

Product Technical Specification Sheet

SPECIFICATION

Product Model – Part No.:LA52H2450-A36

Customer Part Number:

Customer Confirmation – CUSTOMER APPROVED BY:

Approval Date: APPROVED DATE:

RoHS Compliant Parts

No.66 Zhengyuan Road, Economic Development Zone, Jiaxing, Zhejiang,

China TEL: +86-573-83651818 FAX: +86-573-83651858

Prepared by:	Reviewed by:	Approved by:
Sample Submission Date: Formed On		Product Version – Document Version (V1.4)

Catalogue

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Product Specification Sheet Version Change History Version Rejigger

Track Record

Version Number	Change Record – Rejigger	Prepared	Approve	DateDate
V1.0	Initial issue	Cai Zhuang	Lu Delong	2015. 12. 25
V1.1	Change product dimensional tolerance value	Luo Changwei	Lu Guanyu	2017. 05. 24
V1.2	Amended Reliability Test Procedure – Sections 8.1–8.4	Pan Feng	Lu Guanyu	2017. 11. 07
V1.3	Corrected Reliability Item 9.4 – Content Update the reflow soldering temperature profile chart New addition: Correction to the product packaging orientation diagram (Section 11.1); Section 11.3 – Product storage conditions: MSL: 1	Pan Feng	Lu Guanyu	2018. 06. 13
V1.4	Increase Initial Content Frequency by 5.1	Pan Feng	Lu Guanyu	2018. 12. 11
Remarks: 1、 When modifying a product's electrical performance specifications, the version number must be updated (e.g., from V1.0 to V2.0, V3.0, etc.); 2、 When the product testing method (including reliability test conditions) or the operating conditions are modified, use the current version number followed by a series identifier (e.g., change V1.0 to V1.1, V1.2, etc.).				

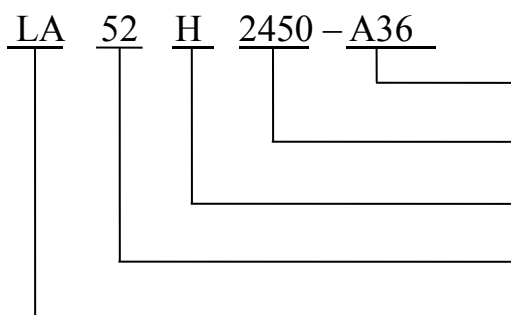
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1. Overview INTRODUCTION

The "Jiali" microwave multi-layer ceramic antenna (LA Series) is designed for compact SMD chip-based applications such as WLAN, WiFi, Bluetooth, PHS, multi-frequency mobile phone antennas, and FM systems.

"GLEAD" Microwave Multi-Layer Ceramic Antenna LA series are designed to be used in WLAN、WiFi、Bluetooth、PHS、 Multiple-band Mobile phone antenna, FM, etc and compact size SMD chip design.

2. Model Part Number



Product Name: A36 / Product Number: A

36 / Antenna Frequency: 2450 MHz /

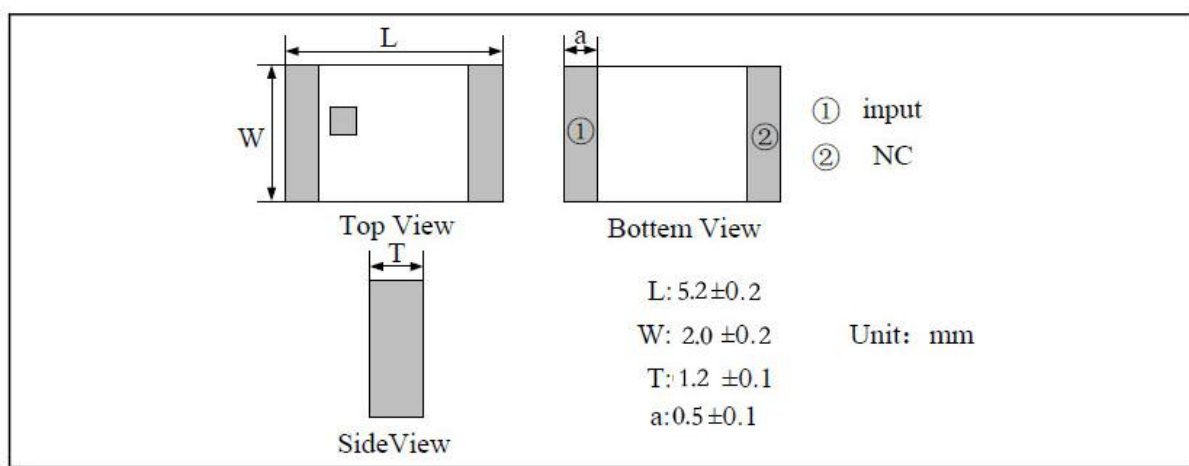
Product Design Structure: H-Shape/Via

Design Series / Product Dimensions: $5.2 \times$

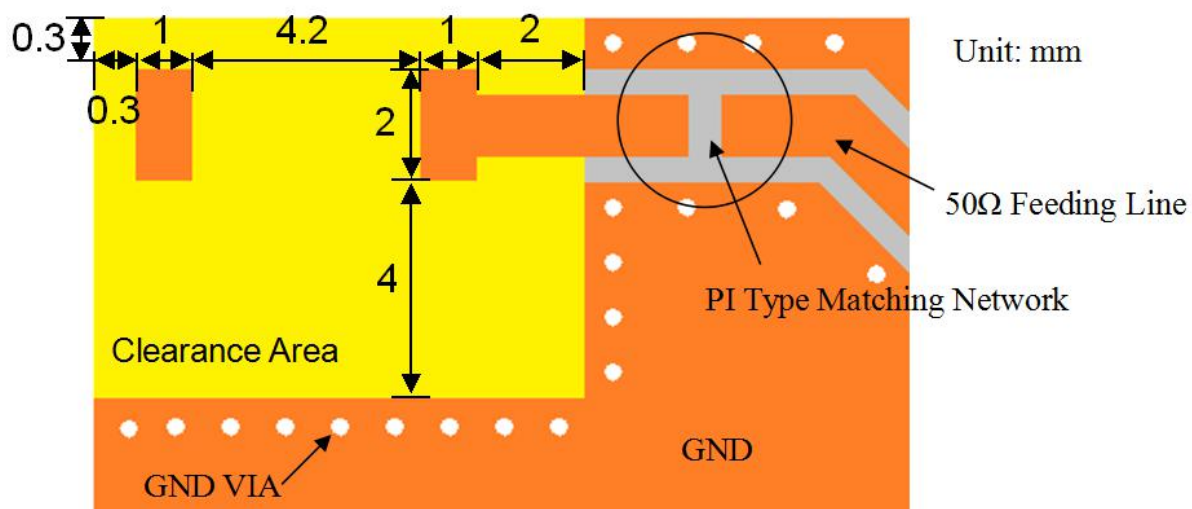
2.0×1.2

Multi-layer Antenna

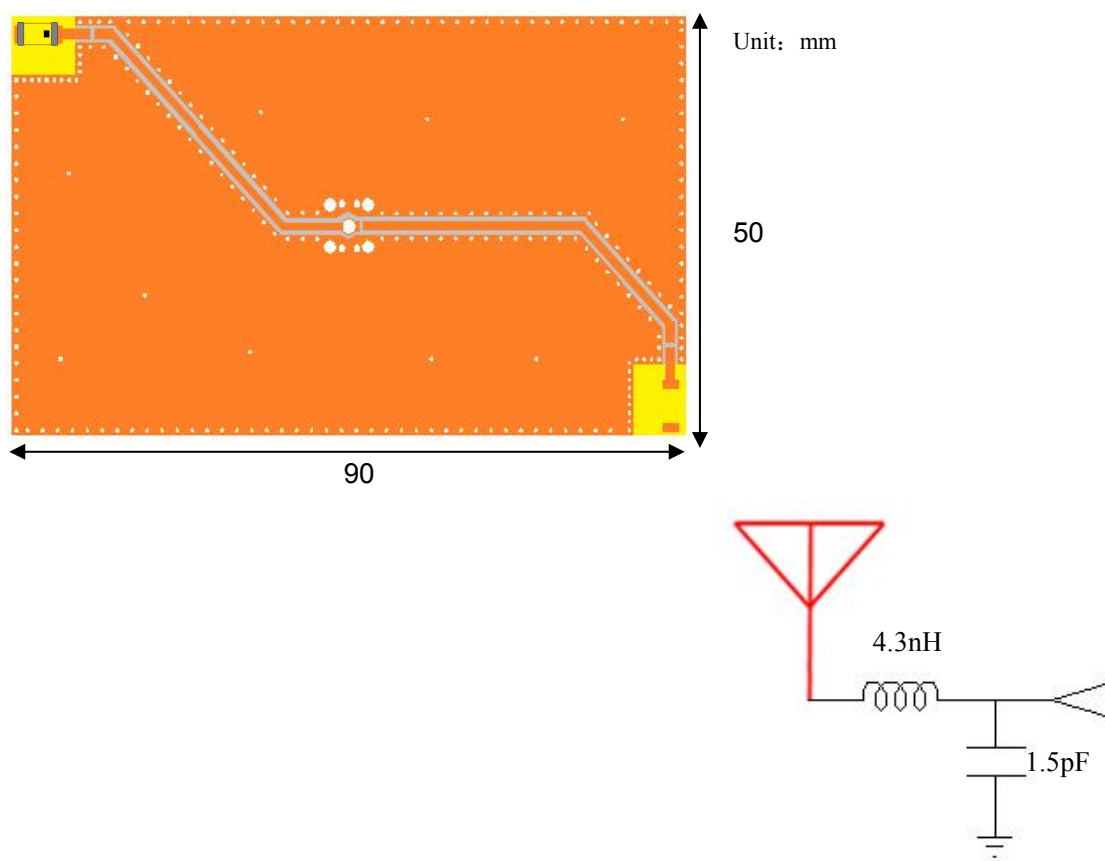
3. External dimensions and test board pad dimensions Dimensions (Unit: mm)



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4. Test Circuit and Matching Circuits Evaluation Board and Matching Circuits

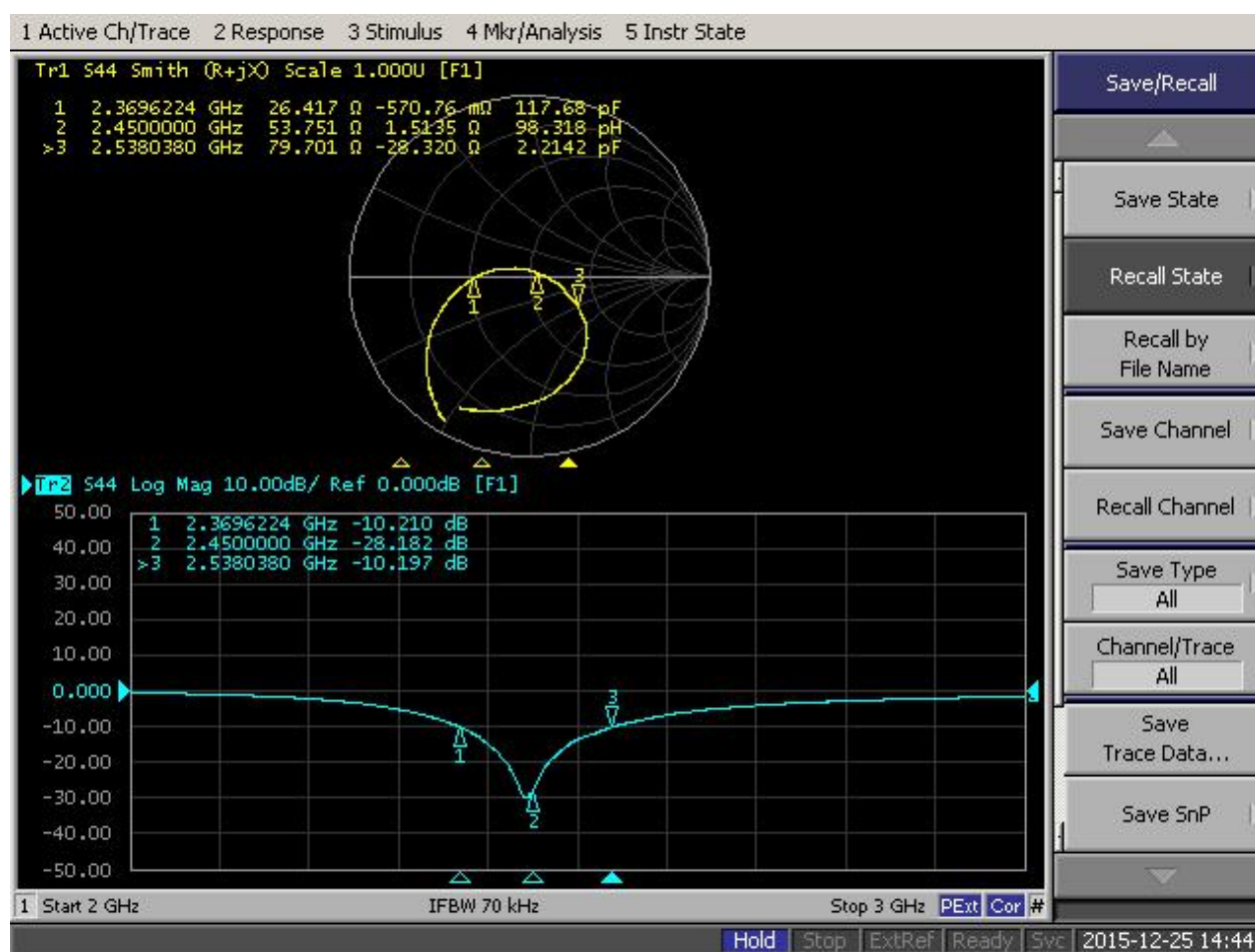


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5. Electrical Characteristics Electrical Characteristics

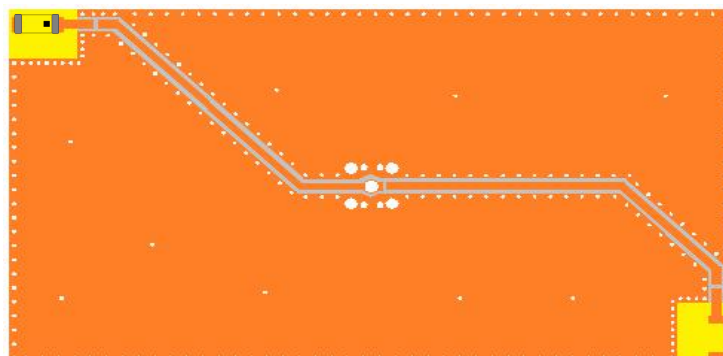
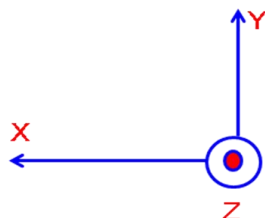
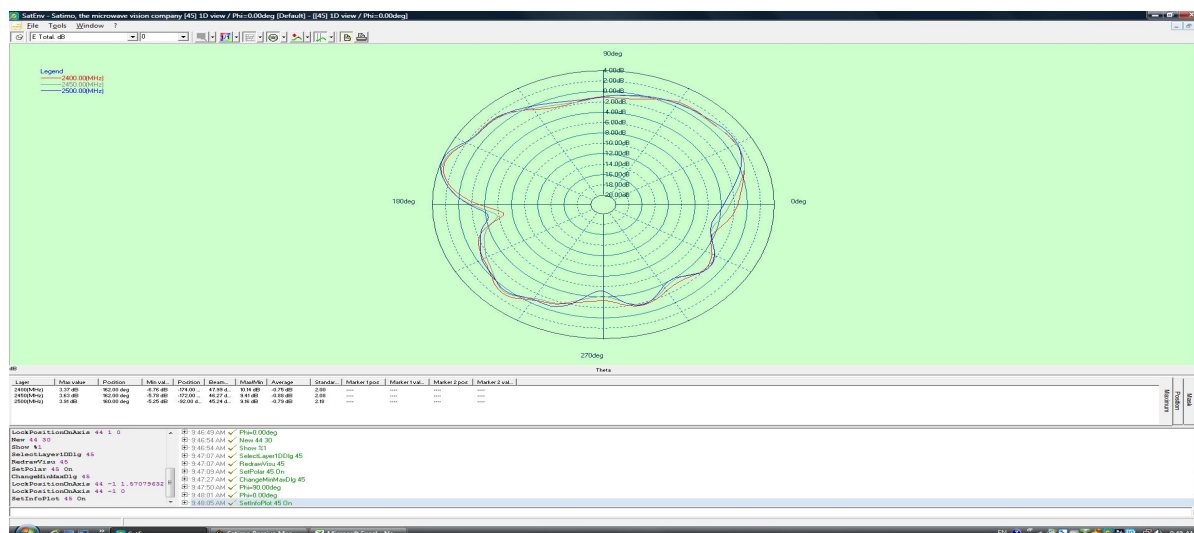
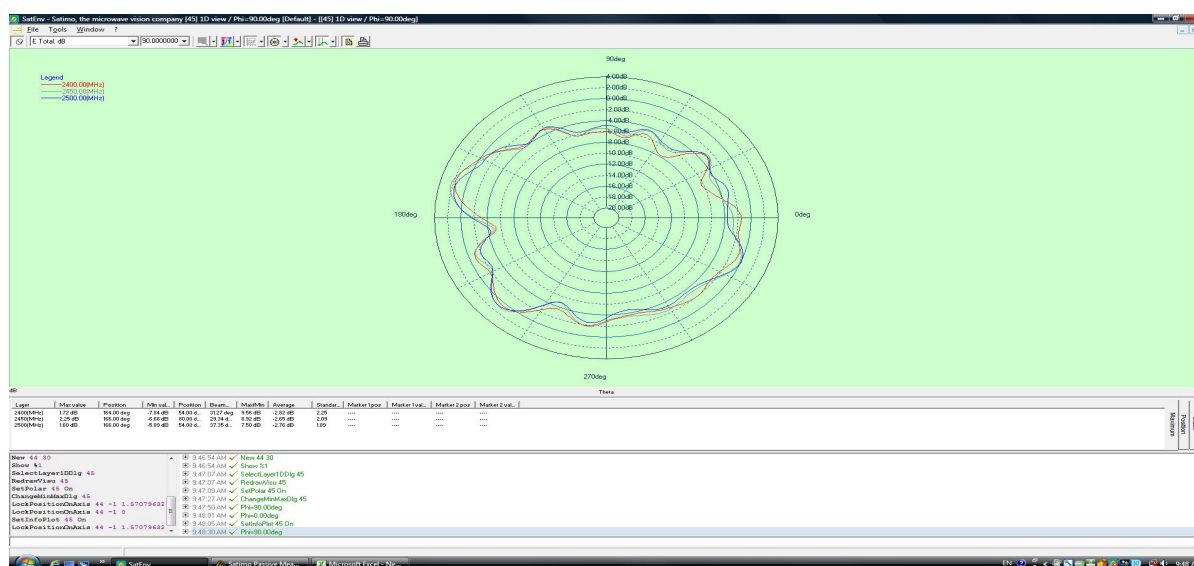
No.	Item (Item)	Specifications (Features)
5.1	Central Frequency (No match)	2790MHz
	(With matching circuit test) After Matching	2450 MHz
5.2	Bandwidth – Passband Width	100MHz typ.
5.3	Peak Gain	4.97 dBi
5.4	V.S.W.R. Standing Wave Ratio	≤ 2.0
5.5	Polarization mode	Linear
5.6	Azimuth Beam Width – Azimuth Angle	Omni-directional
5.7	Impedance	50 Ω

6 Characteristic curve Characteristic curve



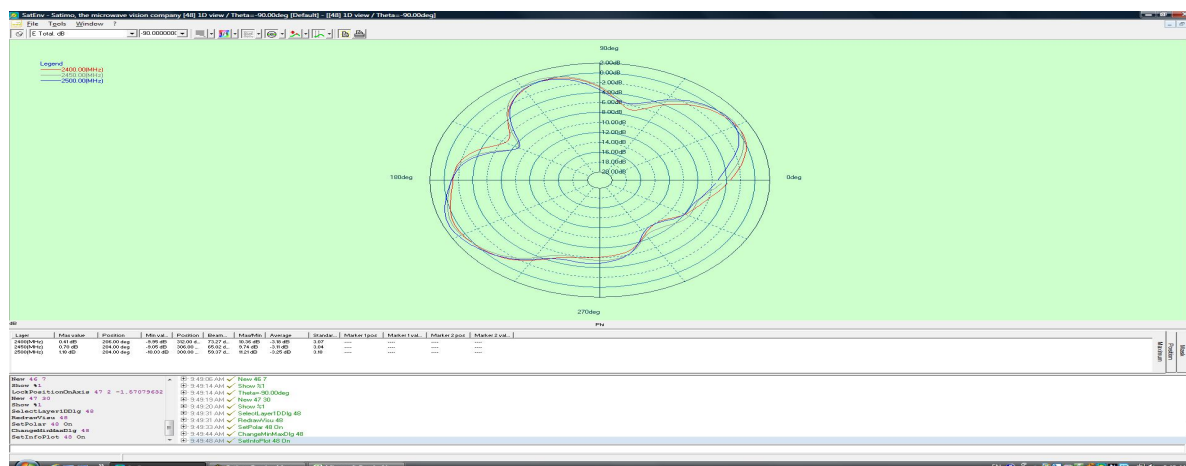
Specification**7. Radiation Pattern and Efficiency Radiation Pattern & Efficiency**

coordinates:

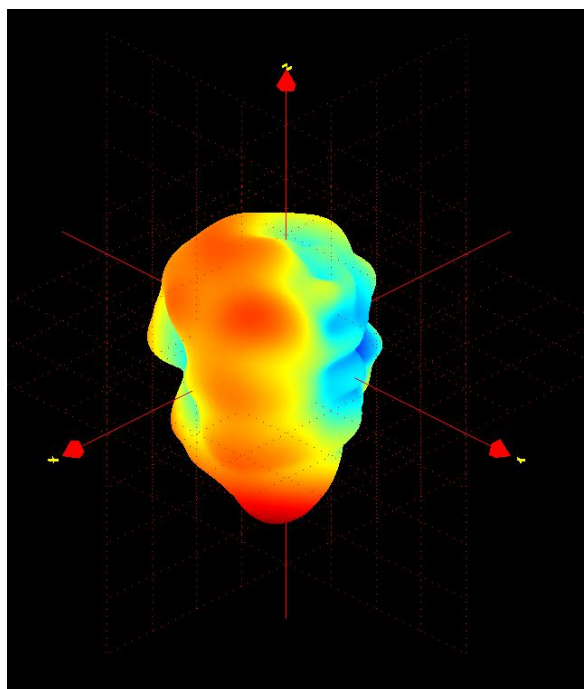
**X-Z Plane****Y-Z Plane**

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X-Y Plane



3D Radiation Pattern



Frequency (MHz)	2400	2450	2500
Avg. Gain (dBi)	-0.75	-0.79	-0.88
Peck Gain (dBi)	4.52	4.97	4.85
Efficiency (%)	70.2	71.1	71.2

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8 Post-Reliability Test Allowable Tolerance

After reliability testing, a deviation from the initial reading is permitted; refer to the table for the Post-Reliability Tolerance.

No.	Item (Item)	Post-Reliability Tolerance (Allowable additional error after reliability testing)
8.1	Central Frequency	± 5 MHz
8.2	Bandwidth – Passband Width	± 5 MHz
8.3	Gaingan	± 0.1 dBi
8.4	VSWR (in BW) – Standing Wave Ratio	± 0.1

9 Reliability Test Dependability Test

Base conditions: Temperature range $25 \pm 5^\circ\text{C}$

Relative humidity range: 55–75% RH

Operating Temperature Range: -40°C to $+85^\circ\text{C}$

9.1 Vibration Resistance Vibration Resist

After subjecting the specimen to vibration at a frequency of 10–55 Hz and an amplitude of 1.5 mm in the X, Y, and Z directions for each for 2 hours, the results shall comply with the requirements specified in Tables 8.1–8.4.

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 Resistance

After the object is dropped freely onto the wooden floor from a height of 100 cm, three times, along the X, Y, and Z axes respectively, the test shall be conducted to verify compliance with the requirements specified in Tables 8.1–8.4.

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 Welding Heat Resistance Solder Heat Proof

The component shall withstand a preheating period at a temperature of $120\text{--}150^\circ\text{C}$ for 120 seconds, followed by immersion in solder at $255^\circ\text{C} \pm 10^\circ\text{C}$ for 5 ± 0.5 seconds, or soldering with an electric soldering iron at $300^\circ\text{C} - 10^\circ\text{C}$ for 3 ± 0.5 seconds; the soldered surface shall be free from any damage.

The device should be satisfied after preheating at $120^\circ\text{C} \sim 150^\circ\text{C}$ for 120 seconds and dipping in soldering Sn at $255^\circ\text{C} + 10^\circ\text{C}$ for 5 ± 0.5 seconds, or electric iron $300^\circ\text{C} - 10^\circ\text{C}$ for 3 ± 0.5 seconds, without damage.

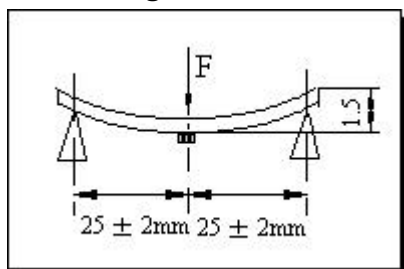
9.4 Thrust Test– Adhesive Strength of Termination

The product's electrode terminals or surface can withstand a horizontal force of 5 N (for ≤ 0603) or 10 N (for > 0603) for a duration of 10 ± 1 seconds without any noticeable visual damage or electrode displacement.

The device have no remarkable damage or removal of the termination after horizontal force of 5 N (≤ 0603); 10N (> 0603) with 10 ± 1 seconds.

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9.5 Bending Resistance Test



Solder the product onto a PCB board with a thickness of 1.6 ± 0.2 mm according to the provided diagram, applying force in the direction indicated by the arrow at a rate of 1 mm/s; bending distance: 1.5 mm; hold for 5 ± 1 s – ensure that no metal layer detachment occurs on the product.

Weld the product to the center part of the PCB with the thickness 1.6 ± 0.2 mm as the illustration shows, and keep exerting force arrow-ward on it at speed of 1mm/S, and hold for 5 ± 1 s 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

Place the sample in a constant-temperature humidity chamber at 60 ± 2 °C with a relative humidity of 90–95% for 96 hours; after allowing it to recover at ambient temperature for 1–2 hours, perform the test – the results shall comply with the requirements specified in Tables 8.1–8.4.

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

9.7 High-Temperature Endurance

Place the sample in an incubator maintained at 85 ± 5 °C for 96 ± 2 hours; then allow it to recover at room temperature for 1–2 hours before testing. The results shall comply with the requirements specified in Tables 8.1–8.4.

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

9.8 Low-Temperature Endurance

After placing the sample in a low-temperature chamber at -40 °C ± 5 °C for 96 ± 2 hours, allow it to recover for 1–2 hours before testing; the results shall comply with the requirements specified in Tables 8.1–8.4.

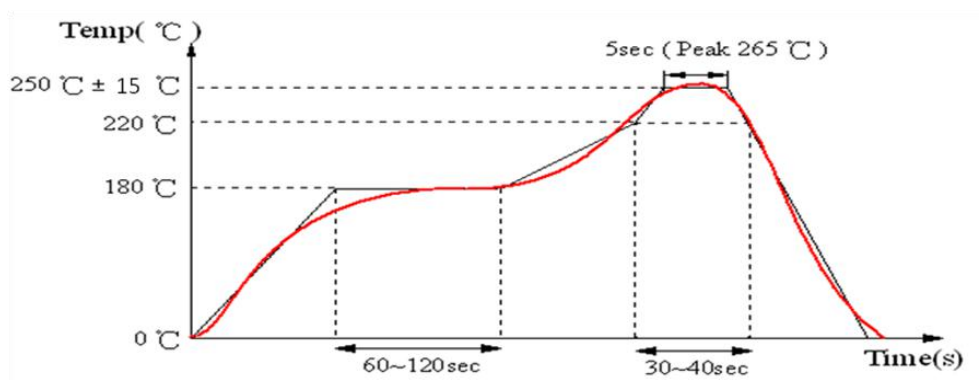
The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature -40 °C ± 5 °C for 96 ± 2 hours and to 2 hours recovery time under normal temperature.

9.9 Temperature Cycle Temperature Cycle Test

Subject the sample to a 30-minute exposure at -40 °C, followed by a 30-minute exposure at $+85$ °C; repeat this cycle five times, then allow the sample to recover at ambient temperature for 1–2 hours before testing to verify compliance with the requirements specified in Tables 8.1–8.4.

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

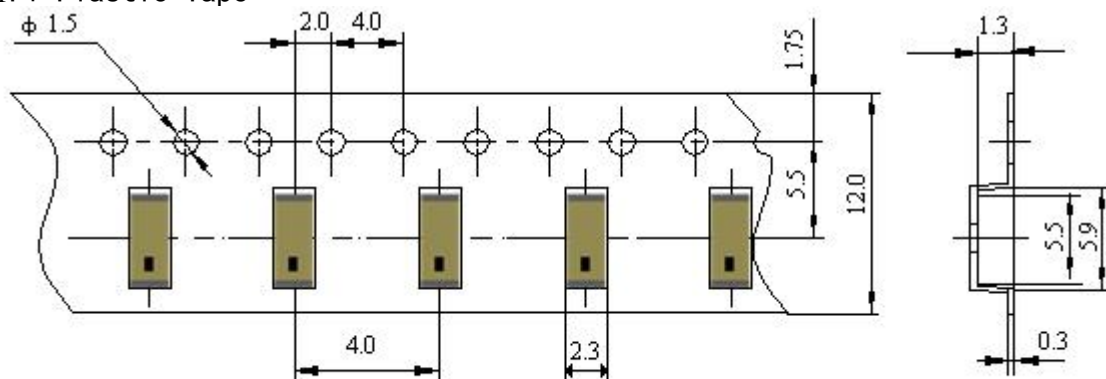
10 Reflow Soldering Temperature— Reflow Soldering Standard Condition



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11 Packaging Dimensions (5220) Packaging and Dimensions

11.1 Plastic Tape

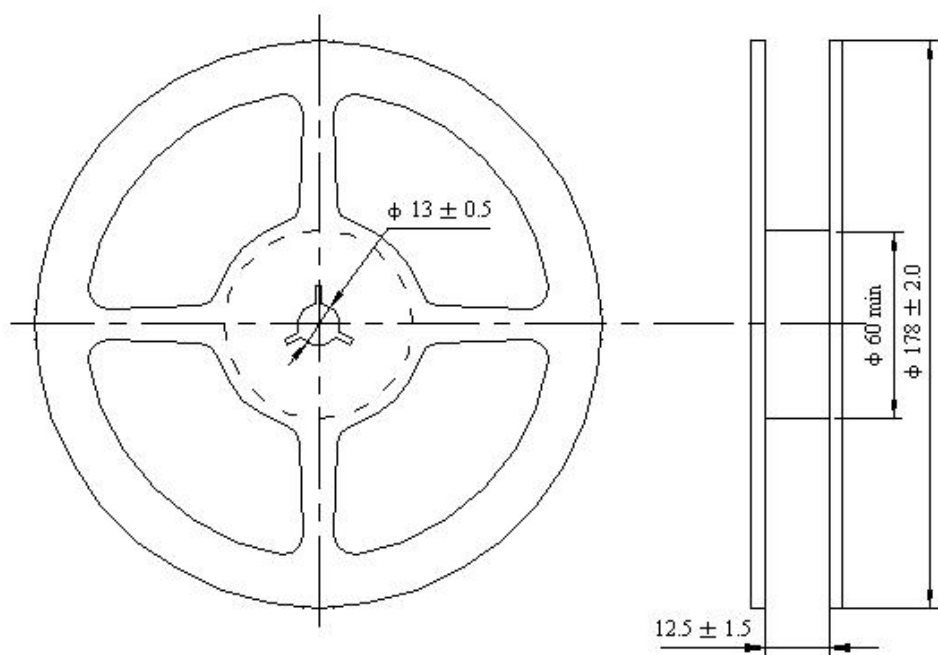


Packaging Instructions: Remarks for Package

The hole length at the tape tail is 150~200 mm; the hole length at the tape head is 250~300 mm; the cover tape at the head is extended by 250 mm.

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 Conditions – Storage Period

Please use the product within six months of receipt.

Product should be used within six months of receipt.

Humidity sensitivity level: 1 / Storage temperature and humidity:

MSL 1 / Storage Temperature Range : <30 degree C, Humidity : <85%RH