CX74063

RF Transceiver for Multi-Band GSM/GPRS/EDGE Applications with Integrated Crystal Oscillator and Power Ramping Controller

The CX74063 transceiver is a highly integrated device for multi-band Global System for Mobile Communications™ (GSM™) or General Packet Radio Service (GPRS) applications. The device requires a minimal number of external components to complete a GSM radio subsystem. The CX74063 supports GSM850, EGSM900, DCS1800, and PCS1900 applications. The receiver also supports downlink Enhanced Data-Rate GSM Evolution (EDGE).

The receive path implements a direct down-conversion architecture that eliminates the need for Intermediate Frequency (IF) components. The CX74063 receiver consists of three integrated Low Noise Amplifiers (LNAs), a quadrature demodulator, tunable receiver baseband filters, and a DC-offset correction sequencer.

In the transmit path, the device consists of an In-phase and Quadrature (I/Q) modulator within a frequency translation loop designed to perform frequency up-conversion with high output spectral purity. This loop also contains a phase-frequency detector, charge pump, mixer, programmable dividers, and high power transmit Voltage Controlled Oscillators (VCOs) with no external tank required. With the integrated gain controller (and an integrator), the device realizes the Power Amplifier Control (PAC) functionality when combined with a coupler, a Radio Frequency (RF) detector and a Power Amplifier (PA).

The CX74063 also features an integrated, fully programmable, sigma-delta fractional-N synthesizer suitable for GPRS multi-slot operation. Except for the loop filter, the frequency synthesizer function, including a wideband VCO, is completely on-chip. The reference frequency for the synthesizer is supplied by the integrated crystal oscillator circuitry.

The CX74063 is available as a 56-pin RFLGA™ 8x8 mm package. Package dimensions are shown in Figure 1.

Features

- Direct down-conversion receiver eliminates the external image reject/IF filters
- Three separate LNAs with single-ended inputs
- RF gain range: GSM = 20 dB, DCS/PCS = 22 dB. Baseband gain range = 100 dB
- Gain selectable in 2 dB steps
- Integrated receive baseband filters with tunable bandwidth
- Integrated DC offset correction sequencer
- Reduced filtering requirements with translational loop transmit architecture
- Integrated transmit VCOs
- Wide RF range for quad band operation
- Integrated PAC loop
- Single integrated, fully programmable fractional-N synthesizer suitable for multi-slot GPRS operation
- Fully integrated wideband Ultra High Frequency (UHF) VCO
- Integrated crystal oscillator
- Separate enable lines for power management transmit, receive, and synthesizer modes
- Supply voltage down to 2.6 V
- Band select and front-end enable states may be exercised on output pins to control external circuitry.
- Low external component count
- Optional bypass of baseband filtering for use with high dynamic range Analog to Digital Converters (ADCs) for current savings
- Interfaces to low dynamic range ADC
- Meets AM suppression requirements without baseband interaction.
- 56-pin RFLGA 8x8 mm package
- Low power standby mode

Applications

- GSM850, EGSM900, DCS1800, and PCS1900 handsets
- GPRS handsets and modules
- EDGE downlink support

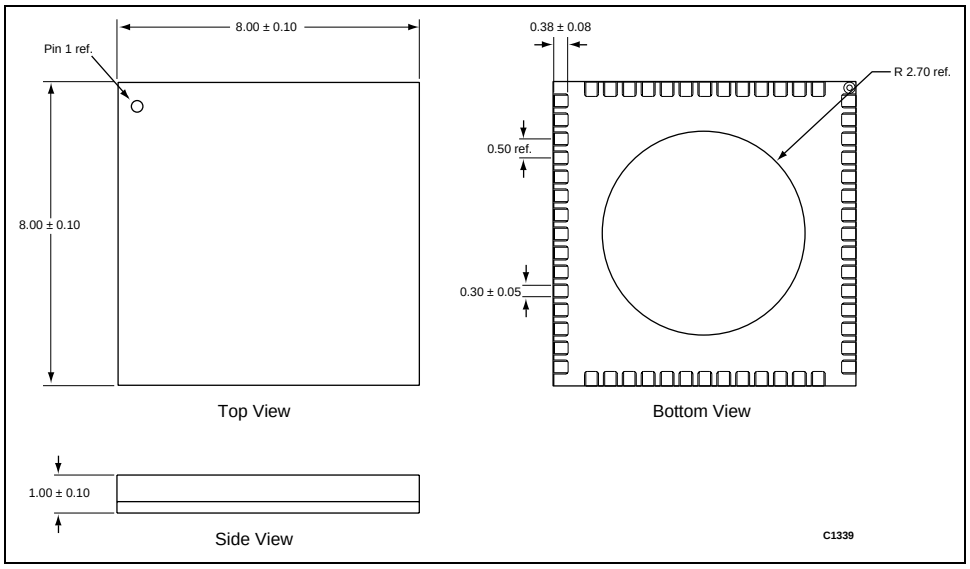

Figure 1. CX74063 56-Pin RFLGA Package Dimension Drawing

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