

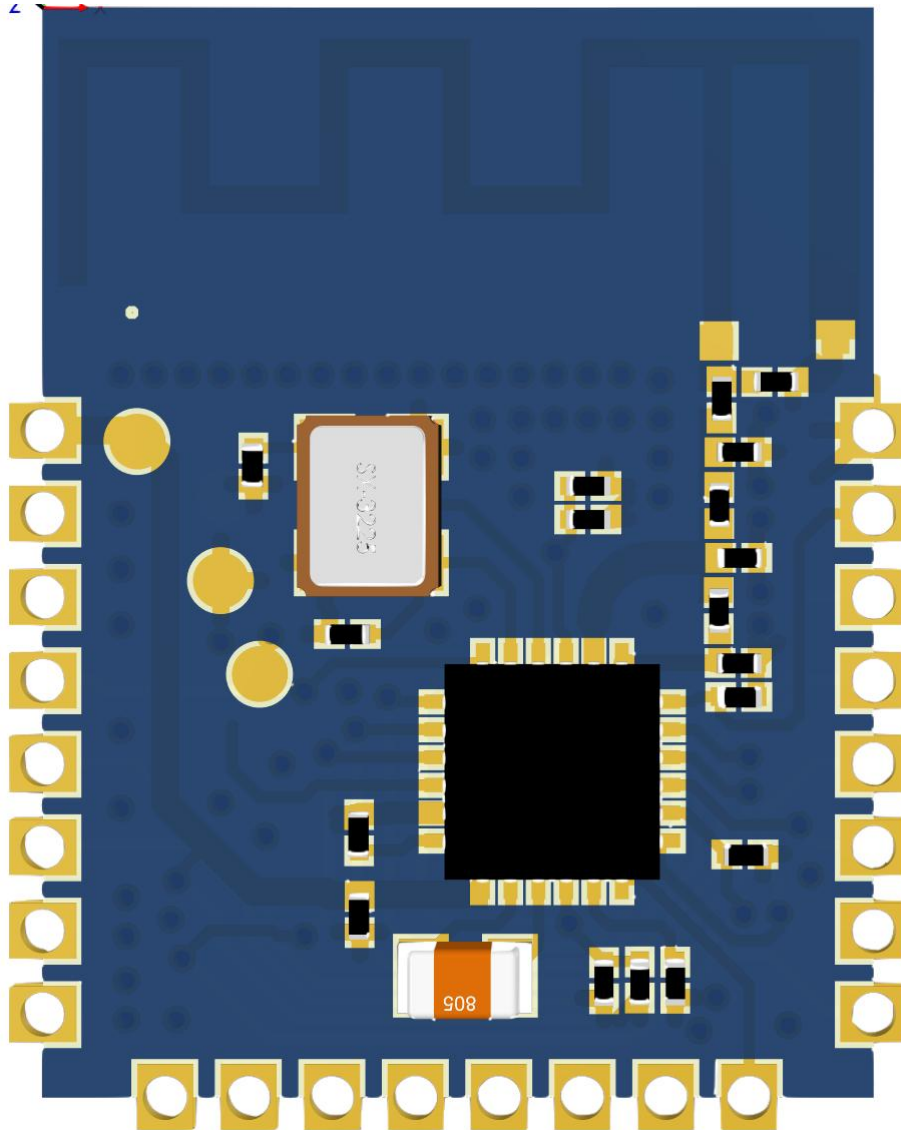
Product Specification

Name: BLE_MODULE
Type: YM23
Version: V1.31
Number: YTL-RD-202108002

Revision History

| Number | Version | State | Comment | Editor | Date |
|--------|---------|-----------|---------|--------|------------|
| 1 | V1.2 | Establish | | Peter | 2021.08.10 |
| | | | | | |
| | | | | | |
| | | | | | |
| 5 | | | | | |
| | | | | | |

Product Picture



Contents

| | |
|---|----|
| Contents | 3 |
| 1、 Product Introduction | 4 |
| 2、 Debugging Tool | 5 |
| 3、 Electrical Characteristics | 6 |
| 3.1 Parameter | 6 |
| 3.2 Work Current | 6 |
| 3.3 Pin definition | 7 |
| 3.4 Pin Function | 8 |
| 3.5 PCB Package | 9 |
| 4、 AT Command Set | 10 |
| 5、 YM23 Typical application circuit | 14 |
| 6、 Notes | 14 |

1、Product Introduction

YM23 is a Bluetooth-to-serial transceiver module based on Bluetooth protocol version 5.0, small size, low power consumption, and the working signal frequency band is 2.4GHz. The YM23 module is developed by Shenzhen YTL Technology Co., Ltd. The module Maximum support for data transmission at 115200bps baud rate. The module uses AT commands to set parameters, and the operation is simple and easy to use. Modules can be widely used in smart wear, smart home, automobiles, lighting, smart automation data collection, smart control, wireless sensing, electronic tags and other scenarios

Communication Schematic Diagram



2、Debugging Tool



Tips:

Select the function as shown above, You do not need to enter `\r\n` when `addCrLf` is checked

The default baud rate is 115200

3、Electrical Characteristics

3.1 Parameter

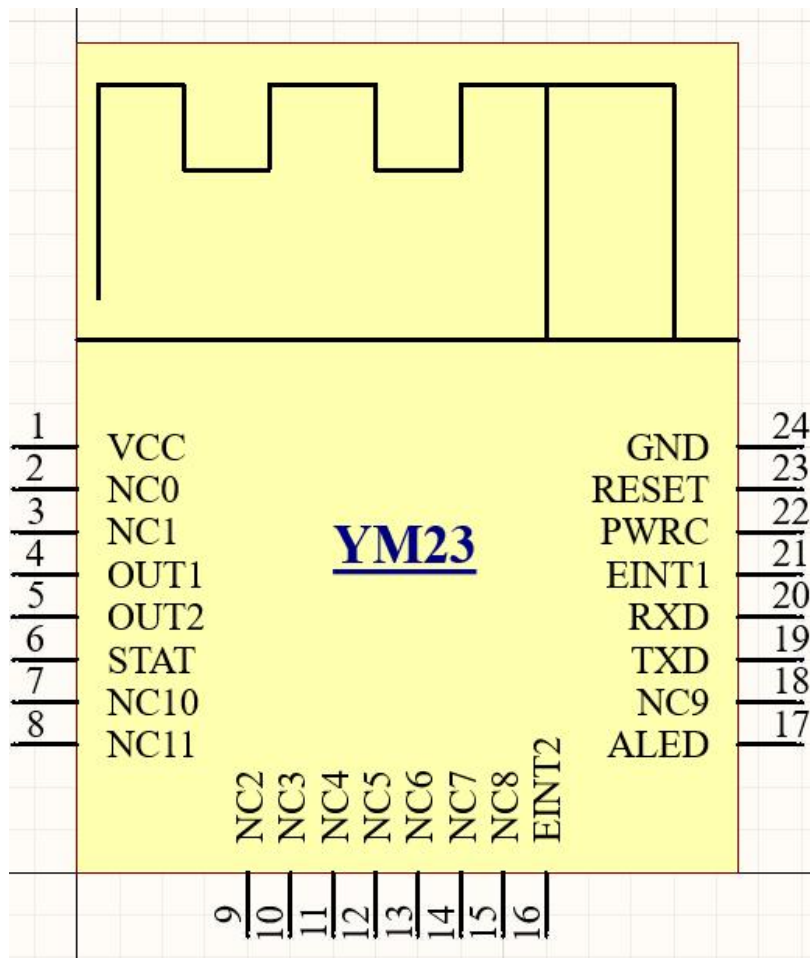
| | |
|----------------------|---------------------------------------|
| Name | YM23 |
| Frequency band | 2.4G |
| Transmitting power | 10db (MAX) |
| Communication | UART |
| Supply voltage | 1.8V - 3.6V |
| Temperature | -40°C - 85°C |
| Antenna | PCB Aerial |
| Receive sensitivity | -94.5dbm (1Mbps) -90dbm(2Mbps) |
| Free air | 60 meter |
| Master-Slave Support | Slave |
| Module Size | 19.6 * 14.94 *1.8 mm (LWH) |
| BLE_Version | BLE 5.0 (Compatibility BLE4.0、BLE4.2) |
| Wakeup Current | 800uA (Radio) |
| Light Sleep Current | <50uA (Radio) |
| Deep Sleep Current | 3uA (No Radio) |
| Parameter Save | Power-off preservation |
| SMT Temperature | <260°C |
| rf-TX/RX MAX Current | 5mA |
| | |

3.2 Work Current

| Work Model | State | VAG Current | Comment |
|---------------------|--------------|-------------|---|
| Wake Up serial | Disconnected | 2.25MA | It is recommended that the broadcast time not be too long, which will affect the connection |
| Deep Sleep | No Radio | 3uA | |
| Light Sleep (Radio) | 100mS 广播间隔 | 139UA | |

| | | | |
|-----------------------|----------------------|-------|--|
| AVG Power Dissipation | 200mS Radio Interval | 94UA | time. If the power consumption is not required, the broadcast time can be set to the minimum |
| | 300mS Radio Interval | 80uA | |
| | 400mS Radio Interval | 70UA | |
| BLE Connect State | Connected | 2.7MA | |

3.3 Pin definition

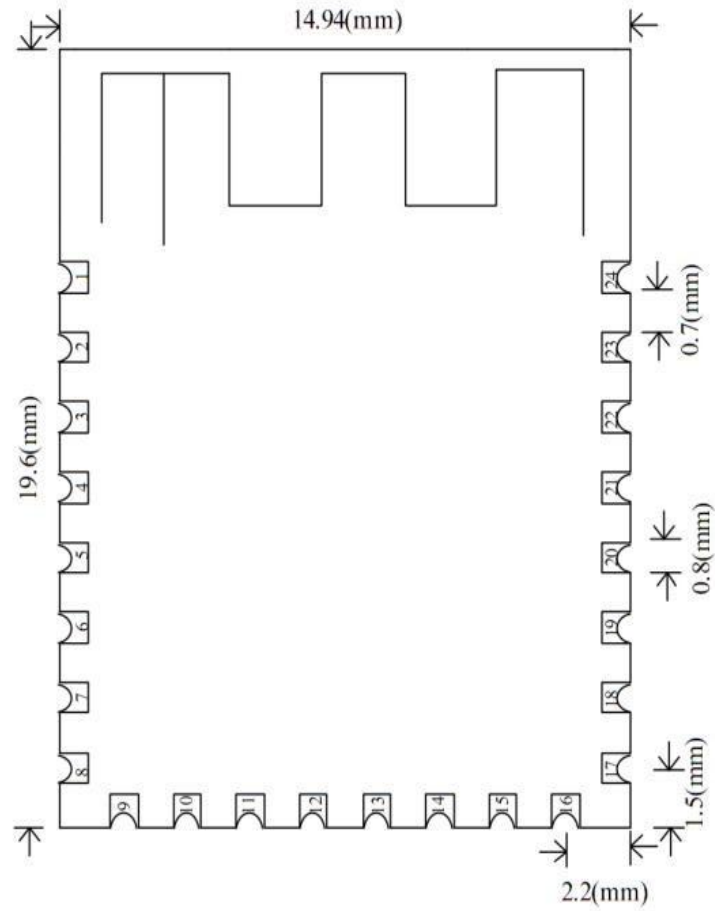


3.4 Pin Function

| Pin | Function | Explain |
|-----|----------|--|
| 1 | VCC | Connect to the positive pole (1.8-3.6V) |
| 2 | NC0 | Null |
| 3 | NC1 | Null |
| 4 | OUTPUT1 | GPIO |
| 5 | OUTPUT2 | GPIO |
| 6 | STAT | Working status indicator pin (high-level output is broadcast state, low-level output is non-broadcast state) |
| 7 | NC10 | Null |
| 8 | NC11 | Null |
| 9 | NC2 | Null |
| 10 | NC3 | Null |
| 11 | NC4 | Null |
| 12 | NC5 | Null |
| 13 | NC6 | Null |
| 14 | NC7 | Null |
| 15 | NC8 | Null |
| 16 | EINT2 | GPIO |
| 17 | ALED | Radio status pin (low level when Radio, high level when No Radio) |
| 18 | NC9 | Null |
| 19 | TXD | Module serial data transmission pin TXD (level voltage is up to 3.3V) |
| 20 | RXD | Module serial data receiving pin RXD (level voltage up to 3.3V) |
| 21 | EINT1 | GPIO |
| 22 | PWRC | high level to wake up the Module low level to enable AT command (just when BLE connected) |
| 23 | RST | Module reset pin, low level reset, there is a pull-up resistor inside. |

| | | |
|----|-----|--------------|
| 24 | GND | Power Ground |
|----|-----|--------------|

3.5 PCB Package



4、AT Command Set

All endings of the AT command must to add \r\n

In the Bluetooth connection, the PWRC pin must be pulled down for the AT command to be effective.

Query the firmware version number

| Command | response | parameter |
|---------|----------------|-----------|
| AT+VER | +VER:YM23-V1.2 | Null |

Reset

| Command | response | parameter |
|---------|----------|-----------|
| AT+RST | +OK | Null |

BLE Disconnect

| Command | response | parameter |
|---------|----------|-----------|
| AT+DISC | +OK | Null |

Query the BLE connect state

| Command | response | parameter |
|---------|---------------|----------------------------|
| AT+STAT | +STAT:<Param> | 00: disconnect 01: connect |

Query/Set MAC

| command | response | parameter |
|---------------|--------------|-------------------|
| AT+MAC<Param> | +OK | Param: (MAC code) |
| AT+MAC | +MAC:<Param> | |

example: AT+MAC112233445566\r\n

Query/Set Baud rate

| command | response | parameter |
|----------------|----------|--------------|
| AT+BAUD<Param> | +OK | Param: (1-9) |
| | | 0——115200 |
| | | 1——57600 |
| | | 2——38400 |

| | | |
|---------|---------------|--|
| AT+BAUD | +BAUD:<Param> | 3——19200 4——9600 5——4800 6——2400 default: 0 |
|---------|---------------|--|

Query/Set Sleep Model

| command | response | parameter |
|-----------------|----------|--|
| AT+SLEEP<Param> | +OK | Param: (1-2) |
| AT+SLEEP | | 1: light sleep (Radio) 2: Deep sleep (No radio) |

Query/Set Radio Name

| command | response | parameter |
|----------------|---------------|-------------------------------|
| AT+NAME<Param> | +OK | Param: Module Name |
| AT+NAME | +NAME:<Param> | MAX: 24 BETY Default: YM23 |

Query/Set Start Sleep or Wake up

| command | response | parameter |
|-------------------|------------------|---|
| AT+STARTEN<Param> | +OK | Param: (0-1) |
| AT+STARTEN | +STARTEN:<Param> | 1: Start Wake up 0: Start Sleep (connct auto wake up) |

Query/Set Radio Interval

| command | response | parameter |
|-----------------|----------------|--|
| AT+ADVIN<Param> | +OK | Param: (0-9) |
| AT+ADVIN | +ADVIN:<Param> | 0: 100ms 1: 200ms 2: 300ms 3: 400ms 4: 500ms 5: 600ms 6: 700ms 7: 800ms 8: 900ms 9: 1000ms 默认: 1 |

Query/Set Work Mode

| command | response | parameter |
|------------------|----------|--------------|
| AT+HOSTEN<Param> | +OK | Param: (0-3) |

| | | |
|-----------|-----------------|---|
| AT+HOSTEN | +HOSTEN:<Param> | 0: Slave SerialNet mode 3: iBeacon mode Default:0 |
|-----------|-----------------|---|

Query/Set--iBeacon UUID

| command | response | parameter |
|------------------|-----------------|---|
| AT+IBUUID<Param> | +OK | Param: hexadecimal |
| AT+IBUUID | +IBUUID:<Param> | UUID default: FDA50693A4E24FB1AFCFC6EB07647825 |

example: AT+IBUUID FDA50693A4E24FB1AFCFC6EB07647825

Query/Set ----iBeacon Major

| command | response | parameter |
|-----------------|-----------------|--------------------|
| AT+MAJOR<Param> | +OK | Param: (0000-FFFF) |
| AT+MAJOR | + MAJOR:<Param> | Default: 000A |

example Major value is 10008, AT command: AT+MAJOR2718 2718 is 10008 HEX

Query/Set --iBeacon Minor

| command | response | parameter |
|-----------------|----------------|--------------------|
| AT+MINOR<Param> | +OK | Param: (0000-FFFF) |
| AT+MINOR | +MINOR:<Param> | Default: 0007 |

Query/Set --iBeacon IBSING

| command | response | parameter |
|------------------|-----------------|----------------|
| AT+IBSING<Param> | +OK | Param: (00-FF) |
| AT+IBSING | +IBSING:<Param> | Default: 40 |

This parameter is applied to the iBeacon signal calibration value at 1 meter

Query/Set - ALED state on/off

| command | response | parameter |
|----------------|---------------|-------------------------------|
| AT+ALED<Param> | +OK | Param: (0-1) |
| AT+ALED | +ALED:<Param> | 0: off 1: on Default: 1 |

Factory reset

| command | response | parameter |
|------------|----------|-----------|
| AT+DEFAULT | +OK | null |

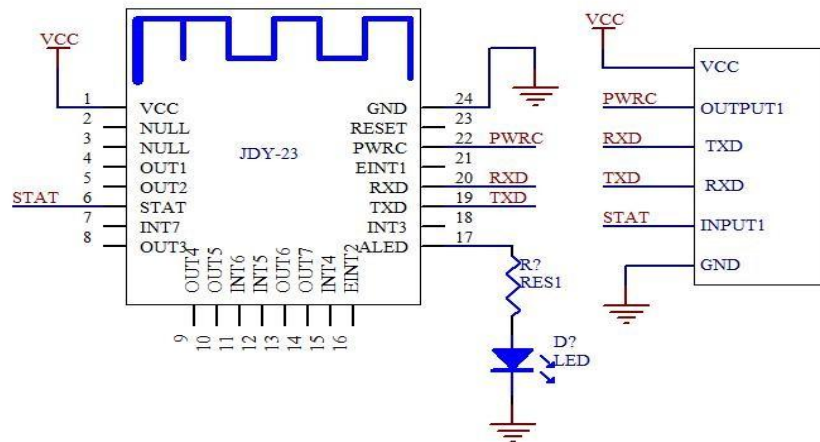
Query/Set- serial port displays status information

| command | response | parameter |
|-----------------|----------------|---|
| AT+ENLOG<Param> | +OK | Param: (0-1) |
| AT+ENLOG | +ENLOG:<Param> | 0: No output 1: output Default: 0 |

Query/Set -MTU byte

| command | response | parameter |
|---------------|--------------|---|
| AT+MTU<Param> | +OK | Param: (1-2) |
| AT+MTU | +MTU:<Param> | 1: 20 byte 2: 128 byte Default: 2 |

5、YM23 Typical application circuit



6、Notes

- 1、 If the subsequent version is inconsistent with the actual version, the actual version shall prevail without prior notice. If you have any questions, please contact the relevant personnel of the company.
- 2、 Welcome to contact us (footer mailbox) to obtain web disk download related APP and source code and use guidance and other development information.