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Chengdu Ebyte Electronic Technology Co.,Ltd.

E73-2G4M04S Datasheet v1.1

Contents

1. Introduction

With small size and low power consumption, E73-2G4M04S is a wireless bluetooth module designed by Chengdu Ebyte. Built in PCB antenna and IPX interface， E73-2G4M04S adopts the original RFIC nRF52832 of NORDIC, supporting BLE 4.2 and BLE 5.0. The chip has high-performance ARM CORTEX-M4F kernel and other peripheral resources, such as UART、I2C、SPI、ADC、DMA、PWM etc.. The module led out all the IO port of nRF52832 for multilateral development.

E73-2G4M04S is a hardware platform without firmware, so users need to conduct secondary development.

For more details about nRF52832, please refer to the official datasheet. This module has maximized the RF Characteristic of chip. It' s built in 32.768K real-time clock crystal oscillator for self-programmed.

2. Features

No.	Features	Description
1	ARM	Embedded with 32 bites 64MHz basic frequency floating point cell processor based on Cortex-M4F.
2	Clock crystal	Built in 32.768K real-time clock crystal. Users can program it by themselves.
3	Harmonic stray	The hardware design has small harmonic stray and can pass various certifications.
4	GPIO	All IO ports are led out, so users can have the secondary development.
5	Dual antenna	Users can choose stamp hole or IPEX interface for antenna.

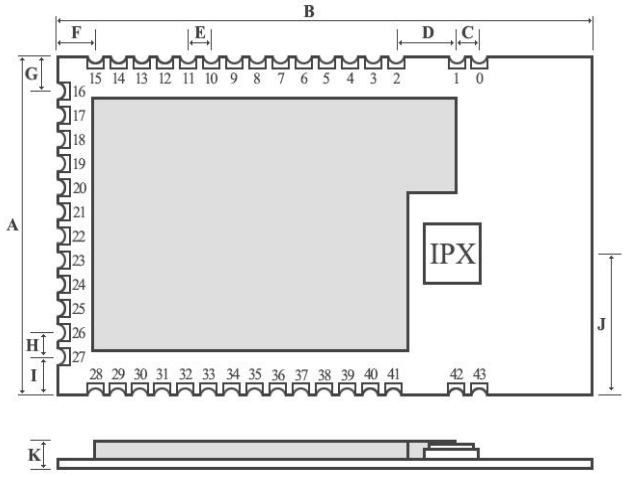
3. E73 Series

Model	RFIC	Frequency Hz	Power dBm	Range km	Packing	Antenna
E73-2G4M04S	nRF52832	2.4G	4	0.1	SMD	PCB/IPX
Other products of E73 series will come soon.						

4. Electrical Parameter

No.	Item	Parameter details	Description
1	RFIC	nRF52832	NORDIC
2	Size	17.5 * 28.7mm	-
3	Weight	1.8g	Average weight
4	Frequency band	2379 ~ 2496MHz	Adjustable via software
5	PCB	4-layer PCB	Impedance-matching, lead-free
6	Connector	1.27mm	SMD
7	Operation voltage	1.8 ~ 3.6V DC	3.3V is recommended (Note:The voltage higher than 3.6 is forbidden)
8	Communication level	0 ~ 3.6V	The voltage higher than 3.6 is forbidden
9	Operation Range	About 100m	Test condition: clear and open area & 4dBm, antenna gain: 5dBi , height: 2m
10	Transmitting power	Maximum 4dBm	About 2.5mW
11	Air data rate	1Mbps, 2Mbps	The higher the air data rate, the shorter the transmission distance.
12	Standby current	-	-
13	Transmitting current	14mA@4dBm	3.3V, ≥50mA (recommended)
14	Receiving current	5mA	3.3V
15	Communication interface	All IO port led out	See more details in datasheet
16	Transmitting length	user-defined	-
17	Receiving length	user-defined	-
18	RSSI	Support	-
19	Antenna type	PCB / IPX	50Ω characteristic impedance
20	Operating temperature	-40 ~ +85℃	-
21	Storage temperature	-40 ~ +125℃	-
22	Receiving sensitivity	-96dbm@1Mbps	Please refer to nRF52832

5. Pin Definition



Units: mm

	MIN	NOR	MAX
A	17.40	17.50	17.60
B	28.60	28.70	28.80
C	1.27	1.27	1.27
D	2.49	2.54	2.59
E	1.27	1.27	1.27
F	1.695	1.745	1.795
G	1.715	1.765	1.815
H	1.27	1.27	1.27
I	1.715	1.765	1.815
J	6.58	6.63	6.68
K	2.50	2.60	2.70

No.	Pin item	Pin direction	Application
0	GND	Input	Ground electrode, connect to reference ground of power
1	GND	Input	Ground electrode, connect to reference ground of power
2	GND	Input	Ground electrode, connect to reference ground of power
3	DEC2	Input/Output	MCU GPIO
4	DEC3	Input/Output	MCU GPIO
5	P0.25	Input/Output	MCU GPIO
6	P0.26	Input/Output	MCU GPIO
7	P0.27	Input/Output	MCU GPIO
8	P0.28	Input/Output	MCU GPIO
9	P0.29	Input/Output	MCU GPIO
10	P0.30	Input/Output	MCU GPIO
11	P0.31	Input/Output	MCU GPIO
12	DEC4	Input/Output	MCU GPIO
13	DCC	Input/Output	MCU GPIO
14	DEC5	Input/Output	MCU GPIO
15	GND	Input/Output	MCU GPIO
16	VCC	Input	Power supply 1.8 ~ 3.6V DC (Note: The voltage higher 3.6V is forbidden)

17	P0.02	Input/Output	MCU GPIO
18	P0.03	Input/Output	MCU GPIO
19	P0.04	Input/Output	MCU GPIO
20	P0.05	Input/Output	MCU GPIO
21	P0.06	Input/Output	MCU GPIO
22	P0.07	Input/Output	MCU GPIO
23	P0.08	Input/Output	MCU GPIO
24	P0.09	Input/Output	MCU GPIO
25	P0.10	Input/Output	MCU GPIO
26	P0.11	Input/Output	MCU GPIO
27	P0.12	Input/Output	MCU GPIO
28	P0.13	Input/Output	MCU GPIO
29	P0.14	Input/Output	MCU GPIO
30	P0.15	Input/Output	MCU GPIO
31	P0.16	Input/Output	MCU GPIO
32	P0.17	Input/Output	MCU GPIO
33	P0.18	Input/Output	MCU GPIO
34	P0.19	Input/Output	MCU GPIO
35	P0.20	Input/Output	MCU GPIO
36	P0.21	Input/Output/RST	MCU GPIO
37	SWDCLK	Input	MCU GPIO
38	SWDIO	Input/Output	MCU GPIO
39	P0.22	Input/Output	MCU GPIO
40	P0.23	Input/Output	MCU GPIO
41	P0.24	Input/Output	MCU GPIO
42	GND	Input	Ground electrode, connect to power reference ground
43	GND	Input	Ground electrode, connect to power reference ground
Please see 《nRF52832 Datasheet》in NORDIC for more details			

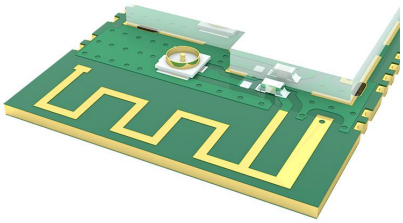
6. Usage

No.	Item	Notes
1	Input program	1. The module embedded with ARM MCU. For program downloading, please use the J-LINK downloader, any other serial port or JTAG、ISP、ICP are unavailable to download. 2. There’ s two parts to download the program. Because the protocol stack of NORDIC is not programmed yet, so users need to use the official nRFgo studio of NORDIC to program the protocol stack first, then program the hex of application code. Or, to program the protocol stack of NORDIC first and download via the IAR or KEIL. Website of tool download: http://www.nordicsemi.com/eng/Products/Bluetooth-low-energy/nRF52832/(language)/eng-GB 
2	Testing Board	We don’ t provide the assorted testing board.

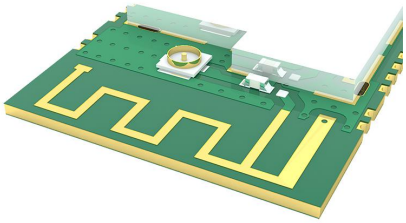
7. Antenna Type

The default 0R resistance showed as below(left), it is PCB antenna.

If users need the IPEX as antenna interface, just change the 0R resistance as below(right).



Choose PCB antenna



Choose IPEX

8. Customization

★Please contact us for customization.
★Ebyte has established profound cooperation with various well-known enterprises.

9. About us

Chengdu Ebyte Electronic Technology Co., Ltd. (Ebyte) is specialized in wireless solutions and products.

- We research and develop various products with diversified firmware;
- Our catalogue covers WiFi, Bluetooth, Zigbee, PKE, wireless data transceivers & etc.;
- With about one hundred staffs, we have won tens of thousands customers and sold millions of products;
- Our products are being applied in over 30 countries and regions globally;
- We have obtained ISO9001 QMS and ISO14001 EMS certifications;
- We have obtained various of patents and software copyrights, and have acquired FCC, CE, RoHs & etc.