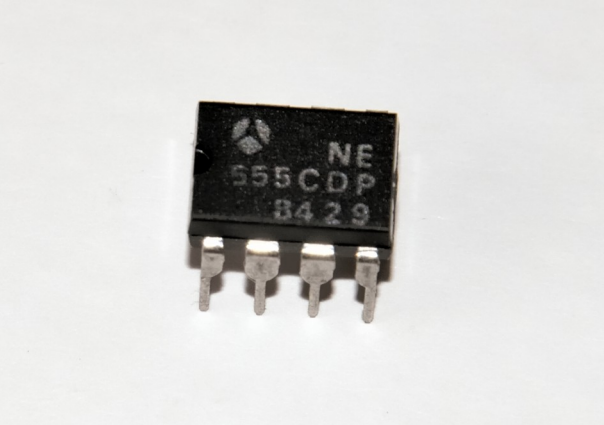
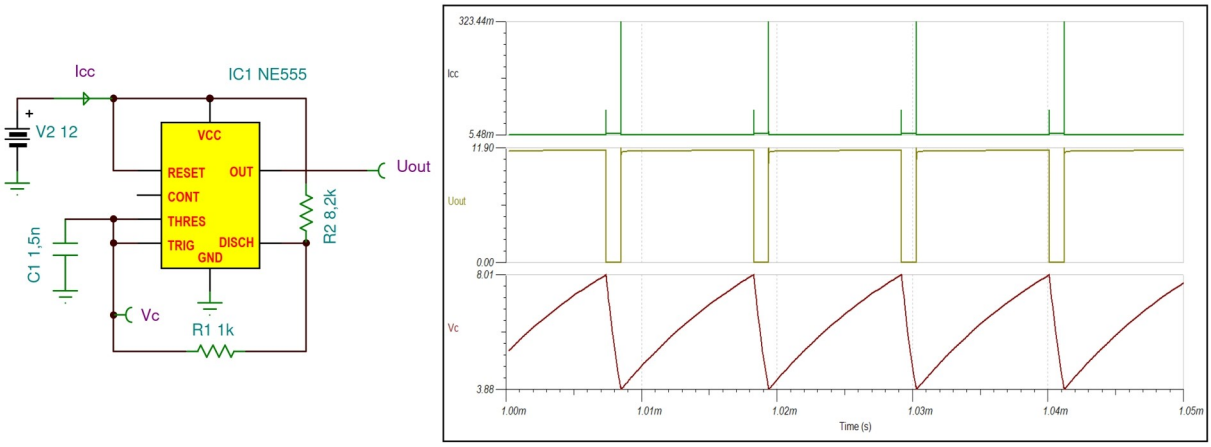
NE555 Timer Macro Model

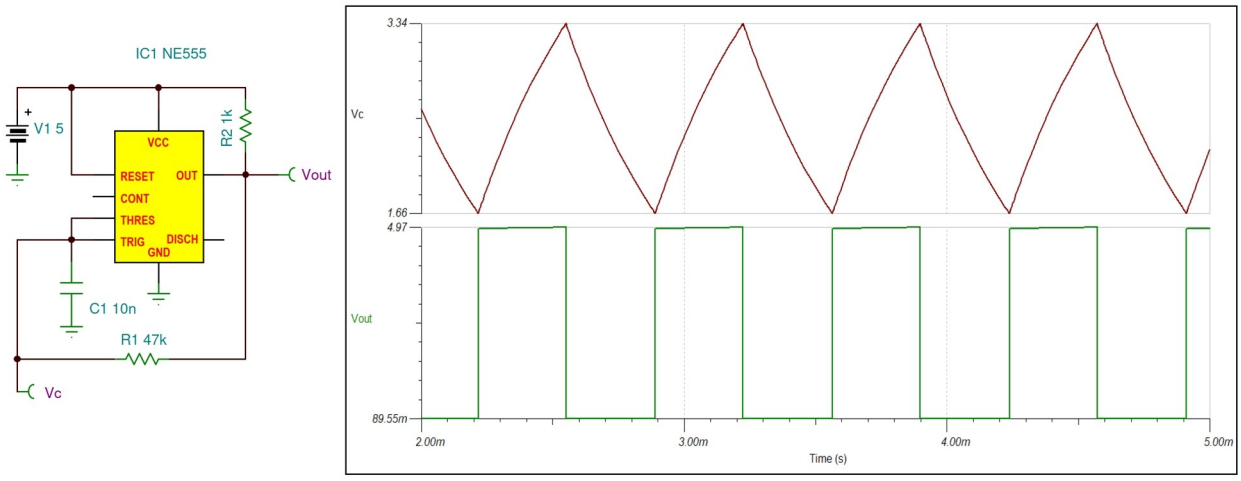


Totem-pole output (inside the NE555), connected directly to the positive rail and ground, without any kind of current limiting or special switch timing, that allows both transistors to be on very briefly, drawing large currents. Typical reports are of a current spike that lasts 100-200 ns and pulls about 300 mA. This is more than 30 times the normal unloaded current drawn by the chip. One thing to be aware of is the well-documented supply current spike created as the output changes state (particularly from low to high). A decoupling capacitor is always needed to handle this, and the minimum is 1 µF.

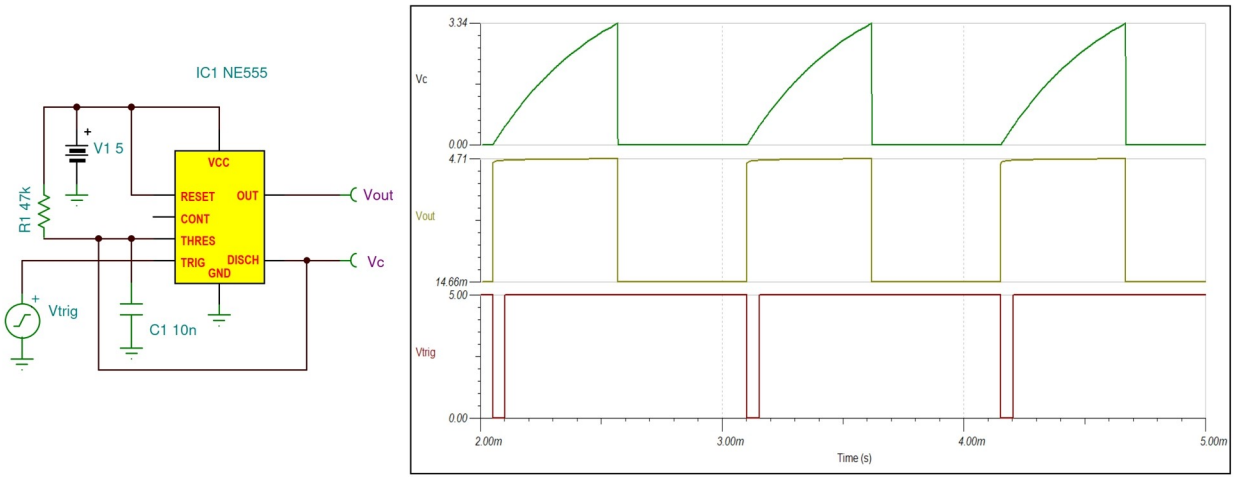


The average NE555 simulation models do not show the current drawn from the supply voltage, so the peaks are not visible either, but that still makes them exist.

50% Duty Cycle Oscillator:

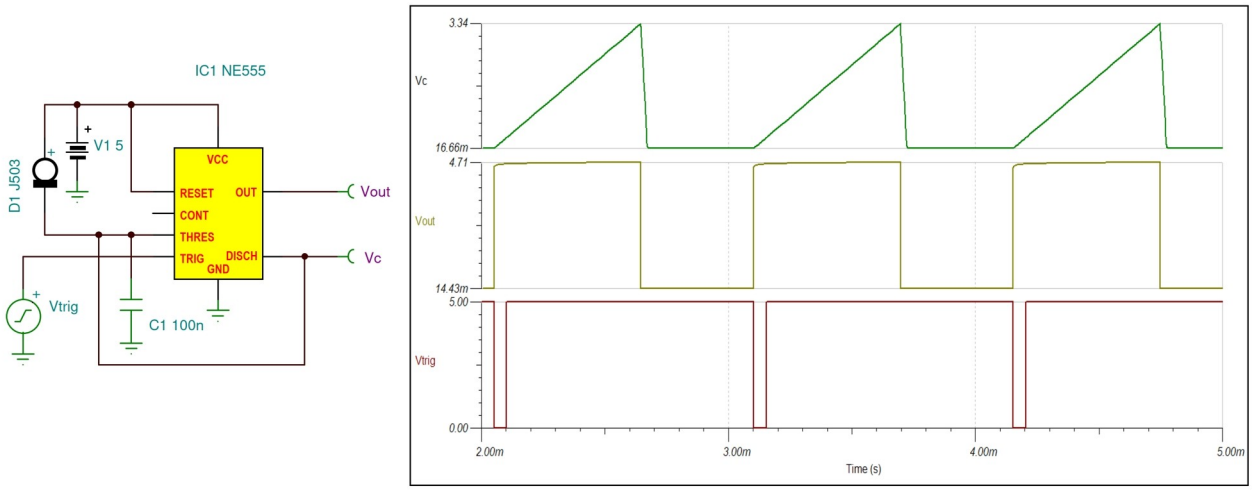


Monostable Operation:



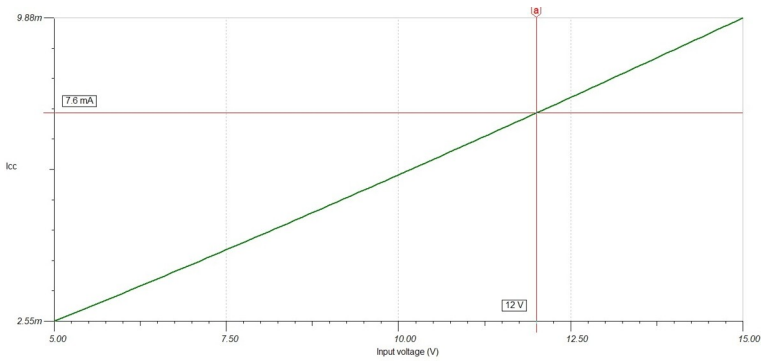
In monostable operation, the trigger should be driven high before the end of timing cycle.

Linear Ramp:



When the resistor, R1, in the monostable circuit is replaced by a constant current source, a linear ramp is generated.

Average Supply Current (RL = ∞):



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