




产 品 说 明 书

产品名称: BLE 模块
APPELLATION: BLE Module

产品型号: BT-MP62-SH1
MODEL: BT-MP62-SH1

客户名称:
CUSTOMER:

版 本: V1.0
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变更履历表

Revision History

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1	V1.0	2022/6/27	首次发行. First Issue.	\	胡明波 Hu Mingbo	

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1. 介绍 Introduction

1.1 简要 Overview

- ★ BT-MP62-SH1模块是采用蓝牙v5.2低功耗芯片设计。
BT-MP62-SH1 module is designed with BT v5.2 BLE chip.
- ★ BT-MP62-SH1模组集成有高性能射频收发器、基带及32位RISC精简处理器。
BT-MP62-SH1 module integrates a high-performance RF transceiver, bandsband and 32bit RISC microprocessor.

1.2 特征 Features

- ★ 兼容蓝牙低功耗5.2
BLE 5.2 compliance .
- ★ 支持蓝牙主/从模式。
Support Bluetooth Master/Slave.
- ★ 支持带中断功能输入输出端口。
Support GPIO with interrupt function.
- ★ 可支持2组串口端口。
Support 2 UART port.
- ★ 模组尺寸17*12mm, 邮票孔, 20个脚位。
Module size: 17*12mm, Stamp-20.
- ★ 模组内置PCB天线或I-PEX座
Built-in PCB antenna or I-PEX connector on the module.
- ★ 电压供电范围: 2.8V ~ 3.6V
Supply voltage range: 2.8V~3.6V
- ★ 满足ROHS2.0环保
Satisfy the ROHS2.0 environmental care

1.3 应用 Applications

- ★ 汽车无钥匙进入及启动系统。
Passive keyless entry and passive start system.
- ★ 远程控制人机交互及讯息传输。
Remote control human-computer interaction and message transmission.
- ★ 生产和制造自动化。
Production and manufacturing automation

2. 规格 Specification

2.1 通用规格 General Specification

1	产品名称 Product Name	蓝牙低功耗模组 BLE Module
2	波特率 Baud Rate	115200bps (Default)
3	额定电压 Rated Voltage	3.3V DC (<50mVp-p 纹波电压)
4	工作电压范围 Operation Voltage range	2.8V~3.6V (DC)
5	最大发射功率 Max. Transmission Power	5 dBm
6	最大传输距离 Max. Transmission Distance	100 米
7	尺寸 Dimension	17*12mm(L*W)
8	抗静电 ESD	Class2(HBM)
9	潮敏等级 MSL Level	3

2.2 温度和湿度规格 Temperature and Humidity specification

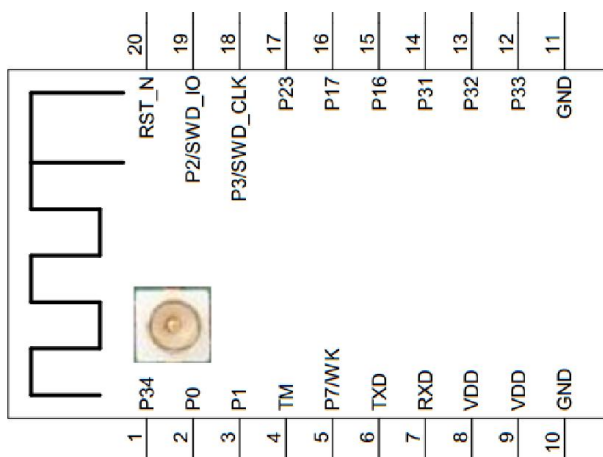
工作温度范围 Operation Temperature range	-40~85℃
储存温度范围 Storage Temperature range	-40~85℃
湿度范围 Humidity range	10% ~90%

2.3 BLE 射频规格 BLE Radio Specification

项目 Items	条件 Conditions	最小 Min.	典型 Typ.	最大 Max.	单位 Unit
TX output power	N/A	-20	0	5	dBm
Mod Char: F1 average	N/A	225	264	275	KHz
Mod Char: F2 Max.	N/A	185	210	-	KHz
Mod Char: Ratio	N/A	0.8		-	-
RX sensitivity(PER)	1500packets,1Mbps	-	-96	-99	dBm

3. 设计应用 Design Application

3.1 管脚配置 Pin Assignment



3.2 管脚描述 Pin Description

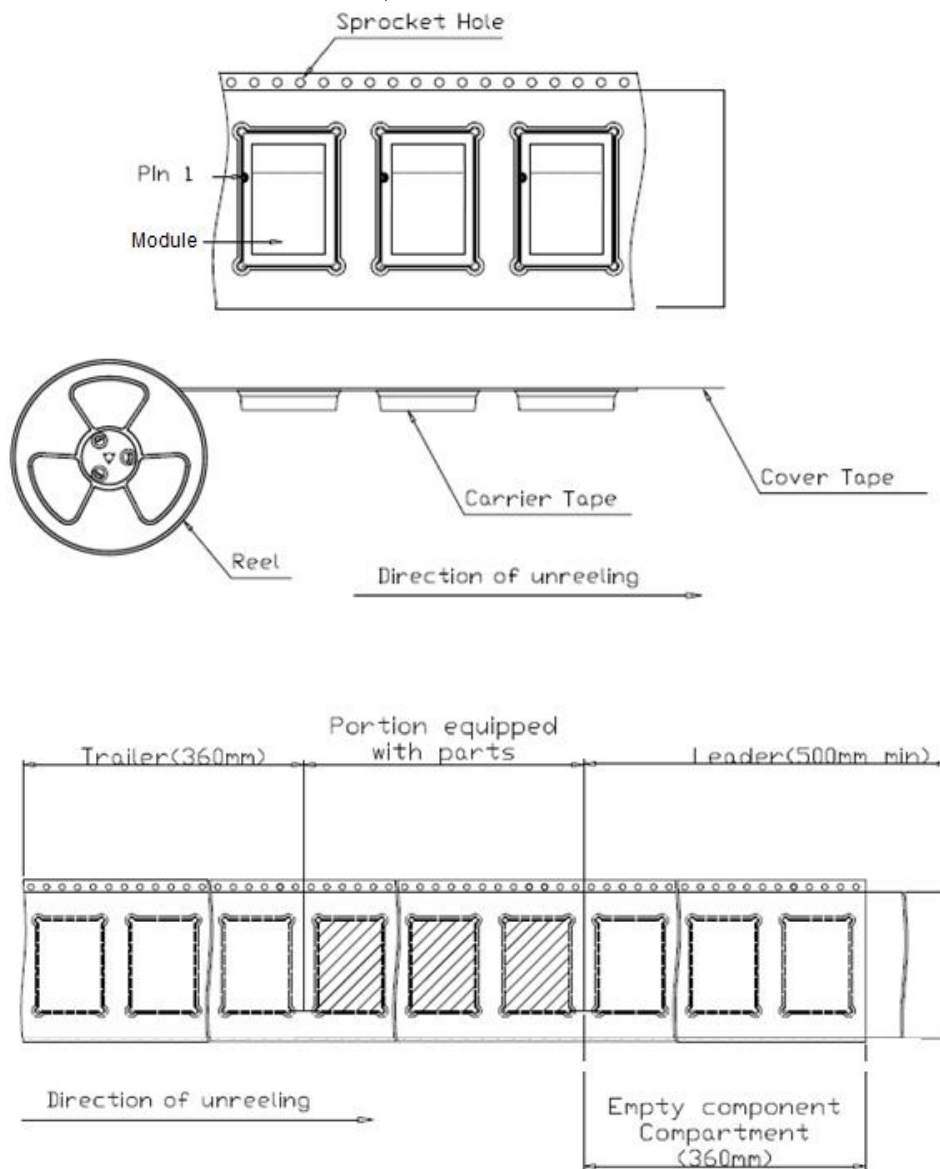
Pin	Name	Type	Description
1	P34	Digital I/O	GPIO34, Active high to DTM model when the module is reset.
2	P0	Digital I/O	GPIO0, Active low 5s to restore the factory setting and the module will reset.
3	P1	Digital I/O	GPIO1, reserved, It can be suspend
4	TM	Digital I/O	Test mode enable, Active high to burning module.
5	P7/WK	Digital I/O	GPIO7, Wake-up signal input. Active low. Tie WAKEB pin to low to disable the deep sleep mode.
6	TXD	Digital I/O	GPIO9, UART data output, active high
7	RXD	Digital I/O	GPIO10, UART data input, active high
8	VDD	VDD	3.3V Power supply
9	VDD	VDD	3.3V Power supply
10	GND	GND	Ground
11	GND	GND	Ground
12	P33	Digital I/O	GPIO33
13	P32	Digital I/O	GPIO32
14	P31	Digital I/O	GPIO31
15	P16	Digital I/O	GPIO16
16	P17	Digital I/O	GPIO17
17	P23	Digital I/O	GPIO23
18	P3/SWD_CLK	Digital I/O	GPIO3 /SWD debug clock,
19	P2/SWD_IO	Digital I/O	GPIO2 /SWD debug data in out,
20	RST_N	Digital I/O	Reset, active low

4. 包装信息 Package Information

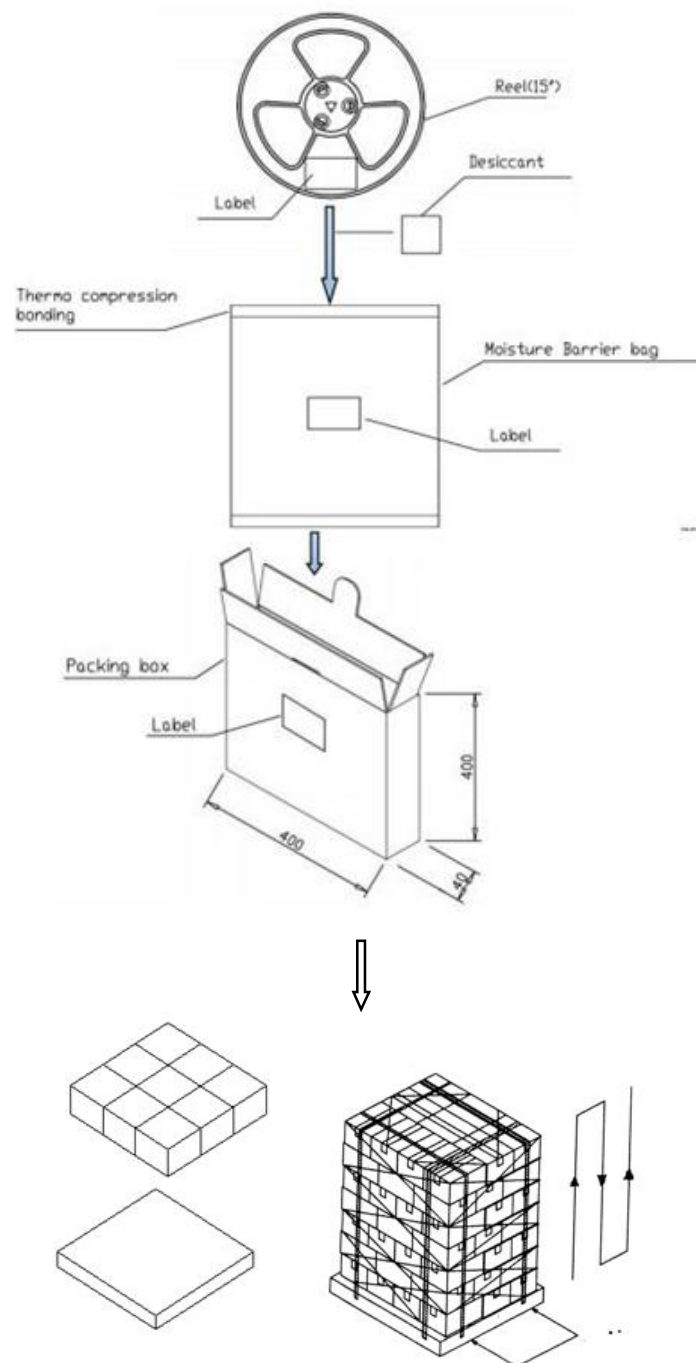
模块出货采用真空包装出货，包装示意图如下：

Module shipments by vacuum packaging, packing diagram as follows:

4.1 卷带包装 Taping Package



4.2 包装规格 Packing Specifications



Note: 本产品基于 JEDEC 标准 J-STD-020 适用于温敏等级 MSL3
This product is applicable to moisture sensitivity level MSL3
(Based on JEDEC Standard J-STD-020)

FCC Statement

FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Device is equipped with PCB Antenna, Antenna gain -0.62dBi

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.

Any 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.

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer, C2PC or new certificate should be apply to get approval,if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance ,then it is illegal.

FCC Radiation Exposure Statement

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.

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: ZWYP6222 Or Contains FCC ID: ZWYP6222"

When the module is installed inside another device, the user manual of the host 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;

(2) This device must accept any interference received, including interference that may cause undesired operation.

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.

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.

Additional Testing and Grantee Evaluation for Host Product.

The module is a limited module and complies with the requirement of FCC Part 15.247. According to FCC Part 15 Subpart C section 15.212, the radio elements must have the radio frequency circuitry shielded.

However, due to there is no shield for this module, this module is granted as a Limited Modular Approval.

A C2PC is required for new host application. Only Grantees are permitted to make permissive changes.

Please contact us for further process with Shinwa Industries (China) Ltd.

The OEM integrators should follow the following C2PC test plan, Base on Module RF report "BLA-EMC-2 02209-A2102" under FCC ID: ZWYP6222

For the host product installed this module exactly according to this guide, and did not make any hardware or software modifications to the module or modified the software but does not affect the radio characteristics, the host product will need to evaluate according to FCC Part 15 Subpart C §15.247 for Bluetooth:

- a. Maximum conducted power of channel 2402 MHz.
- b. Conducted band edge on channel 2402 and 2480 MHz
- c. Radiated spurious emissions and band edge on channel 2402 and 2480 MHz with the other co-located transmitters.
- RF Exposure evaluation for the simultaneous transmission of the co-located transmitters.

The host product shall be evaluated for ensuring the continuous compliance for the FCC rules that apply to the host product. Additional guidance for testing host products is provided in KDB Publication 996369 D02 and D04. This module was tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The host will still need to be reassessed for compliance to this portion of rule requirements.

For the host product is not installed according to this guide, the module certification will be invalid and a new grant certification will be required for the host product.