

GOC-WB070

Bluetooth Module Hardware Specification

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Mobile:15817435207 Bill

Fax:0755-29658104 TEL: 0755-29663177

Website:www.goodocom.com

Address:305, 3 / F, Xia Gu, Meisheng Huigu Science and Technology Industry Park, 83 Dabao Road, 33 District, Baoan District, Shenzhen City.

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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	2021/05/20	Initial draft

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1. Introduction

GOC-WB070 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

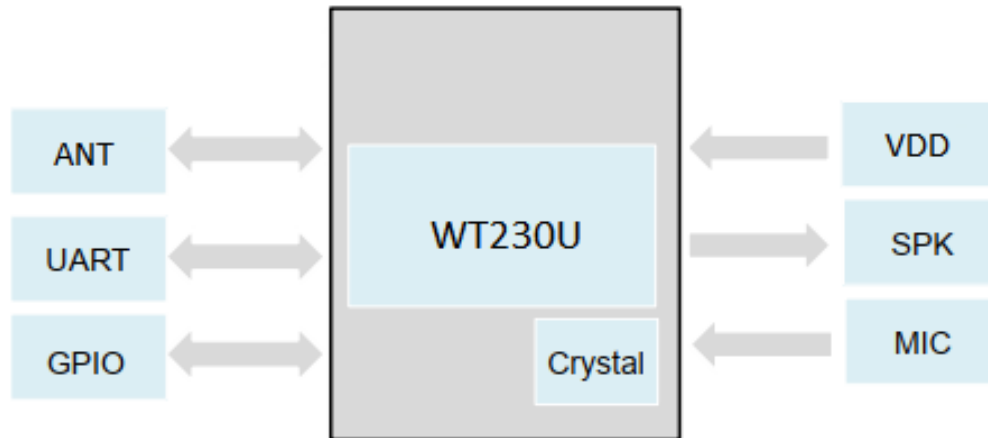


Figure 1: Block Diagram

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-WB070
Standard	Bluetooth V5.0
Frequency Range	2402~2480MHz
Modulation Method	GFSK, $\pi/4$ DQPSK , 8DPSK
Output impedance	50 ohms
Crystal Frequency	26MHz
Outer interface	UART, GPIO, MIC, SPK
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	14.80*19.80mm
Power Voltage	3.30V supply voltage
Working Current	20mA
Temperature Range	-30 ℃ to +80 ℃
Humidity Range	10%~90% Non-Condensing

Table 1: Main Specifications

3. Pin Diagram And Description

3.1 Pin Diagram

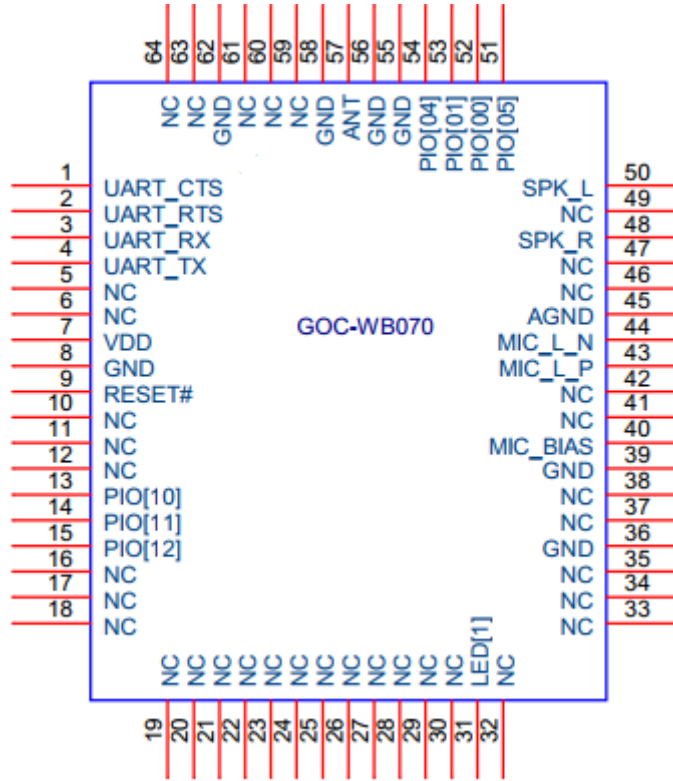


Figure 2: Pin Diagram

3.2 Pin Description

Pin	Name	I/O	Description
1	UART_CTS	Input/Output	UART_CTS
2	UART_RTS	Input/Output	UART_RTS
3	UART_RX	Input/Output	UART_RX
4	UART_TX	Input/Output	UART_TX
5	NC	NC	NC
6	NC	NC	NC
7	VDD	POWER	Power Input Typical: 3.30V
8	GND	GND	Ground
9	RESET#	Input	Reset pin, Low Level Reset
10	NC	NC	NC
11	NC	NC	NC

12	NC	NC	NC
13	PIO[10]	Input/Output	Programmable input/output line
14	PIO[11]	Input/Output	Programmable input/output line
15	PIO[12]	Input/Output	Programmable input/output line
16	NC	NC	NC
17	NC	NC	NC
18	NC	NC	NC
19	NC	NC	NC
20	NC	NC	NC
21	NC	NC	NC
22	NC	NC	NC
23	NC	NC	NC
24	NC	NC	NC
25	NC	NC	NC
26	NC	NC	NC
27	NC	NC	NC
28	NC	NC	NC
29	NC	NC	NC
30	NC	NC	NC
31	LED[1]	Input/Output	LED
32	NC	NC	NC
33	NC	NC	NC
34	NC	NC	NC
35	NC	NC	NC
36	GND	GND	Ground
37	NC	NC	NC
38	NC	NC	NC
39	GND	GND	Ground
40	MIC_BIAS	Analog	Microphone bias
41	NC	NC	NC
42	NC	NC	NC

43	MIC_L_P	Input	MIC positive port
44	MIC_L_N	Input	MIC negative port
45	AGND	AGND	Audio Ground
46	NC	NC	NC
47	NC	NC	NC
48	SPK_R	Output	Channel right output
49	NC	NC	NC
50	SPK_L	Output	Channel left output
51	PIO[05]	Input/Output	Programmable input/output line
52	PIO[00]	Input/Output	Programmable input/output line
53	PIO[01]	Input/Output	Programmable input/output line
54	PIO[04]	Input/Output	Programmable input/output line
55	GND	GND	Ground
56	GND	GND	Ground
57	ANT	RF	Bluetooth Antenna
58	GND	GND	Ground
59	NC	NC	NC
60	NC	NC	NC
61	NC	NC	NC
62	GND	GND	Ground
63	NC	NC	NC
64	NC	NC	NC

Table 2: Pin Description

3.3 PCB Layout Footprint

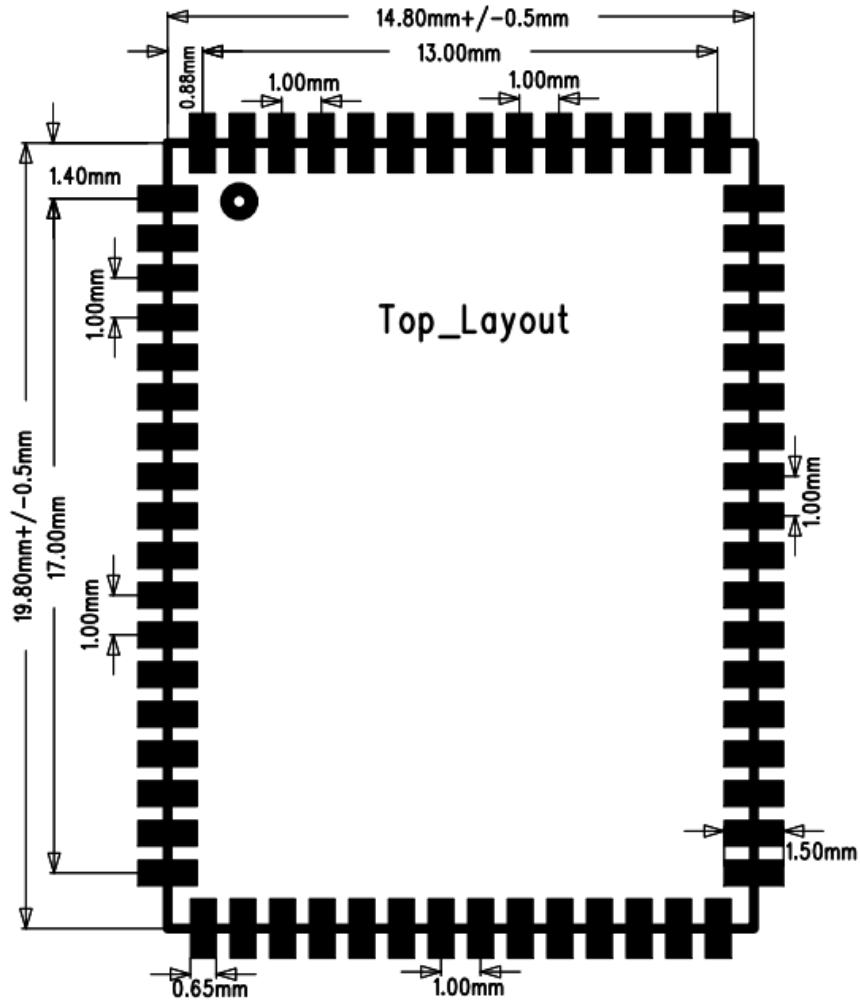


Figure 3: PCB Layout Footprint

4. UART Interface

GOC-WB070 has a standard UART serial interface that provides a simple communications channel for test and debug using RS232 protocol.

2 signals implement the UART function, TXD and RXD. When GOC-WB070 is connected to another digital device, RXD and TXD transfer data between the 2 devices.

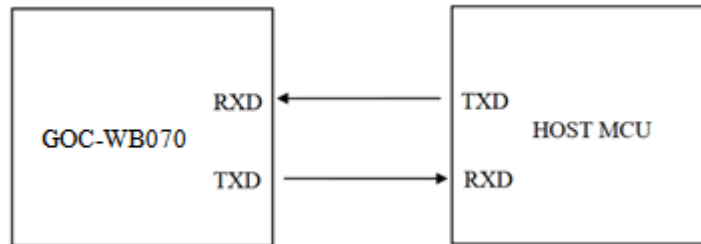


Figure 4: GOC-WB070 And HOST MCU Use UART Interface

5. Electrical Characteristics

5.1 Absolute Maximum Ratings

Ratings	Min	Typical	Max
VDD	3.10V	--	4.20V

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	+80 °C
VDD	3.14V	3.30V	3.46V

Table 4: Recommended Operating Conditions

6. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : ≤ 260 °C

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

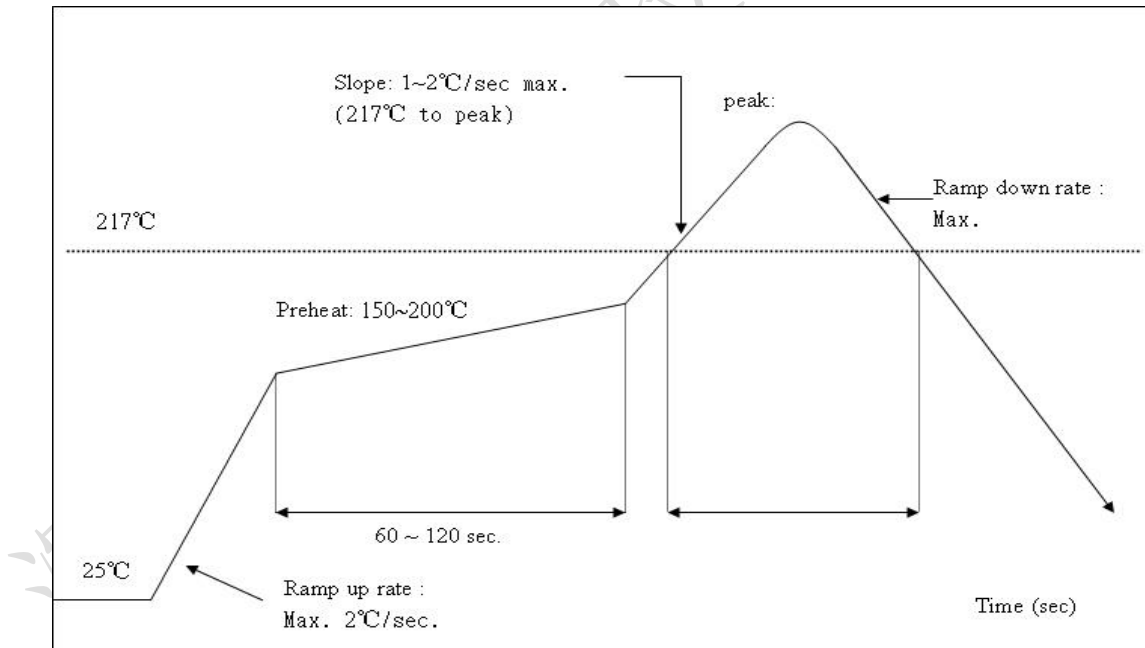


Figure 5: Solder Reflow Profile

7. PCB Layout Recommendation

7.1 Power Trace Lines Layout Guideline

— VDD Trace Width: 30mil

7.2 Ground Lines Layout Guideline

- A Complete Ground in Ground Layer.
- Add Ground Through Holes to GOC-WB070 Module Ground Pads
- Decoupling Capacitors close to GOC-WB070 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

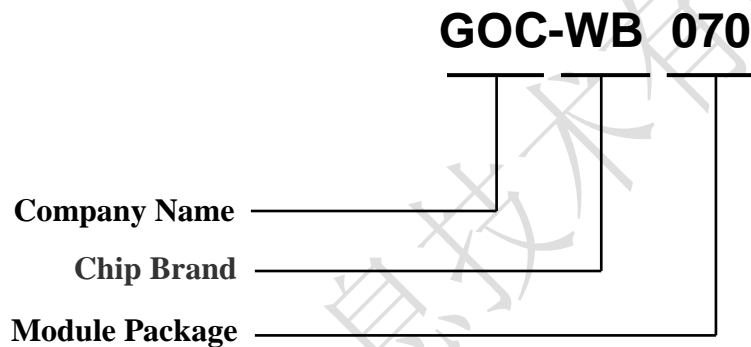


Figure 6: Module Part Number Description

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-WB070 V1.0	Bluetooth Module	

Table 5: Ordering Information

12. Packaging Information

12.1 Net Weight

The module net weight: TDB

12.2 Package

TDB

12.3 Storage Alert

1. Calculated shelf life in vacuum sealed bag 12 months at 40°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-WB070 is qualified to moisture sensitivity level MSL3 in accordance with JEDEC J-STD-020.