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## 1.Introduction

**Easy Core Tech.** introduces the pioneer of the Bluetooth

4.1 modules EM6C835A 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**

- 2.1.** Bluetooth v4.1 specification support
- 2.2.** A2DP v1.2
- 2.3.** AVRCP v1.4
- 2.4.** HFP v1.6
- 2.5.** HSP v1.2
- 2.6.** DI v1.3

### **Music Enhancements**

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

### **Additional Functionality**

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



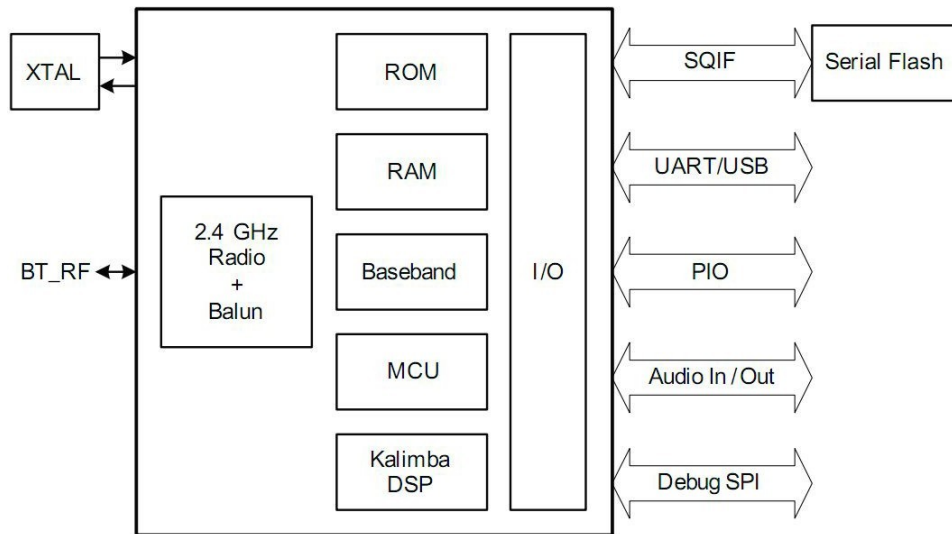
### 3.Applications

3.1. Stereo Headsets

3.2. Wired Stereo headsets and headphones

3.3. Portable Bluetooth Stereo speakers

### 4.Block Diagram



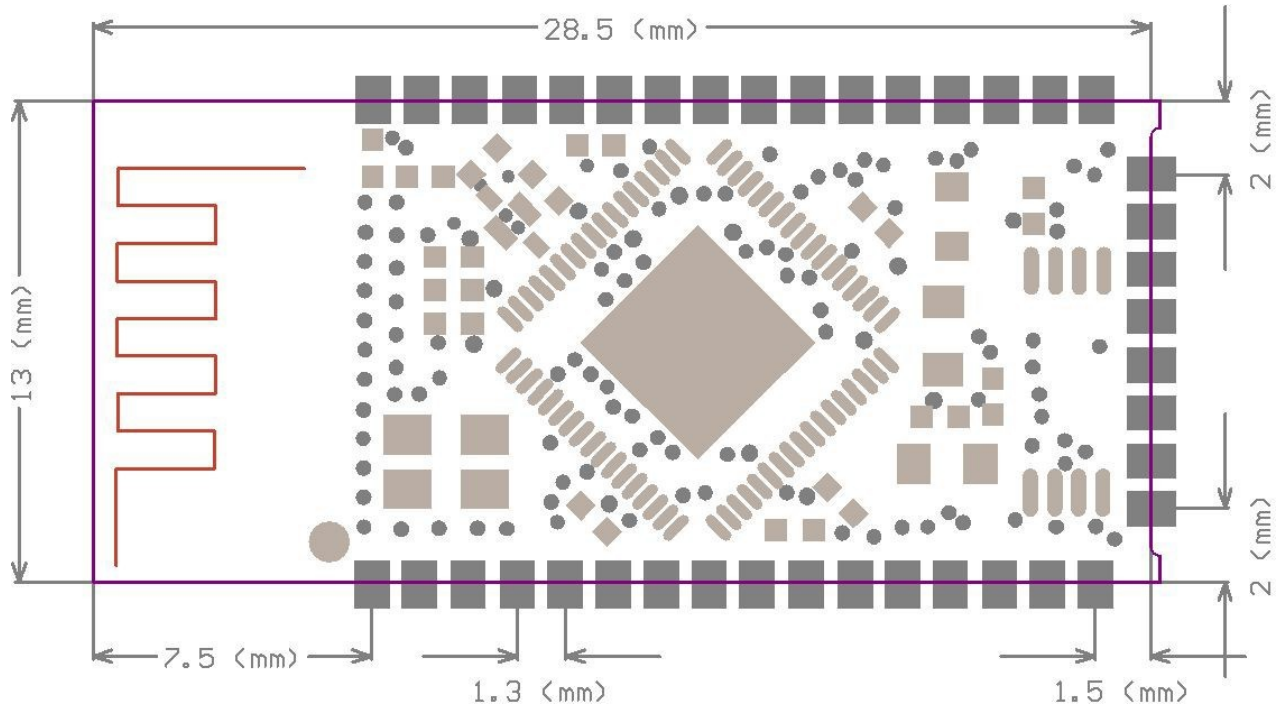
### 5.General specifications

<b>Model Name</b>	<b>EM6C835A</b>
<b>Product Description</b>	<b>Bluetooth 4.1 Class2 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
Maximum RF Transmit Power	4dBm
$\pi/4$ DQPSK Receive Sensitivity	-91dBm
8DPSK Receive Sensitivity	-81dBm



## 6.Module Package Information

### 6.1. Pinout Diagram and package dimensions

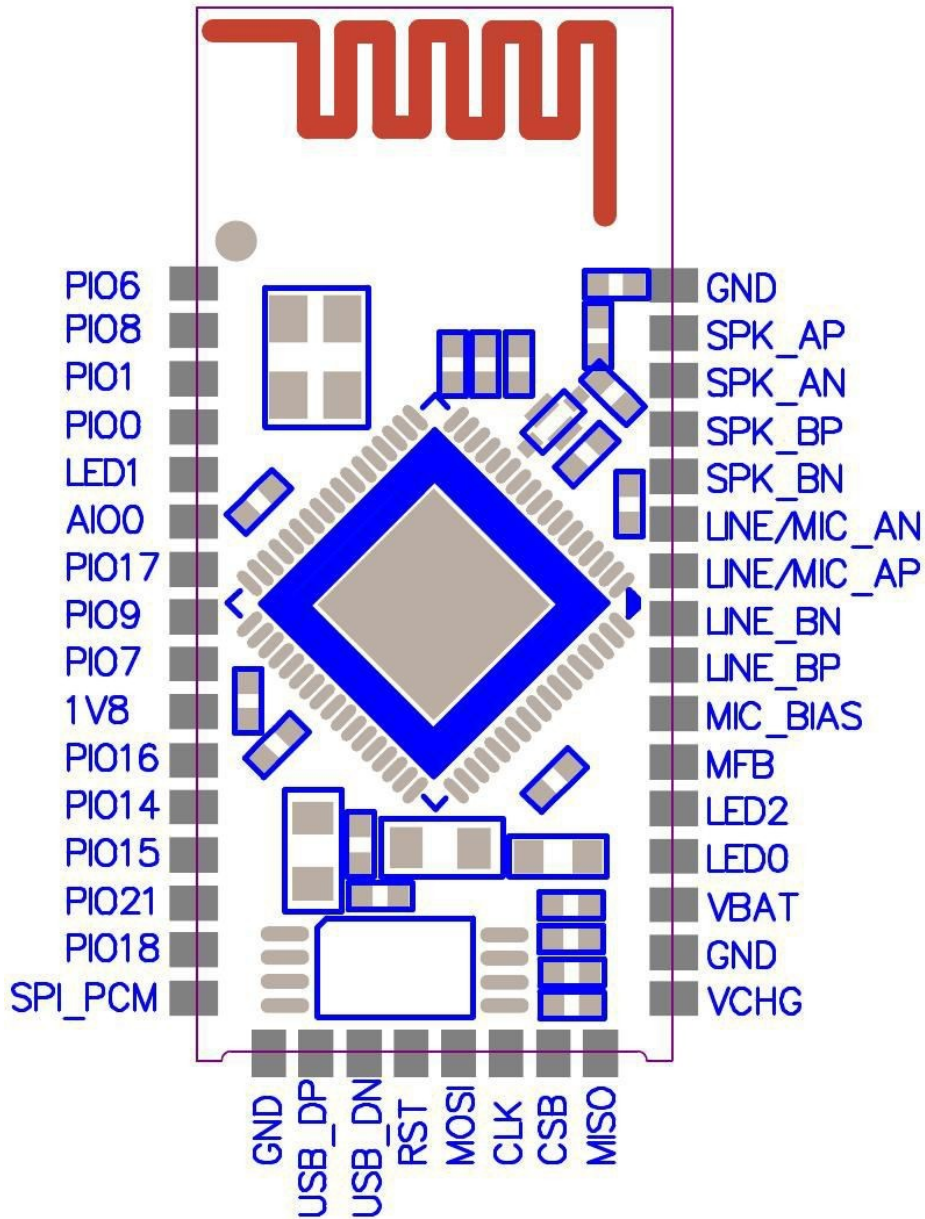


Unit: MM

**Recommended PCB layout footprint**



### 6.2. Module Pin descriptions



Pin 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

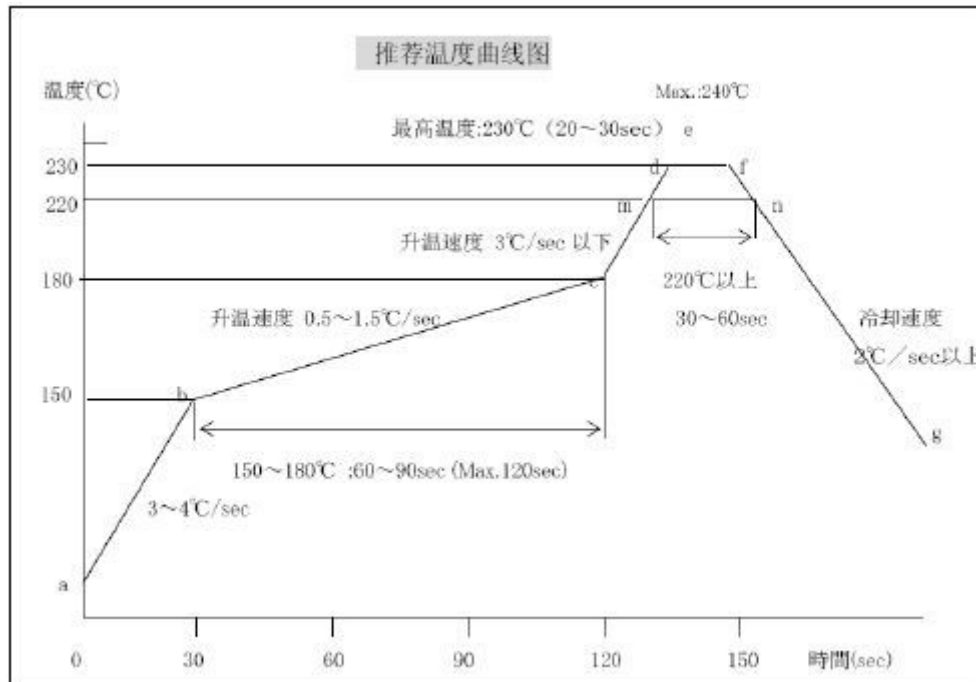
Rating	Minimum	Maximum
Storage temperature	-40°C	+85°C


### 7.2. Recommended Operating Conditions

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



## 8.Recommended reflow temperature profile





**CAUTION**  
This bag contains  
MOISTURE-SENSITIVE DEVICES

LEVEL

3

If Blank, see adjacent  
bar code label

1. Calculated sheif life in sealed bag:12 months at < 40 °C and < 90% relative humidity (RH)
2. Peak package body temperature: \_\_\_\_\_ 260 \_\_\_\_\_ °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: \_\_\_\_\_ 168 \_\_\_\_\_ hours of factory  
If Blank, see adjacent bar code label

conditions ≤ 30 °C / 60 %

  - b) stored at < 10%RH
4. Devices require bake, before mounting, if :
  - a) Humidity Indicator Card is > 10 %when read at 23 ± 5 °C
  - b) 3a or 3b not met.
5. If baking is required, devices may be baked for 48 hours at 125 ± 5 °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

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





## Record of Changes

Data	Revision	Description
2013-11-26	V1.0	Original publication of this document.
2016-01-29	V1.4	Fix the error description.
2020-06-29	V1.5	Update product model.

## IMPORTANT NOTICE

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