

[UAM087 User Manual](#) [2A68EJX-UAM08](#)

[Manualsum](#), simplified manuals

Table of Contents

- [Shenzen Uascent UAM087-Matter User Manual](#)
 - [Overview](#)
 - [Introduction](#)
 - [Features](#)
 - [Recommended Operating Rating](#)
 - [Reference power consumption for conventional continuous operation](#)
 - [Low-power consumption](#)
 - [ESD Specifications](#)
 - [Module Use Precautions](#)
 - [WiFi Specification.](#)
 - [Bluetooth Specification.](#)
 - [Pin Descriptions](#)
 - [Pin Outline](#)
 - [Pin Definition.](#)
 - [Dimensions.](#)
 - [Module Picture.](#)
 - [Module Mechanical Dimensions.](#)
 - [PCB Layout Reference.](#)
 - [Antenna Information.](#)
 - [Antenna type.](#)
 - [Module layout considerations.](#)
 - [Environmental Requirements](#)
 - [Recommended Reflow Profile](#)
 - [Note](#)
 - [Humidity sensitive control.](#)
 - [Package.](#)
 - [Packaging Detail.](#)
 - [Transport regulations](#)
 - [Disclaimer and copyright notice](#)
 - [Attention](#)

Shenzen Uascent UAM087-Matter User Manual

(2A68EJX-UAM08)

Overview

Introduction

UAMO087 is a cost-effective WIFI+BLE module developed by Uascent Technology. It supports Bluetooth dual mode 5.2 and IEEE 802.11 b/g/n protocol standards, a lightweight TCP/IP protocol stack, STA, AP, and Direct modes, as well as the Matter protocol. Users can use this module to add networking functions to existing devices or build independent network controllers.

Features

1. Supports 20 MHz channel.
2. Standard IEEE 802.11b/g/n.
3. Support WiFi+Bluetooth 5.2.
4. Support STBC.
5. Built-in low-power 32-bit MCU speed up to 160MHz, can be used as an application processor.
6. Support STA and AP and Direct working modes.
7. Support BLE 1 Mbps.

Recommended Operating Rating

Description	Min	Typ.	Max	Unit
Ambient Temperature (TA)	-40	25	85	def.C
Vcc	3.0	3.3	3.6	V
(VOL) Output low voltage	VSS		VSS+0.3	V
(VOH) output high voltage	VCC-0.3		VCC	V

Reference power consumption for conventional continuous operation

Parameter	Condition / Notes	Typ.	Unit
	TX Mode		
RF	11b 11M	270	mA
RF	11b 54M	240	mA
RF	11n HT20 MCS7	230	mA
	RX Mode		

[Manualsum](#)

RF	11b 11M	80	mA
RF	11b 11M	80	mA
RF	11n HT20 MCS7	80	mA

Low-power consumption

Parameter	Condition / Notes	Test Time	Unit
DTIM	1 10 260	1 min	uA
444	370	1 min	uA

ESD Specifications

Item	Description	Value	Unit
Human Body Mode (HBM)	Electrostatic Discharge Tolerance under Human Body Model	+/-2	KV
CDM	Electrostatic Discharge Tolerance under Charged Device Model	+/-0.5	KV

Module Use Precautions

When using the WIFI module from Uascent Technology, a certain tolerance should be reserved for the output current of the power supply. It is recommended that the output current of the power supply be equal to or greater than 500mA, and a suitable power supply IC package should be selected. When using LDO power, attention should be paid to thermal issues, and when using DC-DC power, attention should be paid to overshoot issues at the moment of power-on.

WiFi Specification.

Features	Descriptions
Main Chipset	BEKEN : BK7238
Operating Frequency	2.412 tilda 2.462GHz
Operating Voltage	3.0 tilda 3.6V
WIFI Standard	IEE 802.11b/g/n
PHY Data Rates	Wi-Fi: 802.11b: 11,5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps HT20 MCS0-MCS7
Transmit Output Power	Wi-Fi: 802.11b@11Mbps 16±2dBm 802.11g@54Mbps 15+2dBm 802.11n@HT20 MCS7 14+2dBm

[Manualsum](#)

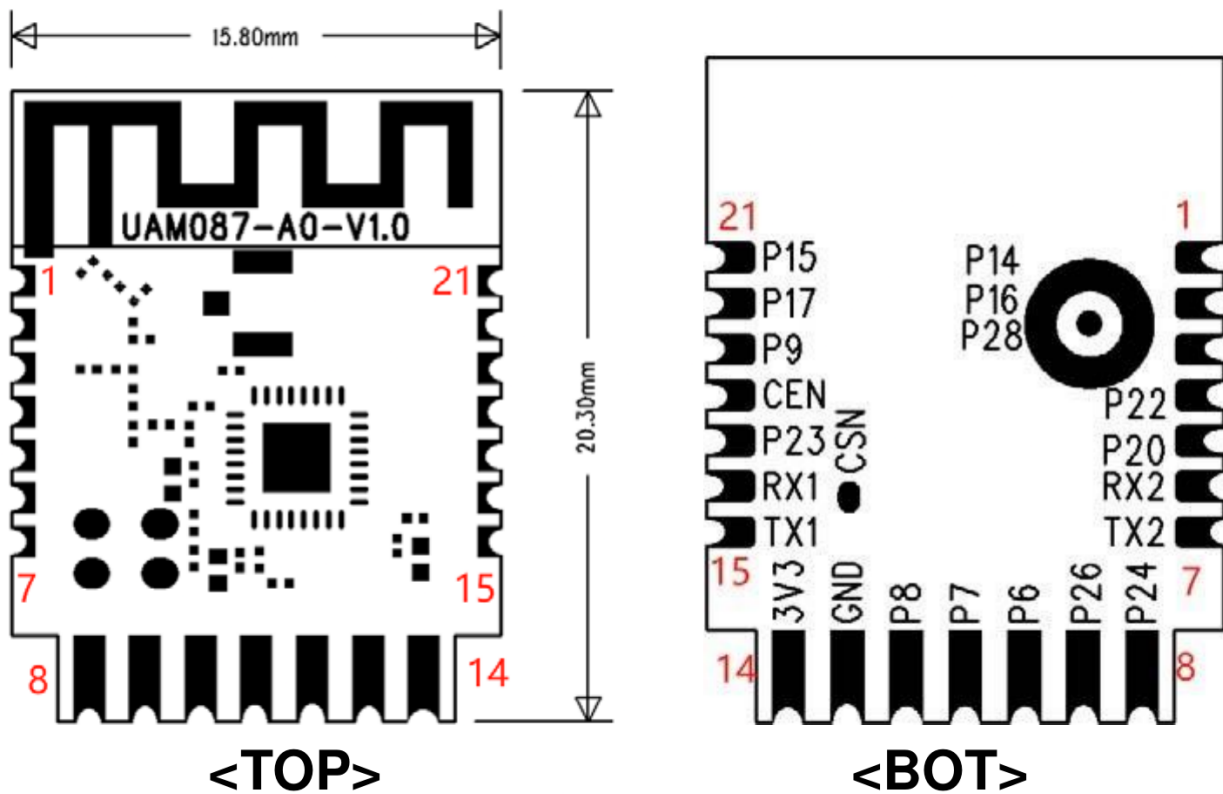
EVM	802.11b /11Mbps: EVM =-10dB 802.11g /54Mbps: EVM =-25dB 802.11n /HT20 MCS7: EVM =-27dB
Receiver Sensivity (HT20)	802.11b@8% PER11Mbps < -88dBm 802.11g@10% PER 54Mbps <-74dBm 802.11n@10% PER MCS 7 <-71dBm
Operating Channel Antenna	Wi-Fi 2.4GHz: 11: (Ch. 1-11) — United States(North America) 13: (Ch. 1-13) — Europe 14: (Ch. 1-14) — Japan PCB onboard antenna

Bluetooth Specification.

Features	Descriptions
Operating Frequency	2.402~2.480GHz
BLE Version	5.1
Data rate	Typical : 1Mbps
Tx output power	20dBm(Max)
RX sensivity (PER 1500 packet data -< 30.8%	-93dBm

Pin Descriptions

Pin Outline



Pin Definition.

Pin No.	Name	Type	Description	Voltage
1	P14	I/O	GPIO14/SPI SCK	
2	P16	I/O	GPIO16/SPI_MOSI	
3	P28	I/O	GPIO28/ADCA4	
4	P22	I/O	GPIO22	
5	P20	I/O	GPIO20/ADC3	
6	RX2	I/O	GPIO1/UART_RX2/ADC5	
7	TX2	I/O	GPIO0/UART_TX2	
8	P24	I/O	GPIO24/PWM4/12C SCL/ADC2	
9	P26	I/O	GPIO26/PWM5/12C SDA/ADC1	
10	P6	I/O	GPIO6/CLK13M/PWMO/JTAG_TCK	
11	P07	I/O	GPIO7/PWM1/JTAG_TMS	
12	P8	I/O	GPIO8/PWM2/JTAG_TDI/CLK26M	
13	GND	P	Ground	
14	3V3	P	Supply 3.3V	3.3V
15	TX1	I/O	UART_TX1/GPIO11. Prohibit pull-up. The default state for MCU docking to the serial port needs to	

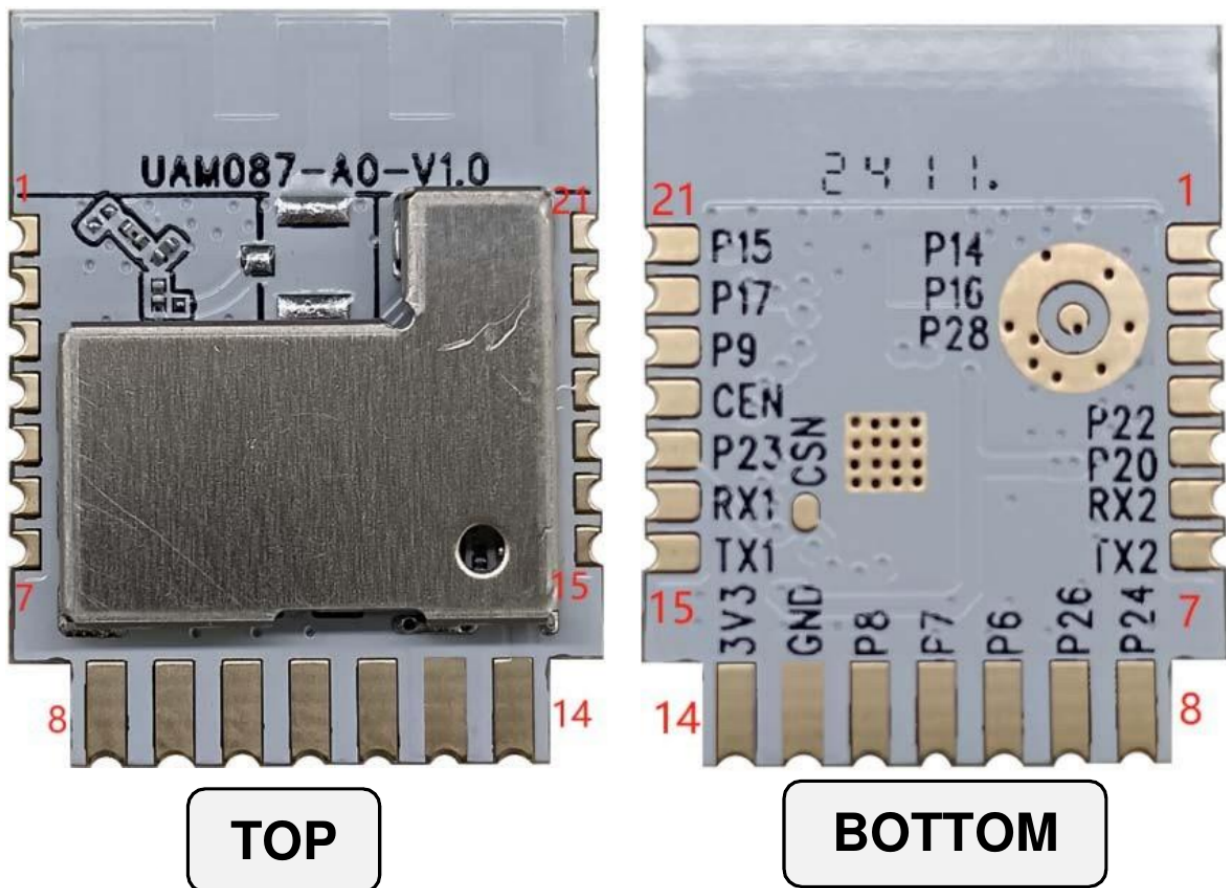
be configured as low level or high resistance state

UART_RX1/GPIO10. Prohibit pull-up. The default state for MCU docking to the serial port needs to be configured as low level or high resistance state.

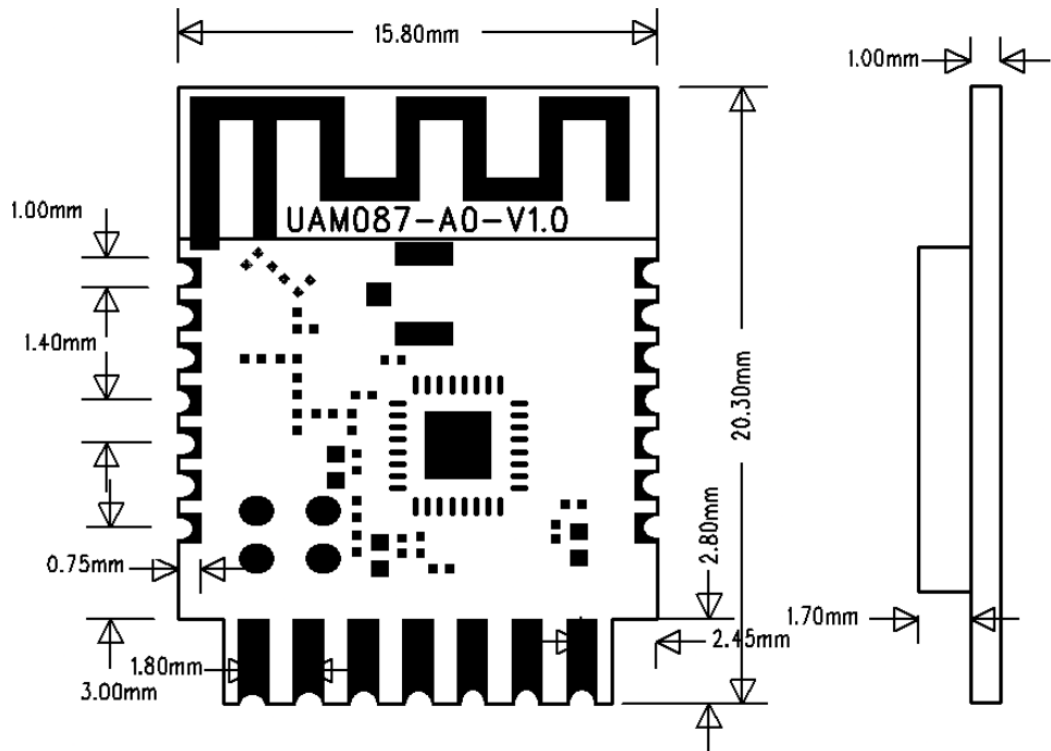
16	RX1	I/O	GPIO10
17	P23	I/O	GPIO23
18	CEN	I/O	Reset pin
19	P9	I/O	GPIO9/PWMB/JTAG_TDO
20	P17	I/O	GPIO17/SPI_MISO/I2C_SDA
21	P15	I/O	GPIO15/SPI_CSN/I2C_SCL

Dimensions.

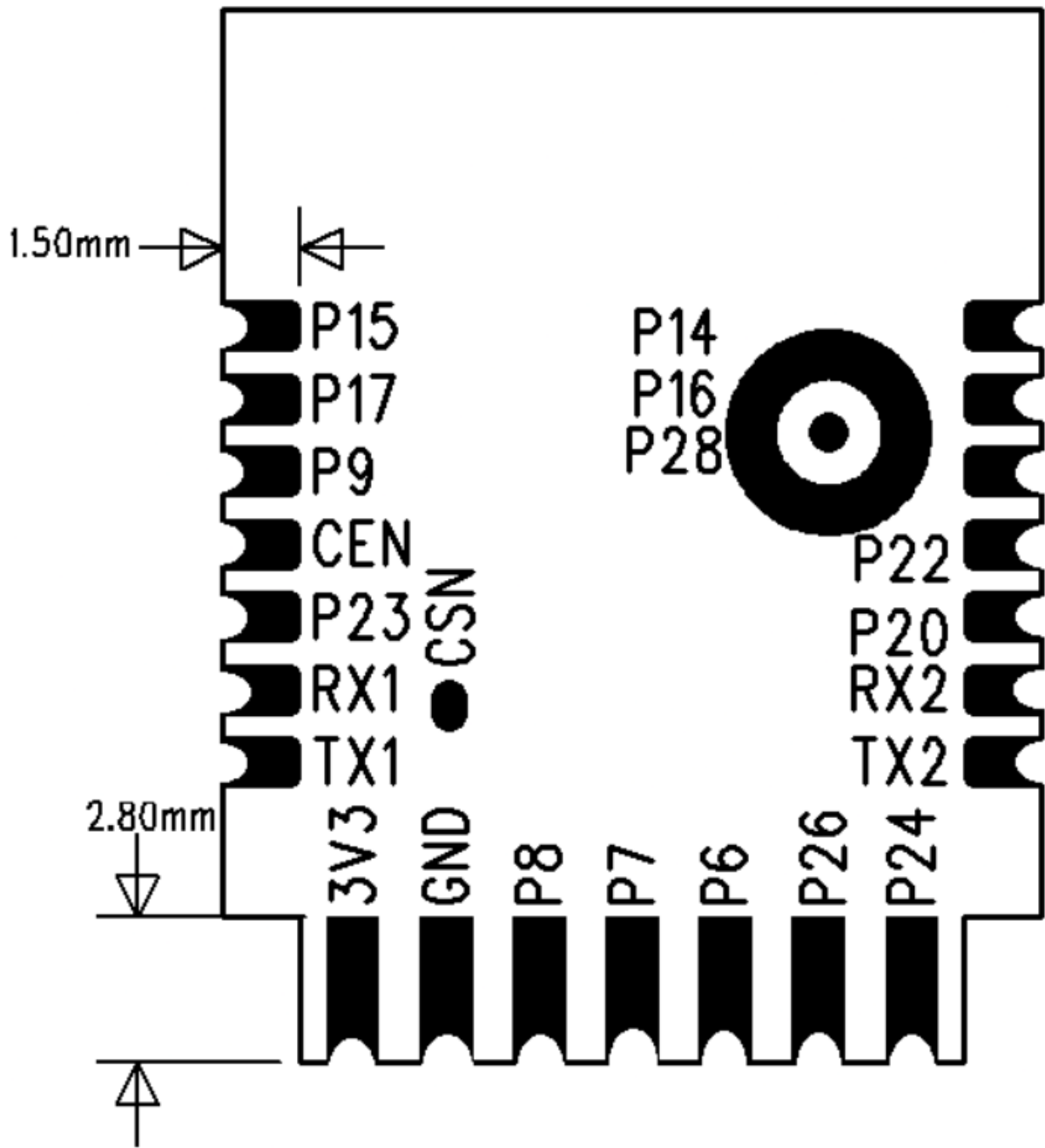
Module Picture.



L:20.30 x W:15.80 x H:2.7 (± 0.2) unit=mm

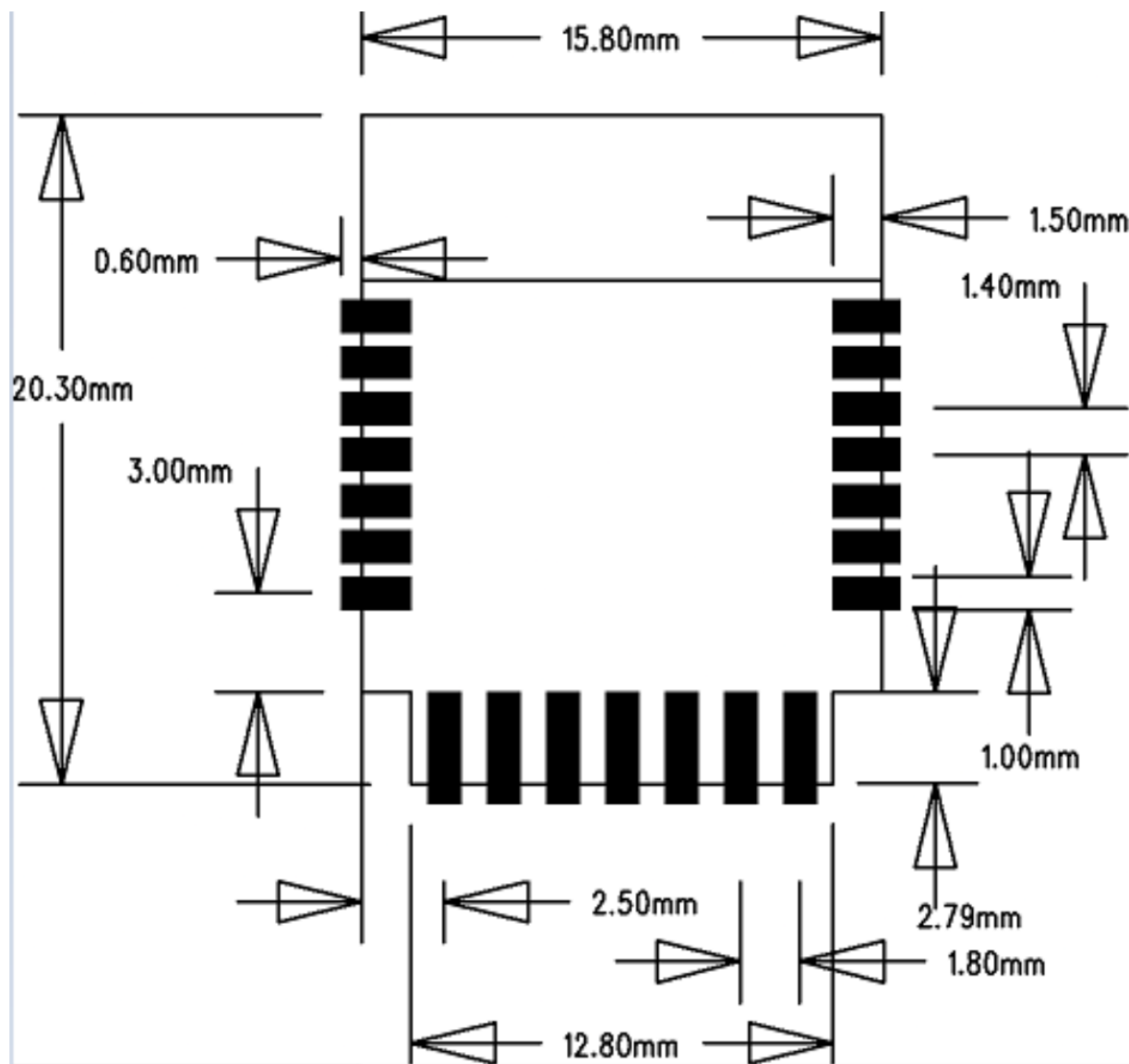


Module Mechanical Dimensions.



BOTTOM (unit=mm)

PCB Layout Reference.



(unit=mm)

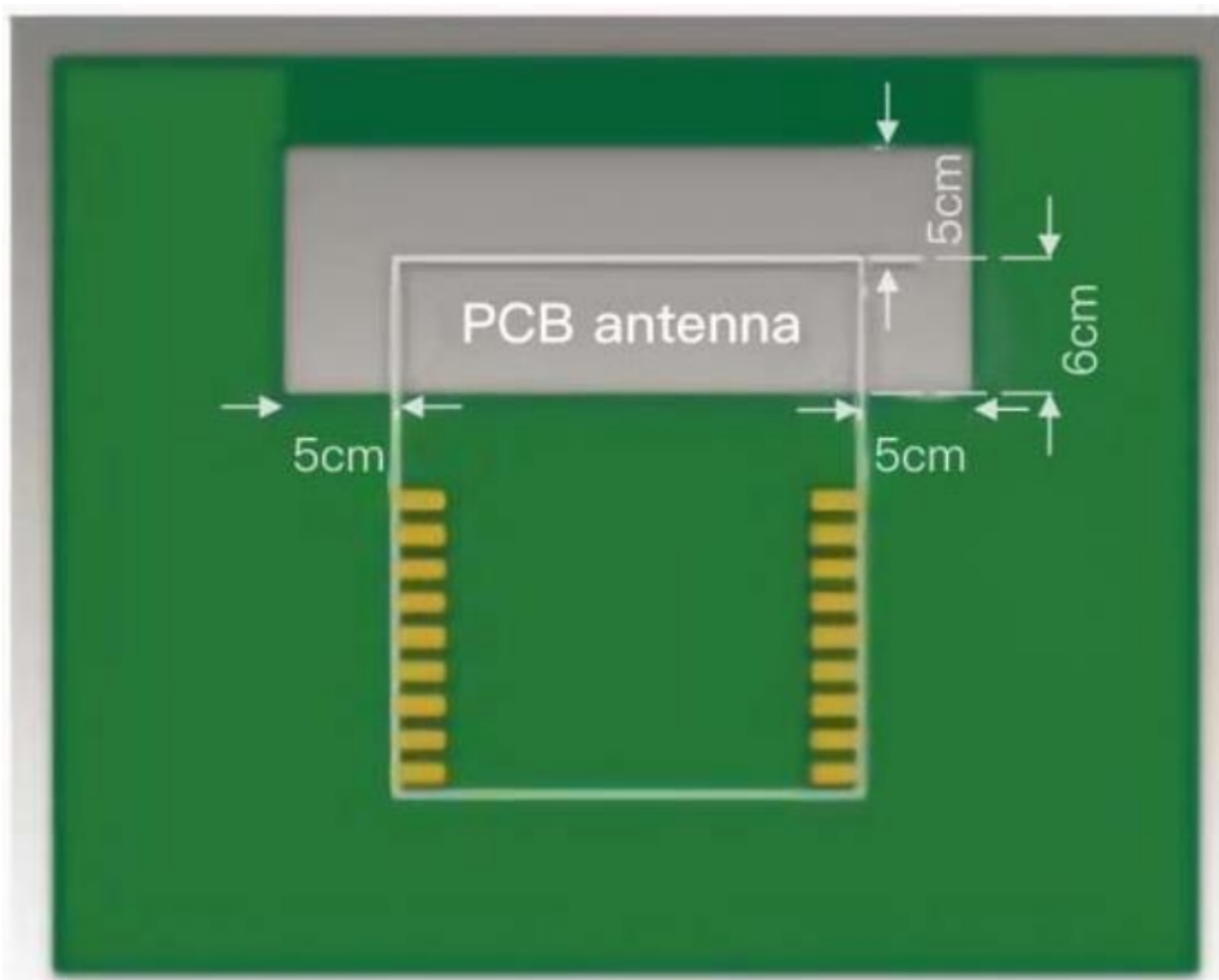
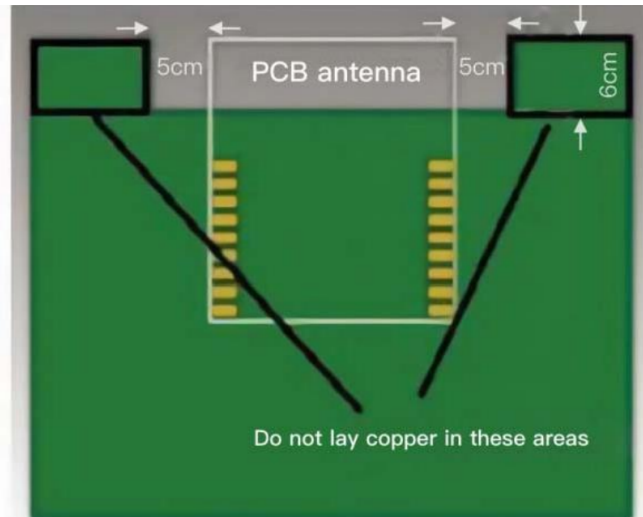
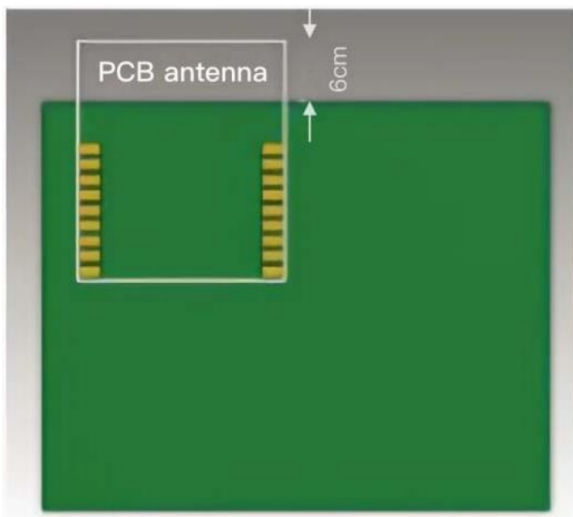
Antenna Information.

Antenna type.

This module antenna type is PCB on-board antenna with antenna gain of -1.3dBi (MAX)

Module layout considerations.

The UAMO087-A0 module shall be welded to the PCB. To obtain the best RF performance, there should be no copper laying, device, or wiring under the PCB onboard antenna. During PCB design, the corresponding area should be cleared, as shown in the following figure.



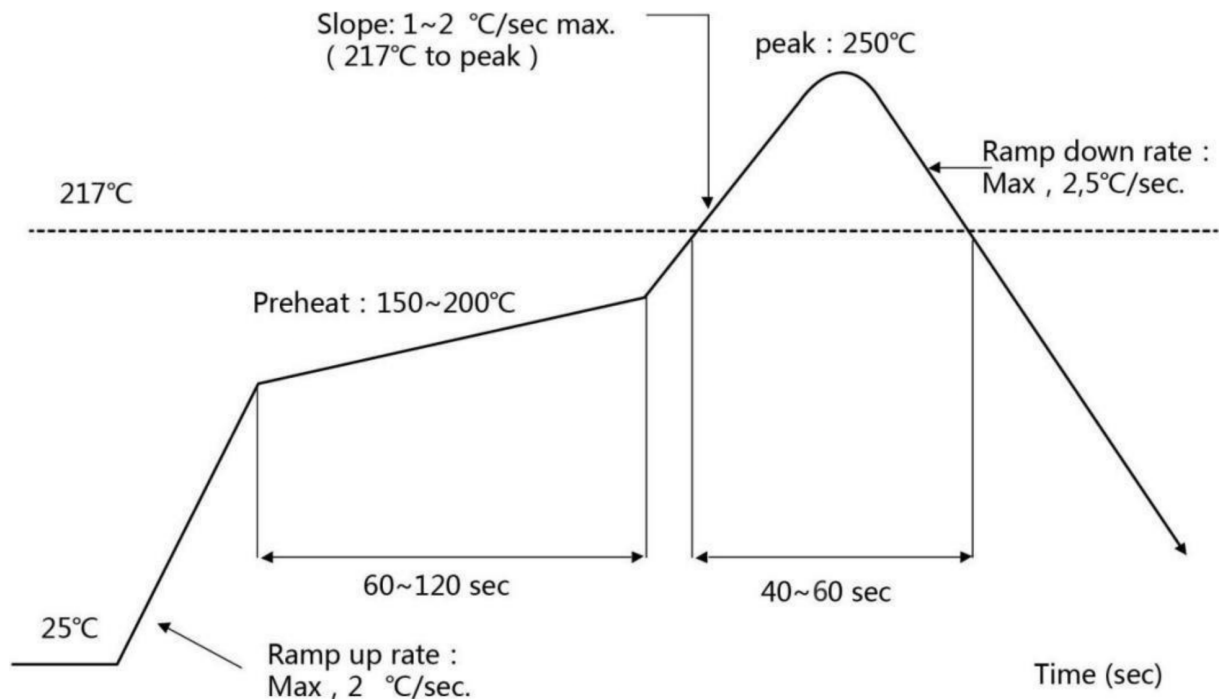
Environmental Requirements

Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times : <2 times




Note

Note: Take and use the module, please insure the electrostatic protective measures.

1. Reflow soldering temperature should be according to the customer the main size of the products, such as the temperature set at 250 + 5 C for the MID motherboard. About the module packaging, storage and use of matters needing attention are as follows:
2. The module of the reel and storage life of vacuum packing: 1). Shelf life: 8 months, storage environment conditions: temperature in: < 40 C, relative humidity: < 90% r.h.
3. The module vacuum packing once opened, time limit of the assembly: Card:1) check the humidity display value should be less than 30% (in blue), such as: 30% ~ 40% (pink), or greater than 40% (red) the module have been moisture absorption. 2.) factory environmental temperature humidity control: = -30 C, = 60% r.h. Once opened, the workshop the preservation of life for 168 hours.
4. Once opened, such as when not used up within 168 hours:
 - The module must be again to remove the module moisture absorption.
 - The baking temperature: 125 °C, 8 hours.
 - After baking, put the right amount of desiccant to seal packages.

Humidity sensitive control.

	CAUTION This bag contains MOISTUR-SENSITIVE DEICES	LEVEL 3
<small>If blank, see adjacent bar code label</small>		
1. Calculated shelf life in sealed bag: 12 months at < 40°C and <90% relative humidity(RH)		
2. Peak package body temperature : _____ 260 _____ °C		
3. After bag is opened ,devices that will be subjected to reflow solder of other high temperature process must		
a) Mounted within: _____ 168 _____ hrs. of factory conditions ≤30°C/60%RH, OR		
b) Stored at<10% RH		
4. Devices require bake,before mounting, if:		
a) Humidity Indicator Care is > 10% when read at 23 ± 5°C		
b) 3a or 3b not met.		
5. If baking is required , devices may be baked for 48 hrs. at 125 ± 5°C		
<small>Note : If device containers cannot be subjected to high temperature of shorted bake times are desired, reference IPC/JEDEC J-STD-033 for bake procedure</small>		
bag Seal Date : _____		
<small>Note : level and body temperature defined by IPC/JEDEC J-STD-020</small>		

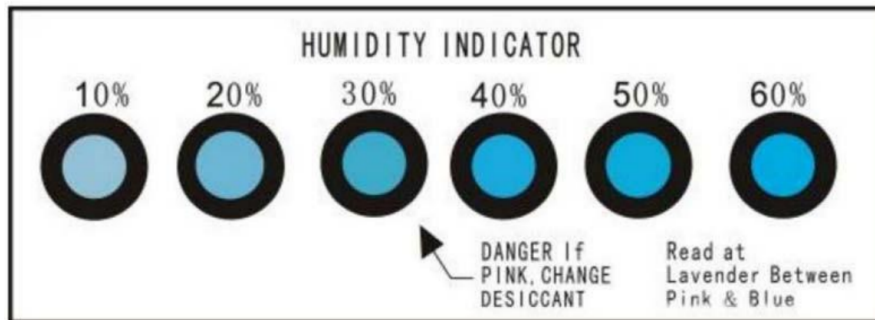
Package.

Packaging Detail.

The module and the humidity indicator card are placed together in vacuum anti-static packaging, separated by a certain amount of paper, and neatly placed in the packaging box. The packaging must have reliable moisture-proof and anti-collision measures.

Note1:

There is a "triangular arrow" on the humidity indicator card indicating at 30%RH (as shown in the picture below). If the chemical changes to pink in the circle it points to, the element is damp and needs baking.



Note2:

Please confirm the packaging style with our sales staff before purchasing this product. If no packing style is specified before purchase, we will ship the goods by our own choice of packing method.

Transport regulations

In the process of logistics or express transportation, attention should be paid to handling with care to avoid direct rain and snow.

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