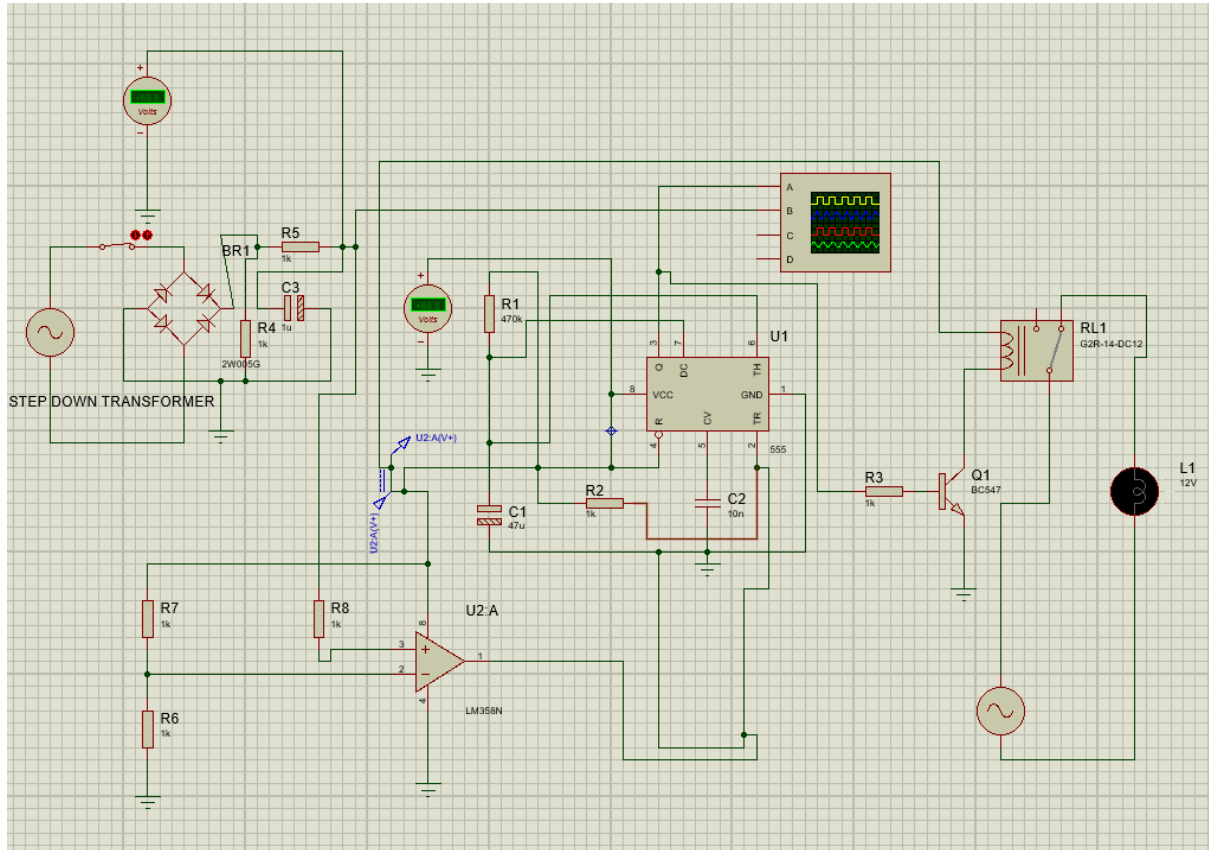


# TDR REPORT

## Introduction



The 555 IC was designed in 1971 by Hans Camenzind under contract to SigNetics Corporation.

- Basically, 555 timer is a highly stable circuit used to generate time delays, or Oscillations.
- A single 555 timer can provide time delay ranging from microseconds to hours.
- It operates from a wide range of power supplies ranging from + 5 Volts to +18 Volts supply voltage.

The function of each pin of the IC is given below

Ground

Trigger

Output

Reset Pin-5: Control Voltage

Threshold

Discharge

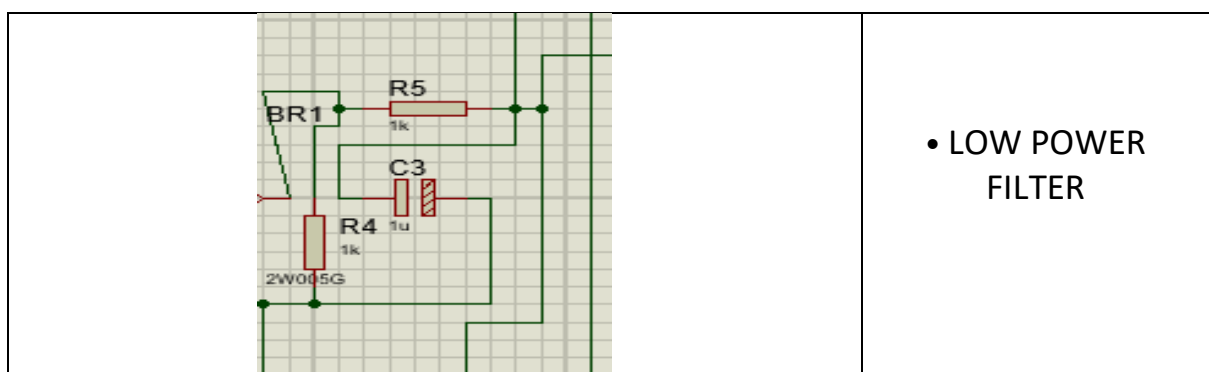
Vcc

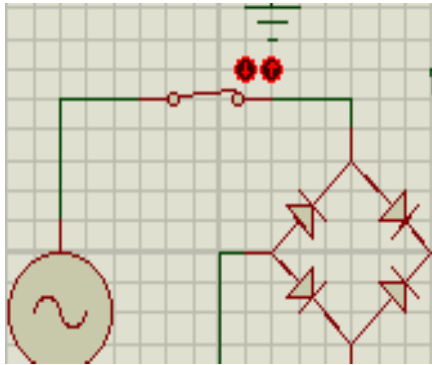
## Modes of Operation

555 IC Timer applications can be classified into two main categories:

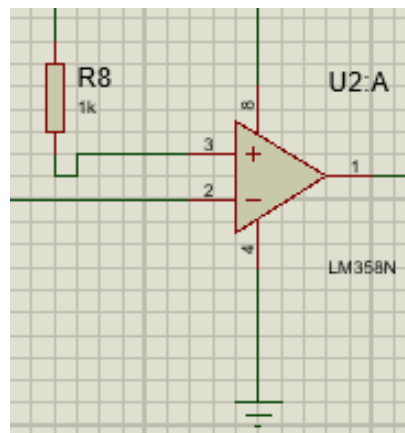
1. Monostable Multivibrators:- Producing a single pulse when triggered.
2. Astable Multivibrators.:- Producing a square wave.

## WORKING OF TDR



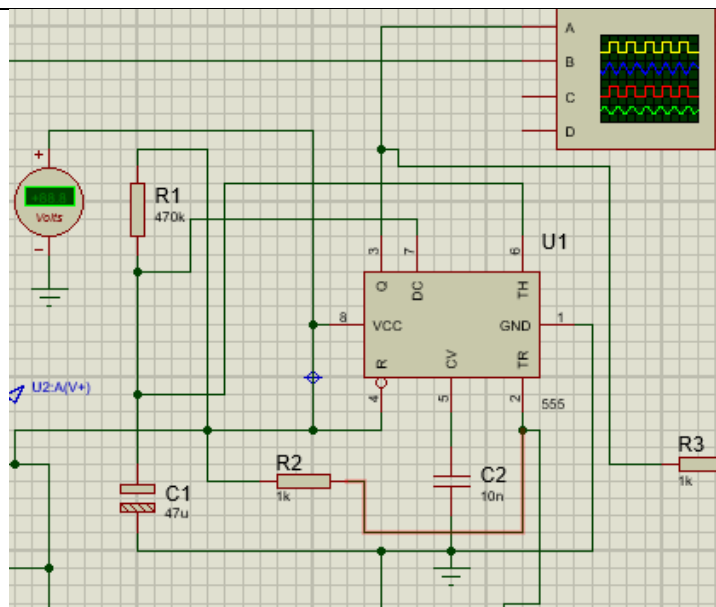


- SWITCH TO CONNECT AND DISCONNECT AC SOURCE FROM CIRCUIT



## OPAMP

- IT IS USED AS COMPARATOR  
RESISTOR 7(R7) AND RESISTOR 6 (R6) USED TO SET REFERENCE VOLTAGE TO COMPARATOR  
\*IT WORK AS A POTENTIAL DIVIDER



- USING U1(NE555) AS MONOSTABLE VIBRATOR  
CASE 1 (ON SWITCH) OUTPUT OF THE COMPARATOR IC PIN 1 WILL BE 12 VOLTS  
CASE 2 (OFF SWITCH) OUTPUT OF THE COMPARATOR IC PIN 1 WILL BE LOW  
• IN THIS WAY IT ACT AS TRIGGER

## 555 Timer Calculator

The 555 timer is a commonly used integrated circuit that can be configured to produce a square waveform output. In Astable configuration the output will be a free running squarewave output. In Monostable mode the output will be a single high pulse generated for a single input event. This calculator will determine the pulse width of the output based on the resistance and capacitance values entered.

### CHOOSE CONFIGURATION

☒ Monostable ☐ Astable

### R<sub>1</sub> RESISTOR VALUE

470 kΩ

### C<sub>1</sub> CAPACITANCE VALUE

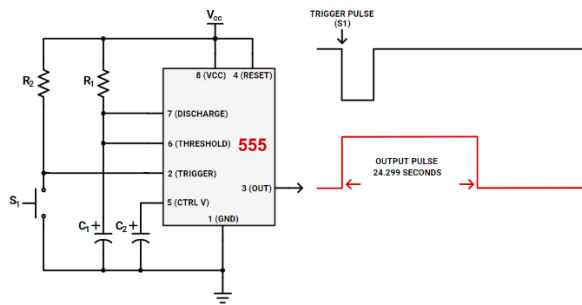
47 μF

### FORMULA

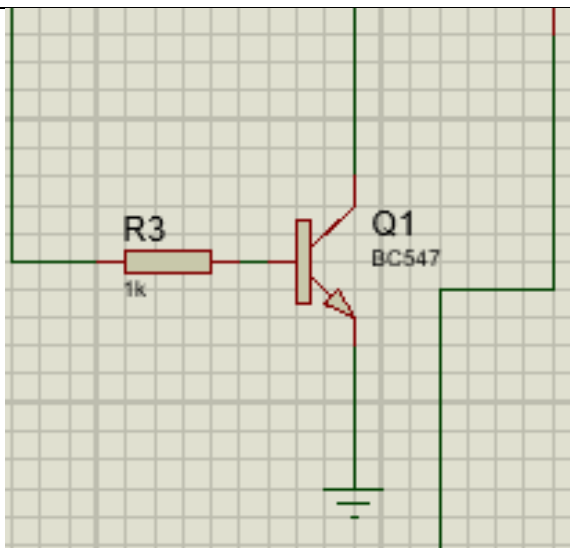
$$T = 1.1 R_1 C_1$$

### OUTPUT PULSE DURATION


24.299 S



IN THE SELECTED  
RESISTOR (R1) AND  
CAPACITOR(C1) VARIES  
SUCH THAT THE TIME IC  
GENRATES 24.3 SECONDD  
DELAY  
THIS DELAY APPERS ON  
PIN 3 OF 555 TIMER IC  
WHICH IS CONNECTED TO  
THE BASE BIPOLAR  
TRANSISTOR BC-547



•TRANSISTOR D1 IS  
USED TO DRIVE THE 12  
VOLT S RELAY  
THE BASE DRIVE OF  
TRANSISTOR IS  
CONTROLLED BY OUPUT  
PIN OF TIMER 555 IC  
PIN 3  
RELAY RL1 USED TO  
RUN/STOP THE AIR  
CONDITION (L1)

		<p>Component used</p>
--	--	-----------------------