

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA75072P, TA75072S, TA75072F**DUAL OPERATIONAL AMPLIFIER**

The TA75072P, TA75072S and TA75072F are J-FET input low-noise operational amplifiers with low input bias and offset current, fast slew rate and wide bandwidth.

The TA75072P is pin compatible with the TA75458P and 1458. The TA75072S is single-in-line package.

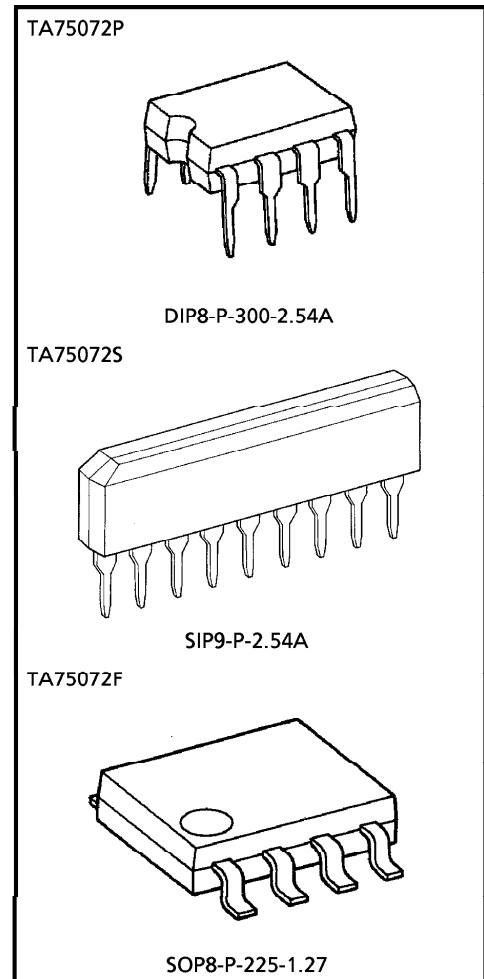
It is possible to exchange the position of 9 pin for 1 pin because of pin connection being symmetric.

The TA75072F is mini-flat package.

The TA75072P series are excellent choice for active filters, integrators, buffers and sample-and-hold circuits.

FEATURES

- Low Input Bias Current : 200pA MAX.
- Low Input Offset Current : 50pA MAX.
- High Slew Rate : 13V / μ s
- Low Noise : 18nV / $\sqrt{\text{Hz}}$
- Wide Bandwidth : 3MHz
- Wide Supply Voltage Range : $\pm 4 \sim \pm 18$ V
- Internal Frequency Compensation
- Output Short Circuit Protection

**Weight**

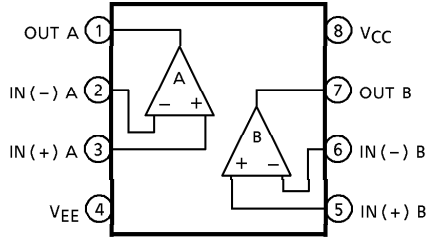
- DIP8-P-300-2.54A : 0.5g (Typ.)
- SIP9-P-2.54A : 0.9g (Typ.)
- SOP8-P-225-1.27 : 0.1g (Typ.)

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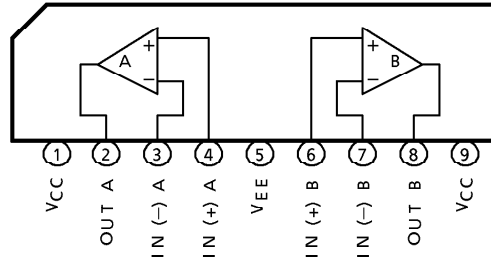
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PIN CONNECTION (TOP VIEW)

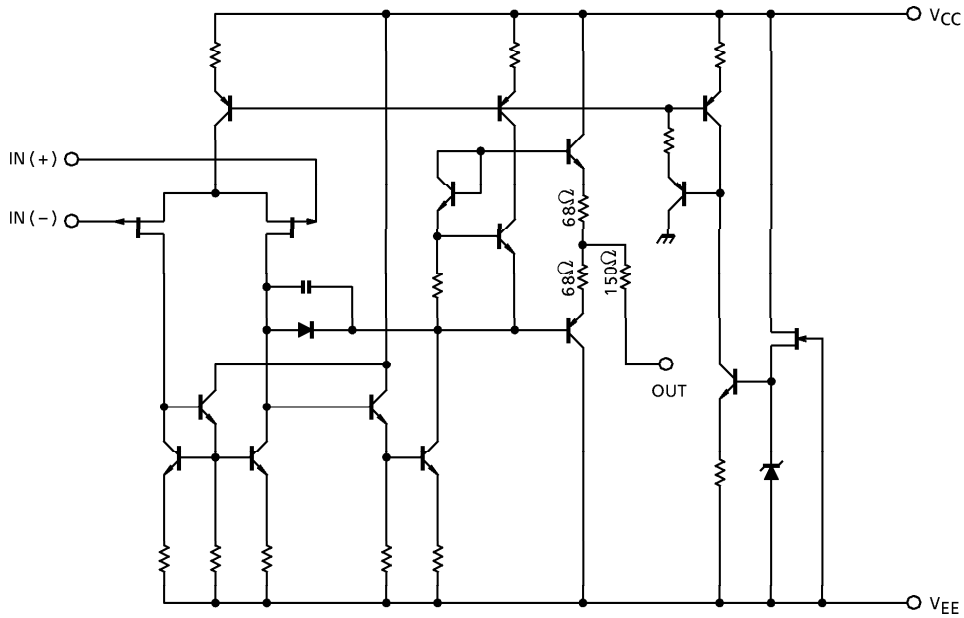
TA75072P, TA75072F



TA75072S



EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|----------------------------|----------|------------------|----------|------|
| Supply Voltage | | V _{CC} | + 18 | V |
| | | V _{EE} | - 18 | |
| Differential Input Voltage | | DV _{IN} | ± 30 | V |
| Input Voltage | | V _{IN} | ± 15 | V |
| Power Dissipation | TA75072P | P _D | 500 | mW |
| | TA75072S | | | |
| | TA75072F | | 240 | |
| Operating Temperature | | T _{opr} | - 40~85 | °C |
| Storage Temperature | | T _{stg} | - 55~125 | °C |

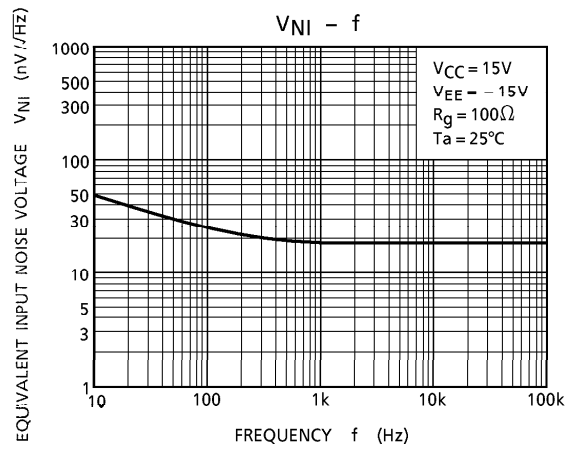
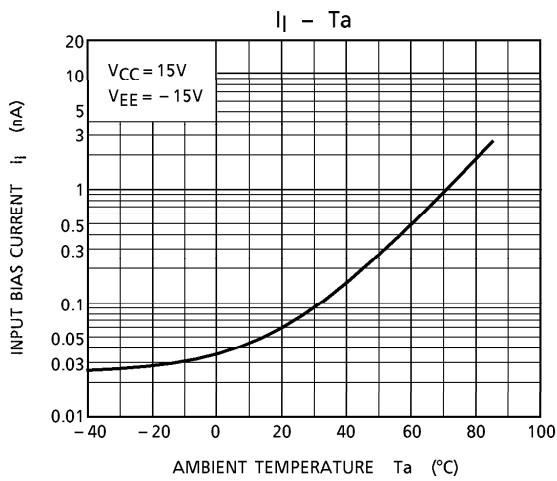
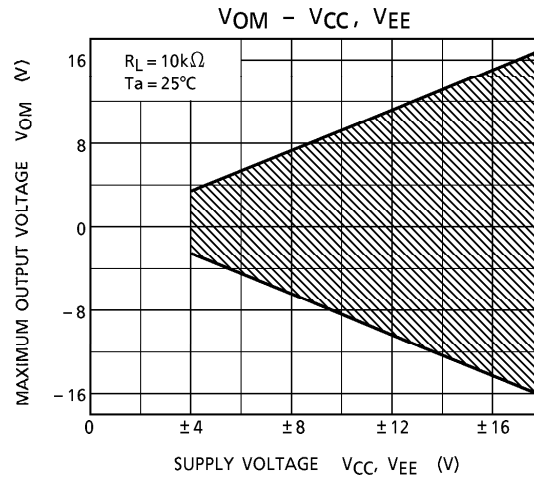
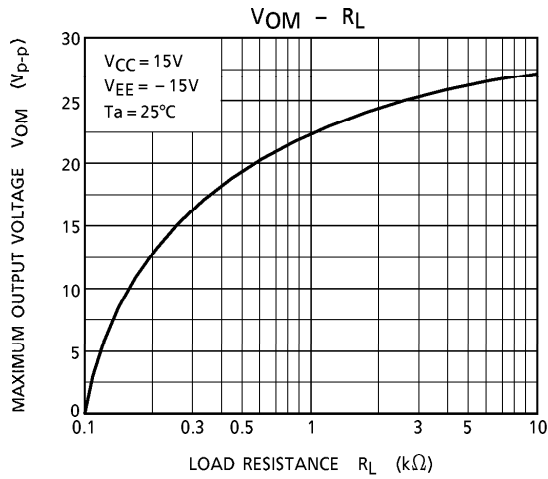
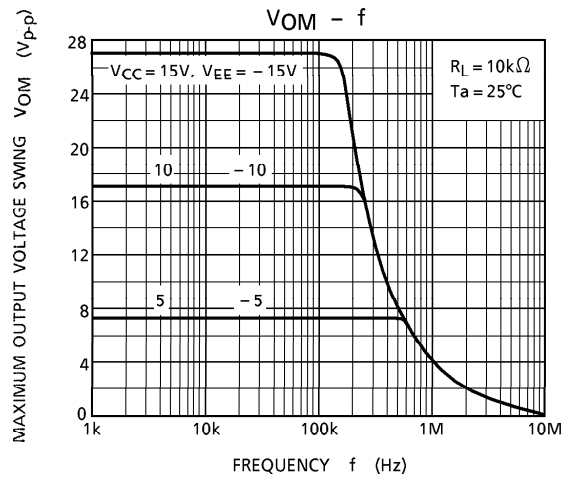
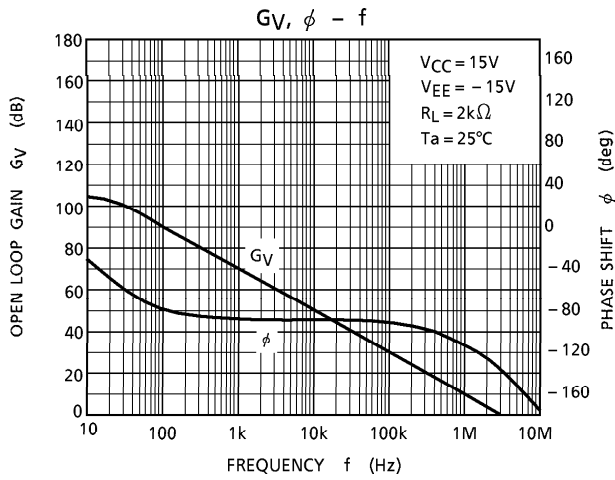
ELECTRICAL CHARACTERISTICS ($V_{CC} = 15V$, $V_{EE} = -15V$, $T_a = 25^\circ C$)

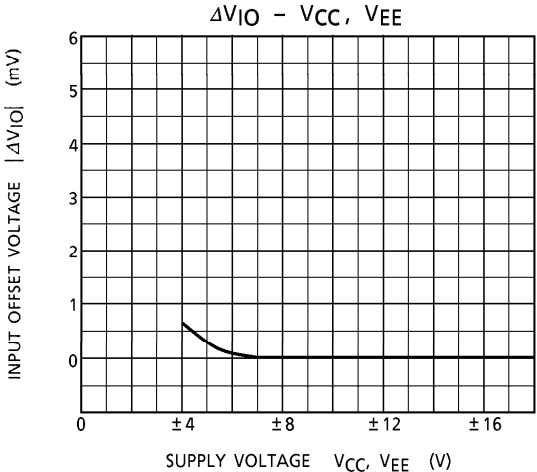
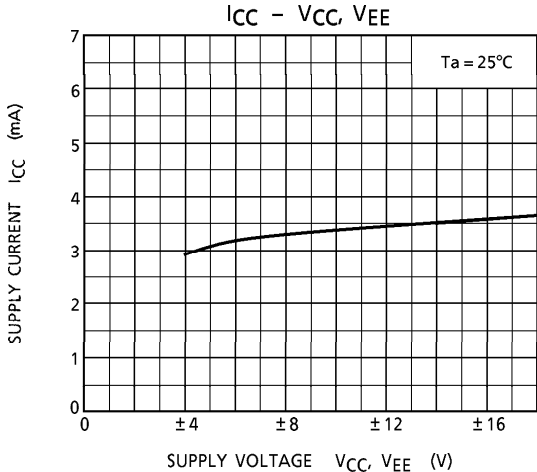
| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--|---------------------|---------------|--|----------|-----------|------|--------------------|
| Input Offset Voltage | V_{IO} | — | $R_g \leq 10k\Omega$ | — | 3 | 10 | mV |
| TC Of Input Offset Voltage | TCV_{IO} | — | — | — | 10 | — | $\mu V / ^\circ C$ |
| Input Offset Current | I_{IO} | — | — | — | 5 | 50 | pA |
| Input Bias Current | I_I | — | — | — | 30 | 200 | pA |
| Common Mode Input Voltage | CMV_{IN} | — | — | ± 11 | ± 12 | — | V |
| Maximum Output Voltage | V_{OM} | — | $R_L = 10k\Omega$ | 24 | — | — | V_{p-p} |
| | V_{OMR} | — | $R_L = 2k\Omega$ | 20 | 24 | — | |
| Voltage Gain (Open Loop) | G_V | — | $V_{OUT} = \pm 10V$, $R_L = 2k\Omega$ | 25 | 200 | — | V / mV |
| Unity Gain Cross Frequency | f_T | — | Open Loop, $R_L = 10k\Omega$ | — | 3 | — | MHz |
| Input Resistance | R_{IN} | — | — | — | 10^{12} | — | Ω |
| Common Mode Input Signal Rejection Ratio | CMRR | — | $R_g \leq 10k\Omega$ | 70 | 76 | — | dB |
| Supply Voltage Rejection Ratio | SVRR | — | $R_g \leq 10k\Omega$ | 70 | 76 | — | dB |
| Supply Current | I_{CC} , I_{EE} | — | Non load | — | 2.8 | 5.0 | mA |
| Cross Talk | | — | — | — | -120 | — | dB |

OPERATING CHARACTERISTICS ($V_{CC} = 15V$, $V_{EE} = -15V$, $T_a = 25^\circ C$)

| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|--------------------------------|----------|---------------|---|-----------------------|------|------|------------------|------------------|
| Slew Rate | SR | — | $V_{IN} = 10V_{p-p}$, $R_L = 2k\Omega$ $C_L = 100pF$ | — | 13 | — | V / μs | |
| Equivalent Input Noise Voltage | V_{NI} | — | $R_S = 100\Omega$ | $f = 1kHz$ | — | 18 | — | nV / \sqrt{Hz} |
| | | | | $f = 10Hz \sim 10kHz$ | — | 4 | — | μV_{rms} |
| Equivalent Input Noise Current | I_{NI} | — | $R_S = 100\Omega$, $f = 1kHz$ | — | 0.01 | — | pA / \sqrt{Hz} | |
| Total Harmonic Distortion | THD | — | $V_{OUT} = 10V_{rms}$, $R_S \leq 1k\Omega$ $R_L \geq 2k\Omega$, $f = 1kHz$ | — | 0.01 | — | % | |

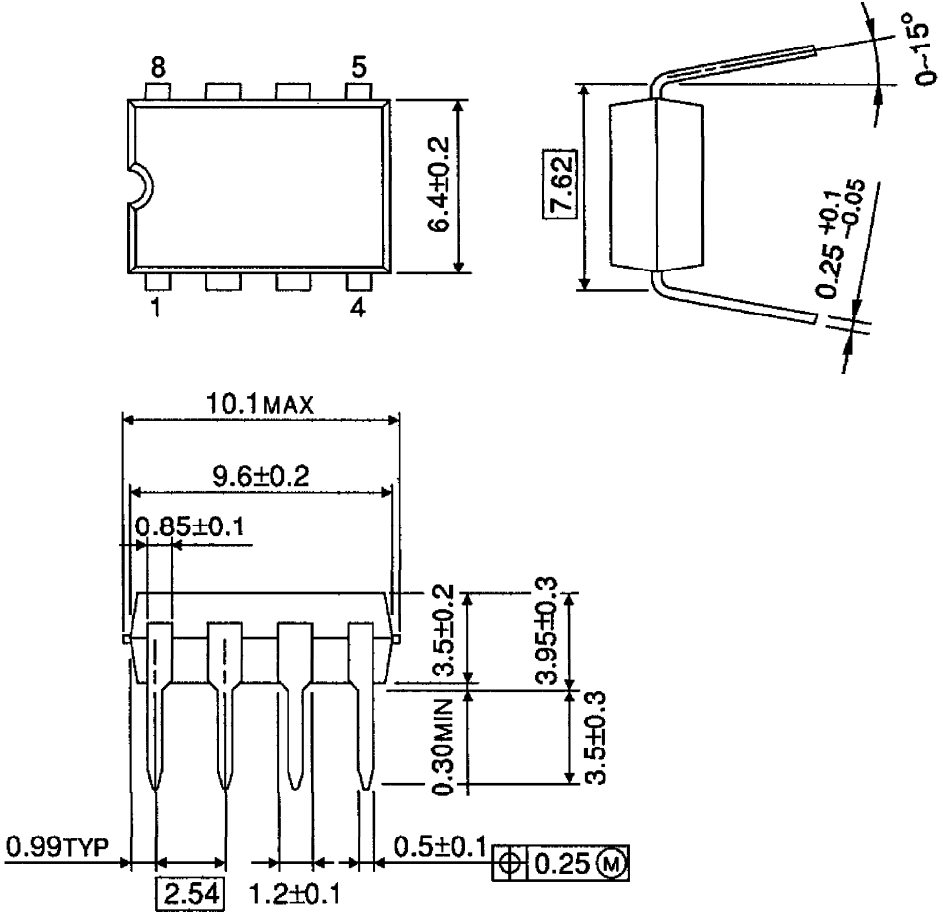
CHARACTERISTICS





OUTLINE DRAWING
DIP8-P-300-2.54A

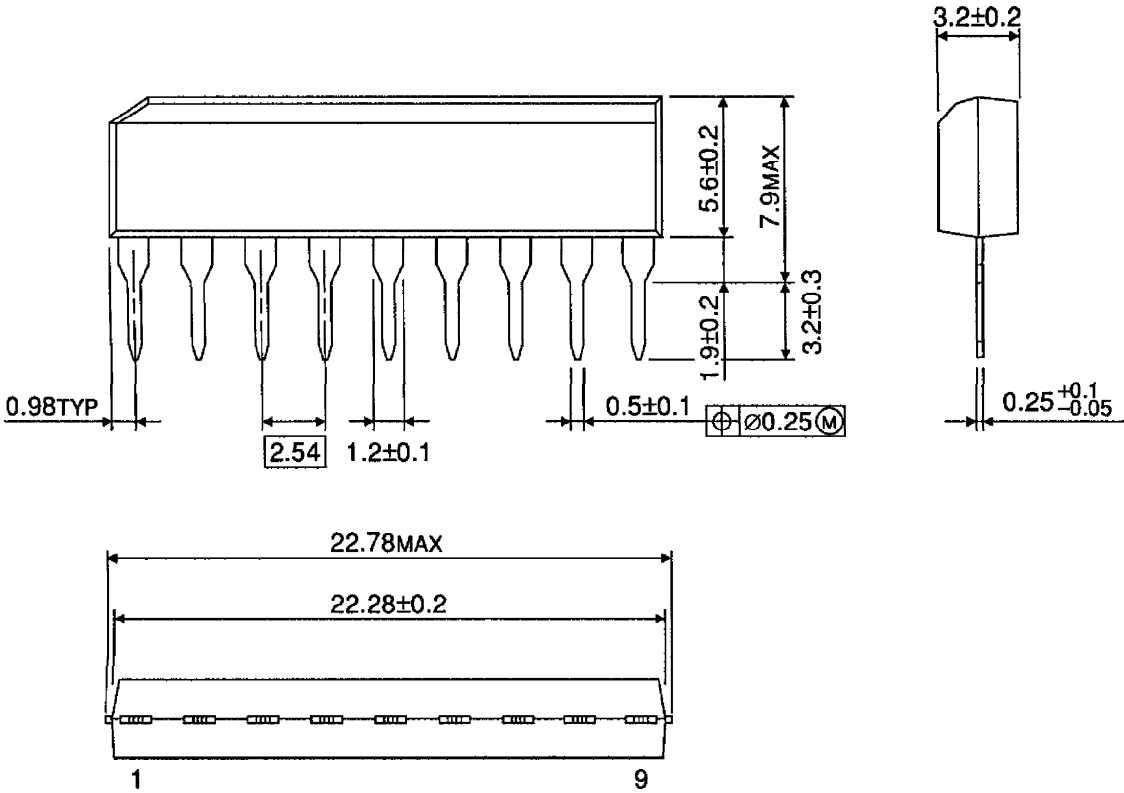
Unit : mm



Weight : 0.5g (Typ.)

OUTLINE DRAWING
SIP9-P-2.54A

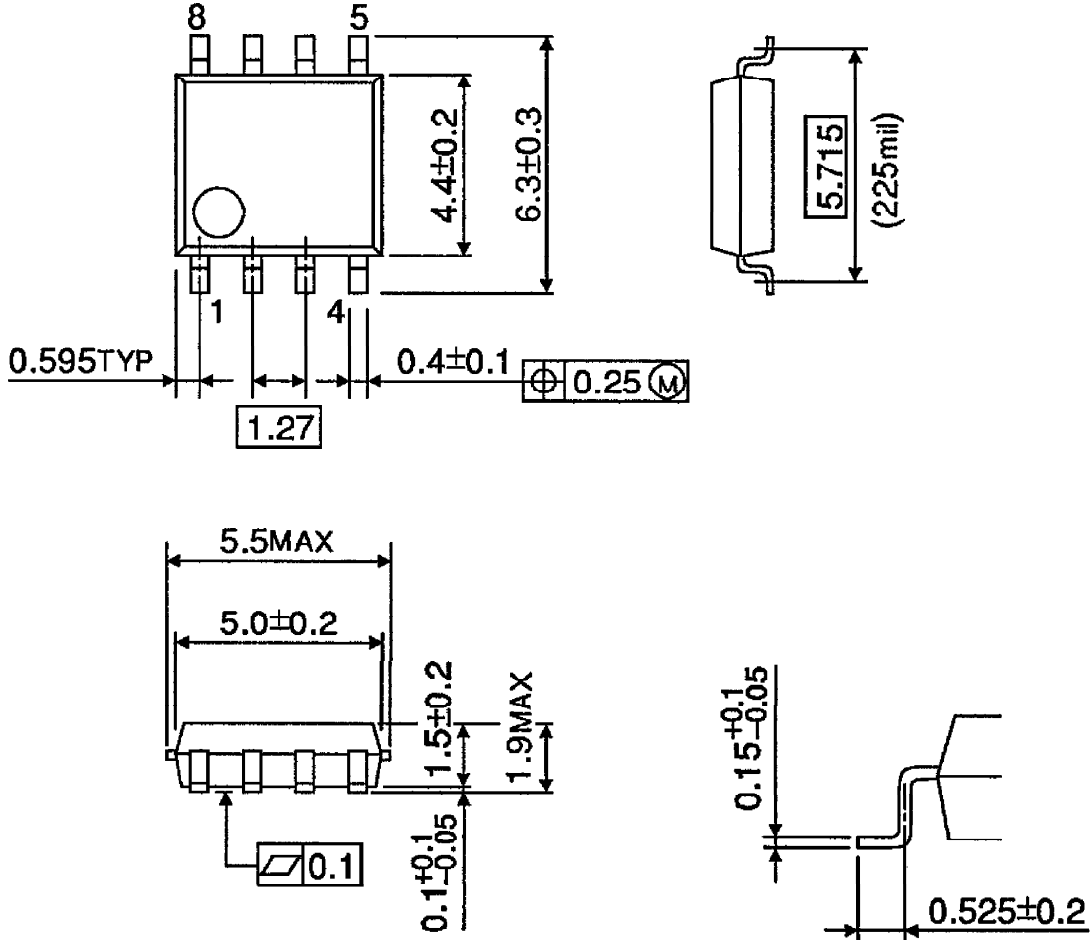
Unit : mm



Weight : 0.9g (Typ.)

OUTLINE DRAWING
SOP8-P-225-1.27

Unit : mm



Weight : 0.1g (Typ.)