Bluetooth-bc04

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. Feature:

- 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
- Rating Min Max
- Storage temperature -40℃ +150℃
- 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℃ +150℃
- Guaranteed RF performance range(a) -40℃ +150℃
- 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

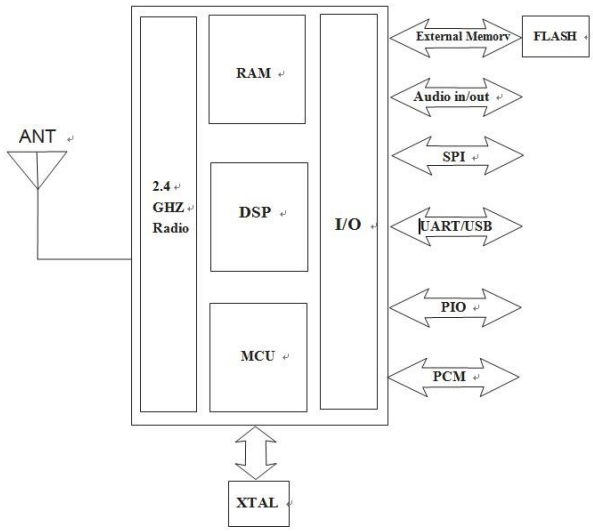

Fig.1 – Function diagram

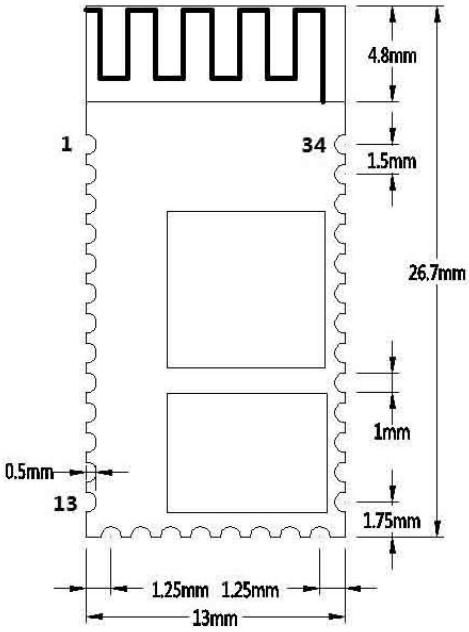

Fig.2 - Board dimension

AT Commands

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 table.

Command Name	Command	Response	Parameter
Check version	AT+VERSION	+VERSION=<Para1>	<Para1>: Firmware version number, the Bluetooth version number, the local HCI version, HCI amendments, LMP version number, LMP sub-version number
check help	AT+HELP	...	
Reset to default	AT+DEFAULT	OK	null
reset	AT+ RESET	OK	null
check/set device type	AT+COD AT+COD<Para1>,<Para2>	OK or error	<Para1>: Local device type (length must be 6 bytes) from the mode is in effect, the end retrieval <Para2>: Filtration equipment type effect in the main mode for filtering search to equipment (if you set 000,000 returns all search equipment) default: 001f00, 000000
check/set module SPP master/slave mode	AT+ROLE AT+ROLE<Para1>	OK or error	<Para1>: 0 --- from the device; 1 --- master; Default: 0 from equipment
check/set GIAC	AT+IAC<Para1>	OK or Error	<Para1>: The query access code, default value: 9e8b33 specific settings, see Appendix 2: query access code Description
check/set remote bluetooth device name	AT+RNAME<Para1>	OK or Error	<Para1>: remote Bluetooth device address
check/set inquiry mode	AT+INQM<Para1>,<Para2>,<Para3>	OK or Error	<Para1>: Query mode: 0: inquiry_mode_standard,1: inquiry_mode_rssi, 2: inquiry_mode_eir, Length: 1 byte, <Para2>: Up Bluetooth Device response, Length: 2 bytes, <Para3>: Query timeout, Timeout range :1-30(Converted into time :1.28-61.44 seconds), Length: 2 bytes, Default: 1,9,30 (16 hex)

check/set connection mode	AT+CMODE<Para1>	OK or Error	<Para1>: 0: specified Bluetooth address connected mode (specified Bluetooth address set by the BIND command) 1: Any Bluetooth address connection mode (not the BIND command set address the constraints), the default value:
check/set bluetooth address	AT+BIND<Para1>	OK or Error	<Para1>: Set binding Bluetooth address format: 11,22,33,44,55,66 Reply the Bluetooth address format: 11:22:33:44:55:66 Default: 00:00:00:00:00:00
clear memory address	AT+CLEAR	OK	Null
check/set UART MODE	AT+UARTMODE<Para1>,<Para2>	OK or Error	<Para1>: Stop bit: 0:1 stop bit, 1:2 stop bit <Para2>: Parity: 0: no parity, 1: Odd, 2: Even parity, default value: 0,0
check local BT address	AT+LADDR	+LADDR=<Para1>	<Para1>: Local Bluetooth address, for example: 11:22:33:44:55:66
checkt BT module working status	AT+STATE	+STATE=<Para1>	Example
check/set Remote Bluetooth device automatically search	AT+AUTOINQ<Para1>	Ok or Error	0=no, 1=yes
check remote bluetooth device	AT+INQ	Ok	null
cancel check remote bluetooth device	AT+INQC	Ok	null
check/set Whether to automatically connect to a remote Bluetooth device	AT+AUTOCONN<Para1>	OK or Error	0=Not Auto, 1= Auto
Connect to remote bluetooth device	AT+CONNECT<Para1>	OK or Error	<Para1>: Set the remote bluetooth address format: 11,22,33,44,55,66 Reply Bluetooth address format: 11:22:33:44:55:66
check/set Page scan and inquiry scan parameters	AT+IPSCAN<Para1>,<Para2>,<Para3>,<Para4>	OK or Error	<Para1>: Query interval <Para2>: Query duration <Para3>: Paging time intervals

			<Para4>: Paging duration The above parameters are hexadecimal numbers. Default: 800,12,800,12
check/set Encrypt mode	AT+SENM<Para1>,<Para2>	OK or Error	<Para1>: Safe mode, the following values (1 byte): 0 - sec_mode0_off 1 - sec_mode1_non_secure 2 - sec_mode2_service 3 - sec_mode3_link 4 - sec_mode4_ssp <Para2>: Encryption mode, the following values (1 byte): 0 - hci_enc_mode_off 1 - hci_enc_mode_pt_to_pt 2 - hci_enc_mode_pt_to_pt_and_bcast Default: 0,0
Check/set low power Mode	AT+ LOWPOWER<Para1>	ok or error	0=not support, 1=support, default =1
check/set sniff energy save mode	AT+SNIFF<Para1>,<Para2>,<Para3>,<Para4>	ok or error	<Para1> - max time, <Para2> - min time, <Para3> - trial time, <Para4> - timeout time
check/set indication upward command	AT+ENABLEIND<Para1>	ok or error	0= close, 1= open, default 1
check Bluetooth pairing list	AT+LSP	LSP=<Para1>,<Para2>,<Para3> …… LSP=E	<Para1>：number（0-7） <Para2>：bluetooth address code <Para3>：name default feedback：LSP=E
Clear all bluetooth pairing list	AT+RESETPDL	Ok	-
clear selected bluetooth pairing record	AT+REMOVEPDL<Para1>	OK	<Para1>：number（0-7）
check/set linkloss checking time	AT+SUPERVISION<Para1>	Ok or error	<Para1> response time, unit in second (Hex), default 5

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