Product Overview

RSL10: Radio SoC, Ultra-Low-Power Multi-protocol Bluetooth® 5 Certified

For complete documentation, see the data sheet.

RSL10 is a multi-protocol Bluetooth 5 certified radio System on Chip (SoC) which brings ultra-low-power wireless technology to IoT.

Offering the industry's lowest power consumption, RSL10 helps provide devices like heart rate monitors with advanced wireless features while optimizing system size and battery life.

Unlike most other multi-protocol radio SoCs, RSL10 is specifically designed for applications using 1.2 and 1.5 V batteries, and supports a voltage supply range between 1.1 and 3.3 V without a required DC/DC converter. The highly-integrated radio SoC features a dual-core architecture and a 2.4 GHz transceiver, providing the flexibility to support Bluetooth low energy technology and 2.4 GHz proprietary or custom protocols.

Features

- Ultra-Low-Power: RSL10 provides an incredibly power efficient operation for a wide range of applications with its superior overall power profile, including some of the industry's best numbers in Deep Sleep Mode (62.5 nW) and Rx in Receive Mode (7 mW).
- Advanced Multi-Protocol Wireless Functionality:
  - Rx Sensitivity: -94 dBM
  - Transmitting Power: -17 to +6 dBm
  - Supports Bluetooth low energy and 2.4 GHz proprietary/custom protocols
  - Supports Firmware Over The Air (FOTA)
- Flexible Voltage Supply Range (1.1 and 3.3 V): Supports devices using 1.2 and 1.5 V batteries without a required external DC/DC converter
- Ultra-Miniature: RSL10 is offered in a 5.50 mm^2 WLCSP and a 6 x 6 mm QFN. For added miniaturization, the radio SoC can be integrated into System-in-Package (SiP) solutions which combine RSL10 with a custom ASIC.
- Sophisticated Dual-Core Architecture: Features a programmable ARM Cortex-M3 processor for clocking speeds up to 48 MHz and the flexibility to support 2.4 GHz proprietary and custom protocol stacks. An embedded Digital Signal Processor (DSP) enables signal processing intensive applications, such as wireless audio codecs.
- On-Chip and Software Wireless Support: Features a 2.4 GHz Radio Frequency Front-End (RFFE) and a Bluetooth 5 certified baseband controller which supports 2 Mbps data rates. A wide range of supported Bluetooth low energy protocols are provided in the RSL10 development tools kit.
- Highly-Integrated System-on-Chip (SoC): The powerful dual-core architecture is complemented by high-efficiency power management units, oscillators, flash, and RAM memories, a DMA controller, and peripherals and interfaces.
- Other Key Technical Features:
  - 384 kB of flash memory
  - IP protection feature to secure flash contents
  - Configurable analog and digital sensor interfaces (GPIOs, LSADs, I^2C, SPI, PCM)

Applications

- Wearables
- IoT Applications
- Wireless-Enabled Low-Voltage Devices (1.2 V, 1.5 V Batteries Without DC/DC Converter)
- Automotive

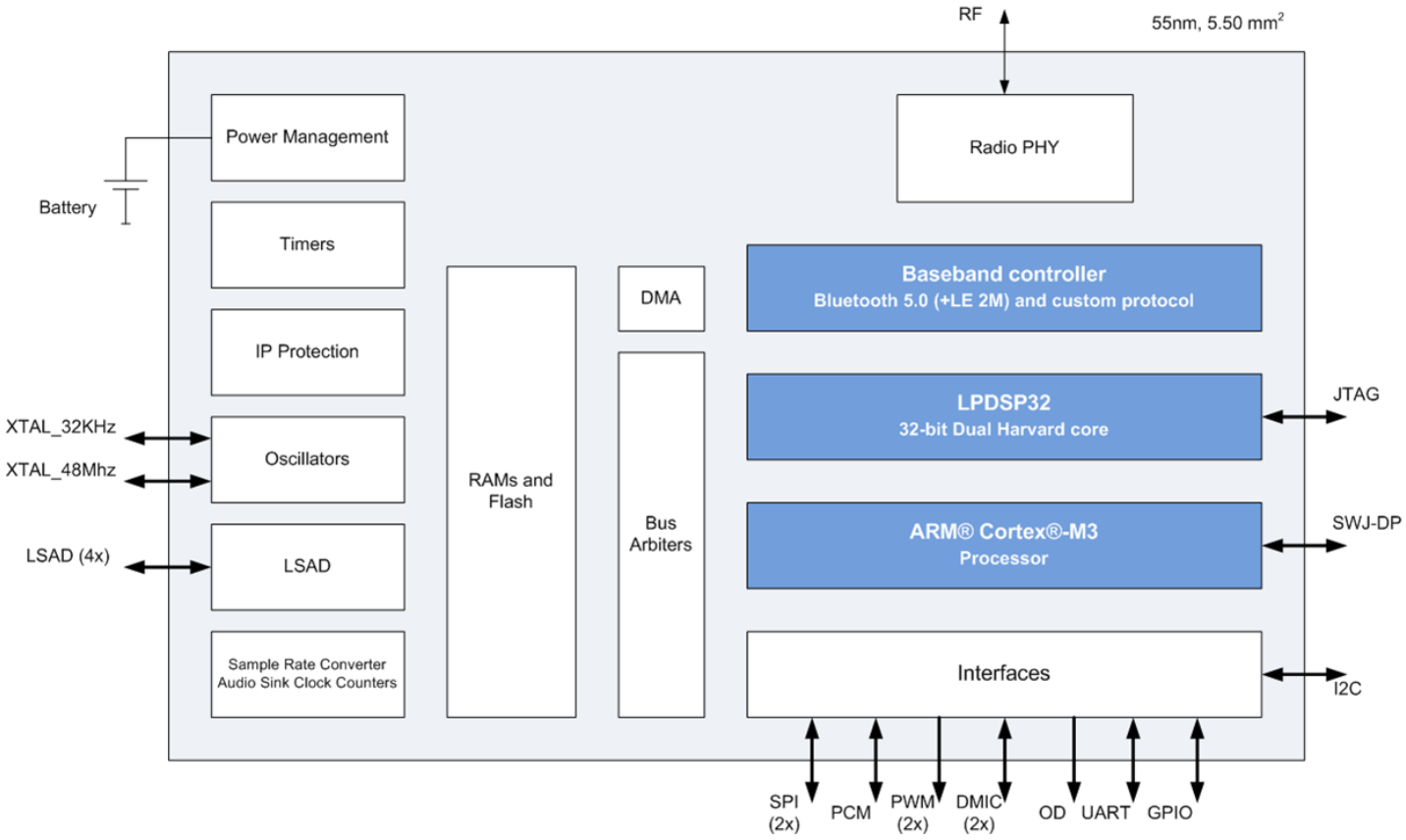
End Products

- Fitness Trackers/Activity Monitors
- Smart Watches
- Hearing Aids/Hearables
- Heart Rate Monitors
- Blood Glucose Monitors (BGM)

Part Electrical Specifications

Product	Compliance	Status	Data Transmission Standard	Frequency Band (MHz)	Carrier Frequency (MHz)	Package Type
NCH-RSL10-101Q48-ABG	Pb-free Halide free	NEW	RF	2400-2480	2400-2480	QFN-48
NCH-RSL10-101WC51-ABG	Pb-free Halide free	Active	RF	2400-2480	2400-2480	WLCSP-51

Application Diagram



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