Ordering number : EN6983A

SANYO Semiconductors
DATA SHEET

LA4635A — Monolithic Linear IC For General Audio Use 2-Channel BTL AF Power Amplifier

Overview

The LA4635A is a 2-channel power amplifier 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} = 9V and V_{CC} = 12V specifications and is available in two versions with different voltage gains (LA4635A with VG = 35dB and LA4635B with VG = 45dB).

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.

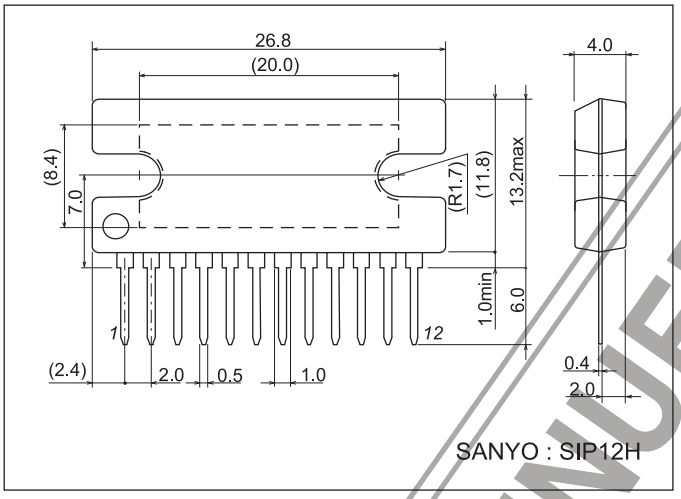
Electrical Characteristics at Ta = 25°C, V_{CC} = 12V, R_L = 3Ω, f = 1kHz, Rg = 600Ω

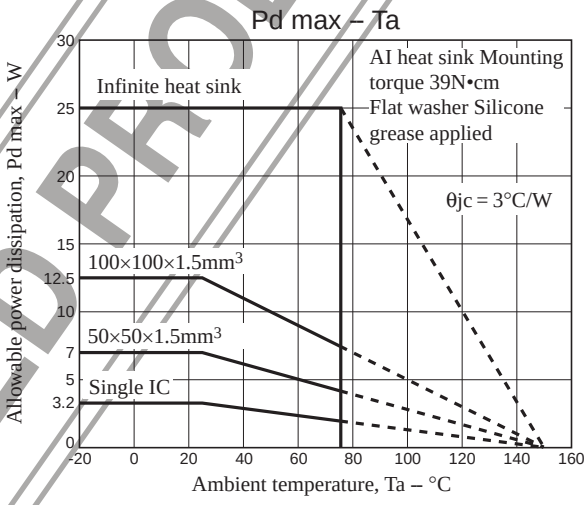
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO}	Rg = 0	18	35	80	mA
Standby current	Ist			1	10	μA
Voltage gain	VG	V_O = 0dBm	33	35	37	dB
Total harmonic distortion	THD	P_O = 1W		0.15	0.4	%
Output power	P_O1	THD = 10%	3.0	4.5		W
	P_O2	V_{CC} = 9V, THD = 10%	2.0	2.5		W
Output noise voltage	V_{NO}	Rg = 0, BPF = 20Hz to 20kHz		0.05	0.25	mV
Ripple rejection	SVRR	Rg = 0, f_R = 100Hz, V_R = 0dBm	50	60		dB
Channel separation	CHsep	Rg = 10kΩ, V_O = 0dBm	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

Package Dimensions

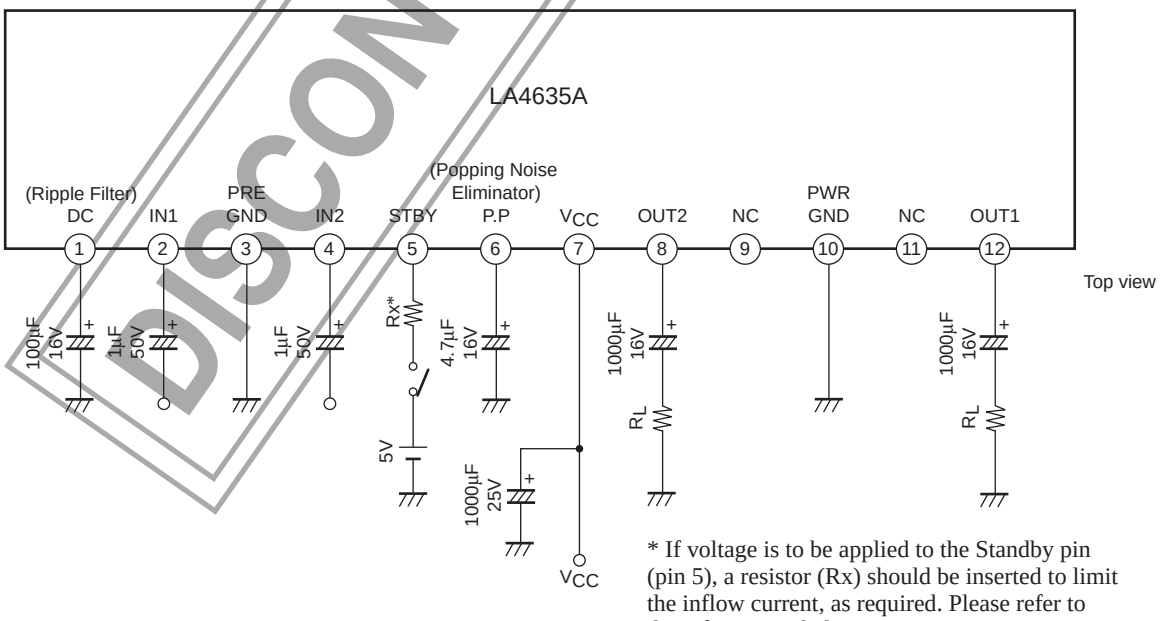
unit : mm (typ)

3049B



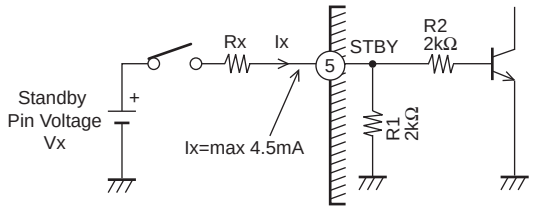


Sample Application Circuit



* 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 1.5V and 800μA to pin 5
  turns on the amplifier. (If 5V is applied directly to pin 5 the inflow current of pin 5 is approximately 4.5mA.)
- If a voltage, Vx, exceeding 5V is to be applied, current limiting
  resistor (Rx) should be inserted to limit the inflow current to 4.5mA. (See following equation.)
  $Rx = (Vx–5V) /4.5mA$
- 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.
  $Rx = (Vx/Ix)–R1\ (2k\Omega)$

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.