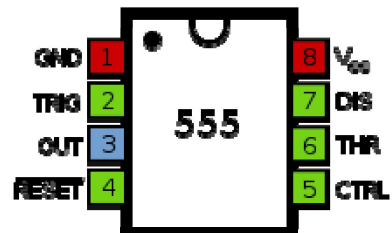
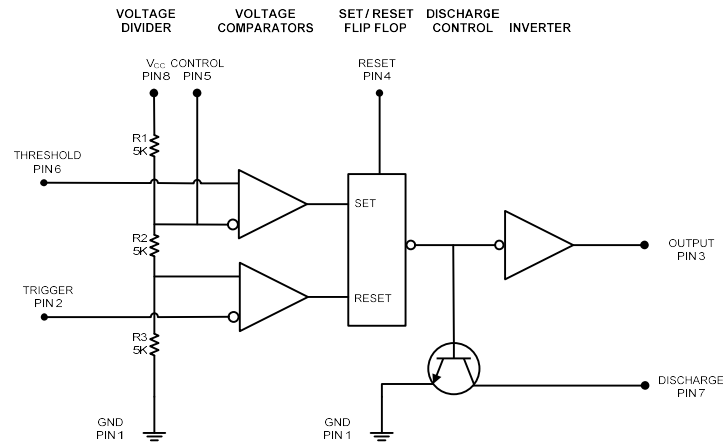


Class 28
555 Timer

- **555 Timer**
 - History
 - Design – 1970 by Qualidyne
 - Production - 1971 by Signetics
 - Thousands of applications
 - Annual Production
 - 1 billion



- 555 Timer
 - Block Diagram



- 555 Timer
 - Pinout

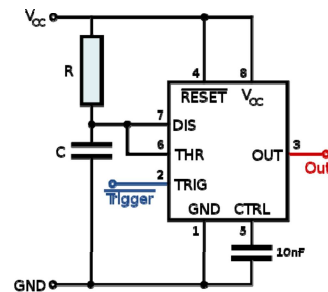
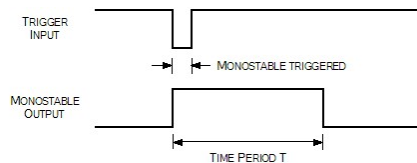
Pin	Name	Purpose
1	GND	Ground
2	TRIG	Sets output HI when input < 1/3 V+
3	OUT	Output driven to V+ or ground
4	RESET	Interrupts timing cycle when @ GND
5	CTRL	Access to voltage divider
6	THR	Sets output LO when input > 2/3 V+
7	DIS	Open collector transistor driven by OUT
8	V+	Positive supply (3V to 15V)

- 555 Timer

- Operating Modes

- Monostable** – (one stable state) one shot pulse generator (Lab 13)
 - Pulse time

$$t = 1.1RC$$



- 555 Timer

- Operating Modes

- Bistable** – (two stable states, AKA Schmidt trigger) latches HI or LOW with TRIG & RST
 - Pulse time – by RST & TRG inputs

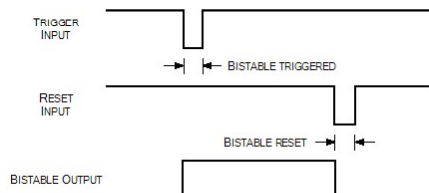
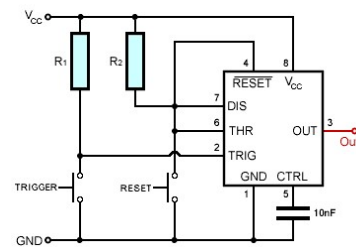
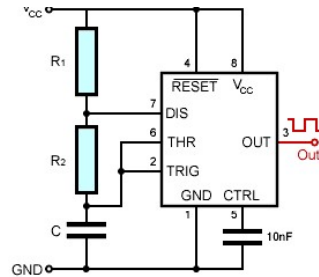
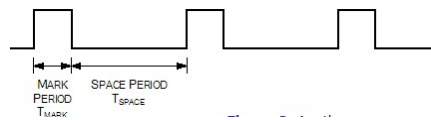


Figure 1: The bistable input and output waveforms

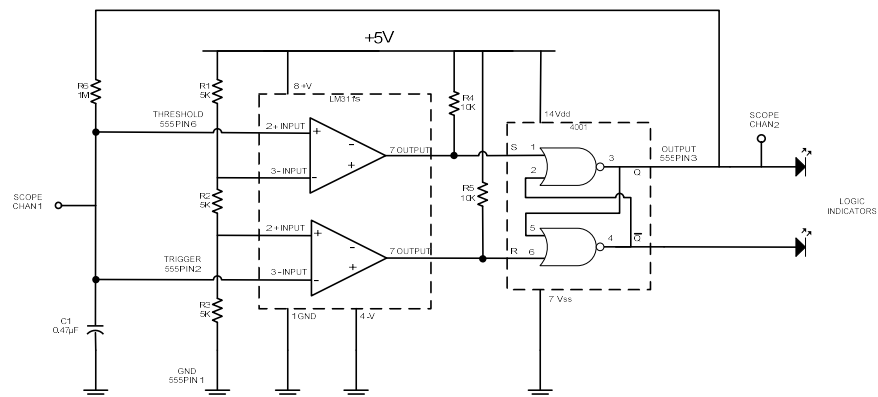


- 555 Timer
 - Operating Modes
 - **Astable** – (no stable states)
oscillating square wave output
(Lab 13)
 - Pulse time

$$t = 0.7RC$$



- 555 Timer
 - Fundamental 555



- **Lab 28 – Fundamental 555**

Learning Objectives

- Build and test a 555 timer from fundamental components
- Build & test an astable multivibrator