1GHz & 2GHz Fully Differential Amplifiers Enable High-Speed ADC Performance

MILPITAS, CA – May 29, 2007 – Linear Technology Corporation announces the LTC6400-20 and LTC6401-20, ADC drivers that achieve unprecedented performance on a single 3V supply. These fully differential amplifiers include gain setting resistors, simplifying the challenge of driving the highest performance high-speed ADCs. The LTC6400-20 provides a fixed gain of 20dB with -93dBc third-order intermodulation distortion (IMD_3) performance and noise figure of 6.5dB for a 140MHz input frequency. At 240MHz, IMD_3 is better than -70dBc. Other family members with fixed gains ranging from 8dB to 26dB will follow.

The LTC6400-20 achieves this outstanding performance operating on a 3V supply voltage, providing a differential output voltage swing of $4.4V_{P-P}$. In addition to minimizing power consumption, this eliminates the need for a separate 5V supply in applications using the latest 3V and 3.3V ADCs. To further simplify interfacing to high speed ADCs such as the LTC2208, a V_{OCM} pin sets the output common mode voltage of the LTC6400-20 to match the input range of the ADC. An optional on-chip filter helps to handle charge injection common to the capacitive inputs characteristic of pipelined ADCs. Inputs may be AC- or DC-coupled. While fully differential, the LTC6400-20 can be used to easily convert single-ended inputs to differential outputs.

The LTC6401-20 is a lower-power part optimized for lower input frequencies. Consuming just 50mA, half that of the LTC6400-20, the LTC6401-20 maintains the same low noise performance and -90dBc distortion performance for input frequencies up to 70MHz.

"The LTC6400-20 is the first of a family of parts that achieves excellent noise and distortion performance from DC to hundreds of megahertz," says Kris Lokere, design manager. "In addition to driving ADCs in communications and instrumentation applications, it will find many applications as a high performance differential driver and receiver."

These parts are now available in a tiny 3mm x 3mm 16-lead QFN package, starting at $3.68 each for the LTC6400-20 and $2.95 each for the LTC6401-20 in 1,000-piece quantities.

Photo Caption: LTC6400 2GHz High-Speed ADC Driver

Summary of Features: LTC6400-20

- 1.8GHz –3dB Bandwidth
- Fixed Gain of 10V/V (20dB)
- 2.1nV/√Hz Total Input Noise
- -73/-98.3dBc $2^{nd}/3^{rd}$ Harmonic Distortion, 140MHz, $2V_{P-P}$
- Differential Inputs and Outputs
- 200 Ohm Input Impedance
- 2.85V to 3.5V Supply Voltage
- 90mA Supply Current (270mW)
- 1V to 1.6V Output Common Mode Voltage, Adjustable
- DC- or AC-Coupled Operation
- Max Differential Output Swing $4.4V_{P-P}$
- Small 16-Lead 3mm x 3mm x 0.75mm 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, 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, visit www.linear.com

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