

FCC ID: SQ9XKT1045
IC: 5768A-XKT1045

Technical Description:

The functions of main ICs are mentioned as below;

- 1) U2 acts as 2.4GHz RF Module (EM9201).
- 2) U1 acts as MCU (SNC82268).
- 3) U3 acts as Voltage Regulator (LC1463CB5ATR33).
- 4) Q1,Q2,L1,L2 and associated circuit act as motion control of model.

Antenna Used: PCB Trace Antenna has been used.

Frequency Range: 2414MHz - 2448MHz (3 channels)

Channel Table: 2414MHz, 2430MHz, 2448MHz

Modulation Type: GFSK

CMM-9201/9202-V7.1

Mini 2.4GHz Transceiver Module



Description

The CMM-9201-V7.1 module is a miniaturised 2.4GHz transceiver module based on EM Microelectronic's low energy RF transceiver EM9201/02. The module is highly optimized for proprietary link application requiring ultra low power consumption and short time-to-market. It offers a plug and play solution for any EM9201 application without any additional hardware nor RF layout. Built in with a folded-dipole PCB antenna, this small sized, low cost module provides an ideal solution to wireless 2.4GHz license-free application worldwide.

The EM9201/02 is a low-voltage 2.4GHz transceiver IC with built-in link-layer logic permitting proprietary wireless links in the 2.400 ... 2.4835 GHz ISM band. It has a radio core with a low-IF architecture and GFSK modulation scheme being compliant with the emerging Bluetooth low energy technology standard..

1.1 Features

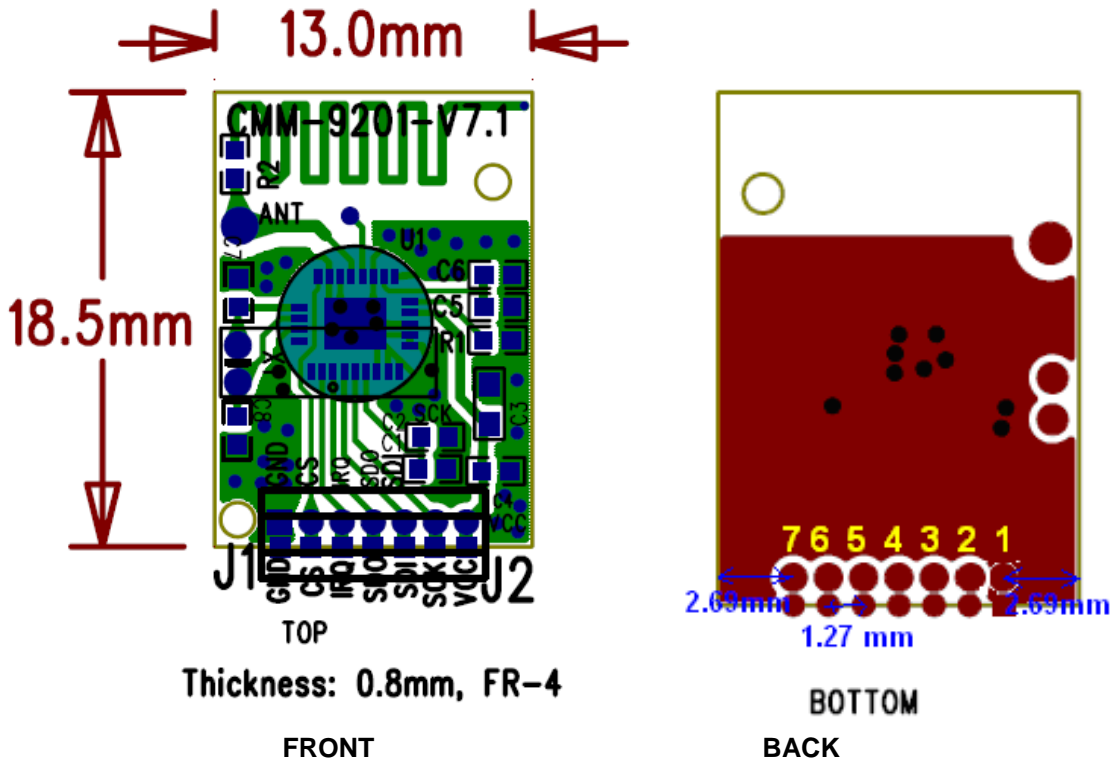
- Fully integrated 2.4 GHz transceiver (Die form)
- Operating voltage 1.9V ~ 3.6V
- Mini-sized (18.5mm x 13mm)
- Integrated Battery Low Detection
- Programmable RF output level (-20 to +2 dBm) via software control
- Low current consumption
(0.8uA at standby, 14.2mA (@2.5V) in RX, 12.9 mA (@2.5V) in TX (0dBm))
- 1Mb/s (CMM-9201), 2Mb/s (CMM-9202) data rate
- No Tuning necessary
- Reaches 60m (CMM-9201) at open space line of sight
- GFSK modulation
- SPI interface to host controller

1.2 Module Dimension & Pin Assignment

Pin Number	Pin Name	Pin Description
1	GND	Ground Connection
2	CS	Chip Select (Active LO)
3	IRQ	Interrupt Output for external host Controller
4	SDO	SPI Data Output
5	SDI	SPI Data Input
6	SCK	SPI Clock Input
7	VCC	Power Supply

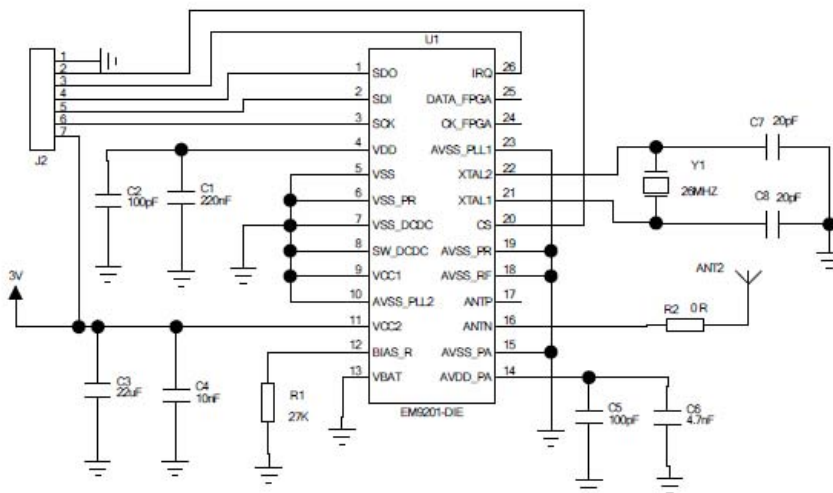
CMM-9201/9202-V7.1
Mini 2.4GHz Transceiver Module

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Module thickness: 5.5mm max.

1.3 Module Reference Circuit diagram



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CMM-9201/9202-V7.1

Mini 2.4GHz Transceiver Module

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1.4 Module Electrical Specifications

Specification	CMM-9201	CMM-9202
Voltage Range	1.9V to 3.6V	1.9V to 3.6V
Battery-low detection (adjustable)	2.1V to 2.45V	2.1V to 2.45V
Frequency Range	2.4 to 2.484 GHz	2.4 to 2.484 GHz
Modulation	GFSK	GFSK
On-air data rate	1Mbps	2Mbps
RF channels	40	40
Current Consumption (V _{cc} = 2.5V)		
- RX mode	14.2mA	14.5mA
- TX mode (0dBm output power)	12.9mA	12.5mA
- Standby Low Power mode	85 uA (typ.)	85 uA (typ.)
- Power-down mode	0.8uA	0.8uA
Programmable output power	-20dBm to +2dBm	-20dBm to +2dBm
RF setup time (Standby <-> TX/RX)	Max 180 us	Max 180 us

2. Ordering information

C-MAX Module Part Number	Max Data Rate	Typical Operating Voltage
CMM-9201-V7.1	1 Mbps	1.9 ~ 3.6V
CMM-9202-V7.1	2 Mbps	1.9 ~ 3.6V

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C-MAX Asia Ltd

Unit 117, 1/F.,
Liven House,
61-63 King Yip Street,
Kwun Tong, Kowloon, HK SAR
Tel.: +852-2798-5182
Fax: +852-2798-5379
e-mail: enquiry@c-max.com.hk

C-MAX Technology Ltd (Shenzhen)

Room 40G, Block A,
World Finance Centre
4003 Shennan East Road,
Luohu District, Shenzhen, PR China,
Tel: +86-755-25181858
Fax: +86-755-25181859

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