FEATURES

5 V multichannel audio system
Accepts 16-/18-/20-/24-bit data
Supports 24-bit and 96 kHz sample rate
Multibit Σ-∆ modulators with data directed scrambling

Differential output for optimum performance
ADCs: –92 dB THD + N, 105 dB SNR and dynamic range
DACs: –95 dB THD + N, 108 dB SNR and dynamic range
On-chip volume control with “auto-ramp” function
Programmable gain amplifier for ADC input
Hardware and software controllable clickless mute
Digital de-emphasis processing
Supports 256 x f_s, 512 x f_s, or 768 x f_s master clock
Power-down mode plus soft power-down mode
Flexible serial data port with right justified, left justified, I²S compatible, and DSP serial port modes
TDM interface mode supports 8 in/8 out using a single SHARC® SPORT

APPLICATIONS

Home theater systems
Automotive audio systems
DVD recorders
Set-top boxes
Digital audio effects processors

PRODUCT OVERVIEW

The AD1836A is a high performance, single-chip codec that provides three stereo DACs and two stereo ADCs using ADI’s patented multibit Σ-∆ architecture. An SPI® port is included, allowing a microcontroller to adjust volume and many other parameters. The AD1836A operates from a 5 V supply, with provision for a separate output supply to interface with low voltage external circuitry. The AD1836A is available in a 52-lead MQFP (PQFP) package.

FUNCTIONAL BLOCK DIAGRAM

Figure 1.
NOTE
ADC2 SINGLE-ENDED MUX PGA INPUT MODE—LEFT CHANNEL ONLY SHOWN. 
CONTROL REGISTER 3 CONTENTS: 6 LSBs: SELECT INPUT NO. 1: 11 1010 
SELECT INPUT NO. 2: 11 1111

Figure 13. Single-Ended MUX/PGA Mode

NOTE
ADC2 DIFFERENTIAL PGA INPUT MODE—LEFT CHANNEL ONLY SHOWN. 
CONTROL REGISTER 3 CONTENTS: 6 LSBs: 00 1010

Figure 14. Differential PGA Mode
OUTLINE DIMENSIONS

![Outline Diagram]

Figure 15. 52-Lead Plastic Quad Flat Package [MQFP] (S-52A)
Dimensions shown in millimeters

ESD CAUTION
ESD (electrostatic discharge) sensitive device. Electrostatic charges as high as 4000 V readily accumulate on the human body and test equipment and can discharge without detection. Although this product features proprietary ESD protection circuitry, permanent damage may occur on devices subjected to high energy electrostatic discharges. Therefore, proper ESD precautions are recommended to avoid performance degradation or loss of functionality.

ORDERING GUIDE

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