Ordering number: EN4335A

Monolithic Linear IC

LA4800V

3 V Stereo Headphone Power Amplifier

Overview

The LA4800V is a headphone stereo power amplifier IC that features a high signal-to-noise ratio, high ripple rejection, low distortion and low current consumption, making it ideal for portable CD players.

Functions

- Headphone stereo power amplifier
- Beep tone
- Power switch
- Power mute switch

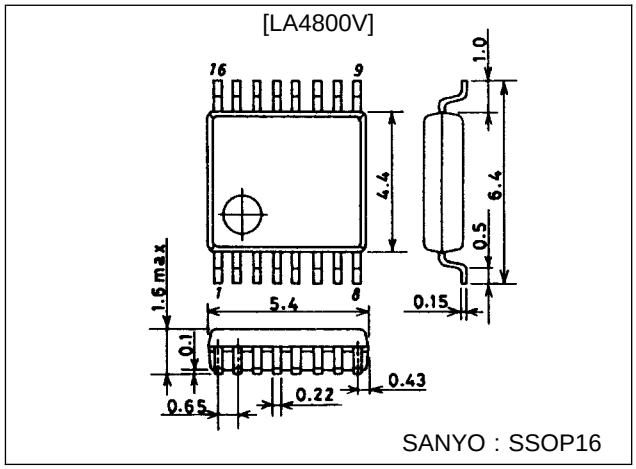
Features

- 96 dB (typ) high S/N ratio at 7 μV
- 76 dB (typ) high ripple rejection
- 0.07% (typ) low distortion with R_L = 16 Ω
- 6.2 mA (typ) low current consumption
- Outputs do not require electrolytic capacitors.
- Available in 16-pin SSOPs

Package Dimensions

unit : mm

3178-SSOP16



Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		4.5	V
Power dissipation	Pd max		375	mW
Operating temperature range	Topr		–15 to 50	°C
Storage temperature range	Tstg		–40 to 150	°C

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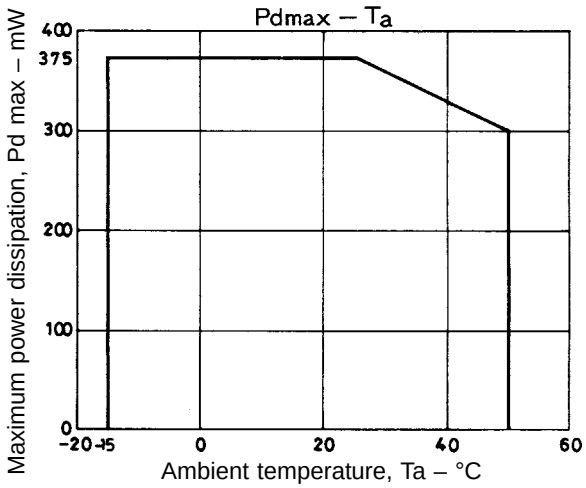
Recommended Operating Ranges at Ta = 25°C

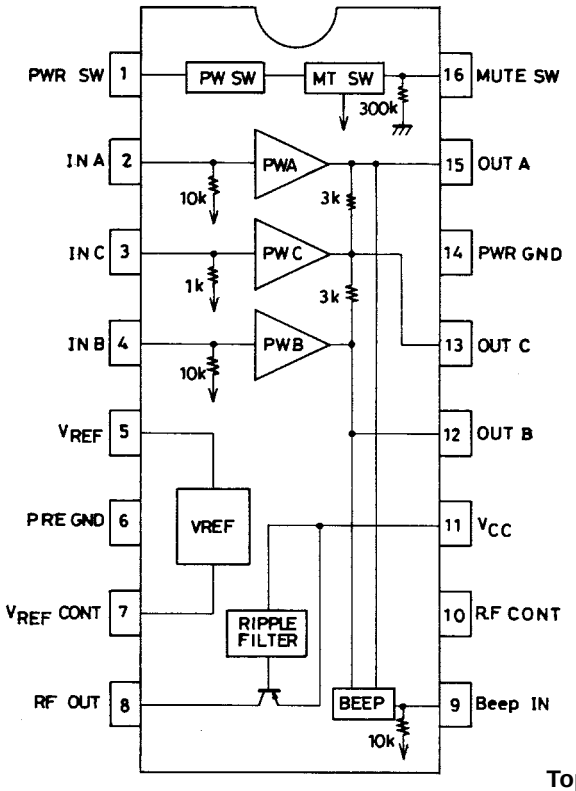
Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		3.0	V
Load resistance	R_L		16 to 32	Ω
Operating supply voltage range	V_{CC} op		1.8 to 3.6	V

Operating Characteristics at Ta = 25°C, V_{CC} = 2.5 V, R_L = 16 Ω, f = 1 kHz unless otherwise noted. Values in parentheses indicate V_{CC} = 3.0 V

Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent supply current	I_{CCO1}	IC OFF		0.05	1.0	μA
	I_{CCO2}	Mute ON		1.6 (1.65)	3.0	mA
	I_{CCO3}	No input signal		6.2 (6.8)	9.0	mA
Voltage gain	VG	V_O = –10 dBm	10.3	11.8	13.3	dB
Channel balance	V_{RL}	V_O = –10 dBm	–1	0	1	dB
Output power	P_O	V_{CC} = 3.0 V, THD = 10%	15	25		mW
Total harmonic distortion	THD	V_O = 0.35 V		0.075	0.2	%
Output noise voltage	V_{NO}	Rg = 1 kΩ, DIN AUDIO		7.8	15	μV
Crosstalk	CT	f = 1 kHz, TUN, V_O = –10 dBm	35	45		dB
Ripple rejection	R.R	V_{CC} = 1.7 V, f = 100 Hz, V_{CR} = –20 dBm, TUN = 100 Hz	65	76		dB
Mute attenuation	V_{OFF}	THD = 1%	–80	–96		dB
Beep tone output voltage	$V_{O\ BEEP}$	V_I = –13.5 dBm (sine wave)	1.5	3.0		mV
Output DC offset voltage	$V_{DC\ OFF}$	V_I = 0 V, Rg = 1 kΩ	–20	0	20	mV
Power ON current sensitivity	$I_{1\ ON}$	V_{CC} = 1.7 V, $V_5 \geqq$ 1.0 V		50	60	μA
Power OFF voltage sensitivity	$V_{1\ OFF}$	V_{CC} = 1.7 V, $V_5 \leqq$ 0.1 V	0.5	0.6		V
Mute OFF current sensitivity	$I_{16\ OFF}$	V_{CC} = 1.7 V, $V_5 \geqq$ 1.0 V		4.5	6.0	μA
Mute OFF voltage sensitivity	$V_{16\ OFF}$	V_{CC} = 1.7 V	1.0	1.25	1.5	V
Mute ON voltage sensitivity	$V_{16\ ON}$	V_{CC} = 1.7 V		0.9	1.0	V



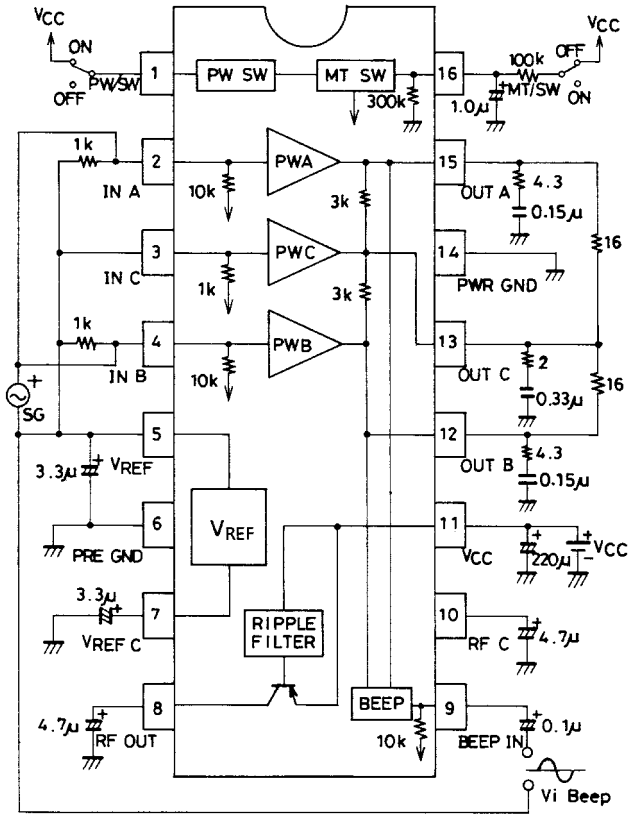
Pin Assignment and Block Diagram



Top view

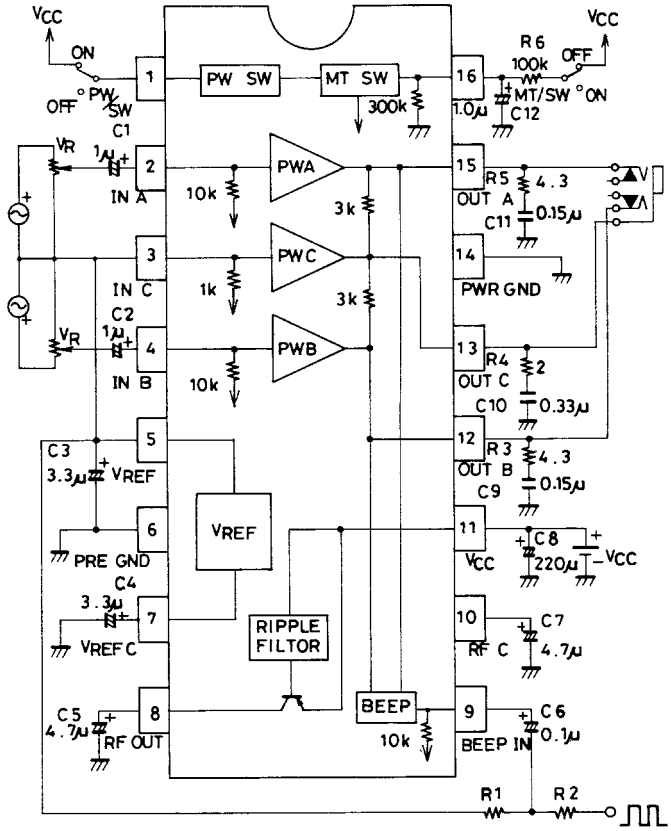
Unit (resistance: Ω)

Test Circuit



Unit (resistance: Ω, capacitance: F)

Sample Application Circuit

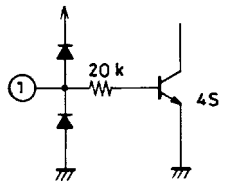
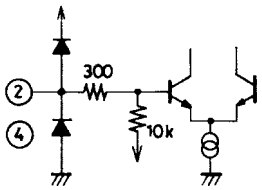
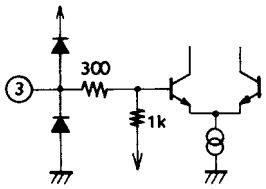


Unit (resistance: Ω, capacitance: F)

Pin Description

V_{CC} = 2.5 V

Unit (resistance: Ω)

Pin number	Pin name	V_{DC} (V)	Equivalent circuit	Pin description
1	PWR SW	0 to 0.7		Power switch Turns ON the power to the V_{CC} pin.
2	IN A	1.1		Power input pins 10 kΩ input resistance
4	IN B			
3	IN C	1.1		Power amplifier common input pin Usually connected to Vref

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