

RESISTOR COLOR CODING

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Modern resistors of the molded composition type have colored encircling bands grouped at one end, as shown in Fig. A-1. The color coding for the resistors shown is from left to right. Usually, four bands of color are present for the carbon composition types, and five bands are used for the film types. In either case, the last color denotes the tolerance that must be applied to the value obtained. Thus, if a rated 100- Ω resistor has a tolerance of 10%, it could have an actual value between 90 and 110 Ω .

The listing which follows shows the color-code values and tolerances which apply to the carbon and film resistors illustrated in Fig. A-1. The abbreviation GMV stands for *guaranteed minimum value*. Where a value is marked *alternate*, it indicates a coding that may have been used on occasion in the past but is generally coded in modern components by the *preferred* coding designation.

Color	Digit	Resistance in Ohms		Carbon \pm Tolerance	Film-Type Tolerance
		Multiplier			
Black	0	1		20%	0
Brown	1	10		1%	1%
Red	2	100		2%	2%
Orange	3	1000		3%	
Yellow	4	10,000		GMV	
Green	5	100,000		5% (alt.)	0.5%
Blue	6	1,000,000		6%	0.25%
Violet	7	10,000,000		12.5%	0.1
Gray	8	0.01 (alternate)		30%	0.05
White	9	0.1 (alternate)		10% (alt.)	
Silver		0.01 (preferred)		10% (pref.)	10%
Gold		0.1 (preferred)		5% (pref.)	5%
No color				20%	

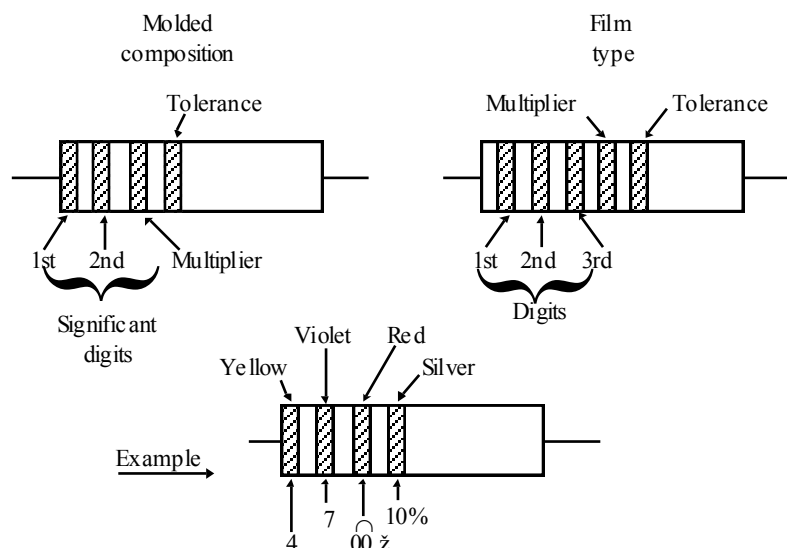


Fig. A-1. Resistor color coding.