



+36dBm IIP3 Downconverting Mixer with Unprecedented 2.4dB Conversion Gain

MILPITAS, CA – September 3, 2013 – Linear Technology announces the [LTC5551](#), an ultrahigh dynamic range RF down-converting mixer for applications that demand the very best in performance. The LTC5551 offers very high linearity of +36dBm IIP3, (input third-order intercept), and low 9.7dB noise figure comparable to the highest IIP3 passive mixers available. Unlike passive mixers which typically have 7dB to 9dB of conversion loss, the LTC5551 boasts 2.4dB of conversion gain, substantially improving receiver dynamic range. The device also has broad RF frequency range capability, operating from 300MHz to 3.5GHz.

Additionally, passive mixers require high LO (local oscillator) drive to reach their claimed IIP3. The LTC5551 has an integrated LO buffer requiring only 0dBm drive level, hence external circuitry and costs are minimized. And with the elimination of a high power LO signal in the users' receiver, it substantially reduces a potential source of undesirable radiation, thus simplifying filtering and RF shielding requirements.

The LTC5551 ensures robust radio performance with its high 1dB compression point of +18dBm. Both the RF and LO inputs have integrated balun transformers, further reducing cost and external components while simplifying the design task. The mixer is powered from a single 3.3V supply with current consumption of 204mA, delivering its high performance with exceptionally low power. If needed, the mixer also has a low power mode controlled via the

ISEL pin. In this mode, current consumption drops by 30% to 142mA, trading off the IIP3 slightly to +29.3dBm.

The superior performance of this mixer is ideally suited for a wide range of mission-critical, high performance applications that are exposed to strong interference sources such as multi-carrier GSM, 4G LTE and LTE-Advanced multimode basestations, point-to-point backhauls, military communications, wireless repeaters, public safety radios, VHF/UHF/white-space broadcast receivers, radar and avionics.

The mixer can be conveniently shut down with an enable control pin. When disabled, the IC draws a maximum of 100µA standby current. The device turns on and off in 500ns, suitable for burst-mode receivers. The LTC5551 is specified for operation from -40°C to 105°C case temperature. The mixer's minimum external circuits and its 16-lead, 4mm x 4mm QFN package provide a highly compact solution footprint. The LTC5551 is priced starting at \$7.25 each in 1,000-piece quantities. Production quantities are available immediately. For more information, visit: www.linear.com/product/LTC5551


Photo Caption: LTC5551 Ultrahigh IIP3 And High Gain RF Mixer

Summary of Features: LTC5551

Operating Frequency	300MHz to 3.5GHz
IIP3	+36dBm
Conversion Gain	2.4dB
Noise Figure (NF)	9.7dB
LO Drive Level	0dBm

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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Press Contacts:

North America / Worldwide

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

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

UK & Nordic

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