GBBLE01-NRF5201 BLE Module Instructions

Version：V1.0

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GBBLE01-NRF5201 BLE Module

General Description

GBBLE01-NRF5201 is a powerful, multiprotocol, ultra low power Bluetooth Low Energy (BLE) module using Nordic nRF52832 SoC. With an ARM Cortex TM M4F MCU, 512KB flash, 64KB RAM, embedded 2.4GHz multi-protocol transceiver, and an integrated chip antenna. It provide a comple solution with no extral RF design, allows faster time to market with reduced development cost.
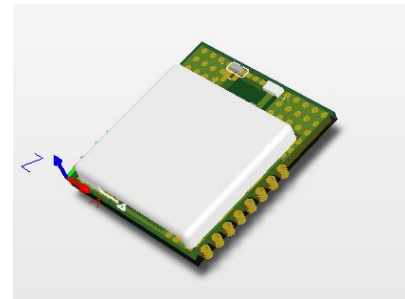
Overview and Features

- Based on Nordic Semiconductor's nRF52832 BLE SoC;
- Complete RF solution with integrated antenna;
- Multi-Protocol 2.4GHz Radio;
- 32-bit ARM Cortex M4F processor;
- Serial Wire Debug (SWD);
- Over-the-Air (OTA) firmware update;
- Flash/RAM: 512KB/64KB:
- 11 General purpose I/O pins:
- 12 bit/200KSPS ADC;
- SPI Master/Slave (8Mbps);
- Low power comparator;
- Two 2-wire Master/Slave (I 2 C compatible);
- I2S audio interface;
- UART (with CTS/RTS and DMA);
- 20 channel CPU independent Programmable Peripheral Interconnect (PPI);
- Quadrature Demodulator (QDEC);
- 128-bit AES HW encryption;
- 5 x 32 bits, 3 x 24 bits Real Time Counters (RTC);
- Internal RC Oscillator 32.768kHz;
- Receiver Sensitivity: -96 dBm;
- TX power: +/- 0dBm; programmable +4dBm to -20dBm in 4 dB steps;
- Sizes: 16.5*15.3*2.7mm;
- Integrated chip antenna;
- Operation voltage: 1.7V to 3.6V;
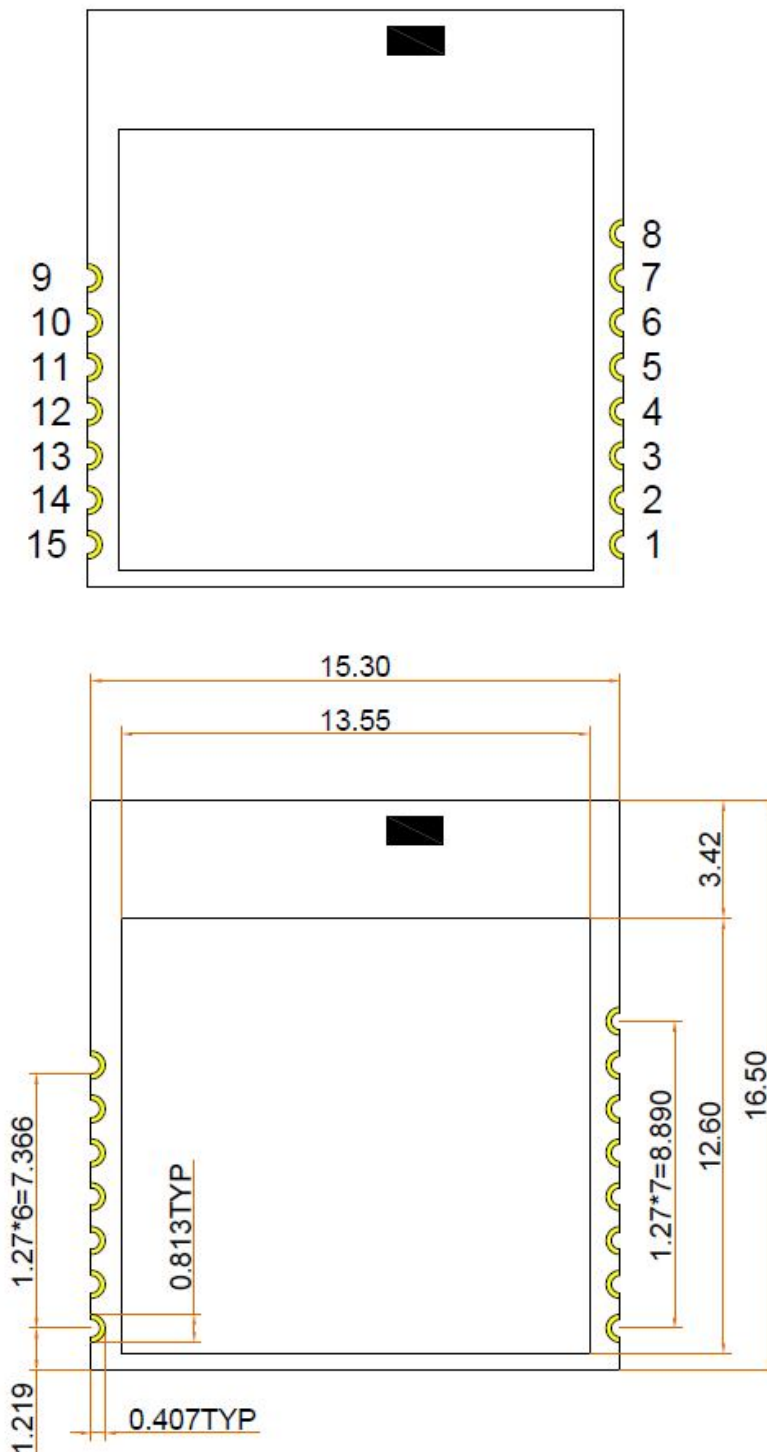- Operation temperature: -40°C to +85°C;

Application:

- IoT Connected Devices, Appliances;
- Bluetooth Low Energy Sensors;

- Wearable;
- Beacons/Proximity;
- Lighting products;
- Home Automation and Control;
- Toys and Gaming;

Mechanical Specification:

PIN Description:

Number	Signal Name	Signal Description	Note
1	P0.11	I/O	
2	P0.12	I/O	
3	P0.13	I/O	
4	SWDIO	Debug and flash programming I/O	
5	SWDCLK	Debug and flash programming I/O	
6	P0.17	I/O	
7	P0.18	I/O	
8	P0.21	Reset/IO	Configurable as reset
9	GND	Power Ground	
10	VDD	Power Supply	
11	P0.26	I/O	
12	P0.27	I/O	
13	P0.28	ADC IN	
14	P0.29	ADC IN	
15	P0.30	ADC IN	

GPIO Electrical Specification:

The module has up to 32 GPIOs available. All GPIOs can be mapped to a module, facilitating design and enabling changes after the hardware has been configured. Each GPIO is configurable with the following features:

➢ Input/output direction
➢ Output drive strength
➢ Internal pull-up and pull-down resistors
➢ Wake-up from high or low level triggers on all pins
➢ Trigger interrupt on all pins
➢ All pins can be used by the PPI task/event system; the maximum number of pins that can be interfaced through the PPI at the same time is limited by the number of GPIOTE channels
➢ All pins can be individually configured to carry serial interface or quadrature demodulator signals

HW debug and flash programming of Module :

The module support the two pin Serial Wire Debug (SWD) interface and offers flexible and powerful mechanism for non-intrusive debugging of program code. Breakpoints, single stepping, and instruction trace capture of code execution flow are part of this support.

Pin	Flash Program interface
SWDIO	Debug and flash programming I/O
SWCLK	Debug and flash programming I/O

Recommended Operating Conditions:

Parameter	Symbol	Min	Typical	Max	Unit
Operating Supply Voltage	VCC	1.7	3.0	3.6	V
Operating Temperature Range	Top	-40	25	85	℃

Radio Specifications:

Parameter	MIN	TYP	MAX	UNITS
Frequency Range	2402	-	2480	MHz
Channel Spacing	-	2	-	MHz
Output Power	-20	-	+1.50	dBm
Receiver Sensitivity - BLE			-96	dBm
Data Rate	250kbps, 1Mbps, 2Mbps			-

Absolute Maximum Ratings:

Parameter	Min	Max	Unit
Supply Voltage	-0.3	3.9	V
Storage Temperature Range	-40	125	℃
RF Signal Input Level	-	10	dBm
VI/O, VDD ≤ 3.6 V	-0.3	VDD + 0.3V	V
VI/O, VDD > 3.6 V	-0.3	3.9	V

Recommended PCB Land Pattern:
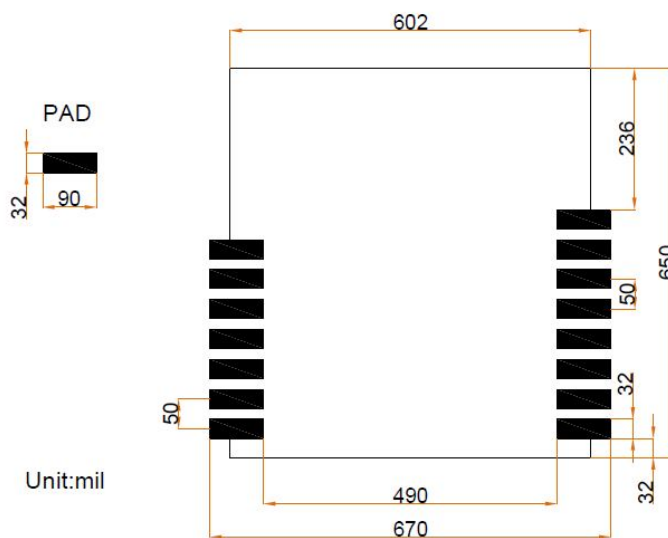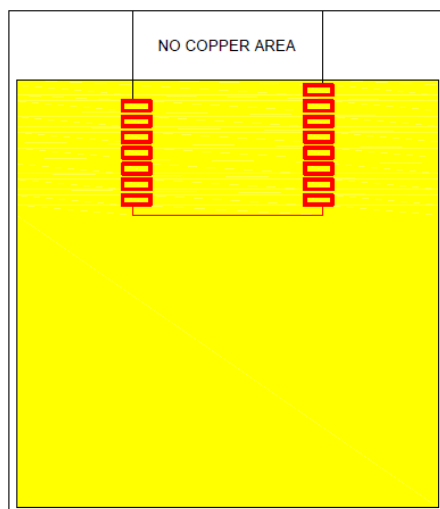
For more information:

Manufacturer: Genbyte Technology Inc.

ADD: NO.4 Building, Huahong Xintong Industrial Park, Guangming New-district, Shenzhen, China

FCC Caution:

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

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 Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

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

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module. The final end product must be labeled in a visible area with the following "Contains FCC ID: 2AMRBGBBLE01-NRF52" and the frequency can't be changed by end users.

Important notice :

●Genbyte Technology Inc. reserve the right to make corrections, enhancements, improvements and other changes to its products.

●Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products.

●Reserves the right to correct, modify, and/or improve products and/or specifications without notice.

ATTENTION !

Electrostatic Sensitive Device
Observe Precaution for handing.

Reversion History

Rev	Issued by	Checked by	Approved by
V1.0	Li Zhang	Leon	Jiaxiang Zeng