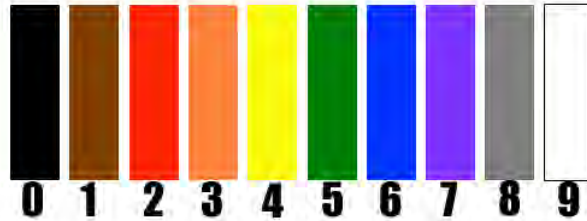


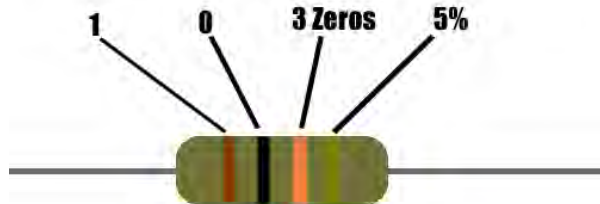
# Understanding Resistors

## **Resistor Color Codes**



When reading 4 band resistor code, you take the first 2 bands at face value. The 3rd band tells you how many zeros to add to the end. And the 4th band tells you the tolerance of the resistor. What is tolerance? Tolerance means how close the component will likely be to its intended value. So a 10k resistor with a 5% tolerance could actually be anywhere between 9.5K - 10.5k where as a 10k resistor with a 1% tolerance will be anywhere between 9.9k and 10.1k. The lower the tolerance the more accurate the component will be. With resistors, a BROWN band = 1%, a GOLD band = 5%. There are also Silver =10% and red = 2%, but you will rarely see those this day and age. The only time you are likely to see 10% is if you are working with vintage electronics and 2% just aren't used often.

### **10K 5% Metal Film Resistor**



5 band resistor code isn't really much different from 4 band. The first 3 bands are taken at face value. The 4th band tells you how many zeros to add to the end. And the 5th band will tell you the tolerance. You are likely to only see 5 band code on 1% resistors. This is because they are more precise and their advertised values will sometimes go out 2 decimal places, so they need the extra band.

### **10K 1% Metal Film Resistor**

