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 μs minimum) at 20-bit resolution  
Low power dissipation: 2.3 mW per channel at any throughpout  
Integral linearity  
  ±0.050% of reading, ±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 × 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 × 15 mm, CSP_BGA package. For more information on the ADAS1135, contact Analog Devices, Inc., at: adas@analog.com.