ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change. 8/97

Low-Power IF Transceiver with Limiter/RSSI and Quadrature Modulator

General Description

The MAX2510 is a highly integrated IF transceiver for digital wireless applications employing a dualconversion architecture. Alternatively, the MAX2510 can be used as a single-conversion transceiver if the RF operating frequency ranges from 200MHz to 500MHz.

In a typical application, the receiver downconverts a high IF/RF (typically 200MHz to 500MHz) to a low IF using a double-balanced downconverter. Additional functions included in the receiver section are an IF buffer that can drive an off-chip IF filter, an on-chip limiting amplifier offering 90dB of received-signal-strength indication (RSSI), and a robust limiter output driver. The transmitter section upconverts in-phase and quadrature baseband signals to an IF in the 200MHz to 500MHz range using a quadrature modulator. The transmit output is easily matched to drive a SAW filter with an adjustable output from 0dBm to -40dB with excellent linearity. To extend battery life, the amplifier's unique biasing scheme adjusts current draw to the minimum necessary for sustaining the desired level of output power.

The MAX2510 operates from a +2.7V to +5.5V supply voltage and features four operating modes for advanced system power management. Supply current is reduced to 0.5μ A in shutdown mode.

The MAX2511 has features similar to those of the MAX2510, but upconverts a 10.7MHz IF with an imagereject mixer. The MAX2511 downconverter also offers image rejection with a limiter/RSSI stage similar to that of the MAX2510.

Applications

PWT1900 Wireless Handsets and Base Stations

PACS, PHS, DECT (and other PCS, Wireless Handsets, and Base Stations)

400MHz ISM Transceivers

IF Transceivers

Wireless Data Links

_Features

- + +2.7V to +5.5V Single Supply
- Complete Receive Path: 200MHz to 500MHz 1st IF to a 5MHz to 30MHz 2nd IF
- Unique, Wide-Dynamic-Range Downconverter Mixer Offers -9dBm IIP3, 10.5dB NF
- RSSI Function with 90dB Monotonic Dynamic Range
- Limiter with Differential Outputs
- Up to 200MHz to 500MHz Transmit Quadrature Modulator
- ♦ 40dB Sideband Suppression
- 40dB Transmit Gain-Control Range; Up to 1dBm Output Power
- Advanced System Power Management (four modes)
- ♦ 0.5µA Shutdown Supply Current

_Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX2510EEI	-40°C to +85°C	28 QSOP

_Pin Configuration



_ Maxim Integrated Products 1

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Typical Application Circuit