



C555

Preliminary

CMOS IC

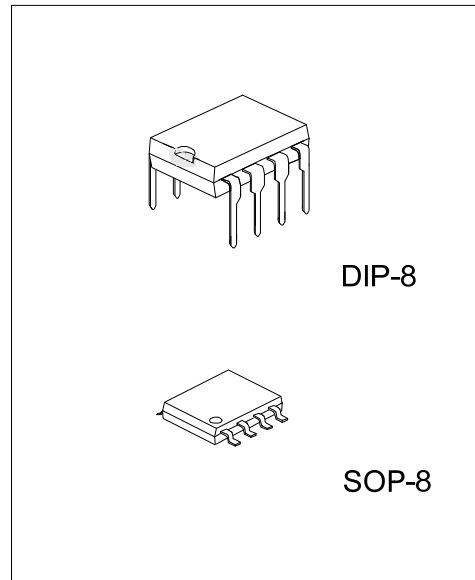
SINGLE TIMER

DESCRIPTION

The **C555** astable and monostable timing circuit is a highly stable controller capable of producing accurate time delays, or oscillation.

FEATURES

- * Timing from microseconds through hours
- * High speed operation – 500kHz
- * Wide operation supply voltage range – 2 to 18 voltages
- * Low Supply Current – 0.2mA
- * Operates in both astable and monostable modes
- * High output source/sink driver can drive TTL / CMOS
- * Adjustable duty cycle



ORDERING INFORMATION

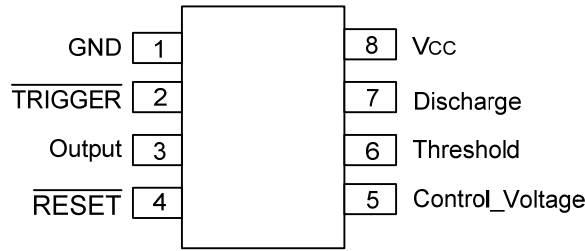
Ordering Number		Package	Packing
Lead Free	Halogen Free		
C555L-D08-T	C555G-D08-T	DIP-8	Tube
C555L-S08-R	C555G-S08-R	SOP-8	Tape Reel

<p>C555G-D08-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) D08: DIP-8, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---

MARKING

DIP-8	SOP-8
<p>8 7 6 5 → Date Code</p> <p>UTC □ □ □ □</p> <p>L: Lead Free</p> <p>C555 □</p> <p>G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>	<p>8 7 6 5 → Date Code</p> <p>UTC □ □ □ □</p> <p>L: Lead Free</p> <p>C555 □</p> <p>G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>

■ PIN CONFIGURATION



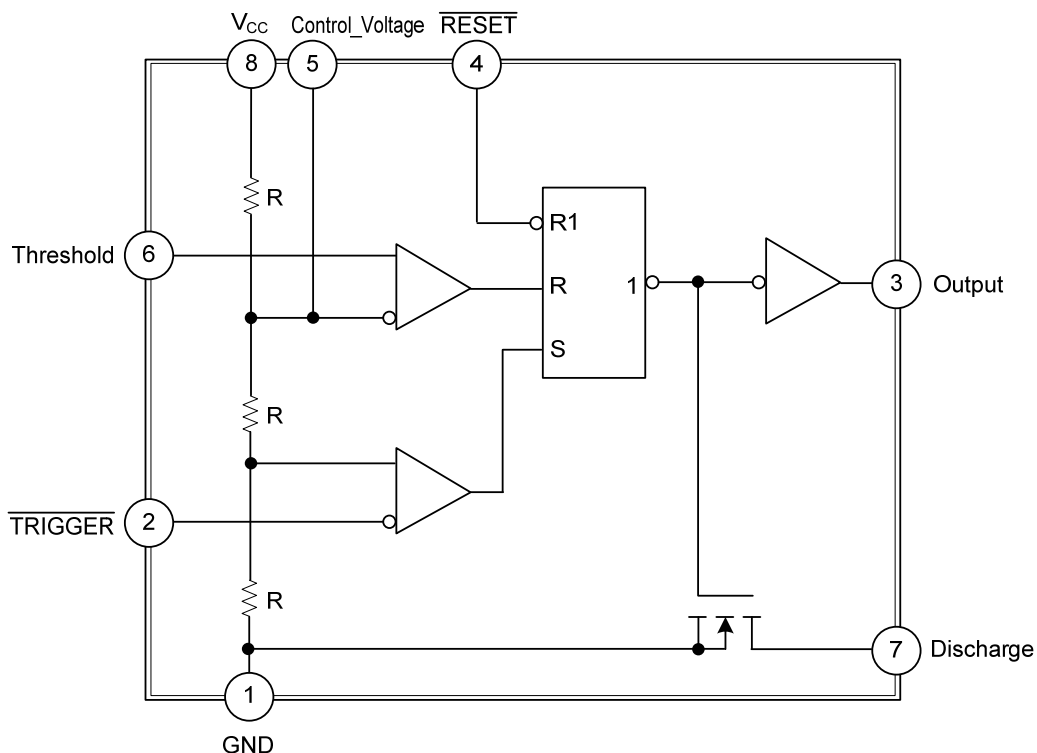
■ PIN DESCRIPTION

PIN No.	PIN NAME	DESCRIPTION
1	GND	Ground
2	$\overline{\text{TRIGGER}}$	Trigger voltage input
3	Output	Output
4	$\overline{\text{RESET}}$	Direct reset low input
5	Control_Voltage	Control voltage
6	Threshold	Threshold voltage input
7	Discharge	Discharging when output is low
8	V _{CC}	Supply voltage

■ TRUTH TABLE

THRESHOLD	$\overline{\text{TRIGGER}}$	$\overline{\text{RESET}}$	OUTPUT	DISCHARGE
X	X	L	L	ON
$>2/3 \times V_{CC}$	$>1/3 \times V_{CC}$	H	L	ON
$<2/3 \times V_{CC}$	$>1/3 \times V_{CC}$	H	STABLE	STABLE
X	$<1/3 \times V_{CC}$	H	H	OFF

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	18	V
Input Voltage	$V_{TH}, V_{TRIG}, V_{RST}$	$-0.3 \sim V_{CC}+0.3$	V
Output Current	I_O	100	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	125	°C
Operating Temperature	T_{OPR}	$-20 \sim +85$	°C
Storage Temperature	T_{STG}	$-65 \sim +150$	°C

Note: Absolute maximum ratings and operation rating recommended are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

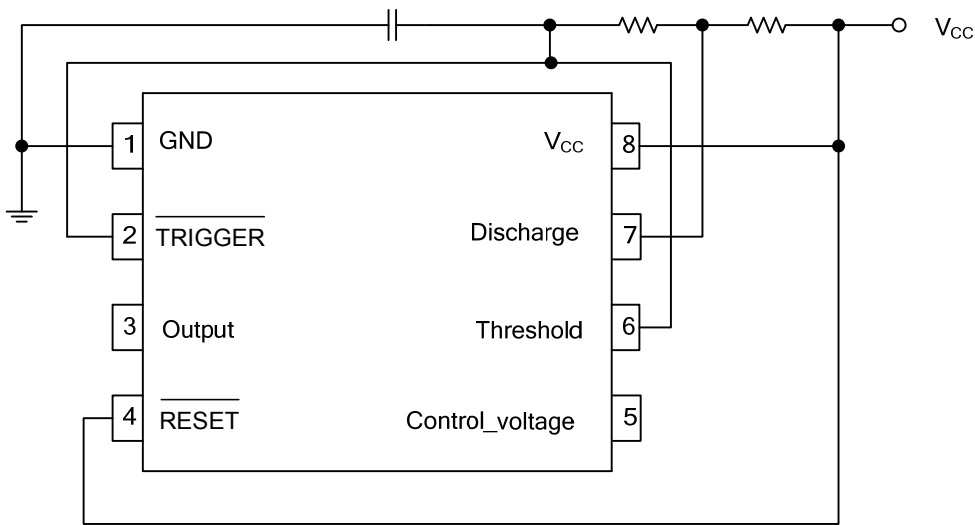
■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	2.0 ~ 18	V
Output Current	I_O	20	mA
Operating Temperature	T_{OPR}	$-20 \sim 75$	°C

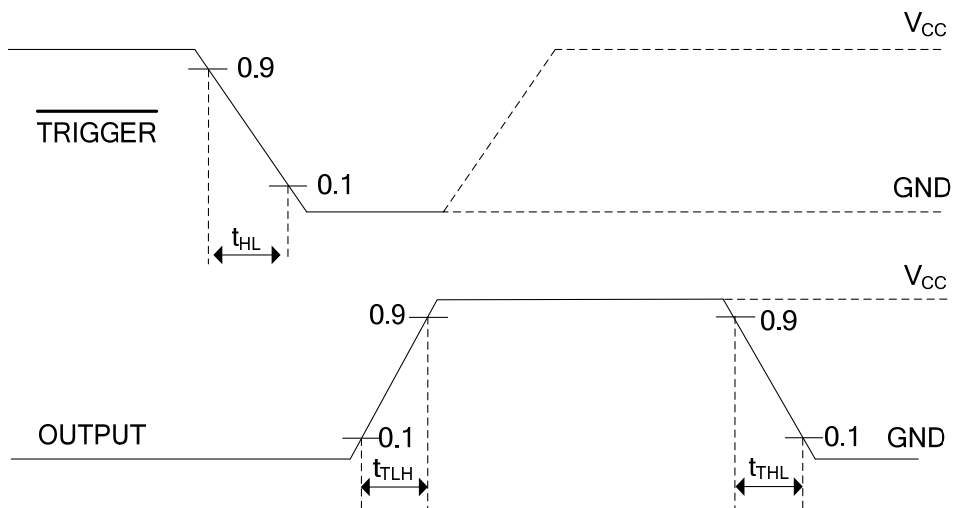
■ ELECTRICAL CHARACTERISTICS (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$T_A=25^\circ\text{C}$						
Supply Current	I_{CC}	$V_{CC}=2V$			200	μA
		$V_{CC}=18V$			300	μA
Initial Accuracy	A_{CCUR}	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu\text{F}$	5			%
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$				3	%/C
Control Voltage	V_C		$0.65 \times V_{CC}$		$0.69 \times V_{CC}$	V
Threshold Voltage	V_{TH}	$V_{CC}=5V$	$0.65 \times V_{CC}$		$0.70 \times V_{CC}$	V
Trigger Voltage	V_{TR}	$V_{CC}=5V$	$0.31 \times V_{CC}$		$0.36 \times V_{CC}$	V
Reset Voltage	V_{RST}	$V_{CC}=2\sim 18V$	0.4		1.0	V
Low Output Voltage	V_{OL}	$V_{CC}=5V, I_{OL}=3.2\text{mA}$			0.4	V
		$V_{CC}=15V, I_{OL}=20\text{mA}$			1.0	V
High Output Voltage	V_{OH}	$V_{CC}=5V, I_{OL}=0.8\text{mA}$	4.0			V
		$V_{CC}=15V, I_{OL}=0.8\text{mA}$	14.3			V
Rise/Fall Time of Output	t_{THL}, t_{TLH}	$V_{CC}=15V, R_L=10M\Omega, C_L=10\text{pF}$	35		75	ns
Guaranteed Max Osc Freq	f_{MAX}	$V_{CC}=2\sim 18V, \text{Astable Operation}$	500			kHz
$T_A=-20\sim 70^\circ\text{C}$						
Supply Current	I_{CC}	$V_{CC}=2V$			400	μA
		$V_{CC}=18V$			600	μA
Initial Accuracy	A_{CCUR}	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu\text{F}$	5			%
Drift with Temperature	$\Delta t/\Delta T$	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu\text{F}$	$V_{CC}=5V$		0.02	%/°C
			$V_{CC}=15V$		0.06	%/°C
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$	$C_L=0.1\mu\text{F}$			6	%/C
Control Voltage	V_C		$0.60 \times V_{CC}$		$0.80 \times V_{CC}$	V
Threshold Voltage	V_{TH}	$V_{CC}=5V$	$0.60 \times V_{CC}$		$0.80 \times V_{CC}$	V
Trigger Voltage	V_{TR}	$V_{CC}=5V$	$0.28 \times V_{CC}$		$0.40 \times V_{CC}$	V
Reset Voltage	V_{RST}	$V_{CC}=2\sim 18V$	0.2		1.5	V
Low Output Voltage	V_{OL}	$V_{CC}=5V, I_{OL}=3.2\text{mA}$			0.6	V
		$V_{CC}=15V, I_{OL}=20\text{mA}$			1.5	V
High Output Voltage	V_{OH}	$V_{CC}=5V, I_{OL}=0.8\text{mA}$	3.5			V
		$V_{CC}=15V, I_{OL}=0.8\text{mA}$	14			V
Rise/Fall Time of Output	t_{THL}, t_{TLH}	$V_{CC}=5V, R_L=10M\Omega, C_L=10\text{pF}$	70		150	ns
Guaranteed Max Osc Freq	f_{MAX}	$V_{CC}=2\sim 18V, \text{Astable Operation}$	200			kHz

■ TYPICAL APPLICATION CIRCUIT



■ SWITCHING WAVEFORMS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.