



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)



Electronix Express / RSR
<http://www.elexp.com>

RESISTOR COLOR GUIDE

1-800-972-2225
 In NJ 732-381-8020

COMMONLY USED 5% CARBON FILM RESISTORS

1.0	2.4	5.6	13	33	75	180	430	1K	2.4K	5.1K	12K	30K	68K	160K	390K	910K	2.2M	5.1M
1.1	2.7	6.2	15	36	82	200	470	1.1K	2.7K	5.6K	13K	33K	75K	180K	430K	1M	2.4M	5.6M
1.2	3.0	6.8	16	39	91	220	510	1.2K	3K	6.2K	15K	36K	82K	200K	470K	1.1M	2.7M	6.2M
1.3	3.3	7.5	18	43	100	240	560	1.3K	3.2K	6.6K	16K	39K	91K	220K	510K	1.2M	3M	6.8M
1.5	3.6	8.2	20	47	110	270	620	1.5K	3.3K	7.5K	18K	43K	100K	240K	560K	1.3M	3.3M	7.5M
1.6	3.9	9.1	22	51	120	300	680	1.6K	3.6K	8.2K	20K	47K	110K	270K	620K	1.5M	3.6M	8.2M
1.8	4.3	10	24	56	130	330	750	1.8K	3.9K	9.1K	22K	51K	120K	300K	680K	1.6M	3.9M	9.1M
2.0	4.7	11	27	62	150	360	820	2K	4.3K	10K	24K	56K	130K	330K	750K	1.8M	4.3M	10M
2.2	5.1	12	30	68	160	390	910	2.2K	4.7K	11K	27K	62K	150K	360K	820K	2M	4.7M	

OHM'S LAW FORMULAS FOR D-C CIRCUITS

$$I = \frac{E}{R} = \sqrt{\frac{P}{R}} = \frac{P}{E} ; R = \frac{E}{I} = \frac{P}{I^2} = \frac{E^2}{P}$$

$$E = IR = \frac{P}{I} = \sqrt{PR} ; P = I^2R = EI = \frac{E^2}{R}$$

RESISTORS IN SERIES

$$R_{total} = R_1 + R_2 + R_3 \dots$$

RESISTORS IN PARALLEL, GENERAL FORMULA

$$R_{total} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots}$$

CONVERSION FACTORS

- 1 meter = 39.37 inches = 3.28 feet
- 1 kilometer = 0.621 mi. (app. 3/5 mi.)
- 1 inch = 2.54 centimeters
- 1 kilogram = 2.2 pounds
- 1 liter = 1.06 quarts
- 1 ounce = 28.35 grams
- 1 horsepower = 746 watts
- 1 horsepower = 42.4 BTU min
- 1 radian = 57.3°

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REFERENCE GUIDE

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