

HK NATER TECH LIMITED

AR9271-M Specification

Customer: _____

Description: AR9271-M V1.1

Customer P/N: _____

Date: _____

Customer		
Approve	Auditing	Admit

Provider		
Approve	Auditing	Admit

Customer:

Add:

Tel:

Fax:

Attn:

E-mail:

Provider:HK NATER TECH LIMITED

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General Description

The module AR9271-M is a highly integrated solution for 2.4 GHz 802.11n-ready wireless local area networks (WLANs) that enables a high-performance 1x1 configuration for wireless station applications demanding robust link quality and maximum throughput and range.

The AR9271-M integrates a multi-protocol MAC, baseband processor, analog-to-digital and digital-to-analog (ADC/DAC) converters, 1x1 radio transceiver, RF switch, and USB interface in an all-CMOS device for low power and small form factor applications.

The AR9271-M implements half-duplex OFDM, CCK, and DSSS baseband processing, supporting 72.2 Mbps for 20 MHz and 150 Mbps for 40 MHz channel and IEEE 802.11b/g data rates. Other features include signal detection, automatic gain control, frequency offset estimation, symbol timing, and channel estimation. The AR9271-M MAC supports the 802.11 wireless MAC protocol, 802.11i security, receive and transmit filtering, error recovery, and quality of service (QoS). The ITM-USB12 supports one transmit traffic stream and one receive traffic stream using one integrated Tx chain for high throughput and range performance. The Tx chain combines baseband in-phase (I) and quadrature (Q) signals, converts them to the desired frequency, and drives the RF signal to the antenna.

The frequency synthesizer supports frequencies defined by IEEE 802.11b/g/n specifications.

The AR9271-M supports frame data transfer to and from the host using a USB interface that provides interrupt generation/reporting, power save, and status reporting. Other external interfaces include serial EEPROM and GPIOs. The AR9271-M is interoperable with standard legacy 802.11b/g devices.

Features

- All-CMOS solution interoperable with IEEE 802.11b/g/n WLANs
- Intergrate PA, LNA, Rx/Tx switch
- Supports 72.2 Mbps for 20 MHz and 150 Mbps or 40 MHz channel operations
- Supports WMM
- Supports IEEE 802.11e and IEEE 802.11i standards
- Supports WAPI
- Supports WiFi Direct
- Support SoftAP
- USB 2.0 interface
- 6-pin, 18.2 mm x 14.8 mm

RF Performance

- Tx Power

Data Rates	Measured Target Power (dBm)			
<i>Legacy Mode</i>	2412 MHz	2437 MHz	2462 MHz	2484 MHz
6Mbps	16.7	16.9	16.7	16
36Mbps	16.5	16.7	16.7	16.9
48Mbps	16.3	16.7	16.6	16.8
54Mbps	15.8	15.5	15.4	15.8
<i>HT20</i>				
MCS 0	13.6	13.9	13.8	14
MCS 4	13.5	13.7	13.6	13.9
MCS 5	13.4	13.7	13.6	13.8
MCS 6	13.3	13.5	13.4	13.8
MCS 7	13.4	13.5	13.4	13.6
<i>HT40</i>				
MCS 0	13.3	13	13.1	13.8
MCS 4	13	13.7	13.9	13.5
MCS 5	13	13.6	13.8	13.5
MCS 6	13.9	13.6	13.7	13.4
MCS 7	12.5	12.7	12.8	12.9

- Rx Sensitivity

Data Rate (Mbps)	Sensitivity (dBm)				
Legacy Mode	2412 MHz	2437 MHz	2462 MHz	2472 MHz	
1L	-95	-96	-96	-95	
6	-90	-91	-91	-90	
11S	-90	-87	-87	-87	
54	-76	-76	-76	-75	
HT20 Mode					
MCS 7	-73	-73	-72	-72	
MCS 0	-90	-91	-91	-90	
HT 40 Mode	2422 MHz	2437 MHz	2452 MHz	2457 MHz	2462 MHz
MCS 7	-69	-69	-69	-69	-69
MCS 0	-87	-87	-88	-87	-87

- EVM

Mode	Channels	Target Power (dBm)	EVM Reading (dB)
<i>g mode (54)</i>	2412	18.2	-30.9
	2437	18.5	-29.6
	2462	18.3	-30.2
	2472	18.3	-30.3
<i>HT20 (MCS7)</i>	2412	17.2	-28.1
	2437	17.4	-28.2
	2462	16.8	-28.3
	2472	16.8	-28.9
<i>HT40 (MCS7)</i>	2422	16.3	-28.2
	2437	16	-28.3
	2452	15.8	-28.6
	2457	15	-28.9
	2462	15.6	-28.3

Pin Description

Pin No.	Name	Description
1	GND	GROUND
2	USB_D+	USB D+ Signal
3	USB_D-	USB D- Signal
4	Vdd33	3.3V Power Supply
5	GND	GROUND
6	RFIN	RF interface

Electrical Characteristics

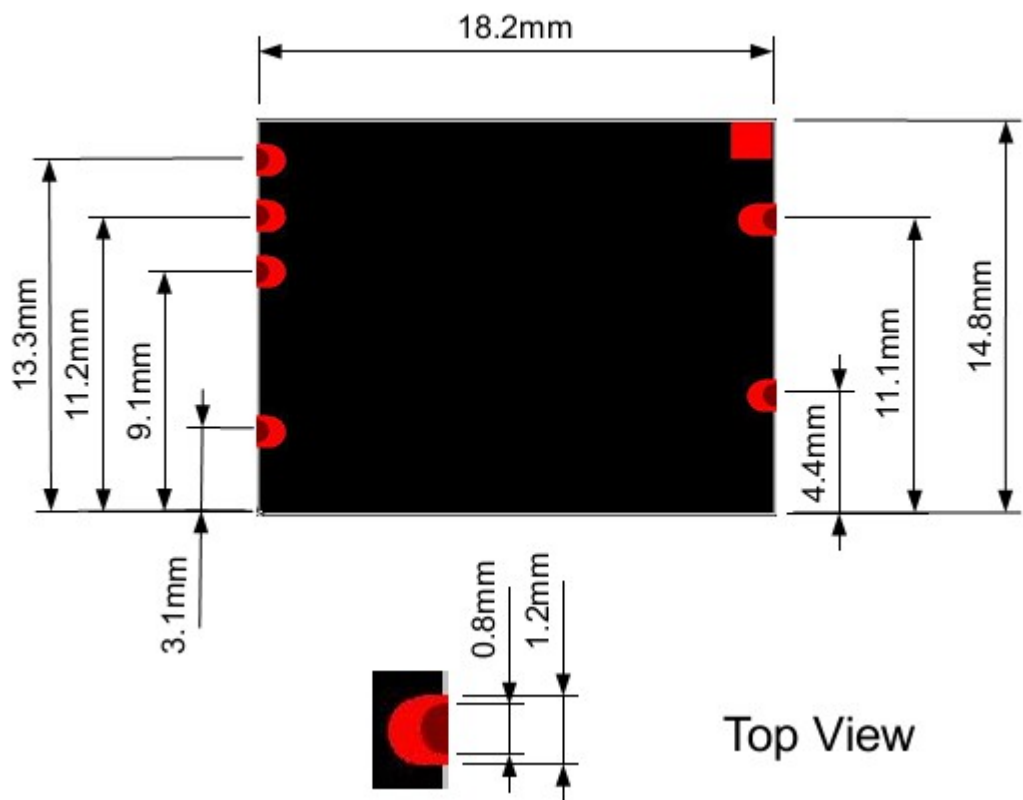
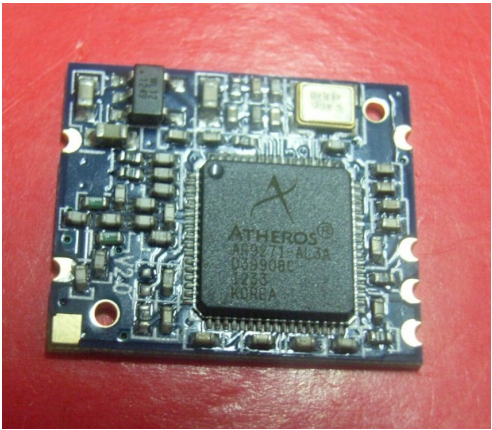
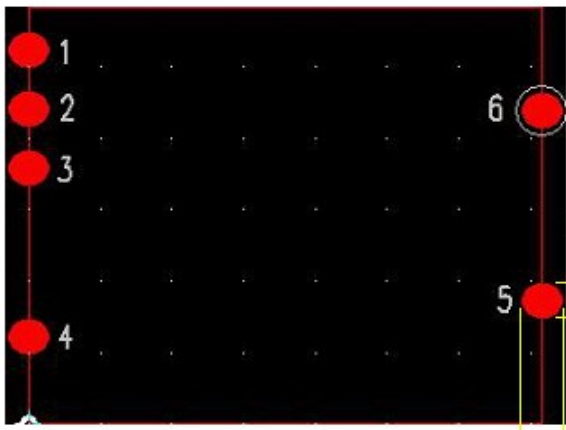
- Absolute Maximum Ratings

Symbol	Parameter	Max Rating	Unit
Vdd33	Maximum Supply Voltage	-0.3 to 4.0	V
RFin	Maximum RF Input (reference 50Ω)	+10	dBm
Tstore	Storage Temperature	-65 to 150	C

- Recommended Operation Conditions

Symbol	Patameter	Min	Typ	Max	Unit
Vdd33	Supply Voltage	2.97	3.3	3.63	V

Mechanical Drawing & Mechanical Size

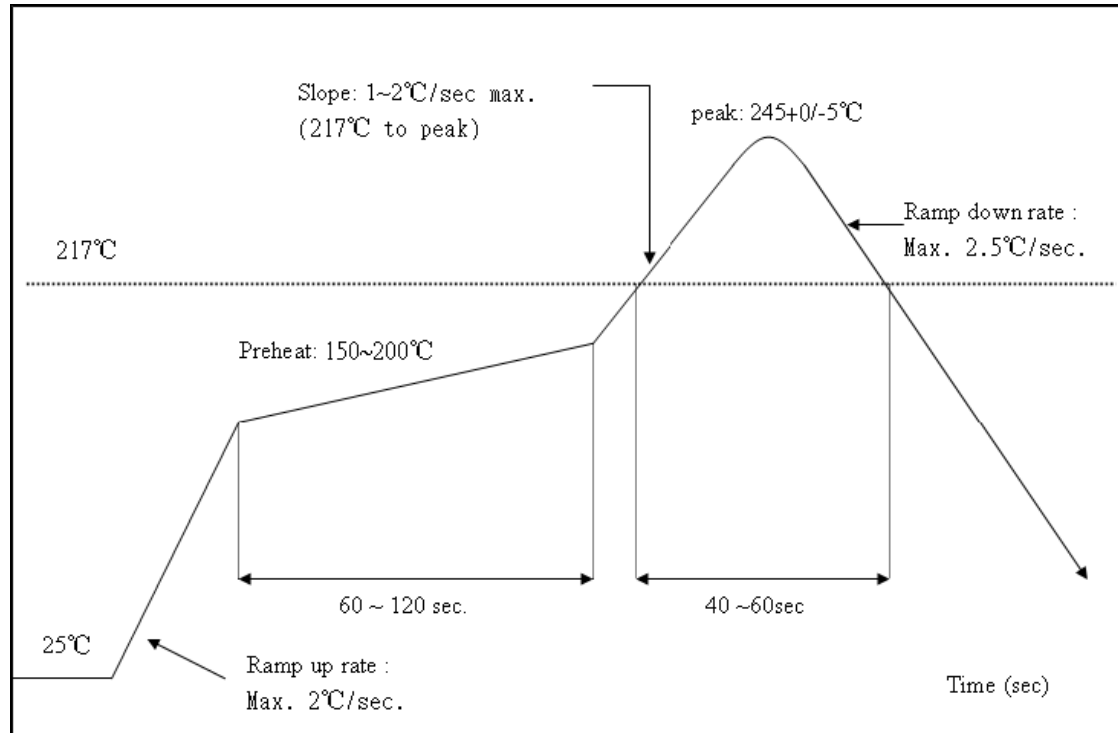


Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : $<250^{\circ}\text{C}$

Number of Times : ≤ 2 times



ENVIRONMENTAL

Operating

Operating Temperature: 0°C to +70 °C
Relative Humidity: 5-90% (non-condensing)

Storage

Temperature: -40°C to +80°C (non-operating)
Relevant Humidity: 5-95% (non-condensing)

MTBF caculation

Over 150,000hours

<p>Wireless module before the SMT note:</p> <p>1.When customers Open stencil must be sure the hole bigger to the Wireless module plate, please press 1 to 1 and 0.7 mm is widened to open outward, the thickness of 0.12 mm.</p> <p>2.Can't get the wifi module bare hands when needs,must we wear the gloves and static ring.</p> <p>3.The furnace temperature according to the size of the customer the mainboard ,generally like to stick on a tablet standard temperature of 250 + - 5,can do 260 + - 5.</p> <p>Storage and use Wifi module control should pay attention to the following matters:</p> <p>1.Module of the storage life of vacuum packaging:</p> <p>1-1.Storage life: 12 months. Storage conditions:<40℃. Relative humidity:<90%R.H.</p> <p>1-2.After this bag is opened , devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be :</p> <p>1-3.Check the humidity card :stored at $\leq 20\%RH$.If :30%~40%(pink)or greater than 40%(red).Labeling module has moisture absorption.</p> <p>① Mounthed within 168 hours at factory conditions of: $t \leq 30^{\circ}C$, $\leq 60\%R.H$.</p> <p>② Once opened, the workshop the preservation of life for 168 hours.</p> <p>1-4.If baking is required,devices may be baked for:</p> <p>① Modules must be to remove module moisture problem.</p> <p>② Baking temperature: 125 ℃, 8 hours.</p> <p>③ After baking, put proper amount of desiccant to seal packages.</p> <p>1-5.Module vacuum packing 2000 PCS per disc.</p> <p>2.Module reel packaging items as follows.</p> <p>2-1.Storage life: 12 months. Storage conditions:<40℃. Relative humidity:<90%R.H.</p> <p>2-2.Module apart packing after 168 hours, To launch patch need to bake, to remove the module hygroscopic, baking temperature conditions: 125℃, 8hours.</p> <p>2-3.Reel packing 2000 PCS or 1000 PCS per disc.</p> <p>3.Module pallet packaging items as follows:</p> <p>3-1.Storage life: 3 months. Storage conditions:<40℃. Relative humidity:<90%R.H.</p> <p>3-2.Module if not used within 48 hours, before launch the need for baking, baking temperature: 125 ℃, 8 hours.</p> <p>3-3.Pallet packaging each plate is 100 PCS to 1000 PCS or 2000 PCS shipment.</p>	<p>Wifi 模块贴片装机前注意事项:</p> <p>1.客户在开钢网时一定要将 wifi 模块焊盘的孔开大, 请按 1 比 1 再向外扩大 0.7mm 比例开钢网, 厚度按 0.12mm.</p> <p>2.有需要拿 wifi 模块时不可以光手去拿, 一定要戴上手套以及静电环.</p> <p>3.过炉温度要根据客户主板的大小而定, 一般像平板电脑上的标准温度为250+-5°, 也可以做到260+-5°</p> <p>Wifi 模块储存及使用管制应注意事项如下:</p> <p>1.模块的真空包装之储存期限:</p> <p>1-1.保存期限: 12个月, 储存环境条件: 温度在: <40℃, 相对湿度: <90%R.H.</p> <p>1-2.模块包装被拆后, SMT 组装之时限:</p> <p>1-3.检查湿度卡: 显示值应小于30% (蓝色), 如: 30%~40%(粉红色) 或者大于40% (红色) 表示模块已吸湿气.</p> <p>① 工厂环境温度湿度管制: $\leq 30^{\circ}C$, $\leq 60\%R.H$.</p> <p>② 拆封后, 车间的保存寿命为 168 小时.</p> <p>1-4.如在拆封后的 168 个小时内未使用完, 需要烘烤, 烘烤条件如下:</p> <p>① 模块须重新烘烤, 以除去模块吸湿问题.</p> <p>② 烘烤温度条件: 125℃, 8 小时.</p> <p>③ 烘烤后, 放入适量的干燥剂再密封包装.</p> <p>1-5.模块真空包装每盘 2000pcs, 真空包装图片<1></p> <p>2.模块卷盘包装事项如下:</p> <p>2-1.保存期限: 12个月, 储存环境条件: 温度在: <40℃, 相对湿度: <90%R.H.</p> <p>2-2.模块拆开包装168小时后, 如要上线贴片需要重新烘烤, 以除去模块吸湿问题, 烘烤温度条件25℃, 8小时。</p> <p>2-3.卷盘包装标准为每盘 2000pcs, 也可以 1000pcs.</p> <p>3.模块托盘包装事项如下:</p> <p>3-1.保存期限: 3个月, 储存环境条件: 温度在: <40℃, 相对湿度: <90%R.H.</p> <p>3-2.模块如在 48 小时内未使用, 在上线之前需要进行烘烤, 烘烤温度条件: 125℃, 8 小时。</p> <p>3-3.托盘包装每盘为 100pcs, 以 1000pcs 或 2000pcs 出货.</p>
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