

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA7555P, TA7555F

## TIMER APPLICATIONS

The TA7555P monolithic circuit is a highly stable device as producing accurate time delay or timing pulse. Additional terminals are provided for triggering or resetting, if desired.

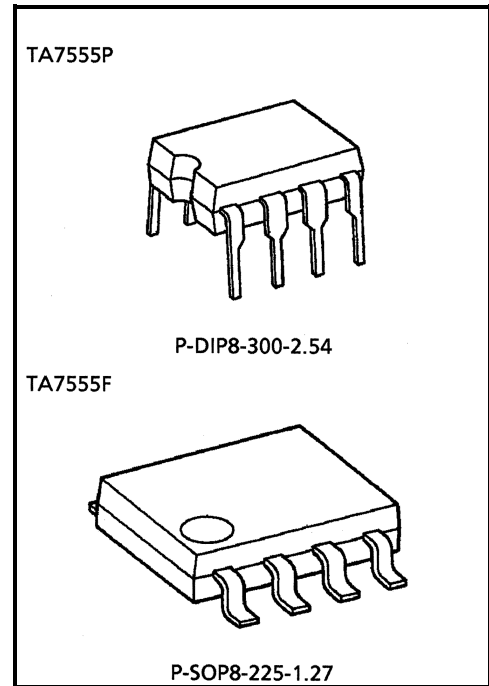
In the time delay or monostable mode of operation, the time is precisely controlled by one external resistor and capacitor. In the astable mode of operation, the frequency and duty cycle are accurately and independently controlled with two external resistors and one capacitor.

The circuit of the TA7555P may be triggered and reset on falling waveforms, and the output structure can source and sink up to 200mA or drive TTL circuit.

Operation is specified for supplies of 5 to 15V

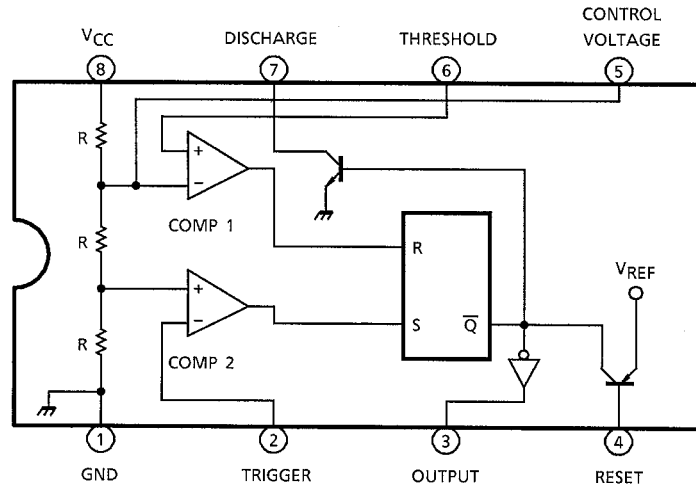
## FEATURES

- Timing from microseconds through hours
- Operates in both astable and monostable modes
- Adjustable duty cycle
- Output can source or sink 200mA
- Output TTL compatible
- Temperature stability of 0.005% / °C (Typ.)
- Normally ON or normally OFF output
- Direct replacement for SE555 / NE555



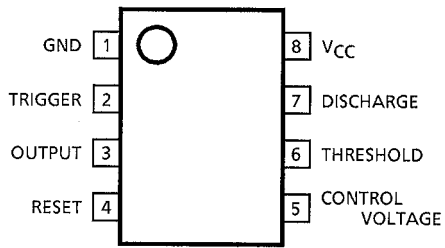
|        |                 |               |
|--------|-----------------|---------------|
| Weight | P-DIP8-300-2.54 | : 0.5g (Typ.) |
|        | P-SOP8-225-1.27 | : 0.1g (Typ.) |

**BLOCK DIAGRAM**

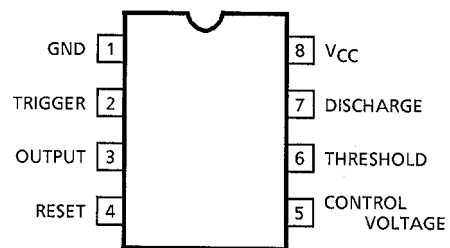


**PIN CONNECTION (TOP VIEW)**

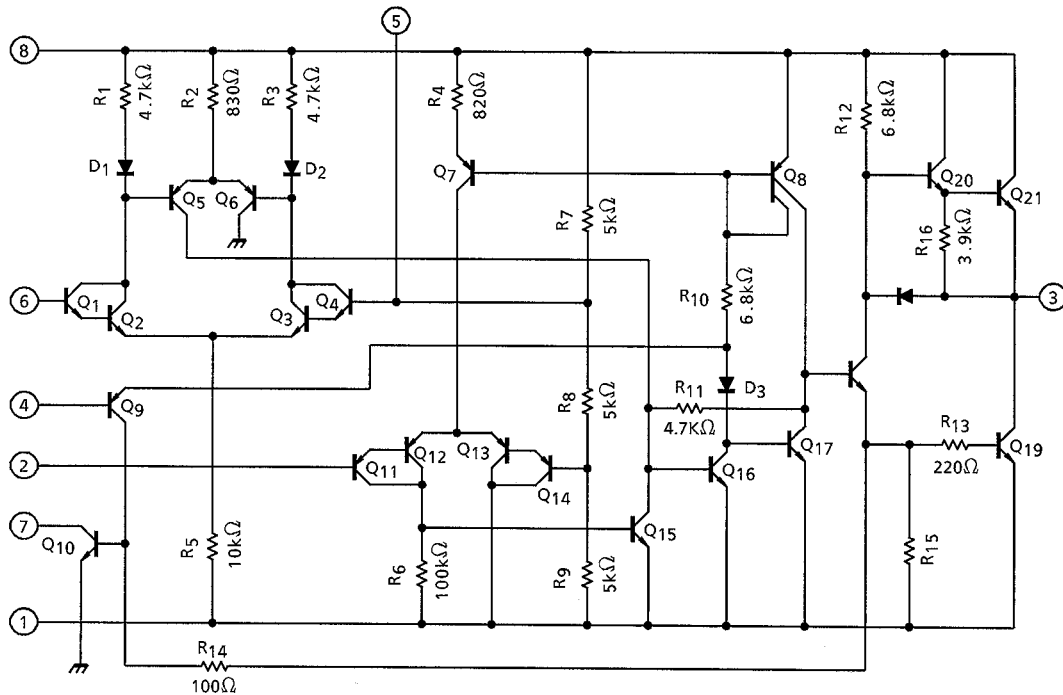
TA7555F



TA7555P



## EQUIVALENT CIRCUIT



- APPLICATIONS
- DC-DC CONVERTER
  - LINEAR RAMP GENERATOR
  - PULSE GENERATOR
  - PRECISION TIMING
  - SEQUENTIAL TIMING
  - TIMING DELAY GENERATION
  - PULSE WIDTH MODULATION
  - PULSE

## MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC        |         | SYMBOL           | RATING  | UNIT |
|-----------------------|---------|------------------|---------|------|
| Supply Voltage        | TA7555P | V <sub>CC</sub>  | 18      | V    |
|                       | TA7555F |                  | 15      |      |
| Power Dissipation     | TA7555P | P <sub>D</sub>   | 600     | mW   |
|                       | TA7555F |                  | 240     |      |
| Operating Temperature |         | T <sub>opr</sub> | -30~75  | °C   |
| Storage Temperature   |         | T <sub>stg</sub> | -55~125 | °C   |

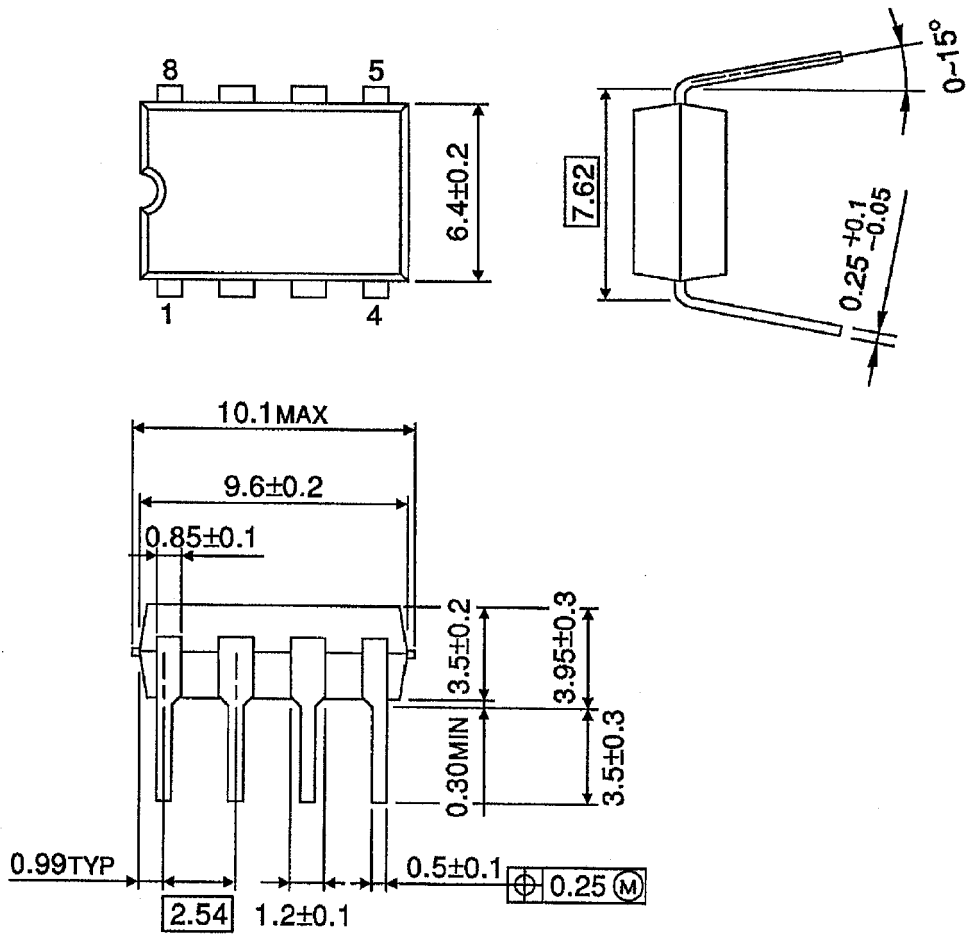
## ELECTRICAL CHARACTERISTICS (Ta = 25°C, VCC = 5~15V)

| CHARACTERISTIC                  | SYMBOL          | TEST CIRCUIT | TEST CONDITION   | MIN                         | TYP.                       | MAX  | UNIT     |   |
|---------------------------------|-----------------|--------------|--|-----------------------------|----------------------------|------|----------|---|
| Supply Voltage                  | V <sub>CC</sub> | —            | —  | 4.5                         | —                          | 16   | V        |   |
| Supply Current                  | I <sub>CC</sub> | —            | V <sub>CC</sub> = 5V, R <sub>L</sub> = ∞, Low state  | —                           | 3                          | 6    | mA       |   |
|                                 |                 |              | V <sub>CC</sub> = 15V, R <sub>L</sub> = ∞, Low state   | —                           | 10                         | 15   |          |   |
| Control Voltage                 | V <sub>CT</sub> | —            | V <sub>CC</sub> = 5V   | 2.6                         | 3.33                       | 4    | V        |   |
|                                 |                 |              | V <sub>CC</sub> = 15V  | 9                           | 10                         | 11   |          |   |
| Threshold Voltage               | V <sub>TH</sub> | —            | —  | —                           | (2 / 3)<br>V <sub>CC</sub> | —    | V        |   |
| Threshold Current               | I <sub>TH</sub> | —            | V <sub>CC</sub> = 5V, 15V  | —                           | 0.1                        | 0.25 | μA       |   |
| Trigger Voltage                 | V <sub>TG</sub> | —            | V <sub>CC</sub> = 5V   | —                           | 1.67                       | —    | V        |   |
|                                 |                 |              | V <sub>CC</sub> = 15V  | —                           | 5                          | —    |          |   |
| Trigger Current                 | I <sub>TG</sub> | —            | —  | —                           | 0.5                        | —    | μA       |   |
| Reset Voltage                   | V <sub>RT</sub> | —            | —  | 0.4                         | 0.7                        | 1.0  | V        |   |
| Reset Current                   | I <sub>RT</sub> | —            | —  | —                           | 0.1                        | —    | mA       |   |
| Initial Accuracy                | —               | —            | Monostable mode<br>R <sub>A</sub> , R <sub>B</sub> = 1kΩ~100kΩ<br>C = 0.1μF, V <sub>CC</sub> = 15V | —                           | 1                          | —    | %        |   |
| Drift with Temperature          |                 |              |  | —                           | 50                         | —    | ppm / °C |   |
| Drift with Supply Voltage       |                 |              |  | —                           | 0.1                        | —    | % / V    |   |
| Output Voltage<br>(" L " Level) | V <sub>OL</sub> | —            | V <sub>CC</sub> = 15V  | I <sub>sink</sub> = 10mA    | —                          | 0.1  | 0.25     | V |
|                                 |                 |              |  | I <sub>sink</sub> = 50mA    | —                          | 0.4  | 0.75     |   |
|                                 |                 |              |  | I <sub>sink</sub> = 100mA   | —                          | 2    | 2.5      |   |
|                                 |                 |              |  | I <sub>sink</sub> = 200mA   | —                          | 2.5  | —        |   |
|                                 |                 |              | V <sub>CC</sub> = 5V   | I <sub>sink</sub> = 5mA     | —                          | 0.25 | 0.35     |   |
|                                 |                 |              |  | I <sub>sink</sub> = 8mA     | —                          | —    | —        |   |
| Output Voltage<br>(" H " Level) | V <sub>OH</sub> | —            | V <sub>CC</sub> = 15V  | I <sub>source</sub> = 100mA | 12.75                      | 13.3 | —        | V |
|                                 |                 |              |  | I <sub>source</sub> = 200mA | —                          | 12.5 | —        |   |
|                                 |                 |              | V <sub>CC</sub> = 5V   | I <sub>source</sub> = 100mA | 2.75                       | 3.3  | —        |   |
| Rise Time                       | t <sub>r</sub>  | —            | —  | —                           | 100                        | —    | ns       |   |
| Fall Time                       | t <sub>f</sub>  | —            | —  | —                           | 100                        | —    | ns       |   |

## PACKAGE DIMENSIONS

P-DIP8-300-2.54

Unit: mm

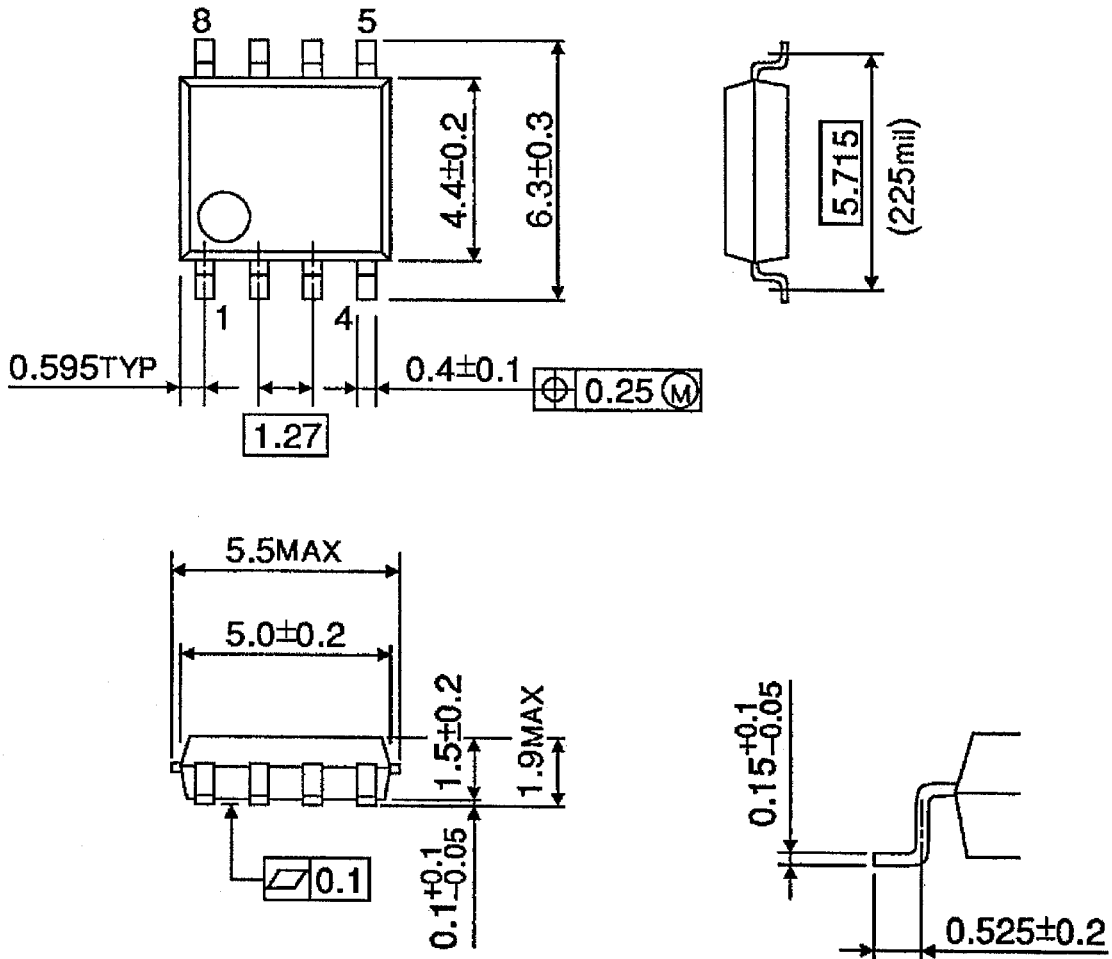


Weight: 0.5g (Typ.)

**PACKAGE DIMENSIONS**

P-SOP8-225-1.27

Unit: mm



Weight: 0.1g (Typ.)

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