915MHz LoRa/FSK Transceiver Module

General Description

RFM97CW Sub-GHz radio transceivers are ideal for long range wireless applications. With high integration, the RFM97CW simplifies the peripheral materials needed in system design. The sensitivity up to - 138dbm that optimizes link performance for applications. In addition, the RFM97CW also supports the function of duty cycle operation mode, channel listening, high-precision RSSI, power on reset, squelch output, etc., which makes the application design more flexible and realizes product differentiation design. The working voltage of RFM97CW is from 1.8V to 3.7V. When the sensitivity of -138dbm is reached, only 9.9ma current is consumed, and the ultra-low power consumption receiving mode can further reduce the receiving power consumption of the chip.

RFM97CW

Ordering Information

Part No.	Working Frequency
RFM97CW-915S2	915MHz

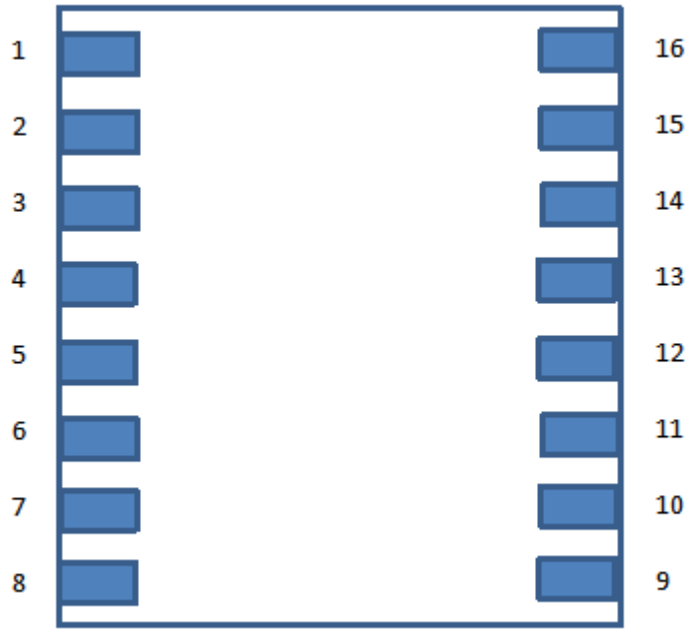
Product Features

- Working Frequency: 915MHz
- Modulation and Demodulation Mode: LoRa
- Data Rate: 0.018~37.5 kbps
- Sensitivity: -138dBm, BW=125KHz, SF=12
- Voltage Range: 1.8 ~3.7 V
- Receiving Current: 12.5 mA @ BW=125KHz
- Support ultra-low power consumption receiving mode
- Sleeping Current:
  * 160 nA, DutyCycle = OFF
  * 600 nA, DutyCycle = ON
  * 4-wire SPI Interface
- Support fully automatic independent working mode

Applications

- Automated Meter Reading
- Home and Building Automation
- ISM Band Data Communication
- Industrial Monitoring and Control
- Wireless Alarm and Security Systems
- Remote Control Application
- Intelligent Instrument
- Supply Chain and Logistics
- Intelligent Agriculture
- Smart City
- Retail Industry
- Asset Tracking
- Intelligent Streetlight
- Intelligent Parking
- Environmental Monitoring
- Health Monitoring

Module Pin Information



Pic 1. RFM97CW Front View

Table1. RFM97CW Module Pin Definition

Pin No	Pin Name	Description
1	DIO5	Data I / O pin, software configuration
2	RESET	Reset pin, effective at low level
3	SCK	SPI clock input
4	MISO	SPI data output
5	MOSI	SPI data input
6	NSS	SPI slave input
7	GND	Ground
8	ANT	Antenna I / O
9	GND	Ground
10	GND	Ground
11	3.3V	Power Supply 3.3V
12	DIO0	Data I / O pin, software configuration
13	DIO1	Data I / O pin, software configuration
14	DIO2	Data I / O pin, Receiving data output pin
15	DIO3	Data I / O pin, software configuration
16	DIO4	Data I / O pin, software configuration

Electrical Parameters

Testing Conditions: Power Supply 3.3V, Temperature 25℃

Table 2. Recommended operating conditions

Parameters	Symbol	Condition	Min	Typical	Max	Unit
Working Voltage	VDD		1.8	3.3	3.7	V
Working Temperature	T		-40		85	℃
Power supply voltage slope			1			mV/us

Table 3. Absolute Rated Maximum

Parameters	Symbol	Condition	Min	Max	Unit
Supply Voltage	VDD		-0.5	3.9	V
Interface Voltage	VIN		-0.3	3.3	V
Junction Temperature	TJ		-40	125	℃
Storage Temperature	TSTG		-50	150	℃
Welding Temperature	TSDR	At least 30s		255	℃
ESD Level[2]	HBM		-2	2	kV
Latch Current	@ 85 ℃		-100	100	mA

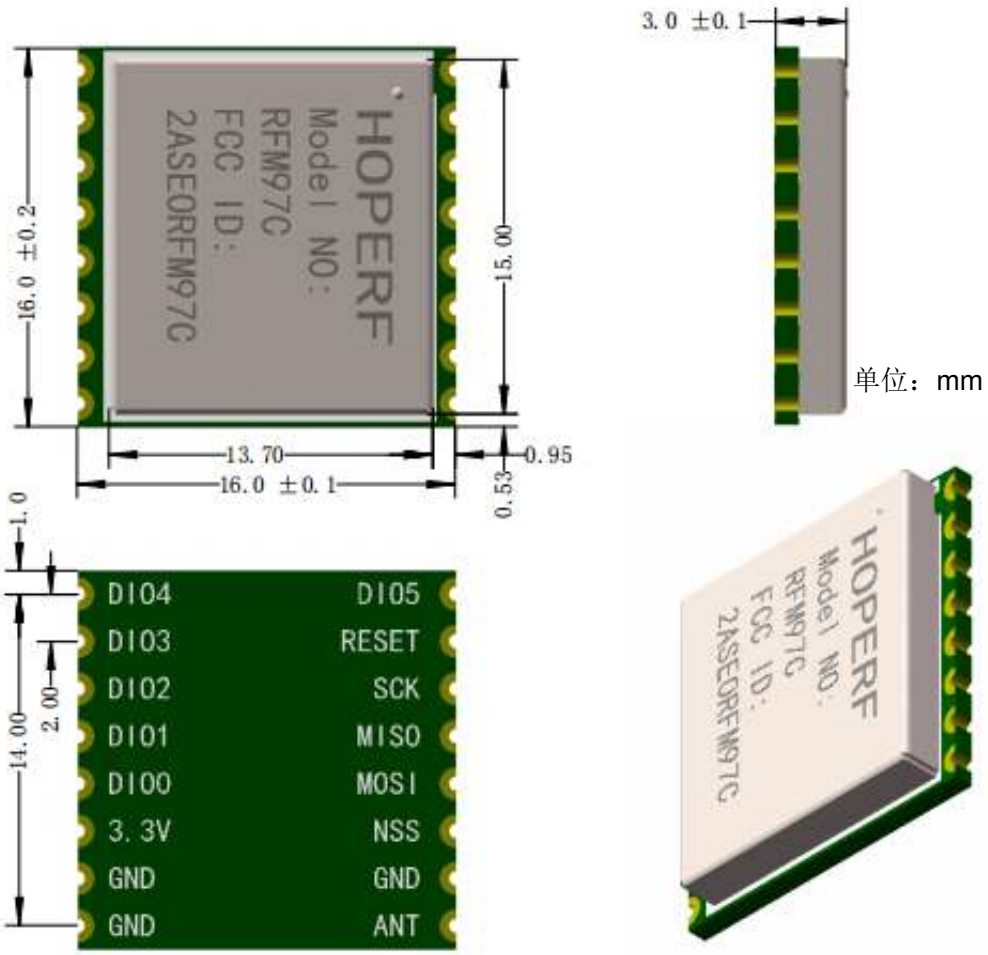
Table 4. Transmitting Parameters

Parameters	Condition	Min	Typical	Max	Unit
Transmission Frequency Range	915 MHz	914.988	915	915.012	MHz
Transmitting Power	915MHz Vbat=3.3V	- - -	18.3	- - -	dBm
Power Reduction	16.3dBm Vbat=2.7V 15.3dBm Vbat=2.4V 12.3dBm Vbat=1.8V	- - -	2 3 6	- - -	dBm
Emission Current	915MHz		120	140	mA

Table 5. Receiving Parameters

Parameters	Condition	Min	Typical	Max	Unit
Receiving Sensitivity (Lora) SF12 BW125KHZ, CR4/5	915MHz	-	-138	-	dBm

Module Outline Dimension Diagram



Pic 2. Module Outline Dimension Diagram

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