SWD014

PN: SH19291IB54

Features

- Antenna for 2400~2500MHz.
- High gain.
- Patch antenna.
- Impedance 50 Ohm.
- Small size.

Applications:

- Antenna for 2.4G WIFI/BT.

Sunnyway Technology

Add: 1F, Building 4, No.215-99, GaoGuang Road, QingPu District, Shanghai, China

Tel: +86-021-6083 5368 Fax: +86-021-6484 2328

Email: sales@sunnyway-iot.com Web: www.sunnyway-iot.com

1. Electrical Specification

Standards	2.4G WIFI/BT
Frequency range (MHz)	2400~2500
Peak Gain (dBi)	2.5~3.5
Average Gain (dB)	-2.2~-1.7
VSWR	< 2.1
Return Loss	< -9.0
Efficiency (%)	60.3~67.2%
Polarization mode	Linear
Radiation pattern	Omni-directional
Output impedance (Ω)	50

Note:

All parameters are measured with Sunnyway's EVK which size is 90*50mm

2. Mechanical and Environmental Specification

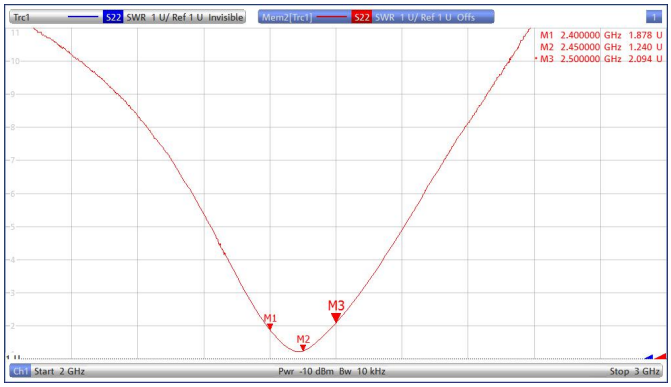
Mounting Type	SMD
Adhesive Type	/
Connector Type	/
Antenna size(mm)	3.2mm (L) x1.6mm (W) x 0.6mm (H)
Material	Ceramic
Operating Temperature (˚C)	- 40 ˚C ~ + 85 ˚C
Storage Temperature(˚C)	- 40 ˚C ~ + 85 ˚C

3. Antenna parameters

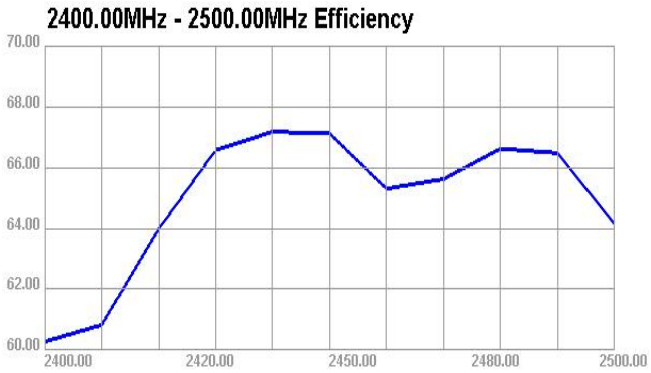
3.1 General Data

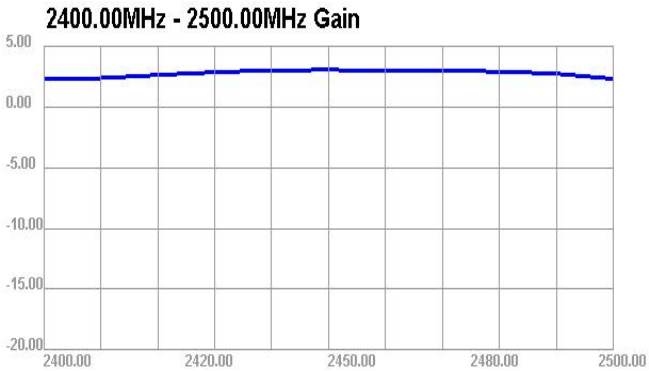
FRE（MHz）	2400	2450	2500
VSWR	1.9	1.2	2.1
Return Loss	-10.3	-19.4	-9.0
Eff (%)	60.3	67.1	64.2
Average Gain(dB)	-2.2	-1.7	-1.9

3.2 VSWR and Return Loss

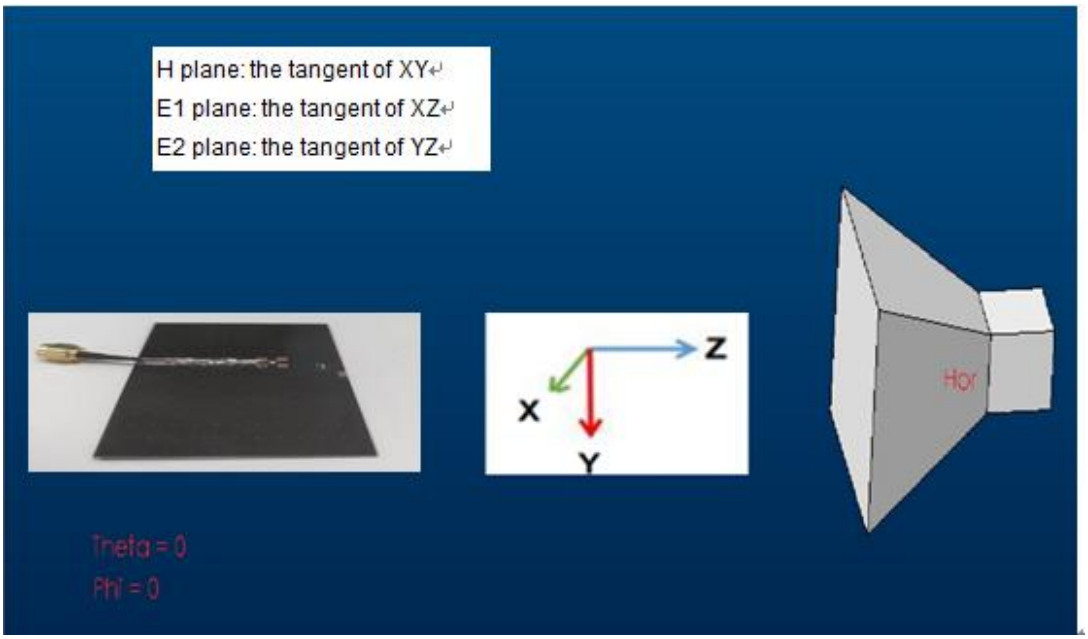


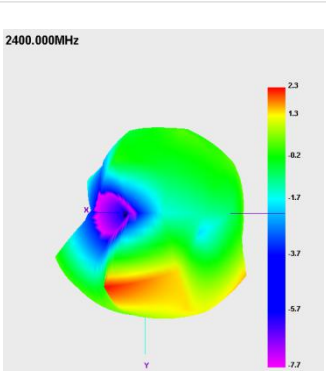
3.3 Efficiency and Gain

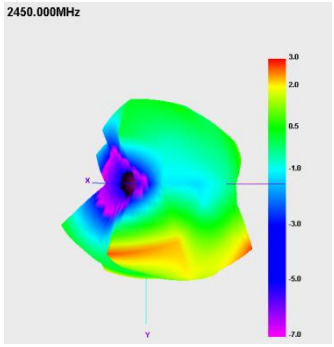


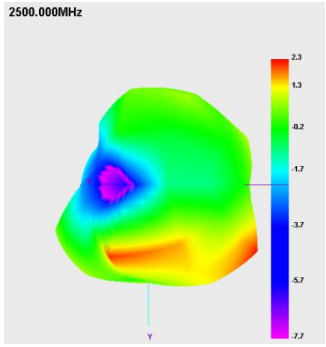


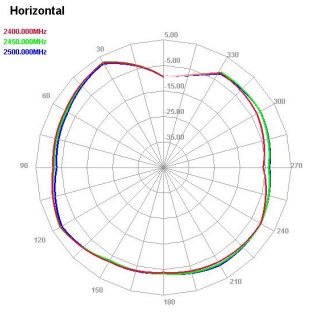
3.4 Directional Pattern

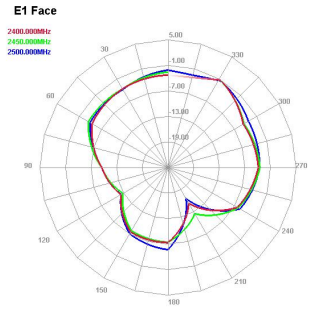


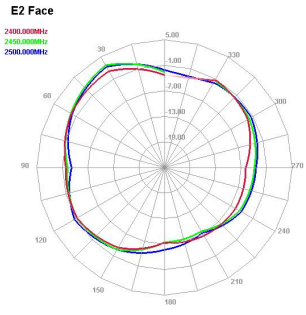




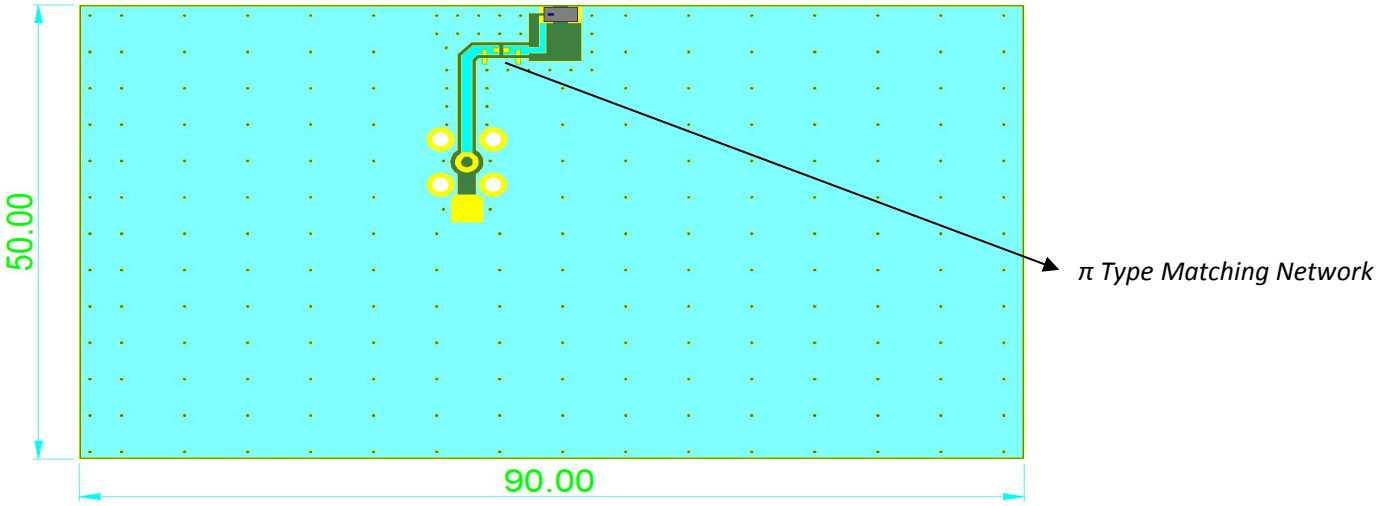


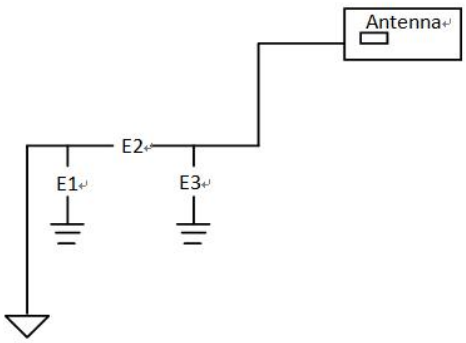






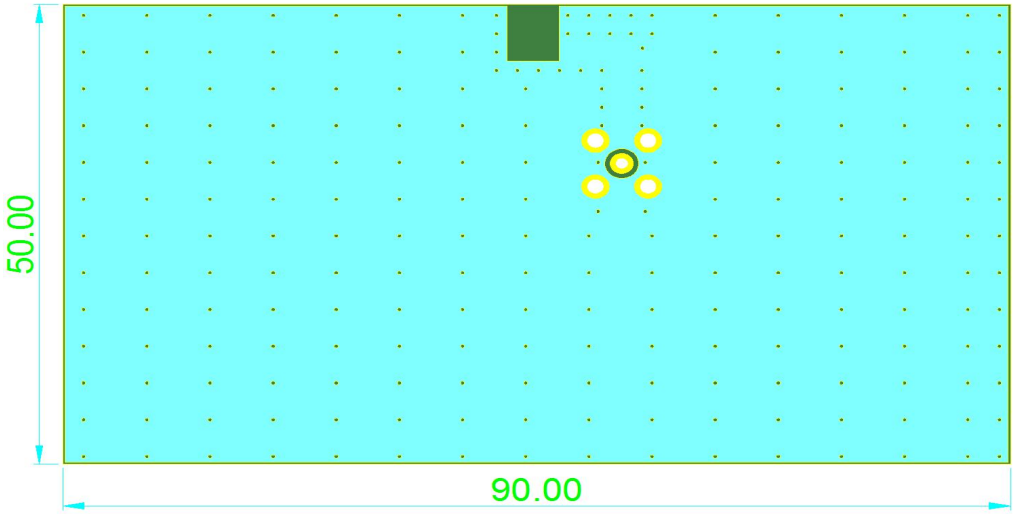
4. Evaluation Board and Matching Circuits

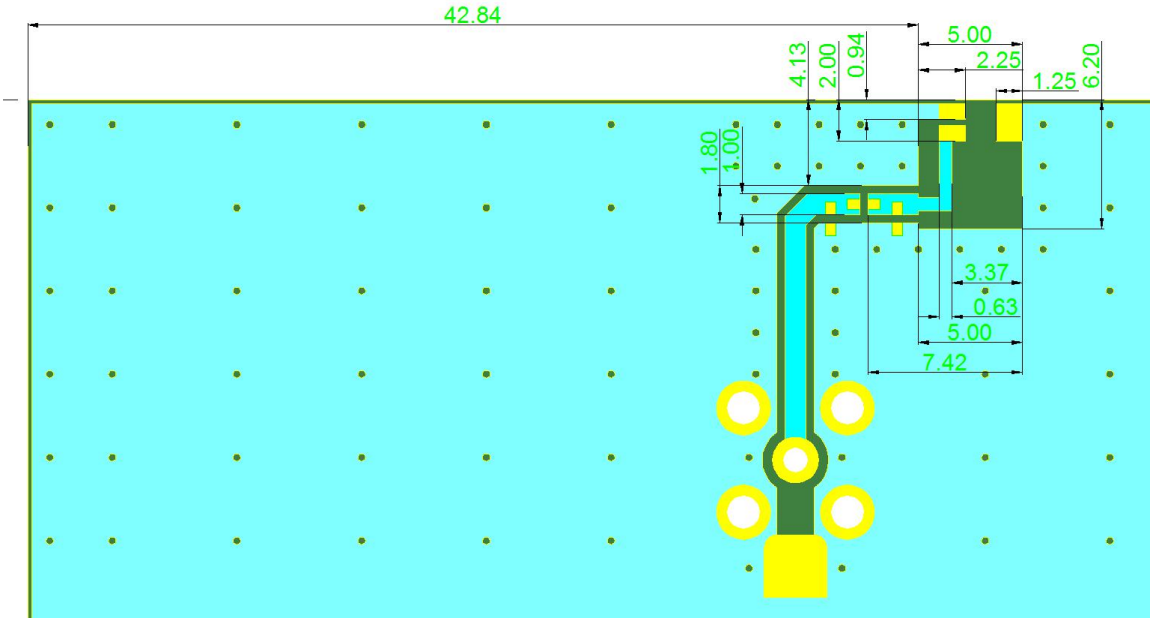


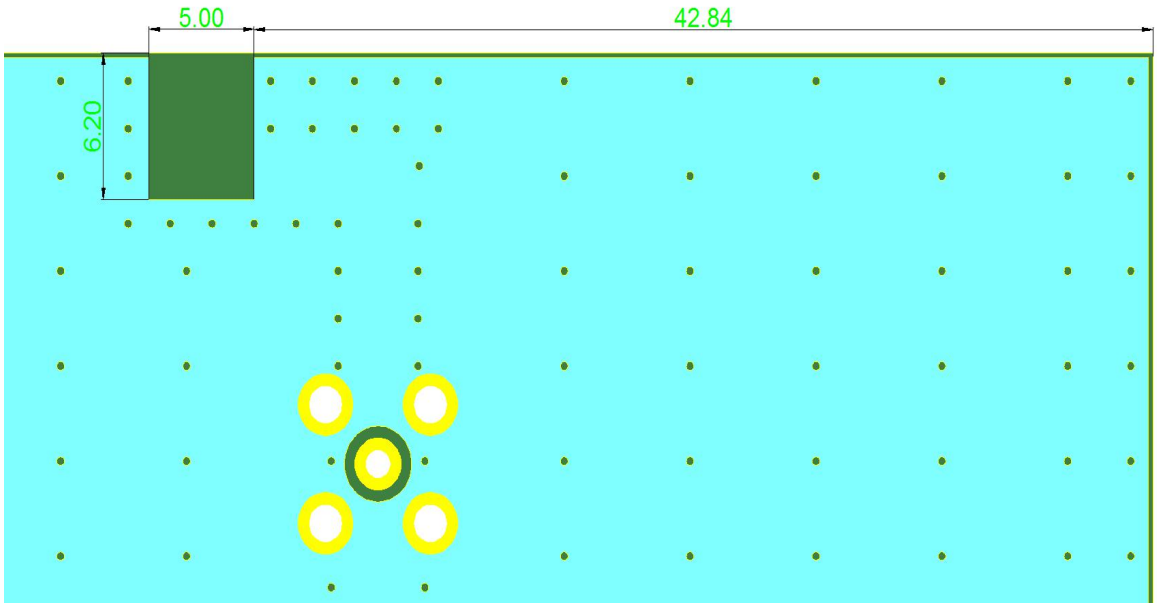


	Type	Value
E1	N/A	N/A
E2	Inductor	3.9nH
E3	N/A	N/A

Unit: : mm




42.84
5.00
2.25
1.25
6.20
4.13
2.00
0.94
1.80
1.00
3.37
0.63
5.00
7.42

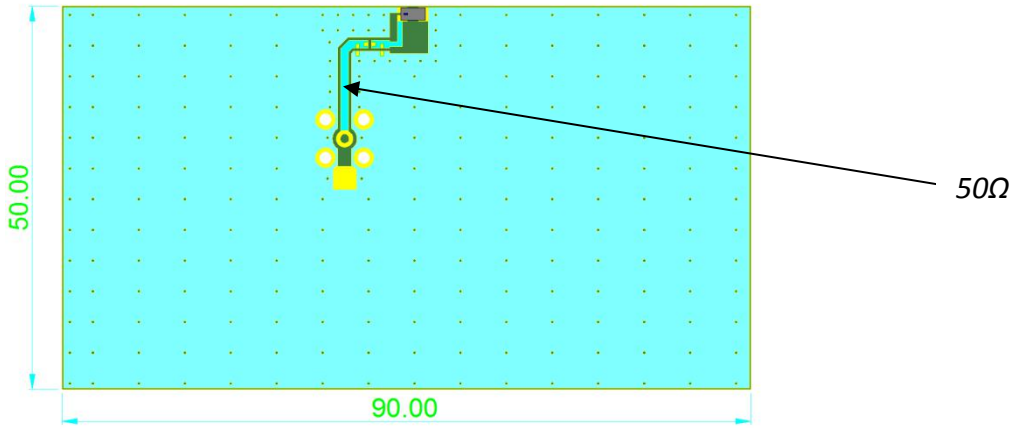

5.00
42.84
6.20

5. Transmission Line

The characteristic impedance of all transmission lines shall be designed as 50 Ω.

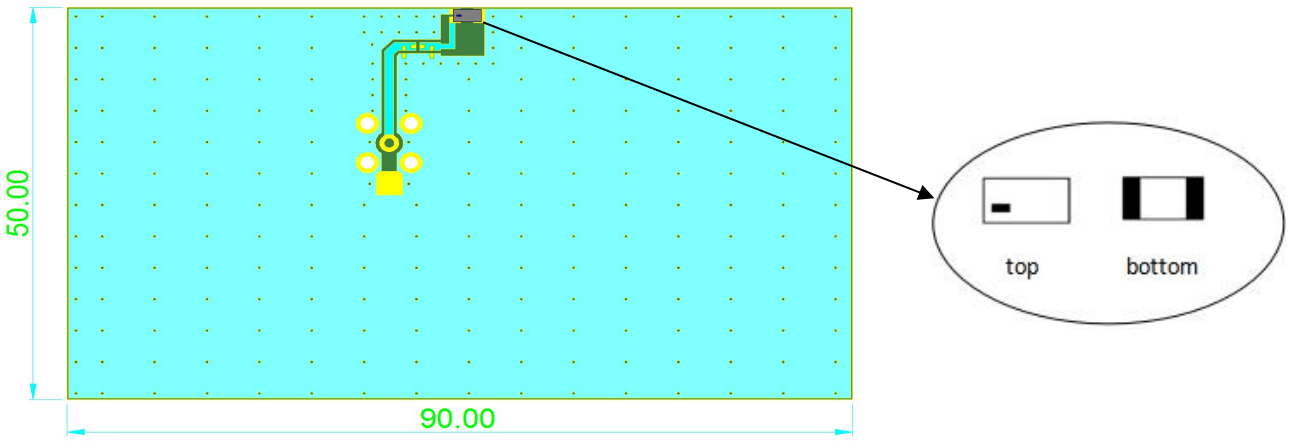
• The length of the transmission lines should be kept to as short as possible.

• Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω.

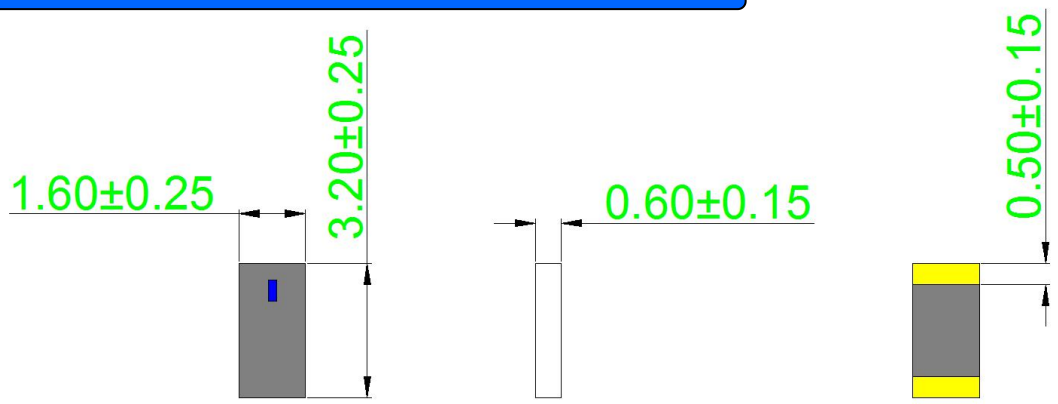


6. Antenna installation

The printed circuit board of the host must ensure that the antenna clearance area meets the antenna specifications. It is recommended to place the antenna at the center of the long side of the PCB.



7. Antenna Drawing



8. Post Dependability Tolerance

Post Dependability Tolerance (Refer to the table)

No	item	Post Dependability Tolerance
8.1	Central Frequency	±5MHz
8.2	Band Width	±5MHz
8.3	Gain	±0.1 dBi
8.4	V.S.W.R (in BW)	±0.1

9. Reliability Test

Temperature range 25±5℃

Relative Humidity range 55~75%RH

Operating Temperature range -40℃~+85℃

Storage Temperature range -40℃~+85℃

9.1 Vibration Resist

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X , Y and Z directions.

9.2 Drop Shock

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after dropping onto the hard wooden board from the height of 100cm for 3 times each facet of the 3 dimensions of the device.

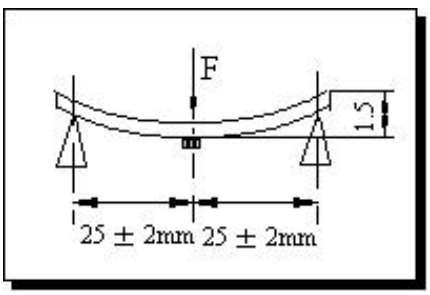
9.3 Solder Heat Proof

The device should be satisfied after preheating at 120℃~150℃ for 120 seconds and dipping in soldering Sn at 255℃+10℃ for 5±0.5 seconds，or electric iron 300℃-10℃ for 3±0.5 seconds， without damnify.

9.4 Tensile Strength of Terminal

The device should not be broken after tensile force of 1.0kg is slowly applied to pull a lead pin of the fixed device in the lead axis direction for 10±1 seconds.

9.5 Bending Resist Test



Weld the product to the center part of the PCB with the thickness 1.6±0.2mm as the illustration shows, and keep exerting force arrow-ward on it at speed of :1mm/S , and hold for 5±1S at the position of 1.5mm bending distance , so far , any peeling off of the

product metal coating should not be detected .

9.6 Moisture Proof

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature 60±2℃and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

9.7 High Temperature Endurance

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to temperature 85±5℃for 96±2 hours and 1~2 hours recovery time under normal temperature.

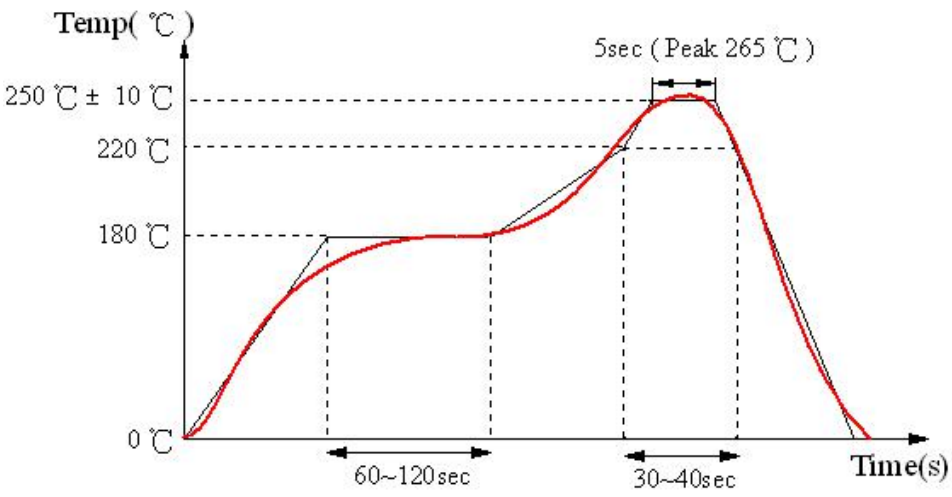
9.8 Low Temperature Endurance

The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature -40℃±5℃ for 96±2 hours and to 2 hours recovery time under normal temperature.

9.9 Temperature Cycle Test

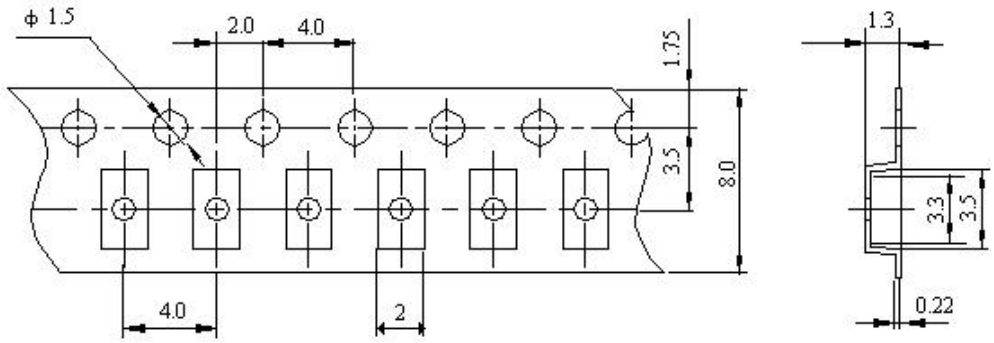
The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the low temperature -40℃ and high temperature +85℃ for 30±2 min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

10. Reflow Soldering Standard Condition



11. Packaging and Dimensions

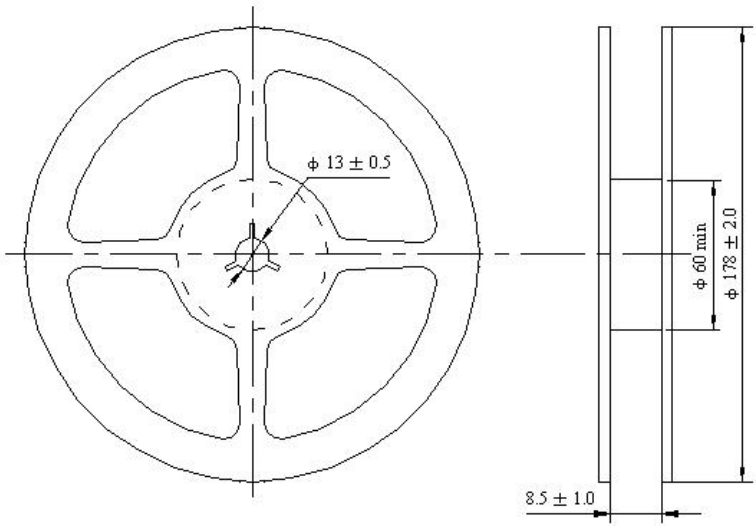
11.1 Plastic Tape



Remarks for Package

Reserve a length of 150~200mm for the trailer of the carrier and 250~300 mm for the leader of the carrier and further 250mm of cover tape at the leading part of the carrier.

11.2 Reel（3000 pcs/Reel）



11.3 Storage Period

Oxidizable, 12 months in vacuum sealed bag . Material, please repack within 168 hours by re-seal the package treatment after use them!

Storage Temperature Range : <30 degree C, Humidity : <60%RH.