

Resistor Rating Color Code

Composition resistors are color coded to indicate resistance values or ratings. The color code consists of various color bands that indicate the resistance values of resistors in ohms as well as the tolerance rating. The Resistor Rating Color Code Table below is used to identify the resistance rating of resistors.

Color	1st Band	2nd Band	3rd Band	4th Band
Black	0	0	1	1
Brown	1	1	10	
Red	2	2	100	
Orange	3	3	1,000	
Yellow	4	4	10,000	
Green	5	5	100,000	
Blue	6	6	1,000,000	
Violet	7	7	10,000,000	
Gray	8	8	100,000,000	
White	9	9	1,000,000,000	
Gold			0.1	5%
Silver			0.01	10%
None				20%

Resistor Rating Color Code Table

Composition resistors generally have four color bands. The color code is read as follows:

- First, look up the number values of the first two bands on the table and combine the two numbers.
- Then multiply this two digit number by the value of the 3rd band, the multiplier band.
- The resulting number is the resistance value of the resistor in ohms.
- The fourth band is the tolerance band. If the 4th band is gold, the resistor is guaranteed to be within 5% of the rated value. If the 4th band is silver, it is guaranteed to be within 10%. If there is no 4th band, the resistor is guaranteed to be within 20% of the rated value.



Figure 2

For example, the color code of the above resistor in Figure 2 is read as follows:

- The 1st band is brown. The first band is always the band closest to the end of the resistor. From the table you can see that the number value of brown in the 1st band column is 1.
- The 2nd band is black. The number value of black in the 2nd band column is 0.
- Combining the two numbers gives you 10.
- The 3rd band is red. This is the multiplier band. The multiplier value of red is 100.
- Multiplying the combined digit of 10 by the multiplier gives us 1,000.

Therefore, the above resistor is rated at 1,000 ohms, which can be written as 1 k Ω . The 4th, or tolerance, band of the resistor is silver. Therefore, the resistor is guaranteed to have a resistance value within 10% of 1k Ω .