LM555/NE555

Single Timer

Features

- High Current Drive Capability (200mA)
- Adjustable Duty Cycle
- Temperature Stability of 0.005%/°C
- Timing From µSec To Hours
- Turn Off Time Less Than 2µSec

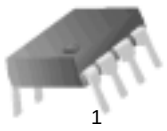
Applications

- Precision Timing
- Pulse Generation
- Time Delay Generation
- Sequential Timing

Description

LM555/NE555 is a highly stable controller capable of producing accurate timing pulses. With monostable operation, the time delay is controlled by one external and one capacitor. With astable operation, the frequency and duty cycle are accurately controlled with two external resistors and one capacitor.

8-DIP



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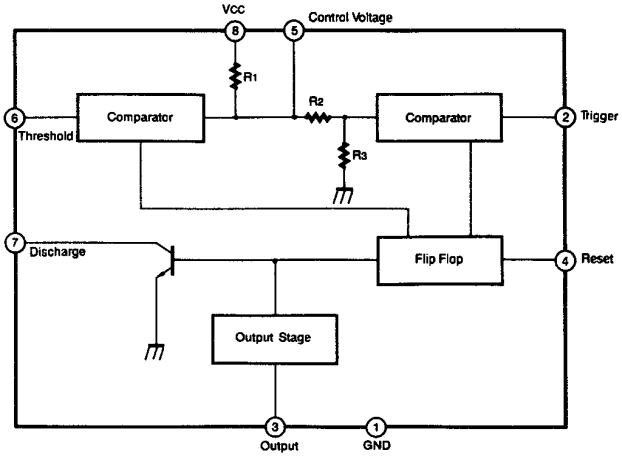
Internal Block Diagram



Absolute Maximum Ratings (T_A = 25°C)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	16	V
Lead Temperature (soldering 10sec)	T_{LEAD}	300	°C
Power Dissipation	P_D	600	mW
Operating Temperature Range LM555/NE555	T_{OPR}	0 ~+ 70	°C
Storage Temperature Range	T_{STG}	- 65 ~ + 150	°C

Electrical Characteristics

(T_A = 25°C, V_{CC} = 5 ~ 15V, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	V_{CC}		4.5	-	16	V
Supply Current *1(low stable)	I_{CC}	V_{CC} = 5V, R_L = ∞	-	3	6	mA
		V_{CC} = 15V, R_L = ∞	-	7.5	15	mA
Timing Error *2 (Monostable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT Δt/ΔV_{CC}	R_A = 1KΩ to100KΩ C = 0.1μF	-	1.0 50 0.1	3.0 0.5	% ppm/°C %/V
Timing Error *2(astable) Intial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT Δt/ΔV_{CC}	R_A = 1KΩ to 100KΩ C = 0.1μF	-	2.25 150 0.3	-	% ppm/°C %/V
Control Voltage	V_C	V_{CC} = 15V	9.0	10.0	11.0	V
		V_{CC} = 5V	2.6	3.33	4.0	V
Threshold Voltage	V_{TH}	V_{CC} = 15 V	-	10.0	-	V
		V_{CC} = 5V	-	3.33	-	V
Threshold Current *3	I_{TH}	-	-	0.1	0.25	μA
Trigger Voltage	V_{TR}	V_{CC} = 5V	1.1	1.67	2.2	V
		V_{CC} = 15V	4.5	5	5.6	V
Trigger Current	I_{TR}	V_{TR} = 0V		0.01	2.0	μA
Reset Voltage	V_{RST}	-	0.4	0.7	1.0	V
Reset Current	I_{RST}	-		0.1	0.4	mA
Low Output Voltage	V_{OL}	V_{CC} = 15V I_{SINK} = 10mA I_{SINK} = 50mA	-	0.06 0.3	0.25 0.75	V V
		V_{CC} = 5V I_{SINK} = 5mA	-	0.05	0.35	V
High Output Voltage	V_{OH}	V_{CC} = 15V I_{SOURCE} = 200mA I_{SOURCE} = 100mA	 12.75	12.5 13.3	-	V V
		V_{CC} = 5V I_{SOURCE} = 100mA	2.75	3.3	-	V
Rise Time of Output	t_R	-	-	100	-	ns
Fall Time of Output	t_F	-	-	100	-	ns
Discharge Leakage Current	I_{LKG}	-	-	20	100	nA

Notes:

1. Supply current when output is high is typically 1mA less at V_{CC} = 5V
2. Tested at V_{CC} = 5.0V and V_{CC} = 15V
3. This will determine maximum value of R_A + R_B for 15V operation, the max. total R = 20MΩ, and for 5V operation the max. total R = 6.7MΩ

Mechanical Dimensions

Package

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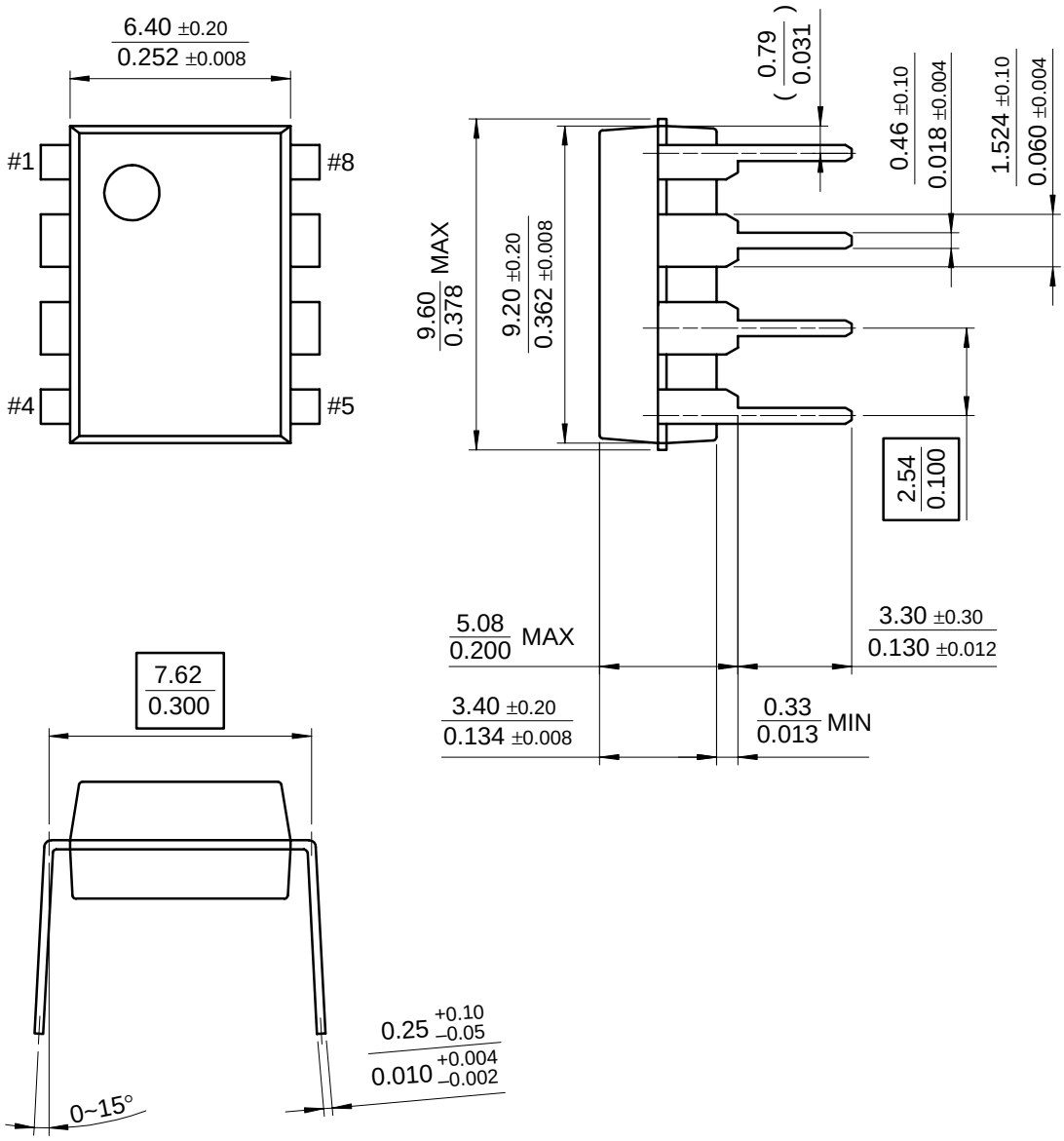

Mechanical Dimensions (Continued)

Package

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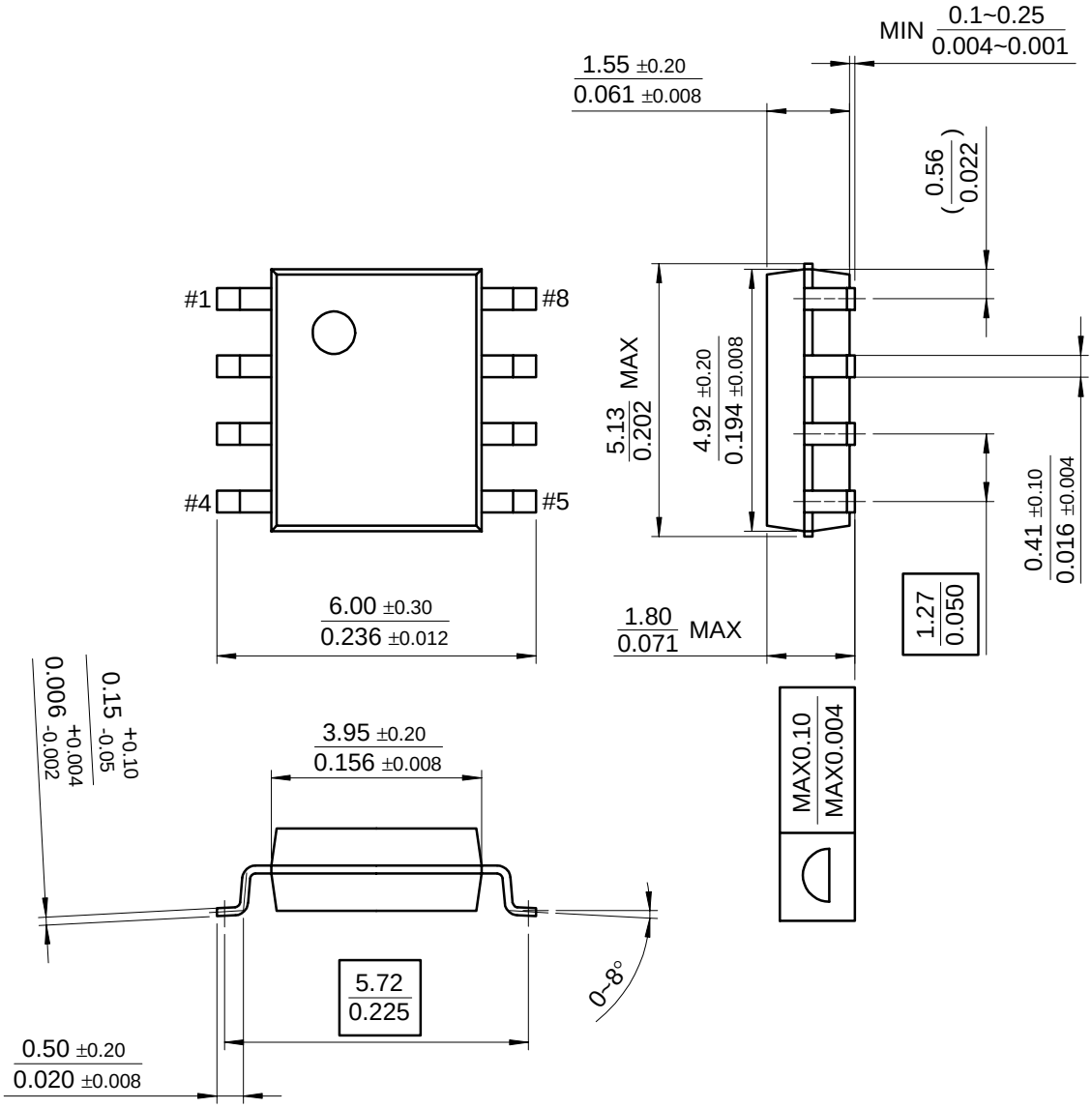

Ordering Information

Product Number	Package	Operating Temperature
LM555CN	8-DIP	0 ~ +70°C
LM555CM	8-SOP	

Product Number	Package	Operating Temperature
NE555N	8-DIP	0 ~ +70°C

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