

User Manuel

OF

WM-N-BM -02_D-REF1

Introduction

This daughter card featured with full function of 802.11b/g/n including WM-N-BM-02.

This multi-functionality via LGA to connect and provides SDIO/SPI (option) interface for WiFi.

The small dimension and low profile physical design make it easier for system design to enable high performance wireless connection without space constrain. The low power consumption and excellent radio performance make it the best solution for OEM customers who require embedded 802.11b/g/n Wi-Fi features, such as, Camera, Wireless PDA, Smart phone, MP3, PMP, slim type Notebook, VoIP phone etc.

The card is based on Broadcom BCM43362 chipset which is a WiFi SOC. The Radio architecture and high integration MAC/BB chip provide excellent sensitivity with rich system performance. The card is designed as single antenna for WiFi for the application of small size hand held device.

In addition to WEP 64/128, WPA and TKIP, AES, CCX is supported to provide the latest security requirement on your network.

For the software and driver development, USI provides extensive technical document and reference software code for the system integration under the agreement of Broadcom International Ltd.

Hardware evaluation kit and development utilities will be released base on listed OS and processors to customers.

Features

Lead Free design which supporting Green design requirement, RoHS Compliance

Small size suitable for low volume system integration

Low power consumption & excellent power management performance extend battery life

Easy for integration into mobile and handheld device with flexible system configuration

DIMENSIONS, WEIGHT AND MOUNTING

The following paragraphs provide the requirements for the size, weight and mounting of the WM-N-BM -02_D-REF1.

DIMENSIONS

The size and thickness of the WM-N-BM -02_D-REF1 is “10 mm (W) x 16.5 mm (L) x 1.8 mm (Max)(H).



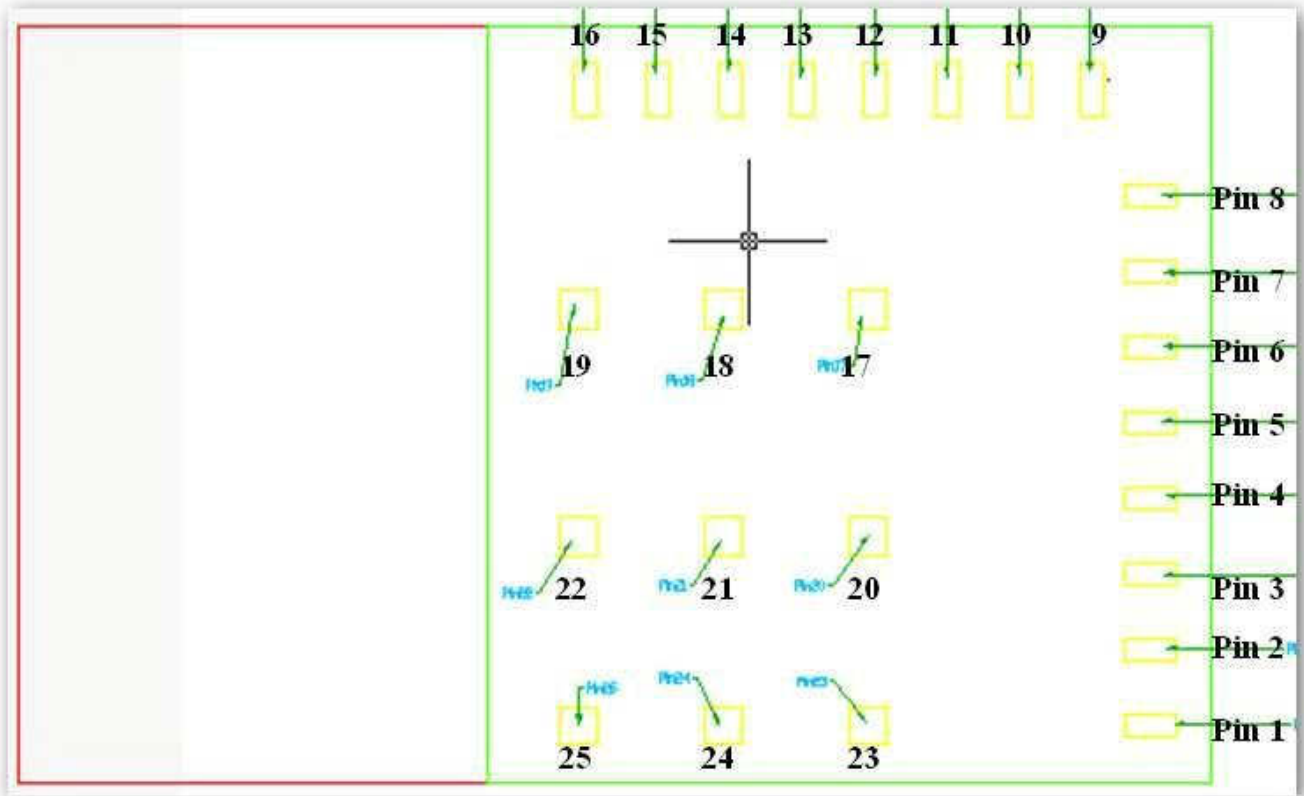
Module layout placement

LEGAL, REGULATORY & OTHER TECHNICAL CONSTRAINTS

The WM-N-BM -02_D-REF1 is pre-tested to ensure that all requirements met as set forth in the following sections

Final certification (certification) requires the antenna of targeted system with a lead-time of 6 weeks. The product deliverable shall be a pre-tested WM-N-BM -02_D-REF1. No level certification on WM-N-BM -02_D-REF1

PIN OUT AND PIN DESCRIPTION



Top View

Pin Description

Pin#	Pin Name	Type	Refer	Description
1	WLAN_REST_N	Signal	-	Active low WLAN reset signal
2	VDDIO	Power	3.3V	Digital I/O supply
3	SDIO D0	Signal	-	SDIO data 0.
4	SDIO CLK	Signal	-	SDIO clock.
5	SDIO D1	Signal	-	SDIO data 1.
6	SDIO CMD	Signal	-	SDIO data CMD.
7	SDIO D3	Signal	-	SDIO data 3.
8	SDIO D2	Signal	-	SDIO data 2.
9 to 14	GND	Power	GND	Ground
15	VBAT	Power	3.3V	Battery supply input
16	VBAT	Power	3.3V	Battery supply input
17 to 25	GND	Power	GND	Ground

REFLOW PROFILE GUIDELINE

The reflow profile is dependent on many factors including flux selection, solder composition and the capability of user's reflow equipment.

USI does not request a specific reflow profile but provides the following general guidelines

The solder composition typically sets the peak temperatures of the profile.

Recommend lead free solder pastes SAC305: Type 4, water soluble or no clean are acceptable.

■ Reflow equipment needed at least nine heater zones. Recommend forced air type reflow oven with Nitrogen.

■ It is recommended that the peak temperature at the solder joint be within 245°C and the maximum component temperature should not exceed 245°C.

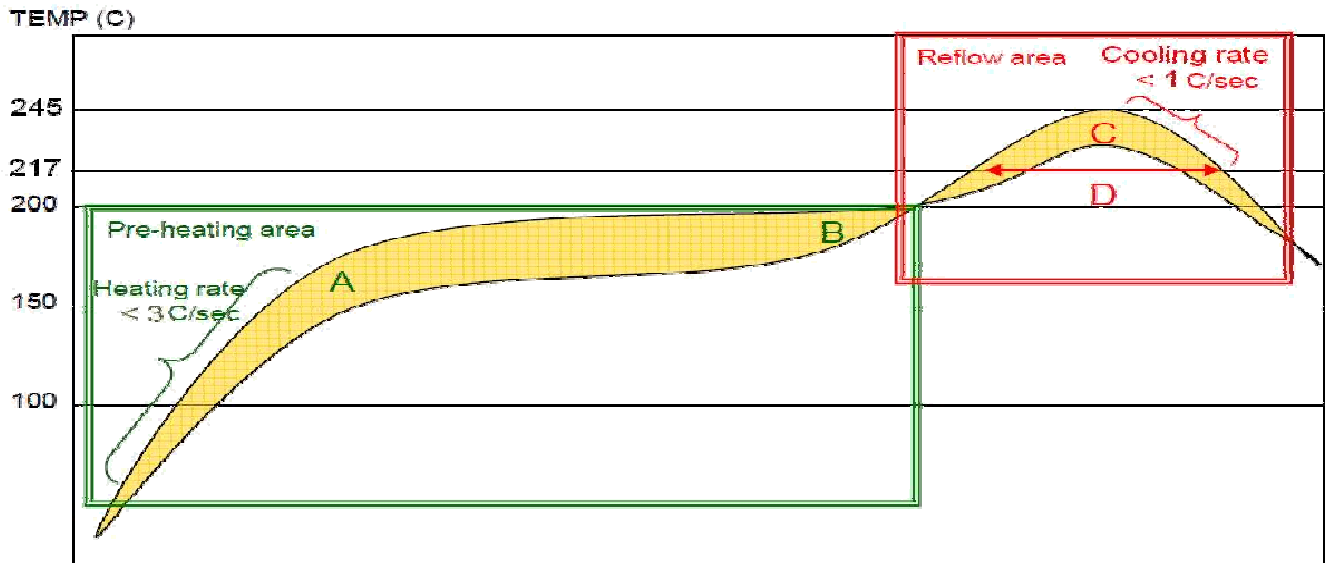
■ It is recommended that time above 217°C for the solder joints is between 40-90s, and with a minimum of 40s.

■ Optimal cooling rate is $<1^{\circ}\text{C} / \text{sec.}$ from peak to 217 °C

■ To develop the reflow profile, it is recommended that the user place thermocouples at various locations on the assembly to confirm that all locations meet the profile requirements. The critical locations are the solder joints of SiP Module.

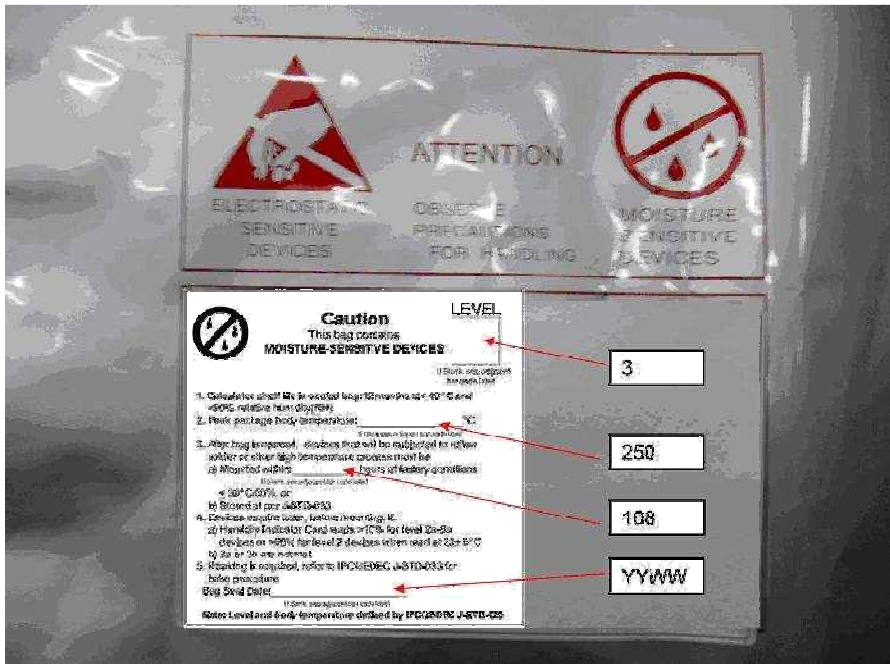
When developing the reflow profile, it is recommended that the actual fully loaded assembly be used to make sure that the total thermal mass is accounted for.

RECOMMENDED REFLOW PROFILE



- (1) Solder paste alloy : SAC305 (Sn96.5/Ag3.0/Cu0.5) (Lead Free solder paste.)
- (2) A-B. Temp.: 150~200°C; soak time:60~120sec.(Base on Flux type, reference only)
- (3) C. Peak temp: <math>< 245\text{ }^\circ\text{C}</math>
- (4) D. Time above 217 °C: 40~90sec.(Base on SAC305)
- (5) Suggestion: Optimal cooling rate is $< 1\text{ }^\circ\text{C} / \text{sec}</math> . from peak to 217 °C .$
- (6) Nine heater zones at least for Reflow equipment.
- (7) Nitrogen usage is recommended and be controlled the value less than 1500 ppm. Note: Need to inspect solder joint by X-ray post reflow.

PACKAGE AND STORAGE CONDITION



EMC/ESD LEVEL (Reference only)

According to FCC and CE standard

Surface Resistivity:

Interior: 109~1011Ω/SQUARE

EXTERIOR: 108~1012Ω/SQUARE

Dimension: 475*420mm

Tolerance: +5,0mm

Color:

Background : Gray

Text : Red

Recommended MSD baking Specification (Reference only)

If the MSD control over the MSD Level standard (MSD level standard refer IPC/ JEDEC), please reference below request to make baking.

種類 Kind	須烘烤條件 Need to baking status	烘烤條件 Baking specification.
MSD Component	超出管制期限或氣密 包裝拆封後 濕度指示卡超出規定 Over the control date or sealed package didn't work	Reel 60°C +5/-0 °C x60 小時(hrs)

Federal Communication Commission Interference 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.

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 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 Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies 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.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: 2AAD3AA0D0”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Industry Canada statement:

This device complies with RSS-210 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with IC 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.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

This device is intended only for OEM integrators under the following conditions: (For module device use)

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

IMPORTANT NOTE:

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains IC: **10290A-AA0D0**”.

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: **10290A-AA0D0**".

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.