

***LTC News for Immediate Release***

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**High Speed 24-Bit  $\Delta\Sigma$  ADC Integrates Amplifier Front-End for  
High Source Impedance Sensors**

MILPITAS, CA – November 28, 2005 – Linear Technology introduces the LTC2442, an ultra high precision, multiplexed 24-bit No Latency Delta Sigma™ ADC with an integrated high performance amplifier. The LTC2442 achieves 1 part-per-million (ppm) linearity with the amplifier configured as a unity gain buffer, easing drive requirements for high impedance sensors. Optional external resistors may be connected to the amplifier to increase the gain for low level input signals. This flexible converter allows the amplifier supply rails to be connected to  $V_{CC}$  and ground or biased beyond the rails for rail-to rail input signals. The LTC2442's proprietary architecture rejects channel-to-channel crosstalk and is immune to lockup due to large input disturbances. This combination of high precision and high input impedance makes the part suitable for the most demanding industrial and scientific instrumentation applications.

The LTC2442 combines high performance with ease of use to shorten development time. The integrated amplifiers reduce overall circuit size, improve the DC linearity and provide additional design flexibility with optional external gain setting resistors. The proprietary delta sigma architecture ensures stable DC accuracy through continuous transparent offset and full-scale calibration. Ten no latency speed/resolution combinations from 6.9Hz to 3.5kHz are digitally selectable with noise as low as 220nVrms. In addition, a one cycle latency mode can be selected for each speed/resolution combination enabling output rates up to 7kHz (8kHz with an external oscillator) with 17-bits noise performance. Any combination of up to four single-ended inputs or up to two differential inputs can be selected with a common mode input range from ground to  $V_{CC}$ . The first conversion following a new channel or speed selection is valid.

The LTC2442 is specified for the commercial and industrial temperature ranges and is available in the 36-pin SSOP package. Pricing starts at \$7.45 each for the LTC2442 in 1,000-piece quantities.

(more...)

### Summary of Features: LTC2442

- 1ppm Linearity with No Missing Codes
- Integrated Amplifier for Direct Sensor Digitization
- 2 Differential or 4 Single-Ended Input Channels
- Up to 8kHz Output Rate
- Up to 4kHz Multiplexing Rate
- Selectable Speed/Resolution
  - $2\mu\text{V}_{\text{RMS}}$  Noise at 1.76kHz Output Rate
  - $220\text{nV}_{\text{RMS}}$  Noise at 13.8Hz Output Rate with Simultaneous 50/60Hz Rejection
- Guaranteed Modulator Stability and Lock-Up Immunity for any Input and Reference Conditions
- $<5\mu\text{V}$  Offset ( $4.5\text{V} < V_{\text{CC}} < 5.5\text{V}$ ,  $-40^\circ\text{C}$  to  $85^\circ\text{C}$ )
- Differential Input and Differential Reference with GND to  $V_{\text{CC}}$  Common Mode Range
- No Latency Mode, Each Conversion is Accurate Even After a New Channel is Selected
- Internal Oscillator—No External Components
- 36 Lead SSOP Package

### About Linear Technology Corporation

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](http://www.linear.com)

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