LM555
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Vcc between 4.5 and 16 volts
(TLC555 - between 2.0 and 15 V)
timing from microseconds to hours
monostable (single pulse) mode
astable (pulse train) mode
use bypass caps (.1uF ceramic in parallel with 1uF electrolytic)
LM555 monostable mode

output is stable low

low-going trigger on 2 sends the output high

will return low based on R and C

note: the trigger should be returned high before the end of the timing cycle

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LM555 astable (multivibrator) mode

Free running (self-triggering)

Frequency and duty cycle set by external Ra, Rb, and C

Frequency: \[ f = \frac{1.44}{(R_a + 2R_b)C} \]

Duty cycle: \[ D = \frac{R_b}{R_a + 2R_b} \]