

### 1. General Description

The MRF24G04B module is designed for 2.4GHz ISM band with 18-20dBm output power wireless applications using AMICCOM's A7130 FSK/GFSK transceiver and PA AP1110 RFIC. This module features a fully programmable frequency synthesizer by SPI. The data rate is 4Mbps.

### 2. Electrical specification

Item	Specification	Remark
Supply voltage	3.3V+/- 0.1(V)	
Current consumption	4uA@Sleepmode. 0.3mA@Idle mode. 2.7mA@Stand - by Mode. 12.5mA@PLL Mode. 125mA@Tx power=18dBm 31.3mA@Rx mode	typical
Frequency	2400– 2483.5MHz	ISM band
Transmit output power	18dBm-20dBm@room temperature	Typical
Rx sensitivity	- 89dBm @4M mode, Dev=1MHz.	Typical, BER $\leq$ 1E - 3
Modulation	2.4GHz FSK/GFSK	
Interface	11pin 2.0mm header	
PCB Dimension	22.1(L)x 21.45(W)x 3.8(H)mm <sup>3</sup> without PCB antenna	
Operating temperature	- 40°C ~ 85°C (Depend on crystal Spec., example: Fork type_ - 10°C ~ 60°C)	

### FCC Statement:

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Note: Modifications to this product will void the user's authority to operate this equipment.**

## **RF Radiation Exposure Statement:**

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

## **FCC Information to OEM integrator**

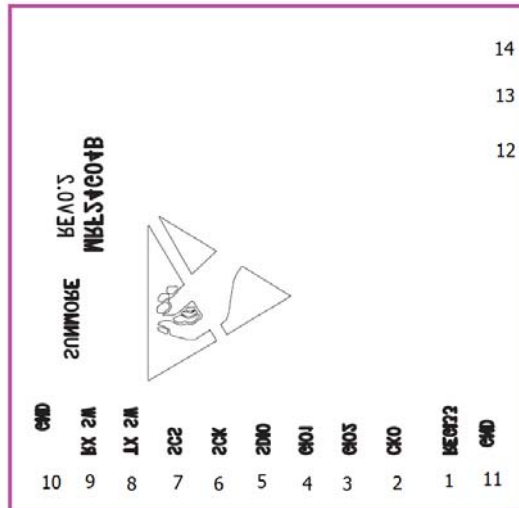
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product.

The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

1. To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.
2. Only those antennas with same type and lesser gain filed under this FCC ID number can be used with this device.
3. The regulatory label on the final system must include the statement: "Contains FCC ID: xxxx using electronic labeling method as documented in KDB 784748."
4. The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-way authentication between module and the host system

The Installation instruction of the module:

## Pin descriptions



Pin No.	Pin name	Comment	Note
1	REG133	RF module supply voltage input	3.3V
2	CKO	Multi-function clock output.	
3	GIO2	General Purpose I/O 2	
4	GIO1	General Purpose I/O 1	
5	SDIO	SPI Data I/O	
6	SCK	SPI Clock	
7	SCS	SPI Chip Selection	
8	TX SW	RF front end select PA/LNA	
9	RX SW	RF front end select PA/LNA	
10	GND	GND	
11	GND	GND	
12	GND	GND	
13	RF	RF	
14	GND	GND	