

Quadrature Demodulators Offer High Linearity for Simplified System Design

Two new quadrature demodulator ICs can help engineers simplify radio designs by eliminating the IF and demodulating the baseband signal directly, with accurate amplitude and phase matching

Two new direct conversion quadrature demodulators from Linear Technology deliver high linearity and wide spurious-free dynamic range. The devices simplify design with integrated signal splitter, local oscillator quadrature generator and 260 MHz bandwidth output buffers with single-pole lowpass filters.

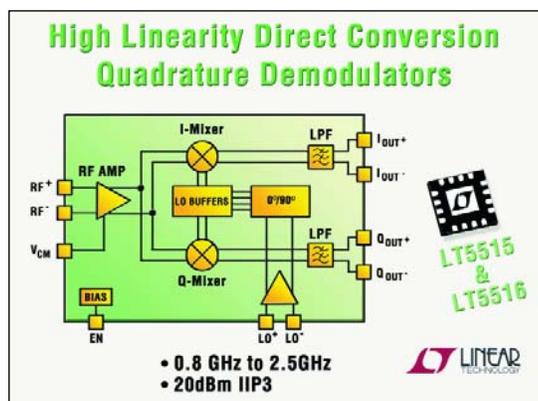
ture generator and 260 MHz bandwidth output buffers with single-pole lowpass filters.

Specifications

The LT5515 operates over an input frequency range of 1.5 to 2.5 GHz, while the LT5516 operates from 0.8 to 1.5 GHz. Both parts feature third order intercept points (IIP₃) greater than +20 dBm, with maximum gain and phase error of 0.3 dB and 1 degree respectively. These and additional specifica-

Parameter	LT5515	LT5516	
Frequency	1.5-2.5	0.8-1.5	GHz
IIP ₃ / IIP ₂	+20/+51	+21.5/+52	dBm
Noise Figure	16.8	12.8	dB
Conversion gain	-0.7	4.3	dB
I/Q gain mismatch	0.3	0.2	deg
LO power	-10 to 0	-13 to -2	dBm
nominal:	-5	-5	dBm
LO-RF leakage	-46	-65	dB
Output bandwidth	260	260	MHz
Max. DC voltage	5.5	5.5	V
operating range:	4 to 5.5	4 to 5.5	V
Max. input	±2	±2	V
equivalent to:	+10	+10	dBm

Key specifications of the LT5515 and LT5516 quadrature demodulators (typical).



Linear Technology has introduced two new quadrature demodulators for direct conversion receivers, as well as other systems where elimination of the IF is desirable.

tions are summarized in the accompanying table. Both devices are specified for operation from -40 to +85 °C.

The accurate gain and phase performance allows simplified design, with significantly less adjustment and calibration required. The 260 MHz output bandwidth accommodates wide bandwidth modulation formats and multi-carrier signal recovery.

Applications include GSM, CDMA, W-CDMA and fixed wireless base stations, satellite and microwave receivers, high-performance radios and instrumentation.

The devices are offered in 4 x 4 mm QFN packages, with pricing starting at \$6.75 each for the LT5515 and \$7.40 each for the LT5516 in 1,000 piece quantities.

Linear Technology Corporation
 www.linear.com
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