



PA2009

Preliminary

LINEAR INTEGRATED CIRCUIT

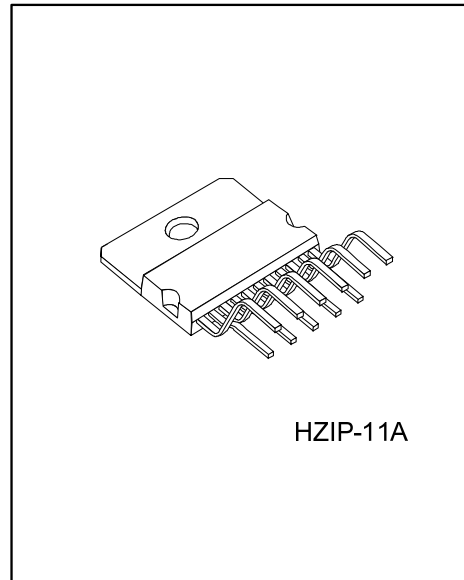
10 +10W STEREO AMPLIFIER

DESCRIPTION

The UTC **PA2009** 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



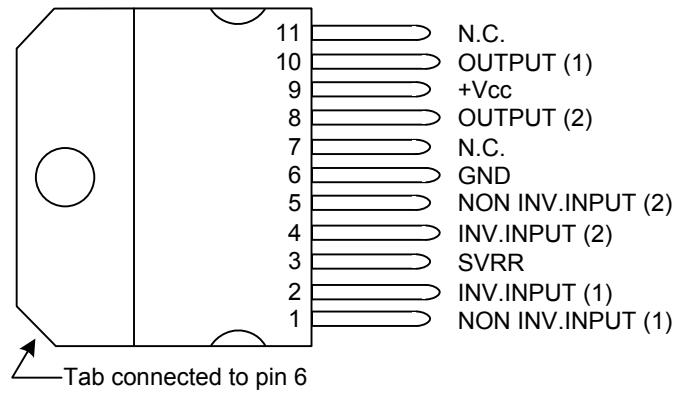
Lead-free: PA2009L
 Halogen-free: PA2009G

ORDERING INFORMATION

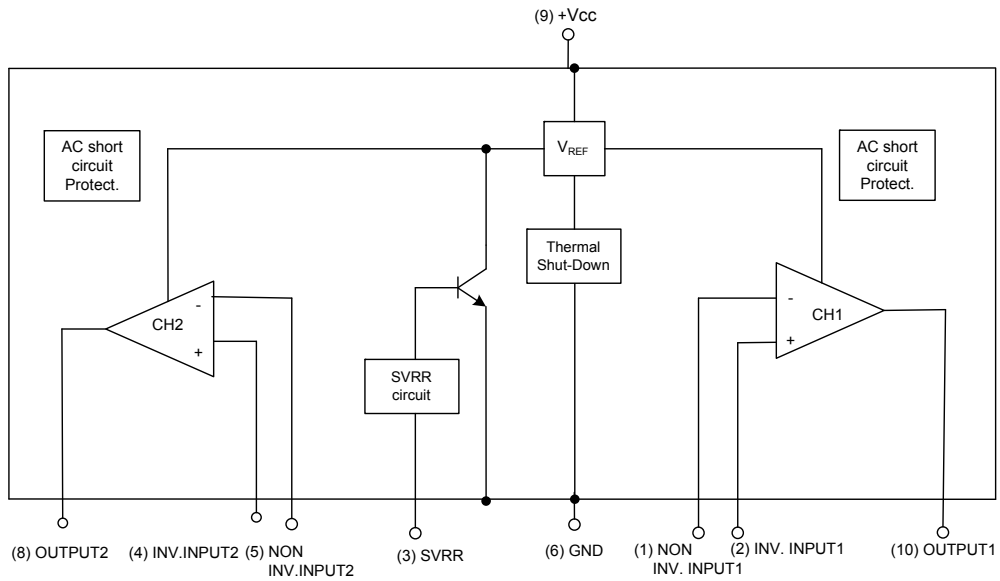
Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
PA2009-J11-A-T	PA2009L-J11-A-T	PA2009G-J11-A-T	HZIP-11A	Tube

<p>PA2009L-J11-A-T</p>	<p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) T: Tube (2) J11-A: HZIP-11A (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	28	V
Peak Output Current	repetitive, $f \geq 20\text{Hz}$	$I_{O(PEAK)}$	3.5	A
	non repetitive, $t_p=100\mu\text{s}$		4.5	A
Power Dissipation@ $T_c = 90^\circ\text{C}$		P_D	20	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ\text{C}$

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	$^\circ\text{C/W}$

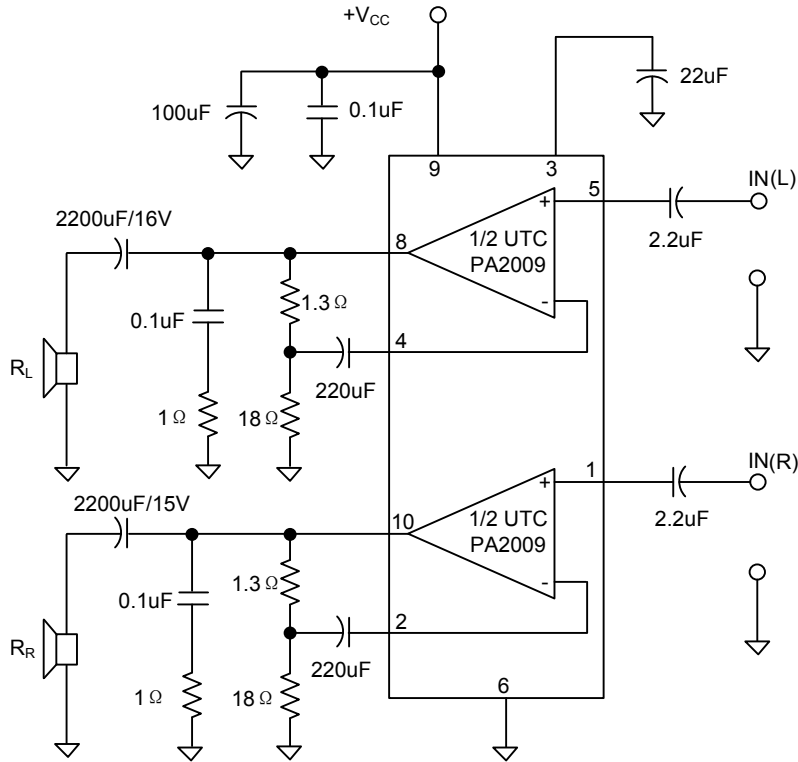
■ ELECTRICAL CHARACTERISTICS

(Refer to test circuit, $T_a = 25^\circ\text{C}$, $V_{CC} = 24\text{V}$, $G_v = 36\text{dB}$, unless otherwise specified)

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

■ TEST AND APPLICATION CIRCUIT

($G_v = 36\text{dB}$)



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