

QUAD TIMER**SA/SE/NE558****DESCRIPTION**

The 558 Quad Timers are monolithic timing devices which can be used to produce four entirely independent timing functions. The 558 output sinks current. These highly stable, general purpose controllers can be used in a monostable mode to produce accurate time delays, from microseconds to hours. In the time delay mode of operation, the time is precisely controlled by one external resistor and one capacitor. A stable operation can be achieved by using two of the four timer sections.

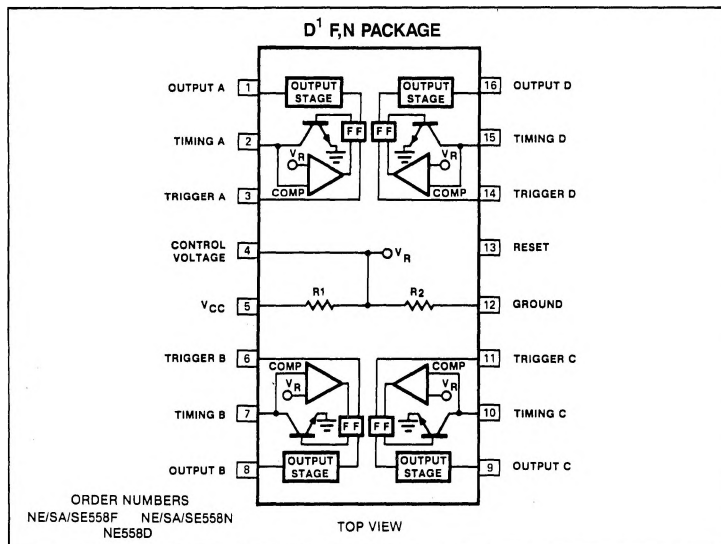
The four timing sections in the 558 are edge triggered; therefore, when connected in tandem for sequential timing applications, no coupling capacitors are required. Output current capability of 100mA is provided in both devices.

FEATURES

- 100mA output current per section
- Edge triggered (no coupling capacitor)
- Output independent of trigger conditions
- Wide supply voltage range 4.5V to 18V
- Timer intervals from microseconds to hours
- Time period equals RC
- Military qualifications pending

APPLICATIONS

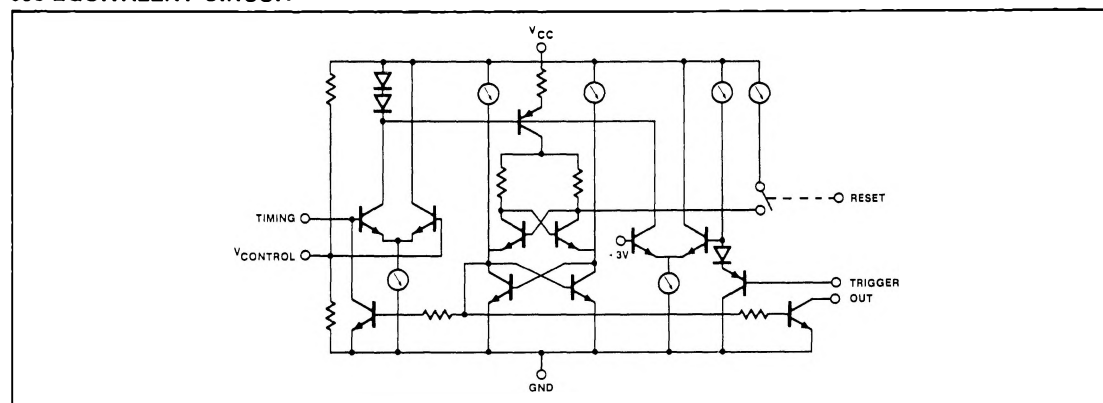
- Sequential timing
- Time delay generation
- Precision timing
- Industrial controls
- Quad one-shot

PIN CONFIGURATION**NOTES:**

1. SOL - Released in Large SO package only.
2. SOL and non-standard pinout.
3. SO and non-standard pinouts.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Supply voltage NE/SA558	+16	V
SE558	+18	V
Power dissipation	1.25	W
Operating temperature range NE558	0 to +70	°C
SA558	-40 to +85	°C
SE558	-55 to +125	°C
Storage temperature range	-65 to +150	°C
Lead temperature (soldering, 60sec)	+300	°C

558 EQUIVALENT CIRCUIT

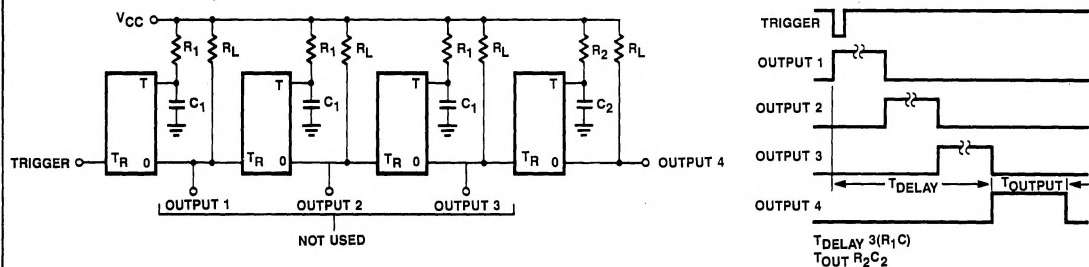
QUAD TIMER**SA/SE/NE558****ELECTRICAL CHARACTERISTICS** $T_A = 25^\circ\text{C}$, $V_{CC} = +5\text{V}$ to $+15\text{V}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SE558			SA/NE558			UNIT
		Min	Typ	Max	Min	Typ	Max	
Supply voltage		4.5		18	4.5		16	V
Supply current	$V_{CC} = \text{Reset} = 15\text{V}$		16	32		16	36	mA
Timing accuracy ($T = RC$)	$R = 2\text{k}\Omega$ to $100\text{k}\Omega$ $C = 1\mu\text{F}$							
Initial accuracy			± 1.0	3		± 2	5	%
Drift with temperature			30	100		30	150	ppm/ $^\circ\text{C}$
Drift with supply voltage			0.1	0.9		0.1	0.9	%/V
Trigger voltage ¹	$V_{CC} = 15\text{V}$ Trigger = 0V	0.8		2.4	0.8		2.4	V
Trigger current			5	30		5	100	μA
Reset voltage ²		0.8		2.4	0.8		2.4	V
Reset current	Reset		50	300		50	500	μA
Threshold voltage			0.63			0.63		$\times V_{CC}$
Threshold leakage			15			15		nA
Output voltage ³	$I_L = 10\text{mA}$ $I_L = 100\text{mA}$		0.1 0.7	0.2 1.5		0.1 1.0	0.4 2.0	V V
Output leakage			10	500		10	500	nA
Propagation delay			1.0			1.0		μs
Risetime of output	$I_L = 100\text{mA}$		100			100		ns
Falltime of output	$I_L = 100\text{mA}$		100			100		ns

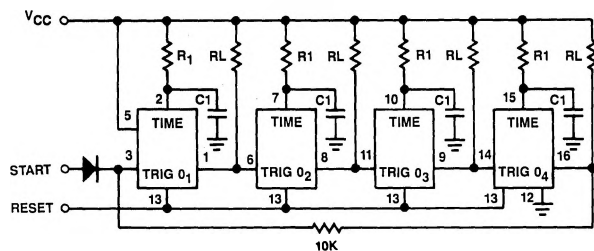
NOTES

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 0.8 volts, outputs set low and trigger inhibited. For reset above 2.4 volts, trigger enabled.
3. The 558 output structure is open collector which requires a pull up resistor to V_{CC} to sink current. The output is normally low sinking current.

558 LONG-TIME DELAY

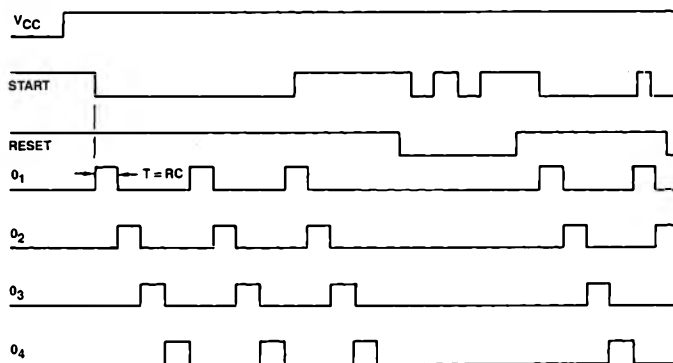


558 RING COUNTER



(a)

EXPECTED WAVEFORMS



(b)

*For additional information, consult the Applications Section.