

## FEATURES

- Wide temperature range
- No switch-ON/OFF clicks
- Excellent power supply ripple rejection
- Low power consumption
- Short-circuit resistant
- High performance :
  - high SNR
  - high slew rate
  - low distortion
- Large output voltage swing

## APPLICATIONS

- CD-RW · DVD-RW
- CD-ROM · DVD-ROM
- Motherboard
- MP3 · PDA
- Portable Digital Audio

## DESCRIPTION

The MS6308 is an integrated class AB stereo headphone driver contained in an SO8 package. The device is fabricated in a CMOS process and has been primarily developed for portable digital audio applications. MS6308 is pin and function compatible with the Philips, TDA1308T.

## PINNING

Symbol	Pin	Description
OUTA	1	output A
-INA	2	inverting input A
+INA	3	non-inverting input A
V <sub>SS</sub>	4	negative supply
+INB	5	non-inverting input B
-INB	6	inverting input B
OUTB	7	output B
V <sub>DD</sub>	8	positive supply

**Pin configuration**

## BLOCK DIAGRAM

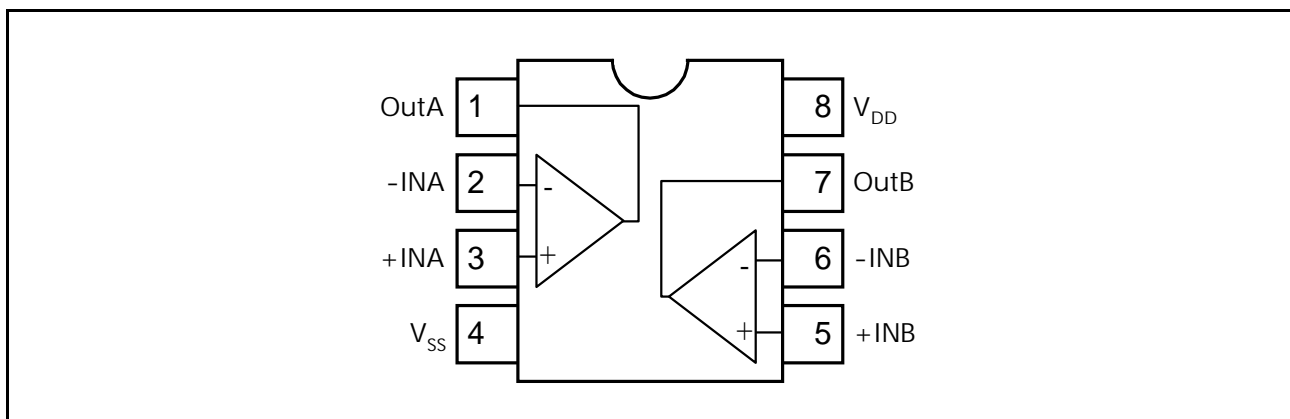


Fig.1 Block Diagram

## ELECTRICAL CHARACTERISTICS

V<sub>DD</sub> = 5V; V<sub>SS</sub> = 0V; f = 1 kHz; R<sub>L</sub> = 32Ω ; Measured in test circuit of Fig.2

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>DDs</sub>	single supply voltage		2.8	5.0	7.0	V
V <sub>DDd</sub>	dual supply voltage		1.4	2.5	3.5	V
V <sub>SS</sub>	negative supply voltage		-1.4	-2.5	-3.5	V
I <sub>DD</sub>	supply current	R <sub>L</sub> not connected	-	3	5	mA
P <sub>tot</sub>	total power dissipation	R <sub>L</sub> not connected	-	15	25	mW
V <sub>ESD</sub>	Electrostatic Discharge	MIL-STD-883D Method 3015.7	6000	-	-	V

## DC CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>Ios</sub>	input offset voltage		-	10	-	mV
I <sub>bias</sub>	input bias current		-	10	-	pA
V <sub>CM</sub>	common mode voltage		0	-	3.5	V
G <sub>V</sub>	open-loop voltage gain	R <sub>L</sub> = 5 kΩ	-	80	-	dB
I <sub>O</sub>	maximum output current	(THD+N)/S < 0.1%	-	60	-	mA
R <sub>O</sub>	output resistance		-	0.25	-	Ω
V <sub>O</sub>	output voltage swing	note 1	0.75	-	4.25	V
		R <sub>L</sub> = 16 Ω; note 1	1.5	-	3.5	V
		R <sub>L</sub> = 5 kΩ; note 1	0.1	-	4.9	V
PSRR	power supply rejection ratio	f = 100 Hz; V <sub>ripple</sub> = 100mV(p-p)	-	90	-	dB
CS	channel separation		-	70	-	dB
		R <sub>L</sub> = 5 kΩ	-	105	-	dB
CL	load capacitance		-	-	200	pF

## AC CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
(THD+N)/S	total harmonic distortion plus noise	note 2	-	-70	-65	dB
			-	0.03	0.06	%
		note 2; R <sub>L</sub> = 5 kΩ	-	-101	-	dB
			-	0.0009	-	%
S/N	signal-to-noise ratio		100	110	-	dB
f <sub>G</sub>	unity gain frequency	open-loop; R <sub>L</sub> = 5 kΩ	-	5.5	-	MHz
P <sub>o</sub>	maximum output power	(THD+N)/S < 0.1%	-	60	-	mW
C <sub>i</sub>	input capacitance		-	3	-	pF
SR	slew rate	unity gain inverting	-	5	-	V/μs
B	power bandwidth	unity gain inverting	-	20	-	kHz

### Notes

1. Values are proportional to V<sub>DD</sub> (THD+N) / S < 0.1 %.
2. V<sub>DD</sub> = 5.0 V; V<sub>O</sub> = 3.5 V(p-p) (0 dB).

## APPLICATION INFORMATION

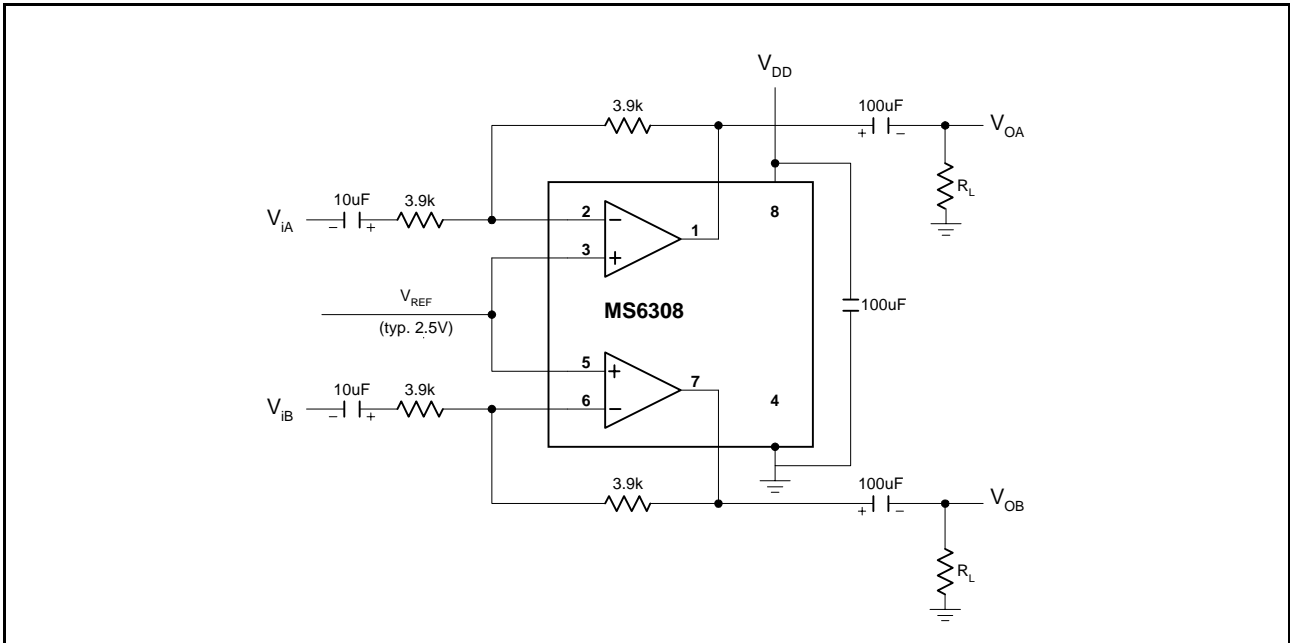


Fig.2 Measurement circuit, inverting application

### Basic application example

A typical example of a CD-application with the MS6311 is shown in Fig.3. It features typical decoupling components and a second-order analog post-filter (smoothing filter) stage providing a line output.

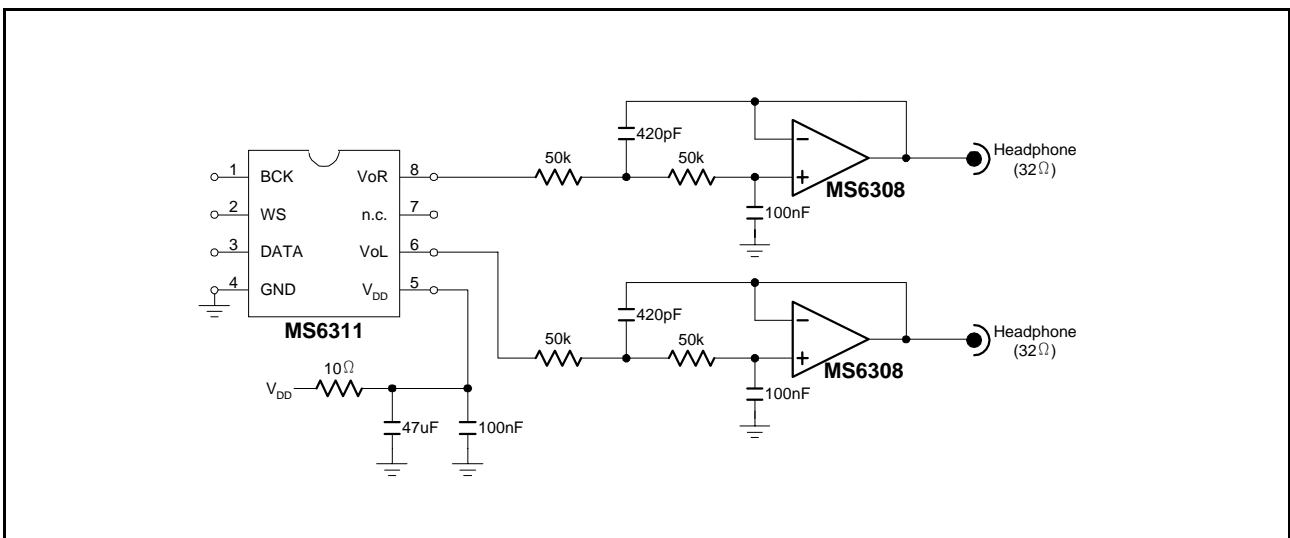


Fig.3 Example of a 2nd order filter application.

**Note :** No external capacitor loading is allowed at the output pins 6 and 8.

MP3 digital to analog converting solution. Fig.4

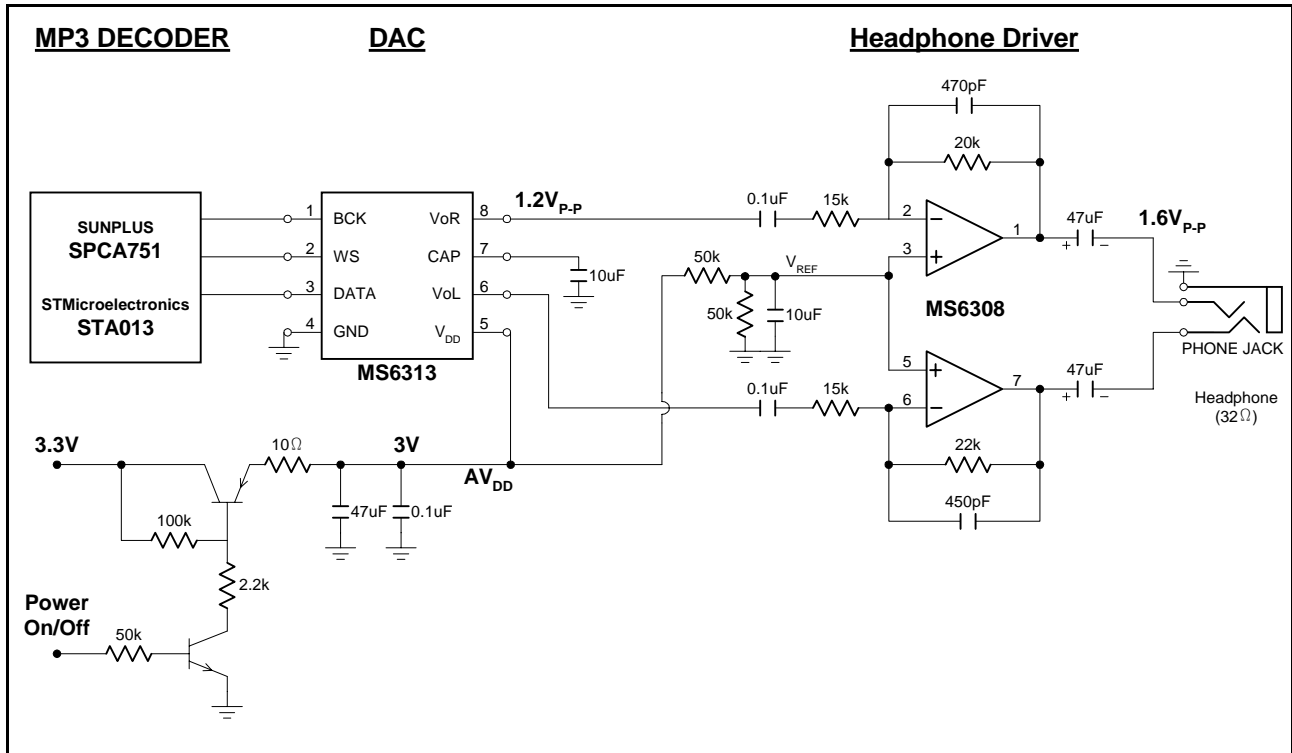
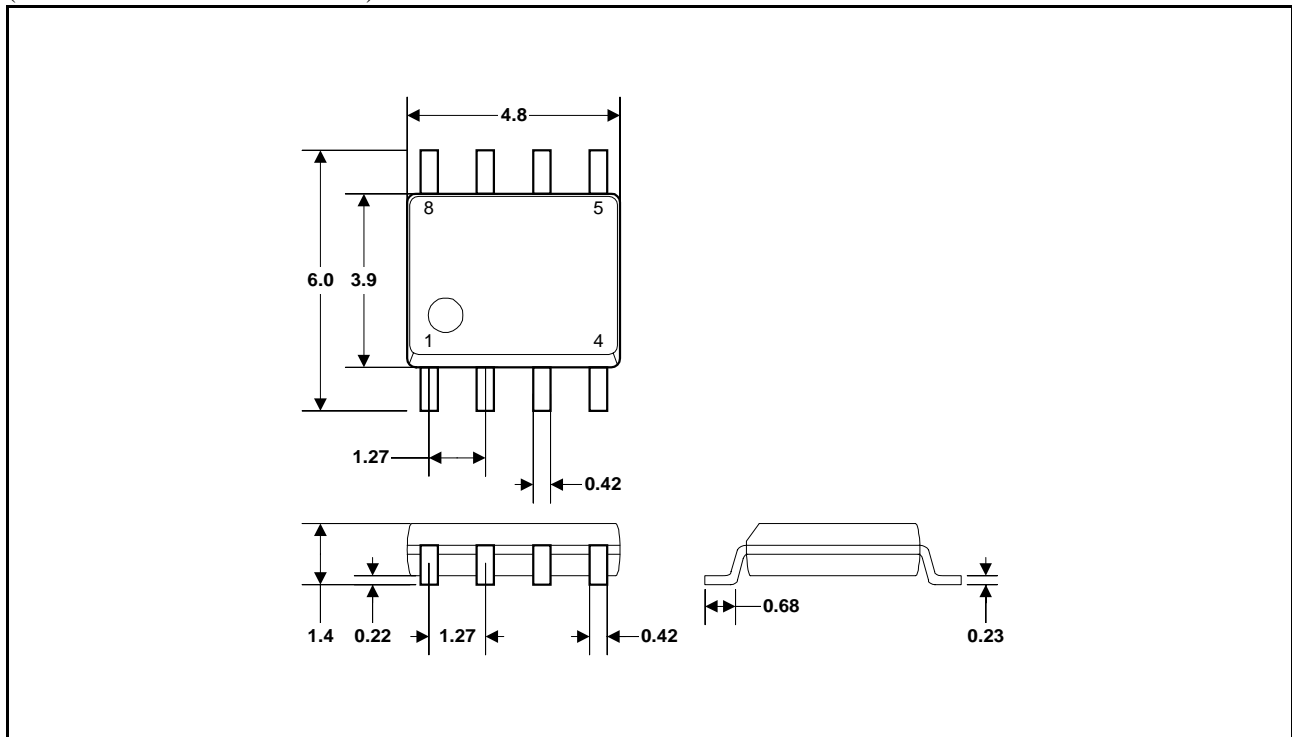


Fig.4 A first order lowpass filter for DAC output.

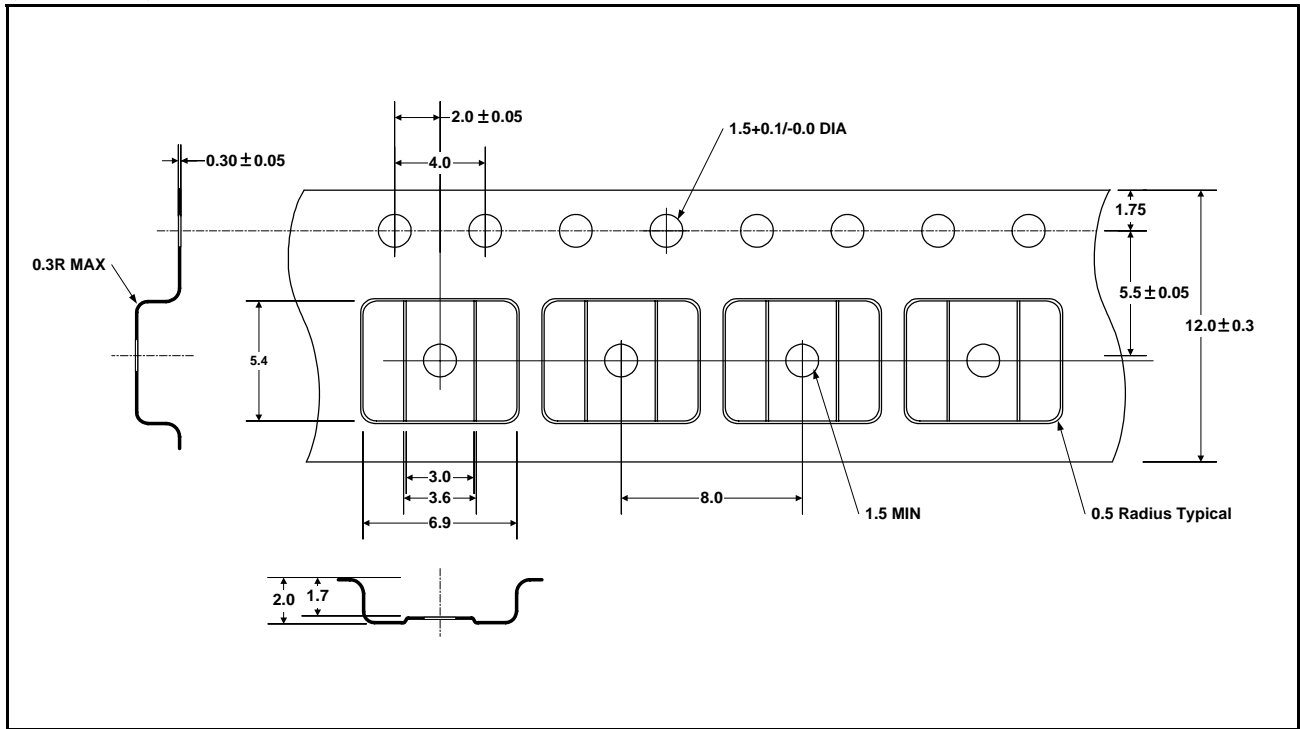
## EXTERNAL DIMENSIONS

(Unit : mm Tolerance : 0.1mm)




## TAPE AND REEL

(Unit : mm)



## ORDERING INFORMATION

Part Number	Packaging Marking	Package	Marking Printing	Transport Media	DESCRIPTION
MS6308	MS6308	SO8	Ink	Tape and Reel	 <p><b>MS 6308</b> Product Number MOSA Abbreviation</p>
				Tube	

SOP 8 : Plastic small outline package ; 8 leads.