



Category: Timer Oscillator

**CIRCUIT IDEAS FOR DESIGNERS**

Schematic no. time\_15003.0

**Monostable Mode Operation (One Shot Pulse)****Description**

This circuit is configured in monostable mode of operation, which is a basic time delay circuit using a 555 type of timer. The circuit is also sometimes referred to as a one-shot circuit, as it generates one fixed delay pulse every time it is triggered. In the initial state, the circuit is in the standby mode. The trigger input (pin2) is at a high level, and the output (pin3) is at a low voltage level. The discharge output at pin7 is on, and that clamps the capacitor C to ground potential. When a negative going trigger pulse is delivered to pin2 input, the internal flip-flop inside the 555 timer is set to turn off the transistor at Discharge (pin7) and the RC network starts charging towards  $V+$ , with a time constant equal to  $R \times C$ . Capacitor C charges towards  $2/3 V+$  and when voltage on C reaches that threshold level, the output driver on pin3 is turned on and Discharge at pin7 is also turned on, discharging C once again to ground potential. The time constant of the pulse width is determined by  $t = 1.1 R \times C$ , since this is the time it takes for the capacitor to charge from 0 to  $2/3 V+$ . This circuit only respond to negative going pulses. Once triggered, the output will remain HIGH until the time delay has elapsed, even if it is triggered again during this time interval. Using CMOS versions of 555 timer circuits, a very wide timing range at very low level of voltage spikes and power dissipation can be achieved. Selection of the values of R is limited by the input leakage specifications of the timer at pin6 and pin7. R resistor values are also limited by the internal leakage current at the capacitor C. C usually has a range from  $10,000\mu\text{F}$  down to 0.

For full schematic diagram and notes, please register and login at [aldinc.com](http://aldinc.com)