

***LTC News for Immediate Release***

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**High Linearity Direct Conversion Quadrature Modulator Simplifies  
Design for 850–965MHz Wireless Transmitters & RFID Readers**

MILPITAS, CA – May 18, 2006 – A new high performance quadrature modulator from Linear Technology is optimized for direct conversion from baseband to the 850–965MHz frequency band, providing a cost-effective solution for GSM, EDGE, CDMA2000 basestations and 900MHz RFID readers. The LT5558's I (In phase) and Q (Quadrature phase) baseband inputs offer high impedance and a common mode voltage of 2.1V, allowing high input signal drive levels and convenient baseband coupling to active filters. Its direct-to-RF transmitter architecture enables basestation designers to attain high performance while reducing parts count, shrinking solution size, and achieving systems cost savings. The product features exceptional linearity with an OIP3 (Output 3<sup>rd</sup> Order Intercept Point) of 22.4dBm and an OIP2 (Output 2<sup>nd</sup> Order Intercept Point) of 65dBm at 900MHz. Moreover, the LT5558 has a low noise floor of -158dBm/Hz, combined with an image rejection of -49dBc and LO leakage of -43.7dBm. This device meets or exceeds the dynamic range requirements of GSM cellular basestations as well as other high performance wireless infrastructure transmitters.

The LT5558 combines two matched, high linearity mixers, a precision 0° and 90° phase shifter, a 50 Ohm LO input with integrated buffer and an on-chip RF transformer with its output matched to 50 Ohm within the band of 600MHz to 1100MHz. The RF transformer sums the modulated signals from the I and the Q channel mixers' outputs, and converts the resulting differential signal to that of a single-ended, 50 Ohm output, requiring no external matching components.

The two on-chip mixers are well balanced, producing exceptional LO leakage performance. At an LO input drive level of 0dBm, leakage to the RF output at 900MHz is only -43.7dBm, uncalibrated. Similarly, the on-chip precision phase shifter is accurate to better than one-half degree mismatch, producing an uncalibrated image rejection performance of -49dBc.

The LT5558 operates from a single 5V supply voltage. Typical operating current is 108mA. The device can be shut down by an ENABLE pin. When disabled, the chip draws 50uA maximum quiescent current to conserve power. For half-duplex or time-division multiplexed operating modes, the chip can be switched on and off rapidly using the ENABLE pin.

The LT5558 is offered in a 16-pin 4mm x 4mm surface mount QFN package. Pricing starts at \$5.35 each in 1,000-piece quantities and is available immediately from stock.

**Photo Caption:** 600MHz-1100MHz High Linearity Direct I/Q Modulator

### Summary of Features: LT5558

- Operating Frequency Range      600MHz to 1100MHz
- Output IP3 @ 900MHz            +22.4 dBm
- Output IP2 @ 900MHz            +65 dBm
- Noise Floor                        -158 dBm/Hz
- Image Rejection @ 850MHz      -49 dBc
- LO (Local Oscillator) Leakage   -43.7dBm

### Company Background

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](http://www.linear.com)

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