

## FEATURES

- 256-channel, current-to-digital converter module
- Up to 24-bit resolution
- Variable integration time
  - Fastest integration time: 22.6 kSPS maximum (44.2  $\mu$ s minimum) at 20-bit resolution
- Low power dissipation: 2.3 mW per channel at any throughput
- Integral linearity
  - $\pm 0.050\%$  of reading,  $\pm 1.0$  ppm of FSR: all channels active
- Very low noise
- Simultaneous sampling
  - No dead time, no loss of charge, 100% charge collection
- User adjustable full-scale range
- On-board temperature sensor and reference buffer
- 15 mm  $\times$  15 mm, CSP\_BGA package
- Simple printed circuit board (PCB) design
  - Integrated capacitors for supply and reference decoupling
  - 0.80 mm pitch BGA allows low cost PCB technology
- 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 [ADAS1135](#) is a 256-channel, current-to-digital, analog-to-digital converter (ADC) module. It contains 256 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 of up to 24 bits. The signal chain and sampling architecture of the [ADAS1135](#) is designed to guarantee that all channels are simultaneously sampled, and that no charge is lost throughout the sampling process.

All converted channel results are output on a dual, 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\_x input. The SDO\_x output allows the user to daisy-chain several ADCs on a single, 4-wire bus. The [ADAS1135](#) uses the separate supply, IOVDD, to reduce digital noise effect on the conversions.

The [ADAS1135](#) is in a 15 mm  $\times$  15 mm, CSP\_BGA package.

For more information on the [ADAS1135](#), contact Analog Devices, Inc., at: [adas@analog.com](mailto:adas@analog.com).

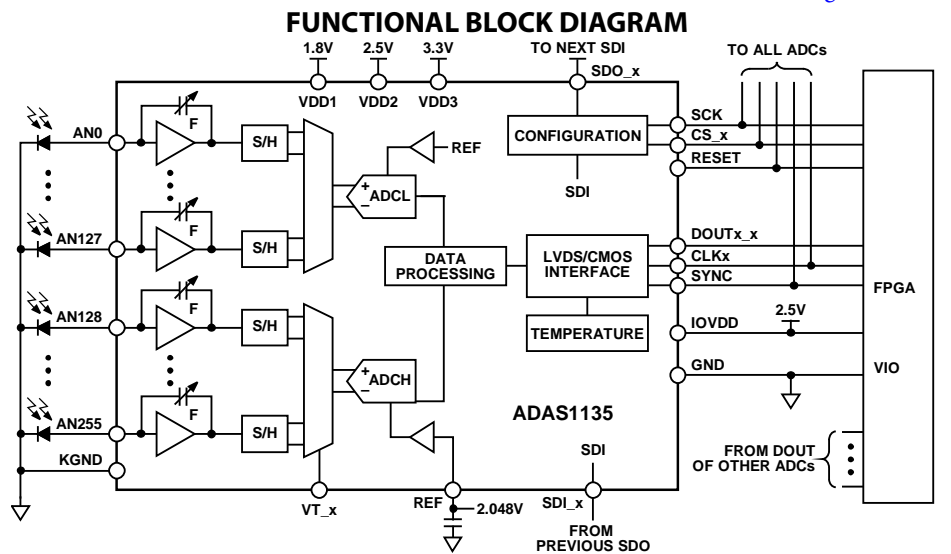


Figure 1.

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One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.  
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**NOTES**