



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

## E19-915MS1W Datasheet v1.0

### 1. Introduction

### E19-915MS1W



E19-915MS1W is a 1W wireless transceiver module, operates at 915MHz with SPI RF interface. It' s small-sized SMD module with low-noise amplifier to enhance the sensitivity. With stable batch production, the module is suitable for various applications.

E19-915MS1W is based on the original imported RF chip SX1276 from SEMTECH, supporting LoRa Spread spectrum technology, which brings longer transmission distance and has the advantages of concentrated power density and strong anti-interference.

E19-915MS1W is a hardware platform. Without any program, users need to make the secondary development.

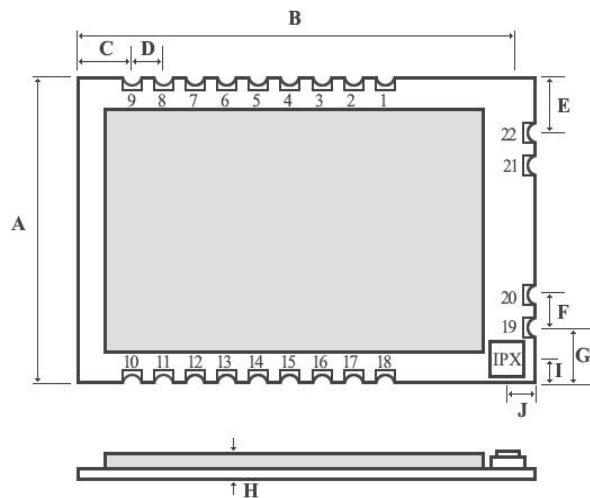
### 2. Electrical parameter

### E19-915MS1W

No.	Parameter item	Parameter Details	Description
1	RF IC	SX1276	SEMTECH
2	Size	25*40mm	whole size
3	Weight	5.2g	whole weight
4	Frequency Band	900 ~ 931MHz	adjustable, adopt 32MHz crystal oscillator
5	PCB	4 layers	Impedance-matching, lead-free,shield cover
6	Connector	2 * 9 * 2.54mm	SMD
7	Supply Voltage	5.0 ~ 5.5V DC	Note: The voltage higher than 6V is forbidden
8	Communication level	0.7VCC ~ 5V	VCC refers to the supply voltage
9	Operation Range	10000m	clear and open area& max. power , antenna gain: 5dBi , height: 2m ,Coding rate 4/5, OVSF:12, air data rate:300bps
10	Transmitting power	30dBm	about 1W
11	Air data rate	0.018k ~37.5kbps	LoRa mode
12	Sleep current	3uA (max)	on the sleep mode
13	Transmitting current	640mA@30dBm	The power is supposed to be higher than 1.5A
14	Receiving current	23mA BW = 500KHz	LoRa Mode. It' s different from BW.
15	Communication interface	SPI	data rate: 10Mbps maximum
16	Transmitting length	256 bytes	FIFO
17	Receiving length	256 bytes	FIFO
18	RSSI support	Available	Find more details on <SX1276 Data sheet >
19	Antenna type	IPX/stamp hole	50 ohm impedance
20	Operating temperature	-40 ~ +85°C	Industrial Grade
21	Operating humidity	10% ~ 90%	relative humidity, no condensation
22	Storage temperature	-40 ~ +125°C	Industrial Grade
23	Receiving sensitivity	-138dBm@300bps	Find more details on <SX1276 Data sheet>

### 3. Pin definition

E19-915MS1W



Units: mm

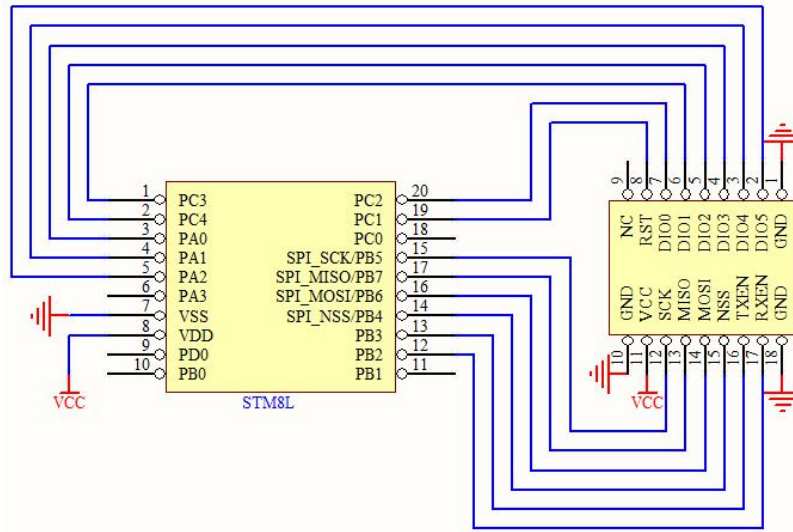
	MIN	NOR	MAX
A	24.80	25.00	25.20
B	39.80	40.00	40.20
C	3.40	3.50	3.60
D	2.54	2.54	2.54
E	5.40	5.50	5.60
F	2.54	2.54	2.54
G	5.40	5.50	5.60
H	4.85	4.88	4.90
I	1.70	1.90	2.00
J	2.70	2.80	2.90

Pin No.	Pin Item	Pin Direction	Pin Application
1	GND		Ground
2	DIO5	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
3	DIO4	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
4	DIO3	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
5	DIO2	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
6	DIO1	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
7	DIO0	Input/Output	Configurable IO interface(See more details in SX1276 data sheet)
8	RST	Input	Chip reset triggers output pin
9	GND		Ground
10	GND		Ground
11	VCC		Power supply: 5.0-5.5V(Ceramic filter capacitor is advised to add)
12	SCK	Input	SPI clock input pin
13	MISO	Output	SPI clock output pin
14	MOSI	Input	SPI clock input pin
15	NSS	Input	Chip selection pin for starting a SPI communication
16	TXEN	Input	RF switch control ; In transmitting , TXEN high level , RXEN low level
17	RXEN	Input	RF switch control ; In receiving , RXEN high level , TXEN low level
18	GND		Ground
19	ANT		Antenna
20	GND		Ground
21	GND		Ground
22	GND		Ground

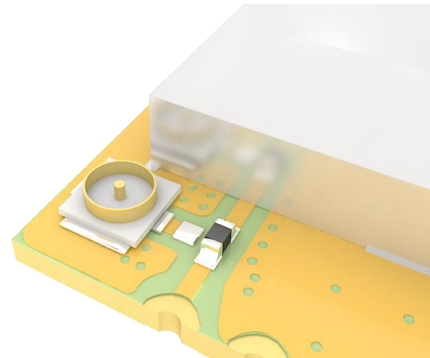
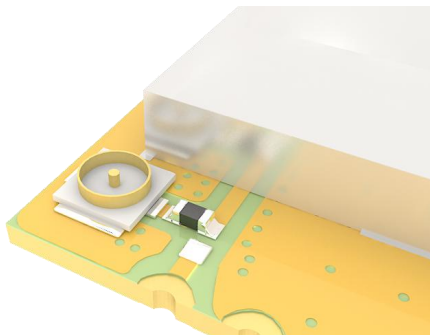
★ Please see more details in <SX1276 Datasheet > from SEMTECH, such as pin definition, software drivers, and communication protocol. ★

4. Usage

E19-915MS1W



No.	Brief introduction of connection between module and MCU (STM8L)
1	DIO0, IO1, DIO2, DIO3, DIO4, DIO5 are general I/O interface , it can be configured to be multi-function. See more details in the SX1276 data sheet.
2	RST、TXEN、RXEN pin must be connected. RST control the reset of chip, TXEN、RXEN control the RF Switch.
3	Be grounded well, large area pavement, small power ripple, add Filter capacitor and be close to the VCC and GND pin.



OR resistance welding as shown in the above picture(left), connector type of antennas is stamp hole. Users need to change the OR resistance as the above picture(right) if want the antennas types as IPEX.

5. Software program

E19-915MS1W

No.	Notes For Program
1	1Mbps is recommended for the SPI communication.
2	When transmitting, set the TXEN pin as high level, RXEN as low level; When receiving, set the RXEN pin as high level, TXEN as low level; Before cutting off, set both TXEN and RXEN as low level.
3	Reinitialize the register configurations to gain higher stability when the chip is free.

## 6. Type-choosing

**E19-915MS1W**

Model	RF IC	Frequency Hz	Power dBm	Operation range km	Install style	Antenna type
<a href="#">E19-433MS100</a>	SX1278	433M	20	5.0	SMD	Stamp hole
<a href="#">E19-433MS1W</a>	SX1278	433M	30	10.0	SMD	Stamp hole
<a href="#">E19-868MS100</a>	SX1276	868M	20	5.0	SMD	Stamp hole
E19-868MS1W	SX1276	868M	30	10.0	SMD	Stamp hole/IPEX
<a href="#">E19-915MS100</a>	SX1276	915M	20	5.0	SMD	Stamp hole
E19-915MS1W	SX1276	915M	30	10.0	SMD	Stamp hole/IPEX

All the products of E19 series are communicated each other.

## 7. About us

**E19-915MS1W**

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.



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