

**2x20W Stereo / 1x40W Mono Class-D Audio Amplifier
With Power Limit Control**

Features

- Single supply voltage
5 ~ 26V for loudspeaker driver
- Input digital audio interface
- Sampling frequency: 32kHz, 44.1kHz and 48kHz
- Left-justified, MSB first, 1-bit delay with digital audio data 24-bits
- Loudspeaker power @ 24V supply
15W / CH with $8\Omega < 0.5\%$ THD+N
- Efficiency 87% (PVDD=24V, RL=8 Ω , Po=10W)
- Distortion ration (THD+N) < 0.1% @ Po=7.5W
- PSNR ratio 99dB (PVDD=24V)
- Residual noise 130uVrms (A-weighted filter)
- Channel separation > 90 dB
- Power limit function
- Gain setting function
- Stereo/Mono switching function
- Output mute function (Quick mute / Quick start)
- Sleep function
- Pop noise reduction function
- Over current protection function (OCP)
- Over voltage protection function (OVP)
- Over temperature protection function (OTP)
- Under voltage lockout (UVLO)
- DC detection function (DCDET)
- Clock detection function (CKDET)
- Package available in both of QFN-32L and E-TSSOP-24L

Applications

- TV audio
- Boom-Box
- Powered speaker
- Consumer Audio Equipment

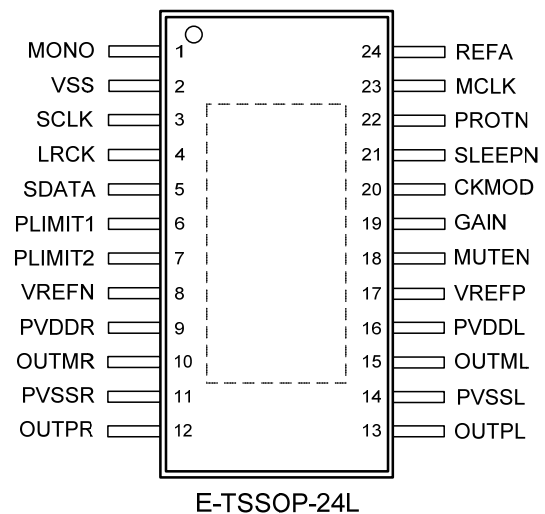
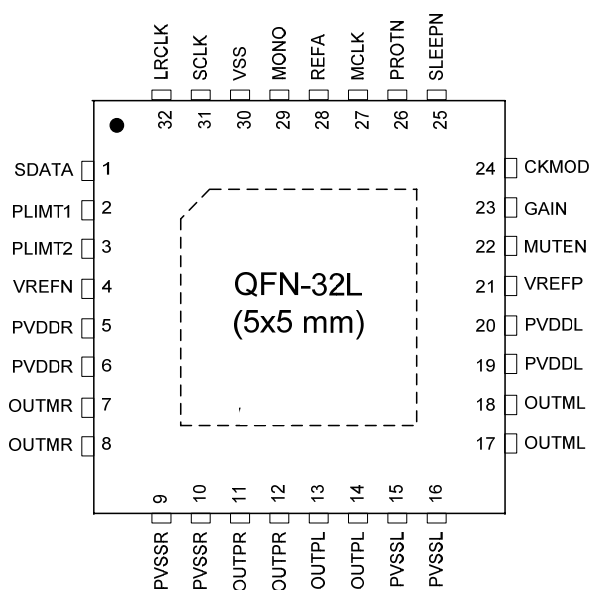
Description

AD82583 is a high-performance digital audio amplifier IC that delivers up to 20W×2ch, which has a digital audio interface, and is capable of operating at a supply voltage ranging from 5V to 26V.

AD82583 allows a speaker to be directly connected to the output. In addition, this amplifier is insusceptible to supply voltage fluctuation because of a feedback-type digital amplifier, and have the feature with high power supply noise tolerance. As a result, power supply can be simplified and allowing a simple amplifier system with less external components to be configured.

AD82583 has the following functions: gain setting function, power limit function, pop noise reduction function, over current protection function for speaker output pins, internal over temperature protection function, under voltage lockout, and DC detection function.

Pin Assignments (TOP VIEW)



Pin Description

NAME	QFN-32L Pin #	E-TSSOP-24L Pin #	TYP (Note1)	DESCRIPTION
SDATA	1	5	I	Audio data input pin.
PLIMIT1	2	6	A	Power limit setting pin 1.
PLIMIT2	3	7	A	Power limit setting pin 2.
VREFN	4	8	O	Internal regulator output pin.
PVDDR	5, 6	9	P	Power pin for the digital amplifier output Rch.
OUTMR	7, 8	10	O	Digital amplifier output pin Rch-.
PVSSR	9, 10	11	P	GND pin for digital amplifier output Rch.
OUTPR	11, 12	12	O	Digital amplifier output pin Rch+.
OUTPL	13, 14	12	O	Digital amplifier output pin Lch+.
PVSSL	15, 16	14	P	GND pin for digital amplifier output Lch.
OUTML	17, 18	15	O	Digital amplifier output pin Lch-.
PVDDL	19, 20	16	P	Power pin for the digital amplifier output Lch.
VREFP	21	17	O	Internal regulator output pin.
MUTEN	22	18	I	Mute pin.
GAIN	23	19	A	Gain setting pin.
CKMOD	24	20	I	Clock mode setting pin.
SLEEPN	25	21	I	Sleep reset, a voltage for supplying SLEEPN pin with "H" level should be applied from an external power supply. Do not apply from REFA pin output.
PROTN	26	22	O/D	Error flag output pin.
MCLK	27	23	I	Master clock input pin.
REFA	28	24	O	Internal regulator output pin.
MONO	29	1	A	Stereo/Mono setting pin.
VSS	30	2	P	GND pin.
SCLK	31	3	I	Bit clock input pin.
LRCLK	32	4	I	Word clock input pin.
Thermal pad			P	Must be soldered to PCB's ground plane.

Note 1: "TYP" of description, I: Input pin, O: Output pin, A: Analog pin, O/D: Open-Drain output pin, P: Power pin.

Pin Internal Circuit

Name	QFN 32L Pin #	E-TSSOP-24L Pin #	Equivalent Circuit
SDATA	1	5	
PLIMIT1	2	6	
PLIMIT2	3	7	
VREFN	4	8	
PVDDR	5,6	9	—
OUTMR	7,8	10	
PVSSR	9,10	11	—
OUTPR	11,12	12	
OUTPL	13,14	13	
PVSSL	15,16	14	—

OUTML	17,18	15	
PVDDL	19,20	16	—
VREFP	21	17	
MUTEN	22	18	
PLIMIT1	23	19	
PLIMIT2	24	20	
GAIN	25	21	
PROTN	26	22	
MCLK	27	23	

REFA	28	24	
MONO	29	1	
VSS	30	2	—
SCLK	31	3	
LRCLK	32	4	