

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

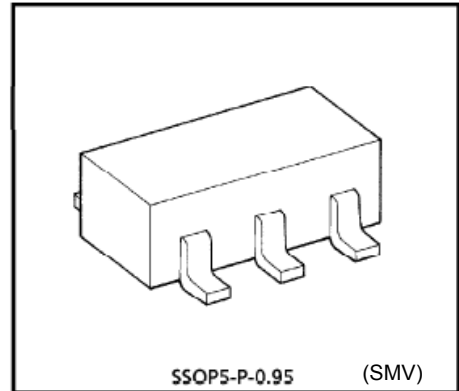
# TA75S558F

Single Low-Noise Operational Amplifier

TA75S558F is a low-noise monolithic precision operational amplifier.

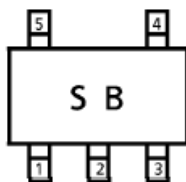
**Features**

- Internal Frequency Compensation Type.
- Pin Compatible with TA75S01F.
- Wide Band Range :  $f_T = 3\text{MHz}$  (Typ.)
- Noise Voltage Range :  $V_{NI} = 2.5\mu\text{V}_{\text{rms}}$  (Typ.)
- Power Supply Range :  $\pm 4\text{V}_{\text{DC}}$  to  $\pm 18\text{V}_{\text{DC}}$
- Suitable Application for Active Filter Equalizer Amplifier and Headphone Amplifier.

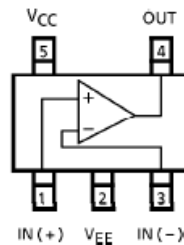


Weight : 0.014g (Typ.)

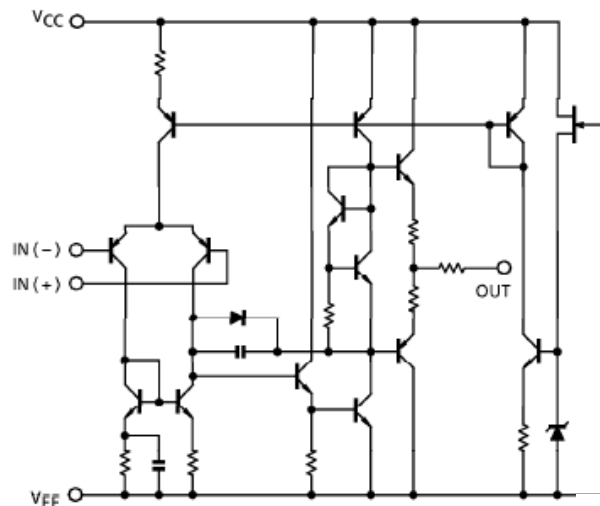
**Marking (TOP VIEW)**



**Pin Assignment (TOP VIEW)**



**Equivalent Circuit**



Start of commercial production  
1992-03

## Absolute Maximum Ratings (Ta=25°C)

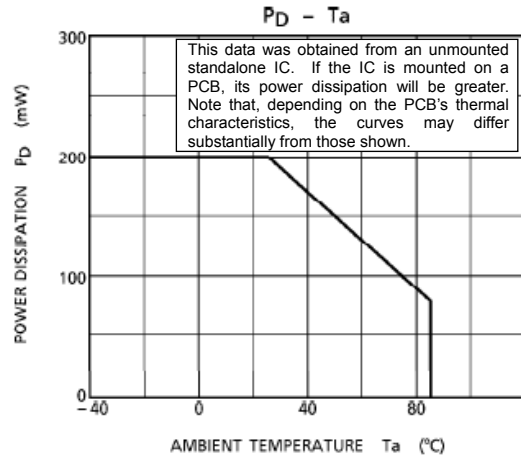
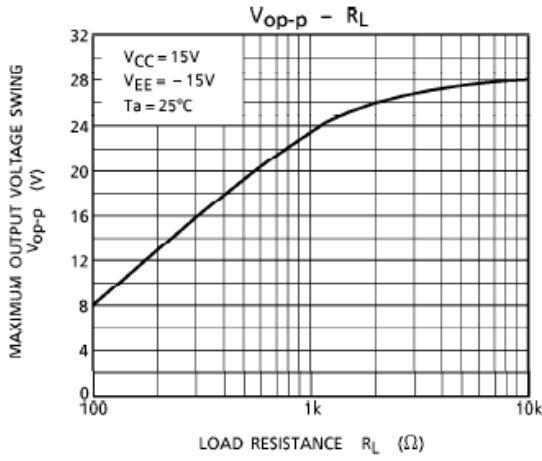
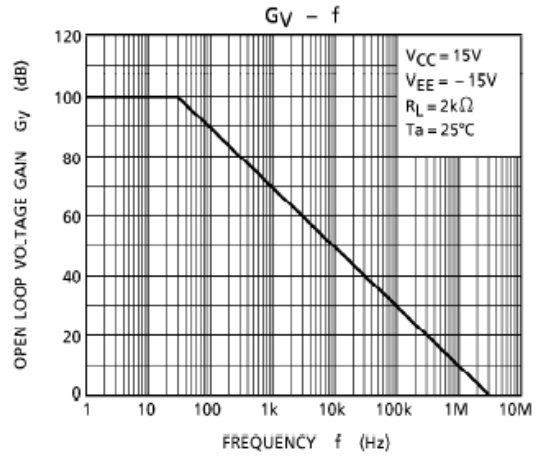
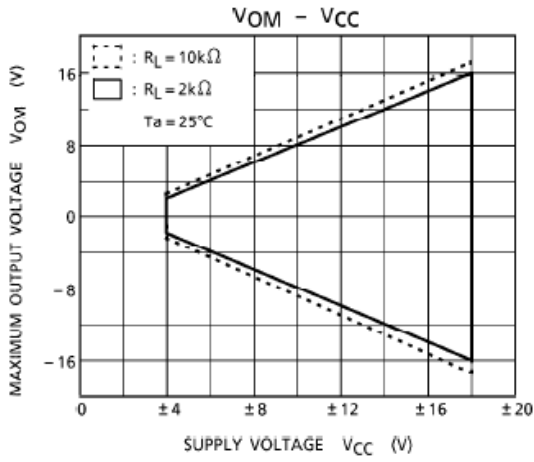
| CHARACTERISTIC             | SYMBOL                            | RATING                           | UNIT |
|----------------------------|-----------------------------------|----------------------------------|------|
| Supply Voltage             | V <sub>CC</sub> , V <sub>EE</sub> | ± 18                             | V    |
| Differential Input Voltage | DV <sub>IN</sub>                  | ± 30                             | V    |
| Input Voltage              | V <sub>IN</sub>                   | V <sub>EE</sub> ~V <sub>CC</sub> | V    |
| Power Dissipation          | P <sub>D</sub>                    | 200                              | mW   |
| Operating Temperature      | T <sub>opr</sub>                  | - 40~85                          | °C   |
| Storage Temperature        | T <sub>stg</sub>                  | - 55~125                         | °C   |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (V<sub>CC</sub> = 15 V, V<sub>EE</sub> = -15V, Ta=25°C)

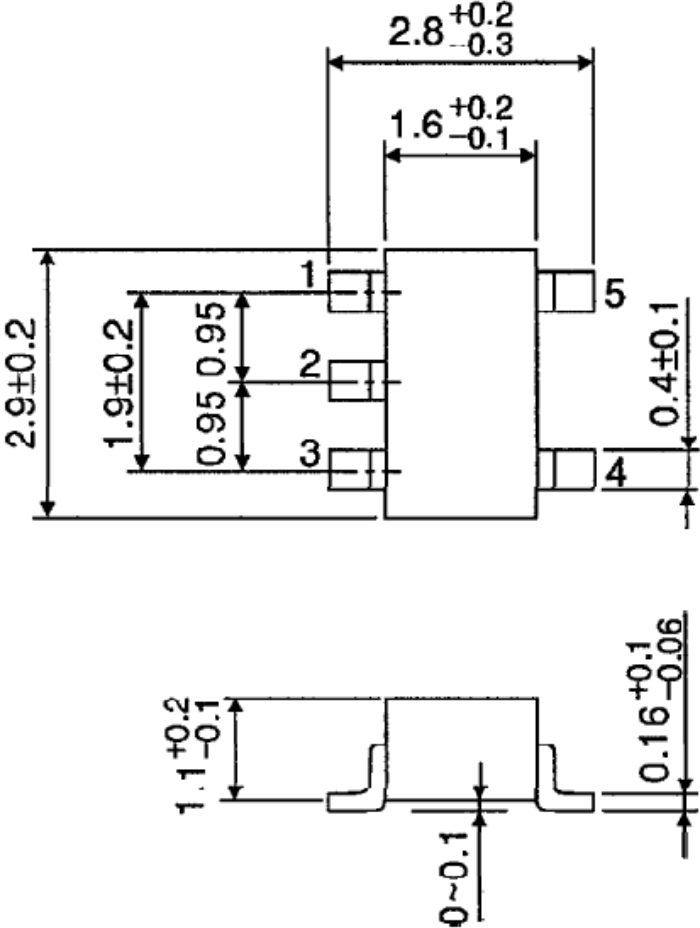
| CHARACTERISTIC                           | SYMBOL              | TEST CIR-CUIT | TEST CONDITION                                 | MIN. | TYP. | MAX. | UNIT              |
|--|---------------------|---------------|--|------|------|------|-------------------|
| Input Offset Voltage                     | V <sub>IO</sub>     | —             | R <sub>g</sub> ≤ 10kΩ                          | —    | 0.5  | 6    | mV                |
| Input Offset Current                     | I <sub>IO</sub>     | —             | —  | —    | 5    | 200  | nA                |
| Input Bias Current                       | I <sub>I</sub>      | —             | —  | —    | 60   | 500  | nA                |
| Common Mode Input Voltage                | CMV <sub>IN</sub>   | —             | —  | ± 12 | ± 14 | —    | V                 |
| Maximum Output Voltage                   | V <sub>OM</sub>     | —             | R <sub>L</sub> = 10kΩ                          | ± 12 | ± 14 | —    | V                 |
|  | V <sub>OMR</sub>    | —             | R <sub>L</sub> = 2kΩ                           | ± 10 | ± 13 | —    |                   |
| Source Current                           | I <sub>source</sub> | —             | —  | —    | 40   | —    | mA                |
| Sink Current                             | I <sub>sink</sub>   | —             | —  | —    | 40   | —    | mA                |
| Voltage Gain (Open Loop)                 | G <sub>v</sub>      | —             | V <sub>OUT</sub> = ± 10V, R <sub>L</sub> = 2kΩ | 86   | 100  | —    | dB                |
| Common Mode Input Signal Rejection Ratio | CMRR                | —             | R <sub>g</sub> ≤ 10kΩ                          | 70   | 90   | —    | dB                |
| Supply Voltage Rejection Ratio           | SVRR                | —             | R <sub>g</sub> ≤ 10kΩ                          | —    | 30   | 150  | μV/V              |
| Slew Rate                                | SR                  | —             | G <sub>v</sub> = 1, R <sub>L</sub> = 2kΩ       | —    | 1.0  | —    | V/μs              |
| Unity Gain Cross Frequency               | f <sub>T</sub>      | —             | —  | —    | 3.0  | —    | MHz               |
| Supply Current                           | I <sub>CC</sub>     | —             | —  | —    | 2.5  | 4.0  | mA                |
| Equivalent Input Noise Voltage           | V <sub>NI</sub>     | —             | R <sub>s</sub> = 1kΩ, f = 30Hz~30kHz           | —    | 2.5  | —    | μV <sub>rms</sub> |



Package Dimension

SSOP5-P-0.95

Unit : mm



Weight : 0.014g (Typ.)

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