

LTC News for Immediate Release

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Fixed Gain Differential Amplifiers Simplify Driving High Speed ADCs

MILPITAS, CA – May 3, 2005 – Linear Technology Corporation announces the LT1993-X, a new family of high-speed fully differential amplifiers for driving high resolution, high speed ADCs. The LT1993-X series are the first fully differential amplifiers that truly simplify the task of driving high speed ADCs and reduce total solution size. With fixed gain options of 2 (6dB), 4 (12dB) and 10 (20dB) and a built-in user adjustable filter, the LT1993-X enables designers to directly drive ADCs and achieve optimal performance without using complex support circuitry. Ideally suited for use in wired and wireless communications, imaging systems and test and measurement equipment, the LT1993-X offers excellent noise and distortion performance. The low harmonic distortion of -70dBc , combined with the unmatched 12.3dB noise figure at 70MHz, ensures system accuracy and high signal integrity.

Unlike existing differential amplifiers, the LT1993-X works with minimal support circuitry. The internal gain eliminates a handful of external gain setting resistors that are commonly required with other differential amplifiers. The built-in user-adjustable low pass filter simplifies pre-ADC filtering often desired to provide either anti-aliasing or improve signal to noise ratio. The adjustable output common mode voltage allows direct interfacing with ADCs without the need for AC-coupling capacitors or transformers. The LT1993-X can be DC-coupled in applications that have frequency ranges including DC. The combination of these features eliminate external support circuitry resulting in an integrated single-chip solution that is easier to use and simpler to lay out with minimal debug and tweak time.

“No other highspeed differential amplifier offers the ease of use the LT1993-X,” said Erik Soule, general manager of Linear Technology’s signal conditioning product line. “Designers of high speed systems are continuously striving to find new ways to simplify their designs, while achieving the optimal balance of low noise and low distortion. Our new amplifier family solves these design challenges by delivering the best possible performance levels within a highly integrated, yet easy-to-use solution.”

The LT1993-2 features fixed gain of 6dB with 800MHz -3dB bandwidth. The LT1993-4 has a 12dB fixed gain with bandwidth reaching 900MHz. The LT1993-10 offers a

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high gain of 20dB with 700MHz bandwidth. All gain options are available for operation over the commercial and industrial temperature ranges. Offered in the low profile 3mm x 3mm QFN package, pricing starts at \$2.95 each in 1000-piece quantities.

Summary of Features: LT1993-2

- 800MHz –3dB Bandwidth
- Fixed Gain of 2V/V (6dB)
- Low Distortion:
 - 38dBm OIP3, –70dBc HD3 (70MHz, 2VP-P)
 - 51dBm OIP3, –94dBc HD3 (10MHz, 2VP-P)
- Low Noise: 12.3dB NF, $e_n = 3.8\text{nV}/\sqrt{\text{Hz}}$ (70MHz)
- Differential Inputs and Outputs
- Additional Filtered Outputs
- Adjustable Output Common Mode Voltage
- DC- or AC-Coupled Operation
- Minimal Support Circuitry Required
- Small 0.8mm Tall 16-Lead 3mm x 3mm QFN Package

COMPANY BACKGROUND: Linear Technology Corporation was founded in 1981 as a manufacturer of high performance linear integrated circuits. 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, 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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