



I²C, 24-Bit, 16-Channel Delta-Sigma ADC with Easy-Drive Input Current Cancellation Includes High-Accuracy Temperature Sensor

MILPITAS, CA – December 5, 2006 – Linear Technology Corporation introduces the LTC2499, 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. 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).

The LTC2499 includes a high accuracy internal temperature sensor that offers 1/30°C resolution and 2°C 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 LTC2499 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 600nV_{RMS} 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 Technology 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. Pricing begins at \$3.45 each for the LTC2499 and \$2.65 each for the LTC2497, in 1,000-piece quantities.


Photo Caption: 24-Bit, 16-Channel Easy Drive I²C Delta-Sigma ADC

Summary of Features: LTC2499

- 8 Differential/16 Single-Ended Input Channels
- Easy Drive Technology Enables Rail-to-Rail Inputs with Zero Differential Input Current
- Directly Digitizes High Impedance Sensors with Full Accuracy
- 600nV RMS Noise
- 2x Speed Mode Doubles Output Rate or Reduces Power by 50%
- Integrated High Accuracy Temperature Sensor
- 2-Wire I²C-Compatible Interface with 27 Addresses Plus One Global for Synchronization
- Programmable 50Hz, 60Hz or Simultaneous 50Hz/60Hz Rejection Mode
- 2ppm INL, 24-Bit No Missing Codes
- Single Supply 2.7V to 5.5V Operation (0.8mW)
- 5mm x 7mm QFN Package

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems. For more information, visit www.linear.com

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