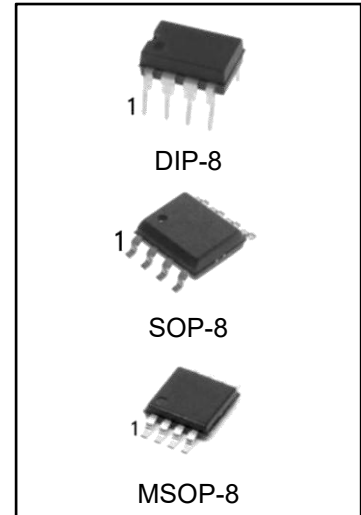


## CMOS general purpose timer

### 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

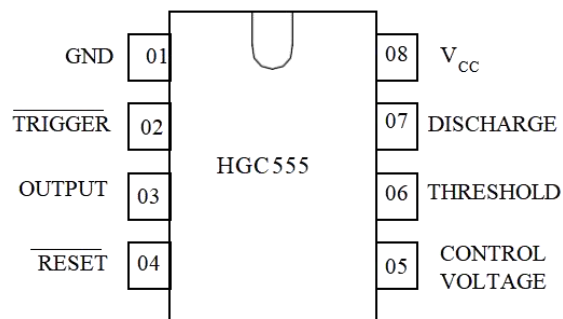
DEVICE	Package Type	MARKING	Packing	Packing Qty
HGC555IN	DIP-8	HGC555I	TUBE	2000pcs/box
HGC555IM/TR	SOP-8	HGC555I	REEL	2500pcs/reel
HGC555IMM/TR	MSOP-8	C555I	REEL	3000pcs/reel

## General Description

The HGC555 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 HGC555 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
$> 2/3 V_{CC}$	$> 1/3 V_{CC}$	H	L	ON
$< 2/3 V_{CC}$	$> 1/3 V_{CC}$	H	STABLE	STABLE
X	$< 1/3 V_{CC}$	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	TOPR	-40	85	-40	85
Storage Temperature, °C	TSTG	-	-	-65	150
Lead Temperature, 1 mm from Case for 10 Seconds, °C	TSOLDER	-	-		245

Note: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but specific performance is not ensured.

**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	
					10.0		0.03
					15.0		0.06
Drift with Supply Voltage, %/B	f		5.0		3	25 $\pm$ 10	
						6	-20, 70

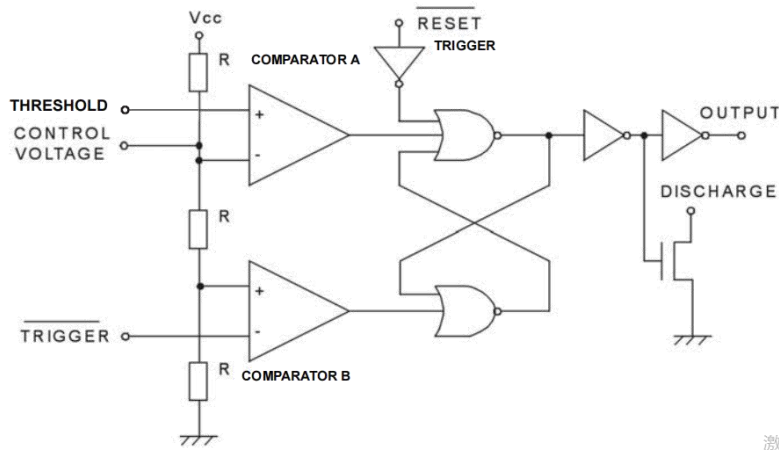


Figura 1. Block Diagram

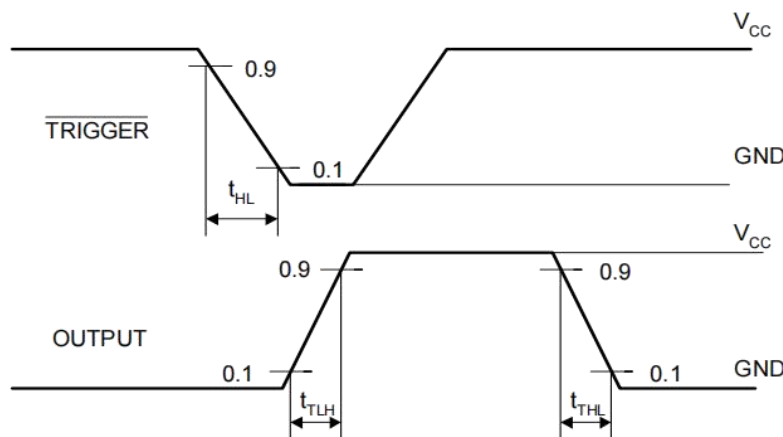
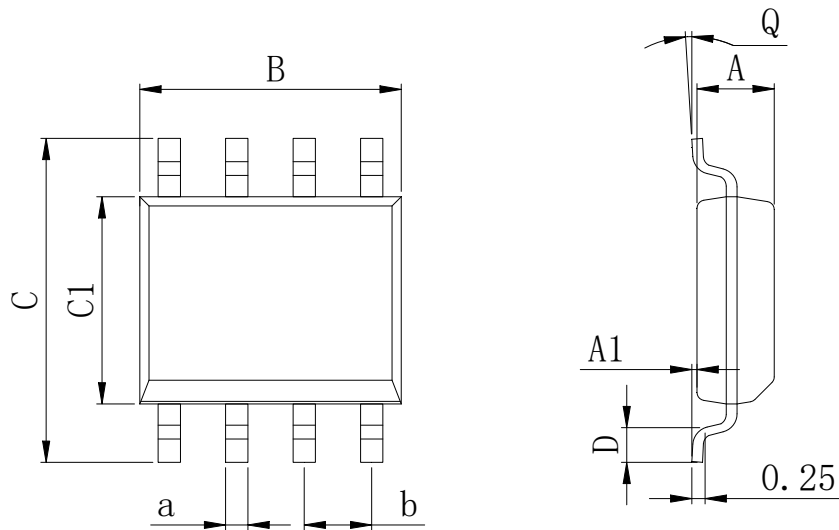


Figura 2. Switching Waveforms

## Physical Dimensions

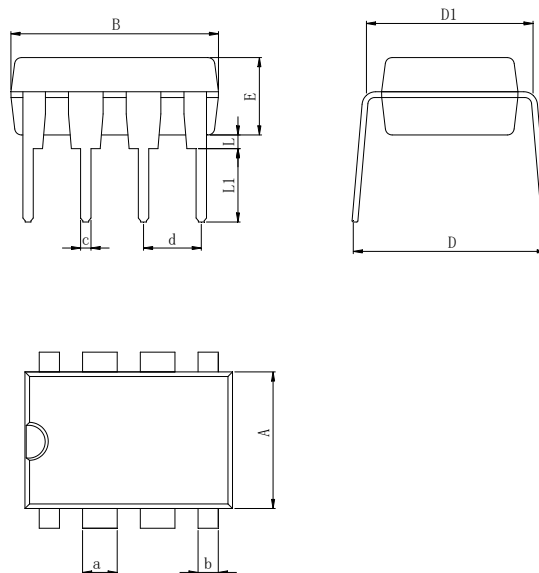
### SOP-8



Dimensions In Millimeters(SOP-8)

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	

### DIP-8

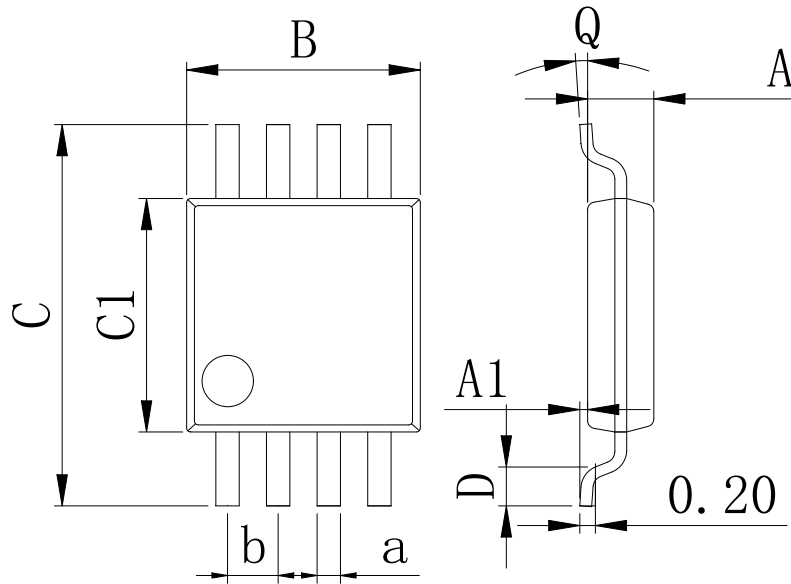


Dimensions In Millimeters(DIP-8)

Symbol:	A	B	D	D1	E	L	L1	a	b	c	d
Min:	6.10	9.00	8.10	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max:	6.68	9.50	10.9	7.82	3.55	0.70	3.60	1.55	0.90	0.50	

**Physical Dimensions**

MSOP-8



Dimensions In Millimeters(MSOP-8)									
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	

## Revision History

DATE	REVISION	PAGE
2019-3-6	New	1-9
2023-9-13	Update encapsulation type , Update Lead Temperature 、 Updated DIP-8 dimension、 Add annotation for Maximum Ratings、 Update Ordering Information	1、 3、 6



**IMPORTANT STATEMENT:**

Huaguan Semiconductor reserves the right to change its products and services without notice. Before ordering, the customer shall obtain the latest relevant information and verify whether the information is up to date and complete. Huaguan Semiconductor does not assume any responsibility or obligation for the altered documents.

Customers are responsible for complying with safety standards and taking safety measures when using Huaguan Semiconductor products for system design and machine manufacturing. You will bear all the following responsibilities: Select the appropriate Huaguan Semiconductor products for your application; Design, validate and test your application; Ensure that your application meets the appropriate standards and any other safety, security or other requirements. To avoid the occurrence of potential risks that may lead to personal injury or property loss.

Huaguan Semiconductor products have not been approved for applications in life support, military, aerospace and other fields, and Huaguan Semiconductor will not bear the consequences caused by the application of products in these fields. All problems, responsibilities and losses arising from the user's use beyond the applicable area of the product shall be borne by the user and have nothing to do with Huaguan Semiconductor, and the user shall not claim any compensation liability against Huaguan Semiconductor by the terms of this Agreement.

The technical and reliability data (including data sheets), design resources (including reference designs), application or other design suggestions, network tools, safety information and other resources provided for the performance of semiconductor products produced by Huaguan Semiconductor are not guaranteed to be free from defects and no warranty, express or implied, is made. The use of testing and other quality control technologies is limited to the quality assurance scope of Huaguan Semiconductor. Not all parameters of each device need to be tested.

The documentation of Huaguan Semiconductor authorizes you to use these resources only for developing the application of the product described in this document. You have no right to use any other Huaguan Semiconductor intellectual property rights or any third party intellectual property rights. It is strictly forbidden to make other copies or displays of these resources. You should fully compensate Huaguan Semiconductor and its agents for any claims, damages, costs, losses and debts caused by the use of these resources. Huaguan Semiconductor accepts no liability for any loss or damage caused by infringement.

单击下面可查看定价，库存，交付和生命周期等信息

[>>HGSEMI\(华冠\)](#)