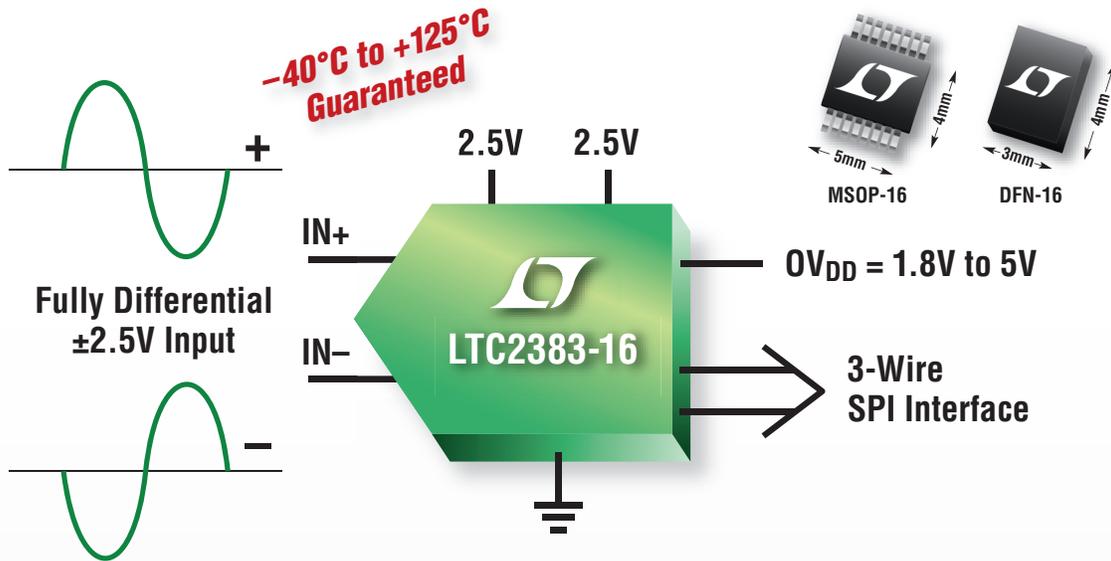


LTC2383: 16-Bit, 1Msps, 13mW SAR ADC



The LTC[®]2383-16 is a 1Msps, no latency SAR ADC that offers low 13mW power consumption, 92dB SNR using a fully differential input range, ± 2 LSB INL (max) and 16-bit no missing codes resolution. The pin- and software-compatible family includes LTC2382-16 (500ksps) and LTC2381-16 (250ksps) and features a proprietary sampling architecture that allows the use of extremely low power ADC drivers, thus reducing the overall power consumption of the entire data acquisition solution. To achieve uncompromised AC performance, we recommend the fast settling LT[®]6350 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 -40°C to 125°C temperature range of LT6350 and LTC6652 complements that of LTC2383 family and makes them ideal for automotive applications.

Features

- ± 2 LSB INL (Max), ± 1 LSB DNL (Max)
- Low Power: 13mW at 1Msps, 13 μ W at 1ksps
- 92dB SNR (Typ) at $f_{IN} = 20\text{kHz}$
- Guaranteed Operation to 125°C
- 2.5V Supply
- Fully Differential Input Range $\pm 2.5\text{V}$
- External 2.5V Reference Input
- No Pipeline Delay, No Cycle Latency
- 1.8V to 5V I/O Voltages
- SPI-Compatible Serial I/O with Daisychain Mode
- Internal Conversion Clock

Applications

- Medical Imaging
- High Speed Data Acquisition
- Portable or Compact Instrumentation
- Industrial Process Control
- Low Power Battery-Operated Instrumentation
- ATE

	LTC2383-16	LTC2382-16	LTC2381-16
Resolution	16-Bit	16-Bit	16-Bit
Speed	1Msps	500ksps	250ksps
Power	13mW	6.5mW	3.25mW
Package	4mm x 3mm DFN-16, 16-Lead MSOP	4mm x 3mm DFN-16, 16-Lead MSOP	4mm x 3mm DFN-16, 16-Lead MSOP



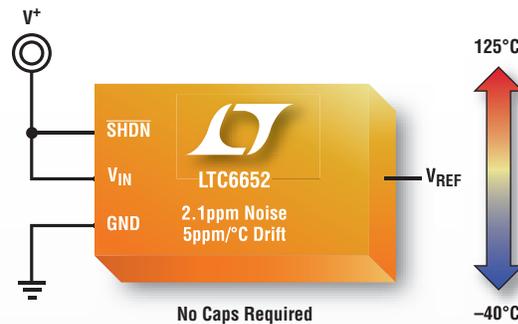
LT, LT, LTC, LTM, Linear Technology and the Linear logo are registered trademarks of Linear Technology Corporation. All other trademarks are the property of their respective owners.

LTC6652: Precision, Low Drift, Low Noise ADC Reference

The LTC6652 is a precision, low noise, series voltage reference offered in seven output voltage options: 1.25V, 2.048V, 2.5V, 3.0V, 3.3V, 4.096V and 5V. Along with an initial accuracy of 0.05%, and maximum voltage drift of 5ppm/°C, the LTC6652 offers excellent load and line regulation, and noise of only 2.1ppm. The combination of precision and low noise makes the LTC6652 ideal for precision data acquisition and medical instrumentation. With an output current drive of $\pm 5\text{mA}$, the LTC6652 provides a highly accurate ADC voltage reference without the need of a separate buffer. No load capacitor is required, helping to minimize board space. The LTC6652 is fully specified over -40°C to 125°C , making it suitable for high performance, high temperature industrial and automotive applications.

Features

- Voltage Options: 1.25V, 2.048V, 2.5V, 3V, 3.3V, 4.096V, 5V
- Fully Specified Over -40°C to 125°C
- 0.05% Initial Accuracy and 5ppm/°C Drift (A-Grade)
- Low Noise: 2.1ppm/ V_{P-P} (0.1Hz to 10Hz)
- $\pm 5\text{mA}$ Sink and Source Capability
- Low Power Shutdown: $< 2\mu\text{A}$ Maximum
- 300mV Dropout Voltage
- Line Regulation: 50ppm/V Maximum
- Load Regulation: 75ppm/mA Maximum
- No External Load Capacitor Required
- Wide Supply Range to 13.2V
- 8-Lead MSOP Package



LT6350: Low Noise, Single-Ended to Differential ADC Driver

The LT6350 is a 33MHz, low noise, rail-to-rail input and output ADC driver that settles to 16 bits in just 350ns. It is suitable for driving the latest high performance SAR ADCs, such as the LTC2383-16. The LT6350 incorporates two op amps and matched resistors to create a differential output from a single-ended high impedance input. As a result, a differential gain of 2 is achieved with no external feedback resistors and higher gain can be obtained by using feedback resistors. Each of the two internal op amps achieves a low $1.9\text{nV}/\sqrt{\text{Hz}}$ input-referred noise density, resulting in a total output referred noise of just $8.2\text{nV}/\sqrt{\text{Hz}}$. The LT6350 enables high performance ADCs to achieve better than 110dB SNR over a 1MHz bandwidth. Operating from a 2.7V to 12V total supply, the LT6350 consumes 4.8mA supply current and has a shutdown mode that allows the system to reduce power consumption during periods of inactivity.

Features

- Rail-to-Rail Input and Outputs
- Fast Settling Time: 240ns, 0.01%, $8V_{P-P}$ Output Step
- $1.9\text{nV}/\sqrt{\text{Hz}}$ Input-Referred Op Amp Noise
- High Impedance Input
- -3dB Bandwidth: 33MHz
- 2.7V to 12V Supply Operation
- No External Gain Resistors Required
- Low Offset Voltage: $\pm 400\mu\text{V}$ Max
- High DC Linearity: $< \pm 1\text{LSB}$, 16-Bit, $8V_{P-P}$
- Low Distortion (HD2/HD3): $-102\text{dBc}/-97\text{dBc}$ at 100kHz, $V_{\text{OUTDIFF}} = 4V_{P-P}$
- Low Power Shutdown
- 3mm \times 3mm 8-Pin DFN and 8-Lead MSOP Packages

