

SEMICONDUCTOR IM

**Quad Timer** 

# NE558

## Features

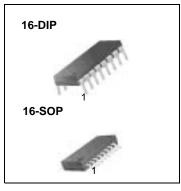
- Wide Supply Voltage Range: 4.5V To 16V
- 100 mA Output Current Per Section
- Edge Triggered Without Coupling Capacitor
- Time Period Equals RC
- Output independent Of Trigger Conditions

### **Applications**

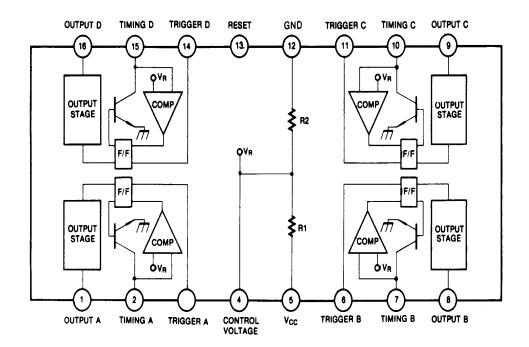
- Quad One-Shot
- Sequential Timing
- Precision Timing
- Time Delay Generation

## Description

The NE558 series are 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 using two of four time sections.



#### Internal Block Diagram



## Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Parameter	Symbol	Value	Unit
Supply Voltage	Vcc	16	V
Lead Temperature (soldering 10sec)	TLEAD	300	°C
Power Dissipation	PD	600	mW
Operating Temperature Range NE558	TOPR	0 ~ + 70	°C
Storage Temperature Range	TSTG	-65 ~ + 150	°C

### **Electrical Characteristics**

(V<sub>CC</sub> = 5 ~ 15V,  $T_A$  = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Supply Voltage	Vcc	-	4.5	-	16	V
Supply Current	ICC	VCC =15V, reset voltage =15V	-	16	36	mA
Timing Error (T = RC) Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT Δt/ΔVCC	R = 2KΩ to 100KΩ, C =1µF	-	±2 30 0.1	5 150 0.9	% PPM/°C %/V
* <sup>1</sup> Trigger Voltage	Vtr	Vcc = 15V	-	1.5	2.4	V
* <sup>1</sup> Trigger Current	ITR	VTR= 0V	-	5.0	100	μA
* <sup>2</sup> Reset Voltage	Vrst	-	0.8	1.5	2.4	V
* <sup>2</sup> Reset Current	IRST	-	-	50	500	μΑ
Threshold Voltage	VTH	-	0.8	0.63 × VCC	-	V
Threshold Current	ITH	-	-	15	-	nA
<sup>*3</sup> Output Voltage	Ve	IL = 10mA	-	0.1	0.4	V
	Vo	IL = 100mA	-	1.0	2.0	v
Output Leakage Current	ILKG	-	-	10	500	nA
Propagation Delay Time	tD	-	-	1.0	-	μS
Rise Time	tR	IL = 100mA	-	100	-	nS
Fall Time	tF	IL = 100mA	-	100	-	nS

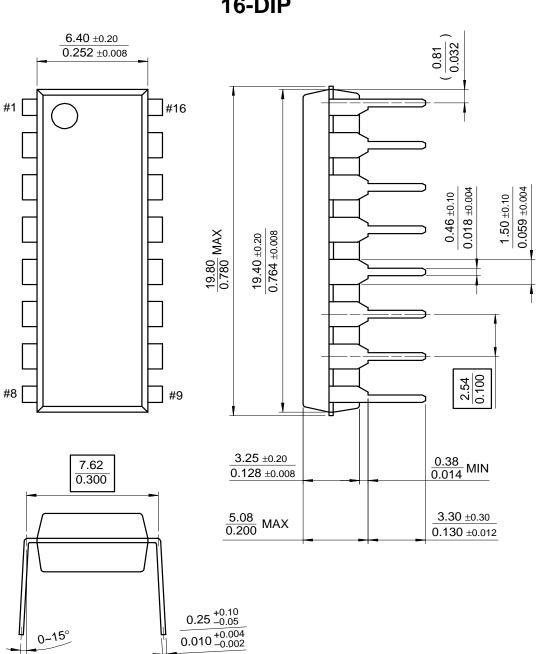
#### Note :

- 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 normally low sinking current.

**Dimensions in millimeters** 

#### **Mechanical Dimensions**

#### Package

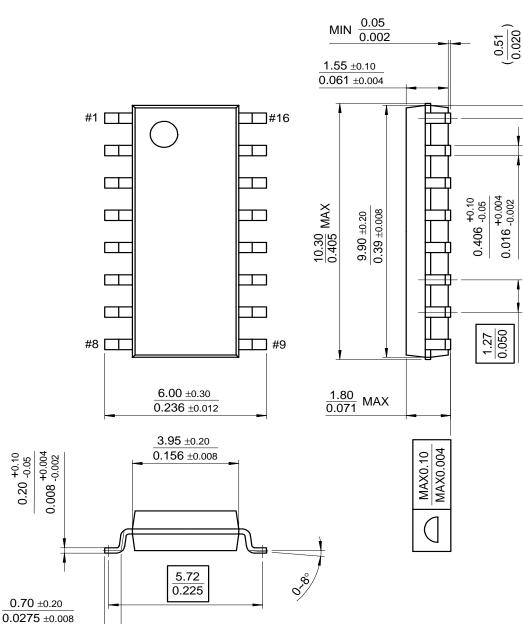


16-DIP

#### Mechanical Dimensions (Continued)

#### Package

#### **Dimensions in millimeters**



16-SOP

## **Ordering Information**

Product Number	Package	Operating Temperature
NE558	16-DIP	0 ~ + 70°C
NE558D	16-SOP	0~+70 C

#### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
- A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

www.fairchildsemi.com