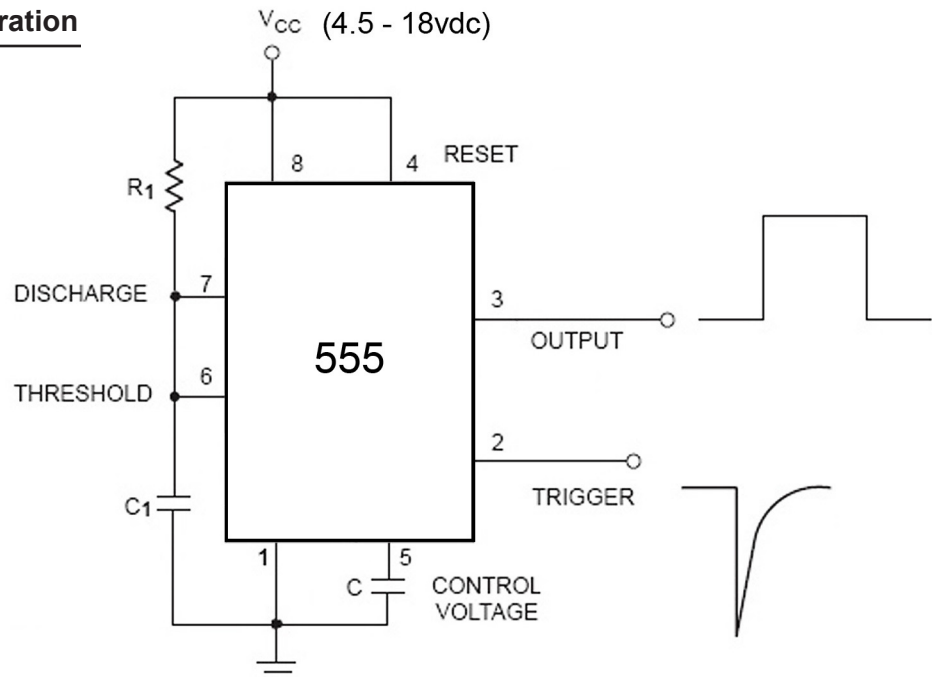


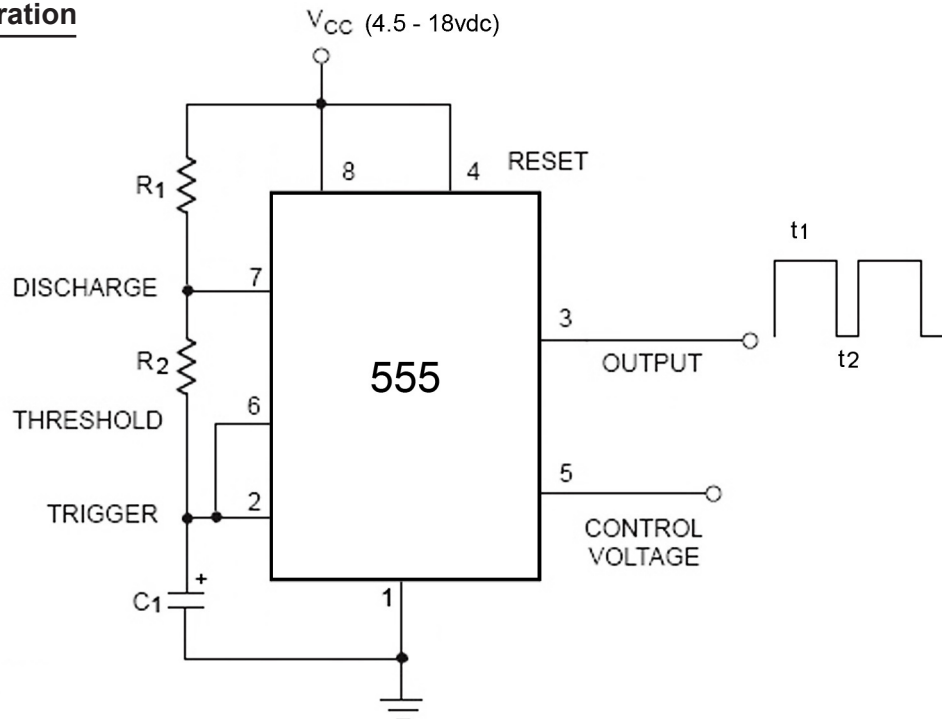
555 Timer IC: Basic modes of operation

Monostable (One-Shot) Operation



Temporarily connecting pin 2 to ground (a negative trigger pulse) turns off a transistor that otherwise shorts C₁ to ground. The output (pin 3) then goes high as C₁ charges through R₁. When the charge on C₁ is 2/3 of the supply voltage, the 555 discharges C₁ to ground. The output then goes low and stays that way until pin 2 is triggered again (shorted to ground.) Timing duration is determined by R₁ and C₁. With R₁ = 100K and C₁ = 100uF the pulse duration is approximately a second.

Astable (Oscillator) Operation



Pins 2 and 6 are connected so the circuit will trigger itself each timing cycle, thereby functioning as an oscillator. C₁ charges through R₁ + R₂ but discharges through R₂. The duration of the on/high state of the cycle (t₁) is a function of (R₁ + R₂) * C₁, and the off/low state (t₂) is a function of R₂ * C₁. If R₁ + R₂ = 100K and C₁ is 100uF, the oscillator frequency will be approximately 1 Hz. (cycle/sec.)