

HC-05 Data Sheet

Bluetooth to Serial Port Module

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1、 Overview

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup.

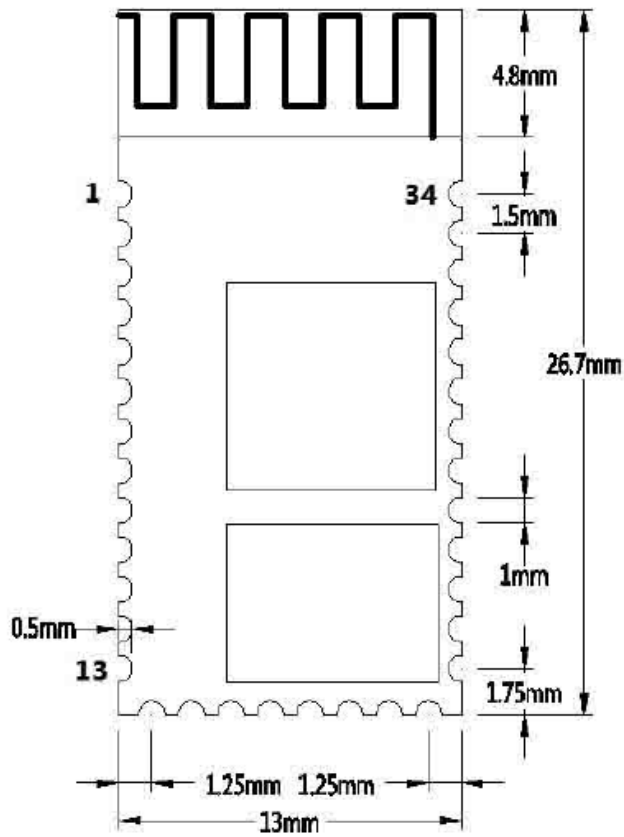
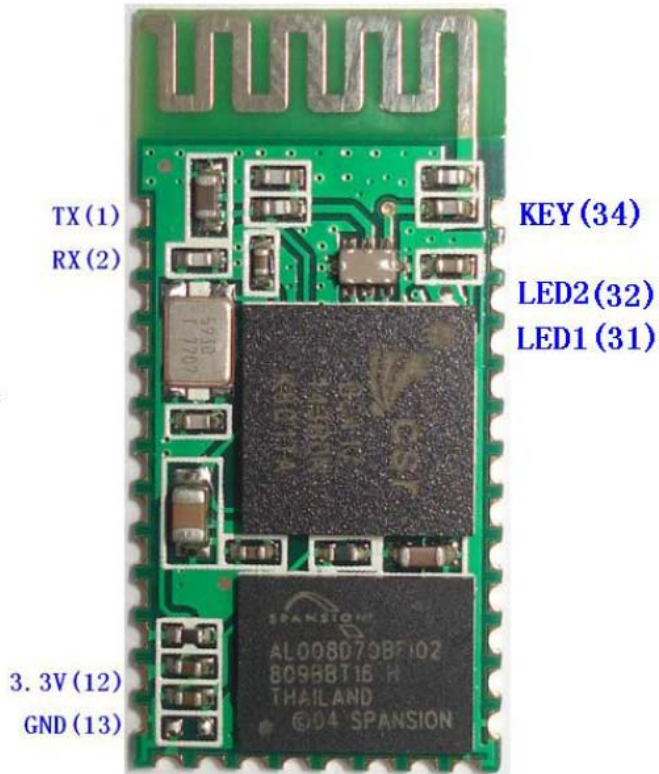
Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore BC417143 chip. It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

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.
- PIO control can be switched.
- 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 °C - 85°C , work temperature range: -25 °C - +75°C
- 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

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HC-05 Data Sheet

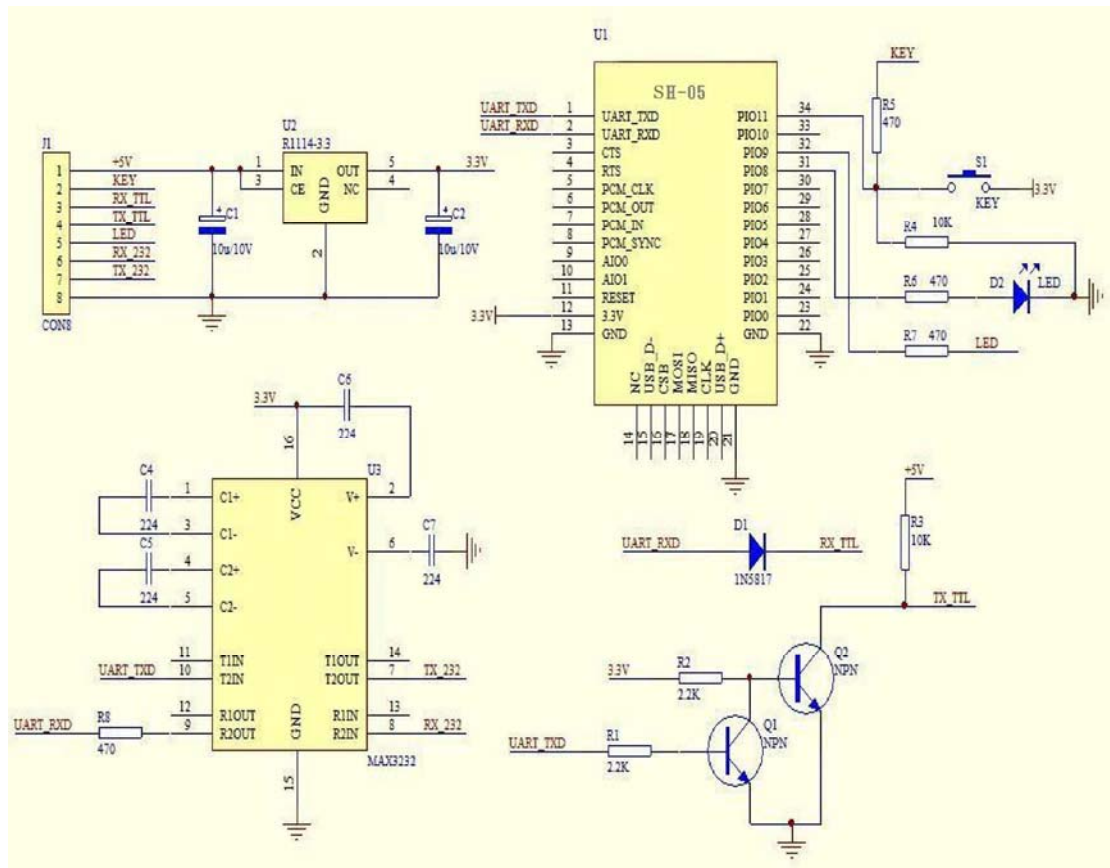


4、 Application fields

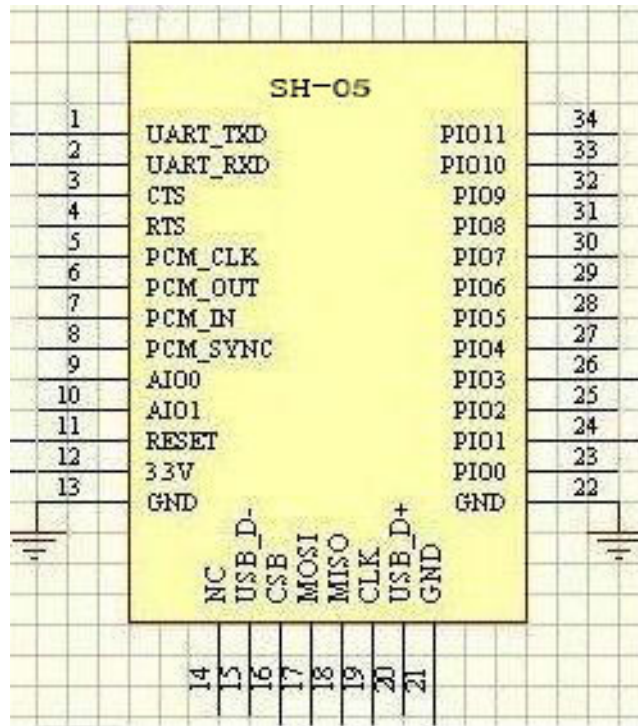
- Bluetooth Car Handsfree Device
- Bluetooth GPS
- Bluetooth PCMCIA , USB Dongle
- Bluetooth Data Transfer
- Bluetooth Arduino module

5、 Block diagram

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6、 PINs description



HC-05 Data Sheet

| 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 | | |
| AI00 | 9 | Bi-Directional | | |
| AI01 | 10 | Bi-Directional | | |
| RESETB | 11 | CMOS Input with RESETB 11 weak intemal pull-down | | |

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|----------|----|---|---|--|
| 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 | |
| PI00 | 23 | Bi-Directional RX EN | Programmable input/output line, control output for LNA(if fitted) | |

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|-------|----|-------------------------|---|-----|
| PI01 | 24 | Bi-Directional TX EN | Programmable input/output line, control output for PA(if fitted) | |
| PI02 | 25 | Bi-Directional | Programmable input/output line | |
| PI03 | 26 | Bi-Directional | Programmable input/output line | |
| PI04 | 27 | Bi-Directional | Programmable input/output line | |
| PI05 | 28 | Bi-Directional | Programmable input/output line | |
| PI06 | 29 | Bi-Directional | Programmable input/output line | |
| PI07 | 30 | Bi-Directional | Programmable input/output line | |
| PI08 | 31 | Bi-Directional | Programmable input/output line | LED |
| PI09 | 32 | Bi-Directional | Programmable input/output line | LED |
| PI010 | 33 | Bi-Directional | Programmable input/output line | |
| PI011 | 34 | Bi-Directional | Programmable input/output line | KEY |

7、 AT Command

More information about command set is provided at [hc-05-at-command.pdf](#).