Dr Satvir Singh

LINEAR INTEGRATED CIRCUITS

4-01

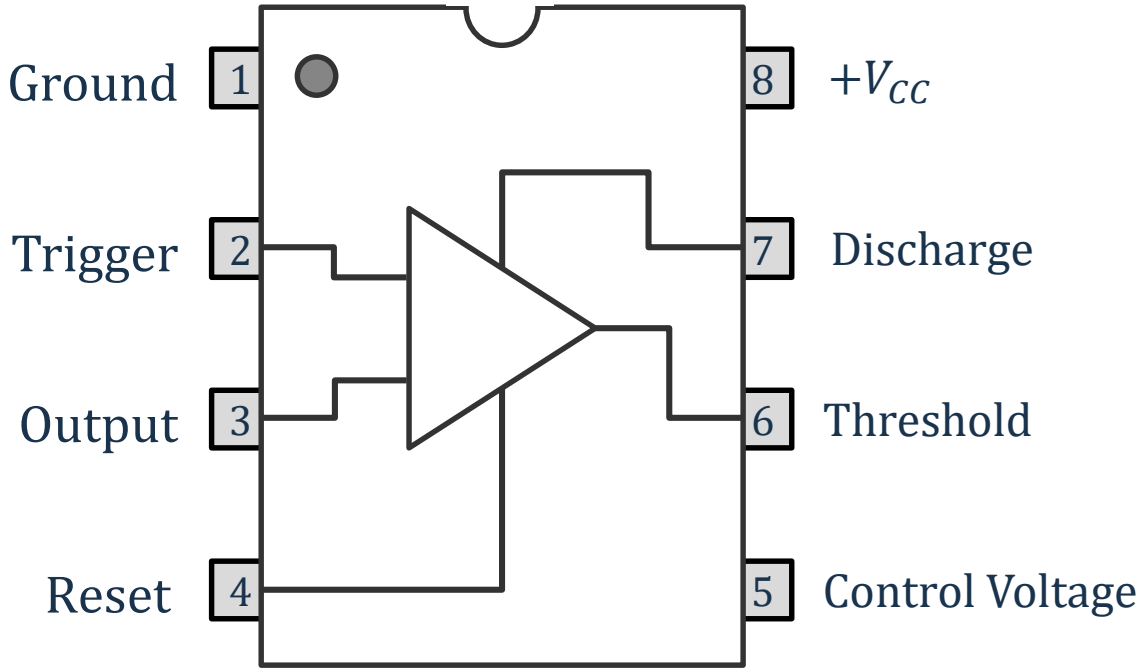
IC 555 Timer & Multivibrators

Do Like, Share & Subscribe

IC555 Applications

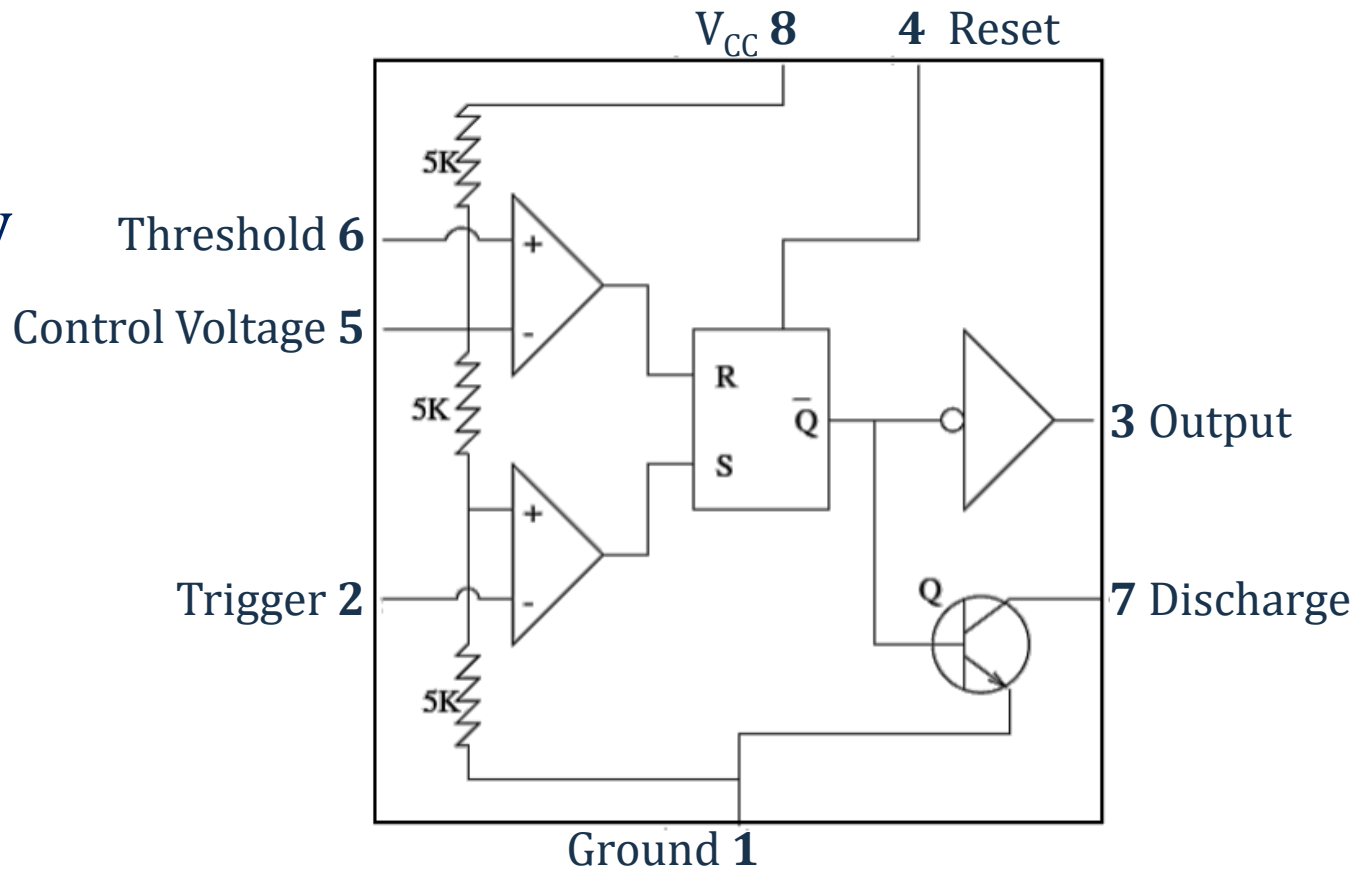
1. Monostable Multivibrator
2. Astable Multivibrator
3. DC-DC Converters
4. Digital Logic Probes
5. Waveform Generators
6. Analog Frequency Meters & Tachometers
7. Control Devices
8. Burglar and toxic gas alarms
9. Voltage Regulators
10. Infrared Transmitters

IC555 & Pin Configuration



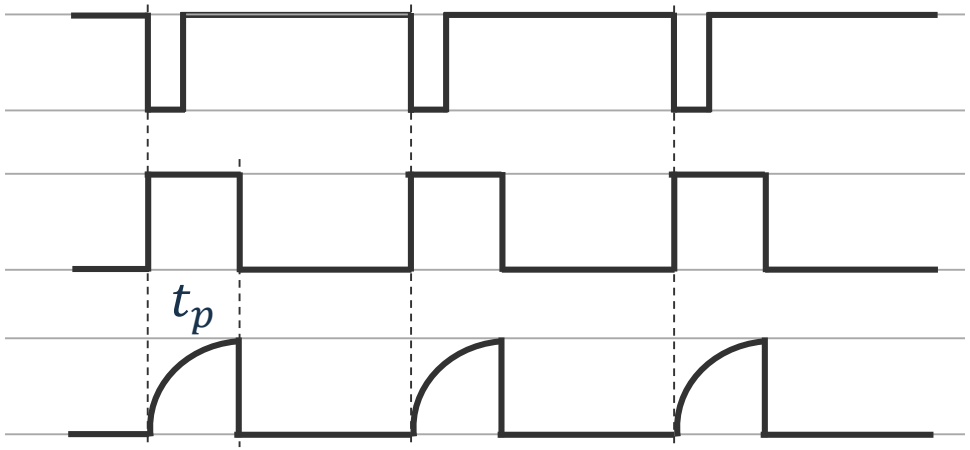
Internal Block Diagram & Features

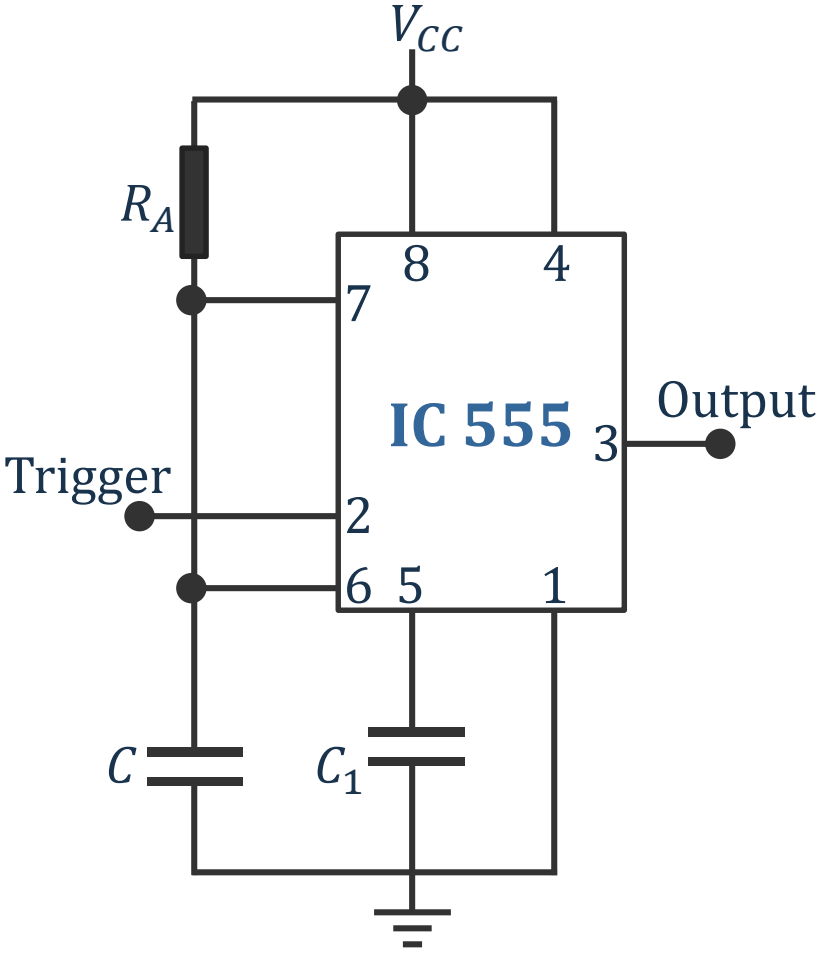
- Timer IC is available in 8-pin & 14-pin
- DIP and metal can packaging
- Operating voltage range +5V to +18V
- Adjustable duty cycle
- Output can drive TTL circuitry
- Easy to use and low cost



Monostable Multivibrator

- Monostable has 0 output stable state
- Generates an output pulse when triggered
- On application trigger output becomes 1
- Output pulse duration is given by $t_p = 1.1R_AC$
- After t_p output revert to 0
- Output remains 0 until triggered again





Astable Multivibrator

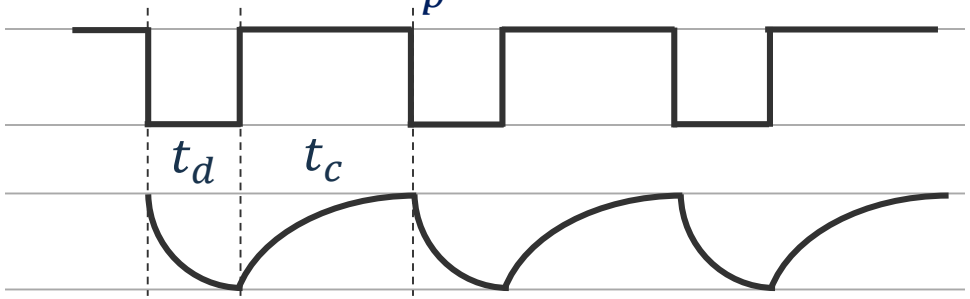
- Its free running Multivibrator
- Generates rectangular wave
- It does not require any external trigger
- Timings are controlled by Resistors & Capacitor

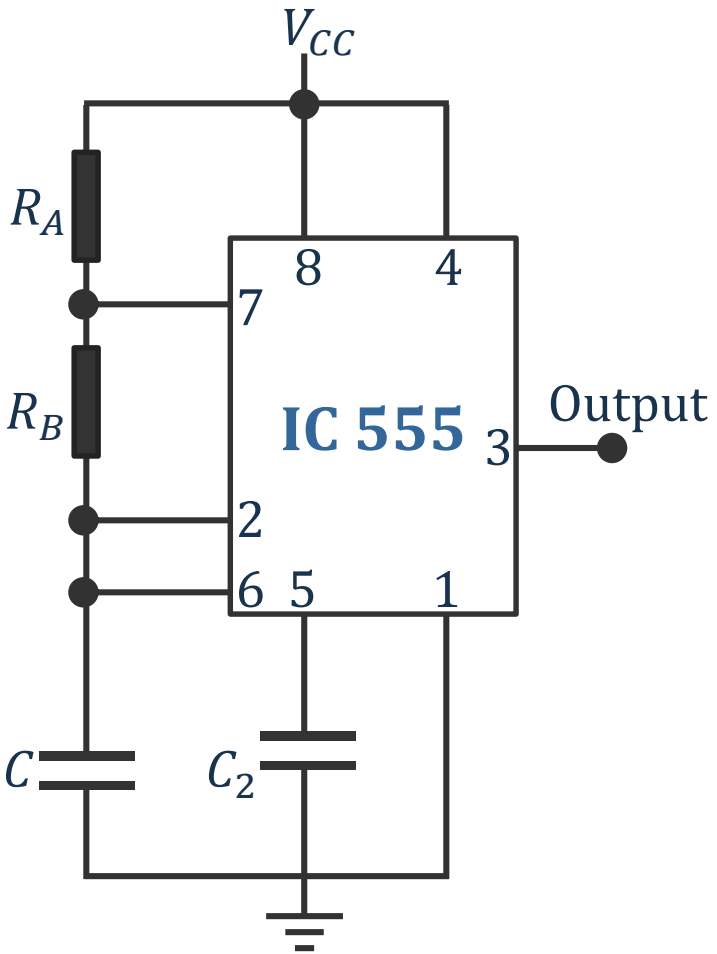
Charging time $t_c = 0.69(R_A + R_B)C$

Discharging time $t_d = 0.69R_BC$

Time period $t_p = 0.69(R_A + 2R_B)C$

Duty cycle $= \frac{t_c}{t_p} \times 100$





Dr Satvir Singh

LINEAR INTEGRATED CIRCUITS

Thank You

Do Like, Share & Subscribe