MAX2551

Band II and V WCDMA Femtocell Transceiver with GSM Monitoring

Accelerate Deployment with Worldwide Field-Proven Performance and the Most Compact Radio Design

Overview

Description

The MAX2551 is a complete single-chip RF-to-bits and bits-to-RF radio transceiver. The device is in compliance with the 3GPP TS25.104 femtocell standard for Band II and V. It's equipped with multiple receive inputs and transmit outputs for low band, high band, and macro-cell monitoring (Table 1 in the full data sheet).

This fully integrated transceiver facilitates compact radio designs for dongle and standalone femtocell products by minimizing external component count. Maxim's MAX-PHY serial interface is used to drastically reduce IC pin count, while worldwide field-proven architecture accelerates time to product deployment.

The device features unparalleled receive blocker performance and the industry's lowest noise figure for higher data rates and range. Low-power operational modes are available to minimize power consumption. The transmitter is designed to deliver EVM far exceeding the standard requirement at 0dBm.

The MAX2550–MAX2553 is a family of pin-compatible transceivers to cover all major WCDMA and cdma2000® bands. All parts are controlled by a 4-wire interface.

The MAX2551 is packaged in a compact 7mm x 7mm TQFN and specified over the -40°C to +85°C extended temperature range. A complete radio reference design is available to facilitate custom designs.

Key Features

- Single-Chip Femtocell Radio Transceiver
- WCDMA/HSPA+ Band II and V Operation
- TS25.104 Standard Compliant
- Multiple LNA Inputs for WCDMA, PCS, and GSM Macrocell Monitoring
- High Level of Integration
    - On-Chip Fractional-N Frequency Synthesizers for LO Generation
    - No Tx SAW Filters Required
    - Integrated PA Drivers for Lower-Cost Power Amplifier Designs
    - 12-Bit AFC DAC to Control TCXO
    - On-Chip Temperature Sensor
    - Three General-Purpose Outputs
    - Reference Clock with Selectable CMOS and Low Swing Output
    - PLL Lock-Detect Output Through GPO3
- Optimized Receiver Performance
    - Exceptional Receive Sensitivity
    - High Dynamic Range Sigma-Delta ADCs Allow Simple AGC Implementation with Switched Gain States
- Optimized Transmitter Performance
    - Factory Calibrated for Gain, Carrier Leakage, and Sideband Calibration
    - 10-Bit Gain Control Resolution for Better Power Accuracy
    - 60dB Gain Control Range
- Loopback Operating Mode from Tx Baseband Input to Rx Baseband Output
- MAX-PHY Serial Digital Interface
- SPI Read/Write Functionality
- Operation Controlled by 4-Wire Serial Interface
- Low-Cost 7mm x 7mm TQFN Package

Applications/Uses

- WCDMA Band II and V Femtocells