ANALOG DEVICES

128-Channel, 24-Bit Current-to-Digital ADC

Data Sheet

ADAS1134

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-to-digital 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 × 10 mm, 242-ball CSP_BGA package.

FUNCTIONAL BLOCK DIAGRAM
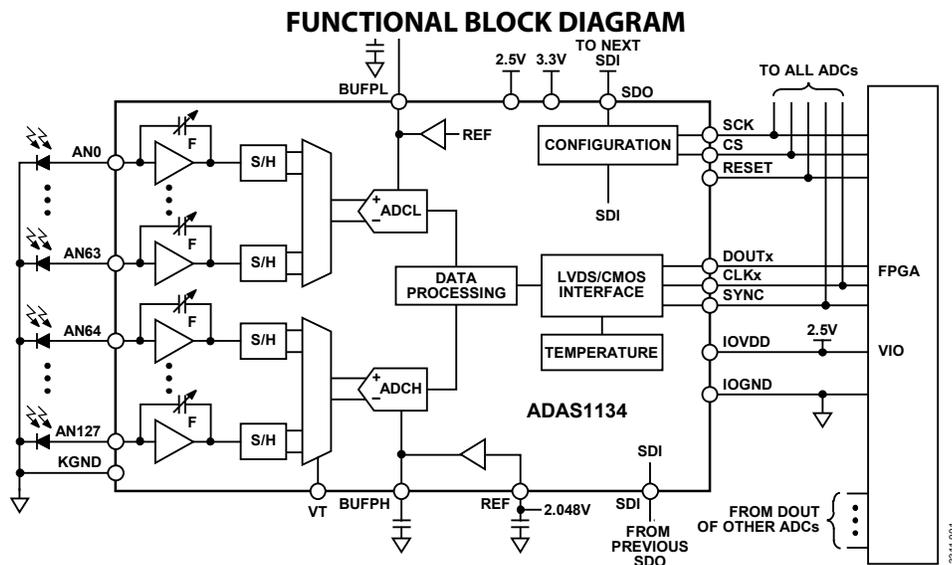
Figure 1.

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

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