Ordering number: ENN6983

Monolithic Linear IC

LA4635A

For General Audio Use
2-Channel BTL AF Power Amplifier

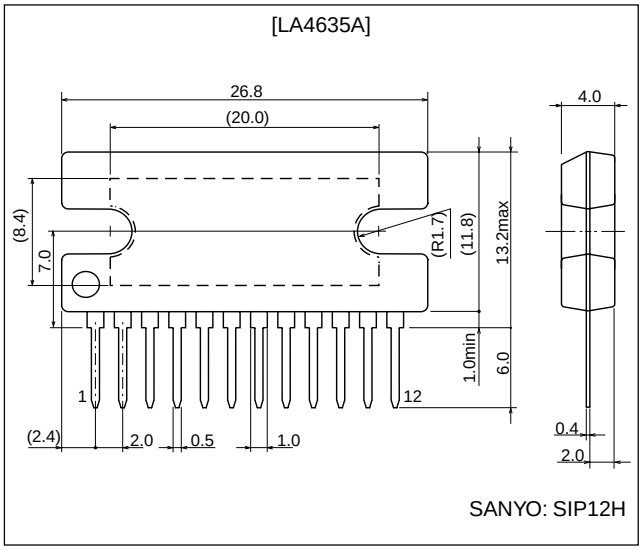
Overview

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_{CC} = 9 V and V_{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°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	A
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°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		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.

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

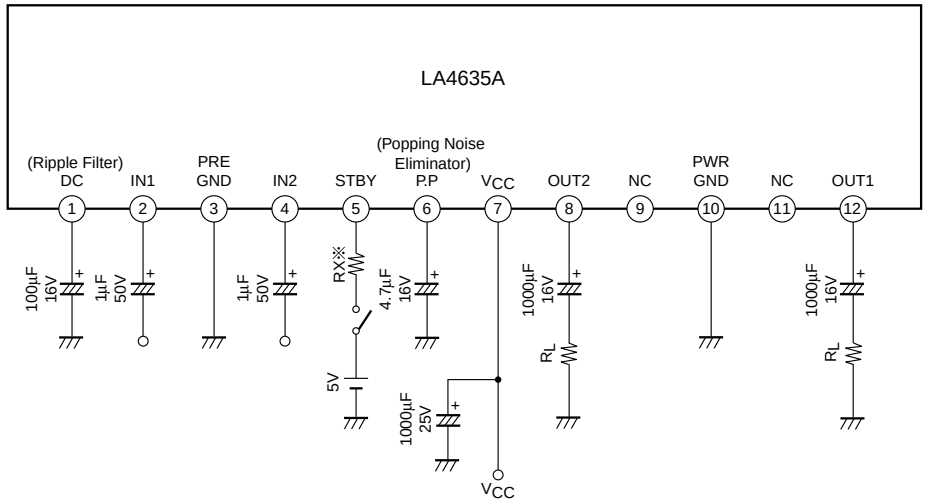
■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Operating Characteristics at Ta = 25°C, V_{CC} = 12 V, R_L = 3 Ω, f = 1 kHz, Rg = 600 Ω

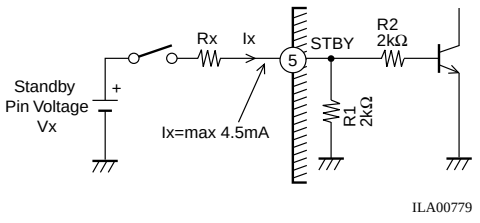
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO}	Rg = 0	18	35	80	mA
Standby current	Ist			1	10	μA
Voltage gain	VG	V_O = 0 dBm	33	35	37	dB
Total harmonic distortion	THD	P_O = 1 W		0.15	0.4	%
Output power	P_O1 P_O2	THD = 10% V_{CC} = 9 V, THD = 10%	3.0 2.0	4.5 2.5		W 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 kΩ, V_O = 0 dBm	55	65		dB
Input resistance	Ri		20	30	40	kΩ
Standby pin voltage	V_{ST}	Amplifier on (pin 5 voltage)	1.5	5.0		V

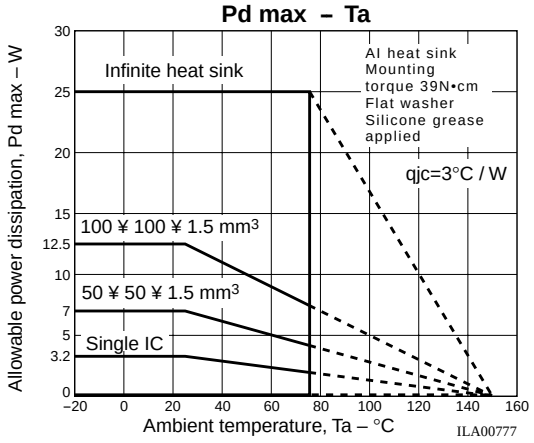
Sample Application Circuit



* 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 μA 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 kΩ)

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.

■ Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all SANYO products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of July, 2002. Specifications and information herein are subject to change without notice.