QR/RD-P01-06B

SPECIFICATION

Daxian Communication Technology Limited

TOPANT™

深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

陶瓷天线

产品规格书

客　　户	/	陶瓷料号	**3216F245M02**
项目名称	/	颜　色	红色
客户料号			
制　　作	柯　芬	结构设计	李志恩
品质经理	胡子寅	技术总监	张　磊
日　　期	2022-02-09		

客户确认：

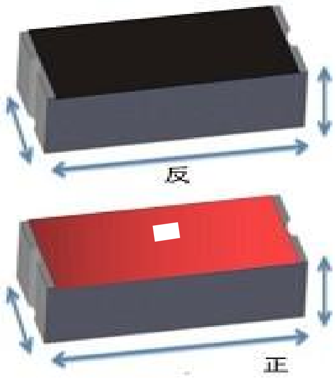
装配是否符合贵司要求：□OK　　□NG

深圳市大显科技有限公司	Shenzhen Topant Technology Co., Ltd.
深圳市龙岗区布吉镇吉华路 513 号上水径村（国防培训基地对面）达成工业园综合楼 7 楼 TEL:0755-28576002 FAX:0755-84276383	Buji Town, Longgang District, Shenzhen, China Jihua Road 513, Shangshuijing Village (opposite the national defense training base) Dacheng Industrial Park, Building 7。 TEL:0755-28576002 FAX:0755-84276383
上海分部：上海市张江高科技园区集成电路产业区龙东大道 3000 号 8 号楼 201 室 TEL:021-61630552 FAX:755-84276383	Room201,Building8,LongDongRoad3000#, Semiconductor Industry Park,ZhangJiang Hitech Zone,ShangHai TEL:021-61630552 FAX:755-84276383

3216 Chip antenna

For Bluetooth / WLAN Applicationsd

P/N: **3216F245M02**



	Dimension (mm)
L	3.23 ± 0.20
W	1.66 ± 0.20
T	1.23 ± 0.20

2.4GHz 3216 Chip Antenna: 3216F245M02

Part Number Information

RANT	3216	F	245	M	02
A	B	C	D	E	F

A	**Product Series**	**Antenna**
B	**Dimension L x W**	**3.2X1.6mm (+-0.2mm)**
C	**Material**	**High K material**
D	**Working Frequency**	**2.4 ~ 2.5GHz**
E	**Feeding mode**	**Monopole & Single Feeding**
F	**Antenna type**	**Type=02**

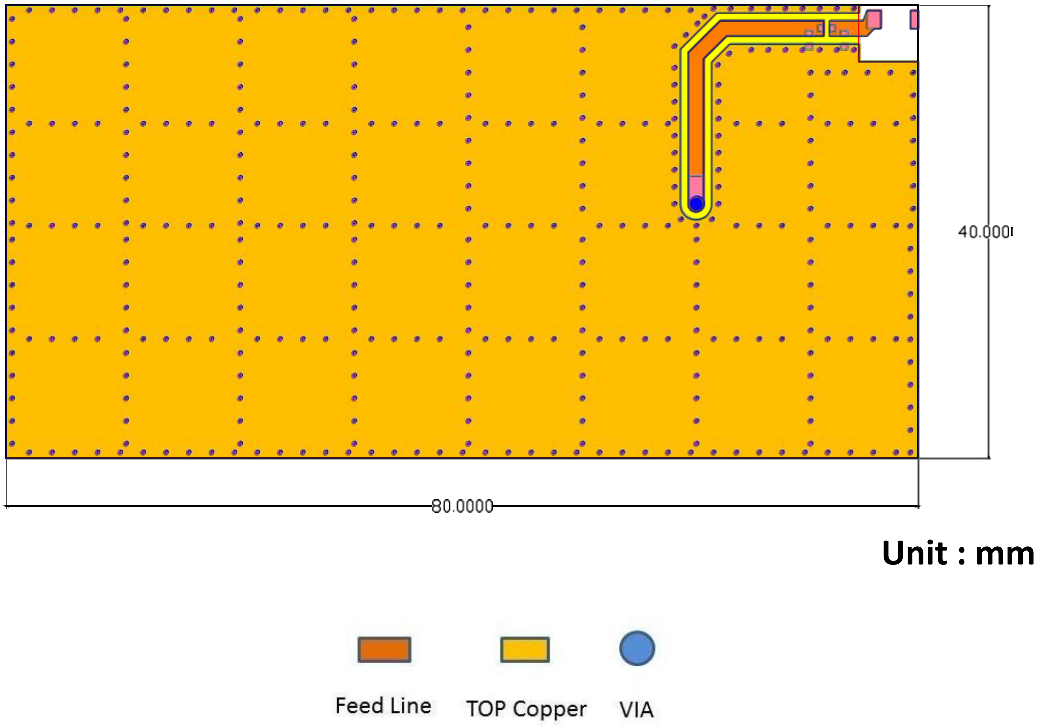
1. Electrical Specification

Specification		
Part Number	RANT3216F245M02	
Central Frequency	2450	MHz
Bandwidth	100 (Min.)	MHz
Return Loss	-6.5 (Max)	dB
Peak Gain	3	dBi
Impedance	50	Ohm
Operating Temperature	-40 ~ +85	℃
Maximum Power	4	W
Resistance to Soldering Heats	10 (@ 260℃)	sec.
Polarization	Linear	
Azimuth Beamwidth	Omni-directional	
Termination	Cu / Sn (Leadless)	

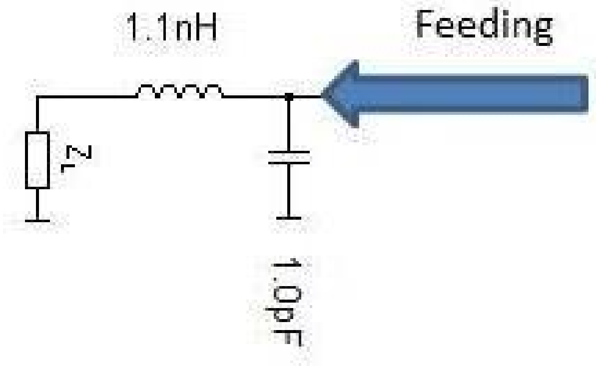
Remark : Bandwidth & Peak Gain was measured under evaluation board of next page

2. Recommended PCB Pattern

Evaluation Board Dimension

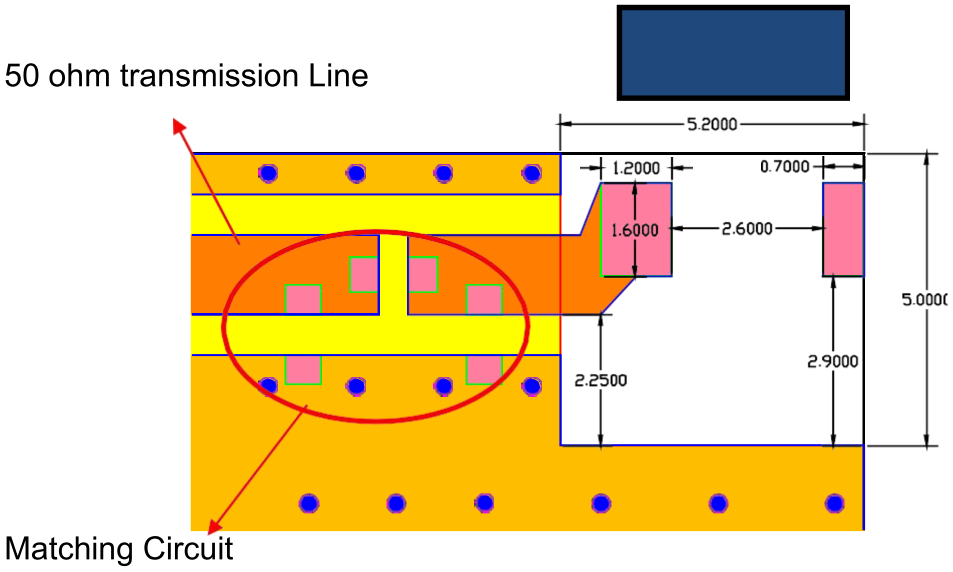


Suggested Matching Circuit

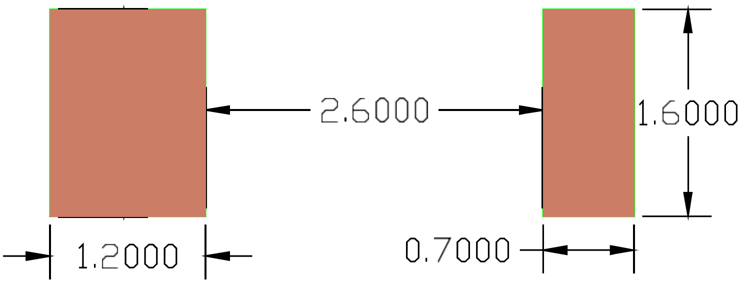


2.4GHz 3216 Chip Antenna: 3216F245M02

Layout Dimensions in Clearance area(Size=5.2*5.0mm)



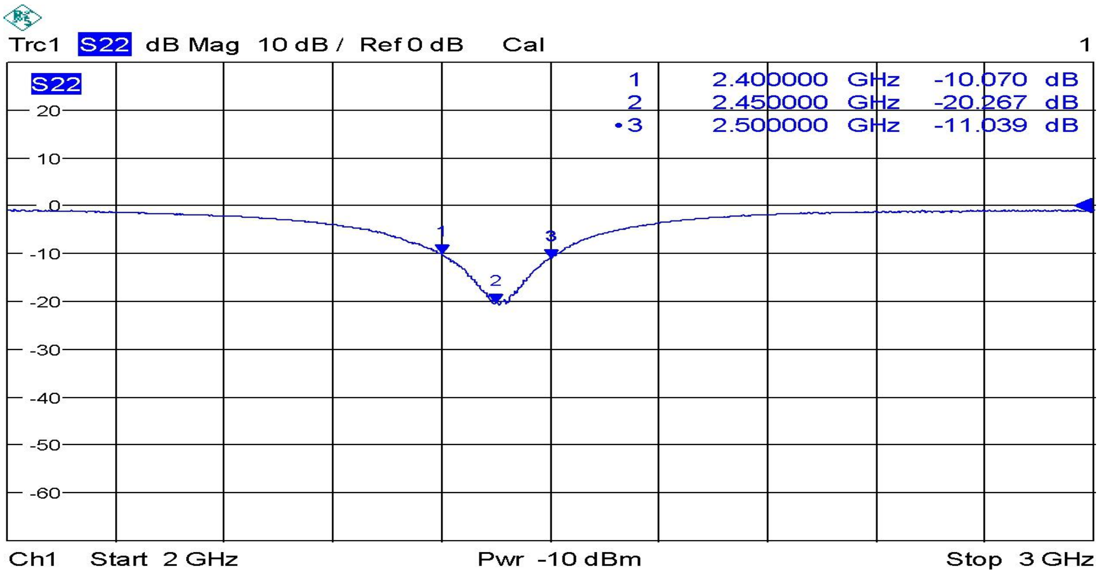
FootPrint (Unit : mm)



2.4GHz 3216 Chip Antenna: 3216F245M02

3. Measurement Results

Return Loss



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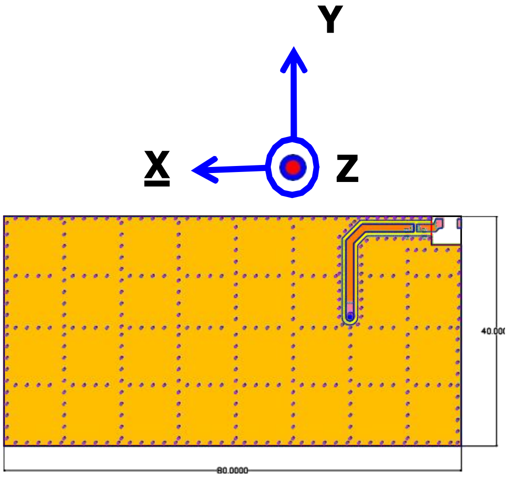
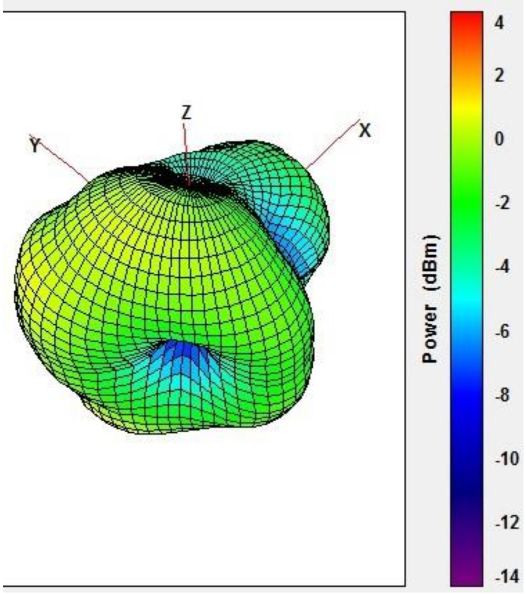
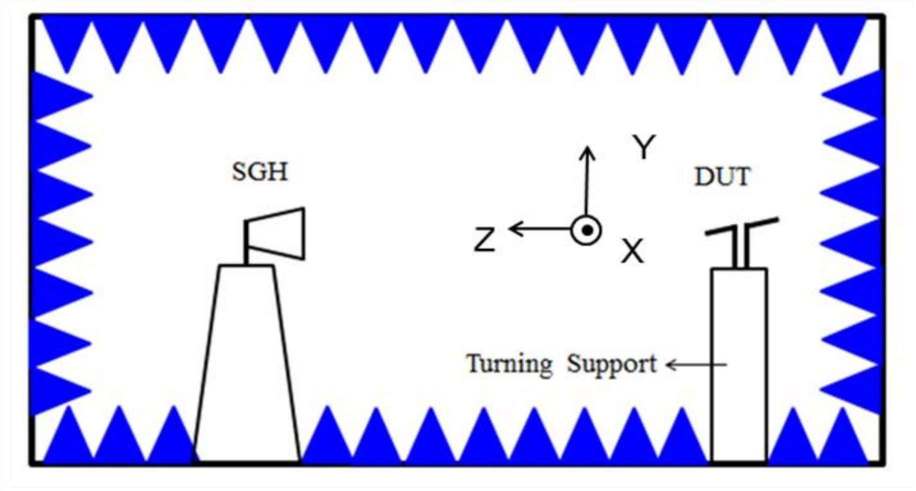
Radiation Pattern



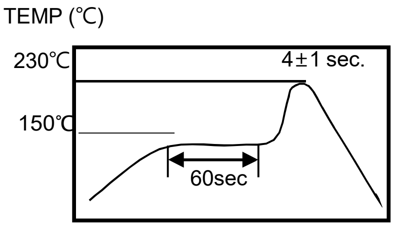
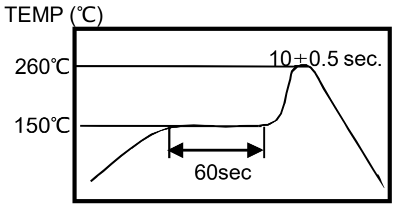


	Efficiency	Peak Gain	Directivity
2400MHz	55.21 %	1.45 dBi	5.32 dBi
2450MHz	66.45 %	2.71 dBi	5.21 dBi
2500MHz	57.53 %	1.98 dBi	5.29 dBi

Chamber Coordinate System



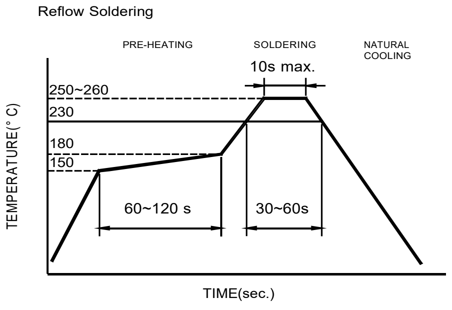
4. Reliability and Test Condictions

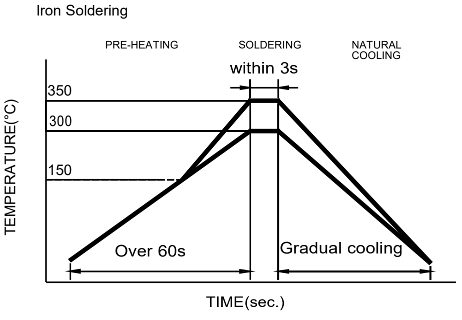
ITEM	REQUIREMENTS	TEST CONDITION
Solderability	1. Wetting shall exceed 90% coverage 2. No visible mechanical damage 	Pre-heating temperature:150℃/60sec. Solder temperature:230±5℃ Duration:4±1sec. Solder:Sn-Ag3.0-Cu0.5 Flux for lead free: rosin
Solder heat Resistance	1. No visible mechanical damage 2. Central Freq. change :within ±6% 	Pre-heating temperature:150℃/60sec. Solder temperature:260±5℃ Duration:10±0.5sec. Solder:Sn-Ag3.0-Cu0.5 Flux for lead free: rosin
Component Adhesion (Push test)	1. No visible mechanical damage	The device should be reflow soldered(230±5℃ for 10sec.) to a tinned copper substrate A dynometer force gauge should be applied the side of the component. The device must with-ST-F 0.5 Kg without failure of the termination attached to component.
Component Adhesion (Pull test)	1. No visible mechanical damage	Insert 10cm wire into the remaining open eye bend ,the ends of even wire lengths upward and wind together. Terminal shall not be remarkably damaged.

<table>
<tr><td>Thermal shock</td><td>1. No visible mechanical damage
2. Central Freq. change :within ±6%
<table><tr><td>Phase</td><td>Temperature(℃)</td><td>Time(min)</td></tr><tr><td>1</td><td>+85±5℃</td><td>30±3</td></tr><tr><td>2</td><td>Room Temperature</td><td>Within 3sec</td></tr><tr><td>3</td><td>-40±2℃</td><td>30±3</td></tr><tr><td>4</td><td>Room Temperature</td><td>Within 3sec</td></tr></table></td><td>+85℃=>30±3min
-40℃=>30±3min
Test cycle:10 cycles
The chip shall be stabilized at normal condition for 2~3 hours before measuring.</td></tr>
<tr><td>Resistance to High Temperature</td><td>1. No visible mechanical damage
2. Central Freq. change :within ±6%
3. No disconnection or short circuit.</td><td>Temperature: 85±5℃
Duration: 1000±12hrs
The chip shall be stabilized at normal condition for 2~3 hours before measuring.</td></tr>
<tr><td>Resistance to Low Temperature</td><td>1. No visible mechanical damage
2. Central Freq. change :within ±6%
3. No disconnection or short circuit.</td><td>Temperature:-40±5℃
Duration: 1000±12hrs
The chip shall be stabilized at normal condition for 2~3 hours before measuring.</td></tr>
<tr><td>Humidity</td><td>1. No visible mechanical damage
2. Central Freq. change :within ±6%
3. No disconnection or short circuit.</td><td>Temperature: 40±2℃
Humidity: 90% to 95% RH
Duration: 1000±12hrs
The chip shall be stabilized at normal condition for 2~3 hours before measuring.</td></tr>
</table>

5. Soldering and Mounting

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. The terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.





Recommended temperature profiles for re-flow soldering in Figure 1.

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150℃

- Never contact the ceramic with the iron tip

- Use a 20 watt soldering iron with tip diameter of 1.0mm

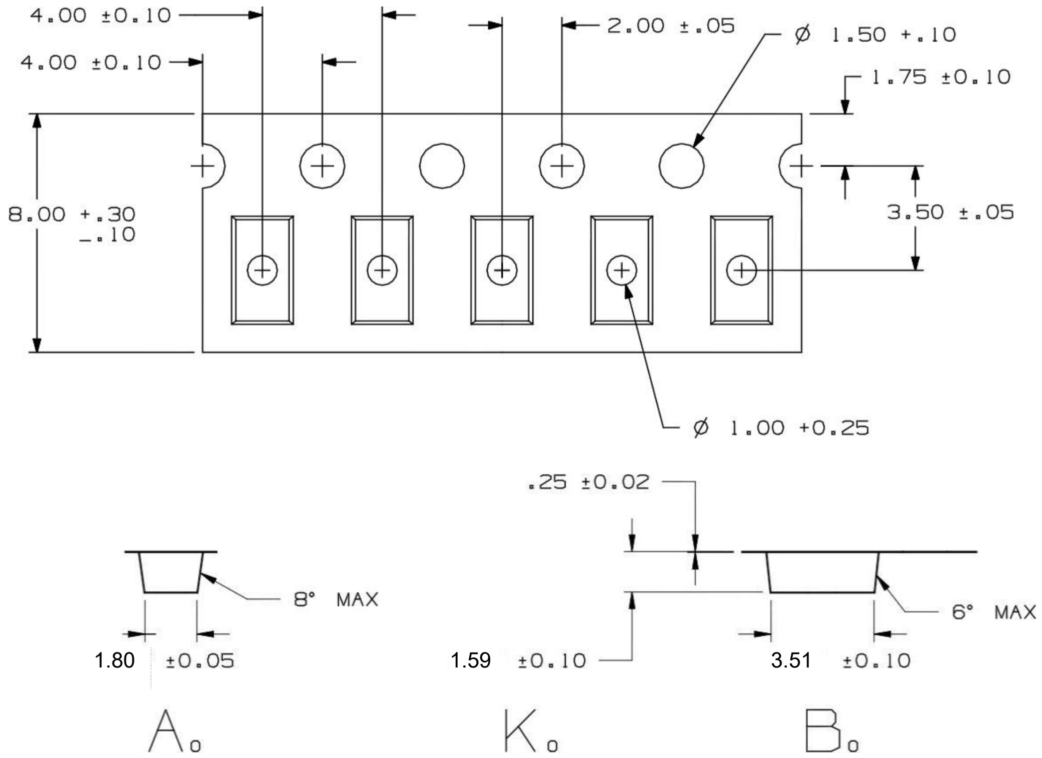
- 280℃ tip temperature (max)

- 1.0mm tip diameter (max)

- Limit soldering time to 3 sec.

6.Packaging Information

◆ **Tape Specification:**



◆ **Reel Specification: (7’’, Φ180 mm)**

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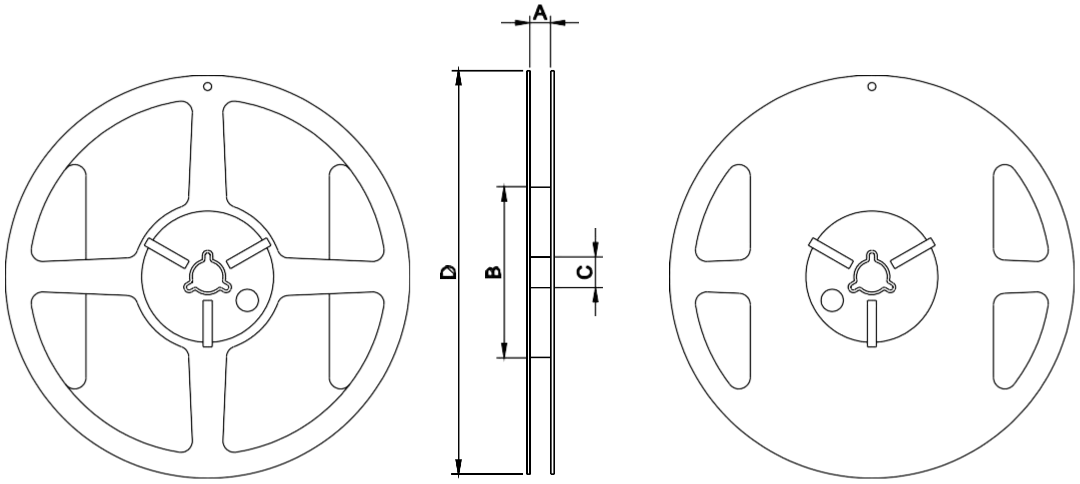

7" x 8 mm

Tape Width(mm)	A(mm)	B(mm)	C(mm)	D(mm)	Chip/Reel(pcs)
8	9.0±0.5	60±2	13.5±0.5	178±2	5000

7. Storage and Transportation Information

Storage Conditions

To maintain the solderability of terminal electrodes:

1. Temperature and humidity conditions: -10~ 40℃ and 30~70% RH.

2. Recommended products should be used within 6 months from the time of delivery.

3. The packaging material should be kept where no chlorine or sulfur exists in the air.

Transportation Conditions

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

2. The use of tweezers or vacuum pick up is strongly recommended for individual components.

3. Bulk handling should ensure that abrasion and mechanical shock are minimized.