Low Noise (1.5nV/√Hz) Fully Differential 1.6GHz Buffer Drives 50Ohm Load

MILPITAS, CA – August 15, 2012 – Linear Technology announces the LTC6417, a fully differential buffer amplifier with only 1.5nV/√Hz output-referred noise. The LTC6417 is capable of driving a differential 50Ohm load and is optimized for driving 14- and 16-bit pipeline ADCs. It can be DC- or AC-coupled at its inputs, and achieves excellent distortion performance for signals up to and beyond 600MHz. At 140MHz, OIP3 is 46dBm, and HD3 is -69dBc with 2.4 V_{P-P} output swing into a 50Ohm load.

In addition to its outstanding performance specifications, the LTC6417 includes several features designed to simplify interfacing with ADCs. The LTC6417 is configured internally as a unity gain buffer. Because its input impedance is 18.5kOhm, additional gain can be achieved by applying a 1:4 or 1:8 transformer at the inputs. Its low impedance output helps manage the capacitive charge injection common to pipeline ADCs. Fast output clamps can be programmed with a single pin to prevent ADC overrange conditions. An overrange pin signals when the clamps limit the output voltage. An output common mode pin makes it easy to match the LTC6417 output swing to the input range of the ADC.

The LTC6417 operates from a single 5V supply. A PWRADJ pin enables the designer to trade off power consumption for HD3 performance. This feature dynamically lowers supply current from 123mA to 74mA, and a shutdown mode further reduces current consumption to 24mA.

The LTC6417 is available in a 3mm x 4mm 20-lead QFN package with an easy to use flow-through pinout. It is fully specified for 0°C to 70°C and -40°C to 105°C (case temperature) operation ranges. Pricing starts at $3.89 each in 1,000 piece quantities. For more information, visit www.linear.com/product/LTC6417

Photo Caption: Fully Differential Buffer Directly Drives 50Ohms

Summary of Features: LTC6417

- 1.6GHz –3dB Small Signal Bandwidth
- Low Distortion Driving 50Ohm Load, 2.4V_{P-P}Out
  - –100dBc/–69dBc HD2/HD3 at 140MHz
  - –80dBc IM3 & 46dBm OIP3 at 140MHz
  - –100dBc/–66dBc HD2/HD3 at 380MHz
  - –68dBc IM3 & 39dBm OIP3 at 380MHz
- 1.5nV/√ Hz Output Noise
- 4.3pA/√ Hz Input Current Noise
- Programmable High Speed, Fast Recovery Output Clamping
- 4.28V_{P-P} Maximum Output Swing
- DC-Coupled Signal Path
- Operates on Single 4.75V to 5.25V Supply
- Power: 615mW on 5V, Can Be Reduced to 370mW, Shutdown Mode 120mW
- 3mm x 4mm 20-Lead QFN Package

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, µModule®subsystems, and wireless sensor network products. For more information, visit www.linear.com

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