2012 Chip Antenna

For Bluetooth / WLAN Applications

Shenzhen Kingvie Technology Co., Ltd

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P/N: LTA212450-P2M

Part Number Information

LTA	21	2450	P2M
A	B	C	D

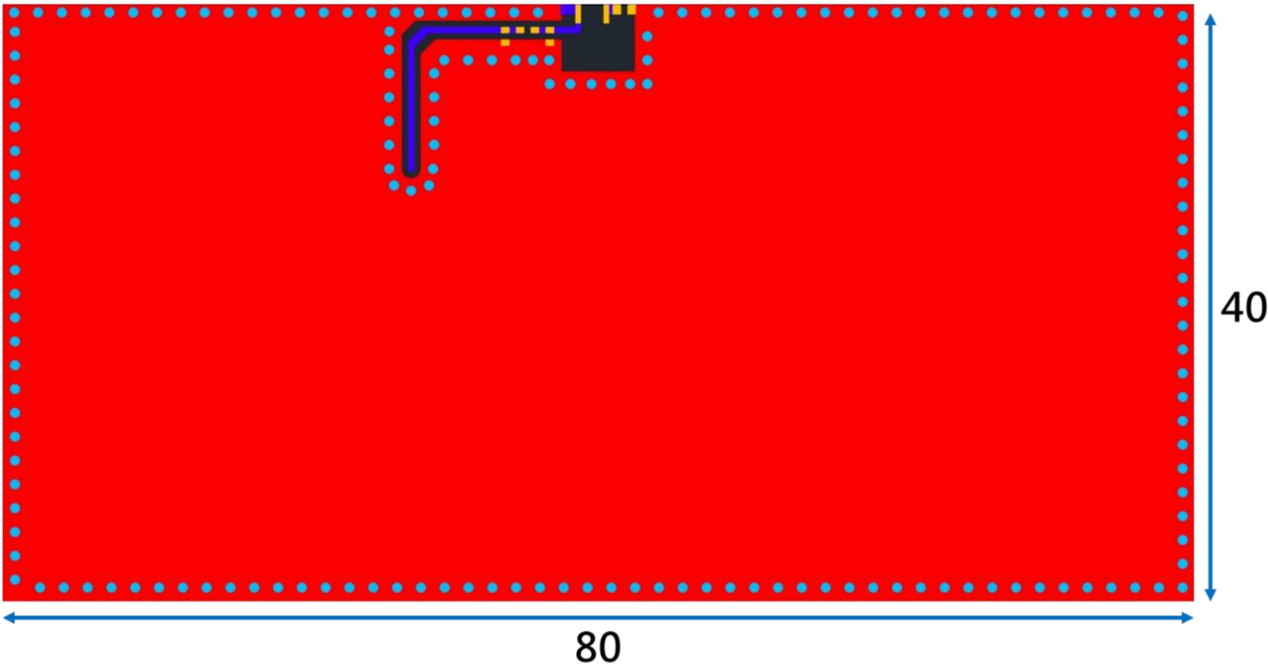
A	Product Series	Antenna
B	Dimension L x W	2.0×1.2 mm (±0.2mm)
C	Frequency	2450MHZ
D	Product Name	P2M
E	Antenna Type	SMD Antenna

1. Electrical Specification

Specification		
Part Number	LTA212450-P2M	
Central Frequency	2450	MHz
Bandwidth	90 (Min.)	MHz
Return Loss	-10 (Max)	dB
Peak Gain	2.16	dBi
Impedance	50	Ω
Operating Temperature	-40～+85	℃
Maximum Power	1	W
Resistance to Soldering Heats	10 (@ 260℃)	sec.
Polarization	Linear	
Azimuth Beamwidth	Omni-directional	
Termination	Cu / Sn (Leadless)	

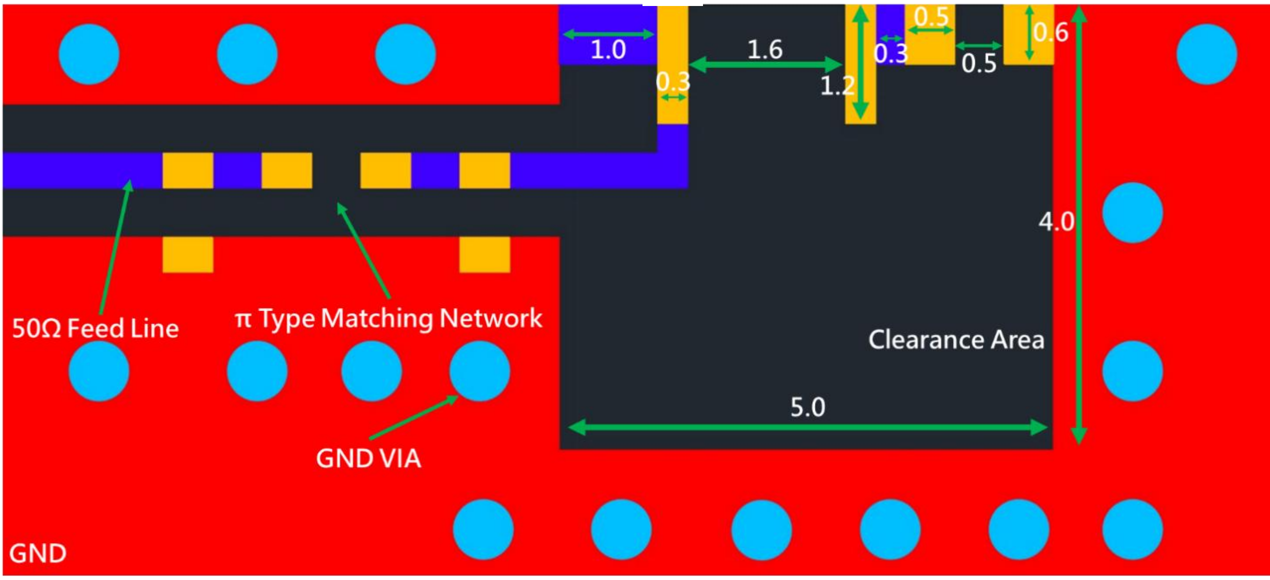
2. Recommended PCB Pattern (Unit : mm)

a.Evaluation Board Dimension

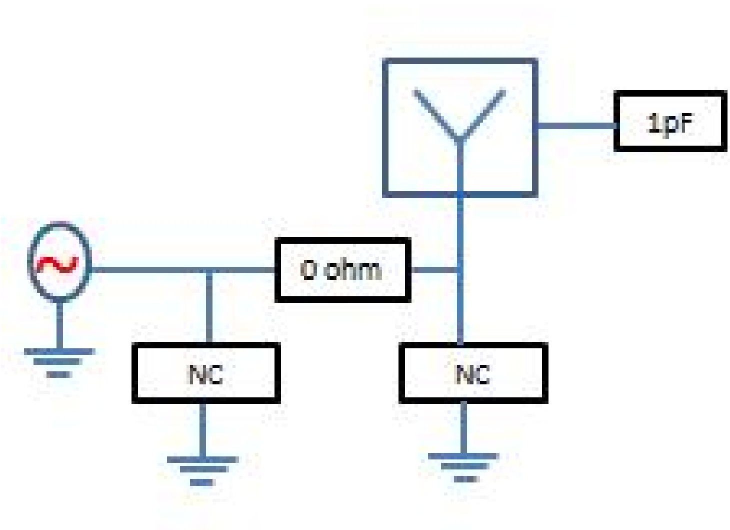


b.Layout Dimensions in Clearance area（Size=5.0*4.0mm）

Unit：mm

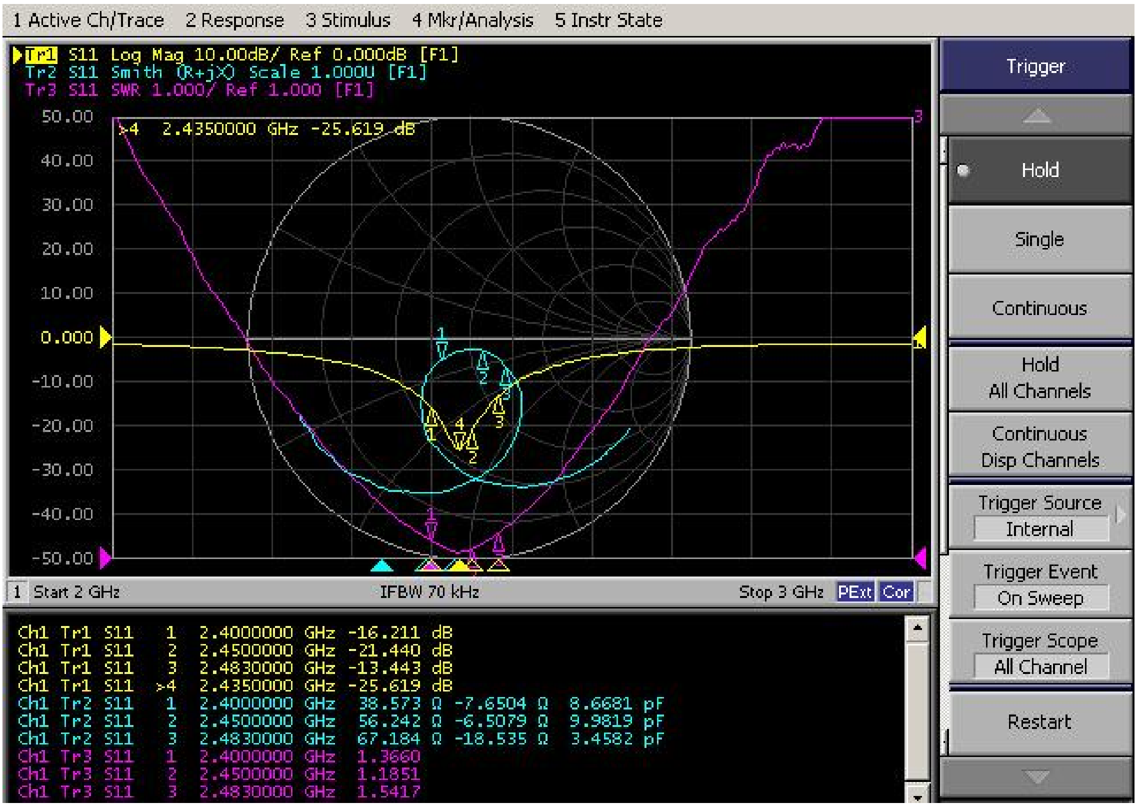


3. Suggested Matching Circuit



4. Measurement Results

a. Return Loss



```
Tr1 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]
Tr2 S11 Smith (R+jX) Scale 1.000U [F1]
Tr3 S11 SWR 1.000/ Ref 1.000 [F1]
>4  2.4350000 GHz -25.619 dB
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Ch1 Tr1 S11   1  2.4000000 GHz -16.211 dB
Ch1 Tr1 S11   2  2.4500000 GHz -21.440 dB
Ch1 Tr1 S11   3  2.4830000 GHz -13.443 dB
Ch1 Tr1 S11  >4  2.4350000 GHz -25.619 dB
Ch1 Tr2 S11   1  2.4000000 GHz  38.573 Ω -7.6504 Ω  8.6681 pF
Ch1 Tr2 S11   2  2.4500000 GHz  56.242 Ω -6.5079 Ω  9.9819 pF
Ch1 Tr2 S11   3  2.4830000 GHz  67.184 Ω -18.535 Ω  3.4582 pF
Ch1 Tr3 S11   1  2.4000000 GHz  1.3660
Ch1 Tr3 S11   2  2.4500000 GHz  1.1851
Ch1 Tr3 S11   3  2.4830000 GHz  1.5417
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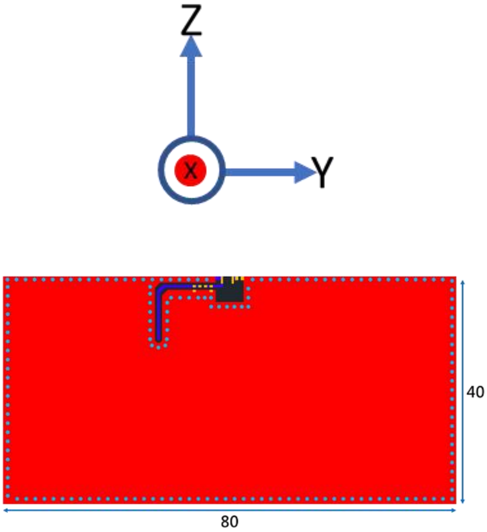
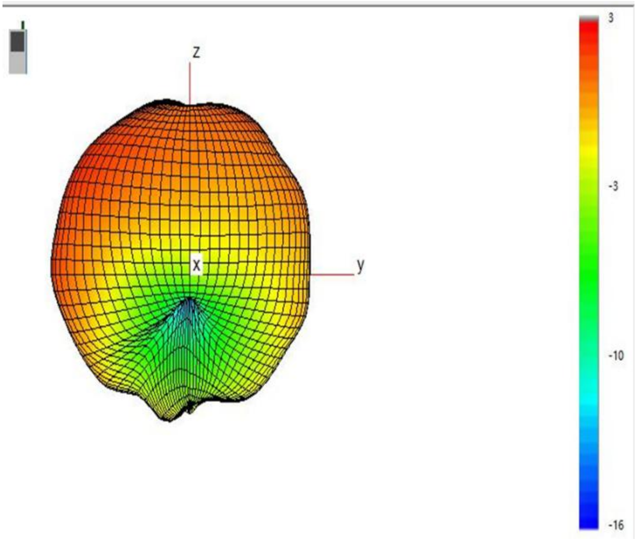
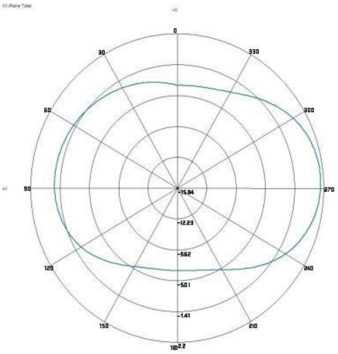
b. Radiation Pattern

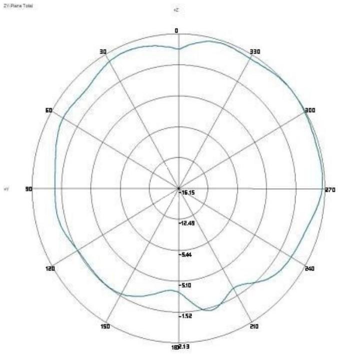




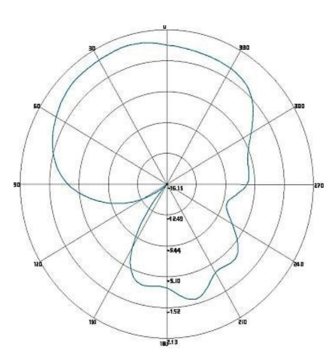
XY-Plane Total



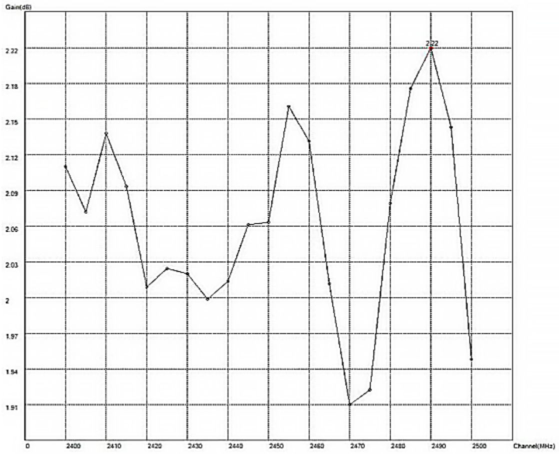
ZY-Plane Total



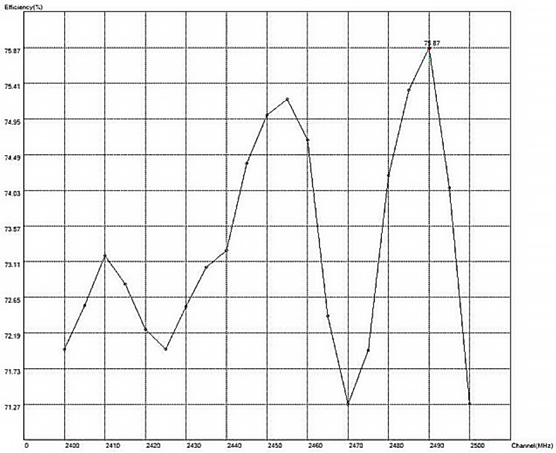
ZX-Plane Total



Gain-Plane



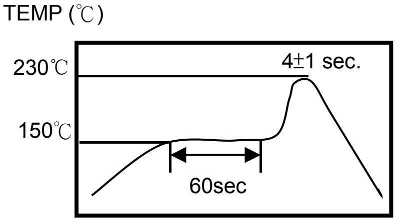
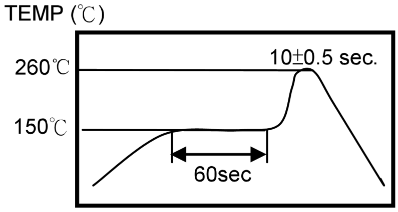
Efficiency-Plane



Frequency (MHz)	**2400**	**2450**	**2500**
Efficiency (dB)	**-1.42**	**-1.24**	**-1.47**
Efficiency (%)	**71**	**75**	**71**

Peak Gain (dBi)	**2.16**	**2.06**	**1.94**

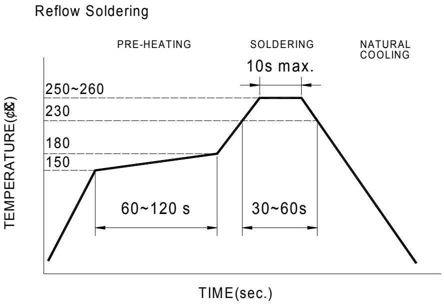
5.Reliability and Test Conditions

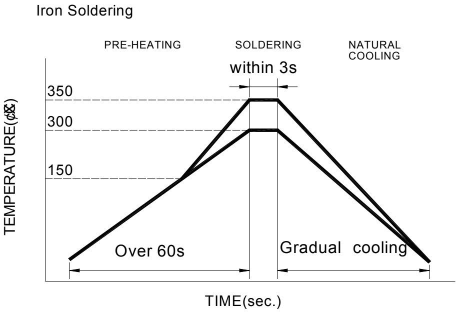
<table>
<tr><th>ITEM</th><th>REQUIREMENTS</th><th>TEST CONDITION</th></tr>
<tr><td>Solderability</td><td>1. Wetting shall exceed 90% coverage
2. No visible mechanical damage

</td><td>Pre-heating temperature:150℃/60sec.
Solder temperature:230±5℃
Duration:4±1sec.
Solder:Sn-Ag3.0-Cu0.5
Flux for lead free: rosin</td></tr>
<tr><td>Solder heat Resistance</td><td>1. No visible mechanical damage
2. Central Freq. change :within ± 6%

</td><td>Pre-heating temperature:150℃/60sec.
Solder temperature:260±5℃
Duration:10±0.5sec.
Solder:Sn-Ag3.0-Cu0.5
Flux for lead free: rosin</td></tr>
<tr><td>Component Adhesion (Push test)</td><td>1. No visible mechanical damage</td><td>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.</td></tr>
<tr><td>Component Adhesion (Pull test)</td><td>1. No visible mechanical damage</td><td>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.</td></tr>
<tr><td>Thermal shock</td><td>1. No visible mechanical damage
2. Central Freq. change :within ±6%
<table>
<tr><th>Phase</th><th>Temperature(℃)</th><th>Time(min)</th></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</td></tr>
</table>

		The chip shall be stabilized at normal condition for 2~3 hours before measuring.

6.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.

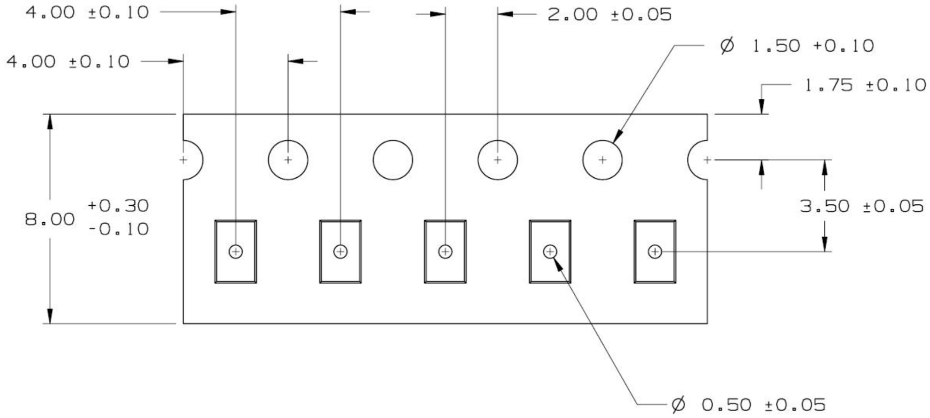
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

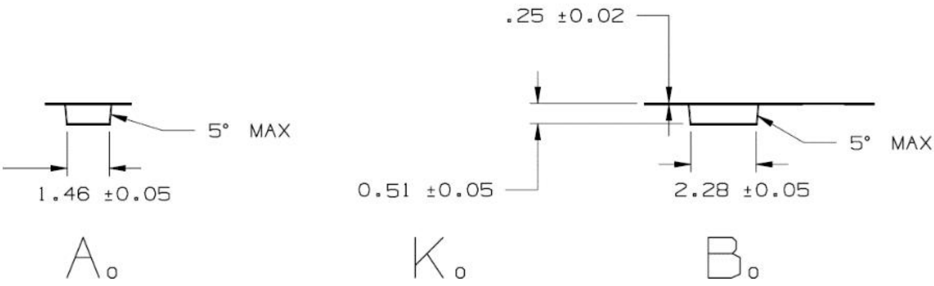
- Preheat circuit and products to 150℃
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 280℃ tip temperature (max)
- 1.0mm tip diameter (max)

- Limit soldering time to 3 sec.

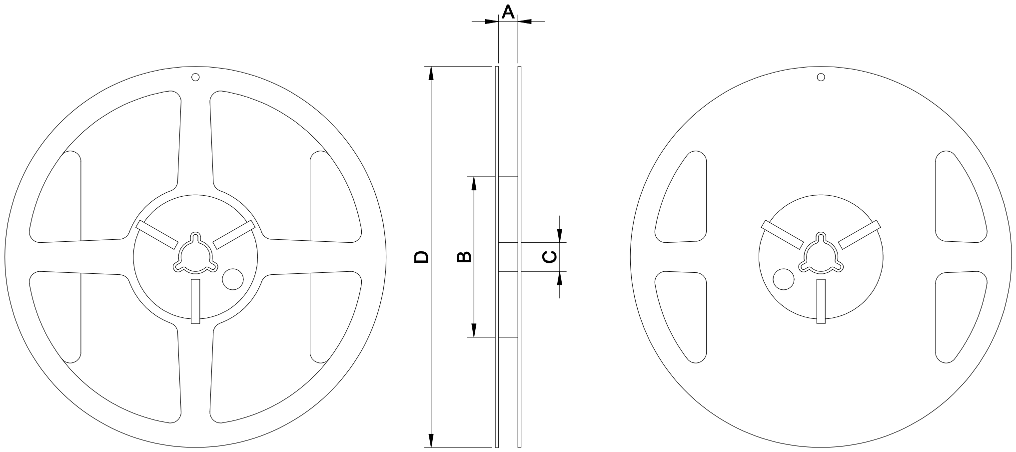
7.Packaging Information

◆Tape Specification:





◆Reel Specification: (7'', Φ180 mm)



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	4000

8.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.