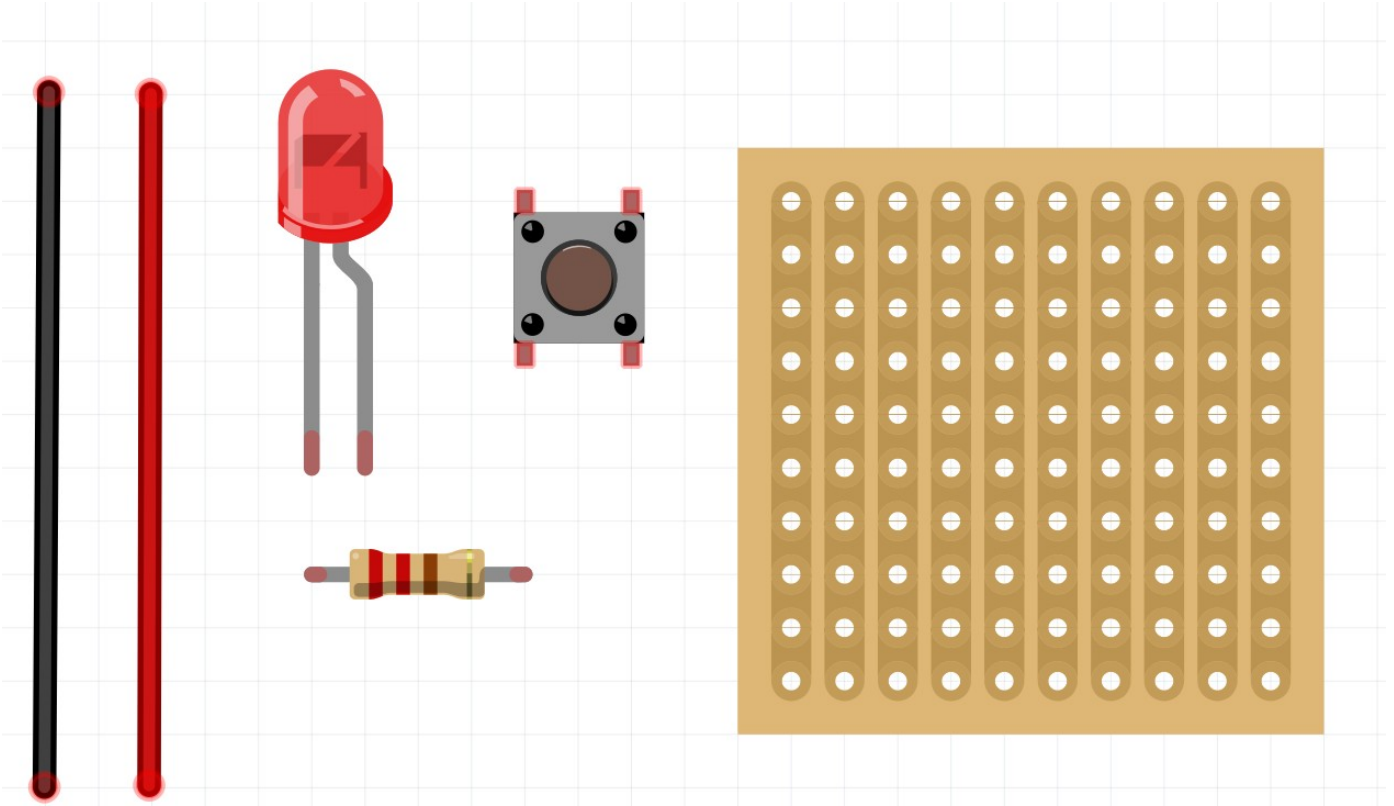


https://commons.wikimedia.org/wiki/File:USAF_EOD_explosion.jpg

Tutorial 02 - Soldering

Exercise: Mini-Circuit

- LED, button, resistor, wire, perfboard



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Approach

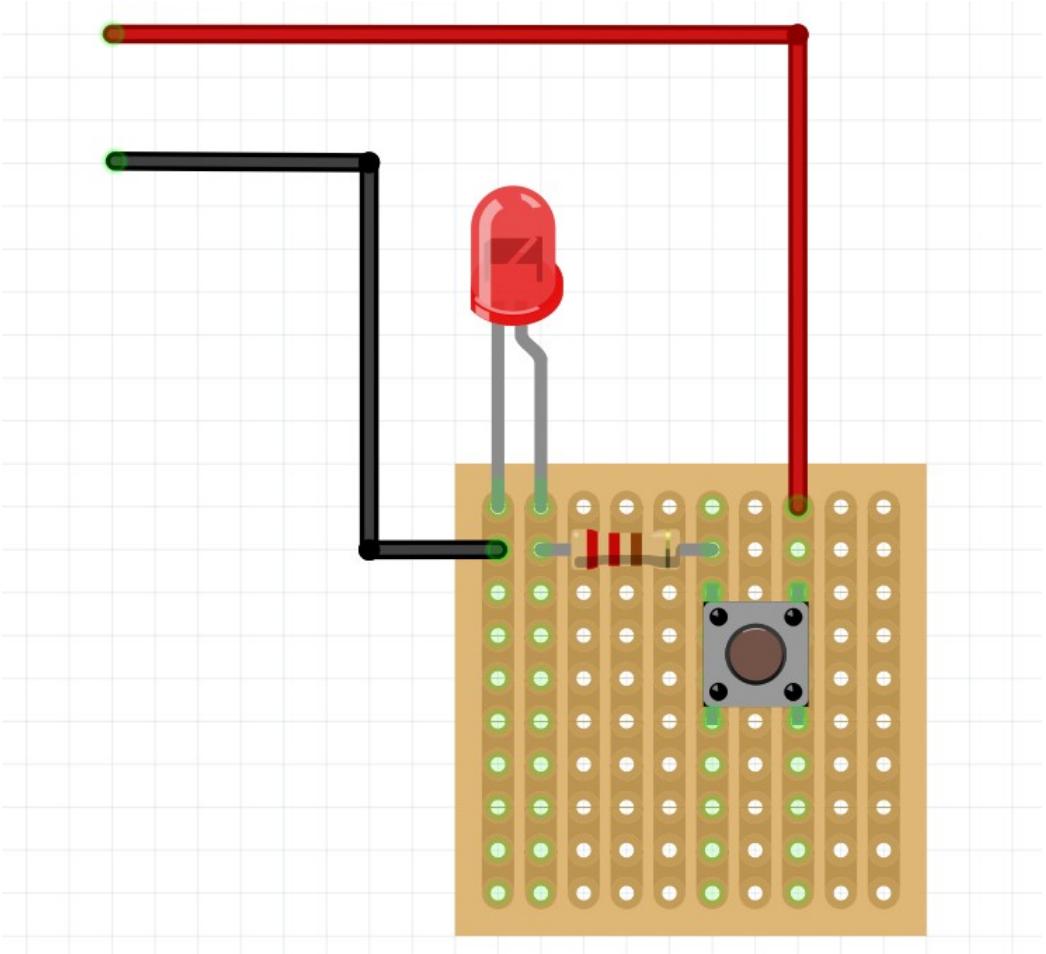
- Think of a layout beforehand
- Bend the component’s legs to fit into the board
- Place components on the copperless side of the board
- Solder components on the back side
- **Tip:** Begin with resistor and wire as they are more resistant to heat

  → Heat can damage the LED or melt the plastic button

Testing the circuit

- Continuity testing:
  - Is everything connected properly?
  - Are there any short circuits?
- Plugging it in…
  - Red wire to 5V (+), Black wire to GND (-)
- If it does not work: Troubleshooting
  - Correct polarity of the LED?
  - Correct resistor?
  - Is current flowing?
  - ...

Solution



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