Bluetooth Module Datasheet

Model: SJR-BTM303

Version: V1.1

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1 Introduction

Sky Jiarun Technologies introduces the pioneer of the Bluetooth 5.0 modules SJR-BTM303 which is a high performance, cost effective, low power and compact solution. The Bluetooth module provides a complete 2.4GHz Bluetooth system based on the QCC3003 QFN chipset which is a single chip radio and baseband IC for Bluetooth 2.4GHz systems,. This module is fully qualified single-chip dual mode Bluetooth@v5.0 system.

2 Key Features

Bluetooth Profiles

- Bluetooth v5.0 specification support
- Qualcomm® Bluetooth® Low Energy secure connection
- A2DP v1.3.1
- AVRCP v1.6
- HFP v1.7
- HSP v1.2
- SPP v1.2
- DID v1.3
- HID v1.1
- PXP v1.0.1
- FMP v1.0
- BAS v1.0
- QTIL's proximity pairing and QTIL's proximity connection

Music Enhancements

- SBC and AAC audio codecs
- Qualcomm Shareme, which allows the sharing of audio from QCC3003 to another Bluetooth A2DP sink device
- Configurable Signal Detection to trigger events
- 1 bank of up to 10-stage Speaker Parametric EQ
- 6 banks of up to 5-stage User Parametric EQ for music enhancement
- Qualcomm® meloD™ Expansion audio processing: 3D stereo widening
- Compander to compress or expand the dynamic range of the audio
- Post Mastering to improve DAC fidelity
- I^2S input/output

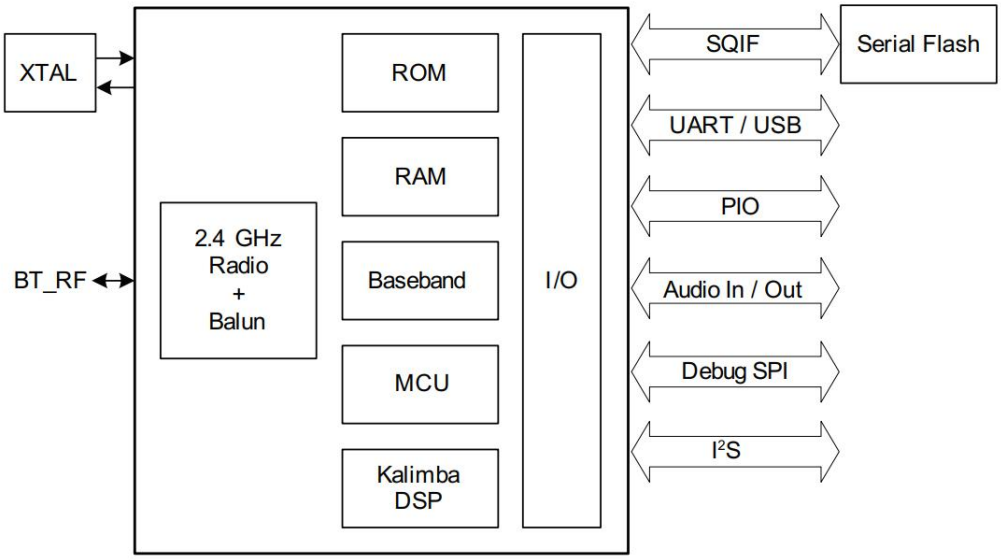
Additional Functionality

- Support for multi-language programmable audio prompts
- Multipoint support for A2DP connection to 2 A2DP sources for music playback
- Talk-time extension, which automatically reduces processor functions to extend use when a low battery condition is detected
- Slim module with 13mm x 26mm x 2.4mm

3 Applications

- Stereo Headsets
- Wired Stereo headsets and headphones
- Portable Bluetooth Stereo speakers

4 Block Diagram

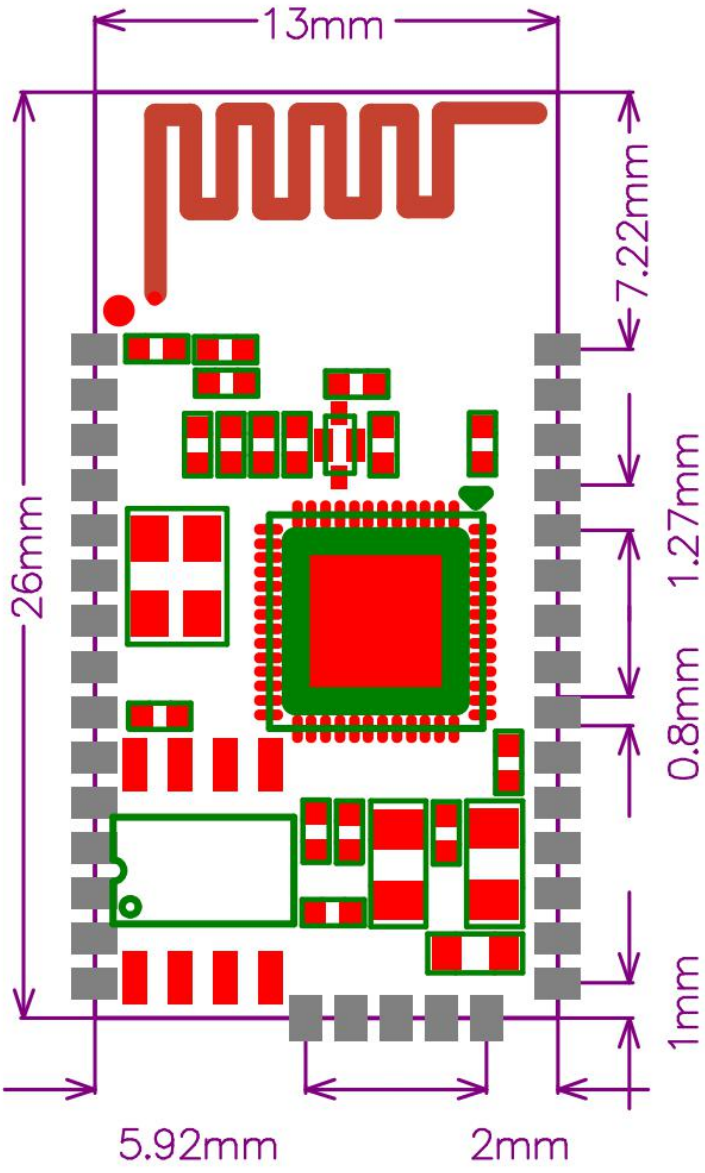


5 General specifications

Model Name	**SJR-BTM303**
Product Description	**Bluetooth 5.0 Class2 Module**
Bluetooth Standard	Bluetooth 5.0
Chipset	QCC3003 QFN
Dimension	13mm x 26mm x 2.4mm
Operating Conditions	
Voltage	2.8~4.2V
Temperature	-10～+70℃
Storage Temperature	-40～+85℃
Electrical Specifications	
Frequency Range	2402～2480MHz
Maximum RF Transmit Power	9dBm
π/4 DQPSK Receive Sensitivity	-91dBm
8DPSK Receive Sensitivity	-81dBm

6 Module Package Information

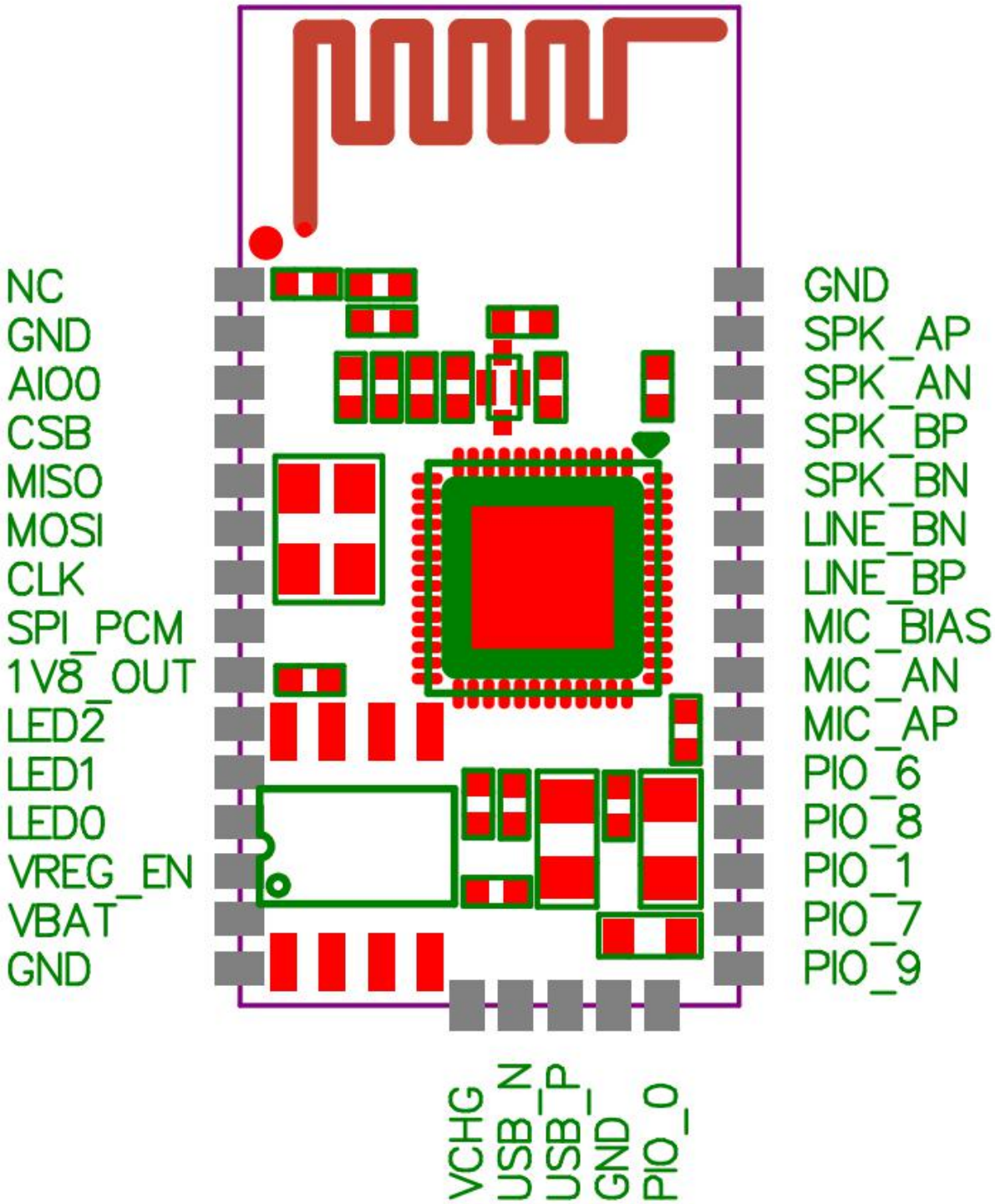
6.1 Pinout Diagram and package dimensions



Unit: MM

Recommended PCB layout footprint

6.2 Module Pin descriptions



Pin#	Pin Name	Pin Type	Description
1	NC	NC	NC
2	GND	Ground	Ground
3	AIO_0	Bidirectional	Analog programmable input line 0.
4	SPI_CSB	Bidirectional with weak pull-down	Chip select for SPI,active low Alternative function: ■ PIO_4: Programmable input/output line 4.

			■ I2S1_WS: I2S1 word select
5	SPI_MISO	Bidirectional with weak pull-down	SPI data output Alternative function: ■ PIO_3: Programmable input/output line 3. ■ I2S1_SD_OUT: I2S1 synchronous data output
6	SPI_MOSI	Bidirectional with weak pull-down	SPI data input Alternative function: ■ PIO_2: Programmable input/output line 2. ■ I2S1_SD_IN:I2S1 synchronous data input
7	SPI_CLK	Bidirectional with weak pull-down	SPI clock Alternative function: ■ PIO_5: Programmable input/output line 5. ■ I2S1_CLK: I2S1 synchronous data clock
8	SPI_PCM	Input with weak pull-down	SPI/PCM# select input ■ 0=PCM/PIO interface ■ 1=SPI
9	1V8	Power output	Auxiliary regulator output (1.8V out)
10	LED_2	Bidirectional	Open-drain output
11	LED_1	Bidirectional	Open-drain output
12	LED_0	Bidirectional	Open-drain output
13	VREG_EN	CMOS Input	Regulator enable and multifunction button. A high input (tolerant to VBAT voltages) enables the on-chip regulators, which can then be latched on internally and the button used as a multifunction input
14	VBAT	Power Input	Positive supply for BT Module,or battery positive terminal
15	GND	Ground	Ground
16	VCHG	Charge input	Charge input Typically connected charger
17	USB_N	Bi-directional	USB data minus
18	USB_P	Bi-directional	USB data plus with selectable internal 1.5kΩ pull-up resistor
19	GND	Ground	Ground
20	PIO_0	Bidirectional with strong pull-up	Programmable input/output line 0. Alternative function: ■ UART_RX: UART data input
21	PIO_9	Bidirectional with strong pull-down	Programmable input/output line 9. Alternative function: ■ UART_CTS: UART clear to send, active low
22	PIO_7	Bidirectional with strong pull-down	Programmable input/output line 7.
23	PIO_1	Bidirectional with strong pull-up	Programmable input/output line 1. Alternative function: ■ UART_TX: UART data output
24	PIO_8	Bidirectional with strong pull-up	Programmable input/output line 8. Alternative function: ■ UART_RTS: UART request to send, active low
25	PIO_6	Bidirectional with strong pull-down	Programmable input/output line 6.
26	LINE/MIC_AP	Analogue in	Microphone input positive, channel A
27	LINE/MIC_AN	Analogue in	Microphone input negative, channel A
28	MIC_BIAS	Analogue	Microphone bias
29	LINE_BP	Analogue in	Line-in positive, channel B

30	LINE_BN	Analogue in	Line-in negative, channel B
31	SPK_BN	Analogue OUT	Speaker output negative, right
32	SPK_BP	Analogue OUT	Speaker output positive, right
33	SPK_AN	Analogue OUT	Speaker output negative, left
34	SPK_AP	Analogue OUT	Speaker output positive, left
35	GND	Ground	Ground

7 Electrical Characteristics

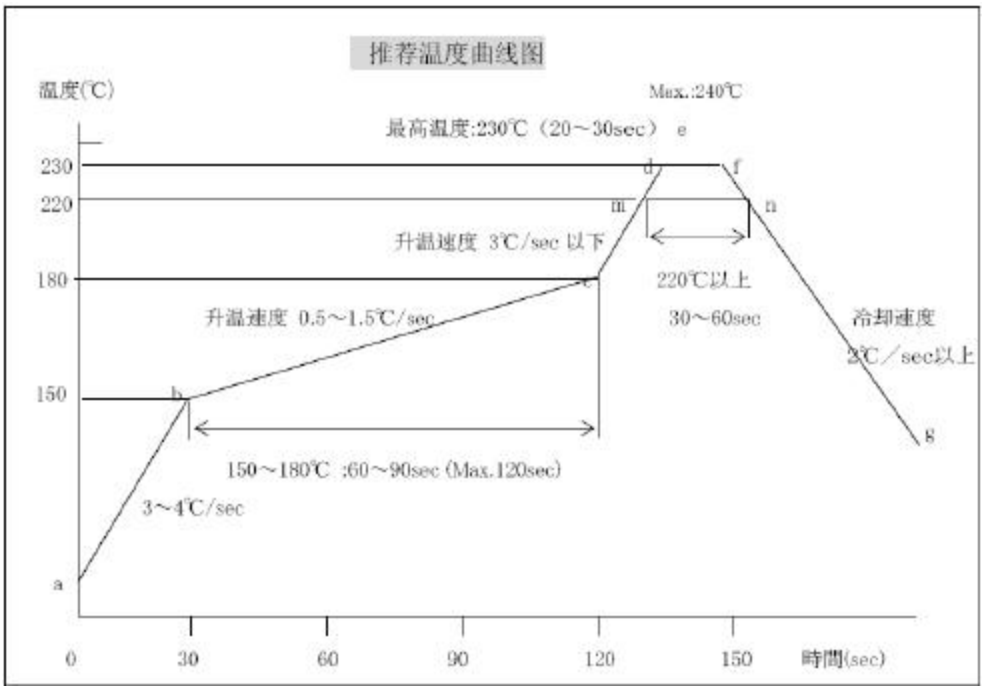
7.1 Absolute Maximum Ratings

Rating	Minimum	Maximum
Storage temperature	-40℃	+85℃

7.2 Recommended Operating Conditions

Operating Condition	Minimum	Maximum
Operating temperature range	-10℃	+70℃
Supply voltage: VBAT	+2.8V	+4.2V

8 Recommended reflow temperature profile



The module Must go through 125℃ baking for at least 9 hours before SMT AND IR reflow process!

若拆封后未立即上线，天嘉润科技建议让下次上线前务必以 **125**℃烘烤 **9** 小时以上！

Record of Changes

Data	Revision	Description
2018-06-30	V1.0	Original publication of this document.
2018-07-05	V1.1	Fix PIN definition.

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