

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA75060P

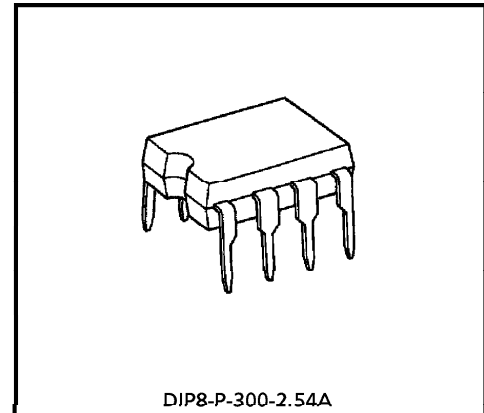
## SINGLE OPERATIONAL AMPLIFIER

The TA75060P is a J-FET input low-power operational amplifier with low input bias and offset current, fast slew rate. The TA75060P is pin compatible with the TA7506P.

The TA75060P is an excellent choice for active filters, integrators, buffers and sample-and-hold circuits.

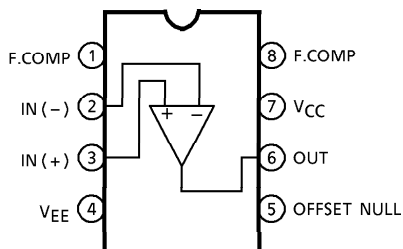
### FEATURES

- Low Supply Current : 250 $\mu$ A MAX.
- Low Input Bias Current : 400pA MAX.
- Low Input Offset Current : 200pA MAX.
- High Slew Rate : 3.5V /  $\mu$ s ( $A_V = 1$ )
- Wide Supply Voltage Range :  $\pm 2 \sim \pm 18$ V
- Output Short Circuit Protection
- Offset Null Capability



Weight : 0.5g (Typ.)

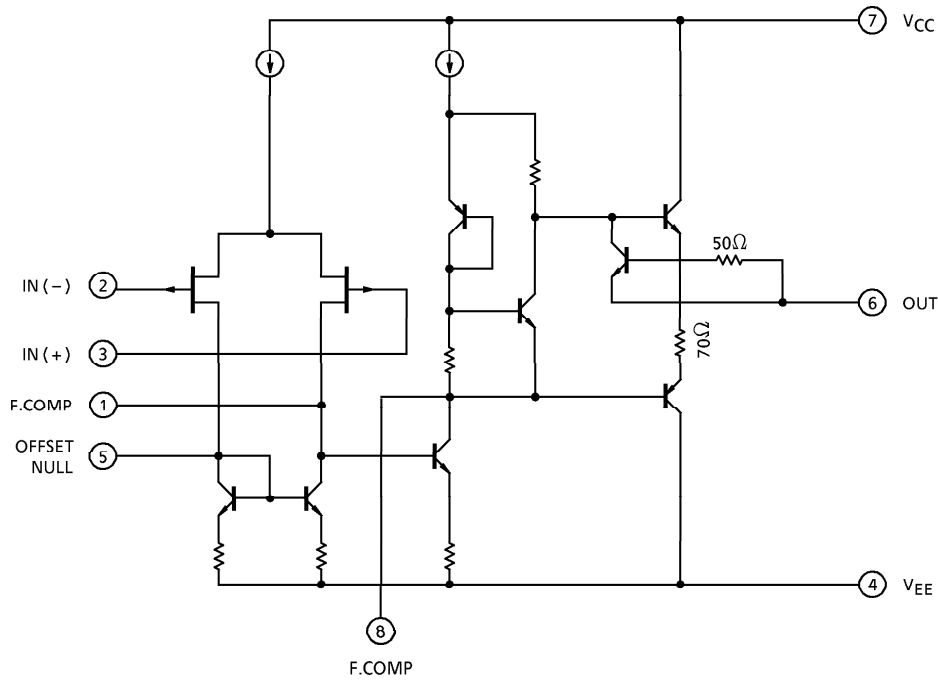
### PIN CONNECTION (TOP VIEW)



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EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

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

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

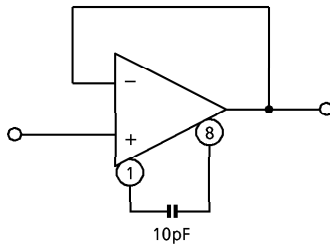
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	—	$R_g \leq 10k\Omega$	—	3	15	mV
TC Of Input Offset Voltage	$TCV_{IO}$	—	—	—	10	—	$\mu V / ^\circ C$
Input Offset Current	$I_{IO}$	—	—	—	5	200	pA
Input Bias Current	$I_I$	—	—	—	30	400	pA
Common Mode Input Voltage	$CMV_{IN}$	—	—	$\pm 11.5$	$\pm 12$	—	V
Maximum Output Voltage	$V_{OM}$	—	$R_L = 10k\Omega$	20	27	—	$V_{p-p}$
Voltage Gain (Open Loop)	$G_V$	—	$V_{OUT} = \pm 10V$ , $R_L = 10k\Omega$	3	6	—	V / mV
Unity Gain Cross Frequency	$f_T$	—	Open Loop, $R_L = 10k\Omega$	—	1	—	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	—	200	250	$\mu A$

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

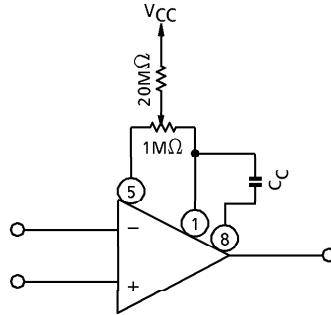
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	—	$V_{IN} = 10V_{p-p}$ , $R_L = 10k\Omega$ , $C_L = 100pF$ , $A_V = 1$	—	3.5	—	V / $\mu s$
Equivalent Input Noise Voltage	$V_{NI}$	—	$R_S = 100\Omega$ , $f = 1kHz$	—	42	—	$nV \sqrt{Hz}$

**TYPICAL APPLICATION**

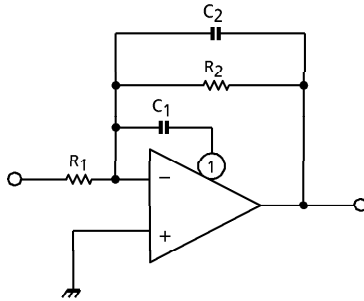
(1) UNITY-GAIN BUFFER



(2) OFFSET NULL CIRCUIT



(3) FEED FORWARD COMPENSATION

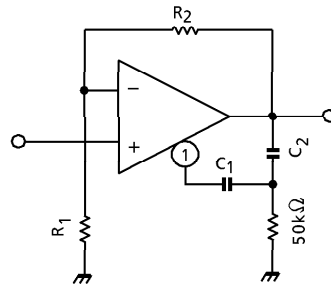


$$C_1 = 500\text{pF}$$

$$C_2 = \frac{1}{2\pi f_o R_2}$$

$$f_o \approx 1\text{MHz}$$

(4) TOW POLE COMPENSATION



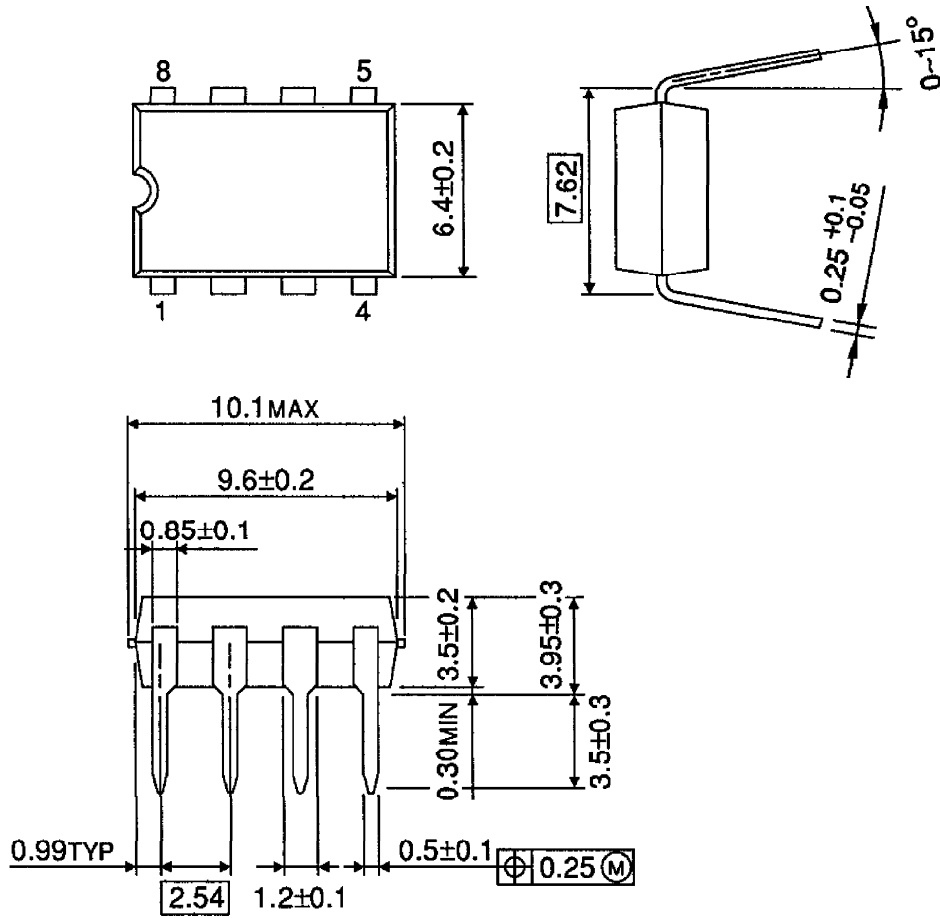
$$C_1 > \frac{R_1}{R_1 + R_2} C_S$$

$$C_S = 10\text{pF}$$

$$C_2 = 10C_1$$

OUTLINE DRAWING  
DIP8-P-300-2.54A

Unit : mm



Weight : 0.5g (Typ.)