


RF Transceiver

Manufacturer:	Analog Devices, Inc
Package/Case:	BGA
Product Type:	Communication & Networking ICs
RoHS:	RoHS Compliant/Lead free 
Lifecycle:	Unconfirmed



Images are for reference only

[Inquiry](#)

General Description

The AD9363 is a high performance, highly integrated RF agile transceiver designed for use in 3G and 4G femtocell applications. Its programmability and wideband capability make it ideal for a broad range of transceiver applications. The device combines an RF front end with a flexible mixed-signal baseband section and integrated frequency synthesizers, simplifying design-in by providing a configurable digital interface to a processor. The AD9363 operates in the 325 MHz to 3.8 GHz range, covering most licensed and unlicensed bands. Channel bandwidths from less than 200 kHz to 20 MHz are supported.

The two independent direct conversion receivers have state-of-the-art noise figure and linearity. Each Rx subsystem includes independent automatic gain control (AGC), DC offset correction, quadrature correction, and digital filtering, thereby eliminating the need for these functions in the digital baseband. The AD9363 also has flexible manual gain modes that can be externally controlled. Two high dynamic range ADCs per channel digitize the received I and Q signals and pass them through configurable decimation filters and 128-tap finite impulse response (FIR) filters to produce a 12-bit output signal at the appropriate sample rate.

The transmitters use a direct conversion architecture that achieves high modulation accuracy with ultralow noise. This transmitter design produces a best-in-class Tx EVM of -34 dB, allowing significant system margin for the external power amplifier (PA) selection. The on-board Tx power monitor can be used as a power detector, enabling highly accurate Tx power measurements.

The fully integrated phase-locked loops (PLLs) provide low power fractional N frequency synthesis for all receive and transmit channels. Channel isolation, demanded by FDD systems, is integrated into the design. All voltage controlled oscillators (VCOs) and loop filter components are integrated. The core of the AD9363 can be powered directly from a 1.3 V regulator. The IC is controlled via a standard 4-wire serial port and four real-time I/O control pins.

Comprehensive power-down modes are included to minimize power consumption during normal use. The AD9363 is packaged in a 10 mm × 10 mm, 144-ball chip scale package ball grid array (CSP_BGA).

Key Features

Radio frequency (RF) 2×2 transceiver with integrated 12-bit DACs and ADCs

Wide bandwidth: 325 MHz to 3.8 GHz

Supports time division duplex (TDD) and frequency division duplex (FDD) operation

Tunable channel bandwidth (BW): up to 20 MHz

Receivers: 6 differential or 12 single-ended inputs

Superior receiver sensitivity with a noise figure: 3 dB

Receive (Rx) gain control

Real-time monitor and control signals for manual gain

Independent automatic gain control (AGC)

Dual transmitters: 4 differential outputs

Highly linear broadband transmitter

Transmit (Tx) error vector magnitude (EVM): -34 dB

Tx noise: ≤ -157 dBm/Hz noise floor

Tx monitor: 66 dB dynamic range with 1 dB accuracy

Integrated fractional N synthesizers

2.4 Hz local oscillator (LO) step size

CMOS/LVDS digital interface

Application

3G enterprise femtocell base stations

4G femtocell base stations

Wireless video transmission

Recommended For You

AD1803JRU

Analog Devices, Inc
TSSOP24

AD1847JP

Analog Devices, Inc
PLCC

AD8109ASTZ

Analog Devices, Inc
QFP

AD8115ASTZ

Analog Devices, Inc
QFP

AD1980JST-REEL

Analog Devices, Inc
QFP48

AD1836AAS

Analog Devices, Inc
QFP52

AD1843JS

Analog Devices, Inc
QFP

AD1888JCPZ-REEL

Analog Devices, Inc
LFCSP-48

AD8116JSTZ

Analog Devices, Inc
QFP128

ADV601LCJST

Analog Devices, Inc

QFP

ADV611JST

Analog Devices, Inc

QFP

ADN4600ACPZ

Analog Devices, Inc

QFN

AD8152JBPZ

Analog Devices, Inc

BGA

ADN4605ABPZ

Analog Devices, Inc

BGA

AD8113JSTZ

Analog Devices, Inc

QFP