

Subject	Product Specification	Rev	1.0
Marketing Name	nRF52832QFAA BLE module		
Model No.	M52832QFAA	Page 1 of 13	
Description	nRF52832QFAA BLE and 2.4GHz Proprietary multiprotocol module		

1 Introduction

1.1 M52832QFAA is based on Nordic Semiconductor nRF52832QFAA Bluetooth Low Energy Platform, and is a highly integrated module for fast implementation in various applications to enable electronic devices to communicate wirelessly with other Bluetooth™ or proprietary enabled devices.

2 Features

- Support Bluetooth Smart and 2.4GHz proprietary protocols
- ARM® Cortex™-M4 32-bit processor
- PCB antenna on board.
- TX power -20 to +4 dBm in 4 dB steps (+4 dBm only for BLE)
- High sensitivity (-96 dBm typ.)
- Supply voltage range 1.7 V–3.6 V
- 29 general purpose I/O available.



3 Applications

- Internet of Things (IoT)
 - Home automation
 - Sensor networks
 - Building automation
 - Industrial
 - Retail
- Personal area networks
 - Health/fitness sensor and monitor devices
 - Medical devices
 - Key fobs and wrist watches
- Interactive entertainment devices
 - Remote controls
 - Gaming controllers
- Beacons
- A4WP wireless chargers and devices
- Remote control toys
- Computer peripherals and I/O devices
 - Mouse
 - Keyboard
 - Multi-touch trackpad
 - Gaming



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4 Functional Specifications

Standard	Bluetooth Low Energy v4.2
Data Rate	1 Mbps(BLE) , 2 Mbps(2.4GHz)
Data Encryption	128-bit AES
RF Frequency Range	2.402~2.480 GHz(BLE) , 2.403~2.480 GHz (2.4GHz)
Transmit Output Power	-20 dBm <= Output Power <= +4 dBm
Receiver Sensitivity	< 0.1% BER@1 Mbps at -96 dBm
Supply Voltage	1.7V to 3.6V
Antenna Type	PCB Antenna
RAM/ Flash	64 kB/ 512 kB
Operating temperature	-40 to + 85°C
Storage temperature	-40 to + 125°C

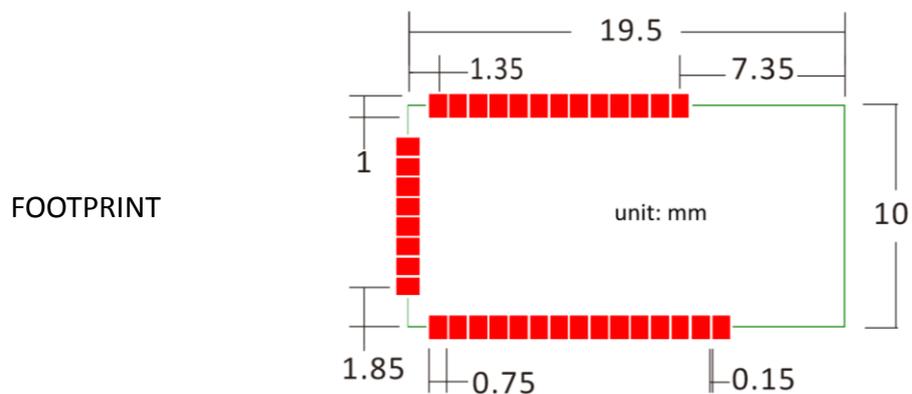
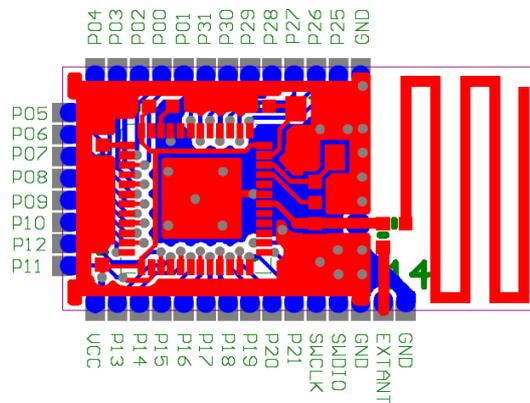
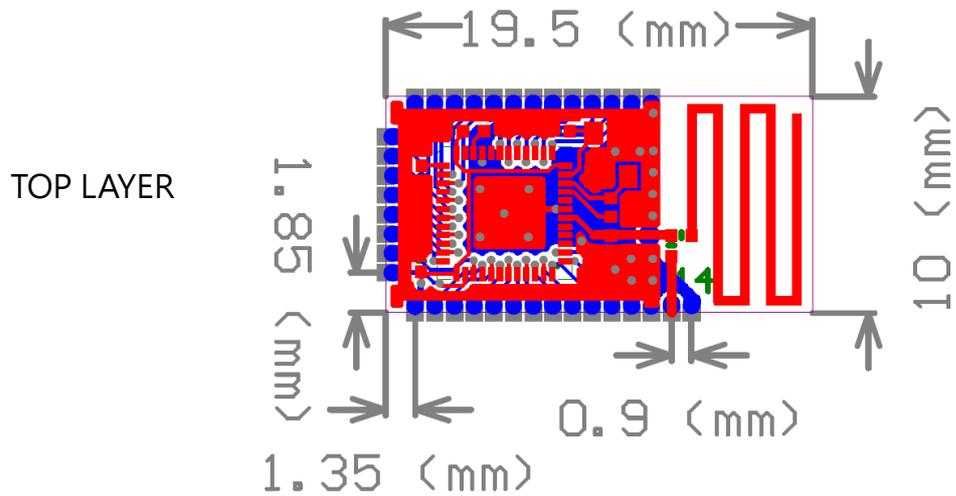
5 Bluetooth Characteristics

No	Characteristics	Condition	Min	Typ	Max	Unit
1	Frequency Range		2402		2480	MHz
2	Channel Spacing			2		MHz
3	Output Power		-20		4	dBm
4	Sensitivity			-96		dBm

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6 Dimension

10 x 19.5 x 2.3±0.1 (mm)



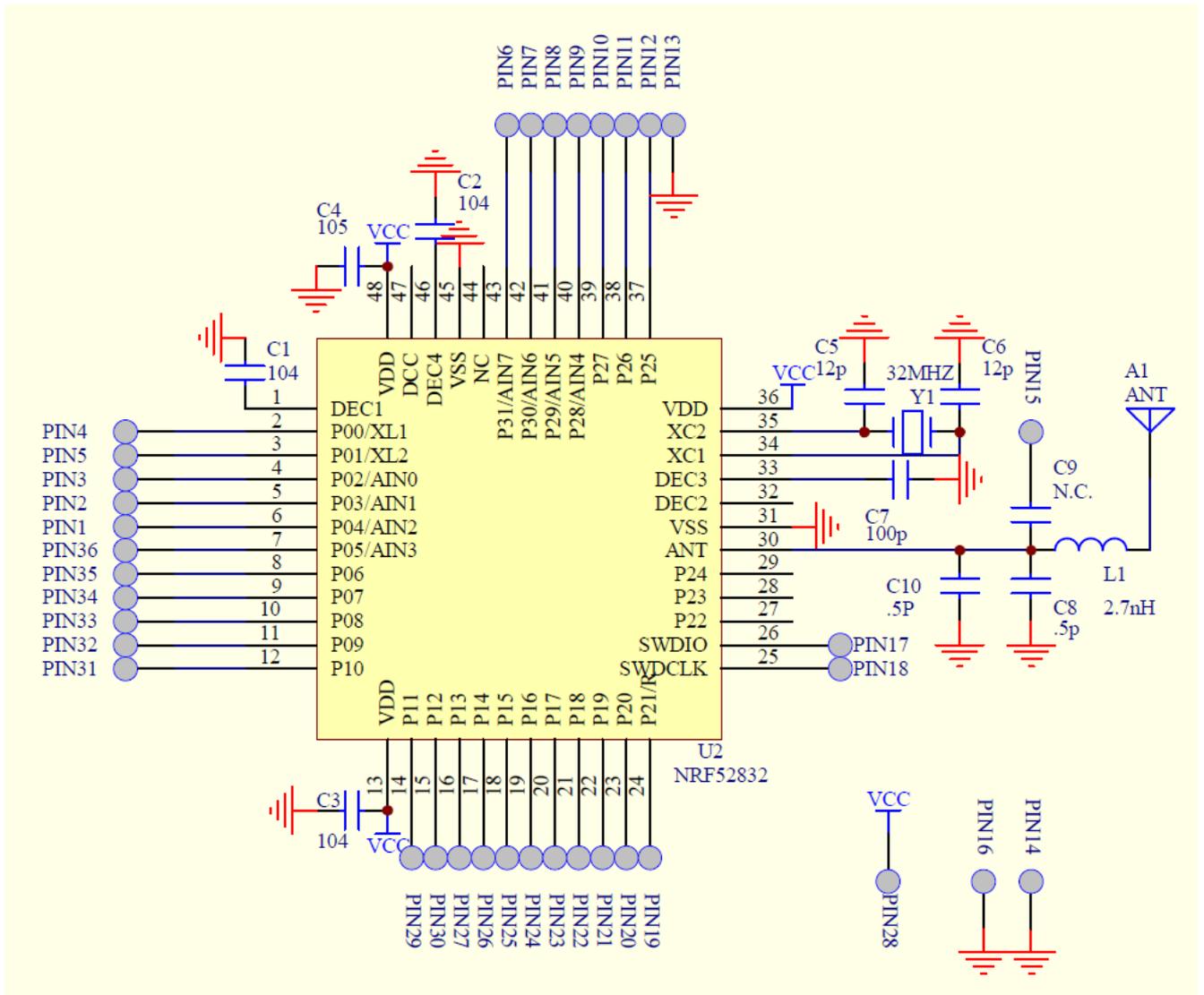
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8 Absolute maximum ratings

	Min.	Max.	Unit
Supply voltages			
VDD	-0.3	+3.9	V
VSS		0	V
I/O pin voltage			
V _{I/O} , VDD ≤ 3.6 V	-0.3	VDD + 0.3 V	V
V _{I/O} , VDD > 3.6 V	-0.3	3.9 V	V
NFC antenna pin current			
I _{NFC1/2} Radio		80	mA
RF input level		10	dBm

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9 BLE Schematic





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10 Bluetooth QD ID matrix

Model No.	SoftDevice	QD ID
M52832QFAA	BLE : S132 v3.0.x	94359
M52832QFAB	BLE : S132 v3.0.x	94359

QDL Bluetooth® qualified design listing

The Bluetooth SIG Hereby Recognizes

Hardware and Software Technology Co., Ltd.

Member Company

nRF52832QFAA BLE Module / nRF52832QFAB BLE Module

Qualified Design Name

Declaration ID: **D034504**

Qualified Design ID: **94359**

Specification Name: **4.2**

Project Type: **End Product**

Model Number: **M52832QFAA / M52832QFAB**

Listing Date: **08 March 2017**

Assessment Date: **08 March 2017**

Hardware Version Number:

Software Version Number:

This certificate acknowledges the *Bluetooth*® Specifications declared by the member are achieved in accordance with the Bluetooth Qualification Process as specified within the Bluetooth Specifications and as required within the current PRD





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11 FCC Certificate (USA)



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12 IC Certificate (Canada)

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CE Statement (RED)

RED Regulation:

In all cases assessment of the final product must be met against the Essential requirements of the RE Directive Articles 3.1(a) and (b), safety and EMC respectively, as well as any relevant Article 3.3 requirements.

1. The PCB antenna (gain: -4 dBi) was verified in the conformity testing, and for compliance the antenna shall not be modified. A separate approval is required for all other operating configurations, including different antenna configurations.
2. If any other simultaneous transmission radio is installed in the host platform together with this module, or above restrictions cannot be kept, a separate RF exposure assessment and CE equipment certification is required.

Declaration of Conformity

Hereby, HARDWARE & SOFTWARE TECHNOLOGY declares that the radio equipment type nRF52832QFAA BLE Module is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:

<http://hstnet.com.tw/uploads/pdf/M52832QFAA-Product Specification.pdf>



Waste Electrical and Electronic Equipment (WEEE)

This symbol means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Proper recycling of your product will protect human health and the environment.



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FCC IC OEM integration manual

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

CAN ICES-3(B)/ NMB-3(B)



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End Product Labeling

When the module is installed in the host device, the FCC/IC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text:

- “Contains FCC ID: LP4-M52832”
- “Contains IC: 22267-M52832 “

The grantee's FCC ID/IC ID can be used only when all FCC/IC compliance requirements are met.

This device is intended only for OEM integrators under the following conditions:

- (1) The transmitter module may not be co-located with any other transmitter or antenna.
- (2) The PCB antenna with -4 dBi gain was verified in the conformity testing. Radiated transmit power must be equal to or lower than that specified in the FCC/IC Grant of Equipment Authorization for FCC ID: LP4-M52832 and IC: 22267-M52832. A separate approval is required for all other antenna type, or higher gain antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC/IC authorization is no longer considered valid and the FCC ID/IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC/IC authorization.

For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part 15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module(s) are installed and operating. The modules should be transmitting and the evaluation should confirm that the module's intentional emissions are compliant (i.e. fundamental and out of band emissions). The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B or emissions are complaint with the transmitter(s) rule(s).

If the Host Manufacturer needs assistance in obtaining compliance to Part 15 Subpart B requirements, we will provide guidance.

