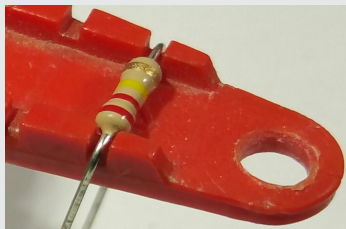




## Mattson kit general build notes

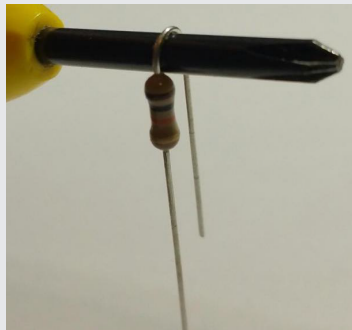
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### Resistor, diode lead spacing



The majority of diode and resistor lead spacing on Mattson kits is 0.4 inches. If you have a bending jig, use the .4 slot.

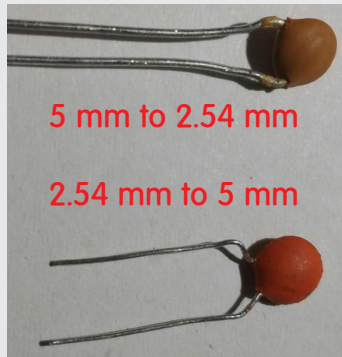
### End mounted resistors



On advanced circuit boards with a large component count, we mount the resistors on one end and bend the other lead 180 degrees in order to fit a smaller lead spacing pattern.

I like to use a small screwdriver shaft or ball point pen cartridge as a bending jig. I like nice, curved leads. It keeps stress off of the lead/body junction of the resistor and gives good test lead points for measurements. (It also looks better)

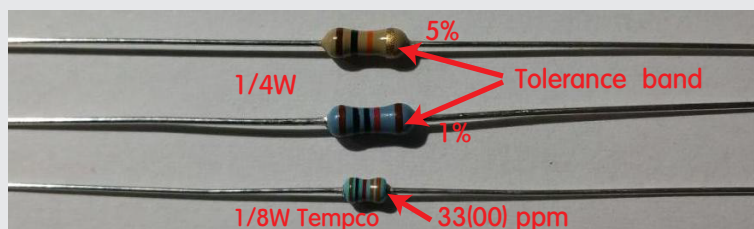
### Capacitor lead spacing



The majority of capacitor lead spacings on the circuit boards are 0.1 inch or, 2.54mm.

Occasionally, component sources are out of stock and a capacitor will be supplied with a larger or smaller lead spacing. Bending the leads closer or, spreading the apart to fit the pad spacing is acceptable and won't change the circuit operation. The critical part is verifying the capacitor value.

### Resistors



Resistors slow down current. Learn the color code. Also, there's not a good standard for color band shades. So, red and orange may be hard to tell which is which. Same with Black, Brown, Violet. Make sure you have a meter to check if in doubt.

Putting a particular value in the wrong spot will cause the circuit to not work correctly.

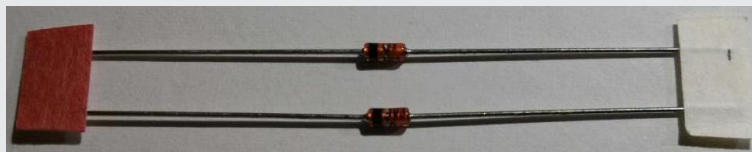
### Diodes



Diodes are cool. They're the one-way valve of the electronics world.

If they're installed backward, they won't work correctly.

### Zener diodes



Zener diodes look like normal diodes and will act like a diode when forward biased. They're real crappy for blocking current. They leak. But, they hold a voltage level well that way. Because they suck, they're used for voltage regulation and references. Don't mix them up with a normal diode.