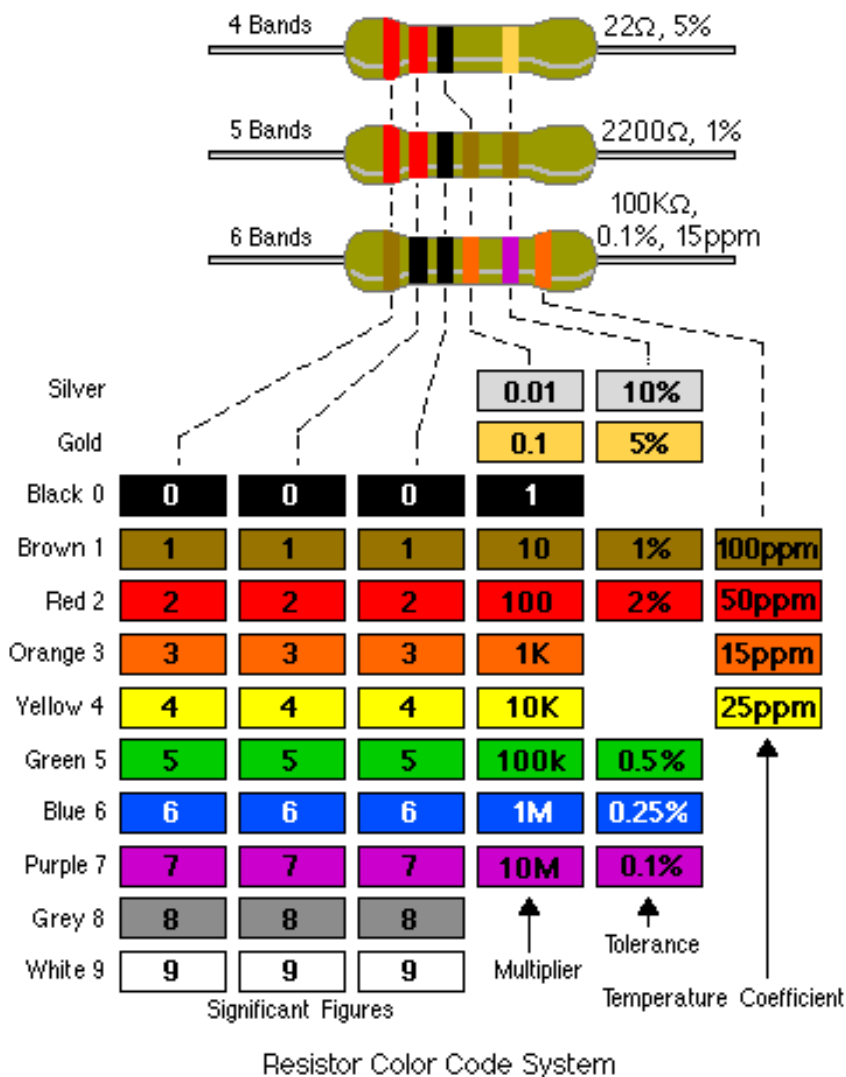


## General advice/tips:

### 1) Resistor colour codes:

Bad beer rots our young guts, but vodka goes well



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

Resistor values are always coded in ohms:

band A is first significant figure of component value

band B is the second significant figure

band C is the decimal multiplier

band D if present, indicates tolerance of value in percent (no color means 20%)

For example, a resistor with bands of yellow, violet, red, and gold will have first digit 4 (yellow in table below), second digit 7 (violet), followed by 2 (red) zeros: 4,700 ohms which is written as 4.7K (K as one thousand ohms, M as one million ohms).

On surface mount (SMD) resistors resistance is marked as follows:

example: 333 = 33 0 0 0 (3x 0) =3.3k

## **2] Capacitor values:**

Capacitance is measured in Farads. Common values are much smaller: picofarads (pF), nanofarads (nF) and microfarads (uF).

1nF=1000pF

1uF=1000nF

Ceramic capacitors use the following scheme:

eg. 103 = 1 0 (3x 0 = 0 0 0) = 10 000 pF = 10nF

## **3] Polarity:**

To make sure that polarised components are placed in the right direction/orientation.

For electrolytic capacitors (image), the negative (-) is marked by a dark line.

Transistors must be inserted as marked.

ICs (Integrated Circuits) must be inserted as marked by a notch or arrow. The text is normally visible with notch to the left and pin 1 on the lower left.

All other components in the kits can be placed in any orientation.

## **4] General:**

Keep lead lengths as short as possible.

Do not overheat transistors or ICs (Integrated Circuits).