

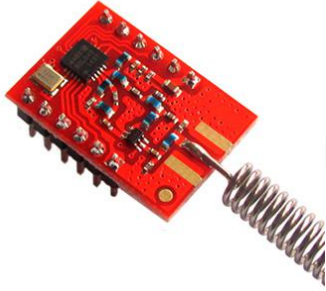


**成都亿佰特电子科技有限公司**  
Chengdu Ebyte Electronic Technology Co.,Ltd.

## E10-433MD-TH Datasheet v1.0

### Introduction

### E10-433MD-TH



E10-433MD-TH is a wireless transceiver module, operates at 433MHz with 100mW transmitting power. SPI interface, with 26M crystal oscillator.

E10-433MD-TH is based on original imported RF SI4463 from Silicon Labs in USA. Module features stable performance, long transmitting distance and strong penetration and diffraction ability. With high receiving sensitivity, good anti-interference ability and low-power development.

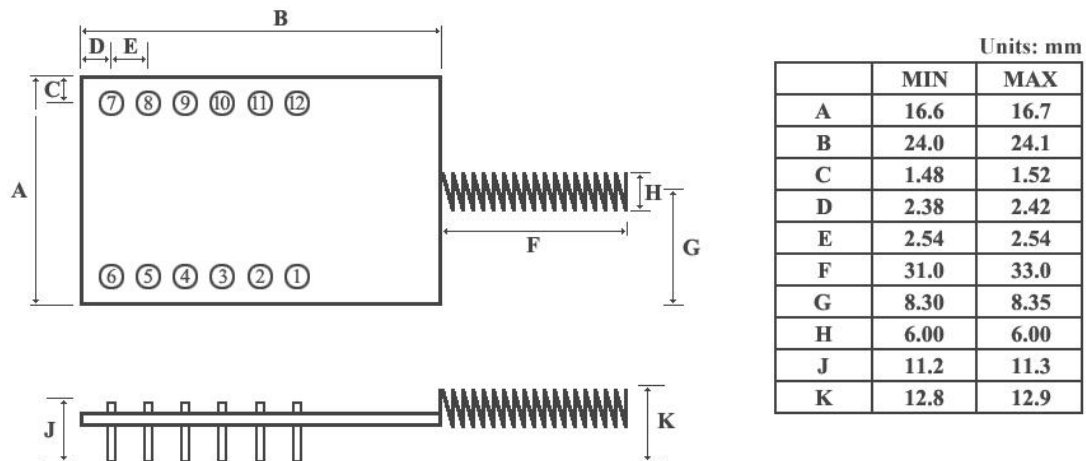
### Electrical parameter

### E10-433MD-TH

No.	Parameter item	Parameter details	Parameter details
1	RF IC	SI4463	Silicon Labs
2	Size	16.6 * 24mm	Without antenna
3	Weight	3.3g	With antenna
4	Frequency Band	425 ~ 525MHz	26M crystal oscillator
5	PCB	2-layer	lead-free
6	Connector	1 * 6 * 2.54mm	Plug-in
7	Supply voltage	1.8 ~ 3.6V DC	
8	Communication level	0.7VCC ~ 3.6VDC	VCC refers to the supply voltage
9	Operation Range	1800m	Open area; 20dBm; Height: 2m; Air data rate: 1kbps
10	Transmitting power	Maximum 20dbm	About 100mW
11	Air data rate	0.123kbps ~ 1Mbps	Low speed is recommended
12	Sleep current	0.6uA	
13	Transmitting current	80mA@20dBm	The proposed power supply capacity is greater than 200mA.
14	Receiving current	13mA	Average value
15	Communication interface	SPI	Max air data rate 10Mbps
16	Transmitting length	1~64 bytes	For one package
17	Receiving length	1~64 bytes	For one package
18	RSSI support	Usable	Find more details on <SI4463 Datasheet>
19	Antenna type	Spring	50Ω impedance
20	Operating temperature	-40 ~ +85°C	Industrial-grade
21	Operating humidity	10% ~ 90%	Relative humidity, without condensation
22	Storage temperature	-40 ~ +125°C,	Industrial-grade
23	Sensitivity	-126dBm@1kbps	Find more details on <SI4463 Datasheet>

## Pin definition

## E10-433MD-TH



Pin No.	Pin item	Pin direction	Pin application
1	GND		Ground
2	SDN		The module working enable control the pin, its low level when working (See SI4463 manual for more details)
3	GPIO3	Output	Connect to the transmitter of the internal module RF switch ,also cannot be connected, intelligent controlled by SI4463
4	GPIO2	Output	Connect to the receiving of the internal module RF switch also cannot be connected, intelligent controlled by SI4463
5	nSEL	Input	SPI Chip select
6	MOSI	Input	SPI master output slave input
7	MISO	Output	SPI master input slave output
8	SCK	Output	SPI Chip select
9	IRQ	Output	Interrupt request
10	GPIO1	Output	Output pin
11	GPIO0	Output	Output pin
12	VCC		Power supply 1.8V ~ 3.6V DC

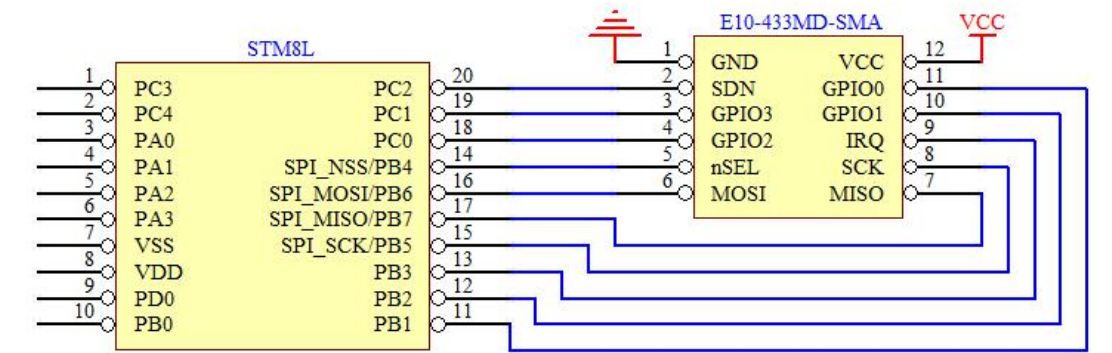
★ Find more details on 《SI4463 Datasheet》 from Silicon Labs. ★

## Notes

## E10-433MD-TH

No.	Item	Attention
1	Static electricity	Please try not to touch the electronic components with bare hands.
2	Welding	When welding, soldering iron needs grounding. The producer needs to wear cable electrostatic bracelet which is grounding when mass production.
3	Power supply	Power quality has a great impact on the performance of the module, please make sure the power supply has small ripple and avoid the frequent and large jitter. $\pi$ filter is recommended(Ceramic capacitor / / tantalum capacitor + inductance).
4	Ground	Single-point grounding is recommended. 0 ohm resistor or 10mH inductance are recommended.

**Usage** **E10-433MD-TH**



No.	Brief introduction of connection between module and MCU (STM8L)
1	GPIO0\GPIO1 is general purpose I/O, can be configured into multiple functions, please check SI4463 manual for more details. Floating is allowed.
2	It is possible to get the interrupt status through SPI, floating is allowed. It is recommended to Connect to the external interrupt pin of MCU.
3	Make sure the grounding is good, with low power supply ripple, also should increase filter capacitor and as close as possible to VCC and GND pin.

**Software programming** **E10-433MD-TH**

No.	Note
1	SPI communication rate should not be set too high, usually around 1Mbps.
2	Please refer to the part of "Operating Modes and timing" for SI4463's state transition, the state transitions of TX and RX have to pass "Ready" , it cannot switch directly
3	The register configuration can be reinitialized to obtain higher stability when the chip is invalid

**Series of products** **E10-433MD-TH**

Model	IC	Hz	dBm	km	Package	ANT
E10-433MD3	SI4438	433M	20	1.9	SMD	IPEX
E10-433MD-SMA	SI4463	433M	20	2.0	Plug-in	SMA-K
E10-433MD-TH	SI4463	433M	20	1.8	Plug-in	Spring
E10-433MS	SI4463	433M	20	1.8	SMD	Stamp hole
E10-433MS1W	SI4463	433M	30	6.0	SMD	Stamp hole

**About us****E10-433MD-TH**

Chengdu Ebyte Electronic Technology Co., Ltd., a high-tech company focusing on application of Internet of Things, owns a number of independently researched and developed products and obtains unanimous approvals from customers. With a powerful R&D team, perfect after-sales system, our company provides perfect solutions and technical assistance, shortens R&D period, reduces R&D cost and provides a strong platform for brand new ideas about product R&D.

Our products have been widely applied in various fields, such as consumer electronics, industrial control, healthcare, security alarm, field acquisition, smart home, expressway, property management, water and electricity meter reading, power monitoring, etc.



**成都亿佰特电子科技有限公司**  
**Chengdu Ebyte Electronic Technology Co.,Ltd.**

【Website】 : [www.cdebyte.com/en](http://www.cdebyte.com/en)

【Technical support】 : [support@cdebyte.com](mailto:support@cdebyte.com)

【Address】 : Innovation Center D347, 4# XI-XIN road, High-tech district (West), Chengdu, Sichuan, China