



C555

CMOS IC

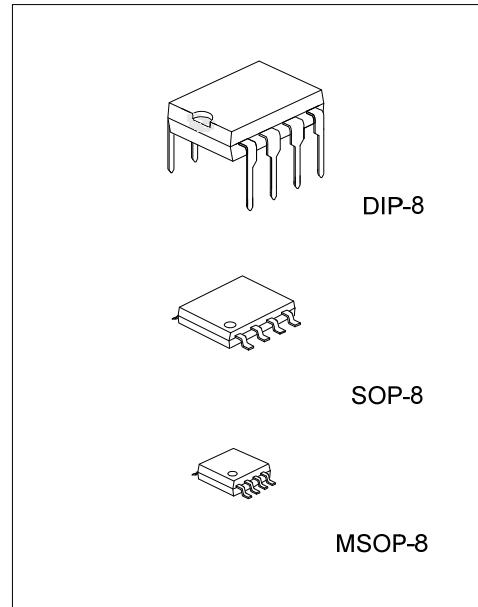
SINGLE TIMER

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 – 7 to 15 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

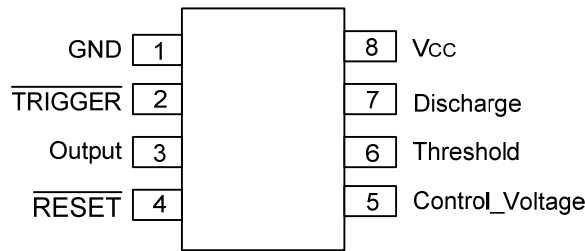
Ordering Number		Package	Packing
Lead Free	Halogen Free		
C555L-D08-T	C555G-D08-T	DIP-8	Tube
C555L-S08-R	C555G-S08-R	SOP-8	Tape Reel
C555L-SM1-R	C555G-SM1-R	MSOP-8	Tape Reel

<p>C555G-D08-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) T: Tube, R: Tape Reel (2) D08: DIP-8, S08: SOP-8, SM1: MSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

DIP-8	SOP-8 / MSOP-8

■ PIN CONFIGURATION



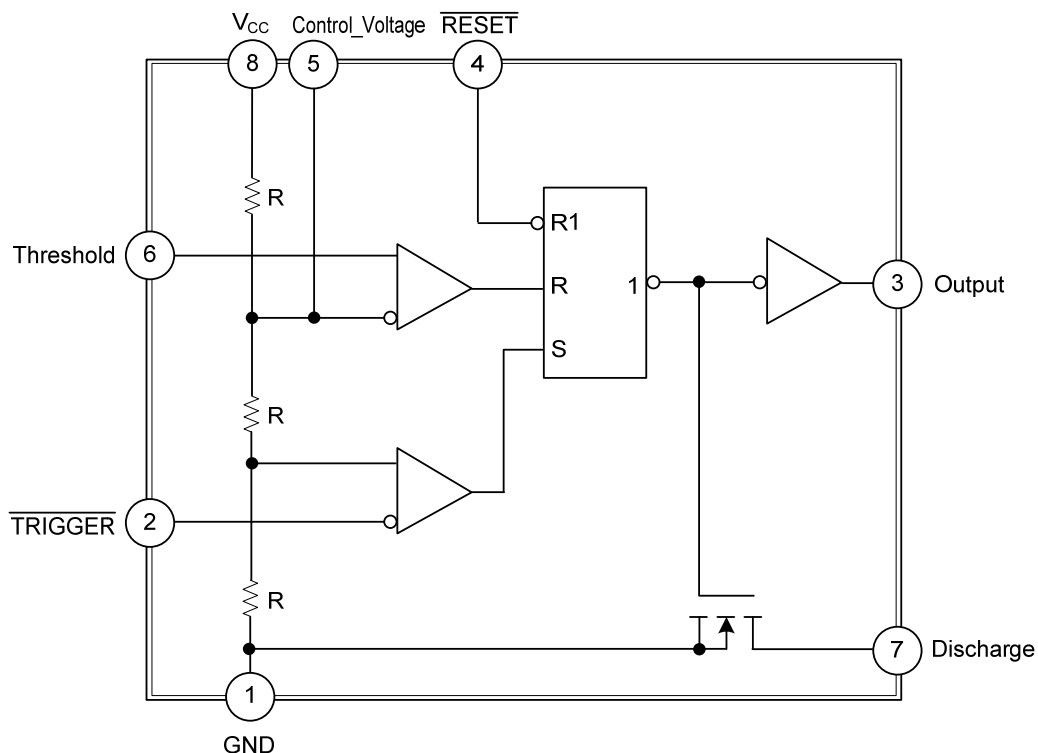
■ PIN DESCRIPTION

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}	16	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	DIP-8	P_D	600	mW
	SOP-8		400	mW
	MSOP-8		300	mW
Junction Temperature		T_J	+125	°C
Operating Temperature		T_{OPR}	-20 ~ +85	°C
Storage Temperature		T_{STG}	-65 ~ +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}	7 ~ 15	V
Output Current		I_O	20	mA
Operating Temperature		T_{OPR}	-20 ~ 70	°C

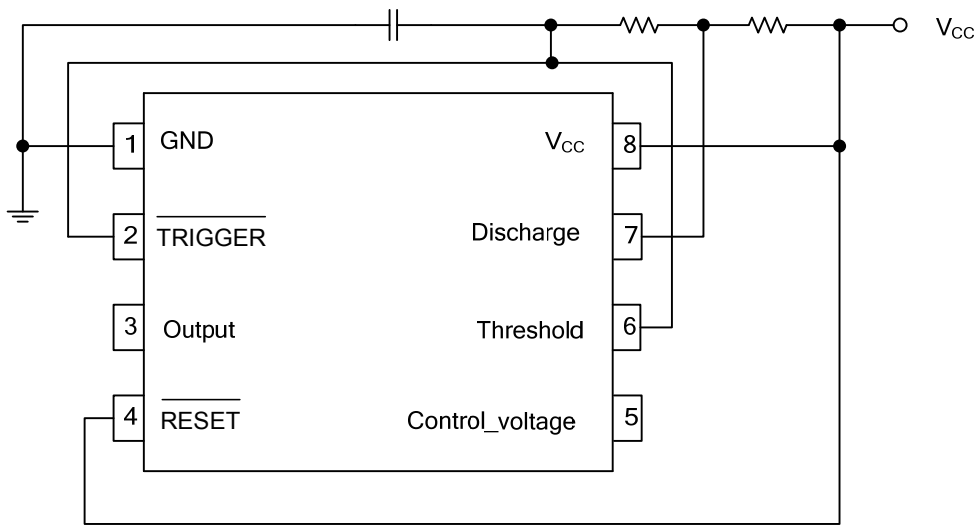
■ ELECTRICAL CHARACTERISTICS (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$T_A=25^\circ\text{C}$						
Supply Current	I_{CC}	$V_{CC}=7V$			200	μA
		$V_{CC}=15V$			600	μA
Initial Accuracy	A_{CCUR}	$V_{CC}=7V, R_L=1\sim 100k\Omega, C_L=0.1\mu\text{F}$	5			%
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$				3	%/C
Control Voltage	V_C		$0.4 \times V_{CC}$		$0.75 \times V_{CC}$	V
Threshold Voltage	V_{TH}	$V_{CC}=7V$	$0.4 \times V_{CC}$		$0.70 \times V_{CC}$	V
Trigger Voltage	V_{TR}	$V_{CC}=7V$	$0.28 \times V_{CC}$		$0.36 \times V_{CC}$	V
Reset Voltage	V_{RST}	$V_{CC}=7\sim 15V$	0.4		2.0	V
Low Output Voltage	V_{OL}	$V_{CC}=7V, I_{OL}=3.2\text{mA}$			0.4	V
		$V_{CC}=15V, I_{OL}=20\text{mA}$			1.0	V
High Output Voltage	V_{OH}	$V_{CC}=7V, I_{OL}=0.8\text{mA}$	6.0			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}	$V_{CC}=7\sim 15V, \text{Astable Operation}$	500			kHz

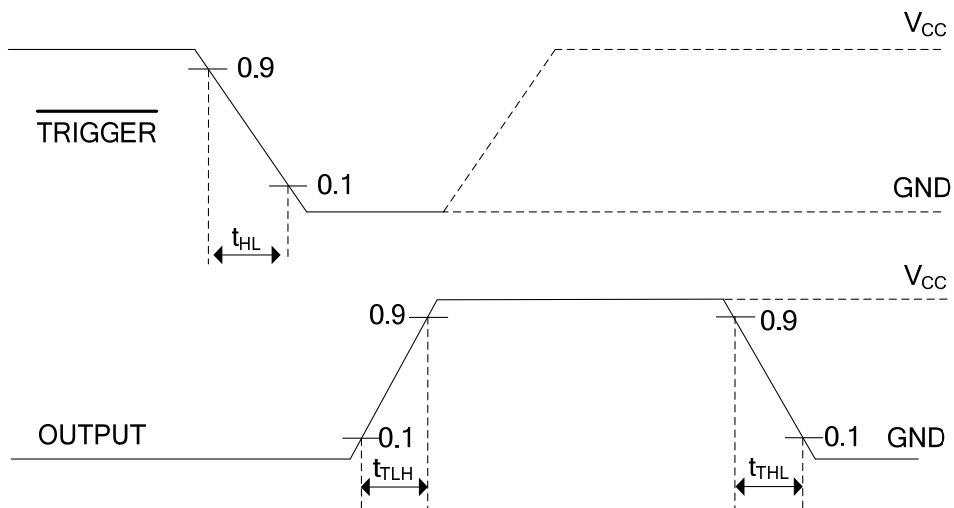
■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
T_A=-20~70°C						
Supply Current	I _{CC}	V _{CC} =7V			400	μA
		V _{CC} =15V			800	μA
Initial Accuracy	A _{CCUR}	V _{CC} =7V, R _L =1~100kΩ, C _L =0.1μF	5			%
Drift with Temperature	Δt/ΔT	V _{CC} =7V, R _L =1~100kΩ, C _L =0.1μF	V _{CC} =5V		0.02	%/°C
			V _{CC} =15V		0.06	%/°C
Drift with Supply Voltage	Δt/ΔV _{CC}	V _{CC} =7V, R _L =1~100kΩ, C _L =0.1μF			6	%/C
Control Voltage	V _C		0.35×V _{CC}		0.80×V _{CC}	V
Threshold Voltage	V _{TH}	V _{CC} =7V	0.35×V _{CC}		0.80×V _{CC}	V
Trigger Voltage	V _{TR}	V _{CC} =7V	0.25×V _{CC}		0.40×V _{CC}	V
Reset Voltage	V _{RST}	V _{CC} =7~15V	0.2		1.5	V
Low Output Voltage	V _{OL}	V _{CC} =7V, I _{OL} =3.2mA			0.6	V
		V _{CC} =15V, I _{OL} =20mA			1.5	V
High Output Voltage	V _{OH}	V _{CC} =7V, I _{OL} =0.8mA	5.5			V
		V _{CC} =15V, I _{OL} =0.8mA	14			V
Rise/Fall Time of Output	t _{THL} , t _{TLH}	V _{CC} =7V, R _L =10MΩ, C _L =10pF	70		150	ns
Guaranteed Max Osc Freq	f _{MAX}	V _{CC} =7~15V, Astable Operation	200			kHz

■ TYPICAL APPLICATION CIRCUIT



■ SWITCHING WAVEFORMS



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