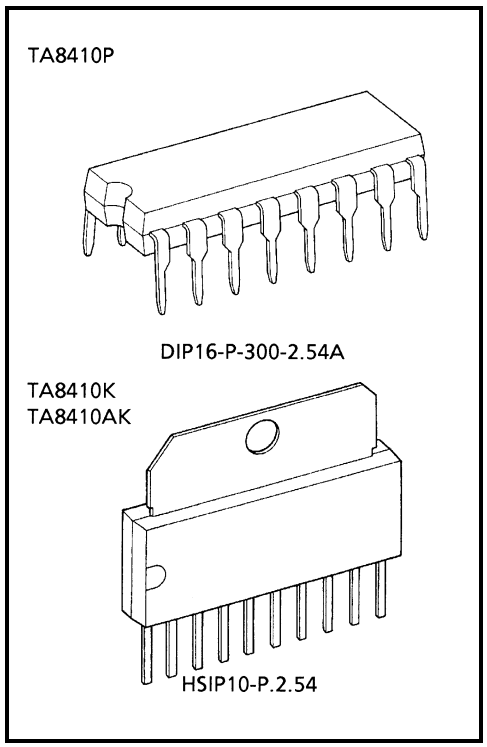
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

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.

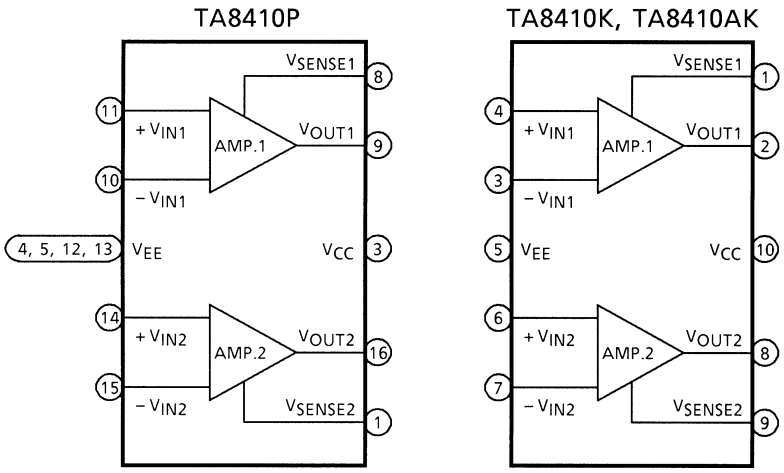


Weight
DIP16−P−300−2.54A : 1.0 g (Typ.)
HSIP10−P−2.54 : 3.0 g (Typ.)

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



PIN FUNCTION

PIN No.		SYMBOL	FUNCTIONAL DESCRIPTION
1	(9)	V_{SENSE2}	Amp.2 output current sensing terminal.
2	(−)	NC	Non connection
3	(10)	V_{CC}	Possitive−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

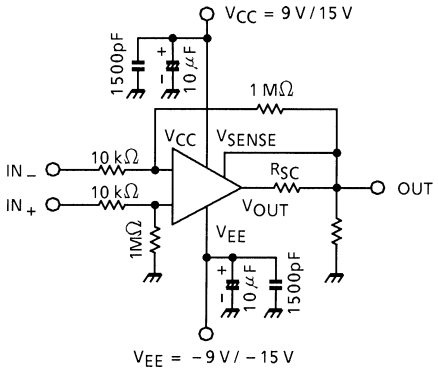
Note 1: No heat sink
Note 2: 60 × 30 × 1.6 mm PCB mounting occupied copper area in excess of 50%.
Note 3: Tc = 25°C

ELECTRICAL CHARACTERISTICS

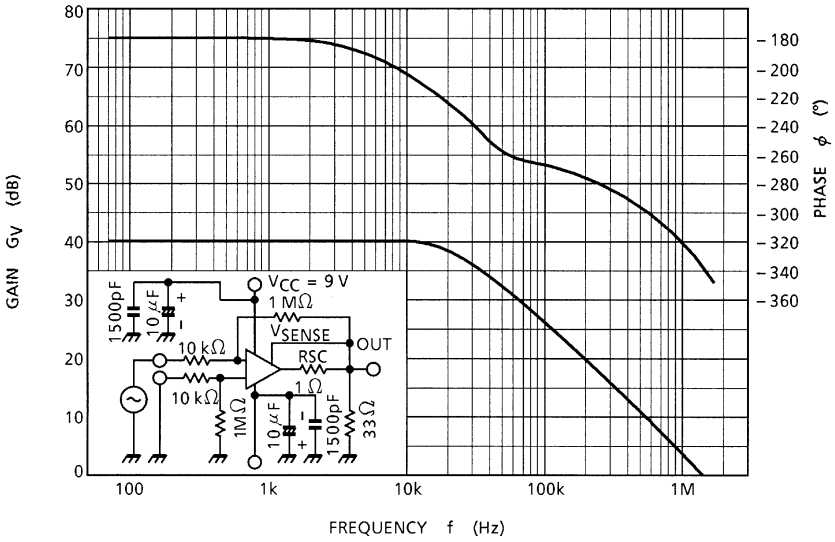
Unless otherwise specified, Ta = 25°C, (TA8410P / K, V_{CC} = 9 V, V_{EE} = −9 V)
(TA8410AK, V_{CC} = 15 V, V_{EE} = −15 V)

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

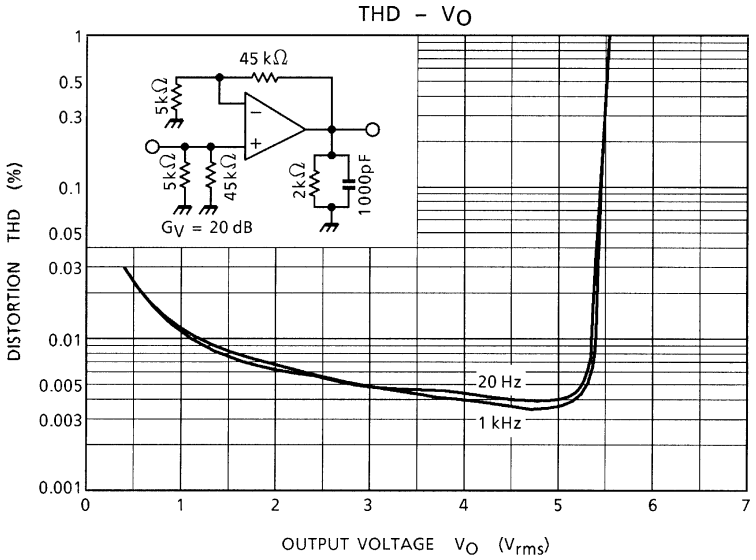
TEST CIRCUIT



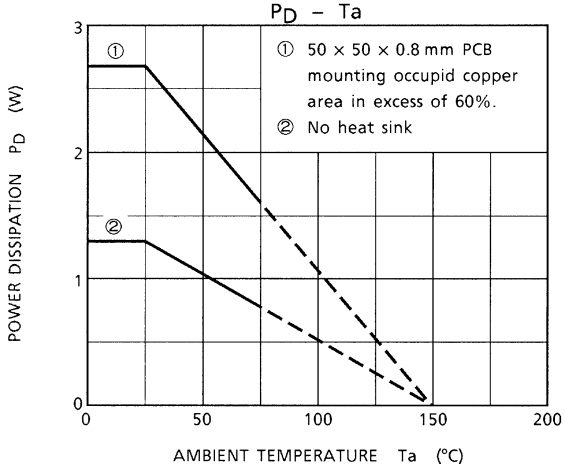
$G_V - f,\ \phi - f$



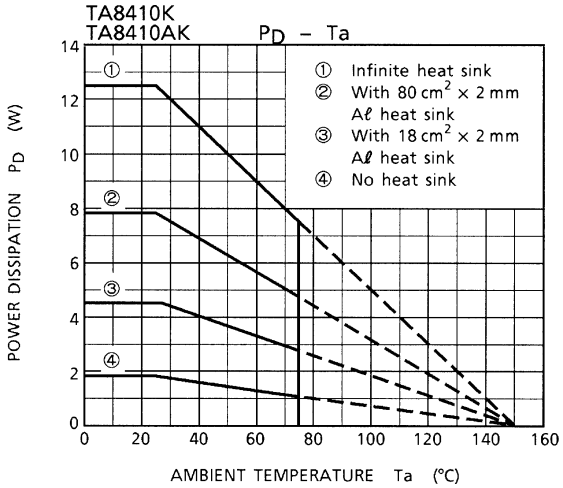
THD – V_O



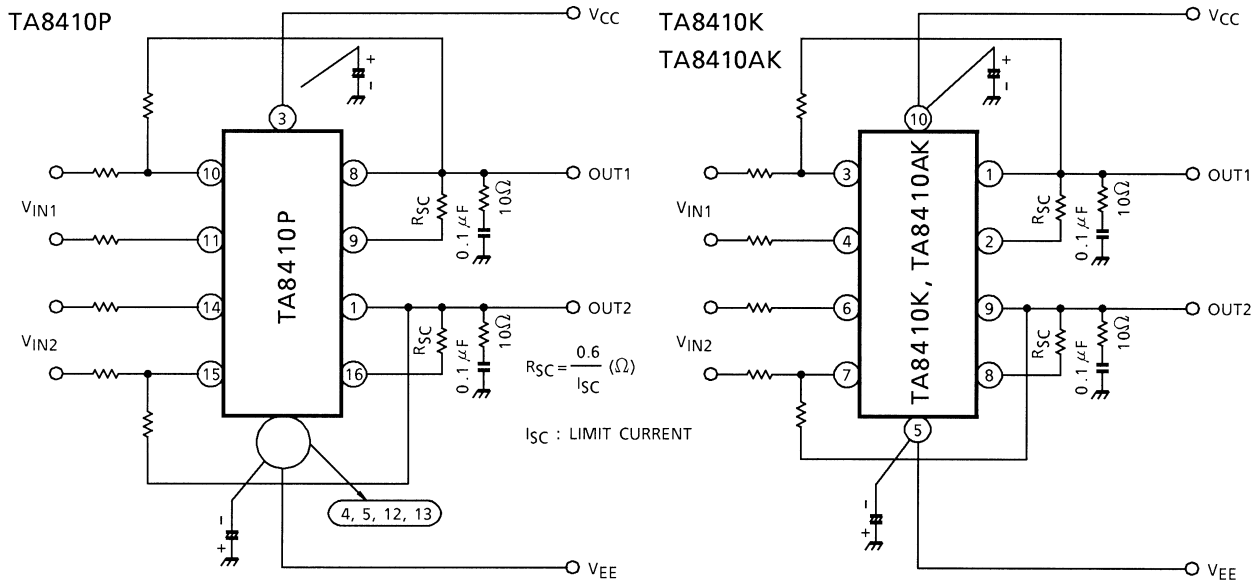
TA8410P



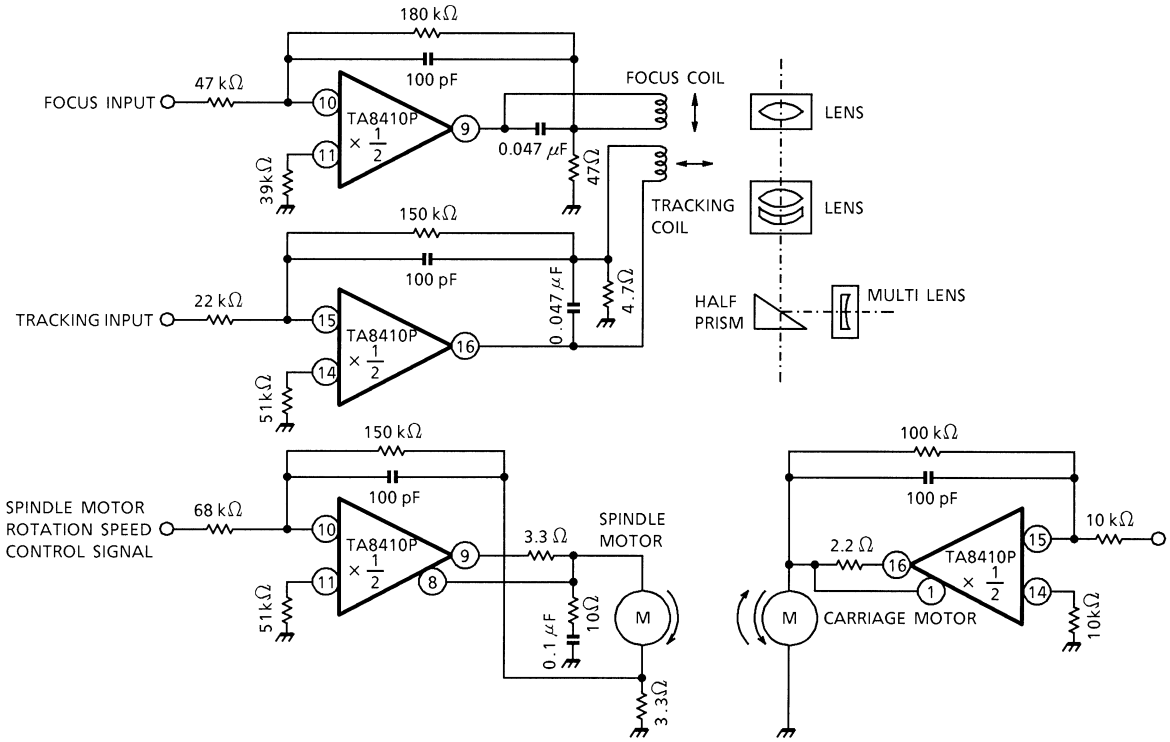
TA8410K
TA8410AK



APPLICATION CIRCUIT 1



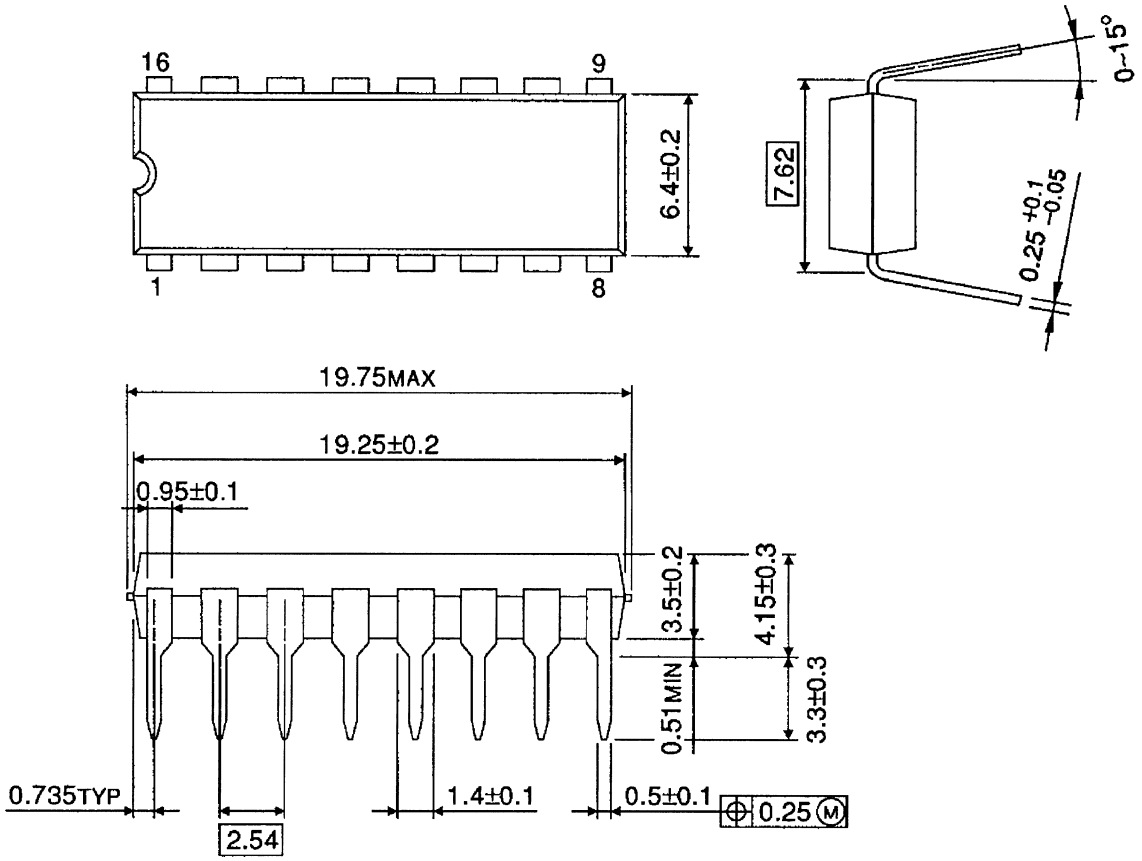
APPLICATION 2 (Drive circuit for CD player motors)



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.

PACKAGE DIMENSIONS

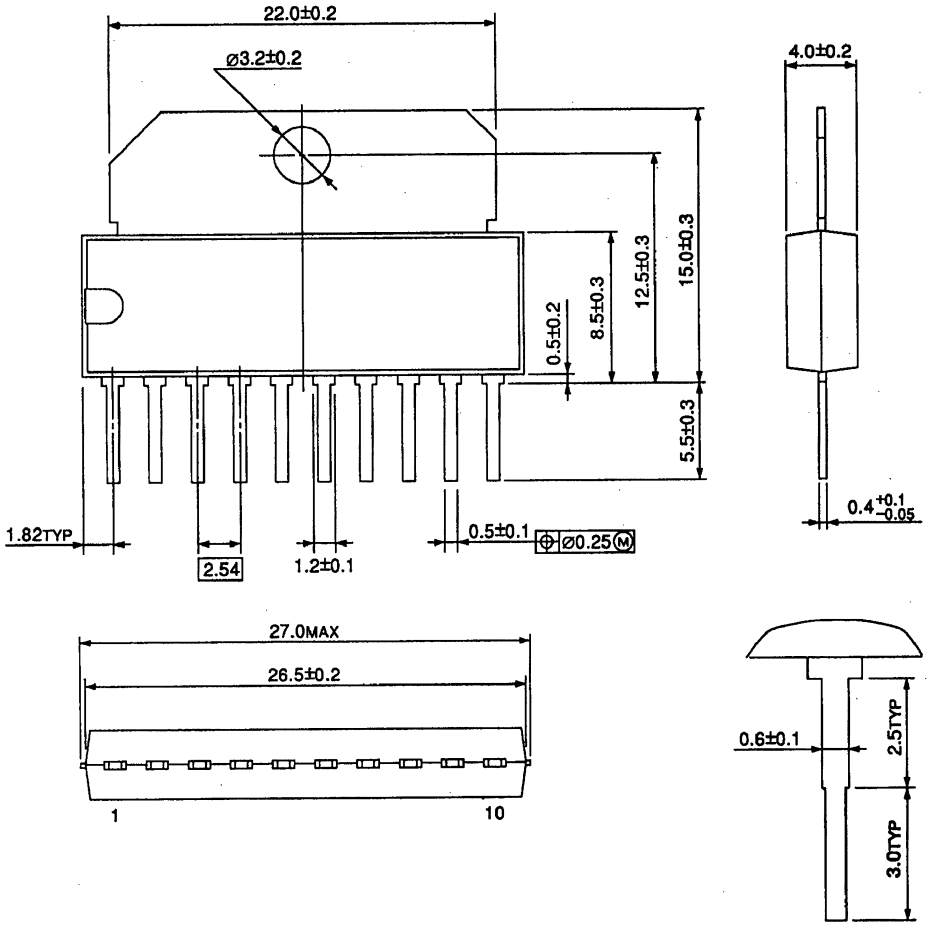
DIP16−P−300−2.54A Unit: mm



Weight: 1.0 g (Typ.)

PACKAGE DIMENSIONS

HSIP10−P−2.54 Unit: mm



Weight: 3.0 g (Typ.)

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