

Product Specification

Number: L-KLS1-950-F-SMD15*03*01

Name: 15.0 X 3.0 X 1.0 mm³
SMD Antenna

Customer: _____

Date: 2025-08-18

Customer Signature:



NINGBO KLS ELECTRONIC CO; LTD

Tel : 0086-574-86828566

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**ADD : NO. 8-1, RONGXIA RD. XIAPU SHANQIAN
INDUSTRIAL ZONE BEILUN NINGBO ZHEJIANG.**

Compi	Check	Review	Approva
Jenny	Jack.C		

Part name	15.0 X 3.0 X 1.0 mm ³ SMD Antenna	Date	2025-08-12
Part number	L-KLS1-950-F-SMD15*03*01	Edition	V1
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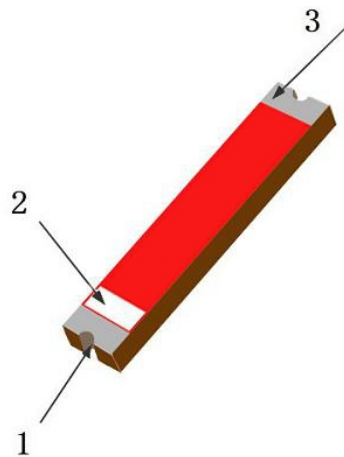
FEATURES

1. Surface Mounted Devices with a small dimension of 15.0 X 3.0 X 1.0 mm³ meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

APPLICATIONS

1. NB-IoT B5 B8 band RF applications.
2. Lora 915M 868M 490M 433MHz band RF applications .
3. Sub-1g 915M 868M 490M 433MHz band RF applications.
4. UHF band (400M-800Mhz) RF applications.

CONSTRUCTION



1、 Antenna Feeding

2、 Identification Mark

3、 Soldering terminal

DIMENSIONS

Figure	Symbol	Dimension(mm)
	L	15.0± 0.2
	w	3.0± 0.1
	T	1.0± 0.05
	a	0.9± 0.1

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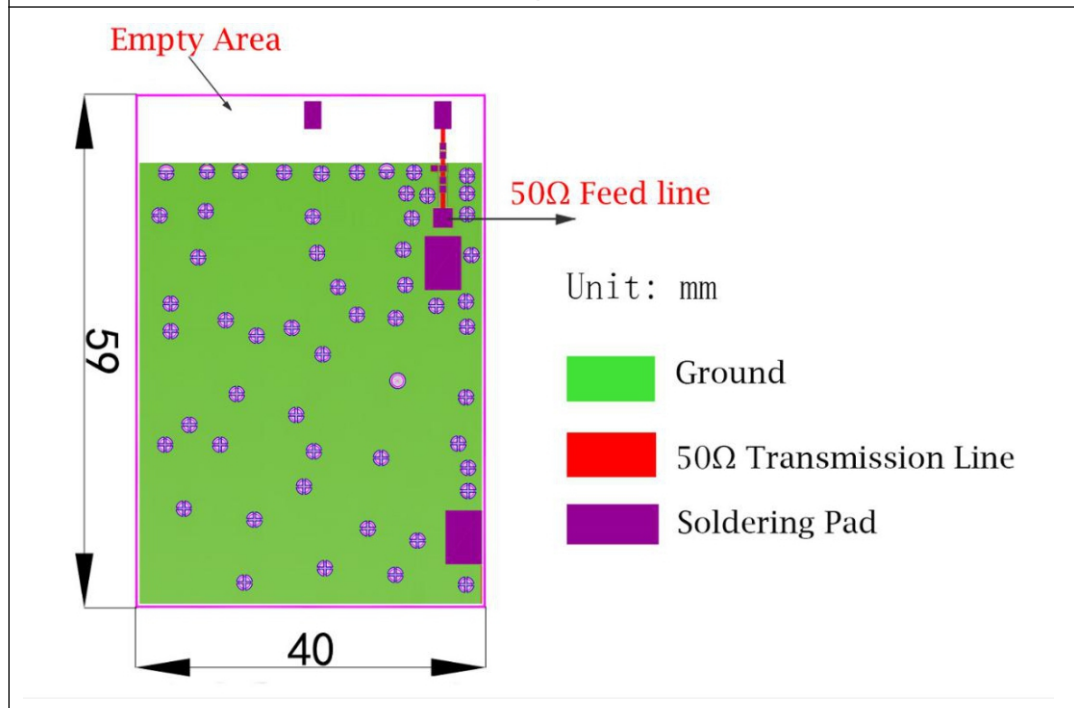
ELECTRICAL CHARACTERISTICS

	Specification
Working Frequency Range	400Mhz-960Mhz
Fc(GHz)	950MHz
Band Width	>80MHz
Impedance	50Ω
Gain(dBi)	7
VSWR	<2
Operation Temperature	-40°C~+85°C
Power Capacity	4W

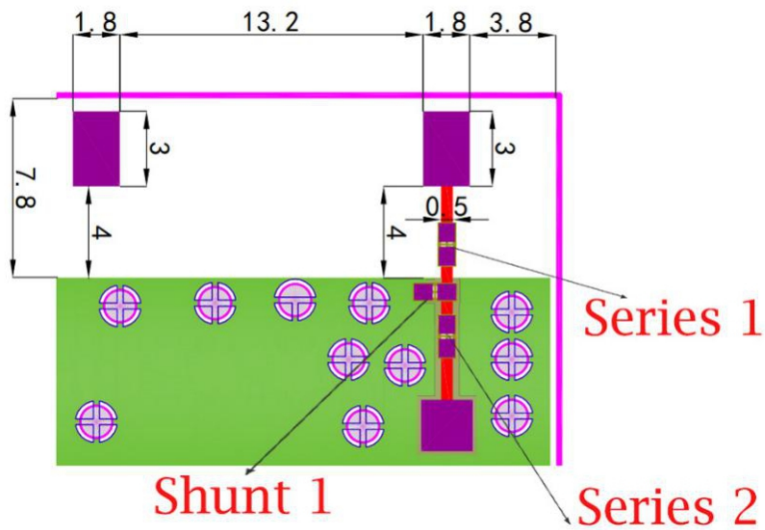
The working frequency need be adjusted to working band with matching circuit.

SOLDER LAND PATTERN DESIGN

Figure

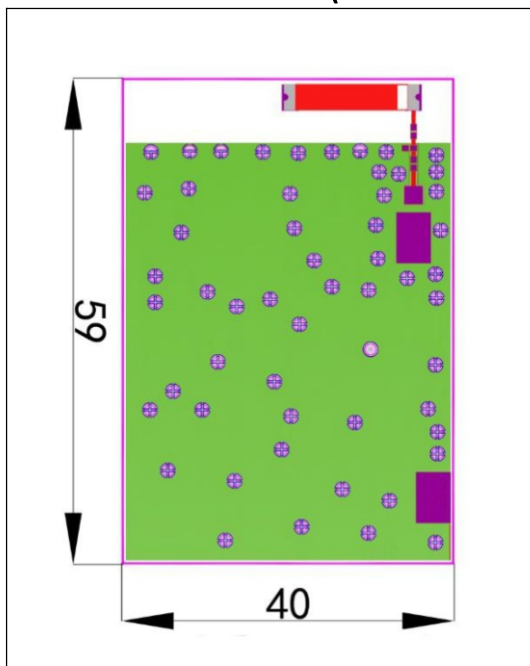


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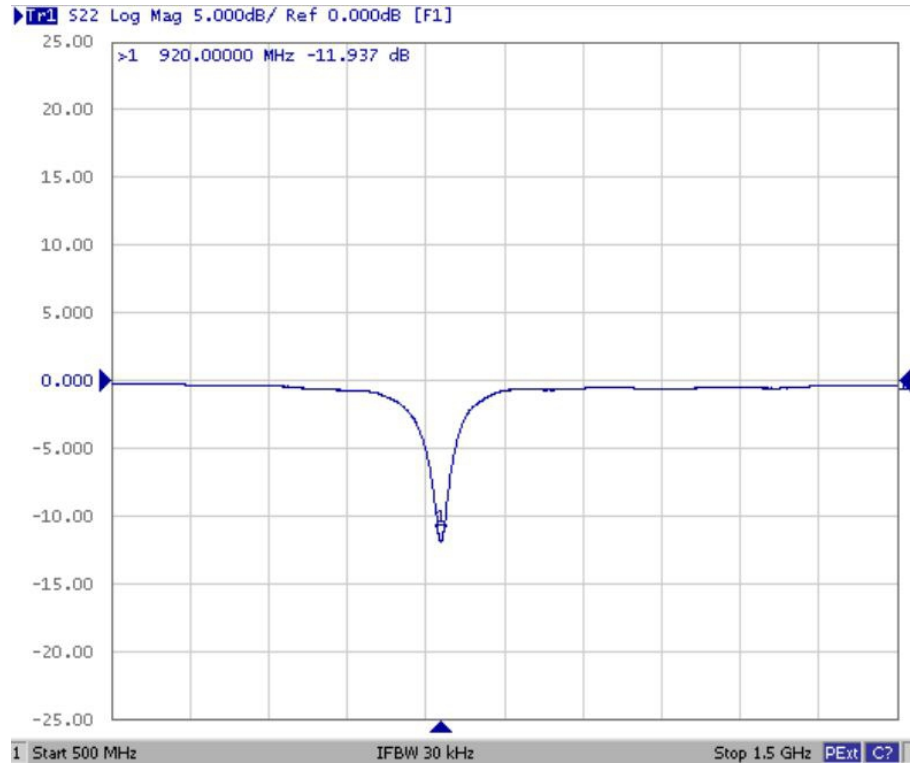
915Mhz Matching component value	Series 1	5pf
	Shunt 1	6.2nh
	Series 2	0Ω
868Mhz Matching component value	Series 1	4.7nh
	Shunt 1	6.2nh
	Series 2	0Ω
433Mhz Matching component value	Series 1	100nh
	Shunt 1	NC
	Series 2	0Ω
490Mhz Matching component value	Series 1	82nh
	Shunt 1	NC
	Series 2	0Ω

Antenna on Test Board (Thickness 1.0mm)

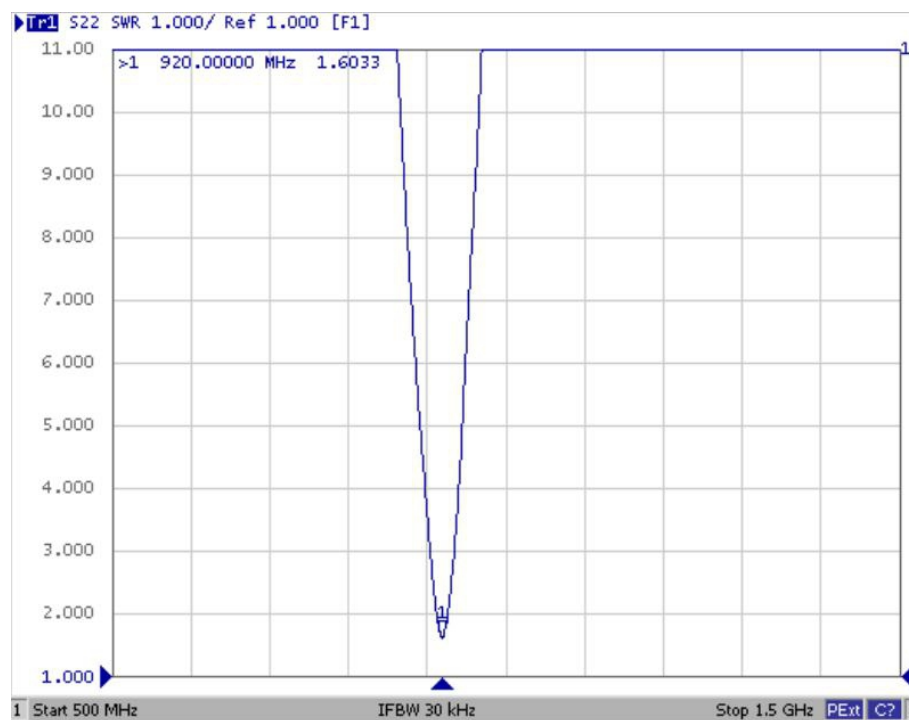


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Antenna S11 on Test Board



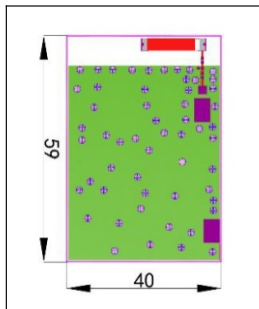
Antenna VSWR on Test Board



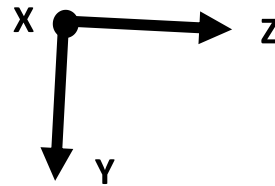
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Efficiency and RADIATION PATTERN

Efficiency , Radiation Pattern and Gain were dependent on measurement board design. The specification of L-KLS1-950-F-SMD15*03*01 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.

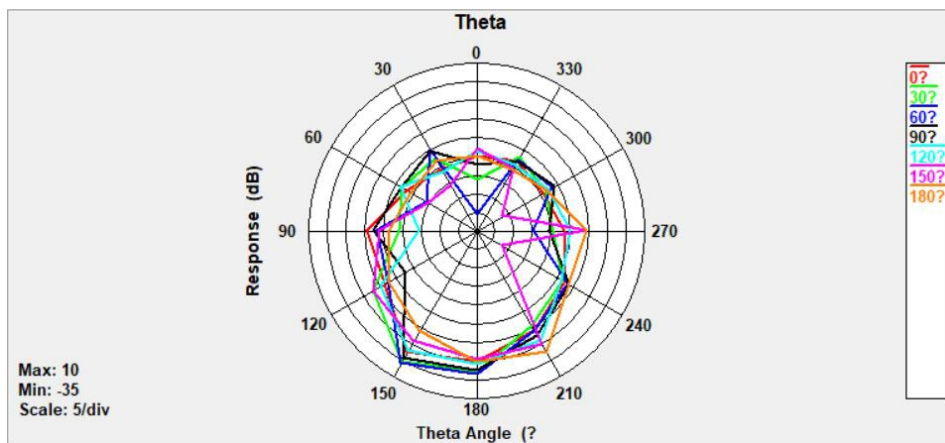


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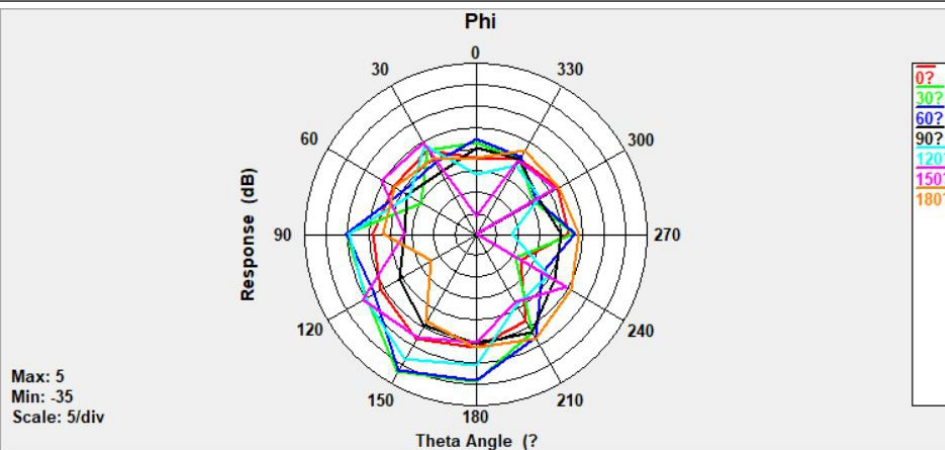


Gain and Efficiency	880M-960MHz
Peak Gain	7.2dBi
Average Gain across the band	5.6dBi
Gain Range across the band	2.2dBi~7.2dBi
Peak Efficiency	39.5%
Average Efficiency across the band	28.7%
Efficiency Range across the band	12.3%~39.5%

Theta
@920
MHz

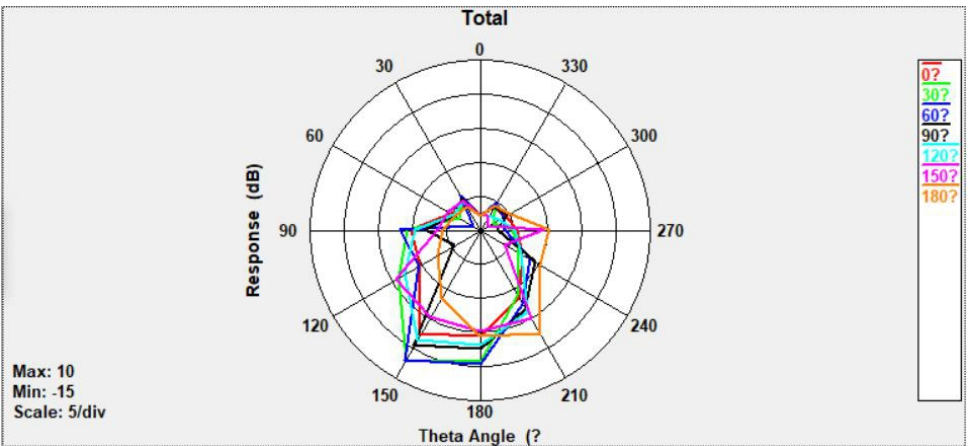


Phi
@920
MHz



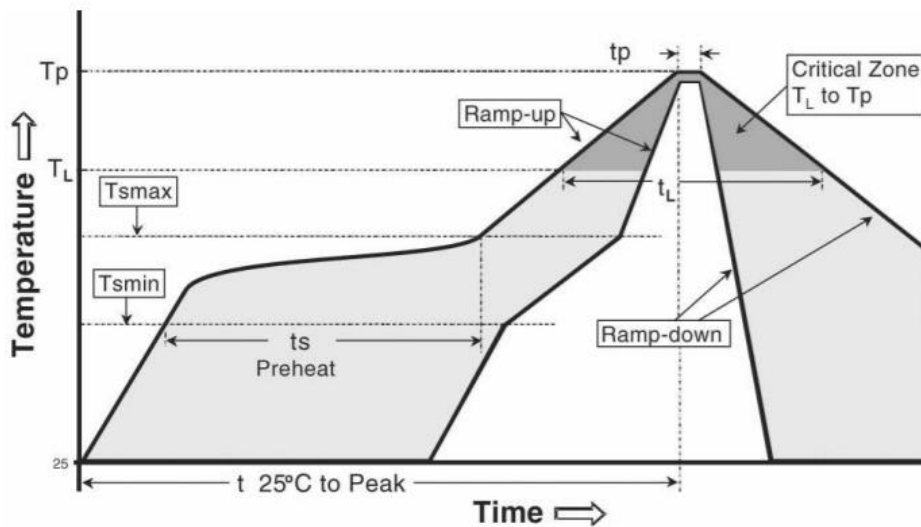
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**Total
@920
MHz**



SOLDERING CONDITION

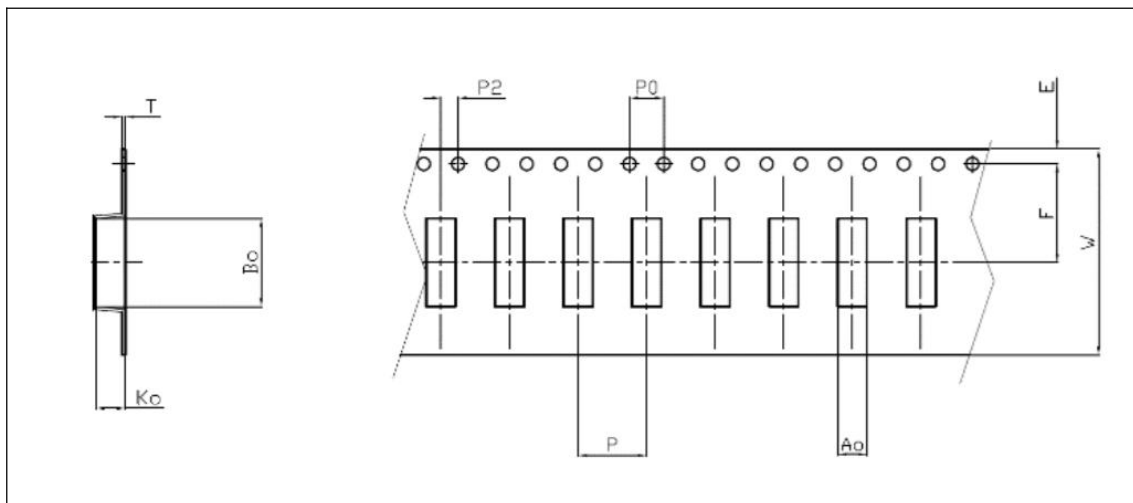
Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmmin) - Temperature Max (Tsmax) - Time (tsmin to tsmax)	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (TL) - Total Time above TL (tL)	217 °C 60-150 seconds
PEAK	- Temperature (Tp) - Time (tp)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

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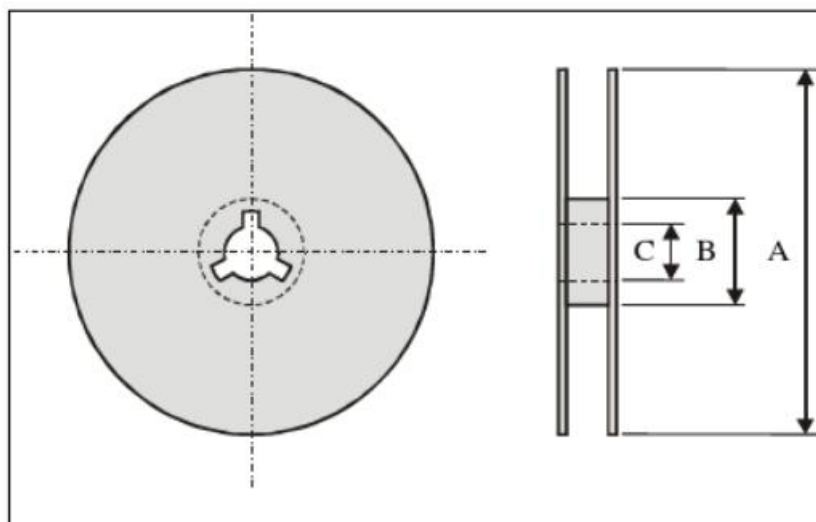
PACKAGING



Plastic Tape specification (unit:mm)

Index	Ao	Bo	Ko	T	W
Dimension (mm)	3.3 ± 0.1	15.5 ± 0.1	1.3 ± 0.1	0.3 ± 0.05	24.0 ± 0.3
Index	E	F	P	P0	P2
Dimension (mm)	1.75 ± 0.1	11.0 ± 0.1	8.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.1

Reel dimensions



Index	A	B	C
Dimension(mm)	330	100	13.5

Typing Quantity: 2000 pieces per reel.

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CAUTION OF HANDLING**Storage environment condition**

Products should be storage in the warehouse on the following conditions:

Temperature : -10°C~+40°C

Humidity : 30% to 70% relative humidity

Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.

Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.

Products should be storage under the airtight packaged condition.