

Structure : Silicon Monolithic Integrated Circuit

Product name : Stereo Headphone Amplifiers

Type : **BH3544F**

- Features :
- 1) Built-in mute function for preventing pop noise when power supply turns ON or OFF
 - 2) Built-in thermal shutdown circuit to prevent IC destruction due to short circuit
 - 3) Compact SOP8 package

○Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V _{Max}	7.0	V
Power dissipation	Pd	450 * 1	mW
Operating temperature	Topr	-25~+75	°C
Storage temperature	Tstg	-55~+125	°C

*1 Deratings is done at 4.5mW/°C above Ta=25°C.

○Operating Range (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	VCC	2.8~6.5	V

※This product is not designed for protection against radioactive rays.

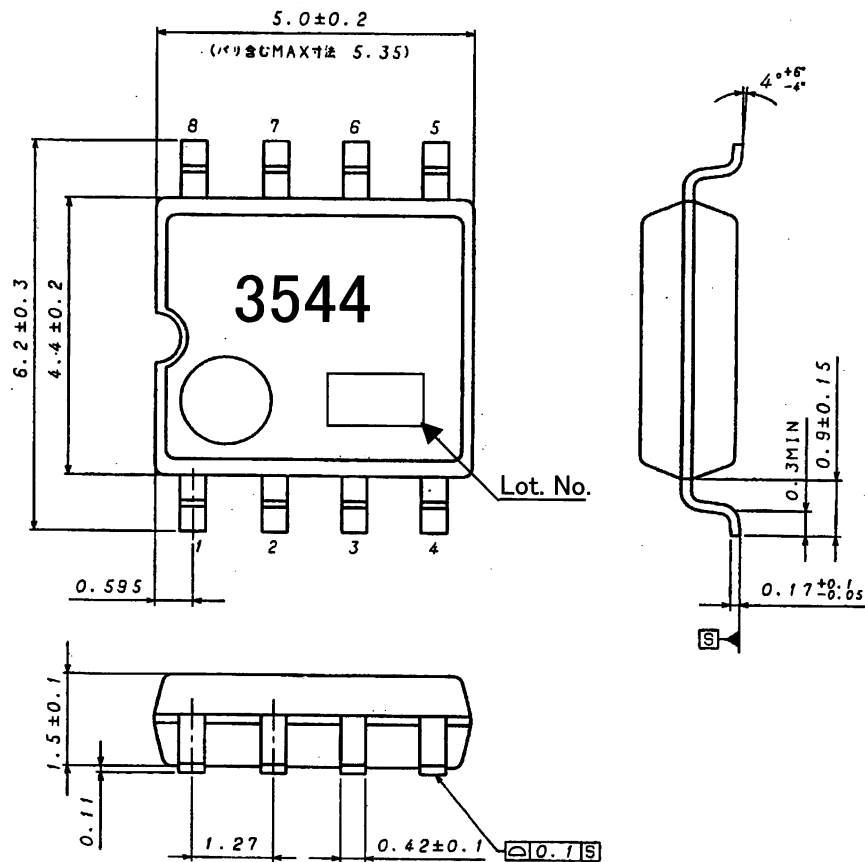
Application example

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys). Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

○Electrical characteristics (Unless otherwise noted, $T_a=25^{\circ}\text{C}$, $V_{\text{CC}}=5\text{V}$, $R_{\text{L}}=32\ \Omega$, $f=1\text{kHz}$, $V_{\text{IN}}=-6\text{dBV}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I_{Q}	3.5	6.5	9.5	mA	$V_{\text{IN}}=0\text{Vrms}$
Mute pin control voltage	V_{TM}	0.3	0.7	1.6	V	-
voltage gain	G_{VC}	4.0	6.0	8.0	dB	-
Voltage gain difference between channels	ΔG_{VC}	-0.5	0	0.5	dB	-
Total harmonic distortion	THD	-	0.02	0.1	%	$\text{BW}=20\sim 20\text{kHz}$
Rated output1	P_{O1}	25	31	-	mW	$R_{\text{L}}=32\ \Omega$, $\text{THD}<0.1\%$
Rated output2	P_{O2}	50	62	-	mW	$R_{\text{L}}=16\ \Omega$, $\text{THD}<0.1\%$
Output noise voltage	V_{NO}	-	-93	-85	dBV	$\text{BW}=20\sim 20\text{kHz}$, $R_{\text{g}}=0\ \Omega$
Channel separation	CS	82	90	-	dB	$R_{\text{g}}=0\ \Omega$
Mute attenuation	ATT	70	80	-	dB	$R_{\text{g}}=0\ \Omega$
Ripple rejection	RR	50	57	-	dB	$f_{\text{RR}}=100\text{Hz}$, $V_{\text{RR}}=-20\text{dBV}$
Input resistance	R_{in}	72	90	108	$\text{k}\Omega$	-

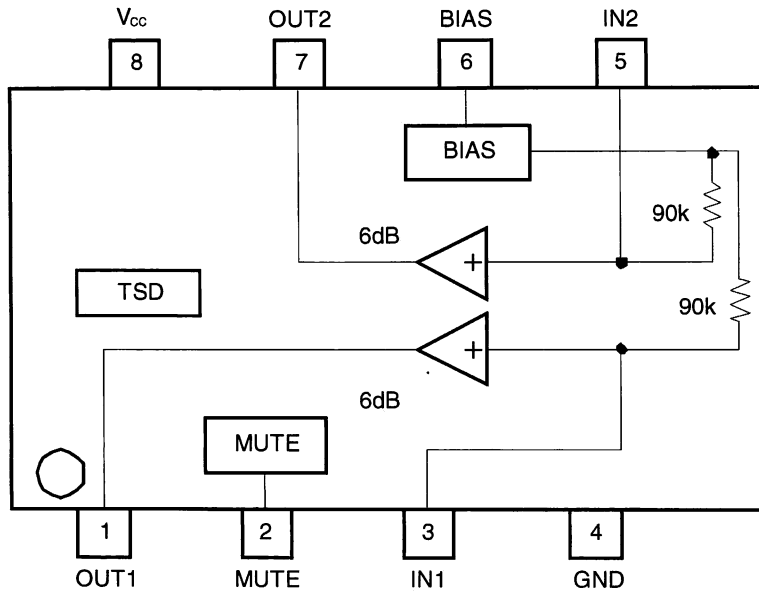
○Outer dimensions



SOP8 (Unit: mm)

Rev.B

○Block diagram



○Pin number and pin name

Pin No.	Pin name
1	OUT1
2	MUTE
3	IN1
4	GND
5	IN2
6	BIAS
7	OUT2
8	Vcc

○Cautions on use

1) Absolute maximum ratings

If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you think of a case in which absolute maximum ratings are exceeded, enforce fuses or other physical safety measures and investigate how not to apply the conditions under which absolute maximum ratings are exceeded to the LSI.

2) GND potential

Make the GND pin voltage such that it is the lowest voltage even when operating below it. Actually confirm that the voltage of each pin does not become a lower voltage than the GND pin, including transient phenomena.

3) Thermal design

Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.

4) Shorts between pins and miss-installation

When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is miss-installed and the power is turned on, the LSI may be damaged. It also may be damaged if it is shorted by a foreign substance coming between pins of the LSI or between a pin and a power supply or a pin and a GND.

5) Operation in strong magnetic fields

Adequately evaluate use in a strong magnetic field, since there is a possibility of malfunction.

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