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Wideband 3GHz to 8GHz Mixer Improves Upconversion Performance with 25dBm OIP3 & 2dB Conversion Loss

MILPITAS, CA – May 26, 2015 – Linear Technology announces the [LTC5576](#), an active double balanced upconversion mixer with very wide RF frequency range, extending from 3GHz to 8GHz. The LTC5576 enhances microwave transmitter and upconversion performance with its exceptional linearity of 25dBm OIP3 and outstanding conversion loss of only 2dB at 8GHz, providing superior output signal quality compared to alternative passive mixers, which typically have 8dB of loss. Additionally the LO input's integrated buffer needs only a 0dBm level drive, effectively eliminating an external amplifier circuit. The LTC5576 employs a unique integrated RF balun transformer design to extend output frequency bandwidth while enabling single-ended operation from 3GHz to 8GHz. Its IF input also has wide bandwidth, and is continuous 50Ω differential matched from 30MHz to over 3GHz. With a proper external balun transformer, the upper range can be extended to over 6GHz.

The LTC5576 employs an active double balanced mixer core with excellent port-to-port isolation. For example, at 5.8GHz frequency and 0dBm LO input, the LO leakage at its RF output measures an exceptionally low –35dBm. This low leakage level helps minimize external filtering in order to meet regulatory out-of-band emission requirements. Even at 8GHz, its LO leakage stands out at –27dBm.

The LTC5576's extended frequency capability addresses a wide range of applications such as short-range microwave backhauls, 5.8GHz cellular base stations and wireless repeaters. In addition, its dynamic range supports the performance requirements of wireless test equipment, radar receivers and satellite communications.

The LTC5576 is more rugged than other integrated microwave mixers with its improved ESD rating of 2,500V human body model (HBM) on all pins. Housed in a 16-lead, 4mm x 4mm QFN package and with its minimal external component design, the LTC5576 produces a compact solution footprint. The device is rated for operation from -40°C to 105°C case temperature to support extended environmental operating temperature. The mixer is optimized for single 5V supply operation, with a nominal supply current of 99mA. Its power consumption can be reduced by powering from a 3.3V supply, with slightly reduced performance.

Additionally, the LTC5576 has an enable pin to disable the IC, which when deactivated, draws only 1.3mA typical standby current. This enable pin can be used to turn the device on and off rapidly in less than $0.6\mu\text{s}$, supporting time-division duplex (TDD) or burst-mode type radios. The LTC5576 is priced starting at \$7.89 each in 1,000-piece quantities. Samples and production quantities are available immediately. For more information, visit,

www.linear.com/product/LTC5576

Photo Caption: LTC5576 Wideband 3GHz to 8GHz Upconversion Mixer

Summary of Features: LTC5576


Operating RF Frequency	3GHz to 8GHz
IF Frequency Range	30MHz to 6GHz
Output IP3	25dBm
Conversion Gain	-0.6dB

Noise Floor	-154dBm/Hz
LO Input Level	0dBm

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

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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