
BC04-B Bluetooth Module

SPECIFICATION

1. Overview



BC04-B is a next-generation, class 2, Bluetooth 2.1 + EDR module. It introduces three times faster data rates compared to the existing Bluetooth 1.2 modules even with a lower power consumption. BC04-B is a highly integrated and sophisticated Bluetooth module, containing all the necessary elements from Bluetooth radio antenna to a fully implemented protocol stack. Therefore BC04-B provides an ideal solution for developers who want to integrate Bluetooth wireless technology into their designs with limited knowledge of Bluetooth and RF technologies.

BC04-B module is testing and verification services and excellent developer support, OEMs and designers ensure that their products reach the market rapidly and cost-efficiently in relation to time and resources. Bolutek has extensive in-house knowledge of both software and hardware offering customers a single point of contact to all Bluetooth related issues.

2. Feature

Based on CSR BC04 chipset

Bluetooth class 2

Industrial level SPP Bluetooth module

Integrated master and slave model

Integrated chip antenna

8MB flash memory

Enhanced Data Rates (EDR) with data throughput up to 2-3Mbps

UART with bypass mode, USB version 2.0, GPIO and PCM interfaces

Size: 26.7 x 13 x 2 mm

Industrial temperature range from -40°C to +85°C

Support for on-board applications

RoHS compliant

3. Application Fields

Cable replacement
 Point-of-sales systems
 Barcode readers and pay terminals
 Telemetry and machine-to-machine devices
 Logistics and transportation systems
 Automotive inspection and measurement systems
 Medical systems
 Fitness and sports telemetry devices
 PDA and other portable terminals
 PCs and laptop
 OBD

4. 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	USB 1.1/2.0 or UART
Audio Interface	PCM interface
Flash Memory Size	8Mbit
Dimension	26.7mm (L) x 13 (W) mm x 2mm (H)

5. 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

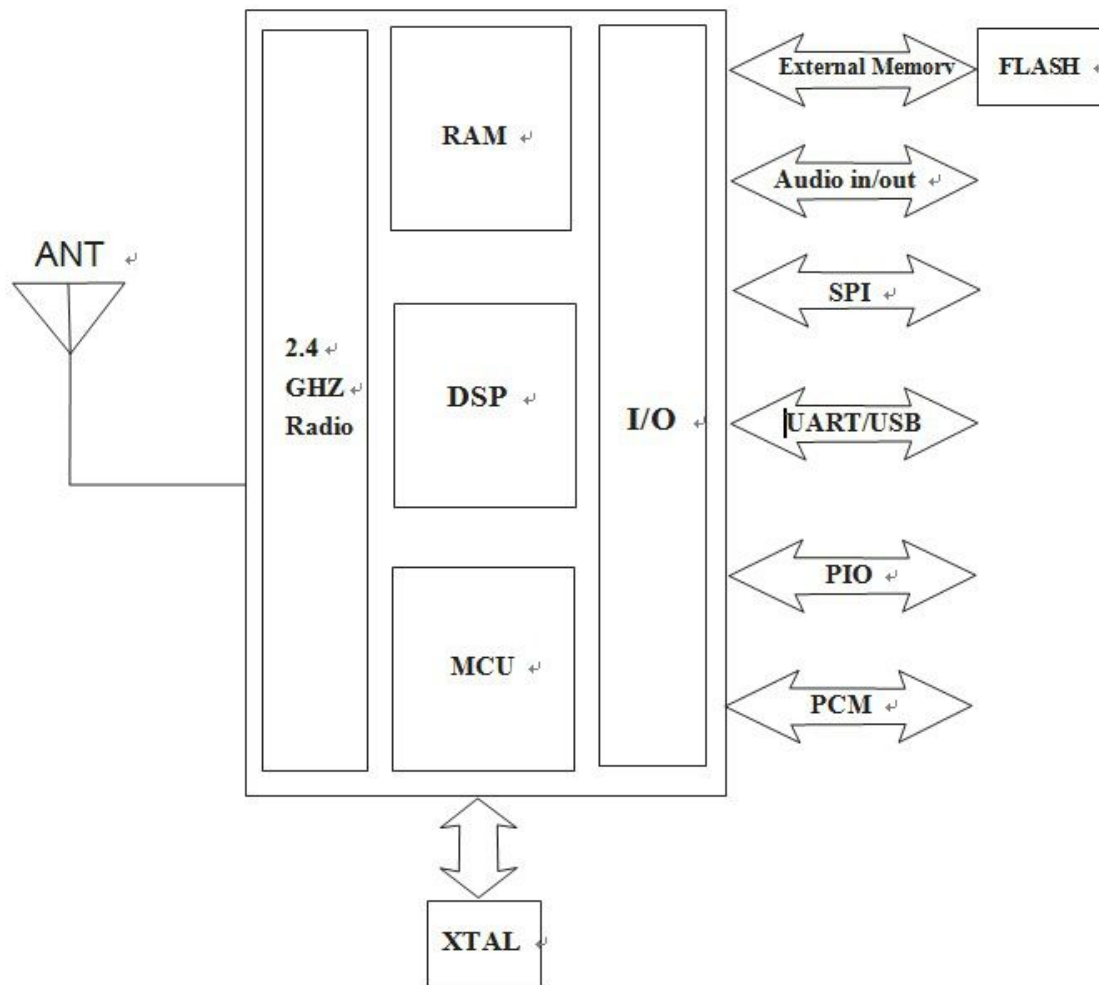
Recommended Operating Conditions		
Operating Condition	Min	Max
Operating temperature range	-40°C	+150°C
Guaranteed RF performance range ^(a)	-40°C	+150°C
Supply voltage: VBAT	2.2V	4.2V ^(b)

6. Power Consumption

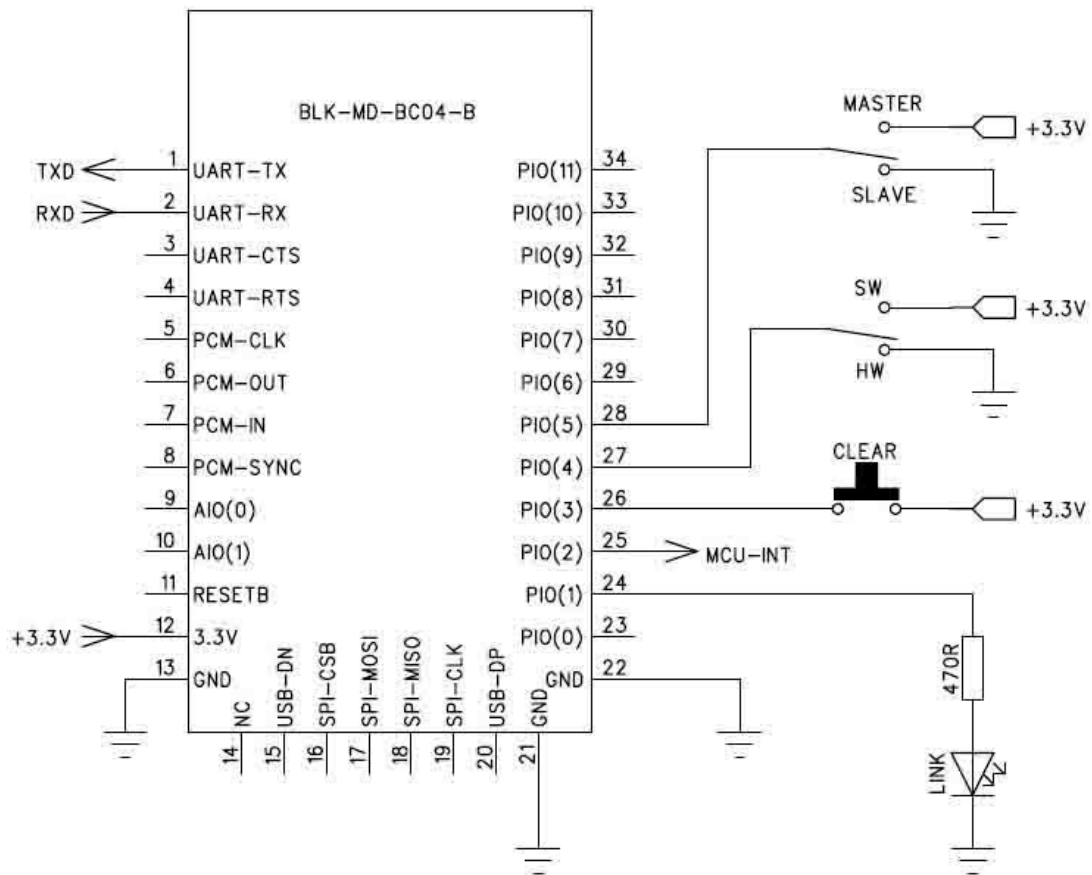
Operation Mode	Connection Type	UART Rate(kbps)	Average	Unit
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Page scan	-	115.2	0.42	mA
ACL No traffic	Master	115.2	4.60	mA
ACL With file transfer	Master	115.2	10.3	mA
ACL 1.28s sniff	Master	38.4	0.37	mA
ACL 1.28s sniff	Slave	38.4	0.42	mA
SCO HV3 30ms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

7. Function Block Diagram



8. Application Circuit Diagram



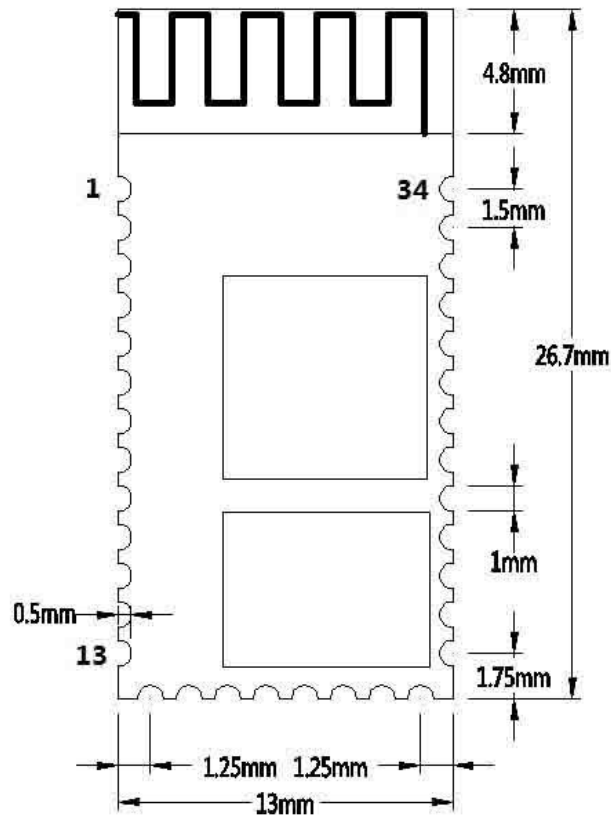
Note: This application circuit for the Bluetooth serial port circuitry, such as the need for other application, please contacts [Bolutek](#).

9. Pin Configurations

PIN NO.	NAME	TYPE	FUNCTION
1	UART-TX	CMOS Output	UART Data Output
2	UART-RX	CMOS Input	UART Data Input
3	UART-CTS	CMOS Input	UART Clear To Send Active Low
4	UART-RTS	CMOS Output	UART Request To Send Active Low
5	PCM-CLK	Bi-directional	Synchronous Data Clock
6	PCM-OUT	CMOS Output	Synchronous Data Output
7	PCM-IN	CMOS Input	Synchronous Data Input
8	PCM-SYNC	Bi-directional	Synchronous Data Sync
9	AIO(0)	Bi-directional	Programmable Input/Output Line
10	AIO(1)	Bi-directional	Programmable Input/Output Line
11	RESETB	CMOS Input	Reset if low Input debounced so must below for >5ms to cause a reset

12	3.3V	POWER	+3.3V Supply
13	GND	GND	Ground
14	NC	NC	NC
15	USB-DN	Bi-directional	USB Data Minus
16	SPI-CSB	CMOS Input	Chip Select For Synchronous Serial Interface
17	SPI-MOSI	CMOS Input	Serial Peripheral Interface Data Input
18	SPI-MISO	CMOS Output	Serial Peripheral Interface Data Output
19	SPI-CLK	CMOS Input	Serial Peripheral Interface Clock
20	USB-DP	Bi-directional	USB Data Plus with selectable internal 1.5KΩ
21	GND	GND	Ground
22	GND	GND	Ground
23	PIO(0)	Bi-directional	Programmable Input/Output Line
24	PIO(1)	Output	State instructions LED
25	PIO(2)	Output	State instructions LED or MCU-INT
26	PIO(3)	Input	Clear or Restore default value
27	PIO(4)	Input	Soft/Hardware setting master-slave mode
28	PIO(5)	Input	Hardware setting master-slave mode
29	PIO(6)	Bi-directional	Programmable Input/Output Line
30	PIO(7)	Bi-directional	Programmable Input/Output Line
31	PIO(8)	Bi-directional	Programmable Input/Output Line
32	PIO(9)	Bi-directional	Programmable Input/Output Line
33	PIO(10)	Bi-directional	Programmable Input/Output Line
34	PIO(11)	Bi-directional	Programmable Input/Output Line

10. Contour Dimension



11. Other configuration

A. Master & Slave model configuration:

BC04-B Bluetooth module and support soft/hardware setting master-slave mode, methods are as follows:

PIO(4)——the pin which is soft/hardware setting master-slave mode: GND(or NC) for hardware setting master-slave mode, 3.3V high voltage for software setting master-slave mode; If choose hardware setting master-slave mode, the PIO (5) setting; If choose software setting master-slave mode, can pass AT command inquires and sets, specific methods reference " BC04-B bluetooth module AT command statements"

PIO(5)——the pin which is hardware setting master-slave mode: 3.3V high voltage for setting master mode, GND(or NC) for setting slave mode.

B. State Instructions LED: PIO(1)

Model	LED Display	Status
Master	Even rapid flashes (150ms-on,150-off)	Searching bluetooth equipment
	Flash 5 after put out 2 seconds	connecting
	Long bright	connection
Slave	Even slow flash (800ms-on,800ms-off)	Waiting for matching
	Long bright	connection

C. MCU-INT LED: PIO(2)

Used to indicate host interrupts or not, connection status to high level, other state low level.

D. Clear and Default: PIO(3)

This button is a multifunction button, with clear memory (short press), restore default values (long press 3s) two different function; Memory module is to clear the last memory bluetooth address; Restore the default value is restore module initial default values.