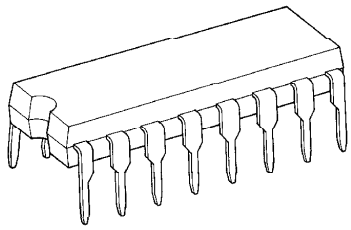
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8406P, TA8406F

DUAL POWER OPERATIONAL AMPLIFIER

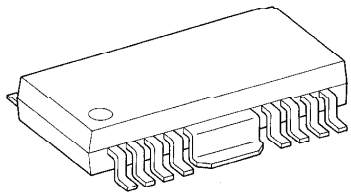
The TA8406P, TA8406F are dual power operational amplifier.
It is intended for use especially DC MOTOR positioning system applications such as Arm Driver (for Audiodisk Players), head or voice coil motor drivers (for Floppy and Winchester Disk Drivers) and any other power driver applications.

TA8406P



DIP16-P-300-2.54A

TA8406F



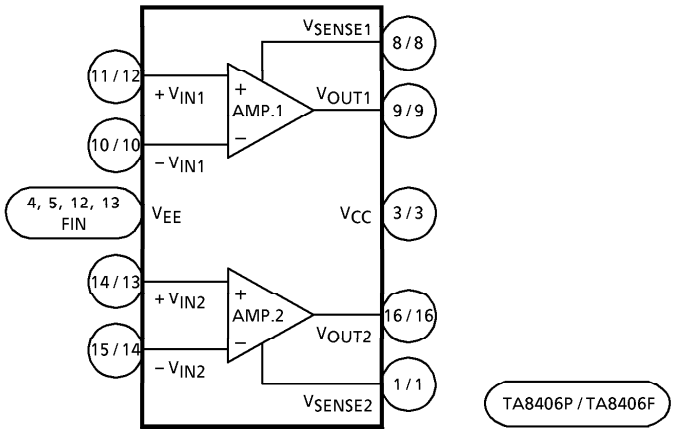
HSOP16-P-300-1.00

Weight
DIP16-P-300-2.54A : 1.11g (Typ.)
HSOP16-P-300-1.00 : 0.50g (Typ.)

FEATURES

- Built-in over current protector
- Few external parts are required.
- Output current up to 500mA (AVE.) and 1.0A (PEAK)
- Excellent crosstalk characteristics

BLOCK DIAGRAM



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PIN FUNCTION

TA8406P

PIN No.	SYMBOL	FUNCTION DESCRIPTION
1	V_{SENSE2}	AMP.2 output current detection terminal
2	NC	No connection
3	V_{CC}	Positive side voltage terminal
4	V_{EE}	Negative side voltage terminal
5	V_{EE}	Negative side voltage terminal
6	NC	No connection
7	NC	No connection
8	V_{SENSE1}	AMP.1 output current detection terminal
9	V_{OUT1}	AMP.1 output terminal
10	$-V_{IN1}$	AMP.1 negative input terminal
11	$+V_{IN1}$	AMP.1 positive input terminal
12	V_{EE}	Negative side voltage terminal
13	V_{EE}	Negative side voltage terminal
14	$+V_{IN2}$	AMP.2 positive input terminal
15	$-V_{IN2}$	AMP.2 negative input terminal
16	V_{OUT2}	AMP.2 output terminal

TA8406F

PIN No.	SYMBOL	FUNCTION DESCRIPTION
1	V_{SENSE2}	AMP.2 output current detection terminal
2	NC	No connection
3	V_{CC}	Possitive-side voltage terminal
4	NC	No connection
5	NC	No connection
6	NC	No connection
7	NC	No connection
8	V_{SENSE1}	AMP.1 output current detection
9	V_{OUT1}	AMP.1 output terminal
10	$-V_{IN1}$	AMP.1 negative input terminal
11	NC	No connection
12	$+V_{IN1}$	AMP.1 positive input terminal
13	$+V_{IN2}$	AMP.2 positive input terminal
14	$-V_{IN2}$	AMP.2 negative input terminal
15	NC	No connection
16	V_{OUT2}	AMP.2 output terminal
FIN	V_{EE}	Negative side voltage terminal

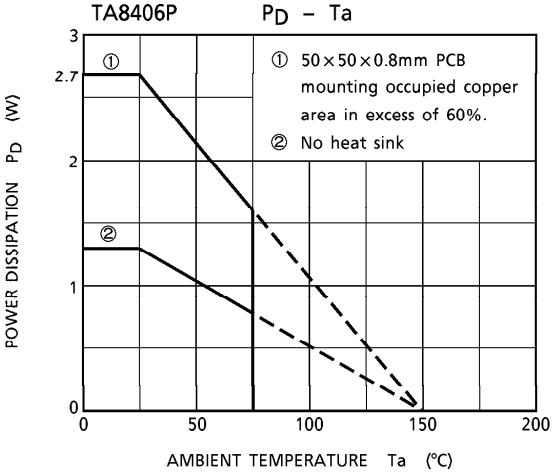
MAXIMUM RATINGS (Ta = 25°C)

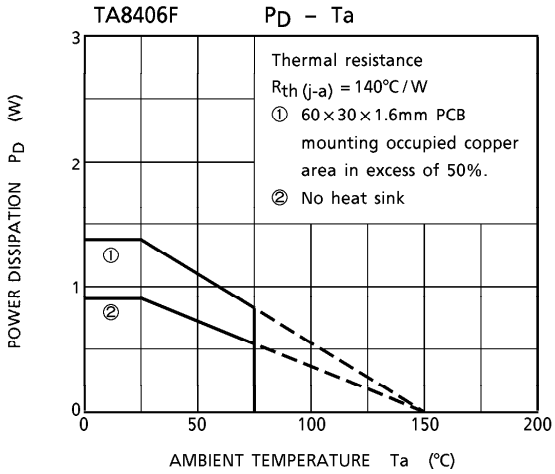
CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V_{CC}, V_{EE}	± 18	V
Output Current		$I_{O\ (AVE.)}$	0.5	A
Power Dissipation	TA8406P	P_D	(Note 1) 1.4	W
			(Note 2) 2.7	
	TA8406P		(Note 3) 1.4	
Operating Temperature		T_{opr}	− 30~75	°C
Storage Temperature		T_{stg}	− 55~150	°C

(Note 1) No heat sink
(Note 2) This value is obtained by 50 × 50 × 0.8mm PCB mounting occupied in excess of 60% of copper area.
(Note 3) This value is obtained by 60 × 30 × 1.6mm PCB mounting occupied in excess of 50% of copper area.

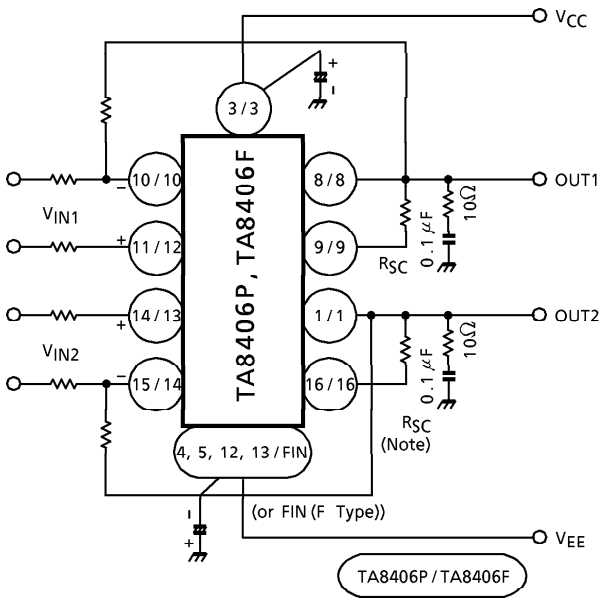
ELECTRICAL CHARACTERISTICS
(Unless otherwise specified, V_{CC} = 15V, V_{EE} = − 15V, Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I_{CC}	—	—	—	10	20	mA
Input Off Set Current		I_{IO}	—	—	—	10	200	nA
Input Bias Current		I_I	—	—	—	100	700	nA
Input Off Set Voltage		V_{IO}	—	—	—	2	6	mV
Output Voltage Swing	Upper	V_{OH}	—	R_L = 33Ω	12	13.0	—	V
	Lower	V_{OL}			− 12	− 13.0	—	
Open Loop Gain		G_{VO}	—	—	—	100	—	dB
Input Common Mode Voltage Range		CMR	—	—	± 12	± 14	—	
Common Mode Rejection Ratio		CMRR	—	—	70	90	—	dB
Supply Voltage Rejection Ratio		SVRR	—	—	—	50	150	μV / V
Band Width		f_T	—	Open loop	—	1.0	—	MHz
Slew Rate		SR	—	G_V = 0, R_L = 33Ω, R = 10Ω, C = 0.1μF	—	0.15	—	V / μs
Short Circuit Current		I_{SC}	—	R_{SC} = 2.2Ω	—	0.35	—	A
Cross Talk		CT	—	R_L = 33Ω, V_{OUT} = $1V_{p-p}$	—	60	—	dB



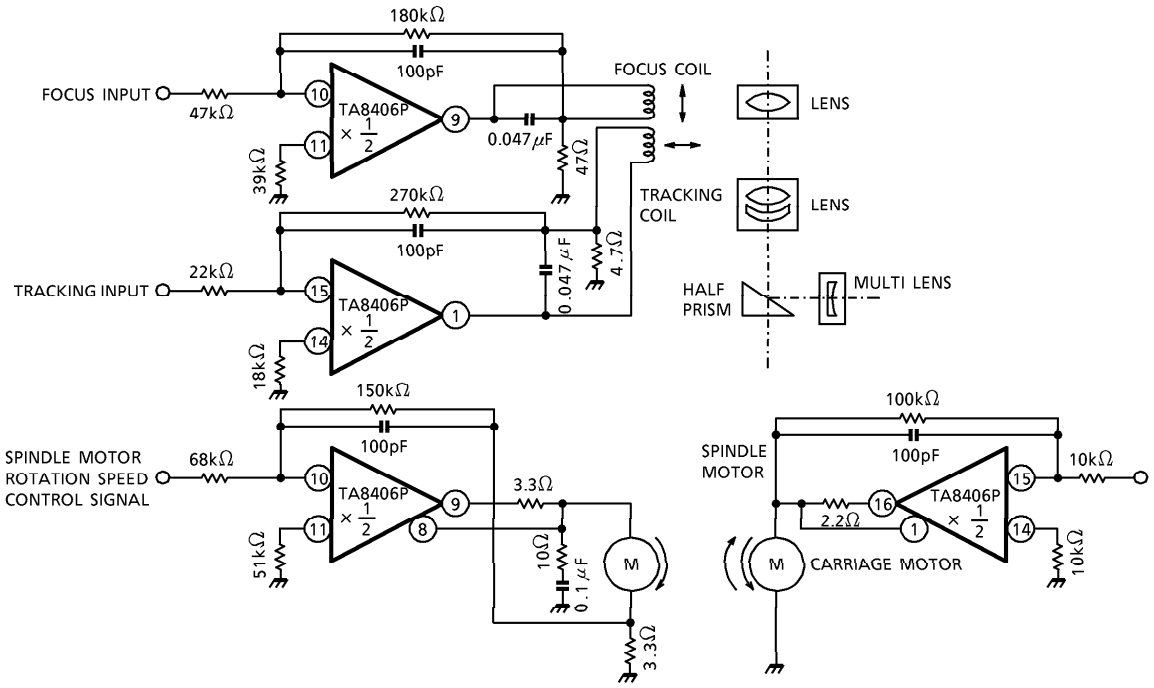


APPLICATION CIRCUIT 1



(Note) $I_{SC} \fallingdotseq \frac{0.77\ (V)}{R_{SC}\ (\Omega)}\ (A)$

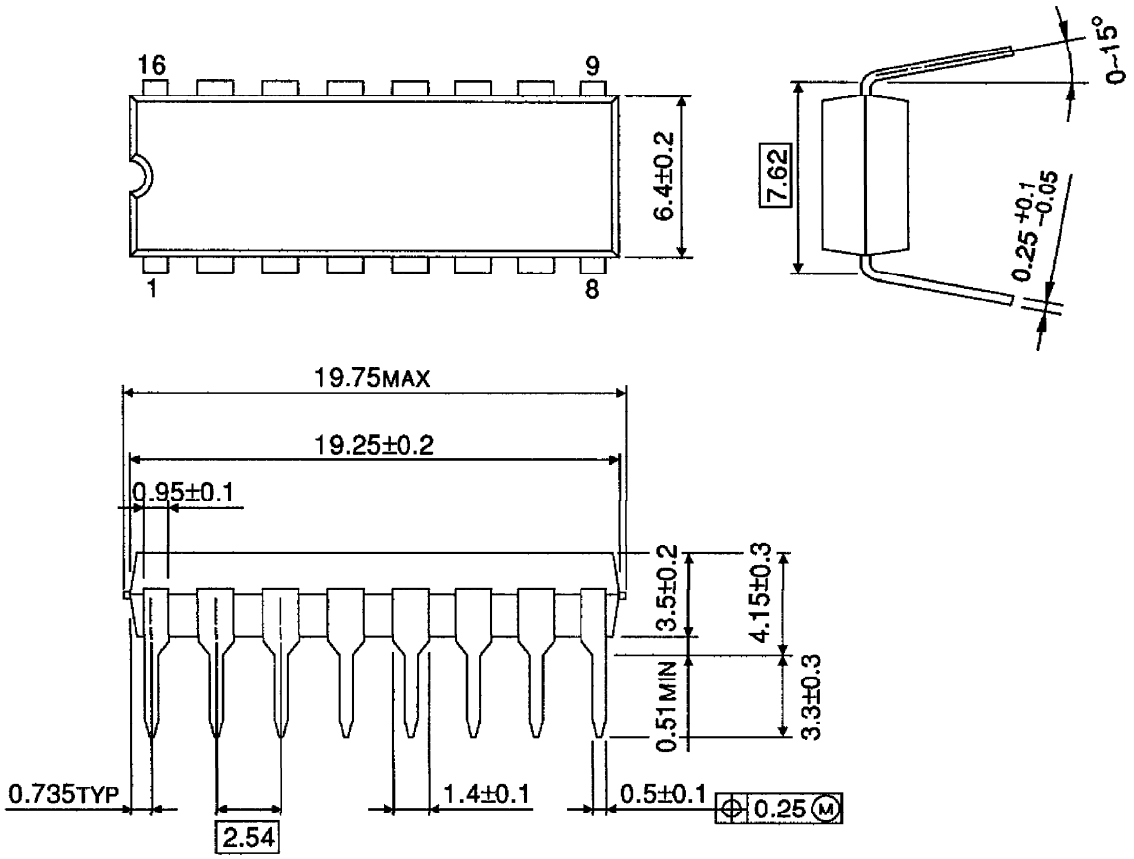
APPLICATION CIRCUIT 2 (Compact disk player motor system)



(Note) Utmost care is necessary in the design of the output line, V_{CC}, V_{EE} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING

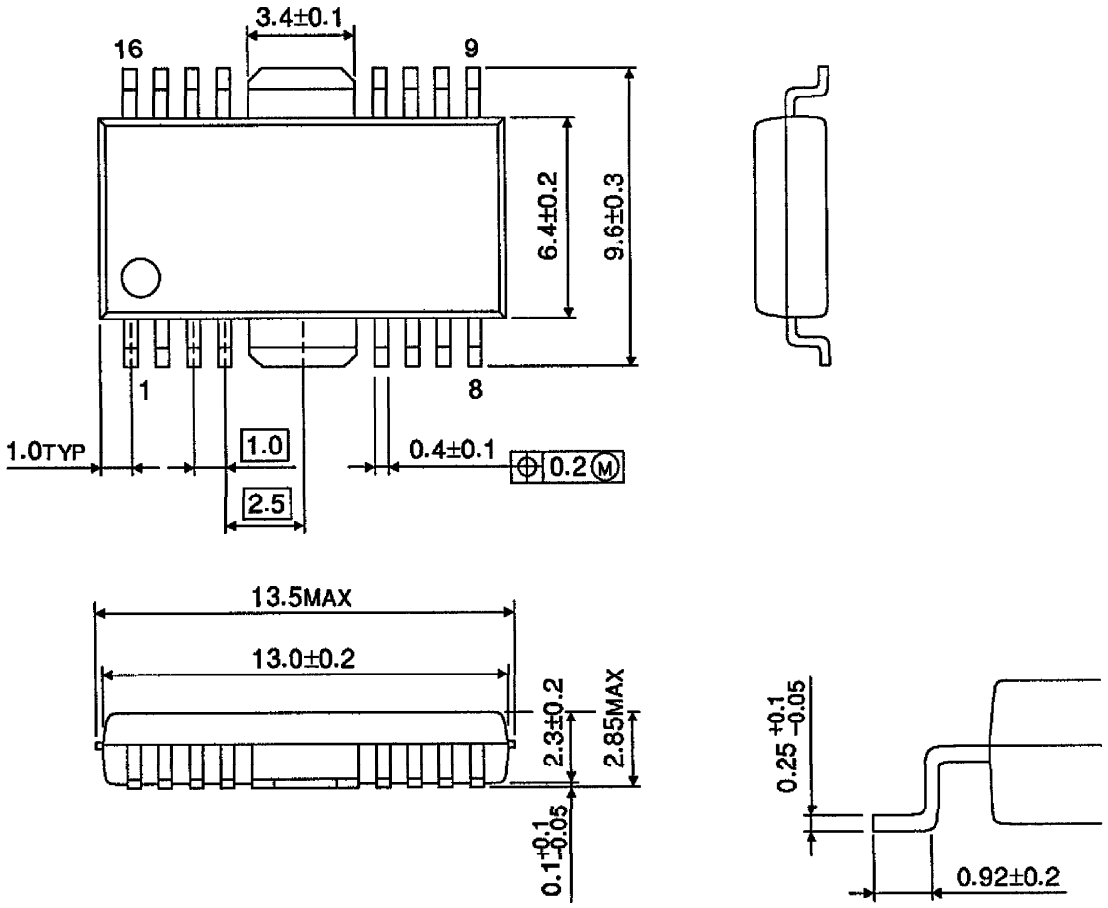
DIP16-P-300-2.54A Unit : mm



Weight : 1.11g (Typ.)

OUTLINE DRAWING

HSOP16-P-300-1.00 Unit : mm



Weight : 0.50g (Typ.)