# Specification of M10

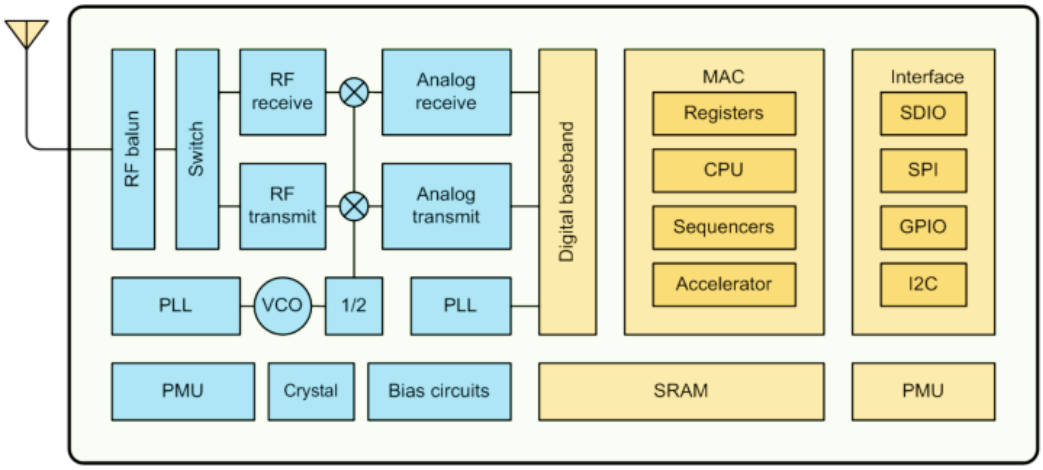
## 1. Product Introduction

M10 is an embedded type WiFi module that has complete functions, highly integrated modules, ultra-low power consumption and low cost. The core chip is the special-purpose internet of things (IOT) chip, has rich peripheral control interfaces and module that has the built-in wireless network IEEE802.11b/g/n wireless standard protocol stack and TCP/IP network communication protocol stack (with SSL security encryption) and integrates specialized control and transmission. It can directly realize acquisition of the peripheral data. With the standard network, it can transmit and receive the network data, and control the external equipments.

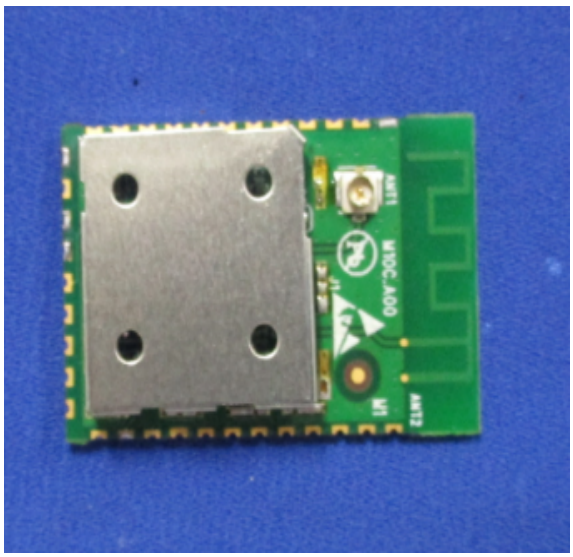
The module operates with ultra-low power consumption, and thus it is the best option for different wireless applications with such requirements as energy-saving and emission reduction. In addition, the module takes the semicircle hole design, it can meet the demands for SMT or pin-type. With the module, the client can complete development of wireless products with complete functions in different fields, and the module can be applied at such many conditions as the control system requiring reliable data exchange and so on.

## 2. Product Information

The product can operate at the operating states of WiFi STA and AP. The module has rich control interfaces. The peripheral can realize UART data transmission, I2C, SPI, I2S, GPIO, PWM, ADC, and other functions. It can provide complete set of resolutions for ordinary WiFi of IO.




3.2 Outside drawing



4. Parameter and Characteristics

| | |
|---|---|
| Protocol and interface standard | |
| Network standard | Wireless standard: IEEE 802.11b/g/n |
| Interface | SPI/SDIO, UART, I2C, I2S, GPIO, PWM, ADC |
| RF parameter | |
| Wireless transmission rate | 802.11n:Max 65Mbps, 802.11g:Max 54Mbps, 802.11b:Max 11Mbps |

| | |
|---|---|
| WIFI channel number | Ch1~Ch11 |
| RF frequency range | 2.412-2.462 GHz |
| RF emission power | <20dBm |
| Type of antenna | PCB antenna on board/ integral connected antenna |
| Characteristics | |
| WIFI operation mode | Wireless network card (STA)/wireless access point (AP) |
| Wireless security support | WPA WPA2-PSK |
| | 64/128/152 bit WEP encryption |
| | Wireless security function switch |
| | Wireless MAC address filtration |
| Network management | Remote software upgrade |
| | Configured with file import and export |
| | Supporting local and remote management simultaneously |
| Maximum power consumption during current operation | |
| 802.11b mode | 170mA (3.3V) |
| 802.11g mode | 140mA (3.3V) |
| 802.11n mode | 120mA (3.3V) |
| Power consumption at standby mode | |
| Soc chip | light sleep: 0.9mA(3.3V)<br>deep sleep: 10uA(3.3V) |
| Other parameters | |
| State indicator light | Internally connected |
| Other performances | Optional frequency bandwidth: 20MHz, automatic |
| Physical specification | |
| Dimension | 31mm*20mm*3mm |
| Weight | 1.8g |

5 Definition of Pins

| Pin | Function | Direction of data flow |
|---|---|---|
| 1 | GND | GND |
| 2 | NC | NC |
| 3 | CHIP_PU | I |
| 4 | GPIO5 | I/O |
| 5 | NC | NC |
| 6 | NC | NC |
| 7 | NC | NC |
| 8 | NC | NC |
| 9 | GND | GND |

| | | |
|---|---|---|
| 10 | NC | NC |
| 11 | NC | NC |
| 12 | UART0_TXD | I/O |
| 13 | VDD33 | Power |
| 14 | NC | NC |
| 15 | NC | NC |
| 16 | NC | NC |
| 17 | NC | NC |
| 18 | UART0_RXD | NC |
| 19 | NC | NC |
| 20 | NC | NC |
| 21 | NC | NC |
| 22 | GPIO0 | I/O |
| 23 | GPIO14 | I/O |
| 24 | GPIO13 | I/O |
| 25 | GND | GND |
| 26 | NC | NC |
| 27 | GPIO12 | I/O |
| 28 | NC | NC |
| 29 | GPIO16 | I/O |
| 30 | GPIO14/SOFT_REST | I/O |
| 31 | REST | I |
| 32 | GND | GND |
| 33 | NC | NC |

# 6 Environment

## 6.1 Temperature

### 6.1.1 Operating temperature

Ambient temperature for continuous and reliable operation: -10℃ ~+50℃

### 6.1.2 Storage temperature

If the product is not damaged or does not deteriorate, the product is kept at -20℃ ~+85℃.

## 6.2 Humidity

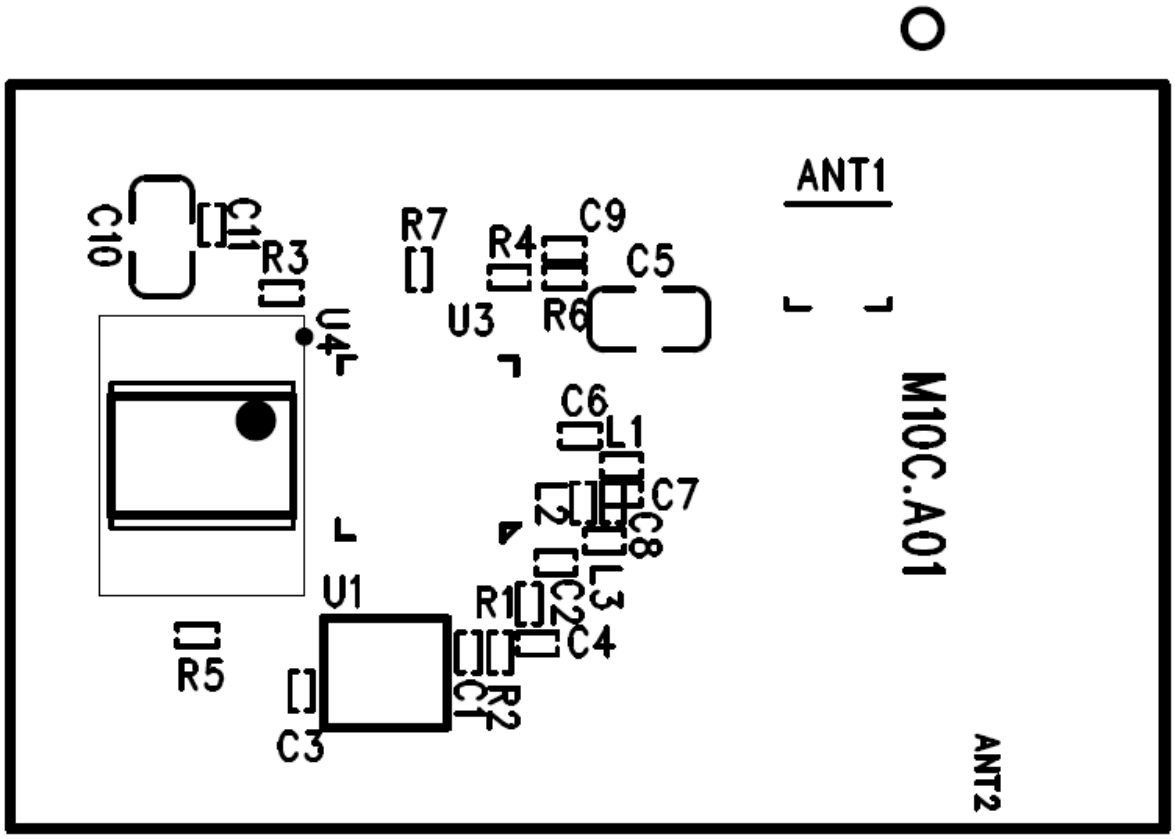
### 6.2.1 Operating humidity condition

Within the relative humidity range of 20%~80% (without condensation), the product can operate continuously and reliably.

### 6.2.2 Non- operating humidity condition (including warehouse)

If the product is not damaged or does not deteriorate, the time for placing the product at the relative humidity of 20%~80% shall be more than 36h.

## 7.How to choose antenna




(1)Antenna 1

See the partplacement of module, use C7 and not use C8, then you can choose Antenna 1.

Antenna Manufacturer:Shanghai Peiheng Electronic Technology Co., LTD
Antenna Model:AN-2400-113 -100
Antenna gain: 0.5dBi

(2)Antenna 2

See the partplacement of module, use C8 and not use C7, then you can choose Antenna 2.

# 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.

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.

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is forbidden.

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. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

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: 2AD6F-M10 or Contains FCC ID: 2AD6F-M10.

When the module is installed inside another device, the user manual of this device 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.

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