

SPP-C Bluetooth module is designed for intelligent wireless data transmission and create follow V2.1 + EDR Bluetooth specification.

The module supports UART interface, and supports Bluetooth SPP serial protocol, low cost, small size, low power consumption, send and receive sensitivity advantages, with only a few external components will be able to achieve its powerful features.

## Features:

Bluetooth V2.1 + EDR  
Bluetooth Class 2  
Built-in PCB antenna RF  
Support UART interface  
3.3V power supply

## Application:

This module is mainly used for wireless transmission of data in the field a short distance. And PC can be easily connected Bluetooth device, it can also exchange data between the two modules. Avoid cumbersome cable connections, can directly replace the serial cable.

Bluetooth wireless data transmission;  
Remote control and monitoring;  
POS systems, wireless keyboard, mouse;  
Transportation, underground location, alarm;  
Automated data acquisition system;  
Wireless data transmission; the banking system;  
Wireless data collection;  
Building automation, security, wireless monitoring and control room equipment,access control systems;  
Smart home, industrial control;  
Automotive testing equipment;  
Interactive television program voting equipment;  
Government energy saving lamps equipment;  
Wireless LED display systems;  
Bluetooth joystick, Bluetooth gamepad;  
Bluetooth Printer  
Bluetooth remote control toys  
Automotive diagnostic OBDII

## Physical characteristics:

Operating Frequency Band	2.4GHz -2.48GHz unlicensed ISM band
Bluetooth Specification	V2.1+EDR
Output Power Class	Class 2
Operating Voltage	3.3V
Host Interface	UART

## Electrical characteristics:

Absolute Maximum Ratings		
Rating	Min	Max
Storage temperature	-40°C	+150°C
Supply voltage: VBAT	-0.4V	5.6V
Other terminal voltages	VSS-0.4V	VDD+0.4V

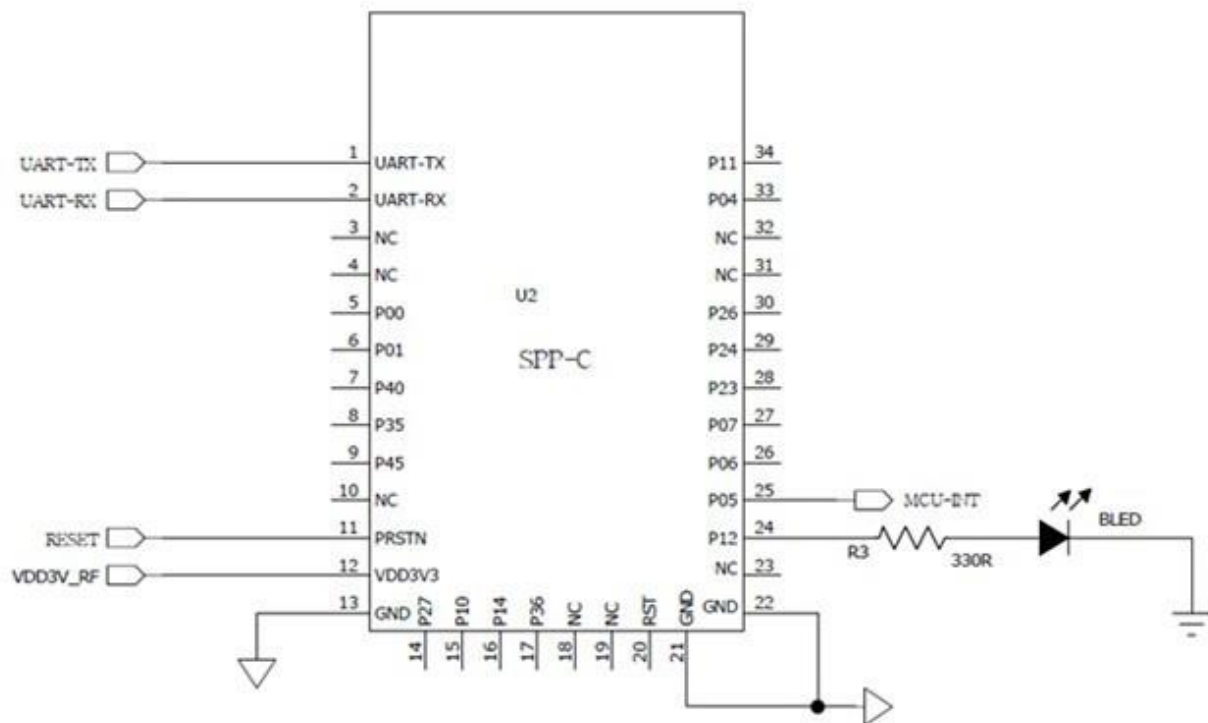
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Recommended Operating Conditions		
Operating Condition	Min	Max
Operating temperature range	-40°C	+150°C
Guaranteed RF performance range <sup>(a)</sup>	-40°C	+150°C
Supply voltage: VBAT	2.2V	4.2V <sup>(b)</sup>

## Power:

Operation Mode ↕	Connection Type ↕	UART Rate(kbps) ↕	Average↕	Unit ↕
Page scan ↕	- ↕	115.2 ↕	0.42↕	<u>mA</u> ↕
ACL No traffic ↕	Master ↕	115.2 ↕	4.60↕	<u>mA</u> ↕
ACL With file transfer ↕	Master ↕	115.2 ↕	10.3↕	<u>mA</u> ↕
ACL 1.28s sniff ↕	Master ↕	38.4 ↕	0.37↕	<u>mA</u> ↕
ACL 1.28s sniff ↕	Slave ↕	38.4 ↕	0.42↕	<u>mA</u> ↕
SCO HV3 30ms sniff ↕	Master ↕	38.4 ↕	19.8↕	<u>mA</u> ↕
SCO HV3 30ms sniff ↕	Slave ↕	38.4 ↕	19.0↕	<u>mA</u> ↕
Standby Host connection	- ↕	38.4 ↕	40↕	<u>μA</u> ↕

## Application Circuit:

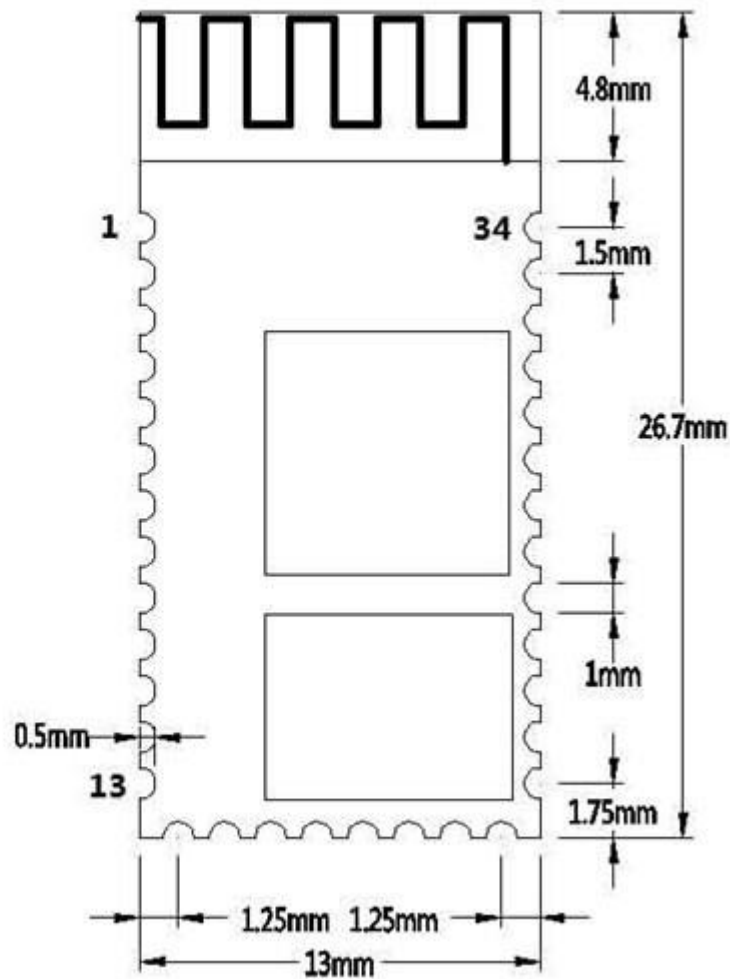


## Pin Description:

Pin Number	Name	Type	Functional Description
1	UART-TX	CMOS output	Serial data output
2	UART-RX	CMOS input	Serial data input
3	NC	Two-way	NC (Please vacant)
4	NC	Two-way	NC (Please vacant)
5	P00	Two-way	Programmable input / output ports
6	P01	Two-way	Programmable input / output ports
7	P40	Two-way	Programmable input / output ports
8	P35	Two-way	Programmable input / output ports
9	P45	Two-way	Programmable input / output ports
10	NC	Two-way	NC (Please vacant)
11	RESETB	CMOS input	Reset / restart button (low reset)
12	3.3V	Power input	+3.3V power supply
13	GND	Ground	Ground
14	P27	Two-way	Programmable input / output ports
15	P10	Two-way	Programmable input / output ports
16	P14	Two-way	Programmable input / output ports

17↵	P36 ↵	Two-way↵	Programmable input / output ports↵
18↵	NC ↵	Two-way↵	NC (Please vacant)↵
19↵	NC ↵	Two-way↵	NC (Please vacant)↵
20↵	NC ↵	Two-way↵	NC (Please vacant)↵
21↵	GND ↵	Ground↵	Ground↵
22↵	GND ↵	Ground↵	Ground↵
23↵	NC ↵	Two-way↵	NC (Please vacant)↵
24↵	P12↵	Export↵	Status indication LED port (see other settings)↵
25↵	P05 ↵	Export↵	Host interrupt instruction port (see other settings)↵
26↵	P06 ↵	Two-way↵	Programmable input / output ports↵
27↵	P07↵	Two-way↵	Programmable input / output ports↵
28↵	P23 ↵	Two-way↵	Programmable input / output ports↵
29↵	P24↵	Two-way↵	Programmable input / output ports↵
30↵	P26 ↵	Two-way↵	Programmable input / output ports↵
31↵	NC ↵	Two-way↵	NC (Please vacant)↵
32↵	NC↵	Two-way↵	NC (Please vacant)↵
33↵	P04 ↵	Two-way↵	Programmable input / output ports↵
34↵	P11↵	Two-way↵	Programmable input / output ports↵

## Dimensions:



## Other configurations

### Status Indicator LED: P12

Bluetooth module which is used to indicate status, LED light flashes and a Bluetooth module corresponding to the state as follows:

Mode	LED Display	Module Status
Slave mode	Uniform Slow flashing (800ms-on, 800ms-off)	Pairing wait
	Long bright	Establish a connection

# LAYOUT Notes

- 1 SPP-C serial port Bluetooth module level required to 3.3V, and 5V level if connected to the system need to increase the level switch chip.
- 2 Bluetooth signals by the surrounding great influence, such as trees, metal, walls and other obstacles will have a Bluetooth signal absorption or shielding, it is recommended not to install metal being.
- 3 Since the metal will weaken the antenna function, it is recommended to Lay board module, the module antenna shop and do not go below the line, the best knockout.

## SPP-C Bluetooth serial communication module AT command set

Users can be through the serial port and SPP-C chip communication, serial port Tx, Rx two signal lines, baud rate support 1200,2400,4800,9600,14400,19200,38400,57600,115200,230400,460800 and 921600bps. The default serial port baud rate of 9600bps.

### Instruction Set Description

SPP-C Bluetooth serial module instruction Command instruction set.

(Note: You must carriage return when the AT command, AT commands can only take effect in the module is not connected, the Bluetooth module once the device is connected, the Bluetooth module enters data transparent mode \ r \ n to press the computer. Enter key, if not press the Enter key to add \ r \ n.AT command case insensitive)

#### 1 Test command:

Downlink instruction↵	Response↵	Parameters↵
AT↵	OK↵	No↵

#### 2 Module reset (restart):

Downlink instruction↵	Response↵	Parameters↵
AT+RESET↵	OK↵	No↵

#### 3 Get software version number↵

Downlink instruction↵	Response↵	Parameters↵
AT+VERSION↵	+VERSION=<Param>↵ OK↵	Param: software version number↵

For example:

AT+VERSION\r\n

+VERSION=2.0-20100601

OK

#### 4、 Restore Default Status:

Downlink instruction	Response	Parameters
AT+DEFAULT	OK	无

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#### 5、 Set / Query - Bluetooth address code:

Downlink instruction	Response	Parameters
AT+LADDR<Param>	OK	Param: address code
AT+LADDR	+ LADDR =<Param> OK	The default address code: "AA: BB: CC: 11: 22: 33"

Example: Send AT + LADDR11: 22: 33: 44: 55: 66 \r \n

Returns + LADDR = 11: 22: 33: 44: 55: 66

Then the Bluetooth address code read 11:22: 33: 44: 55: 66, the module default address code is AA: BB: CC: 11: 22: 33.

#### 6、 Set / query the device name:

Downlink instruction	Response	Parameters
AT+NAME<Param>	OK	
AT+NAME	1, + NAME = <Param> OK-- success 2, FAIL-- failure	Param: Bluetooth device name Default name: "SPP-CA"

Example: Send AT + NAMEBOLUTEK \r \n

Returns + NAME = BOLUTEK

Then the Bluetooth name changed BOLUTEK

Parameter support power-down save.



### 7、 Query - Module role:

Downlink instruction	Response	Parameters
AT+ROLE<Param>	OK	<u>Param</u> : Parameter values are as follows: 0-- from the role (Slave) 1-- primary role (Master) Default: 0
AT+ROLE	+ROLE=<Param> OK	

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### 8、 Set / Query - Pairing code:

Downlink instruction	Response	Parameters
AT+PIN<Param>	OK	<u>Param</u> : pairing code Default name: "1234"
AT+PIN	+PIN=<Param>	

Example: Send AT + PIN8888 \r \n

Returns + PIN = 8888

Then the Bluetooth pairing password to 8888, the module default passcode is 1234.

9、Set / Query - baud rate:

Downlink instruction	Response	Parameters
AT+BAUD<Param>	OK	<Param>: Baud Rate
AT+BAUD	+BAUD=<Param> OK ↵	1---1200 2---2400 3---4800 4---9600 5---19200 6---38400 7---57600 8---115200 9---230400 A---460800 B---921600 C---1382400 Default: 4 --- 9600

Example: Send: AT + BAUD6

Returns: + BAUD = 6

At this baud rate to 38400

Note: After baud rate change, if not the default of 9600, when after the parameter settings or data communication, use baud rate settings.