Superheterodyne ASK Wireless Receiver Module

SPECIFICATION

Model No.: DL-RXS868R

Version: V2.0

Before using this module, please read this document carefully, and pay attention to the following important matters:

This module is an electrostatic sensitive product. Please operate it on an anti-static workbench during installation and testing.

The module uses an external antenna by default. The antenna can be a wire antenna or a standard UHF antenna. You can choose a specific antenna according to the actual situation. If the terminal product uses a metal shell, be sure to install the antenna outside the metal shell. Otherwise, the RF signal will be seriously attenuated, which will affect the effective distance.

Metal objects and wires should be kept away from the antenna as much as possible.

When installing the module, nearby objects should be kept at a sufficient safety distance from the module to prevent short circuit damage.

This module should be used in a dry environment. Please do not make any liquid substance come into this module.

Please use an independent voltage regulator circuit to supply power to this module, and avoid sharing with other circuits. The tolerance of the power supply should not be less than 5%.

Limitations:

This module is intended to be embedded in the customer's terminal product application, and does not provide a casing itself. It is not recommended that the customer directly resell this module as a final product without permission.

This series of modules are in accordance with commonly used international standards. If there is any special certification needed, we can adjust certain indicators according to your needs.

This module cannot be applied to life rescue, life-support systems, or any occasion where personal injury or life threatening may cause by equipment failure. Any organization or individual carrying out the above-mentioned applications shall bear all risks at their own.

We will not be responsible for any direct or indirect damage, injury or loss of profits caused by products that use this module.

DL-RXS868R is an ISM band high performance superheterodyne RF receiver module. This receiving module adopts industrial grade RF wireless data receiving chip, which has high receiving sensitivity, and very strong anti-interference ability.

It can realize wireless signal input to digital signal output without any external circuit. The user only needs to add a simple data decoding circuit (Contains dedicated decoding chips such as PT2272 or MCU software decoding), to achieve the RF product development easily.

This RF receiving module has a digital signal output, the RF and IF tuning is automatically completed inside the chip. Therefore, the debugging process in the development is greatly saved, which can reduce your R&D cost, and enhanced competitiveness of your product.

1. Features:

- Complete monolithic UHF receiver, frequency range 450-950MHz;
- Receive sensitivity: - 108dBm
- Operating frequency: 868.35MHz;
- Transmission rate: automatically tuned at 10 kbps (FIXED);
- No need for manual adjustment, no need for external filters and inductors;
- Power supply (voltage input) range: 3.6~5.5V;
- Low power consumption: 12mA @ 868.35Mhz,
- Standby current under sleep mode is less than 0.1mA;
- Good selectivity and stray radiation suppression, easy to pass CE/FCC test;
- Good local radiation suppression, can work together with multiple receiving modules (namely “One to Many”), and will not interfere with each other when used together, no effect to the receiving distance;
- Temperature range: -40~85 C, can work even at harsh ambient temperatures.

2. Applications:

- Security
- Automatic meter reading
- Lighting control
- Process control
- Remote control receiver
- Environmental Monitoring
- Health Care
- Asset management
- Access control
- Photo remote control of driving recorder

3. Product Size:

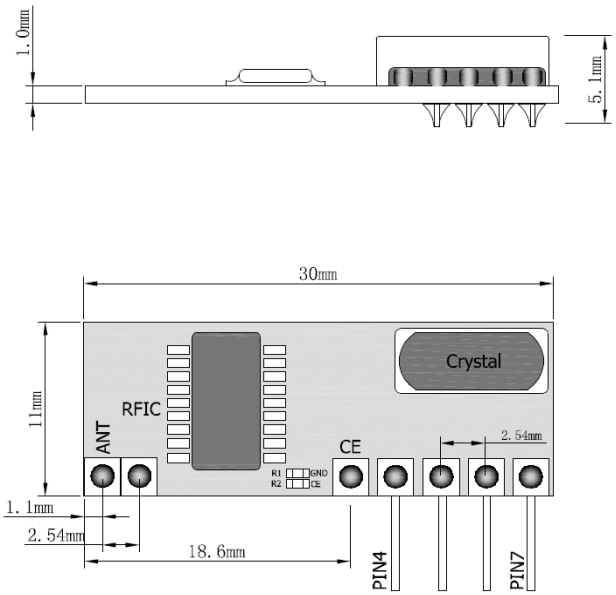
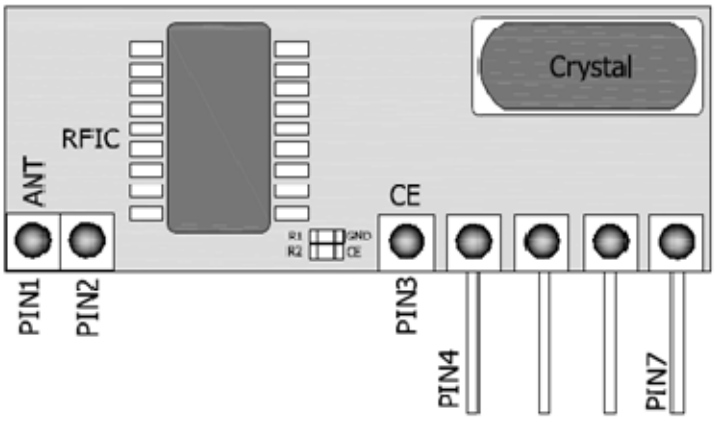


Figure 1: Module size

4. Pins Definition:



The DL-RXS868R module has 4 pins, which are defined in the following table

Pin	Name	Description	Remark
1	ANT	Antenna input, Frequency shielding cables need to be connected to PIN2	
5, 6	DATA	Data output, communicate with decoding unit	
4	VDD	Power supply, DC 5V is recommended	3.6V-5.5V
2, 7	GND	Grounding, common ground with the MCU	
3	CE	R1 is enabled by low level, CE is effective when “R2 = 0R”	NC as defaulted

Table 1: Pins Definition of DL-RXS868R Module

5. Technical Parameter

RF characteristics (Unless otherwise stated, the temperature is 25 ℃, and VCC is 5V)

No	Characteristics	Technical Parameter			Unit
		Min.	Typi.	Max.	
1	Frequency range	450	868.35	950	MHz
2	VDD	3.6	5.0	5.5	V
3	Receive sensitivity	-107		-109	dBm
4	Data baud rate	1.25	2.5	10	Kbps
5	10:1 duty ratio		250		uA
6	CE enable voltage	3.6		5.5	V
7	Receiving current		12		mA
8	Standby current (Shut Down)		1		uA

Table 2: High frequency characteristic table of the module

6. Connection between module and terminal equipment (TTL electrical level)

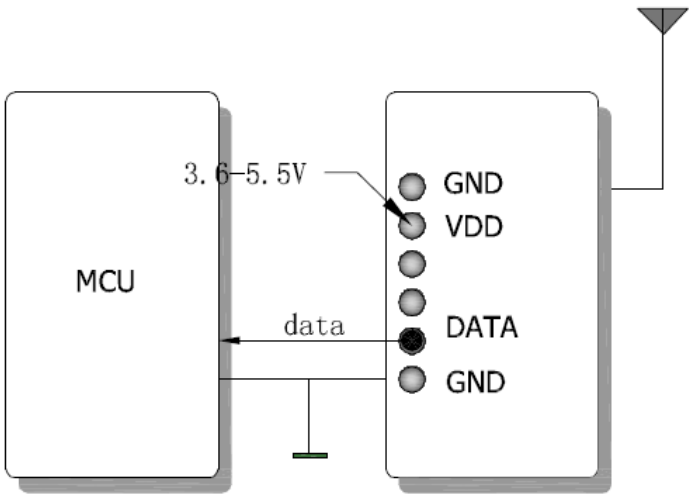


Figure 2: Wiring diagram for module application

7. Notices in module application

Considering the complexity of data transmission over the air, the radio frequency modulation method of the data, and some inherent characteristics of electromagnetic waves, the following issues should be considered during the application process.

1. The electromagnetic interference of the application environment will affect the actual distance of the remote control. Electromagnetic wave interference is divided into mainboard power supply interference, TFT screen data cable interference, Flash data exchange interference; and airborne carrier frequency interference, noise interference, high-power signal source interference, etc.
2. Factors such as product size, internal space, and coating of the shell will cause the attenuation of the wireless signal, which will affect the remote-control distance. Usually the narrow internal space of the product is not conducive to the extension of the antenna. The outer shell should avoid metal or metal plating as much as possible.
3. To choose a proper antenna is very important. The antenna is an important part of the communication system, and its performance directly affects the indicators of the communication system. We must pay attention to its performance (antenna type, antenna electrical performance) when selecting the antenna. Please feel free to contact us for consultation or recommendation, if you need.

8. Contact us

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★ Data collection, Smart home, Internet of Things applications, Wireless remote-control technology, Remote active RFID, Antennas ★

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