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800MHz to 2.7GHz Direct Conversion I/Q Demodulator Offers High Performance for 3G, WiMAX Basestations & RFID Readers

MILPITAS, CA – February 19, 2007 – A new high linearity direct conversion I/Q demodulator from Linear Technology significantly reduces the cost of 3G and WiMAX basestation receivers. The LT5575's extended operating frequency range from 800MHz to 2.7GHz covers all of the cellular and 3G infrastructure, WiMAX and RFID bands with a single part. Its capability to convert from RF directly to baseband at DC or low frequency results in simplified receiver designs, reduced component count and use of lower cost, low frequency components. The LT5575 offers an outstanding IIP3 of 28dBm and IIP2 of 54.1dBm at 900MHz, and an IIP3 of 22.6dBm and IIP2 of 60dBm at 1.9GHz. Moreover, the device has a conversion gain of 3dB, which when combined with a DSB Noise Figure of 12.7dB produces excellent receiver dynamic range. The device's I (In-phase) and Q (Quadrature phase) outputs have typical amplitude and phase matching of 0.04dB and 0.6 degree, respectively, providing an unprecedented level of demodulation accuracy.

The LT5575 is capable of supporting multiband basestations covering both the 850MHz GSM/EDGE bands and the 1.9GHz/2.1GHz 3G wireless services (including CDMA2000, WCDMA, UMTS, and TD-SCDMA). It is ideal for single carrier micro- and pico-basestations, where low cost architectures are key. The LT5575's performance is also well suited for 2.6GHz WiMAX basestations, and as an IF demodulator in a microwave radio link or satellite receiver. Additionally, the LT5575's high 13.2dBm P1dB (1dB compression point) performance at 900MHz makes it an exceptional demodulator for high performance RFID readers.

The LT5575 integrates two matched, high linearity mixers. These are driven in quadrature by a low-noise, buffered LO (Local Oscillator) with an on-chip precision 0° and 90° phase shifter. The mixers produce accurate I and Q demodulated outputs capable of supporting a baseband bandwidth from DC up to 490MHz. Both the RF and the LO inputs have integrated on-chip transformers that enable 50Ohm broadband matching and single-ended operation. This simplifies the design and reduces costs.

The LT5575 operates from a single 5V supply, drawing a quiescent supply current of 132mA. The device comes in a 16-lead 4mm x 4mm QFN package. Pricing starts at \$7.75 each in 1,000 piece quantities. The product is available immediately from stock.


Photo Caption: Broadband High Performance Direct Conversion I/Q Demodulator

Summary of Features: LT5575

• Frequency Range	800MHz to 2700MHz
• IIP3 @ 900MHz	+28 dBm
@ 1900MHz	+22.6 dBm
@ 2500MHz	+23.3 dBm
• IIP2 @ 900MHz	+54.1dBm
@ 1900MHz	+60 dBm
@ 2500MHz	+52.3 dBm
• Noise Figure @ 1900MHz	12.7 dB
• I & Q Amplitude Mismatch	0.04 dB
• I & Q Phase Mismatch	0.6 degree

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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