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|  <b>WIESON</b><br>TECHNOLOGIES<br>CO., LTD. | <b>WM1030WU</b><br><b>User Manual</b> | TYPE OF PRODUCT    |
|  |                                       | <b>WLAN MODULE</b> |


## WM1030WU WLAN USB Module



| Version | Date       | Change Description |
|---------|------------|--------------------|
| 1.0     | 3 Jun 2013 | Initial release    |
|         |            |                    |
|         |            |                    |
|         |            |                    |

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## Description

WM1030WU is a WLAN 11n USB module, which fully supports the features and functional compliance of IEEE 802.11n,e and i standards. It supports up to 150Mbps high-speed wireless network connections.

It is designed to provide excellent performance with low power consumption and enhance the advantages of robust system and cost-effective. It is targeted at competitive superior performance, better power management applications.

## Features

- Operates in 2.4 GHz frequency bands
- 1x1 MIMO technology improves effective throughput and range over existing 802.11 b/g products
- Data rates: up to 150Mbps
- 802.11e-compatible bursting and I standards
- BPSK, QPSK, 16 QAM, 64 QAM modulation schemes
- WEP, TKIP, and AES, WPA, WPA2 hardware encryption schemes
- Small footprint: 25×12×2mm, 9-half-holes PCB module
- OS support: Android, Windows
- RoHS compliance


## Application

- Mobile Internet Device
- Tablet PC
- Portable Media Player (PMP)
- Portable Navigation Device (PND)
- IP cam

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## Pin Assignment (Top view)




## Pin Definition

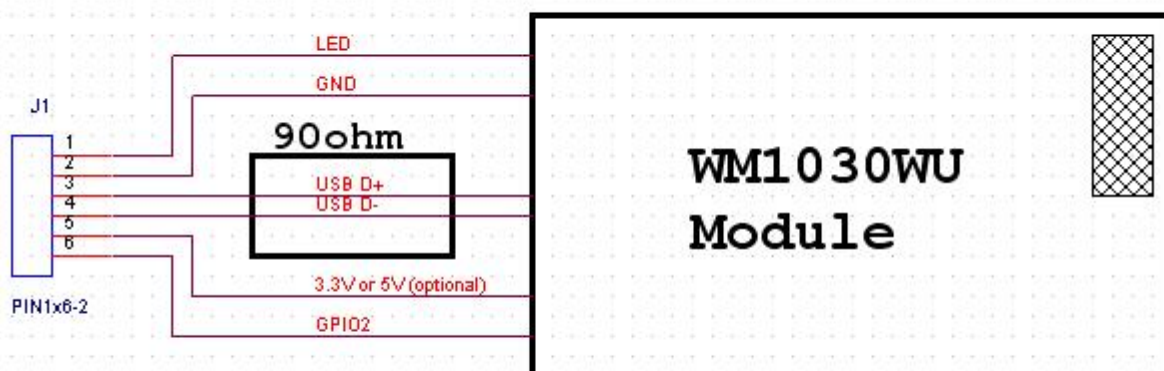
| Pin | Signal | Input /Output | Description                        |
|-----|--------|---------------|------------------------------------|
| 1   | LED    | Output        | Low enable LED                     |
| 2   | GND    | Power         | Ground                             |
| 3   | D+     | I/O           | USB D+                             |
| 4   | D-     | I/O           | USB D-                             |
| 5   | VDD    | Power         | 3.3V (or optional 5V) Power supply |
| 6   | GPIO2  | Input         | WPS input                          |
| 7   | GND    | Power         | Ground                             |
| 8   | RF     | I/O           | WLAN RF port                       |
| 9   | GND    | Power         | Ground                             |

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## Application Circuit



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## Functional Specification

| Product Description         |  |
|-----------------------------|--|
| <b>WLAN Standard</b>        | IEEE802.11b/g/n, Wi-Fi compliant   |
| <b>Host Interface</b>       | USB 2.0  |
| <b>Dimension</b>            | 25mm x 12mm x 2mm  |
| <b>Package</b>              | Half-hole PCB module   |
| Electrical Specifications   |  |
| <b>Frequency Range</b>      | 2.412 to 2.484 GHz   |
| <b>Data Rate</b>            | 802.11b: 11, 5.5, 2, 1 Mbps DSSS<br>802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps OFDM<br>802.11n: HT20 MCS0~7, HT40 MCS0~7 |
| <b>Modulation Technique</b> | 802.11b: CCK, DQPSK, DBPSK<br>802.11g: 64 QAM, 16 QAM, QPSK, BPSK<br>802.11n: BPSK, QPSK, 16-QAM, 64-QAM                 |
| <b>Operational Channel</b>  | <b>2.4GHz:</b><br>11: (Ch. 1-11) – United States<br>13: (Ch. 1-13) – Europe<br>14: (Ch. 1-14) – Japan                    |
| <b>Security</b>             | WPA, WPA-PSK, WPA2, WPA2-PSK, WEP 64bit & 128bit, IEEE 802.11x, IEEE 802.11i   |
| <b>Operating Voltage</b>    | 3.3V (or 5V, optional)   |

## Temperature Limit Ratings

| Parameter                     | Min. | Max. | Units |
|-------------------------------|------|------|-------|
| Storage Temperature           | -40  | +125 | °C    |
| Ambient Operating Temperature | 0    | +70  | °C    |

## Absolute Maximum Ratings

| Symbol | Parameter         | Rating      | Unit |
|--------|-------------------|-------------|------|
| VDD    | USB interface VDD | -0.3 to 3.6 | V    |

## Recommended Operating Range


| Symbol | Parameter         | Min  | Typ | Max  | Units |
|--------|-------------------|------|-----|------|-------|
| VDD    | USB interface VDD | 3.15 | 3.3 | 3.45 | V     |

### Optional 5V

| Symbol | Parameter         | Min  | Typ | Max  | Units |
|--------|-------------------|------|-----|------|-------|
| VDD    | USB interface VDD | 4.75 | 5.0 | 5.25 | V     |

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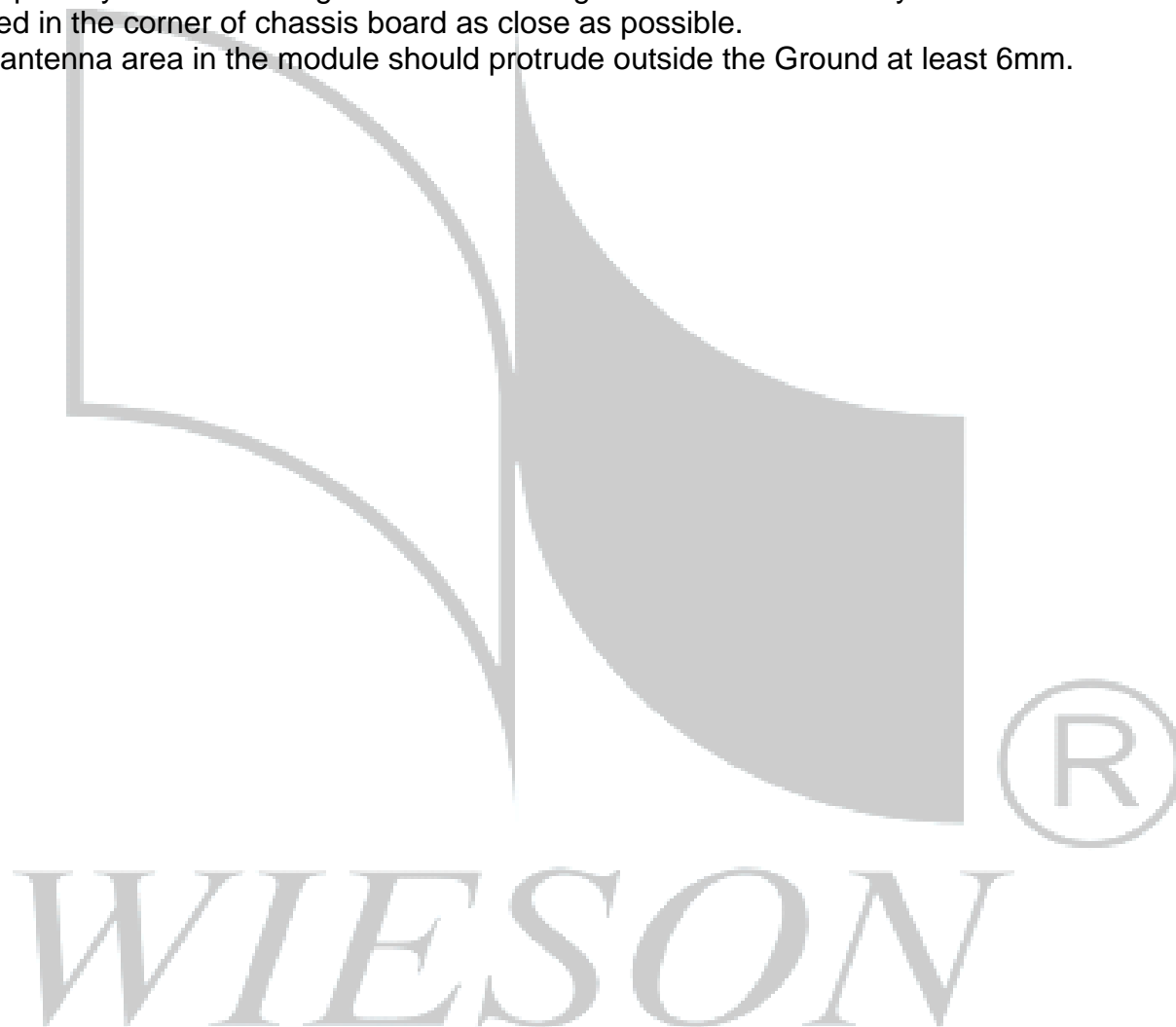
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## General RF Guidelines

Follow these steps for optimal performance.

- The RF trace impedance should be 50 ohm.
- The length of RF trace should be minimized.
- Route traces on the top layer as much as possible and use a continuous reference ground plane underneath them.
- Do not route any digital or analog signal traces between the RF traces and reference ground.
- don't put any metal shielding in the surrounding area of module and try to leave the module placed in the corner of chassis board as close as possible.
- The antenna area in the module should protrude outside the Ground at least 6mm.

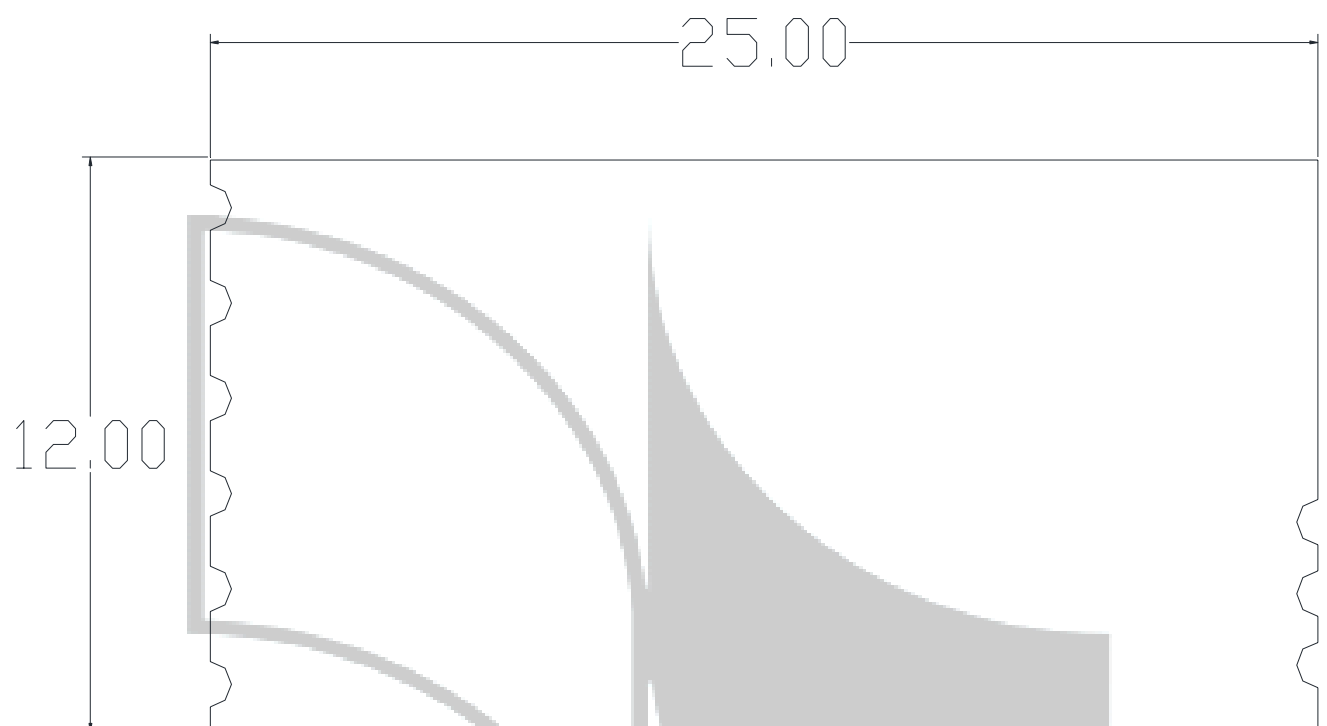


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## Module Dimensions



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All dimensions are in millimeters.

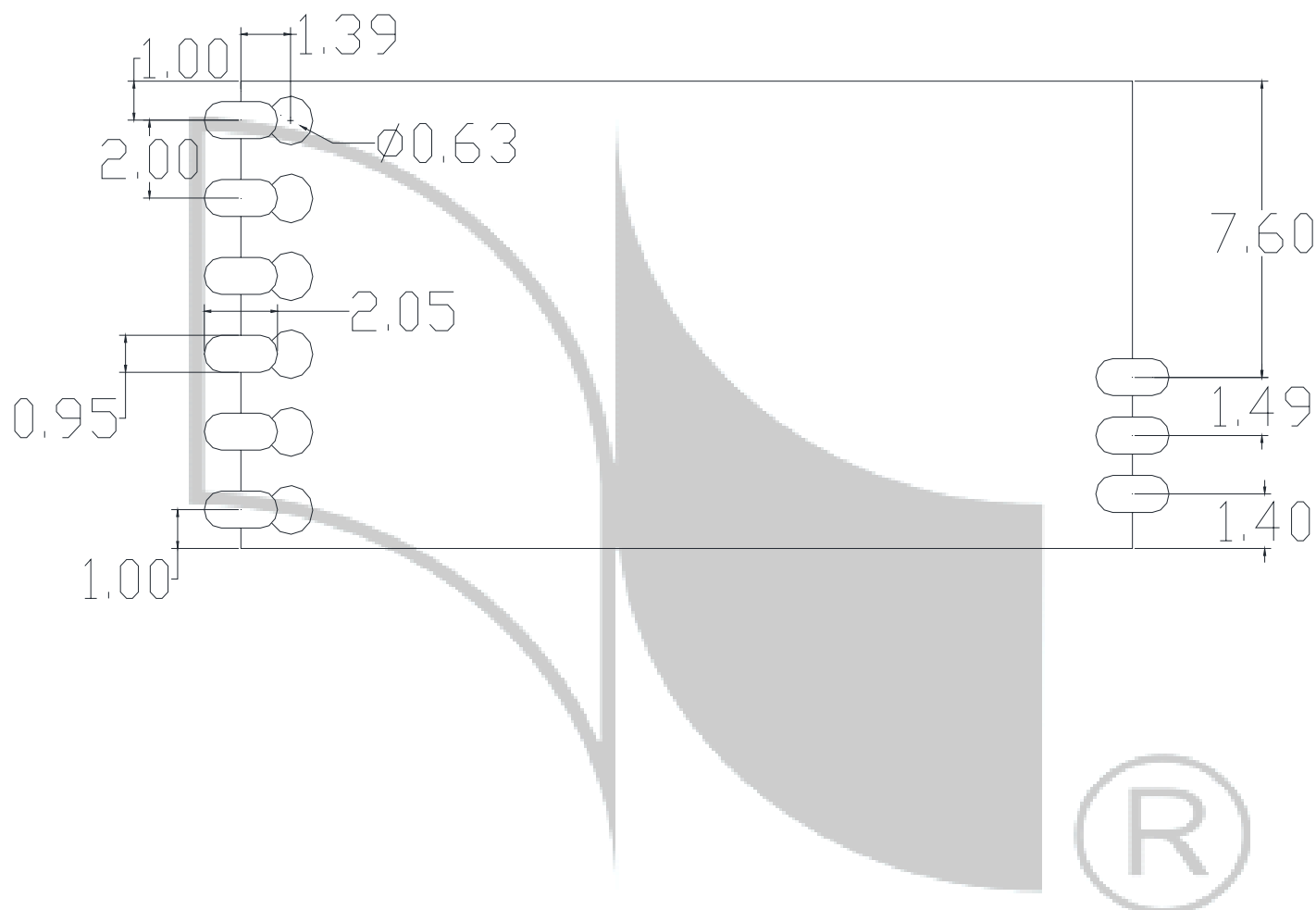
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## Layout Design Guide

The recommended layout pads for WM1030WU module are shown below. (module top view)



All dimensions are in millimeters.  
 Tolerance:  $\pm 0.05\text{mm}$

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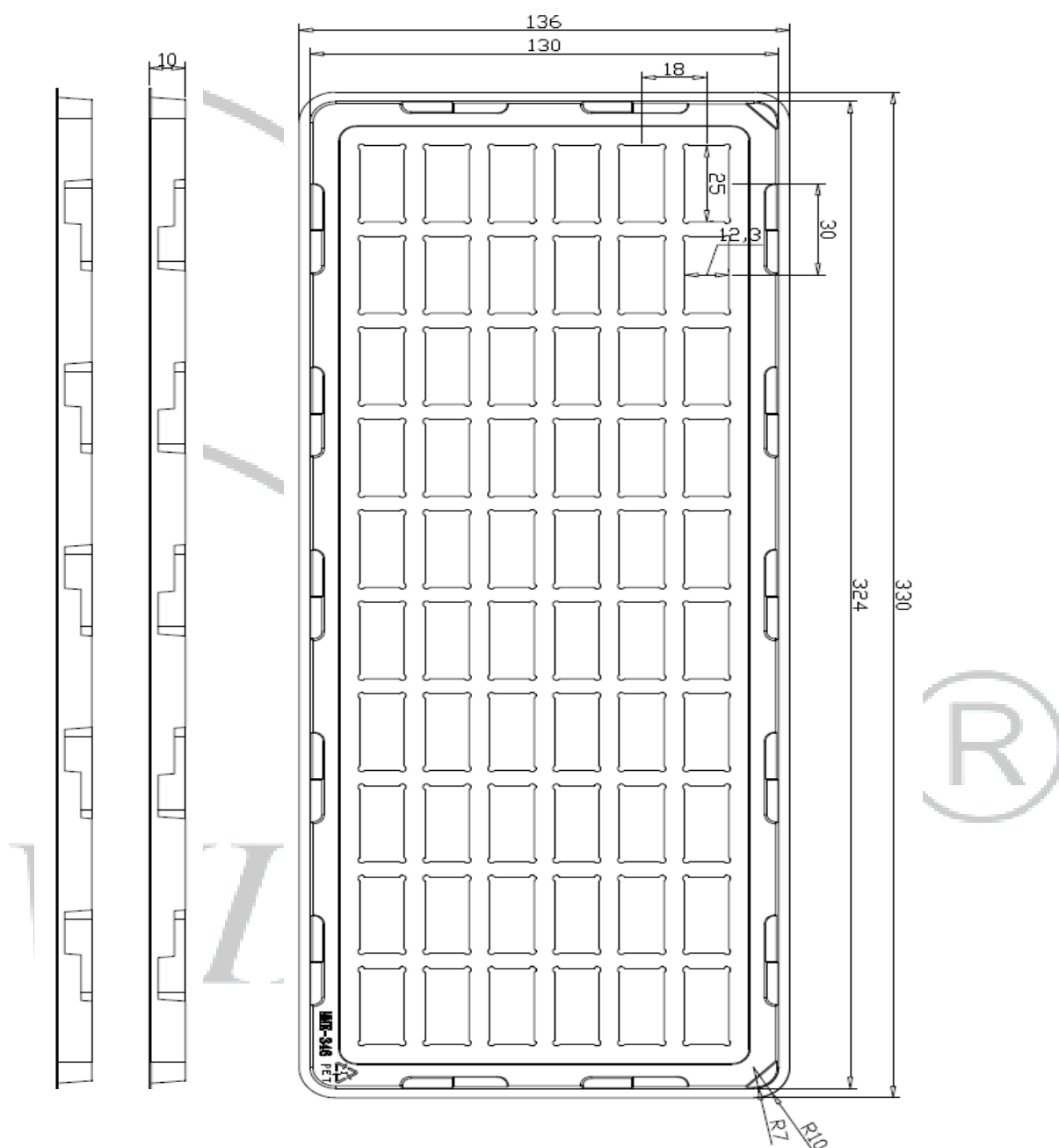
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## Package Information

Wieson offer one box for 600 pcs module. Each box has 11 trays inside. The top of empty tray is using for fixed the first package tray. The other 10 trays packaged module inside. Each tray dimensions is shown below.



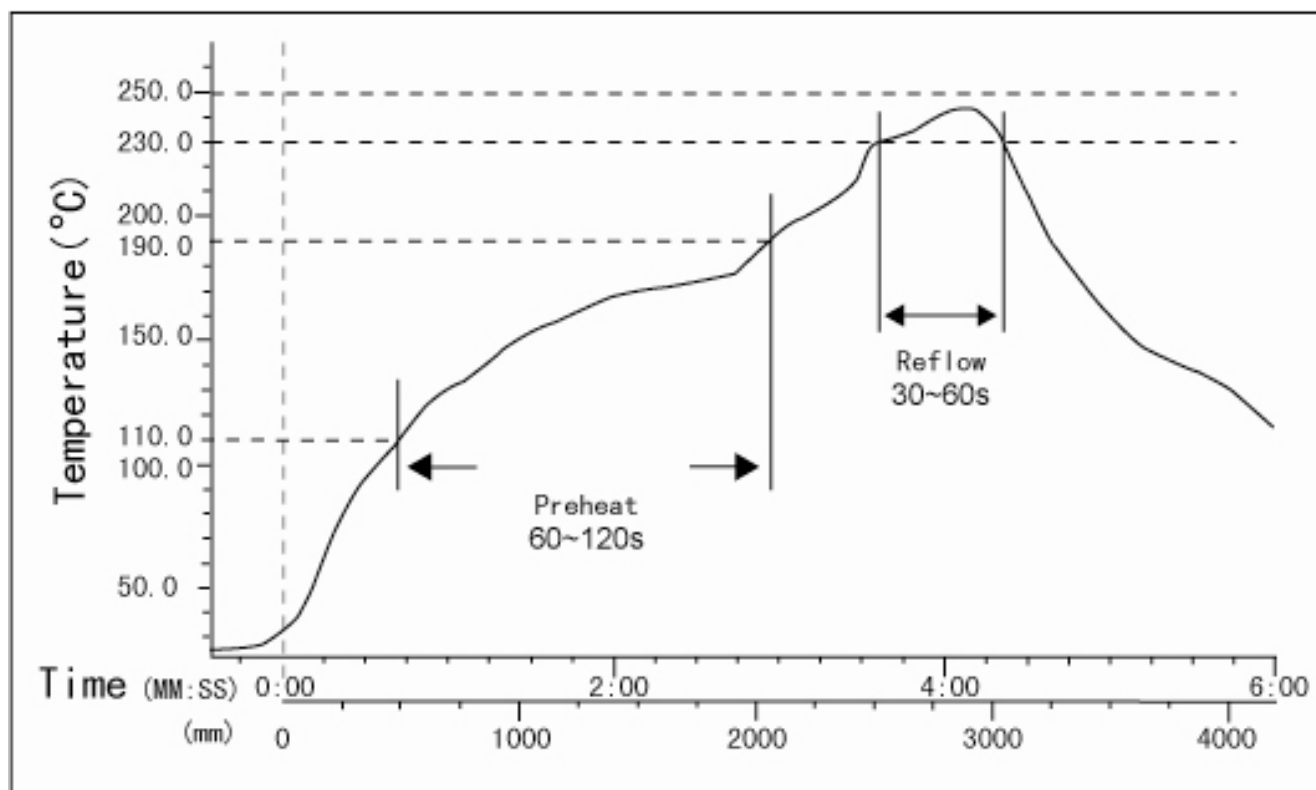
All dimensions are in millimeters.

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## Reference Temperature Reflow Chart



### Note:

1. If the system PCBA is double side design please reflow the side without this module first.
2. Don't let the solder machine temperature over 250°C or follow solder paste vender's recommended temperature.
3. The Ramp-up temperature speed is 1~4 °C per second, the Ramp-down temperature speed is 1~4 °C per second.
4. This temperature reflow chart is for reference only, it depends on the manufacturing machine's characters requirement.

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## Compliance Information

### ■ FCC Compliance

This equipment has been tested and found to comply with the limits for a Class 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 the radio communications. However, there are no guarantees that interference will not occur in a particular installation.

### ■ Troubleshooting

If this equipment does cause harmful interference to radio reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following instructions.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult dealer or an experienced radio technician.

### ■ Conditions

Operation is subject to the following conditions

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

### ■ FCC Caution

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and consider removing the no-collocation statement.

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#### End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm 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: 2AAK6WM1030WU”

#### 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 shown in this manual.



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