

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.

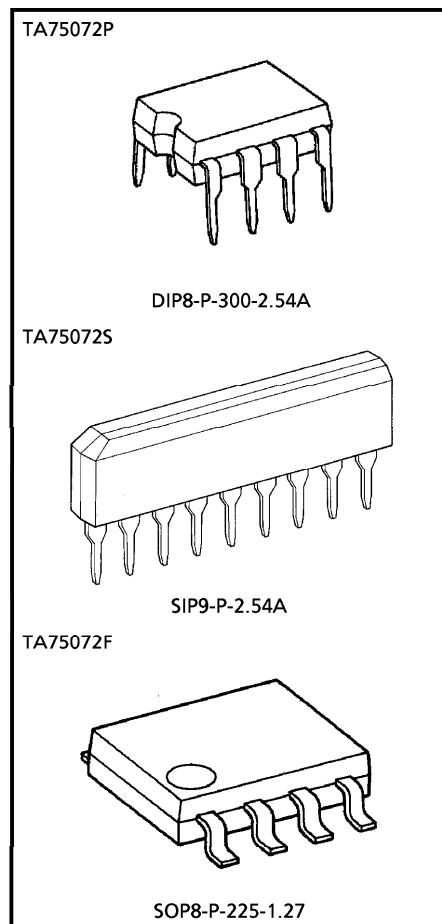
It is possible to exchange the position of 9 pin for 1 pin because of pin connection being symmetric.

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 /  $\mu$ s
- Low Noise : 18nV /  $\sqrt{\text{Hz}}$
- Wide Bandwidth : 3MHz
- Wide Supply Voltage Range :  $\pm 4 \sim \pm 18\text{V}$
- Internal Frequency Compensation
- Output Short Circuit Protection

**Weight**

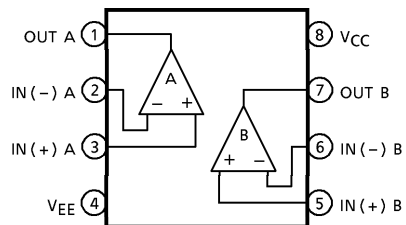
- DIP8-P-300-2.54A : 0.5g (Typ.)
- SIP9-P-2.54A : 0.9g (Typ.)
- SOP8-P-225-1.27 : 0.1g (Typ.)

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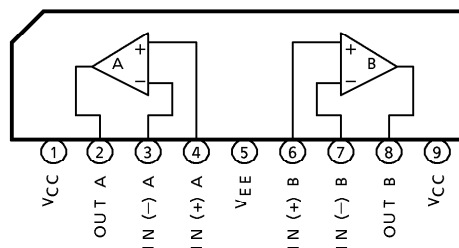
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## PIN CONNECTION (TOP VIEW)

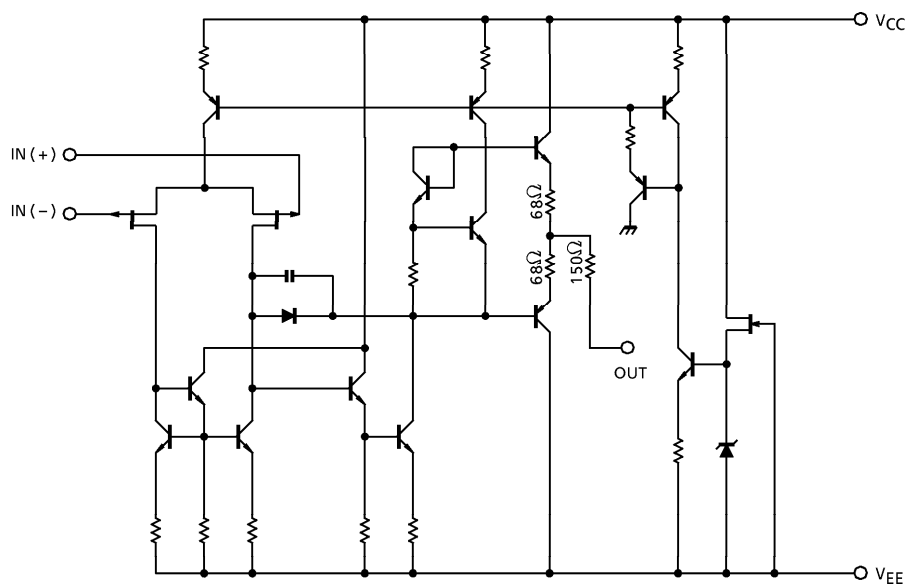
TA75072P, TA75072F



TA75072S



## EQUIVALENT CIRCUIT



## MAXIMUM RATINGS (Ta = 25°C)

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

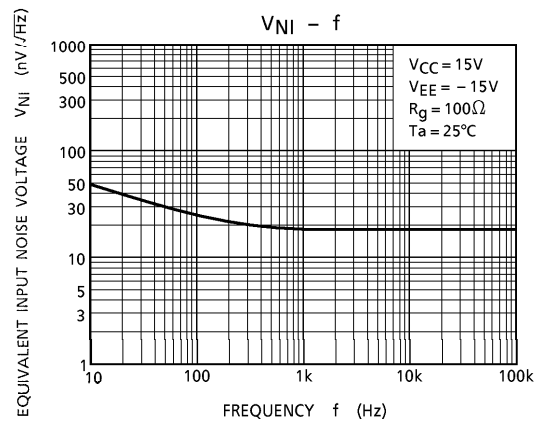
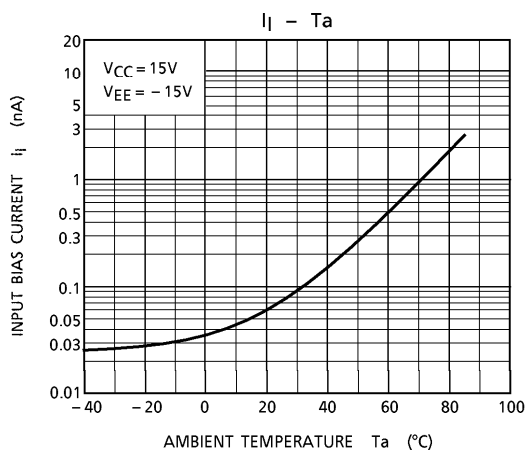
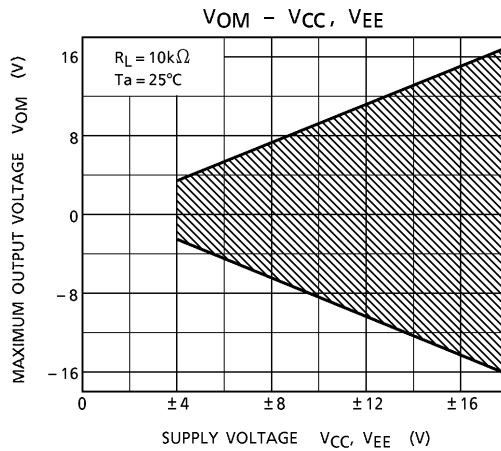
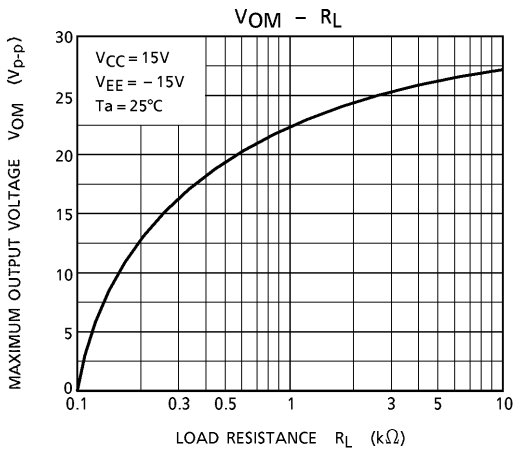
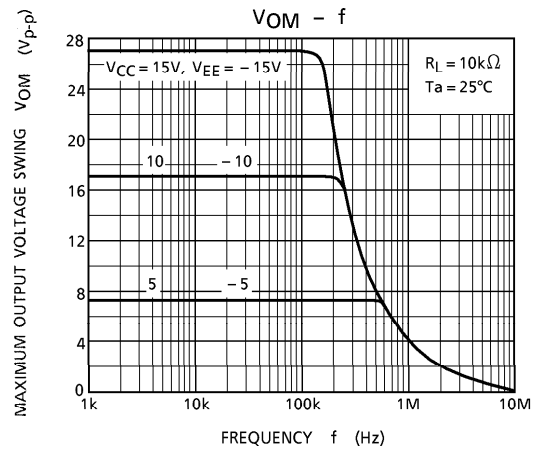
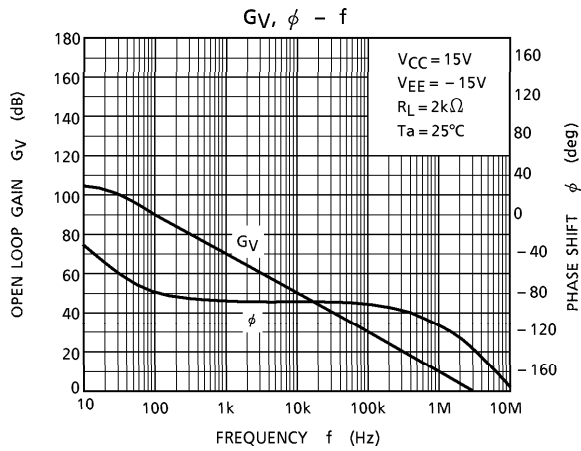
ELECTRICAL CHARACTERISTICS ( $V_{CC} = 15V$ ,  $V_{EE} = -15V$ ,  $T_a = 25^\circ C$ )

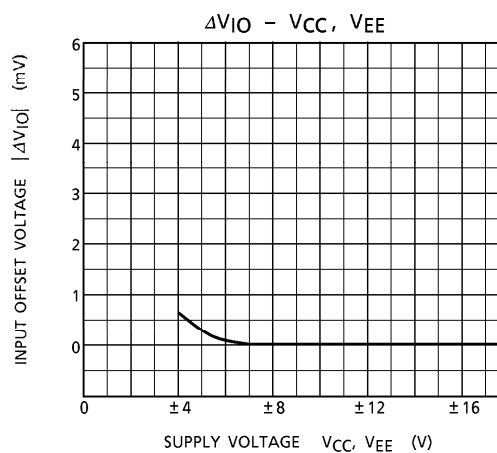
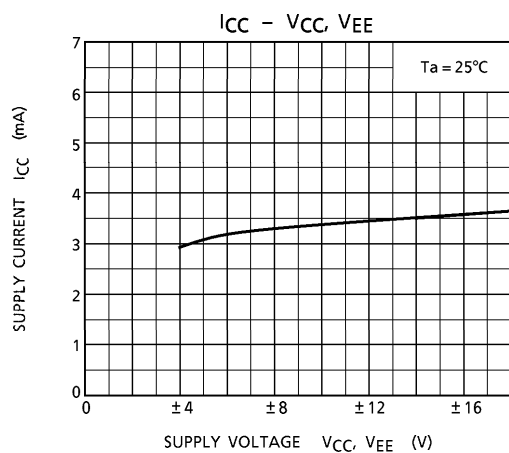
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	—	$R_g \leq 10k\Omega$	—	3	10	mV
TC Of Input Offset Voltage	$TCV_{IO}$	—	—	—	10	—	$\mu V / ^\circ C$
Input Offset Current	$I_{IO}$	—	—	—	5	50	pA
Input Bias Current	$I_I$	—	—	—	30	200	pA
Common Mode Input Voltage	$CMV_{IN}$	—	—	$\pm 11$	$\pm 12$	—	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	$R_{IN}$	—	—	—	$10^{12}$	—	$\Omega$
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 CIRCUIT	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	—	$\mu V_{rms}$
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	—	%	

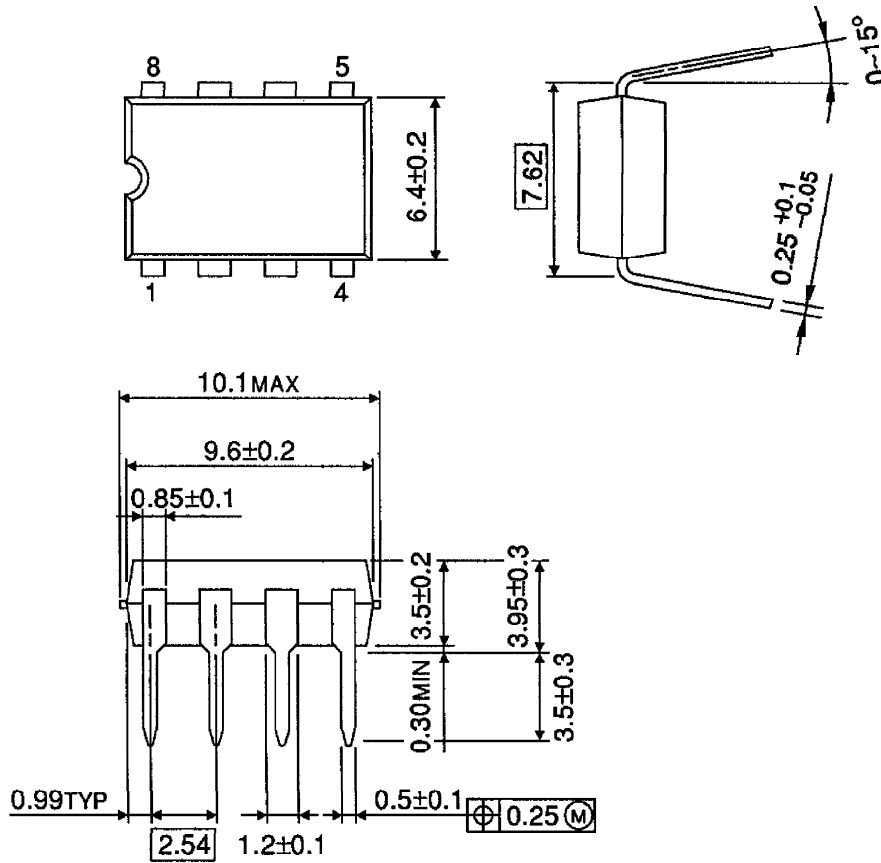
CHARACTERISTICS





OUTLINE DRAWING  
DIP8-P-300-2.54A

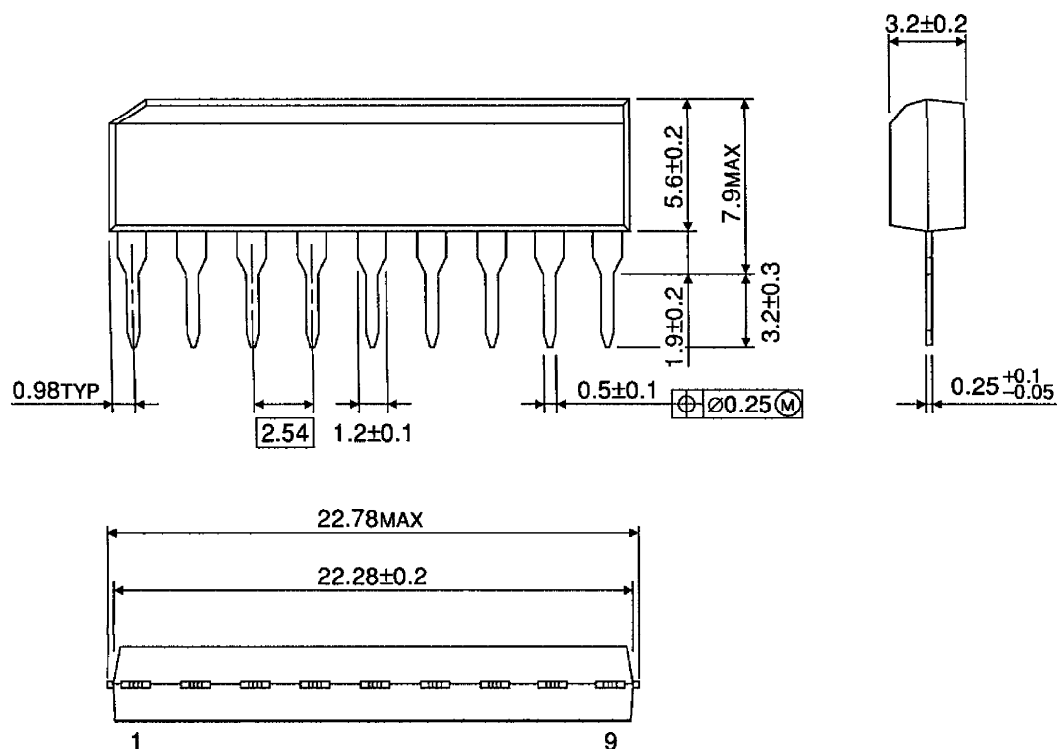
Unit : mm



Weight : 0.5g (Typ.)

**OUTLINE DRAWING**  
SIP9-P-2.54A

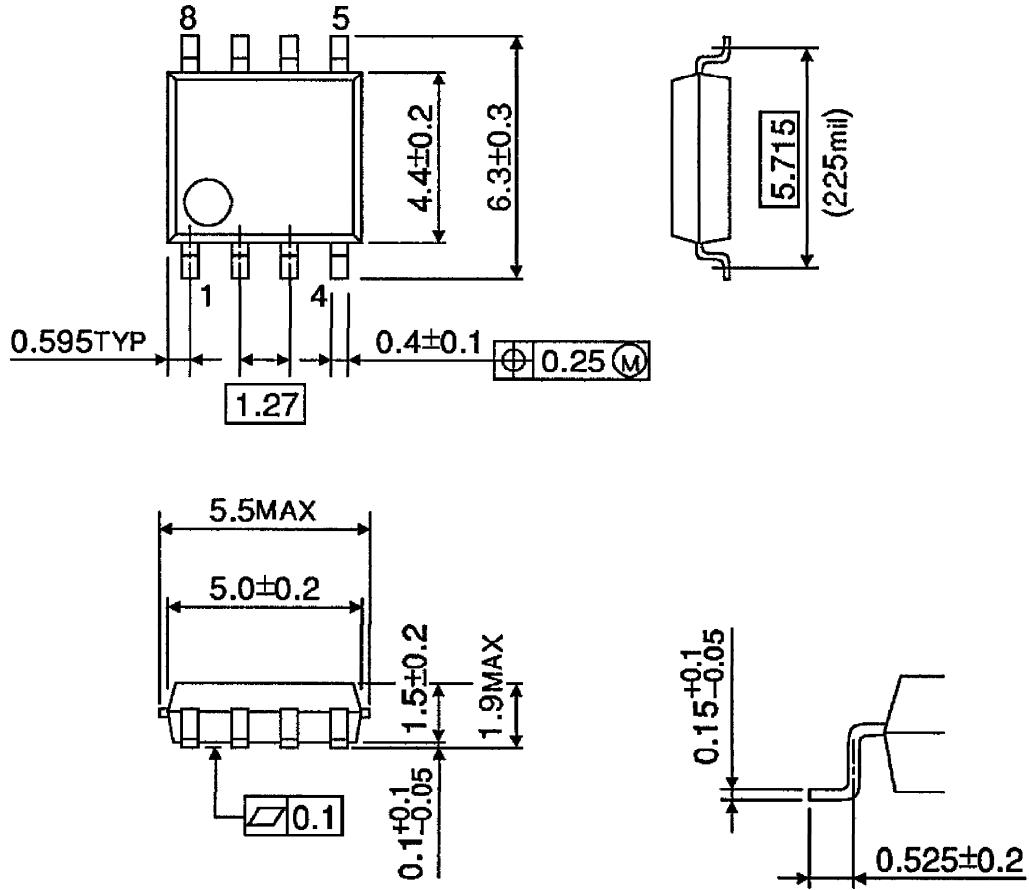
Unit : mm



Weight : 0.9g (Typ.)

OUTLINE DRAWING  
SOP8-P-225-1.27

Unit : mm



Weight : 0.1g (Typ.)