

LA4635A

For General Audio Use 2-Channel BTL AF Power Amplifier

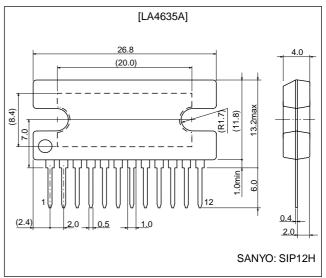
Overview

The LA4635A is a 2-channel power IC that is pin-compatible with the LA4636. It represents a new concept in devices of this type by allowing design editing based on common circuit board pin compatibility for products of different power ranks. It is compatible with $V_{\rm CC}=9~V$ and $V_{\rm CC}=12~V$ specifications and is available in two versions with different voltage gains (LA4635A with VG = 35 dB and LA4635B with VG = 45 dB).

Package Dimensions

unit: mm

3049B-SIP12H



Specifications

Maximum Ratings at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max	No signal	24	V
Maximum output current	I _o peak	Per channel	2.5	Α
Allowable power dissipation	Pd max	Infinite heat sink	25	W
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-40 to +150	°C

Operating Conditions at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	Vcc		12	V
Recommended load resistance	R _L op		3 to 8	Ω
Allowable operating voltage range	V _{CC} op		5.5 to 22	V

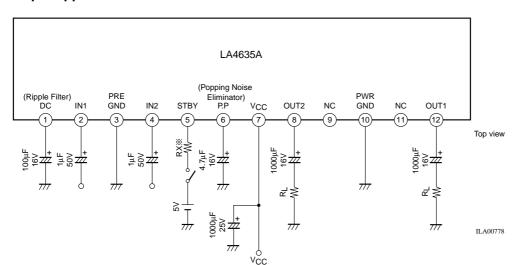
^{*} Set V_{CC}, R_L, and output level such that Pd max. is not exceeded for the size of heat sink used.

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Operating Characteristics at $Ta = 25^{\circ}$	$V_{CC} = 12 \text{ V, } R_{L} = 12 \text{ V}$	$= 3 \Omega$, $f = 1 \text{ kHz}$, $Rg = 600 \Omega$
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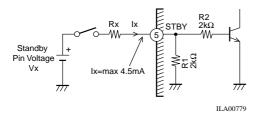
Parameter	Symbol	Conditions		Ratings		
			min	typ	max	Unit
Quiescent current	Icco	Rg = 0	18	35	80	mA
Standby current	Ist			1	10	μΑ
Voltage gain	VG	$V_O = 0 \text{ dBm}$	33	35	37	dB
Total harmonic distortion	THD	Po = 1 W		0.15	0.4	%
Output power	Po1 Po2	THD = 10% V _{CC} = 9 V, THD = 10%	3.0 2.0	4.5 2.5		W W
Output noise voltage	V _{NO}	Rg = 0, BPF = 20 Hz to 20 kHz		0.05	0.25	mV
Ripple rejection	SVRR	$Rg = 0$, $f_R = 100 Hz$, $V_R = 0 dBm$	50	60		dB
Channel separation	CH Sep	$Rg = 10 \text{ k}\Omega, V_O = 0 \text{ dBm}$	55	65		dB
Input resistance	Ri		20	30	40	kΩ
Standby pin voltage	VsT	Amplifier on (pin 5 voltage)	1.5	5.0		V

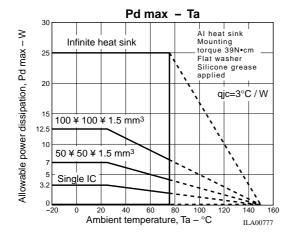
Sample Application Circuit



* If voltage is to be applied to the Standby pin (pin 5), a resistor (Rx) should be inserted to limit the inflow current, as required. Please refer to the information below.

(Reference) Pin 5 Equivalent Circuit Inside IC





- The amplifier can be turned on and off by controlling the level (high/low) of pin 5.
- Applying a signal equal or greater than 1.5 V and $800~\mu A$ to pin 5 turns on the amplifier. (If 5 V is applied directly to pin 5 the inflow current of pin 5 is approximately 4.5 mA.)
- If a voltage, Vx, exceeding 5 V is to be applied, current limiting resistor (Rx) should be inserted to limit the inflow current to 4.5 mA. (See following equation.)

$$Rx = (Vx - 5 V) / 4.5 mA$$

 If pin 5 is to be controlled by the microprocessor, the pin 5 inflow current (Ix) should be optimized for the capacity of the microprocessor by calculating Rx using the following equation, as a general guideline, and then confirming the inflow current through actual measurement.

$$Rx = (Vx / Ix) - R1 (2 k\Omega)$$

Note: The LA4635A is basically pin-compatible with the LA4636, but there are partial differences in operation and usage, including with regard to externally connected parts.

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