

## THE 555 TIMER IC

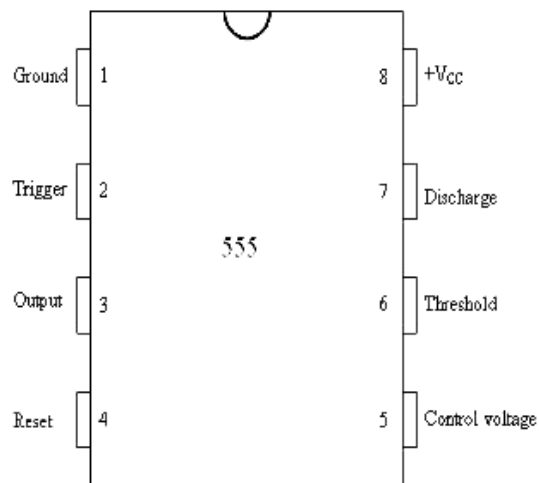
The 555 is a monolithic timing circuit that can produce accurate & highly stable time delays or oscillation. The timer basically operates in one of two modes: either

- (i) Monostable (one - shot) multivibrator or
- (ii) Astable (free running) multivibrator

The important features of the 555 timer are these:

- (i) It operates on +5v to +18 v supply voltages
- (ii) It has an adjustable duty cycle
- (iii) Timing is from microseconds to hours
- (iv) It has a current o/p

### PIN CONFIGURATION OF 555 TIMER:



#### Pin description:

##### Pin 1: Ground:

All voltages are measured with respect to this terminal.

##### Pin 2: Trigger:

The o/p of the timer depends on the amplitude of the external trigger pulse applied to this pin.

**Pin 3: Output:**

There are 2 ways a load can be connected to the o/p terminal either between pin3 & ground or between pin 3 & supply voltage

(Between Pin 3 & Ground ♦ ON load )

(Between Pin 3 & + Vcc ♦ OFF load )

(i) When the input is low:

The load current flows through the load connected between Pin 3 & +Vcc in to the output terminal & is called the sink current.

(ii) When the output is high:

The current through the load connected between Pin 3 & +Vcc (i.e. ON load) is zero. However the output terminal supplies current to the normally OFF load. This current is called the source current.

**Pin 4: Reset:**

The 555 timer can be reset (disabled) by applying a negative pulse to this pin. When the reset function is not in use, the reset terminal should be connected to +Vcc to avoid any false triggering.

**Pin 5: Control voltage:**

An external voltage applied to this terminal changes the threshold as well as trigger voltage. In other words by connecting a potentiometer between this pin & GND, the pulse width of the output waveform can be varied. When not used, the control pin should be bypassed to ground with 0.01 capacitor to prevent any noise problems.

**Pin 6: Threshold:**

This is the non inverting input terminal of upper comparator which monitors the voltage across the external capacitor.

**Pin 7: Discharge:**

This pin is connected internally to the collector of transistor Q1.

When the output is high Q1 is OFF.

When the output is low Q is (saturated) ON.

**Pin 8: +Vcc:**

The supply voltage of +5V to +18V is applied to this pin with respect to ground.