



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)



19EET202 / ANALOG ELECTRONICS

II YEAR / III SEMESTER

UNIT-4: AMPLIFIERS AND SWITCHING CIRCUITS

10/21/2023

1

MONO STABLE MULTIVIBRATORS



What We'll Discuss



TOPIC OUTLINE

Introduction
Classification of multivibrator
Working
Applications

10/21/2023

2

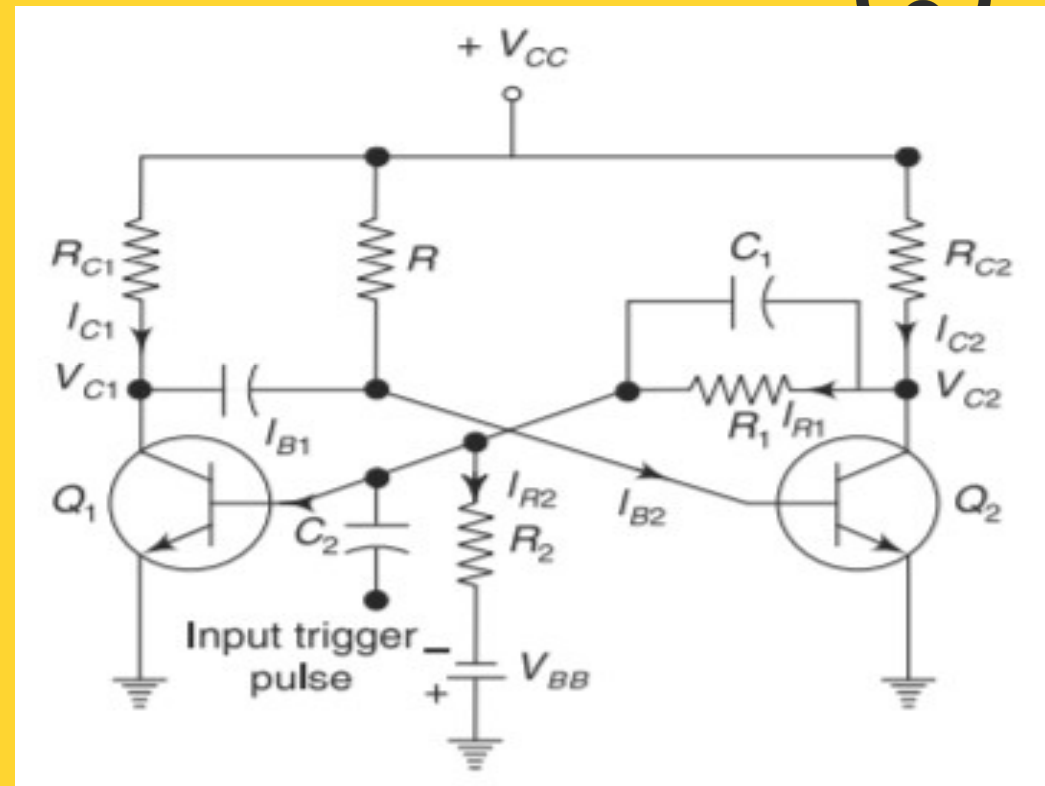


Monostable Multivibrator

- It remains in its stable state until an input pulse triggers it into its quasistable state for a time duration determined by the discharging an RC circuit and the circuit returns to its original stable state automatically.

10/21/2023

4





Monostable Multivibrator



- It consists of two identical transistors Q1 and Q2 with equal collector resistances of R_{C1} and R_{C2} .
- The output of Q2 is coupled to the input at the base of Q1 through a resistive attenuator in which C1 is a small speed up capacitor to speed up the transition.
- The values of R2 and $-V_{BB}$ are chosen so as to reverse bias Q1 and keep it in the OFF state.
- The collector supply +VCC and R will forward bias Q2 and keep it in the ON state. Actually, this is the stable state for the circuit.

10/21/2023

6



Monostable Multivibrator

- When a positive trigger pulse of short duration and sufficient magnitude is applied to the base of Q1 through C2, transistor Q1 starts conducting and thereby decreasing the voltage at its collector VC1 which is coupled to the base of Q2 through capacitor C.
- This decreases the forward bias on Q2 and its collector current decreases.
- The increasing positive potential on the collector of Q2 is applied to the base of Q1 through R1.
- This further increases the base potential of Q1 and Q1 is quickly driven to saturation and Q2 to cut-off.






Monostable Multivibrator

- The capacitor C is charged to approximately $+V_{CC}$, through the path V_{CC} , R and Q1.
- As the capacitor C discharges, the base of Q2 is forward biased and collector current starts to flow into Q2.
- Thus Q2 is quickly driven to saturation and Q1 is cut-off.
- This is the stable state for the circuit and remains in this condition until another trigger pulse causes the circuit to switch over the states.





Applications

1. The monostable multivibrator is used to function as an adjustable pulse width generator. 
2. It is used to generate uniform width pulses from a variable width input pulse train.
3. It is used to generate clean and sharp pulses from the distorted pulses.
4. It is used as a time delay unit since it produces a transition at a fixed time after the trigger signal.



References References

Electronic Devices and Circuits By Salivahanan
Electronic Devices and Circuits By Salivahanan



10/21/2023

10

**Thank You
Thank You**