

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA75074P, TA75074F

QUAD OPERATIONAL AMPLIFIER

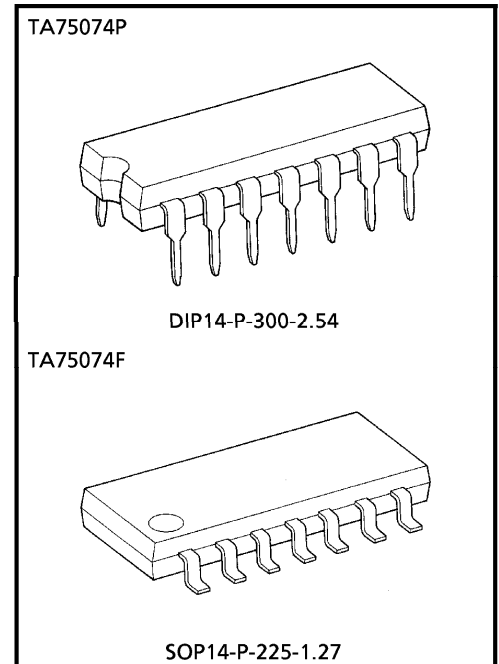
The TA75074P and TA75074F are J-FET input low-noise operational amplifiers with low input bias and offset current, fast slew rate and wide bandwidth.

The TA75074P is pin compatible with the TA75902P and 324. The TA75074F is mini-flat package.

The TA75074P series are excellent choice for active filters, integrators, buffers and sample-and-hold circuits.

FEATURES

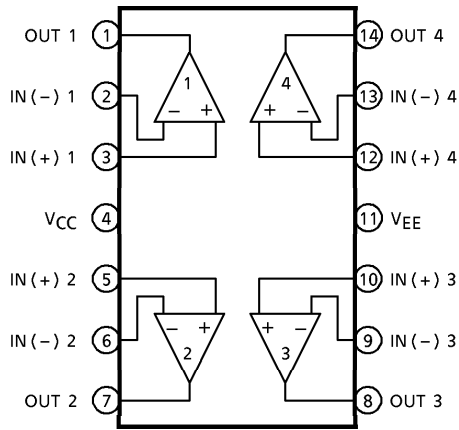
- Low Input Bias Current : 200pA MAX.
- Low Input Offset Current : 50pA MAX.
- High Slew Rate : 13V / μ s
- Low Noise : 18nV / $\sqrt{\text{Hz}}$
- Wide Bandwidth : 3MHz
- Wide Supply Voltage Range : $\pm 4 \sim \pm 18$ V
- Internal Frequency Compensation
- Output Short Circuit Protection



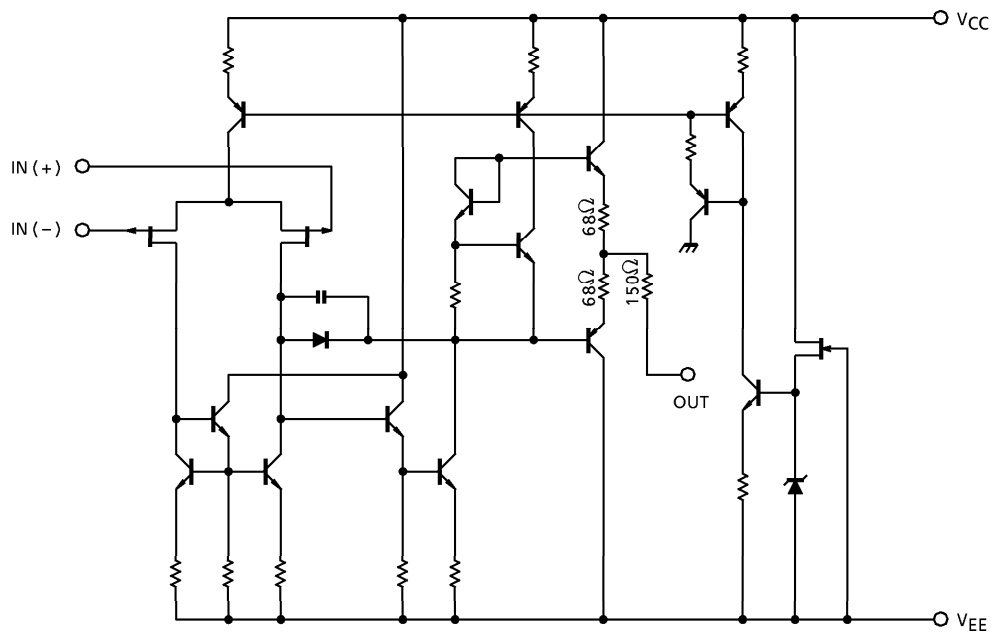
Weight
 DIP14-P-300-2.54 : 1.0g (Typ.)
 SOP14-P-225-1.27 : 0.2g (Typ.)

PIN CONNECTION (TOP VIEW)

TA75074P, TA75074F



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	TA75074P	P _D	625	mW
	TA75074F		280	
Operating Temperature		T _{opr}	- 40~85	°C
Storage Temperature		T _{stg}	- 55~125	°C

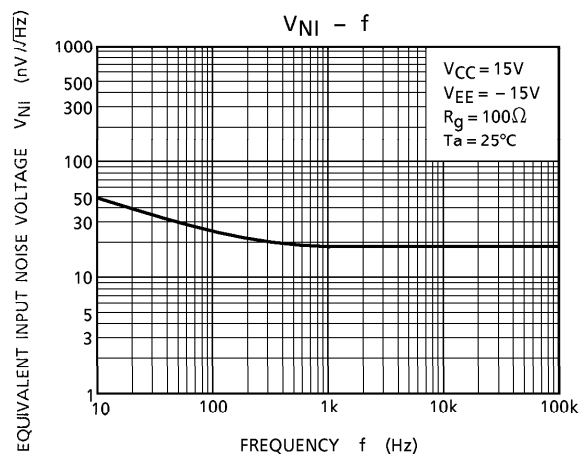
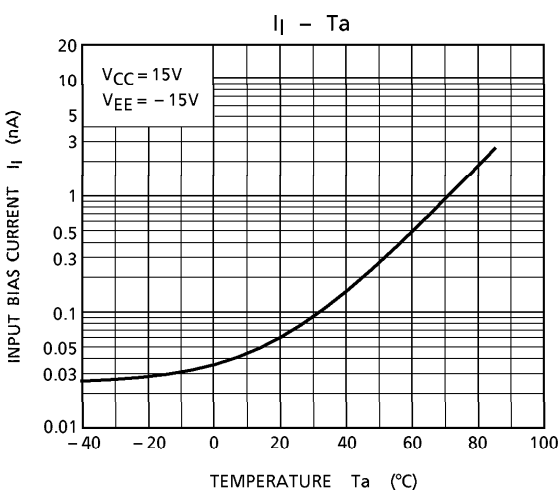
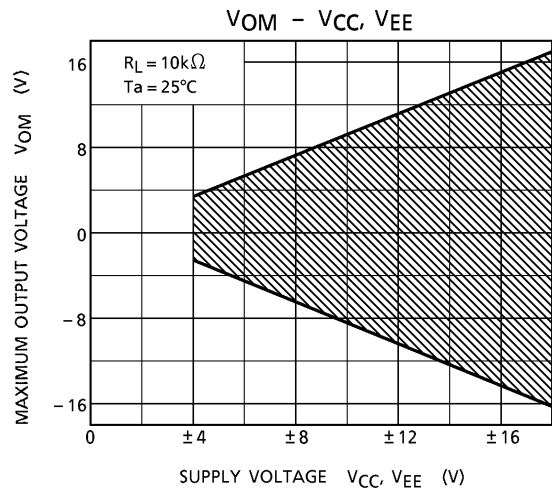
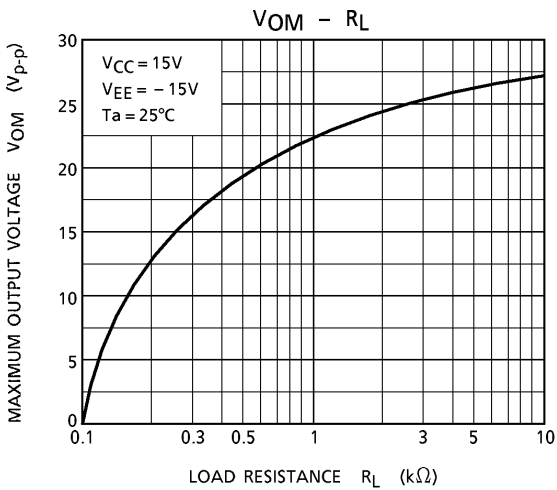
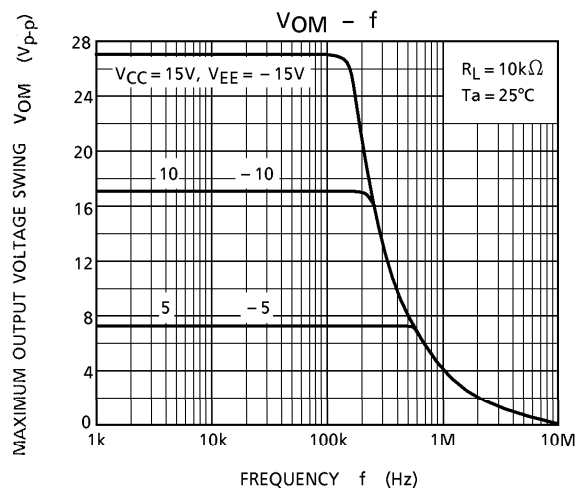
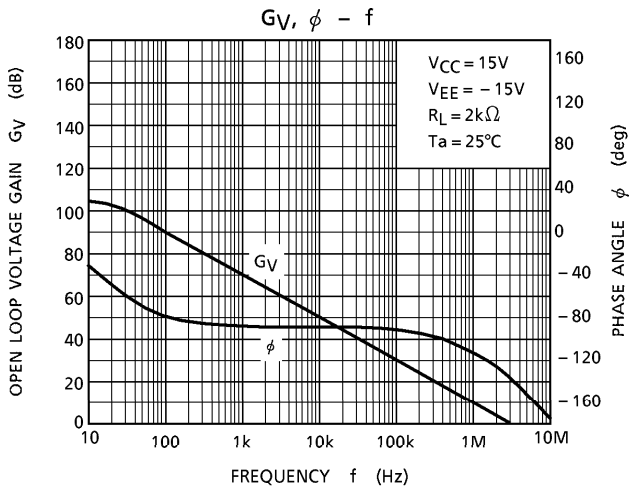
ELECTRICAL CHARACTERISTICS (V_{CC} = 15V, V_{EE} = - 15V, Ta = 25°C)

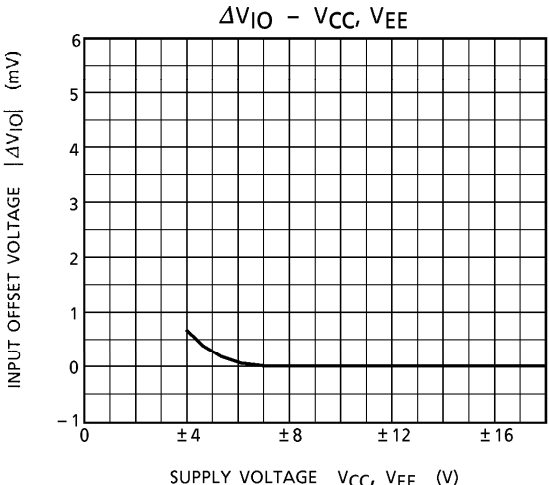
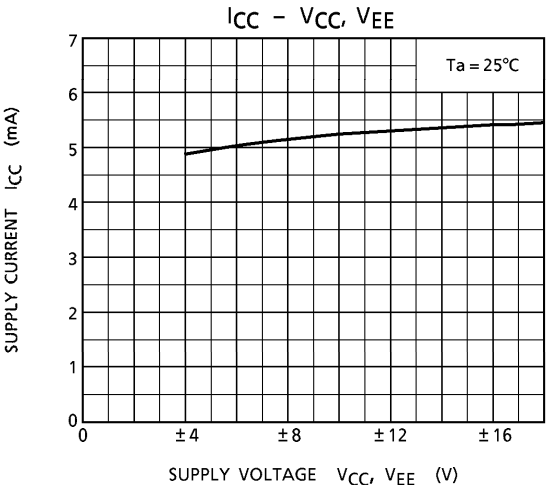
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	—	R _g ≤ 10kΩ	—	3	10	mV
TC Of Input Offset Voltage	TCV _{IO}	—	—	—	10	—	μV/°C
Input Offset Current	I _{IO}	—	—	—	5	50	pA
Input Bias Current	I _I	—	—	—	30	200	pA
Common Mode Input Voltage	CMV _{IN}	—	—	± 11	± 12	—	V
Maximum Output Voltage	V _{OM}	—	R _L = 10kΩ	24	—	—	V _{p-p}
	V _{OMR}	—	R _L = 2kΩ	20	24	—	
Voltage Gain (Open Loop)	G _V	—	V _{OUT} = ± 10V, R _L = 2kΩ	25	200	—	V/mV
Unity Gain Cross Frequency	f _T	—	Open Loop, R _L = 10kΩ	—	3	—	MHz
Input Resistance	R _{IN}	—	—	—	10 ¹²	—	Ω
Common Mode Input Signal Rejection Ratio	CMRR	—	R _g ≤ 10kΩ	70	76	—	dB
Supply Voltage Rejection Ratio	SVRR	—	R _g ≤ 10kΩ	70	76	—	dB
Supply Current	I _{CC} , I _{EE}	—	—	—	5.6	10.0	mA
Cross Talk		—	—	—	- 120	—	dB

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 = 2kΩ C _L = 100pF	—	13	—	V / μs
Equivalent Input Noise Voltage	V _{NI}	—	R _S = 100Ω	f = 1kHz	—	18	nV /
				f = 10Hz~10kHz	—	4	μV _{rms}
Equivalent Input Noise Current	I _{NI}	—	R _S = 100Ω, f = 1kHz	—	0.01	—	pA /
Total Harmonic Distortion	THD	—	V _{OUT} = 10V _{rms} , R _S ≤ 1kΩ R _L ≥ 2kΩ, f = 1kHz	—	0.01	—	%

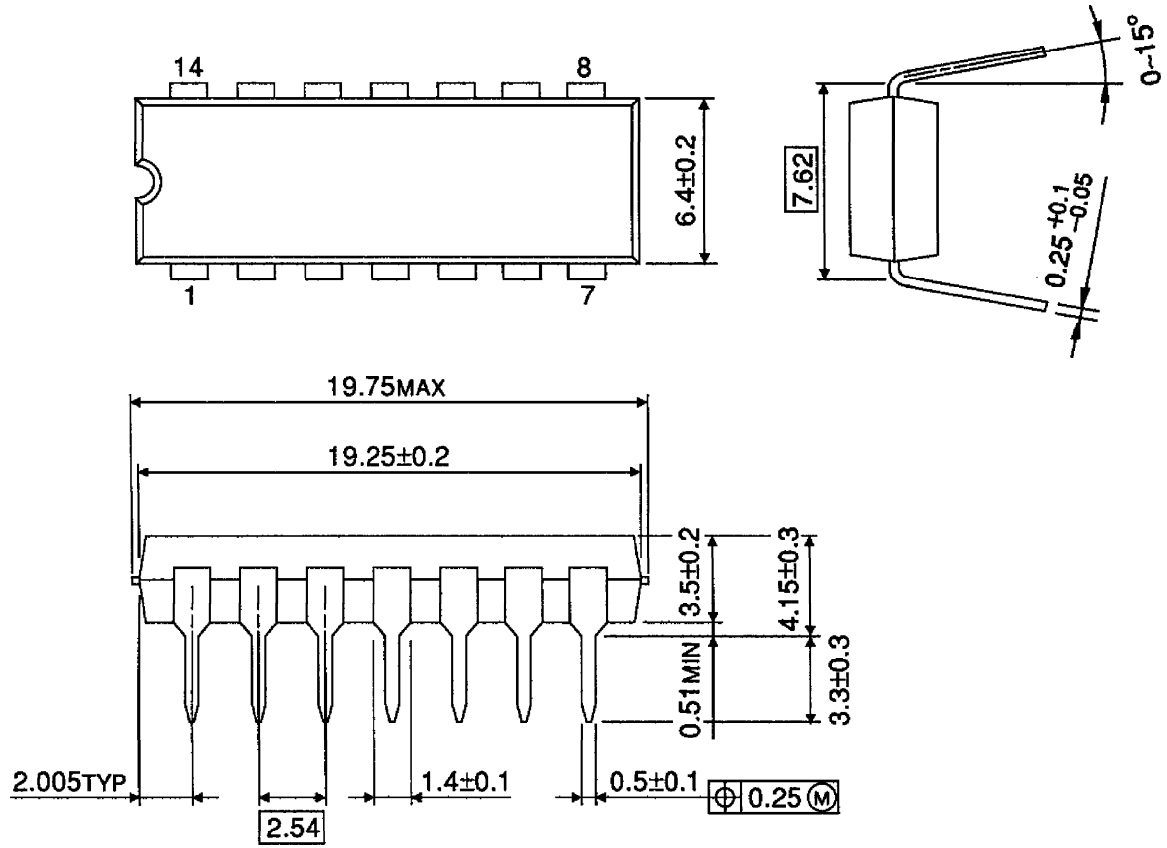
CHARACTERISTICS





PACKAGE DIMENSIONS
DIP14-P-300-2.54

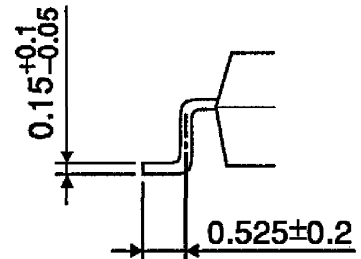
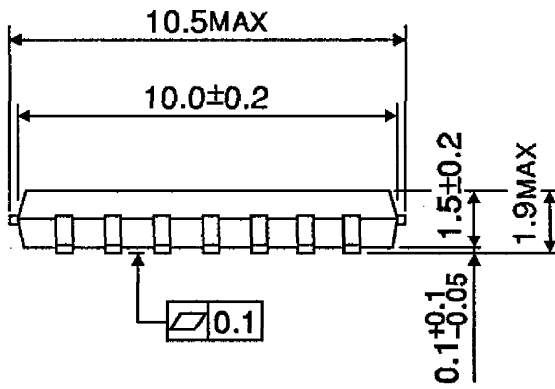
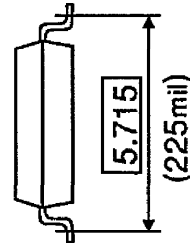
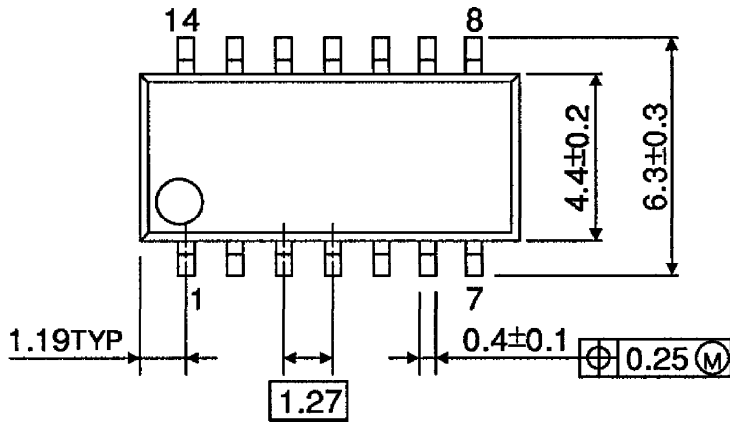
Unit : mm



Weight : 1.0g (Typ.)

PACKAGE DIMENSIONS
SOP14-P-225-1.27

Unit : mm



Weight : 0.2g (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.