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NE556 Dual Timer

Description

The NE556 series dual monolithic timing circuits are a highly stable controller capable of producing accurate time delays or oscillation. The NE556 is a dual LM555. Timing is provided an external resistor and capaci- tor for each timing function. The two timers operate inde- pendently of each other, sharing only VCC and ground. The circuits may be triggered and reset on falling waveforms. The output structures may sink or source 200mA.

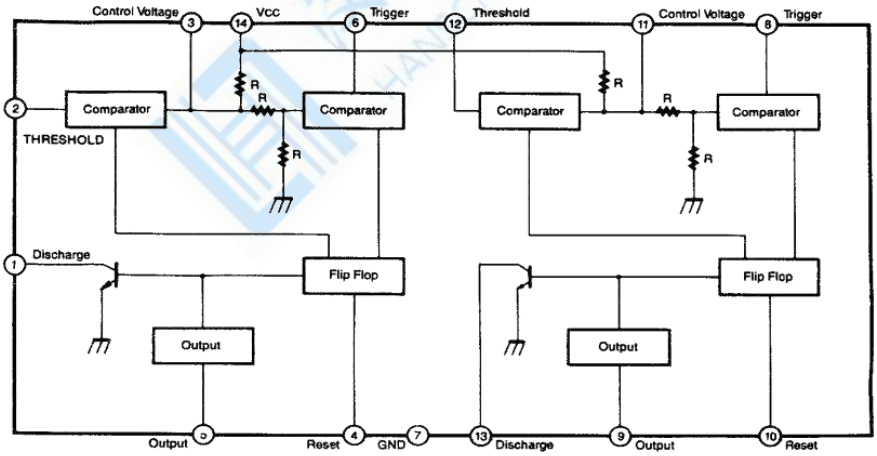
Features

- Replaces Two NE556 Timers
- Operates in Both Astable And Monostable Modes
- High Output Current
- TTL Compatible
- Timing From Microsecond To Hours
- Adjustable Duty Cycle
- Temperature Stability Of 0.005% Per℃

Applications

- Precision Timing
- Pulse Shaping
- Pulse Width Modulation
- Frequency Division
- Traffic Light Control
- Sequential Timing
- Pulse Generator
- Time Delay Generator
- Touch Tone Encoder
- Tone Burst Generator

Internal Block Diagram



Ordering Information

DEVICE	Package Type	MARKING	Packing	Packing Qty
NE556PG	DIP14	NE556	TUBE	2000pcs/Box
NE556DRG	SOP14	NE556	REEL	2500pcs/Reel

Absolute Maximum Ratings (TA = 25℃)

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

Electrical Characteristics

(TA = 25℃, VCC = 5 ~ 15V, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Supply Voltage	V_{CC}	-	4.5	-	16	V
Supply Current *1(two timers)(low state)	I_{CC}	V_{CC} = 5V, R_L = ∞ V_{CC} = 15V, R_L = ∞	-	5 16	12 30	mA
Timing Error *2(monostable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT $\Delta t/\Delta V_{CC}$	R_A = 2KΩ to 100KΩ C = 0.1μF T = 1.1RC	-	0.75 50 0.1	-	% ppm/℃ %/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} = 15V	8.8	10.0	11.2	V
		V_{CC} = 5V	2.4	3.33	4.2	V
Threshold Current*3	I_{TH}	-	-	30	250	nA
Trigger Voltage	V_{TR}	V_{CC} = 15V	4.5	5.0	5.6	V
		V_{CC} = 5V	1.1	1.6	2.2	V
Trigger Current	I_{TR}	V_{TR} = 0V	-	0.01	2.0	μA
Reset Voltage*5	V_{RST}	-	0.4	0.6	1.0	V
Reset Current	I_{RST}	-	-	0.03	0.6	mA
Low Output Voltage	V_{OL}	V_{CC} = 15V I_{SINK} = 10mA I_{SINK} = 50mA I_{SINK} = 100mA I_{SINK} = 200mA V_{CC} = 5V I_{SINK} = 8mA I_{SINK} = 5mA	-	0.1 0.4 2.0 2.5 0.25 0.15	0.25 0.75 3.2 0.35 0.25	V
High Output Voltage	V_{OH}	V_{CC} = 15V I_{SOURCE} = 200mA I_{SOURCE} = 100mA	12.75	12.5 13.3	-	V
		V_{CC} = 5V I_{SOURCE} = 100mA	2.75	3.3	-	V
Rise Time of Output	t_R	-	-	100	300	ns
Fall Time of Output	t_F	-	-	100	300	ns
Discharge Leakage Current	I_{LKG}	-	-	10	100	nA
Matching Characteristics*4 Initial Accuracy Drift with Temperature Drfit with Supply Voltage	ACCUR Δt/ΔT $\Delta t/\Delta V_{CC}$	-	-	1.0 10 0.2	2.0 0.5	% ppm/℃ %/V
Timing Error (astable)*2 Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT $\Delta t/\Delta V_{CC}$	V_{CC} = 15V R_A,R_B = 1KΩ to100K C = 0.1μF	-	2.25 150 0.3	-	% ppm/℃ %/V

Notes:

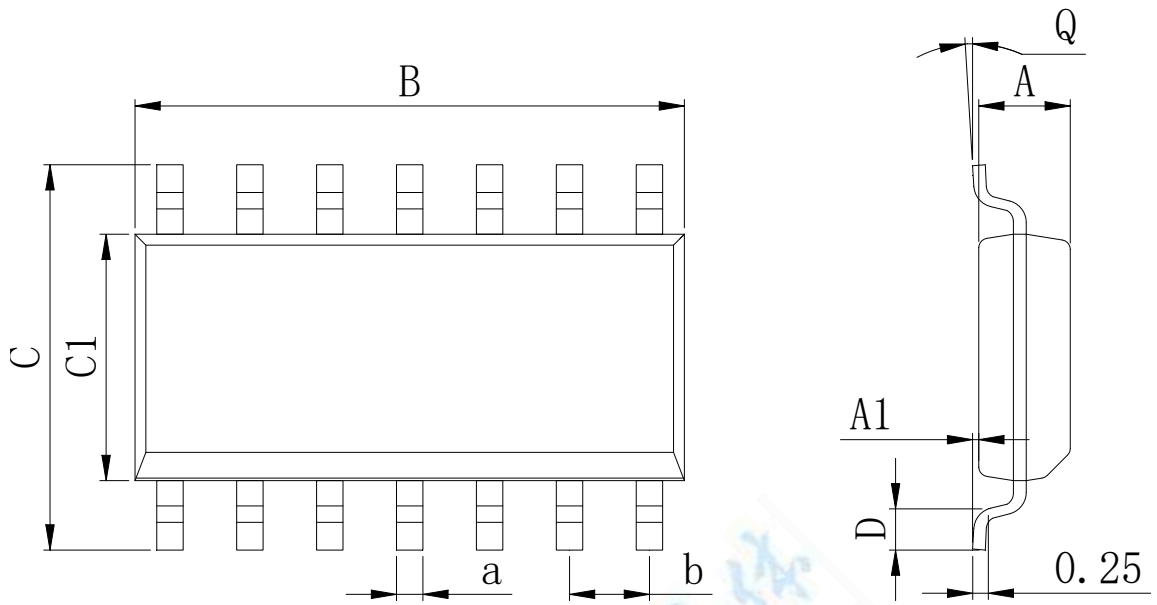
1. Supply current when output is high is typically 1.0mA less at VCC = 5V
2. Tested at VCC = 5V and VCC = 15V

3. This will determine the maximum value of RA + RB for 15V operation.
   The maximum total R = 20MΩ, and for 5V operation the maximum total R = 6.6M .
4. Matching characteristics refer to the difference between performance characteristics of each timer section in the monostable mode.
5. As reset voltage lowers, timing is inhibited and then the output goes low.

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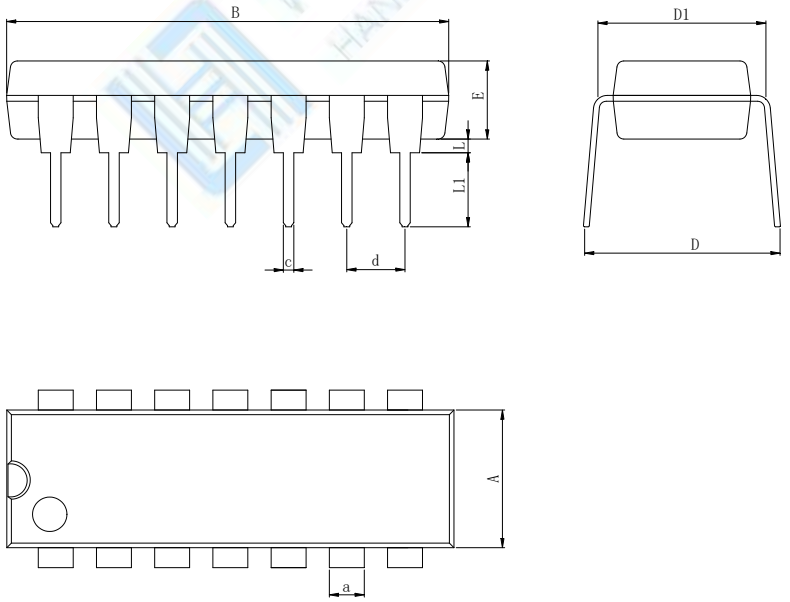
Physical Dimensions

SOP14



Dimensions In Millimeters(SOP14)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	8.55	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	8.75	6.20	4.00	0.80	8°	0.45	

DIP14



Dimensions In Millimeters(DIP14)										
Symbol:	A	B	D	D1	E	L	L1	a	c	d
Min:	6.10	18.94	8.40	7.42	3.10	0.50	3.00	1.50	0.40	2.54 BSC
Max:	6.68	19.56	9.00	7.82	3.55	0.70	3.60	1.55	0.50	

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