

User's Manual

2.4G RF Modular

RF-24G

Version v1.0

Description:

RF-2.4G Modular PCB Assembly is an i/o board used in the family of REMOTE POWER SWITCH PRODUCTS, The board has RF+MCU POWER circuit OSC circuit RESET circuit and wireless module.

CIRCUIT DESCRIPTION:

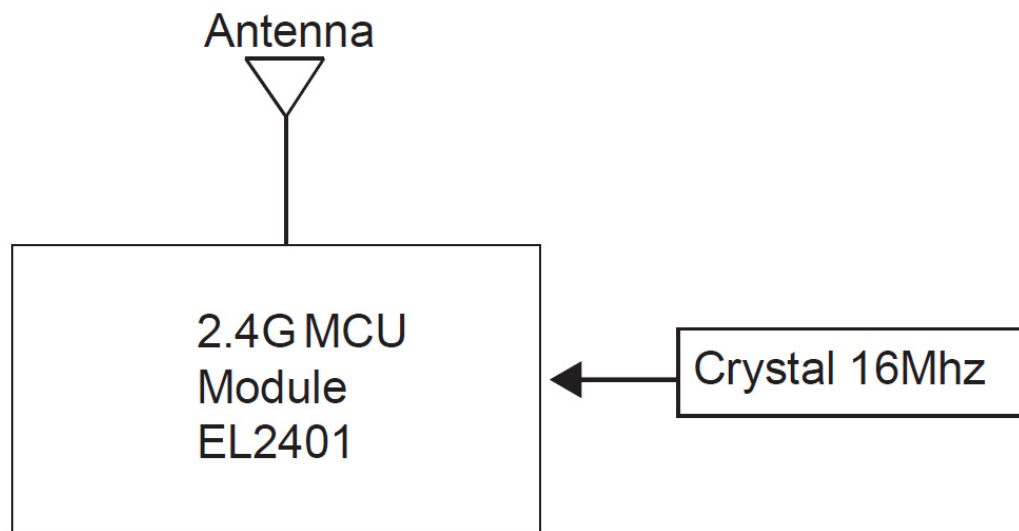
Referring to the block diagram there are four main sections of circuit:

- 1, el2401 IC MCU CIRCUIT
- 2, CLOCK CIRCUIT
- 3, ANTENNA CIRCUIT
- 4, RESET CIRCUIT

Communication with the RF-2.4G Modular is accomplished through two side PCB PADS, the 2.4G ISM RF circuitry is contained on the module. There is no extraexternal antenna on the module, so the radio output from the module connects to an F-type PCB antenna on the PCBA. The RF-2.4G Modular operates from 3.3v supply source on the main PCB

The RF-2.4G Modular installation and use:

The module is soldered to the PCBA. PADS on the PCBA make contact to the 3.3V supply, all controller is accomplished through the modules two side pads.

Block Diagram

FMA Main PCB Interface Header

All control and power signals come from a connection to a mother board through an 16-pin, 2.54mm dual row female header. The pinout for the header is in the table below:

Pin	signal	Desceiption
1	ANT	Transmit receive signal
2	RFVDD	3.3V DC Supply
3	PB5	IO
4	PB6	IO
5	PB7	IO
6	MCUVDD	3.3V DC Supply
7	PA7	IO
8	PA6	IO
9	PA5	IO
10	PA3	IO
11	PA4	IO
12	PA0	IO
13	RFVDD	3.3V DC Supply
14	XC1	IO
15	XC2	IO
16	GND	Digital GND

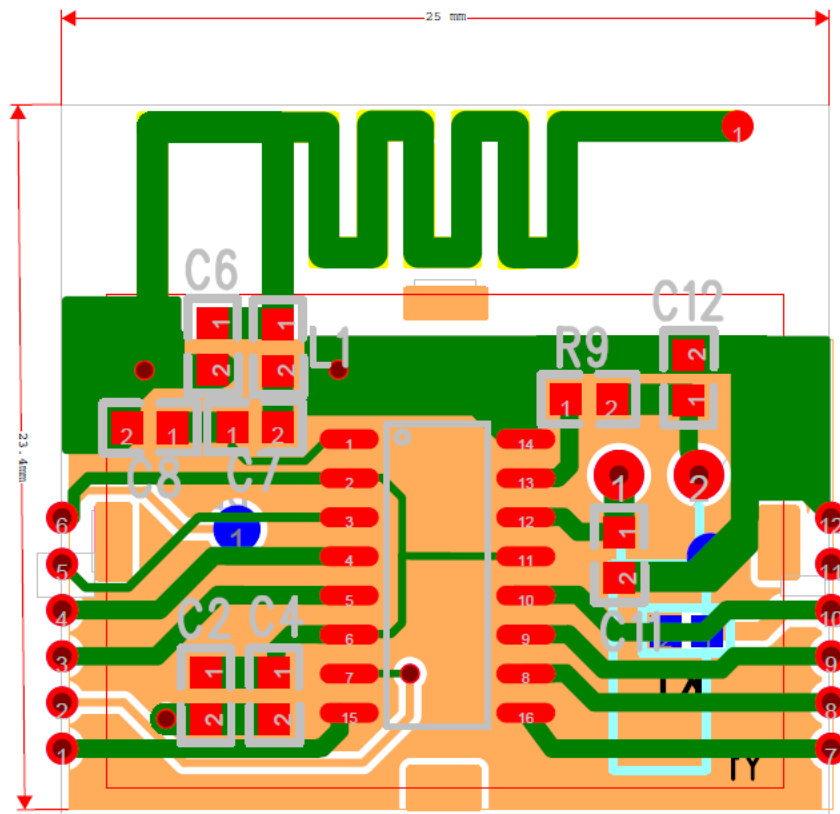
Antenna

An F-type PCB antenna is located on the PCB to support the 2.4GHz signal from the RF-2.4G modular, and the maximum antenna gain is 0dBi.

Power Consumption

Operating Voltage	3.3VDC +/- 9%
Operating current	13mA(TX/RX continuous mode)
	1mA(idle power saving)

Board Dimensions



IC Statement:

This device complies with Canada Industry licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference; and
- (2) this device must accept any interference. Including interference that may cause undesired operation of the device.

Avis d'Industrie Canada

Le présent appareil est conforme aux CNR d'industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1) l'appareil ne doit pas produire de brouillage; et
- 2) l'utilisateur de l'appareil doit accepter le brouillage radioélectrique subi même si le brouillage est susceptible d'en compromettre le fonctionnement. mauvais fonctionnement de l'appareil.

CAN ICES-3 (B)/ CAN NMB-3 (B)

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

This device and its antenna must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.

Refer to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without reassessment permissive change.

USERS MANUAL OF THE END PRODUCT:

The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment, and "This device complies with Canada Industry licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference; and
- (2) this device must accept any interference. Including interference that may cause undesired operation of the device."

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following "Contains TX IC: 24208-RF24G"

The final end product must be labeled in a visible area with the following "Contains TX FCC ID: 2AM2X-RF24G"

FCC Statement:

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: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complied with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

Note: The module is limited to OEM installation ONLY; The OEM integrator is responsible for ensuring that the end-user has no manual instructions to remove or install module.

This product is mounted inside of the end product only by professional installers OEM. They use this module with changing the power and control signal setting by software of end product within the scope of this application. End user can not change this setting.

The equipment complies with RF exposure limits. This module is limited to installation in mobile or fixed applications. The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The module must in the end-product be installed in such manner that the authorized antennas can be used, any change of the antenna will void the certification.