

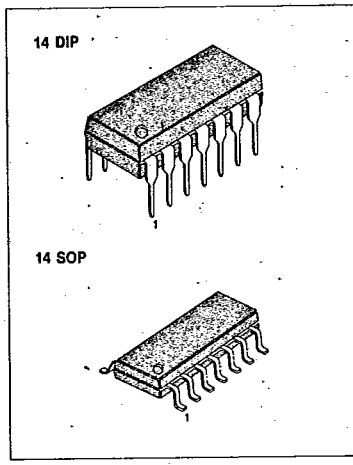
# NE556 LINEAR INTEGRATED CIRCUIT

## DUAL TIMER

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 NE555. Timing is provided an external resistor and capacitor for each timing function. The two timers operate independently of each other, sharing only V<sub>CC</sub> and ground. The circuits may be triggered and reset on falling waveforms. The output structures may sink or source 200mA.

## FEATURES

- Direct replacement for NE555
- Replace two NE555 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 °C



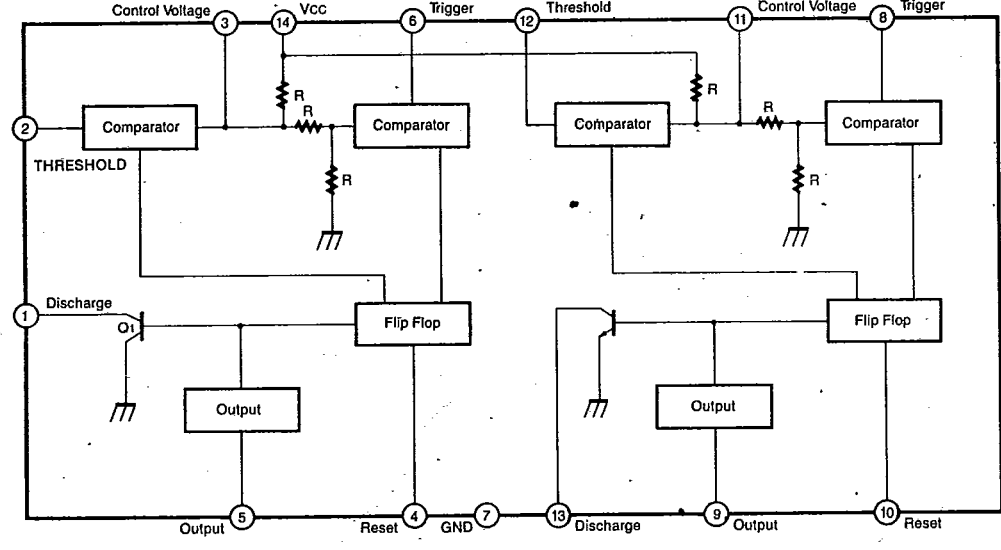
## APPLICATIONS

- 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

## ORDERING INFORMATION

Device	Package	Operating Temperature
NE556IN	14 DIP	-40 ~ +85°C
NE556ID	14 SOP	
NE556CN	14 DIP	0 ~ +70°C
NE556CD	14 SOP	

## BLOCK DIAGRAM



## NE5556

## LINEAR INTEGRATED CIRCUIT

## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	18	V
Lead Temperature (soldering 10 sec)	T <sub>lead</sub>	300	°C
Power Dissipation	P <sub>D</sub>	600	mW
Operating Temperature NE5556I	T <sub>opr</sub>	-40 ~ +85	°C
NE5556C		0 ~ +70	°C
Storage Temperature	T <sub>stg</sub>	-65 ~ +150	°C

## ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> = +5V to +15V, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V <sub>CC</sub>		4.5		16	V
*1 Supply Current (Two timers) (low state)	I <sub>CC</sub>	V <sub>CC</sub> = 5V, R <sub>L</sub> = ∞ V <sub>CC</sub> = 15V, R <sub>L</sub> = ∞		6 20	12 30	mA mA
*2 Timing Error (monostable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	MT <sub>1</sub>	R <sub>A</sub> = 2KΩ to 100KΩ C = 0.1μF T = 1.1R <sub>C</sub>		0.75 50 0.1		% % %/V
Control Voltage	V <sub>C</sub>	V <sub>CC</sub> = 15V V <sub>CC</sub> = 5V	9.0 2.6	10.0 3.33	11.0 4.0	V V
Threshold Voltage	V <sub>TH</sub>	V <sub>CC</sub> = 15V V <sub>CC</sub> = 5V		10.0 3.33		V V
*3 Threshold Current	I <sub>TH</sub>			30	250	nA
Trigger Voltage	V <sub>TR</sub>	V <sub>CC</sub> = 15V V <sub>CC</sub> = 5V	4.5 1.1	5.0 1.67	5.6 2.2	V V
Trigger Current	I <sub>TR</sub>	V <sub>T</sub> = 0V		0.5	2.0	μA
*5 Reset Voltage	V <sub>RE</sub>		0.4	0.7	1.0	V
Reset Current	I <sub>RE</sub>			0.1	0.6	mA
Output Voltage Low	V <sub>OL</sub>	V <sub>CC</sub> = 15V I <sub>sink</sub> = 10mA I <sub>sink</sub> = 50mA I <sub>sink</sub> = 100mA I <sub>sink</sub> = 200mA V <sub>CC</sub> = 5V I <sub>sink</sub> = 8mA I <sub>sink</sub> = 5mA		0.1 0.4 2.0 2.5 0.25 0.15	0.25 0.75 2.75 V 0.35 0.25	V V V V V V V



## NE556

## LINEAR INTEGRATED CIRCUIT

## ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> = +5V to +15V, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage (high)	V <sub>OH</sub>	V <sub>CC</sub> = 15V I <sub>source</sub> = 200mA I <sub>source</sub> = 100mA	12.75	12.5 13.3		V V
		V <sub>CC</sub> = 5V I <sub>source</sub> = 100mA	2.75	3.3		V
Rise Time of Output	T <sub>r</sub>			100		nsec
Fall Time of Output	T <sub>f</sub>			100		nsec
Discharge Leakage Current	I <sub>D</sub>			20	100	nA
*4 Matching Characteristics Initial Accuracy Drift with Temperature Drift with Supply Voltage	M <sub>CH</sub>			1.0 10 0.2	2.0 0.5	% ppm/°C %/V
*2 Timing Error (astable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	MT <sub>2</sub>	R <sub>A</sub> , R <sub>B</sub> = 1kΩ to 100kΩ C = 0.1μF V <sub>CC</sub> = 15V		2.25 150 0.3		% ppm/°C %/V

## Notes:

- Supply current when output is high is typically 1.0mA less at V<sub>CC</sub> = 5V.
- Tested at V<sub>CC</sub> = 5V and V<sub>CC</sub> = 15V
- This will determine the maximum value of R<sub>A</sub> + R<sub>B</sub> for 15V operation.  
The maximum total R = 20MΩ, and for 5V operation the maximum total R = 6.6MΩ.
- Matching characteristic refer to the difference between performance characteristics of each timer section in the monostable mode.
- As reset voltage lowers, timing is inhibited and then the output goes low.

