Building an Audio Amplifier

March 2025

What Is It?

- A quick-to-build Audio Amplifier connected to an 8-ohm Speaker
- Experiment with it, to see what you can do with it!
- The Audio Amplifier is powered from a 9V battery.

Board Overview

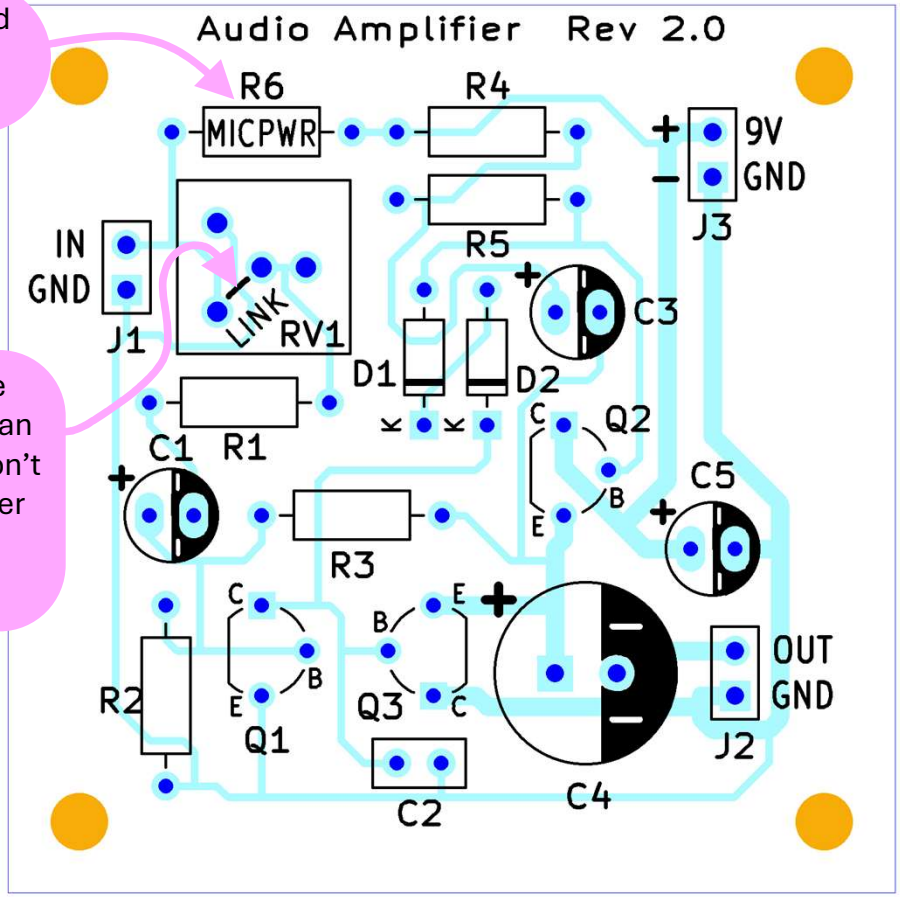
A quick-to-assemble Audio Amplifier!

Parts List

Ref	Value
R1, R4	1k Resistor
R2, R6	10k Resistor
R3	47k Resistor
R5	1.5k Resistor
RV1	10k Trimmer Resistor
D1, D2	1N4148 Diode
Q3	PNP Transistor (BC559)
Q1, Q2	NPN Transistor (BC549)
C2	1nF Capacitor (Ceramic)
C1, C3, C5	10uF Capacitor (Polarized)
C4	470uF Capacitor (Polarized)

R6 is only required if you're using an Electret Mic

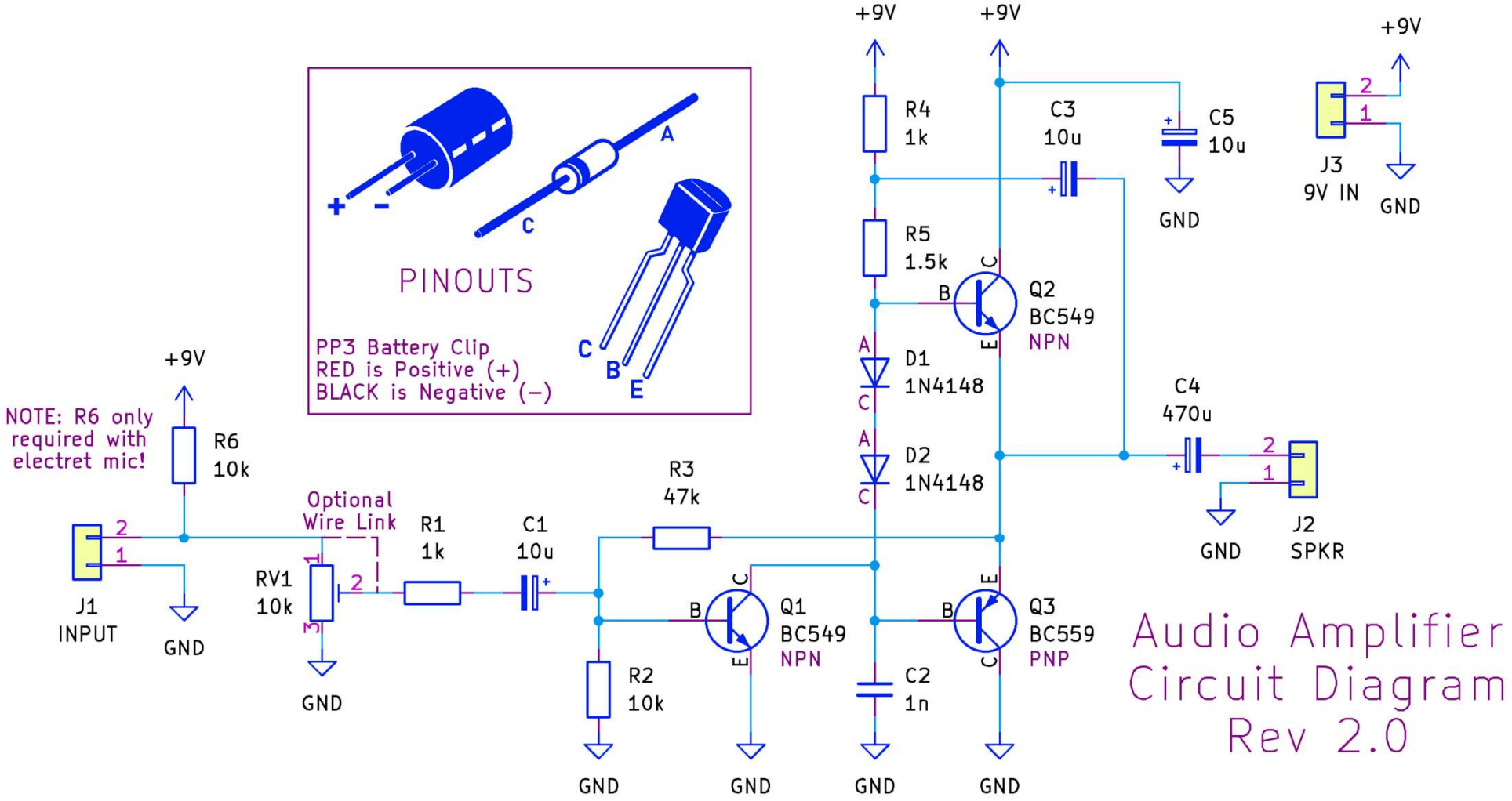
RV1 adjusts the input level. You can omit RV1 if you don't have it, and solder a wire short as shown here



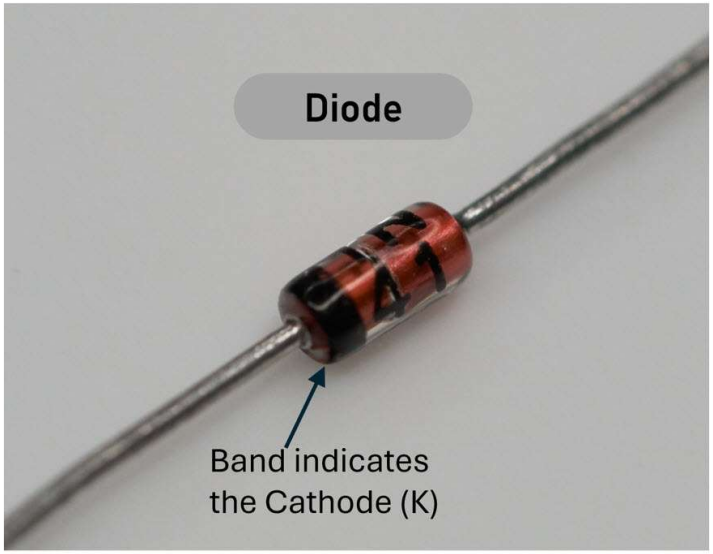
Tips

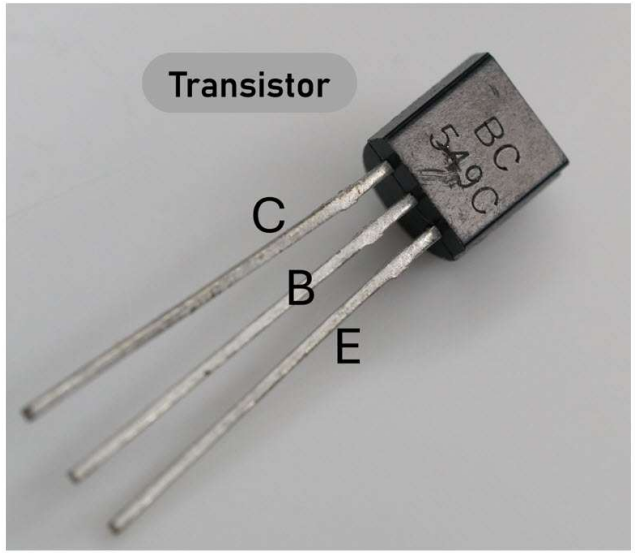
- **Electret Microphone**
  - The mic needs to be soldered with the correct orientation. Observe the markings or use a multimeter to confirm which pin is connected to the metal can of the mic, which will be the GND connection
  - If you're not using an electret mic, then you don't need resistor R6 (R6 provides power to the mic)
- **Audio Level**
  - If the audio input level is too high, the output will distort. Adjust RV1 to control the level. If you don't have RV1, then you need to solder a wire link to as shown on the board markings.
- **Component Orientation is Important**
  - Resistors, and the ceramic capacitor, can go in either way
  - The polarized capacitors (electrolytic capacitors) have a band marking the negative side
  - The diodes have a band that indicates the Cathode (K) end
  - Follow the graphic outlines marked on the board accordingly, for all components
  - It isn't essential to observe speaker polarity
- **Careful not to short the battery!**
  - Use the holes on the board to provide a bit of strain relief and separation for the battery connections and any other wires

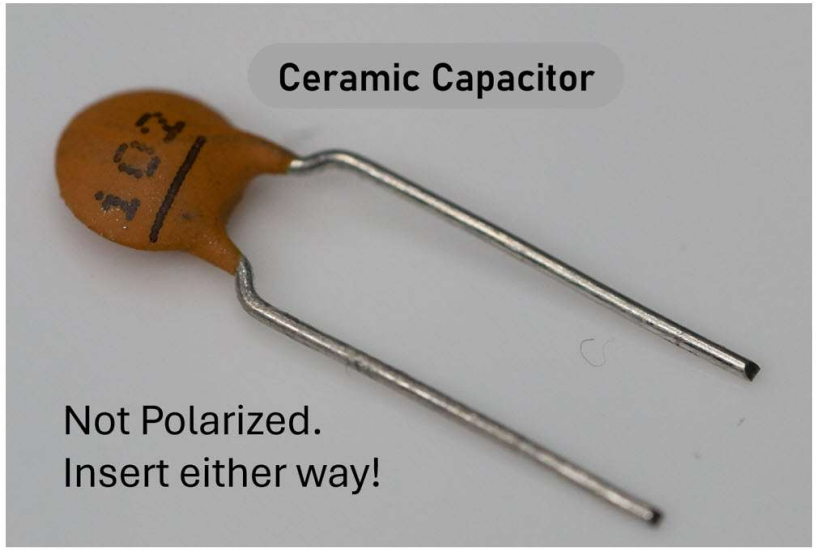
For Your Reference

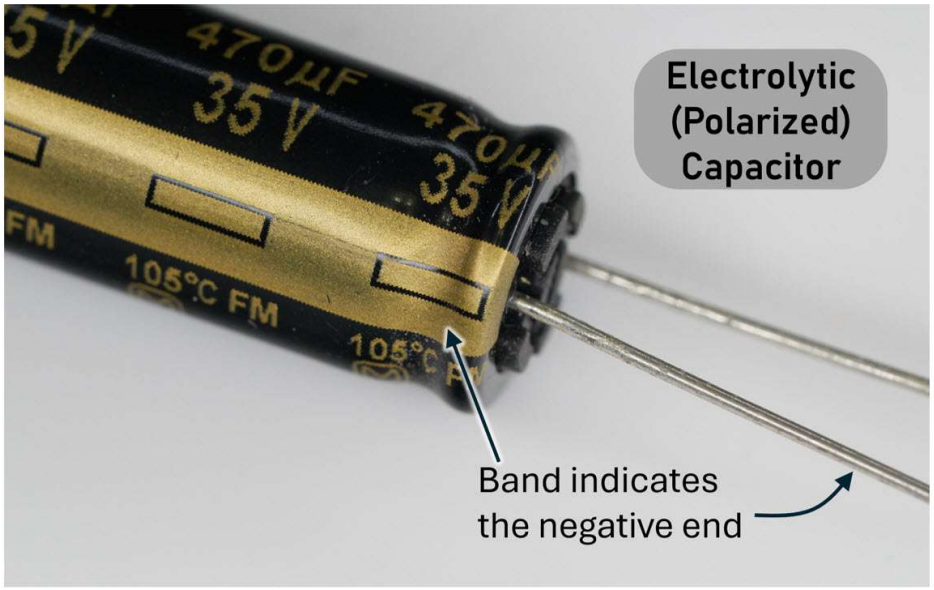


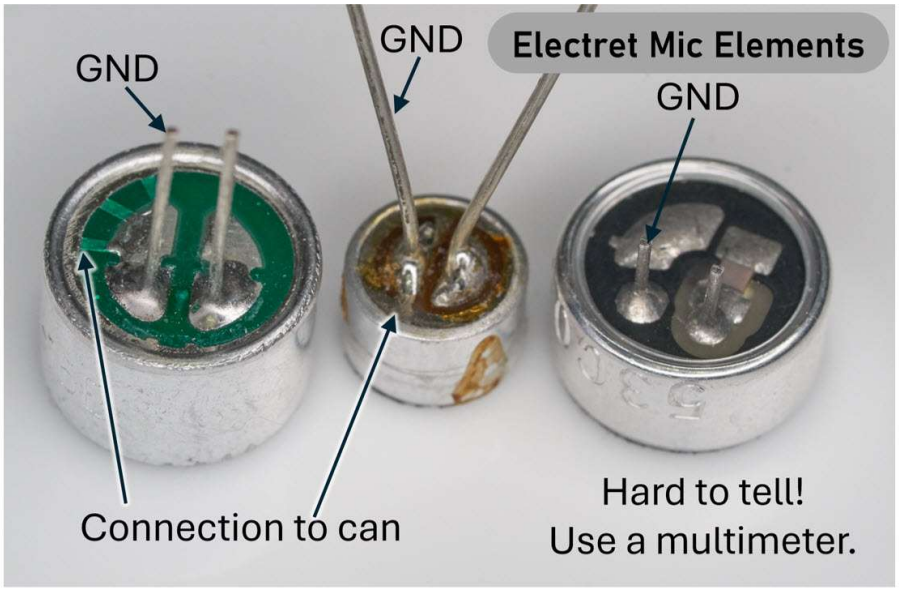
Polarity


Diode
Band indicates
the Cathode (K)


Transistor
BC
549C
C
B
E


Ceramic Capacitor
Not Polarized.
Insert either way!


470µF
35 V
105°C FM
Electrolytic
(Polarized)
Capacitor
Band indicates
the negative end


GND
GND
GND
Electret Mic Elements
Connection to can
Hard to tell!
Use a multimeter.

Problems?

Ask John Alexander! ☺