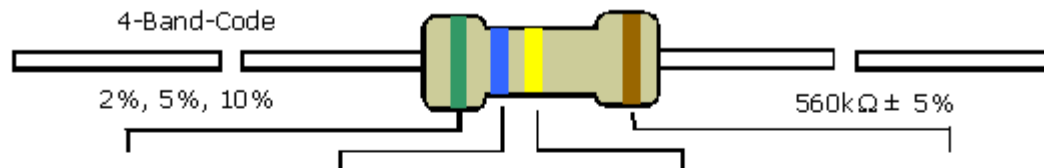


Resistor Color Code Guide

Note: I took this chart off of the web. In my experience, the tolerance band is NOT usually separated from the other bands as shown here. The most common tolerances for resistors marked this way are 5% and 10% though, and the gold and silver bands cannot be anything other than a tolerance, so no ambiguity results. If there is any ambiguity, you are supposed to read starting with the bar closest to an end. Finally, when in doubt; measure!



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE
Black	0	0	0	1Ω	
Brown	1	1	1	10Ω	± 1% (F)
Red	2	2	2	100Ω	± 2% (G)
Orange	3	3	3	1KΩ	
Yellow	4	4	4	10KΩ	
Green	5	5	5	100KΩ	±0.5% (D)
Blue	6	6	6	1MΩ	±0.25% (C)
Violet	7	7	7	10MΩ	±0.10% (B)
Grey	8	8	8		±0.05%
White	9	9	9		
Gold				0.1	± 5% (J)
Silver				0.01	± 10% (K)



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Notes on reading component values:

There are lots of different ways to mark the values on components. Most resistors use the color code and are fairly straightforward, but there are some exceptions. The most common are resistors marked RN55153J, or something similar. The 'RN' part of the number is fixed, the next two digits (55 in this example) indicate the power rating, the next three digits represent the value. The first two are the value to two significant digits, the third is the number of zeros to add at the end. Therefore, in this example, the resistor is 15 kohms. The letter (or letters) after the digits are the tolerance, temperature coefficient and so on.

Potentiometers are usually marked with three digits, interpreted just like the 3-digit value of the RN55 resistor example given above. There may or may not be letters before and/or after the digits.

Like resistors, capacitors are generally manufactured with values to two significant digits. Also, small capacitors for general purposes usually have practical values greater than 1 pf and less than 1 μ f. As a result, a useful convention has developed in reading capacitance values. If a capacitor is marked "47," its value is 47 pf. If it is marked .047, its value is .047 μ f. Thus, whole numbers express capacitance values in picofarads while decimal fractions express values in microfarads. Any capacitor manufactured with a value of 1 μ f or greater is physically large enough to be clearly marked with its actual value.

A newer nomenclature has developed, where three numbers are printed on the body of the capacitor. The third digit in this case works like the multiplier band on a resistor; it tells the number of zeros to tack onto the end of the two significant digits. Thus, if you see a capacitor marked "151," it is not a precision component. Rather, it is an ordinary capacitor with a capacitance of 150 pf. In this nomenclature, all values are given in picofarads. Therefore you might well see a capacitor marked 684, which would mean 680000 pf, or 0.68 μ f.

Inductors are sometimes marked using the same color code as resistors, with the value being in microhenries.

Most codes can be figured out by thinking about what range of values makes sense for the component given its type and physical size and by realizing that most of the time, the value is only accurate to 5% or 10% and the same set of standard values is used for resistors, capacitors, and inductors. There ARE exceptions however, so it is always best to measure if you aren't sure.