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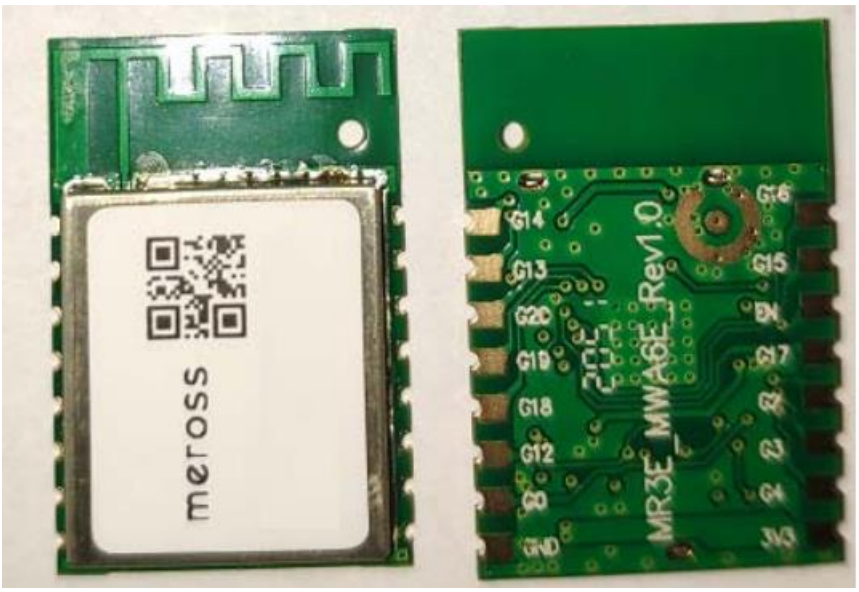
WiFi Module specification

MR3EB, BSLBWR01, MWA6EB

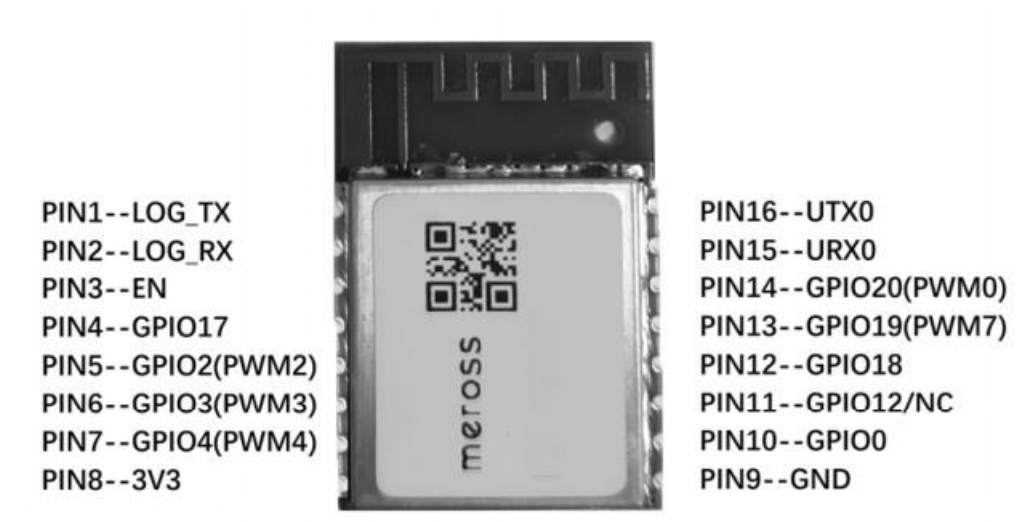
Module introduction

BSLBWR01 module uses Realtek RTL8720, chip scheme, supports IEEE 802.11b/g/n(2.4Gband 1T1R 150M). The module has 16 pins (/ pads), providing up to 13 GPIO ports, someof which GPIO can reuse other interfaces, such as up to 7 PWM ports, 3 serial ports, 1 I2C, etc

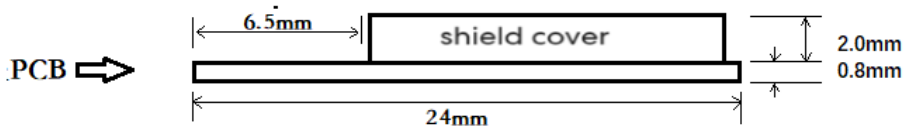
The module adopts 3.3VDC external power supply input, and the external power supply should meet the maximum current supply of 300mA. It is recommended to adopt the switching power supply scheme above 1 MHz to provide better dynamic response. When determining the power supply scheme, attention should be paid to the test 3.3 There is no obvious drop or jitter at the initial stage of VDC power on, otherwise the module will not be reset successfully and cannot start normally. The main applications of the module are smart home related devices, such as smart sockets, wall switches, light bulbs and so on



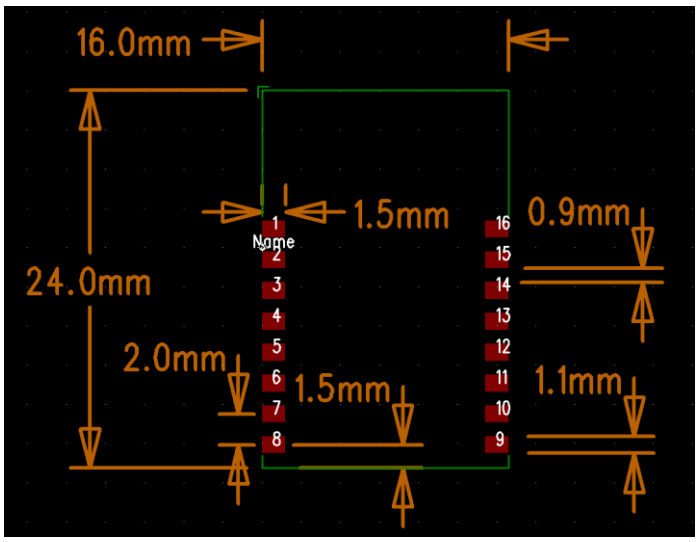
Module pin definition

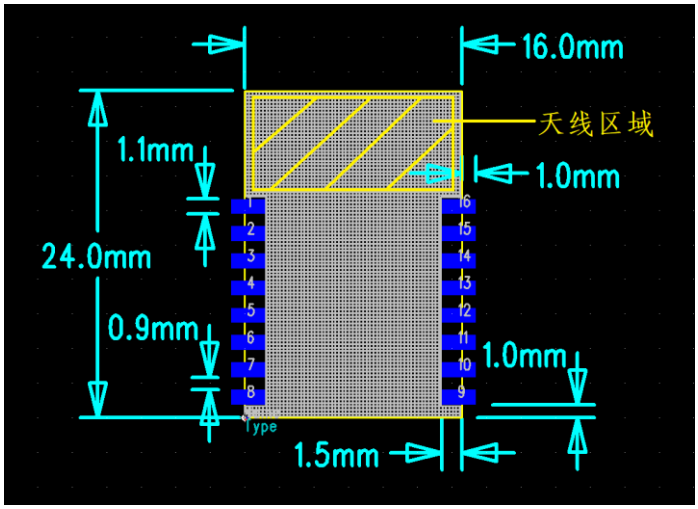


Size and encapsulation



The following figure shows the relevant dimensions of the module pad from the front perspective. The dimensions of the left and right pads are the same and completely symmetrical. When making the package diagram of the bottom plate patch, you can refer to the above relevant dimensions. In addition, when making the back package, it is recommended to add white oil screen printing to the whole area on the back of the module to enhance the solder resistance





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Absolute electrical parameter

Argument	**Description**	**Min.**	**Max.**	**Unit**
VCC	**supply voltage**	**-0.3**	**3.63**	**V**
VIO	IO input level	**-0.3**	**3.63**	**V**
Tstg	**storage temperature**	**-20**	**105**	℃

Normal operating conditions

Argument	**Description**	**Min.**	**Max.**	**Unit**
VCC	**supply voltage**	**-0.3**	**3.63**	**V**
VIO	IO input level	**-0.3**	**3.63**	**V**
VIL	IO low level input	**-0.3**	**VCC*0.25**	**V**
VIH	IO high level input	**VCC*0.75**	**VCC**	**V**
VoL	IO low level output	**0**	**VCC*0.15**	**V**
VoH	IO high level output	**VCC*0.85**	**VCC**	**V**
IIO	IO drive current	**4**	**16**	**mA**
TC	**operating temperature**	**-20**	**85**	℃

Typical power consumption

type	mode	Transmitting power	Typical value
TX	CCK	18dBm	249mA
	OFDM	15dBm	207mA
RX	-	-	61mA

Note: It is recommended to use a switching power supply of more than 1MHz, and the power supply design can meet the current supply of 300mA or more

Radio characteristic

Frequency	2.412~2.484GHz
Wi-Fi	IEEE 802.11b/g/n
transmission rate	11b：1,2,5.5 and 11Mbps 11g：6,9,12,18,24,36,48 and 54 Mbps 11n：HT20 MCS0~MCS7，HT40 MCS0~MCS7
Channel	CH1~CH14 (HT40:CH3~CH11)
Antenna Type	PCB Antenna
Antenna Gain	1.5dBi

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FCC Warning

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCC rules

FCC Part 15.247

2.3 Specific operational use conditions

This transmitter/module and its antenna(s) must not be co-located or operating in conjunction with any transmitter. This information also extends to the host manufacturer's instruction manual.

2.4 Limited module procedures

Not applicable

2.5 Trace antenna designs

It is "not applicable" as trace antenna which is not used on the module.

2.6 RF exposure considerations

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This compliance to FCC radiation exposure limits for an uncontrolled environment, and minimum of 20cm separation between antenna and body.
The host product manufacturer would provide the above information to end users in their end-product manuals.

2.7 Antennas

PCB Antenna; 1.62dBi; 2.402 GHz～2.480GHz, 2.412～2.462GHz

2.8 Label and compliance information

The end product must carry a physical label or shall use e-labeling followed KDB784748D01 and KDB 784748 stating "Contains Transmitter Module FCC ID: 2AMUU-MWA06".

2.9 Information on test modes and additional testing requirements

For more information on testing, please contact the manufacturer.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuity.

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FCC Statements

(OEM) Integrator has to assure compliance of the entire end-product incl. the integrated RF Module. For 15 B (§15.107 and if applicable §15.109) compliance, the host manufacturer is required to show compliance with 15 while the module is installed and operating.

Furthermore the module should be transmitting and the evaluation should confirm that the module's intentional emissions (15C) are compliant (fundamental / out-of-band). Finally the integrator has to apply the appropriate equipment authorization (e.g. Verification) for the new host device per definition in §15.101.

Integrator is reminded to assure that these installation instructions will not be made available to the end-user of the final host device.

The final host device, into which this RF Module is integrated" has to be labeled with an auxiliary label stating the FCC ID of the RF Module, such as "Contains FCC ID: 2AMUU-MWA06

"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."

"Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment."

The Integrator will be responsible to satisfy SAR/ RF Exposure requirements, when the module integrated into the host device.

Module statement

The single-modular transmitter is a self-contained, physically delineated, component for which compliance can be demonstrated independent of the host operating conditions, and which complies with all eight requirements of § 15.212(a)(1) as summarized below.

1) The radio elements have the radio frequency circuitry shielded.
2) The module has buffered modulation/data inputs to ensure that the device will complywith Part 15 requirements with any type of input signal.
3) The module contains power supply regulation on the module.
4) The module contains a permanently attached antenna.
5) The module demonstrates compliance in a stand-alone configuration.
6) The module is labeled with its permanently affixed FCC ID label.

7) The module complies with all specific rules applicable to the transmitter, including all the conditions provided in the integration instructions by the grantee.
8) The module complies with RF exposure requirements.

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

IC Statements

The final host device, into which this RF Module is integrated" has to be labeled with an auxiliary label stating the IC of the RF Module, such as" Contains transmitter module IC: 24963-MWA06
Le périphériquehôte final, danslequelce module RF estintégré "doitêtreétiqueté avec uneétiquetteauxiliaireindiquant le CI du module RF, tel que" Contient le module émetteur IC: 24963-MWA06

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L’émetteur/récepteur exempt de licencecontenudans le présentappareilestconforme aux CNR d’Innovation, Sciences et Développementéconomique Canada applicables aux appareils radio exempts de licence. L’exploitationestautorisée aux deux conditions suivantes:

(1) L' appareil ne doit pas produire de brouillage;

(2) L' appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d' encompromettre le fonctionnement.

RF Exposure Warning Statements:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This equipment shall be installed and operated with minimum distance 20cm between the radiator & body.

Radio Frequency Exposure Statement for IC:
The device has been evaluated to meet general RF exposure requirements. The device can be used in mobile exposure conditions. The min separation distance is 20cm.

Déclaration d'exposition aux radiofréquences pour IC:
L'appareil a été évalué pour répondre aux exigences générales en matière d'exposition aux RF. L'appareil peut être utilisé dans des conditions d'exposition mobiles. La distance de séparation minimale est de 20 cm.