#### TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# **TA8449P**

#### QUAD POWER OP. AMP

The TA8449P is 0.6A (PEAK) output current Quad type Power Operational Amplifier, and designed for CD player by 1chip (Focusing Tracking Actuator, Carriage and Spindle Motor). This IC is suitable for large current driver circuit, such as, Motor, Actuator and general purpose Power Operational Amplifier.

#### **FEATURES**

• High Output Current : Io (PEAK) = 0.6 A / ch

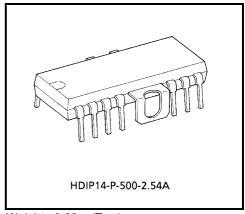
IO(AVE) = 0.4 A / ch

• Built-in Current Limiter : 1.0 A (Typ.)

• Built-in Output Enable : GND or VEE : Enable

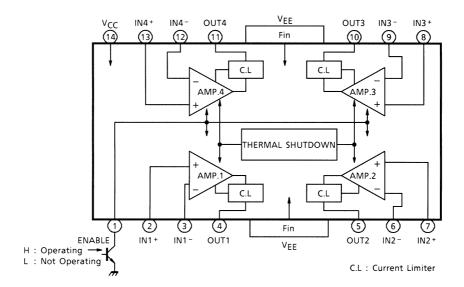
: Open or VCC : Disenable

• Thermal Shut Down Circuit



Weight: 3.00 g (Typ.)

### **BLOCK DIAGRAM**



1



### **PIN FUNCTION**

PIN No.	SYMBOL	FUNCTIONAL DESCRIPTION			
1	ENABLE	ENABLE terminal			
2	IN1 <sup>+</sup>	AMP.1 input terminal (+)			
3	IN1 <sup>-</sup>	AMP.1 input terminal (-)			
4	OUT1	AMP.1 Output terminal			
5	OUT2	AMP.2 Output terminal			
6	IN2 <sup>-</sup>	AMP.2 input terminal (-)			
7	IN2 <sup>+</sup>	AMP.2 input terminal (+)			
8	IN3 <sup>+</sup>	AMP.3 input terminal (+)			
9	IN3 <sup>-</sup>	AMP.3 input terminal (-)			
10	OUT3	AMP.3 output terminal			
11	OUT4	AMP.4 output terminal			
12	IN4 <sup>-</sup>	AMP.4 input terminal (-)			
13	IN4 <sup>+</sup>	AMP.4 input terminal (+)			
14	V <sub>CC</sub>	Power voltage supply terminal for possitive side			
Fin	V <sub>EE</sub>	Power voltage supply terminal for negative side			

# MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	
Power Supply Voltage	V <sub>CC</sub>	±15	٧	
Tower Supply Voltage	V <sub>EE</sub>	110		
Output Current	I <sub>O (PEAK)</sub>	0.6 (Note 1)	Α	
Output Current	IO (AVE.)	0.4	A	
Power Dissipation	P <sub>D</sub>	2.3 (Note 2)	W	
Operating Temperature	T <sub>opr</sub>	-30~85	°C	
Storage Temperature	T <sub>stg</sub>	-55~150	°C	

Note 1: Single pulse 100 ms.

Note 2: No heat sink

2

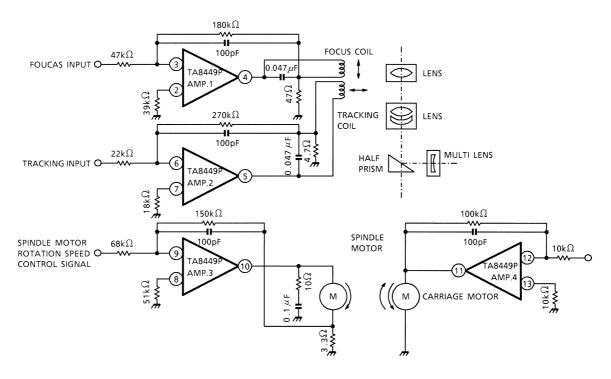
# **ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified, Ta = 25°C,  $V_{CC}$  = 15 V,  $V_{EE}$  = -15 V)

CHARACTERISTIC		SYMBOL	Test Cir- cuit	TEST CONDITION	MIN	TYP.	MAX	UNIT
Power Supply Voltage		I <sub>CC1</sub>	_	at No Resistance	_	16	35	mA
		I <sub>CC2</sub>		at Disenable (1Pin = V <sub>CC</sub> )	_	0	20	μΑ
Input Offset Current		I <sub>IO</sub>	_	_	_	_	100	nA
Input Bias Current		I <sub>I</sub>	_	_	_	_	300	nA
Input Offset Voltage		V <sub>IO</sub>	_	_	_	_	6	mV
	Upper	V <sub>OH</sub>	_	I <sub>O</sub> = 0.1A	12.0	13.3	_	V
Output Maximum	Lower	V <sub>OL</sub>	_		_	-13.5	-12.0	
Amplitude	Upper	V <sub>OH</sub>	_	I <sub>O</sub> = 0.4A	12.0	13	_	
	Lower	V <sub>OL</sub>	_		_	-13	-12.0	
Open Loop Gain		G <sub>VO</sub>	_	_	_	100	_	dB
Sync. Input Voltage Range		CMR	_	_	_	±14	_	V
Sync. Voltage		CMRR	_	_	_	80	_	dB
Supply Voltage		SVRR	_	_	_	90	_	dB
Band Width		f <sub>T</sub>	_	_	_	1.0	_	MHz
Through Rate		SR	_	_	_	0.9	_	V / µs
Limiting Current		I <sub>SC</sub>	_	T <sub>j</sub> = 25°C	_	1.0	_	Α
Crosstalk		C <sub>T</sub>	_	_	_	60	_	dB
Enable Operating Current		I <sub>EN</sub>	_	Pin (1) = 0V	_	1	2	mA
Thermal Shut Down Operating Operating Temperature		T <sub>SD</sub>	_	_	150	175	190	°C

3 2001-06-13

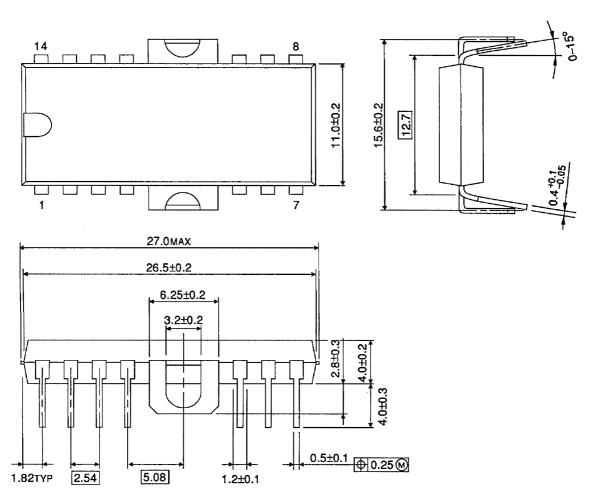
# **APPLICATION CIRCUIT (Actuator for CD player)**



Note: Utmost care is necessary in the design of the output line, V<sub>CC</sub>, V<sub>EE</sub> and GND line since IC may be destroyed due to short–circuit between outputs, air contamination fault, or fault by improper grounding.

### **PACKAGE DIMENSIONS**

HDIP14-P-500-2.54A Unit : mm



5

Weight: 3.00 g (Typ.)

2001-06-13

## 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.