



30MHz to 1.4GHz Wideband I/Q Demodulator with IIP2 Optimization & DC Offset Cancellation Improves Zero-IF Receiver Performance

MILPITAS, CA – May 14, 2012 – Linear Technology announces the [LTC5584](#), an ultrawide bandwidth direct conversion I/Q demodulator with outstanding linearity of 31dBm IIP3 and 70dBm IIP2. The device offers best-in-class demodulation bandwidth of over 530MHz, supporting the latest generation of LTE multimode, LTE Advanced receivers, as well as digital predistortion (DPD) receivers. The I/Q demodulator operates over a wide frequency range from 30MHz to 1.4GHz, covering a broad range of VHF and UHF radios and the 450MHz/700MHz LTE frequency bands. Unique to the LTC5584 are two built-in calibration features. One is advanced circuitry that enables the system designer to optimize the receiver's IIP2 performance, increasing from a nominal 70dBm to an unprecedented 80dBm or higher. The other is on-chip circuitry to null out the DC offset voltages at the I and Q outputs. Combined with a 9.9dB noise figure, these features enhance the dynamic range performance in receivers. Moreover, the device exacts P1dB of 12.6dBm, along with its 13.6dB noise figure under a 0dBm in-band blocker, ensuring robust receiver performance in the presence of interference.

To enhance its flexibility for use in low IF receiver applications, the LTC5584 exhibits very low I/Q amplitude and phase mismatch. The amplitude mismatch is typically 0.02dB, while the phase error is typically 0.25 degree, both specified at 450MHz. This combination produces receiver image rejection of 52dB.

With its wide bandwidth capability, the LTC5584 is ideal for multimode LTE and CDMA DPD receivers as well as other wideband receiver applications. Particularly suited for DPD, these latest generation base stations are pushing demodulation bandwidth of over 300MHz. The LTC5584 exceeds these bandwidth requirements while delivering better than +/-0.5dB conversion gain flatness. Beyond wireless infrastructure applications, the LTC5584 is ideal for military receivers, broadband communications, point-to-point microwave data links, image-reject receivers and long-range RFID readers.

The LTC5584 is offered in a 24-lead 4mm x 4mm QFN package. The device is specified for case operating temperature from -40°C to 105°C. Powered from a single 5V supply, the LTC5584 draws a total supply current of 200mA. The device provides a digital input to enable or disable the chip. When disabled, the IC draws 11µA of leakage current typical. The demodulator's fast turn-on time of 200ns and turn-off time of 800ns enables it to be used in burst-mode receivers.

The LTC5584 is priced starting at \$5.65 each in 1,000-pieces quantities. Production quantities are available immediately. For more information, visit www.linear.com/product/LTC5584


Photo Caption: 30MHz to 1.4GHz Wideband High Linearity I/Q Demodulator

Summary of Features: LTC5584

Operating Frequency	30MHz – 1.4GHz
Input IP3 (450MHz)	31dBm
Input IP2 (Unadjusted)	70dBm
Input IP2 (Adjusted)	>80dBm
Conversion Gain	5.4dB
Noise Figure (NF)	9.9dB
I/Q Amplitude Mismatch	0.02dB
I/Q Phase Mismatch	0.25°

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 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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