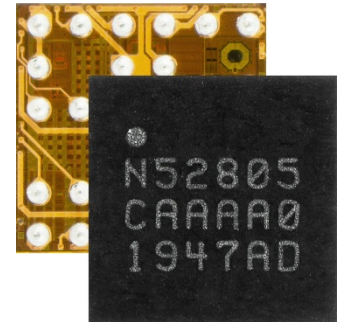# LAUNCH PACK

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nRF52805

Bluetooth 5.2 SoC in a WLCSP optimized for small two-layer PCB designs

Public launch date: June 18th, 2020

PRODUCT INFORMATION

Manufacturer	Nordic Semiconductor
Product name	nRF52805
Part number/Ordering code	nRF52805-CAAA-R nRF52805-CAAA-R7
Engineering samples	No
Order dates	**Open for order**
Launch date	June 18th, 2020
Minimum order qty	nRF52805-CAAA-R: 7000 pcs nRF52805-CAAA-R7: 1500 pcs
Lead time	20 weeks
COO	Taiwan
ECCN BIS application for CCATS number applied May 12th, 2020. Please refer to "Notice to Distis about CCATS number" letter.	5A992
HTS	8542.31.0001
Distribution cost	Available in the CRM system
Recommended resale price	Available in the CRM system
Related products	nRF52 DK, Power Profiler Kit
Related software	nRF5 SDK, nRF Connect SDK
Replacing products	N/A
Supporting products	nRF52 DK
Product page	www.nordicsemi.com/nRF52805

PRODUCT SPECIFICATIONS

Product name	nRF52805
Product description	Bluetooth 5.2 SoC in a WLCSP optimized for small two-layer PCB designs
Wireless protocol support	Bluetooth Low Energy/2.4 GHz proprietary
Radio frequency	2.4 GHz
Processor	64 MHz Arm Cortex-M4
Memory	192 KB Flash and 24 KB RAM
Analog interfaces	2-channel 12-bit ADC
Digital interfaces	UART/TWI/SPI
Security	128-bit AES
Operating temperature	-40°C to 85°C
Operating supply voltage	1.7-3.6 V
Antenna interface	Single-ended
Packaging options	2.48x2.46 mm WLCSP28 with 10 GPIOs
RoHS	TBD

OVERVIEW

The nRF52805 System-on-Chip (SoC) is the 7th addition to the industry-leading nRF52® Series. It augments the already extensive collection of wireless SoCs with an SoC in a WLCSP optimized for small two-layer PCB designs, ideal for cost-constrained applications. It is the perfect choice for applications such as beacons, disposable medical devices, sensors, simple CE remotes, styluses and presenters. It can also be applied as a network processor, allowing another MCU to leverage its connectivity.

The nRF52805 features an Arm® Cortex®-M4 processor, clocked at 64 MHz (144 CoreMark), with excellent efficiency (65 CoreMark/mA). It has 192 KB Flash and 24 KB RAM and integrates a range of analog and digital interfaces such as a 2-channel 12-bit ADC, SPI, UART, and TWI. The SoC's current draw is as little as 0.3 µA in System OFF and 1.1 µA in System ON with 24 KB RAM retained and RTC running.

The nRF52805 is a Bluetooth® 5.2 SoC supporting Bluetooth Low Energy and 2.4 GHz proprietary protocols. It is capable of Bluetooth high-throughput 2 Mbps, transferring data faster and more efficient, and Bluetooth channel selection algorithm #2 (CSA #2), improving coexistence and reducing interference. It also supports 2.4 GHz proprietary protocols, such as Enhanced ShockBurst (ESB). The radio has up to 4 dBm TX power and -97 dBm sensitivity (1 Mbps Bluetooth LE). The radio draws only 4.6 mA in both TX (0 dBm) and RX.

The nRF52805 is available in our smallest package, a 2.48x2.46 mm WLCSP package, with 10 GPIOs. The package is optimized for two-layer PCBs, cutting cost significantly, compared to four-layer PCBs. Nordic provides a 9.5x8.8 mm reference layout with all ten

GPIOs available, requiring only 10 external passive components (inc. two crystal load capacitors). nRF52805 offers the rare combination of low cost and small size, normally being a trade-off.

The nRF52805 is supported by two Bluetooth Low Energy protocol stacks, SoftDevice S112 and S113. The S112 and S113 are memory-optimized Peripheral-only stacks supporting up to 4 connections as a Peripheral concurrently with a Broadcaster. They are Bluetooth 5.1 qualified and supports the following Bluetooth features: high-throughput 2 Mbps and channel selection algorithm 2 (CSA #2).

The nRF52 DK is the recommended development kit, it emulates the nRF52805, and can be used as a starting point for development before moving over to a custom board. A guide on how to use nRF52805 with nRF5 SDK is available.

The nRF52805 SoC is in mass production now, in a 2.48x2.46 WLCSP28 package with 10 GPIOs.

KEY FEATURES

- 64 MHz Arm® Cortex-M4
- 192 KB Flash + 24 KB RAM
- Bluetooth Low Energy
  - o Bluetooth 5.2
  - o High-throughput 2 Mbps
  - o Channel selection algorithm #2
- 2.4 GHz proprietary protocol support
- Ultra-low-power 2.4 GHz multiprotocol radio
  - o +4 dBm TX power
  - o -97 dBm RX sensitivity
  - o 7 mA in TX (4 dBm)
  - o 4.6 mA in TX (0 dBm)
  - o 4.6 mA in RX (1 Mbps)
  - o Integrated balun with single-ended output
- SPI, TWI UART
- 2-channel 12-bit ADC
- Integrated DC/DC regulator
- 0.3 µA in System OFF
- 1.1 µA in System ON with 24 KB RAM retained and RTC running
- Optimized for small two-layer PCB designs
  - o 2.48x2.46 mm WLCSP package
  - o Significantly lower cost than four-layer PCB designs
  - o Only 10 external passive components (inc. two crystal load capacitors)
  - o 9.5x8.8 mm reference layout is available, giving access to all GPIOs

2020.05.06

APPLICATIONS

- Beacons
- Disposable medical devices
- Network processor
- Sensors
- Simple CE remotes
- Styluses and presenters

CALL-TO-ACTION

1) **Please add to your website/online store and publish no earlier than public launch date.**
2) **Update nRF52 DK product pages to state that it supports nRF52805 development.**
3) **Promote. See below for details.**

MARKETING MATERIAL

Please go to Filecamp for access to all relevant content, photos and Nordic's general Corporate Brand Manual.

nRF52805 SoC photo	Download product photo here
Related social media hashtags	#nRF52805, #NordicSemi
Nordic social media accounts Co-promotion: Follow, share, like and post about us & our products on social media.	Youtube Twitter / @NordicTweets Facebook LinkedIn

CONTACTS

For product related questions, please contact your main contact/Regional Sales Manager in Nordic Semiconductor.
For marketing and PR related questions, please contact us at marketing@nordicsemi.no