

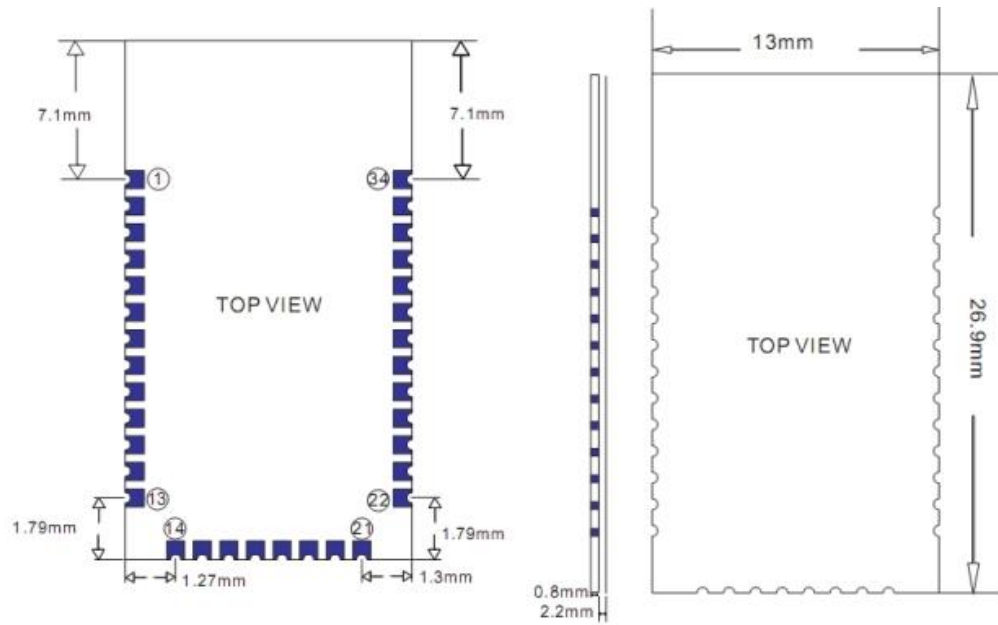
## Parameters:

Bluetooth protocol: Bluetooth Specification V4.0 BLE  
USB Protocol: USB V2.0  
Operating Frequency: 2.4GHz ISM band  
Modulation: GFSK (Gaussian Frequency Shift Keying)  
Transmit power:  $\leq 4\text{dBm}$   
Sensitivity:  $\leq -84\text{dBm}$  at 0.1% BER  
Transfer rate: Asynchronous: 6 kbps, Synchronous: 6 kbps  
Security Features: Authentication and encryption  
Support Services: Central & Peripheral UUID FFE0, FFE1  
Power supply: + 3.3VDC 50mA  
Working temperature:  $-5 \sim +65$  Centigrade  
Dimensions: 27 x 13 x 2.2 mm.

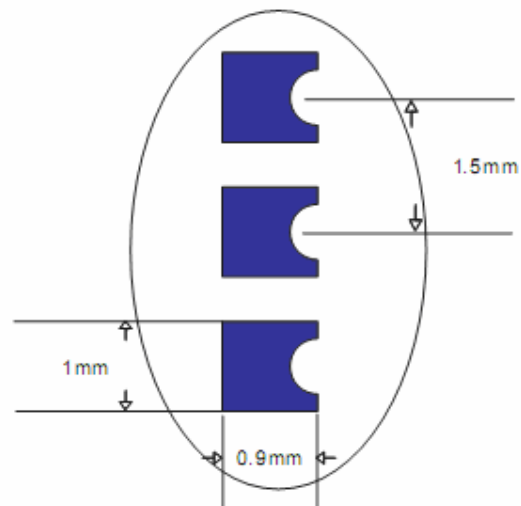
## Application areas:

Industrial remote control, remote sensing  
POS system, bluetooth keyboard, mouse, game controllers  
Automobile testing equipment  
Portable, battery power of medical equipment  
Automated data collection  
Bluetooth remote control toy  
The wireless LED display system  
Bluetooth printer  
Intelligent household, industrial control

## HM-10 Dimensions and identification



## HM-10 pad size and spacing

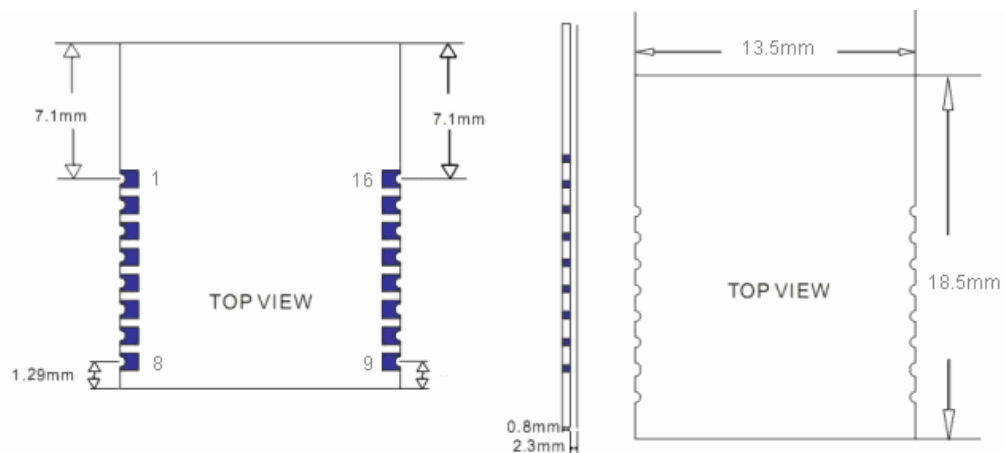


**HM-10** pin description

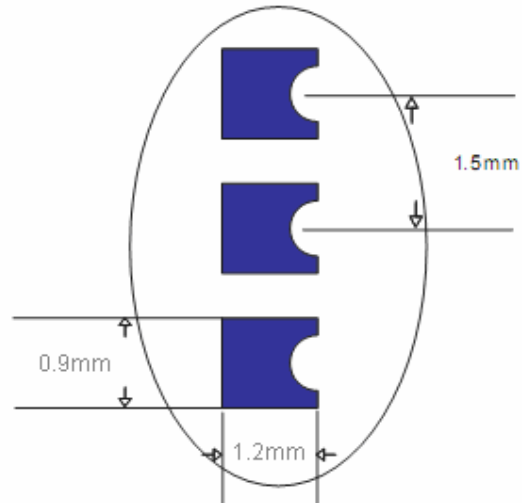
pin number	pin name	pin description
1	UART_TX	UART
2	UART_RX	UART
3	UART_CTS	UART
4	UART_RTS	UART
5	NC	
6	NC	
7	NC	
8	NC	
9	AIO0	Analog output, input I / O ports
10	AIO1	Analog output, input I / O ports
11	RESETB	System reset, the low level effectively
12	VCC	3.3V power
13	GND	
14	GND	

15	USB_D-	USB DATA Negative differential line
16	NC	
17	NC	
18	NC	
19	NC	
20	UB_D+	USB DATA Positive, differential line
21	GND	
22	GND	
23	PIO0	button pin
24	PIO1	LED
25	PIO2	Digital output, input I / O ports
26	PIO3	Digital output, input I / O ports
27	PIO4	Digital output, input I / O ports
28	PIO5	Digital output, input I / O ports
29	PIO6	Digital output, input I / O ports
30	PIO7	Digital output, input I / O ports
31	PIO8	Digital output, input I / O ports
32	PIO9	Digital output, input I / O ports
33	PIO10	Digital output, input I / O ports
34	PIO11	Digital output, input I / O ports

## HM-11



## HM-11 pad size and spacing



## HM-11 pin description

pin number	pin name	pin description
1	UART_RTS	UART
2	UART_TX	UART
3	UART_CTS	UART
4	UART_RX	UART
5	NC	Vacant
6	NC	Vacant
7	NC	Vacant
8	NC	Vacant
9	VCC	DC 3.3V
10	NC	Vacant or VCC
11	RESETB	Low level reset, at least 5 ms
12	GND	
13	PIO3	Digital output, input I / O ports

14	PIO2	Digital output, input I / O ports
15	PIO1	LED
16	PIO0	button pin

#### 1. HM series Bluetooth module connection key points:

HM series of bluetooth module working voltage is recommended with 3.3 V, and 3.3 V microcontroller can be connected directly,

When need to connect with 5 v microcontroller, please string a 1-2 k resistance in the module of RX pin between TX pin, to protect the module RX pin, prevent burn.

#### 2. LAYOUT, pay attention to the point:

HM series of bluetooth module work in 2.4 G wireless spectrum, should try to avoid all kinds of factors on the wireless transceiver the influence of, pay attention to the following:

2.1, surrounded by bluetooth module shell to avoid using metal products, when using part of the metal shell, should be as far as possible let module antenna part away from the metal part.

2.2, metal wire or metal screws inside the product, should as far as possible away from the antenna module.

2.3, module antenna should put round PCB, don't allow placed on board, and the antenna beneath the plate milling empty, the direction of the parallel to the antenna, are not allowed to laying copper or go line. Directly put the antenna to load board, also is a better choice.

2.4, below the module spread as far as possible big GND, try to get the line to the periphery.

2.5, suggestions on base board module mounting location use insulating materials to isolation, for example, in this location put a whole piece of silk screen (TopOverLay)

Note:

##### 1, key pin (PIO0)

PIO0 for input pin, short press control, or about 100 ms the high level of single pulse input, you can Implement the following functions:

##### 1.1, module is set to host mode:

Not connected state, remove pairing information matching equipment information (if present)

The connected state, initiate disconnected, delay 500 ms after the restart, into the main mode

Piece of work flow.

##### 1.2, from machine module Settings for:

In the connected state: initiate disconnected, is back into the search state, waiting for the host pairing and connection;

When disconnected: they are time-lapse 500 ms after the restart, is back into the search state, waiting for the host Matching and connection.

Note 1: disconnected PIO0 control is to initiate connections, belongs to the normal disconnection, remote bluetooth

Device has not always in that state.(can use IVT software observation, if it is abnormal disconnect,

IVT software only about 10 seconds will be prompted to disconnect, unable to connect to other bluetooth serial port module at this time Operation)

##### 2, the LED pin (PIO1)

PIO1 for the output pin, the display module in the current working status:

Standby slow flash - 500 ms pulse repetition;

Connection state long bright, high level.

You can also set to standby mode according to need not flash, long bright connection condition.