



16-Bit, 1Msps, Low Power SAR ADC with Serial Interface

MILPITAS, CA – September 15, 2010 – Linear Technology Corporation introduces the [LTC2383-16](#), an easy-to-use, low power 16-bit 1Msps serial SAR ADC with guaranteed specifications over the -40°C to 125°C temperature range. Consuming just 13mW from a single 2.5V supply, the LTC2383-16 achieves an impressive 92dB SNR and -106dB THD from a fully differential $\pm 2.5\text{V}$ input range while maintaining a maximum $\pm 2\text{LSB}$ INL and no missing codes. Available in small 3mm x 4mm DFN and MSOP-16 packages, the LTC2383-16 is ideal for space-constrained applications that require low power, including those using multiple ADCs per board.

Complementing the LTC2383-16 are the pin- and software-compatible LTC2382-16 (500ksps) and LTC2381-16 (250ksps). These devices feature a proprietary sampling architecture that allows the ADCs to begin acquiring the next sample during the current conversion. This greatly extends the acquisition time and allows the use of extremely low power ADC drivers, further reducing the overall power budget.

These user friendly ADCs feature a simple digital timing interface and require few external components. All feature a shutdown mode that reduces power dissipation to 1.25uW when not converting. True no latency operation enables accurate one-shot measurements even after lengthy idle periods with no minimum sample rate required. The flexible serial SPI interface supports I/O voltages from 1.8V to 5V. To support robust customer designs with long product lifetimes, all key AC and DC specs including THD and sleep current are guaranteed.

To achieve uncompromised AC performance, we recommend the fast settling LT6350 ADC driver for single-ended to differential conversion of input signals. We also recommend the LTC6652-2.5, a precision external reference with high accuracy, low power and small size. The DC1571A, an integrated demo board featuring the LTC6652-2.5 reference and LT6350 driving the LTC2383-16 ADC, is available at www.linear.com or via a local Linear sales office. All devices are available now in production quantities, priced starting at \$12.20 for the LTC2383-16, \$8.50 for the LTC2382-16 and \$7.20 for the LTC2381-16 in 1,000-piece quantities. For more information, visit www.linear.com/2383.


Photo Caption: 16-Bit, 1Msps, Low Power SAR ADC with Serial Interface

Summary of Features: LTC2383-16

- 1Msps Throughput Rate
- ± 2 LSB INL (Max)
- Guaranteed 16-Bit No Missing Codes
- Low Power: 13mW at 1Msps, 13uW at 1ksps
- 16-pin MSOP & 4mm x 3mm DFN Packages
- 92dB SNR (typ) at $f_{IN} = 20$ kHz
- Guaranteed Operation to 125°C
- 2.5V Supply
- Fully Differential Input Range ± 2.5 V
- External 2.5V Reference Input
- No Pipeline Delay, No Cycle Latency
- 1.8V to 5V I/O Voltages
- SPI-Compatible Serial I/O with Daisy-Chain Mode
- Internal Conversion Clock

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, uModule[®] products, 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.

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