RF-BM-ND06 nRF52840 Multi-Protocol Module Supporting BLE5.3, ZigBee, Thread

Version 1.2

Shenzhen RF-star Technology Co., Ltd.

May 25th, 2023

1 Device Overview

1.1 Description

RF-BM-ND06 is an RF module based on Nordic multiprotocol SoC nRF52840-QIAA-R with best-in-class 32-bit ARM® Cortex®-M4 processor. It integrates a 32.768 kHz and a 32 MHz crystal, a power filter, an antenna matching, and a high-performance PCB antenna. It supports BLE stack v5.0, Bluetooth 5.0 low energy, Bluetooth mesh, Thread, ZigBee, IEEE 802.15.4-2006 and 2.4 GHz proprietary and can be preprogrammed with a serial interface communication protocol for simple programming. It also has a range of analog and digital interfaces such as NFC-A, ADC, high-speed 32 MHz SPI, UART, SPI, I²C, PWM, I²S, PPI and PDM. It features high-performance digital interfaces, robust connection distance, and rigid reliability. All pins of RF-BM-ND06 are pulled out.

1.2 Key Features

- RF features
  - Bluetooth 5.3 low energy
  - Bluetooth mesh
  - Thread
  - ZigBee
  - IEEE 802.15.4-2006
  - 2.4 GHz proprietary
  - Nordic SoftDevice ready with support for concurrent multiprotocol
- TX power: -20 dBm ~ +8 dBm
- On-air compatible with nRF52, nRF51, nRF24L and nRF24AP series
- ARM® Cortex®-M4 32-bit processor with FPU, 64 MHz
- Supply voltage range: 1.7 V ~ 3.6 V
- Memory
  - Flash: 1 MB
  - RAM: 256 KB
- Advanced peripherals
  - USB 2.0 full speed (12 Mbps) controller
  - QSPI 32 MHz interface
  - High-speed 32 MHz SPI
  - NFC-A
  - Programmable Peripheral interconnect (PPI)
  - 48 GPIOs
  - 12-bit, 200 ksps ADC, 8 configurable channels with programmable gain
  - 64 level comparator
  - 15 level low-power comparator with wake-up from System OFF mode
  - 5x 32-bit timer with counter mode
  - Temperature sensor
  - 4 x 4-channel PWM
  - I2S (PDM)
  - 4 x SPI master / 3 x SPI slave with EasyDMA
  - 2 x I2C compatible two-wire master/slave
  - 2 x UART (CTS/RTS)
  - Quadrature decoder (QDEC)
  - 3x real-time counter (RTC)
- Secure enablers
  - ARM® TrustZone® Cryptocell 310 security subsystem
  - Secure boot ready
  - Secure erase
- Quadrature decoder (QDEC)
- Dimension: 24.0 mm x 20.5 mm x 2.20 mm
- Certificates: RoHS, FCC, CE, SRRC

1.3 Applications

- Internet of Things (IoT)
- Internet Gateway
- Cloud Connectivity
- Industrial Control
- Home Automation
- Smart Plug and Metering
- Wireless Audio
- Access Control
- IP Network Sensor Nodes
- Security Systems
- Wearables
- Building automation
- Retail
- Sensor networks
- Medical devices
- Remote controls

1.4 Functional Block Diagram

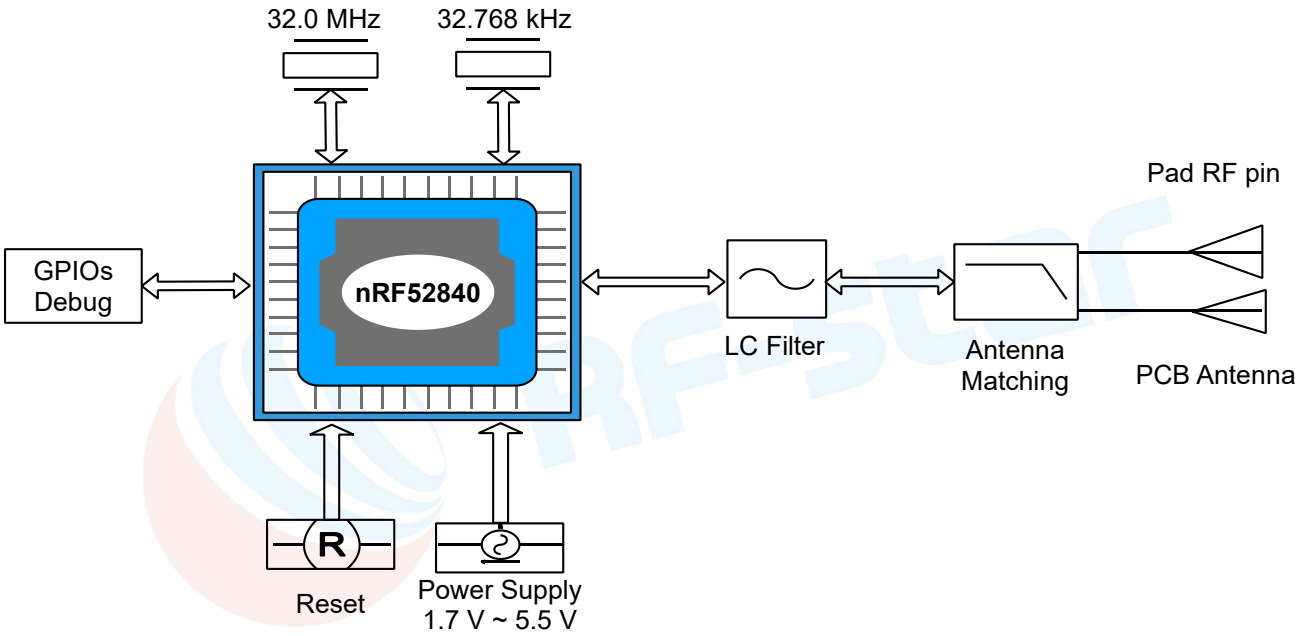


Figure 1. Functional Block Diagram of RF-BM-ND06

1.5 Part Number Conventions

The part numbers are of the form of RF-BM-ND06 where the fields are defined as follows:

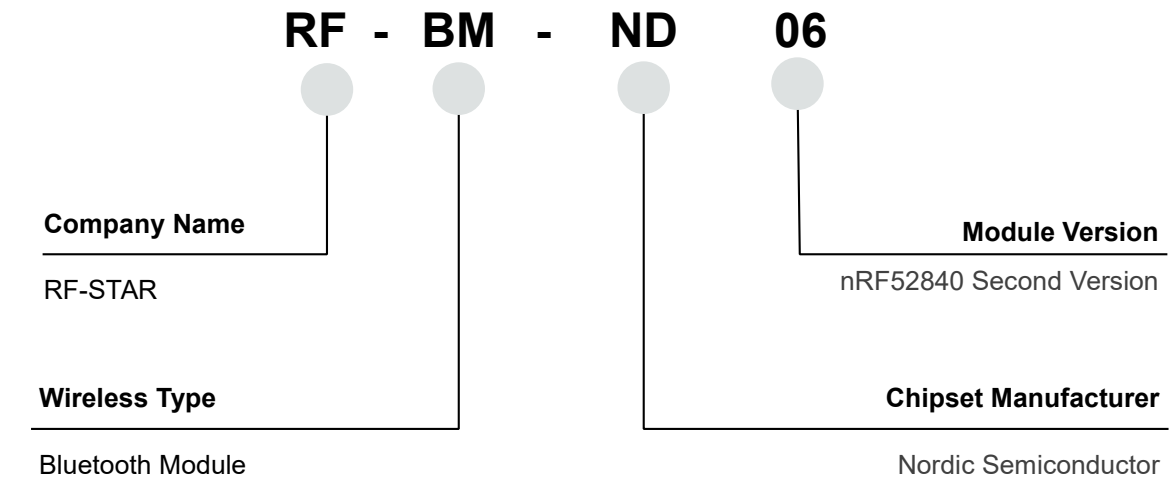


Figure 2. Part Number Conventions of RF-BM-ND06

Table of Contents

2 Module Configuration and Functions

2.1 Module Parameters

Table 1. Parameters of RF-BM-ND06

Chipset	nRF52840
Supply Power Voltage	1.7 V ~ 5.5 V, recommended to 3.3 V
Frequency	2402 MHz ~ 2480 MHz
Transmit Power	-20.0 dBm ~ +8.0 dBm
Receiving Sensitivity	-95 dBm conductive sensitivity in BLE mode -103 dBm sensitivity in 125 kbps BLE mode (long range)
Data Rate	Bluetooth ® 5: 2 Mbps, 1 Mbps, 500 kbps and 125 kbps IEEE 802.15.4-2006: 250 kbps Proprietary 2.4 GHz: 2 Mbps, 1 Mbps
Power Consumption	4.8 mA peak current in TX (@0 dBm) 4.6 mA peak current in RX
GPIO	48
Crystal	32 MHz, 32.768 kHz
RAM	256 KB
Flash	1 MB
Package	LGA Packaging
Dimension	24.0 mm x 20.5 mm x 2.20 mm
Type of Antenna	PCB Antenna/Pad RF pin
Operating Temperature	-40 ℃ ~ +85 ℃
Storage Temperature	-40 ℃ ~ +125 ℃

2.2 Module Pin Diagram

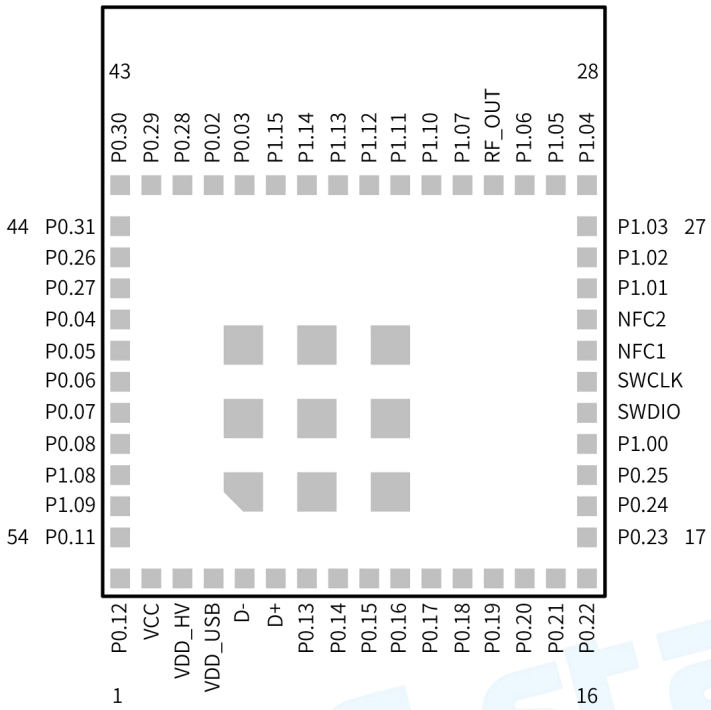


Figure 3. Pin Diagram of RF-BM-ND06

2.3 Pin Functions

Table 2. Pin Functions of RF-BM-ND06

Pin	Name	Chip Pin	Pin Function	Description
1	P0.12	P0.12 TRACEDATA1	Digital Trace data	General purpose I/O Trace buffer TRACEDATA[1]
2	VCC	VDD	Power	Power supply: 1.7 V ~ 3.6 V
3	VDD_HV	VDDH	Power	High voltage power supply: 2.5 V ~ 5.5 V
4	VDD_USB	VBUS	Power	USB power supply: 4.35 V ~ 5.5 V
5	D-	D-	Digital	USB D-
6	D+	D+	Digital	USB D+
7	P0.13	P0.13	Digital	General purpose I/O
8	P0.14	P0.14	Digital	General purpose I/O
9	P0.15	P0.15	Digital	General purpose I/O
10	P0.16	P0.16	Digital	General purpose I/O
11	P0.17	P0.17	Digital	General purpose I/O

12	P0.18	P0.18/nRESET	Digital	General purpose I/O. Recommended usage: QSPI/CSN Reset, active low.
13	P0.19	P0.19	Digital	General purpose I/O. Recommended usage: QSPI/SCK
14	P0.20	P0.20	Digital	General purpose I/O
15	P0.21	P0.21	Digital	General purpose I/O. Recommended usage: QSPI
16	P0.22	P0.22	Digital	General purpose I/O. Recommended usage: QSPI
17	P0.23	P0.23	Digital	General purpose I/O. Recommended usage: QSPI
18	P0.24	P0.24	Digital	General purpose I/O
19	P0.25	P0.25	Digital	General purpose I/O
20	P1.00	P1.00 TRACEDATA0	Digital Trace data	General purpose I/O. Recommended usage: QSPI Trace buffer TRACEDATA[0] Serial wire output
21	SWDIO	SWDIO	Debug	Serial wire debug I/O for debugging and programming
22	SWCLK	SWDCLK	Debug	Serial wire debug clock input for debugging and programming
23	NFC1	P0.09/NFC1	Digital NFC input	General purpose I/O, NFC antenna connection. Standard drive, low-frequency I/O only
24	NFC2	P0.10/NFC2	Digital NFC input	General purpose I/O, NFC antenna connection. Standard drive, low-frequency I/O only
25	P1.01	P1.01	Digital	General purpose I/O. Standard drive, low-frequency I/O only
26	P1.02	P1.02	Digital	General purpose I/O. Standard drive, low-frequency I/O only
27	P1.03	P1.03	Digital	General purpose I/O. Standard drive, low-frequency I/O only
28	P1.04	P1.04	Digital	General purpose I/O. Standard drive, low-frequency I/O only
29	P1.05	P1.05	Digital	General purpose I/O. Standard drive, low-frequency I/O only

30	P1.06	P1.06	Digital	General purpose I/O. Standard drive, low-frequency I/O only
31	RF_OUT	ANT	RF	Single-ended radio antenna connection
32	P1.07	P1.07 TRACECLK	Digital Trace clock	General purpose I/O Trace buffer clock
33	P1.10	P1.10	Digital	General purpose I/O. Standard drive, low-frequency I/O only
34	P1.11	P1.11	Digital	General purpose I/O. Standard drive, low-frequency I/O only
35	P1.12	P1.12	Digital	General purpose I/O. Standard drive, low-frequency I/O only
36	P1.13	P1.13	Digital	General purpose I/O. Standard drive, low-frequency I/O only
37	P1.14	P1.14	Digital	General purpose I/O. Standard drive, low-frequency I/O only
38	P1.15	P1.15	Digital	General purpose I/O. Standard drive, low-frequency I/O only
39	P0.03	P0.03/AIN1	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
40	P0.02	P0.02/AIN0	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
41	P0.28	P0.28/AIN4	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
42	P0.29	P0.29/AIN5	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
43	P0.30	P0.30/AIN6	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
44	P0.31	P0.31/AIN7	Digital or Analog	General purpose I/O, Analog input Standard drive, low-frequency I/O only
45	P0.26	P0.26	Digital	General purpose I/O
46	P0.27	P0.27	Digital	General purpose I/O
47	P0.04	P0.04/AIN2	Digital or Analog	General purpose I/O, Analog input

48	P0.05	P0.05/AIN3	Digital or Analog	General purpose I/O, Analog input
49	P0.06	P0.06	Digital	General purpose I/O
50	P0.07	P0.07 TRACECLK	Digital Trace Clock	General purpose I/O Trace buffer clock
51	P0.08	P0.08	Digital	General purpose I/O
52	P1.08	P1.08	Digital	General purpose I/O
53	P1.09	P1.09 TRACEDATA3	Digital Trace data	General purpose I/O Trace buffer TRACEDATA[3]
54	P0.11	P0.11 TRACEDATA2	Digital Trace data	General purpose I/O Trace buffer TRACEDATA[2]

3 Specifications

3.1 Recommended Operating Conditions

The functional operation does not guarantee performance beyond the limits of the conditional parameter values in the table below. Long-term work beyond this limit will affect the reliability of the module more or less.

Table 3. Recommended Operating Conditions of RF-BM-ND06

Items	Condition	Min.	Typ.	Max.	Unit
Operating Supply Voltage	Battery Mode	1.7	3.3	5.5	V
Operating Temperature	/	-40	+25	+85	℃
Environmental Hot Pendulum	/	-20		+20	℃/min

3.2 Handling Ratings

Table 4. Handling Ratings of RF-BM-ND06

Items	Condition	Min.	Typ.	Max.	Unit
Storage Temperature	Tstg	-40	+25	+125	℃
Human Body Model	HBM		±2000		V
Moisture Sensitivity Level			3		
Charged Device Model			±750		V

4 Application, Implementation, and Layout

4.1 Module Photos

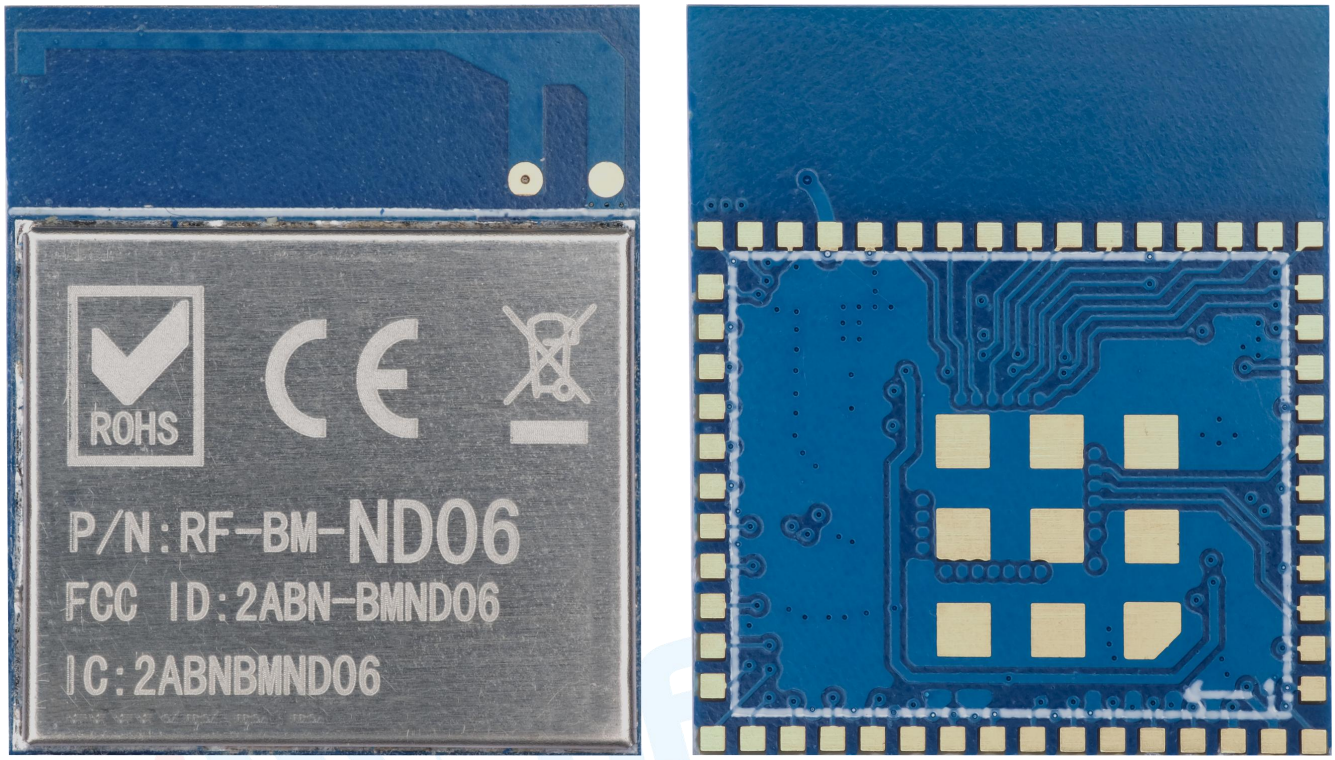


Figure 4. Photos of RF-BM-ND06

4.2 Recommended PCB Footprint

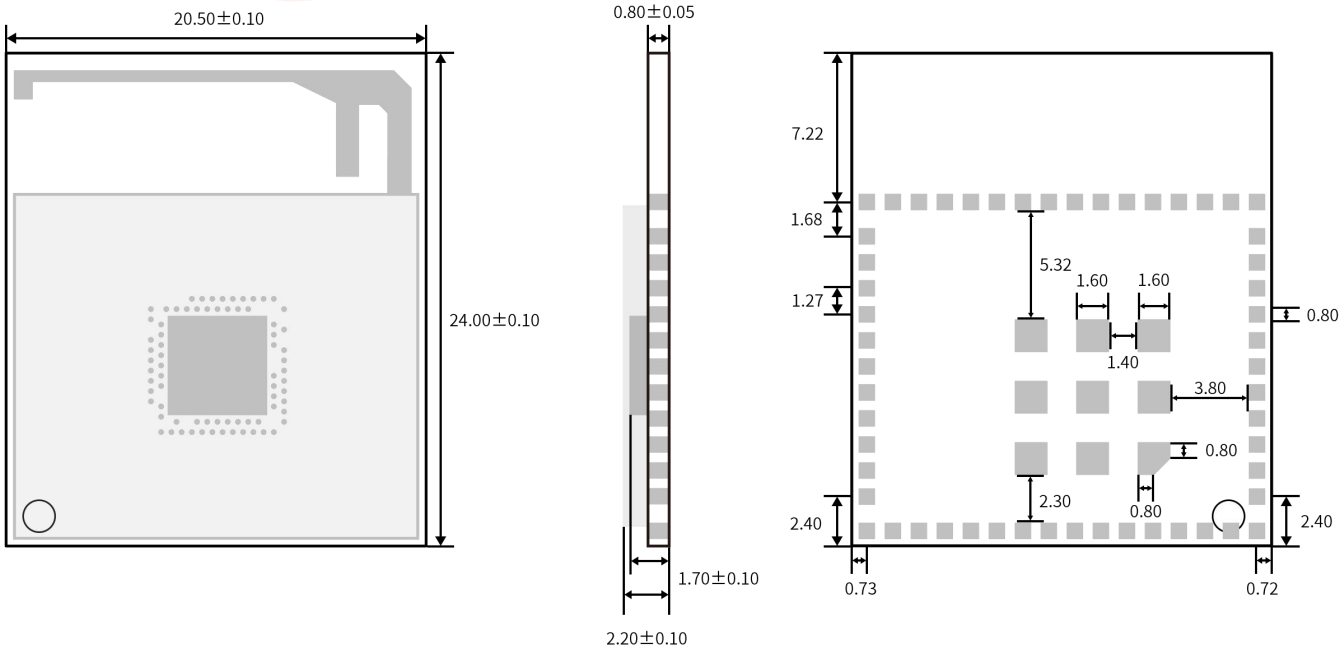


Figure 5. Recommended PCB Footprint of RF-BM-ND06 (mm)

4.3 Schematic Diagram

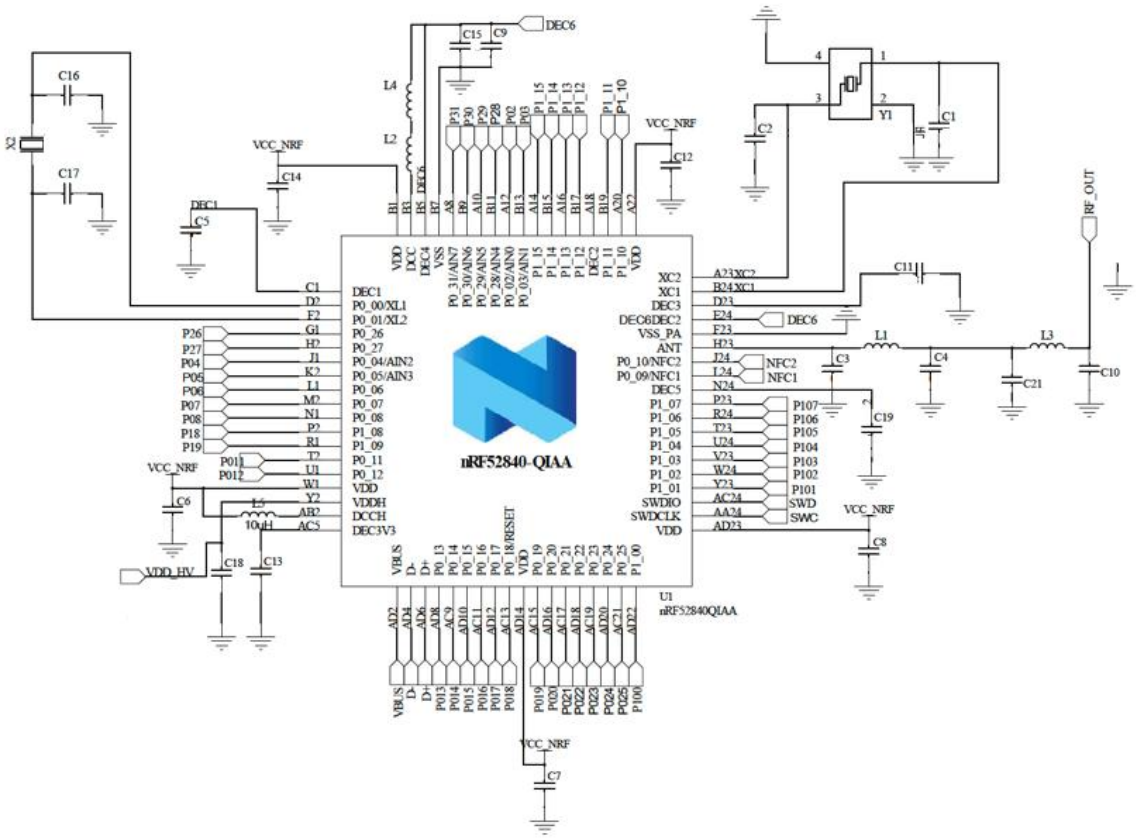


Figure 6. Schematic Diagram of RF-BM-ND06

4.4 Reference Design

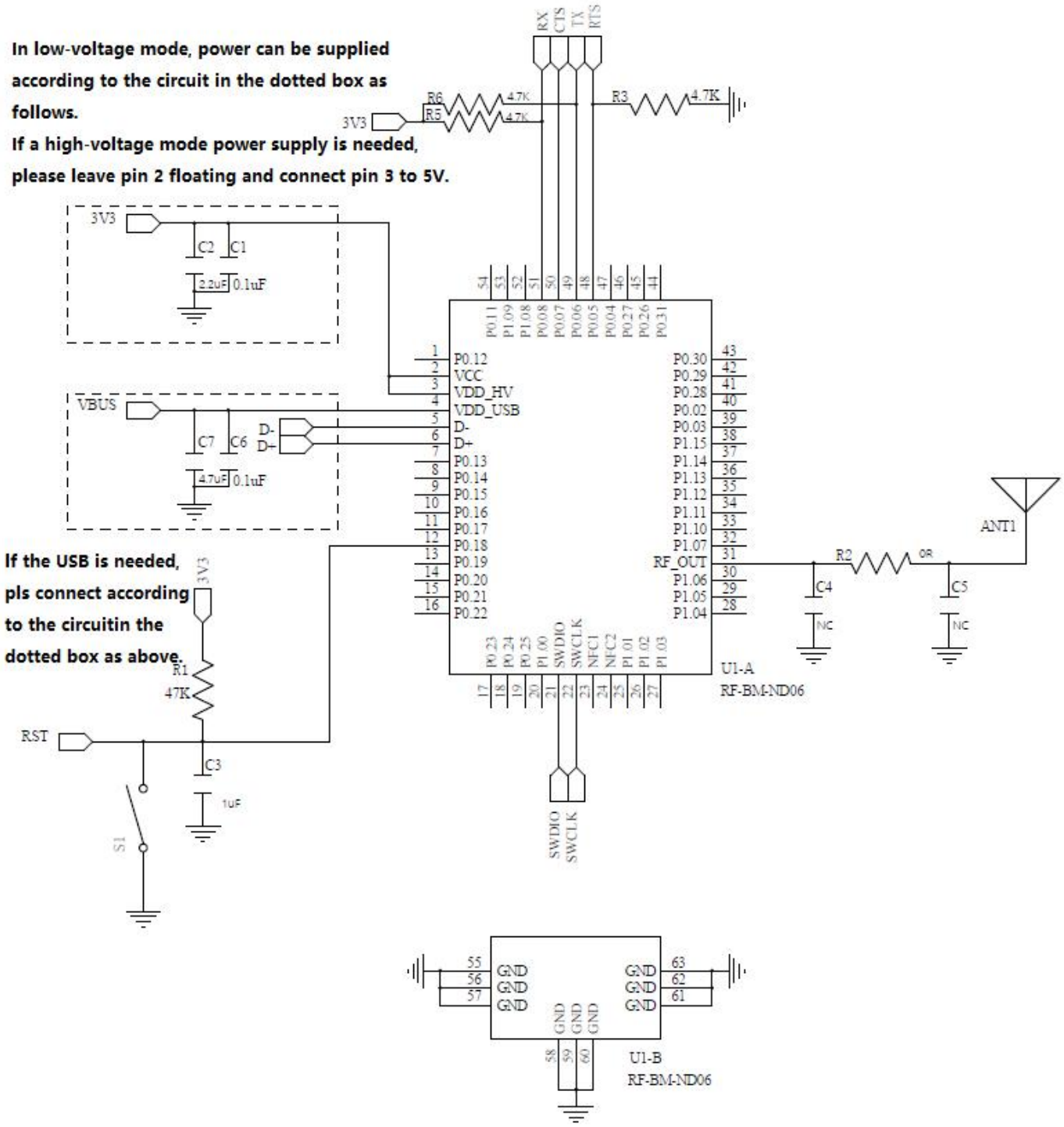


Figure 7. Reference Design of RF-BM-ND06

4.5 Antenna

4.5.1 Antenna Design Recommendation

1. The antenna installation structure has a great influence on the module performance. It is necessary to ensure the antenna is exposed and preferably vertically upward. When the module is installed inside the case, a high-quality antenna extension wire can be used to extend the antenna to the outside of the case.
2. The antenna must not be installed inside the metal case, which will cause the transmission distance to be greatly weakened.
3. The recommendation of antenna layout.

   The inverted-F antenna position on PCB is free-space electromagnetic radiation. The location and layout of the antenna is a key factor to increase the data rate and transmission range.

   Therefore, the layout of the module antenna location and routing is recommended as follows:

   1. Place the antenna on the edge (corner) of the PCB.
   2. Make sure that there is no signal line or copper foil in each layer below the antenna.
   3. It is best to hollow out the antenna position in the following figure to ensure that the S11 of the module is minimally affected.

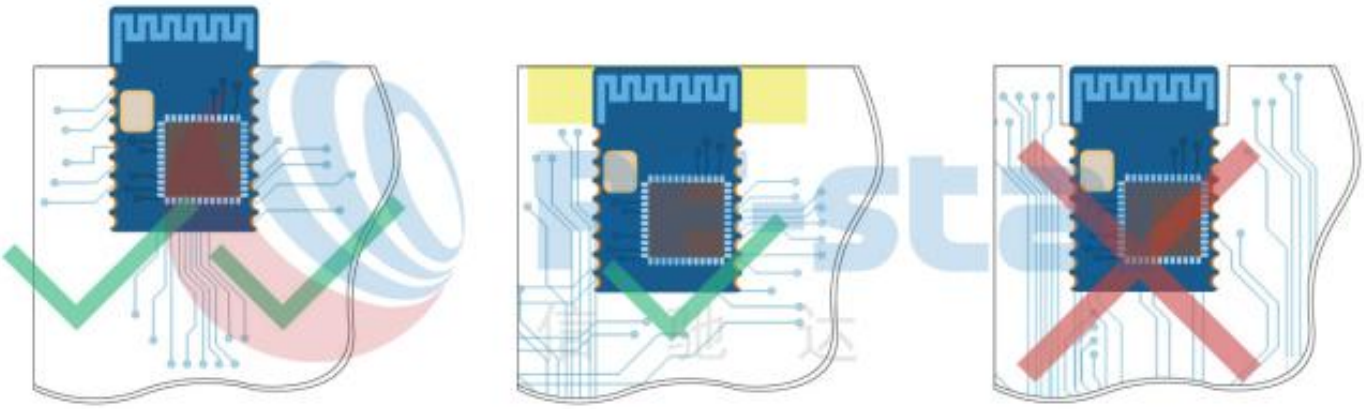


Figure 8. Recommendation of Antenna Layout

Note: The hollow-out position is based on the antenna used.

4.6 Basic Operation of Hardware Design

1. It is recommended to offer the module with a DC stabilized power supply, a tiny power supply ripple coefficient, and reliable ground. Please pay attention to the correct connection between the positive and negative poles of the power supply. Otherwise, the reverse connection may cause permanent damage to the module.
2. Please ensure the supply voltage is between the recommended values. The module will be permanently damaged if the voltage exceeds the maximum value. Please ensure a stable power supply and no frequently fluctuated voltage.

3. When designing the power supply circuit for the module, it is recommended to reserve more than 30% of the margin, which is beneficial to the long-term stable operation of the whole machine. The module should be far away from the power electromagnetic, transformer, high-frequency wiring, and other parts with large electromagnetic interference.
4. The bottom of the module should avoid high-frequency digital routing, high-frequency analog routing, and power routing. If it has to route the wire on the bottom of the module, for example, it is assumed that the module is soldered to the Top Layer, the copper must be spread on the connection part of the top layer and the module, and be close to the digital part of the module and routed in the Bottom Layer (all copper is well-grounded).
5. Assuming that the module is soldered or placed in the Top Layer, it is also wrong to randomly route the Bottom Layer or other layers, which will affect the spurs and receiving sensitivity of the module to some degrees.
6. Assuming that there are devices with large electromagnetic interference around the module, which will greatly affect the module performance. It is recommended to stay away from the module according to the strength of the interference. If circumstances permit, appropriate isolation and shielding can be done.
7. Assuming that there are routings of large electromagnetic interference around the module (high-frequency digital, high-frequency analog, power routings), which will also greatly affect the module performance. It is recommended to stay away from the module according to the strength of the interference. If circumstances permit, appropriate isolation and shielding can be done.
8. It is recommended to stay away from the devices whose TTL protocol is the same 2.4 GHz physical layer, for example, USB 3.0.

4.7 Trouble Shooting

4.7.1 Unsatisfactory Transmission Distance

1. When there is a linear communication obstacle, the communication distance will be correspondingly weakened. Temperature, humidity, and co-channel interference will lead to an increase in communication packet loss rate. The performances of ground absorption and reflection of radio waves will be poor when the module is tested close to the ground.
2. Seawater has a strong ability to absorb radio waves, so the test results by the seaside are poor.
3. The signal attenuation will be very obvious if there is a metal near the antenna or the module is placed inside the metal shell.
4. The incorrect power register set or the high data rate in an open-air may shorten the communication distance. The higher the data rate, the closer the distance.
5. The low voltage of the power supply is lower than the recommended value at ambient temperature, and the lower the voltage, the smaller the power is.
6. The unmatchable antennas and modules or the poor quality of the antenna will affect the communication distance.

4.7.2 Vulnerable Module

1. Please ensure the supply voltage is between the recommended values. The module will be permanently damaged if the voltage exceeds the maximum value. Please ensure a stable power supply and no frequently fluctuated voltage.
2. Please ensure the anti-static installation and the electrostatic sensitivity of high-frequency devices.
3. Due to some humidity-sensitive components, please ensure suitable humidity during installation and application. If there is no special demand, it is not recommended to use at too high or too low temperature.

4.7.3 High Bit Error Rate

1. There are co-channel signal interferences nearby. It is recommended to be away from the interference sources or modify the frequency and channel to avoid interferences.
2. The unsatisfactory power supply may also cause garbled. It is necessary to ensure the power supply's reliability.
3. If the extension wire or feeder wire is of poor quality or too long, the bit error rate will be high.

4.8 Electrostatics Discharge Warnings

The module will be damaged for the discharge of static. RF-star suggests that all modules should follow the 3 precautions below:

1. According to the anti-static measures, bare hands are not allowed to touch modules.
2. Modules must be placed in anti-static areas.
3. Take the anti-static circuitry (when inputting HV or VHF) into consideration in product design.
   Static may result in the degradation in performance of the module, even causing the failure.

4.9 Soldering and Reflow Condition

1. Heating method: Conventional Convection or IR/convection.
2. Solder paste composition: Sn96.5 / Ag3.0 / Cu0.5
3. Allowable reflow soldering times: 2 times based on the following reflow soldering profile.
4. Temperature profile: Reflow soldering shall be done according to the following temperature profile.
5. Peak temperature: 245 ℃.

Table 5. Temperature Table of Soldering and Reflow

Profile Feature	Sn-Pb Assembly	Pb-Free Assembly
Solder Paste	Sn63 / Pb37	Sn96.5 / Ag3.0 / Cu0.5
Min. Preheating Temperature (T_{min})	100 ℃	150 ℃
Max. Preheating Temperature (T_{max})	150 ℃	200 ℃
Preheating Time (T_{min} to T_{max}) (t_1)	60 s ~ 120 s	60 s ~ 120 s

Average Ascend Rate (T_{max} to T_p)	Max. 3 ℃/s	Max. 3 ℃/s
Liquid Temperature (T_L)	183 ℃	217 ℃
Time above Liquidus (t_L)	60 s ~ 90 s	30 s ~ 90 s
Peak Temperature (T_p)	220 ℃ ~ 235 ℃	230 ℃ ~ 250 ℃
Average Descend Rate (T_p to T_{max})	Max. 6 ℃/s	Max. 6 ℃/s
Time from 25 ℃ to Peak Temperature (t_2)	Max. 6 minutes	Max. 8 minutes
Time of Soldering Zone (t_P)	20±10 s	20±10 s

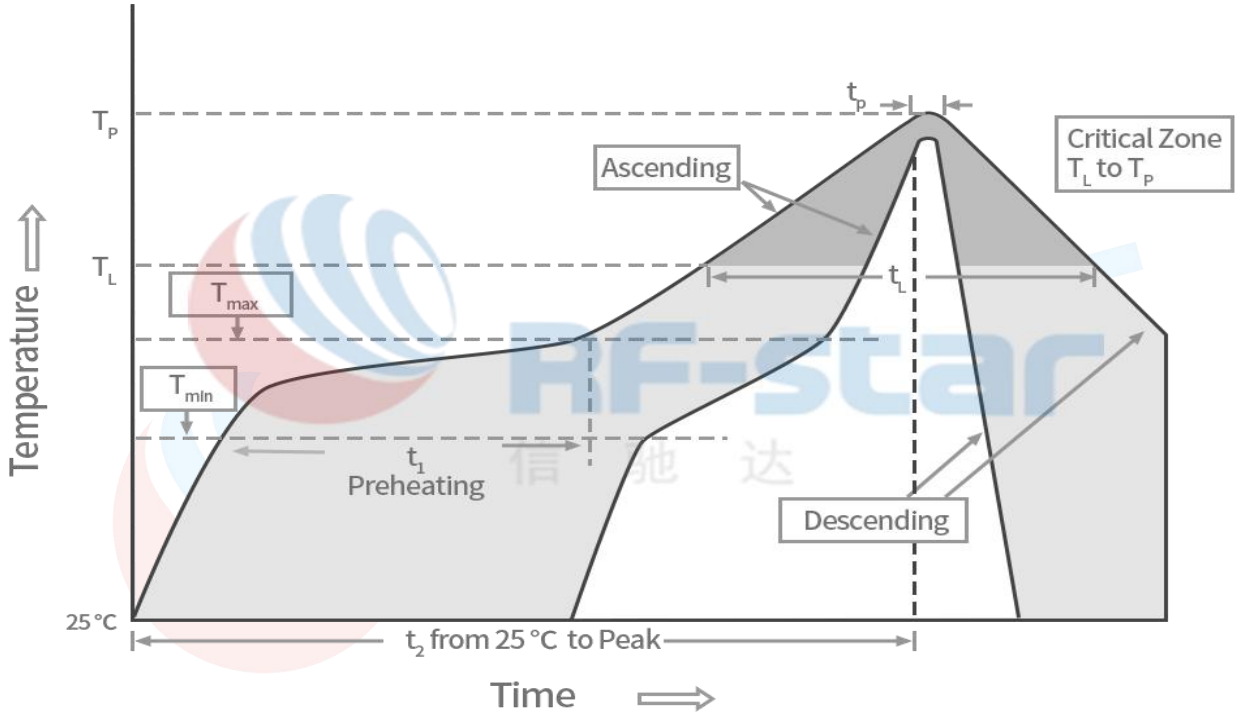


Figure 9. Recommended Reflow for Lead-Free Solder

5 Optional Package Specification

The default package method is ***by tray***. If you need the modules to be shipped by tape & reel, pls contact us in advance.

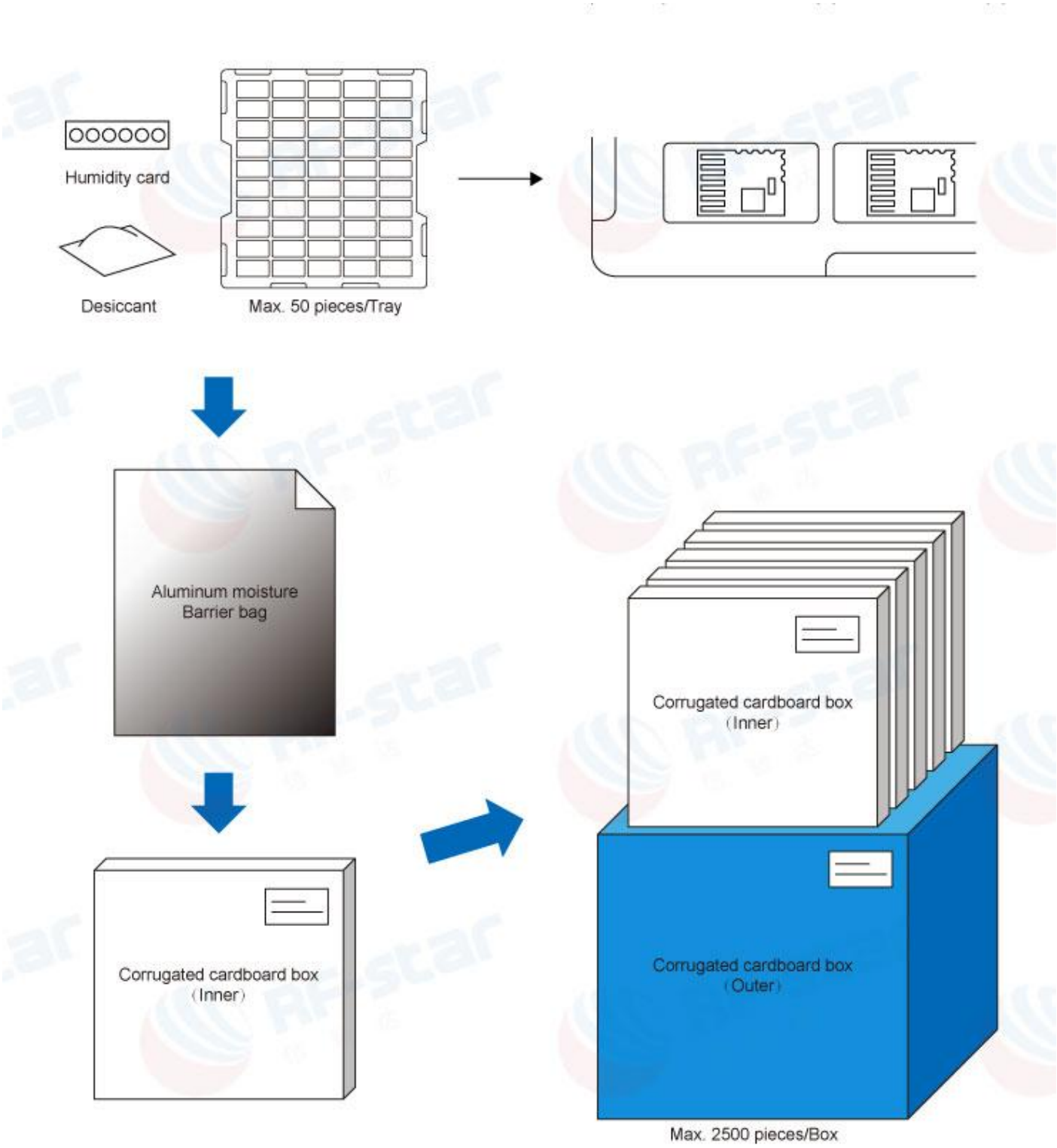


Figure 10. Default Package by Tray

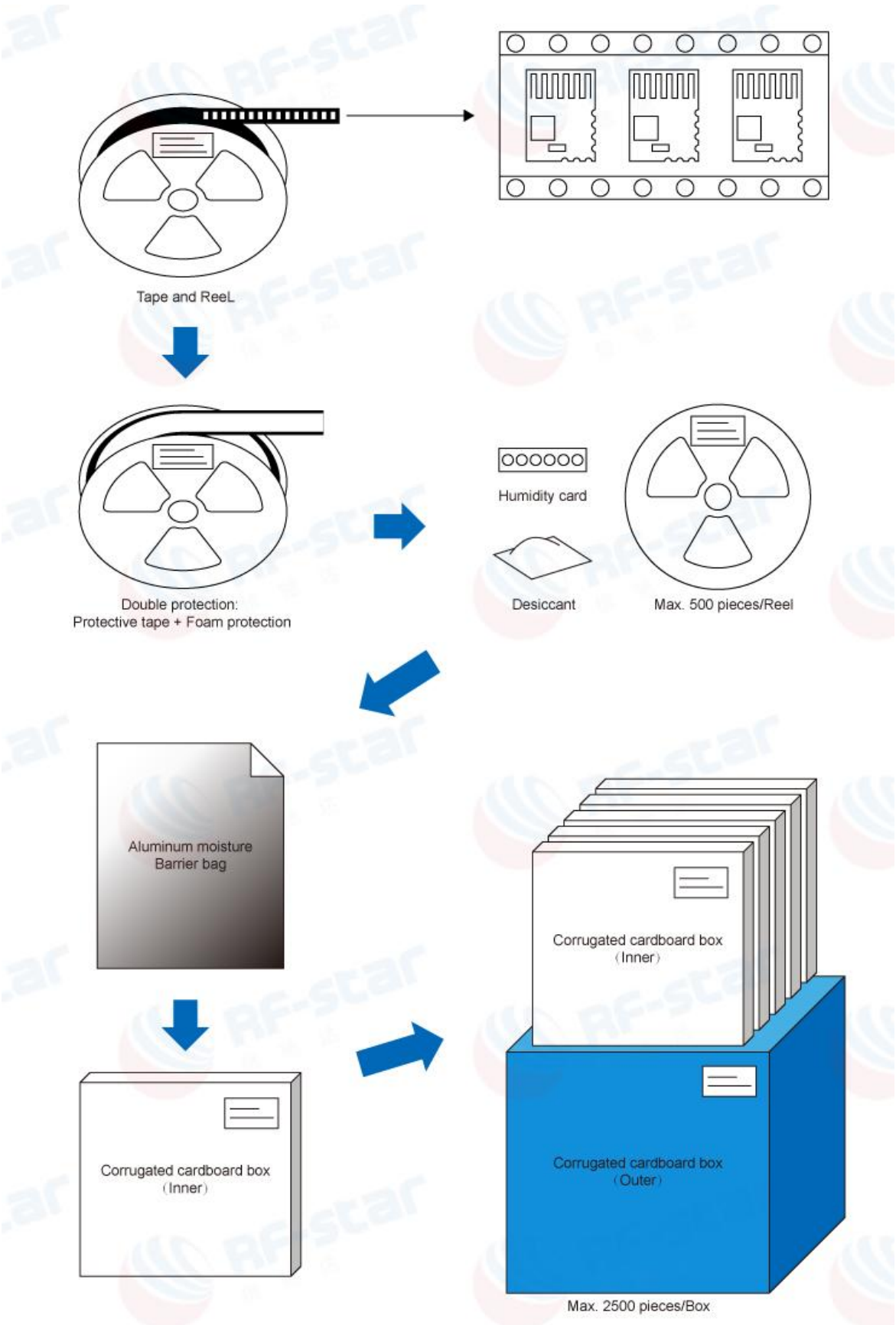
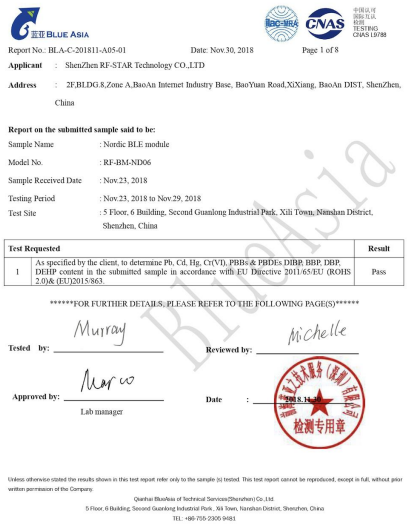


Figure 11. Package by Tape & Reel

6 Certification

6.1 RoHS

RoHS Report No.: BLA-C-201811-A05-01



BLUE ASIA

Report No.: BLA-C-201811-A05-01 Date: Nov.30, 2018 Page 1 of 8

Applicant : ShenZhen RF-STAR Technology CO.,LTD

Address : 2F,BLDG.8,Zone A,BaoAn Internet Industry Base, BaoYuan Road,XiXiang, BaoAn DIST, ShenZhen, China

Report on the submitted sample said to be:

Sample Name : Nordic BLE module

Model No. : RF-BM-ND06

Sample Received Date : Nov.23, 2018

Testing Period : Nov.23, 2018 to Nov.29, 2018

Test Site : 5 Floor, 6 Building, Second Guanlong Industrial Park, Xili Town, Nanshan District, Shenzhen, China

Test Requested		Result
1	As specified by the client, to determine Pb, Cd, Hg, Cr(VI), PBBs & PBDEs DIBP, BBP, DBP, DEHP content in the submitted sample in accordance with EU Directive 2011/65/EU (ROHS 2.0)& (EU)2015/863.	Pass

******FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)******

Tested by: Murray Reviewed by: Michelle

Approved by: Marco Lab manager Date : 2018.12.3

检测专用章

Unless otherwise stated the results shown in this test report refer only to the sample (s) tested. This test report cannot be reproduced, except in full, without prior written permission of the Company.

Qianhai BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
5 Floor, 6 Building, Second Guanlong Industrial Park, Xili Town, Nanshan District, Shenzhen, China
TEL: +86-755-2305-9481

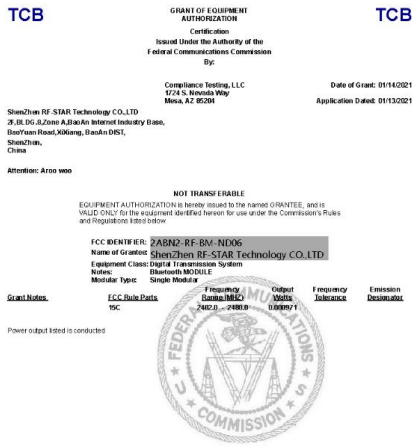
Figure 12. RoHS Certificate

6.2 FCC

Warnings:

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.

FCC ID: 2ABN2-RF-BM-ND06



TCB GRANT OF EQUIPMENT AUTHORIZATION TCB

Certification

Issued Under the Authority of the Federal Communications Commission By:

Compliance Testing, LLC
1724 S. Nevada Way
Mesa, AZ 85204

Date of Grant: 01/14/2021
Application Dated: 01/13/2021

ShenZhen RF-STAR Technology CO.,LTD
2F,B LDG.8,Zone A,BaoAn Internet Industry Base,
BaoYuan Road,XiXiang, BaoAn DIST,
ShenZhen,
China

Attention: Aroo woo

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: 2ABN2-RF-BM-ND06
Name of Grantee: ShenZhen RF-STAR Technology CO.,LTD
Equipment Class: Digital Transmission System
Notes: Bluetooth MODULE
Modular Type: Single Modular

Grant Notes	FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
	15C	2402.0 - 2480.0	0.000971		

Power output listed is conducted

Figure 13. FCC Certificate

6.3 CE

BLUE ASIA

Declaration of Conformity

The submitted sample of the following equipment has been tested for CE marking accordingto the following European Directive: the RED Directive 2014/53/EU.

Applicant name &address : Shenzhen Rfstar Technology Co.,Ltd
Room 601,Block C,Skyworth Building, NanShan,Shen Zhen 518057

Manufacturer name & Address : Shenzhen Rfstar Technology Co.,Ltd
Room 601,Block C,Skyworth Building, NanShan,Shen Zhen 518057

Product : Bluetooth MODULE
Model/Type reference : RF-BM-ND06
Trade mark : RF-STAR
Order No. : BLA-EMC-202012-A30

Essential Requirements		Applied Specification/Standards	Documentary Evidence
Art 3.1 (a)	Health	EN 62479:2010	Test Report BLA-EMC-202012-A3003
Art 3.1 (a)	Safety	EN IEC 62368-1:2020	Test Report BLA-S-202012-A05
Art 3.1 (b)	EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09)	Test Report BLA-EMC-202012-A3001
Art 3.2	Radio	ETSI EN 300 328 V2.2.2 (2019-07)	Test Report BLA-EMC-202012-A3002

This verification has been granted to the applicant based on the results of the tests, performed by laboratory of BlueAsia of Technical Services(Shenzhen) Co., Ltd.on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and the product is in conformity with the essential requirements of Article 3.1(a) (b) 3.2 of Directive 2014/53/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.

CE

Emen_li
Lab manager
Date: 2021/1/26

BlueAsia of Technology Services(Shenzhen) Co.,Ltd
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
Tel: +86-755-23059481
Email: marketing@blueasia.com
www.blueasia.com

Figure 14. CE Certificate

6.4 SRRC

SRRC ID: 20218116

无线电发射设备
Radio Transmission Equipment
型号核准证
Type Approval Certificate

深圳市信驰达科技有限公司：

根据《中华人民共和国无线电管理
In accordance with the provisions on the Radio
条例》，经审查，下列无线电发射设备
Regulations of the People's Republic of China , the following
符合中华人民共和国无线电管理规定和
radio transmission equipment , after examination , conforms
技术标准，其核准代码为：CMIIT ID:2021DP8116
to the provisions with its CMIIT ID:

有效期：五年
Validity

（发证机关）
Sealed by issuing authority
2021 06月 25日
Year Month Date

编号：2021-8116
Number

设备名称：蓝牙模块
Equipment Name

设备型号：RF-BM-ND06
Equipment Type

主要功能：数据传输
Main Functions

调制方式：GFSK
Modulation Mode

主要技术参数及其指标值：
Main Technical Parameters

频率范围：2400-2483.5MHz
Frequency Range

频率容限：≤20ppm
Frequency Tolerance

发射功率：≤20dBs (EIRP)
Transmitting Power

占用带宽：≤2MHz
Occupied Bandwidth

杂散发射限值：≤-30dBm
Spurious Emission Limits

（核发单位章）
Sealed by issuing authority
2021 06月 25日
Year Month Date

Figure 15. SRRC Certificate

7 Revision History

Date	Version No.	Description
2018.10.26	V1.0	The initial version is released.
2018.12.06	V1.0	Update module parameter.
2020.08.19	V1.0	Update module PCB footprint.
2020.09.22	V1.0	Add the reference design.
2022.12.06	V1.1	Update the reference design. Update the pin functions.
2023.03.06	V1.2	Update the Recommended PCB Footprint of RF-BM-ND06.
2023.05.25	V1.2	Update MSL level. Update the Shenzhen office address.

Note:

1. The document will be optimized and updated from time to time. Before using this document, please make sure it is the latest version.
2. To obtain the latest document, please download it from the official website: www.rfstariot.com and www.szrfstar.com.

8 Contact Us

SHENZHEN RF-STAR TECHNOLOGY CO., LTD.

Shenzhen HQ:

Add.: Room 502, Podium Building No. 12, Shenzhen Bay Science and Technology Ecological Park, Nanshan District, Shenzhen, Guangdong, China, 518063

Tel.: 86-755-8632 9829

Chengdu Branch:

Add.: N2-1604, Global Center, North No. 1700, Tianfu Avenue, Hi-Tech District, Chengdu, Sichuan, China, 610095

Tel.: 86-28-8692 5399

Email: sunny@szrfstar.com, sales@szrfstar.com

Web.: www.rfstariot.com, www.szrfstar.com