



OFLYCOMM

欧飞信科技

8121N-UH

WiFi 802.11 a/n 2X2 5G Only High Power
Project version
Module Datasheet

Revision History

Version	Date	Description	Draft	Approved
3.1	2021-09-27	-Preliminary Project version	CCJ	Turbo

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1. Introduction

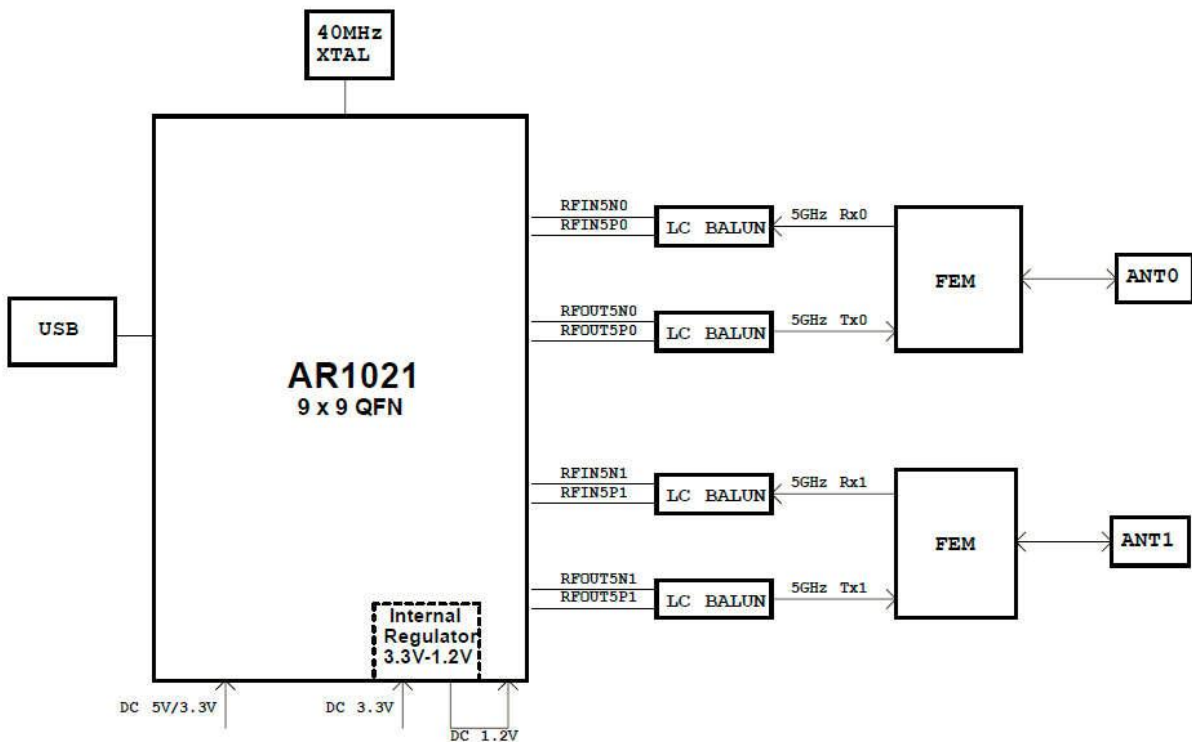
8121N-UH is a low-cost and high-power consumption module which has 5g of the WiFi functionalities. The highly integrated module makes the possibilities of web browsing, VoIP, Long-distance audio and video transmission, Wireless HDMI Extender applications. With seamless roaming capabilities and advanced security, also could interact with different vendors 802.11a/n 2x2 5G only Access Points in the wireless LAN.

The wireless module complies with IEEE 802.11 a/n 2x2 MIMO standard and it can achieve up to a speed of 300Mbps with dual stream in 802.11n to connect the wireless LAN. The integrated module provides USB interface for WiFi .

2. Features

- Highly integrated wireless local area network(WLAN) system-on-chip (SOC) for 5 GHZ 802.11a/n WLAN applications.
- Dual-stream spatial multiplexing up to 300 Mbps data rate.
- Supports 20/40MHz Bandwidth
- Supports USB interface for WLAN.
- Integrated high power FEM.

A simplified block diagram of the module is depicted in the figure below.



3. General Specification

3.1 General Specification

Model Name	8121N-UH
Product Description	Support WiFi
Dimension	L x W x H: 27 x 20 x 2.7 (typical) mm
WiFi Interface	Support USB2.0
Operating temperature	-30°C to 85°C
Storage temperature	-40°C to 125°C
Humidity	Operating Humidity 10% to 95% Non-Condensing

3.1.2 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	-30	25	85	deg.C
VCC 5V	4.8	5.0	5.2	V

3.1.3 Current consumption measurement for Real working mode

Status	VCC=5V (Unit : mA)
All off	33
Wifi on mode	31
WiFi scan mode	123
WiFi link mode	100
TX Throughput Test	396
RX Throughput Test	170

4. WiFi RF Specification

4.1 5GHz RF Specification

Feature	Description	
WLAN Standard	IEEE 802.11a/n 2x2, WiFi compliant	
Frequency Range	4.900 GHz ~ 5.845 GHz (5.0 GHz ISM Band)	
Number of Channels	5.0GHz: Please see the table ¹	
Output Power	802.11a /54Mbps : 18 dBm ± 2 dB @ EVM □ -25dB	
	802.11n /MCS7 : 18 dBm ± 2 dB @ EVM □ -28dB	
Test Items	Typical Value	Standard Value
SISO Receive Sensitivity (11a,20MHz) @10% PER	- 6Mbps PER @ -90 dBm	≤-85
	- 9Mbps PER @ -87 dBm	≤-84
	- 12Mbps PER @ -86 dBm	≤-82
	- 18Mbps PER @ -83 dBm	≤-80
	- 24Mbps PER @ -80 dBm	≤-77
	- 36Mbps PER @ -77 dBm	≤-75
	- 48Mbps PER @ -75 dBm	≤-72
	- 54Mbps PER @ -72 dBm	≤-70
MIMO Receive Sensitivity (11a,20MHz) @10% PER	- 6Mbps PER @ -90 dBm	≤-86
	- 9Mbps PER @ -89 dBm	≤-85
	- 12Mbps PER @ -88 dBm	≤-83
	- 18Mbps PER @ -86 dBm	≤-81
	- 24Mbps PER @ -83 dBm	≤-78
	- 36Mbps PER @ -80 dBm	≤-75
	- 48Mbps PER @ -75 dBm	≤-69
	- 54Mbps PER @ -69 dBm	≤-66
SISO Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -88 dBm	≤-85
	- MCS=1 PER @ -85 dBm	≤-82
	- MCS=2 PER @ -83 dBm	≤-80
	- MCS=3 PER @ -80 dBm	≤-77
	- MCS=4 PER @ -76 dBm	≤-73
	- MCS=5 PER @ -71 dBm	≤-69
	- MCS=6 PER @ -72 dBm	≤-68
	- MCS=7 PER @ -69 dBm	≤-67
MIMO Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -89 dBm	≤-82
	- MCS=1 PER @ -88 dBm	≤-80
	- MCS=2 PER @ -86 dBm	≤-79
	- MCS=3 PER @ -83 dBm	≤-78

	- MCS=4	PER @ -79 dBm	≤-74
	- MCS=5	PER @ -74 dBm	≤-68
	- MCS=6	PER @ -73 dBm	≤-66
	- MCS=7	PER @ -68 dBm	≤-64
	- MCS=8	PER @ -88 dBm	≤-84
	- MCS=15	PER @ -65 dBm	≤-63
SISO Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0	PER @ -85 dBm	≤-82
	- MCS=1	PER @ -82 dBm	≤-79
	- MCS=2	PER @ -80 dBm	≤-77
	- MCS=3	PER @ -77 dBm	≤-74
	- MCS=4	PER @ -73 dBm	≤-70
	- MCS=5	PER @ -72 dBm	≤-66
	- MCS=6	PER @ -70 dBm	≤-65
MIMO Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0	PER @ -87 dBm	≤-79
	- MCS=1	PER @ -85 dBm	≤-76
	- MCS=2	PER @ -83 dBm	≤-74
	- MCS=3	PER @ -80 dBm	≤-71
	- MCS=4	PER @ -76 dBm	≤-67
	- MCS=5	PER @ -75 dBm	≤-63
	- MCS=6	PER @ -73 dBm	≤-62
	- MCS=7	PER @ -68 dBm	≤-63
	- MCS=8	PER @ -83 dBm	≤-79
	- MCS=15	PER @ -63 dBm	≤-61
Maximum Input Level	802.11a/n : -35 dBm		
Antenna Reference	Small antennas with 0~2 dBi peak gain		

15GHz(20MHz) Channel table

Band range	Operating Channel Numbers	Channel center frequencies(MHz)
5180MHz~5240MHz	36	5180
	40	5200
	44	5220
	48	5240
5260MHz~5320MHz	52	5260
	56	5280
	60	5300
	64	5320
5550MHz~5700MHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620

	128	5640
	132	5660
	136	5680
	140	5700
5745MHz~5825MHz	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

5. Pin Assignments



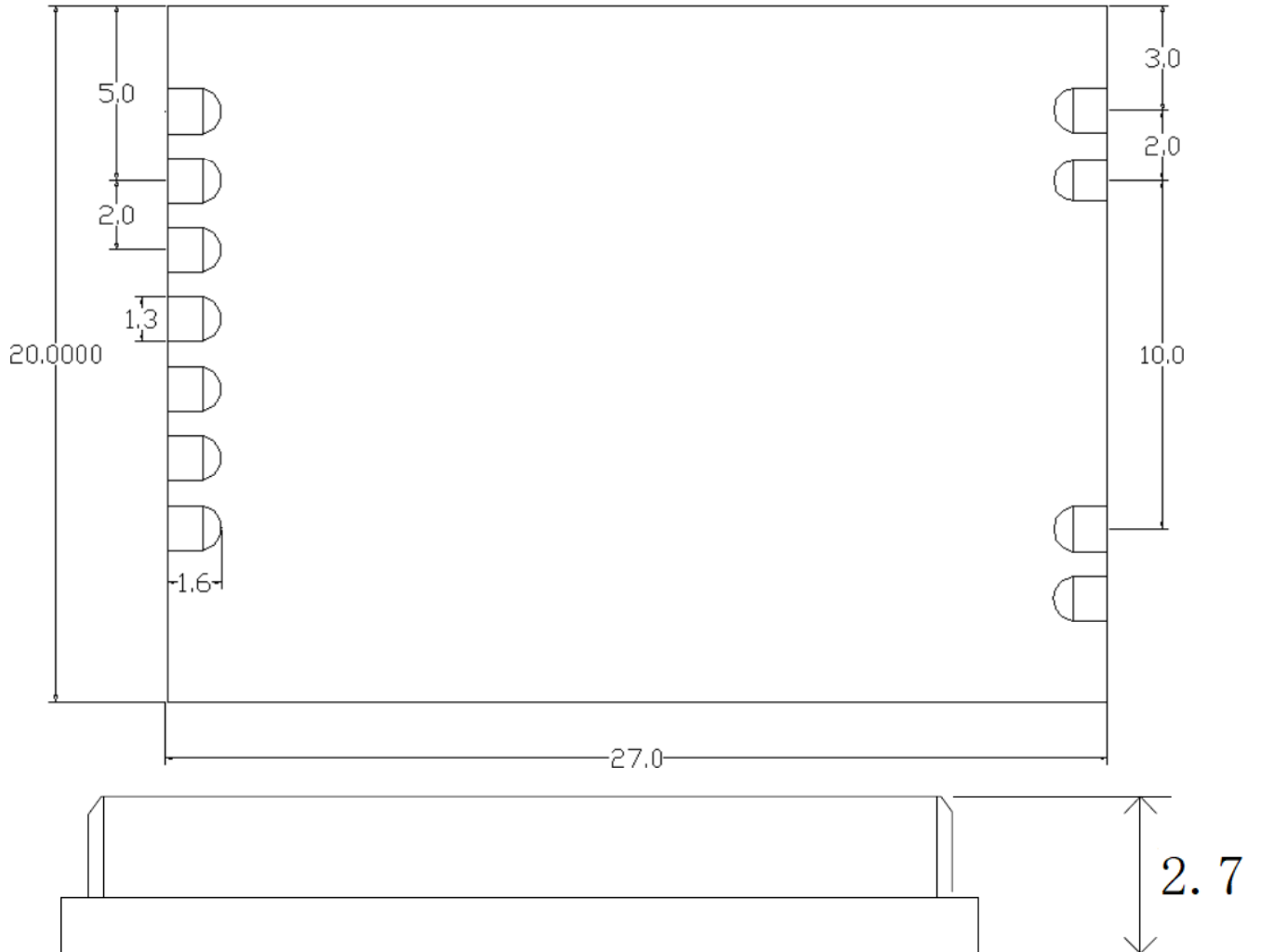
NO.	Name	Type	Description
1	POWER_EN	I	Module working enable,High: power on,low: power off. 3.3V
2	WPS	I/O	WiFi protected setup
3	GND	-	Ground
4	D+	I/O	USB2.0 Data+
5	D-	I/O	USB2.0 Data-
6	VDD5V	P	5V Power Input
7	LED	O	Driving LED to indicate WiFi state
8	GND	-	Ground
9	NC	-	Reserved for use
10	NC	-	Reserved for use
11	GND	-	Ground

6. Dimensions

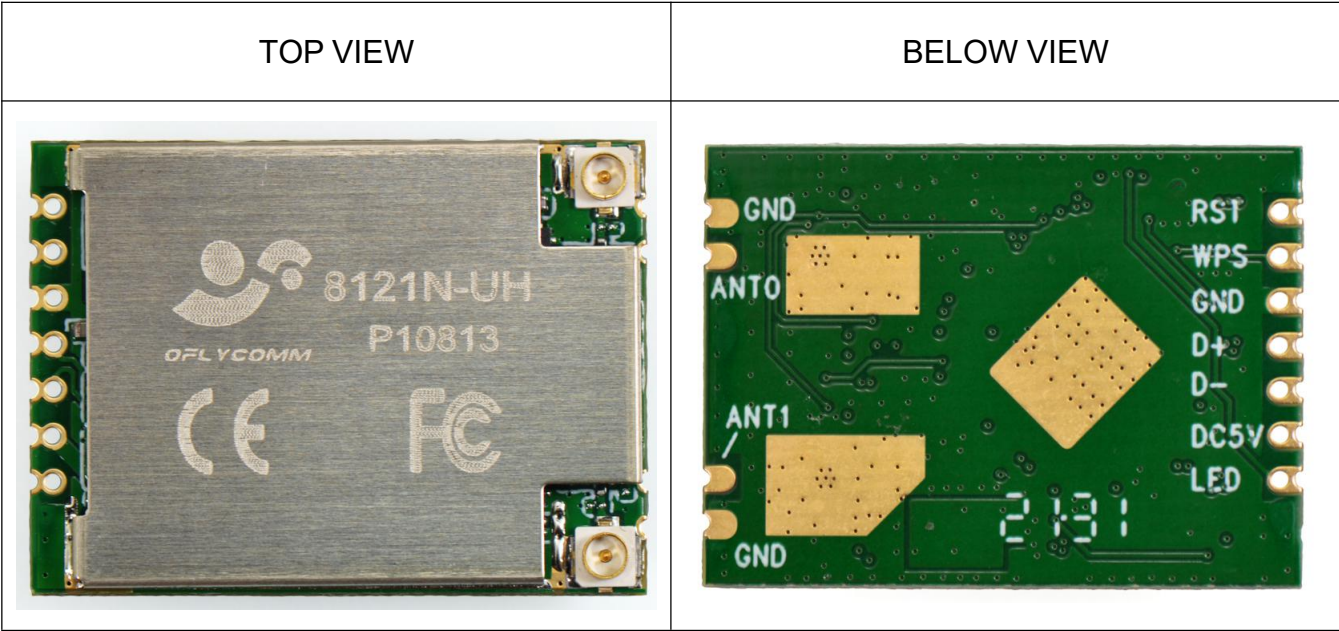
6.1 Physical Outline

(Unit: mm)

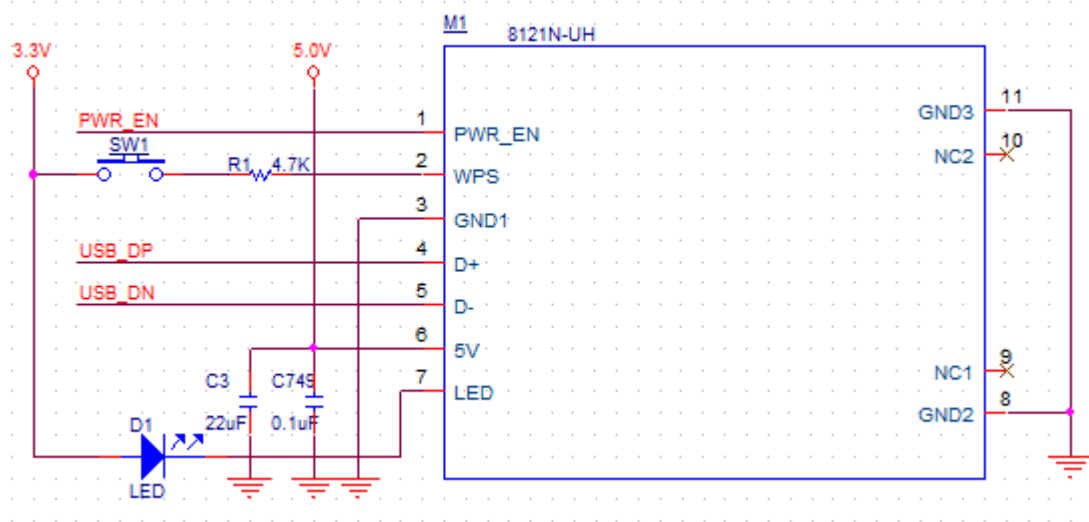
< TOP VIEW >



6.2 Module Photo



7. Reference Design

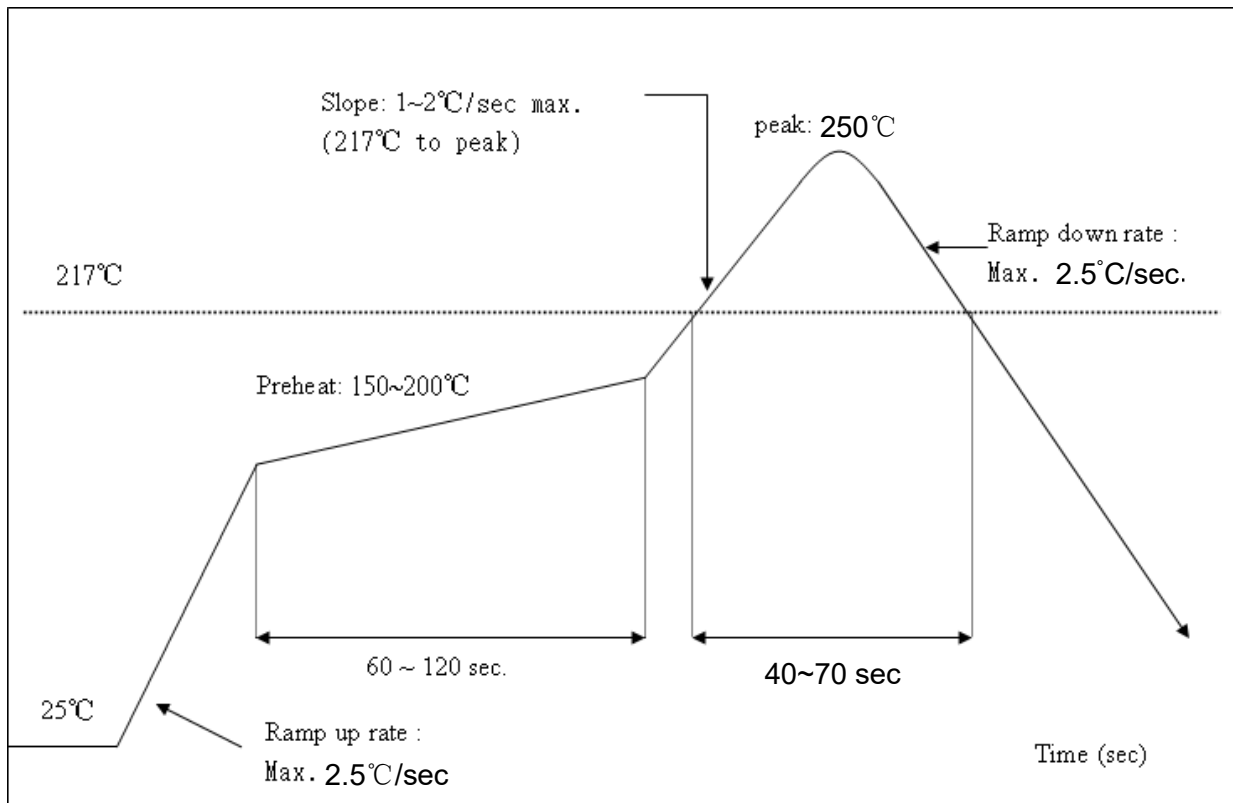


8. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature: <math><250^{\circ}\text{C}</math>

Number of Times: 2 times



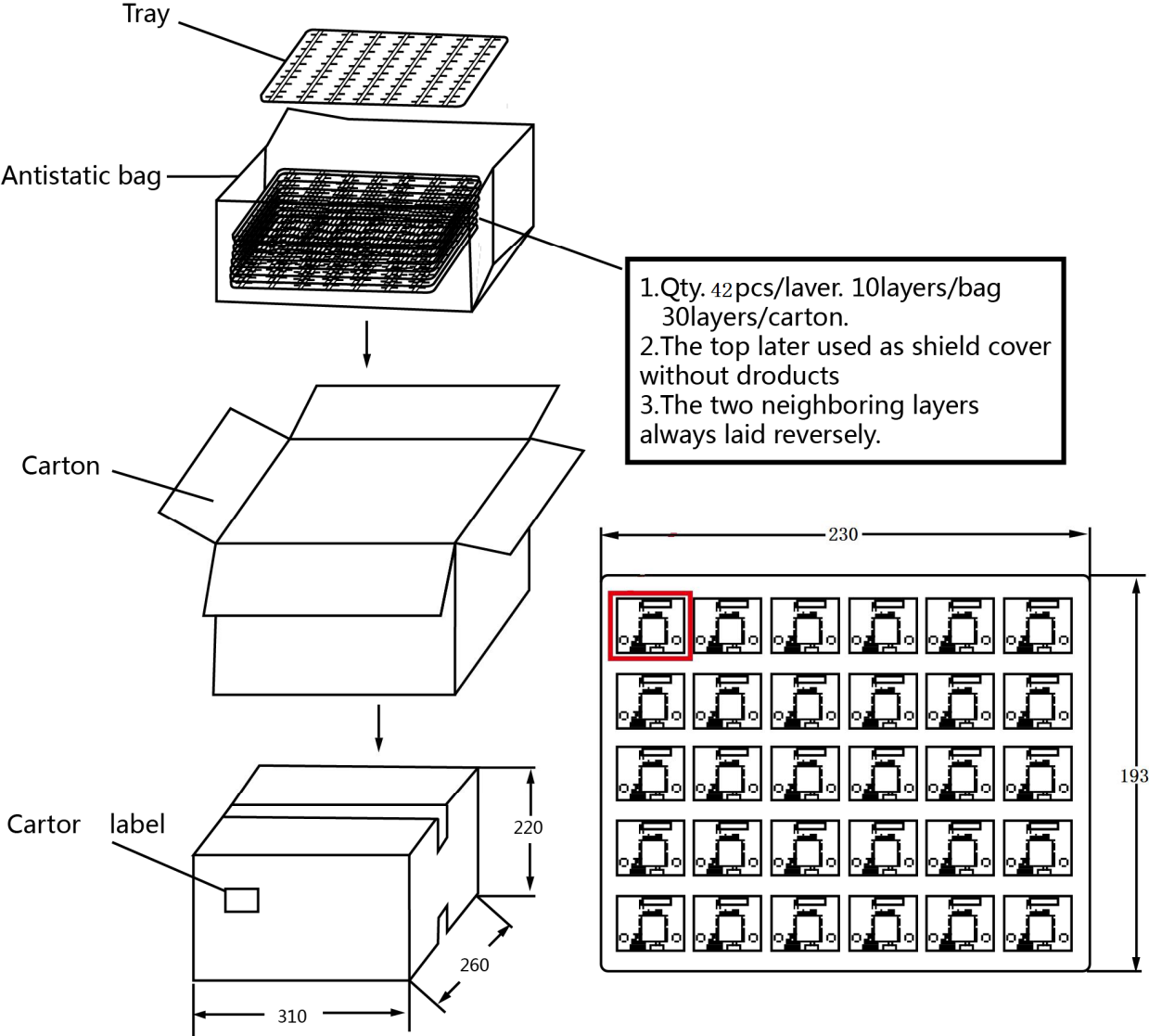
9. Package Information

Layer size: L230.0*W193.0 mm

Layer material: PVC

Carton size:

Carton material: A=A



THE END