ibeelink

BLE 5 MODULE

BB832-QI4A

Product Manual

Version	Update Time	Editor
V1.00	2019-3-15	Alan Jiao
V1.10	2019-4-17	Jack Wang
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Contents

1. Product Introduction

1.1 Product Overview

BB832-QI4A is made by nRF52832 which is the baseline member of the nRF52 Series SoC family. It is built around an ARM® Cortex™-M4 CPU running at 64 MHz. It meets the challenge of bringing Bluetooth 5 feature sets and protocol concurrency to applications at a price point that makes adding Bluetooth 5 connectivity to an application compelling. It is an ideal candidate for less complex applications and also as a Bluetooth 5 connectivity processor in larger applications.

BB832-QI4A is SMD package, the rapid production of can be realized through the standard SMT equipment. It can give customers high reliability connection, especially suitable for automation, large-scale modern mode of production, low cost, convenient application in all kinds of Internet of things terminal hardware.

2. Detail Param

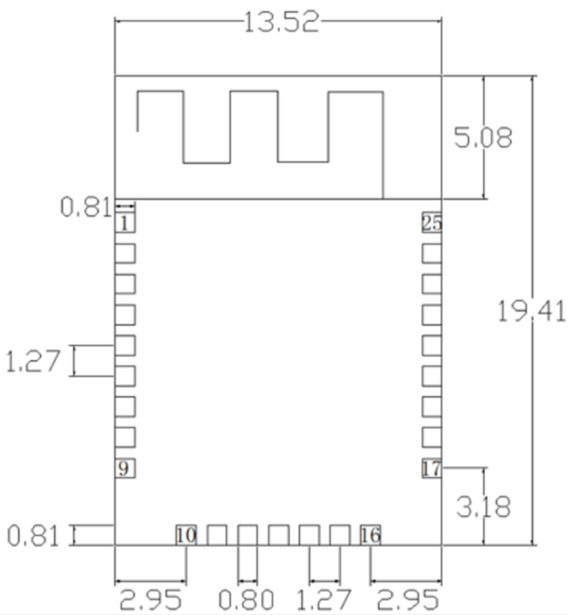
2.1 Performance

Form 1: Performance

Module	BB832-QI4A
Soc	nRF52832 QFN48
FLASH	512KB
RAM	64KB
VDD	1.7V to 3.6V
PIN Num	21
Working FRQ	2.4GHz-2.5GHz (2402MHz-2480MHz)
GPIO	21
ADC	12-bit，200 ksps，8 channels
PWM	3 Channel
PDM	1
TIMER/RTC	5 x 32bit(Count mode)/3
SPI/I2C/UART	3 (Master or Slave mode)/ 2 (Master or Slave mode)/1
QDEC	1
AES	Hardware
RNG	1
Comparator	64 level
Watch Dog	1
TX Power	-20 to +4 dbm，4db steps
RF PHY	1Mbps，2Mbps Bluetooth low energy mode
Current (Chip reference)	TX：5.3 mA peak current (0 dBm) RX：5.4 mA peak current 0.3uA （3V VDD） in System OFF mode，no RAM retention
Working Temperature	-40℃~85℃
Storage Temperature	-40℃~125℃
Package Size	13.5*19.4*3mm

2.2 Mechanical specifications

Picture 1 is the PCB mechanical specifications of the module.



Picture 1: PCB Mechanical Specifications

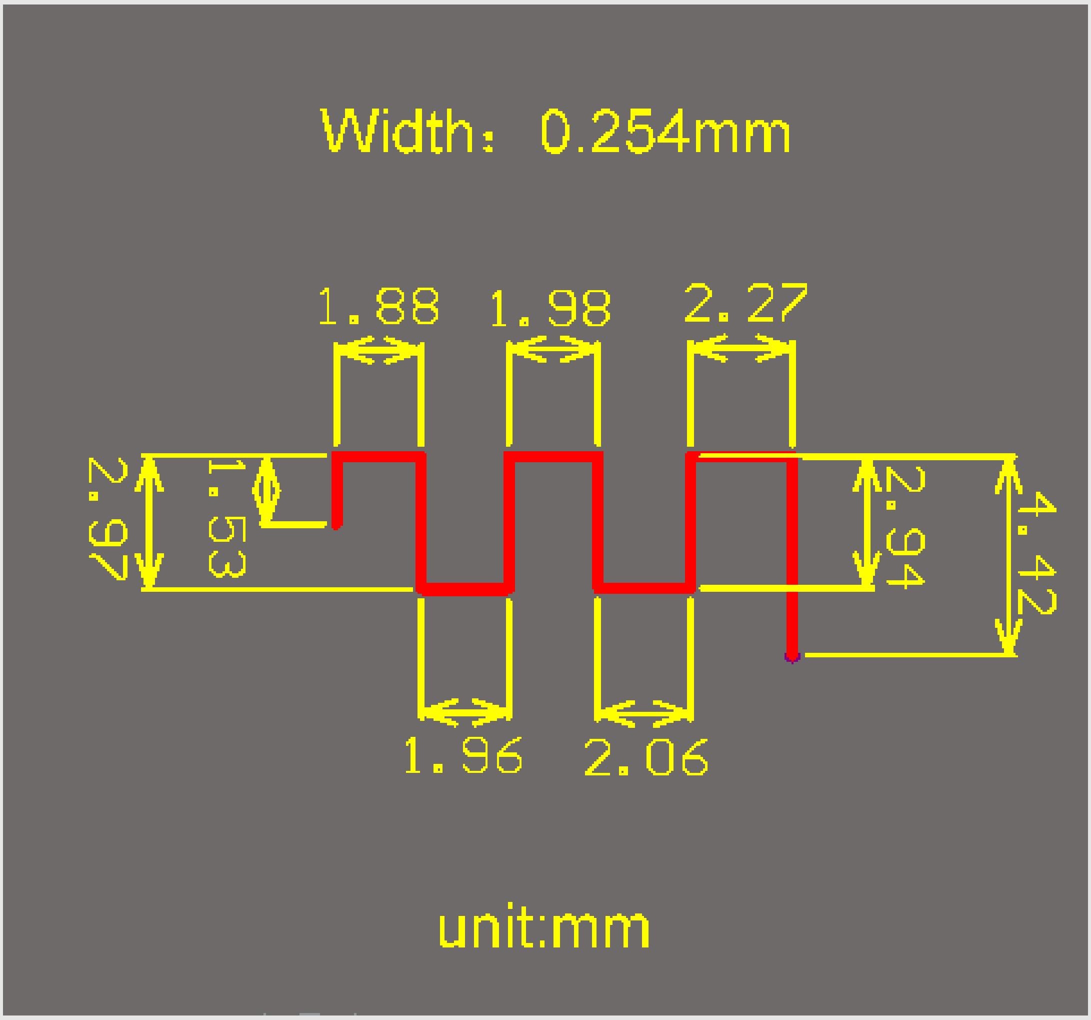
dimensions in millimeters

Form 2

Length	Width	PCB Height	PAD Size（Bottom）	PIN Gap
13.52mm	19.41mm	0.8mm	0.81mm*0.8mm	1.27mm

2.3 Antenna specifications

Picture 2 is the PCB Antenna specifications of the module.



Picture 2: PCB Antenna Specifications

dimensions in millimeters

2.4 PIN Description

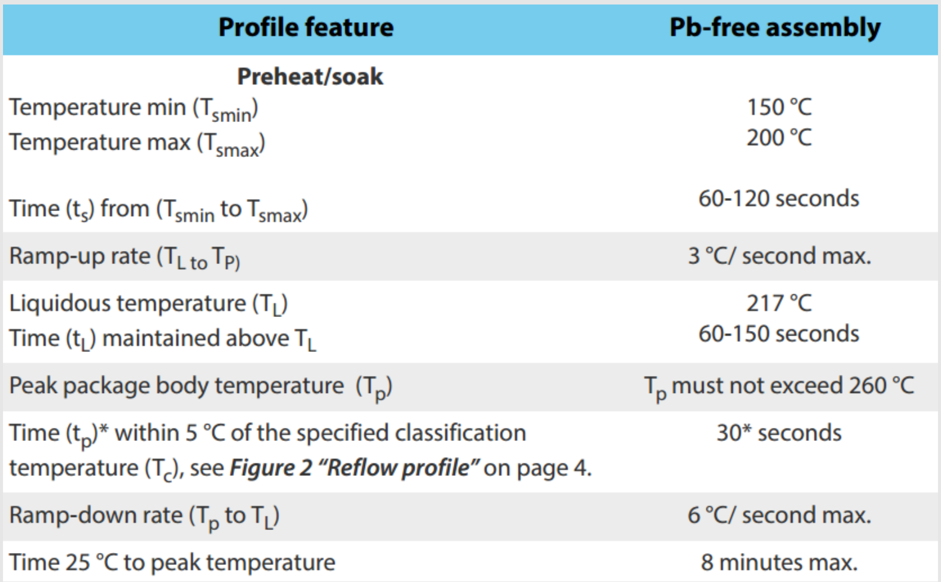
Form 3 Module PIN Description

PIN	PIN On nRF52	Description
1	P25	Digital I/O
2	P26	Digital I/O
3	P27	Digital I/O
4	P28	Analog input /Digital I/O
5	P29	Analog input /Digital I/O
6	P30	Analog input /Digital I/O
7	P31	Analog input /Digital I/O
8	GND	GND
9	VCC	1.8 V ~3.6V (Recommended voltage range)
10	P0.00	General purpose I/O Connection for 32.768 kHz crystal (LFXO)
11	P0.01	General purpose I/O Connection for 32.768 kHz crystal (LFXO)
12	P02	Analog input /Digital I/O
13	P03	Analog input /Digital I/O
14	P04	Analog input /Digital I/O
15	P05	Analog input /Digital I/O
16	P06	Digital I/O
17	P11	Digital I/O
18	P12	Digital I/O
19	P13	Digital I/O
20	P18	Digital I/O
21	P19	Digital I/O
22	P20	Digital I/O
23	P0.21/NRESET	Digital I/O / Configurable as pin reset
24	SWCLK	Serial wire debug clock input for debug and programming
25	SWDIO	Serial wire debug I/O for debug and programming

Note: Input voltage higher then VCC will destroy the module.

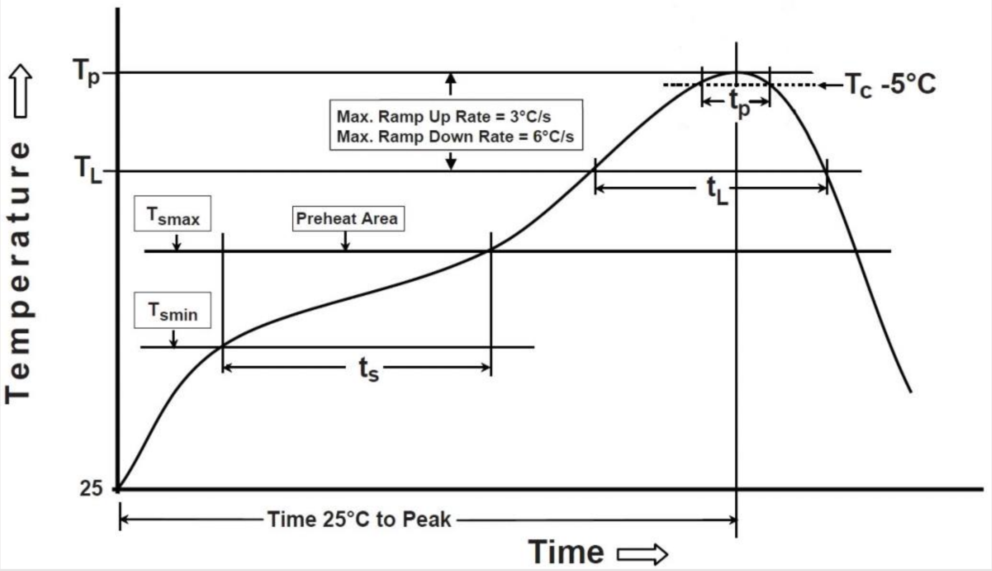
2.5 Soldering Reflow Guidelines

Form 4 and picture 2 are reflow conditions and profile.



Profile feature	Pb-free assembly
Preheat/soak Temperature min (T_{smin}) Temperature max (T_{smax})	150 °C 200 °C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Ramp-up rate (T_L to T_P)	3 °C/ second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	217 °C 60-150 seconds
Peak package body temperature (T_p)	T_p must not exceed 260 °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c), see ***Figure 2 "Reflow profile"*** on page 4.	30* seconds
Ramp-down rate (T_p to T_L)	6 °C/ second max.
Time 25 °C to peak temperature	8 minutes max.

Form4: Reflow conditions



Picture 2: Reflow profile

3. Attentions

1、This module contains CMOS devices, need be protected from ESD.

2、Module needs to connect GND well, to reduce parasitic inductance.

3、If module needs reflow, pay attention to reflow profile.

4、Area below the ANT of this module, should not use polygon.

5、ANT of this module should be far away from other circuit.

6、Module should be placed as far as possible away from the other low frequency circuits or digital circuits.

7、Module is plugged into a power supply for recommend the use of magnetic beads in isolation.

8、If there are other internal band wireless module in your product, frequency should be reasonable planning, take the shielding measures, such as reduce the influence of harmonic interference and intermodulation interference.

4. Sales And Service Network

4.1 Headquarter

Shenzhen Headquarter

Add ：Rm.1502,FIYTA Tech Building,#002 No.1 SouthernRd,Hi-Tech,Nanshan District,Shenzhen 518057,P.R.China

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4.2 North China

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Fax ： 86-10-82358605

4.3 East China

Shanghai Office

Add :Rm.2005,MingshenCenterBuilding,No.3131,KaixuanRoad,XuhuiDistrict,Shanghai200030,P.R.China

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4.4 Southwest China

Chengdu Office

Add :Room1402,Bldg#2,ShuduCenter,No.138,TianfuNo.2Street,MidSection,TianfuAvenue,High-TechDistrict,ChengduCity

Tel ： 86-28-85355251

Fax ： 86-28-85350890

FCC Statements

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.

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

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is forbidden.

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2ATCG-BB832QI4A Or Contains FCC ID: 2ATCG-BB832QI4A”

When the module is installed inside another device, the user manual of this device must contain below warning statements:

1. 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.

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

The host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

The end user manual shall include all required regulatory information/warning as shown in this manual.