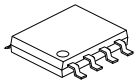
PA2308 *LINEAR INTEGRATED CIRCUIT*

CLASS AB STEREO HEADPHONE DRIVER



SOP-8

Lead-free: PA2308L
Halogen-free: PA2308G

■ DESCRIPTION

As operating on a single 5V supply, the UTC **PA2308** is capable of delivering 280mW of max. Output power to an 8Ωload or 110mW to a 32Ωload with less than 10% (THD+N).

The device is very sutible for portable digital audio application.

■ FEATURES

* Output power less than 10% THD+N, V_{DD}=5V(TYP)
  --280mW/CH (typical) into a 8Ω load
  --110mW/CH (typical) into a 32Ω load
*Very High signal-to-noise ratio
*Large output voltage swing
*Good power supply ripple rejection
*Low power consumption and Low distortion
*Fix wide temperature range
*Without switch ON/OFF clicks

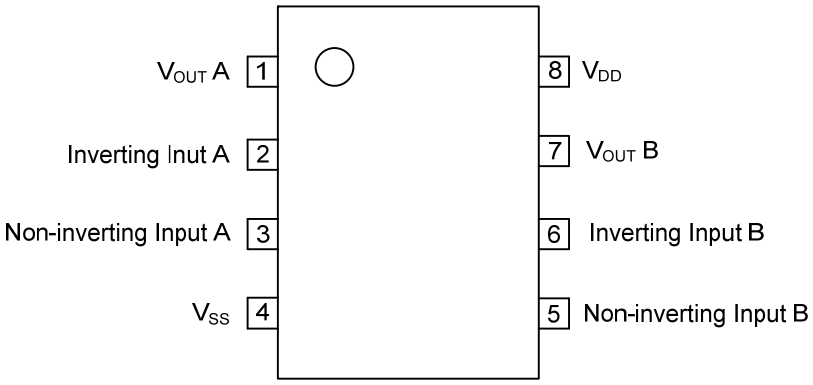
■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
PA2308-S08-R	PA2308L-S08-R	PA2308G-S08-R	SOP-8	Tape Reel
PA2308-S08-T	PA2308L-S08-T	PA2308G-S08-T	SOP-8	Tube

PA2308L-S08-R
(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) R: Tape Reel, T: Tube
(2) S08: SOP-8
(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

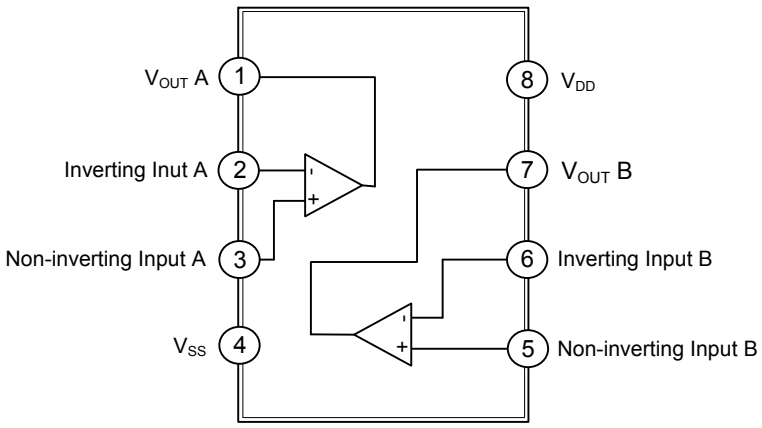
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	I/O	PIN DESCRIPTION
1	V_{OUT} A	O	Channel A output pin
2	Inverting Input A	I	Inverting input for channel A
3	Non- Inverting Input A	I	Non-inverting input for channel A
4	V_{SS}		Ground
5	Non- Inverting Input B	I	Non-inverting input for channel B
6	Inverting Input B	I	Inverting input for channel B
7	V_{OUT} B	O	Channel B output pin
8	V_{DD}	I	Supply voltage input pin

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_a=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	7	V
Junction Temperature	T_J	150	℃
Operating Temperature	T_{OPR}	-40 to 85	℃
Storage Temperature	T_{STG}	-65 to +150	℃

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	MIN	TYP	MAX	UNIT
Junction to Ambient	θ_{JA}		210		K/W

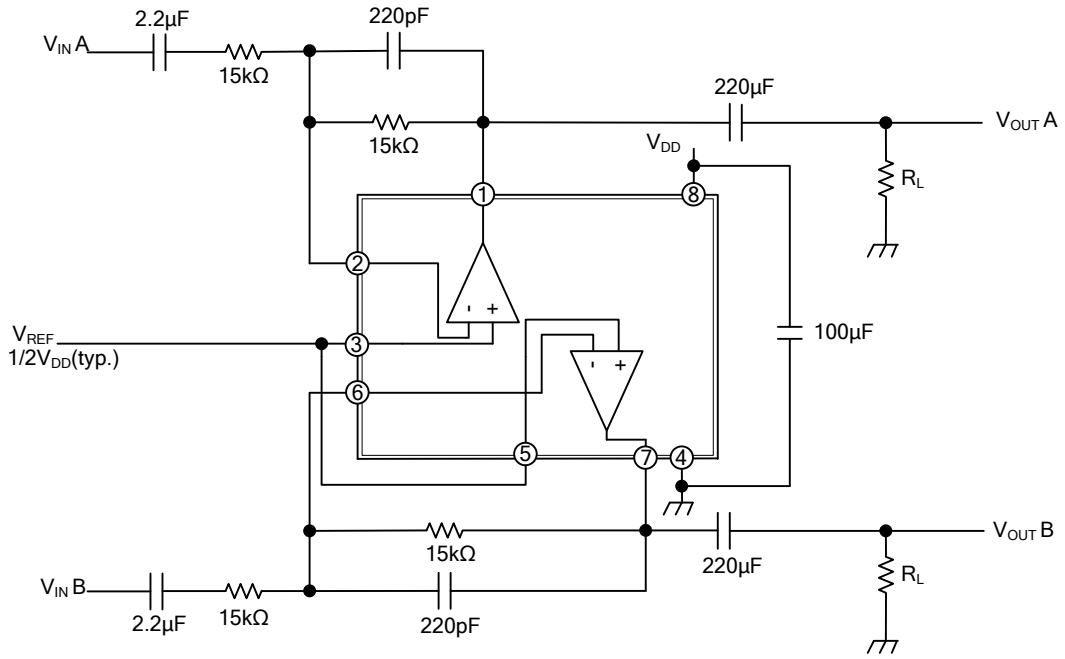
■ ELECTRICAL CHARACTERISTICS(T_a=25°C; unless otherwise specified)

V_{DD}=5V, V_{SS}=0V, f=1kHz, R_L=32Ω

PARAMETER		SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
SUPPLY							
Supply Voltage	Single	V_{DD}		3.0	5.0	6.0	V
	Dual			±1.5	±2.5	±3.0	
Negative Supply Voltage		V_{SS}		-1.5	-2.5	-3.0	V
Supply Current		I_{DD}	No Load		2.5	5	mA
Total Power Dissipation		P_D	No Load		12.5	25	mW
DC CHARACTERISTICS							
Input Offset Voltage		$V_{IN(OFF)}$			5		mV
Input Bias Current		I_{BIAS}			10		pA
Common Mode Voltage		V_{CM}		0		3.5	V
Closed Loop Voltage Gain		Gv	R_L=5kΩ		75		dB
Max. Output Current		I_{OUT}	(THD+N)/S<0.1%		140		mA
Output Resistance		Ro			0.25		Ω
AC CHARACTERISTICS							
Output Voltage Swing		V_{OUT}	R_L=32Ω(Note 1)	0.25		4.75	V
			R_L=16Ω(Note 1)	0.5		4.5	
Power Supply Rejection Ratio		PSRR	f_{IN}=100Hz, $V_{RIPPLE(P.P)}$=100mV		65		dB
Channel Separation		α_{CS}	R_L=32Ω		95		dB
Load Capacitance		C_L				200	pF
Total Harmonic Distortion Plus Noise to Signal Ratio		(THD+N)/S	R_L=32Ω(Note 2)		-65	-60	dB
					0.05	0.1	%
Signal to Noise Ratio		S/N		90	100		dB
Unity Gain Frequency		FG	R_L=5kΩ		5		MHz
Max.Output Power		P_{OUT}	(THD+N)/S<0.1%		84		mW
Input Capacitance		C_I			3		PF
Power Bandwidth		B	Unity Gain Inverting		20		kHz

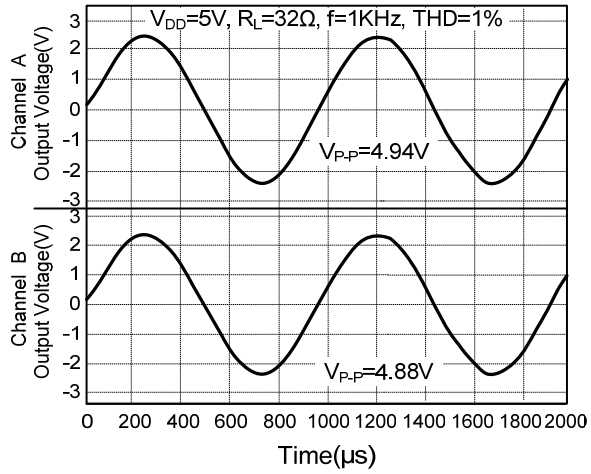
Note: 1. Values are proportional to VDD;(THD+N)/S<0.1%
2. V_{DD}=5V; $V_{OUT(P-P)}$=3.5V(at 0dB)

■ TYPICAL APPLICATION

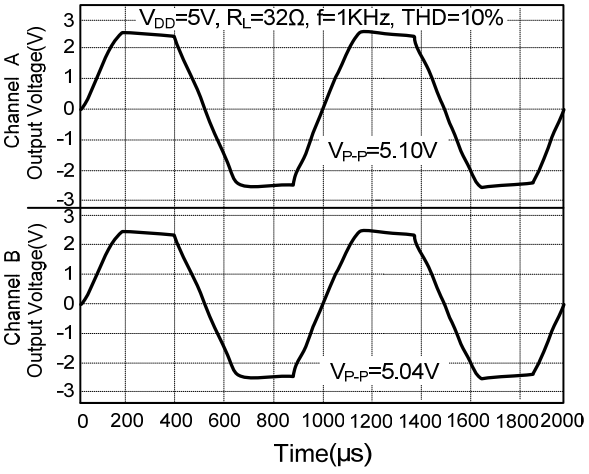


■ TYPICAL CHARACTERISTICS

Output Waveform



Waveform For BTL Mode



Open Loop Gain