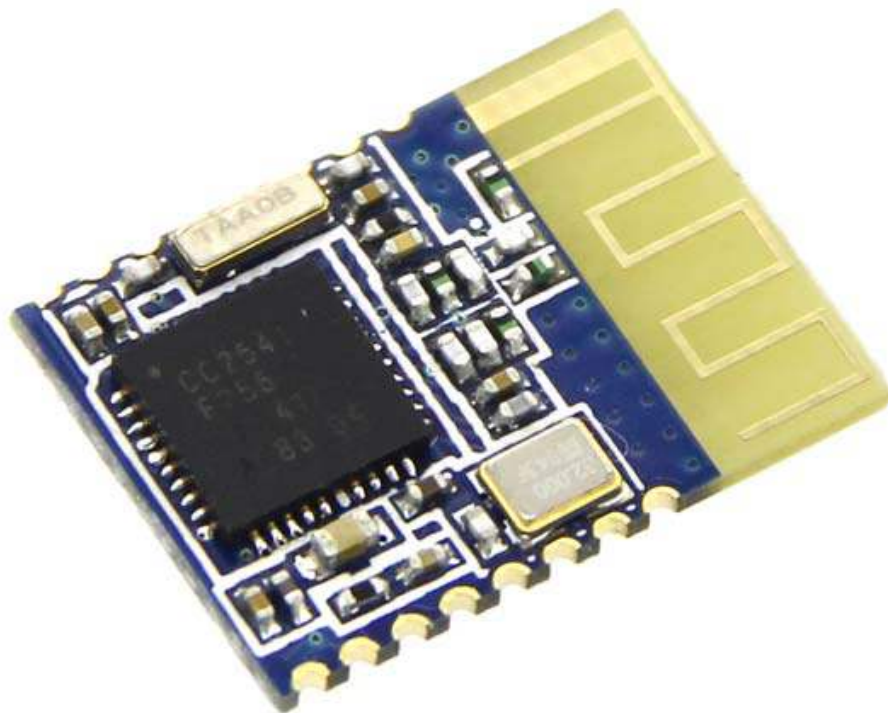


## Bluetooth V4.0 HM-11 BLE Module



This is a SMD BLE module used in our BLE Bee and Xadow BLE. It is based on TI CC2541 chip, enables robust network nodes to be built with low total bill-of-material costs and highly suited for ultralow power consumption systems. The module is small and easy to use, with the preprogrammed firmware of manufacturer, you could quickly build BLE communications via its AT command. Supporting BLE communications with iphone, ipad and Android 4.3.

## Features

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- Bluetooth protocol: Bluetooth Specification V4.0 BLE
- Working frequency: 2.4 GHz ISM band
- Interface way: a serial port
- Open environment within 30 meters can realize communication between modules
- To send and receive no byte limit between modules
- Modulation method: GFSK (Gaussian Frequency Shift Keying)
- Transmission power: - DBM, 23-6 DBM, 0 DBM, 6 DBM, can be modified by the AT command
- use TI CC2541 chip, configuration space of 256 KB, support the AT command, the user can according to need to change the role (master, slave mode) and the serial port baud rate, name of equipment, matching parameters such as passwords, use agile.
- power supply: + 3.3 VDC 50 mA
- working temperature: - 5 ~ + 65 Centigrade

## Specification

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Microprocessor	CC2541
Resources	Support the AT command, the user can according to need to change the role (master, slave mode) and the serial port baud rate,name of equipment,Matching parameters such as password, the use of flexible.
Outline Dimension	13.5mm x 18.5mm x 2.3mm
Power supply	3.3V
Communication Protocol	Uart(3.3V LVTTL)
IO counts	2
Key input IO	1
LED Indicators IO	1
Connectivity	Socket compatible with XBee

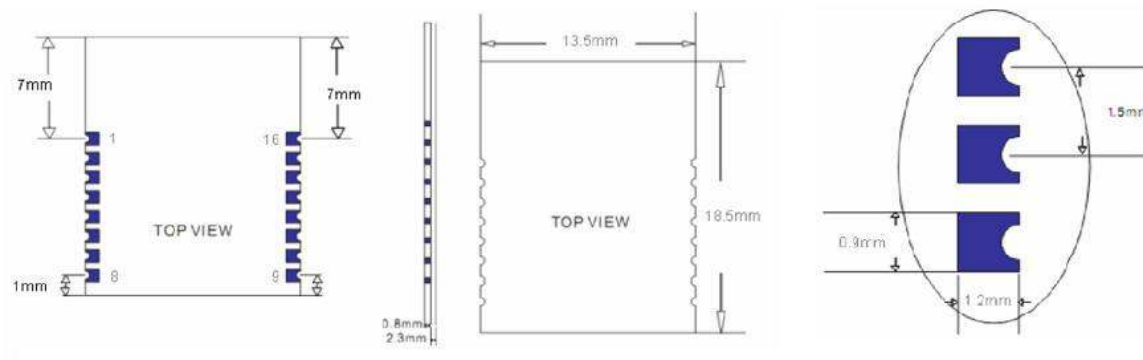
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## Electrical Characteristics

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Max Input Voltage	-0.3		3.6	V
Working Input Voltage	2.0	3.3	3.6	V
Transmit Current		15		mA
Receive Current		8.5		mA
Deep Sleep Current		600		uA
Operating Temperature	-40		+65	°C

## Pin definition



1	UART_RTS	UART
2	UART_TX	UART
3	UART_CTS	UART
4	UART_RX	UART
5	NC	
6	NC	
7	NV	
8	NV	
9	VCC	Power supply 3.3V
10	NC	
11	RESETB	Reset, active low at least in 5ms
12	GND	GND
13	PIO3	IO port, used for connect to DHT11/DS18B20
14	PIO2	Digital input, output
15	PIO1	LED indicator
16	PIO0	Button pin

## AT commands & Configuration

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**\*\*1 )** Query the native MAC address **\*\*** Send: AT+ADDR?

Send after a successful return: OK+LADD: MAC address (address for 12 string)

**\*\*2 )** Query the baud rate **\*\*** Send: AT+BAUD?

Send after a successful return: OK+Get: [para1]

Scope of para1:0 ~ 8. The parameters corresponding lists as below:

0 ----- 9600

1 ----- 19200

2 ----- 38400

3 ----- 57600

4 ----- 115200

5 ----- 4800

6 ----- 2400

7 ----- 1200

8 ----- 230400

Default: 0(9600)

**\*\*3 )** Set the baud rate **\*\*** Send: AT+BAUD[para1]

Send after a successful return: OK+Set:[para1]

Example: send: AT + BAUD1, return: OK+Set: 2.The baud rate is set to 19200.

Note: after the switch to the 1200, module will no longer support the configurations of the AT command, and press the P100 under standby, module can restore the factory Settings.Do not recommend using the baud rate.After setting the baud rate, modules should be on electricity, anew set parameters can take effect.

**\*\*4 )** from the device connected to the bluetooth address specified **\*\*** Send:  
AT+CON[para1]

Send after a successful return: OK+CONN[para2]

Para2 range is: A, E, F

Example: from the bluetooth address is: 0017EA0943AE, sending the AT+CON0017EA0943AE, module returns: OK+CONNA or OK+CONNF CONNE or OK.

\*\*5 ) removal equipment matching information \*\* Send: AT+CLEAR

Send after a successful return: OK+CLEAR

Clear success had connected device address code information.

\*\*6 ) query module working mode \*\* Send: AT+MODE?

Send after a successful return: OK+Get: [para]

Para: the range of 0 ~ 2. 0 represents passthrough mode, on behalf of the PIO acquisition + remote control + 1 passthrough, 2 representative passthrough + remote control mode. The default is 0.

\*\*7 ) set module working mode: \*\* Send: AT+MODE []

Send after a successful return: OK+Set: [para]

\*\*8 ) query device name \*\* Send: AT+NAME?

Send after a successful return: OK+NAME [para1]

\*\*9 ) set the device name \*\* Send: AT+NAME [para1]

Send after a successful return: OK+Set: [para1]

Example: Set the device name to Seeed, sending the AT + NAMESeeed, return OK + Set: Seeed AT this time, the name of the bluetooth module has been changed to Seeed. Note: after the instruction execution, required to electricity, set the parameters of the approval.

\*\*10 ) query matching password \*\* Send: AT+PASS?

Send after a successful return: OK+PASS: [para1]

Para1 range is 000000 ~ 999999, the default is 000000.

**\*\*11 ) pairing set password \*\*** Send the AT+PASS [para1]

Send after a successful return: OK+Set: [para1]

**\*\*12 ) restore factory Settings \*\*** The AT+RENEW send

Send after a successful return: OK+RENEW

Restore the default factory Settings module, the module Settings will be reset so, back to the factory with the status of the factory default, delay module 500 ms after the restart.If no need, please be careful.

**\*\*13 ) module reset \*\*** Send: AT+RESET

Send after a successful return: OK+RESET

After the instruction execution module will delay 500 ms after the restart.

**\*\*14 ) set the master-slave mode \*\*** Send: AT + ROLE [para1]

Send after a successful return: OK+Set: [para1]

## Example Code

---

```
//master
```

```
/*
```

```
This example code is in the public domain.
```

```
*/
```

```
#include <SoftwareSerial.h>
```

```
SoftwareSerial mySerial(2, 3); // RX, TX
```





```
void setup()
{
  // Open serial communications and wait for port to open:
  Serial.begin(9600);
  while (!Serial) {
    ; // wait for serial port to connect. Needed for Leonardo only
  }

  Serial.println("Goodnight moon!");

  // set the data rate for the SoftwareSerial port
  mySerial.begin(9600);
  // set master
  mySerial.print("AT+ROLE1");
  delay(10000);

}

void loop() // run over and over
{

  // set the data rate for the SoftwareSerial port
  mySerial.print("test I am master ");
  delay(10000);
  if (mySerial.available())
  Serial.write(mySerial.read());
  if (Serial.available())
  mySerial.write(Serial.read());
}
```

## //slave

```
/*
  This example code is in the public domain.

  */
#include <SoftwareSerial.h>

SoftwareSerial mySerial(2, 3); // RX, TX
```

```
void setup()
{
  // Open serial communications and wait for port to open:
  Serial.begin(9600);
  while (!Serial) {
    ; // wait for serial port to connect. Needed for Leonardo only
  }

  Serial.println("Goodnight moon!");

  // set the data rate for the SoftwareSerial port
  mySerial.begin(9600);
  // set slave
  mySerial.print("AT+ROLE0");
  delay(10000);

}

void loop() // run over and over
{

  // set the data rate for the SoftwareSerial port
  mySerial.print("test I am slave ");
  delay(10000);
  if (mySerial.available())
  Serial.write(mySerial.read());
  if (Serial.available())
  mySerial.write(Serial.read());
}
```

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