ANALOG DEVICES

64-Channel, 24-Bit Current-to-Digital ADC
ADAS1127

FEATURES

64-channel, low level current-to-digital converter
Up to 24-bit resolution
Up to 19.7 kSPS (50.7 μs integration time)
Simultaneous sampling
Ultralow noise (down to 0.4 fC [2500e⁻])
User-adjustable full-scale range
INL: ±0.025% of reading ±0.75 ppm of FSR
Very low power dissipation: 6.25 mW/channel
LVDS self-clocked serial data interface
SPI configuration registers (daisy-chain)
On-board temperature sensor and reference buffer
10 mm × 10 mm, mini-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 ADAS1127 is a 64-channel, current-to-digital, analog-to-digital converter (ADC). It contains 64 low power, low noise, low input current integrators, simultaneous sample-and-holds, and a high speed, high resolution ADCs with configurable sampling rate and resolutions up to 24 bits.

All converted channel results are output on a single 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 ADAS1127 uses the separate supply IOVDD to reduce the digital noise effect on the conversions.

The ADAS1127 is in a 10 mm × 10 mm, mini-BGA package.

For more information on the ADAS1127, contact Analog Devices, Inc, at adas@analog.com.
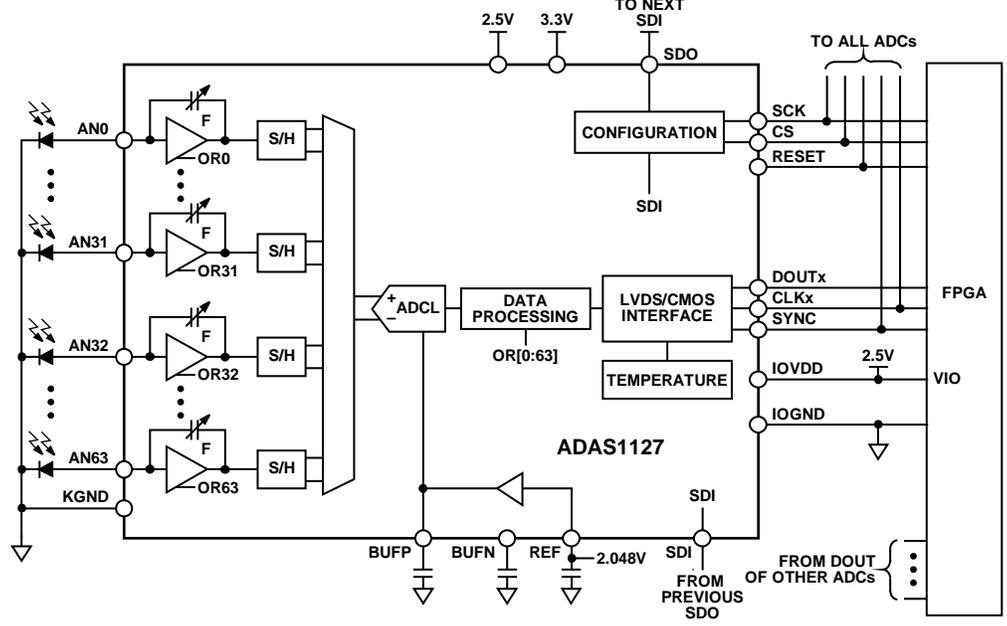
FUNCTIONAL BLOCK DIAGRAM

Figure 1.

Rev. Sp0

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