SPARK MICROSYSTEMS

SR1120
WIRELESS UWB TRANSCEIVER IC

6.2 – 9.5 GHz
Up to 40.96 MHz symbol rate
Very-low latency
Ultra-low power

SPARK's SR1120 is a highly versatile wireless transceiver that enables short range wireless that have very-low latencies, ultra-low power, and over the air symbol rates of up to 40.96 MHz. It uses the license-free ultra-wideband (UWB) spectrum and facilitates highly robust and energy-efficient communications. SPARK UWB wireless links seamlessly operate in coexistence with other RF communication standards due to their frequency hopping and listen before talk protocols. This makes the SR1120 ideal for short range low power applications that require low latency and / or high data rates.

SPECIFICATIONS

Dynamically reconfigurable UWB spectrum
- 6.2 – 9.5 GHz band
- Up to 3dBm TX power
- RX sensitivity of -81 dBm

Antenna diversity support

Configurable Symbol Rate
- 20.48 MHz
- 27.31 MHz
- 40.96 MHz

Independent 2kbit TX and 2kbit RX FIFOs

Standard SPI and Quad-SPI interfaces

1.8 to 3.3 V supply

Industrial operating range: -40 to +85 °C

Package
- 4 x 4 mm 32 pin QFN
- WLCSP ready

KEY BENEFITS

Ultra-low power
- Reduced battery size
- Increased battery life
- Energy harvesting applications

Very-low latency
- 25 µs airtime for 1 kbit
- Ideal for time critical / time sensitive applications such as headsets, microphones, HID products, etc

Coexistence with
- BLE, WiFi (2.4, 5 & 6 GHz) and Cellular

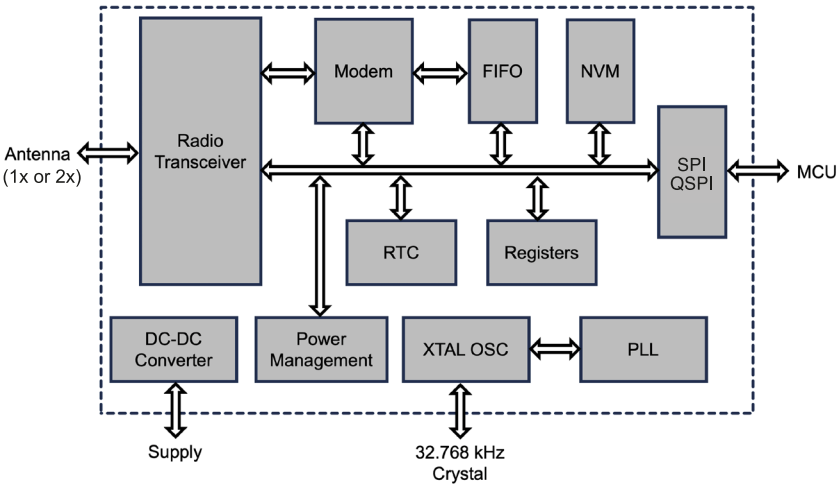
Low-cost BOM
- 32.768 kHz crystal
- High-efficiency PCB antenna

Support for Carrier-Sense (CSMA) stack

SDK support

Evaluation Kits available

SR1120 - BLOCK DIAGRAM



The SR1120 is composed of a bidirectional RF section which supports antenna diversity, digital & baseband logic, a power management unit, a low power clock input, and a sleep counter. MCU control is achieved via SPI or QSPI interfaces.

RECONFIGURABLE SPECTRUM THAT IS ROBUST AND SECURE

The SR1120 allows for dynamic shaping of its output spectrum to comply with international UWB emission limits. The very low transmitted emission levels are inherently difficult to intercept, enhancing wireless security.

SCALABLE DATA RATE FOR VERSATILE COMMUNICATIONS

The SR1120 can achieve data rates from 1 kbps up to 10 Mbps, enabling high throughput applications such as audio/video. Wireless transfer of uncompressed audio is now possible.

ULTRA-LOW POWER CONSUMPTION FOR ENHANCED BATTERY LIFE

The SR1120 is aggressively duty-cycled in order to achieve orders of magnitude better energy efficiency compared to traditional IOT solutions. Moreover, ultra-low power consumption is well-suited to operation with energy harvesting technologies.

ULTRA-LOW LATENCY FOR REAL-TIME COMMUNICATIONS

The SR1120's ultra-short latency enables wireless implementations for systems that were traditionally only achievable using wires.

ORDERING INFORMATION

PART NUMBER	PACKAGE	BODY SIZE	QUANTITY
SR1120AA-4Q32-CT	QFN32	4x4 mm	1
SR1120AA-4Q32-TR	QFN32	4x4 mm	5000

ABOUT SPARK MICROSYSTEMS

SPARK Microsystems is building next-generation short-range wireless communication devices for consumer, industrial, and medical applications. Leveraging patented LE-UWB™ technology, SPARK delivers ultra-low-power, high-speed wireless connectivity with unmatched interference robustness and exceptionally low latency. LE-UWB™ technology is ideally suited for wearables, peripherals, tags, sensors, and other IoT-connected devices that require reliable, high-performance data communication, as well as ranging and positioning capabilities. SPARK makes it possible to minimize and ultimately eliminate wires and batteries from a wide range of applications underserved by existing wireless technologies. For more information, please visit sparkmicro.com.

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