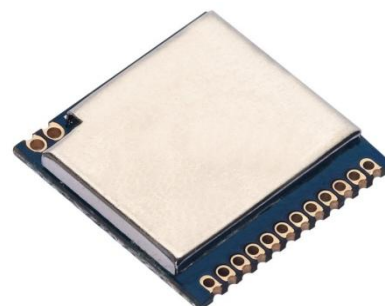


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# RF1212 Ultra-Low-power Wireless Transceiver Module

## 1. Description

The RF module RF1212 is embedded the SX1212 of Semtech, who is one of the famous companies in wireless. RF1212 is a low-cost wireless transceiver module with ultra-low power consumption (3mA) under receiving mode. It integrates a baseband modem whose data transfer rate is up to 150 kb/s. The data handling features include a 64 byte FIFO packet handing, automatic CRC generation and data optimized. The module complies with European (ETSI EN300-220 V2.1.1) and North American FCC (15.247 and 15.249) certification standards.



## 2. Features

- Frequency Range: 315/433
- Sensitivity up to: -110dBm
- Maximum output power: 12.5dBm
- 25mA@+10dBm (TX)
- Data transfer rate: 0.78-150kbps (@FSK)
- Frequency hopping
- 2.1-3.6 V Power Supply
- 3mA @ receive status
- FSK Modulation mode
- Digital received signal strength indicator (RSSI)
- Built-in bit synchronizer data input, clock synchronization and recovery.
- Operating Temperature Range:-40 ~ +85 °C

## 3. Application

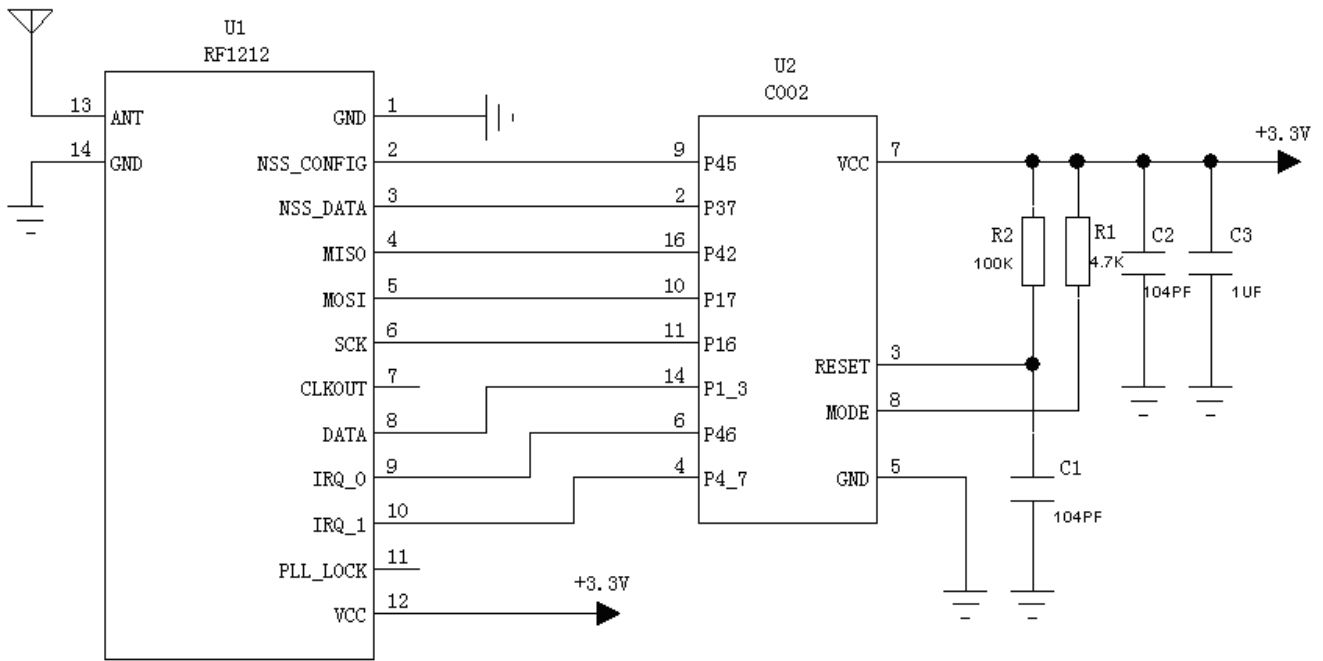
- Remote control
  - Remote meter reading
  - Home security alarm and remote keyless entry
  - industrial control
  - home automation remote sensing
  - Individual data records
  - Sensor network
  - tire pressure monitoring
  - health monitoring
  - wireless PC peripherals
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- tag reading and writing
- toys control

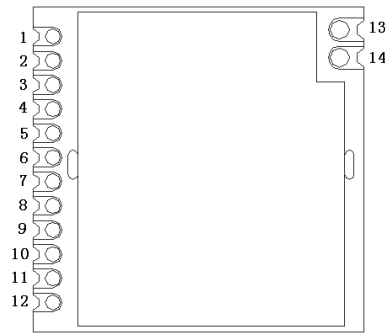
#### 4. Electrical Specifications

Parameter	Min	Typ.	Max	Unite	Condition
Working Condition					
Working Voltage Range	2.1	3.3	3.6	V	
Temperature Range	-40		85	°C	
Current Consumption					
Receiving Current		3		mA	
Transmitting Current		25		mA	@10dBm
Sleep Current		<1		uA	
RF Parameter					
Frequency Range	429	433	440	MHZ	@433MHZ
Modulation Rate	0.78		150	Kbps	FSK
TX Power Range	-8.5		12.5	dBm	
Receiving Sensitivity		-110		dBm	@data=1.2kbps,Fdev=30kHz

#### 5. Schematic

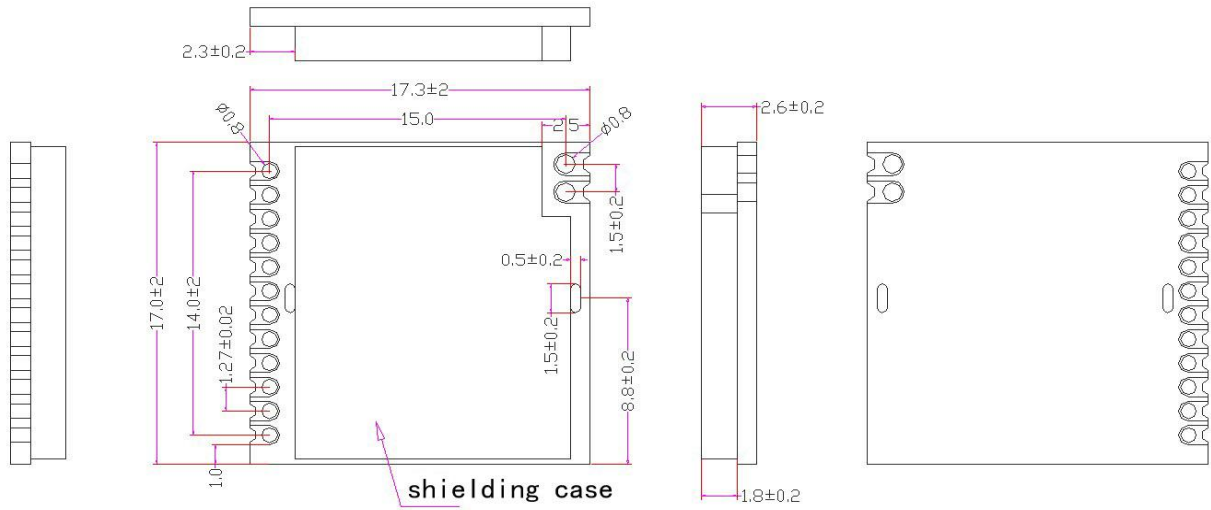


## 6. Pinouts



Pin No.	Pin Name	Description
1	GND	Ground
2	NSS_CONFIG	SPI CONFIG enable
3	NSS_DATA	SPI DATA enabling
4	MISO	SPI data output
5	MOSI	SPI data input
6	SCK	SPI clock input
7	CLKOUT	Clock output
8	DATA	NRZ data input and output (Continuous mode)
9	IRQ_0	Interrupt output
10	IRQ_1	Interrupt output
11	PLL_LOCK	PLL Lock detect output
12	VCC	Positive power supply
13	ANT	Antenna
14	GND	Antenna ground

## 7. Mechanism Dimensions



## 8. Products Ordering Information

RF1212-433

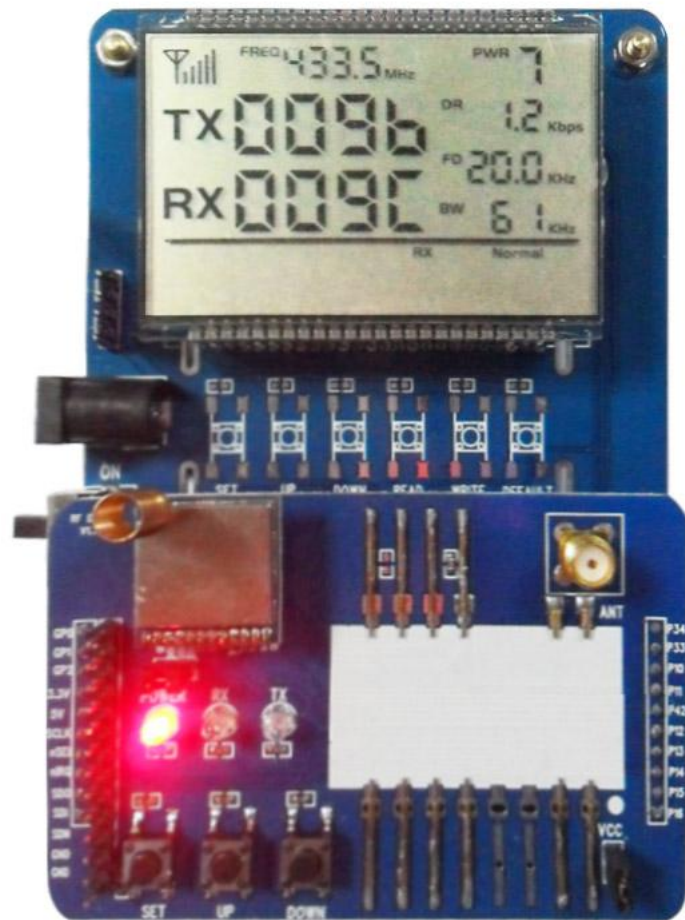
Module Model

Frequency

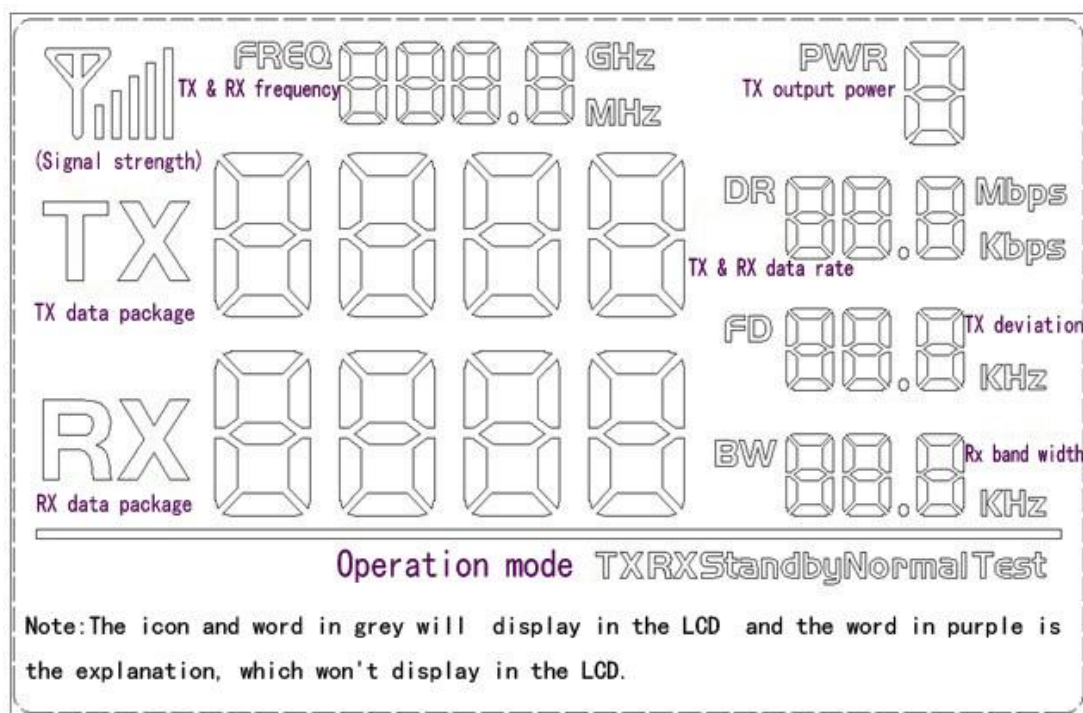
For example: If customers need 433MHZ frequency module, then the order model should be RF1212-433.

### Appendix:

The module is equipped with a standard DEMO board for customer to debug the program and test distance. It shows as below:



The LCD Full Segment is as below:



Users can set the parameters of the RF module such as frequency / transmitter power / transmission data rate / working mode through the buttons, and measure the wireless communication distance. Also, all the connection Pins of the module are extended to the demo board, user can use oscilloscope, multi-meter to monitor the operation of the RF module, which is very useful for software programming.

### ➤ Working Mode

There are 5 working modes in the DEMO. They are: Master mode, Slave mode, Tx Test mode, Rx test mode, Standby mode, accordingly, they are displayed on the LCD as: Tx normal / Rx normal / Tx Test / Rx test / Standby. When one packet is transmitted, the Red LED will blink once, the number of Tx packets will increase; when one packet is received, the Blue LED will blink once, the number of Rx packets will increase.

- 1) Master Mode: Send 1 packet per second, and waiting for the acknowledge;
- 2) Slave Mode: Stay in Rx mode to wait for the data from the master, it will send back the acknowledged signal after received the data from the master.
- 3) Tx Test Mode: RF module continuously transmit signal;
- 4) Rx Test Mode: RF module is always in Rx mode;
- 5) Standby Mode: RF module is always in standby state.

### ➤ Button Operation

- 1) [SET] Button  
Press the [SET] button to enter setting mode if not in setting mode. In setting mode, press [SET] button to toggle between the set parameters: frequency / output power / data rate / working mode. The related LCD ICON will flash to indicate.
- 2) [UP] Button  
In setting mode, press the [UP] button to increase the value of flash icon.
- 3) [Down] Button  
In setting mode, press the [Down] button to decrease the value of flash icon.

Note: The DEMO board has FLASH memory inside, all the setting parameters will be saved automatically and keep

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unchanged even power-off.

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