

ADAS1134 Data Sheet

FEATURES

128-channel, low level current-to-digital converter Up to 24-bit resolution

Up to 22.6 kSPS (44.2 µs integration time)

Simultaneous sampling

No dead time, no loss of charge

Ultralow noise down to 0.32 fC rms (2000 e⁻)

User adjustable full-scale range

INL: ±0.05% of reading of ±1.0 ppm FSR_I

Low power dissipation: 2.25 mW per channel

LVDS self clocked serial data interface

Serial peripheral interface (SPI) configuration registers

(daisy-chain capability)

On-board temperature sensor and reference buffer

10 mm × 10 mm, 242-ball CSP_BGA package

Low cost external components

Support tools

Evaluation board

Reference design with reference layout

FPGA Verilog code

APPLICATIONS

Medical, industrial, and security CT scanner data acquisition

Photodiode sensors

Dosimetry and radiation therapy systems

Optical fiber power monitoring

X-ray detection systems

High channel count data acquisition systems (current or

voltage inputs)

GENERAL DESCRIPTION

The ADAS1134 is a 128-channel, current-to-digital, analog-todigital converter (ADC). It contains 128 low power, low noise, low input current integrators, simultaneous sample-and-holds, and two high speed, high resolution ADCs with configurable sampling rate and resolutions up to 24 bits.

All converted channel results are output on a single, low voltage differential signaling (LVDS), self clocked serial interface, which reduces external hardware.

An SPI-compatible serial interface allows configuration of the ADC using the SDI input. The SDO output allows the user to daisy-chain several ADCs on a single, 3-wire bus. The ADAS1134 uses IOVDD, a separate supply, to reduce digital noise effect on the conversions.

The ADAS1134 is available in a 10 mm \times 10 mm, 242-ball CSP_BGA package.

幸 TO ALL ADCs BUFPL SCK (⊢REF CONFIGURATION CS S/H RESET _ADCL SDI DOUT S/H FPGA LVDS/CMOS DATA PROCESSING S/H IOVDD TEMPERATURE VIO ⁺ADCH IOGND **ADAS1134** S/H KGND RFF BUFPH SDI -2.048V FROM DOUT OF OTHER ADCs

Figure 1.

FROM PREVIOUS

FUNCTIONAL BLOCK DIAGRAM

For more information about the ADAS1134, contact Analog Devices, Inc., at adas@analog.com.

Document Feedback Rev. SpA Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

ADAS1134 Data Sheet

NOTES