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16-Bit Quad SPI DAC Achieves ± 1 LSB INL & DNL with Software-Programmable Unipolar & Bipolar Outputs

MILPITAS, CA – June 22, 2009 – Linear Technology Corporation introduces the LTC2754-16, a quad 16-bit current output digital-to-analog converter (DAC) that achieves ± 1 LSB integral nonlinearity (INL) and differential nonlinearity (DNL). All four DACs can be software programmed or pin-strapped for one of six unipolar or bipolar output ranges via a simple 4-wire serial interface. Software programmability eliminates the need for expensive precision resistors, gain stages and manual jumpers. The LTC2754-16's precision DC specifications and flexible SoftSpan output configurability make it ideal for multichannel data acquisition modules and automated test equipment. A pin- and software-compatible 12-bit option is also available, making it easy to transition between different resolutions in the end-product.

The LTC2754-16 is capable of outputting six unique software-programmable unipolar and bipolar output ranges up to ± 10 V. The six SoftSpan output voltage ranges include two unipolar ranges (0V to 5V, 0V to 10V) and four bipolar ranges (± 10 V, ± 5 V, ± 2.5 V, -2.5V to +7.5V). Voltage controlled offset and gain adjustment pins are also included for each DAC, making it possible to fine tune each DAC output. The LTC2754-16 outputs any of the six SoftSpan ranges while operating from a single 2.7V to 5.5V supply and drawing only 1uA maximum supply current.

The LTC2754-16 also offers very good AC specifications, including full-scale settling time of only 2us and low glitch impulse of 0.26nV•s with a 3V supply or 1.25nV•s with a 5V supply .

The LTC2754-16's 2MHz multiplying bandwidth and good AC specifications are key for applications such as waveform generation. Fast settling and low glitch reduce the harmonic distortion, making it possible to produce higher frequency, lower noise output waveforms. The LTC2754-16's serial interface operates at clock rates up to 40MHz and allows readback of any internal register, as well as the DAC output span setting.

The LTC2754-12 is a pin-compatible 12-bit device, with both 16-bit and 12-bit versions available in 7mm x 8mm QFN-52 packages. The serial LTC2754 joins a family of quad, dual and single DACs (LTC2755/LTC2753/LTC2751) that communicate via parallel I/O. The entire family is available in commercial and industrial temperature ranges. Pricing begins at \$9.15 for the LTC2754-12 and \$17.85 for the LTC2754-16, each in 1,000-piece quantities. For more information, visit www.linear.com.


Photo Caption: Quad 16-Bit SPI SoftSpan DAC with ± 1 LSB INL

Summary of Features: LTC2754-16/LTC2754-12

- ± 1 LSB INL, ± 1 LSB DNL Over Temperature
- Six Programmable Output Ranges:
 - Unipolar 0V to +5V, 0V to +10V
 - Bipolar ± 5 V, ± 10 V, ± 2.5 V, -2.5 to +7.5V
- Low 1uA(max) Supply Current
- Low 0.26nV•s / 1.25nV•s Glitch Impulse (3V/5V Supply)
- Fast 2us Settling Time
- 4-Wire SPI-Compatible Serial Interface
- 2.7V to 5.5V Single Supply Operation
- Data & Span Readback
- Individual Offset & Gain Hardware Adjustment Pins
- 52-Pin 7mm x 8mm QFN Package

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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