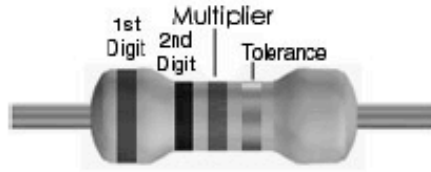


Resistor - Lab 1

Copy into Notebook questions and answers

This lab will familiarize you with the resistor color code. After the lab, you should be able to identify a resistor's value and tolerance from its color bands. Markings for surface mount (SMT) components is also covered as they are becoming more common than color bands. See appendix A in your textbook for more details.



Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White	Gold	Silver	No Band
0	1	2	3	4	5	6	7	8	9	5%	10%	20%

PART I

Identify the following resistances given the color bands:

USE THE FORMAT $4.7 \text{ k}\Omega \pm 5\%$

- 1) BROWN – BLACK – RED – NO BAND = _____
- 2) ORANGE – ORANGE – RED – SILVER = _____
- 3) BROWN – RED – GREEN – SILVER = _____
- 4) YELLOW – VIOLET – BROWN – GOLD = _____

PART II

Give the color band identification for the following resistances:

- 1) $3.7 \text{ k}\Omega \pm 20\%$ = _____
- 2) $2.2 \text{ M}\Omega \pm 10\%$ = _____
- 3) $820 \text{ k}\Omega \pm 10\%$ = _____
- 4) $18 \text{ k}\Omega \pm 5\%$ = _____

PART III

Find the resistor described in the resistor box and look at it to determine tolerance. Then answer the questions below.

Find the following resistors and fill in the blanks provided. You will need your multimeter to measure the resistance of each.

- 1) BROWN – BLUE – RED = _____

What is the tolerance of the resistor that you have? (%) _____

What is the MAXIMUM value of resistance that you can have? (Ω) _____

What is the MINIMUM value of resistance that you can have? (Ω) _____

What is the MEASURED value of the resistor? (Ω) _____

Does the measured value of the resistor fall within the range of the maximum and minimum values? _____

What is the actual tolerance? (%) _____

$$\text{Actual \% Tolerance} = \left| 1 - \left(\frac{\text{Measured}}{\text{Calculated}} \right) \right| * 100$$

Does the measured value of the resistor fall within the range of the maximum and minimum values? _____

What is the actual tolerance? (%) _____

$$\text{Actual \% Tolerance} = \left| 1 - \left(\frac{\text{Measured}}{\text{Calculated}} \right) \right| * 100$$

3) YELLOW – VIOLET – BROWN = _____

What is the tolerance of the resistor that you have? (%) _____

What is the MAXIMUM value of resistance that you can have? (Ω) _____

What is the MINIMUM value of resistance that you can have? (Ω) _____

What is the MEASURED value of the resistor? (Ω) _____

Does the measured value of the resistor fall within the range of the maximum and minimum values? _____

What is the actual tolerance? (%) _____

$$\text{Actual \% Tolerance} = \left| 1 - \left(\frac{\text{Measured}}{\text{Calculated}} \right) \right| * 100$$

QUESTIONS

1) Name two factors that might affect your measured resistance values. \

2) What was the objective of this lab? /

3) What was the equipment used for this lab?

Resistor -Lab 2

Table 1: Resistors

Pick 5 resistors of your choice from the resistor box. Try to pick different sizes and ones with different numbers so you can see different colors. Create the following table in your notebook at fill it out. When you are done please return all of the resistors to their proper drawer in the resistor box.

Resistor Number	1 st Band Color	2 nd Band Color	3 rd Band Zeros to add	4 th Band Tolerance	Resistance	Tolerance	Resistance (using Voltmeter)
1							
2							
3							
4							
5							

- Resistance is the opposition to current flow (movement of electrical charge). The unit of measure for resistance is the OHM, symbolized by the Greek letter Ω (omega). Using the voltmeter write down your and your lab partners body resistances. Measure two sets of resistances: using dry hands and using wet hands. Observe which resistance is lower.

Table 2: Body resistance

Actually test your resistance dry and then get your hands wet in the sink and test your resistance. Do this for each of your lab partners. If you have 1 lab partner your table will have 3 columns. If your lab group has 3 members you should have 4 columns like the table below. If you group has 4 partners your table will have 5 columns.

Partner #	1	2	3
Dry			
Wet			