The User Manual Of

Bluetooth Module SCBM4A

Rev. 3.1(April 2014)

Contents

1. Device Features

- **Bluetooth spec V2.1+EDR compliant**
- **Enhanced data rate (EDR) compliant with V2.0.E.2 of specification for both 2Mbps and 3Mbps modulation modes**
- **Class 2 type output power**
- **Full Speed bluetooth operation with full piconet support**
- **Scatternet support**
- **Low power 3.3V operation**
- **Minimum external components**
- **USB, UART, SPI, PCM interface**
- **Support for 8Mbit external flash onboard**
- **Support for 802.11 co-existence**
- **RoHS compliant**

2. Applications

- **Bluetooth carkit**
- **PCs**
- **Personal digital assistants(PDAs)**
- **Computer accessories(compact Flash Cards, PCMCIA Cards, SD Cards and USB Dongles)**
- **Acess points**
- **Digital cameras**

3. General Description

SCBM4A is a class 2 bluetooth module using BlueCore4 chipset from leading Bluetooth chipset supplier cambridge silicon radio.

SCBM4A interfaces up to 8Mbit of 16-bit external flash memory.When used with the CSR bluetooth software stack, it provides a bluetooth specification V2.1+EDR fully compliant system for data and voice communications.

4. Key Features

Operating frequency band	2.402GHz -2.480GHz ISM band
Bluetooth specification	V2.1+EDR
Theoretical range in open field	Bluetooth class II
Main chip	CSR BC417143
Transmitter power	+4dBm (Typical)
Receive sensitivity	-82dB at 0.1% BER (Typical)
Antenna	Interior
Antenna impedance	50Ω
Power supply	3.3V
Flash memory size	8Mbit
Audio interface	PCM and analog interface
Dimension	26.9mm(L) * 13.0mm(W) * 2.2 mm(H)

5. Electrical Characteristic

Absolute Maximum ratings

Rating	Minimum	Maximum
Store temperature	-40℃	+100℃
Operation temperature	-30℃	+85℃
Power Supply, 3.3V(PIN12)	-0.4V	+3.7V

Recommend operation conditions

Rating	Minimum	Type	Maximum
Store temperature	-30℃	+20℃	+85℃
Operation temperature	-20℃	+20℃	+70℃
Power Supply, 3.3V(PIN12)	3.0V	3.3V	3.6V
GPIO logic level low	0V		0.825V
GPIO logic level high	2.07V		3.3V

Power Consumption

Typical Average Current Consumption		
mode	Average Current	unit
SCO Connection HV3(Master)	20.3	mA
SCO Connection HV3(slave)	24.8	mA
SCO Connection HV1(Master or slave)	39.2	mA
ACL Data Transfer 115.2Kbps UART no traffic(Master)	4.6	mA
ACL Data Transfer 115.2Kbps UART no traffic(Slave)	17.0	mA
ACLWith file transfer (Master)	10.3	mA
ACLWith file transfer (Slave)	24.7	mA
Page scan	0.42	mA
Standby mode	40	uA

6. Mechanical Dimensions

TOP VIEW

7.1mm 7.1mm
1.8mm 1.8mm
1.25mm 1.25mm

13mm

26.9mm

0.8mm
2.2mm

BOT VIEW

1.5mm
1mm
0.9mm
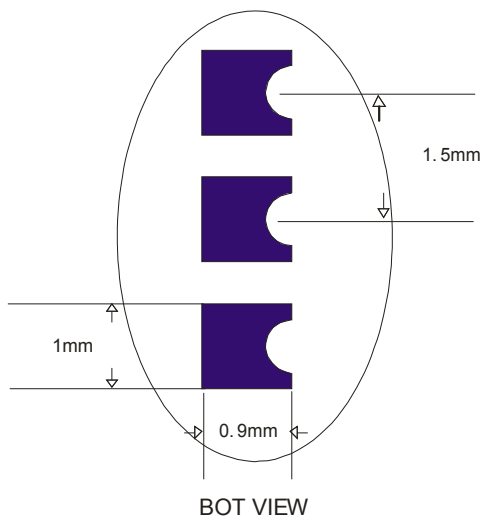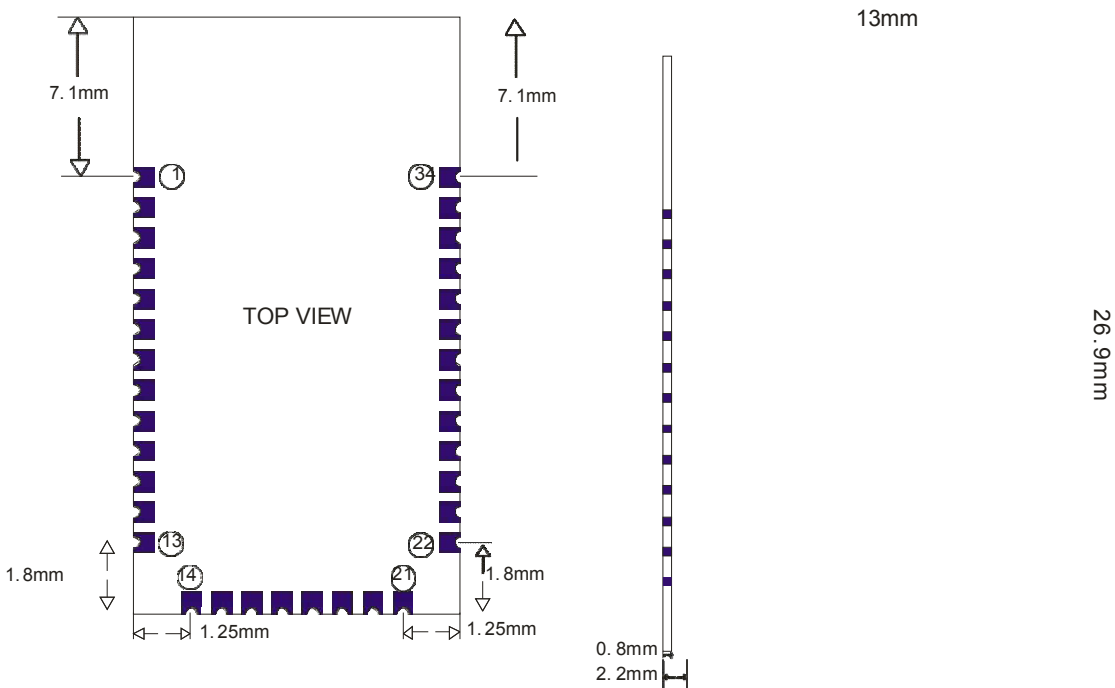
NO	PIN NAME	NO	PIN NAME
1	UART-TX	18	SPI-MISO
2	UART-RX	19	SPI-CLK
3	UART-CTS	20	USB D+
4	UART-RTS	21	GND
5	PCM-CLK	22	GND
6	PCM-OUT	23	PIO(0)
7	PCM-IN	24	PIO(1)
8	PCM-SYNC	25	PIO (2)
9	AIO(0)	26	PIO(3)
10	AIO(1)	27	PIO(4)
11	RESET	28	PIO(5)
12	3.3V	29	PIO(6)
13	GND	30	PIO(7)
14	GND	31	PIO(8)
15	USB D-	32	PIO(9)
16	SPI-CSB	33	PIO(10)
17	SPI-MOSI	34	PIO(11)

7. Pin Definition Descriptions

Pin NO.	Pin Name	Pin Descriptions
1	UART _TX	UART data output active high
2	UART _RX	UART data input active high
3	UART _CTS	UART clear to send active low
4	UART _RTS	UART request to send active low
5	PCM_CLK	Synchronous data clock, with weak internal pull-down
6	PCM_OUT	Synchronous data output, with weak internal pull-down
7	PCM_IN	Synchronous data input, with weak internal pull-down
8	PCM_SYNC	Synchronous data sync, with weak internal pull-down
9	AIO0	Programmable input/output line
10	AIO1	Programmable input/output line
11	RESETB	Reset if low. Input debounced so must be low for >5ms to cause a reset.
12	3.3V	Power supply voltage 3.3V
13	GND	Power ground
14	GND	Power ground
15	USB_N	Blue USB data minus
16	SPI_CSB	Chip select for serial peripheral interface, active low
17	SPI_MOSI	Serial peripheral interface data input

| 18	SPI_MISO	Serial peripheral interface data output
19	SPI_CLK	Serial peripheral interface clock
20	USB_P	Blue USB data plus with selectable internal 1.5KΩ pull-up resistor
21	GND	Power ground
22	GND	Power ground
23	PIO0	Programmable input/output line
24	PIO1	Programmable input/output line
25	PIO2	Programmable input/output line
26	PIO3	Programmable input/output line
27	PIO4	Programmable input/output line
28	PIO5	Programmable input/output line
29	PIO6	Programmable input/output line
30	PIO7	Programmable input/output line
31	PIO8	Programmable input/output line
32	PIO9	Programmable input/output line
33	PIO10	Programmable input/output line
34	PIO11	Programmable input/output line

8. Reference SMT Reflow Profile

Reliability solder temperature chart:
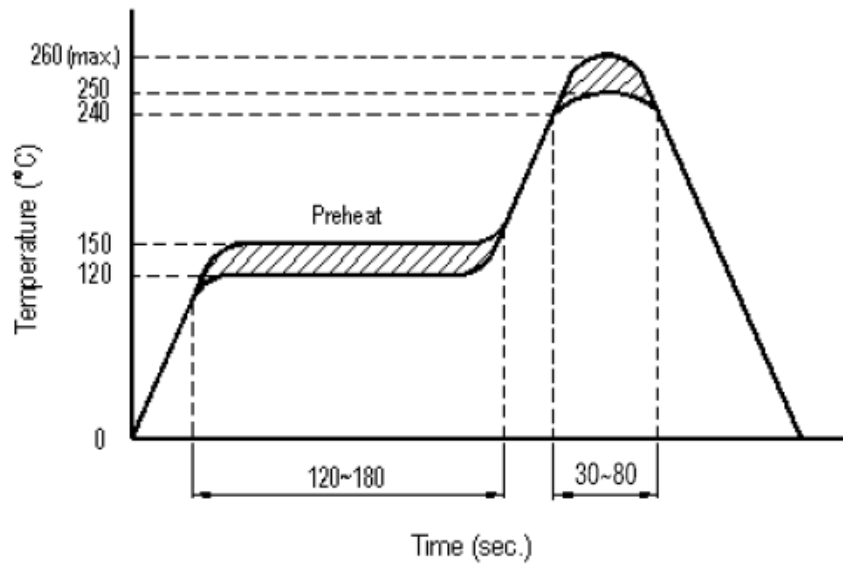
Reflow temperature chart
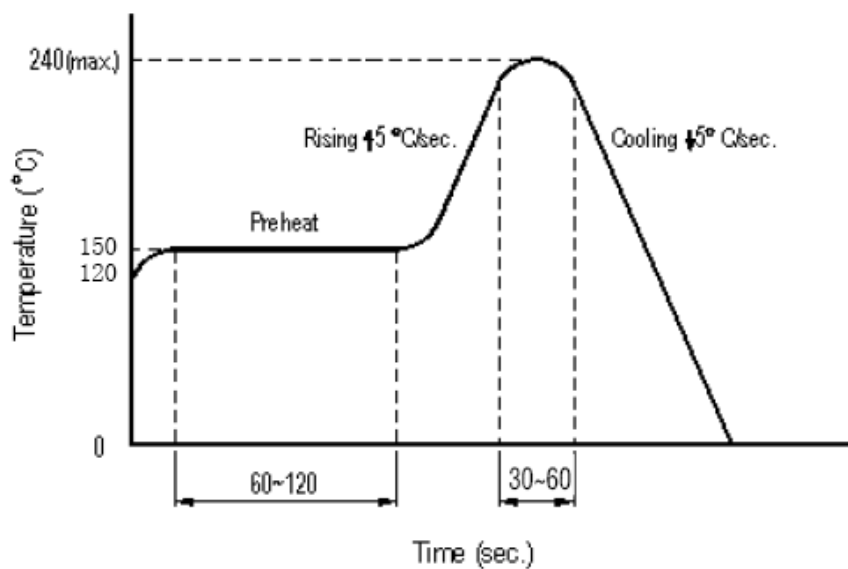
Product Name: Bluetooth Module

Model: SCBM4A

Manufacturer :

CHUANGSHENG(XIAMEN)
ELECTRONIC SCIENCE
CO.,LTD

FCC ID: **Z5GSCBM4A**

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.

Model: SCBM4A

Manufacturer :

CHUANGSHENG(XIAMEN) ELECTRONIC
SCIENCE CO.,LTD

Made in China CE2200 ☒

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ModelName:Bluetooth Module

IC:21372- SCBM4A

PMN: SCBM4A

HVIN: SCBM4A

Made in China
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Warnings:
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.

Any 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 Modular Radiation Exposure Statement：
The antenna(s) used for this transmitter must be installed to provide a separation distance of
at least 20 cm from all persons and must not be co-located or operating in conjunction with
any other antenna or transmitter, except in accordance with FCC multi-transmitter product
procedures. OEM and installers must be provided with antenna installation instructions and
transmitter operating conditions for satisfying RF exposure compliance.

Single limited modular statement:
1.This LMA does not have RF shielding and is tested and approved as standalone configuration, additional evaluation may be required for any system integrated this radio module.
2.The modular transmitter doesn't have its own power supply regulation, it's provided by host.

9.This module need to be soldered mounting in Printer main PCB according to module circuit diagram。

10. If the label of the module is not visible on the final device, the final device should contain the following text: "Contains FCC ID: Z5GSCBM4A"