

3.5-GHz, High Dynamic Range, Low-Noise Down-Converter

FEATURES

- Performs First Down-Conversion in 3.5-GHz Radios (3300-3800 MHz)
- Integrated LNA/Mixer/ IF Amp/LO Buffer
- Provision for External Image Reject / Band-Pass Filter
- Low Noise-Figure / High Linearity
- Switched 10-dB Attenuator for High-Level Signals
- Frequency Range: 3.3 – 3.8 GHz
- 28 dB of Gain with 20 dB of Gain Control (10-dB Switched)
- 2-dB Noise Figure, Typical Input
- Third Order Intercept of +5 dBm at 3.8 GHz
- LO Drive Level = 0 dBm, Typical

DESCRIPTION

The TRF1216 is the first of two integrated circuits used in the receiver section of Texas Instruments' 3.5-GHz radio chipset. The TRF1216 down-converts the 3.5-GHz input frequency to an intermediate frequency in the range of 400 MHz to 500 MHz. The device provides a differential output that passes through a SAW filter before connecting to a second down converter. For the best performance, Texas Instruments TRF1212 should be used to perform both the second down conversion and also provide the Local Oscillator for the TRF1216.

The TRF1216 includes a LNA with switchable attenuation, a balanced mixer, a variable gain IF amplifier and a differential LO Buffer for improved performance. In order to provide exceptional image rejection and extra jammer immunity, the TRF1216 offers a signal path to an off-chip filter. Specifications are provided assuming an in-band 2-dB insertion loss filter. To maximize input dynamic range, a 10-dB switchable attenuator is provided in the RF path as well as 10dB of analog IF gain control. After the image reject filter, an on-chip balun converts the signal from single ended to differential in order to provide better noise immunity at the mixer.

DEVICE INFORMATION

LPCC-20 PACKAGE
(TOP VIEW)

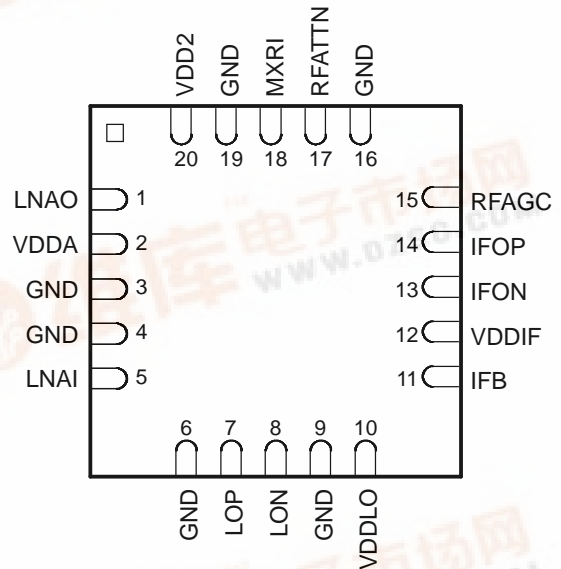


Figure 1. TRF1216 Pin Out

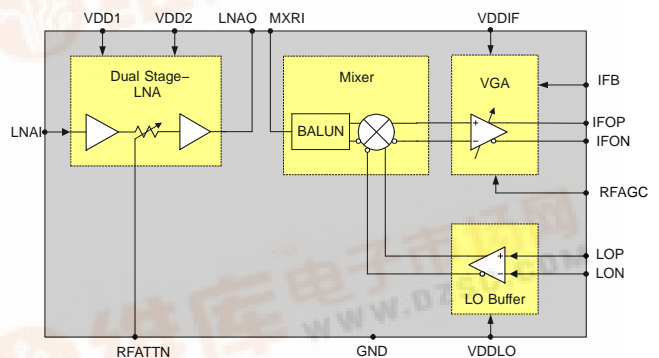


Figure 2. Block Diagram

PRODUCT PREVIEW

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