



1Volt, 2Mbps, 2.4GHz GFSK Transceiver

General Description

The EM9203 is a 1Mbps or 2Mbps low-power, low-voltage, completely-integrated 2.4GHz ISM band RF transceiver ideal for battery operated wireless applications such as wireless sensors and control, audio streaming, human interface devices, and security networks.

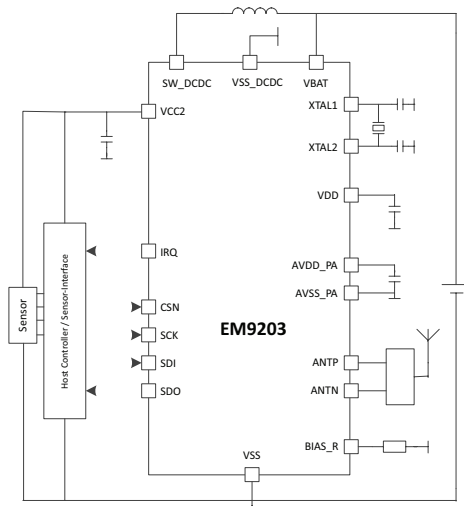
The EM9203's built-in baseband processor (with Link Layer) permits implementation of optimized proprietary wireless protocol links in the license-free 2.4000GHz to 2.4835GHz ISM band. It includes a low-IF receiver architecture and uses GFSK modulation compliant with the emerging Bluetooth Low Energy (4.0) standard. An industry-standard SPI interface provides for simple control of the baseband using an external host controller.

The EM9203 Version 11 features an integrated step-up (boost) DC/DC converter that allows operation with supply voltages as low as 0.8V with an external coil. This converter is designed to support an additional load such as a low-power microcontroller (host) and interface circuits with a dedicated application profile. The EM9203 Version 12 can be supplied by a 3V battery or other voltage source.

Available chip versions:

- | Version 11: with DC/DC converter for use with 1.5V battery (down to 0.8V)
- | Version 12: without DC/DC converter for use with any voltage from 1.9V to 3.6V

Simplified Application Schamtic



Step-up conversion option; for simplicity, not all supply pins indicated

Features

- | Low Voltage:
 - Single-cell, 1.5V battery operation (down to 0.8V); or
 - 3V battery operation (1.9V to 3.6V)
- | Low Power:
 - 14mA in RX Mode (2Mbps)
 - 14mA in TX Mode (0° dBm output power, 2Mbps)
 - <3µA in Xtreme Mode (Version 11)
 - <1µA in Power-Down Mode (Version 12)
- | High Performance:
 - -85dBm sensitivity at 2Mbps
 - Programmable output power from -18dBm to +3dBm
- | Compact radio design with low BOM cost:
 - MLF28 4mm x 4mm package
 - Operating Temperature: -40°C to +85°C
 - Direct antenna interface
 - Integrated DC/DC converter (Version 11)
 - Supply Voltage Level Detector (SVLD)
 - 26MHz crystal oscillator, frequency tolerance ±50ppm
- | Flexible interface:
 - Microcontroller compatible SPI interface
 - FPGA access to modulator and demodulator
 - External PA control signal available

Applications

- | Remote sensing and control
- | Wireless audio streaming
- | Wireless mice, keyboards, toys etc.
- | Wireless watch sensors, sports equipment

Pin Assignment

