



C555I

CMOS IC

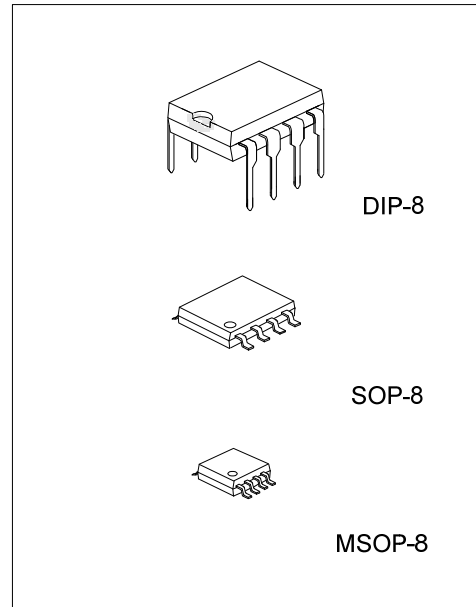
SINGLE TIMER

DESCRIPTION

The **C555I** 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 – 3 to 15 voltages
- * Low Supply Current
- * Operates in both astable and monostable modes
- * High output source/sink driver can drive TTL / CMOS
- * Adjustable duty cycle



ORDERING INFORMATION

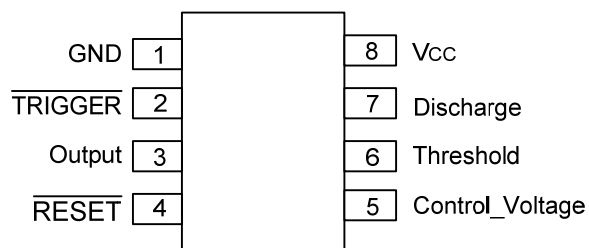
Ordering Number		Package	Packing
Lead Free	Halogen Free		
C555IL-D08-T	C555IG-D08-T	DIP-8	Tube
C555IL-S08-R	C555IG-S08-R	SOP-8	Tape Reel
C555IL-SM1-R	C555IG-SM1-R	MSOP-8	Tape Reel

C555IG-D08-T (1) Packing Type (2) Package Type (3) Green Package	(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
UTC □□□□ C555I □ □□	UTC □□□□ C555I □ ● □□

PIN CONFIGURATION



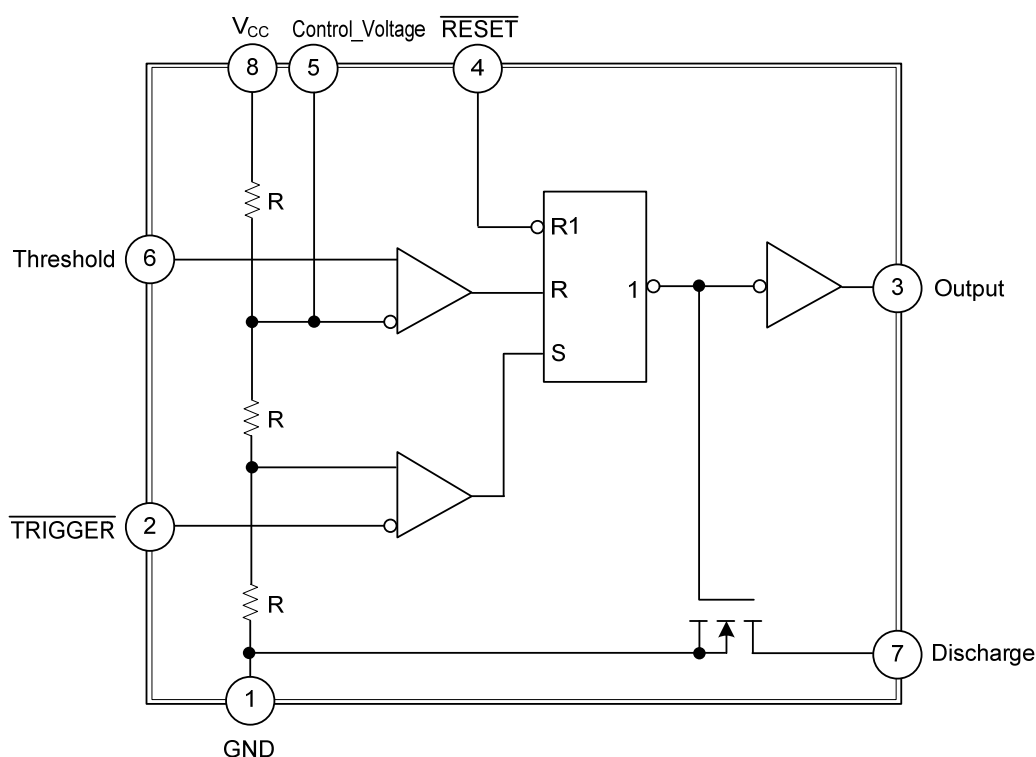
PIN DESCRIPTION

PIN No.	PIN NAME	DESCRIPTION
1	GND	Ground
2	TRIGGER	Trigger voltage input
3	Output	Output
4	RESET	Direct reset low input
5	Control_Voltage	Control voltage
6	Threshold	Threshold voltage input
7	Discharge	Discharging when output is low
8	Vcc	Supply voltage

TRUTH TABLE

THRESHOLD	TRIGGER	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
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}	3 ~ 15	V
Output Current	I_O	20	mA
Operating Temperature	T_A	-40 ~ +85	°C

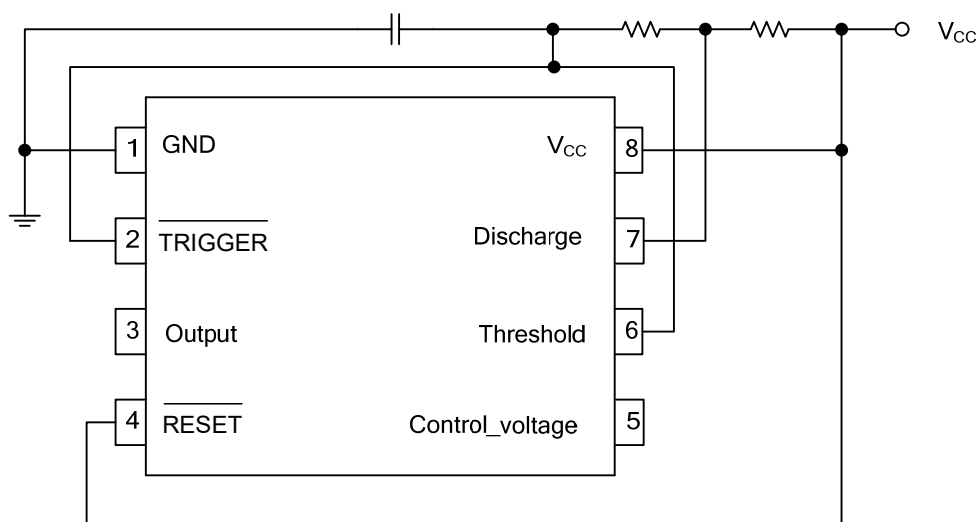
■ ELECTRICAL CHARACTERISTICS (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$T_A=25^{\circ}\text{C}$						
Supply Current	I_{CC}	$V_{CC}=3\text{V}$			300	μA
		$V_{CC}=15\text{V}$			600	μA
Initial Accuracy	A_{CCUR}	$R_L=1\sim 100\text{k}\Omega, C_L=0.1\mu\text{F}$	5			%
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$	$V_{CC}=5\text{V}, R_L=1\sim 100\text{k}\Omega, C_L=0.1\mu\text{F}$			3	%/V
Control Voltage	V_C		$0.4 \times V_{CC}$		$0.75 \times V_{CC}$	V
Threshold Voltage	V_{TH}	$V_{CC}=3\text{V}\sim 15\text{V}$	$0.4 \times V_{CC}$		$0.70 \times V_{CC}$	V
Trigger Voltage	V_{TR}	$V_{CC}=3\text{V}\sim 15\text{V}$	$0.28 \times V_{CC}$		$0.36 \times V_{CC}$	V
Reset Voltage	V_{RST}	$V_{CC}=3\text{V}\sim 15\text{V}$	0.4		2.0	V
Low-Level Output Voltage	V_{OL}	$V_{CC}=3\text{V}, I_{OL}=1\text{mA}$			0.3	V
		$V_{CC}=15\text{V}, I_{OL}=20\text{mA}$			1.0	V
High-Level Output Voltage	V_{OH}	$V_{CC}=3\text{V}, I_{OH}=-0.3\text{mA}$	2.5			V
		$V_{CC}=15\text{V}, I_{OH}=-0.8\text{mA}$	14.3			V
Rise/Fall Time of Output	t_{THL}, t_{TLH}	$V_{CC}=15\text{V}, R_L=10\text{M}\Omega, C_L=10\text{pF}$			75	ns
Guaranteed Max Osc Freq	f_{MAX}	$V_{CC}=3\text{V}\sim 15\text{V}, \text{Astable Operation}$	500			kHz

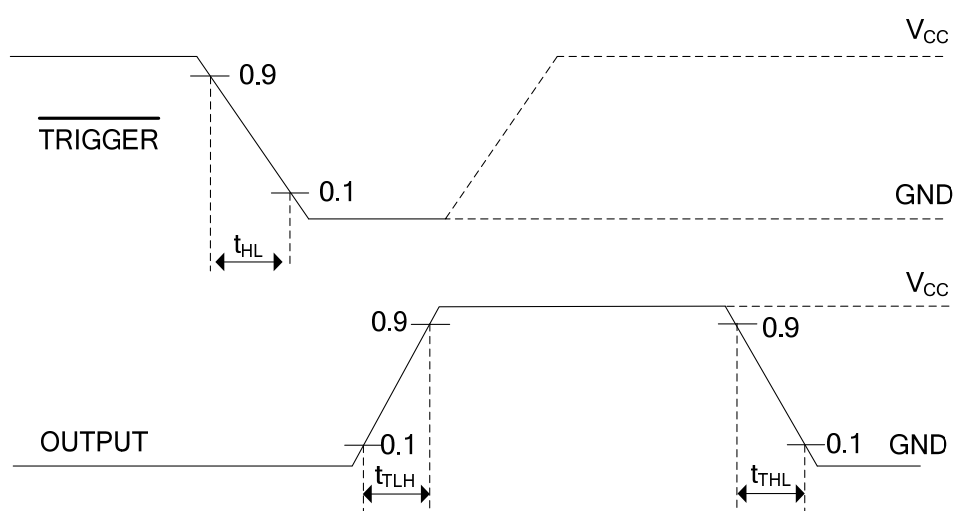
■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
T_A = -40°C ~ +85°C						
Supply Current	I _{CC}	V _{CC} =3V			400	μA
		V _{CC} =15V			900	μA
Initial Accuracy	A _{CCUR}	R _L =1~100kΩ, C _L =0.1μF	5			%
Drift with Temperature	Δt/ΔT	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} =5V			6	%/V
Control Voltage	V _C		0.35×V _{CC}		0.80×V _{CC}	V
Threshold Voltage	V _{TH}	V _{CC} =3V~15V	0.35×V _{CC}		0.80×V _{CC}	V
Trigger Voltage	V _{TR}	V _{CC} =3V~15V	0.25×V _{CC}		0.40×V _{CC}	V
Reset Voltage	V _{RST}	V _{CC} =3V~15V	0.2		2.0	V
Low-Level Output Voltage	V _{OL}	V _{CC} =3V, I _{OL} =1mA			0.4	V
		V _{CC} =15V, I _{OL} =20mA			1.5	V
High-Level Output Voltage	V _{OH}	V _{CC} =3V, I _{OH} =-0.3mA	2.5			V
		V _{CC} =15V, I _{OH} =-0.8mA	14			V
Rise/Fall Time of Output	t _{THL} , t _{TLH}	V _{CC} =15V, R _L =10MΩ, C _L =10pF			150	ns
Guaranteed Max Osc Freq	f _{MAX}	V _{CC} =3V~15V, Astable Operation	200			kHz

■ TYPICAL APPLICATION CIRCUIT



■ SWITCHING WAVEFORMS



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