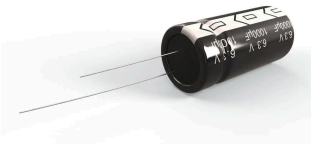
IEEE UCF 2024 AUDIO EQ WORKSHOP

What's in the Kit:

- 3.5mm Mono Audio Jack (1)
- Speaker (1)
- Resistors (4)
    - 100 ohm (2)
    - 220 ohm (2)
- Capacitors
    - 0.47 uF (2)
    - 10 uF(2)
- 10k ohm potentiometers (3)
- Wires (16)
- Prototype Soldering Board (1)

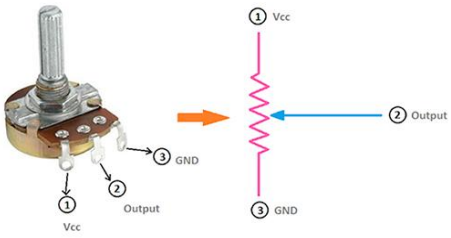
Resistor

Schematic symbol of Resistor



Capacitor

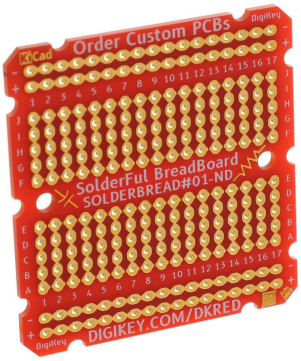
Schematic symbol of Capacitor



Potentiometer info-graphic

Soldering

1. Take out the **soldering prototype board**. It should look something like this:



2. The "**ground rails**" are denoted by a minus sign at the top and bottom of the board. Take a **wire** and **strip the ends** off using the **wire cutters**. Connect the two ground rails together by **soldering** the **wire** between them.
3. Take out the **audio jack**. **Solder** one wire to the leg closest to the front of the jack. **Solder** another wire to the middle one. When done, place this to the side for later.

4. Take out all three **potentiometers**. Solder one wire to each leg of each potentiometer. When done, place these to the side for later.

5. Take out the **speaker**. Solder one wire to the positive leg, and one wire to the negative leg.

Placing Components

6. Before soldering any components onto the board, place all resistors and capacitors on the board in the following manner. The value of the resistors and capacitors can be seen in small print on the components.
7. Grab a **220 ohm** resistor. Place one of the legs at **D29** on the prototype board and the other at **D20**.
8. Grab a **10uF** capacitor. Place the positive leg (longer leg) at **C20** and the shorter leg (negative leg) to **bottom ground**.
9. Grab a **0.47uF** capacitor. Place the positive leg at **D10** and the other at **D5**.
10. Grab a **100 ohm** resistor. Place one of the legs to **C5** and the other to **bottom ground**.
11. Grab a **10uF** capacitor. Place the positive leg to **I22** and the negative leg to **I17**.
12. Grab a **220 ohm** resistor. Place one of the legs at **J17** and the other to **top ground**.
13. Grab a **100 ohm** resistor. Place one of the legs at **H17** and the other at **H11**.
14. Grab a **0.47uF** capacitor. Place the positive leg at **I11** and the other to **top ground**.
15. Once all the components are on the board, you may solder them. After soldering, use **wire cutters** to snip off the legs sticking out of the board.

Filters and Other Wirings

16. For the Low Pass filter, grab one of the **potentiometers**. Solder the first leg to **E20** and the second to **J8**. Also solder the third leg to **ground**.
17. For the High Pass filter, grab another **potentiometer**. Solder the first leg to **E5** and the second to **I8**. Also solder the third leg to **ground**.

18. For the Band Pass filter, Grab the last **potentiometer**. Solder the first leg to **F11** and the second to **H8**. Also solder the third leg to **ground**.
19. Grab two wires. Use one wire and solder each connection:
    - **C29** to **J22**
    - **B29** to **A10**
20. Grab the **audio jack**. Take the middle wire and solder it to **E29**. Take the other wire and solder it to **ground**.
21. Grab the **speaker**. Take the positive wire and solder it to **G8**. Take the other wire and solder it to **ground**.

When you're done come up to us to test it out!