nRF52810

High performance, entry-level Bluetooth 5/ANT/2.4GHz SoC

A Bluetooth 5 SoC for everybody
The nRF52810 is the baseline member of the nRF52 Series SoC family. Together with the nRF52811, nRF52832 and the nRF52840 SoCs it completes our lineup of Bluetooth 5 devices that collectively offer the full spectrum of possibilities when designing *Bluetooth*® 5 into your products.

The nRF52810 supports the 2 Mbps bitrate of Bluetooth 5 giving increased application throughput and up to 50 % savings in energy usage. It supports channel selection algorithm #2 (CSA #2), improving the ability to coexist with other Bluetooth LE devices. It is an extremely cost-effective solution that makes it attractive in a wide range of applications.





Bluetooth 5	nRF52810	nRF52811	nRF52832	nRF52840
2 Mbps	X	X	X	X
CSA #2	X	X	X	X
Advertising Extensions		(X)	X	X
Long Range		(X)		X

(X) Software support planned

Stand-alone performance or network processor
The nRF52810 is the ideal compromise between advanced performance, functionality and cost. It is more than powerful enough to be used as a stand-alone SoC in middle to lower tier applications. Or it can be the perfect companion network processor, combining Bluetooth 5 connectivity with a more powerful main application processor.

Over-the-air device firmware update
The nRF52810 and all nRF52 Series are flash-based SoCs and as such, fully support over-the-air device firmware updates (OTA DFU). This allows for in the field updates of application software and SoftDevices.

KEY FEATURES

- 64 MHz ARM® Cortex-M4
- 192 KB Flash + 24 KB RAM
- Bluetooth 5 2.4 GHz transceiver
  - 2 Mbps
  - CSA #2
  - Concurrent multiprotocol operation
  - +4 dBm TX Power
  - -96 dBm Sensitivity
  - 4.6 mA TX (0 dBm)
  - 4.6 mA RX (1 Mbps)
  - Integrated balun with 50 Ω single-ended output
- 1.7-3.6 V supply voltage range
- Integrated DC-DC regulator
- 0.3 µA in System OFF
- 1.5 µA in System ON with RTC
- Full range of digital interfaces with EasyDMA
- 12-bit 200 ksps ADC
- Small size

APPLICATIONS

- Beacons
- Network processor
- Disposable medical sensors
- PC peripherals
- Remote controls
- Fitness sensors
- Toys
- Logistics and tagging
- Airfuel wireless charging

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S112 SoftDevice

Our protocol stacks are called SoftDevices, and complement the nRF52 Series SoCs. SoftDevices are qualified, pre-compiled and link-free libraries that we provide. SoftDevices reside in separate memory space to the application and are interfaced by their API making application development simpler and more predictable.

The S112 SoftDevice is a memory-optimized Bluetooth 5 protocol stack developed specifically for the nRF52810. High application throughput is available through the 2 Mbps bitrate of Bluetooth 5. It supports up to four peripheral connections with one concurrent broadcaster and is highly configurable, meaning it can be tailored to your application requirements.

nRF52810 compatible SoftDevices

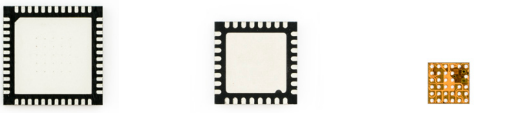
S112	Memory-optimized Bluetooth 5 protocol stack for the nRF52810, nRF52811 and nRF52832 SoCs
S132	High performance Bluetooth 5 protocol stack for the nRF52810 and nRF52832 SoCs
S212	ANT stack for the nRF52810 and nRF52832 SoCs
S312	Combined Bluetooth 5 and ANT protocol stack for the nRF52810 SoC

RELATED PRODUCTS

nRF52 DK	Development kit for nRF52810 and nRF52832 SoCs
nRF52811	SoC for Bluetooth 5.1/802.15.4/Thread/Zigbee/ ANT/2.4 GHz
nRF52832	SoC for Bluetooth 5/Bluetooth mesh/ANT/2.4 GHz
nRF52840	SoC for Bluetooth 5/Bluetooth mesh/ 802.15.4/ Thread/Zigbee/ANT/2.4 GHz
nRF5 SDK	Main software development kit for Bluetooth 5, ANT and 802.15.4
Power Profiler Kit	Current measurement tool for embedded development

SPECIFICATIONS

Protocol support	Bluetooth 5/ANT/2.4 GHz proprietary
Microprocessor	64 MHz 32-bit ARM Cortex-M4
Memory	192 KB Flash + 24 KB RAM
On-air data rate	2 Mbps/1 Mbps
TX power	Programmable from +4 to -20 dBm in 4 dB steps
Sensitivity	Bluetooth 5: -93 dBm at 2 Mbps -96 dBm at 1 Mbps ANT: -93 dBm at 1 Mbps 2.4GHz: -93 dBm at 2 Mbps -96 dBm at 1 Mbps
Radio current consumption DC/DC at 3V	7.0 mA at +4 dBm TX power, 4.6 mA at 0 dBm TX power, 4.6 mA in RX at 1 or 2 Mbps
Oscillators	64 MHz from 32 MHz external crystal or internal 32 kHz from crystal, RC or synthesized
System current consumption DC/DC at 3 V	0.3 µA in System OFF, no RAM retention 0.5 µA in System OFF, full RAM retention 0.6 µA in System ON, no RAM retention 0.8 µA in System ON, full RAM retention 1.5 µA in System ON, full RAM retention and RTC
Hardware security	128-bit AES CCM, ECB, AAR
Digital interfaces	SPI master/slave TWI master/slave UART PWM QDEC PDM
Analog interfaces	12-bit 200 ksps ADC, RNG, GP comparator
Peripherals	3 × 32-bit Timer 2 × 24-bit RTC 20 × PPI channels 4 × GPIOTE Watchdog timer RNG Temperature sensor BPROT — flash protection
Voltage supply	1.7 to 3.6 V LDO or DC/DC
Package options	6 × 6 QFN48 with 32 GPIOs 5 × 5 QFN32 with 16 GPIOs 2.48 × 2.46 WLCSP33 with 15 GPIOs



6×6 mm | 5×5 mm | 2.48×2.46 mm

WORLD WIDE OFFICE LOCATIONS

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For more information
Visit **nordicsemi.com** for the complete product specification about this and any other wireless ULP products.

About Nordic Semiconductor
Nordic Semiconductor is a fabless semiconductor company specializing in ULP short-range wireless communication. Nordic is a public company listed on the Norwegian stock exchange.

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