

# 555 Timer

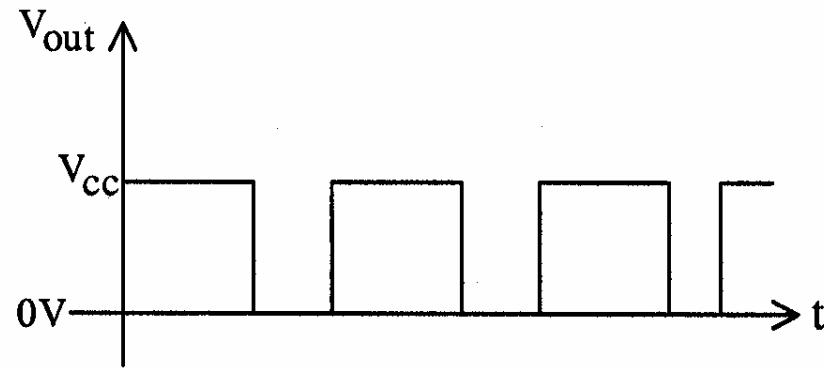


Figure 1. (a) Astable Output

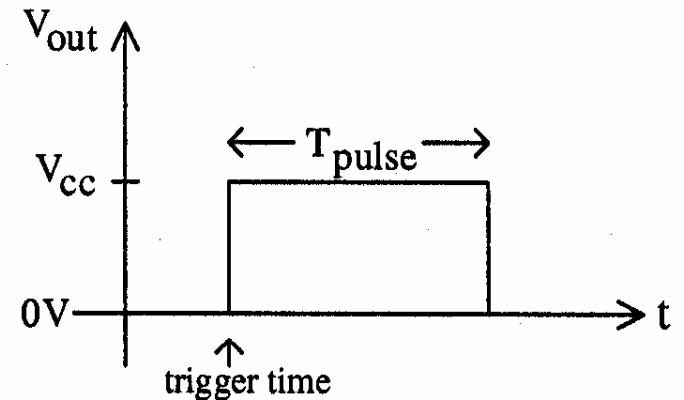


Figure 1. (b) Monostable Output

Pin#	Description
1	Ground
2	Trigger
3	Output
4	Reset
5	Control Voltage
6	Threshold
7	Discharge
8	Supply Voltage

TABLE I: 555 Timer Pin Description

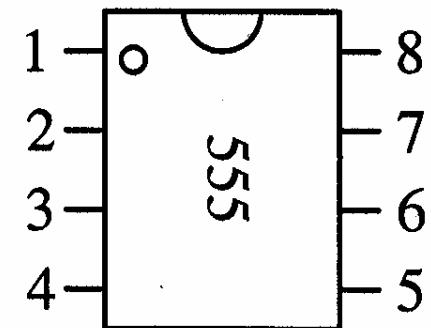
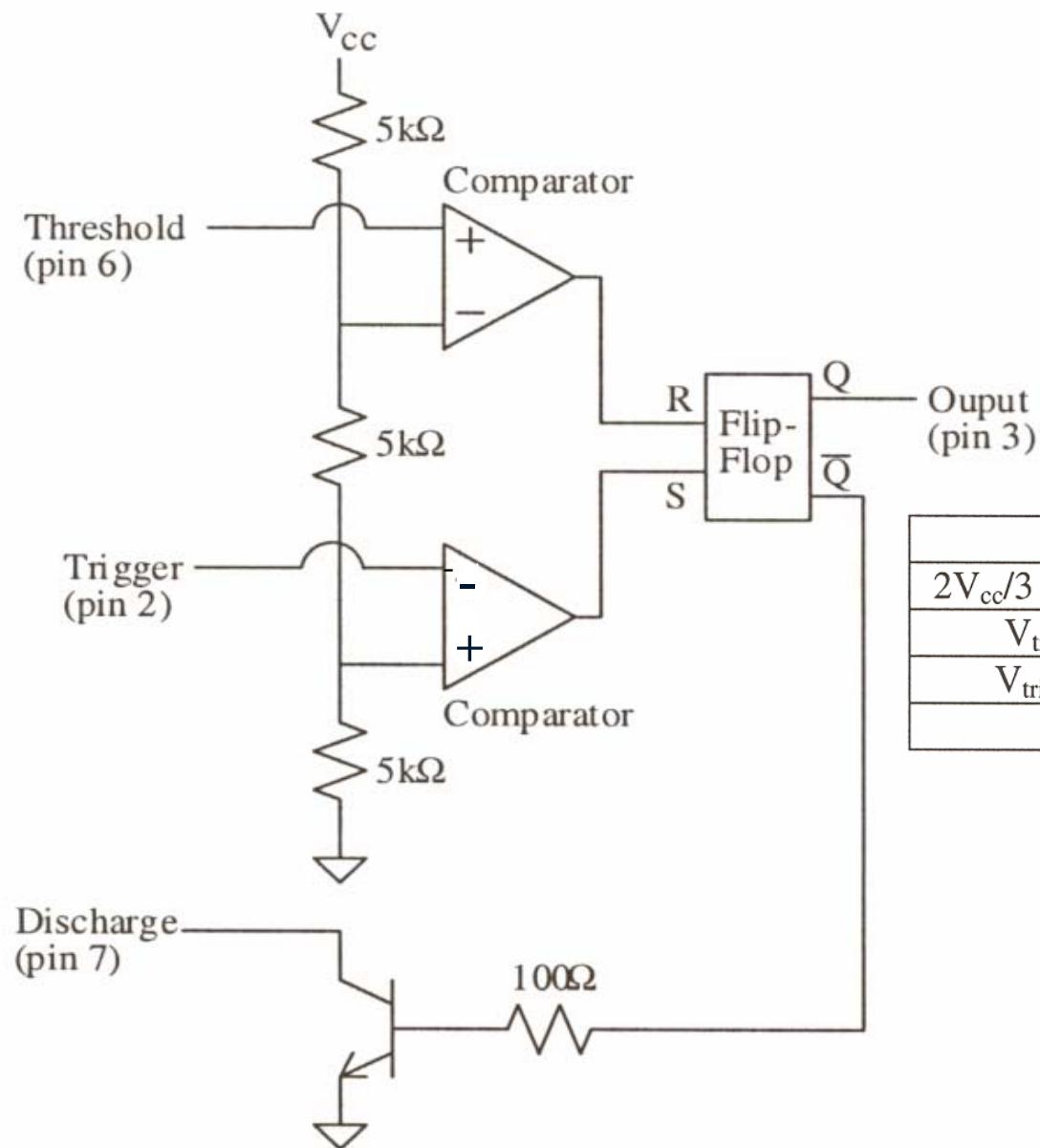


Figure 2. 555 Pin-Out



	R	S	$Q_{n+1}$
$2V_{cc}/3 > V_{trig} > V_{cc}/3$	0	0	$Q_n$
$V_{trig} < V_{cc}/3$	0	1	1
$V_{trig} > 2V_{cc}/3$	1	0	0
	1	1	N/A

TABLE II: Flip-Flop Truth Table

Figure 3. Functional Diagram of 555 Timer

# Astable Multivibrator

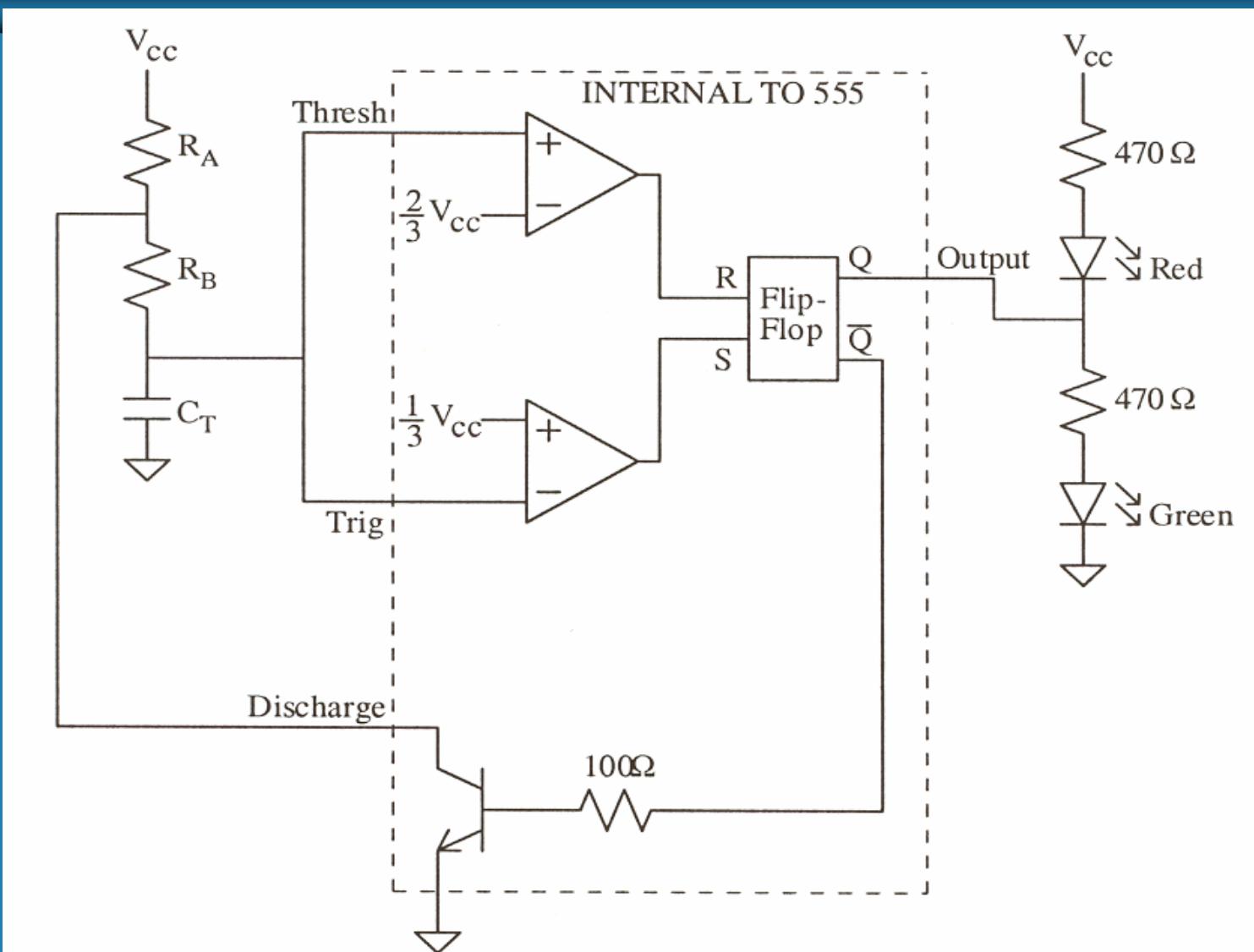


Figure 5. Astable Multivibrator Functional Circuit

# Astable Multivibrator

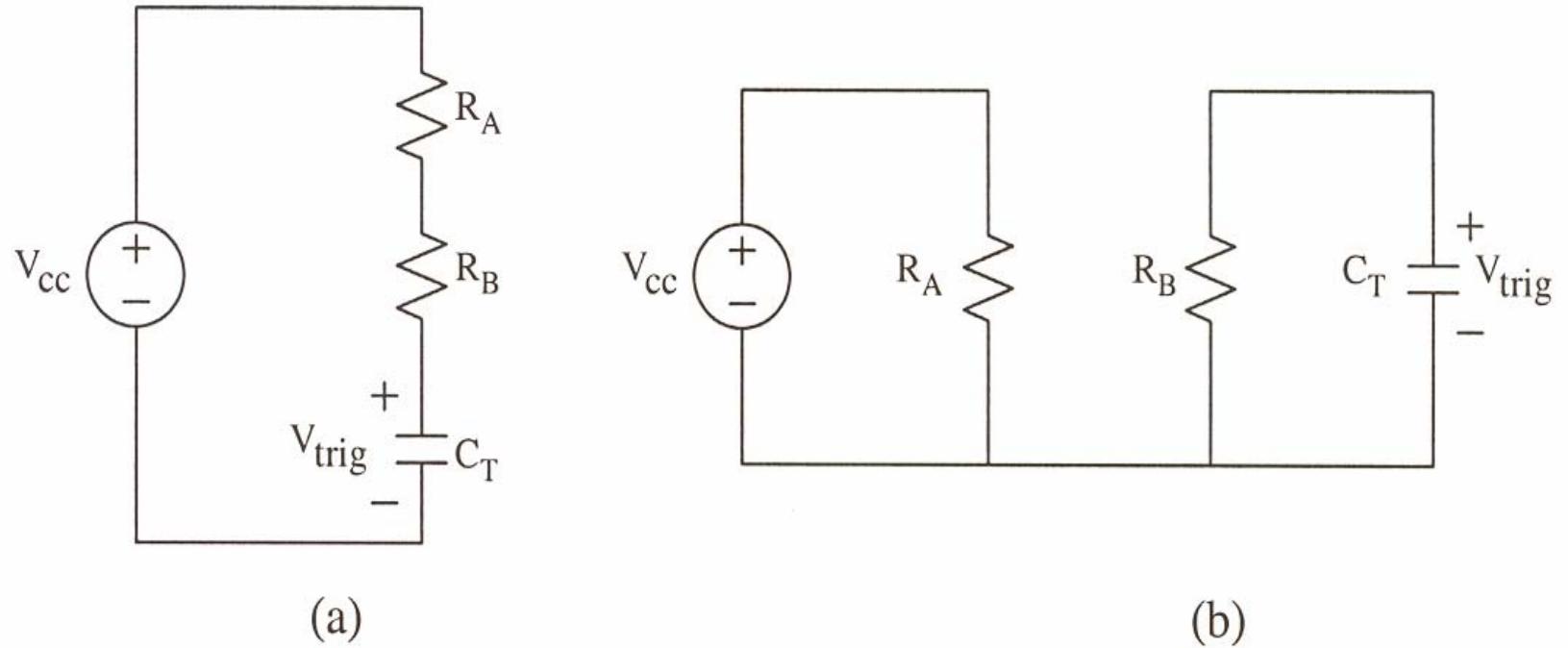


Figure 6. Astable Circuit During (a) Charge and (b) Discharge

# Astable Multivibrator

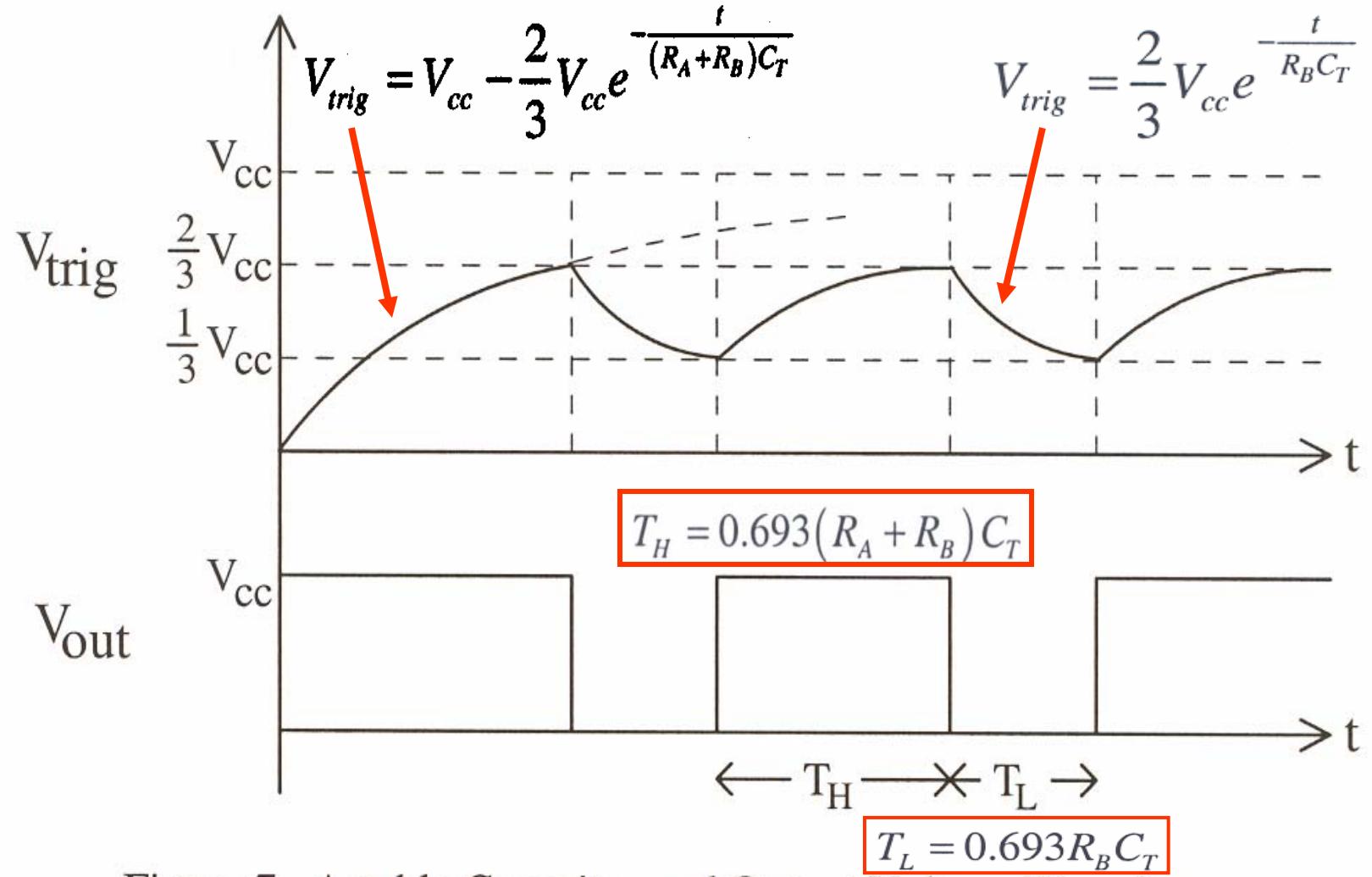


Figure 7. Astable Capacitor and Output Voltage Waveforms

# Astable Multivibrator

$$T = T_H + T_L = 0.693(R_A + 2R_B)C_T$$

$$f = \frac{1}{T} = \frac{1.44}{(R_A + 2R_B)C_T}$$

$$D = \frac{T_H}{T} = \frac{(R_A + R_B)}{(R_A + 2R_B)}$$

# “One Shot” Multivibrator

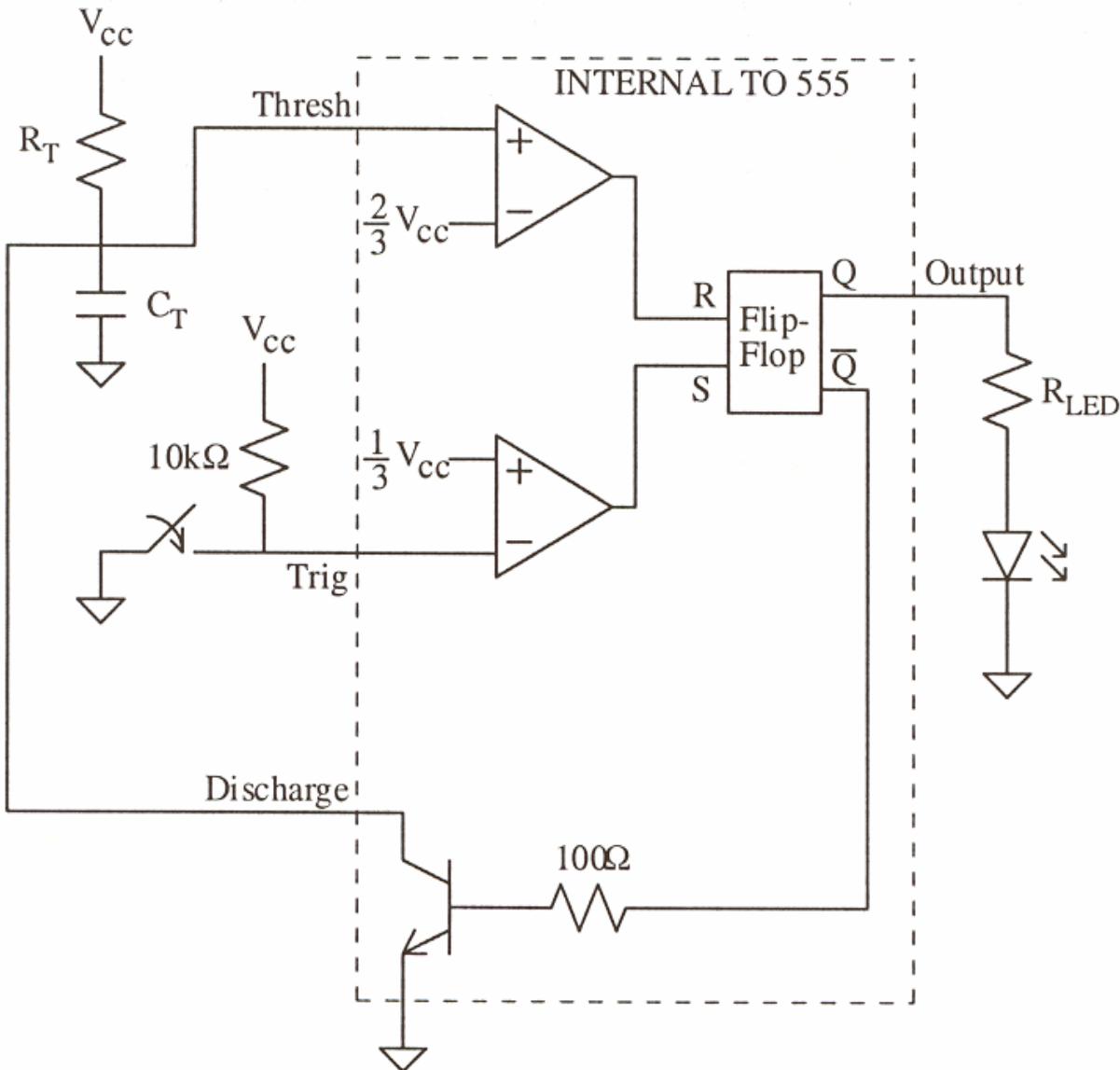


Figure 4. Monostable Multivibrator Functional Circuit