Simple Electronics: Ring Oscillator
74HC04

Power

Ground (Gnd)
0.1μF

4.7MΩ

Capacitor (Farads)

Resistor (Ohms)
Adding Resistors
Adding a Capacitor
Resistor Color Code

The 4 bands

The values

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
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</tbody>
</table>

What the bands mean

Band 1  The first number
Band 2  The second number
Band 3  The number of zeros
Band 4  The tolerance

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Silver</td>
<td>+/- 10%</td>
</tr>
<tr>
<td>Gold</td>
<td>+/- 5%</td>
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</tbody>
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Examples

Can you work out the value of the resistance?

- 4 7 00000 = 4,700,000Ω = 4.7MΩ
- 6 0 0 = 600Ω
- 1 0 00 = 1,000Ω = 1KΩ
Light Emitting Diode (LED)
Bread Board
Ground (Gnd)  Power

1KΩ
**Light Emitting Diode (LED)**

**Capacitor (Farads)**

**Resistor (Ohms)**

Band 1: The first number
Band 2: The second number
Band 3: The number of zeros
Band 4: The tolerance

<table>
<thead>
<tr>
<th>Band 1</th>
<th>Band 2</th>
<th>Band 3</th>
<th>Band 4</th>
</tr>
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<tbody>
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</tbody>
</table>

**Legend:**
- Each column connected
- Each row connected

**Color Key:**
- Black
- Red
- Orange
- Yellow
- Green
- Blue
- Purple
- Gray
- White

**Numbers:**
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9