

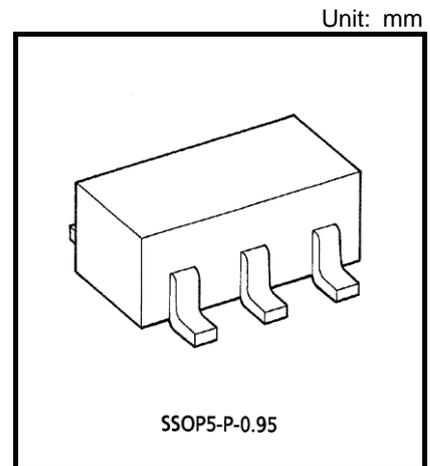
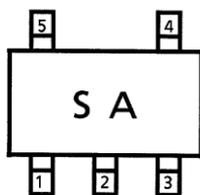
TA75S01F

Single Operational Amplifier

Features

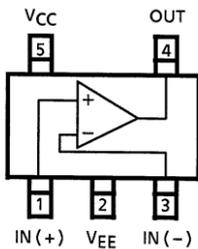
- In the linear mode the input common mode voltage range includes ground.
- The internally compensated Operational Amplifier is small package.
- Low power dissipation and power drain suitable for battery operation.
- Differential input voltage range equal to the power supply voltage.
- Large output voltage swing: 0V_{DC} to 3.4V_{DC} (V_{DC} = 5V)
- Wide power supply voltage range and single power supply is possible.
- Single supply 3V_{DC} to 12V_{DC} or dual supplies ±1.5V_{DC} to ±6V_{DC}.

Marking (Top View)



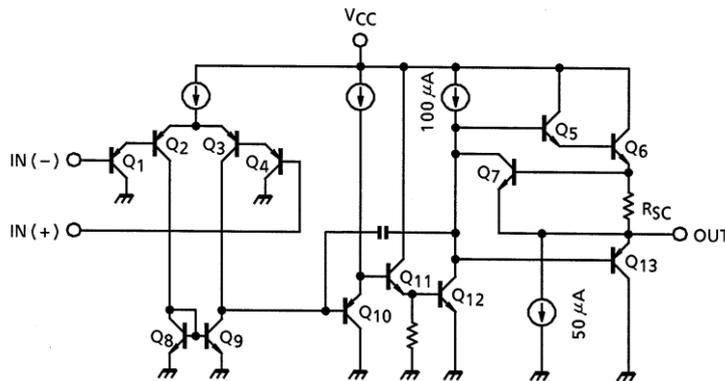
Weight:0.014g (typ.)

Pin Connection (Top View)



Start of commercial production
1991-02

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

| Characteristic | Symbol | Rating | Unit |
|----------------------------|-----------------------------------|-------------------------|------|
| Supply voltage | V _{CC} , V _{EE} | ±6 or 12 | V |
| Differential input voltage | DV _{IN} | ±12 | V |
| Input voltage | V _{IN} | -0.3 to V _{CC} | V |
| Power dissipation | P _D | 200 | mW |
| Operating temperature | T _{opr} | -40 to 85 | °C |
| Storage temperature | T _{stg} | -55 to 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.

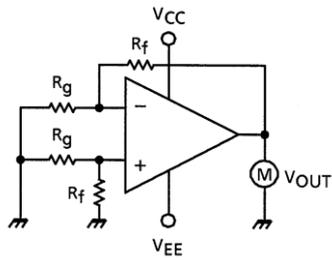
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (V_{CC} = 5V, V_{EE} = GND, Ta = 25°C)

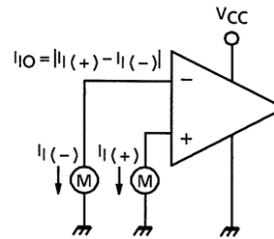
| Characteristic | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------|---------------------|--------------|--------------------------|-----|------|----------------------|------|
| Input offset voltage | V _{IO} | 1 | R _g ≤ 10kΩ | — | 2 | 7 | mV |
| Input offset current | I _{IO} | 2 | — | — | 5 | 50 | nA |
| Input bias current | I _I | 2 | — | — | 45 | 250 | nA |
| Common mode input voltage | CMV _{IN} | 3 | — | 0 | — | V _{CC} -1.5 | V |
| Supply current | I _{CC} | 4 | — | — | 0.4 | 0.8 | mA |
| Voltage gain | G _V | — | R _L ≥ 2kΩ | 86 | 100 | — | dB |
| Maximum output voltage swing | V _{op-p} | 5 | R _L = 2kΩ | 0 | — | 3.4 | V |
| Common mode rejection ratio | CMRR | 3 | — | 65 | 85 | — | dB |
| Supply voltage rejection ratio | SVRR | — | R _g = 10kΩ | 65 | 100 | — | dB |
| Source current | I _{source} | 6 | IN (-) = 0V, IN (+) = 1V | 20 | 40 | — | mA |
| Sink current | I _{sink} | 7 | IN (-) = 1V, IN (+) = 0V | 10 | 20 | — | mA |
| Unity gain cross frequency | f _T | — | — | — | 0.3 | — | MHz |

Test Circuit

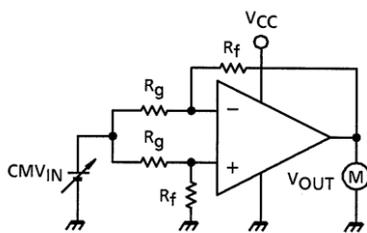
(1) V_{IO}



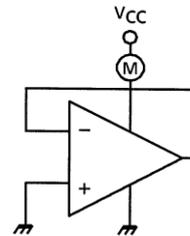
(2) I_I, I_{IO}



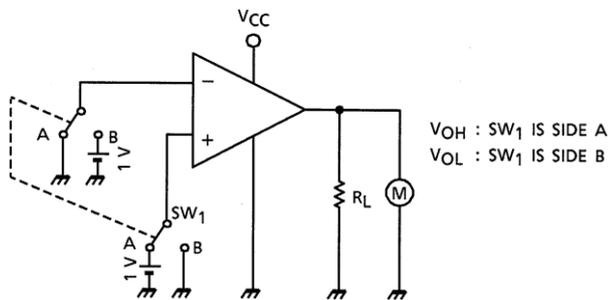
(3) $CMV_{IN}, CMRR$



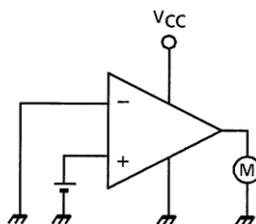
(4) I_{CC}



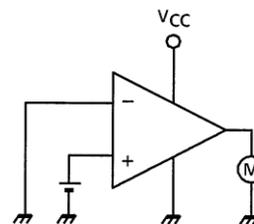
(5) V_{OP-P}

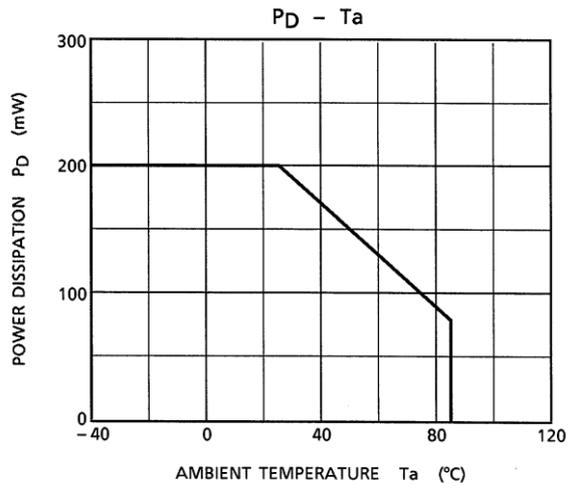
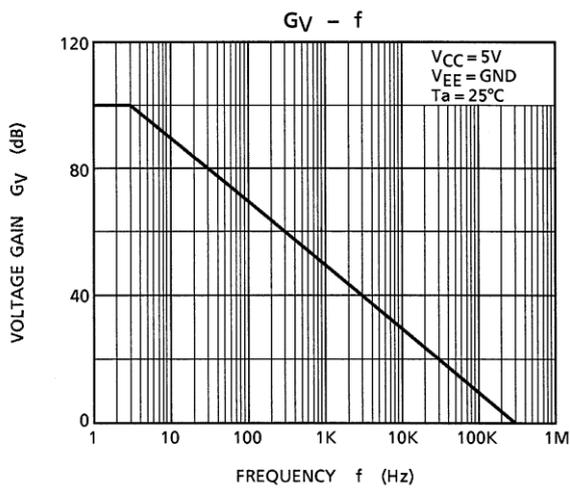
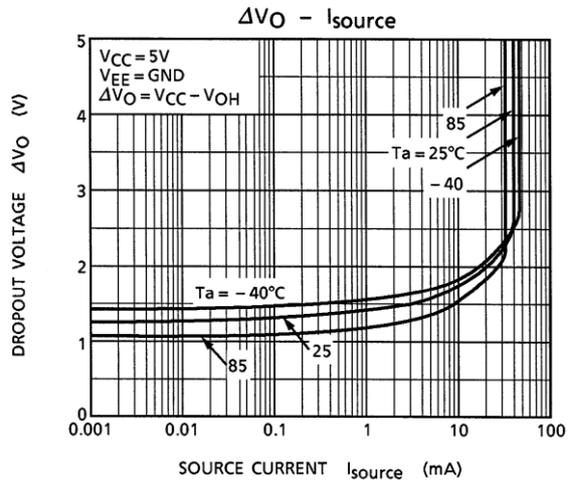
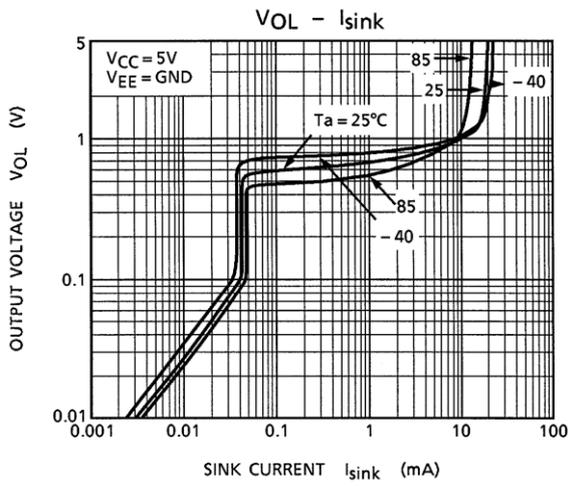
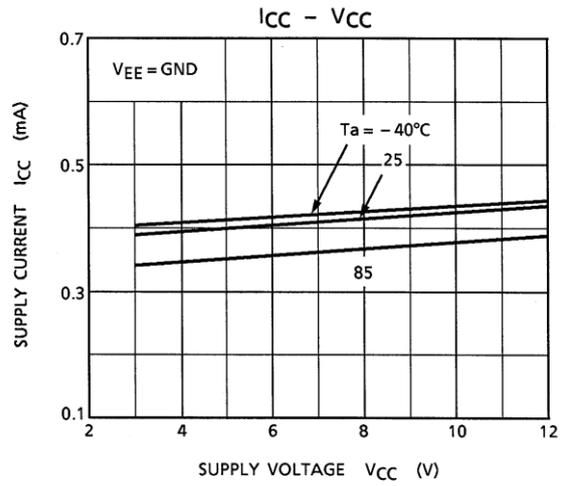
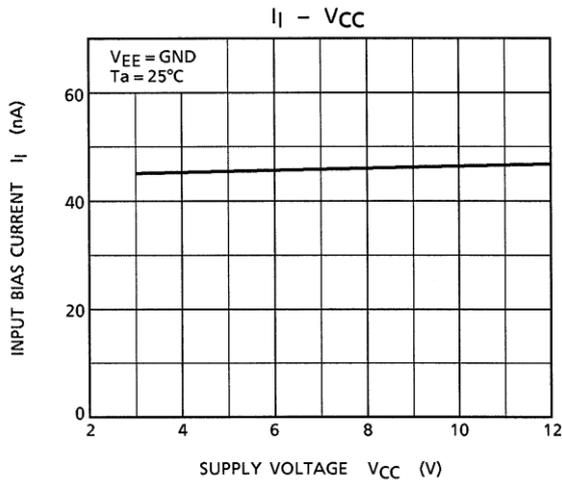


(6) I_{source}



(7) I_{sink}

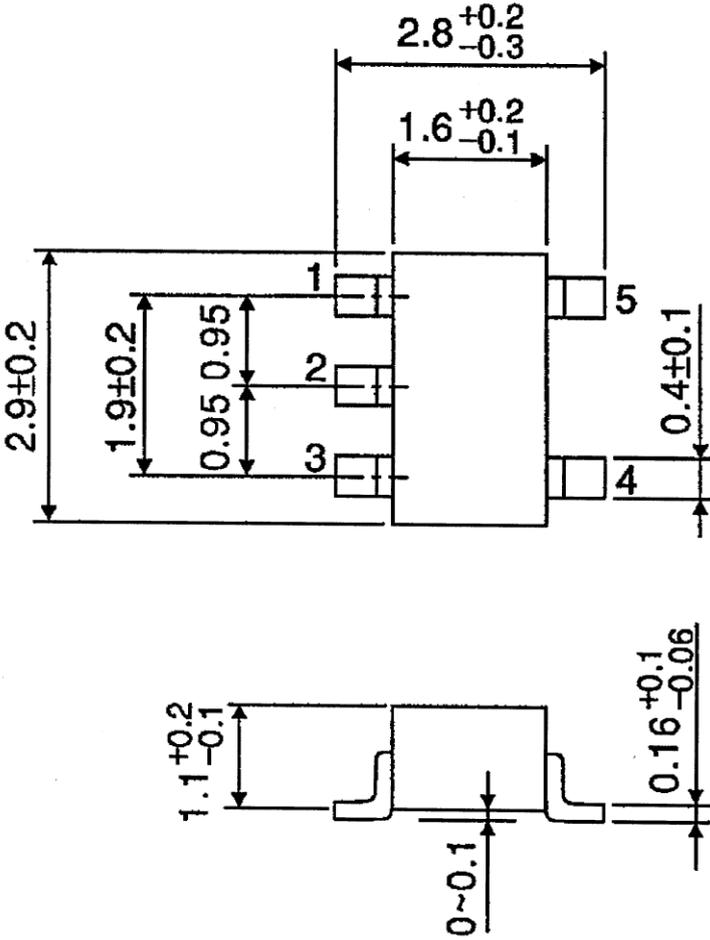




Package Dimensions

SSOP5-P-0.95

Unit: mm



Weight: 0.014g (typ.)

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