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Basic

Based on British CSR BlueCore4-Ext chip, follow V2.1 + EDR Bluetooth specification. The module supports UART, USB, SPI, PCM, SPDIF interface, and support for the SPP Bluetooth serial protocol, low cost, small size, low power consumption, send and receive sensitivity advantages, just with a few external components will be able to achieve its powerful.

Features

- Bluetooth V2.1 + EDR
- Bluetooth Class 2
- Built-in PCB RF antenna
- Built-in 8Mbit Flash
- Support for SPI programming interface
- Support UART, USB, SPI, PCM interface
- 3.3V power supply
- REACH, ROHS certification

Application

The module is mainly used for short-range wireless data transmission field. Convenient and connected to the PC, Bluetooth devices can also data exchange between the two modules. Avoid cumbersome cable connections, direct replacement for the serial line.

- Bluetooth wireless data transmission;
- industrial remote control, telemetry;
- POS system, wireless keyboard, mouse;
- traffic, underground positioning, alarm;
- automated data acquisition system;
- wireless data transmission; banking system;
- wireless data acquisition;
- building automation, security, wireless monitoring room equipment, access control systems;
- smart home, industrial control;
- automotive testing equipment;
- television the interactive program vote Equipment;
- government street light energy saving equipment
- wireless LED display system
- Bluetooth joystick, Bluetooth gamepad
- Bluetooth printer
- Bluetooth remote control toy

Mechanical Features

- 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 USB 1.1/2.0 or UART
- Audio Interface PCM interface
- Flash Memory Size 8Mbit
- Dimension 27mm (L) x 13 (W) mm x 2mm (H)

Electric Features

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

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

Power Consumption

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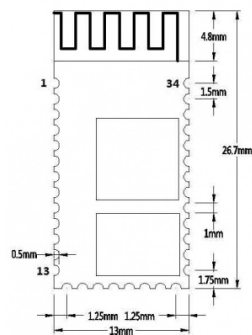- Standby Host connection - 38.4 40 µA

Basic Info

Function Diagram

Schemetic
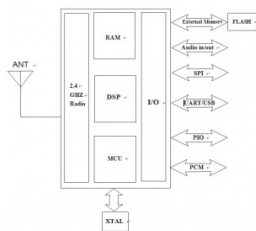
BC04 Schematic

Dimension

On-board LED Status

Mode ⇕	LED Status ⇕	Module Status ⇕
Master	Even blinking 150ms on, 150ms off	searching mode
Master	5 times fast flashing 2 seconds off	pairing with recorded paired device
Master	Long-time on	Connected
Slave	Even blinking 800ms on, 800ms off	wait for pairing
Slave	Long-time on	Connected

BC04-A

Basic Connection

To computer

1. Convert TTL level RS232
2. Module power supply 3.3 V
3. TX and RX connected to RX and TX

1. TX and RX connected to RX and TX
2. Module supply 3.3V

Module into the AT test methods

1. Module power supply 3.3
2. Open HyperTerminal or other serial debugging tools
3. Open HyperTerminal or other serial debugging tools to set the baud rate (default 9600), 8 data bits, 1 stop bit, no parity, no flow control
4. Convert TTL level RS232 computer serial port connection
5. Send commands AT carriage return line returns OK
6. Module will only enter into AT commands mode before pairing, after pairing it's communication mode.

Application Circuit And Pins

BC04-A; BC04-B;
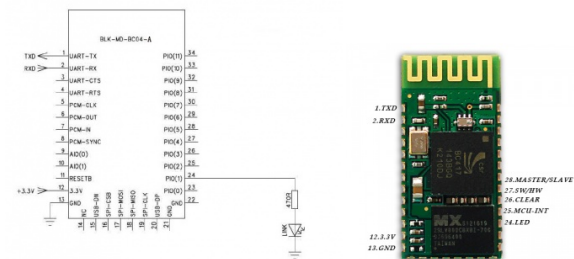
Pin Number	Name	Type	Decription		Programmed for BC04-B
1	**UART-TX**	CMOS output	UART data output		Same
2	**UART-RX**	CMOS input	UART data input		Same
3	UART-CTS	CMOS input	UART cancel send		-
4	UART-RTS	CMOS output	UART request send		-
5	PCM-CLK	Double way	PCM clock		-
6	PCM-OUT	CMOS output	PCM data output		-
7	PCM-IN	CMOS input	PCM data input		-
8	PCM-SYNC	double way	Sync PCM data		-
	AIO(0)	double way	Programmable Analog I/O		-
10	AIO(1)	double way	Programmable Analog I/O		-
11	RESETB	CMOS input	Low TTL to reset		-
12	**3.3V**	Power Input	Power 3.3V		Same
13	**GND**	Power Output	GND		Same
14	NC	output	Please NC it		-
15	USB-DN	double way	USB data negative		-
16	SPI-CSB	CMOS input	SPI chip selection		-
17	SPI-MOSI	CMOS input	SPI data input		-

18	SPI-MISO	CMOS output	SPI data output	-
19	SPI-CLK	CMOS input	SPI clock	-
20	USB-DP	double way	USB data positive	-
21	GND	GND	GND	-
22	GND	GND	GND	-
23	PIO(0)	double way	Programmerable I/O (0)	-
24	**LED**	output	Status indicating LED	Status indicating LED ■ Pluse output means no connection ■ high TTL means connected
25	**MCU-INT**	double way	Programmerable I/O (2)	MCU interrupts port
26	**Clear**	double way	Programmerable I/O (3)	Memory clear key (short press) Restore Defaults button (long press 3s)
27	**SW/HW**	double way	Programmerable I/O (4)	Software / hardware main from settings port ■ set low (or vacant) hardware setup master-slave mode ■ set high 3.3V for the software to set master-slave mode
28	**Master/Slave**	double way	Programmerable I/O (5)	Hardware master-slave mode settings port ■ set low (or vacant) mainly from the mode, ■ set high 3.3V mode
29	PIO(6)	double way	Programmerable I/O (6)	-
30	PIO(7)	double way	Programmerable I/O (7)	-
31	PIO(8)	double way	Programmerable I/O (8)	-
32	PIO(9)	double way	Programmerable I/O (9)	-
33	PIO(10)	double way	Programmerable I/O (10)	-
34	PIO(11)	double way	Programmerable I/O (11)	-

ATcommands

See the available Command list on this page.

Status indicating LED : PIO(1) Use to indicating the status of the Bluetooth module, LED light flashes with the Bluetooth module state corresponding to the following table:

| Mode	Header text	Header text
Slave	Even Speed rapid flashing (200ms-on,200ms-off)	waiting for matching
Slave	always on	waiting for connection

BC04-B

Change Master/Slave Mode

Hardware settings:

Methods ⇕	PIO (4) ⇕	PIO (5) ⇕	Mode ⇕	AT commands ⇕
Hardware	LOW	HIGH	-	Master
Hardware	LOW	LOW	-	Salve
Software	HIGH	-	AT ROLE1	Master
Software	HIGH	-	AT ROLE0	Salve

Use "AT" command to test Communication
Software settings:

Application Circuit
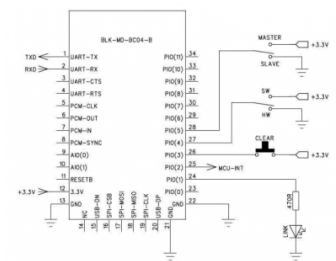
Command list

BC04-B Bluetooth serial module instruction is divided into Command (downlink command) and Indication (reporting instructions). (NOTE: AT commands are not case-sensitive, are carriage return, newline character at the end: \ r \ n AT instruction only in the state of the module is not connected to take effect once the Bluetooth module connected to the device, the Bluetooth module that entering data pass-through mode)
See the full Command List on this page.

Layout design points

■ BC04 Bluetooth module TTL level required to 3.3V, and for 5V TTL you will need 3.3-5V TTL conversion circuit.
■ Bluetooth signal by around a great impact, such as trees, metal, walls and other obstacles will Bluetooth signal absorption or shielding, so is not recommended being installed in a metal enclosure.
■ the metal will weaken the antenna, it is recommended that you should not paving and traces below the antenna in the layout design, preferably hollowed.

Pairing Info

The pairing info of BC04B module, it will directly searching last paired module or says "pairable" when no devices can be paired
fff... This is the info I typed from cell phone