



BLK-MD-BC04-B Bluetooth Module

SPECIFICATION

1. Overview



BLK-MD-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. BLK-MD-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 BLK-MD-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.

BLK-MD-BC04-B module combined with Bolutek's complete development, 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

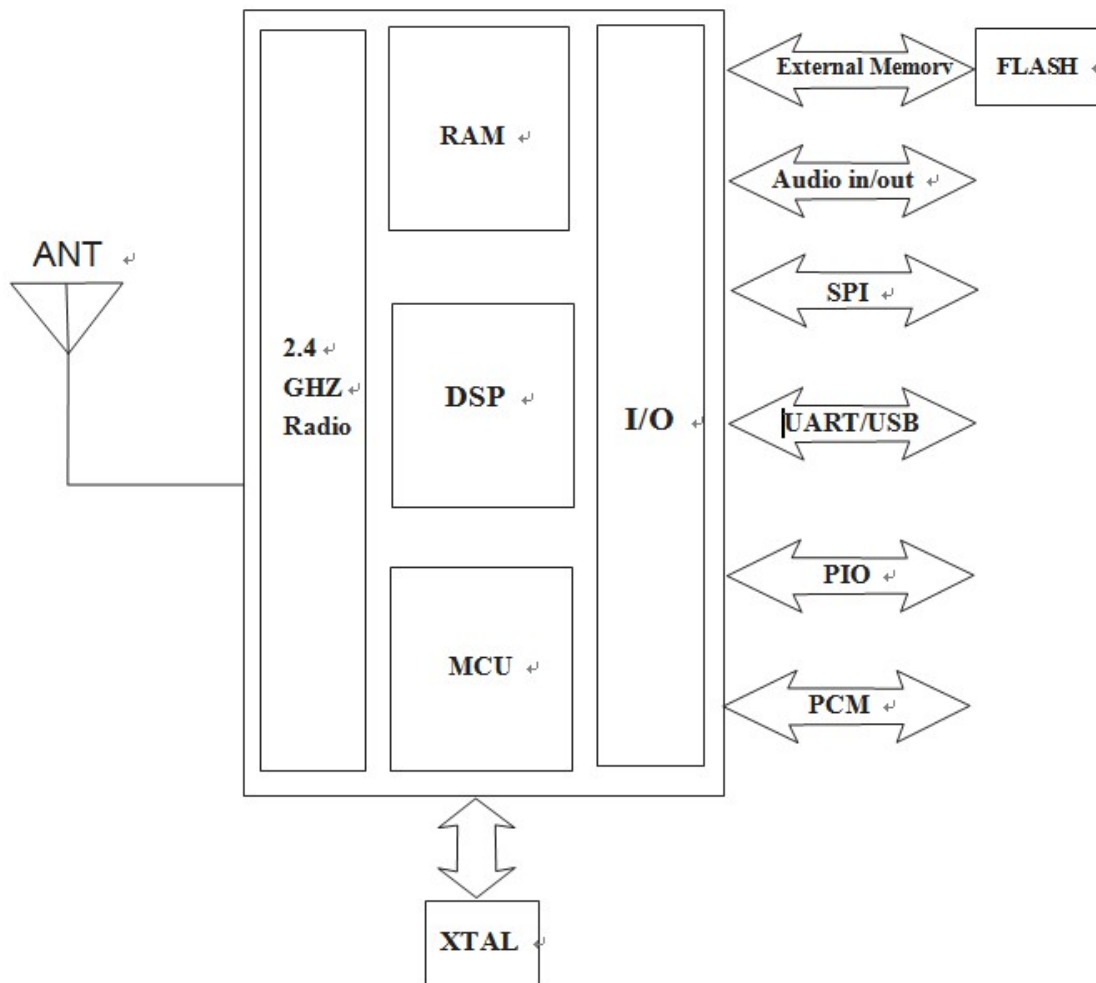
Recommended Operating Conditions		
Operating Condition	Min	Max
Operating temperature range	-40°C	+150°C
Guaranteed RF performance range ^(a)	-40°C	+150°C
Supply voltage: VBAT	2.2V	4.2V ^(b)

6. Power Consumption

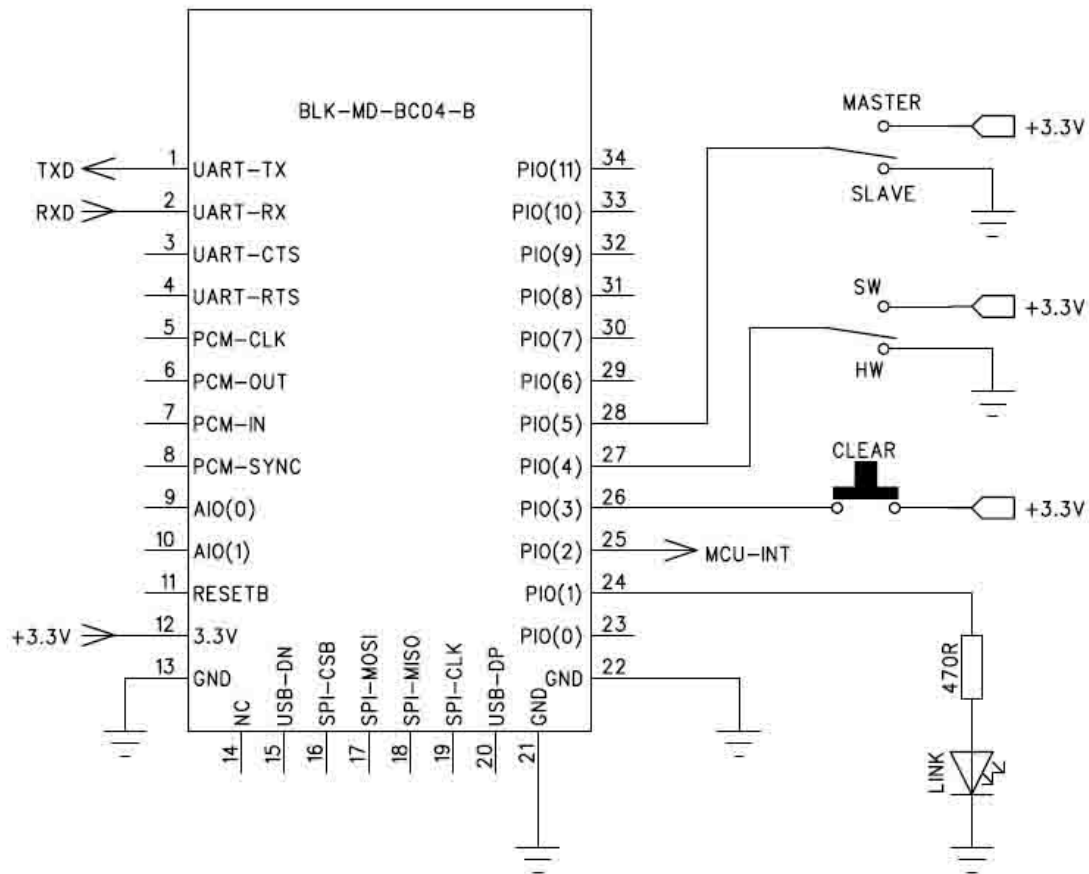
Operation Mode	Connection Type	UART Rate(kbps)	Average	Unit
Page scan	-	115.2	0.42	mA

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](http://www.bolutek.com).

9. Pin Configurations

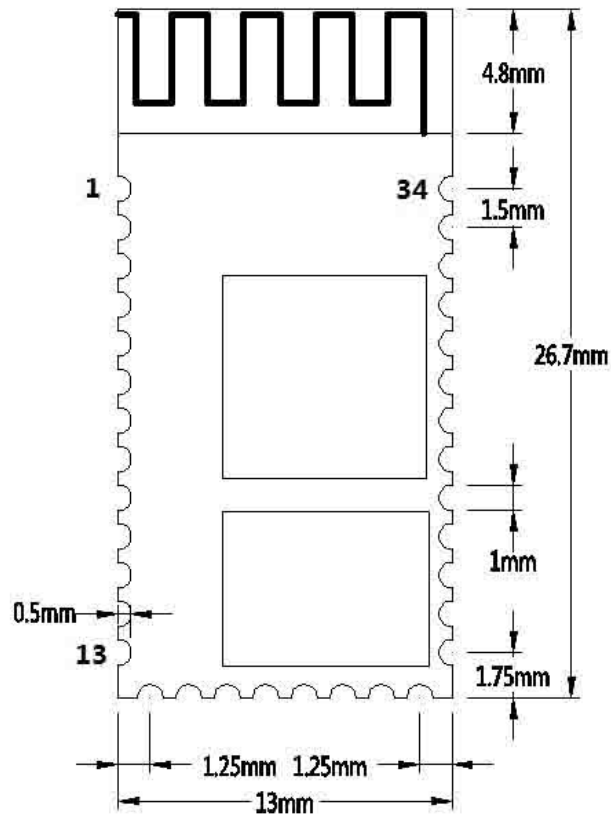
PIN NO.	NAME	TYPE	FUNCTION
1	UART-TX	CMOS Output	UART Data Output
2	UART-RX	CMOS Input	UART Data Input
3	UART-CTS	CMOS Input	UART Clear To Send Active Low
4	UART-RTS	CMOS Output	UART Request To Send Active Low
5	PCM-CLK	Bi-directional	Synchronous Data Clock
6	PCM-OUT	CMOS Output	Synchronous Data Output
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



BOLUTEK BLK-MD-BC04-B Bluetooth Module

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 1.5KO
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:

BLK-MD-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 "BLK-MD-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.

13. Contact us

Shenzhen Bolutek Technology Co.,Ltd.

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Tel: 86-755-26509941

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<http://www.bolutek.com>

14. Certification

Shenzhen CTL Electromagnetic Technology Co., Ltd.

RoHS Certificate of Conformity

Certificate No. : CTL11108664-S-RC

Applicant : Bolutek Electronic Technology Co., Ltd.

Address : Room23A, Haidian Bldg, Huijing Garden, Nanshan, Shenzhen, China

Product : Bluetooth Module

Trademark : /

Model(s) : BLK-MD-BC04

Manufacturer : Bolutek Electronic Technology Co., Ltd.

Address : Room23A, Haidian Bldg, Huijing Garden, Nanshan, Shenzhen, China

Test Report : CTL11108664-S-R

Complies with the requirements of the
EC RoHS directive 2002/95/EC with amendments.

Test Standards:

EN 1122: 2001
EPA 3050B, EPA3052
EPA3540C, EPA3060A

Remarks:
This Certificate is issued in accordance with the RoHS Directive 2002/95/EC.

RoHS


For Chief Executive
Oct.26, 2011



Add: Zone B, 4/F, Block 20, Guangqian Industrial Park, Longzhu Road, Nanshan, Shenzhen 518055 . China
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Test Report

Applicant: Bolutek Electronic Technology Co., Ltd.
Address: Room23A, Haidian Bldg, Huijing garden, Nanshan, Shenzhen, China
Manufacturer: Bolutek Electronic Technology Co., Ltd.
Address: Room23A, Haidian Bldg, Huijing garden, Nanshan, Shenzhen, China

Sample name: Bluetooth Module
Model: BLK-MD-BC04
Trade Mark: /

Date of Sample Received: Oct.20, 2011
Testing Period: Oct.20, 2011-Oct.26, 2011
Issued date: Oct.26, 2011

Testing Requested: As specified by client, based on the list published by European chemicals agency (ECHA) for public consultation regarding regulation (EC) No 1907/2006 concerning the REACH, to determine the fifty-three (53) and twenty-five (25) Substances of Very High Concern (SVHC) content in the submitted sample.

Testing method: Please refer to next page(s).

Test Results: Please refer to next page(s).

*****FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)*****

Written by: Jennifer M

Inspected by: Jacky Chen

Tested by: Andy Zhang

Approved by: Luoyi

15. Market Acceptance

