

PRODUCT SPECIFICATION

H155E-U

Wi-Fi Single-band 1x1 802.11b/g/n USB

Module Datasheet

Version:v1.4



H155E-U Module Datasheet

	Part NO.	Description
Ordering Information	FGH155EUX-04	SV6155P,b/g/n,Wi-Fi,1T1R,12.2X13mm,USB, 邮票孔
	FGH155EUX-05	SV6155P,b/g/n,Wi-Fi,1T1R,12.2X13mm,USB, 天线座

Customer: _____

Customer P/N: _____

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1. General Description

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 Description

Model Name	H155E-U
Product Description	Support Wi-Fi functionalities
Dimension	L x W x H: 12.2 x 13 x1.6 mm (typical)
Wi-Fi Interface	Support USB 2.0
OS supported	Android /Linux/ Win CE /iOS /XP/WIN7/WIN10
Operating temperature	-10°C to 70°C
Storage temperature	-40°C to 85°C

2. Features

General

- IEEE standards support: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
- Enterprise level security which can apply WPA/WPA2 certification for Wi-Fi

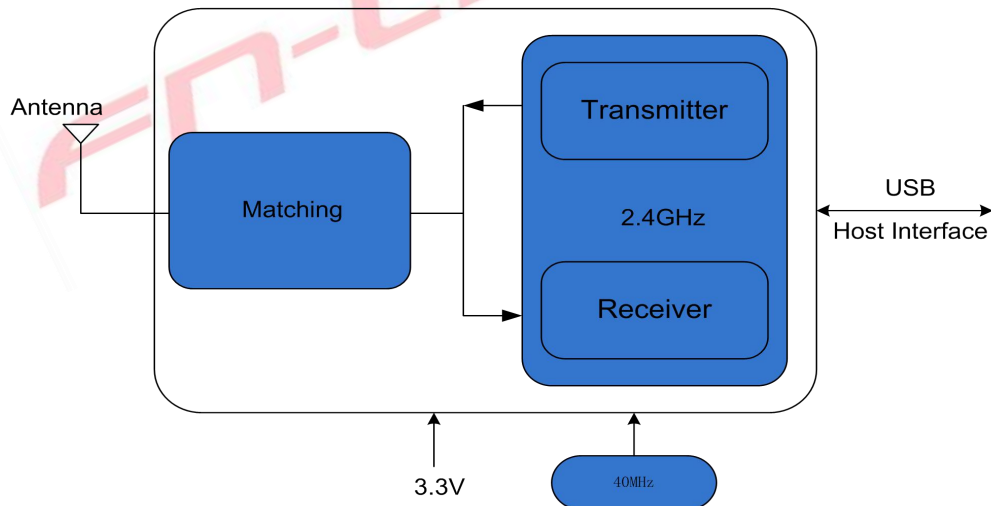
PHY Features

- Operate at ISM frequency bands (2.4GHz)
- Wi-Fi 1 T 1R allow data rates supporting up to 150 Mbps PHY rates

Host Interface

- USB2.0 for Wi-Fi

3. Block Diagram



4. General Specification

4.1 WI-FI 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		
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
Spectrum Mask	Meet with IEEE standard		
Freq. Tolerance	± 20ppm		
SISO Receive Sensitivity (11b,20MHz) @8% PER	- 1Mbps	PER @ -92 dBm	≤-83
	- 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
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	

5. ID setting information

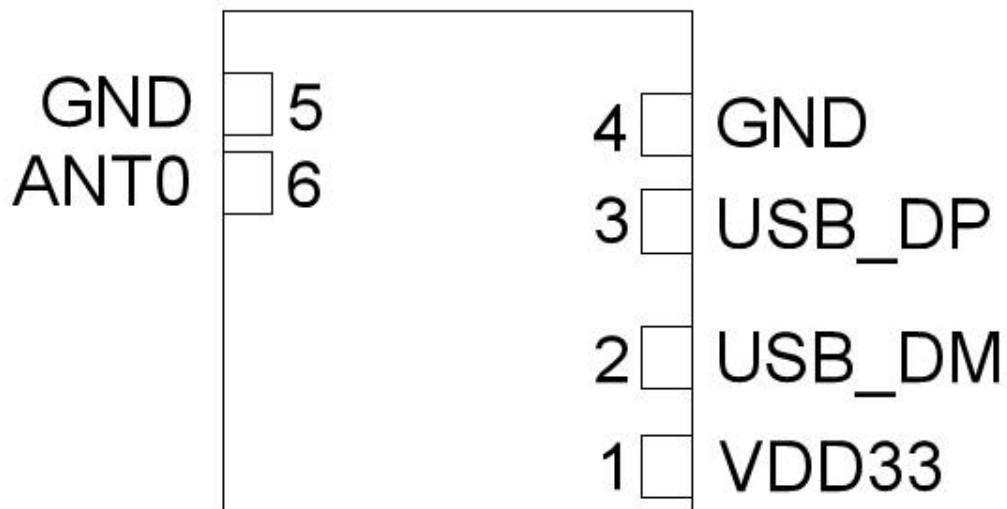
WI-FI

Vendor ID	-
Product ID	-

6. Pin Definition

6.1 Pin Outline

< TOP VIEW



6.2 Pin Definition details

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

7. Electrical Specifications

7.1 Power Supply DC Characteristics

	MIN	TYP	MAX	Unit
Operating Temperature	0	25	70	deg.C
VCC33	3.15	3.3	3.45	V

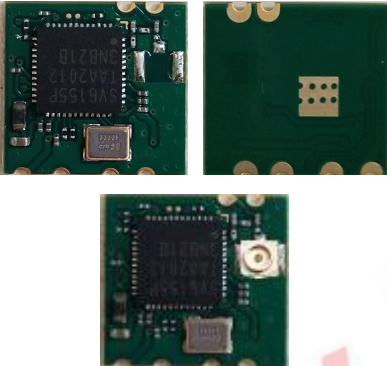
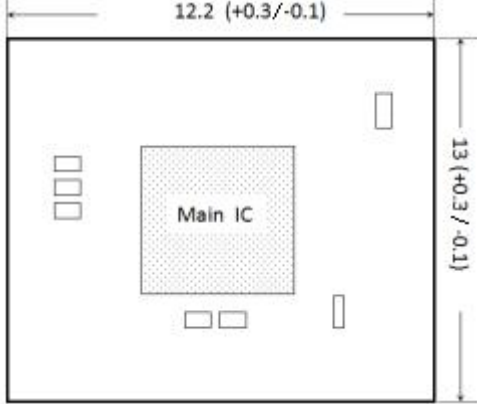
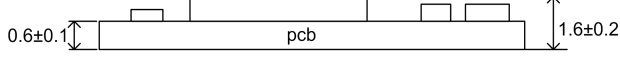
7.2 Power Consumption

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

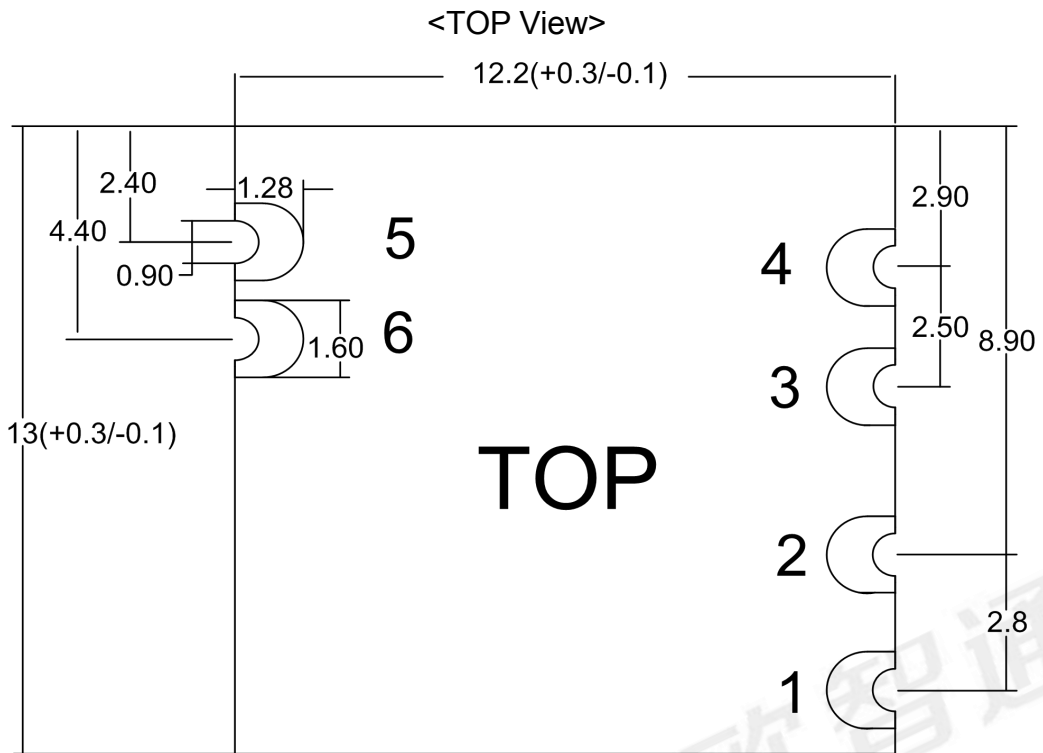
RX mode	118.9
802.11n HT40	MCS7
TX mode	275.1
RX mode	121.5
Standby mode	20

8. Size reference

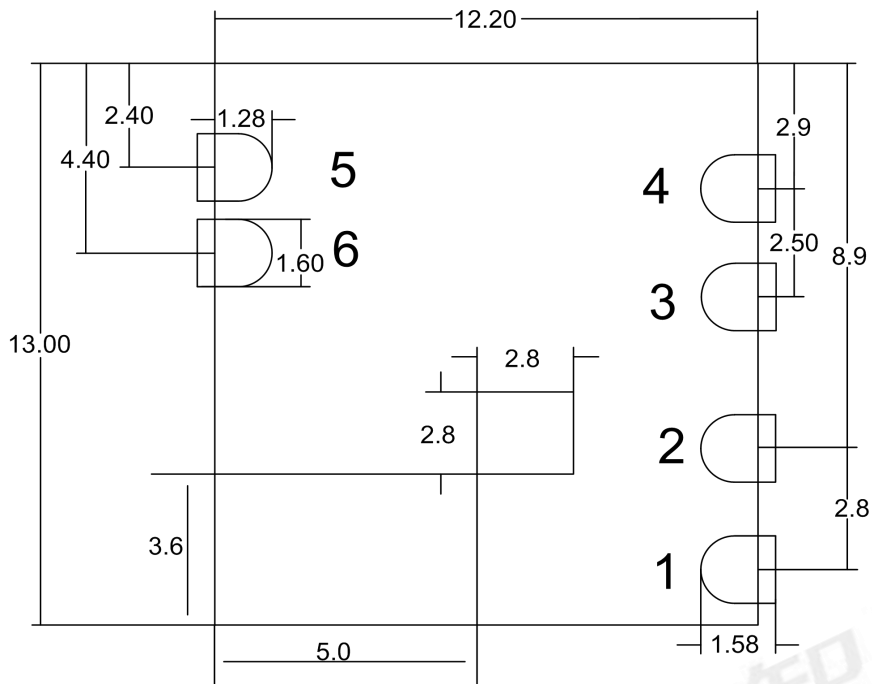
8.1 Module Picture

<p>L x W : 12.2 x 13 (+0.3/-0.1) mm</p> 	
<p>H: 1.6 (±0.2) mm</p>	
<p>Weight</p>	<p>0.37g</p>

8.2 Physical Dimensions



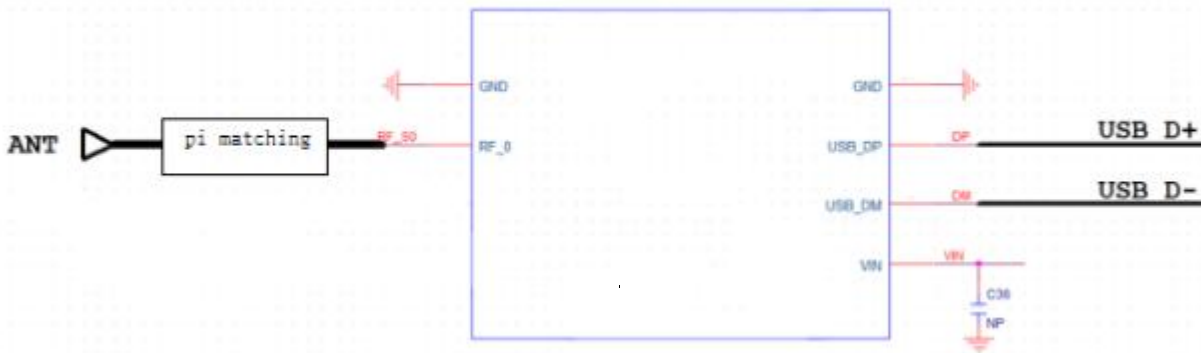
8.3 Layout Recommendation



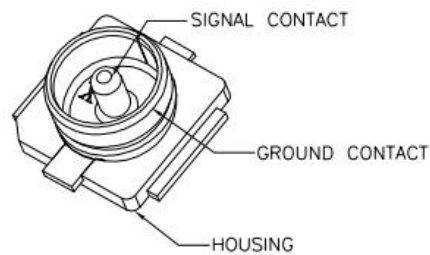
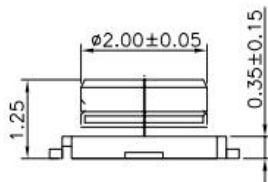
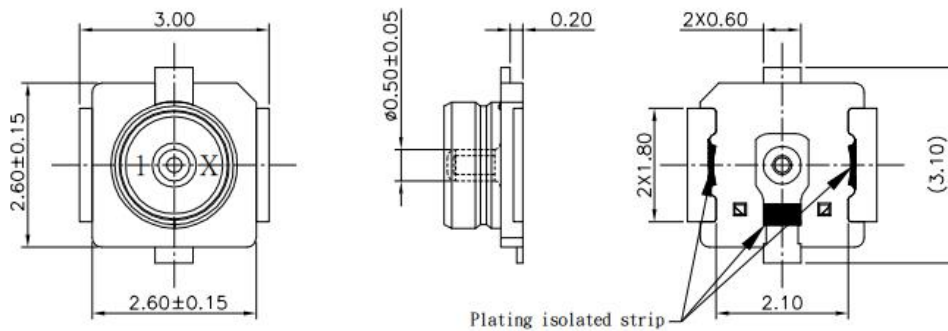
9. The Key Material List

Item	Part Name	Description	Manufacturer
1	Crystal	3225 40Mhz 9PF ±10ppm	ECEC,TKD,HOSONIC,JWT
2	PCB	H155E-U 4L,12.2X13X0.6mm	XY-PCB,SL-PCB,KX-PCB,Sunlord
3	Chipset	SV6155P, QFN48L, 0.4pitch, 6x6mm	iComm-semi

10. Reference Design



1. external connection version of stamp hole. the customer's mainboard is recommended to reserve,match antenna.
2. It is recommended that VCC meets >500mA, Ripple <100mv.
3. with ipex version,the antenna buckle specifications are as follows.



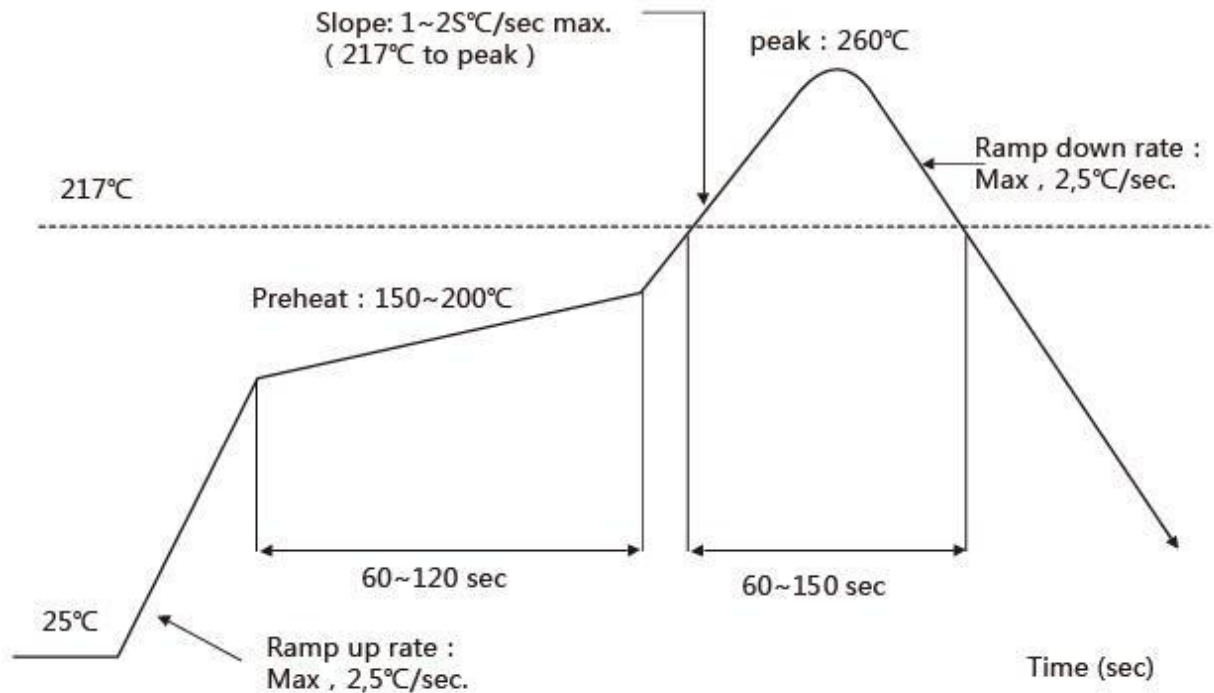
11. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature: $\leq 260^{\circ}\text{C}$

Time within 5°C of peak temperature: $\geq 10\text{s}$

Number of Times: ≤ 2 times



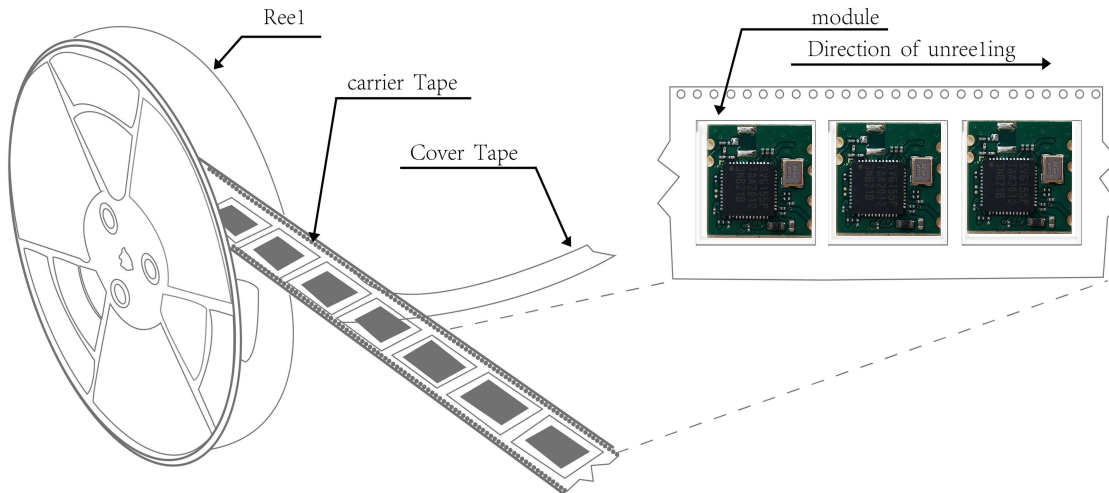
12. RoHS compliance

All hardware components are fully compliant with EU RoHS directive

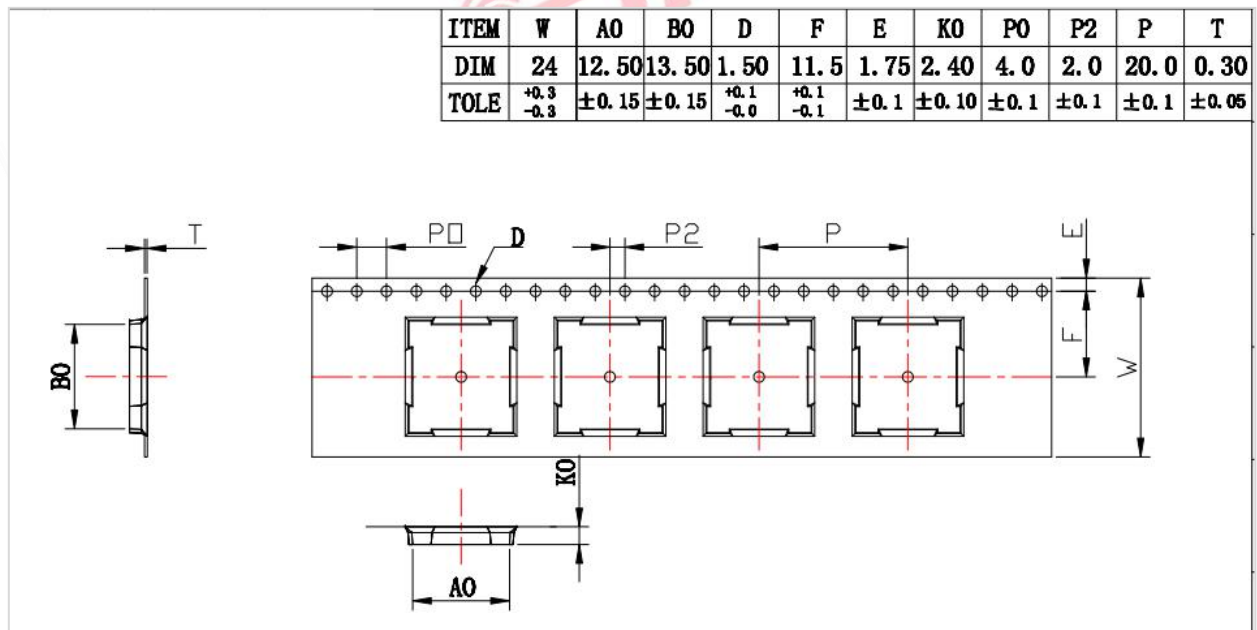
13. Package

13.1 Reel

A roll of 1500pcs



13.2 Carrier Tape Detail



13.3 Packaging Detail

the take-up package



Using self-adhesive tape

Size of black tape: 24mm*32.6m the cover tape :21.3mm*32.6m

Color of plastic disc: blue



NY bag size:460mm*385mm



size : 350*350*35mm



The packing case size:350*210*370mmg

14. 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 <math><40^{\circ}\text{C}</math> and <math><90\%</math> relative humidity (RH)
- b) Environmental condition during the production: - 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