

High Sensitivity, Long Range, 1.5-72kbps, 2.4GHz FSK Transceiver

General Description

The EM9209 is a 1.5kbps to 72kbps low-power, low-voltage, single chip 2.4GHz ISM band RF transceiver ideal for battery operated wireless applications such as wireless sensors and control, gaming, human interface devices, and security networks.

The EM9209's built-in custom low power micro-controller supports the proprietary wireless protocol links in the license-free 2.4000GHz to 2.4835GHz ISM band. It includes a low-IF receiver architecture and uses FSK modulation. A SPI interface provides a simple control of the baseband using an external host controller.

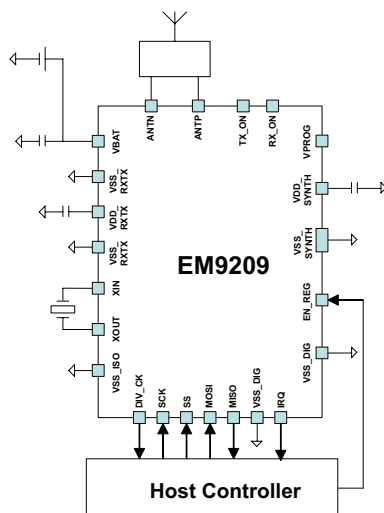
The EM9209 provides two communication modes with normal or high sensitivity for Long Range links and programmable bit rate from 1.5kbps to 72kbps.

The EM9209 provides a divided clock output programmable at either 32.5kHz, 325kHz or 3.25MHz to drive external micro-controllers time reference.

Applications

- | Remote sensing and control
- | Wireless mice, keyboards, toys etc...
- | Wireless watch sensors, sports equipment
- | Alarm and security systems

Simplified Application Schematic



Features

- | Low Voltage:
 - 1.9V to 3.6V battery operation
- | Low Power:
 - 7mA in RX normal sensitivity mode (NS)
 - 8mA in RX high sensitivity mode (HS)
 - TX Mode: 11mA @-1dBm, 36mA @+10dBm
 - <150µA in Stand-by Mode
 - <10nA in Power Down Mode
- | High Performance:
 - -115dBm sensitivity at 1.5kbps
 - +10dBm maximum received input signal
 - Programmable output power from -20dBm to +10dBm
- | Ultra compact radio design with low BOM cost:
 - COB with 4mm x 4mm footprint
- | Operating Temperature: -40°C to +85°C
- | Direct antenna interface (200 Ω differential)
- | Low-cost 26MHz crystal oscillator, frequency tolerance over temperature and aging of ±20ppm, with adjusted initial value
- | Flexible interface:
 - SPI interface for microcontrollers
 - Fully programmable link layer
 - External PA and LNA control signal available on 2 pads
- | Available as die or in MLF24 4x4mm package

Typical Configuration

