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

C-MAX

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.

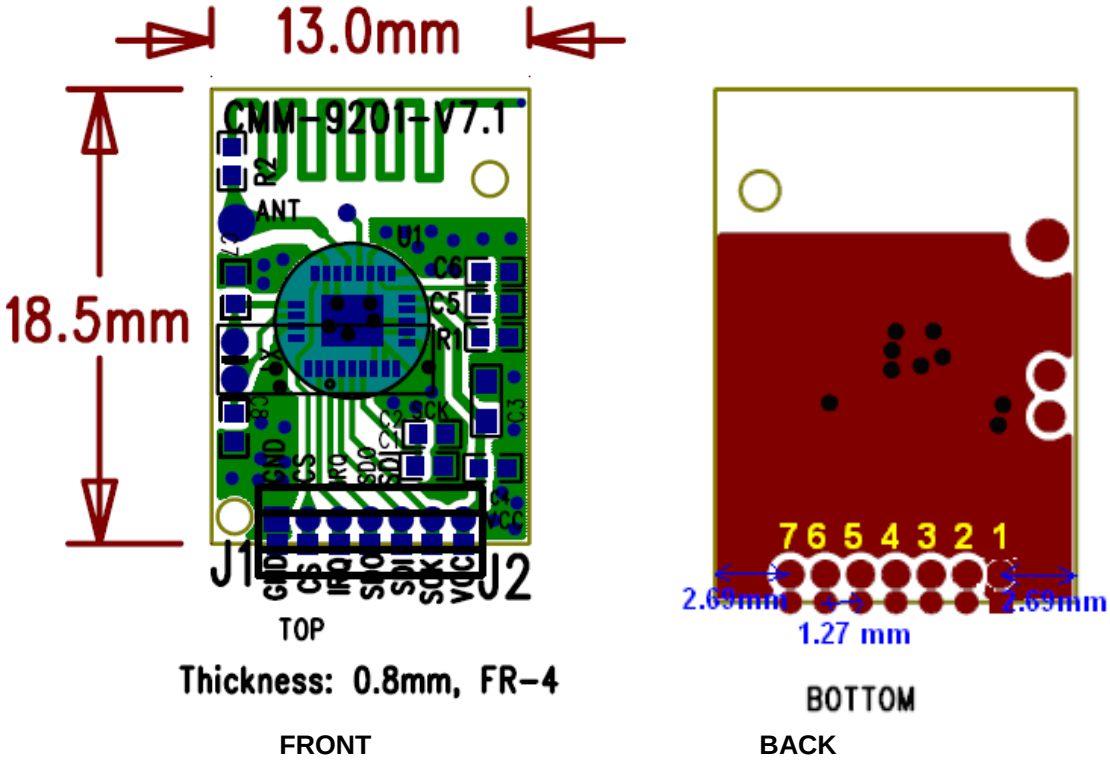
The EM9201/02 is a low-voltage 2.4GHz transceiver IC with built-in link-layer logic permitting proprietary wireless links in the 2.400 … 2.4835 GHz ISM band. It has a radio core with a low-IF architecture and GFSK modulation scheme being compliant with the emerging Bluetooth low energy technology standard..

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

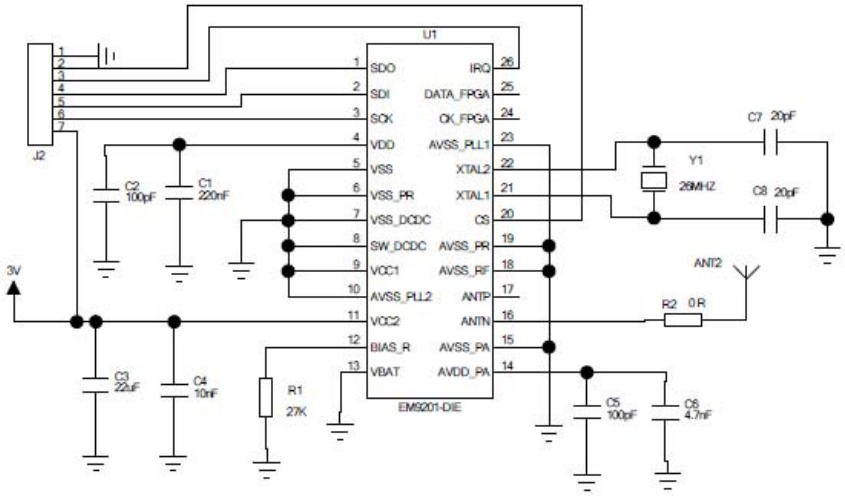
1.2 Module Dimension & Pin Assignement

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



Module thickness: 5.5mm max.

1.3 Module Reference Circuit diagram



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 (Vcc = 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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