



C555

Preliminary

CMOS IC

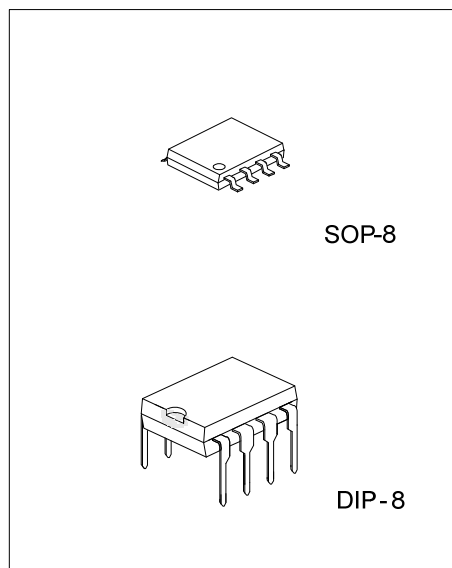
SINGLE TIMER

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

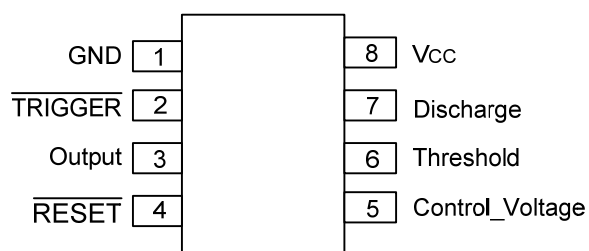


ORDERING INFORMATION

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

	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) D08: DIP-8, S08: SOP-8</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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PIN CONFIGURATION



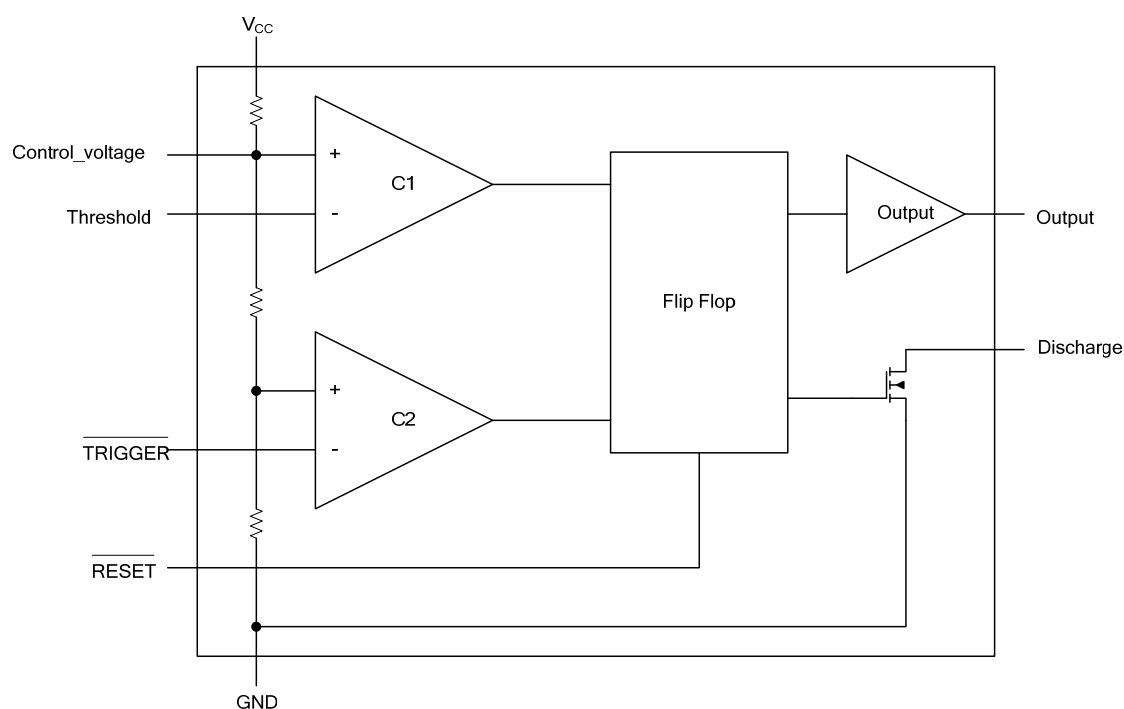
PIN DESCRIPTION

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	V _{CC}	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}	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}	-20~85	°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.

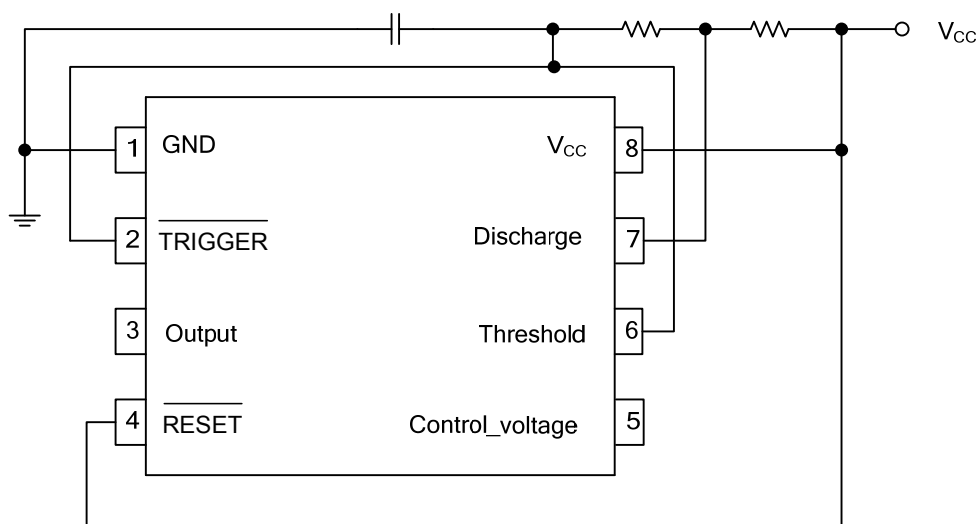
■ RECOMMENDED OPERATING CONDITIONS

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

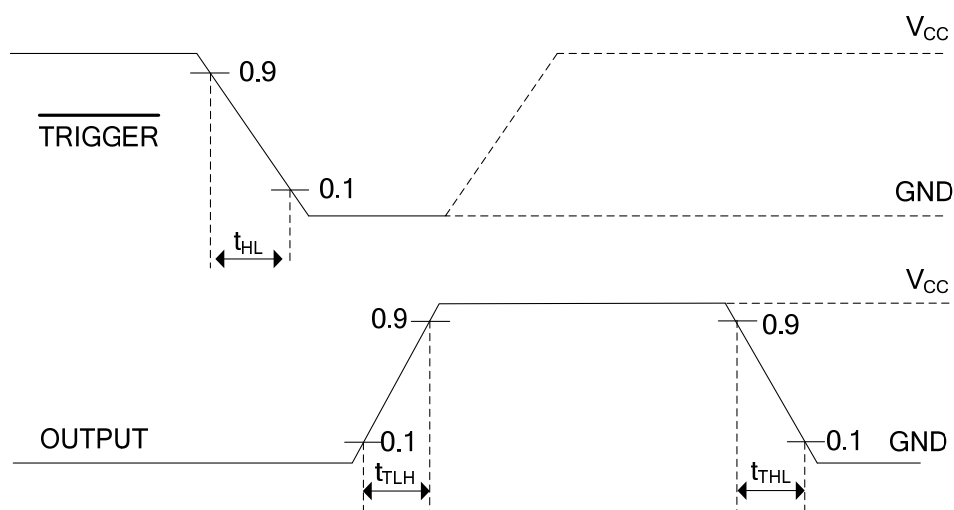
■ ELECTRICAL CHARACTERISTICS (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
T_A=25°C						
Supply Current	I_{CC}	$V_{CC}=2V$			200	μA
		$V_{CC}=18V$			300	μA
Initial Accuracy	A_{CCUR}	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu F$	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}	$V_{CC}=5V, I_{OL}=3.2mA$			0.4	V
		$V_{CC}=15V, I_{OL}=20mA$			1.0	V
High Output Voltage	V_{OH}	$V_{CC}=5V, I_{OL}=0.8mA$	4.0			V
		$V_{CC}=15V, I_{OL}=0.8mA$	14.3			V
Rise/Fall Time of Output	t_{THL}, t_{TLH}	$V_{CC}=15V, R_L=10M\Omega, C_L=10pF$	35		75	ns
Guaranteed Max Osc Freq	f_{MAX}	$V_{CC}=2\sim 18V$, Astable Operation	500			kHz
T_A=-20~70°C						
Supply Current	I_{CC}	$V_{CC}=2V$			400	μA
		$V_{CC}=18V$			600	μA
Initial Accuracy	A_{CCUR}	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu F$		5		%
Drift with Temperature	$\Delta t/\Delta T$	$V_{CC}=5V, R_L=1\sim 100k\Omega, C_L=0.1\mu F$	$V_{CC}=5V$		0.02	%/°C
					0.06	%/°C
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$	$C_L=0.1\mu F$	$V_{CC}=5V$		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}	$V_{CC}=5V, I_{OL}=3.2mA$			0.6	V
		$V_{CC}=15V, I_{OL}=20mA$			1.5	V
High Output Voltage	V_{OH}	$V_{CC}=5V, I_{OL}=0.8mA$	3.5			V
		$V_{CC}=15V, I_{OL}=0.8mA$	14			V
Rise/Fall Time of Output	t_{THL}, t_{TLH}	$V_{CC}=5V, R_L=10M\Omega, C_L=10pF$	70		150	ns
Guaranteed Max Osc Freq	f_{MAX}	$V_{CC}=2\sim 18V$, Astable Operation	200			kHz

■ TYPICAL APPLICATION CIRCUIT



■ SWITCHING WAVEFORMS



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