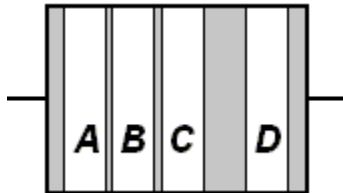


Resistors, capacitors and inductors



Resistor values are always coded in ohms, capacitors in picofarads (pF), inductors in microhenries (μH), and transformers in volts.

band **A** is first significant figure of component value

band **B** is the second significant figure

band **C** is the decimal multiplier

band **D** if present, indicates tolerance of value in percent (no color means 20%)

For example, a resistor with bands of *yellow, violet, red, and gold* will have first digit 4 (yellow in table below), second digit 7 (violet), followed by 2 (red) zeros: 4,700 ohms. Gold signifies that the tolerance is $\pm 5\%$.

Resistors manufactured for military use may also include a fifth band which indicates component failure rate (reliability); refer to MIL-STD-199 for further details.

Tight tolerance resistors may have three bands for significant figures rather than two, and/or an additional band indicating temperature coefficient, in units of ppm/K.

All coded components will have at least two value bands and a multiplier; other bands are optional (*italicised below*).

Color	Value digit	Mult	To	Tempco
Black	0	$\times 10^0$		
Brown	1	$\times 10^1$	$\pm 1\%$ (F)	100 ppm/K
Red	2	$\times 10^2$	$\pm 2\%$ (G)	50 ppm/K
Orange	3	$\times 10^3$		15 ppm/K
Yellow	4	$\times 10^4$		25 ppm/K
Green	5	$\times 10^5$	$\pm 0.5\%$ (D)	
Blue	6	$\times 10^6$	$\pm 0.25\%$ (C)	
Violet	7	$\times 10^7$	$\pm 0.1\%$ (B)	
Gray	8	$\times 10^8$	$\pm 0.05\%$ (A)	
White	9	$\times 10^9$		
Gold		$\times 0.1$	$\pm 5\%$ (J)	
Silver		$\times 0.01$	$\pm 10\%$ (K)	
None			$\pm 20\%$ (M)	