# ASTRX2 Single-Chip Radio Transceiver
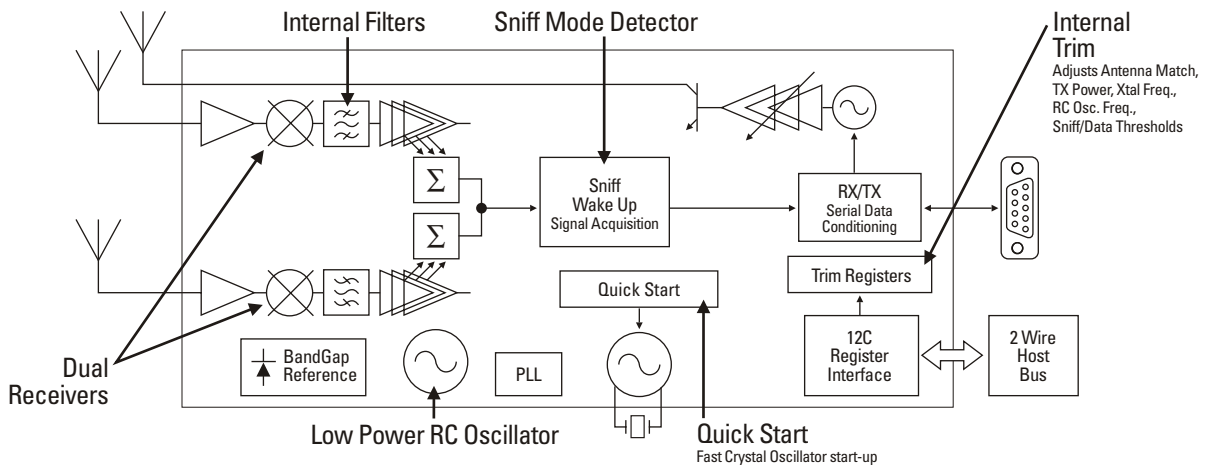
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Key Features

- Very low power single-chip CMOS transceiver
- Minimal external components
- Low-power RC oscillator
- Unique Quick Start, Low-Noise Oscillator (patent pending)
- Extreme low-power RF Sniff Mode™, wake up on RSSI
- Internal trim functions
- I²C control interface
- Serial TX/RX data port
- Clock generation for an external microprocessor
- Internal VCO/PLL tuning varactor
- Unique Antenna Diversity Dual Receiver (patent pending)

AMIS ASTRX2 Sniff Mode™
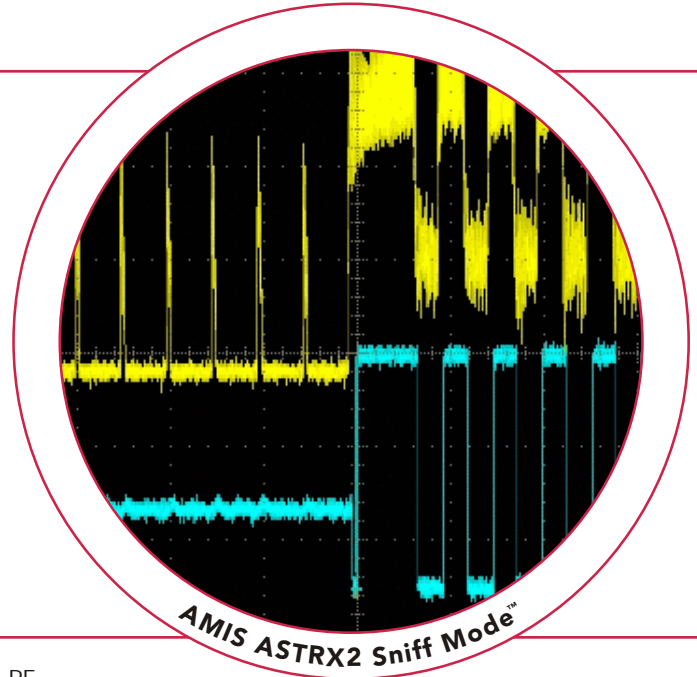
Product Description

The ASTRX2 is a versatile 433.92 MHz narrowband RF transceiver chip. It can operate in a half duplex mode at a 1 to 19.2 Kbps data rate. The ASTRX2 uses a programmable time between wakeups in Sniff Mode to conserve power. The design has been optimized for low-power applications where long battery life is required. The quick turn on time for the oscillator allows the receiver to quickly power up to check for the presence of a signal in the Sniff Mode. The Sniff Mode, between 390 and 460 MHz, is programmable to optimize power conservation and system performance.

Internal Filters — Sniff Mode Detector

Internal Trim
Adjusts Antenna Match, TX Power, Xtal Freq., RC Osc. Freq., Sniff/Data Thresholds

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Sniff Wake Up
Signal Acquisition

RX/TX
Serial Data Conditioning

Trim Registers

Quick Start

Dual Receivers

BandGap Reference

PLL

12C Register Interface

2 Wire Host Bus

Low Power RC Oscillator

Quick Start
Fast Crystal Oscillator start-up

Technical Features

- Operating Frequency: Target 433.92 MHz; Range 260 to 700 MHz
- TX Output Power: +6 dBm
- RX Sensitivity: Sniff Mode -90 dBm; Receive -103 dBm
- Data Rate: 1 to 19.2 Kbps, user selectable
- Power Requirements: Receive: 7.5 mA (continuous); Transmit: 25 mA full power, 50% duty cycle; Sniff Mode 750 uA at 1 ms rate (10% duty cycle); Standby RC Oscillator on (500 nA)
- Operating Voltage: 2.4 to 3.6 V
- Modulation: ASK (Amplitude Shift Keying)
- Xtal start time: 15 us

- Sniff Mode polling: 0.5 to 16s (0.5 ms or 64 ms steps)
- PLL Lock time: <50 us
- Selectable Data filter: 1 Kbps to 19.2 Kbps
- Internal Trim function for: TX Power; Independent Antenna for trim /tune; Xtal for frequency and fast start; RC for frequency; sniff for data threshold; data slice
- I²C interface: Control bus
- Serial interface: Data input/output
- Low frequency IF
- Internal IF filtering
- Package: 18-lead, 300 m SOIC

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