

## Resistors

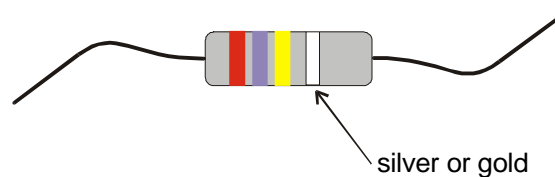
Resistance is measured in Ohms.

1k = 1000  $\Omega$  1M = 1 000 000  $\Omega$

### The Colour Code

The number of Ohms resistance is indicated by a series of coloured bands on the resistor.

<b>Black</b>	<b>0</b>
<b>Brown</b>	<b>1</b>
<b>Red</b>	<b>2</b>
<b>Orange</b>	<b>3</b>
<b>Yellow</b>	<b>4</b>
<b>Green</b>	<b>5</b>
<b>Blue</b>	<b>6</b>
<b>Violet</b>	<b>7</b>
<b>Grey</b>	<b>8</b>
<b>White</b>	<b>9</b>



Start with the coloured band which is *nearest to* the end of the resistor (in the illustration above, the red band).

The first two bands tell us the first two digits of the number of Ohms.

The third band tells us the *number of zeros* which follow the first two digits.

So, in the example illustrated above, the resistance is 2 (red), 7 (violet) followed by 4 zeros (yellow). That is, 270 k.

The last colour indicates the “tolerance” of the manufacturing process.

### Capacitors

The basic unit of capacitance is the Farad. However, the Farad is a very large quantity of capacitance. Usually capacitance is stated in pF (picoFarad), nF (nanoFarad) or  $\mu$ F (microFarad).

On some capacitors, the colour code is used but more often, the capacitance is written on the component, in pF, nF or  $\mu$ F.

$$1\mu\text{F} = 0.000\,001\text{ F} = 10^{-6}\text{ F}$$

$$1\text{nF} = 0.000\,000\,001\text{ F} = 10^{-9}\text{ F}$$

$$1\text{pF} = 0.000\,000\,000\,001\text{ F} = 10^{-12}\text{ F}$$

$$\text{Therefore, } 1\mu\text{F} = 1000\text{nF} = 1\,000\,000\text{pF}$$