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Linear – 16-channel delta-sigma ADC communicates via an I2C interface

A 16-channel delta-sigma analog-to-digital converter (ADC) that communicates via an I2C-compatible serial interface and includes a 'unique' analog input architecture has been announced by Linear Technology.

The LTC2499's Easy Drive front-end design results in zero average differential input current, allowing measurements of high-impedance input sources without the use of an internal buffer. This patented sampling scheme simplifies the design of front-end signal conditioning circuits and allows the ADC to be driven directly from bridges, RTDs, thermocouples and high impedance [sensors](#). Rail-to-rail input signals can be directly digitized while maintaining 'excellent' DC accuracy (2ppm INL), says the company.

The device includes a high-accuracy internal temperature sensor that offers 1C/30C resolution and 2C absolute accuracy. The ADC converts the output of the temperature sensor or the input multiplexer, which can be configured for 16 single-ended channels, eight differential channels, or combinations of both. After a new channel is selected, the LTC2499's No Latency Delta-Sigma digital filter settles in a single cycle. The device performs conversions at rates of 15Hz or 7.5Hz while using the internal oscillator and can be configured to reject line frequencies of 50Hz, 60Hz or simultaneous 50Hz/60Hz, while maintaining 600nVRMS noise across the full input voltage range. Three address-select pins allow 27 unique address combinations, in addition to a separate global address for synchronizing multiple devices.

For lower resolution applications, Linear is also introducing the LTC2497, a pin-compatible 16-bit ADC. The LTC2499 and LTC2497 are each available in QFN-38 (5mm x 7mm) packages, offering a pin-compatible and code-compatible family for performance / cost optimization. The LTC2498 and LTC2496 are equivalent 24-bit and 16-bit Easy Drive ADCs that communicate via a 4-wire SPI-compatible interface. Both the LTC2499 and LTC2497 are available in commercial and industrial temperature ranges, says the company.

Notes
