



32-Bit SAR ADC with 0.5ppm Linearity Provides 148dB Dynamic Range

MILPITAS, CA & NORWOOD, MA – April 3, 2017 – Analog Devices, Inc., which recently acquired Linear Technology Corporation, announces the [LTC2500-32](#), an ultrahigh precision 32-bit successive approximation register (SAR) analog-to-digital converter (ADC). The LTC2500-32 is a new and enabling approach for precision measurement applications, blending the high accuracy and speed of Linear Technology's proprietary SAR ADC architecture with flexible integrated digital filters to optimize system signal bandwidth and ease analog anti-aliasing filter requirements. The LTC2500-32 simultaneously provides two outputs: (1) a 32-bit low noise digitally filtered output that achieves up to 148dB of dynamic range and (2) a 32-bit 1Msps no latency output comprising an overrange detection bit, a 24-bit representation of the input voltage difference, and a 7-bit representation of the common mode input voltage. The no latency output is inherently perfectly matched to the digitally filtered output, avoiding the mismatch and drift that typically occur in applications requiring an additional faster ADC to monitor signal integrity in parallel with a precision ADC. The wide input common mode range and high CMRR enable the LTC2500-32 to interface signals with varying common mode, simplifying the analog signal chain. Each of the two outputs provides a highly accurate representation of the voltage difference applied between the two input terminals.

The exceptional low noise density of LTC2500-32 produces 148dB of dynamic range at 61sps and 104dB at 1Msps. In addition to low noise, LTC2500-32 offers unrivaled linearity of 0.5ppm typical and 2ppm guaranteed maximum INL, and negligibly low gain and offset drift over wide temperature ranges. In combination, these features enable state-of-the-art high precision measurements in noisy environments, such as in industrial automation applications. The integrated configurable digital filter offers seven filter types and 13 different downsampling factors, providing users with a high level of flexibility to trade off bandwidth, filter response and noise performance for each application.

The LTC2500-32 is part of a family of ultrahigh precision SAR ADCs, which also includes the 32-bit LTC2508-32, providing digital filters optimized for data acquisition applications, and the 24-bit LTC2512-24, providing digital filters optimized for signal processing

applications requiring a flat passband. The LTC2512-24 and LTC2508-32 provide a 14-bit no latency output for monitoring signal integrity and four downsampling factors for trading off bandwidth with dynamic range. The LTC2500-32 provides a broader range of filters and downsampling factors.

The LTC2500-32 is available today in commercial and industrial (-40°C to 85°C) temperature grades. Pricing begins at \$35.95 each in 1,000-piece quantities. The DC2222A evaluation board for the LTC2500 SAR ADC family is available at www.linear.com/demo or via a local Linear Technology sales office. For more information, visit www.linear.com/product/LTC2500-32.

Photo Caption: Flexible Digital Filter with Configurable Frequency Cutoffs

Summary of Features: LTC2500-32

- 104dB SNR at 1Msps
- Dual Output 32-Bit SAR ADC
 - 32-Bit Digitally Filtered Low Noise Output
 - 24-Bit Differential + 7-Bit Common Mode 1Msps Output with Overrange Detect
- Configurable Digital Filter with Synchronization
- 7 Filter Types: Sinc,¹ Sinc,² Sinc,³ Sinc,⁴ Spread-Sinc, Flat Passband, Averaging
- Wide Input Common Mode Range
- 128dB CMRR
- 24-Lead 7mm x 4mm DFN Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

Analog Devices just got more Powerful. On March 10, Analog Devices acquired Linear Technology, creating the premier high performance analog company. More info at <http://lt.linear.com/07c>

About Analog Devices

Analog Devices (NASDAQ: ADI) is the leading global high-performance analog technology company dedicated to solving the toughest engineering challenges. We enable our customers to interpret the world around us by intelligently bridging the physical and digital with unmatched technologies that sense, measure, power, connect and interpret. Visit <http://www.analog.com>

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