

Foshan STEPON Technology Co., Ltd

Product : CM21-V2.0

Latest Version: V2

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Foshan STEPON Technology Co., Ltd

TEL:+86-757-66856874

FAX:+86-757-66856817

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Version Instruction

Version	Update	Update Date	Updated by
Ver2	Initial version	2021.1.13	

1. Summary

CM21-V2.0 It is a Bluetooth module independently developed and defined by our company for intelligent wireless audio data transmission. Based on the Bluetooth 5.0 version chip design, it provides low-cost and high-efficiency solutions for end customers

Line transmission scheme. The Bluetooth 5.0 version provides high-quality sound quality and compatibility for the module, resulting in improved overall performance

Optimization. In addition, by adopting a driver free method, customers only need to connect the module to the application product, and then

It can quickly achieve wireless transmission of music and enjoy the fun of wireless music.

2. Application

This module mainly used in music short distance transfer, it can conveniently used in laptop, phone, PAD etc. digital product's Bluetooth device connect, let the wifi music transfer come true, Example:

Bluetooth Audio

Bluetooth ear phone

Bluetooth wireless audio transmission Bluetooth hands-free phone

3. Parameter

Model	CM21-V2.0
Bluetooth specifications	Bluetooth V5.0

Supports Bluetooth protocol	AVRCP1.6, A2DP1.3, HandsFree1.7, SPP1.2
Working current	≤9mA
Standby current	<1mA
working voltage	3.3v—4.2v
temperature range	-40°C to +80°C
Wireless transmission range	>10 meter
Transmission power	Support CLASS2/3
sensitivity	-80dBm
frequency range	2.402GHz-2.480GHz
External interface	PIO, UART
Audio performance	Dual channel
Audio signal-to-noise ratio	≥75dB
Distortion	≤0.1%
Module size	29X15X2mm

4. Pin Function Description (Pin diagram can be found in the appendix C)

PIN	NAME	TYPE	FUNCTION
1	P00	Input/Output, Digital	GPIO, default pull-high input 1. Slide Switch Detector. 2. UART TX_IND
2	EAN	Input, Digital	Embedded ROM/External Flash enable H: Embedded; L: External Flash
3	P30	Input/Output, Digital	GPIO, default pull-high input Line-in Detector
4	P20	Input/Output, Digital	GPIO, default pull-high input 1. KEY PIN for FT Test 2. System Configuration, H: Application L: Baseband (IBDK Mode)

5	P15	Input/Output, Digital	GPIO, default pull-high input 1. NFC detection pin 2. Out_Ind_0 3. Slide Switch Detector.
6	P04	Input/Output, Digital	GPIO, default pull-high input. 1. NFC detection pin 2. Out_Ind_0
7	SPKR	Output, Digital	R-channel analog headphone output
8	AOHPM	Output, Digital	Headphone common mode output/sense input.
9	SPKL	Output, Digital	L-channel analog headphone output
10	VDDA	Power	Positive power supply/reference voltage for CODEC

11	MIC1_P	Input, Digital	Mic 1 mono differential analog positive input
12	MIC1_N	Input, Digital	Mic 1 mono differential analog negative input
13	MIC_BIAS	Power	Electric microphone biasing voltage
14	AIR	Input, Digital	R-channel single-ended analog inputs
15	AIL	Input, Digital	L-channel single-ended analog inputs
16	RST	Input, Digital	KEY PIN for FT Test System Reset Pin
17	VCC_RF	Power	RF power input for both synthesizer and TX/RX block
18	P01	Input/Output, Digital	GPIO, default pull-high input 1. FWD key when class 2 RF 2. Class1TXControl signal of external TR when class 1 RF 3. Serial flash control. switch
19	VDD_IO	Power	I/O power supply input

20	ADAP_IN	Power	Power adaptor input
21	BAT_IN	Power	Battery input
22	AMB_DET	Power	ADC analog input 1
23	GND	Power	Exposed pad as ground
24	SYS_PWR	Power	System Power Output
25	BK_OUT	Power	Buck output
26	MFB	Input, Digital	Multi-Function Push Button key
27	LED1	Input, Digital	LED Driver 1
28	LED2	Input, Digital	LED Driver 2
29	P24	Input/Output, Digital	GPIO, default pull-high input 1. KEY PIN for FT Test 2. System Configuration, L: Boot Mode with P2_0 low combination
30	P02	Input/Output, Digital	GPIO, default pull-high input Play/Pause key as the default setting
31	P03	Input/Output, Digital	GPIO, default pull-high input 1. REV key 2. Buzzer Signal Output 3. Out_Ind_1 4. Class1RXControlsignalofexternalTR when class 1 RF 5. Serial flash control. switch
32	HCI_TXD	Input/Output, Digital	KEY PIN for FT Test HCI TX data

			KEY PIN for FT Test
33	HCI_RXD	Input/Output, Digital	HCI RX data
34	P05	Input/Output, Digital	GPIO, default pull-high input Volume down (default)
35	P27	Input/Output, Digital	GPIO, default pull-high input Volume up key (default)
36	P24	Input/Output, Digital	GPIO, default pull-high input 1. KEY PIN for FT Test 2. System Configuration, L: Boot Mode with P2_0 low combination
37	GND	Power	Exposed pad as ground
38	ANT1	Signal	External antenna/state output
39	ANT2	Signal	External antenna/state output
40	ANT3	Signal	External antenna/state output

5. Attention

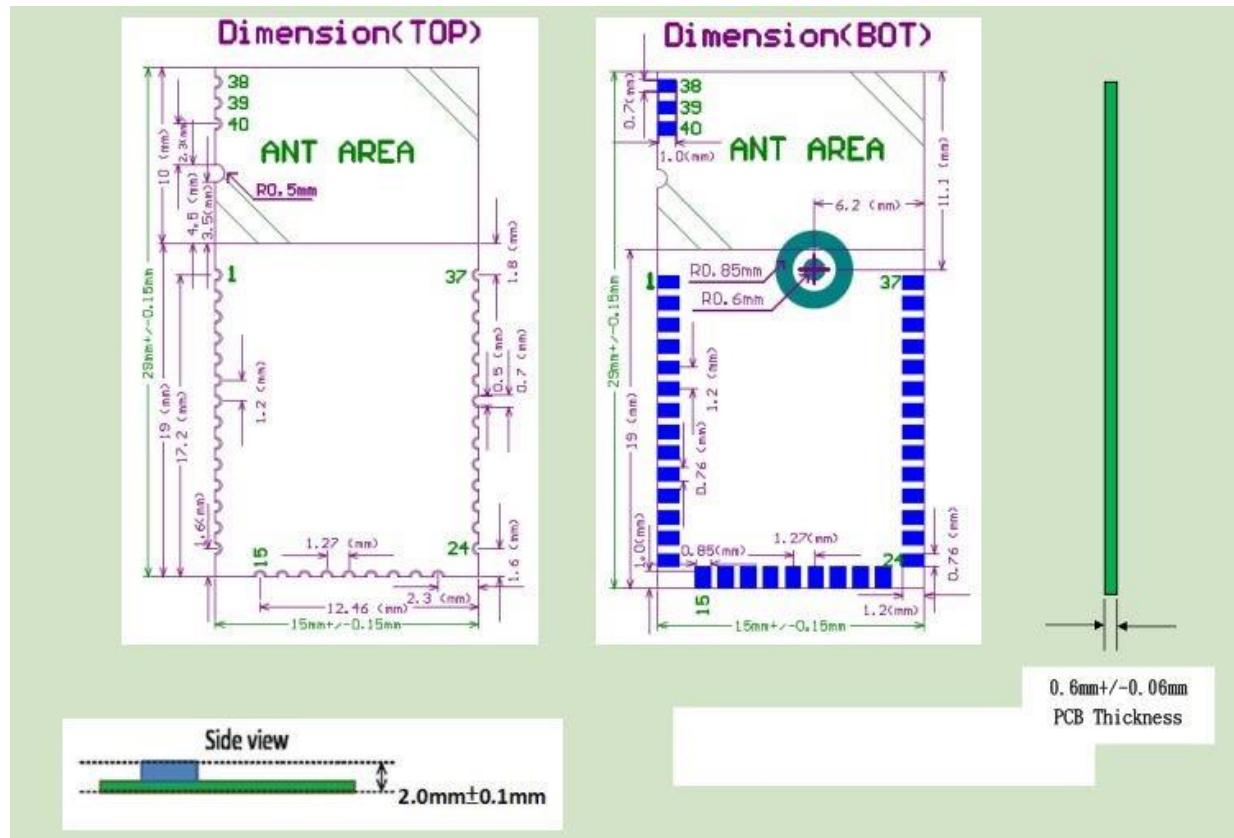
1) PCB board: The antenna part of the Bluetooth module is a PCB antenna. Due to the weakening of the antenna function caused by metal, it is strictly prohibited to lay or wire under the module antenna when laying the board. It would be better if it could be hollowed out.

2) Regarding the usage environment of wireless Bluetooth, wireless signals, including Bluetooth applications, are greatly affected by the surrounding environment. Obstacles such as trees and metals can absorb wireless signals to a certain extent, which can be useful in practical applications.

3) Due to the fact that Bluetooth modules need to be paired with existing systems and placed inside the casing. Due to the shielding effect of the metal shell on wireless radio frequency signals. So it is recommended not to install it in a metal casing.

Appendix A: Module Size

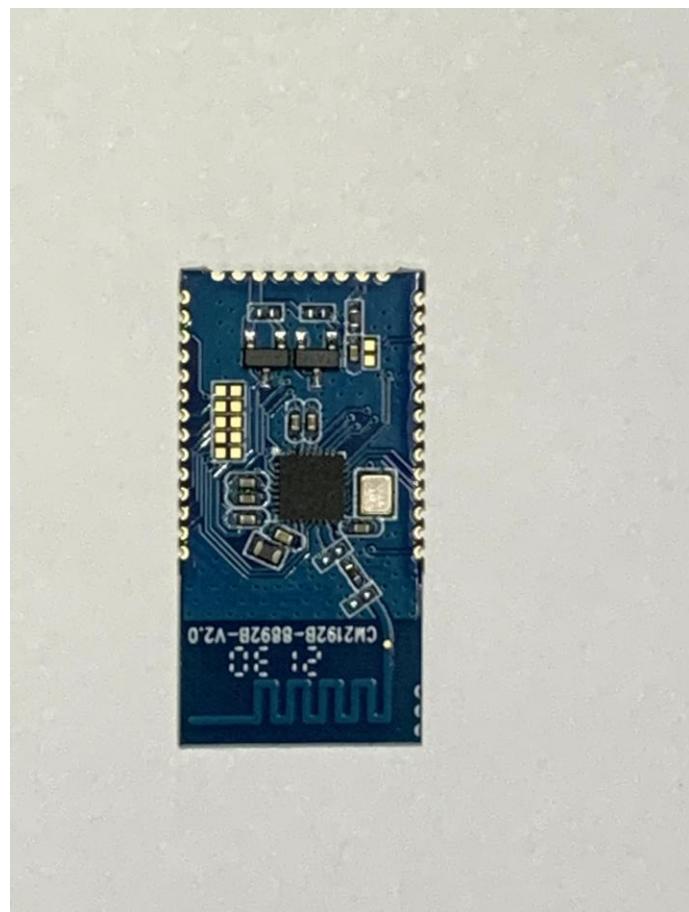
Dimension & footprint



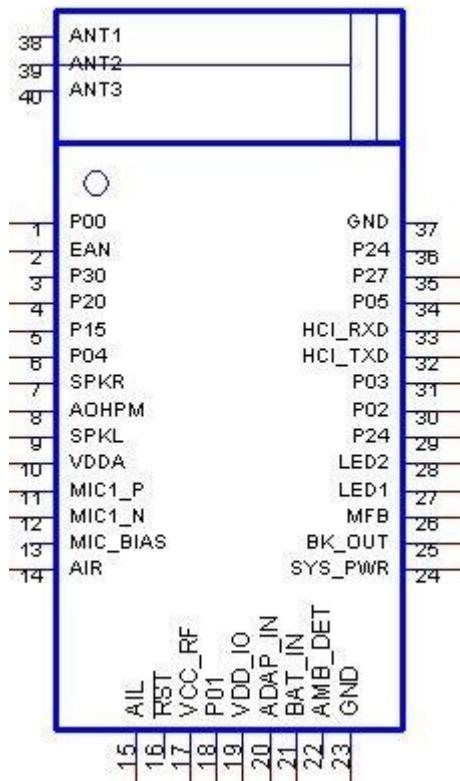
-Dimension: 29mm *15mm * 2MM (Length*Width*Height)

-Tolerance: +/- 0.15 mm

Appendix B: Module image



Appendix C: Pin allocation



Refer to KDB 996369 D03 v01r01:

2.2 List of applicable FCC rules

FCC Part 15.247

2.6 RF exposure considerations

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

2.8 Label and compliance information

FCC ID label on the final system must be labeled with "Contains FCC ID: 2BFND-CM21-V20" or "Contains transmitter module FCC ID: 2BFND-CM21-V20".

2.9 Information on test modes and additional testing requirements

Contact Foshan STEPON Technology Co., Ltd will provide stand-alone modular transmitter test mode. Additional testing and certification may be necessary when multiple modules are used in a host.

2.10 Additional testing, Part 15 Subpart B disclaimer

To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Supplier's Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, Foshan STEPON Technology Co., Ltd shall provide guidance to the host manufacturer for compliance with the Part 15B requirements.

FCC Warning

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.

NOTE 1: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Note 1: This module certified that complies with RF exposure requirement under mobile or fixed condition, this module is to be installed only in mobile or fixed applications.

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

A fixed device is defined as a device is physically secured at one location and is not able to be easily moved to another location.

Note 2: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user has no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

- (1) The module is limited to OEM installation only.
- (2) The OEM integrator is responsible for ensuring that the end-user has no manual instructions to remove or install module.