



## PA2308

## LINEAR INTEGRATED CIRCUIT

### CLASS AB STEREO HEADPHONE DRIVER

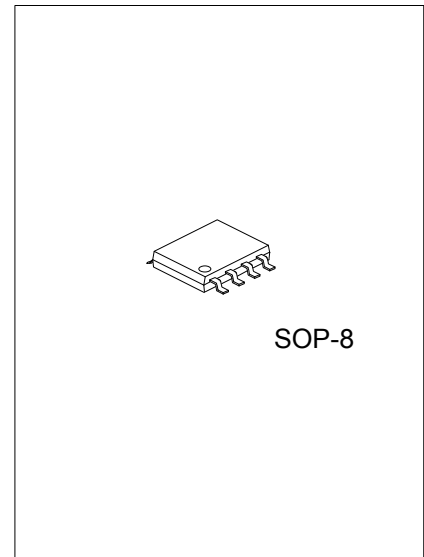
#### DESCRIPTION

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

The device is very suitable 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



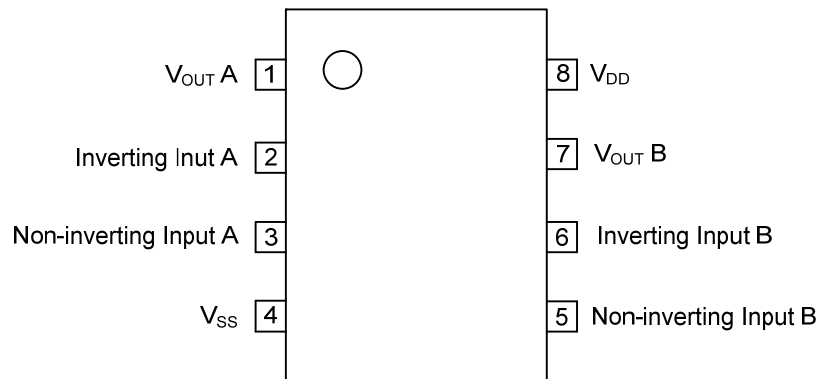
Lead-free: PA2308L  
Halogen-free: PA2308G

#### 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	

<p>PA2308L-S08-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) S08: SOP-8 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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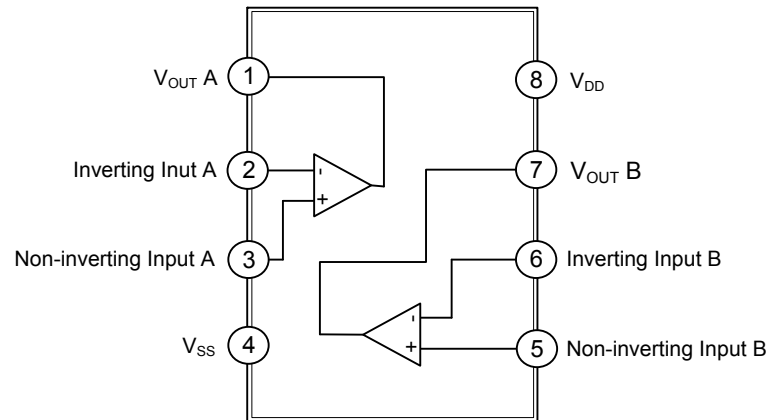
## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

PIN NO.	PIN NAME	I/O	PIN DESCRIPTION
1	V <sub>OUT A</sub>	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 <sub>SS</sub>		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 <sub>OUT B</sub>	O	Channel B output pin
8	V <sub>DD</sub>	I	Supply voltage input pin

## ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>DD</sub>	7	V
Junction Temperature	T <sub>J</sub>	150	°C
Operating Temperature	T <sub>OPR</sub>	-40 to 85	°C
Storage Temperature	T <sub>STG</sub>	-65 to +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	MIN	TYP	MAX	UNIT
Junction to Ambient	θ <sub>JA</sub>		210		K/W

### ■ ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C; unless otherwise specified)

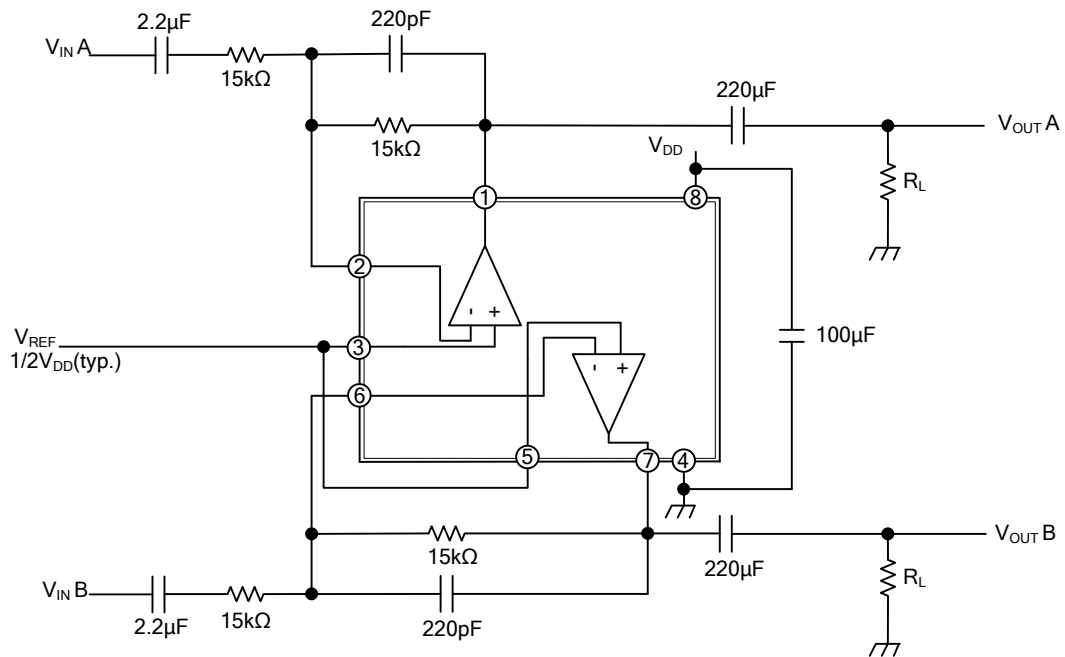
V<sub>DD</sub>=5V, V<sub>SS</sub>=0V, f=1kHz, R<sub>L</sub>=32Ω

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

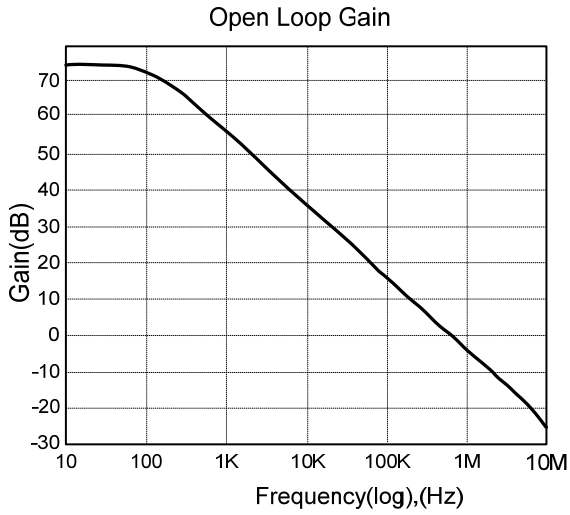
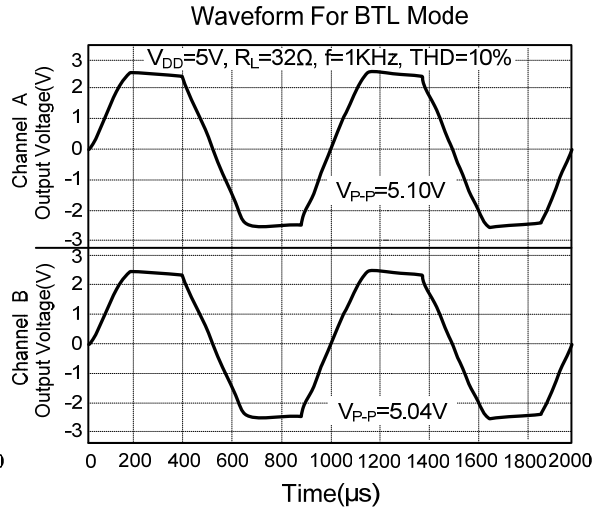
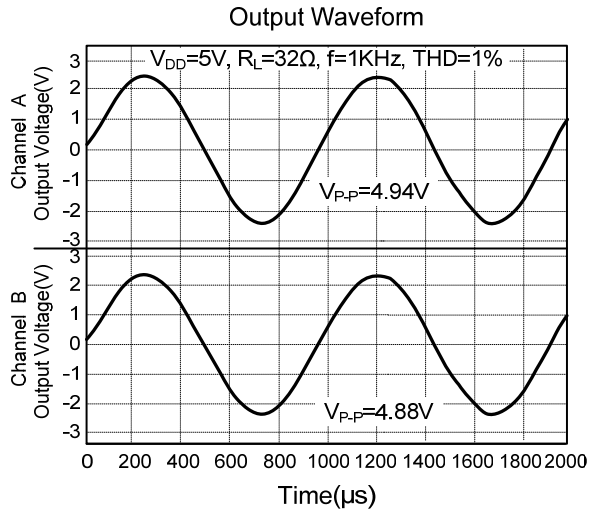
Note: 1. Values are proportional to V<sub>DD</sub>; (THD+N)/S<0.1%

2. V<sub>DD</sub>=5V; V<sub>OUT(P-P)</sub>=3.5V(at 0dB)

## ■ TYPICAL APPLICATION



■ TYPICAL CHARACTERISTICS



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