

Structure : Silicon Monolithic Integrated Circuit

Product name : 5W+5W Stereo Speaker Amplifiers

Type : **BA5417**

Features : 1) Small pop noise when standby switches ON/OFF
2) Built-in circuit to prevent ripple addition when motor starts
3) Built-in thermal shutdown circuit
4) Built-in standby switch circuit
5) Built-in soft clip circuit

○Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	20 ^{*1}	V
Power dissipation	P _d	15 ^{*2}	W
Operating temperature	T _{OPR}	-20~+75	°C
Storage temperature	T _{STG}	-55~+150	°C

^{*1} When no signal

^{*2} Back metal temperature 75°C (Using infinite heatsink)

○Operating Range (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	6.0~15.0	V

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

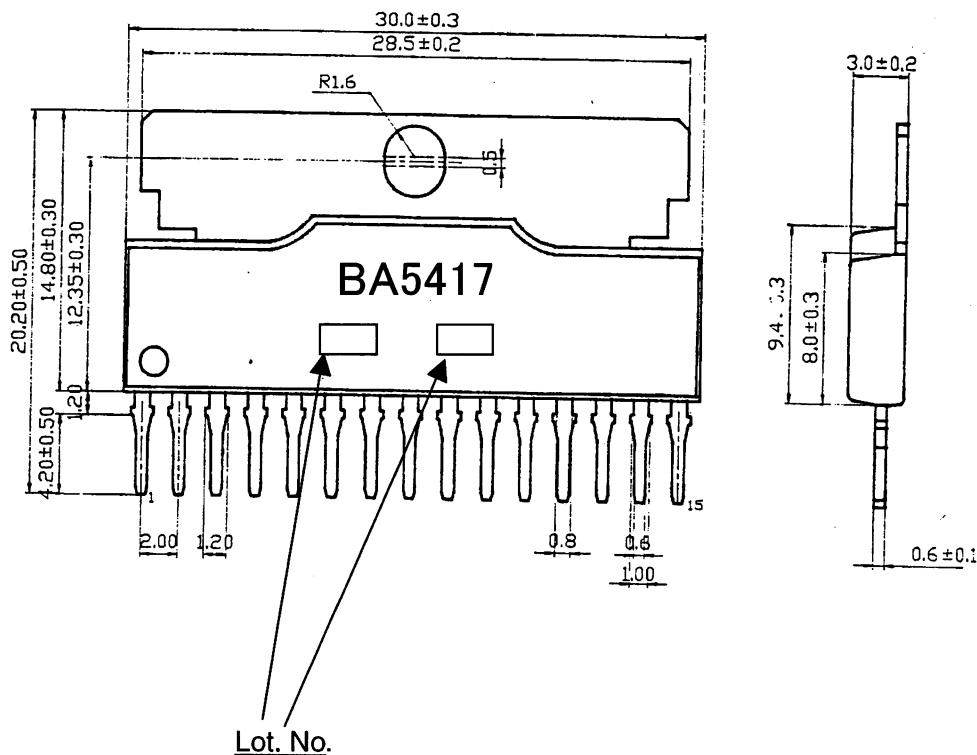
Application example

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, Ta= 25°C, Vcc=9V, R_L=3Ω, R_F=120Ω, R_G=600Ω, f=1kHz)

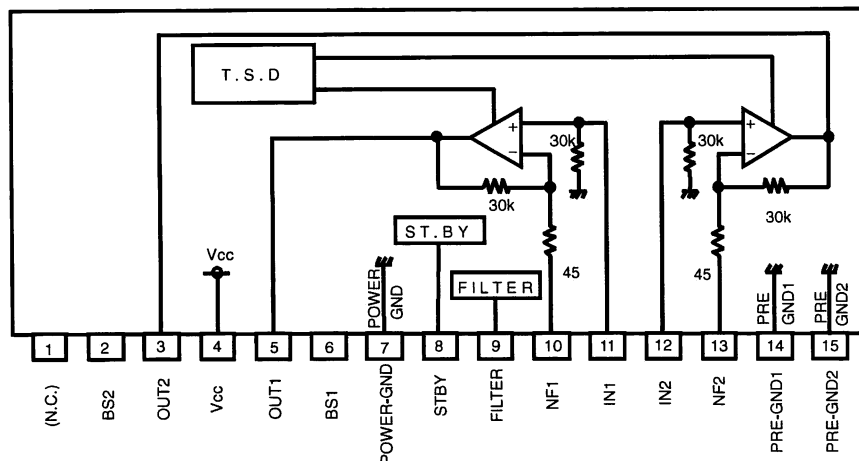
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current		I _O	-	22	45	mA	V _{IN} =0Vrms
Rated output power 1		P _{OUT1}	2.2	2.8	-	W	THD=10%
Rated output power 2		P _{OUT2}	4.0	5.0	-	W	THD=10%, Vcc=12V
Closed loop voltage gain		G _{VC}	43	45	47	dB	—
Output noise voltage		V _{NO}	-	0.3	1.0	mVrms	R _g =10kΩ, D _{IN} AUDIO
Total harmonic distortion		THD	-	0.1	1.0	%	P _{OUT} =0.5W
Ripple rejection		RR	42	55	-	dB	f _{RR} =100Hz, V _{RR} =-10dBm
Crosstalk		CT	48	65	-	dB	V _O =0dBm
Standby current		I _{OFF}	-	0	20	μA	—
Standby pin input current		I _{SIN}	-	0.15	0.4	mA	V _{STBY} =V _{CC}
Standby pin control voltage	Activated	V _{STH}	3.5	-	-	V	—
	Not Activated	V _{STL}	-	-	1.2	V	—

○Outer dimensions



HSIP15 (Unit: mm)

Block diagram



Pin number and pin name

Pin No.	Pin name
1	(N.C.)
2	BS2
3	OUT2
4	Vcc
5	OUT1
6	BS1
7	POWER-GND
8	STBY
9	FILTER
10	NF1
11	IN1
12	IN2
13	NF2
14	PRE-GND1
15	PRE-GND2

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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