

3W Filter-free class D stereo audio splitter

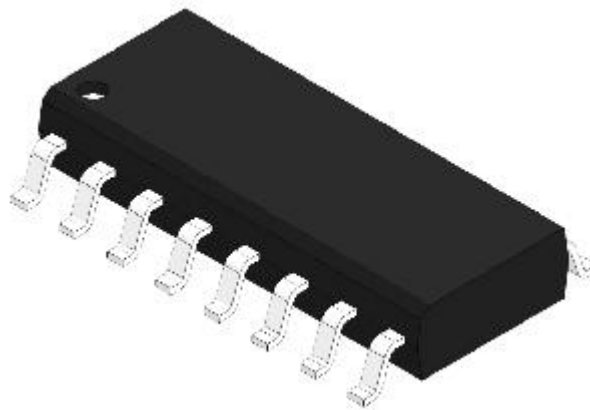
Description

The PAM8403 stereo power amplifier provides Class D efficiency with AB amplifier performance. It features low noise and eliminates the need for traditional D-class amplifier output low-pass filters due to its filterless structure. Requiring minimal peripheral components, it saves PCB space and system costs, making it an ideal choice for portable applications. The PAM8403 achieves over 85% efficiency in delivering 3W of power, and includes system shutdown and mute control functions. Its unique circuit architecture enhances noise immunity and reduces RF interference.

Features

- Class D amplifier without filters, featuring low quiescent current and low EMI
- Provides up to 3W output power at 4Ω load and 5V supply
- Efficiency up to 90%
- Low THD, low noise
- Short circuit current protection
- Thermal protection
- Minimal peripheral components, reducing space and cost
- Package type: SOP-16, lead-free package
- Shutdown circuit 16uA
- Standby current 6.3mA

Physical map



Applications

- LCD TVs, monitors
- Hands-free phones in mobile devices
- Laptop computers
- Portable DVD players, gaming consoles

Structure diagram

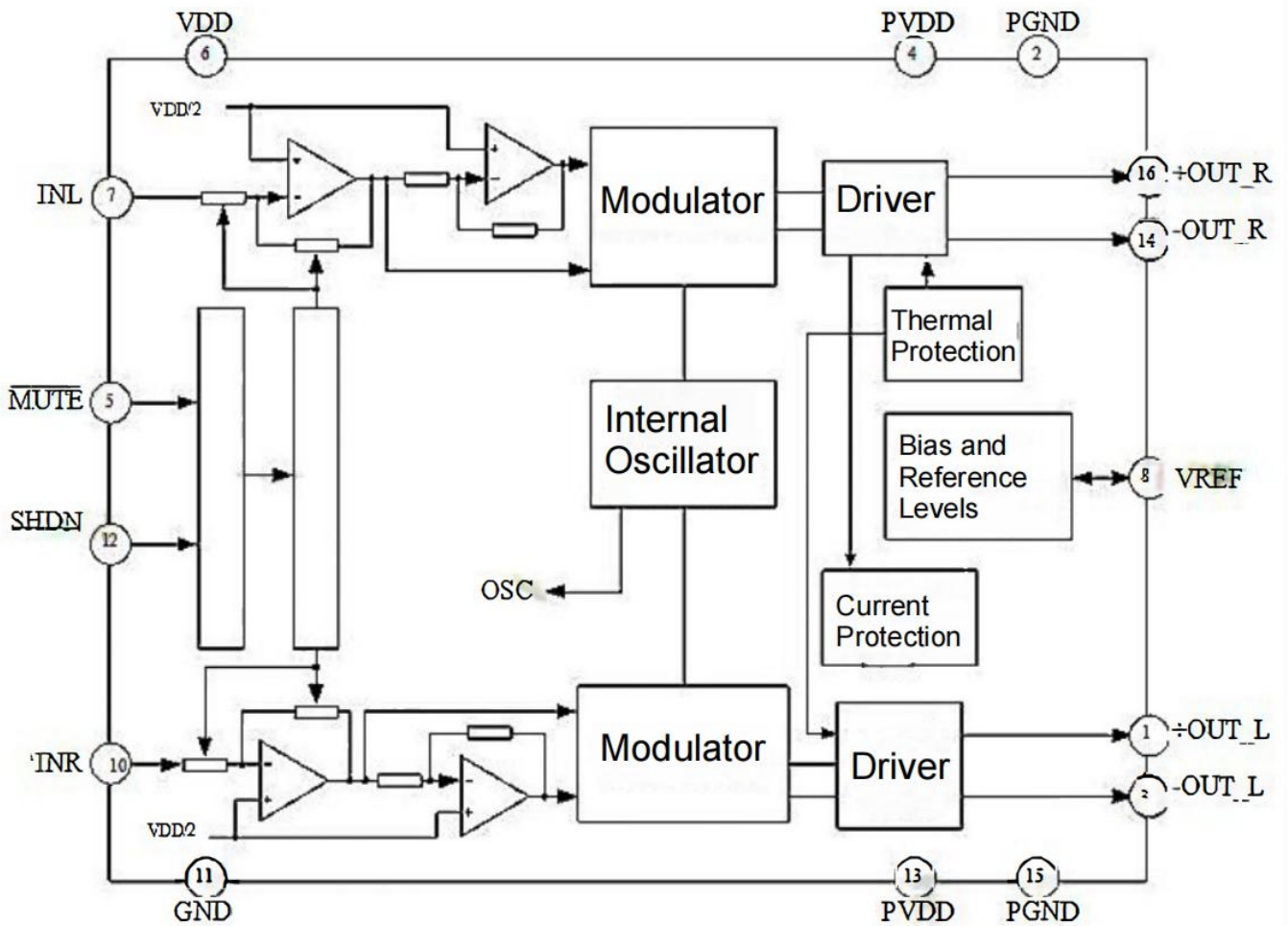


Fig.1 PAM8403 Block Diagram

Package pin diagram

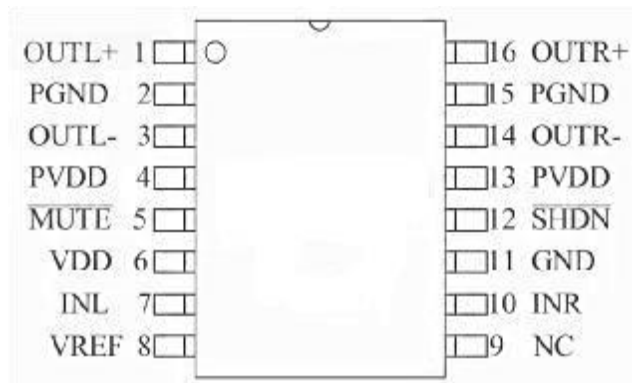


Fig.2 PAM8403 SOP-16 Package Pinout

Typical application diagram

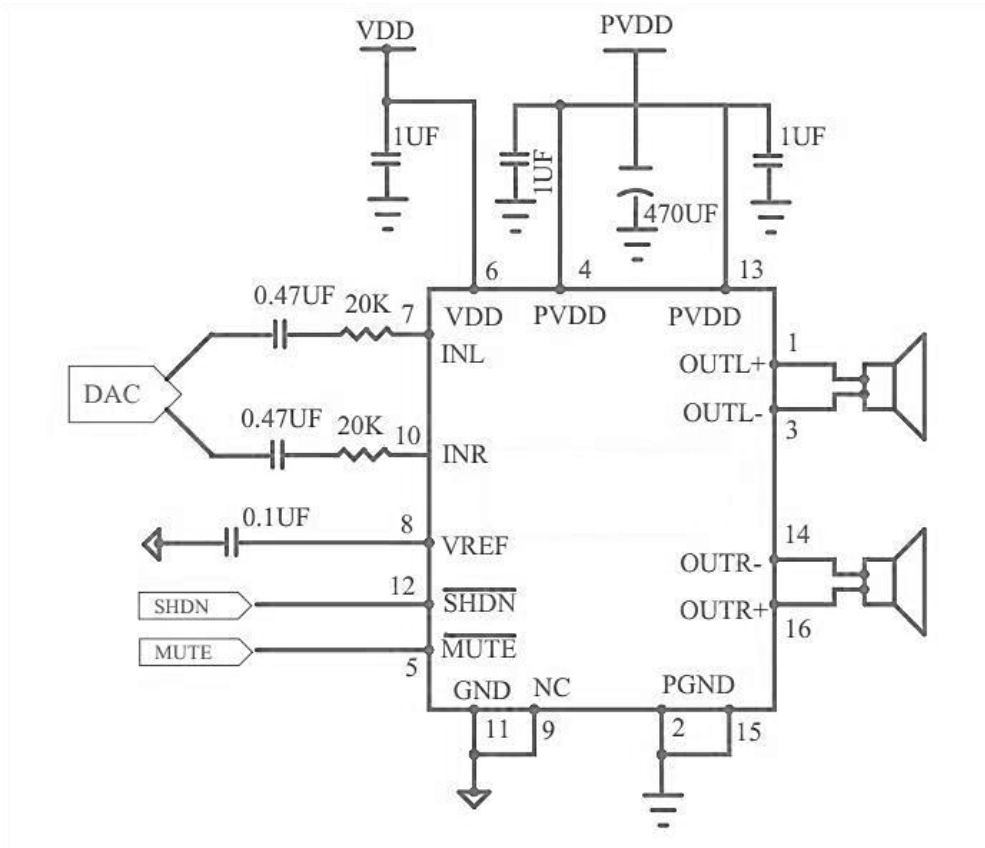


Fig.3 PAM8403 Typical Application Circuit

PAM8403 Pin description

Pin	Symbol	I/O	Description
1	OUTL+	O	left channel in-phase output
2,15	PGND	GND	power ground
3	OUTL-	O	left channel anti-phase output
4,13	PVDD	POWER	power supply
5	$\overline{\text{MUTE}}$	I	mute control input (active low)
6	VDD	POWER	analog ground
7	INL	I	left channel input
8	VREF	I	internal reference source, connect a bypass capacitor from VREF to GND
9	NC	NC	no connection
10	INR	I	right channel input
11	GND	GND	analog ground
12	$\overline{\text{SHDN}}$	I	system shutdown control (active low)
14	OUTR-	O	right channel anti-phase output
16	OUTR+	O	right channel in-phase output

Electrical characteristics

Limit parameters

Unless otherwise specified, at $T_A=25^{\circ}\text{C}$.

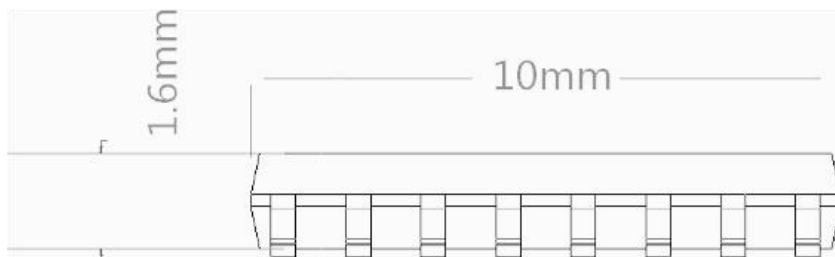
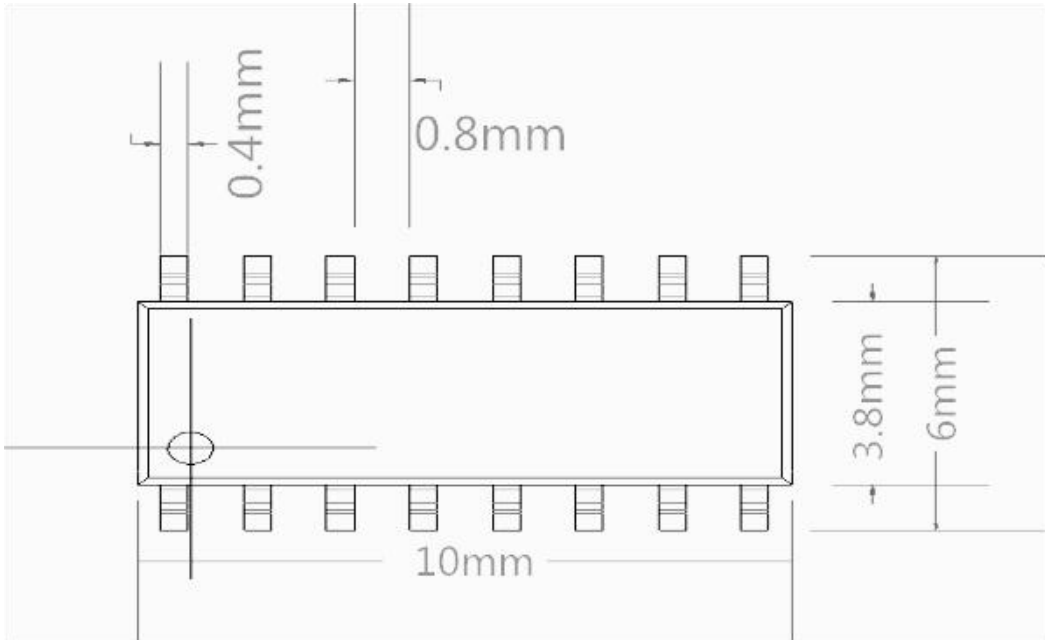
Symbol	Parameter	Conditions	Min.	Max.	Unit
V_{DD}	operating voltage	-	-0.3	5.5	V
V_I	input voltage	-	-0.3	$V_{DD}+0.3$	V
T_A	operating temperature	-	-40	85	$^{\circ}\text{C}$
T_J	operating junction temperature	-	-40	125	$^{\circ}\text{C}$
T_{STG}	storage temperature	-	-65	150	$^{\circ}\text{C}$
T_{SLD}	soldering temperature	5 seconds	-	300	$^{\circ}\text{C}$

Typical parameters

Unless otherwise specified, at $T_A=25^{\circ}\text{C}$.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{DD}	power supply voltage	AV_{DD}, PV_{DD}	2.2	-	5.5	V
V_{IH}	$\overline{\text{SHDN}}$ input high level	$V_{DD}=5\text{V}$	1.3	-	-	V
V_{IL}	$\overline{\text{SHDN}}$ input low level	$V_{DD}=5\text{V}$	-	-	0.4	
V_{IH}	$\overline{\text{MUTE}}$ input high level	$V_{DD}=5\text{V}$	1.3	-	-	V
V_{IL}	$\overline{\text{MUTE}}$ input low level	$V_{DD}=5\text{V}$	-	-	0.4	

Package dimensions



Unless otherwise specified, all dimensions are: (mm)