

6162C-IC

Bluetooth 5.0 Module Datasheet



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	_____	Title
	_____	Signature
	_____	Date
	_____	Fn-Link

Revision History

Version	Date	Revision Content	Draft	Approved
1.0	2019/08/13	First version	Lyj	
2.0	2020/01/06	Add RF Pin 17 (Alternative) ; Change Package Information	Lyj	
2.1	2021/09/29	Added antenna information	LXY	QJP

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1 Overview

1.1 Introduction

Mesh self-organizing network type communication equipment, can efficiently and quickly form a non-central wireless broadband network; Supporting multi-hop relay can effectively expand the coverage radius of wireless network.

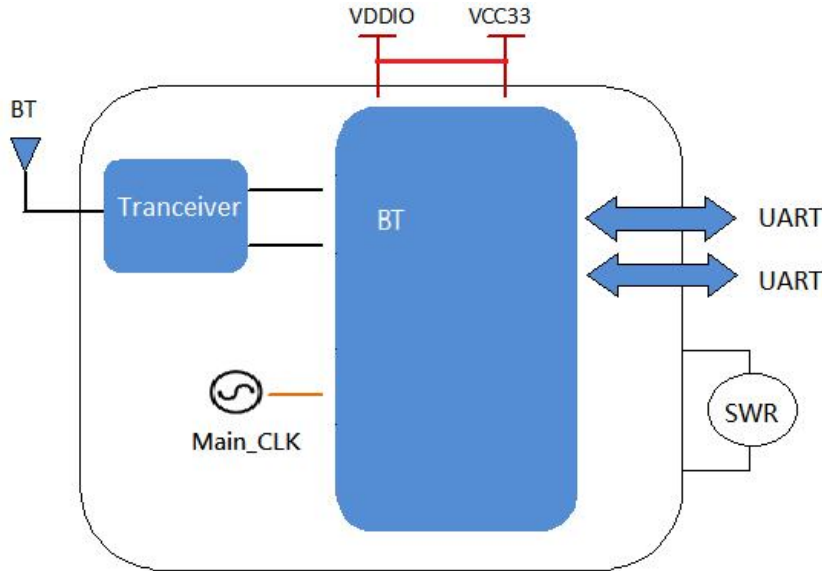
FN-link releases a low-cost, low-power Bluetooth 5.0 module with Mesh functionality. It is a highly integrated ARM Cortex-M4F 32-bit CPU, 160kByte RAM and 512kByte flash MCU, and Bluetooth 5.0 LE transceiver Mesh network solution.

The wireless module meets the Bluetooth 5.0 LE standard and provides UART interfaces for Bluetooth. Modules of moderate size, suitable for intelligent LED and other applications, can efficiently solve the complex environment such as high-rise, underground, tunnel, large complex emergency communication problems.

1.2 Features

- Supports Bluetooth 5 core specification
- Supports 2M LE , LE Long Range, LE Data Length Extensions (257 byte)
- Supports OTA (Over-the-Air)programming mechanism for firmware upgrade
- UART x 2, one for data transceiver, the other for firmware upgrade
- Embedded 4Mbits Flash
- Supports 5 GPIOs
- Embedded Switching Regulator(SWR) for low current consumption
- Package: 18.6X13X2.5mm

Block Diagram:



1.3 General Specification

Model Name	6162C-IC
Product Description	Bluetooth 5.0 Mesh only
Dimension	L x W x T: 18.6X13X2.5 (typical) mm
BT Interface	UART
Operating temperature	0°C to 70°C
Storage temperature	-40°C to 125°C

1.4 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	0	25	70	deg.C
VBAT&VDDIO	2.7	3.0	3.3	V
Power Consumption	VCC33 = 3.0V(Unit:mA)			

	BT on	11.3
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2 Bluetooth Specification

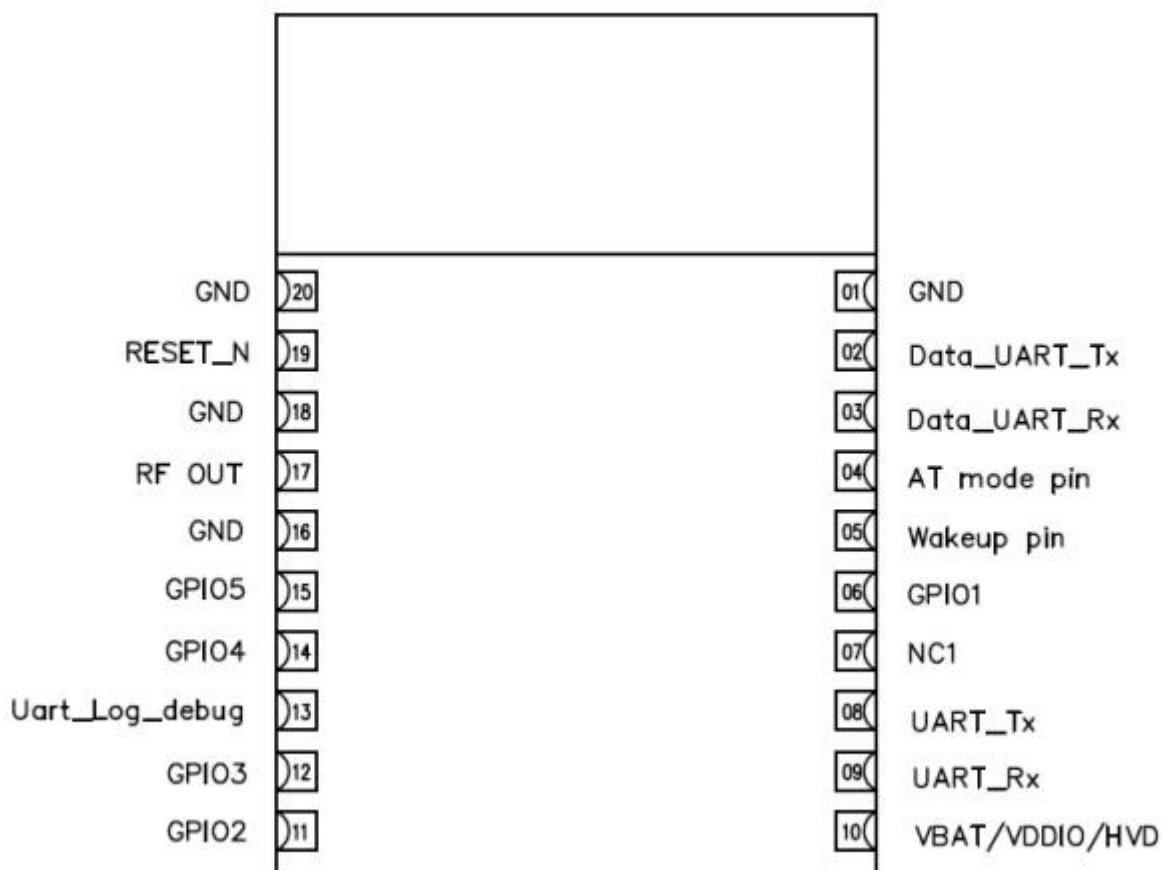
2.1 Bluetooth Specification

Feature	Description		
General Specification			
Bluetooth Standard	Bluetooth V5.0 LE		
Host Interface	UART		
Antenna Reference	On board PCB antennas		
Frequency Band	2402 MHz ~ 2480 MHz		
Number of Channels	40 (3 Advertising + 37 Data)		
Modulation	GFSK		
RF Specification			
	Min.	Typical.	Max.
Output Power	0 dBm		8 dBm
Sensitivity @ BER=0.01% for LE 1Mbps	-97 dBm		-90 dBm
Sensitivity @ BER=0.01% for LE 2Mbps	-97 dBm		-90 dBm
Maximum Input Level	LE 1Mbps:-20dBm		
	LE 2Mbps :-20dBm		

3 Pin Assignments

3.1 Pin Outline

< TOP VIEW >



3.2 Pin Definition

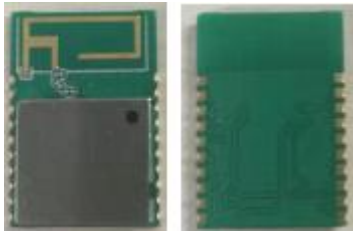
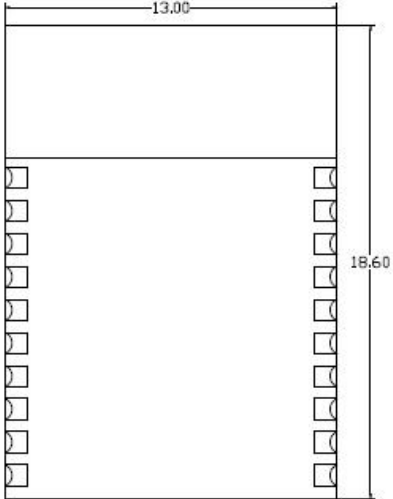

NO	Name	Type	Description	Voltage
1	GND	P	Ground connections	
2	Data_UART_Tx	O	Bluetooth UART interface _ Data Output	
3	Data_UART_Rx	I	Bluetooth UART interface _ Data Input	
4	AT mode pin	I/O	Bluetooth Transceiver or Local Recognition 1: Bluetooth Transceiver 0: Local Recognition	
5	Wakeup pin	I	Bluetooth UART event wakeup	
6	GPIO1	I/O	GPIO (P2_2)	
7	NC1	—	No connect	
8	Uart_Tx	O	Software Upgrade UART interface _Data Output	
9	Uart_Rx	I	Software Upgrade UART interface _Data Input	
10	VBAT/VDDIO/HVD	P	I/O Voltage supply input 3.3V	
11	GPIO2	I/O	GPIO (P0_1)	
12	GPIO3	I/O	GPIO (P0_2)	
13	Uart_Log_debug	I/O	Log_Uart Interface_ Data Output; Connect to GND for upgrade software (P0_3)	
14	GPIO4	O	GPIO (P0_5)	
15	GPIO5	I/O	GPIO (P0_6)	
16	GND	—	Ground connections	
17	RF OUT	—	RF OUT PIN (Alternative)	
18	GND	—	Ground connections	
19	Reset	I	Reset (Low active)	
20	GND	P	Ground connections	

P:POWER I:INPUT O:OUTPUT

4 Dimensions

4.1 Module Picture

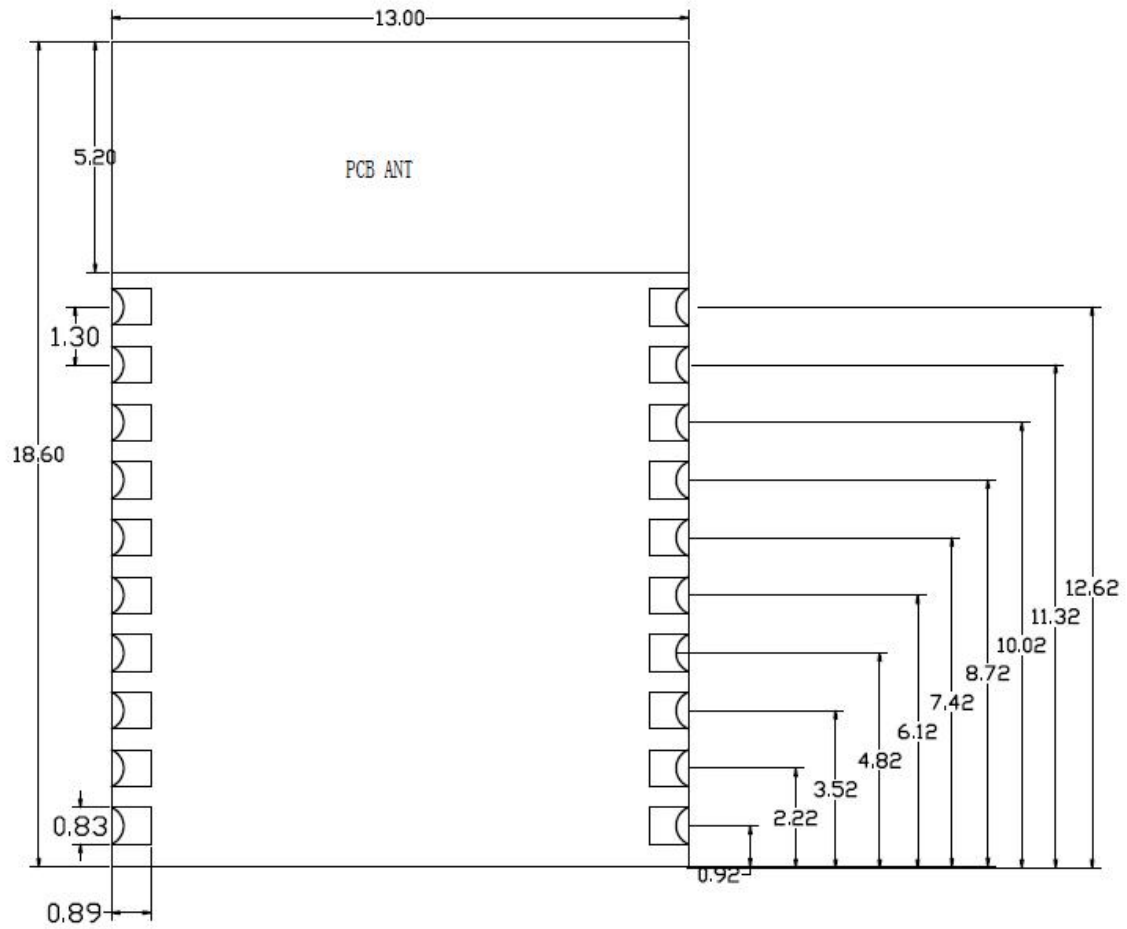
(Unit: mm)

<p>L x W : 13 x 18.6 (+0.3/-0.1) mm</p> 	
<p>H: 2.5 (±0.2) mm</p>	
<p>Weight</p>	<p>0.8g</p>

4.2 Module Physical Dimensions

(Unit: mm)

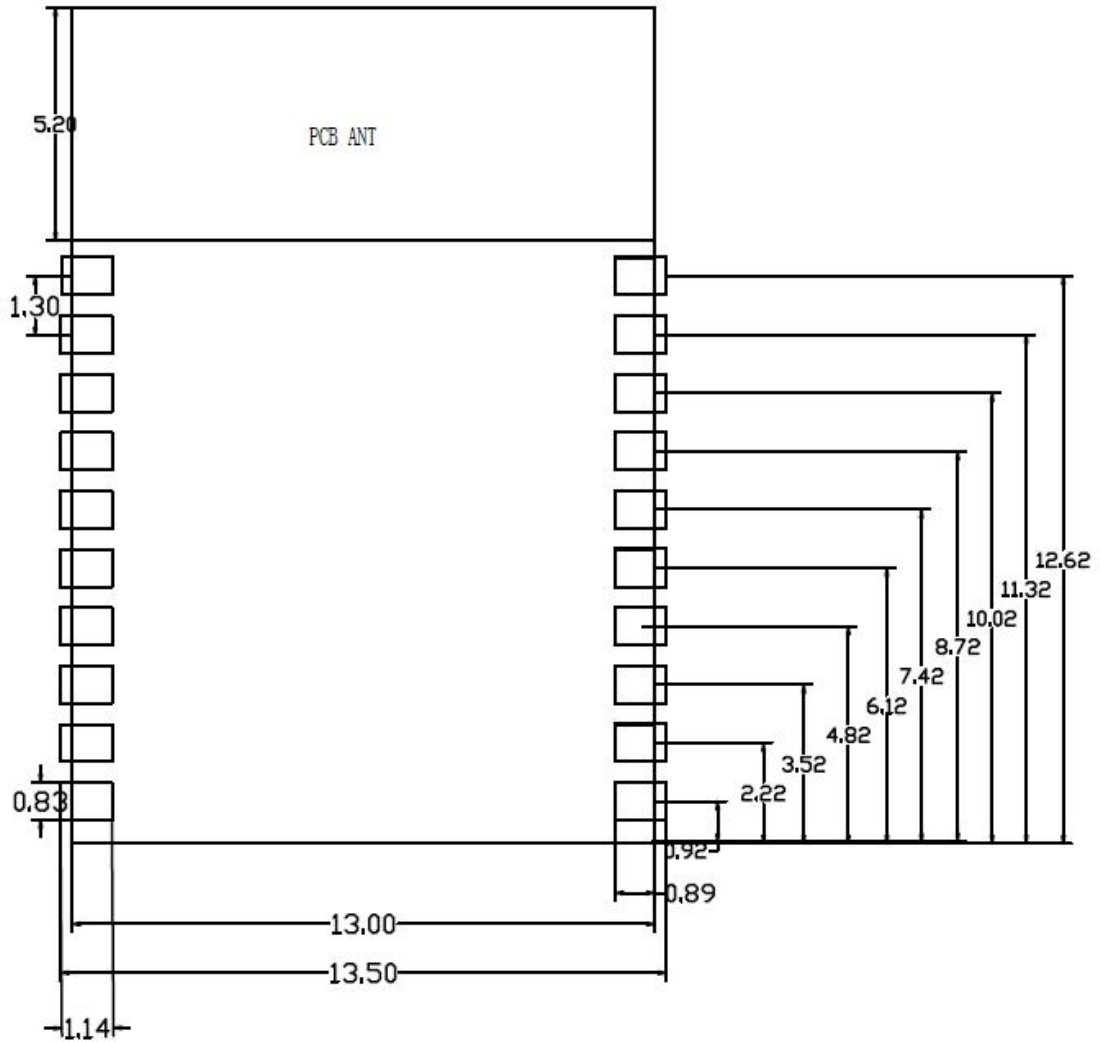
< TOP VIEW >



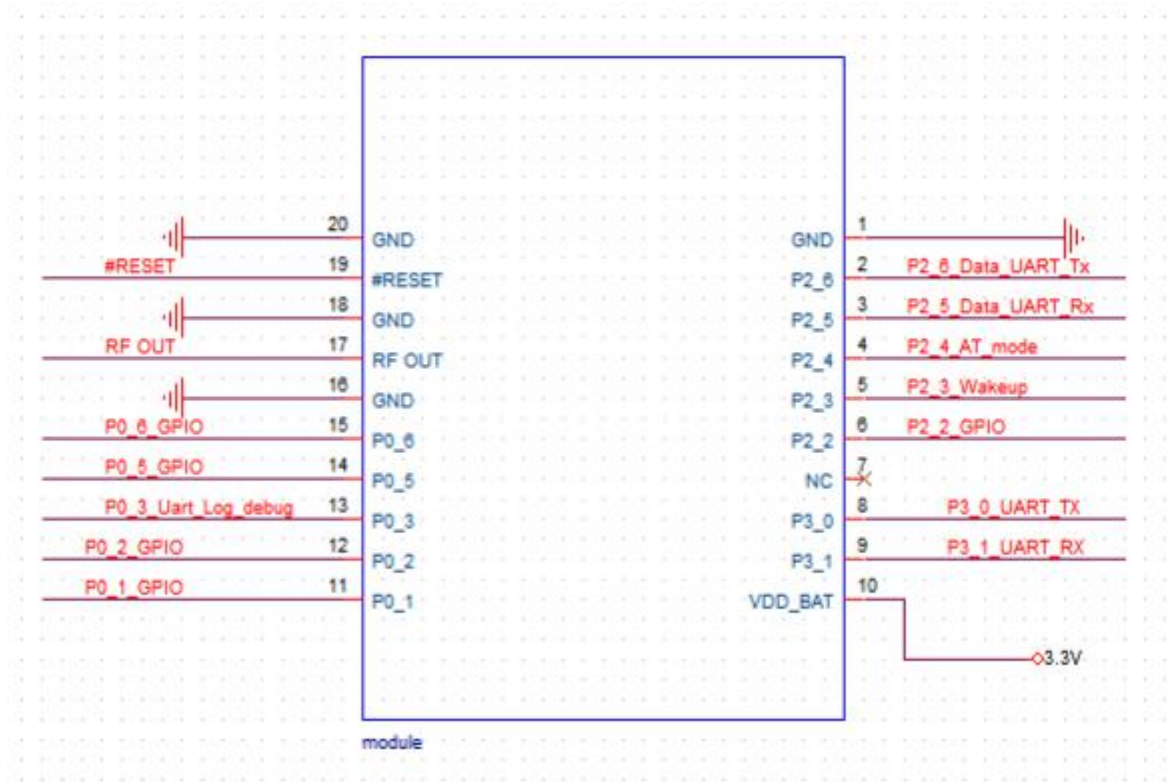
4.3 Layout Recommendation

(Unit: mm)

< TOP VIEW >



5 Reference Design



6 Ordering Information

Part No.	Description
FG6162CICX-01	6162C-IC RTL8762CMF QFN40_5x5 PCB 天线 BT5.0+UART 带 RF 输出 PCB 版本 V2.0

7 The Key Material List

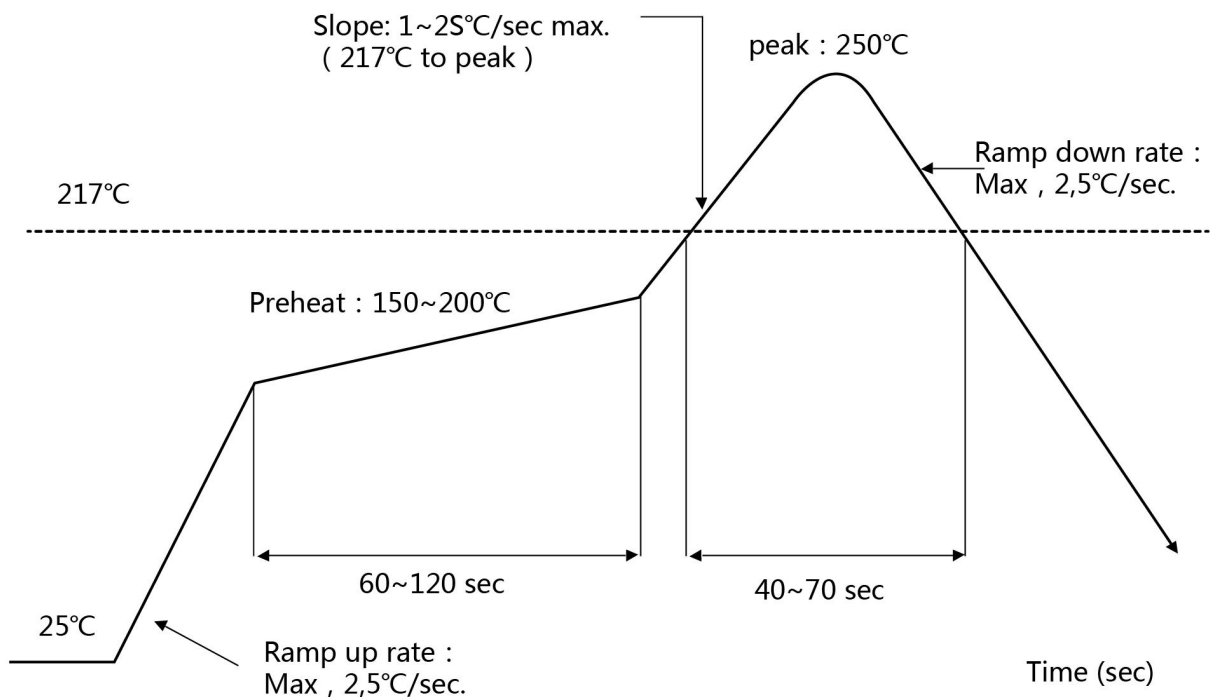
Shielding cover	6162C-IC shielding, 1.5*11.33*10.36mm, copper	信太, 精力通
Crystal	3225 40MHz 9pF +/-10PPM	TKD, ECEC, TXC, HO SONIC, JWT
Chipset	RTL8762CMF-CG QFN40_5x5 Realtek 1T1R BT5.0+UART Mesh only	Realtek

8 Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times : ≤2 times



9 Package Information

9.1 Tray

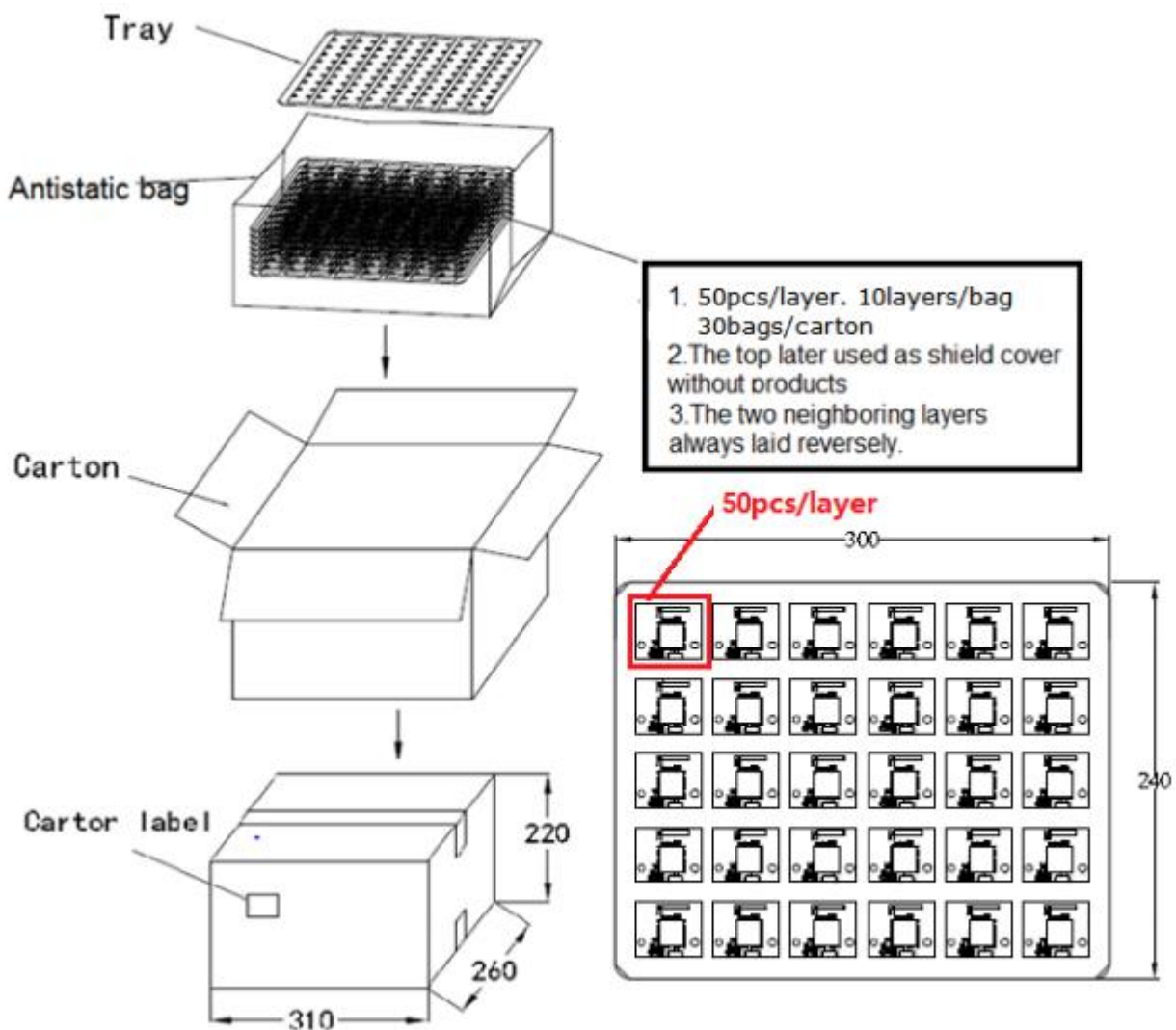
Note: The package information will be updated in next revision of this document.

Layer size: 206X150X5mm

Layer material: PVC

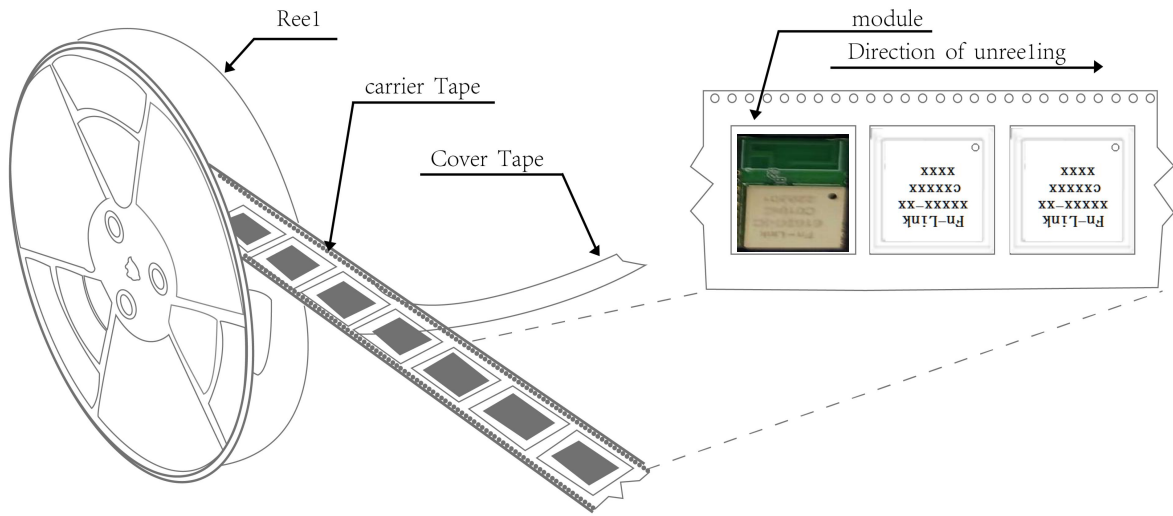
Carton size: L310.0*W260.0*H220.0 mm

Carton material: A=A

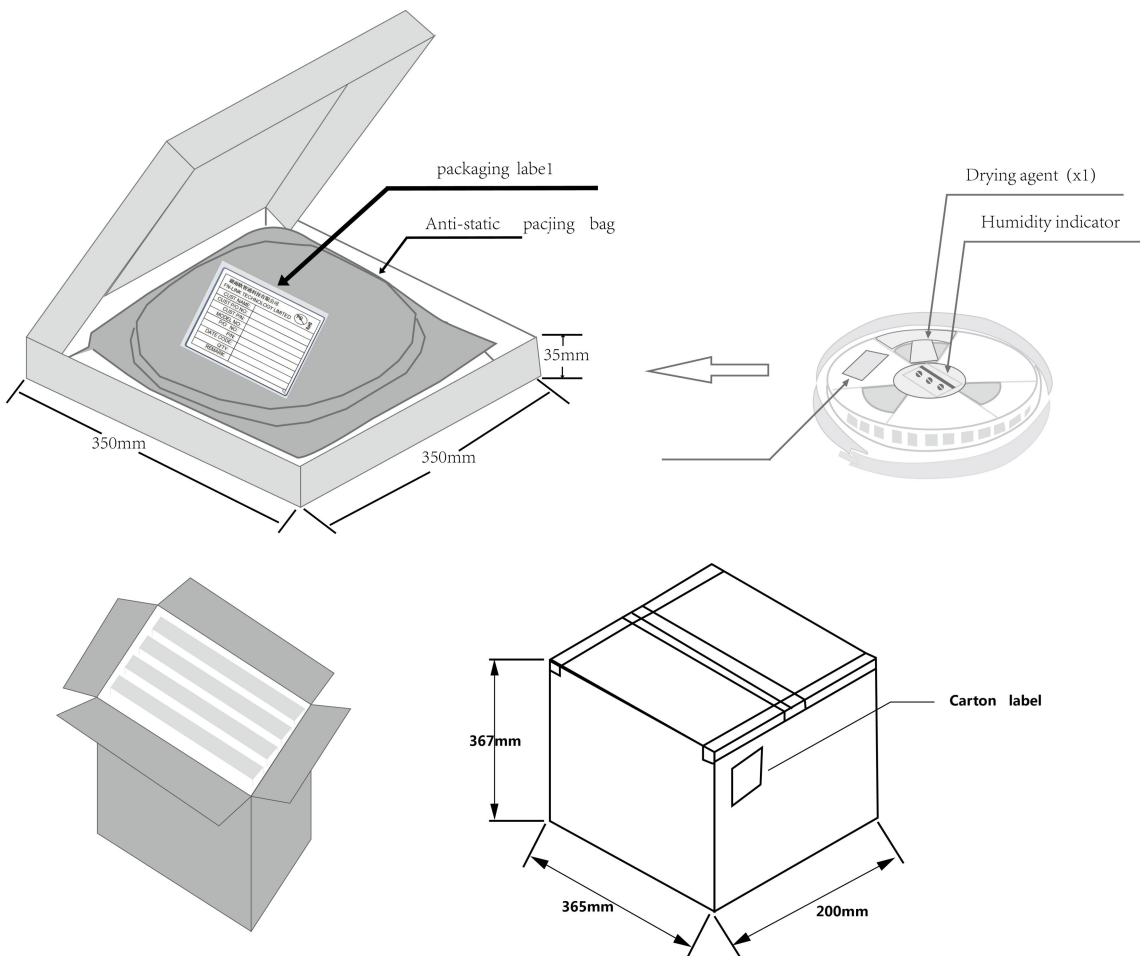


9.2 Reel

A roll of 1500pcs



9.3 Packaging Detail



10. Moisture sensitivity

The Modules is a Moisture Sensitive Device level 3, in according with standard IPC/JEDEC J-STD-020, take care

all the relatives requirements for using this kind of components.

Moreover, the customer has to take care of the following conditions:

- a) Calculated shelf life in sealed bag: 12 months at <40°C and <90% relative humidity (RH).
- b) Environmental condition during the production: 30°C / 60% RH according to IPC/JEDEC J-STD-033A paragraph 5.
- c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition
- b) "IPC/JEDEC J-STD-033A paragraph 5.2" is respected
- d) Baking is required if conditions b) or c) are not respected
- e) Baking is required if the humidity indicator inside the bag indicates 10% RH or more

11. Antenna information

Passive Test For 2.4G-WiFi-BT				
Freq	Effi	Effi	Gain	Directivity
(MHz)	(%)	(dB)	(dBi)	(dBi)
2402	33.06086666	-4.80685766	0.596544263	5.403401923
2412	34.71075127	-4.595359865	0.850577626	5.445937492
2422	36.45901287	-4.381950941	1.142354022	5.524304963
2432	39.03536364	-4.085417705	1.378256747	5.463674453
2442	39.96043734	-3.983697674	1.486336287	5.470033961
2452	40.61834382	-3.912777886	1.618147219	5.530925105
2462	40.32838404	-3.943891798	1.564538269	5.508430068
2472	38.8528319	-4.10577321	1.395468008	5.501241217
2482	37.29503869	-4.283489379	1.142295476	5.425784856
2492	35.01645874	-4.557277768	0.749268992	5.30654676
2502	32.21861045	-4.918931942	0.368116176	5.287048117

