

LTC News for Immediate Release

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High Linearity Direct Conversion Quadrature Modulator Drives Cost and Performance for GSM Basestations & RFID Readers

MILPITAS, CA – November 14, 2005 - A new high performance quadrature modulator from Linear Technology is optimized for 850MHz to 965MHz GSM, CDMA2000, ISM, and RFID modulator applications. The LT5568 accepts I (In phase) and Q (Quadrature phase) baseband signals and modulates directly to the RF transmission frequency. Its Zero-IF transmitter architecture enables basestation designers to attain high performance while reducing parts count, shrinking size, and achieving systems cost savings. The product features exceptional linearity with an OIP3 (Output 3rd Order Intercept Point) of 22.9dBm and an OIP2 (Output 2nd Order Intercept Point) of 63dBm at 850MHz. The LT5568's noise floor is -160.3dBm/Hz, and its image rejection is -46dBc with an LO leakage of -43dBm. This device meets or exceeds the dynamic range requirements of GSM cellular basestations as well as other high performance wireless infrastructure transmitters.

The LT5568 is a highly integrated chip comprising two matched, high linearity mixers, a precision 0° and 90° phase shifter, a 50 Ohm LO input buffer, 50 Ohm I and Q inputs, and an on-chip RF transformer with an output matched to 50 Ohms within the band of 700MHz to 1050MHz. The RF transformer sums the modulated signals from the I and the Q channel mixers' outputs, and converts the differential signal to that of a single-ended output. The LO input is also single-ended, thus easing the design task.

The two on-chip mixers are well balanced, producing exceptional LO leakage performance. At LO input power of 0dBm, leakage to the RF output at 850MHz is an exceptional -43dBm, uncalibrated. Similarly, the on-chip precision phase shifter is accurate to better than one-half degree mismatch, enabling an uncalibrated image rejection performance of -46dBc.

The LT5568 operates from a single 5V supply voltage. Typical operating current is 117mA. The device can be shut down by an ENABLE pin. When disabled, the chip draws 50uA maximum quiescent current to conserve power. For half-duplexing or time-division multiplexed operating modes, the chip can be switched on and off rapidly using the ENABLE pin. The LT5568 is offered in a 16-pin 4mm x 4mm surface mount QFN

package. Pricing starts at \$5.35 in 1,000-piece quantities, and the device is available immediately from stock.

Summary of Features: LT5568

- Frequency Range: 700MHz to 1050MHz
- Output IP3 @ 850MHz: +22.9 dBm
- Output IP2 @ 850MHz: +63 dBm
- Noise Floor: -160.3 dBm/Hz
- Image Rejection @ 850MHz: -46 dBc
- LO (Carrier) Leakage @ 850MHz: -43dBm

About Linear Technology Corporation

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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