

Key Features

- 2W@10% THD per Channel Output into a 4Ω Load at 5V
- Support Speakers or Earphones(4Ω to 32Ω)
- Low THD+N
- Superior Low Noise without Input
- Efficiency up to 85%
- Short Circuit Protection
- Space Saving Package: SOP-8
- Pb-Free Package

General Description

The PAM8202 is a 2W per channel, stereo class-D audio amplifier. It offers low THD+N, allowing it to produce high-quality sound reproduction.

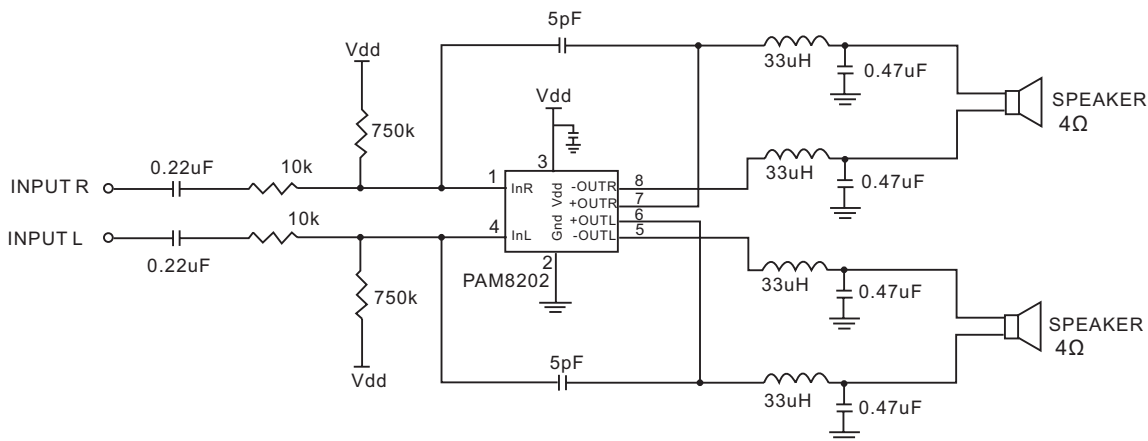
The PAM8202 features much higher efficiencies than their class-AB cousins, making it ideal for many portable applications.

The PAM8202 is available in a SOP8(exposed pad) package.

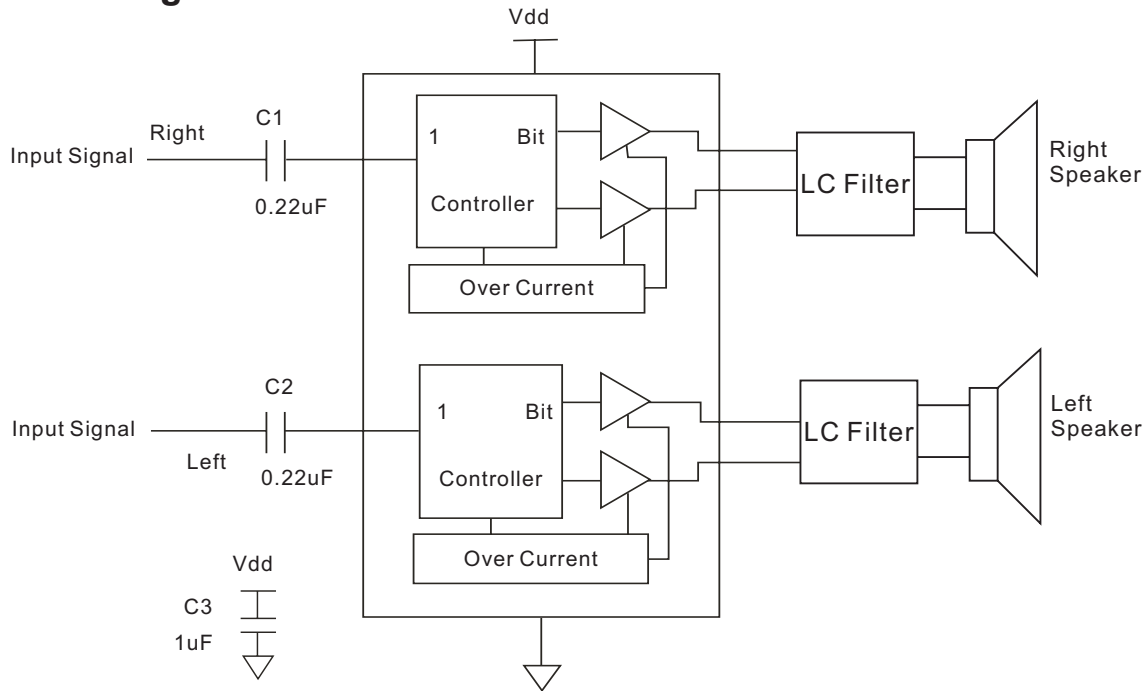
Applications

- Notebook Computers
- PDAs
- Portable DVD Players, Game Machines
- Cellular Phones /Speaker Phones
- MP3 or PMP Players
- Portable Speakers ,USB Speakers
- LCD Monitors / TVs

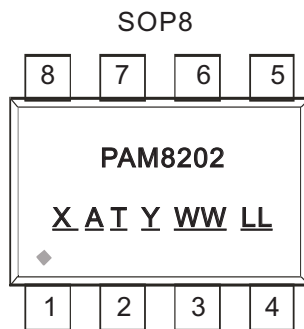
Typical Application Circuit



Block Diagram



Pin Configuration & Marking Information



X: Internal Code
 A: Assembly Code
 T: Testing Code
 Y: Year
 WW: Weekly
 LL: Internal Code

Pin Number	Name	Function
1	IN_R	Right channel audio input
2	GND	Ground
3	VDD	Power supply, need a 1uF ceramic decouple capacitor very close between this pin to GND pin
4	IN_L	Left channel audio input
5	-OUT_L	Inverted output, left channel
6	+OUT_L	Non-inverted output, left channel
7	+OUT_R	Non-inverted output, right channel
8	-OUT_R	Inverted output, right channel



Absolute Maximum Ratings

These are stress ratings only and functional operation is not implied. Exposure to absolute maximum ratings for prolonged time periods may affect device reliability. All voltages are with respect to ground.

Supply Voltage.....6.5V	Storage Temperature..... -65°C to 150°C
Operation Temperature Range.....-40°C to 85°C	Maximum Junction Temperature.....150°C
Operation Junction Temperature.....-40°C to 125°C	Soldering temperature.....300°C, 5 sec

Recommended Operating Conditions

Supply Voltage Range.....2.5V to 6V	Junction Temperature Range.....-40°C to 125°C
Operation Temperature Range.....-40°C to 85°C	

Thermal Information

Parameter	Package	Symbol	Maximum	Unit
Thermal Resistance (Junction to Case)	SOP-8	θ_{JC}	90	°C/W
Thermal Resistance (Junction to Ambient)	SOP-8	θ_{JA}	115	

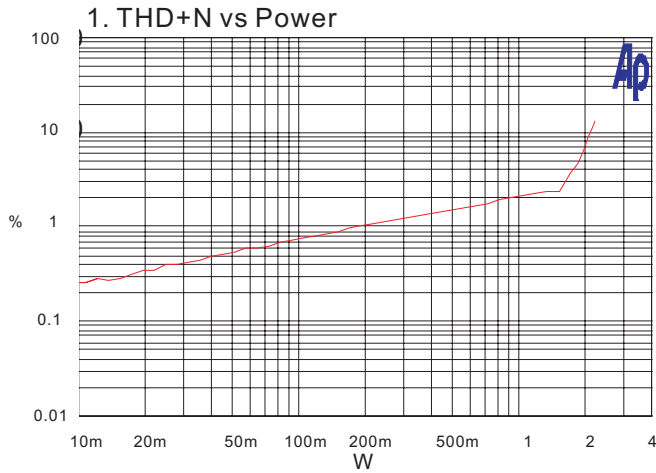
Electrical Characteristic

$T_A=25^\circ\text{C}$, unless otherwise noted.

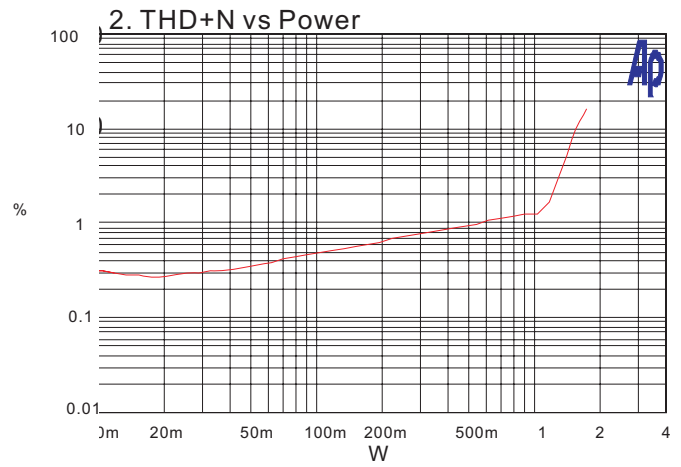
Parameter	Symbol	Test Condition	MIN	TYP	MAX	UNITS
Supply Voltage Range	V_{DD}		2.5	5	6	V
Quiescent Current	I_Q	$V_{DD}=5V$, no load		35	45	mA
SW On Resistance	$R_{DS(ON)}$	$V_{DD} = 5V, I_{SW}=100mA$		1.4		Ω
SW Frequency	f_{SW}	No Input Signal		600		KHz
Total Harmonic Distortion Plus Noise	THD+N	$R_L = 8\Omega, P_O=0.1W, f=1KHz$		0.5		%
		$R_L = 4\Omega, P_O=0.1W, f=1KHz$		0.7		
Gain	A_{VD}	$V_{DD} = 2.5V$ to 6V		10		V/V
Output Power	P_O	$V_{DD} = 5V, R_L= 4\Omega, THD=10\%$		2		W
		$V_{DD} = 5V, R_L= 8\Omega, THD=10\%$		1.6		W
Signal Noise Ratio	SNR	$V_{DD} = 5V, P_O= 1.5W, R_L= 8\Omega$		60		dB
Channel Separation	CS	$V_{DD}=5V, f=1KHz, R_L= 8\Omega$		53		dB
Peak Efficiency	η	$V_{DD}=5V, R_L= 8\Omega$	80	85		%
Input Impedance	R_{IN}		10			K Ω

Typical Performance Characteristics

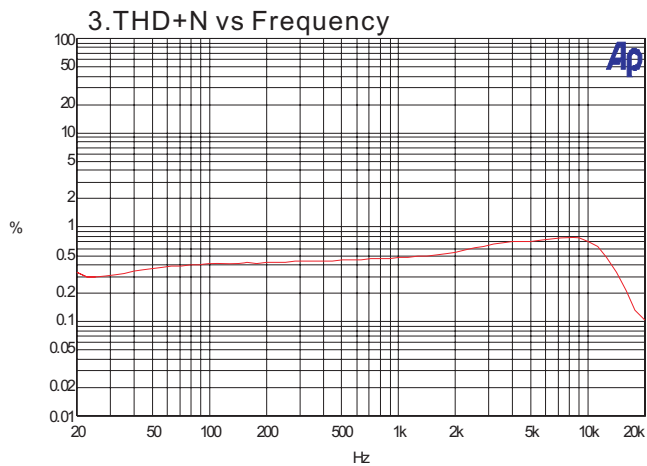
$T_A=25^{\circ}\text{C}$, $V_{DD}=5\text{V}$, unless otherwise noted.



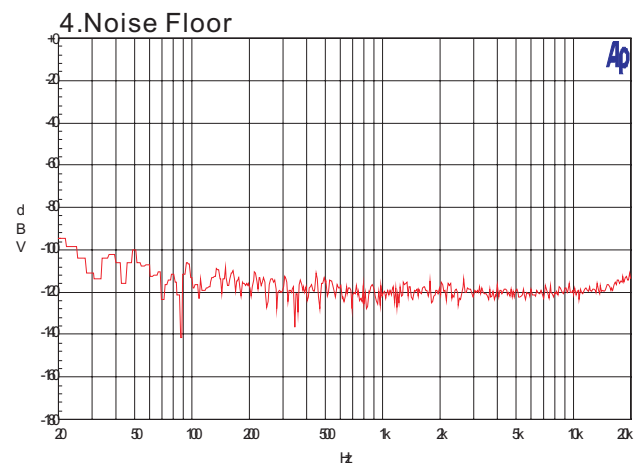
$R_L=4\Omega, f=1\text{kHz}, \text{Gain}=14\text{dB}$



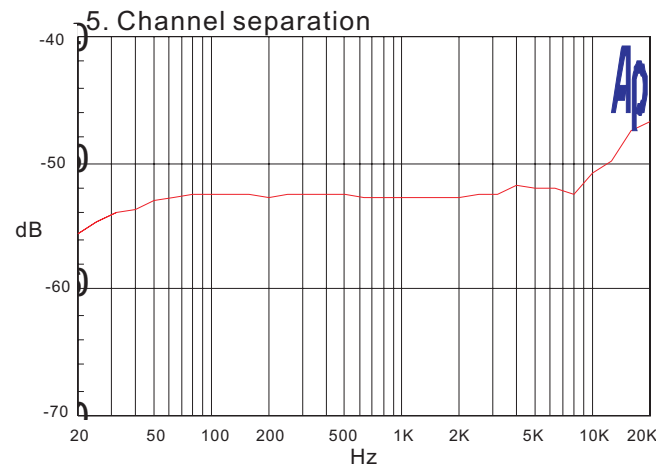
$R_L=8\Omega, f=1\text{kHz}, \text{Gain}=14\text{dB}$



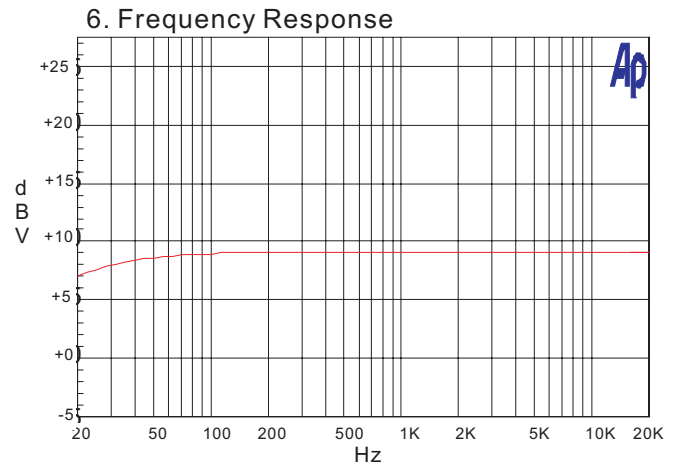
$R_L=8\Omega, P_O=0.1\text{W}; \text{Gain}=14\text{dB}$



$R_L=8\Omega, \text{Gain}=14\text{dB}$

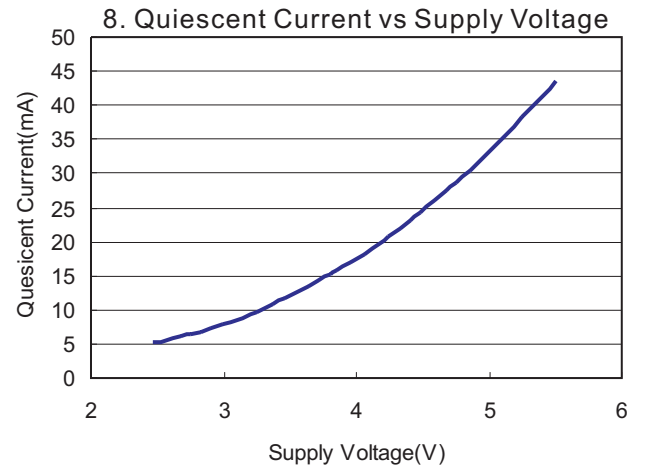
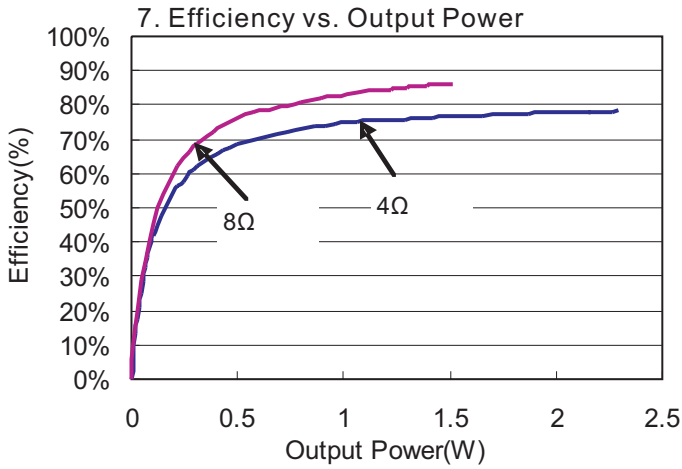


$R_L=8\Omega, P_O=1\text{W}, \text{Gain}=14\text{dB}$

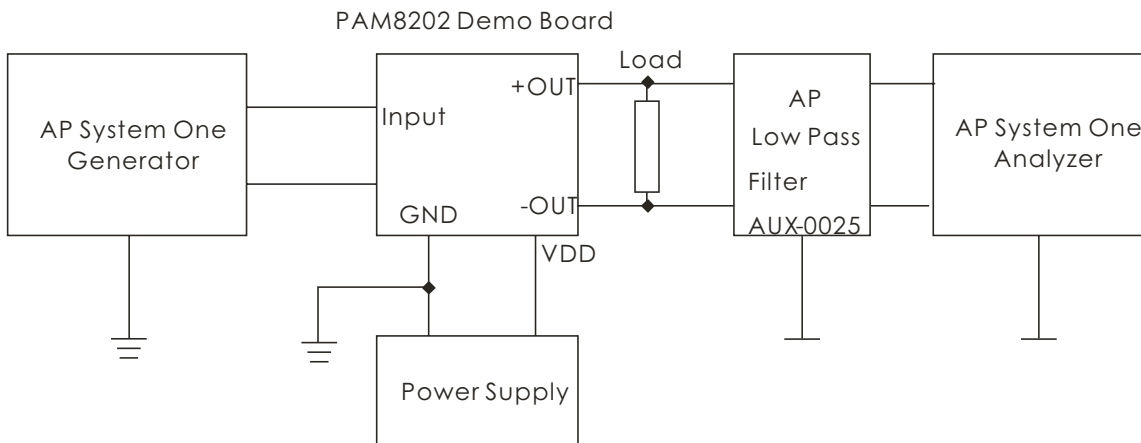


$R_L=8\Omega, P_O=1\text{W}, \text{Gain}=14\text{dB}$

Typical Performance Characteristics (continued)



Test Setup for Performance Testing



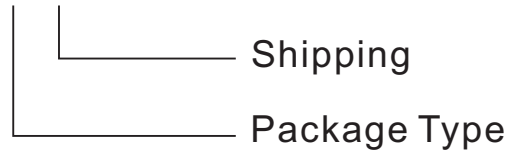
Notes:

1. The AP AUX-0025 low pass filter is necessary for every class-D amplifier measurement done by AP analyzer.
2. A 33uH inductor is used in series with load resistor to emulate the small speaker for efficiency measurement.



Ordering Information

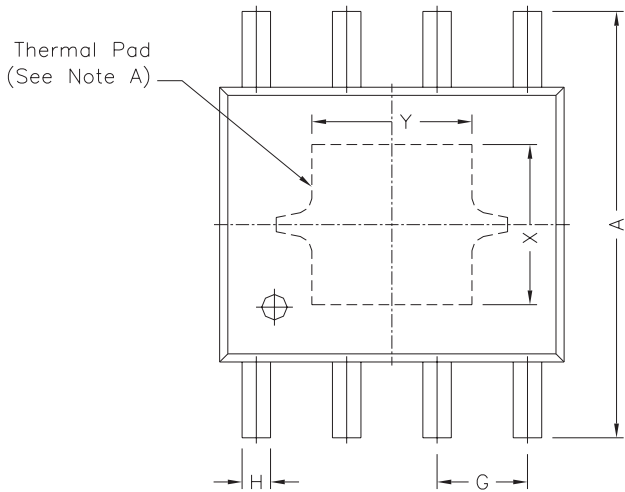
PAM8202 X X



Device	Package	Shipping
PAM8202SR1	SOP-8	2,500 Units/Tape & Reel

Outline Dimension

SOP-8



REF.	DIMENSIONS	
	Millimeters	
	Min.	Max.
A	5.80	6.20
B	4.80	5.00
C	3.80	4.00
D	0°	8°
E	0.40	0.90
F	0.19	0.25
M	0	0.15
H	0.35	0.49
L	1.35	1.75
G	1.27 TYP.	
Option1	X	2.28
	Y	2.28
Option2	X	2.41
	Y	3.30

