



## **High Dynamic Range 1.5 GHz to 3.8 GHz Active Upconverting Mixer**

MILPITAS, CA – February 11, 2008 – A new high dynamic range active upconverting mixer from Linear Technology replaces the best of today's passive mixers. The LT5579's wide frequency range of 1.5 GHz to 3.8 GHz covers the 1.9 GHz cellular bands as well as the 2.6 GHz and 3.5 GHz WiMAX frequency bands. At 2.14 GHz, the device offers 27.3 dBm Output IP3 linearity and 9.9 dB Noise Figure to deliver outstanding transmitter dynamic range. Moreover, the mixer has 2.6 dB of conversion gain, the highest in its class. The device integrates Local Oscillator (LO) buffers, requiring only -1 dBm to drive the LO port, while offering low -35 dBm LO-to-RF leakage.

The LT5579's uncompromising performance is well suited for current and next generation wireless transmitters in basestations, including GSM/EDGE, CDMA, CDMA2000, W-CDMA / UMTS and LTE. Additionally, its performance at higher frequencies supports a wide range of wireless broadband access equipment such as WiMAX or WiBro at 2.7 GHz and 3.5 GHz, cable CMTS and distribution systems, military radios, digital video broadcast systems, 2.4 GHz ISM band transmitters, test instrumentations, micro-cells, pico-cells and wireless repeaters.

The LT5579 has integrated RF transformers at both its RF output and LO input to provide differential to single-ended conversion at both ports. This simplifies system design while eliminating or significantly reducing external matching components.

The LT5579's active, double-balanced design provides several compelling cost-saving benefits. Compared to alternative passive mixers with a typical 8 dB conversion loss, the LT5579 offers 2.6 dB of gain. This 10 dB or more gain advantage eliminates the cost of an extra stage of high power, high linearity RF amplifier. Second, unlike many mixers on the market, the LT5579 can be driven with high signal levels at as much as -5 dBm without elevating its outstanding output noise floor above -158 dBm/Hz. This feature enables users to drive the transmitter harder while preserving its dynamic range performance. Moreover, most passive mixers have poor LO leakage to the RF output, which is challenging to control, requiring multiple stages of RF filters to achieve adequate suppression. The LT5579's double-balanced design results in -35 dBm LO leakage at the device's RF output, relaxing and reducing the external filter stages. Overall, the LT5579 offers outstanding performance, compact size and compelling solution cost.

The LT5579 operates from a single 3.3V supply. Typical quiescent supply current is 226mA. The device comes in a 24-lead 5mm x 5mm QFN surface mount package. Pricing starts at \$5.50 each in 1,000 pieces quantities. The product is available immediately from stock.


**Photo Caption:** Broadband High Linearity Active Upconverting Mixer

### Summary of Features: LT5579

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|---|---|
| • Frequency Range                           | 1.5 GHz to 3.8 GHz                      |
| • High Linearity                            | 27.3 dBm OIP3 @ 2.14 GHz                |
| • Very Low Output Noise Floor               | - 158 dBm/Hz @ - 5 dBm P <sub>OUT</sub> |
| • High Conversion Gain                      | 2.6 dB @ 2.14 GHz                       |
| • Low LO Leakage (P <sub>LO</sub> = -1 dBm) | - 35 dBm                                |
| • 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. For more information, visit [www.linear.com](http://www.linear.com).

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