

**18W Stereo Class-D Audio Amplifier with Power Limit**

**Features**

- Single supply voltage  
10 ~ 26V for loudspeaker driver  
Built-in LDO output 3.3V for others
- Loudspeaker power from 24V supply  
SE Mode: 8 W/ch into 8Ω @ 1% THD+N for stereo  
SE Mode: 10 W/ch into 8Ω @10% THD+N for stereo
- Loudspeaker power from 24V supply  
SE Mode:14 W/ch into 4Ω @ 1% THD+N for stereo  
SE Mode:18 W/ch into 4Ω @ 10% THD+N for stereo  
BTL mode: 38W into 8Ω @ 10% THD+N for Mono
- Single-ended analog inputs
- Single-ended outputs
- Four selectable, fixed gain settings
- Internal oscillator
- Short-circuit protection with auto recovery
- Thermal protection with auto recovery
- Under-voltage detection
- Pop noise and click noise reduction
- Adjustable power limit function for speaker protection

- MONO mode selection for BTL operation

**Applications**

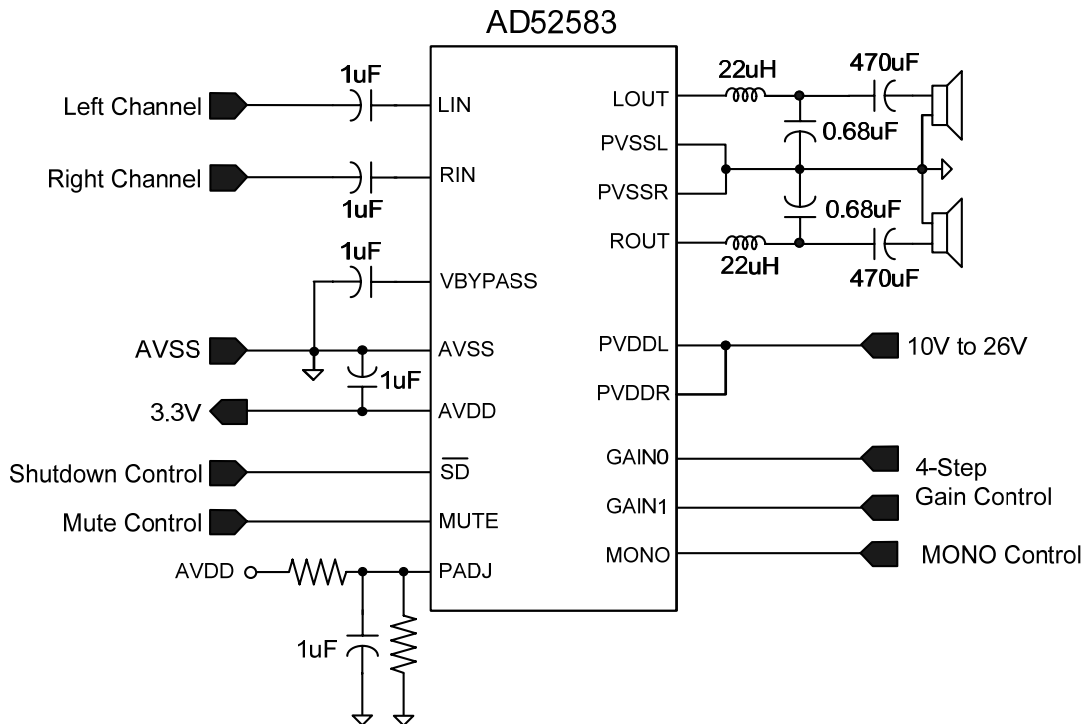
- TV audio
- Boom-Box
- Powered speaker

**Description**

The AD52583 is a high efficiency stereo class-D audio amplifier with adjustable power limit function. The loudspeaker driver operates from 10~26V supply voltage and analog circuit operates at 3.3V supply voltage. It can deliver 18W/ch output power into 4Ω loudspeaker without external heat sink during play music. AD52583 provides mono mode application, it can deliver 38W into 8Ω loudspeaker. The adjustable power limit function allows user to set a voltage rail lower than half of 3.3V to limit the amount of current through the speaker.

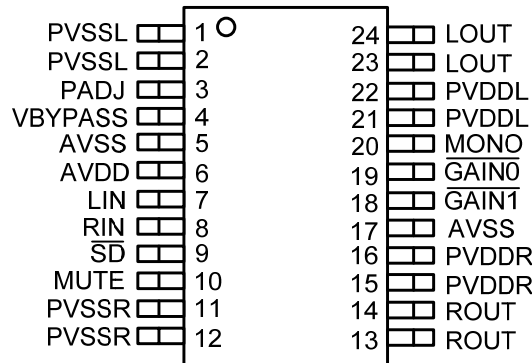
The gain of the amplifier is controlled by two gain select pins. The gain selections are 20, 26, 32, 36 dB.

**Simplified Application Circuit**



**Pin Assignments**

**TSSOP PACKAGE  
(TOP VIEW)**



**Pin Description**

PIN	NAME	TYP	DESCRIPTION	CHARACTERISTIC
1,2	PVSSL	P	High-voltage ground for left channel	
3	PADJ	I	Power limit level input, connect to AVSS for no power limit	Give V(PADJ) < VCAP to set power limit level.
4	VBYPASS	O	Reference for amplifier inputs	Biased at PVDD/14.6
5	AVSS	P	Low-voltage analog ground	
6	AVDD	O	3.3V Regulated output	
7	LIN	I	Audio input for left channel	
8	RIN	I	Audio input for right channel	
9	$\overline{SD}$	I	Shutdown signal. Active low	Schmitt trigger TTL input buffer, internally pull low.
10	MUTE	I	Mute signal.	Schmitt trigger TTL input buffer, internally pull low.
11,12	PVSSR	P	High-voltage ground for right channel	
13,14	ROUT	O	Right channel output	
15,16	PVDDR	P	High-voltage power supply for right channel	
17	AVSS	P	Low-voltage analog ground	
18	$\overline{GAIN1}$	I	Gain select most-significant bit. Active low.	Schmitt trigger TTL input buffer, internally pull high.
19	$\overline{GAIN0}$	I	Gain select least-significant bit. Active low.	Schmitt trigger TTL input buffer, internally pull high.
20	MONO	I	Mono mode switch. Active high.	Schmitt trigger TTL input buffer, internally pull low.
21,22	PVDDL	P	High-voltage power supply for left channel	
23,24	LOUT	O	Left channel output	
Thermal Pad		P	Must be soldered to PCB's ground plane	

## Ordering Information

Product ID	Package	Packing	Comments
AD52583-QG24NAT	E-TSSOP 24L	62 Units/ Tube 100 Tubes/ Small Box	Green

## Available Package

Package Type	Device No.	$\theta_{JA}$ (° C/W)	Exposed Thermal Pad
E-TSSOP 24L	AD52583	32.8	Yes (Note 1)

**Note1: The thermal pad is at the bottom of package. To optimize the performance of thermal dissipation, solder the thermal pad to PCB's ground plane is suggested.**

## Marking Information

### AD52583

- Marking Information

Line 1 : LOGO

Line 2 : Product No

Line 3 : Tracking Code

