

H155E-U

Wi-Fi Single-band 1X1 802.11b/g/n

USB Module Datasheet



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Customer Approval : _____ Company

Title

Signature

Date

Fn-Link

Revision History

Version	Date	Revision Content	Draft	Approved
1.0	2020/10/28	New version	Lxy	Szs
1.1	2020/12/25	更新载带信息	Lxy	Szs
1.2	2021/08/16	增加天线座版本	LXY	QJP

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1 Overview

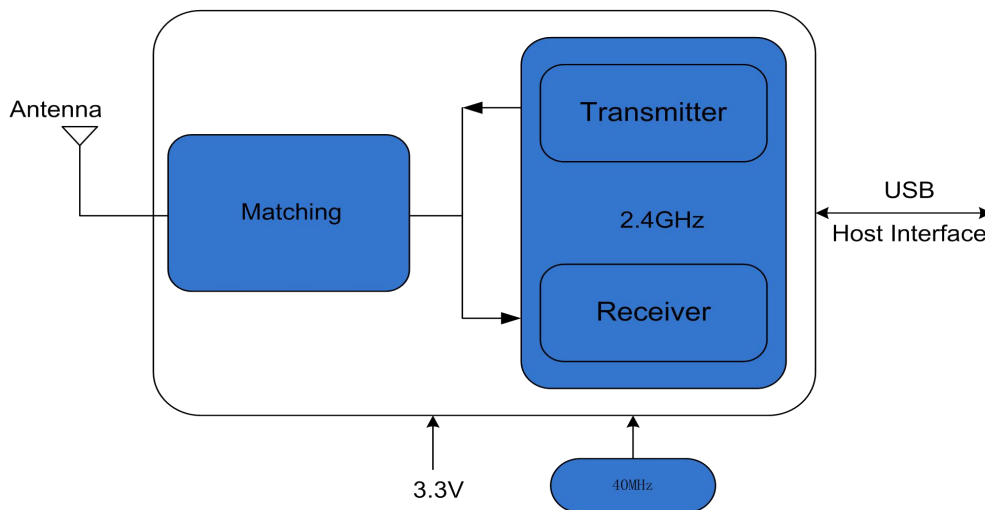
1.1 Introduction

H155E-U is a low-cost and low-power consumption module which has all of the Wi-Fi functionalities. It is a highly-integrated IEEE 802.11 b/g/n MAC/Baseband/RF WLAN single chip. For Wireless LAN(WLAN)operation. The integrated module provides USB interface for Wi-Fi . The module provides simple legacy and 20MHz/40MHz co-existence mechanisms to ensure backward and network compatibility.

1.2 Features

- Operate at ISM frequency bands (2.4GHz)
- USB2.0 for Wi-Fi
- IEEE standards support: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
- Enterprise level security which can apply WPA/WPA2 certification for Wi-Fi.
- Wi-Fi 1 T 1R allow data rates supporting up to 150 Mbps PHY rates

Block Diagram:



1.3 General Specification

Model Name	H155E-U
Main Chipset	SV6155P
Product Description	Support Wi-Fi functionality

Dimension	L x W x H: 12.2 x 13 x1.6 mm (typical)
Wi-Fi Interface	Support USB2.0
Operating temperature	-10°C to 70°C
Storage temperature	-40°C to 85°C
RoHS	All hardware components are fully compliant with EU RoHS directive

1.4 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	-10	25	70	deg.C
VCC33	3.15	3.3	3.45	V

※1.5 EEPROM Information

WI-FI

Vendor ID	-
Product ID	-

2 Wi-Fi RF Specification

2.1 2.4GHz RF Specification

Feature	Description			
WLAN Standard	IEEE 802.11 b/g/n Wi-Fi compliant			
Frequency Range	2.400 GHz ~ 2.4835 GHz (2.4 GHz ISM Band)			
Number of Channels	2.4GHz: Ch1 ~ Ch14			
Spectrum Mask	Min. b/g/n	Typ. b/g/n	Max. b/g/n	Unit b/g/n
1st side lobes(to fc ± 11MHZ)	-	-43/-30/-40	-	dBr
2st side lobes(to fc ± 22MHZ)	-	-52/-33/-58	-	dBr
Freq. Tolerance	-20/-20/-20	-	20/20/20	ppm
Test Items	Typical Value			EVM
Output Power	802.11b /11Mbps : 17dBm ± 2 dB			EVM ≤ -9dB
	802.11g /54Mbps : 15dBm ± 2 dB			EVM ≤ -26dB
	802.11n /MCS7 : 15dBm ± 2 dB			EVM ≤ -28dB
Test Items	TYP Test Value			Standard Value
SISO Receive Sensitivity	-	1Mbps	PER @ -92 dBm	≤-83

(11b,20MHz) @8% PER	- 2Mbps PER @ -90 dBm	≤-80
	- 5.5Mbps PER @ -87 dBm	≤-79
	- 11Mbps PER @ -85 dBm	≤-76
SISO Receive Sensitivity (11g,20MHz) @10% PER	- 6Mbps PER @ -89 dBm	≤-85
	- 9Mbps PER @ -88 dBm	≤-84
	- 12Mbps PER @ -87 dBm	≤-82
	- 18Mbps PER @ -84 dBm	≤-80
	- 24Mbps PER @ -81 dBm	≤-77
	- 36Mbps PER @ -78 dBm	≤-73
	- 48Mbps PER @ -73 dBm	≤-69
	- 54Mbps PER @ -71 dBm	≤-68
SISO Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤-85
	- MCS=1 PER @ -84 dBm	≤-82
	- MCS=2 PER @ -82 dBm	≤-80
	- MCS=3 PER @ -78 dBm	≤-77
	- MCS=4 PER @ -75 dBm	≤-73
	- MCS=5 PER @ -70 dBm	≤-69
	- MCS=6 PER @ -69 dBm	≤-68
	- MCS=7 PER @ -68 dBm	≤-67
SISO Receive Sensitivity (11n ,40MHz) @10% PER	- MCS=0, PER @ -86 dBm	≤-82
	- MCS=1, PER @ -83 dBm	≤-79
	- MCS=2, PER @ -81 dBm	≤-77
	- MCS=3, PER @ -78 dBm	≤-74
	- MCS=4, PER @ -74 dBm	≤-70
	- MCS=5, PER @ -69 dBm	≤-66
	- MCS=6, PER @ -68 dBm	≤-65
	- MCS=7, PER @ -66 dBm	≤-64
Maximum Input Level	802.11b : -10 dBm	
	802.11g/n : -20 dBm	
Antenna Reference	Small antennas with 0~2 dBi peak gain	

3 Power Consumption

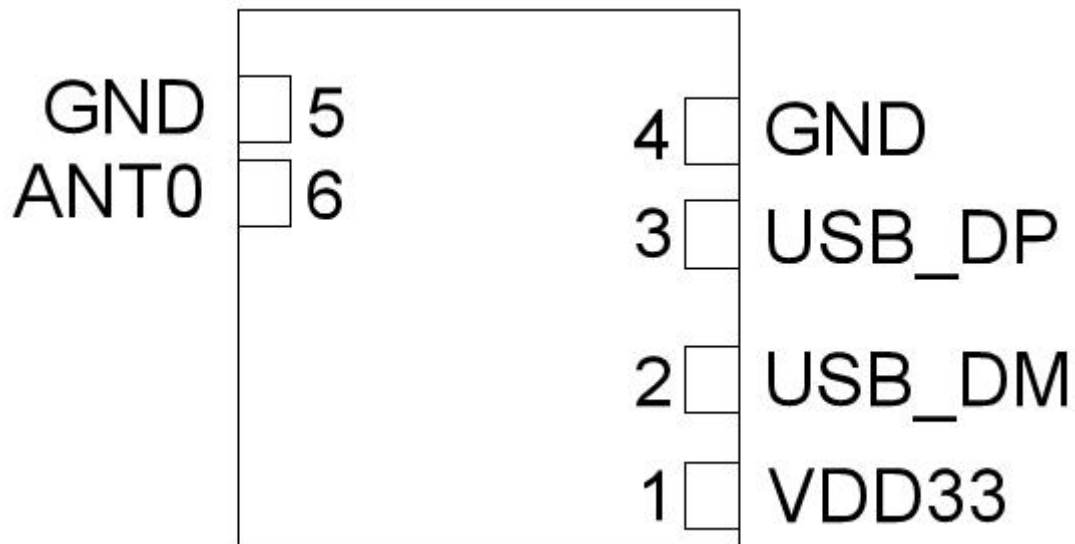
Vcc=3.3V, Ta=25° C, unit: mA	
current	Typ.
802.11b	11Mbps

TX mode	301.9
RX mode	117.9
802.11g	54Mbps
TX mode	267.5
RX mode	117.2
802.11n HT20	MCS7
TX mode	269.5
RX mode	118.9
802.11n HT40	MCS7
TX mode	275.1
RX mode	121.5
Standby mode	20

4 Pin Assignments

4.1 Pin Outline

< TOP VIEW >



4.2 Pin Definition

NO	Name	Type	Description	Voltage
1	VDD33	—	Main power voltage source input 3.3V	3.3V

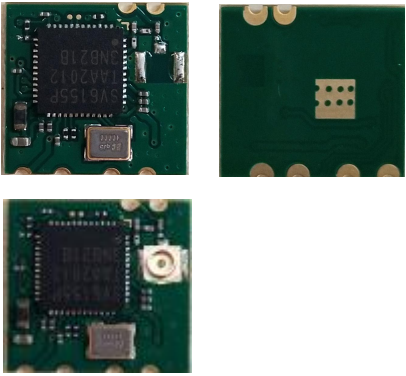
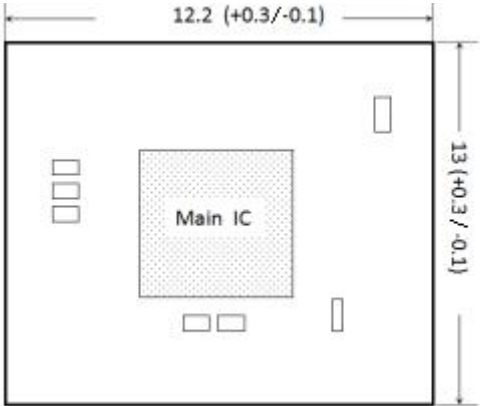
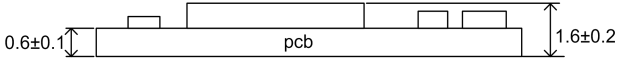
2	USB_DM	I/O	USB2.0 D- for WLAN	
3	USB_DP	I/O	USB2.0 D+ for WLAN	
4	GND	—	Ground connections	
5	GND	—	Ground connections	
6	ANT 0	I/O	RF I/O port	

P:POWER I:INPUT O:OUTPUT

5 Dimensions

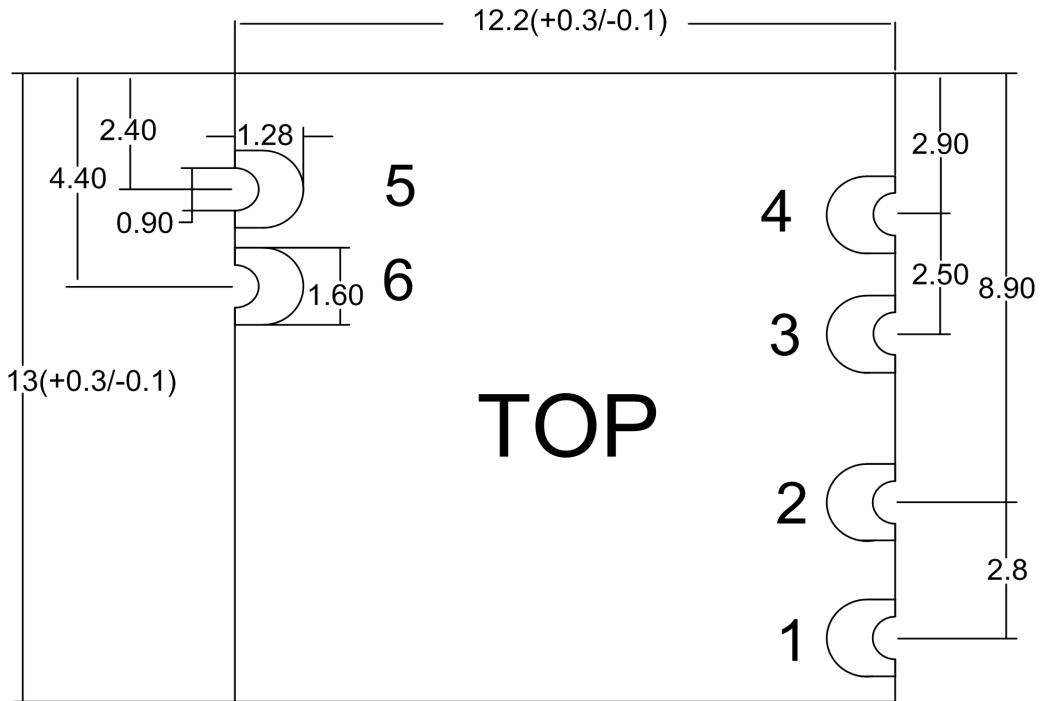
5.1 Physical Dimensions

(Unit: mm)

<p style="text-align: center;">< TOP VIEW > L x W: 12.2 x 13 mm</p> 	
<p style="text-align: center;">< Side View > H:1.6 mm</p>	
<p style="text-align: center;">Weight</p>	<p style="text-align: center;">0.37g</p>

5.2 Module Physical Dimensions

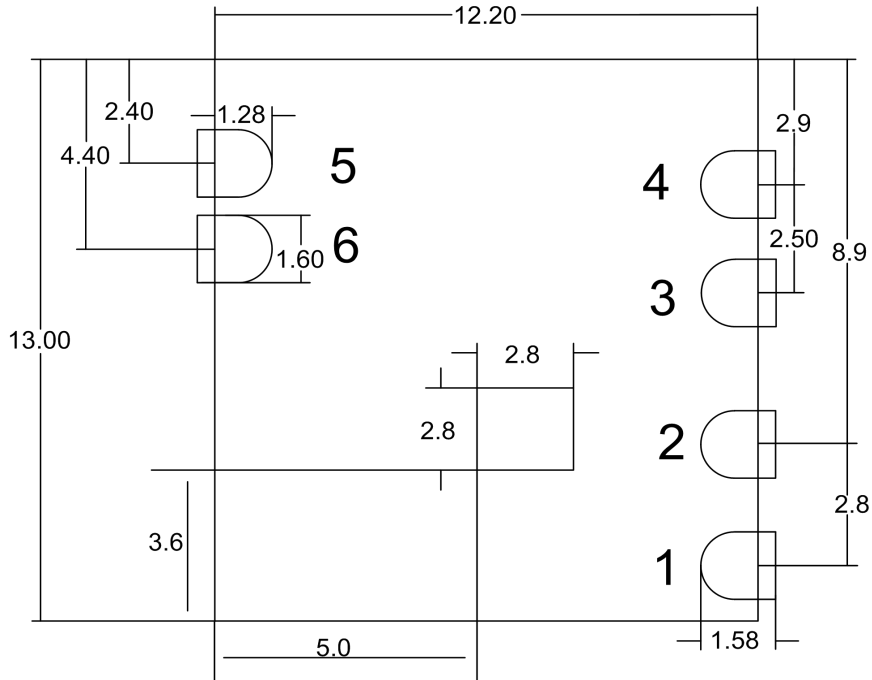
(Unit: mm)



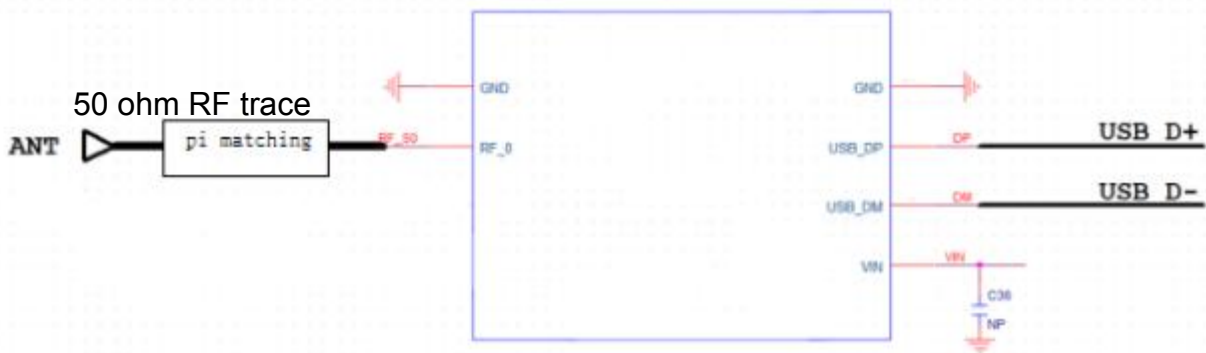
5.3 Layout Recommendation

(Unit: mm)

< TOP VIEW >

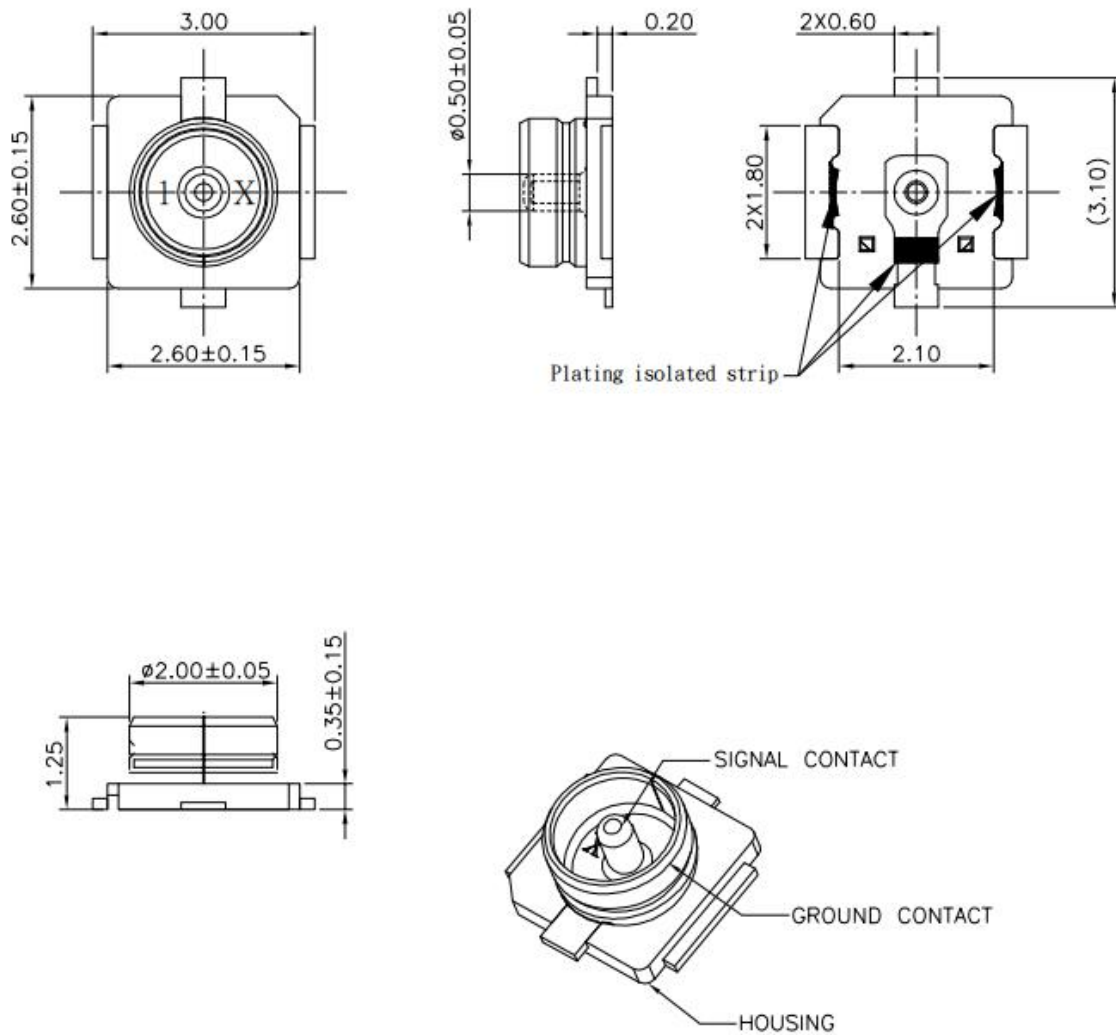


6 Reference Design



Note:

1. 邮票孔外接版本，客户主板建议预留 π ，匹配天线；
2. 建议 VCC 满足 $\geq 500\text{mA}$ ，纹波 $\leq 100\text{mV}$ ；
3. 带天线座版本，天线扣规格如下。



7 Ordering Information

Part No.	Description
FGH155EUXX-04	SV6155P,b/g/n,Wi-Fi,1T1R,12.2X13mm,USB 邮票孔
FGH155EUXX-05	SV6155P,b/g/n,Wi-Fi,1T1R,12.2X13mm,USB 天线座

8 The Key Material List

Crystal	3225 40Mhz 9PF ±10ppm -20° C~85° C	ECEC,TKD,HOSONIC,JWT
PCB	H155E-U-V1.0 green, 4L,12.2X13X0.6mm	XY-PCB,SL-PCB,KX-PCB,S unlord

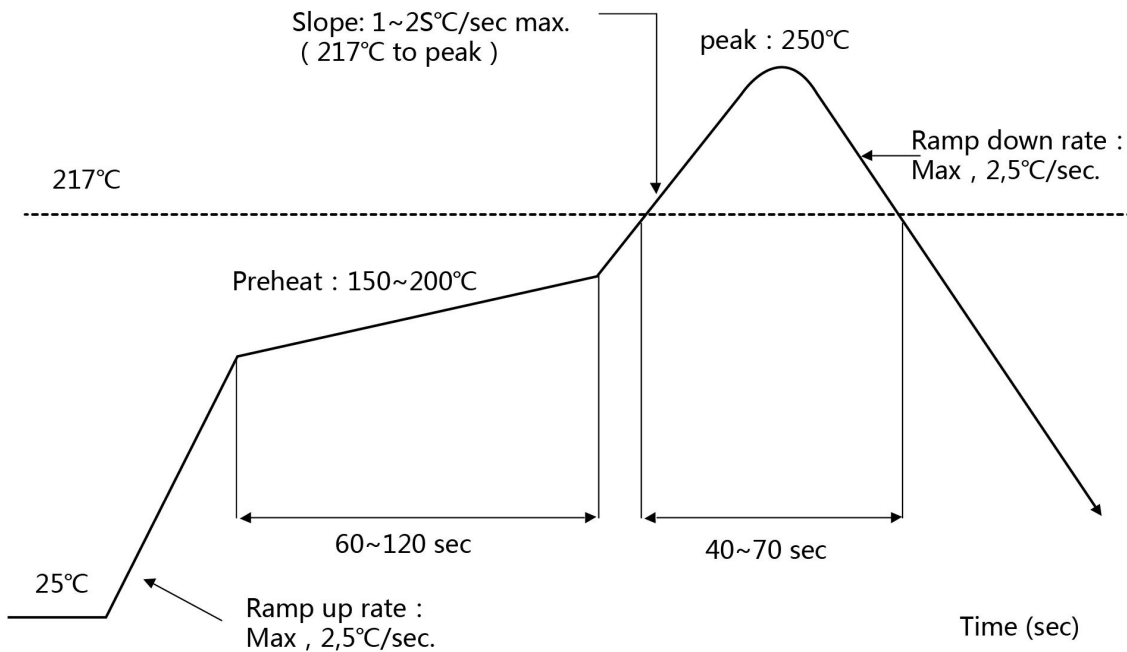
Chipset	SV6155P,802.11 b/g/n MAC/BB/Radio with USB Interface,QFN48L,0.4pitch,6x6mm	iComm-semi
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9 Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

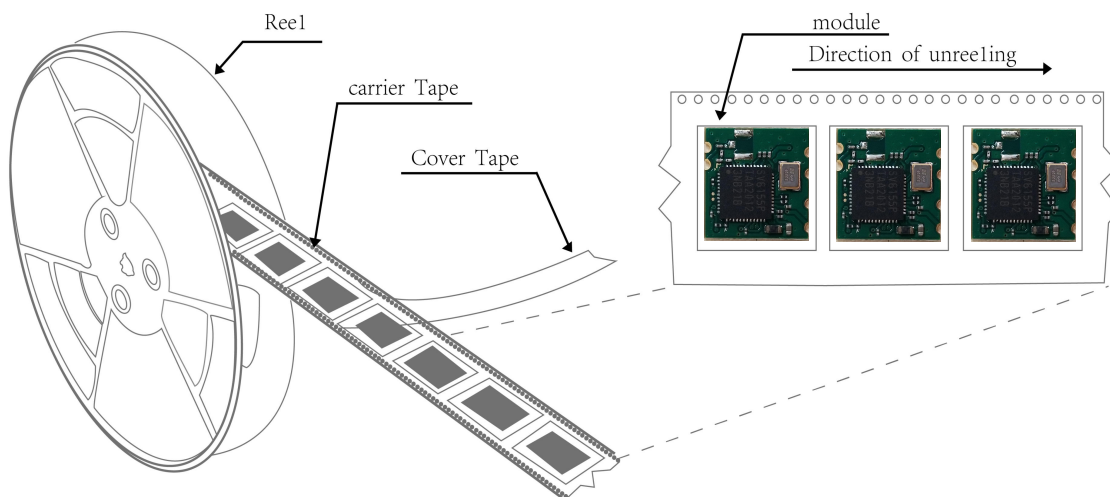
Number of Times : ≤2 times



10 Package Information

10.1 Reel

A roll of 1500pcs



10.2 Packaging Detail

the take-up package



Using self-adhesive tape

Size of black tape:24mm*32.6m the cover tape :21.33mm*32.6m

Color of plastic disc:blue



NY bag size:460mm*385mm

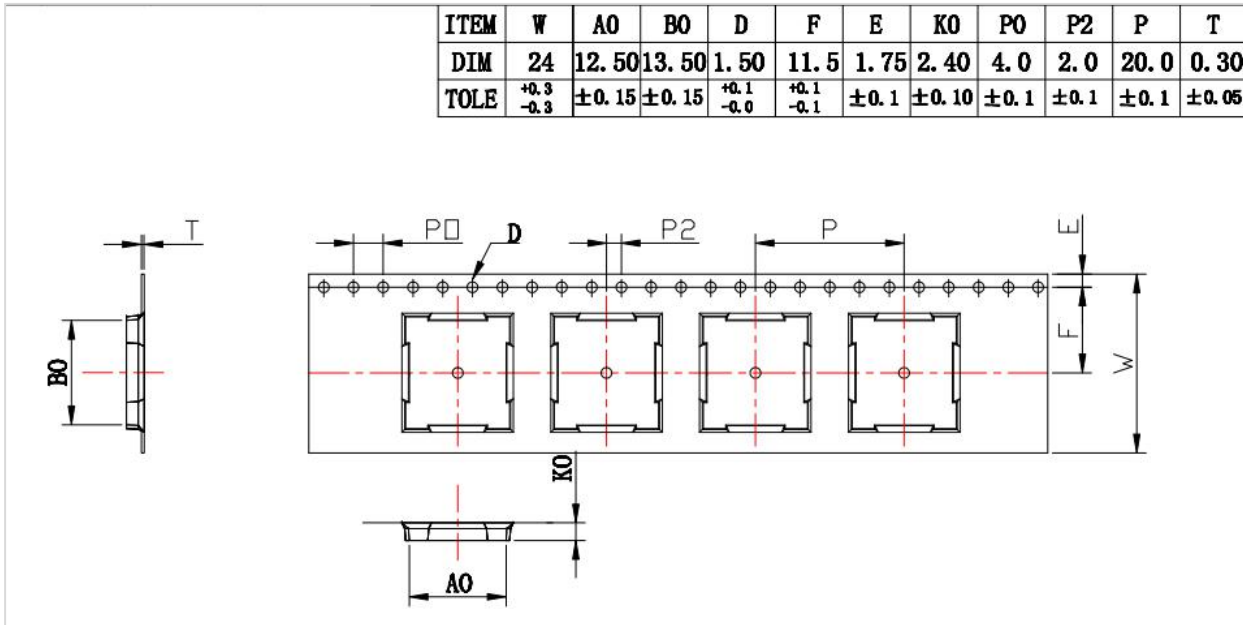


size : 350*350*35mm



The packing case size:350*210*370mm

10.3 Carrier Tape Detail



10.4 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:

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