BEC LAB

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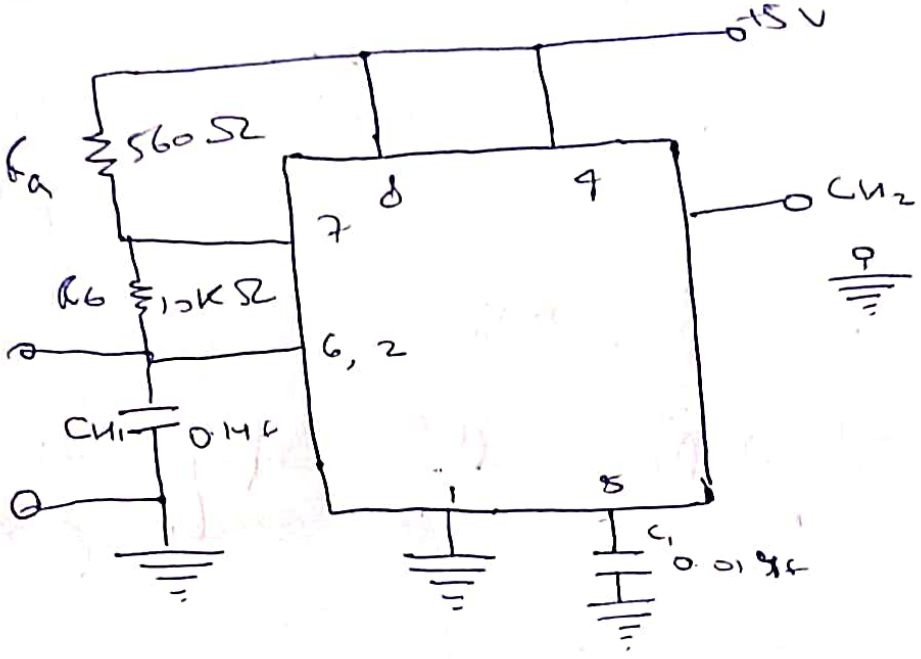
555 Timer based Astable

Input R_a : 560 Ω , R_b = 10 kΩ , C = 0.1 μF
C_1 = 0.01 μF

Software Used LT Spice.

Circuit diagram



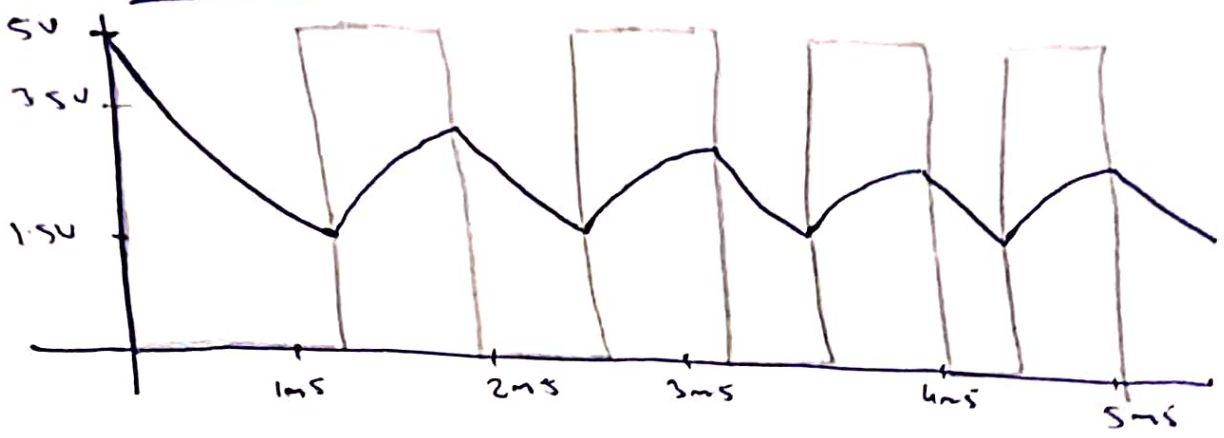
Observations

The graph voltage at Vout and CH1 is same as shown

Conclusion The graph is attached

Note : No. of stable States = 0

Graphs



2 Monostable Vibrator

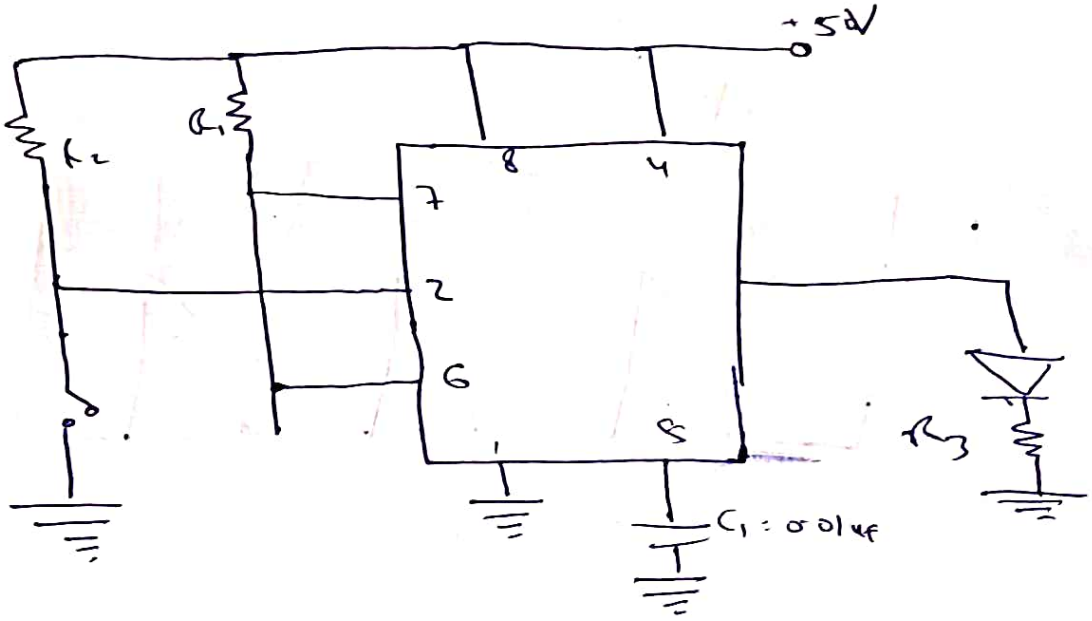
Inputs

$R_1 = 100K\Omega$, $R_2 = 10K\Omega$, $R_3 = 220\Omega$

$C = 47\ uf$, $C_1 = 0.001\ uf$

Software LT Spice

Diagram



Calculation

LED on time = $T_{on} = (1.1)\,R.C$

$= 1.1\,(10\times10^{3})(47\times10^{-6})$

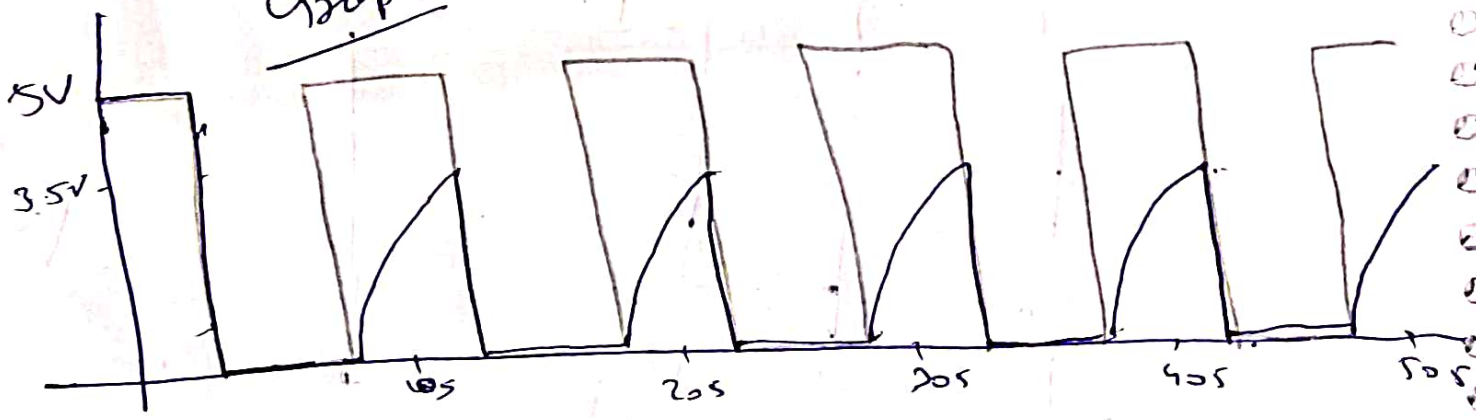
Observation

The graph of voltage at vout and near the capacitor C is observed

Conclusion

The graph can be seen in the LT spice and the no of stable states are '1'.

Graph

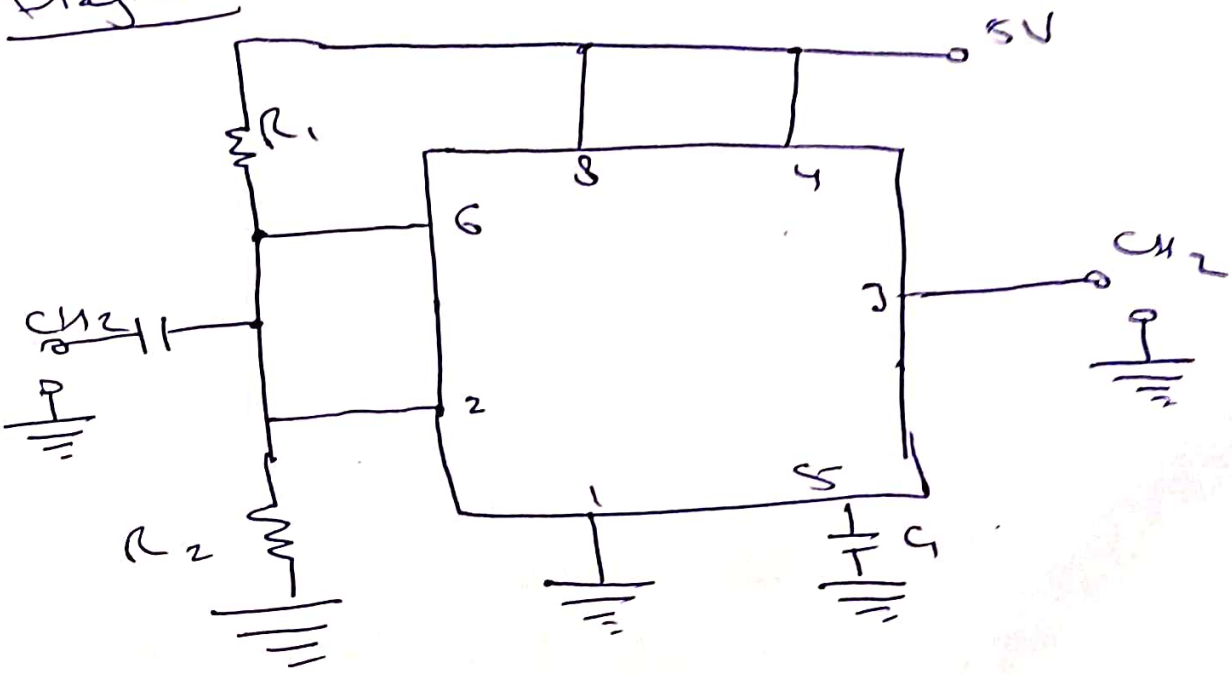


3) Schmitt trigger Circuit

Inputs: $R_1 = 10k\Omega$, $C = 0.1\mu f$, $R_2 = 10k\Omega$
$C_1 = 0.01\mu f$

Software: LT Spice

Diagram



Observation: The graphs are attached

Conclusion

The graphs can be seen in the LT spice and the no. of stable states are '2'

Graph