HC-06 Data Sheet

Bluetooth to Serial Port Module

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1、Overview

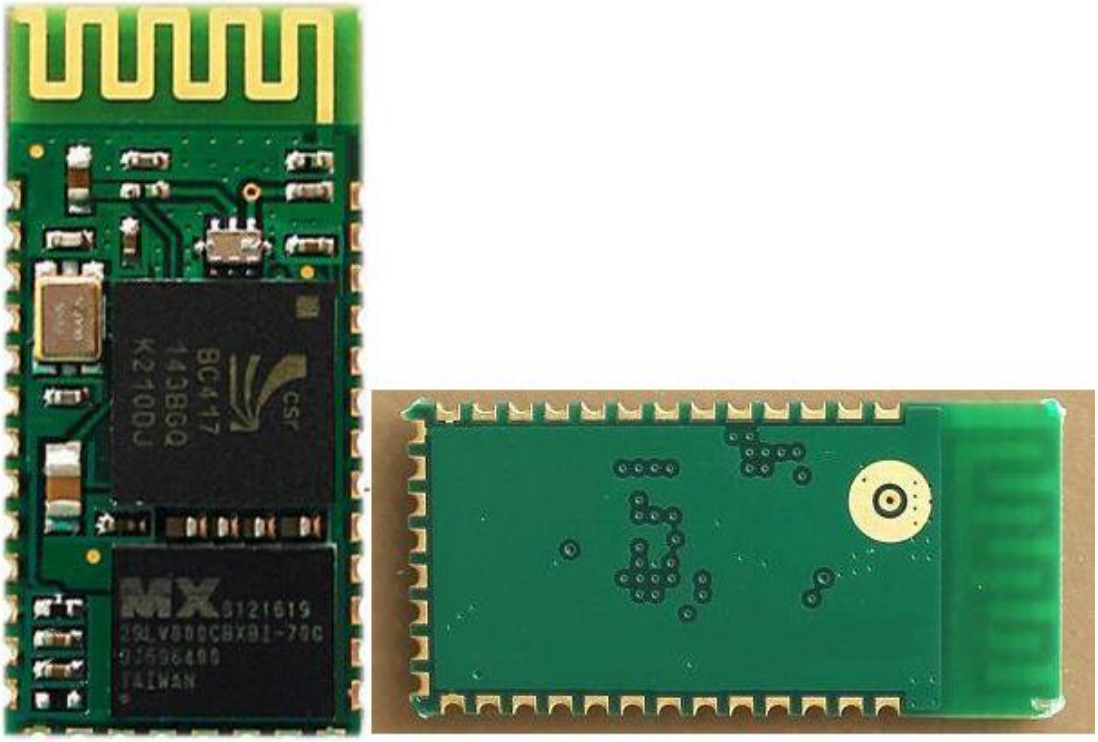
HC-06 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup.

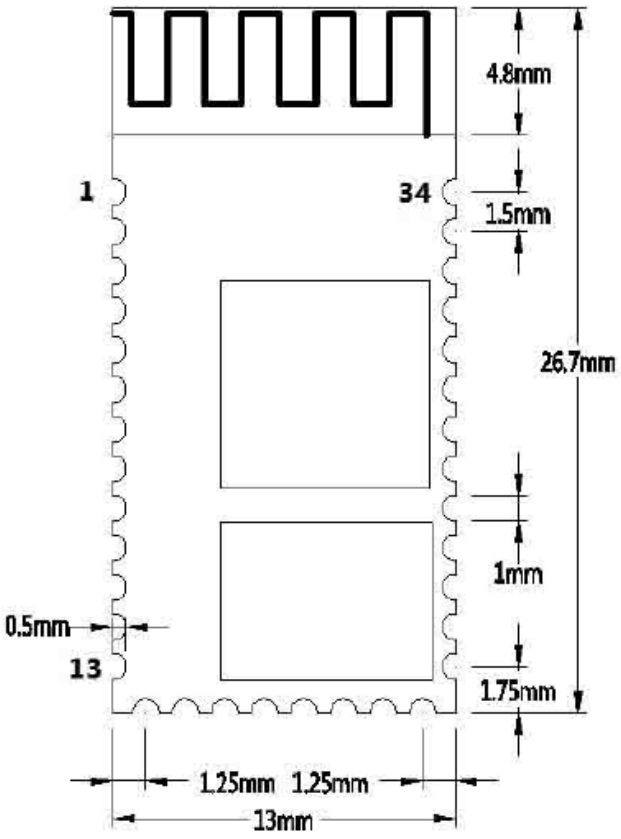
Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore BC417143 chip. It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

2、Feature

- Sensitivity (Bit error rate) can reach -80dBm,The change range of output's power: -4 - +6dBm.
- Has an EDR module; and the change range of modulation depth: 2Mbps - 3Mbps.
- Has a build-in 2.4GHz antenna; user needn't test antenna.
- Has the external 8Mbit FLASH
- Can work at the low voltage (3.1V~4.2V). The current in pairing is in the range of 30～40mA.
- The current in communication is 8mA.
- Standard HCI Port (UART or USB)
- USB Protocol: Full Speed USB1.1, Compliant With 2.0
- This module can be used in the SMD.
- It's made through RoHS process.
- The board PIN is half hole size.
- Has a 2.4GHz digital wireless transceiver.
- Bases at CSR BC04 Bluetooth technology.
- Has the function of adaptive frequency hopping.
- Small (27mm×13mm×2mm)
- Peripherals circuit is simple.
- It's at the Bluetooth class 2 power level.
- Storage temperature range: -40 ℃ - 85℃， work temperature range: -25 ℃ - +75℃
- Any wave inter Interference: 2.4MHz， the power of emitting: 3 dBm.
- Bit error rate: 0. Only the signal decays at the transmission link, bit error may be produced. For example, when RS232 or TTL is being processed, some signals may decay.

3、Product's picture

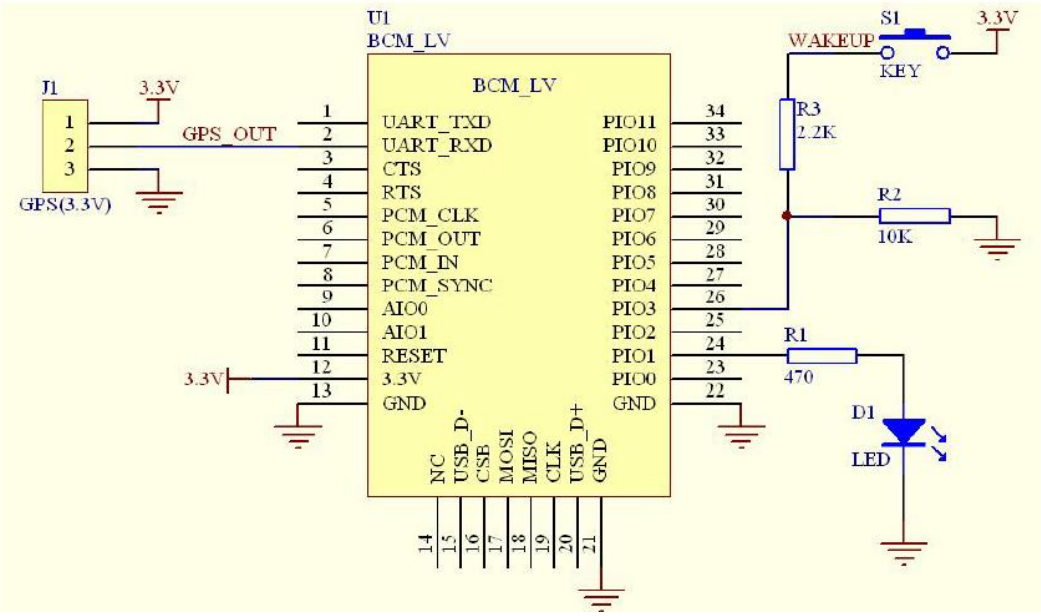


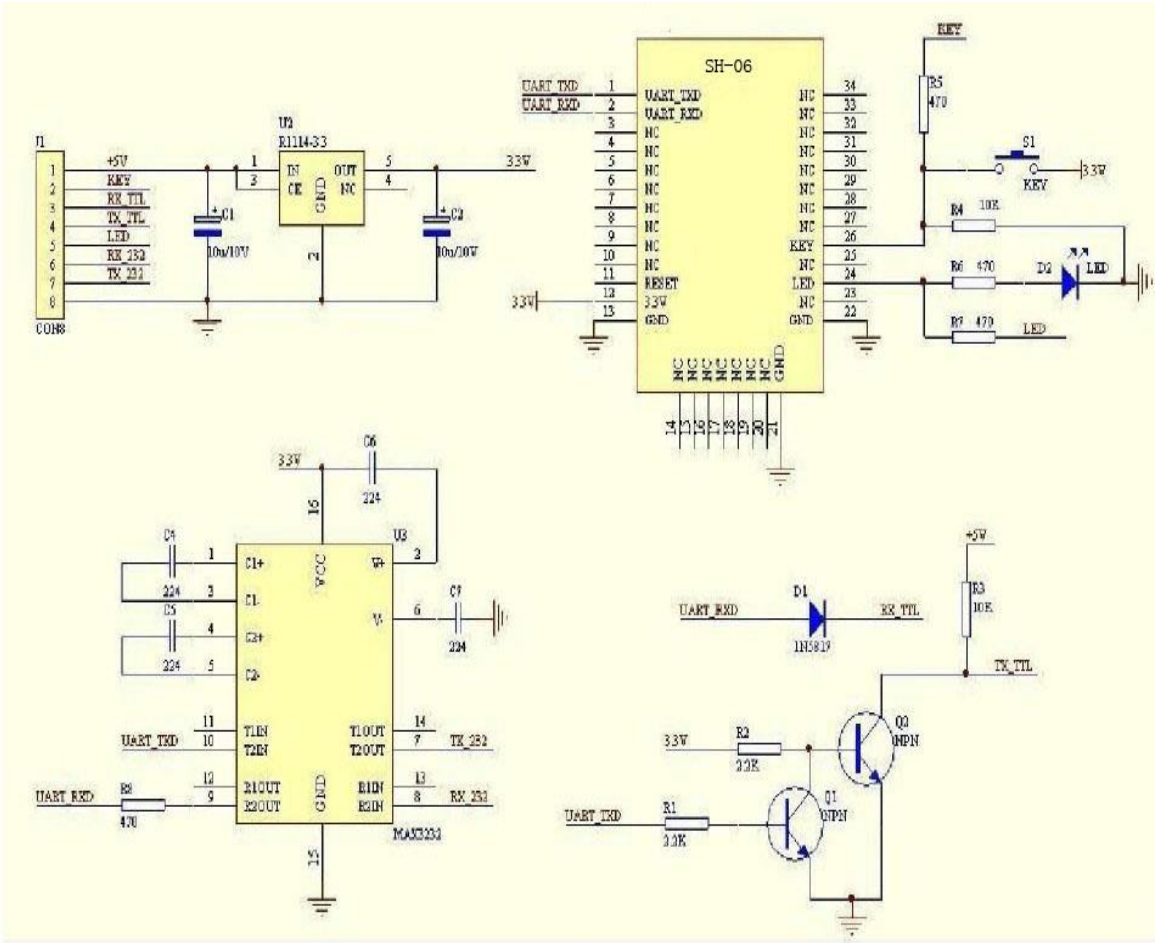


4、Application fields

- Bluetooth Car Handsfree Device
- Bluetooth GPS
- Bluetooth PCMCIA , USB Dongle
- Bluetooth Data Transfer

5、Block diagram

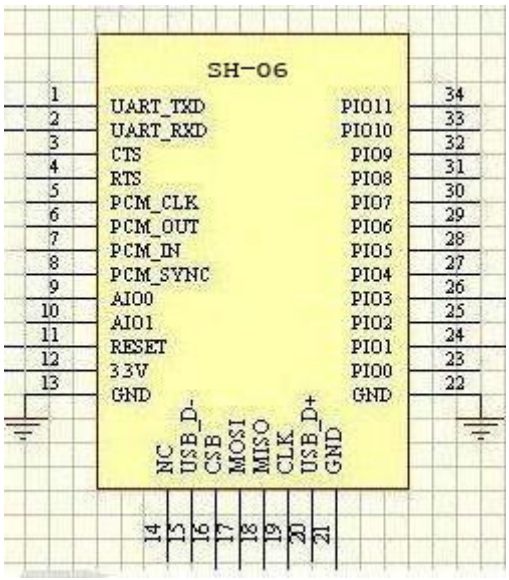




HC-06 master device has a function of remembering the last paired slave device. As a master device, it will search the last paired salve device until the connection is built. But if the WAKEUP bottom is pressed, HC-06 will lose the memory and research the new

slave device.

6、 PINs description



PIN Name	PIN	Pad type	Description	Note
UART_TX	1	CMOS output, Tri-stable with weak internal pull-up	UART Data output	
UART_RX	2	CMOS input with weak internal pull-down	UART Data input	
UART_CTS	3	CMOS input with weak internal pull-down	UART clear to send, active low	
UART_RTS	4	CMOS output, tri-stable with weak internal pull-up	UART r qu st to send, active low	
PCM_CLK	5	Bi-Directional		

PCM_OUT	6	CMOS output		
PCM_IN	7	CMOS Input		
PCM_SYNC	8	Bi-Directional		
AIO0	9	Bi-Directional		
AIO1	10	Bi-Directional		
RESETB	11	CMOS Input with RESETB 11 weak intemal pull-down		
VCC	12	3.3V		
GND	13	VSS	Ground pot	
1V8	14	VDD	Integrated 1.8V (+) supply with On-chip linear regulator output within 1.7-1.9V	
USB_-	15	Bi-Directional		
SPI_CSB	16	CMOS input with weak internal pull-up	Chip select for serial peripheral interface, active low	
SPI_MOSI	17	CMOS input with weak internal pull-down	Serial peripheral interface data input	
SPI_MISO	18	CMOS input with weak internal pull-down	Serial peripheral interface data Output	
SPI_CLK	19	CMOS input with weak internal	Serial peripheral interface clock	
USB_+	20	Bi-Directional		
GND	21	VSS	Ground pot	
GND	22	VSS	Ground pot	
PIO0	23	Bi-Directional RX EN	Programmable input/output line, control output for LNA(if fitted)	

PIO1	24	Bi-Directional TX EN	Programmable input/output line, control output for PA(if fitted)	LED
PIO2	25	Bi-Directional	Programmable input/output line	
PIO3	26	Bi-Directional	Programmable input/output line	KEY
PIO4	27	Bi-Directional	Programmable input/output line	
PIO5	28	Bi-Directional	Programmable input/output line	
PIO6	29	Bi-Directional	Programmable input/output line	CLK_REQ
PIO7	30	Bi-Directional	Programmable input/output line	CLK_OUT
PIO8	31	Bi-Directional	Programmable input/output line	
PIO9	32	Bi-Directional	Programmable input/output line	
PIO10	33	Bi-Directional	Programmable input/output line	
PIO11	34	Bi-Directional	Programmable input/output line	

7、AT Command

The way to the AT command mode: supply power to the module, it will enter to the AT mode if it needn't pair. The interval of command is about 1 second.

Default parameter: Baud rate:9600N81, Password:1234

1. Test communication

Send: AT (please send it every second)

Back: OK

2. Reset the Bluetooth serial baud rate
Send: AT+BAUD1
Back: OK1200
Send: AT+BAUD2
Back: OK2400
……
1---------1200
2---------2400
3---------4800
4---------9600 (Default)
5---------19200
6---------38400
7---------57600
8---------115200
9---------230400
A---------460800
B---------921600
C---------1382400
PC can't support the baud rate lager than 115200. The solution is: make the MCU have higher baud rate (lager than 115200) through programming, and reset the baud rate to low level through the AT command.
The baud rate reset by the AT command can be kept for the next time even though the power is cut off.

3. Reset the Bluetooth name
Send: AT+NAMEname
Back: OKname

Parameter name: Name needed to be set (20 characters limited)
Example:
Send: AT+NAMEbill_gates
Back: OKname
Now, the Bluetooth name is reset to be "bill_gates"
The parameter can be kept even though the power is cut off. User can see the new Bluetooth name
in PDA refresh service. (Note: The name is limited in 20 characters.)

4. change the Bluetooth pair password

Send: AT+PINxxxx
Back:OKsetpin

Parameter xxxx: The pair password needed to be set, is a 4-bits number. This command can be usedin the master and slave module. At some occasions, the master module may be asked to enter the password when the master module tries to connect the slave module (adapter or cell-phone). Only if the password is entered, the successful connection can be built. At the other occasions, the pair can be finish automatically if the master module can search the proper slave module and the password is correct.
Besides the paired slave module, the master can connect the other devices who have slave module, such as Bluetooth digital camera, Bluetooth GPS, Bluetooth serial printer etc.
Example:
Send: AT+PIN8888
Back: OKsetpin
Then the password is changed to be 8888, while the default is 1234.
This parameter can be kept even though the power is cut off.

5. No parity check (The version, higher than V1.5, can use this command)
Send: AT+PN (This is the default value)
Back: OK NONE
6. Set odd parity check (The version, higher than V1.5, can use this command)
Send: AT+PO
Back: OK ODD
7. Set even parity check(The version, higher than V1.5, can use this command)
Send: AT+PE
Back: OK EVEN

8. Set Master / Slave mode

Send: AT+ROLE=[mode]

Back: OK+ROLE:[mode]

[Mode] : S or M

AT+ROLE=M Setting to master mode

AT+ROLE=S Setting to slave mode

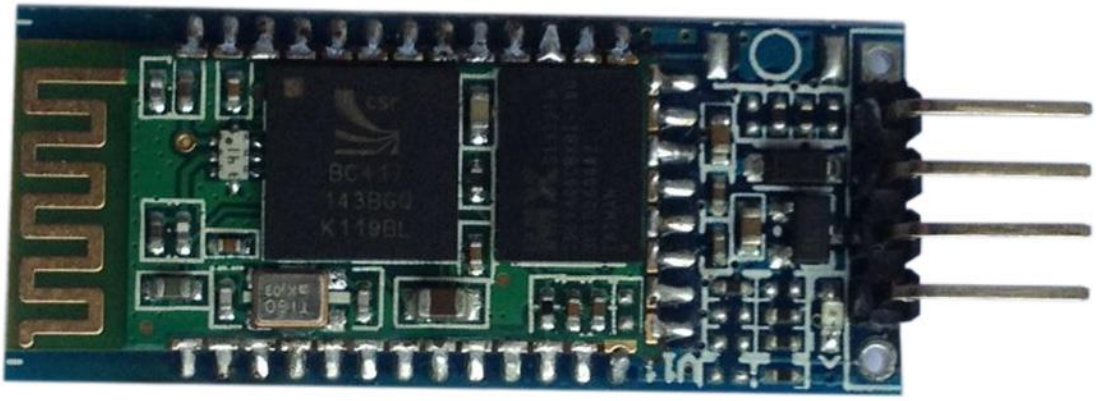
If a master HC-06 module is to be paired with a slave hc-06 module, note the following:

1, PIN is the same.

2, The master module will remember the paired slave module. If you want to pair the second slave module, make sure that the master module clears paired slave module.(give a hign level to PIN26 , master mode will clear paired module)

Any question ,please contact us: info@sihaicorp.com

8、HC-06 with base board 4PIN



1,Core module uses HC-06, leads from the module interface includes VCC, GND,

TXD, RXD, reserve LED status output pin, the microcontroller can be judged by the foot state Bluetooth has connected KEY pin slave invalid.
2, led indicate Bluetooth connection status, flashing Bluetooth connectivity, lit the Bluetooth connection and open a port Backplane
3, 3.3V LDO input voltage 3.6 ~ 6V, current is about 30mA unpaired, paired about 10mA, the input voltage to prohibit more than 7V!
4, the interface level 3.3V, can be directly connected the various SCM (51, AVR, PIC, ARM, MSP430, etc.), the 5V MCU also can be connected directly, without MAX232 can not go through the MAX232!
5, open to the effective distance of 10 meters, over 10 meters is also possible, but not of this the quality of the connection of the distance do to ensure
6, after the pair when full-duplex serial port to use, do not need to know anything about the Bluetooth protocol, but only supports 8 data bits, 1 stop bit, no parity communication format, which is the most commonly used communication format does not support other formats .
7, support for Bluetooth connection is not established by the AT command set the baud rate, name, passkey, set parameters are saved after. Bluetooth connection is automatically switched to the pass-through mode
8, compact (3.57cm * 1.52cm), the factory chip production to ensure the placement quality. And sets of transparent heat shrink tubing, dust and beautiful, and anti-static.
9, the link from the machine, computer, Bluetooth with Bluetooth function from the functio n with a variety of hosts, the majority with a Bluetooth-enabled cell phone, PDA, PSP and other intelligent terminal pairing from not pairing between the machine.

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