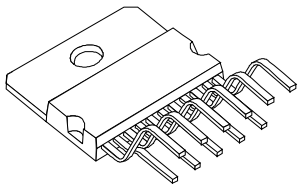
TDA2009

LINEAR INTEGRATED CIRCUIT

10 +10W STEREO AMPLIFIER



HZIP-11A

*Pb-free plating product number: TDA2009L

■ DESCRIPTION

The UTC **TDA2009** is a class AB stereo audio power amplifier that contains two identical amplifiers capable of delivering 10W per channel. It is designed for quality Hi-Fi stereo application which is easy to construct and has a minimum need of external components.

■ FEATURES

* Supply range 8V ~ 28V
* High power outputs (10W/Channel)
* High output current up to 3.5A
* Short circuit protection
* Thermal protection

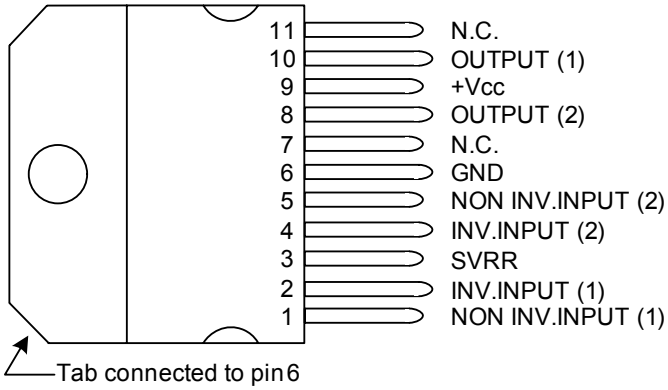
■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead Free Plating		
TDA2009-J11-A-T	TDA2009L-J11-A-T	HZIP-11A	Tube

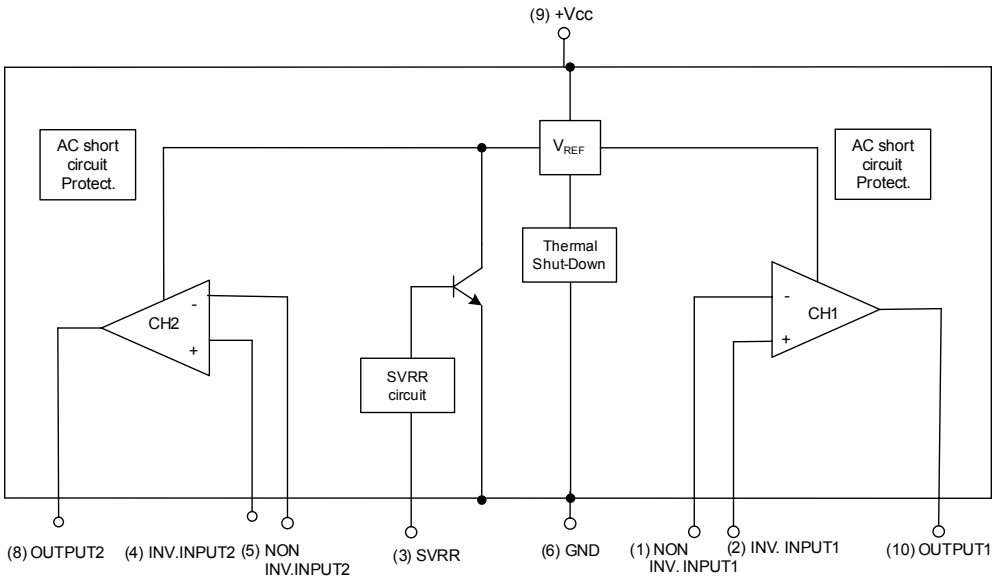
TDA2009L-J11-A-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) T: Tube (2) J11-A: HZIP-11A (3) Lead Free Plating Blank: Pb/Sn

Copyright © 2005 Unisonic Technologies Co., Ltd

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	28	V
Peak Output Current	repetitive, f ≥ 20Hz	$I_{O(PEAK)}$	3.5	A
	non repetitive, tp=100μs		4.5	A
Power Dissipation@Tc = 90°C		P_D	20	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Thermal Resistance Junction to Case	θ_{JC}	3.0	°C/W

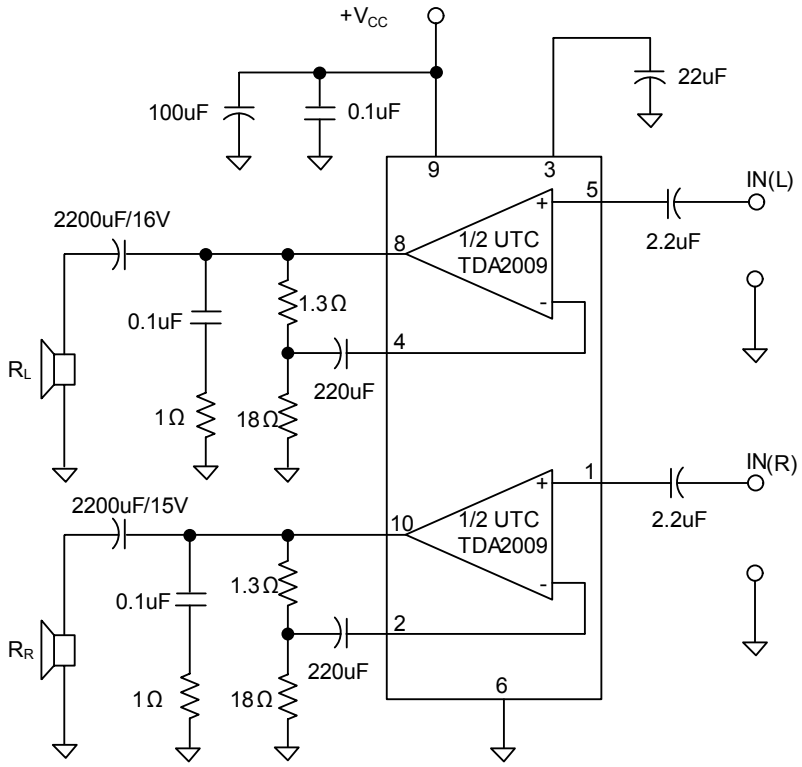
■ ELECTRICAL CHARACTERISTICS

(Refer to test circuit, Ta= 25°C, Vcc = 24V, G_V = 36dB, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage		V_{CC}			8		28	V
Quiescent Output Voltage		V_{OUT}	V_{CC} = 24V			11.5		V
Input Saturation Voltage (rms)		$V_{IN(SAT)}$			300			mV
Total Input Noise Voltage		e_N	R_g = 10KΩ, 22Hz~22KHz			2.5	8	μV
Total Quiescent Drain Current		I_Q	V_{CC} = 24V			60	120	mA
Output Power for each channel	R_L =4Ω	P_{OUT}	THD=1%, V_{CC}=24V, f=1kHz			12.5		W
	R_L =8Ω					7		W
	R_L =4Ω		f = 40Hz ~12.5kHz		10			W
	R_L =8Ω				5			W
	R_L =4Ω		V_{CC} = 18V, f = 1kHz			7		W
	R_L =8Ω					4		W
Total Harmonic Distortion for each channel	R_L =4Ω	THD	P_{OUT} = 0.1~7.0W	f = 1kHz, V_{CC}=24V		0.2		%
	R_L =8Ω		P_{OUT} = 0.1~3.5W			0.1		%
	R_L =4Ω		P_{OUT} = 0.1~5.0W	V_{CC}=18V		0.2		%
	R_L =8Ω		P_{OUT} = 0.1~2.5W			0.1		%
Input Resistance		R_{IN}	f = 1kHz, Non-Inverting Input		70	200		kΩ
Frequency Roll off (-3dB)	Low	f_L	R_L =4Ω			20		Hz
	High	f_H	R_L =4Ω			80		kHz
Closed Loop Voltage Gain		Gv	f = 1kHz		35.5	36	36.5	dB
Closed Loop Gain Matching		Δ Gv				0.5		dB
Cross Talk	f = 1kHz	CT	R_L = ∞, Rg = 10KΩ			60		dB
	f = 10kHz					50		
Supply Voltage Rejection for each channel		SVR	f_{RIPPLE} = 100Hz, V_{RIPPLE} = 0.5V, R_g = 10kΩ			55		dB
Thermal Shut-Down Junction Temperature						145		°C

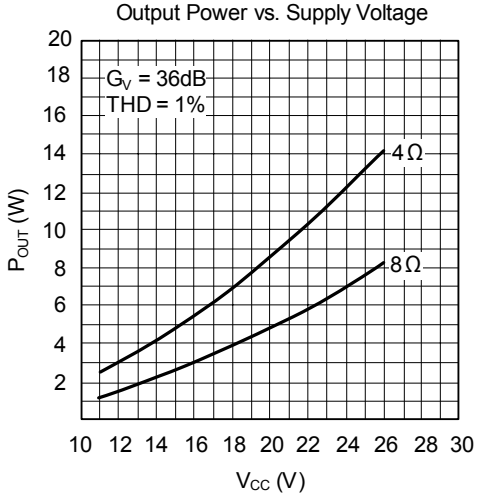
■ TEST AND APPLICATION CIRCUIT

(G_V = 36dB)

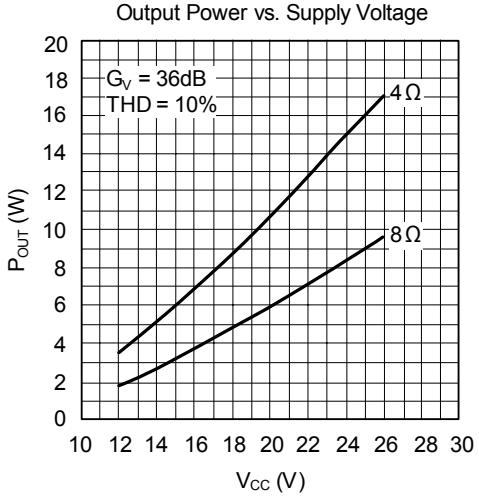


■ TYPICAL CHARACTERISTICS

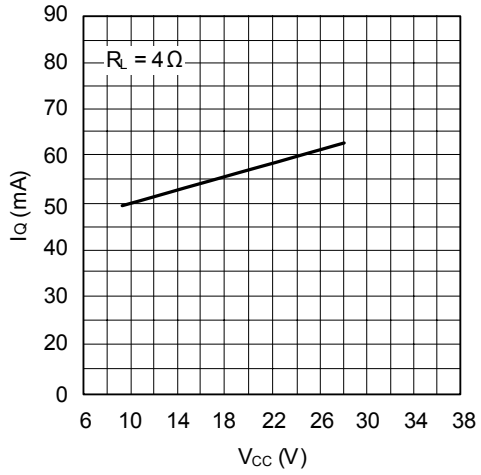
Output Power vs. Supply Voltage



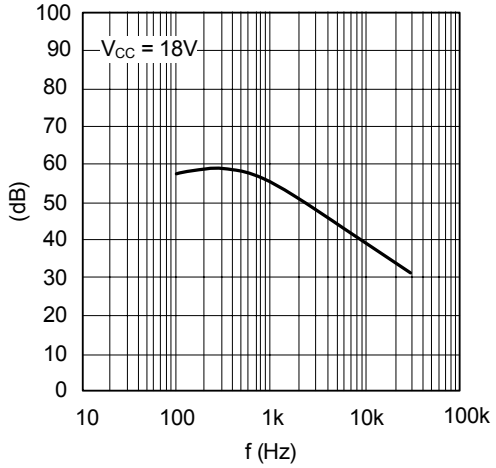
Output Power vs. Supply Voltage



Quiescent Current vs. Supply Voltage



Supply Voltage Rejection vs. Frequency



UTC 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 UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.