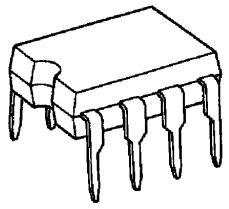
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA75071P, TA75071S

SINGLE OPERTIONAL AMPLIFIER

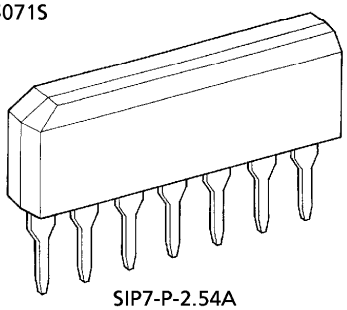
The TA75071P and TA75071S are J-FET input low-noise operational amplifiers with low input bias and offset current, fast slew rate and wide bandwidth.
The TA75071P is pin compatible with the TA7504P and 741.
The TA75071S is single-in-line package.
The TA75071P series are excellent choice for active filters, integrators, buffers and sample-and-hold circuits.

TA75071P



DIP8-P-300-2.54A

TA75071S



SIP7-P-2.54A

Weight
DIP8-P-300-2.54A : 0.5g (Typ.)
SIP7-P-2.54A : 0.7g (Typ.)

FEATURES

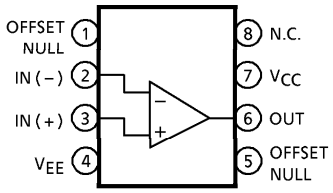
- Low Input Bias Current : 200pA MAX.
- Low Input Offset Current : 50pA MAX.
- High Slew Rate : 13V / μs
- Low Noise : 18nV / $\sqrt{Hz}$
- Wide Bandwidth : 3MHz
- Wide Supply Voltage Range : ±4~±18V
- Internal Frequency Compensation
- Output Short Circuit Protection
- Offset Null Capability

961001EBA1

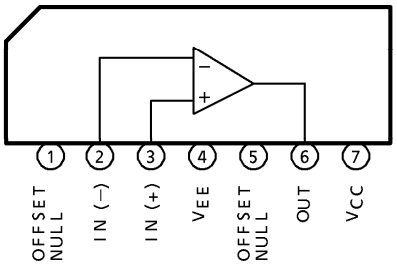
- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product 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 products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control 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.

PIN CONNECTION (TOP VIEW)

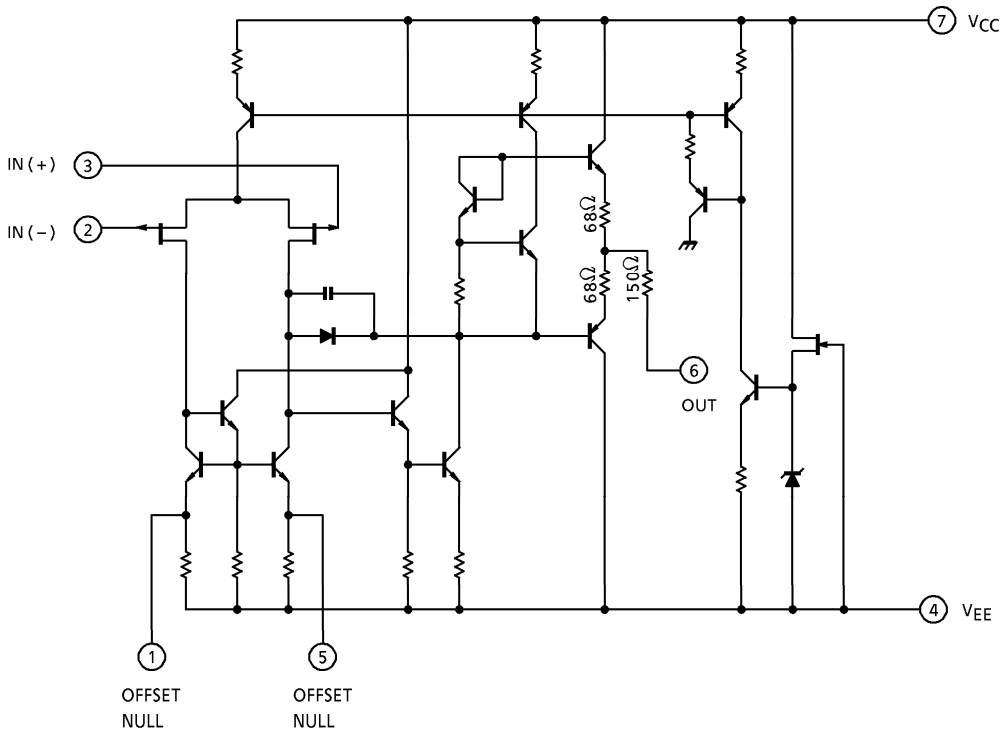
TA75071P



TA75071S



EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	+ 18	V
	V_{EE}	− 18	
Supply Voltage Surge)	DV_{IN}	± 30	V
Input Voltage	V_{IN}	± 15	V
Power Dissipation	P_D	500	mW
Operating Temperature	T_{opr}	− 40~85	°C
Storage Temperature	T_{stg}	− 50~125	°C

ELECTRICAL CHARACTERISTICS (V_{CC} = 15V, V_{EE} = − 15V, Ta = 25°C)

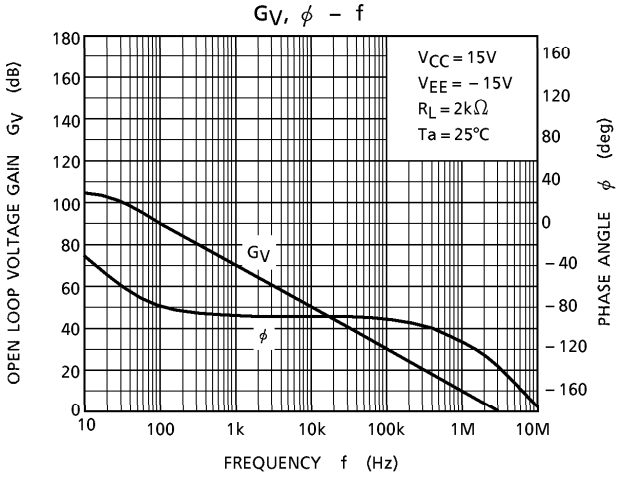
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	—	$R_g \leqq 10k\Omega$	—	3	10	mV
TC Of Input Offset Voltage	TCV_{IO}	—	—	—	10	—	μV / °C
Input Offset Current	I_{IO}	—	—	—	10	50	pA
Input Bias Current	I_I	—	—	—	30	200	pA
Common Mode Input Voltage	CMV_{IN}	—	—	± 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} = ± 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	—	$R_g \leqq 10k\Omega$	70	76	—	dB
Supply Voltage Rejection Ratio	SVRR	—	$R_g \leqq 10k\Omega$	70	76	—	dB
Supply Current	I_{CC}, I_{EE}	—	Non Load	—	1.4	2.5	mA

OPERATING CHARACTERISTICS (V_{CC} = 15V, V_{EE} = − 15V, Ta = 25°C)

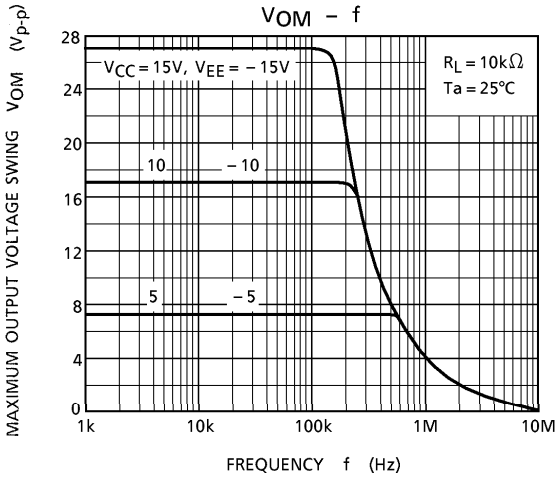
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	—	$V_{IN} = 10V_{p-p}$, $R_L = 2k\Omega$, $C_L = 100pF$		—	13	—	V / μs
Equivalent Input Noise Voltage	V_{NI}	—	$R_S = 100\Omega$	f = 1kHz	—	18	—	nV / $\sqrt{Hz}$
				f = 10Hz~10kHz	—	4	—	μV_{rms}
Equivalent Input Noise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

CHARACTERISTICS

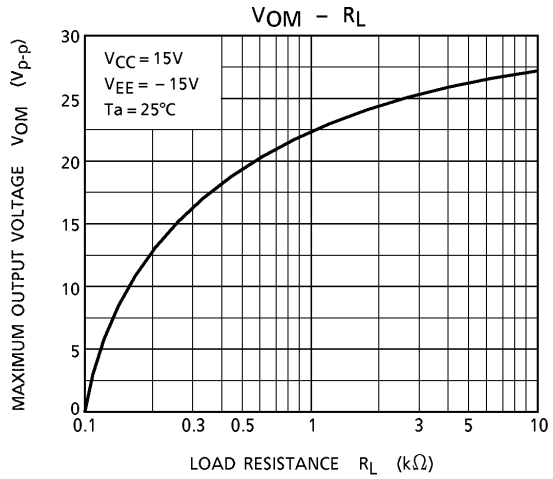
G_V, ϕ – f



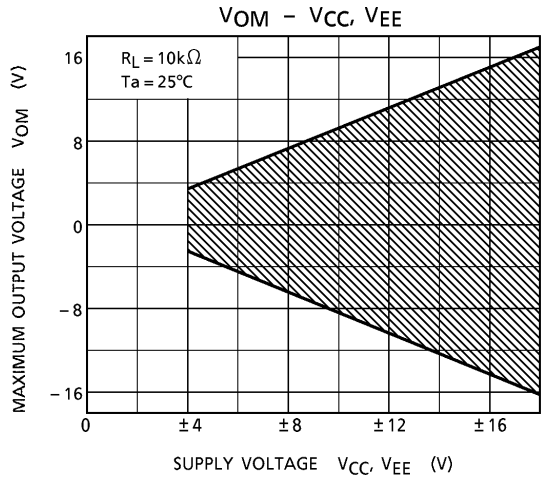
V_{OM} – f



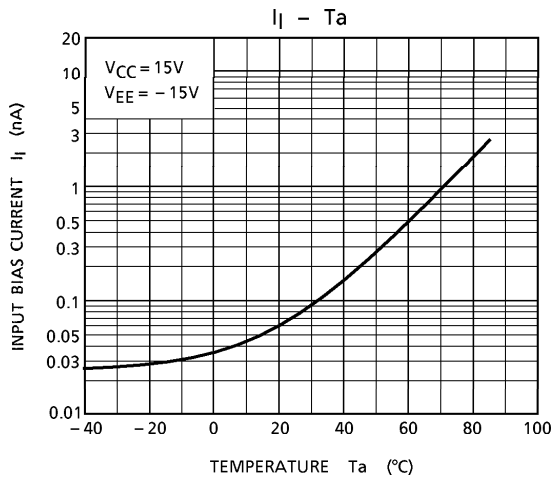
V_{OM} – R_L



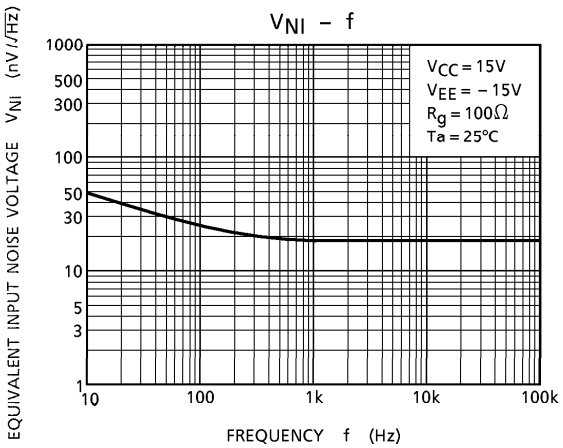
V_{OM} – V_{CC}, V_{EE}

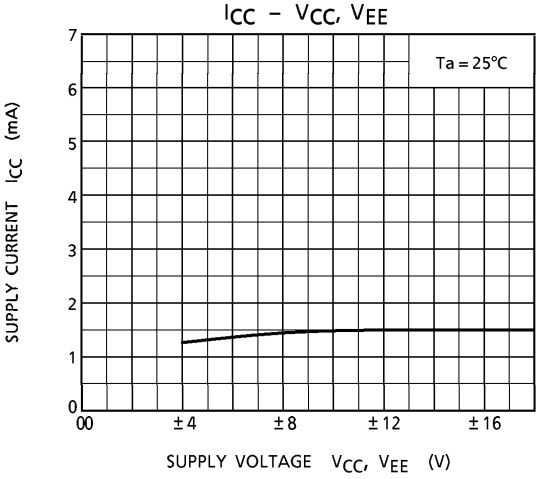


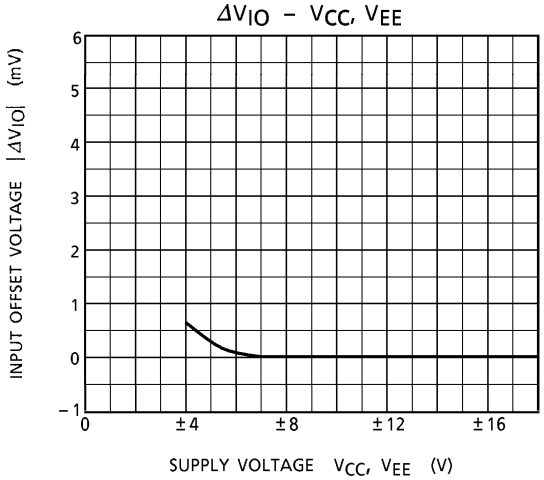
I_I – Ta



V_{NI} – f



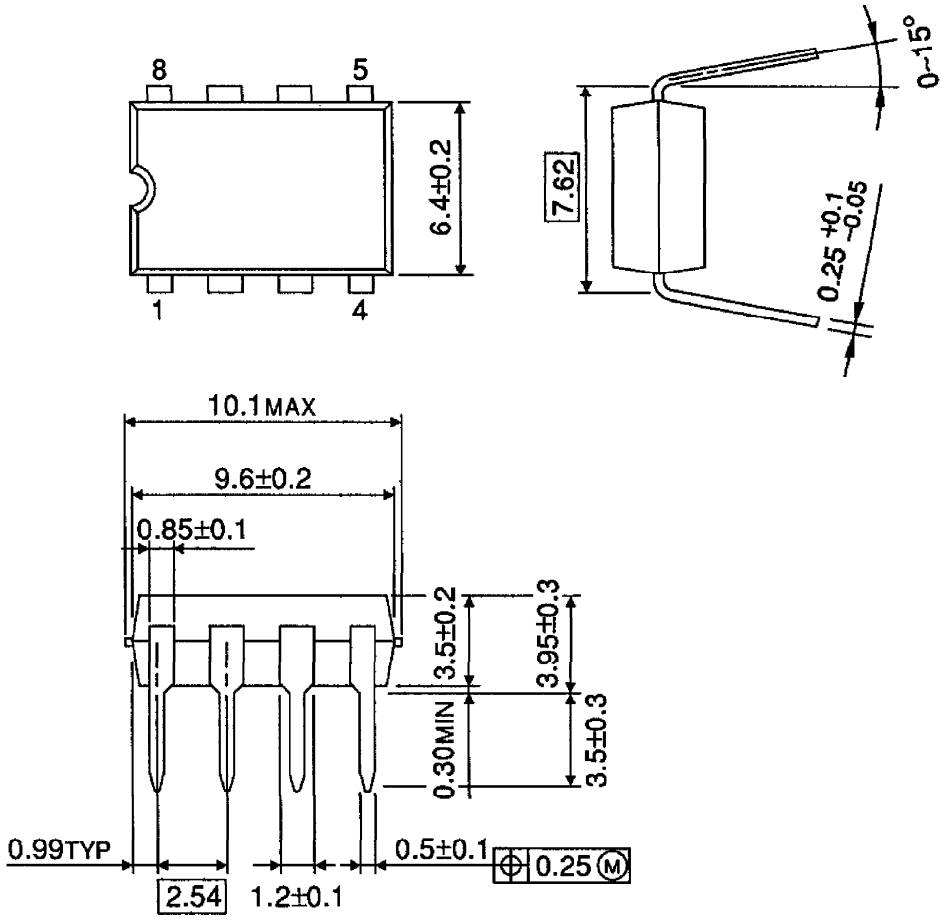

I_{CC} – V_{CC}, V_{EE}
Ta = 25°C
SUPPLY CURRENT I_{CC} (mA)
0
1
2
3
4
5
6
7
0
±4
±8
±12
±16
SUPPLY VOLTAGE V_{CC}, V_{EE} (V)


ΔV_{IO} – V_{CC}, V_{EE}
INPUT OFFSET VOLTAGE $|\Delta V_{IO}|$ (mV)
–1
0
1
2
3
4
5
6
0
±4
±8
±12
±16
SUPPLY VOLTAGE V_{CC}, V_{EE} (V)

OUTLINE DRAWING

DIP8-P-300-2.54A

Unit : mm

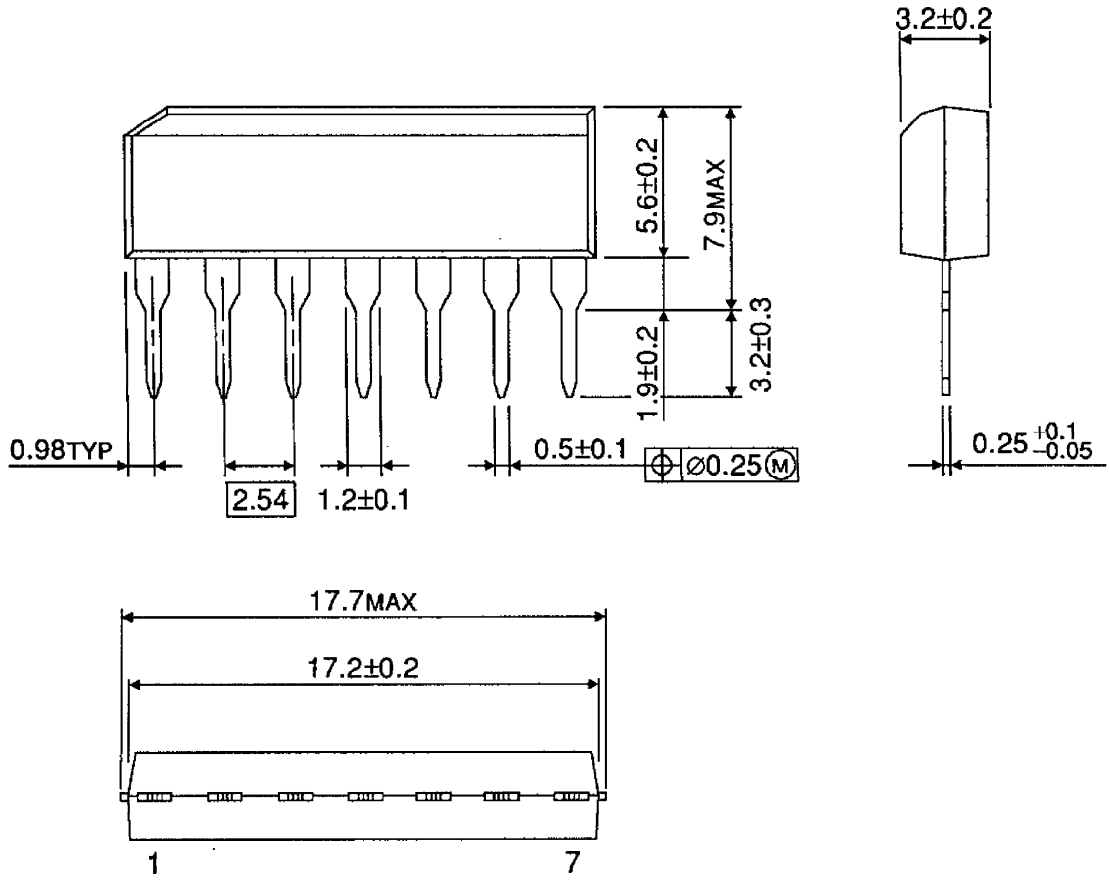


Weight : 0.5g (Typ.)

OUTLINE DRAWING

SIP7-P-2.54A

Unit : mm



Weight : 0.7g (Typ.)