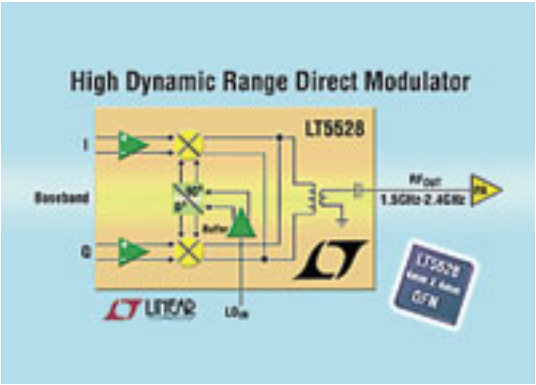
Direct Conversion Modulator



A direct conversion modulator from Linear Technology enables the design of next generation, less costly 3G wireless base station transmitters. The LT5528 is a direct I-Q modulator with uncompromising performance. The LT5528 is targeted for high performance wireless infrastructure applications, including W-CDMA, TD-SCDMA, GSM, and PHS. It is also suitable for broadband fixed wireless access, as well as point-to-point radio links and other high performance radios. The LT5528 incorporates a matched pair of double-balanced mixers which form a carrier suppressed, image reject I-Q (In phase and Quadrature phase) modulator. The I and Q inputs accept complex modulation signals from the baseband circuitry, and upconvert them directly to RF (1.5 GHz to 2.4 GHz) using a LO (Local Oscillator) operating at the same frequency. This effectively eliminates one to two stages of frequency upconversion in the radio path. The LT5528's I/Q gain matching (to within &#177 0.1 dB) results in a typical carrier suppression of &#150 47 dBm at 2.14GHz. The precision 0&#176/ 90&#176 phase shift of the on-board LO phase splitter produces 45dBc image rejection at 2.14 GHz. The modulated RF I and Q signals are combined in an on-chip balanced RF transformer at the single-ended output. The LT5528's 50Ω RF port eliminates the need for external impedance matching components. All other signal inputs and outputs are also 50Ω matched. The LT5528 operates from a single 5 V supply. The device comes in a 16-pin 4 &#215 4 mm surface mount QFP package.

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