



VGA+I/Q Demodulator RFIC

CX74005

Conexant Delivers RF Chipsets for 2G and 3G CDMA Applications

The CX74005 RFIC is a variable gain amplifier (VGA) and In-phase and Quadrature (I/Q) modulator, intended for use in code division multiple access (CDMA) portable phones in the cellular and Personal Communications System (PCS) bands. As a dual-mode IC, it can be used in CDMA mode or advanced mobile phone system (AMPS) mode. In addition, this device can be used for wideband CDMA (WCDMA) applications in the IMT-2000 band.

The intermediate frequencies (IF) are combined through separate buffers at the input of the VGA, depending on the selected mode. The VGA has a gain control range greater than 90 dB. The device has two very high-frequency (VHF) oscillators that operate with external tank circuits. They provide signals to the local oscillator (LO) for the I/Q demodulator in the cellular and PCS bands.

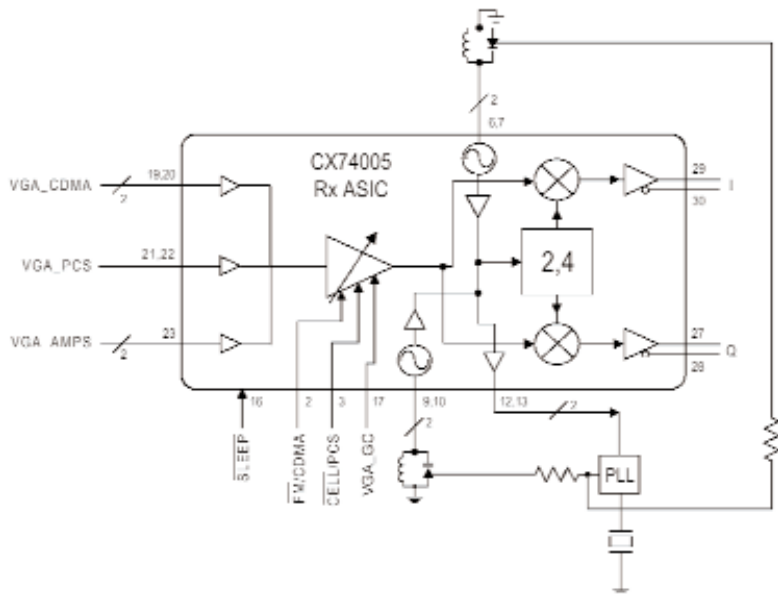
The I/Q demodulator provides a superior gain and phase balance of typically less than 0.2 dB gain and 2° phase imbalances. Employing silicon bipolar technology, the CX74005 is designed for high performance and a high level of integration.

The CX74005, along with Conexant's CX74002 Transmit RFIC, CX74004 LNA/mixer RFIC, a Conexant power amplifier module and Conexant's baseband processor forms a complete RF subsystem that interfaces with the most common cdma baseband devices.

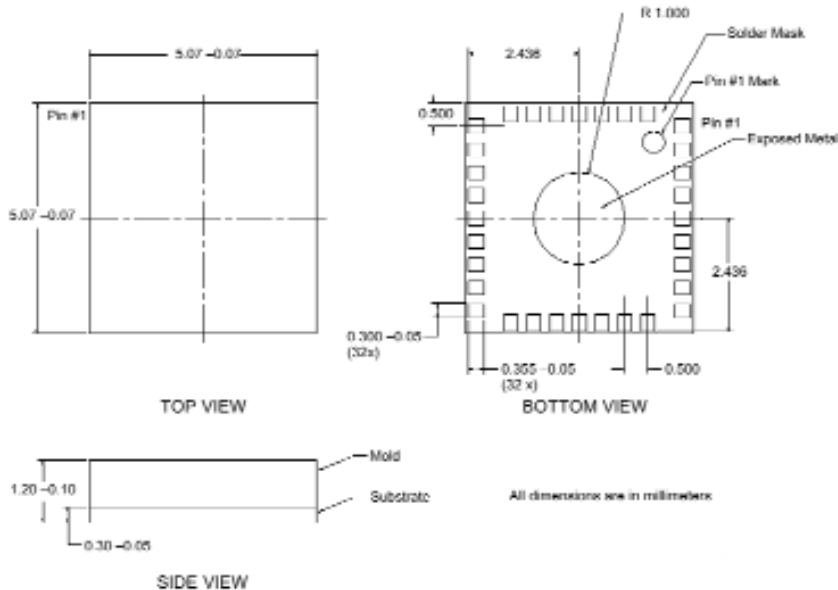


Distinguishing Features

- Tri-mode, dual-band functionality
- Superior gain and phase balance in the I/Q demodulator (0.2 dB + 2° typical)
- 90 dB of dynamic range in the variable gain amplifier
- Three battery-cell operation (2.7V < VCC < 3.6V)
- IF inputs and I/Q outputs
- On-chip 100 to 640 MHz oscillators
- Low-power operation: <20 mA
- 5mm x5mm land grid array (LGA) chipscale package



CX74005 Rx ASIC block diagram



Package dimensions - 32-pin 5x5mm LGA package

Product Features

- Two on-chip oscillators, one for cellular and one for PCS bands
- Local oscillators for I/Q demodulators are derived by a selectable (2 or 4) frequency divider
- VGA has a minimum dynamic range of 90 db with a control voltage range of 0.2 to 2-7 volts
- The appropriate signal path is switched internally to the device, eliminating the need for off-chip switching

Applications

- Tri-mode handsets
- Cellular- and PCS-band phones
- cdmaOne, cdma2000 and AMPS modes in the following bands:
 - U.S. cellular
 - Japan cellular
 - U.S. PCS
 - Korea PCS
- WCDMA in the IMT-2000 band

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