

# **BLE\_MW010V10B03**

## **DATE SHEET**

**Tuesday,05 MAY 2016**

**Version 1.1**

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**KUNSHAN HENGJU ELECTRONICS CO.,LTD**

## VERSION HISTORY

Version	Comment
1.0	layout guide for BLE_MW010V10B02
1.1	Layout guide for ble_MW010V10B03

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## 1.DESCRIPTION

BLE\_MW010V10B02(BLE02) Bluetooth low energy single mode module is a single mode device targeted for low power sensors and accessories.

BLE02 offers all Bluetooth low energy features: radio ,stack,profiles and application space for customer applications,so no external processor is needed ,The module also provides flexible hardware interfaces to connect sensors, simple user interfaces or even displays directly to the module.

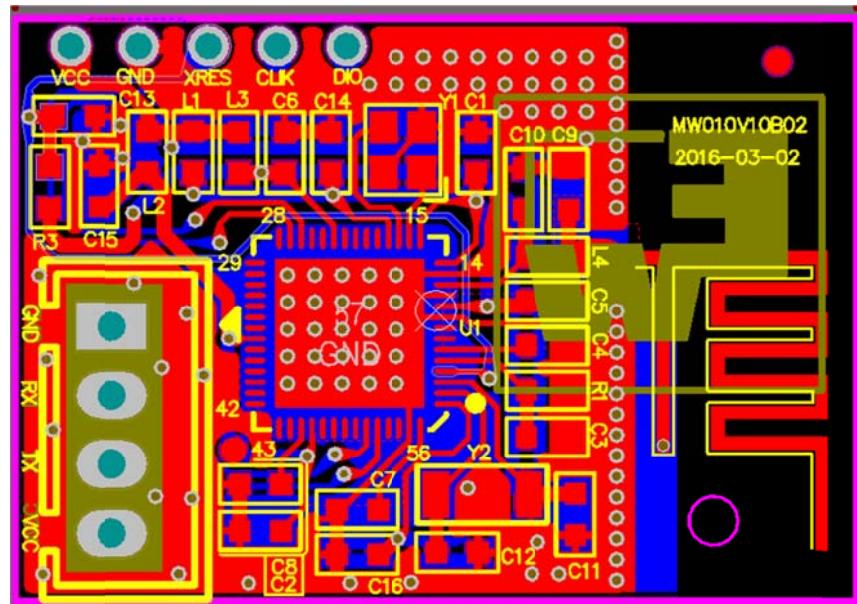
BLE02 can be powered directly with a standard 5v power in lowest power sleep mode it consumer only **150nA** and will wake up 2 milliseconds.

## 2. Features

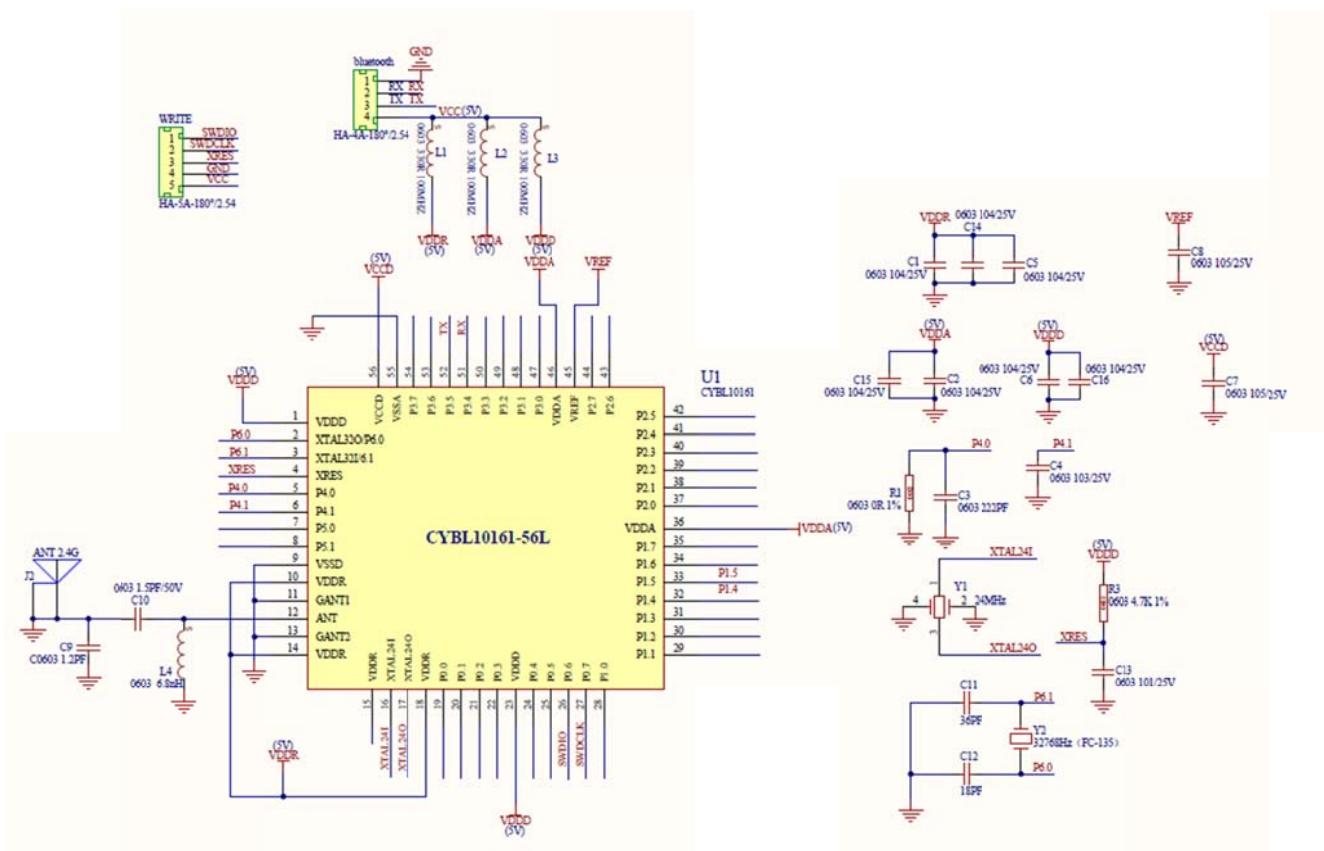
Bluetooth smart connectivity

- a. Bluetooth 4.1 single-mode device
- b. 2.4g BLE radio and baseband with integrated balun
- c. TX out power: 0db
- d. RX sensitivity:-89dBm
- e. TX current: 15.6Ma at 0dBm
- f. RX current: 16.4Ma.

### 3. Pin out and terminal Description



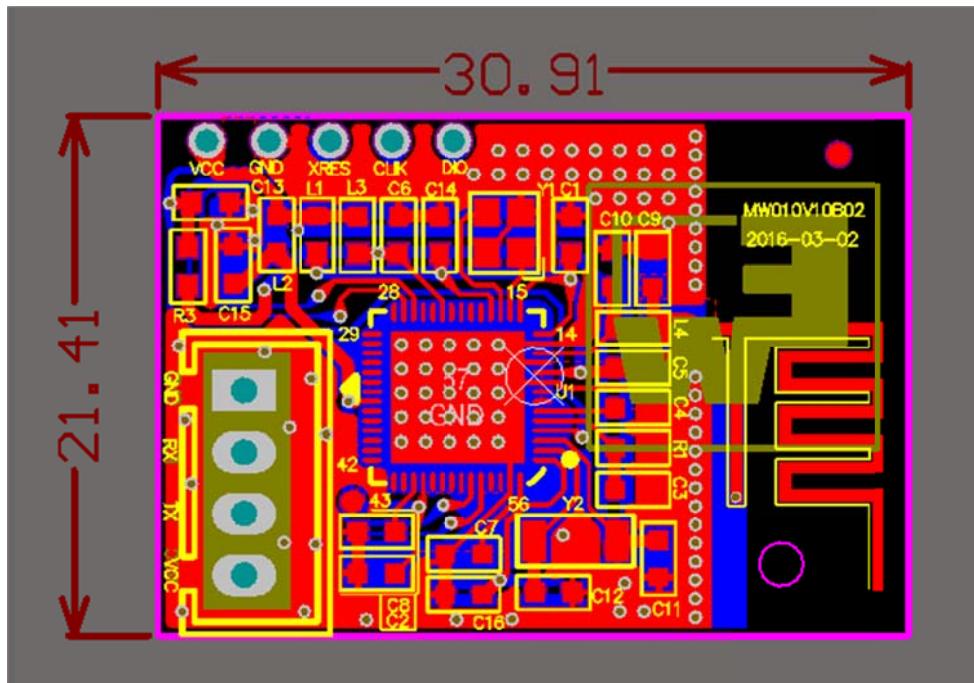
## 4. SCHEMATIC



## Schematic Prints.pdf

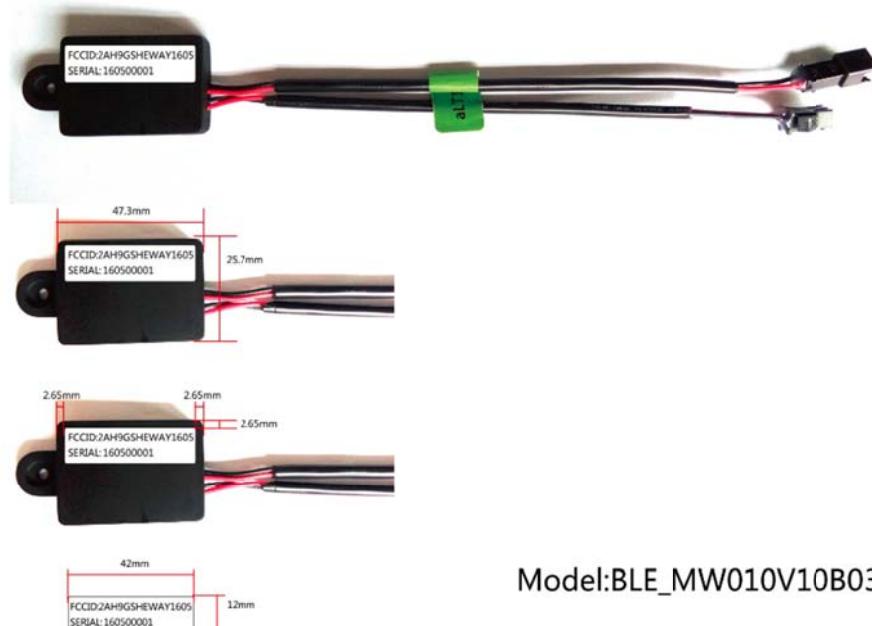
## 5. Physical Dimensions

30.91\*21.41\*.4.5MM



FCC ID Label include **FCC ID No.** and **Compliance statement**:

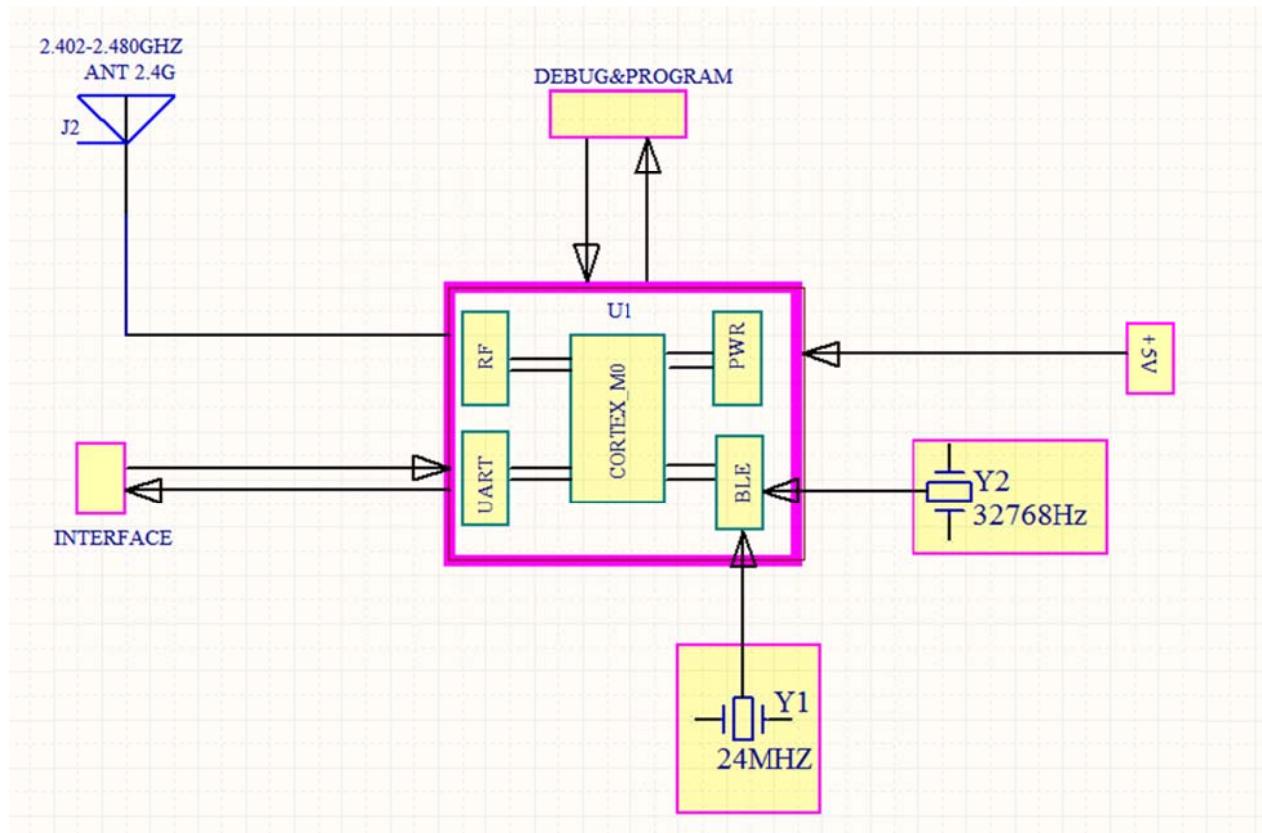
FCC ID: **2AH9GEWSHEWAY1605**



Model:BLE\_MW010V10B03

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## 6. Block Diagram



## 7. Electrical Characteristics

### 7.1 Absolute Maximum Ratings

NOTE: These are absolute maximum ratings beyond which the module can be permanently damaged. These are not maximum operating conditions. The maximum recommended operating conditions are in the table 2

Rating	MIN	MAX	UNIT
Storage Temperature	-40	85	C
VCC,TX,RX,GND,CLK,SWDIO,XRES	-0.3	5.5	V
other Terminal Voltage	VSS-0.4	VDD+0.4	V

### 7.2 Recommended Operating Conditions

Rating	MIN	MAX	UNIT
Operating Temperature Range	0	60	C
VCC,TX,RX,GND	2.5	5.0	V

## BOM list

ITEM	Part number	part name	Materiel spec	QTY	Address tag
.1	C002061027	MW010V10B03 SMT		0	
.2	C002012005	MW010V10B03	FR4, 21.5*31*1.6MM	1	
.3	C002050013	SMD,CAP(C033020 51)	104,X7R,10%,50V 0603,YAGEO	8	C1, C2,C5,C6,C14,C15,C16,C1a
.4	C002050014	SMD,CAP(C033020 82)	222, X7R, ±10% 0603	1	C3
.5	C002071139	SMD,CAP(C033020 54)	103,X7R,10%,25V 0603,YAGEO	1	C4
.6	C002012017	SMD,CAP(C033020 59)	105(1UF),KR, X7R,10%,25V, 0603,YAGEO	2	C7, C8
7	C002023054	SMD,CAP	1.2PF,(±0.25pF),50V,0603	1	C9
8	C002023024	SMD,CAP(C033020 94)	1.5PF,(±0.25pF),50V,0603	1	C10
9	C002023055	SMD,CAP	36PF,5%,NPO,50V,0603	1	C11
10	C002023033	SMD,CAP(C033020 80)	18PF,NPO,5%,50V ,0603, NPO,YAGEO	1	C12
11	C002023006	SMD,CAP(C033020 57)	101,X7R,10%,25V 0603	1	C13
12	C002061026	SMD FERRRITE BEAD	FB 0603 330R 100MHZ 25%	3	L1, L2, L3
13	C002061027	SMD INDUCTOR	6.8NH ±5% 0603	1	L4
14	C002012005	SMD RESISTOR	4K7,1/10W,1% 0603,YAGEO	1	R3
15	C002050013	SMD CRYSTAL	CYSTAL 24MHZ S 3.2*2.5*0.7mm	1	Y1
16	C002050014	SMD CRYSTAL	32.768KHZ,FC-135, 7L 3.2*1.5mm	1	Y2
17	C002071139	SMD IC	CYBL10161-56L	1	U1
18	C002012017	SMD RESISTOR	100K,1/10W,1% 0603,YAGEO	1	R1a

## CAUTION:

1. Power supply voltage 5V +/- 10%, provided 100MA current.
2. J1 port PIN1-PIN5 defined as GND, RX, TX, + 5V using transparent mode.
3. Recommended temperature 0-40 degree , humidity 40-85%.
4. To prevent power surges in the power supply 5V and GND is recommended to increase 12V TVS tube.
5. After power instruction issued by the TX, RX receive, 19200bps, every instruction cycle 40-100MS.

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6.The grantee is responsible for ensuring through appropriate testing and clear instructions of use contained in the instruction manual that the host manufactures product is compliant to all the applicable FCC rules.

7.The installer that they need to perform tests inside of each host for the host manufactures product(s) are compliant to all the applicable FCC rules.

#### **FCC**

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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:**

This equipment complies with FCC 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.

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC 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.

The module in this product is labeled with its own FCC ID and IC No.. The FCC ID and IC is not visible when the module is installed inside another device. Therefore, the outside of the device into which the module is installed must also display a label referring to the module. The final end device must be labeled in a visible area with the following "Contains FCC ID 2AH9GSHEWAY1605