



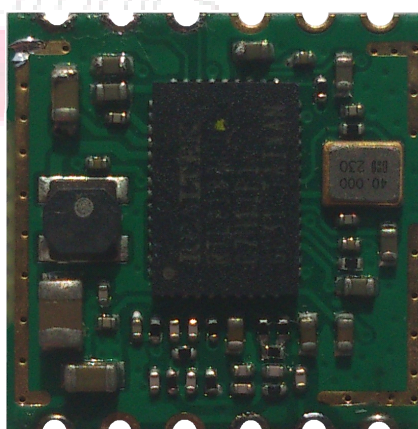
**GLEAD**  
ELECTRONICS  
CO., LTD.

**WM1020WU  
SPECIFICATION**

TYPE OF PRODUCT

**WLAN MODULE**

**WM1020WU  
WLAN USB Module**



<b>Version</b>	<b>Date</b>	<b>Change Description</b>
0.9	10 July 2012	Initial release
1.0	7 Aug 2012	Formal release

**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of

 <b>GLEAD</b> ELECTRONICS CO., LTD.	<b>WM1020WU</b> <b>SPECIFICATION</b>	TYPE OF PRODUCT
		<b>WLAN MODULE</b>

## Description

WM1020WU 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: 13×13×2.4mm, 12-half-holes PCB module
- OS support: Android, Windows
- RoHS compliance

## Application

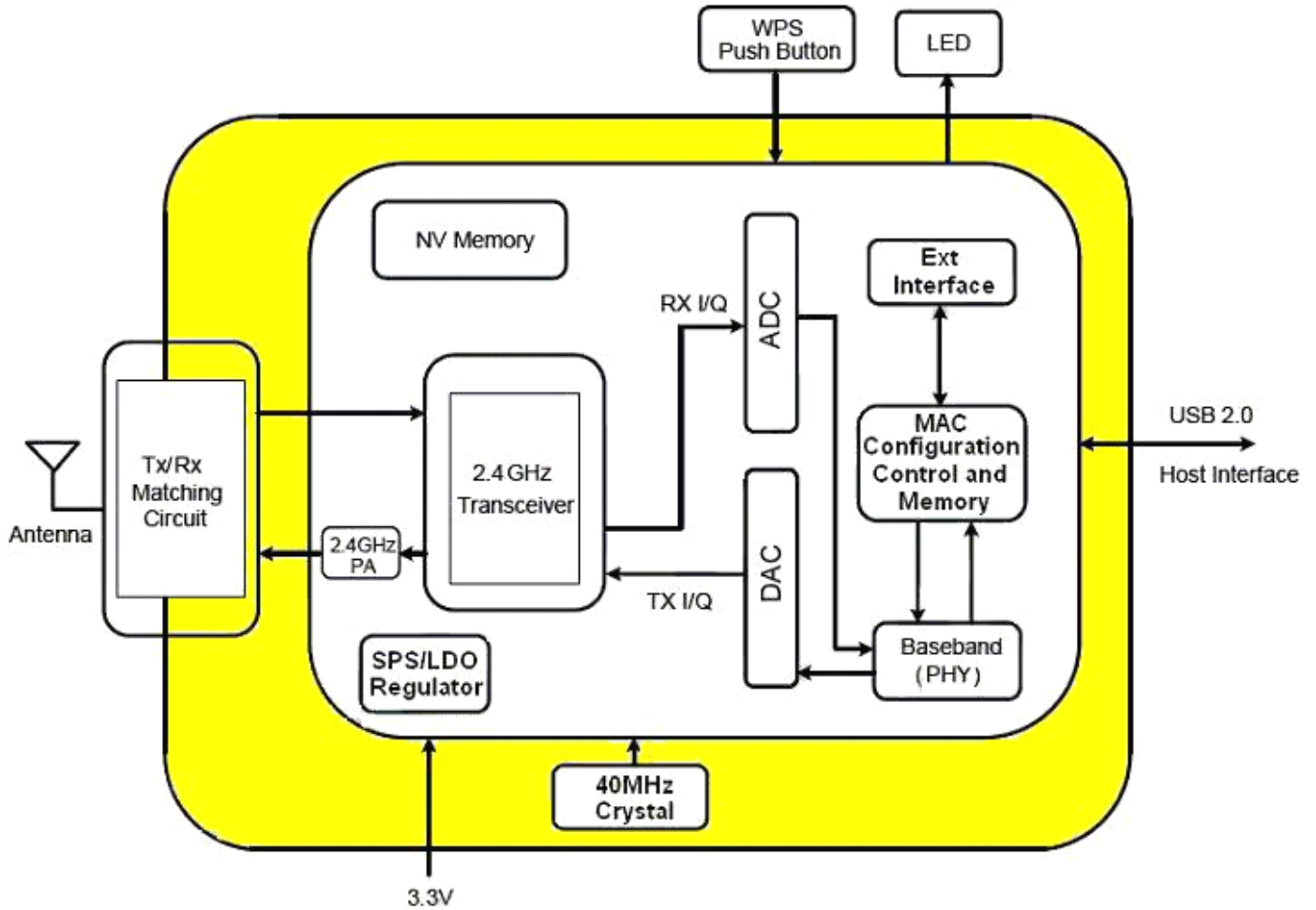
- Mobile Internet Device
- Tablet PC
- Portable Media Player (PMP)
- Portable Navigation Device (PND)
- IP cam

**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of



## Functional Block Diagram



Block Diagram

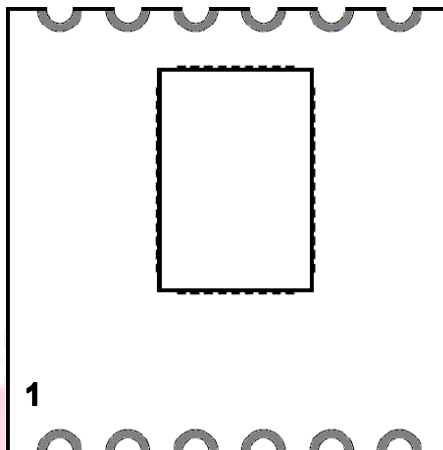


**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of



## Pin Assignment (Top view)



## Pin Definition

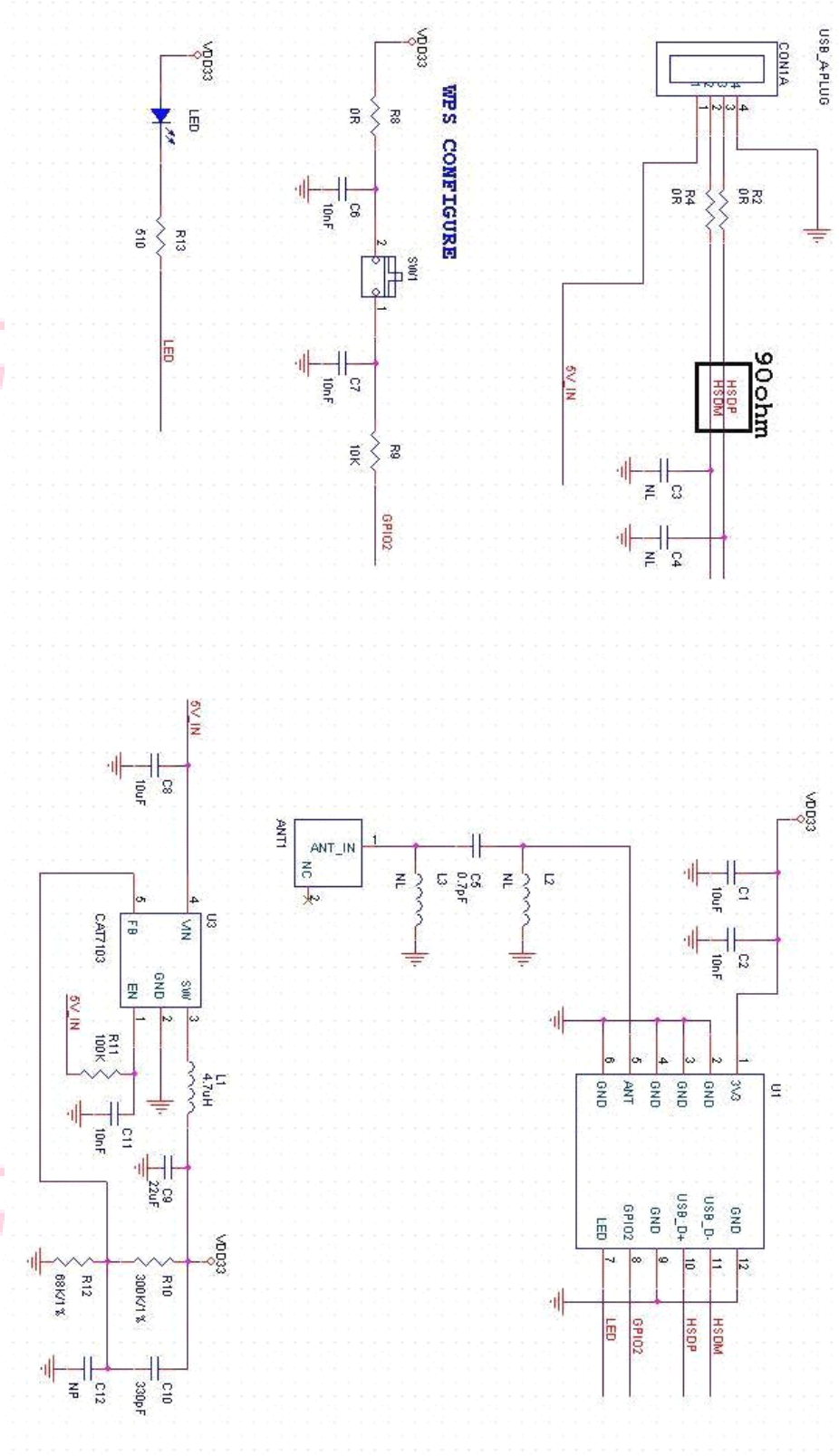
Pin	Signal	Input /Output	Description
1	VDD	Power	3.3V Power supply
2	GND	Power	Ground
3	GND	Power	Ground
4	GND	Power	Ground
5	RF	I/O	WLAN RF port
6	GND	Power	Ground
7	LED	O	Low enable LED
8	GPIO2	Input	WPS button input
9	GND	Power	Ground
10	D+	I/O	USB D+
11	D-	I/O	USB D-
12	GND	Power	Ground

**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of



**Application Circuit**



**CONFIDENTIAL**

 <b>GLEAD</b> ELECTRONICS CO., LTD.	<b>WM1020WU</b> <b>SPECIFICATION</b>	TYPE OF PRODUCT
		<b>WLAN MODULE</b>

## Functional Specification

<b>Product Description</b>	
<b>WLAN Standard</b>	IEEE802.11b/g/n, Wi-Fi compliant
<b>Host Interface</b>	USB 2.0
<b>Dimension</b>	13mm x 13mm x 2.4mm
<b>Package</b>	Half-hole PCB module
<b>Electrical Specifications</b>	
<b>Frequency Range</b>	2.412 to 2.484 GHz
<b>Data Rate</b>	802.11b: 11, 5.5, 2, 1 Mbps DSSS 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps OFDM 802.11n: HT20 MCS0~7, HT40 MCS0~7
<b>Modulation Technique</b>	802.11b: CCK, DQPSK, DBPSK 802.11g: 64 QAM, 16 QAM, QPSK, BPSK 802.11n: BPSK, QPSK, 16-QAM, 64-QAM
<b>Operational Channel</b>	<b>2.4GHz:</b> 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 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

## 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

**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of  
JIAXING GLEAD ELECTRONICS CO., LTD.

 <b>GLEAD</b> ELECTRONICS CO., LTD.	<b>WM1020WU</b> <b>SPECIFICATION</b>	TYPE OF PRODUCT
		<b>WLAN MODULE</b>

## RF Characteristics

Parameter	Description	Min	Typ	Max	Unit
Frequency Range		2412	2442	2484	MHz
Output Power	802.11b, 1~11Mbps DSSS		17		dBm
	802.11g, 6~54Mbps OFDM		14		dBm
	802.11n, HT20 MCS0~7		13		dBm
	802.11n, HT40 MCS0~7		13		dBm
TX Power Accuracy			±1.5		dBm
RX Sensitivity	1 Mbps DSSS		-90		dBm
	2 Mbps DSSS		-88		dBm
	5.5 Mbps DSSS		-87		dBm
	11 Mbps DSSS		-85		dBm
RX Sensitivity	6 Mbps OFDM		-88		dBm
	9 Mbps OFDM		-85		dBm
	12 Mbps OFDM		-82		dBm
	18 Mbps OFDM		-80		dBm
	24 Mbps OFDM		-78		dBm
	36 Mbps OFDM		-77		dBm
	48 Mbps OFDM		-73		dBm
	54 Mbps OFDM		-72		dBm
RX Sensitivity BW=20MHz Green Field 800nS Guard Interval Non-STBC	MCS 0		-88		dBm
	MCS 1		-85		dBm
	MCS 2		-83		dBm
	MCS 3		-80		dBm
	MCS 4		-77		dBm
	MCS 5		-72		dBm
	MCS 6		-70		dBm
	MCS 7		-69		dBm
RX Sensitivity BW=40MHz Green Field 800nS Guard Interval Non-STBC	MCS 0		-87		dBm
	MCS 1		-81.5		dBm
	MCS 2		-79		dBm
	MCS 3		-76		dBm
	MCS 4		-72		dBm
	MCS 5		-69		dBm
	MCS 6		-67.5		dBm
	MCS 7		-67		dBm

**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of  
JIAXING GLEAD ELECTRONICS CO., LTD.

 <b>GLEAD</b> ELECTRONICS CO., LTD.	<b>WM1020WU</b> <b>SPECIFICATION</b>	TYPE OF PRODUCT
		<b>WLAN MODULE</b>

## Power Consumption Characteristics

Description	Performance	
	TYP	UNITS
Tx mode, Unassociated Idle	125	mA
Tx mode, Unassociated Idle (power save)	25	mA
Tx mode, HT40, MCS 7 @ 13dBm	335	mA
Tx mode, HT20, MCS 7 @ 13dBm	333	mA
Tx mode, OFDM, 54M @ 15 dBm	350	mA
Tx mode, CCK, 11M @ 17 dBm	379	mA
Rx mode, Continuous Rx	125	mA
Power Down	1	mA



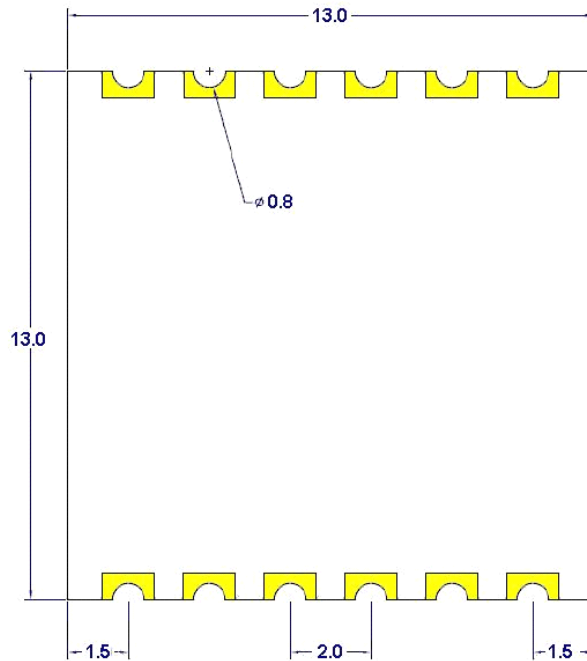
**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of  
 8 JIAXING GLEAD ELECTRONICS CO., LTD.





## Module Dimensions

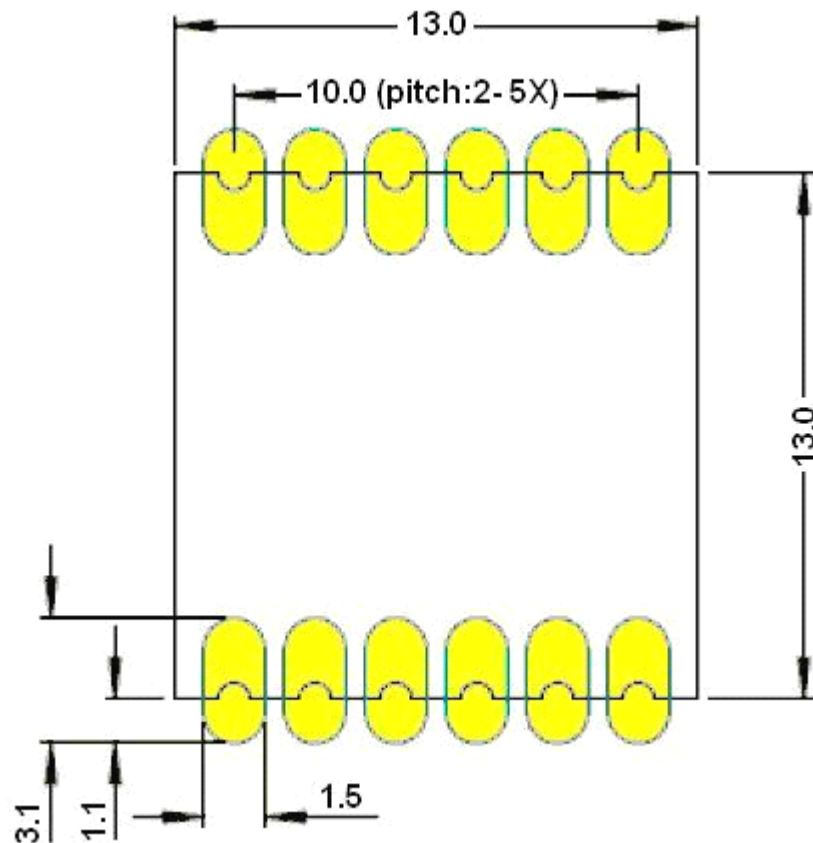


All dimensions are in millimeters.



## Layout Design Guide

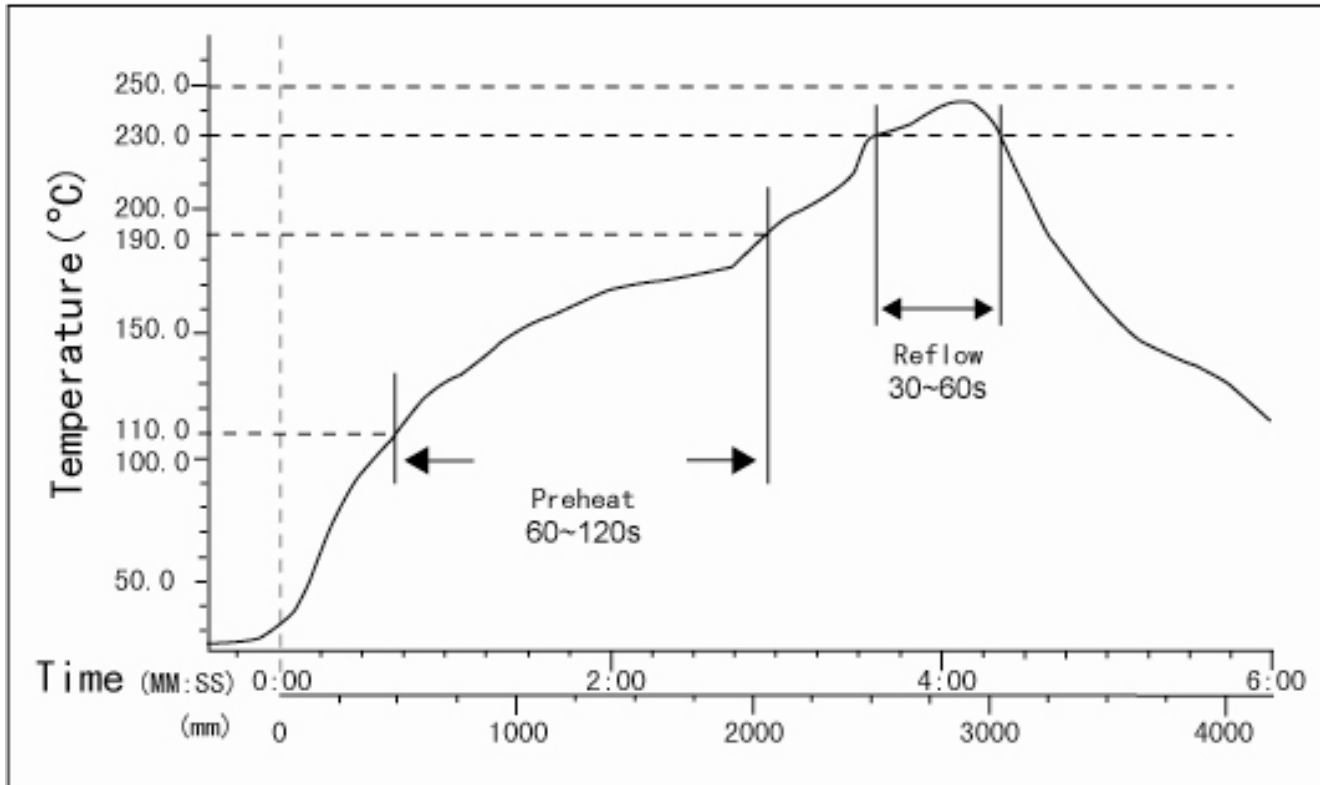
The recommended layout pads for WM-1020WU module are shown below. (module top view)



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



## 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.



**CONFIDENTIAL**

No part of the information shown of this document may be used in any way without office stamp or written consent of