

GOC-WB930



Bluetooth Module Hardware Specification

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Be careful:

- 1. The module must use ladder steel net, and recommend ladder steel net thickness 0.16--0.20mm. The adaptability of the products is adjusted accordingly.**
- 2. Before the use of the module, bake at 60 degrees centigrade and bake for 12 hours.**

Release Record

Version Number	Release Date	Comments
V1.0	2020/12/11	Initial draft
V1.1	2021/2/6	Supplementary packaging
V1.2	2021/5/8	Update OperatingTemperature
V1.3	2021/6/17	Update OperatingTemperature
V1.4	2021/6/23	Update Package

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1. Introduction

GOC-WB930 is a small form factor, low power and highly economic Bluetooth radio module that allows OEM to add wireless capability to their products. The module supports multiple interfaces that make it simple to design into fully certified embedded Bluetooth solutions.

With Goodocom's AT programming interfaces, designers can easily customize their applications to support different Bluetooth profiles, such as HS/HF, A2DP, AVRCP, SPP, HFP and etc. The module supports Bluetooth 5.0 dual mode.

The module is an appropriate product for designers who want to add wireless capability to their products.

1.1 Block Diagram

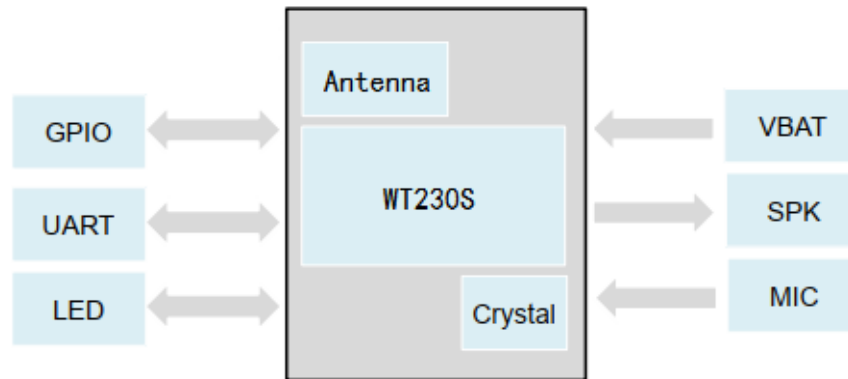


Figure 1: Block Diagram

1.2 Features

- Compliant with Bluetooth 5.0 dual mode specification
- UART interface
- Supports GFSK, $\pi/4$ DQPSK and 8DPSK modulation
- High power output Class2 and Class3 transmission supported
- A2DP v1.3/AVRCP v1.5/HFP v1.6
- Internal LPO support for low power mode
- Audio stereo DAC output and audio ADC input
- Echo Cancellation
- 24bit audio processing
- HiFi Stereo Audio DAC:
 - 120dB SNR
 - 110dB DNR
 - Sample Rates From 8 kHz to 384 kHz
- HiFi Stereo Audio ADC:
 - 100dB SNR
 - Supports Rates From 8 kHz to 384 kHz

1.3 Applications

- High-end BT speaker
- Smart BT/WIFI music box
- BT docking stations and Soundbars

- BT boom box
- Other portable audio device
- IOT platform

2. Main Specification

Production	Bluetooth Module
Type	GOC-WB930
Standard	BluetoothV5.0
Frequency Range	2402~2480MHz
Modulation Method	GFSK, $\pi/4$ DQPSK , 8DPSK
Output impedance	50 ohms
Crystal Frequency	26MHz
Outer interface	UART, GPIO, MIC,SPK,LED
Apply to Bluetooth instructions	HFP A2DP AVRCP PBAP SPP HF HS OBEX
Range for working distance	10 meters (33 files)
Receiving Sensitivity	-85dBm
Emissive power	5~6dBm
Size	15.00*29.00*2.50mm
Power Voltage	3.30V supply voltage
Working Current	20mA
Temperature Range	-30 ℃ to +85 ℃
Humidity Range	10%~90% Non-Condensing

Table 1: Main Specifications

3. Pin Diagram And Description

3.1 Pin Diagram

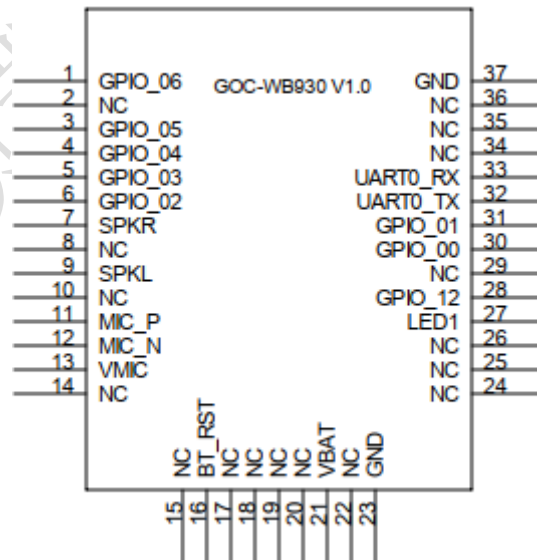


Figure 2: Pin Diagram

3.2 Pin Description

Pin	Name	I/O	Description
1	GPIO_06	Input/Output	Programmable input/output line
2	NC	NC	NC
3	GPIO_05	Input/Output	Programmable input/output line
4	GPIO_04	Input/Output	Programmable input/output line
5	GPIO_03	Input/Output	Programmable input/output line
6	GPIO_02	Input/Output	Programmable input/output line
7	SPKR	Output	Channel right different drive output
8	NC	NC	NC
9	SPKL	Output	Channel left different drive output
10	NC	NC	NC
11	MIC_P	Input	MIC positive port
12	MIC_N	Input	MIC negative port
13	VMIC	-	Microphone bias
14	NC	NC	NC
15	NC	NC	NC
16	BT_RST	Input	Reset pin, Low Level Reset
17	NC	NC	NC
18	NC	NC	NC
19	NC	NC	NC
20	NC	NC	NC
21	VBAT	POWER	Power Input Typical: 3.30V
22	NC	NC	NC
23	GND	GND	Ground
24	NC	NC	NC
25	NC	NC	NC
26	NC	NC	NC
27	LED1	Input/Output	LED1
28	GPIO_12	Input/Output	Programmable input/output line
29	NC	NC	NC
30	GPIO_00	Input/Output	Programmable input/output line
31	GPIO_01	Input/Output	Programmable input/output line
32	UART0_TX	Input/Output	UART0_TX
33	UART0_RX	Input/Output	UART0_RX
34	NC	NC	NC
35	NC	NC	NC
36	NC	NC	NC
37	GND	GND	Ground

Table 2: Pin Description

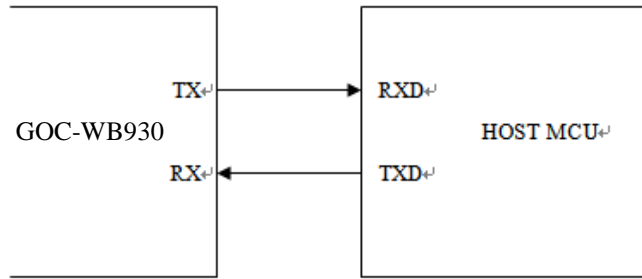


Figure 4: GOC-WB930 And HOST MCU Use UART Interface

5. Electrical Characteristics

5.1 Absolute Maximum Ratings

Ratings	Min	Typical	Max
VBAT	3.1V	--	4.2V

Table 3: Absolute Maximum Ratings

5.2 Recommended Operating Conditions

Operating Conditions	Min	Typical	Max
Storage Temperature	-40 °C	/	+105 °C
Operating Temperature	-30 °C	27 °C	+85 °C
VBAT	3.135V	3.30V	4.0V

Table 4: Recommended Operating Conditions

6. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : $\leq 260\text{ °C}$

Time of peak temperature for Pb-free assembly : 5~10sec.

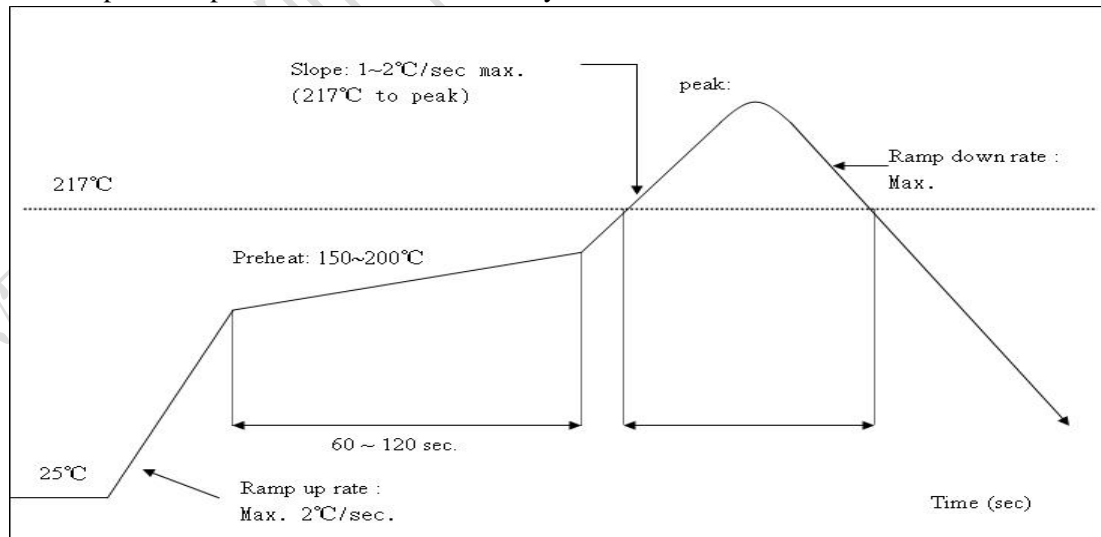


Figure 5: Solder Reflow Profile

7. PCB Layout Recommendation

7.1 Power Trace Lines Layout Guideline

- VBAT Trace Width: 30mil

7.2 Ground Lines Layout Guideline

- A Complete Ground in Ground Layer.
- Add Ground Through Holes to GOC-WB930 Module Ground Pads
- Decoupling Capacitors close to GOC-WB930 Module Power and Ground Pads

8. RoHS Compliant

The product meet the requirements of Directive 2011/65/EU of Europe Parliament and of the Council on the Restriction of Hazardous Substance (RoHS). The product are free from halogenated or antimony trioxide-based flame retardants and other hazardous chemicals.

9. ESD Sensitivity

Integrated circuits are ESD sensitive and can be damaged by static electricity. Proper ESD techniques should be used when handling these devices.

10. Module Part Number Description

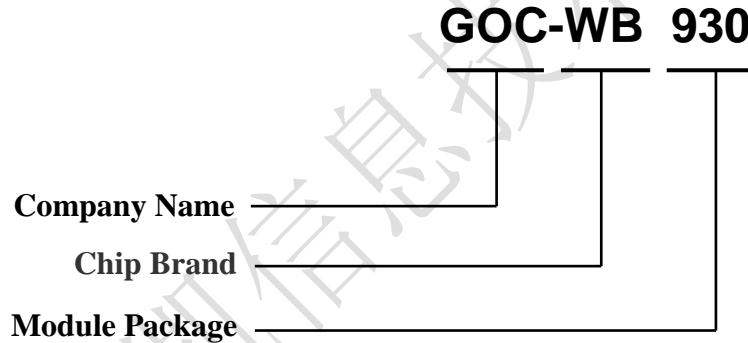


Figure 6: Module Part Number Description

For a list of available options (e.g. package, packing) and orderable part numbers or for further information on any aspect of this device, please go to www.goodocom.com or contact the GOODOCOM Sales Office nearest to you.

11. Ordering Information

Part Number	Description	Remark
GOC-WB930 V1.0	Bluetooth Module	

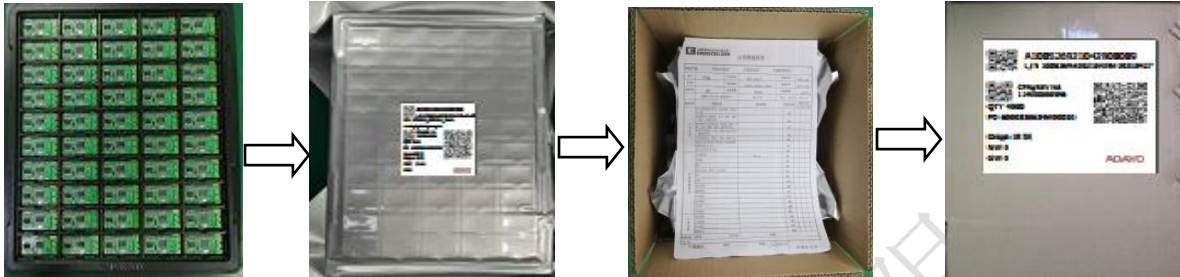
Table 5: Ordering Information

12. Packaging Information

12.1 Net Weight

The module net weight: $1.1g \pm 0.2g$

12.2 Package



50pcs module in one tray
Modules One Box
Tray size:225mm*195mm

1000pcs modules into one pack

4000pcs
Carton size:400mm*290mm*265mm

12.3 Storage Alert

1. Calculated shelf life in vacuum sealed bag 12 months at $<40^{\circ}\text{C}$ and 90% relative humidity (RH).
2. Peak package body temperature 260°C .
3. After vacuum sealed bag is opened, devices that will be subjected to reflow solder or Other high temperature process must
 - a) Mounted within 168 hours of factory conditions $<40^{\circ}\text{C}/60\%$.
 - b) Stored at 10% RH.

12.4 Moisture Sensitivity Level

GOC-WB930 is qualified to moisture sensitivity level MSL3 in accordance with JEDEC J-STD-020.