



Ultra-Wideband High Linearity Mixer Has 50Ohm Matched Input from 30MHz to 6GHz

MILPITAS, CA – July 25, 2013 – Linear Technology announces the [LTC5510](#), a high performance mixer with very wide frequency range, extending to 6GHz. It provides a continuous 50ohm matched input from 30MHz to 6GHz, while delivering outstanding linearity and gain flatness. These features enable applications to work over a wider frequency span without needing to rematch the input for different frequency bands, thereby reducing cost and simplifying design. Additionally, the LTC5510's output can reach up to 4.5GHz, allowing the device to be used either as an upconversion or downconversion mixer, making it highly versatile. The mixer has excellent linearity performance of 27.8dBm OIP3 as an upconverting mixer, and 24.9dBm IIP3 as a downconverting mixer at 2GHz. Moreover, its conversion gain of 1.1dB and noise figure of 11.6dB produce outstanding dynamic range performance for robust radios.

The LTC5510 employs an active mixer core with an on-chip LO buffer. Its LO input requires only 0dBm drive levels. Additionally, the device has excellent input and output isolation. For example, in downconverting mixer applications, the LO signal leakage to the RF input is only -70dBm. This low level leakage minimizes or eliminates external filters. Similarly for upconverting mixer applications, the device's LO leakage to the RF output is -35dBm, 10dB to 30dB better than other mixers, particularly when compared to passive mixers, which have very high LO leakage. As a result, expensive SAW filter requirements can often be relaxed, which otherwise would be necessary to control the undesirable LO leakage to the antenna—a primary cause of excessive out-of-band emissions. Related cost savings can be significant.

The LTC5510's extended frequency capability simplifies a wide variety of applications such as cellular basestations, wireless repeaters, microwave backhauls that can cross over multiple frequency bands. Moreover, the device's unique capability and performance are ideally suited for other applications including VHF/UHF band radios, broadcast and white-space radios, military communications, cable systems, RF and wireless test equipment, public safety radios, radar receivers, satellite communications and wireless professional microphone receivers.

The LTC5510's minimum external components and its 16-lead, 4mm x 4mm QFN package result in a highly compact solution footprint. The LTC5510 is specified for case temperature operation from -40°C to 105°C to support extended operating temperature environments. The device is optimized for single 5V supply operation. However it can also be powered with a 3.3V supply. Supply current is 105mA. Additionally, the mixer can be conveniently shut down with an enable control pin. When disabled, the IC draws a maximum of 2.5mA standby current. The device turns on and off in 600ns, supporting burst-mode type radios. The LTC5510 is priced starting at \$4.90 each in 1,000-piece quantities. Samples and production quantities are available immediately. For more information, visit

www.linear.com/product/LTC5510


Photo Caption: Ultra-Wideband Mixer

Summary of Features: LTC5510

- Operating Frequency: 1MHz to 6GHz
- IF Frequency Range: 1MHz to 4.5GHz
- Output IP3: 26dBm
- Conversion Gain: 1.1dB
- Noise Figure (NF): 11.6dB
- NF with 5dBm Blocking: 20.3dB

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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