

COLOR CODE FOR RESISTORS

First Band	Second Band	Multiplier Band	Resistance Ω	First Band	Second Band	Multiplier Band	Resistance Ω	First Band	Second Band	Multiplier Band	Resistance Ω	First Band	Second Band	Multiplier Band	Resistance Ω																																																																																																																							
Brown	Black	Black	10	Red	Black	Black	20	Orange	Black	Gold	3.0	Yellow	Orange	Gold	4.3																																																																																																																							
		Brown	100			Brown	200			Black	30			Black	43																																																																																																																							
		Red	1000			Red	2000			Brown	300			Brown	430																																																																																																																							
	Orange	10000	Orange		20000	Red	3000		Red	4300																																																																																																																												
	Yellow	0.1 Meg.	Yellow		0.2 Meg.	Orange	30000		Orange	43000																																																																																																																												
	Green	1.0 Meg.	Green		2.0 Meg.	Yellow	0.30 Meg.		Yellow	0.43 Meg.																																																																																																																												
	Blue	10.0 Meg.	Blue		20.0 Meg.	Green	3.0 Meg.		Green	4.3 Meg.																																																																																																																												
	Brown	Black	11		Red	Black	22		Orange	Gold	3.3		Violet	Gold	4.7																																																																																																																							
		Brown	110			Brown	220			Black	33			Black	47																																																																																																																							
		Red	1100			Red	2200			Brown	330			Brown	470																																																																																																																							
Orange	11000	Orange	22000	Red	3300	Red	4700																																																																																																																															
Yellow	0.11 Meg.	Yellow	0.22 Meg.	Orange	33000	Orange	47000																																																																																																																															
Green	1.1 Meg.	Green	2.2 Meg.	Yellow	0.33 Meg.	Yellow	0.47 Meg.																																																																																																																															
Blue	11.1 Meg.	Blue	22.2 Meg.	Green	3.3 Meg.	Green	4.7 Meg.																																																																																																																															
Red	Black	12	Yellow	Black	24	Blue	Gold	3.6	Brown	Gold	5.1																																																																																																																											
	Brown	120		Brown	240		Black	36		Black	51																																																																																																																											
	Red	1200		Red	2400		Brown	360		Brown	510																																																																																																																											
Orange	12000	Orange	24000	Red	3600	Red	5100																																																																																																																															
Yellow	0.12 Meg.	Yellow	0.24 Meg.	Orange	36000	Orange	51000																																																																																																																															
Green	1.2 Meg.	Green	2.4 Meg.	Yellow	0.36 Meg.	Yellow	0.51 Meg.																																																																																																																															
Blue	12.2 Meg.	Blue	24.4 Meg.	Green	3.6 Meg.	Green	5.1 Meg.																																																																																																																															
Orange	Black	13	Violet	Gold	2.7	White	Gold	3.9	Blue	Gold	5.6																																																																																																																											
	Brown	130		Black	27		Black	39		Black	56																																																																																																																											
	Red	1300		Brown	270		Brown	390		Brown	560																																																																																																																											
Orange	13000	Red	2700	Red	3900	Red	5600																																																																																																																															
Yellow	0.13 Meg.	Orange	27000	Orange	39000	Orange	56000																																																																																																																															
Green	1.3 Meg.	Yellow	0.27 Meg.	Yellow	0.39 Meg.	Yellow	0.56 Meg.																																																																																																																															
Blue	13.3 Meg.	Green	2.7 Meg.	Green	3.9 Meg.	Green	5.6 Meg.																																																																																																																															
Green	Black	15	<p align="center">Standard Color Code</p> <p>5-BAND RESISTORS ($\pm 1\%$)</p> <p>4-BAND RESISTORS ($\pm 10\%$ / $\pm 5\%$)</p> <table border="1"> <thead> <tr> <th colspan="2">Band 1</th> <th colspan="2">Band 2</th> <th colspan="2">Band 3</th> <th colspan="2">Multiplier</th> <th colspan="2">Resistance Tolerance</th> </tr> <tr> <th>Color</th> <th>Digit</th> <th>Color</th> <th>Digit</th> <th>Color</th> <th>Digit</th> <th>Color</th> <th>Multiplier</th> <th>Color</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>0</td> <td>Black</td> <td>0</td> <td>Black</td> <td>0</td> <td>Black</td> <td>1</td> <td>Silver</td> <td>$\pm 10\%$</td> </tr> <tr> <td>Brown</td> <td>1</td> <td>Brown</td> <td>1</td> <td>Brown</td> <td>1</td> <td>Brown</td> <td>10</td> <td>Gold</td> <td>$\pm 5\%$</td> </tr> <tr> <td>Red</td> <td>2</td> <td>Red</td> <td>2</td> <td>Red</td> <td>2</td> <td>Red</td> <td>100</td> <td>Brown</td> <td>$\pm 1\%$</td> </tr> <tr> <td>Orange</td> <td>3</td> <td>Orange</td> <td>3</td> <td>Orange</td> <td>3</td> <td>Orange</td> <td>1000</td> <td></td> <td></td> </tr> <tr> <td>Yellow</td> <td>4</td> <td>Yellow</td> <td>4</td> <td>Yellow</td> <td>4</td> <td>Yellow</td> <td>10000</td> <td></td> <td></td> </tr> <tr> <td>Green</td> <td>5</td> <td>Green</td> <td>5</td> <td>Green</td> <td>5</td> <td>Green</td> <td>100000</td> <td></td> <td></td> </tr> <tr> <td>Blue</td> <td>6</td> <td>Blue</td> <td>6</td> <td>Blue</td> <td>6</td> <td>Blue</td> <td>1000000</td> <td></td> <td></td> </tr> <tr> <td>Violet</td> <td>7</td> <td>Violet</td> <td>7</td> <td>Violet</td> <td>7</td> <td>Silver</td> <td>0.01</td> <td></td> <td></td> </tr> <tr> <td>Gray</td> <td>8</td> <td>Gray</td> <td>8</td> <td>Gray</td> <td>8</td> <td>Gold</td> <td>0.1</td> <td></td> <td></td> </tr> <tr> <td>White</td> <td>9</td> <td>White</td> <td>9</td> <td>White</td> <td>9</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												Band 1		Band 2		Band 3		Multiplier		Resistance Tolerance		Color	Digit	Color	Digit	Color	Digit	Color	Multiplier	Color	Tolerance	Black	0	Black	0	Black	0	Black	1	Silver	$\pm 10\%$	Brown	1	Brown	1	Brown	1	Brown	10	Gold	$\pm 5\%$	Red	2	Red	2	Red	2	Red	100	Brown	$\pm 1\%$	Orange	3	Orange	3	Orange	3	Orange	1000			Yellow	4	Yellow	4	Yellow	4	Yellow	10000			Green	5	Green	5	Green	5	Green	100000			Blue	6	Blue	6	Blue	6	Blue	1000000			Violet	7	Violet	7	Violet	7	Silver	0.01			Gray	8	Gray	8	Gray	8	Gold	0.1			White	9	White	9	White	9				
	Band 1														Band 2		Band 3		Multiplier		Resistance Tolerance																																																																																																																	
	Color	Digit													Color	Digit	Color	Digit	Color	Multiplier	Color	Tolerance																																																																																																																
Black	0	Black													0	Black	0	Black	1	Silver	$\pm 10\%$																																																																																																																	
Brown	1	Brown													1	Brown	1	Brown	10	Gold	$\pm 5\%$																																																																																																																	
Red	2	Red													2	Red	2	Red	100	Brown	$\pm 1\%$																																																																																																																	
Orange	3	Orange													3	Orange	3	Orange	1000																																																																																																																			
Yellow	4	Yellow													4	Yellow	4	Yellow	10000																																																																																																																			
Green	5	Green													5	Green	5	Green	100000																																																																																																																			
Blue	6	Blue													6	Blue	6	Blue	1000000																																																																																																																			
Violet	7	Violet	7	Violet	7	Silver	0.01																																																																																																																															
Gray	8	Gray	8	Gray	8	Gold	0.1																																																																																																																															
White	9	White	9	White	9																																																																																																																																	
Black	150	Black	150	Gold	2.7	Gold	3.9	Blue	Red	6.2																																																																																																																												
Red	1500	Brown	1500	Black	27	Black	39	Black	62	Black	62																																																																																																																											
Orange	15000	Red	15000	Brown	270	Brown	390	Brown	620	Brown	620																																																																																																																											
Yellow	0.15 Meg.	Orange	15000	Red	2700	Red	3900	Red	6200	Red	6200																																																																																																																											
Green	1.5 Meg.	Yellow	0.15 Meg.	Orange	27000	Orange	39000	Orange	62000	Orange	62000																																																																																																																											
Blue	15.5 Meg.	Green	1.5 Meg.	Yellow	0.27 Meg.	Yellow	0.39 Meg.	Yellow	0.62 Meg.	Yellow	0.62 Meg.																																																																																																																											
Blue	Black	16	Gray	Black	16	Violet	Gold	6.8	Red	Gold	6.8																																																																																																																											
	Brown	160		Brown	160		Black	68		Black	68																																																																																																																											
	Red	1600		Red	1600		Brown	680		Brown	680																																																																																																																											
Orange	16000	Orange	16000	Red	6800	Red	6800	Red	6800																																																																																																																													
Yellow	0.16 Meg.	Yellow	0.16 Meg.	Orange	68000	Orange	68000	Orange	68000																																																																																																																													
Green	1.6 Meg.	Green	1.6 Meg.	Yellow	0.68 Meg.	Yellow	0.68 Meg.	Yellow	0.68 Meg.																																																																																																																													
Blue	16.6 Meg.	Blue	1.6 Meg.	Green	6.8 Meg.	Green	6.8 Meg.	Green	6.8 Meg.																																																																																																																													
Gray	Black	18	Blue	Black	18	White	Gold	7.5	Green	Gold	7.5																																																																																																																											
	Brown	180		Brown	180		Black	75		Black	75																																																																																																																											
	Red	1800		Red	1800		Brown	750		Brown	750																																																																																																																											
Orange	18000	Orange	18000	Red	7500	Red	7500	Red	7500																																																																																																																													
Yellow	0.18 Meg.	Yellow	0.18 Meg.	Orange	75000	Orange	75000	Orange	75000																																																																																																																													
Green	1.8 Meg.	Green	1.8 Meg.	Yellow	0.75 Meg.	Yellow	0.75 Meg.	Yellow	0.75 Meg.																																																																																																																													
Blue	18.8 Meg.	Blue	1.8 Meg.	Green	7.5 Meg.	Green	7.5 Meg.	Green	7.5 Meg.																																																																																																																													
Black	Black	18	White	Black	18	Gray	Gold	8.2	Red	Gold	8.2																																																																																																																											
	Brown	180		Brown	180		Black	82		Black	82																																																																																																																											
	Red	1800		Red	1800		Brown	820		Brown	820																																																																																																																											
Orange	18000	Orange	18000	Red	8200	Red	8200	Red	8200																																																																																																																													
Yellow	0.18 Meg.	Yellow	0.18 Meg.	Orange	82000	Orange	82000	Orange	82000																																																																																																																													
Green	1.8 Meg.	Green	1.8 Meg.	Yellow	0.82 Meg.	Yellow	0.82 Meg.	Yellow	0.82 Meg.																																																																																																																													
Blue	18.8 Meg.	Blue	1.8 Meg.	Green	8.2 Meg.	Green	8.2 Meg.	Green	8.2 Meg.																																																																																																																													
Black	Black	18	White	Black	18	Brown	Gold	9.1	Brown	Gold	9.1																																																																																																																											
	Brown	180		Brown	180		Black	91		Black	91																																																																																																																											
	Red	1800		Red	1800		Brown	910		Brown	910																																																																																																																											
Orange	18000	Orange	18000	Red	9100	Red	9100	Red	9100																																																																																																																													
Yellow	0.18 Meg.	Yellow	0.18 Meg.	Orange	91000	Orange	91000	Orange	91000																																																																																																																													
Green	1.8 Meg.	Green	1.8 Meg.	Yellow	0.91 Meg.	Yellow	0.91 Meg.	Yellow	0.91 Meg.																																																																																																																													
Blue	18.8 Meg.	Blue	1.8 Meg.	Green	9.1 Meg.	Green	9.1 Meg.	Green	9.1 Meg.																																																																																																																													