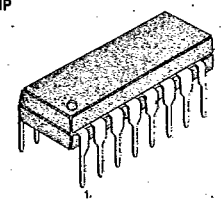
NE558

LINEAR INTEGRATED CIRCUIT

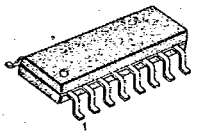
QUAD TIMER

The NE558 series are a monolithic Quad Timers which can be used to produce four entirely independent timing functions. These highly stable, general purpose controllers can be used in a monostable mode to produce accurate time delays, from microseconds to hours. The time is precisely controlled by one external resistor and one capacitor in the time delay mode. A stable mode can be operated by using two of four timer sections.

16 DIP



16 SOP



FEATURES

- **Wide supply voltage range: 4.5V to 16V**
- **100mA output current per section**
- **Edge triggered without coupling capacitor**
- **Time period equals RC**
- **Output independent of trigger conditions.**

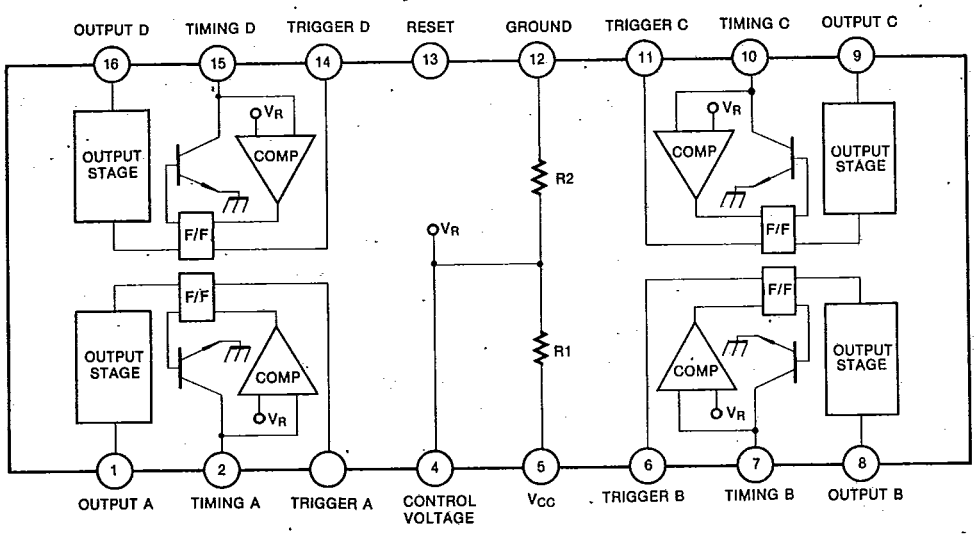
APPLICATIONS

- Quad one-shot
- Sequential timing
- Precision timing
- **Time delay generation**

ORDERING INFORMATION

Device	Package	Operating Temperature
NE558IN	14 DIP	−45 ~ +85°C
NE558CN	14 DIP	0 ~ +70°C
NE558CD	14 SOP	

BLOCK DIAGRAM



NE558 LINEAR INTEGRATED CIRCUIT

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	18	V
Lead Temperature (soldering 10 sec)	T_{lead}	300	°C
Power Dissipation	P_D	600	mW
Operating Temperature NE556I	T_{opr}	−40 ~ +85	°C
NE556C		0 ~ 70	°C.
Storage Temperature	T_{stg}	−65 ~ +150	°C

ELECTRICAL CHARACTERISTICS

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		4.5		16	V
Supply Current	I_{CC}	V_{CC} = 15V, reset voltage = 15V		16	36	mA
Timing Error (T = RC) Initial Accuracy	M_T	R = 2KΩ to 100KΩ, C = 1μF		±2	5	%
Drift with Temperature				30	150	PPM/°C
Drift with Supply Voltage				0.1	0.9	%/V
[1]Trigger Voltage	V_{TR}	V_{CC} = 15V	0.8	1.5	2.4	V
[1]Trigger Current	I_{TR}	Trigger voltage = 0V		50	100	μA
[2]Reset Voltage	V_{RE}	Reset	0.8		2.4	V
[2]Reset Current	I_{RE}	Reset		50	500	μA
Threshold Voltage	V_{TH}			0.63 × V_{CC}		V
Threshold Current	I_{TL}			15		nA
[3]Output Voltage	V_{OUT}	I_L = 10mA		0.1	0.4	V
		I_L = 100mA		1.0	2.0	
Output Leakage Current	I_{OL}			10	500	nA
Propagation Delay Time	T_P			1.0		μS
Rise Time	T_r	I_L = 100mA		100		nS
Fall Time	T_f	I_L = 100mA		100		nS

NOTES: 1. The trigger functions only on the falling edge of the trigger pulse only after previously being high. After reset the trigger must be brought high and then low to implement triggering.
2. For reset below 0.8V, outputs set low and trigger inhibited.
3. Output structure is open collector which requires a pull up resistor to V_{CC} to sink current. The output is nomally low sinking current.

APPLICATIONS

- **Long-Time Delay**

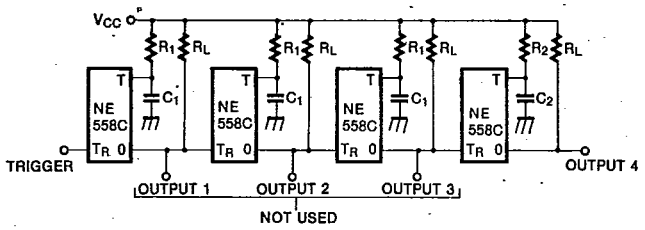


Fig. 1. Circuit

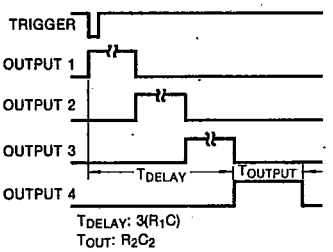


Fig. 2. Timing Chart

- **Ring Counter**

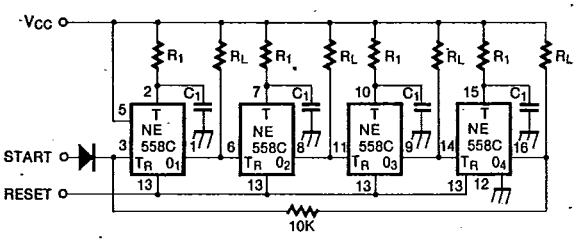


Fig. 3. Circuit

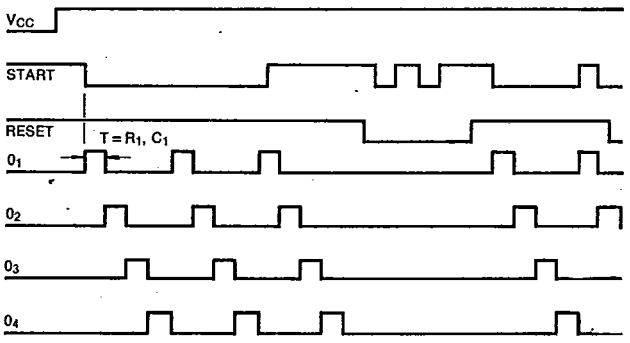


Fig. 4. Timing Chart