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For more information, tel. 408-432-1900
John Hamburger, Dir., Mkting Communications, ext. 2419
Doug Dickinson, Media Relations Mgr., ext. 2233
www.linear.com

Low Offset 18MHz CMOS Amplifiers Boast Unprecedented Low Noise

MILPITAS, CA – July 11, 2005 - Linear Technology Corporation announces a new class of CMOS amplifiers with voltage noise like bipolar amplifiers. Generally known for their low input bias current, CMOS amplifiers are inherently noisier than bipolar designs. The LTC6241 dual and LTC6242 quad amplifiers address this fundamental performance trade off. With exceptionally low noise of 550nVp-p in the 0.1Hz to 10Hz region, these amplifiers offer a threefold reduction in voltage noise over existing CMOS amplifiers. This breakthrough performance, previously unattainable from a CMOS amplifier, delivers maximum signal resolution in a wide variety of high-end instrumentation, medical and communication applications requiring high impedance inputs.

Not only do these amplifiers minimize a crucial error source, voltage noise, but they also provide excellent DC precision. The LTC6241 and LTC6242 feature 1pA bias current and less than 125uV input offset voltage. Offset voltage drift is guaranteed under 2.5uV/°C while the high voltage gain of 124dB keeps system error to a minimum. The 18MHz gain bandwidth and 10V/us slew rate at a low supply current of 2.2mA max per amplifier make these amplifiers extremely versatile and perfect for use in a wide variety of signal processing applications. Furthermore, the low input capacitance of only 3pF makes them suitable for high source impedance applications. The devices are ideal for use as photodiode, transimpedance and charge coupled amplifiers, precision integrators, filters and I/V converters. End markets include instrumentation, medical, industrial and communications.

“The LTC6241 and LTC6242 are the industry’s lowest noise CMOS amplifiers. Prior to the LTC6241 and LTC6242, designers requiring high input precision had to either compromise noise by using chopper-stabilized amplifiers or increase system cost with more expensive low noise bipolar and BiFET amplifiers. These devices put an end to the performance trade-off,” said design manager, Bill Jett. “For the first time, designers of high precision systems can obtain superb DC precision with unprecedented low noise at an affordable price.”

(more...)

Operating from supply voltages as low as 2.8V and up to 12V (HV version), the LTC6241 dual is offered in an 8-pin SOIC and tiny 3mm x 3mm DFN packages. The LTC6242 quad is available in a 16-pin SSOP package and 5mm x 3mm DFN. Fully specified to operate over the commercial and industrial temperature ranges, 1,000-piece pricing starts at $1.25 each for the LTC6241 dual and $2.25 each for the LTC6242 quad.

Summary of Features: LTC6241 & LTC6242

- 0.1Hz to 10Hz Noise: 550nVp-p
- Low Input Bias Current: 1pA Typ
- Low Offset Voltage: 125uV Max
- Low Offset Drift: 2.5uV/°C Max
- High Voltage Gain: 124dB Typ
- Gain Bandwidth Product: 18MHz Typ
- Slew Rate: 10V/us Typ
- Low Input Capacitance: 3pF
- Output Swings Rail-to-Rail
- Supply Operation: 2.8V to 12V

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.

For more information, contact:

Doug Dickinson, Media Relations Manager
Linear Technology Corporation
1630 McCarthy Boulevard
Milpitas, CA 95035-7417

ddickinson@linear.com

408-432-1900

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