Structure : Silicon Monolithic Integrated Circuit

Product name : 5W+5W Stereo Speaker Amplifiers

Type : **BA5406**

Features :

1) Small "pop" noise
2) Good low voltage characteristics (Operation from Vcc=5 V, Typ.)
3) Good channel balance
4) Good distortion characteristics (THD=0.3% When Po=0.5W)

○Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	18※1	V
Power dissipation	Pd	20※2	W
Operating temperature	TOPR	-20～+75	℃
Storage temperature	TSTG	-30～+125	℃
Junction temperature	Tj	150	℃

*1 No signal
*2 Back metal temperature:75℃

○Operating Range (Ta=25℃)

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	VCC	5	12	15	V

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

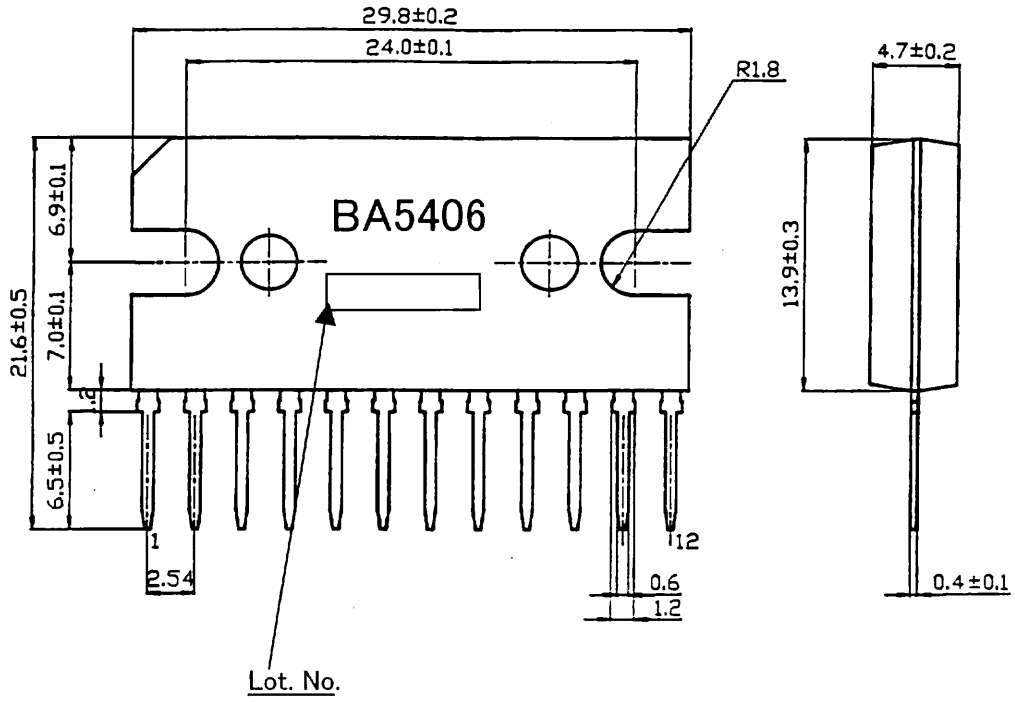
Application example

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 or 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=12V, R_L=3Ω)

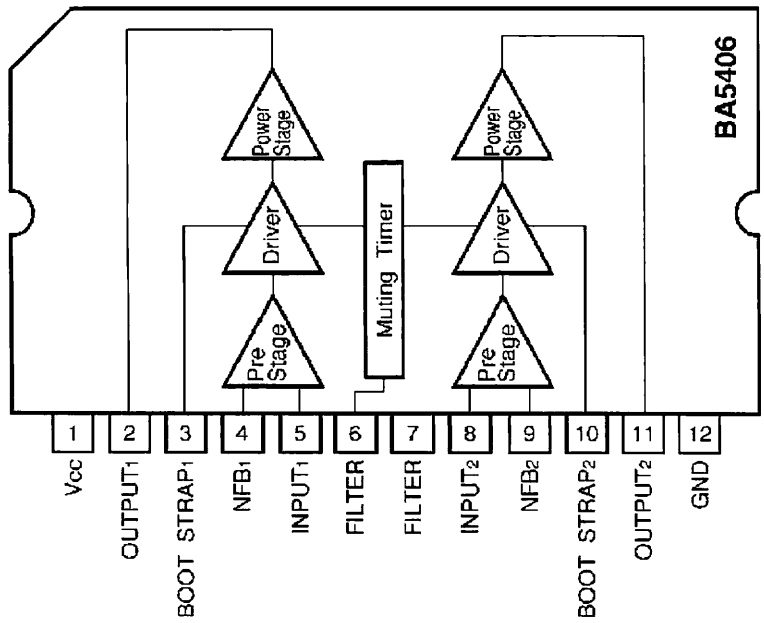
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I_O	20	40	70	mA	VIN=0Vrms
Closed loop voltage gain	G_{VC}	43	46	49	dB	f=1kHz, VIN=-46dBm
Rated output1	P_{OUT1}	4.0	5.0	-	W	f=1kHz, THD=10%, R_L=3Ω
Rated output2	P_{OUT2}	3.4	4.2	-	W	f=1kHz, THD=10%, R_L=4Ω
Total harmonic distortion	THD	-	0.3	1.5	%	f=1kHz, Po=0.5W
Output noise voltage	V_{NO}	-	0.6	1.0	mV_{rms}	Rg=10kΩ
Input resistance	R_{IN}	50	100	-	kΩ	f=1kHz, VIN=0Vrms
Ripple rejection	R.R	39	45	-	dB	VRR=-10dBm, fRR=100Hz, Rg=0Ω
Crosstalk	C.T	39	50	-	dB	f=1kHz, VIN=-46dBm

○Outer dimensions



SIP-M12 (Unit: mm)

OBlock diagram



OPin number and pin name

Pin No.	Pin name
1	Vcc
2	OUTPUT1
3	BOOT STRAP 1
4	NFB1
5	INPUT1
6	FILTER
7	FILTER
8	INPUT2
9	NFB2
10	BOOT STRAP2
11	OUTPUT2
12	GND

OCautions 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 misinstallation
When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is misinstalled 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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