

# HINTS & TIPS

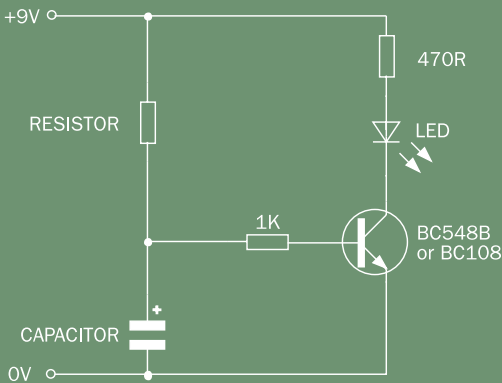
## CAPACITORS

A resistor and a capacitor can be used to create a time delay. To increase the time delay of the circuit:

- Increase the value of the capacitor
- or
- Increase the value of the resistor

Description:

The circuit will turn on the LED after a period of time determined by the values of the capacitor and resistor.



| Capacitance (Picofarad pF) | Capacitance (Nanofarad nF) | Capacitance (Microfarad μF) | Capacitance Code* |
|----------------------------|----------------------------|-----------------------------|-------------------|
| 10                         | 0.01                       |                             | 100               |
| 15                         | 0.015                      |                             | 150               |
| 47                         | 0.047                      |                             | 470               |
| 82                         | 0.082                      |                             | 820               |
| 100                        | 0.1                        |                             | 101               |
| 330                        | 0.33                       |                             | 331               |
| 470                        | 0.47                       | 0.00047                     | 471               |
| 1000                       | 1.0                        | 0.001                       | 102               |
| 1500                       | 1.5                        | 0.0015                      | 152               |
| 2200                       | 2.2                        | 0.0022                      | 222               |
| 4700                       | 4.7                        | 0.0047                      | 472               |
| 6800                       | 6.8                        | 0.0068                      | 682               |
| 10000                      | 10                         | 0.01                        | 103               |
| 22000                      | 22                         | 0.022                       | 223               |
| 47000                      | 47                         | 0.047                       | 473               |
| 100000                     | 100                        | 0.1                         | 104               |
| 220000                     | 220                        | 0.22                        | 224               |
| 470000                     | 470                        | 0.47                        | 474               |

Total of capacitors in series  $\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} \dots\dots\dots$ etc

Total of capacitors in parallel  $C_T = C_1 + C_2 + C_3 \dots\dots\dots$ etc

↑  
\*First two digits significant figures  
- third digit is number of zeros

# Rapid

We bring STEAM to life

[www.rapidonline.com](http://www.rapidonline.com)