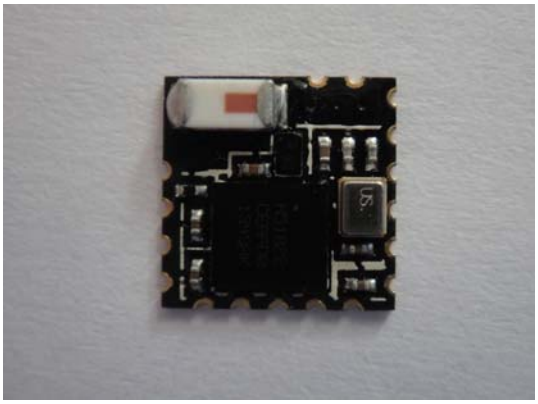
WB822D User Manual V1.0.1

Description



WB822D Module is designed based on nRF51822 RF SoC chip. nRF51822 is an ultra-low power 2.4GHz wireless System on Chip(Soc) integrating the nRF51 series 2.4GHz transceiver, a 32bit ARM Cortex-M0 CPU, flash memory, and analog and digital peripherals. nRF51822 can support Bluetooth low energy and a range of proprietary 2.4GHz protocols, such as Gazell from Nordic Semiconductor.

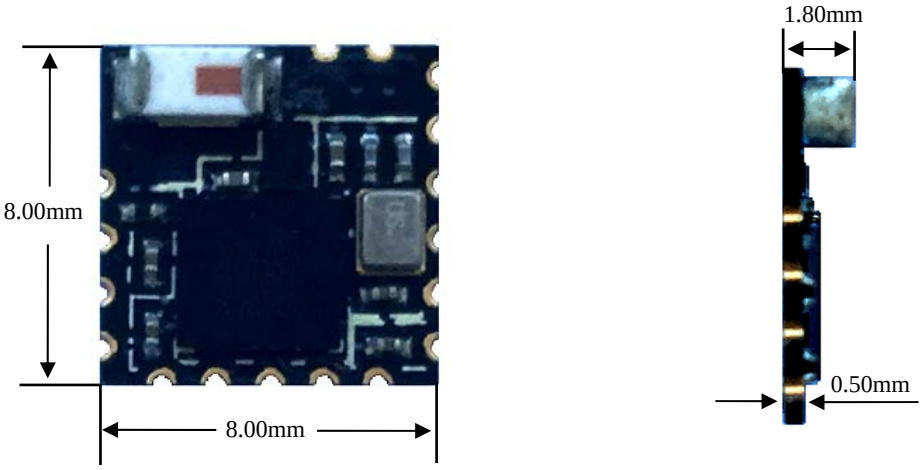
Key Features

- 2.4GHz transceiver
  - -93dBm sensitivity in Bluetooth low energy mode
  - 205kbps, 1 Mbps, 2 Mbps supported data rates
  - TX Power -20 to +4dBm in 4dB steps
  - TX power -30dBm Whisper mode
  - 13mA peak RX, 10.5mA peak TX (0 dBm)
  - 9.7mA peak RX, 8mA peak TX (0dBm) with DC/DC
  - RSSI (1dB resolution)
- ARM Cortex -M0 32 bit processor
  - 275 μA/MHz running from flash memory
  - 1505μA/MHz running from RAM
  - Serial Wire Debug (SWD)
- Flexible Power Management
- AntennaType:ChipAntenna
- AntennaGain:0.5dBi(PeakGain)
  - Supply voltage range 1.8V to 3.6V
  - 4.2μs wake-up using 16MHz RCOSC
  - 0.6μA at 3V OFF mode
  - 1.2μA at 3V in OFF mode +1region RAM retention
  - 2.6μA at 3V ON mode, all blocks IDLE
- Tiny Size 8mm X 8mm X 1.7mm
- Operating Temperature: -25℃~+75℃

Applications

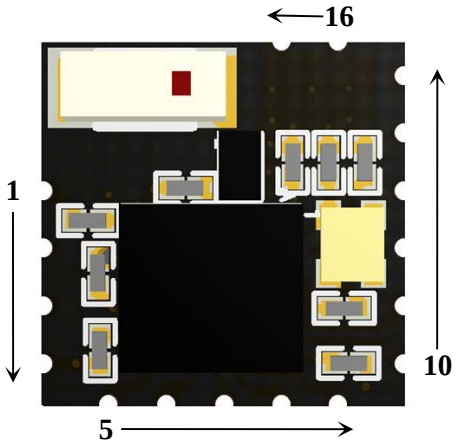
- 2.4-GHz Bluetooth low energy System
- Human-Interface Devices (Keyboard, Mouse, Remote Control)
- Sports and Leisure Equipment
- Proximity/Alert sensors
- Consumer Electronics
- iBeacon Station/Micro-loacation indoor navigation
- Smart Phone Accessories

Mechanical Drawing



Tolerance:±0.2mm

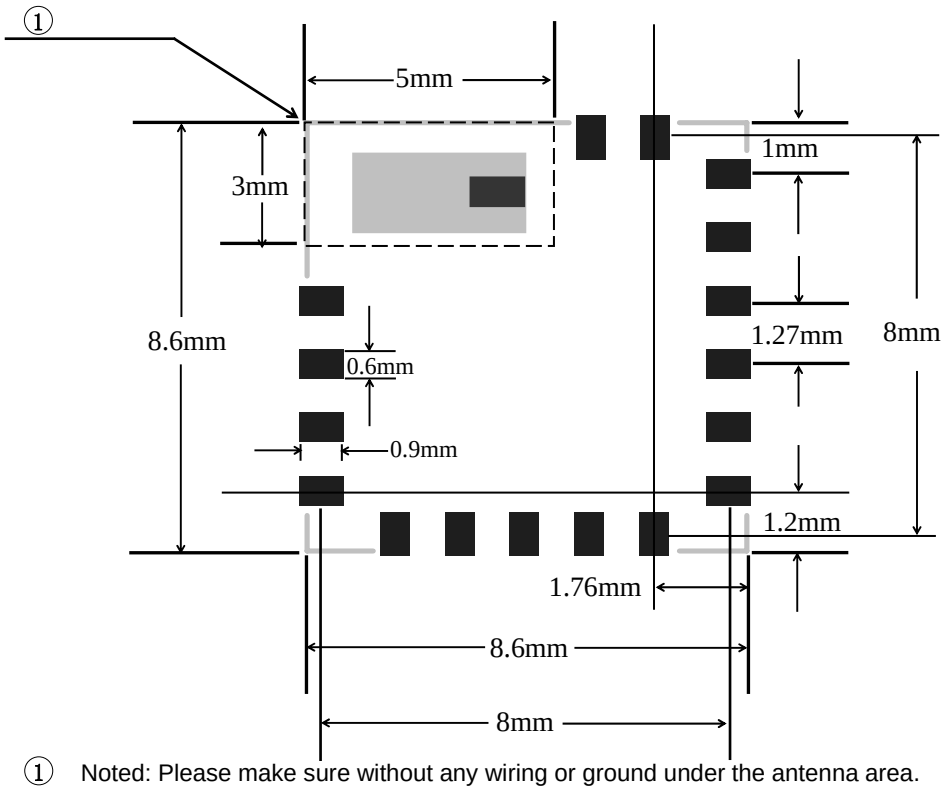
Terminal Description



Pad Number	Name	Function	Description
1	SWDIO/nRESET	Digital I/O	Programming I/O
2	SWDCLK	Digital input	HW debug and flash programming I/O
3	VDD	Power	1.8V - 3.6V Power Supply
4	GND	GND	Ground
5	P0.05/AIN6	Digital I/O Analog input	General purpose I/O ADC input 6
6	P0.03/AIN4	Digital I/O Analog input	General purpose I/O ADC input 4
7	P0.01/AIN2	Digital I/O	General purpose I/O

		Analog input	**ADC input 2**
8	**P0.02/AIN3**	**Digital I/O** **Analog input**	**General purpose I/O** **ADC input 3**
9	**P0.00/ARE F0**	**Digital I/O** **Analog input**	**General purpose I/O** **ADC Reference voltage**
10	**P0.27/AIN1 /XL1**	**Digital I/O** **Analog input**	**General purpose I/O** **ADC input 1** **Crystal connection for 32.768kHz crystal oscillator or external 32.768kHz crystal reference**
11	**P0.26/AIN0 /XL2**	**Digital I/O** **Analog input** **Analog output**	**General purpose I/O** **ADC input 0** **Crystal connection for 32.768kHz crystal oscillator**
12	**P0.24**	**Digital I/O**	**General purpose I/O**
13	**P0.21**	**Digital I/O**	**General purpose I/O**
14	**P0.22**	**Digital I/O**	**General purpose I/O**
15	**P0.25**	**Digital I/O**	**General purpose I/O**
16	**GND**	**GND**	**Ground**
17	**GND**	**GND**	**Ground**

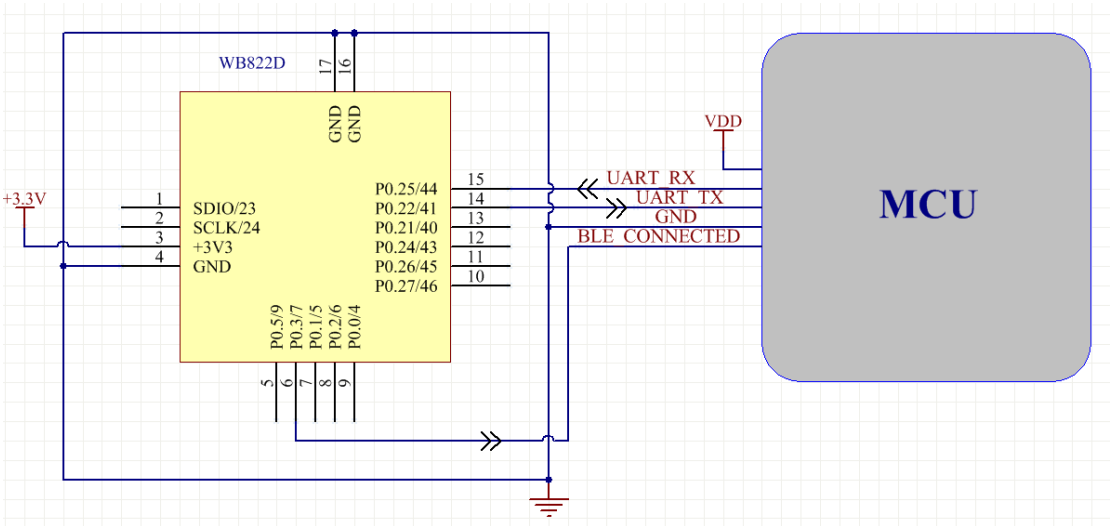
Recommended PCB Layout for Package



① Noted: Please make sure without any wiring or ground under the antenna area.

Operation Notice

Connecting WB822D Module to MCU (on the main board) via UART Interface as below:



The WB822D module will start BLE broadcasting using a name “ACEUni_UART”. Run an App (such as “LightBlue”) on the phone you can scan and connect to the WB822D module. The BLE_CONNECTION pin will be pull high to indicate that the BLE Connected is complete. And now the data transceiver is viable between the WB822D module and the MCU.

For the MCU the UART Parameters are：

Baud rate: 115200bps

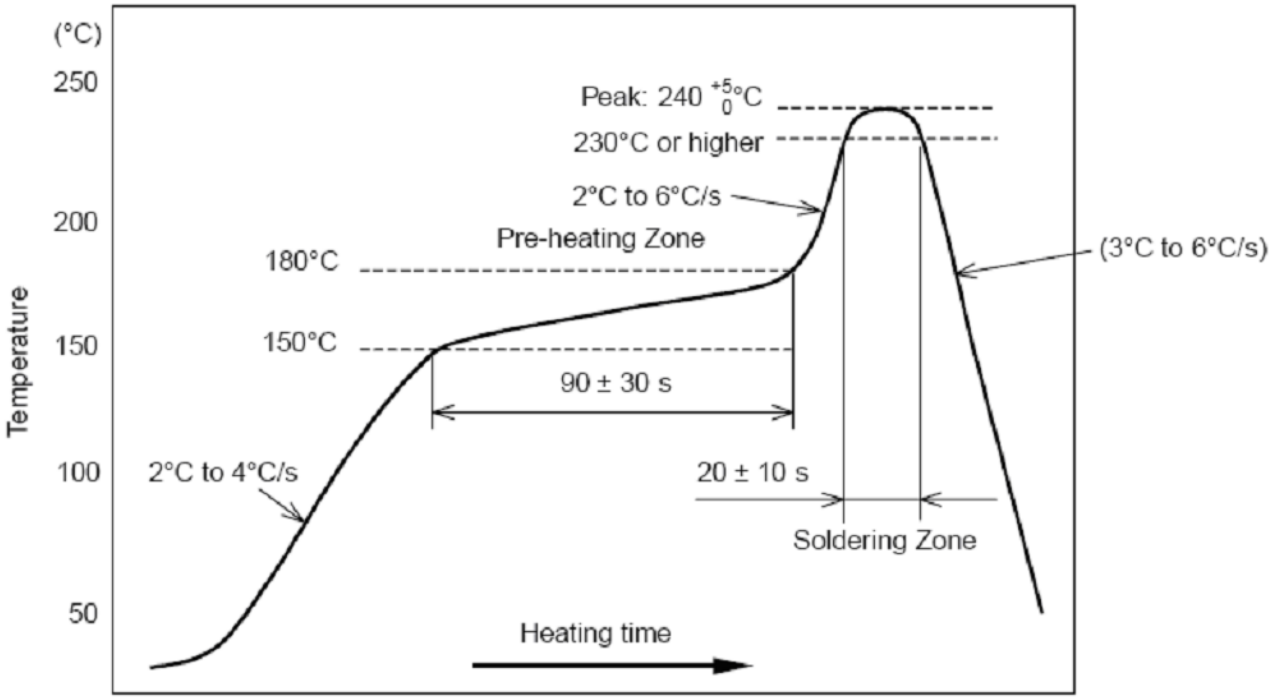
Start bits: 1

Data bits: 8

Stop bits: 1

Parity Check bits: none

Soldering Recommendations



FCC STATEMENT

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.
(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.

NOTE: 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 or more 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.

RF warning statement:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

The WB822D (Bluetooth) module is designed to comply with the FCC statement. FCC ID is VVJ-WB822D.

The host system using WB822D(Bluetooth module) , should have label indicated it contain modular's FCC ID:VVJ-WB822D.

This radio module must not installed to co-locate and operating simultaneously with other radios in host system , additional testing and equipment authorization may be required to operating simultaneously with other radio.