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Selectable 250sps/1ksps 16-Bit ADC Integrates 10ppm/°C Max Precision Reference

MILPITAS, CA – December 7, 2009 – Linear Technology Corporation introduces the LTC2470 and LTC2472, a pair of 16-bit delta sigma ADCs that integrate a high accuracy reference in tiny 3mm x 3mm DFN and 12-lead MSOP packages. The device's integrated 1.25V reference offers 2ppm/°C drift performance and 0.1% initial accuracy for precise measurements in space-constrained applications. Both ADCs provide guaranteed 16-bit no missing code resolution and selectable 250sps or 1ksps output rate. The LTC2470 and LTC2472 are ideal for system and environmental monitoring and data acquisition systems requiring fast output rates.

Operating from a single 2.7V to 5.5V supply, these ADCs are designed to measure single-ended (LTC2470) or differential (LTC2472) sensors via an SPI serial interface. With its internal 1.25V reference, the LTC2470 can measure a single-ended input between 0V and 1.25V, while the LTC2472 is capable of measuring a differential input up to $\pm 1.25V$.

The versatile LTC2470/LTC2472 achieve excellent 16-bit DC performance of 2LSB (typ) integral nonlinearity error at 250sps, 3uV_{RMS} transition noise and 0.25% gain error (max). An internal oscillator eliminates the need for external components to perform conversions.

The LTC2470/LTC2472 draw 3.5mA supply current during a conversion. After each conversion, the ADC enters a nap mode, reducing supply current to less than 1.5mA (max). Supply current can be further reduced by placing the converter in sleep mode to achieve less than 2uA(max). The LTC2470/LTC2472 also incorporate a proprietary input sampling network that reduces the dynamic input current to less than 50nA, making a wide range of external input protection and filter circuits possible.

The LTC2470 and LTC2472 are each offered in small 12-pin 3mm x 3mm DFN and MSOP packages. They are available today in both commercial and industrial temperature grade versions. Pricing for the LTC2470 & LTC2472 begin at \$1.70 each in 1,000-piece quantities. For more information, visit www.linear.com.

Ultra-Tiny ADC Family

Part Number	Input	Input Range	Output Rate	I/O	V _{REF}
LTC2450	Single-Ended	0V to V _{CC}	30Hz	SPI	V _{CC} = V _{REF}
LTC2450-1	Single-Ended	0V to V _{CC}	60Hz	SPI	V _{CC} = V _{REF}
LTC2451	Single-Ended	0V to V _{REF}	60Hz	I ² C	External
LTC2452	Differential	±V _{REF}	60Hz	SPI	External
LTC2453	Differential	±V _{REF}	60Hz	I ² C	External
LTC2460	Single-Ended	0V to V _{REF}	60Hz	SPI	Internal
LTC2461	Single-Ended	0V to V _{REF}	60Hz	I ² C	Internal
LTC2462	Differential	±V _{REF}	60Hz	SPI	Internal
LTC2463	Differential	±V _{REF}	60Hz	I ² C	Internal
LTC2470	Single-Ended	0V to V _{REF}	250/1000Hz	SPI	Internal
LTC2472	Differential	±V _{REF}	250/1000Hz	SPI	Internal


Photo Caption: 16-Bit ADC with Selectable 250sps/1ksps output rate & 10ppm/°C Max Internal Reference

Summary of Features: LTC2470/LTC2472

- 16-Bit Resolution, No Missing Codes
- Internal Reference, (10ppm/°C max)
- Single-Ended (LTC2470) or Differential (LTC2472)
- Selectable 250sps/1ksps Output Rate
- 1mV Offset Error
- 0.01% Gain Error
- Single Conversion Settling Time for Multiplexed Applications
- Single-Cycle Operation with Auto Shutdown:
 - 3.5mA (typ) Supply Current
 - 2uA (max) Sleep Current
- Internal Oscillator—No External Components Required
- SPI Interface
- Small 12-Lead 3mm × 3mm DFN & MSOP Packages

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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