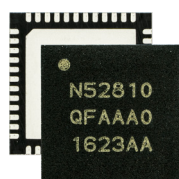
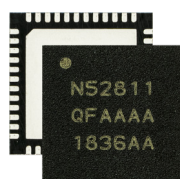


nRF52 Series

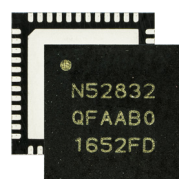
High performance solutions for Bluetooth 5/Bluetooth mesh/Thread/Zigbee



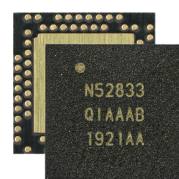
Baseline
Bluetooth 5



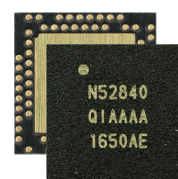
Baseline
Bluetooth 5.1/Thread/Zigbee



General purpose
Bluetooth 5/Bluetooth mesh



General purpose
Bluetooth 5.1/Bluetooth mesh/
Thread/Zigbee



High-end
Bluetooth 5/Bluetooth mesh/
Thread/Zigbee

Broad range solutions for Bluetooth 5/Bluetooth mesh/Thread/Zigbee

The nRF52 Series SoC family offer you a broad selection of high performance multiprotocol Bluetooth 5 and Bluetooth 5.1 qualified SoCs that cover high-end functionality through to baseline ICs in a range of package options. All of the nRF52 Series have support for Bluetooth 5 features in addition to multiprotocol capabilities, which include Bluetooth mesh, ANT, 802.15.4, Thread, Zigbee and 2.4 GHz proprietary.



Bluetooth 5 for every situation

The nRF52 Series cover a broad spectrum of features and functionality from the top of the range richly featured nRF52840 through to the baseline nRF52810.

A common feature of all the nRF52 Series is an ARM Cortex-M4 CPU. This brings exceptional processing horsepower to any application's needs. Some nRF52 Series SoCs also feature a Floating Point Unit (FPU) for added performance on complex tasks. This makes migration across ICs in the series very straightforward with code compatibility. Differentiation beyond this point lies in range and number of peripherals and memory availability.

Bluetooth 5 – More speed, less energy

All the nRF52 Series offer Bluetooth 5 support. The nRF52840 and nRF52833 has support for all 4 new features including Long Range and 2 Mbps. All devices in the family support the new 2 Mbps feature which offers new higher throughput use cases in addition to enabling considerable new energy saving possibilities. Some devices in the nRF52 Series also include a Bluetooth 5.1 Direction Finding capable transceiver.

nRF52 Series all-flash based flexibility and upgradability

The nRF52 Series are all-flash based SoCs. Flash memory brings complete flexibility and upgradability to your designs and products. Devices can be re-programmed in the factory or in the field with over the air device firmware upgrades (OTA DFU). This enables product updates and feature addition any time, anywhere.

	nRF52810	nRF52811	nRF52832	nRF52833	nRF52840
LTE-M, NB-IoT, GPS					
Bluetooth 5.1 - Direction Finding		(✓)		(✓)	
Bluetooth 5 - 2 Mbps	✓	✓	✓	✓	✓
Bluetooth 5 - Long Range		✓		✓	✓
Bluetooth mesh	(✓)	(✓)	✓	✓	✓
ANT	✓	(✓)	✓	(✓)	✓
NFC			✓	✓	✓
Thread, Zigbee, 802.15.4		(✓)		(✓)	✓
CPU	M4	M4	M4F	M4F	M4F
Flash (KB)	192	192	256/512	512	1024
RAM (KB)	24	24	32/64	128	256
SPI, TWI, UART, PWM	✓	✓	✓	✓	✓
High Speed SPI				✓	✓
ADC, Comparators	✓	✓	✓	✓	✓
I2S, PDM	PDM	PDM	✓	✓	✓
ARM® TrustZone® Cryptocell					✓
USB				✓	✓
QSPI					✓
GPIO	Up to 32	Up to 32	Up to 32	Up to 42	Up to 48
Max operating temperature	+85 °C	+85 °C	+85 °C	+105 °C	+85 °C
Supply Range (V)	1.7-3.6	1.7-3.6	1.7-3.6	1.7-5.5	1.7-5.5
Packages	QFN48 (6×6 mm)	QFN48 (6×6 mm)	QFN48 (6×6 mm)	AQFN73 (7×7 mm)	AQFN73 (7×7 mm)
	QFN32 (5×5 mm)	QFN32 (5×5 mm)	WL-CSP (3.0×3.2 mm)	QFN40 (5×5 mm)	WL-CSP (3.5×3.5 mm)
	WL-CSP (2.5×2.5 mm)	WL-CSP (2.5×2.5 mm)		WL-CSP (3.2×3.2 mm)	

(✓) Software support planned

nRF52 Series development tools

Nordic provides a broad selection of development tools for the nRF52 Series. These comprise of hardware development kits and a rich selection of software development tools and apps for evaluation, test and rapid prototyping. nRF Connect is a powerful development tool to perform comprehensive testing during your development cycle and nRF Toolbox is a selection of apps to help test directly against both iOS and Android based smartphones.

nRF5 SDK

The nRF52 Series SoCs are supported by the nRF5 SDK, fully developed and tested in house by Nordic. It offers a wealth of examples and supporting firmware and software modules that are rigorously tested to reach the production quality levels needed to support your application development.

Bluetooth mesh

Bluetooth mesh is the perfect choice for industrial and commercial applications requiring mesh capabilities, for example lighting applications. The nRF52 Series supports Bluetooth mesh, and a software development kit is available, the nRF5 SDK for Mesh. It contains a qualified Bluetooth mesh stack, applications models, examples and more.

Thread and Zigbee

Complete solutions for building certified Thread and Zigbee products are available through nRF5 SDK for Thread and Zigbee. It contains examples for Zigbee/Thread only operation, but also for running concurrently with Bluetooth 5.

SEGGER Embedded Studio

SEGGER Embedded Studio is offered as a development platform for nRF52 developers. It is a fully featured IDE and GCC compiler with a wealth of test and debug functionality. SEGGER Embedded Studio is free to use for anyone developing on nRF52 Series devices.

nRF52 Series development kits

The main development kits for the nRF52 Series are the nRF52 DK, the nRF52833 DK, and the nRF52840 DK. These are single board development kits facilitating development exploiting all features of the nRF52 Series SoCs. They all have an on-board programmer/debugger, edge connectors for GPIOs, buttons and LEDs. The nRF52 DK is for development with nRF52810 and nRF52832 SoCs, while the nRF52840 DK is for development with nRF52811 and nRF52840 SoCs.

Power Profiler Kit

The Power Profiler Kit is an affordable and valuable tool for accurate measurement of energy usage whilst developing your application. It connects directly to the nRF52 DK, nRF52833 DK or nRF52840 DK and has software that allows detailed monitoring on a PC.



RELATED PRODUCTS

nRF52840	SoC for Bluetooth 5/Bluetooth mesh/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52833	SoC for Bluetooth 5.1/Bluetooth mesh/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52832	SoC for Bluetooth 5/Bluetooth mesh/ANT/2.4 GHz
nRF52811	SoC for Bluetooth 5.1/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52810	SoC for Bluetooth 5/ANT/2.4 GHz
nRF52840 DK	Development kit for nRF52811 and nRF52840 SoCs
nRF52833 DK	Development kit for nRF52833 SoC
nRF52 DK	Development kit for nRF52810 and nRF52832 SoCs
nRF5 SDK	Main software development kit for Bluetooth 5, ANT and 802.15.4
nRF5 SDK for Mesh	Software development kit for Bluetooth mesh
nRF5 SDK for Thread and Zigbee	Software development kit for Thread and Zigbee
Power Profiler Kit	Current measurement tool for embedded development

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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.

