

# KA558/KA558B

## Quad Timer

### Features

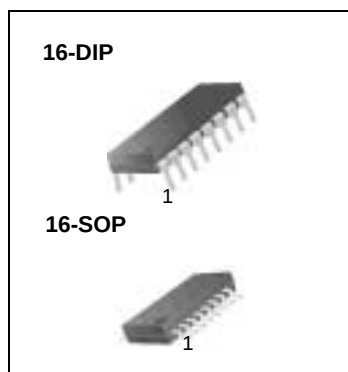
- Wide Supply Voltage Range: 4.5V To 16V
- 100 mA Output Current Per Section
- Edge Triggered Without Coupling Capacitor
- Time Period Equals RC
- Output independent Of Trigger Conditions

### Applications

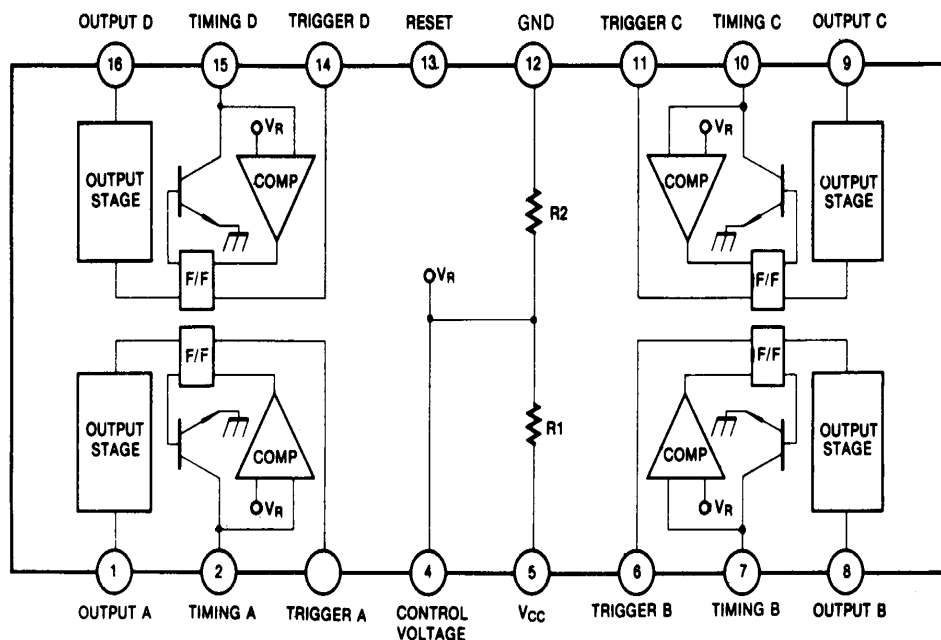
- Quad One-Shot
- Sequential Timing
- Precision Timing
- Time Delay Generation

### Description

The KA558/KA558B 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                           | V <sub>CC</sub>   | 16          | V    |
| Lead Temperature (soldering 10sec)       | T <sub>LEAD</sub> | 300         | °C   |
| Power Dissipation                        | P <sub>D</sub>    | 600         | mW   |
| Operating Temperature Range KA558/KA558B | T <sub>OPR</sub>  | 0 ~ + 70    | °C   |
| Storage Temperature Range                | T <sub>STG</sub>  | -65 ~ + 150 | °C   |

## Electrical Characteristics

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

| Parameter                                                                                        | Symbol                                | Conditions                                 | Min. | Typ.                   | Max.            | Unit               |
|--------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------|------|------------------------|-----------------|--------------------|
| Supply Voltage                                                                                   | V <sub>CC</sub>                       | -                                          | 4.5  | -                      | 16              | V                  |
| Supply Current                                                                                   | I <sub>CC</sub>                       | V <sub>CC</sub> = 15V, reset voltage = 15V | -    | 16                     | 36              | mA                 |
| Timing Error (T = RC)<br>Initial Accuracy<br>Drift with Temperature<br>Drift with Supply Voltage | ACCUR<br>Δt/ΔT<br>Δt/ΔV <sub>CC</sub> | R = 2KΩ to 100KΩ, C = 1μF                  | -    | ±2<br>30<br>0.1        | 5<br>150<br>0.9 | %<br>PPM/°C<br>%/V |
| *1Trigger Voltage                                                                                | V <sub>TR</sub>                       | V <sub>CC</sub> = 15V                      | -    | 1.5                    | 2.4             | V                  |
| *1Trigger Current                                                                                | I <sub>TR</sub>                       | V <sub>TR</sub> = 0V                       | -    | 5.0                    | 100             | μA                 |
| *2Reset Voltage                                                                                  | V <sub>RST</sub>                      | -                                          | 0.8  | 1.5                    | 2.4             | V                  |
| *2Reset Current                                                                                  | I <sub>RST</sub>                      | -                                          | -    | 50                     | 500             | μA                 |
| Threshold Voltage                                                                                | V <sub>TH</sub>                       | -                                          | 0.8  | 0.63 × V <sub>CC</sub> | -               | V                  |
| Threshold Current                                                                                | I <sub>TH</sub>                       | -                                          | -    | 15                     | -               | nA                 |
| *3Output Voltage                                                                                 | V <sub>O</sub>                        | I <sub>L</sub> = 10mA                      | -    | 0.1                    | 0.4             | V                  |
|                                                                                                  |                                       | I <sub>L</sub> = 100mA                     | -    | 1.0                    | 2.0             |                    |
| Output Leakage Current                                                                           | I <sub>LKG</sub>                      | -                                          | -    | 10                     | 500             | nA                 |
| Propagation Delay Time                                                                           | t <sub>D</sub>                        | -                                          | -    | 1.0                    | -               | μS                 |
| Rise Time                                                                                        | t <sub>R</sub>                        | I <sub>L</sub> = 100mA                     | -    | 100                    | -               | nS                 |
| Fall Time                                                                                        | t <sub>F</sub>                        | I <sub>L</sub> = 100mA                     | -    | 100                    | -               | nS                 |

### Note :

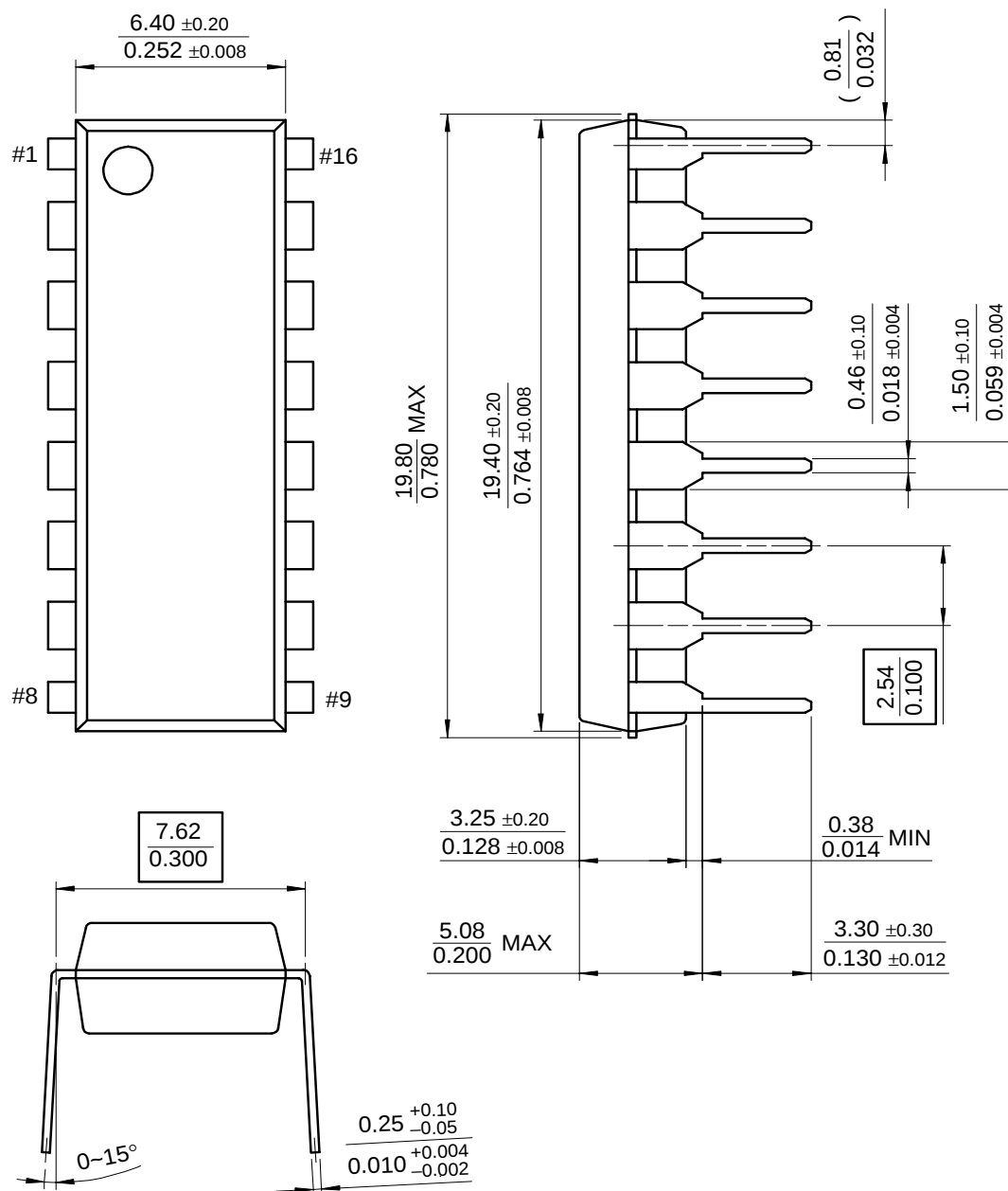
1. The trigger functions only on the falling edge of the trigger pulse only after previously being high. After reset the trigger must be brought high and then low to implement triggering.
2. For reset below 0.8V, outputs set low and trigger inhibited.
3. Output structure is open collector which requires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

# Mechanical Dimensions

## Package

Dimensions in millimeters

### 16-DIP





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## Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| KA558B         | 16-DIP  | 0 ~ + 70°C            |
| KA558BD        | 16-SOP  |                       |
| KA558D2        |         |                       |

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