24V Digital Amplifier Power Stage

Features

- 2 x 15W at 1% THD+N into 8Ω BTL at 18V
- PVDD range from 12V to 24V
- Support single-ended or differential input
- Over-temperature protection
- Over-current protection
- Under-voltage detection
- Error report and thermal warning
- Built-in anti-pop function for AD modulation
- 48-pin 7x7mm E-LQFP thermally-enhanced package

Applications

- TV audio
- DVD Receiver
- Home Theaters

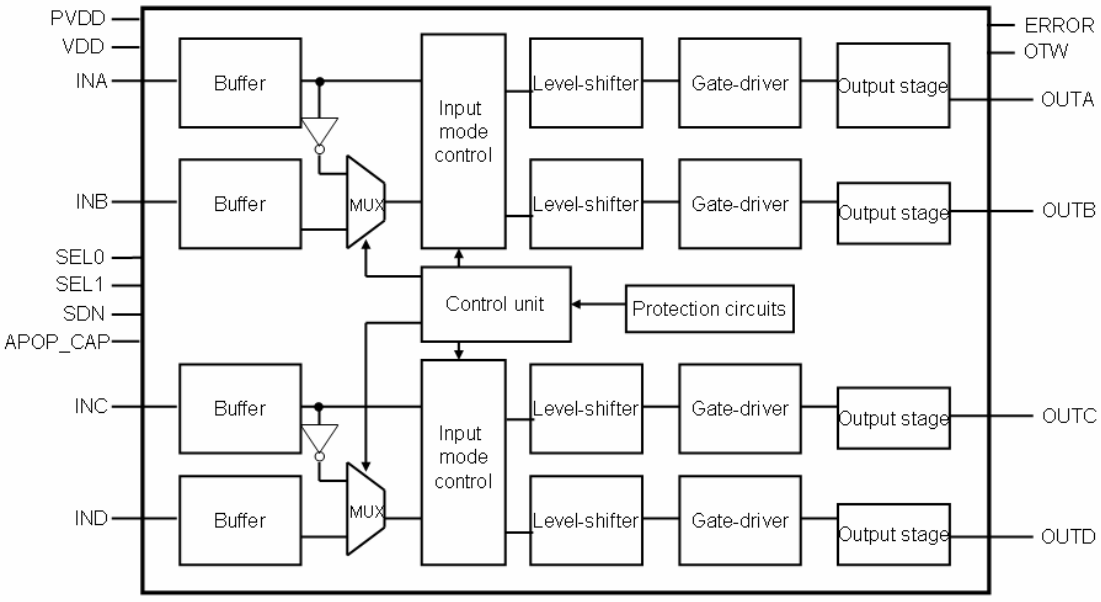
Description

The AD9258 is a high efficiency stereo digital amplifier power stage delivering 85% efficiency. Devices need two power supplies for the AD9258 operation up to 24V supply for PVDD and 3.3V for VDD. The AD9258 can deliver 10W/CH output power into 8 Ω loudspeaker without external heat-sink or fan requirement at supply 24V.

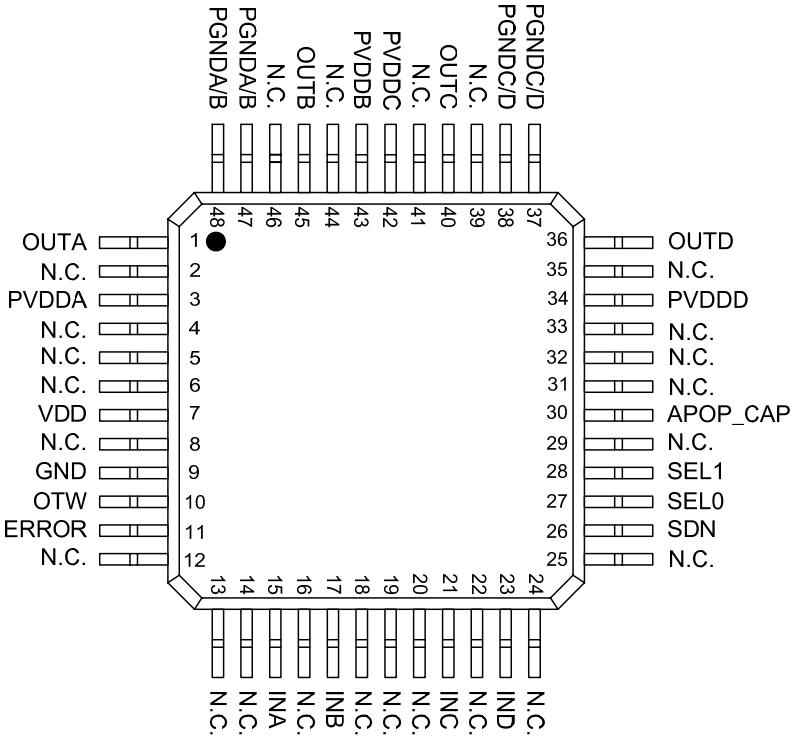
A built-in anti-pop function can reduce the speaker's pop without requiring complex anti-pop sequence in PWM input, when AD9258 is applied in AD modulation.

The AD9258 has included protection circuits that integrated on chip. Protections ensure the AD9258 against the fault conditions that could damage the AD9258. These safeguards of the AD9258 include over-temperature, over-current, and under-voltage protection circuits.

Functional Block Diagram



Pin Assignments



Pin Description

PIN	NAME	TYP	DESCRIPTION
1	OUTA	O	Half-bridge output A
2	N.C.		
3	PVDDA	P	Power supply for half bridge A
4 ~ 6	N.C.		
7	VDD	P	Power supply for digital circuit
8	N.C.		
9	GND	P	Ground for digital circuit
10	OTW	O	Over temperature warning.
11	ERROR	O	Error pointer
12 ~ 14	N.C.		
15	INA	I	PWM input A
16	N.C.		
17	INB	I	PWM input B
18 ~ 20	N.C.		
21	INC	I	PWM input C
22	N.C.		
23	IND	I	PWM input D
24 ~ 25	N.C.		

26	SDN	I	Shutdown (active-low) with soft pulled resistor 100kohm to ground
27	SEL0	I	Mode select pin 0
28	SEL1	I	Mode select pin 1
29	N.C.		
30	APOP_CAP	O	Anti-pop capacitor
31 ~ 33	N.C.		
34	PVDDD	P	Power supply for half bridge D
35	N.C.		
36	OUTD	O	Half-bridge output D
37	PGNDC/D	P	Ground for half bridge C/D
38	PGNDC/D	P	Ground for half bridge C/D
39	N.C.		
40	OUTC	O	Half-bridge output C
41	N.C.		
42	PVDDC	P	Power supply for half bridge C
43	PVDDB	P	Power supply for half bridge B
44	N.C.		
45	OUTB	O	Half-bridge output B
46	N.C.		
47	PGNDA/B	P	Ground for half bridge A/B
48	PGNDA/B	P	Ground for half bridge A/B

Ordering Information

Product ID	Package	Packing	MPQ	Comments
AD9258-LE48NAY	E-LQFP 48L	Tray	2.5K	Green

Available Package

Package Type	Device No.	θ_{ja}(℃/W)	Ψ_{jt}(℃/W)	θ_{jc}(℃/W)	Exposed Thermal Pad
7x7 48L E-LQFP	AD9258	29.9	2.16	17.5	Yes ***(Note 1)***

Note1: The thermal pad is at the bottom of package. To optimize the performance of thermal dissipation, the thermal pad must be soldered to PCB's ground plane.