



News Release | www.linear.com

High Dynamic Range Active Upconverting Mixer Supports All LTE/Cellular Bands from 400MHz to 2.7GHz

MILPITAS, CA – July 20, 2009 – A new wide bandwidth active upconverting mixer, the LT5578 from Linear Technology, delivers high dynamic range performance from 400MHz to 2.7GHz, supporting all of the allocated LTE (Long-Term Evolution) broadband wireless services. At 900MHz, the mixer offers 27dBm Output IP3 linearity and best-in-class noise floor of -160.5dBm/Hz at an output level of -5dBm, enabling outstanding transmitter dynamic range. In addition, the mixer has 1.4dB conversion gain with integrated RF balun transformers that provide a single-ended RF output and LO (Local Oscillator) input to simplify designs while reducing external component count. Moreover, the device's LO input is internally buffered, requiring a drive level of only -1dBm. This results in an outstanding LO-to-RF leakage of -43dBm.

The LT5578 is designed to satisfy the requirements of next generation LTE wireless basestation transmitters and improves the performance of wireless equipment including W-CDMA / UMTS, TD-SCDMA, CDMA2000, CDMA, and GSM/EDGE basestations. The mixer is also ideal for a wide range of communications gear such as cable headend transmitters, microwave broadband transmitters, wireless repeaters, military radios, digital video broadcast systems, 2.4GHz ISM band transmitters, test instrumentation, micro-cell and pico-cell basestation applications.

The LT5578's active, double-balanced design provides several unique benefits. Compared to alternative passive mixers' more than 8dB of conversion loss, the LT5578's 1.4dB

conversion gain produces 9dB higher signal power without the need of an external high power, high linearity RF output amplifier stage. The LT5578 not only saves cost but also reduces power consumption. Additionally the device can deliver an output level of -5dBm with an outstanding output noise floor of -160.5dBm/Hz. This feature enables users to deliver maximum transmitter signal power while preserving dynamic range performance. Hence optimum ACPR (Adjacent Channel Power Ratio) performance can be attained. Moreover, most passive mixers have poor port-to-port isolation, resulting in undesirable leakage of the LO signal to the RF output, which necessitates a high rejection RF filter for suppression. The LT5578's balanced design inherently suppresses the LO-to-RF leakage to -43dBm typical, thus relaxing and reducing external filtering requirements. The combination of these attributes makes possible a cost-effective, compact and high performance solution.

The LT5578 operates from a single 3.3V supply. Typical quiescent supply current is 152mA. So the LT5578 delivers outstanding performance powered with only modest 500mW consumption. The device comes in a 24-lead 5mm x 5mm plastic QFN surface mount package. Pricing starts at \$5.25 each in 1,000 piece quantities. The product is available immediately from stock. For more information, visit www.linear.com.


Photo Caption: A Broadband High Dynamic Range Active Upconverting RF Mixer

Summary of Features: LT5578

- Frequency Range: 400MHz to 2.7GHz
- Linearity: 27dBm OIP3 @ 900MHz
24.3dBm OIP3 @ 1.95GHz
- Output Noise Floor: -161dBm/Hz @ -5dBm P_{OUT}
- Conversion Gain: 1.4dB @ 900MHz
- LO Leakage ($P_{LO} = -1$ dBm): -43dBm
- Single-Ended RF and LO Interface

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, uModule[®] products, 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.

LT, LTC, LTM, uModule and  are registered trademarks of Linear Technology Corp. All other trademarks are the property of their respective owners.

Press Contacts:

North America

John Hamburger, Director Marketing
Communications
jhamburger@linear.com
Tel 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
408-432-1900 ext 2233

UK & Nordic

Alan Timmins
alan@ezwire.com
Tel: +44-1-252-629937