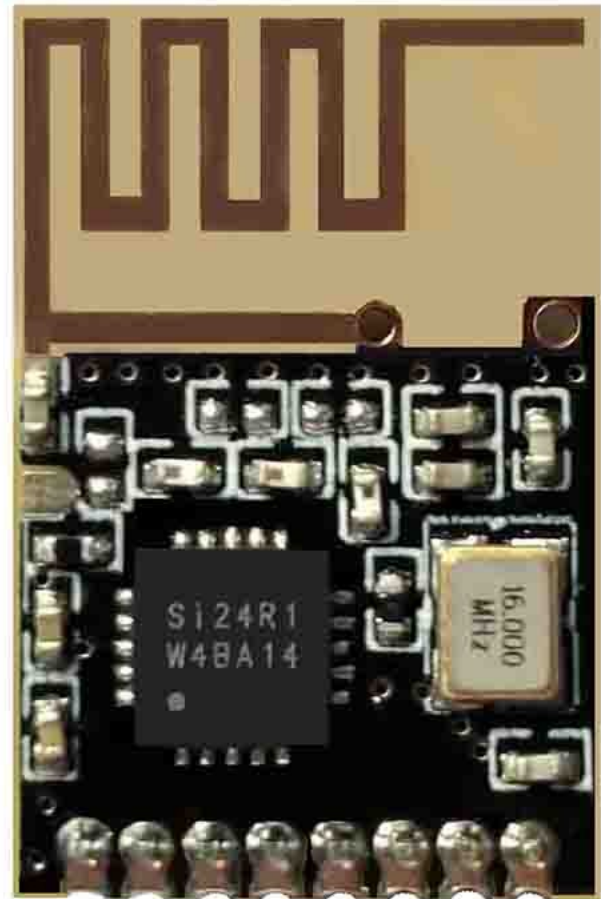
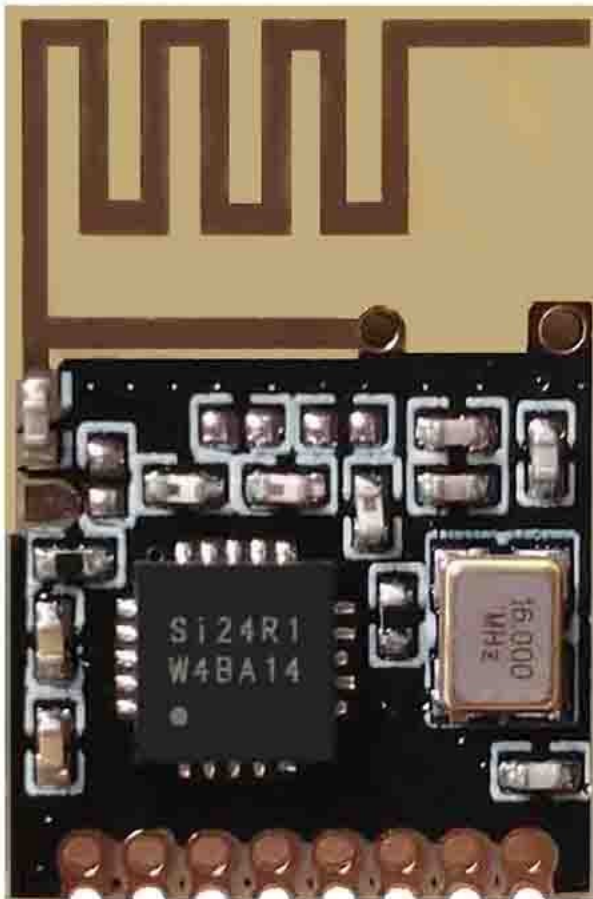




EM6F241H(NRF24L01)

2.4GHz Wireless transceiver module specification

(Version V1.2)





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Overview

The Si24R1 module is used 2.4G wireless transceiver IC design of a high performance 2.4G wireless transceiver module, using GFSK modulation, working in the international general ISM band 2400 – 2483M, the maximum modulation rate can reach 2MBPS. Si24R1 integrates all related RF protocol in high speed signal processing, such as: automatic retransmission of lost packets and automatically generate a response signal, the SPI interface module can use the hardware or SPI port connection using SCM I/O port simulation, internal FIFO and various high speed microprocessor interface, easy to use and low cost scm. Module size 32*15.2mm, 2.54mm spacing of double row pin interface, the use of built-in PCB antenna design, open ground 1MBPS rate, send and receive 10 bytes of data to test the farthest distance of about 70 meters.



Feature

- ✧ Work frequency of 2400 - 2483M, a total of 125 working channels, comply with international ISM regulations.
- ✧ FSK/GSK modulation
- ✧ High speed data transmission in support of 2M, reduce the emission time, reduce the average power consumption.
- ✧ When working in response mode communication, fast air transmission and start-up time greatly reduce the average power consumption.
- ✧ Automatic retransmit function, automatic check and retransmit lost packets, retransmit time and retransmit times can be controlled by software.
- ✧ Automatic response function, after receiving valid data, the module sends the reply signal automatically, without programming separately.
- ✧ Built in hardware CRC error checking and point to multipoint communication address control.
- ✧ The packet transmission error counter and carrier detection function can be used for frequency hopping settings.
- ✧ At the same time, six channels can be set up at the same time, and the receiving channel can be selectively opened.
- ✧ Automatically stores data packets that are not received.



Application

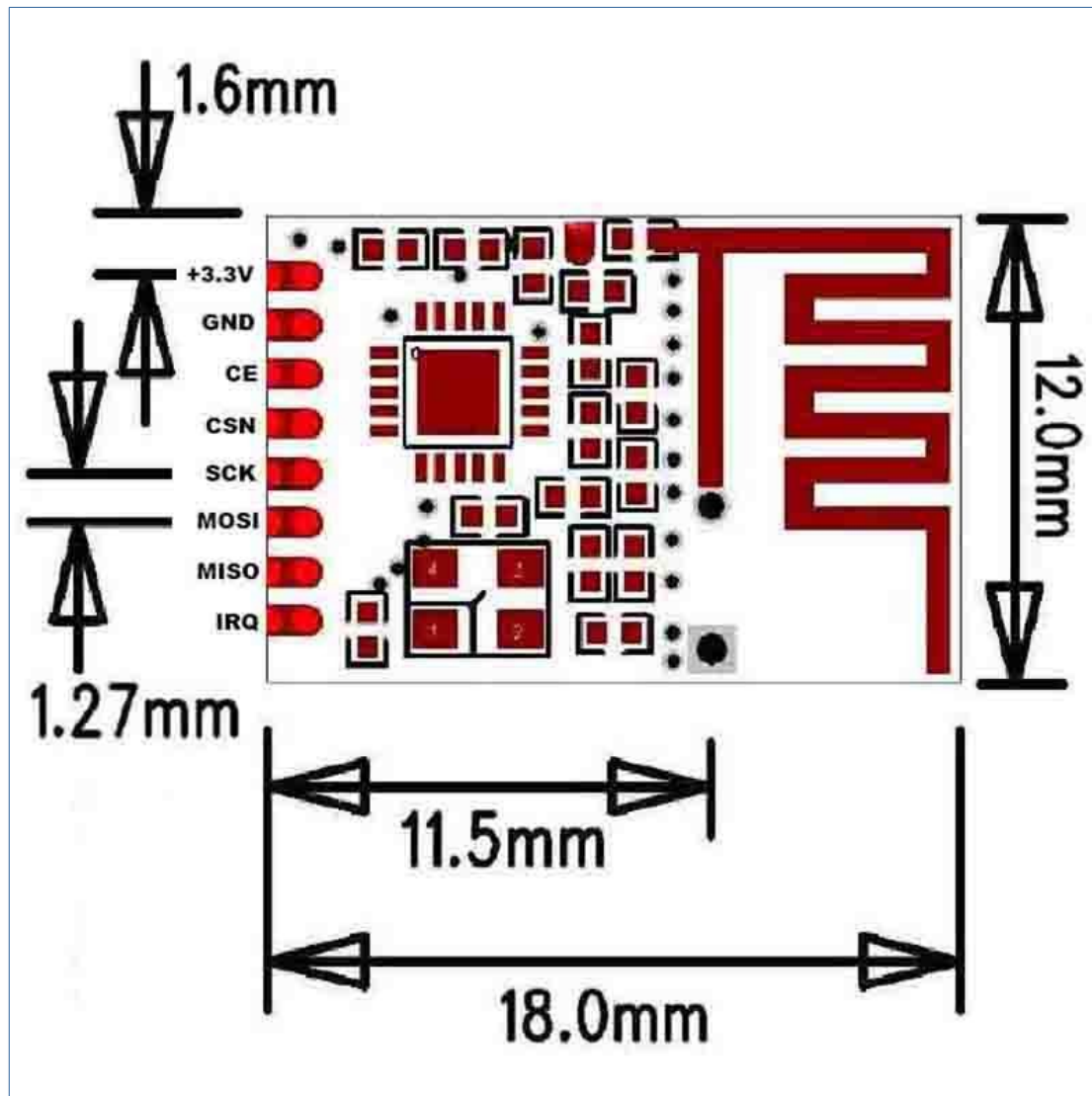
- ✧ wireless remote control
- ✧ robot control
- ✧ Home Automation
- ✧ smart toys
- ✧ game wireless controller
- ✧ wireless sensor
- ✧ wireless voice

Electrical Specifications

- ✧ Mode:EM6F241H(NRF24L01)
- ✧ Power supply voltage:1.9-3.6V
- ✧ Reception sensitivity:2Mbps - -83dB.;1Mbps - -87dB;250kbps - -96dB Receiving
- ✧ Current: 2Mbps - 15mA;1Mbps -14.5mA;250kbps - 14mA Standby current:15μA
- ✧ Power off current:700nA
- ✧ Working temperature:-20°C~ +55°C
- ✧ Storage temperature: -40°C~ +125°C



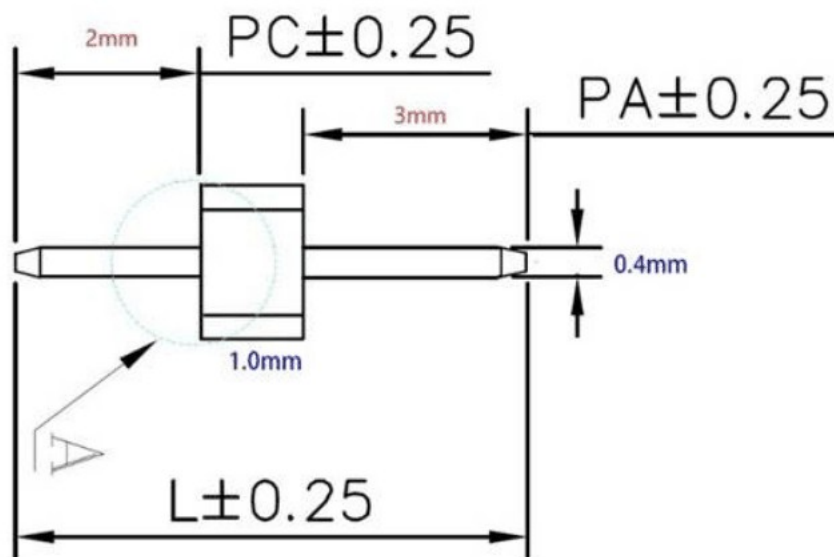
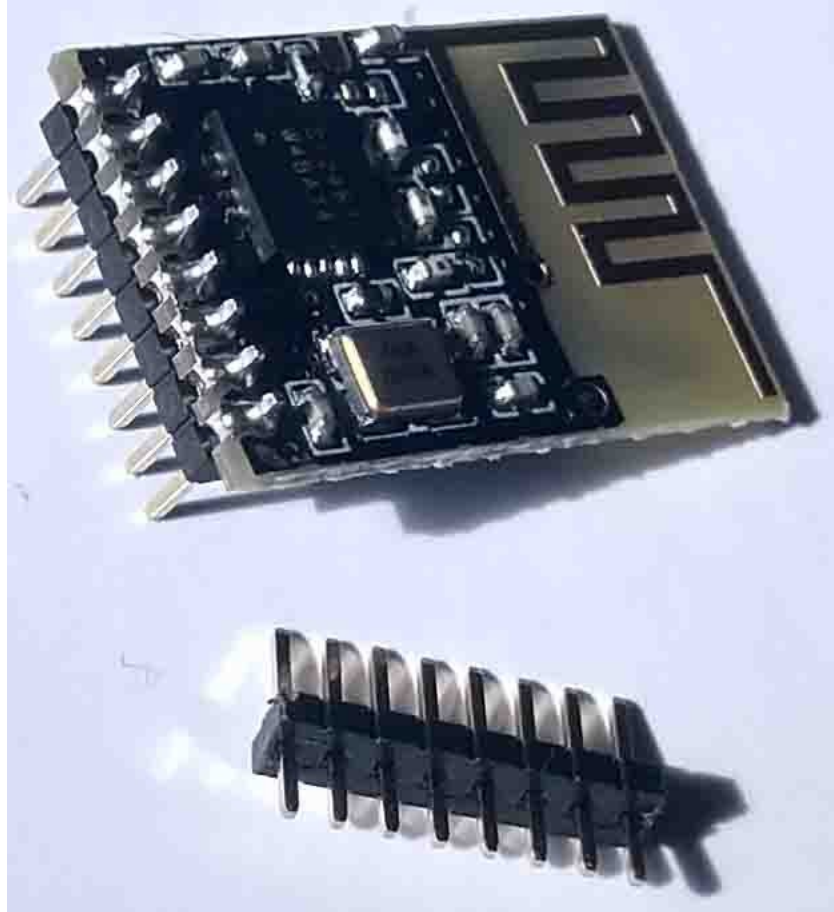
Size and Pin definition



Pin sequencing	Pin definition	Functional description
1	+3.3V	Input power supply(3.0-3.3V)
2	GND	power ground
3	CE	Work mode selection,RX and TX schema selection
4	CSN	SPI makes energy,low efficiency
5	SCK	SPI clock
6	MOSI	SPI input
7	MISO	SPI output
8	IRQ	Interrupt output



Connector pin specification





Note

Static electricity	Wireless module is an electrostatic sensitive device, please pay attention to the use of electrostatic protection, especially in the dry winter as far as possible do not receive the touch module on the device, in order to avoid unnecessary damage
Power Supply	It is recommended to use DC power with small ripple, and the working voltage is recommended to work in 3.3V. The grounding of the module should be stable and reliable, and the ground wire should be close to the power supply as far as possible. If the use of switching power supply, it is necessary to strengthen the decoupling, so as to avoid switching power supply ripple and peak pulse affect the working characteristics of the module
MCU	If the module works in 3.3V, do not consider the low power, you can directly connect to the 5V single-chip microcomputer system, but it is best to add a 4.7K isolation resistance. If it is connected to the 51 series of single-chip P0 port, please add 10K pull-up resistor. The maximum SPI rate of another module can be supported to 10M, which is generally recommended at 1M or hundreds of K SPI rates.
Test	The module adopts PCB antenna, which is easy to be affected by external lines. When used, do not go under the antenna or around the line or placement device, it is best to hollow out if possible. 2.4G frequency is relatively high, all kinds of materials have a certain impact, the general plastic effect is not big, if there are metal objects will produce more obvious impact, SMA feeder is recommended to be used to connect SMA antenna.