

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA75072P, TA75072S, TA75072F

DUAL OPERTIONAL 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.

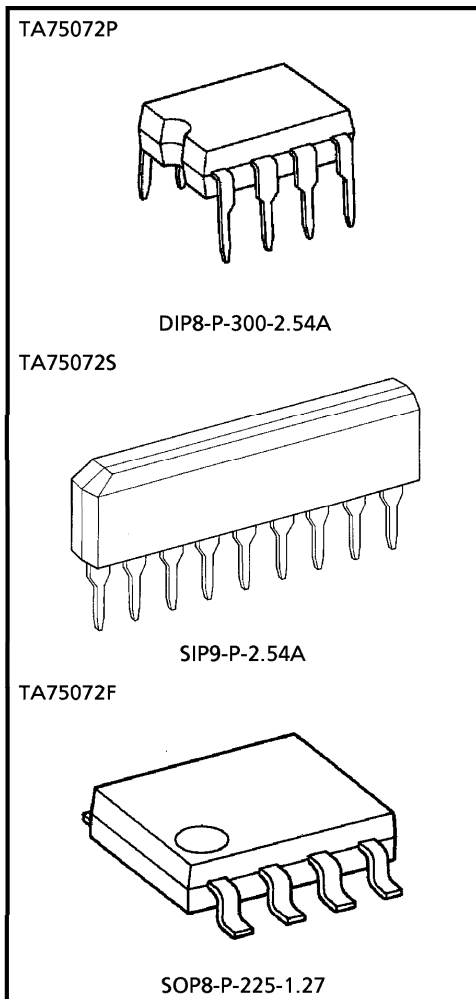
It is possible to exchange the position of 9 pin for 1 pin because of pin connection being symmetric.

The TA75072F is mini-flat package.

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

FEATURES

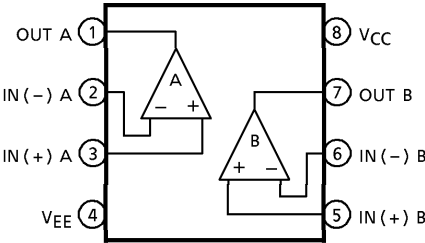
- Low Input Bias Current : 200pA MAX.
- Low Input Offset Current : 50pA MAX.
- High Slew Rate : $13V / \mu s$
- Low Noise : $18nV / \sqrt{Hz}$
- Wide Bandwidth : 3MHz
- Wide Supply Voltage Range : $\pm 4 \sim \pm 18V$
- Internal Frequency Compensation
- Output Short Circuit Protection



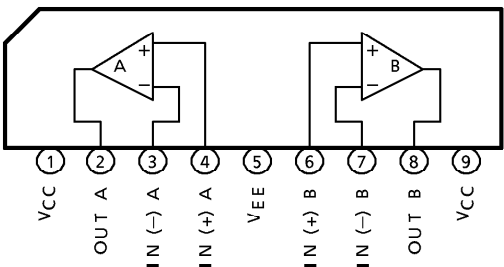
Weight
DIP8-P-300-2.54A : 0.5g (Typ.)
SIP9-P-2.54A : 0.9g (Typ.)
SOP8-P-225-1.27 : 0.1g (Typ.)

PIN CONNECTION (TOP VIEW)

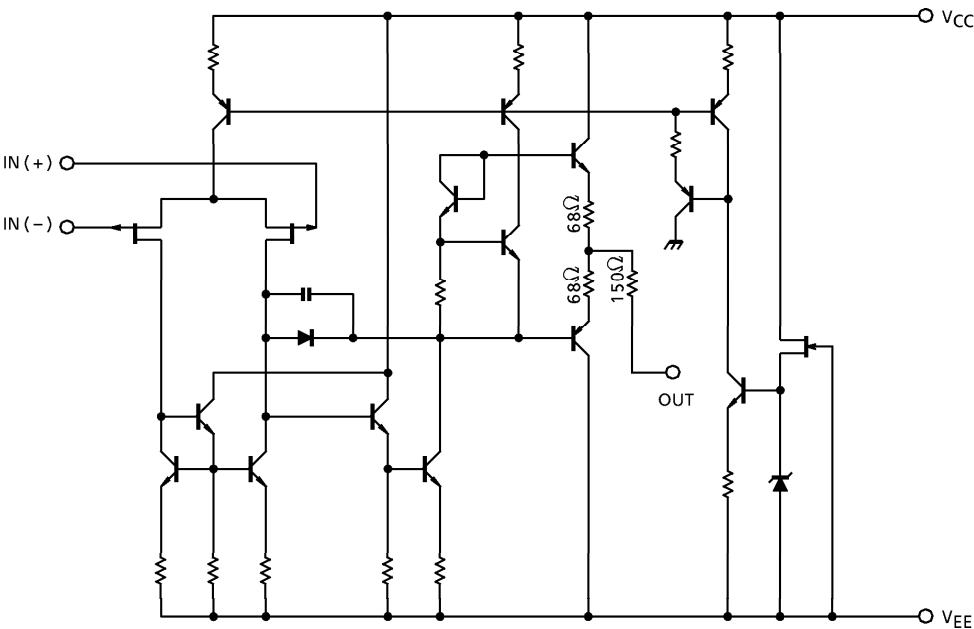
TA75072P, TA75072F



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

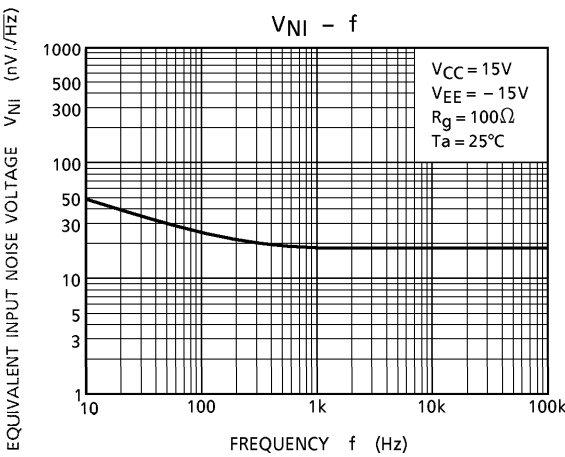
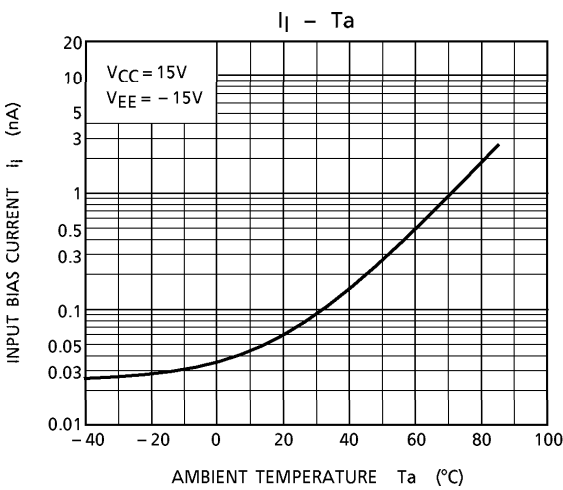
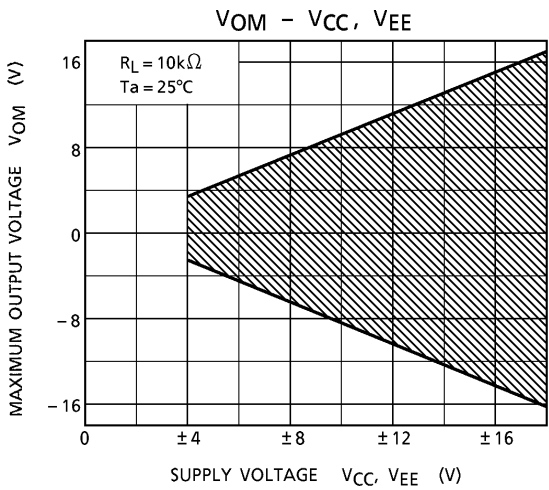
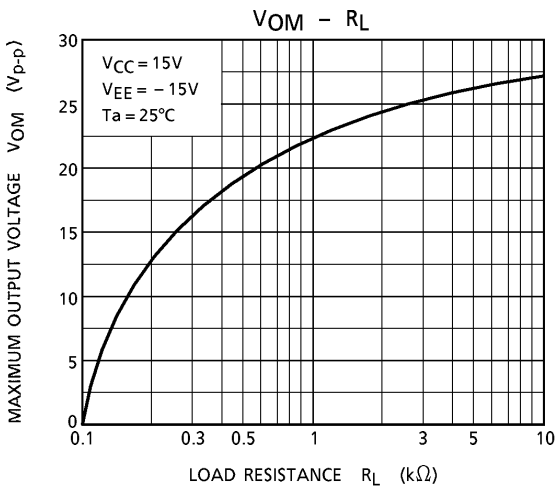
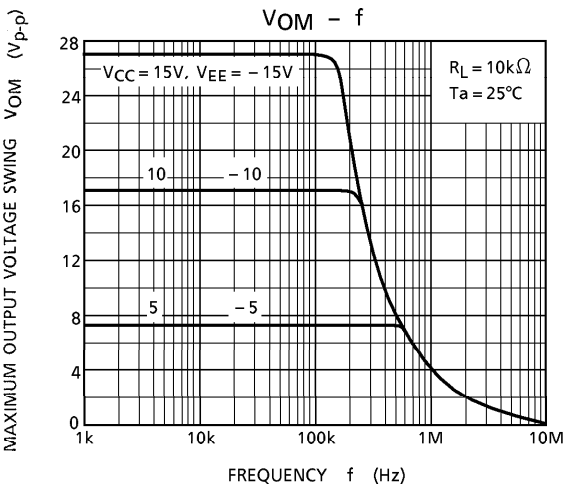
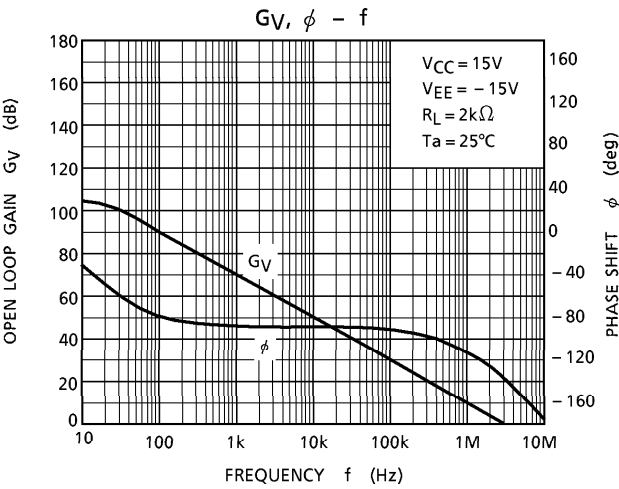
ELECTRICAL CHARACTERISTICS ($V_{CC} = 15V$, $V_{EE} = -15V$, $T_a = 25^\circ C$)

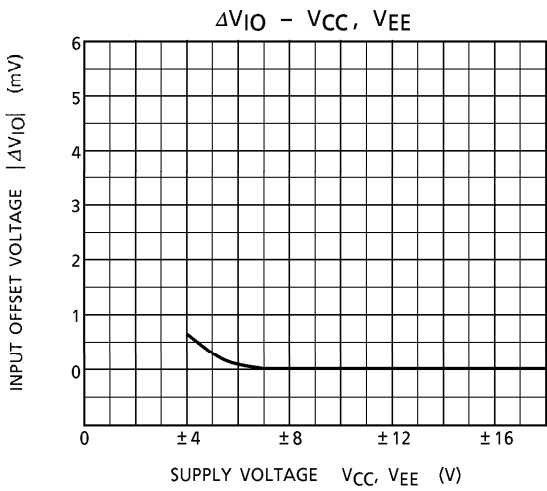
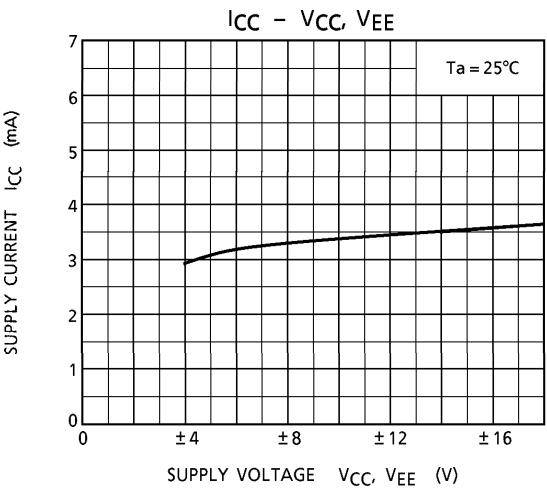
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	—	$R_g \leq 10k\Omega$	—	3	10	mV
TC Of Input Offset Voltage	TCV_{IO}	—	—	—	10	—	$\mu V / ^\circ C$
Input Offset Current	I_{IO}	—	—	—	5	50	pA
Input Bias Current	I_I	—	—	—	30	200	pA
Common Mode Input Voltage	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	—	$V / \mu s$
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	—	%

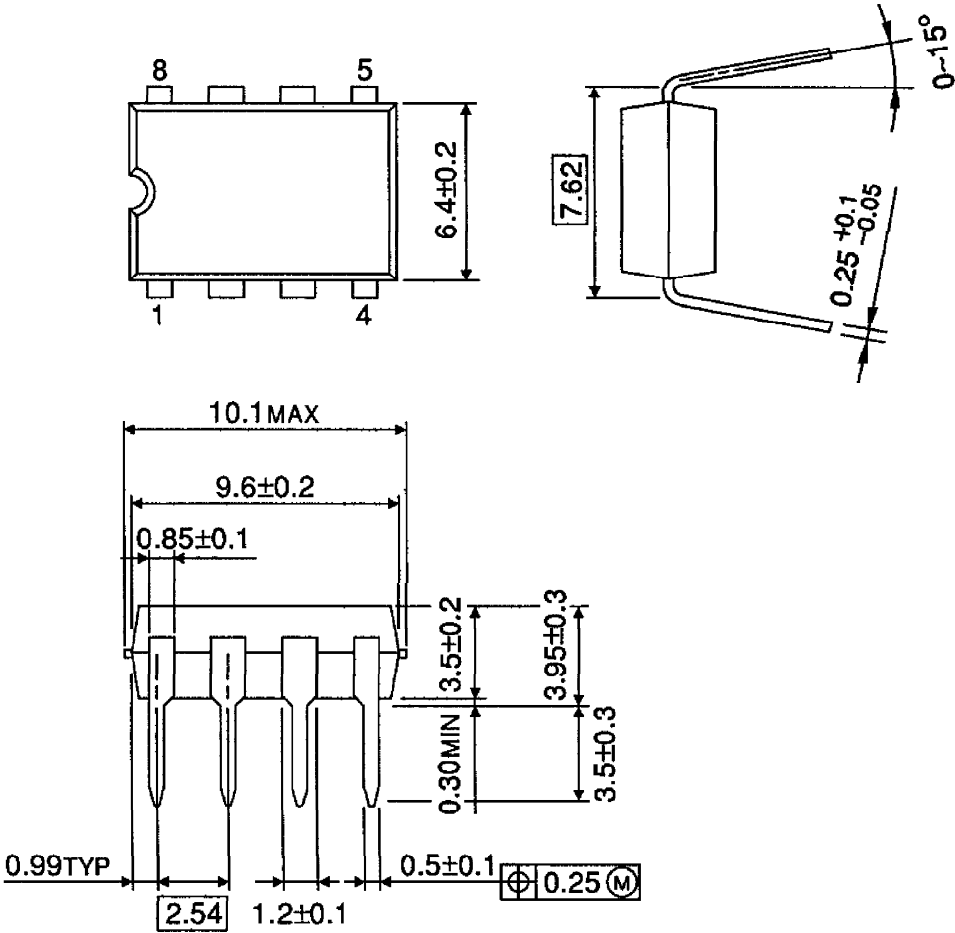
CHARACTERISTICS





PACKAGE DIMENSIONS
DIP8-P-300-2.54A

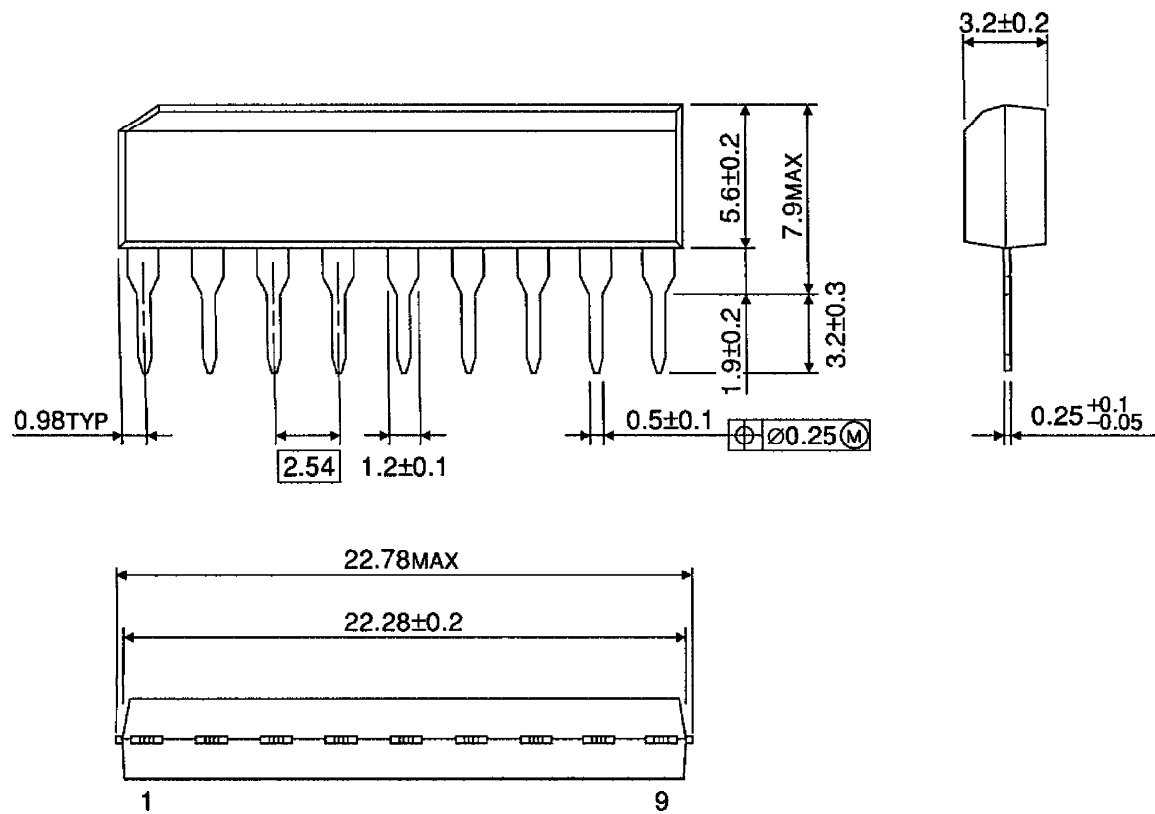
Unit : mm



Weight : 0.5g (Typ.)

PACKAGE DIMENSIONS
SIP9-P-2.54A

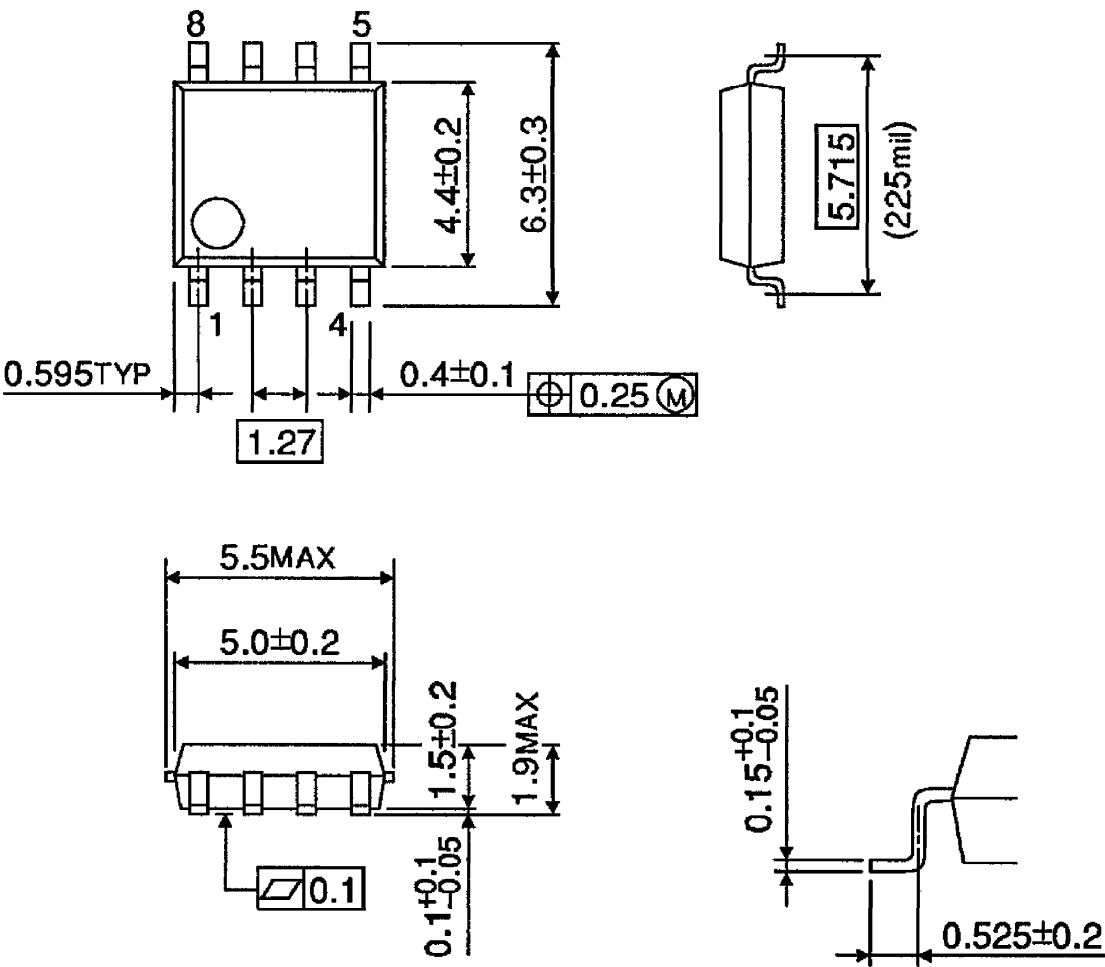
Unit : mm



Weight : 0.9g (Typ.)

PACKAGE DIMENSIONS
SOP8-P-225-1.27

Unit : mm



Weight : 0.1g (Typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.