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# **Bluetooth Module User Manual**

**Model: BTM835**

**Version: V1.4**

**2016-01-29**

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## List of Contents

<b>1 Introduction</b>	<b>3</b>
<b>2 Key Features</b>	<b>3</b>
<b>3 Applications</b>	<b>4</b>
<b>4 Block Diagram</b>	<b>4</b>
<b>5 General specifications</b>	<b>4</b>
<b>6 Module Package Information</b>	<b>5</b>
<b>6.1 Pinout Diagram and package dimensions</b>	<b>5</b>
<b>6.2 Module Pin descriptions</b>	<b>6</b>
<b>7 Electrical Characteristics</b>	<b>8</b>
<b>7.1 Absolute Maximum Ratings</b>	<b>8</b>
<b>7.2 Recommended Operating Conditions</b>	<b>8</b>
<b>8 Recommended reflow temperature profile</b>	<b>9</b>



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## 1 Introduction

**Sky Jiarun Technologies** introduces the pioneer of the Bluetooth 4.1 modules BTM835 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 BlueCore CSR8635 chipset which is a single chip radio and baseband IC for Bluetooth 2.4GHz systems,. This module is fully compliant to Bluetooth v4.1 for audio communications.

## 2 Key Features

### Bluetooth Profiles

- Bluetooth v4.1 specification support
- A2DP v1.2
- AVRCP v1.4
- HFP v1.6
- HSP v1.2
- DI v1.3

### Music Enhancements

- Configurable 5-band EQ for music playback (rock,pop, classical, jazz, dance etc)
- SBC, MP3, AAC and Faststream decoder
- Volume Boost
- Stereo Widening (S3D)

### Additional Functionality

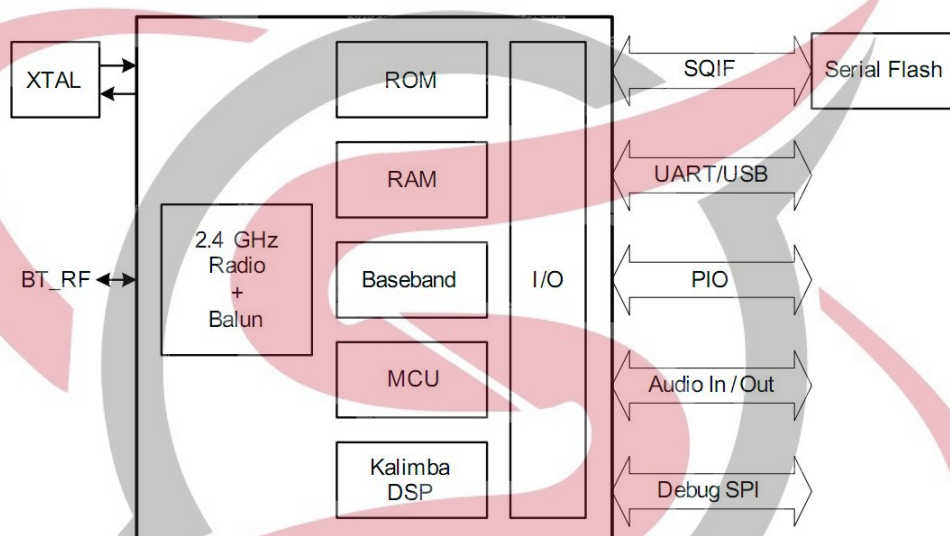
- Support for multi-language programmable audio prompts
- CSR's proximity pairing and CSR's proximity connection
- Multipoint support for A2DP connection to 2 A2DP sources for music playback
- Talk-time extension
- Slim module with 28.5mm x 13mm x 2.0mm

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### 3 Applications

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

### 4 Block Diagram

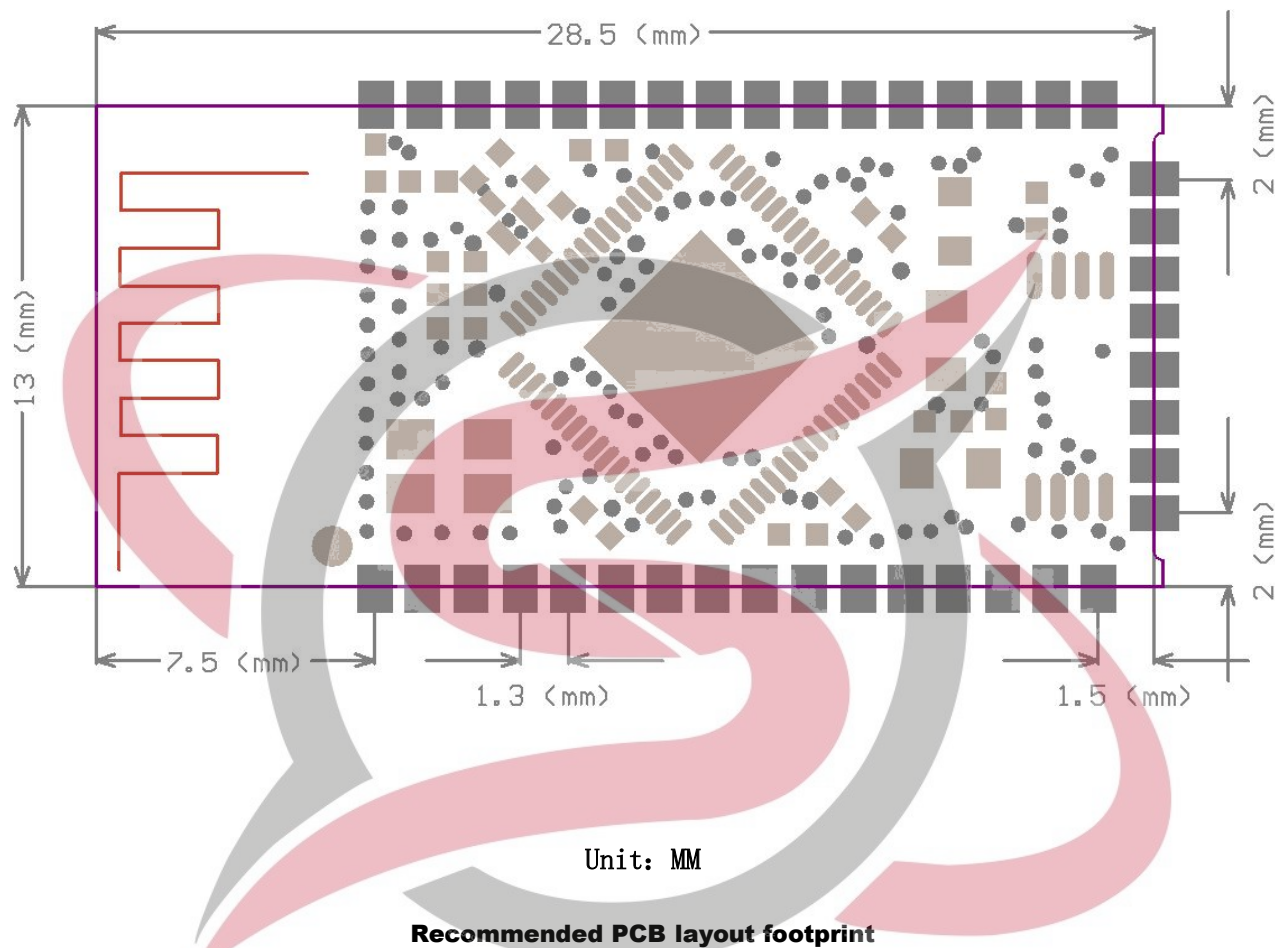


### 5 General specifications

<b>Model Name</b>	<b>BTM835</b>
<b>Product Description</b>	<b>Bluetooth Module</b>
Bluetooth Standard	Bluetooth 4.1
Chipset	CSR8635
Dimension	28.5mm x 13mm x 2.0mm
<b>Operating Conditions</b>	
Voltage	2.8~4.2V
Temperature	-10~+70°C
Storage Temperature	-40~+85°C
<b>Electrical Specifications</b>	
Frequency Range	2402~2480MHz
GFSK Receive Sensitivity	-93dBm
$\pi/4$ DQPSK Receive Sensitivity	-91dBm
8DPSK Receive Sensitivity	-81dBm

## 6 Module Package Information

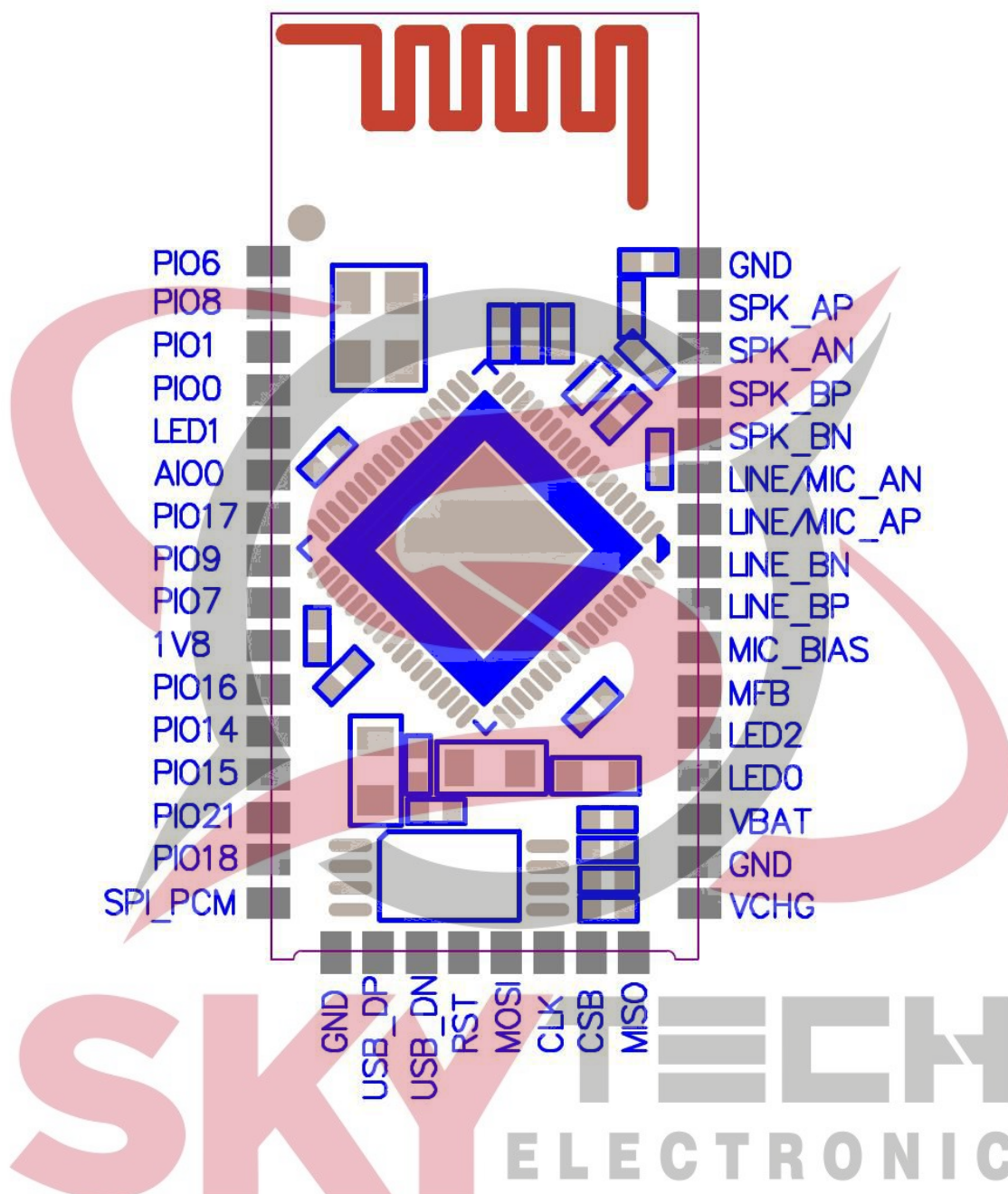
### 6.1 Pinout Diagram and package dimensions



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## 6.2 Module Pin descriptions



Pin No.	Pin Name	Pin Type	Description
1	PIO6	Bidirectional with strong pull-down	Programmable input/output line 6
2	PIO8	Bidirectional with strong pull-up	Programmable input/output line 8
3	PIO1	Bidirectional with strong pull-up	Programmable input/output line 1
4	PIO0	Bidirectional with strong pull-up	Programmable input/output line 0
5	LED1	Bidirectional	LED driver
6	AIO0	Bidirectional	Analogue programmable input/output line
7	PIO17	Bidirectional with strong pull-down	Programmable input/output line 17
8	PIO9	Bidirectional with strong pull-down	Programmable input/output line 9

9	PIO7	Bidirectional with strong pull-down	Programmable input/output line 7
10	1V8	1.8V output	1.8V output for keys
11	PIO16	Bidirectional with strong pull-up	Programmable input/output line 16
12	PIO14	Bidirectional with strong pull-up	Programmable input/output line 14
13	PIO15	Bidirectional with strong pull-up	Programmable input/output line 15
14	PIO21	Bidirectional with weak pull-down	Programmable input/output line 21
15	PIO18	Bidirectional with weak pull-down	Programmable input/output line 18
16	SPI_PCM#	Input with weak pull-down	SPI/PCM select input: 0 = PCM/PIO interface 1 = SPI
17	GND	VSS	Ground
18	USB_P	Bidirectional	USB data plus
19	USB_N	Bidirectional	USB data minus
20	RSTn	Input with strong pull-up	Reset if low. Pull low for minimum 5ms to cause a reset.
21	SPI_MOSI	Bidirectional with weak pull-down	Programmable input / output line 2 Alternative function: SPI_MOSI: Debug SPI data input
22	SPI_CLK	Bidirectional with weak pull-down	Programmable input / output line 5 Alternative function: SPI_CLK: Debug SPI clock
23	SPI_CSB	Bidirectional with weak pull-down	Programmable input / output line 4 Alternative function: SPI_CS#: chip select for Debug
24	SPI_MISO	Bidirectional with weak pull-down	Programmable input / output line 3 Alternative function: SPI_MISO: Debug SPI data output
25	VCHG	Charger voltage input	Internal charger input for charging
26	GND	VSS	Ground
27	VBAT	Battery positive terminal	Power supply input for 2.8~4.2V
28	LED0	Bidirectional	LED driver
29	LED2	Bidirectional	LED driver
30	VREG_EN	Power on/off key input	Power on/off input key indication

31	MIC_BIAS	Analog	Microphone bias output
32	LINE_BN	Analog input	Line input negative, channel B
33	LINE_BP	Analog input	Line input positive, channel B
34	LINE/MIC_AP	Analog input	Line or microphone input positive, channel
35	LINE/MIC_AN	Analog input	Line or microphone input negative, channe
36	SPK_BN	Analog output	Speaker output negative right
37	SPK_BP	Analog output	Speaker output positive right
38	SPK_AN	Analog output	Speaker output negative left
39	SPK_AP	Analog output	Speaker output positive left
40	GND	VSS	Ground

## 7 Electrical Characteristics

### 7.1 Absolute Maximum Ratings

Rating	Minimum	Maximum
Storage temperature	-40°C	+85°C


### 7.2 Recommended Operating Conditions

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

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## 8 Recommended reflow temperature profile

	<b>CAUTION</b>	<b>LEVEL</b>
	This bag contains MOISTURE-SENSITIVE DEVICES	<b>3</b>
If Blank, see adjacent bar code label		
1. Calculated shelf life in sealed bag: 12 months at $< 40^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)		
2. Peak package body temperature: <u>260</u> $^{\circ}\text{C}$		
If Blank, see adjacent bar code label		
3. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must		
a) Mounted within: <u>168</u> hours of factory		
If Blank, see adjacent bar code label		
conditions $\leq 30^{\circ}\text{C} / 60\%$		
b) stored at $< 10\%$ RH		
4. Devices require bake, before mounting, if :		
a) Humidity Indicator Card is $> 10\%$ when read at $23 \pm 5^{\circ}\text{C}$		
b) 3a or 3b not met.		
5. If baking is required, devices may be baked for 48 hours at $125 \pm 5^{\circ}\text{C}$		
Note: If device containers cannot be subjected to high temperature or shorter bake times are desired, reference IPC / JEDEC J-STQ-033 for bake procedure		
Bag Seal Date: _____		
If Blank, see adjacent bar code label		
Note: Level and body temperature defined by IPC / JEDEC J-STQ-020		

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**The module Must go through  $125^{\circ}\text{C}$  baking for at least 9 hours before SMT AND IR reflow process!**

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## Record of Changes

Data	Revision	Description
2013-11-26	V1.0	Original publication of this document.
2016-01-29	V1.4	

## IMPORTANT NOTICE

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SJR warrants performance of its products to specifications applicable at the time of sale in accordance with SJR's standard warranty. Testing and other quality control techniques are utilized to the extent SJR deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

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### FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2ALGQ-BTM835 Or Contains FCC ID: 2ALGQ-BTM835"

When the module is installed inside another device, the user manual of this device must contain below warning statements;

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference.  
(2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product

Any company of the host device which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C : 15.247 and 15.209 requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209 requirement, then the host can be sold legally.