

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8410P, TA8410K, TA8410AK

DUAL POWER OPERATIONAL AMPLIFIER

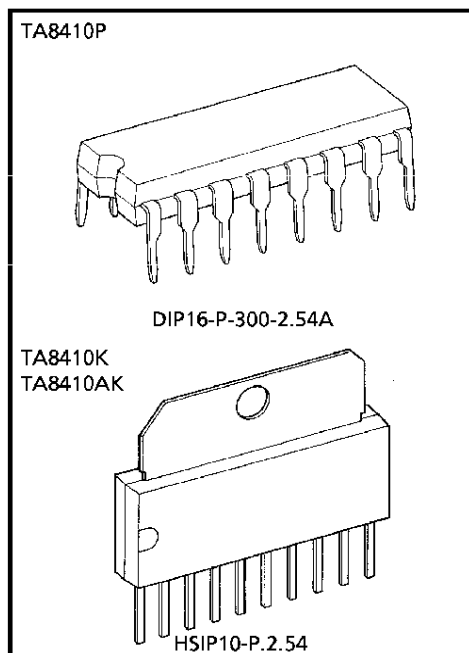
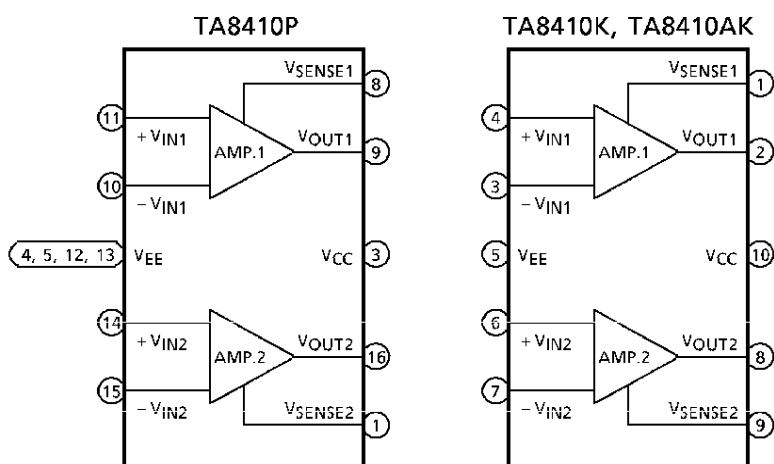
The TA8410 series are a dual power operational amplifier.

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 Hard Disk Drivers) and any other power driver applications.

FEATURES

- Built-in over current protector
- Few external parts required
- Output current up to 600 mA (AVE)
- Package TA8410P : DIP16
TA8410K / AK : HSIP 10

BLOCK DIAGRAM



Weight
DIP16-P-300-2.54A : 1.0 g (Typ.)
HSIP10-P-2.54 : 3.0 g (Typ.)

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PIN FUNCTION

PIN No.	SYMBOL	FUNCTION DESCRIPTION
1 (9)	V _{SENSE2}	Amp.2 output current sensing terminal.
2 (—)	NC	Non connection
3 (10)	V _{CC}	Positive-side voltage supply terminal.
4 (5)	V _{EE}	Negative-side voltage supply terminal.
5 (—)	V _{EE}	
6 (—)	NC	Non connection
7 (—)	NC	Non connection
8 (1)	V _{SENSE1}	Amp.1 output current sensing terminal.
9 (2)	V _{OUT1}	Amp.1 output terminal.
10 (3)	– V _{IN1}	Amp.1 input terminal (–)
11 (4)	+ V _{IN1}	Amp.1 input terminal (+)
12 (—)	V _{EE}	Negative-side voltage supply terminal.
13 (—)	V _{EE}	
14 (6)	+ V _{IN2}	Amp.2 input terminal (+)
15 (7)	– V _{IN2}	Amp.2 input terminal (–)
16 (8)	V _{OUT2}	Amp.2 output terminal.

() : TA8410K, TA8410AK

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	TA8410P	V _{CC} V _{EE}	+ 9	V
	TA8410K			
	TA8410AK		+ 15	
Output Current		I _O (AVE)	0.6	A
Power Dissipation	TA8410P	P _D	1.4 (Note 1)	W
	TA8410K		1.4 (Note 2)	
	TA8410AK		12.5 (Note 3)	
Operating Temperature		T _{opr}	– 30~75	°C
Storage Temperature		T _{stg}	– 55~150	°C

(Note 1) No heat sink

(Note 2) 60 × 30 × 1.6 mm PCB mounting occupied copper area in excess of 50%.

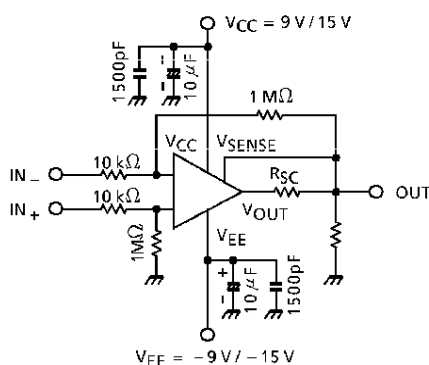
(Note 3) T_c = 25°C

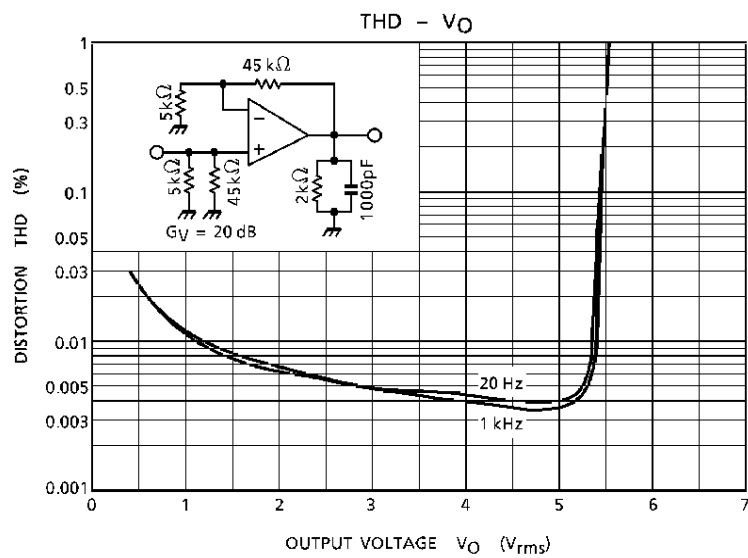
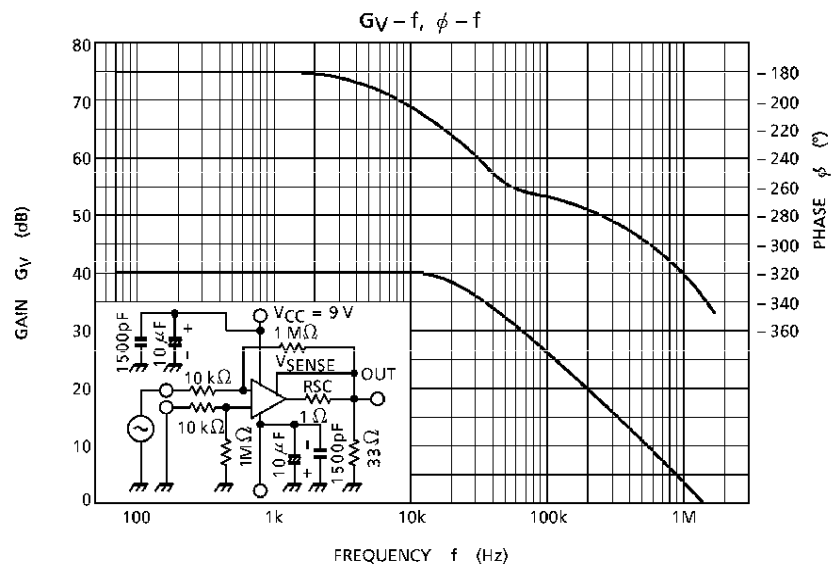
ELECTRICAL CHARACTERISTICS

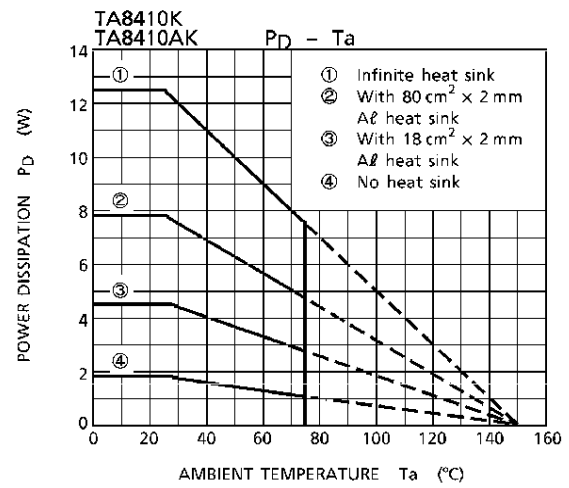
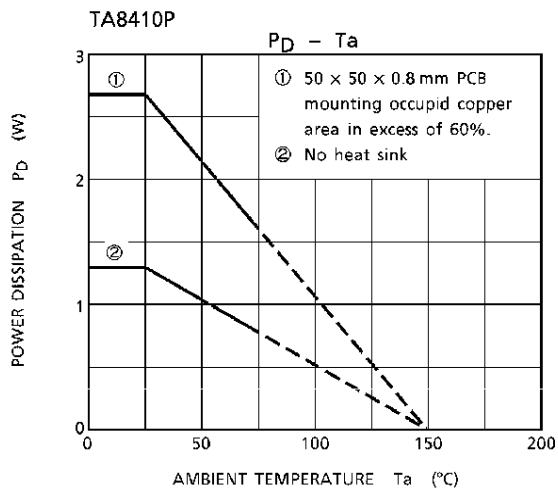
Unless otherwise specified, $T_a = 25^\circ\text{C}$, (TA8410P/K, $V_{CC} = 9\text{ V}$, $V_{EE} = -9\text{ V}$)(TA8410AK, $V_{CC} = 15\text{ V}$, $V_{EE} = -15\text{ V}$)

CHARACTERISTIC			SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current			I _{CC}	—	—	—	7	18	mA
Input Off Set Current			I _{IO}	—	—	—	0	100	nA
Input Bias Current			I _I	—	—	—	100	700	nA
Input Off Set Voltage			V _{IO}	—	—	—	0	6	mV
Output Voltage Swing	TA8410P TA8410K	Upper	V _{OH-1}	—	R _L = ∞	7.4	7.6	—	V
			V _{OH-2}	—	I _O = 0.6 A	5.5	6.2	—	
		Lower	V _{OL-1}	—	R _L = ∞	7.4	7.7	—	
			V _{OL-2}	—	I _O = 0.6 A	5.6	6.2	—	
	TA8410K	Upper	V _{OH-1}	—	R _L = ∞	13.0	13.6	—	
			V _{OH-2}	—	I _O = 0.6 A	11.0	11.6	—	
		Lower	V _{OL-1}	—	R _L = ∞	13.0	13.6	—	
			V _{OL-2}	—	I _O = 0.6 A	11.0	11.7	—	
Open Loop Gain			G _{VO}	—	—	—	100	—	dB
Input Common Mode Voltage Range	TA8410P TA8410K	CMR	—	G _V = 40 dB	± 8.0	± 8.3	—	V	
	TA8410AK	CMR	—	G _V = 40 dB	14.0	± 14.3	—		
Common Mode Rejection Ratio			CMRR	—	—	70	82	—	dB
Supply Voltage Rejection Ratio			SVRR	—	—	76	90	—	dB
Unity Gain Cross Frequency			f _T	—	Open loop	—	1.0	—	MHz
Slew Rate			SR	—	R _L = 33 Ω	—	0.5	—	V / μs
Short Circuit Current			I _{SC}	—	R _{SC} = 1.0 Ω	—	0.6	—	A
Cross Talk			C _T	—	R _L = 33 Ω, V _{OUT} = 1 V _{p-p}	—	60	—	dB

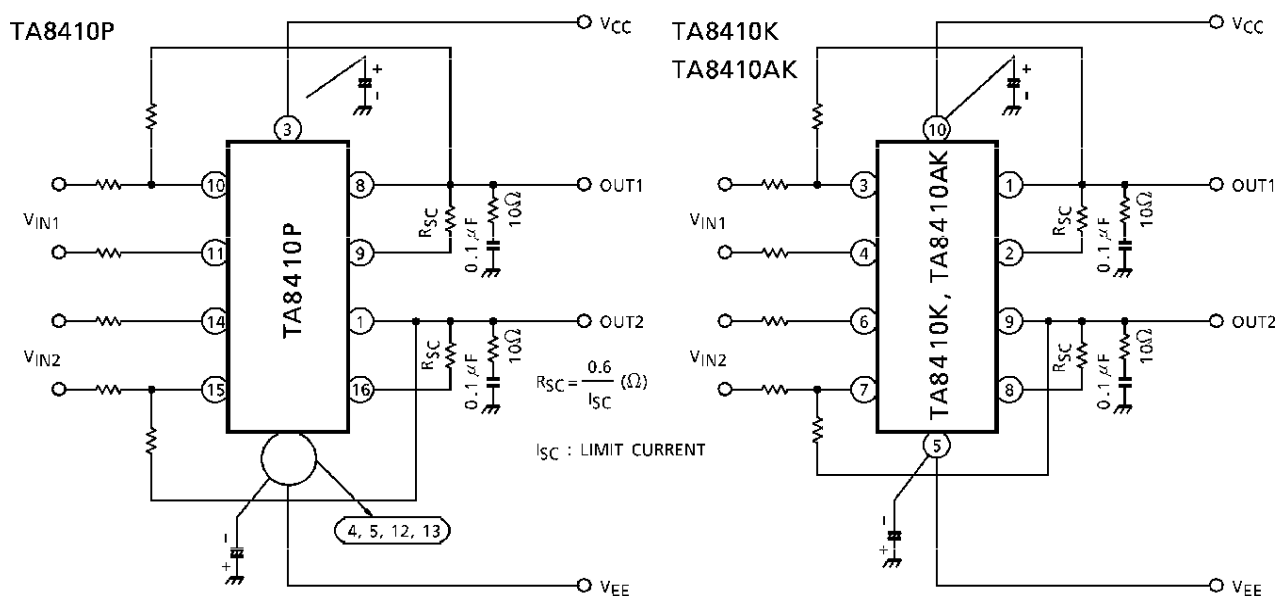
TEST CIRCUIT



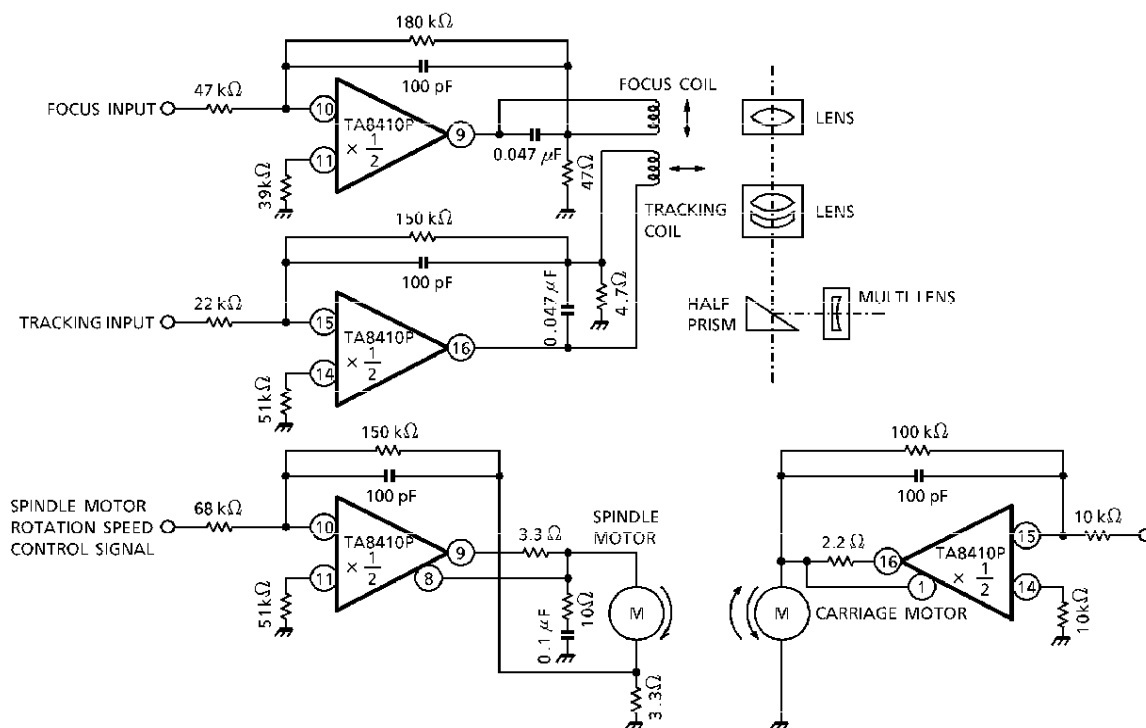




APPLICATION CIRCUIT 1



APPLICATION 2 (Drive circuit for CD player motors)

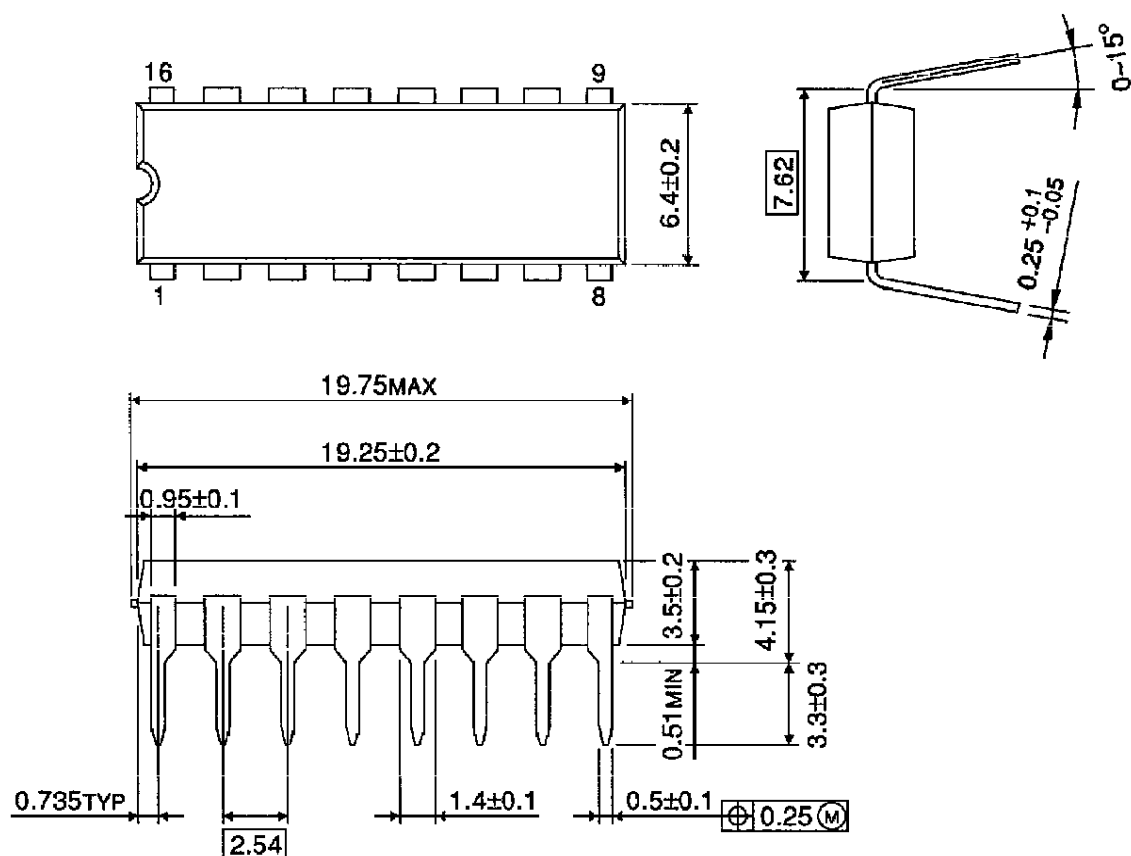


(Note) Utmost care is necessary in the design of the output line, V_{CC} and V_{EE} line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING

DIP16-P-300-2.54A

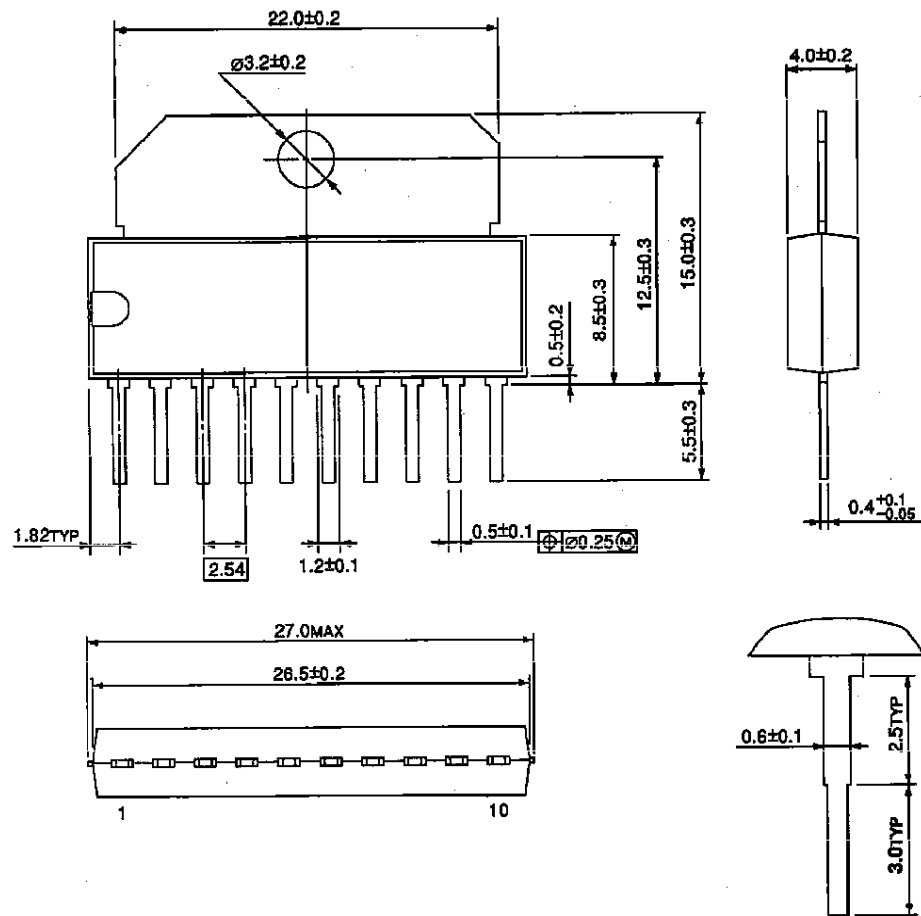
Unit : mm



Weight : 1.0 g (Typ.)

OUTLINE DRAWING
HSIP10-P-2.54

Unit : mm



Weight : 3.0 g (Typ.)