

555 timer IC

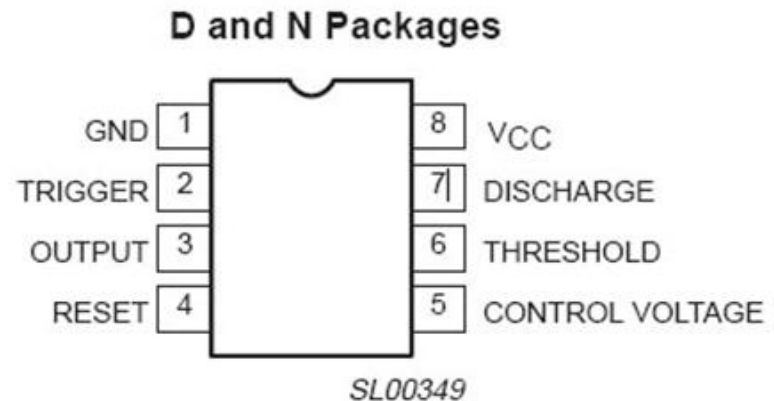
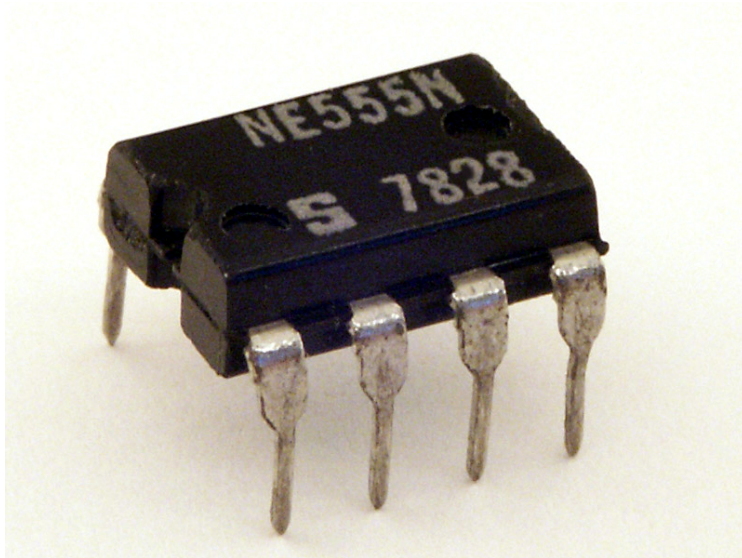
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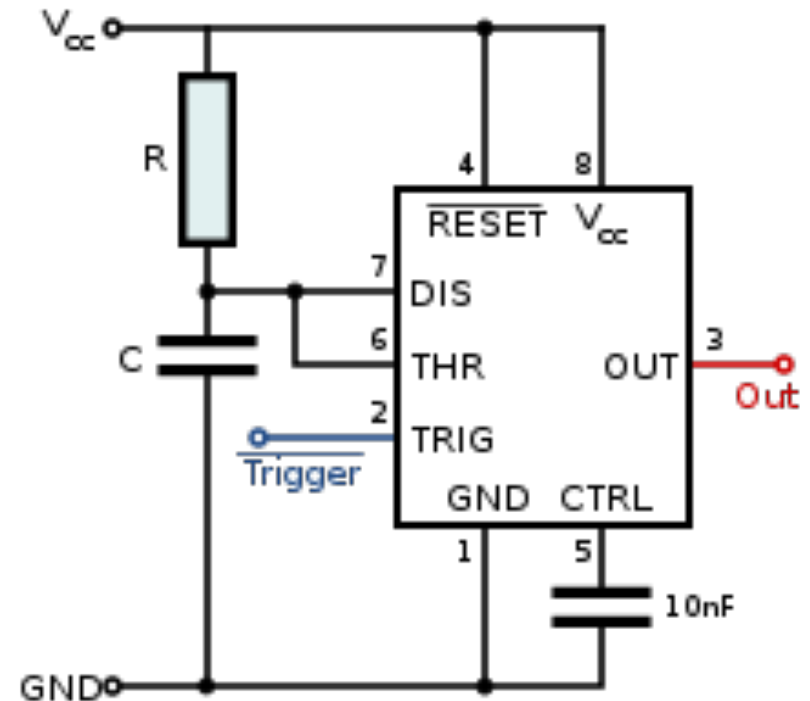


- Monolithic timing circuit
- Highly stable controller
- Frequency and the duty cycle are both accurately controlled with two external resistors and one capacitor
- http://en.wikipedia.org/wiki/555_timer_IC

Monostable Mode

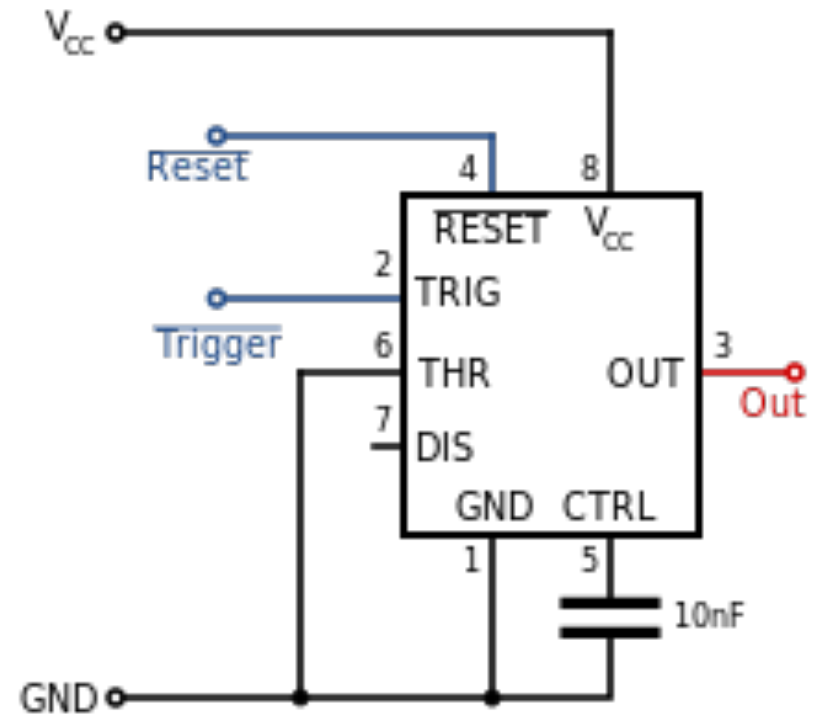
- The 555 timer acts as a "one-shot" pulse generator.
- The output pulse width of time t ,

$t = RC \ln(3) \approx 1.1RC$ R is in ohms and C is in farads



Bistable Mode

- The 555 timer acts as a basic flip-flop.
- The trigger and reset inputs are held high via Pull-up resistors while the threshold input is simply floating



Astable Mode

- The 555 timer puts out a continuous stream of rectangular pulses having a specified frequency.
- The frequency of the pulse stream depends on the values of R_1 , R_2 and C :

$$f = \frac{1}{\ln(2) \cdot C \cdot (R_1 + 2R_2)}$$

$$\text{high} = \ln(2) \cdot (R_1 + R_2) \cdot C$$

$$\text{low} = \ln(2) \cdot R_2 \cdot C$$

