

NE556C

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_{CC} and ground.

The circuits may be triggered and reset on falling waveforms. The output structures may sink or source 200mA.

FEATURES

- Replaces 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

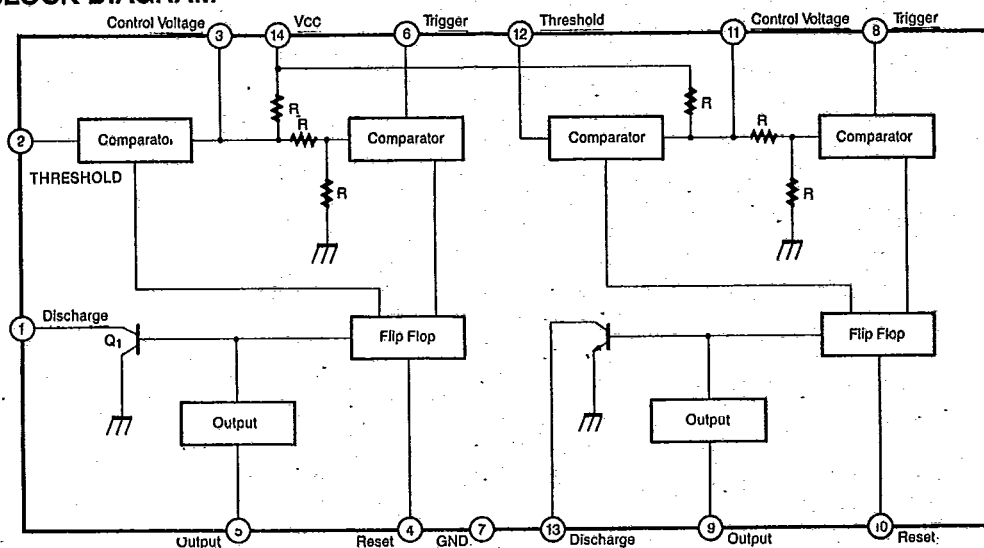
APPLICATIONS

- 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
NE556CN	14 DIP	0 ~ +70°C

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

T-51-19

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	16	V
Lead Temperature (soldering 10 sec)	T_{lead}	300	$^\circ\text{C}$
Power Dissipation	P_D	600	mW
Operating Temperature Range	T_{opr}	$0 \sim +70$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-65 \sim +150$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

($T_a = 25^\circ\text{C}$, $V_{CC} = 5$ to 15V , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		4.5		16	V
*1 Supply Current (Two timers) (low state)	I_{CC}	$V_{CC} = 5\text{V}$, $R_L = \infty$ $V_{CC} = 15\text{V}$, $R_L = \infty$		5 16	12 30	mA mA
*2 Timing Error (monostable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	MT_1	$R_A = 2\text{K}\Omega$ to $100\text{K}\Omega$ $C = 0.1\mu\text{F}$ $T = 1.1R_C$		0.75 50 0.1		% ppm/ $^\circ\text{C}$ %/V
Control Voltage	V_C	$V_{CC} = 15\text{V}$ $V_{CC} = 5\text{V}$	9.0 2.6	10.0 3.33	11.0 4.0	V V
Threshold Voltage	V_{TH}	$V_{CC} = 15\text{V}$ $V_{CC} = 5\text{V}$	8.8 2.4	10.0 3.33	11.2 4.2	V V
*3 Threshold Current	I_{TH}			30	250	nA
Trigger Voltage	V_{TR}	$V_{CC} = 15\text{V}$ $V_{CC} = 5\text{V}$	4.5 1.1	5.0 1.6	5.6 2.2	V V
Trigger Current	I_{TR}	$V_T = 0\text{V}$		0.01	2.0	μA
*5 Reset Voltage	V_{RE}		0.4	0.6	1.0	V
Reset Current	I_{RE}			0.03	0.6	mA
Output Voltage Low	V_{OL}	$V_{CC} = 15\text{V}$ $I_{sink} = 10\text{mA}$ $I_{sink} = 50\text{mA}$ $I_{sink} = 100\text{mA}$ $I_{sink} = 200\text{mA}$ $V_{CC} = 5\text{V}$ $I_{sink} = 8\text{mA}$ $I_{sink} = 5\text{mA}$		0.1 0.4 2.0 2.5 0.25 0.15	0.25 0.75 3.2 V 0.35 0.25	V V V V V V

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ELECTRICAL CHARACTERISTICS

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

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Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage (high)	V _{OH}	V _{CC} = 15V				
		I _{source} = 200mA		12.5		V
		I _{source} = 100mA	12.75	13.3		V
		V _{CC} = 5V				
		I _{source} = 100mA	2.75	3.3		V
Rise Time of Output	T _r			100	300	nsec
Fall Time of Output	T _f			100	300	nsec
Discharge Leakage Current	I _D			10	100	nA
*4 Matching Characteristics	M _{CH}					
Initial Accuracy				1.0	2.0	%
Drift with Temperature				10		ppm/°C
Drift with Supply Voltage				0.2	0.5	%/V
*2 Timing Error (astable)	MT ₂	R _A , R _B = 1kΩ to 100kΩ				
Initial Accuracy		C = 0.1μF		2.25		%
Drift with Temperature		V _{CC} = 15V		150		ppm/°C
Drift with Supply Voltage				0.3		%/V

Notes:

- *1. Supply current when output is high is typically 1.0mA less at V_{CC} = 5V.
- *2. Tested at V_{CC} = 5V and V_{CC} = 15V.
- *3. This will determine the maximum value of R_A + R_B for 15V operation.
The maximum total R = 20MΩ, and for 5V operation the maximum total R = 6.6MΩ.
- *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.