
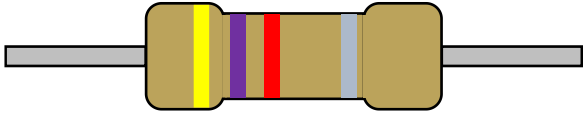




How to Read Resistor Color Codes

Note that the wider gap between bands should be on the r.h.s. for proper reading orientation.

3 Band (330 Ω)		Orange, Orange, Brown $33 \times 10^1 \Omega, \pm 20\%$
4 Band (4.7 kΩ)		Yellow, Violet, Red, Silver $47 \times 10^2 \Omega, \pm 10\%$
5 Band (68 kΩ)		Blue, Gray, Black, Red, Gold $680 \times 10^2 \Omega, \pm 5\%$
6 Band (560 kΩ)		Green, Blue, Black, Orange, Gold, Red $560 \times 10^3 \Omega, \pm 5\%, 50 \text{ ppm/K}$

Color	1 st Digit	2 nd Digit	3 rd Digit (5&6 Band Only)	Multiplier	Tolerance	Temperature Coefficient (6 Band Only)
Black	0	0	0	$10^0 = 1$		250 ppm/K
Brown	1	1	1	$10^1 = 10$	± 1%	100 ppm/K
Red	2	2	2	$10^2 = 100$	± 2%	50 ppm/K
Orange	3	3	3	$10^3 = 1 \text{ k}$		15 ppm/K
Yellow	4	4	4	$10^4 = 10 \text{ k}$		25 ppm/K
Green	5	5	5	$10^5 = 100 \text{ k}$	± 0.5%	20 ppm/K
Blue	6	6	6	$10^6 = 1 \text{ M}$	± 0.25%	10 ppm/K
Violet	7	7	7	$10^7 = 10 \text{ M}$	± 0.1%	5 ppm/K
Gray	8	8	8	$10^8 = 100 \text{ M}$	± 0.05%	1 ppm/K
White	9	9	9	$10^9 = 1 \text{ G}$		
Gold				$10^{-1} = 0.1$	± 5%	
Silver				$10^{-2} = 0.01$	± 10%	
None					± 20%	

0 1 2 3 4 5 6 7 8 9
BB ROYGBV GW
darkest color colors of the rainbow (Roy G. Bv) lightest color

**Benny Bengal Roars Over Your
 Great Big Victory, Game Winner!**