
2x25W Stereo / 1x50W Mono Digital Audio Amplifier With 30 bands EQ and DRC Functions

Features

- 16/18/20/24-bits input with I²S, Left-alignment and Right-alignment data format
- PSNR & DR(A-weighting)
Loudspeaker: 108dB (PSNR), 108dB (DR)@24V
- Multiple sampling frequencies (Fs)
8kHz and 32kHz / 44.1kHz / 48kHz and
64kHz / 88.2kHz / 96kHz and
128kHz / 176.4kHz / 192kHz
- System clock = 64x, 128x, 192x, 256x, 384x,
512x, 576x, 768x, 1024x Fs
MCLK system:
256x~1024x Fs for 8kHz
64x~1024x Fs for 32kHz / 44.1kHz / 48kHz
64x~512x Fs for 64kHz / 88.2kHz / 96kHz
64x~256x Fs for 128kHz / 176.4kHz / 192kHz
BCLK system:
64x Fs for 32kHz / 44.1kHz / 48kHz
64x Fs for 64kHz / 88.2kHz / 96kHz
64x Fs for 128kHz / 176.4kHz / 192kHz
- Supply voltage
3.3V for digital circuit
8V~26V for loudspeaker driver
- Supports 2.0CH/Mono configuration
- Loudspeaker output power@12V for stereo
1W x 2CH into 6Ω <0.1% THD+N
9W x 2CH into 6Ω <1% THD+N
- Loudspeaker output power@18V for stereo
15W x 2CH into 6Ω <1% THD+N
- Loudspeaker output power@24V for stereo
25W x 2CH into 8Ω <1% THD+N
- Sound processing including :
30 bands parametric speaker EQ
Volume control (+24dB~-103dB, 0.125dB/step)
Dynamic range control
Three Band plus post Dynamic range control
Power Clipping
Programmed 3D surround sound
Channel mixing
Noise gate with hysteresis window
Bass/Treble tone control
DC-blocking high-pass filter

Pre-scale/post-scale

- Anti-pop design
- Level meter and power meter
- I2S output with selectable Audio DSP point
- Short circuit and over-temperature protection
- Supports I²C control without clock
- I²C control interface with selectable device address
- Support hardware and software reset
- Internal PLL
- LV Under-voltage shutdown and HV Under-voltage detection
- Over voltage protection
- Power saving mode

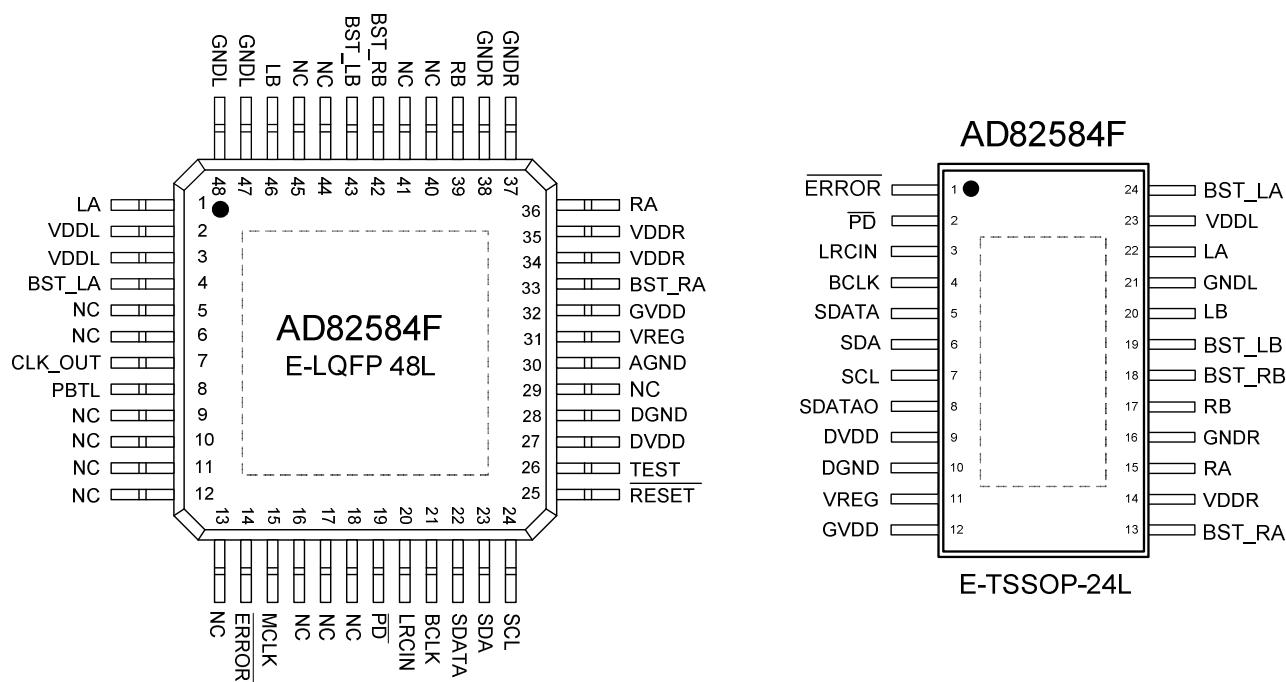
Applications

- TV audio
- Boom-box, CD and DVD receiver, docking system
- Powered speaker
- Wireless audio

Description

AD82584F is a digital audio amplifier capable of driving 25W (BTL) each to a pair of 8Ω load speaker and 50W (PBTL) to a 4Ω load speaker operating at 24V supply without external heat-sink or fan requirement with play music. AD82584F provides advanced audio processing functions, such as volume control, 30 EQ bands, audio mixing, 3D surround sound and Dynamic Range Control (DRC). These are fully programmable via a simple I²C control interface. Robust protection circuits are provided to protect AD82584F from damage due to accidental erroneous operating condition. The full digital circuit design of AD82584F is more tolerant to noise and PVT (Process, Voltage, and Temperature) variation than the analog class-AB or class-D audio amplifier counterpart implemented by analog circuit design. AD82584F is pop free during instantaneous power on/off or mute/shut down switching because of its robust built-in anti-pop circuit.

Pin Assignment



Pin Description (E-LQFP 48L)

PIN	NAME	TYPE	DESCRIPTION	CHARACTERISTICS
1	LA	O	Left channel output A.	
2	VDDL	P	Left channel supply.	
3	VDDL	P	Left channel supply.	
4	BST_LA	P	Bootstrap supply for left channel output A.	
5	NC		Not connected.	
6	NC		Not connected.	
7	CLK_OUT	I/O	<p>PLL ratio setting pin during power up, this pin is monitored on the rising edge of reset. PMF register will be default set at 1 or 16 times PLL ratio.</p> <p>High: PMF [3:0]=[0000], 1 time of PLL ratio to avoid system BCLK over flow.</p> <p>Low: PMF [3:0]=[0001], 16 times of PLL ratio.</p> <p>This pin could be clock output pin also during normal operating if EN_CLK_OUT register bit is enabled.</p>	TTL output buffer, internal pull Low with a 100Kohm resistor.