

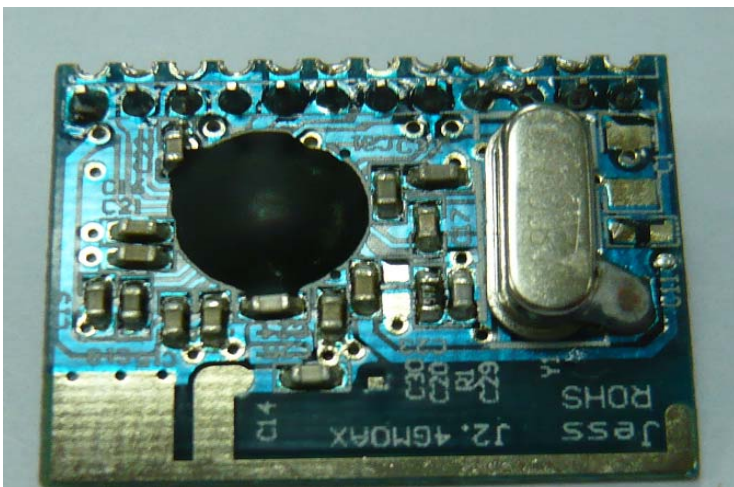
## 1.0 General Description

The J2.4GM0AX module is designed for 2.4GHz ISM band wireless applications using U1 GFSK transceiver. This module features a fully programmable frequency synthesizer by SPI. The data rate is 1Mbps.

## 2.0 Electrical specification

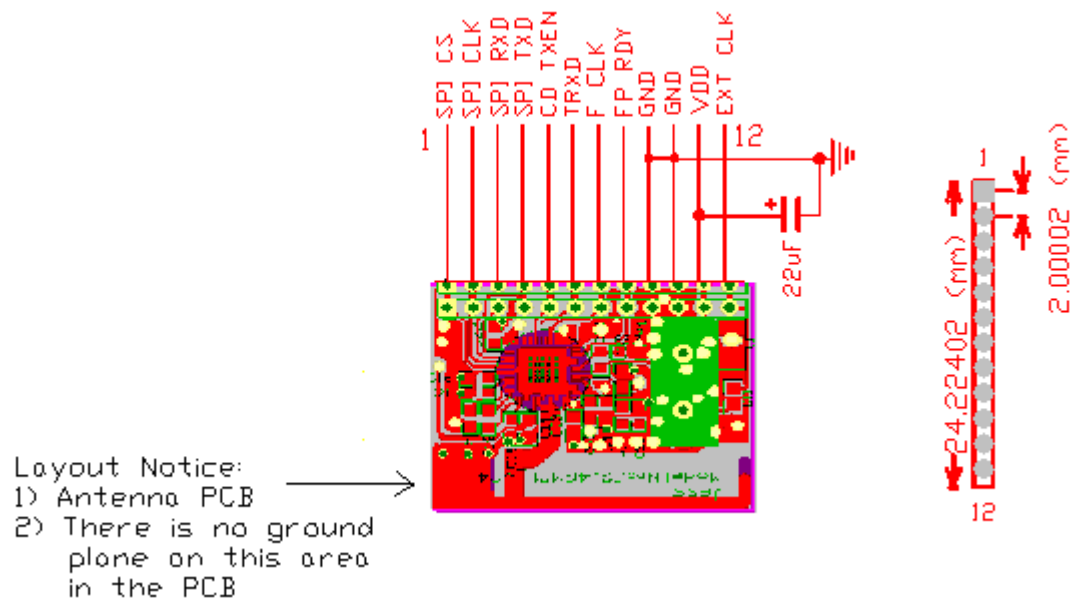
Item	Specification	Remark
Supply voltage	2.5V	
Current consumption	2uA (typical) @ sleep ,mode	
	1.5mA (typical) @Stand-by mode	
	34mA (typical) @Tx power = 0dBm	
	24mA (typical) @Tx mode = -6dBm	
	28mA (typical) @Rx mode	
Frequency	2400 – 2485.5MHz	ISM band (40 channels)
Transmit output power	0 ± 2 dBm @ Maximum Power Setting	
Rx sensitivity	-85 dBm (typical) @ 1M mode, Dev = 250 k	BER, 1E-3
Modulation	GFSK	
Transmission distance	~10 meters (typical)	Closed area
	~ 20 meters (typical)	Open area (LOS)
Interface	12 pin 2.0mm header	
Dimension	33 (L) x 15(W) x 2.1(H) mm	No internal crystal
	33 (L) x 15(W) x 4.25(H) mm	With internal crystal
Operating temperature	-10 ~ 70 C	

## 3.0 Module dimension drawings (With Antenna)



Size : 25.4mm x 21.0mm, connector pad pitch : 2mm

## 4.0 Connector Interface And Application Diagram



## 5.0 Frequency hopping

There are totally 40 frequency channels designed on the RF module.

We have selected 16 different frequency channels out of 40 and the frequency hopping table is created.

Frequency hopping(channel switching) will carried out in every 20ms.

### 5.1 Hopping sequence channel selection example

16 Channel hopping table:

2418MHz	//CH8
2452MHz	//CH25
2466MHz	//CH32
2460MHz	//CH29
2474MHz	//CH36
2428MHz	//CH13
2408MHz	//CH03
2436MHz	//CH17
2410MHz	//CH04
2442MHz	//CH20
2462MHz	//CH30
2432MHz	//CH15
2444MHz	//CH21
2472MHz	//CH35
2448MHz	//CH23
2476MHz	//CH37

## 5.2 Avoid RF Interference

To avoid RF interference, RF channel frequency will be changed at transmit side and receive side at every 20ms. If there is any packet lost or error during communication, RF linking will be re-established.

## 5.3 RF module pin description :

The RF module has 12pins for external interface as described on below table:

Pin	Signal Name	Type	Description
1	SPI_CS	I	SPI communication Enable control
2	SPI_CLK	I	SPI clock
3	SPI_RXD	I	SPI input
4	SPI_TXD	O	SPI output
5	CD_TXEN	I	Data transfer Enable control
6	TRXD	I/O	Data transfer input or output
7	F_CLK	I	Data transfer clock
8	FP_RDY	O	Data transfer over or ready
9	GND	PWR	Ground
10	GND	PWR	Ground
11	VDD	PWR	2.5V power supply voltage.
12	EXT_CLK	I	External clock

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: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**