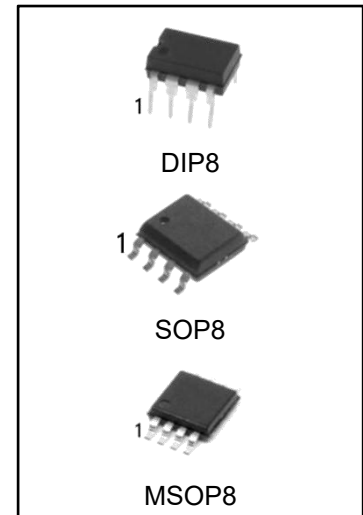


## CMOS general purpose timer

### Features

- Exact equivalent in most cases for SE/NE555.
- Low Supply Current.
- High speed operation – 500 kHz guaranteed.
- Wide operation supply voltage range – 2 to 18 volts.
- Timing from microseconds through hours.
- Operates in both astable and monostable modes.
- Adjustable duty cycle.
- High output source/sink driver can drive TTL/CMOS



### Ordering Information

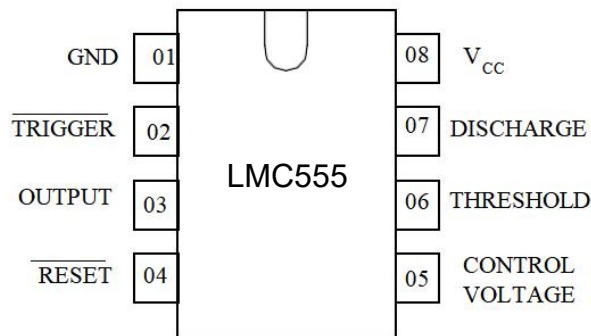
DEVICE	Package Type	MARKING	Packing	Packing Qty
LMC555CN	DIP8	LMC555	TUBE	2000/box
LMC555CM/TR	SOP8	LMC555	REEL	2500/reel
LMC555CMM/TR	MSOP8	C555	REEL	3000/reel
LMC555IN	DIP8	LMC555	TUBE	2000/box
LMC555IM/TR	SOP8	LMC555	REEL	2500/reel
LMC555IMM/TR	MSOP8	C555	REEL	3000/reel

## General Description

The LMC555 is CMOS RC timers providing significantly improved performance over the standard SE/NE555 and 355 timers, while at the same time being direct replacements for those devices in most applications. Improved parameters include low supply current, wide operating supply voltage range, low THRESHOLD, TRIGGER and RESET currents, no crowbaring of the supply current during output transitions, higher frequency performance and no requirement to decouple CONTROL VOLTAGE for stable operation.

Specifically, the LMC555 is stable controller capable of producing accurate time delays of frequencies.

## PIN ASSIGNMENT



## TRUTH TABLE

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

**Maximum Ratings And Recommended Operating Conditions**

Parameter, unit	Symbol	Recommended operating conditions		Maximum ratings	
		Value		Value	
		min	max	min	max
Supply Voltage, V	V <sub>CC</sub>	2.0	18.0	0	18.0
Output Current, mA	I <sub>o</sub>	-	20	-	100
Input Voltage, V	V <sub>TH</sub> , V <sub>TRIG</sub> , V <sub>RST</sub>	-	-	-0.3	V <sub>CC</sub> +0.3
Power Dissipation, mW	P <sub>D</sub>	-	-	-	200
Operating Temperature, °C LMC555C	TOPR	0	70	0	70
Operating Temperature, °C LMC555I		-40	85	-40	85
Storage Temperature, °C	T <sub>STG</sub>	-	-	-65	150
Lead Temperature, 1 mm from Case for 10 Seconds, °C	T <sub>SOLDER</sub>	-	-		260

**DC ELECTRICAL CHARACTERISTICS** (Voltages Referenced to GND)

Parameter, units	Symbol	Test Conditions		Value		Temperature, °C
		I <sub>OL</sub> , I <sub>OH</sub>	V <sub>CC</sub> , B	min	max	
Threshold Voltage, V	V <sub>TH</sub>		5.0	0.65 V <sub>CC</sub>	0.70 V <sub>CC</sub>	25 ± 10
				0.60 V <sub>CC</sub>	0.80 V <sub>CC</sub>	-20, 70
Trigger voltage, V	V <sub>TRIG</sub>		5.0	0.31 V <sub>CC</sub>	0.36 V <sub>CC</sub>	25 ± 10
				0.28 V <sub>CC</sub>	0.40 V <sub>CC</sub>	-20, 70
Reset voltage, V	V <sub>RST</sub>		2.0	0.4	1.0	25 ± 10
			18.0			
			2.0	0.2	1.5	-20, 70
			18.0			
Control Voltage Lead, V	V <sub>CV</sub>			0.65 V <sub>CC</sub>	0.69 V <sub>CC</sub>	25 10
				0.60 V <sub>CC</sub>	0.80 V <sub>CC</sub>	-20, 70
Output voltage Low, V	V <sub>OL</sub>	I <sub>OL</sub> = 3.2 mA	5.0		0.4	25 ± 10
		I <sub>OL</sub> = 20 mA	15.0		1.0	
		I <sub>OL</sub> = 3.2 mA	5.0		0.6	-20, 70
		I <sub>OL</sub> = 20 mA	15.0		1.5	
Output voltage High, V	V <sub>OH</sub>	I <sub>OH</sub> = -0.8 mA	5.0	4.0		25 ± 10
			15.0	14.3		
			5.0	3.5		-20, 70
			15.0	14.0		
Supply Current, μA	I <sub>CC</sub>		2.0		200	25 ± 10
			18.0		300	
			2.0		400	-20, 70
			18.0		600	

**AC ELECTRICAL CHARACTERISTICS**

Parameter, unit	Symbol	Test Conditions		Value		Temperature, °C
		R <sub>L</sub> , C <sub>L</sub>	V <sub>CC</sub> , V	Min	Max	
Rise (Fall) Time of Output, ns	t <sub>THL</sub> , t <sub>TLH</sub>	R <sub>L</sub> = 10 M $\Omega$ , C <sub>L</sub> = 10 pF	5.0	35	75	25 $\pm$ 10
				70	150	-20, 70
Guaranteed Max Osc Freq, kHz	f <sub>MAX</sub>	Astable Operation	2.0-18.0	500		25 $\pm$ 10
				200		-20, 70
Initial accuracy, %				5		
Drift with Temperature, %/°C	f	R <sub>L</sub> = 1 - 100 k $\Omega$ C <sub>L</sub> = 0.1 $\mu$ F	5.0		0.02	-20, 70
					0.03	
					0.06	
Drift with Supply Voltage, %/B	f		5.0		3	25 $\pm$ 10
					6	-20, 70

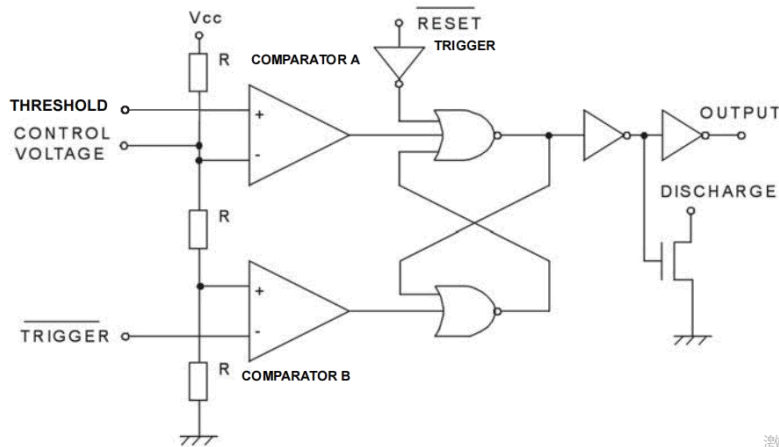


Figura 1. Block Diagram

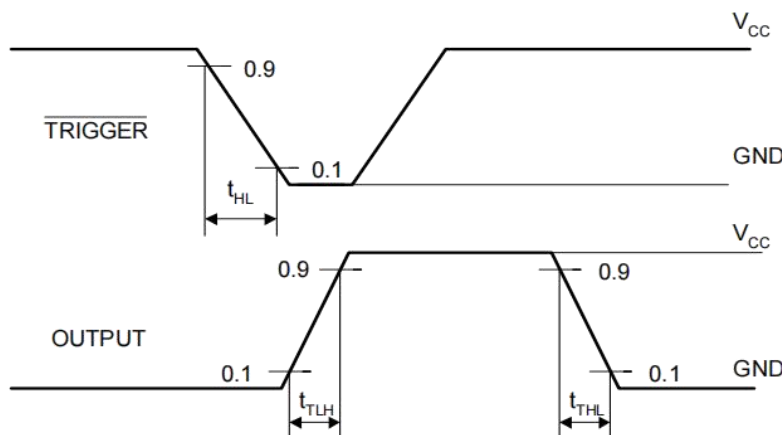
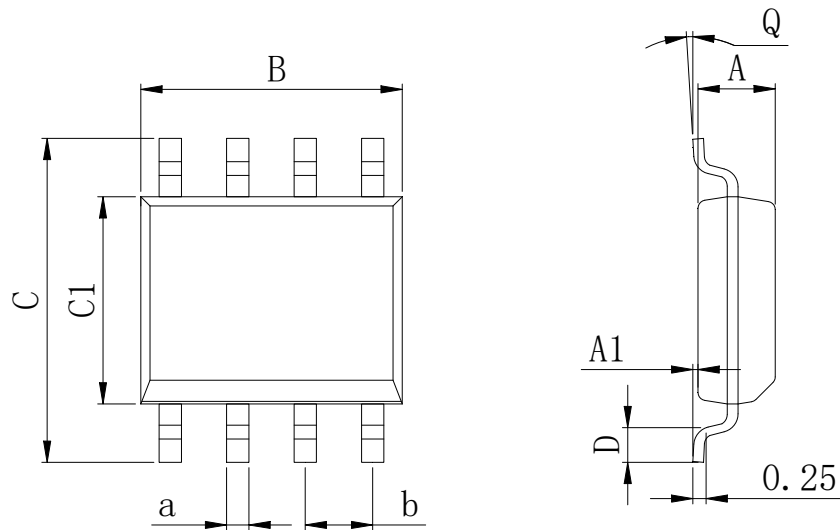


Figura 2. Switching Waveforms

## Physical Dimensions

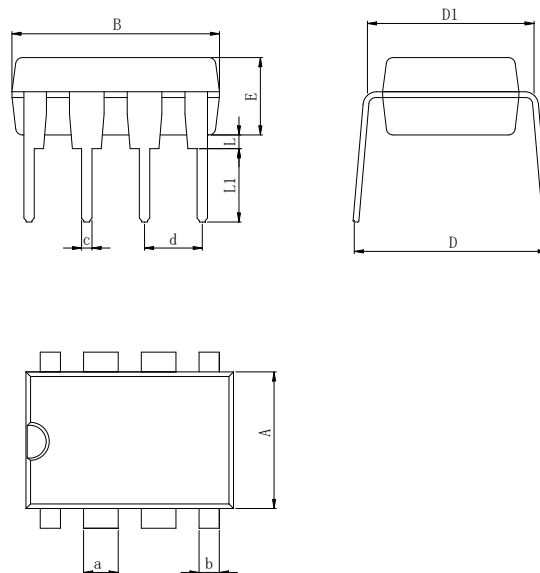
### SOP8



Dimensions In Millimeters(SOP8)

Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

### DIP8

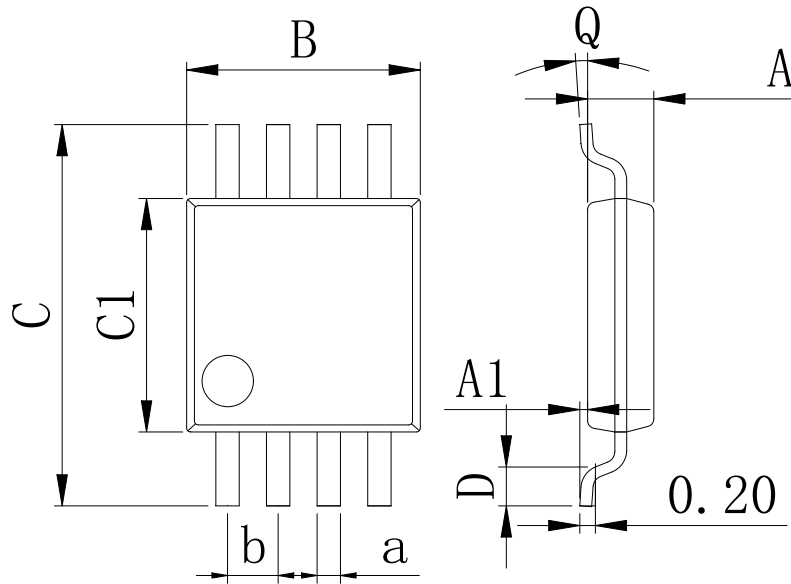


Dimensions In Millimeters(DIP8)

Symbol:	A	B	D	D1	E	L	L1	a	b	c	d
Min:	6.10	9.00	8.40	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max:	6.68	9.50	9.00	7.82	3.55	0.70	3.60	1.55	0.90	0.50	

**Physical Dimensions**

MSOP8



Dimensions In Millimeters(MSOP8)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	0.80	0.05	2.90	4.75	2.90	0.35	0°	0.25	0.65 BSC
Max:	0.90	0.20	3.10	5.05	3.10	0.75	8°	0.35	

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