DX-BT37

MODULE SPECIFICATION

Version: 2.1

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SHENZHEN DAXIA LONGQUE TECHNOLOGY CO., LTD.

Updated records

Version	Date	Instructions	Author
V1.0	2024/04/11	Initial version	SML
V1.1	2024/07/18	Add module information	SML
V2.0	2024/08/07	Increased module Power consumption	SML
V2.1	2024/08/27	Add physical drawings of modules	SML

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1. Module Introduction

1.1. Overview

DX-BT37 Bluetooth module is designed for intelligent wireless data transmission by Shenzhen Daxia Longque Technology Co., LTD. It uses BK3633 chip and supports Bluetooth 5.2 protocol. Support AT instruction, users can change the serial port baud rate, device name and other parameters according to the need, flexible use.

DX-BT37 has the characteristics of ultra-low power consumption. The embedded high-order interference suppression filter and fast automatic gain control logic make it work well in high interference environment. This module integrates high-performance RF transceiver, baseband, low-power processor, function-rich peripheral unit, programmable protocol and configuration file. It only needs a few peripheral components to achieve its powerful functions, and can be customized to develop various projects according to customer requirements.

1.2. Characteristics of

Bluetooth:
- Bluetooth 5.2 protocol

Core and memory:
- Bluetooth Low Energy (LE)125 kbps, 500 kbps, 1 Mbps and 2 Mbps
- 1 Mbps for typical Bluetooth
- High output power up to 10 dBm, Bluetooth LE power control
- 32-bit RISC core, 80 KB data memory, up to 80 MHz speed
- 500kb programmable Flash

Clock:
- 16 MHz crystal reference clock with internally adjustable load capacitor
- 80 MHz digital PLL clock
- 32 kHz ring oscillator
- External 32 kHz crystal oscillator
- The MCU can operate in conjunction with clock sources of any in-band partial-frequency unit

Interface and peripheral equipment:

- Quad IO FLASH programming
- I2C interface
- High-speed SPI interface up to 32MHz
- Multi-channel high-resolution 32-bit PWM with capture mode
- On-chip high precision temperature sensor
- On-chip 10-bit general purpose ADC
- GPIOs with multiplexed interface capabilities
- AES 128-bit hardware accelerator
- High-quality high-speed low-power clock output
- Code encryption and online decryption
- Secure JTAG and system protection

Module parameters:

- Operating voltage: 2.0~ 3.6V (typical value: 3.3V)
- About 5 ma full operating current
- Deep sleep current around 1μA with low power running timer
- Operating temperature: -40~+125 ℃
- Open visible distance: 181.6m

1.3. Applications

- Smart home
- Smart educational devices
- Medical device monitoring and wireless control
- Measurement and monitoring systems
- Industrial sensors and controls
- Tracking and positioning

1.4. Functional block diagram

The following figure is the functional block diagram of the DX-BT37 Bluetooth module, which expounds its main functions as follows:

- Power supply part
- Baseband part

- Memory
- Rf part
- Peripheral interface
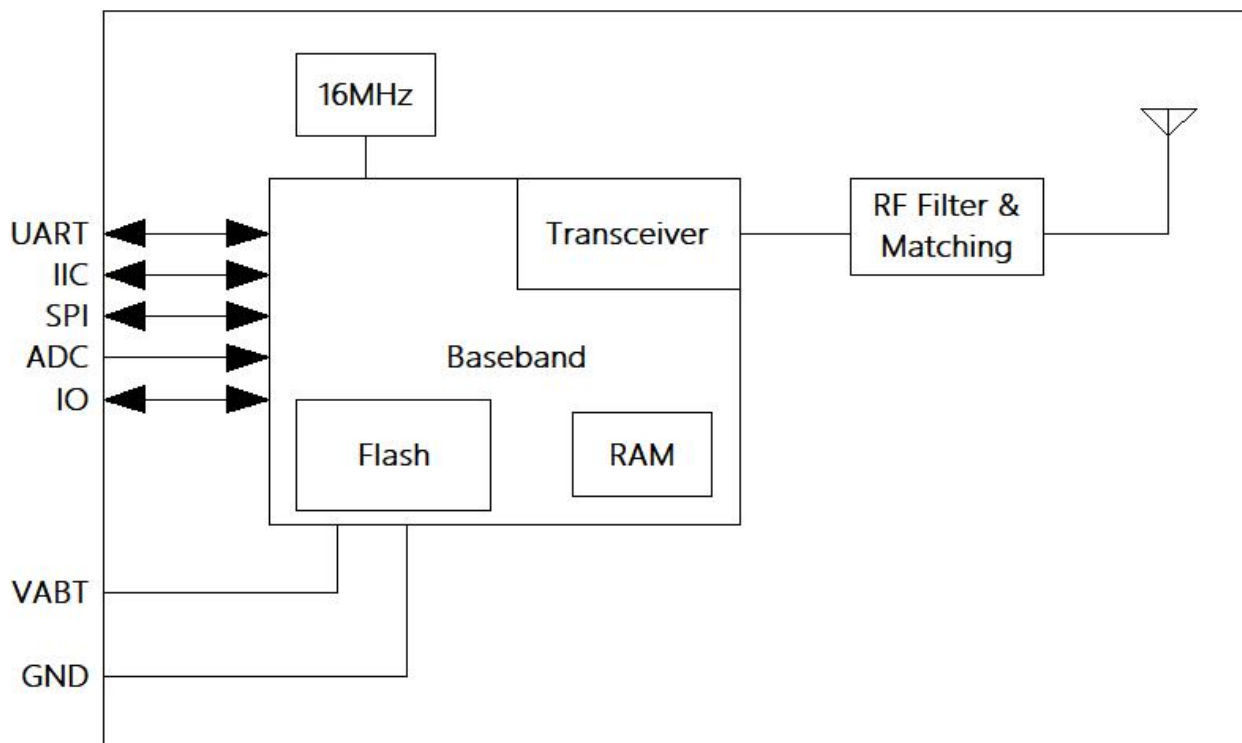
Fig. 1: Functional block diagram

1.5. Basic parameters

Table. 1:Table of basic parameters

Parameter names	Details	Parameter name	Details
Model of module	DX-BT37	Humidity	10%-95% non-condensing
Bluetooth Specifications	Bluetooth 5.2 protocol	Module dimensions	17.5(L) x 12(W) x 0.8(H) mm
Operating voltage	3.3 V	Operating current	5mA
Agreement	GATT, ATT, GAP	MTU values	255 bytes
Sensitivity	- 96 - dbm@0.1% BER	Transmit power	8.6 dBm ~ + 9.1 dBm
Modulation mode	GFSK	Frequency band	2.402GHz -2.480GHz ISM band

Rf input impedance	50 Ω	Frequency hopping and channel hopping	1600hops/s 2MHz space 40 channels
Antenna interface	Onboard antenna	Hardware interface	UART I2C SPI GPIO
Operating temperature	MIN:-40℃ MAX:+125℃		

2. Application interface

2.1. Module pin definition
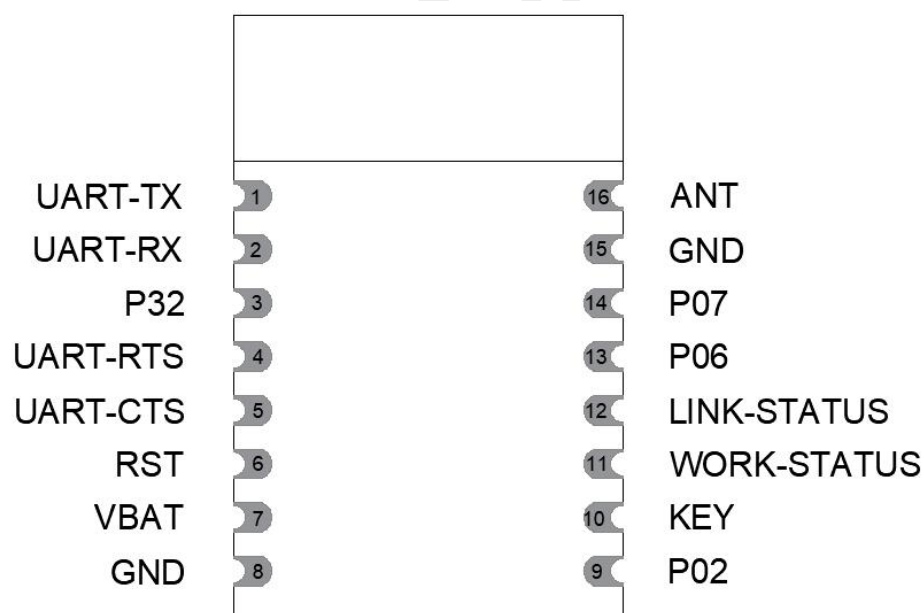
Fig. 2: Module pin definition

2.2. Illustration of the pin definition

Table. 2: Pin Definition Instructions Table

Pin serial number	Pin name	Pin function	Instructions
1	UART-TX	Serial data output	-
2	UART-RX	Serial port data input	-
3/9/13/14	P32/P02/P06/P07	Customizable IO port configuration	Programmable input/output foot
4	UART-RTS	UART request sent, low valid	-
5	UART-CTS	UART clear send, low level valid	-
6	RST	Reset/restart key	Low reset, at least 200ms
7	VBAT	Power input pin	3.3V(typical value)
8/15	GND	Power ground	-
10	KEY	Disconnect the connection pin	Refer to 2.5.5 for details
11	WORK-STATUS	Module work status output foot	Unconnected: Output 800ms high 800ms low Connected state: Output high
12	LINK-STATUS	Bluetooth connection status foot	Unconnected state: Output low Connected state: Output high
16	ANT	Antenna	-

2.3. Operating mode

Table. 3: Work Pattern Sheet

Modes	Features
Normal operation mode	All functions and peripheral interfaces can be used normally

Low Power mode	When not connected, only broadcast is turned on and all peripheral interfaces are turned off In the connected state, all functions and peripheral interfaces can be used normally
Hibernation mode	All running RAM blocks of the module are turned off, the broadcast and all peripheral interfaces are turned off and only the tick clock inside the chip is reserved for waking up

2.4.   Power Saving mode

2.4.1. Low Power mode

When the host is connected to the module via a serial port, you can put the module into hibernation mode by performing the following steps:

- Use the AT+PWRM command to enable the low power function. For more information about the AT command, please refer to the "DX-BT37 Series Bluetooth Module _ Serial Port UART_ Application Guide".
- In low power mode, the module can be found to be connected.
- The module is woken up to normal operation mode by sending a 200ms low level pulse to the 10 pin KEY.
- To enter the low power mode again:
    In the connected state: Disconnect, the module automatically enters the low power mode;
    When the module is not connected after waking up: it needs to send AT+PWRM command again to enter low power mode or reset, power off and restart.
- For hardware, please refer to the 2.5.5 open set driver wakeup reference circuit below.

2.4.2. Hibernation mode

When the host is connected to the module via a serial port, you can put the module into hibernation mode by performing the following steps:

- Use the AT+PWRM command to enable hibercountry. For more information about the AT command, please refer to the "DX-BT37 Bluetooth Module _ Serial Port UART_ Application Guide".
- In hibernation mode, the module cannot be found to be connected.
- Send 200ms low level pulse to 06 pin RET or 10 pin KEY to wake up, wake up the module to normal operation mode.
- After power down or wake up, if you need to enter hibernation mode again, you need to send AT+PWRM command.
- For hardware, please refer to 2.5.5 open set driver wakeup reference circuit below.
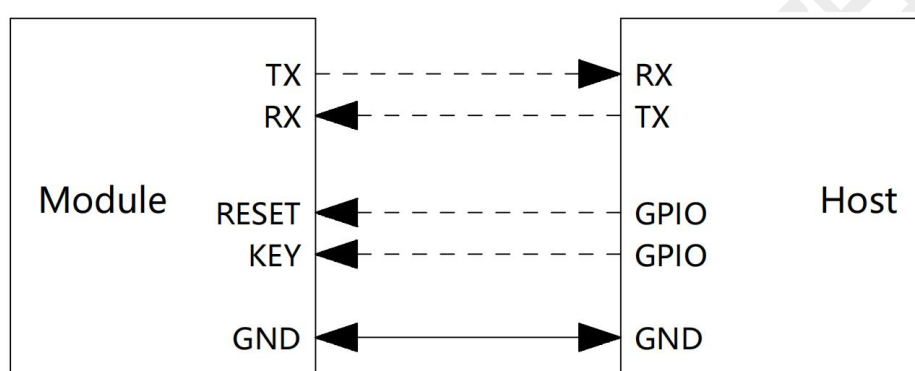
Fig. 3: Power saving mode control chart

2.5. Power supply design

2.5.1. Power port

Table. 4: Power interface pin definition Table

Pin names	Pin number	Description	Minimum	Typical value	Maximum value	Units
VBAT	7	Module power supply	2.0	3.3	3.6	V
GND	8	to	-	0	-	V

2.5.2. Power supply stability Requirements

The power supply range of the DX-BT37 is 2.0 to 3.6V. It is necessary to ensure that the input voltage is not less than 2.0V. The following figure shows the VBAT voltage sag during RF burst transmission.
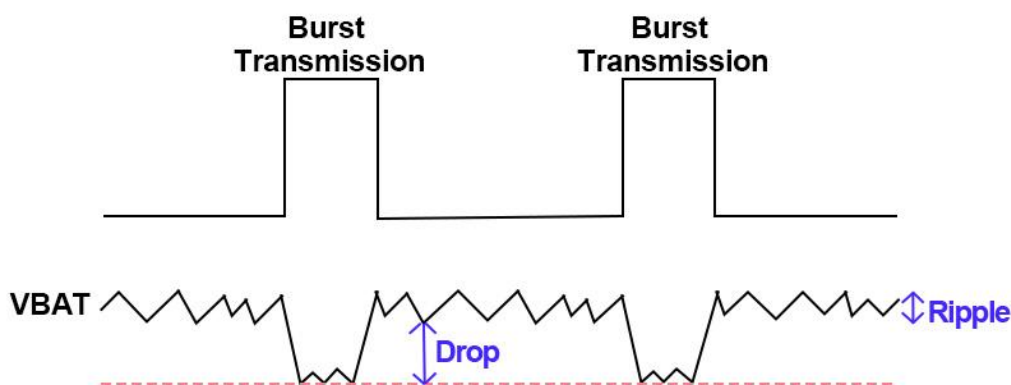
Fig. 4: Burst transmission power requirements

In order to reduce voltage sag, it is recommended to reserve 2 (22uF, 0.1uF) chip multilayer ceramic capacitors (MLCC) with the best ESR performance for the VBAT, and the capacitors are placed close to the VBAT pin. The reference circuit is as follows:
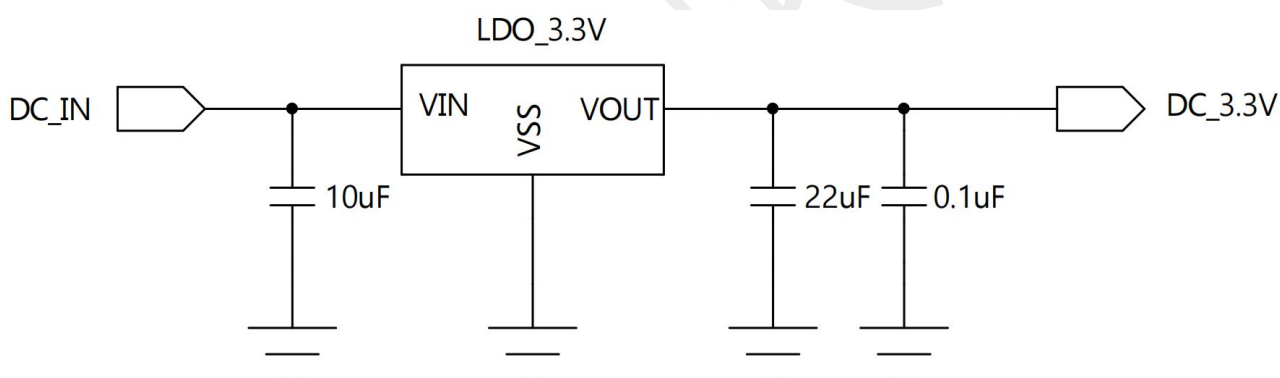
Fig. 5: Power supply reference circuit

2.5.3. Power outage requirements

Since the chip working current of this module is very low, when the power is disconnected, if the peripheral MCU IO port has a weak current supply module, the module is easy to be in the abnormal work state, so after the power is disconnected from the module, all the IO ports connected between the MCU and the module must be configured to pull down.

2.5.4. RST reset foot instructions

Table. 5: RST Pin Definition Table

Pin names	Pin number	I/O	Description	Notes
RST	6	DI	Module reset	Low is effective If not, dangle

Table. 6: RST pin Function definition table

Module status	How to operate	Results
State of work	Pull the RST pin low for at least 200ms before releasing	Reset
Hibernation state	Pull the RST pin low for at least 200ms before releasing	Wake up

Notes:

RST signal is sensitive to interference, so it is recommended that the line should be as short as possible, and the need for packet processing.
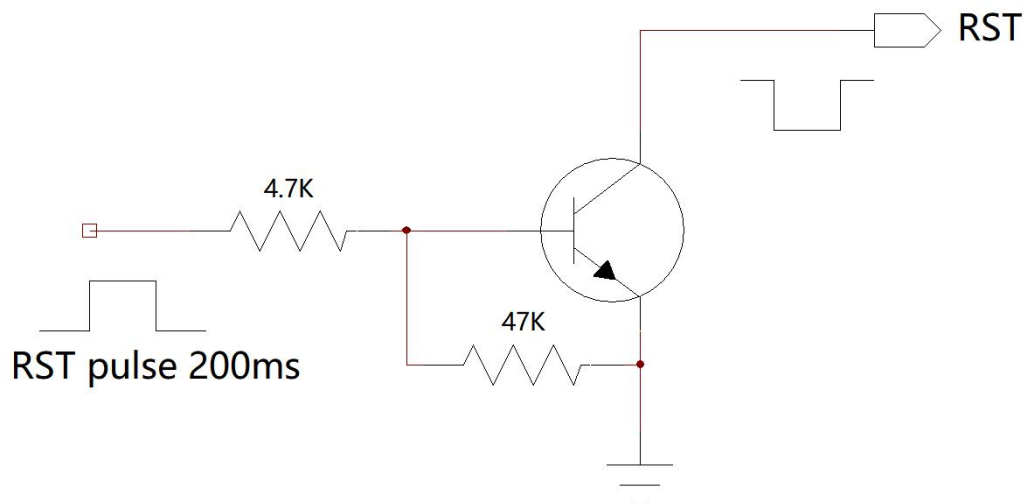
Fig. 6: Reset reference circuit
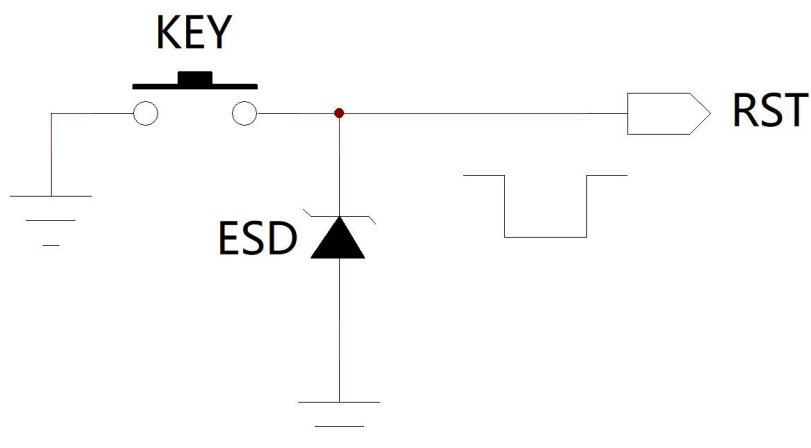
Fig. 7: Key reset reference circuit

2.5.5. KEY pin Description

Table. 7: KEY Pin Definition Table

Pin names	Pin number	I/O	Description	Remarks
KEY	10	DI	-	-

Table. 8: KEY Pin Function Definition Table

Module status	How to operate	Results
Connection status	Release the KEY pin after pulling it down for at least 200ms	Disconnect
Hibernation state	Pull down the KEY pin for at least 200ms before releasing	Wake up
Low power state	Pull down the KEY pin for at least 200ms before releasing	Wake up
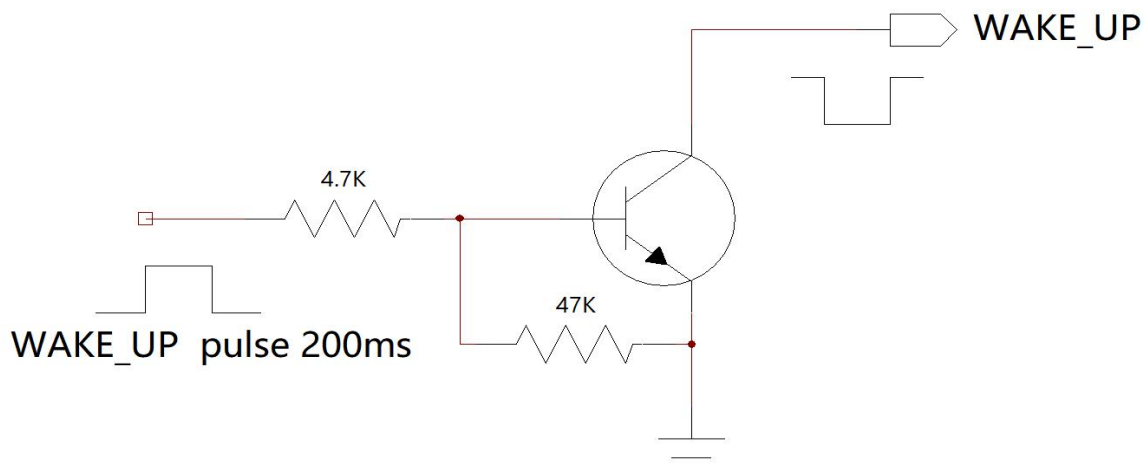
Fig. 8: The open-set drive wakeup reference circuit
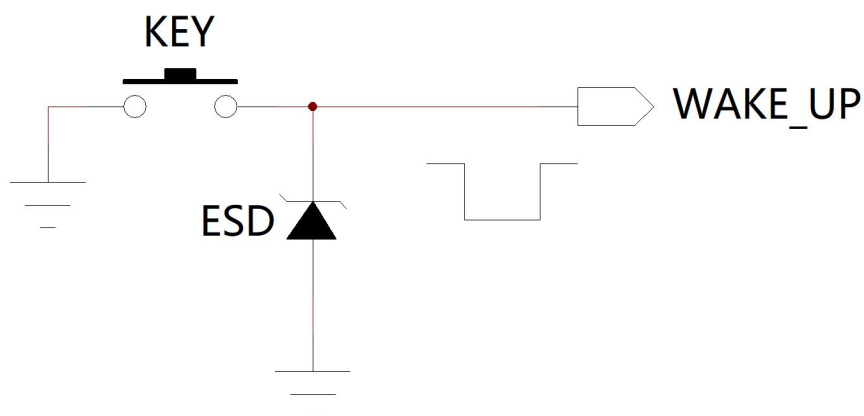
Fig. 9: Key press reference circuit

2.6. Hardware physical interface

2.6.1. General purpose digital IO port

4 universal digital IO ports are defined in the module. All these IO ports can be configured by software to achieve various functions, such as button control, LED drive or interrupt signal of the main controller. Keep them dangling when not in use.

2.6.2. UART interface

Four signal pins are used to implement UART functions. When the DX-BT37 is connected to another digital device, UART_RX and UART_TX transmit data between the two devices. The remaining two pins, UART_CTS and UART_RTS, can be used to implement RS232 hardware flow control and are both low level valid, that is, low level allows transmission and high level stops transmission.

| Possible UART Settings		
Parameters	**Possible values**	
Baud rate	Minimum	2400baud($\leq$1%Error)
	Standard	9600baud($\leq$1%Error)
	Max	1000000baud($\leq$1%Error)
Flow control	RTS/CTS, or none	
Parity check	None, odd or even	
The number of stop bits	1/2	
Number of bits per channel	8	

2.6.3. I2C interface

- A two-wire I2C serial interface consisting of a serial data line (SDA) and a serial clock (SCL)
- Two speeds are supported
    Standard mode 0-100Kbit/s
    Fast mode $\leq$400Kbit/s
- Transmit and receive FIFO depth of 32 positions (32x8-bit Rx and 32x 10-bit Tx)
- 7-bit and 10-bit addressing modes as well as regular call addressing modes are supported

The I2C interface is the internal circuit that allows communication with the external l2C interface, which is an industry standard two-wire serial interface for connecting to external hardware. These two serial lines are called Serial Data Line (SDA) and Serial Clock Line (SCL). The I2C module provides two data transfer rates: 100kHz in standard mode and 400kHz in fast mode. The I2C module also has arbitration detection to prevent situations where multiple hosts try to transfer data to the l2C bus at the same time.
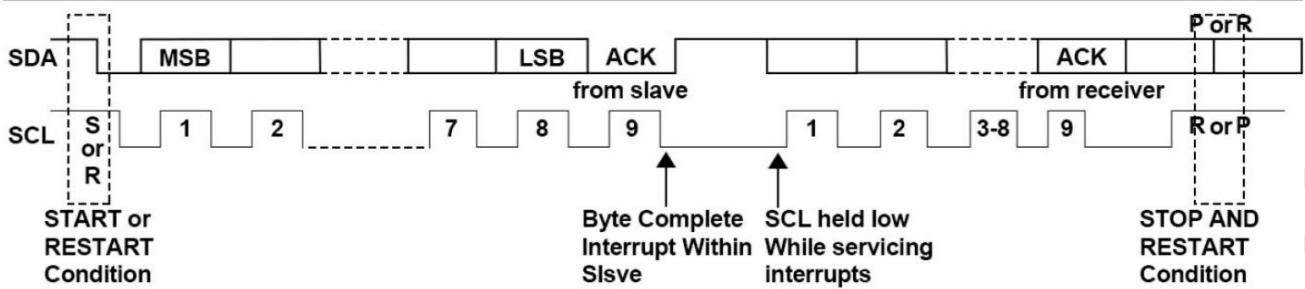
Fig. 10: IIC communication timing diagram

2.6.4. SPI interface

- Master and slave modes
- Operate from 4bit to 32bit
- Clock speeds up to 32MHz
- DMA support

This controller implements the Serial Peripheral Interface (SPI™) in master-slave mode. The serial interface can transmit and receive from 4 bits to 32 bits in master/slave mode. The controller includes separate TX and RXFIFOs and DMA handshake support. Slave mode clock speed is independent of system clock speed. In addition, the master clock speed can be as fast as the system's clock speed. The controller can generate interrupts when X or RXFIFOs reaches the data threshold.
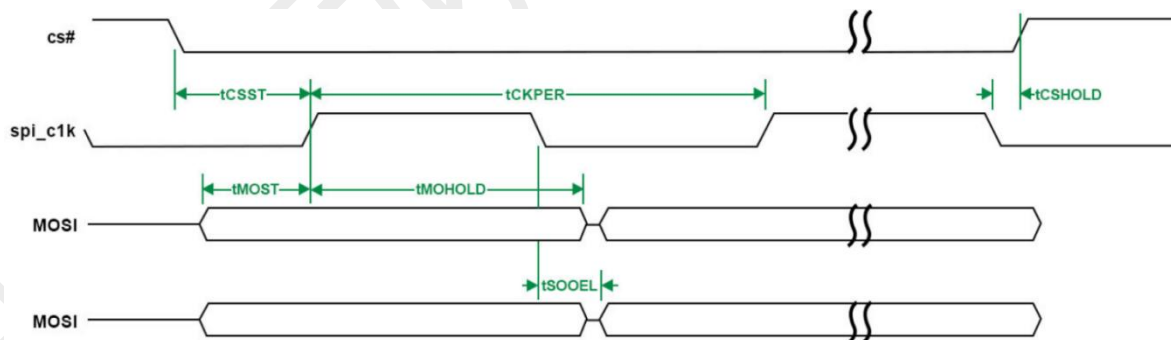
Fig. 11: SPI communication timing diagram as follows

2.6.5. Analog-to-digital Converter (ADC)

The device integrates a 10-bit general purpose ADC. A total of 5 external channels and 3 internal channels can be selected for ADC transmission. Both single mode and continuous mode are supported.

2.7. Reference Connection circuit
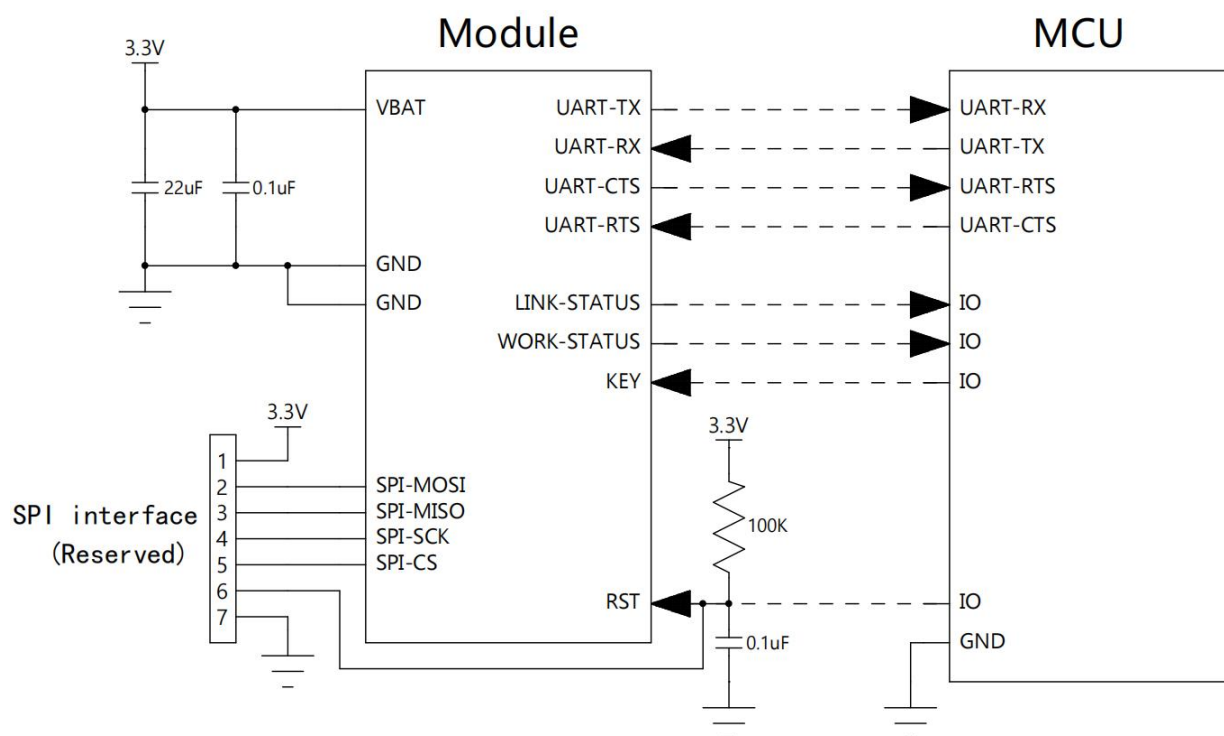
Fig. 12: Typical application circuit
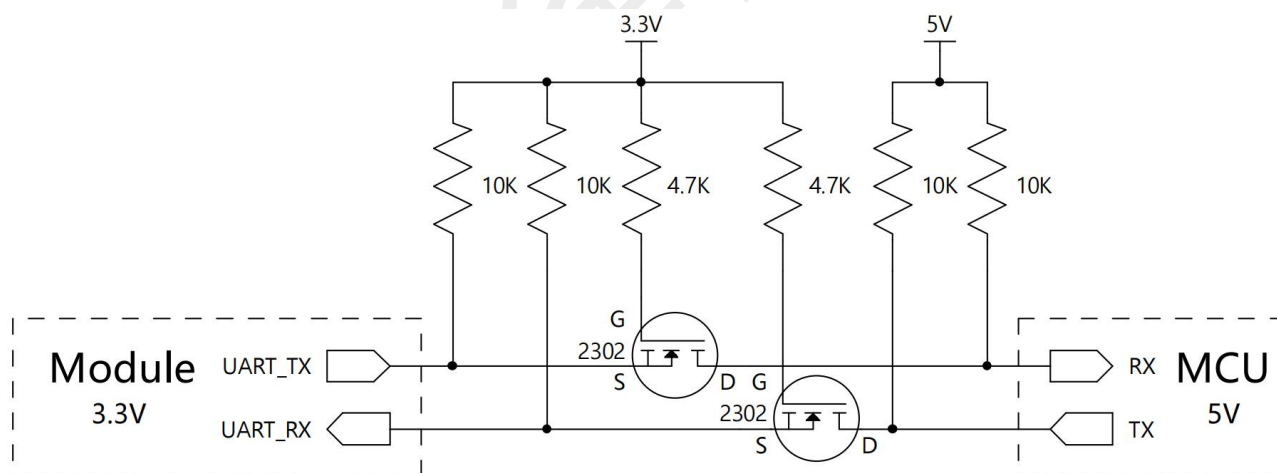
Fig. 13: Serial port level conversion reference circuit

3. Electrical characteristics and reliability

3.1. Maximum rating

The absolute maximum ratings for supply voltage and voltage on the digital and analog pins of the module are listed below. Exceeding these values can cause permanent damage. The average GPIO pin output current is defined as the average current value flowing through any one of the corresponding pins during a 100mS period. The total average GPIO pin output current is defined as the average current value flowing through all the corresponding pins in a 100ms period. The maximum output current is defined as the peak current value flowing through any one of the corresponding pins.

Table. 9: Table of absolute maximum ratings

Absolute maximum rating			
Parameters	**Minimum**	**Maximum**	**Units**
V-$_{IN}$I /O supply voltage (VDDIO)	2.0	+3.6	V
V$_{IN}$- Analog Digital Power/Voltage (VDD)	2.0	+3.6	V

Table. 10: Working voltmeter

Operating voltage				
Parameters	**Minimum**	**Typical**	**Max**	**Units**
V$_{IN}$- Core supply voltage (VDD)	2.0	3.3	3.6	V
V-$_{IN}$I /O port Power/voltage (VDDIO)	2.0	3.3	3.6	V

3.2. Working and storage temperature

Table. 11: Working and Storage temperature tables

Parameters	**Minimum**	**typical**	**Max**	**Units**
Normal operating temperature	-40	+20	+125	℃
Storage temperature	-50	-	+150	℃

3.3. Drain flow

Table. 12: Power consumption meter

Modes	State	Current	Unit
Hibernation mode	-	1.02	uA
Low power mode	Unconnected	82.01	uA
Normal operating mode	Unconnected	4.48	mA
	Connected	4.58	mA
When pass-through data	Connected	MIN: 4.58mA MAX: 5.24mA	MIN is the power consumption when no data is sent MAX is the power consumption when the module sends 243byte/50ms of data

Remarks:

The power consumption in the table is obtained under the broadcast interval of 500ms, for reference only. The power consumption of this module is different in different broadcast intervals, and the specific power consumption is subject to the actual.

3.4. Rf Characteristics

Table. 13: Table of RF characteristics

Functions	Taking values
Transmit power	8.6 ~ + 9.1 dBm
Sensitivity	- 96 - dbm@0.1% BER

3.5. Static protection

In the application of modules, due to the static electricity generated by human body static electricity and charged friction between microelectronics, it may cause some damage to the module through various ways, so ESD protection should be paid attention to. ESD protection

measures should be taken in the process of research and development, production, assembly and testing, especially in product design. For example, at the interface of the circuit design and the point susceptible to electrostatic discharge damage or influence, anti-static protection should be increased, and anti-static gloves should be worn in production.

Table. 14: Table of ESD tolerant voltage of module pins

Test interface	Contact discharge	Air discharge	Units
VBAT and GND	+4	+8	kV
Main antenna interface	+2.5	+4	kV

4. Mechanical dimensions and layout suggestions

This section describes the mechanical dimensions of the module, all dimensions are in millimeters; All dimensions not marked with tolerances with tolerances of ±0.3 mm.

4.1. Module Mechanical dimensions
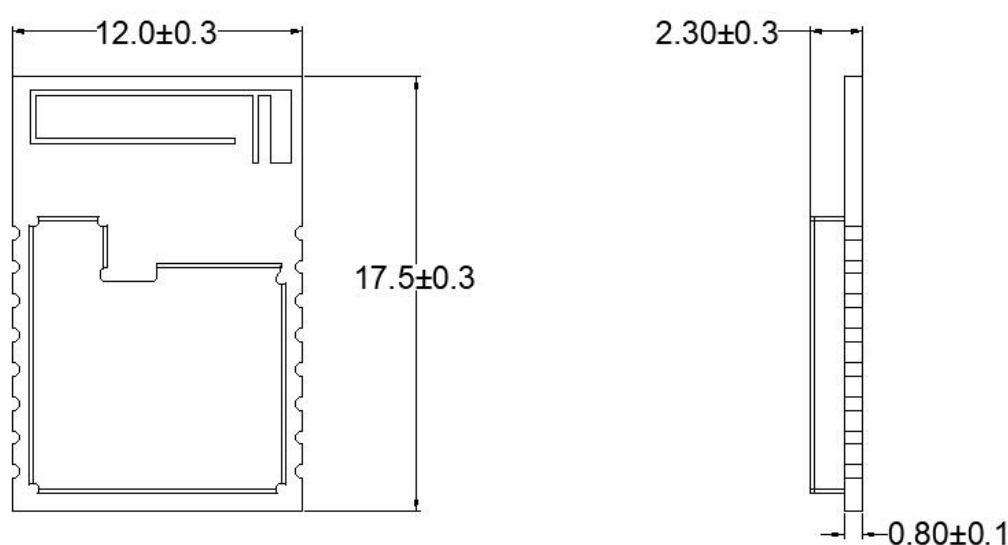
Fig. 14: Top view and side view dimensions of the module
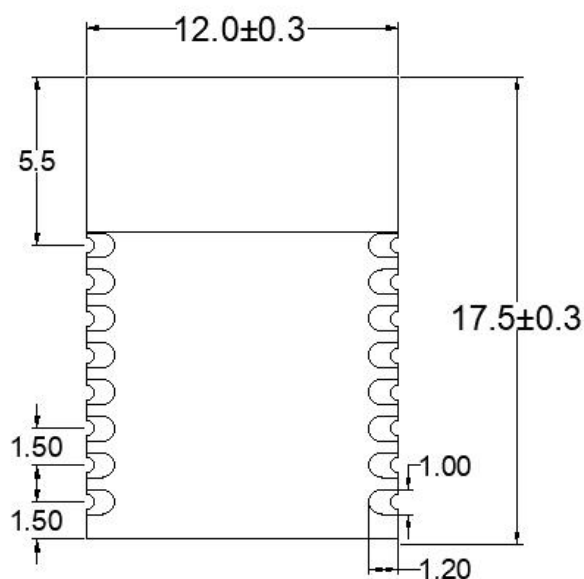
Fig. 15: Bottom view size diagram of module

4.2. Recommended packaging
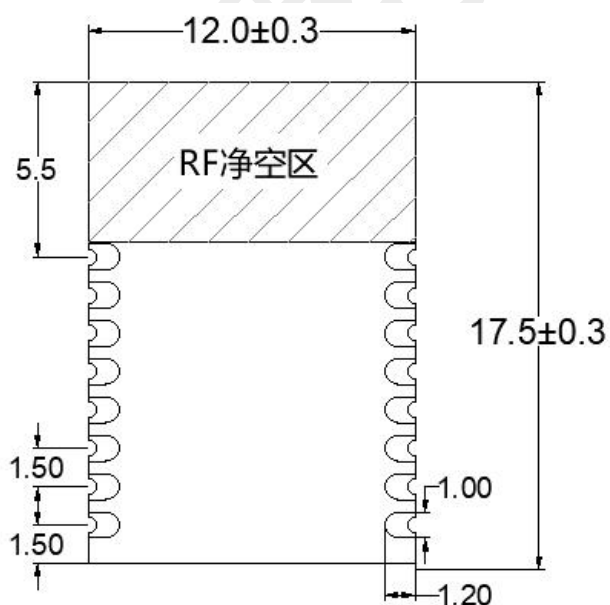
Fig. 16: Proposed package size diagram

4.3. Top/bottom view of the module
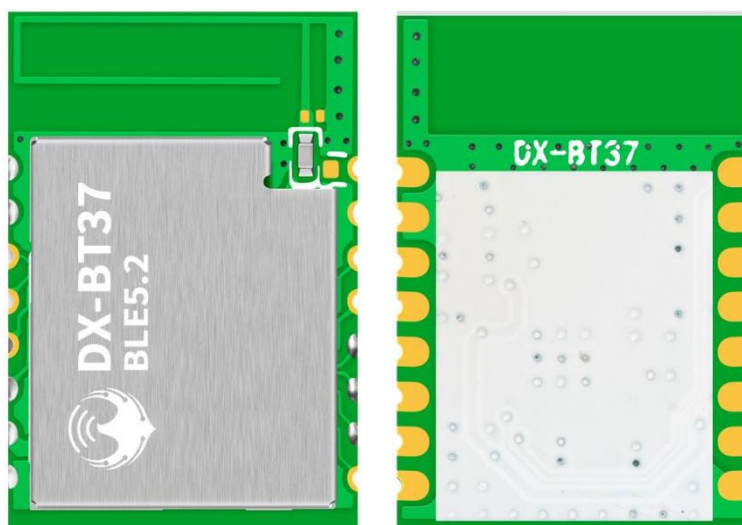
Fig. 17: Module top view and bottom view

Notes:

The above picture is for reference only, please refer to the actual product appearance and label information of the module.

4.4. Hardware design layout suggestions

The DX-BT37 Bluetooth module works in the 2.4G wireless frequency band and uses an on-board antenna. The standing Wave ratio (VSWR) and efficiency of the antenna depend on the position of the patch. The influence of various factors on the wireless receiving and transmitting signals should be avoided as much as possible.

1. Avoid the use of metal in the product shell surrounding Bluetooth. When using part of the metal shell, try to keep the module antenna part away from the metal part. Product internal metal connection wire or metal screws, should be as far away from the module antenna part.

2. The module antenna part should be placed on the PCB edge of the carrier board or directly exposed to the carrier board, and it is not allowed to be placed in the middle of the board. There is at least 5mm free space in the direction of the antenna, and the carrier board is milled empty below the antenna, and copper laying and wiring are not allowed in the direction parallel to the antenna.

3. It is recommended to use insulating materials to isolate the module mounting position on the substrate, such as putting a whole block of screen printing (TopOverLay) at this position.
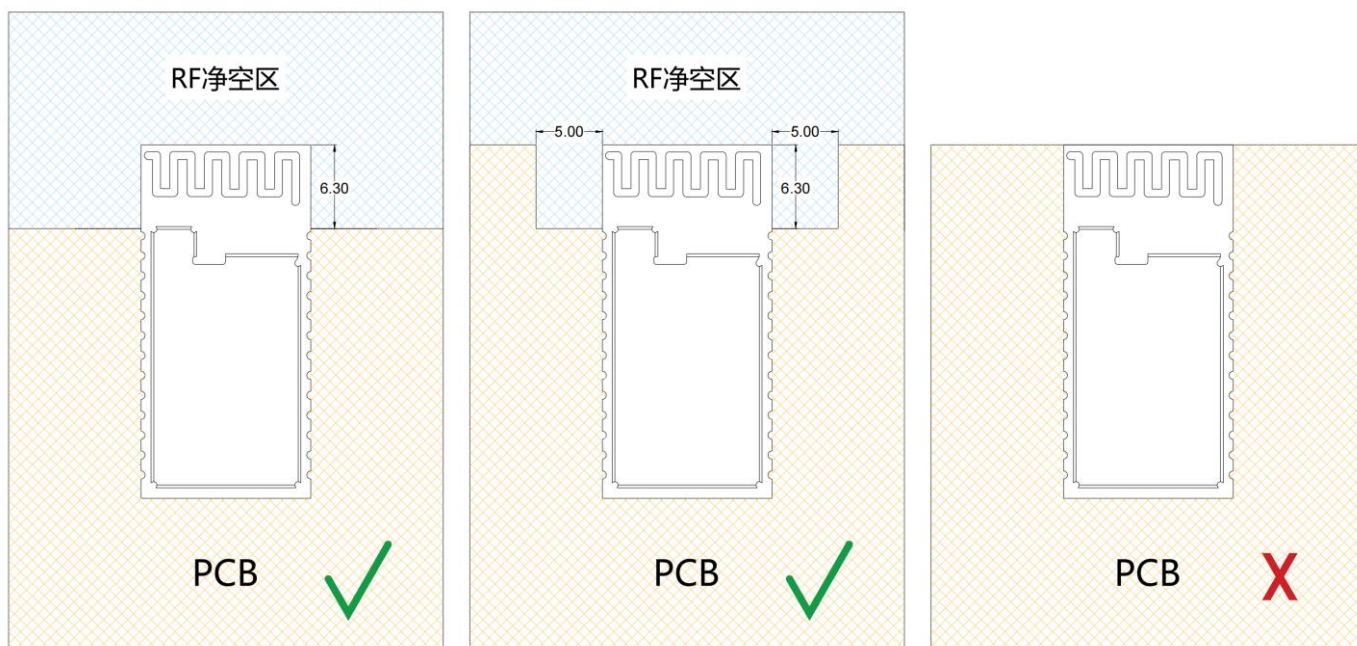
Fig. 18: The reference position of the module placement

5. Storage, production and packaging

5.1. Storage conditions

Modules are shipped in vacuum-sealed bags. The module has a humidity sensitivity class of 3(MSL 3), and its storage is subject to the following conditions:

1. Recommended storage conditions: temperature 23±5°C and relative humidity of 35~60%.

2. Under the recommended storage conditions, the module can be stored in a vacuum sealed bag for 12 months.

3. The unsealed workshop life of the module is 168 hours under workshop conditions of 23±5°C and relative humidity below 60%. Under these conditions, the module can be directly used for reflux production or other high temperature operation. Otherwise, it is necessary to store the module in an environment with relative humidity less than 10% (for example, a

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moistureproof cabinet) to keep the module dry.

4. If the module is under the following conditions, it is necessary to pre-bake the module to prevent the PCB blistering, cracking and delamination after the module is hygro-absorbed and then welded at high temperature:

- Storage temperature and humidity do not meet the recommended storage conditions;
- The module fails to complete production or storage according to Article 3 above after unpacking;
- Vacuum packaging leakage, materials in bulk;
- Before module repair;

5.2. Module baking treatment

- It needs to be baked at $120\pm5°C$ for 8 hours at high temperature;
- The second baking module must be completed within 24 hours after baking welding, otherwise still need to be stored in the drying oven;

Remarks:

1. In order to prevent and reduce the occurrence of bad welding such as foaming and delamination caused by moisture, the module should be strictly controlled. It is not recommended to be exposed to the air for a long time after opening the vacuum package.

2. Before baking, it is necessary to remove the module from the package and place the bare module on the high temperature resistant appliance to avoid high temperature damage to the plastic tray or reel; The second baking module must be completed within 24 hours after baking welding, otherwise it needs to be stored in the drying oven. Please pay attention to ESD protection when unpacking and placing the module, for example, wear anti-static gloves.

5.3. Reflow soldering

Use a printing scraper to print solder paste on the screen plate, so that the solder paste is leaked to the PCB through the opening of the screen plate, and the printing scraper strength needs to be adjusted appropriately. In order to ensure the quality of the module paste, the thickness of the steel mesh corresponding to the module pad part is recommended to be 0.1~0.15mm.

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The recommended reflow soldering temperature is 235~250 °C, and the maximum temperature should not exceed 250 °C. To avoid damage to the module due to repeated heat exposure, it is highly recommended that customers do not attach the module until the first side of the PCB has been reflow soldered. The recommended furnace temperature curve (lead-free SMT reflow soldering) and related parameters are shown in the following chart:
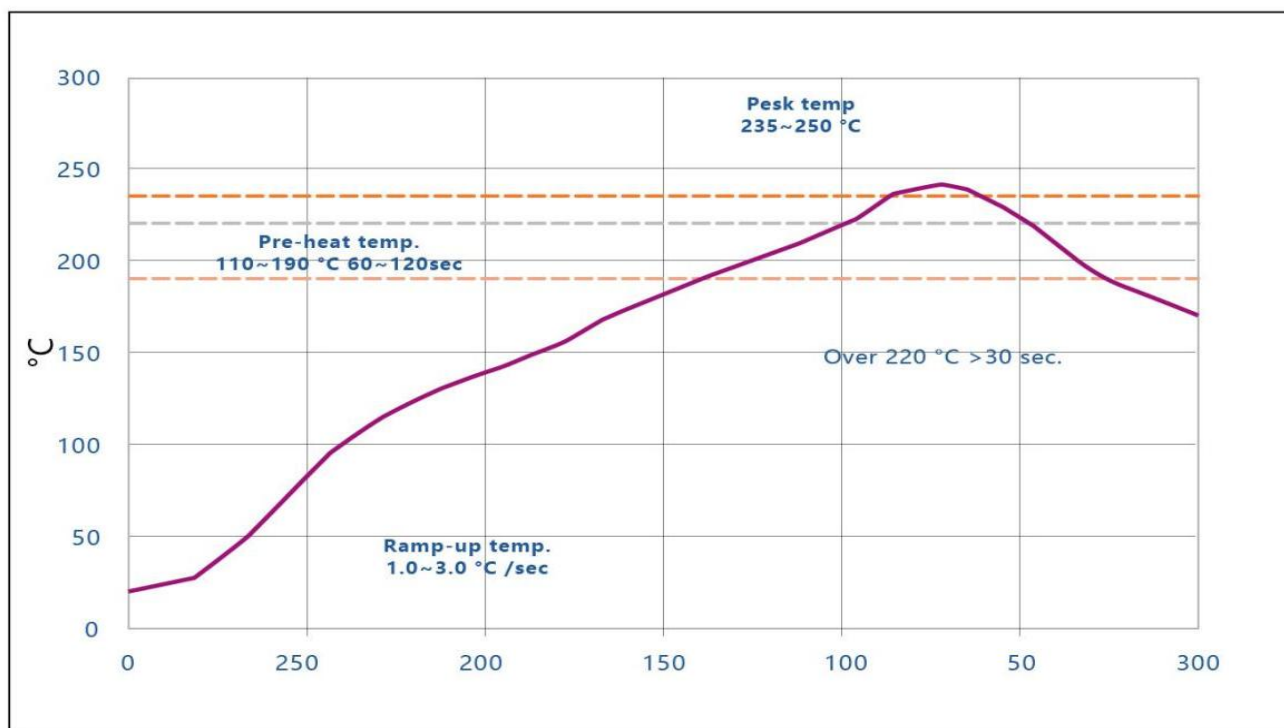
Fig. 19: Recommended reflow soldering temperature curve

Table. 15: Recommended reflow soldering temperature

Statistical Name	Lower limit	Upper limit	Units
Slope 1(target =2.0) is between 30.0 and 70.0	1	3	Degrees/SEC
Slope 2(target =2.0) is between 70.0 and 150.0	1	3	Degrees per second
Slope 3(target =-2.8) is between 220.0 and 150.0	-5	-0.5	Degrees/SEC
Constant temperature time 110-190 ° C	60	120	seconds
@220C reflux time	30	65	seconds
Peak temperature	235	250	Celsius
@235C total time	10	30	seconds

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5.4. Packing specifications

The DX-BT37 module is packaged in roll tape and enclosed in a vacuum sealed bag with desiccants and humidity cards. Each carrier is 24 meters long, contains 1500 modules, and the reel is 330 mm in diameter. The specifications are as follows:
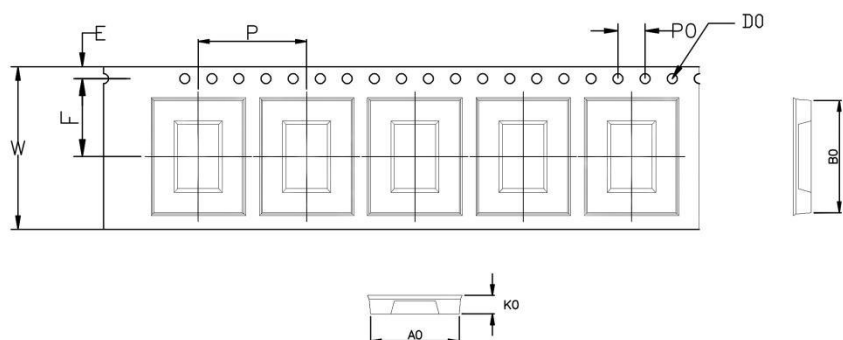
ITEM	W	A_0	A_1	A_2	K_0	K_1	F	E	D_0	D_1	P	P_0	P_2	T	S_0	B_0	B_1	B_2
DIM	$24.0^{+0.30}_{-0.30}$	$13.12^{+0.10}_{-0.10}$			$2.7^{+0.10}_{-0.10}$		$11.5^{+0.10}_{-0.10}$	$1.75^{+0.10}_{-0.10}$	$\phi1.50^{+0.10}_{0}$		$16.0^{+0.10}_{-0.10}$	$4.00^{+0.10}_{-0.10}$	$2.00^{+0.10}_{-0.10}$	$0.3^{+0.05}_{-0.05}$	——	$16.55^{+0.10}_{-0.10}$		
ALTERNATE																		

Fig. 20: Strap size (unit: mm)
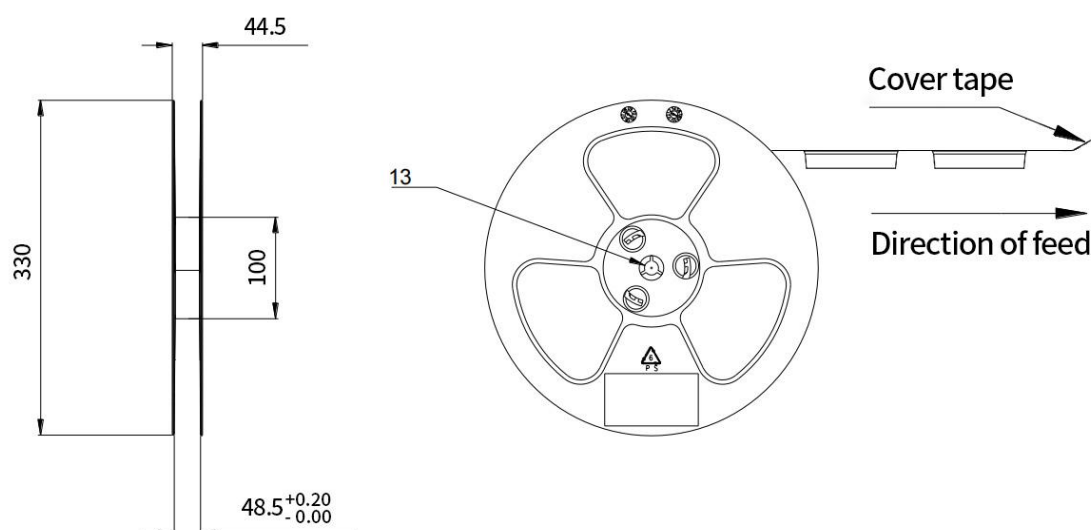
Fig. 21: Reel size (unit: mm)
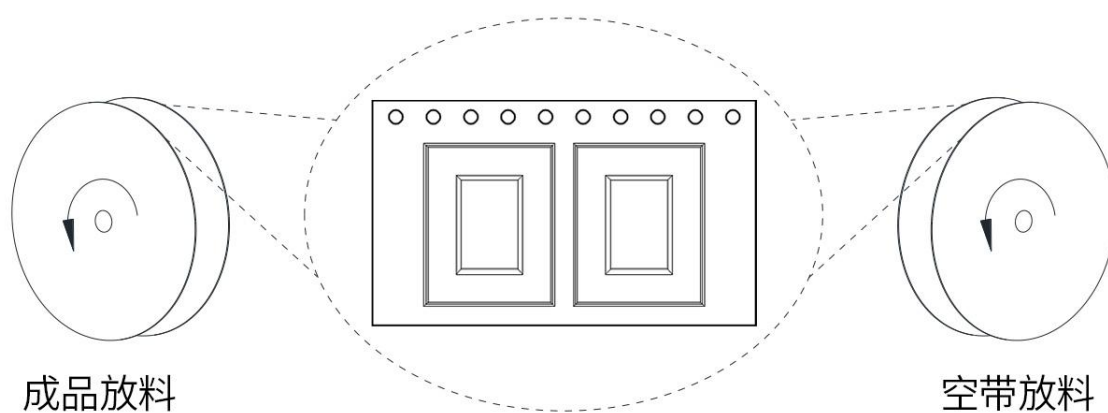
Fig. 22: Reel orientation

成品放料

空带放料

FCC Statement

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.

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.

This modular has been tested and found to comply with part 15 requirements for Modular Approval.

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

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01r01

2.2 List of applicable FCC rules

CFR 47 FCC Part 15 Subpart C and Subpart F has been investigated. It is applicable to the modular transmitter

2.3 Specific Operational Use Conditions – Antenna Placement Within the Host Platform

The module is tested for standalone mobile RF exposure use condition.

The antenna must be installed such that 20cm is maintained between the antenna and users,

The transmitter module may not be co-located with any other transmitter or antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on

the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product

(including the transmitter) and obtaining a separate FCC authorization.

2.4 Limited Module Procedures

Not applicable

2.5 Trace Antenna Designs

Not applicable

2.6 RF Exposure Considerations

This device 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.

2.7 Antenna Type and Gain

The following antennas have been certified for use with this module.

Only antennas of the same type with equal or lower gain may also be used with this module.

Other types of antennas and/or higher gain antennas may require the additional authorization for operation.

Antenna Specification list below:

Antenna No.	Type of antenna:	Gain of the antenna (Max.)	Frequency range:
BLE	PCB Antenna	-0.1dBi	2400-2500MHz

2.8 End Product Labelling Compliance Information

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text: " Contains FCC ID: 2BLPG-BT37". The FCC ID can be used only when all FCC compliance requirements are met.

2.9 Information on Test Modes and Additional Testing Requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation or new FCC authorization. Host manufacturer installed this modular with single modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C, 15.209, 15.207 requirement, only if the test result comply with FCC part 15C, 15.209, 15.207 requirement, then the host can be sold legally.

2.10 Additional testing, Part 15 Subpart B Disclaimer

This transmitter modular us tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B rules requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rules requirements if applicable.

As long as all conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this modular installed.

2.11 Manual Information to The End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The host integrator must follow the integration instructions provided in this document and ensure that the composite system end product complies with the requirements by a technical assessment or evaluation to the rules and to KDB Publication 996369.

The host integrator installing this module into their product must ensure that the final composite product complies with the requirements by a technical assessment or evaluation to the rules, including the transmitter operation and should refer to guidance in KDB Publication 996369.

OEM/Host Manufacturer Responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and RF Exposure essential requirements of the FCC rules.

2.12 How to Make Changes - Important Note

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product.

In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.