

MC13192 2.4 GHz RF Data Modem



Overview

Freescale Semiconductor offers a comprehensive, end-to-end IEEE® 802.15.4 platform beginning with the MC13192 RF data modem. The MC13192 operates in the 2.4 GHz frequency band and includes a complete packet modem that is compliant with the IEEE 802.15.4 standard. The device interfaces to a microcontroller unit (MCU) through a four-wire serial peripheral interface (SPI), creating a cost-effective solution that offers low-power, low-data-rate RF connectivity for a wide range of applications.

The MC13192, together with Freescale's low-power HCS08 family of 8-bit microcontrollers and IEEE 802.15.4 MAC software, make up a comprehensive, scalable platform solution. In addition, Freescale offers simplicity and convenience—we provide a one-stop-shop for all your platform needs. In addition to the MC13192 RF data modem, our portfolio includes MCUs, MAC software, sensors and reference designs—including antennae examples and development tools.

The IEEE 802.15.4 standard is designed to address the unique needs of most remote monitoring and control network applications that require low power, low data rate and battery life that is measured in years.

Applications

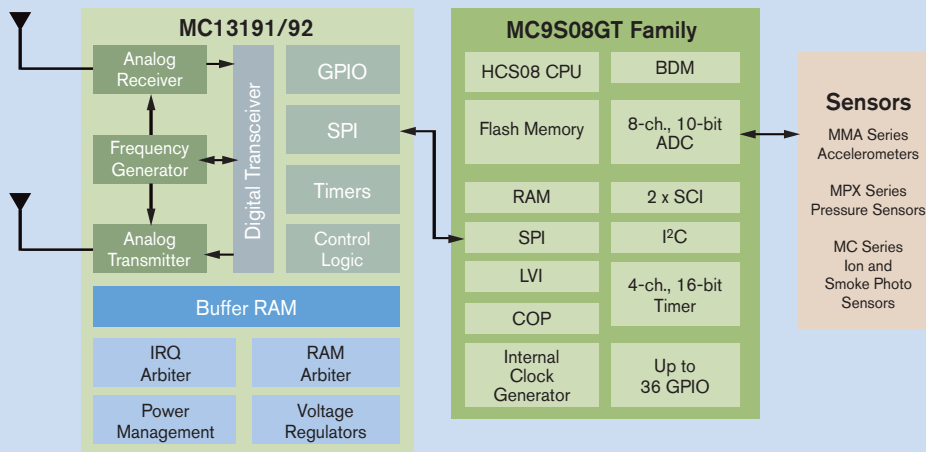
- > Residential/Commercial Automation
 - Lighting control
 - Security
 - Access control
 - Heating, ventilation, air-conditioning (HVAC)
- > Industrial Control
 - Asset tracking and monitoring
 - Homeland security
 - Process management
 - Environmental monitoring and control
 - HVAC
 - Automated meter reading (AMR)
- > Health Care
 - Patient monitoring
 - Fitness monitoring

RF Data Modem Key Features

- > IEEE 802.15.4 standard-compliant on-chip modem
- > Operates with 16 selectable channels in the 2.4 GHz band
- > Comprehensive data mode with fully packetized data
- > Cost-effective CMOS design
- > Low external component count lowers design complexity and cost
- > Rx sensitivity of -92 dBm at 1% PER, well above specification
- > 0 dB (typical) output power programmable over a 20 dB range
- > Low power modes for increased battery life
- > 2.0V to 3.4V supply voltage with on-chip regulator
- > Four internal timer comparators to reduce MCU resources
- > Seven general-purpose input/output (GPIO) ports
- > SPI data interface to MCU
- > Programmable clock output is available for use by MCU
- > Extended temperature operation range: -40°C to +85°C
- > 5 mm x 5 mm QFN-32 Pb-free package
- > Flexible development environment using Metrowerks' award-winning CodeWarrior™ Development Studio

FREESCALE'S ZIGBEE™-READY PLATFORM SOLUTION

Example Block Diagram for a Sensor Application



IEEE 802.15.4 MAC Software Key Features

- > Designed to support peer-to-peer and star topologies
- > Support for beaconing for network synchronization and low-power operation
- > Support for optional guaranteed time slots for low latency transfer
- > Power-saving modes: doze and hibernate, application configurable

ZigBee Technology

Visit our Web site at:

www.freescale.com/ZigBee.

PRODUCT DOCUMENTATION

MC1319x Brochure	Summary of Freescale's MC13191, MC13192 and MC13193 transceivers Order Number: BRMC1319192FAM
MC13192 Reference Manuals	Detailed description for the MC13192 architecture and command interface Order Number: MC13192RM
MC13192 Data Sheets	Electrical and timing specifications, package and pin descriptions Order Number: MC13192

ORDERING INFORMATION

MC13192FC	MC13192FC in tray
MC13192FCR2	MC13192 in tape-and-reel

Learn More: For more information about Freescale products, please visit www.freescale.com/ZigBee.