



Shenzhen Shunchengda Technology Co., Ltd.

SHUN DA CHENG TECHNOLOGY CO., LTD

Product Technical Specification Document

SPECIFICATION

Product Model PART NO:LA31H2450/5500-A33 **Customer**

Part Number CUSTOMER PART NO:

Customer Confirmation CUSTOMER APROVED BY:

Confirmation Date APPROVED DATE:

RoHS Compliant Parts

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Sample Submission Date: Formed On		Product Version Document Ver- sion (V1.6)



**Shenzhen Shunchengda Technology Co.,
Ltd.**
SHUN DA CHENG TECHNOLOGY CO., LTD
catalogue

Table of contents

Specification Version Change Records – Version Reorganization Track Record	3
1. Introduction Overview.....	4
2. Model Part Number.....	4
3. External dimensions and test board pad dimensions (Dimensions)···	4 ~ 5
4. Test Circuit and Matching Circuit: Evaluation Board and Matching Circuits	5
5. Electrical Properties.....	6
6. Characteristic Curve.....	6
7. Directional Map: Radiation Pattern.....	7~10
8. Allowable error after reliability testing: Post-Reliability Tolerance.....	11
9. Reliability Test (Dependability Test).....	11~12
10. Reflow soldering temperature – Standard conditions for reflow soldering···	12
11. Packaging Size: Dimensions and Specifications.....	13



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Product Specification

Document Version Change History Version History Track Record

Version Number	Change Record Rejigger	Fiction Prepared	Approve	Date Date
V1.0	Initial issue	Cai Zhuang	Lu Guanyu	2015. 12. 16
V1.1	Change product size tolerance value	Luo Changwei	Lu Guanyu	2017. 05. 24
V1.2	Amend the content of the reliability test descriptions in sections 8.1 to 8.4	Pan Feng	Lu Guanyu	2017. 11. 07
V1.3	The packaging size diagram illustrates how the product is placed on the carrier tape.	Pan Feng	Lu Guanyu	2018. 01. 10
V1.4	Correct the content of Reliability Project 9.4 Update the diagram of the reflow soldering temperature curve Correction 11.3: The product storage conditions are MSL: 1	Pan Feng	Lu Guanyu	2018. 06. 08
V1.5	Bottom view: Add a dashed line marker to the bottom electrode diagram	Pan Feng	Lu Guanyu	2019. 06. 18
V1.6	Instructions for adding a ground wire to the solder pad size diagram	Pan Feng	Lu Guanyu	2019. 06. 27

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 changing product testing methods (including reliability test conditions) or usage conditions, update the version number with a series suffix (e.g., V1.0 to V1.1, V1.2, etc.).



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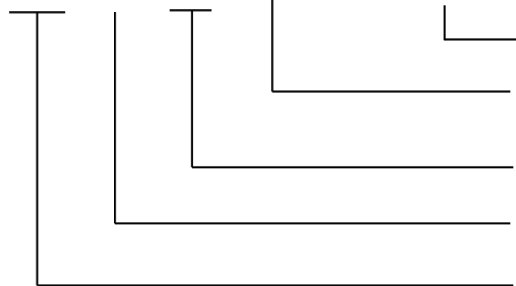
1. Overview INTRODUCTION

The "Jiali" **microwave multilayer ceramic antenna** LA series is designed for compact SMD chip applications in WLAN, WiFi, Bluetooth, PHS, mobile multi-frequency antennas, FM systems, and other applications.

"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

LA 31 H 2450/5500-A33



Product Name, Number A33 / Product Name: A33

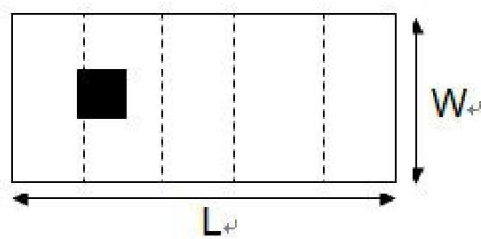
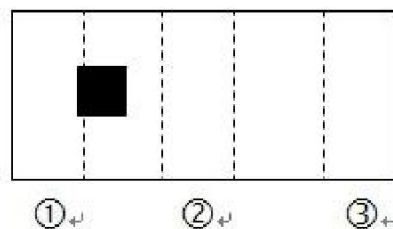
Antenna Frequency: 2450 MHz/5500 MHz; Product

Design Structure: H-type/Via Design Series

Product Size: 3.2×1.6×1.2

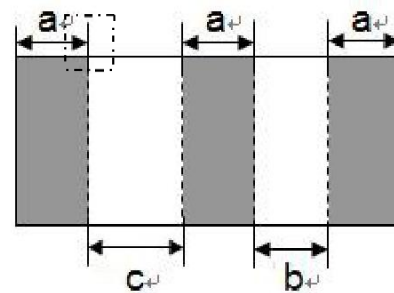
Multi-layer antenna

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

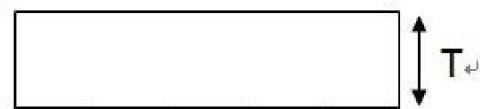


Top View

- ① GND
- ② INPUT
- ③ GND



Bottom View

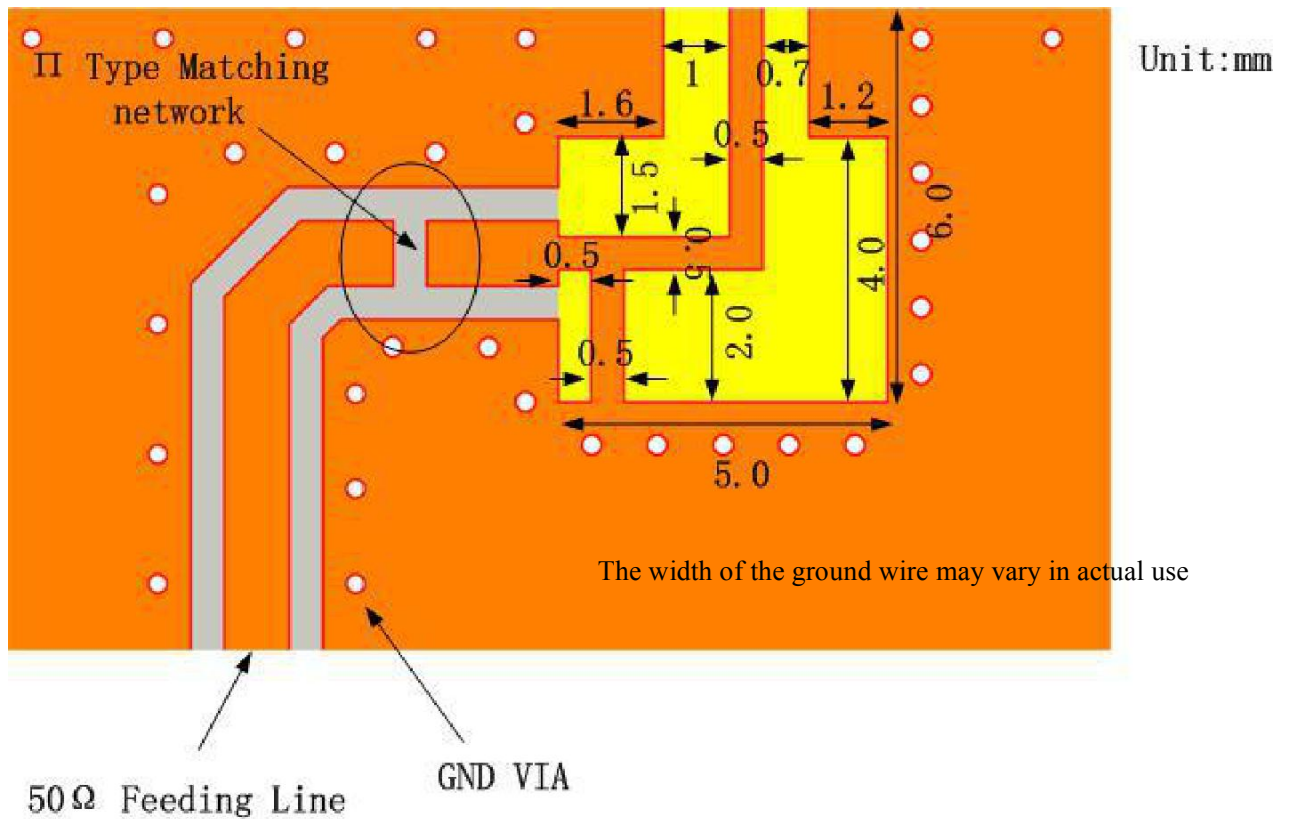


Symbol	L	W	T	a	b	c
Dimensions	3.2±0.2	1.6±0.2	1.2±0.1	0.5±0.1	0.7±0.1	1.0±0.1

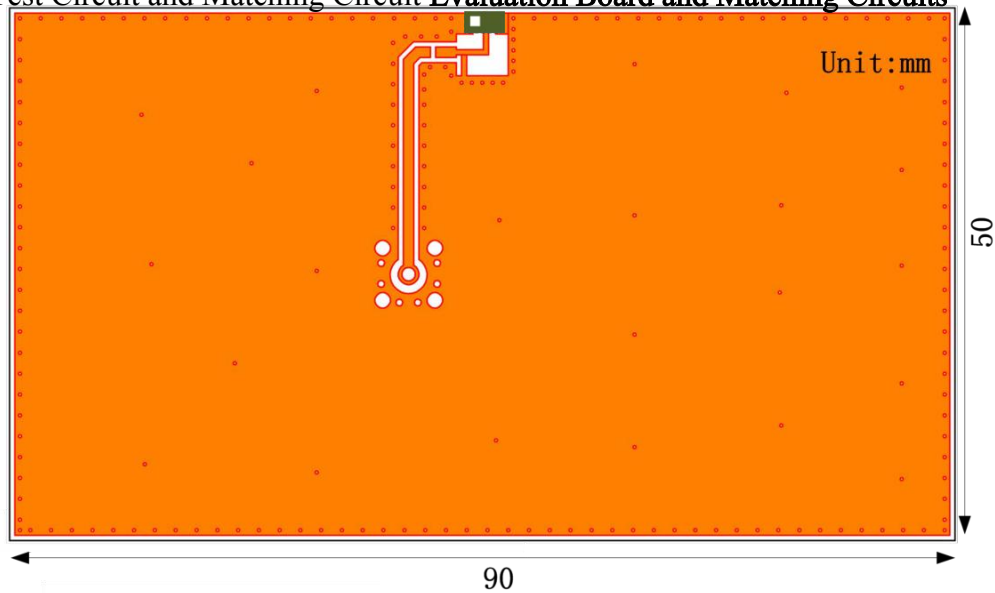


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4. Test Circuit and Matching Circuit Evaluation Board and Matching Circuits



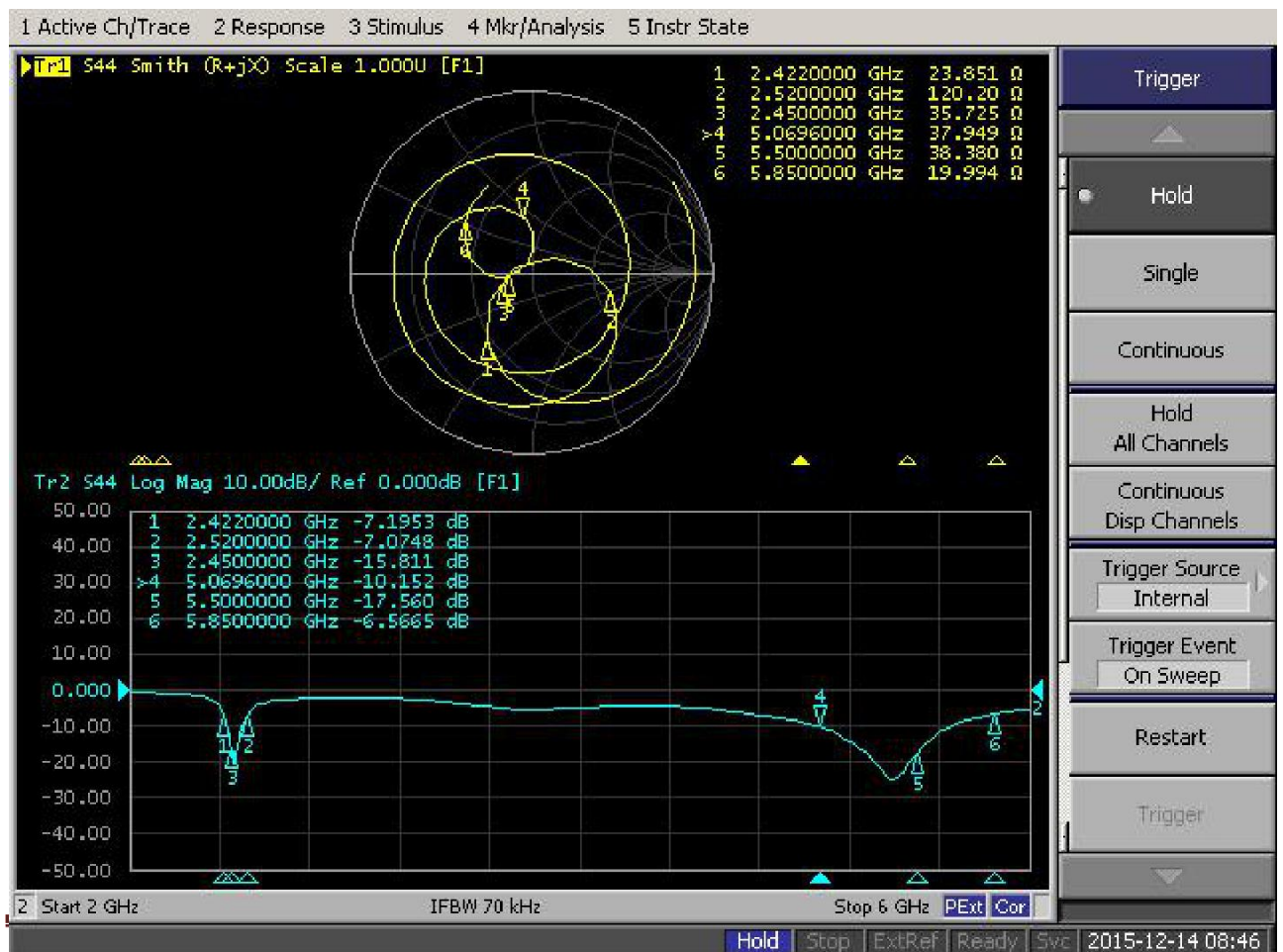
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5. Electrical Performance **Electrical Characteristics**

No.	Item (Project)	Specifications (Characteristics)
5.1	Frequency Range	2400 ~ 2500 MHz / 5150 ~ 5850 MHz
	(With matching circuit test) After Matching	2450 MHz/5500MHz
5.2	Band Width: Passband width	100MHz (typ.) / 800 MHz (typ.)
5.3	Peak Gain	2.23dBi / 4.05dBi
5.4	Return Loss: Echo Loss	-7 dB (max.) / -7 dB (max.)
5.5	Polarization Method	Linear
5.6	Azimuth Beam Width (azimuth angle)	Omni-directional
5.7	Impedance	50 Ω

6. Characteristic Curve **Characteristic curve**

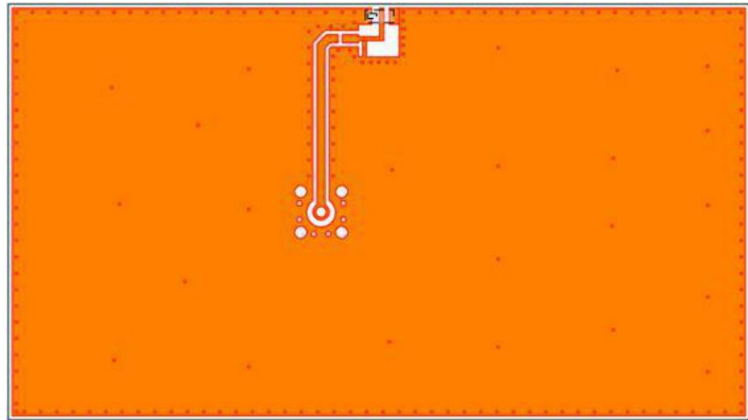
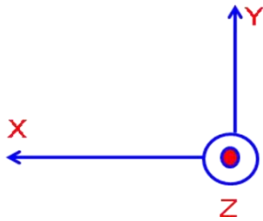


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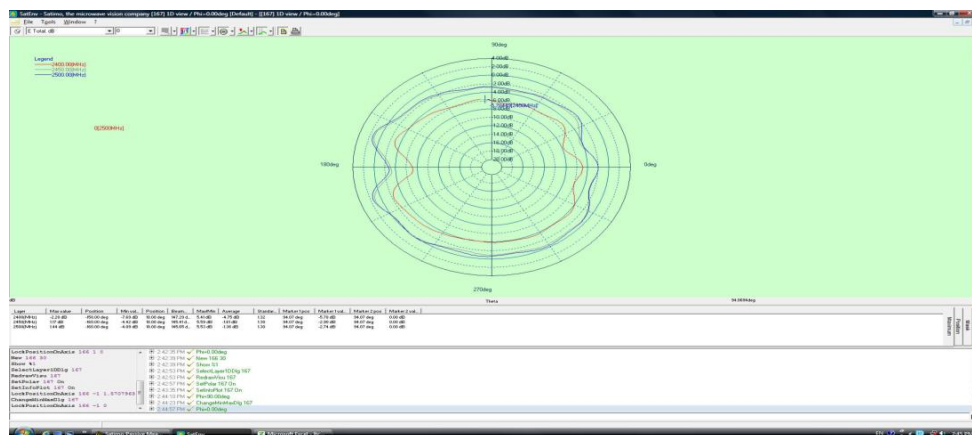
7. Directional Pattern and Efficiency Radiation Pattern & Efficiency

coordinates:

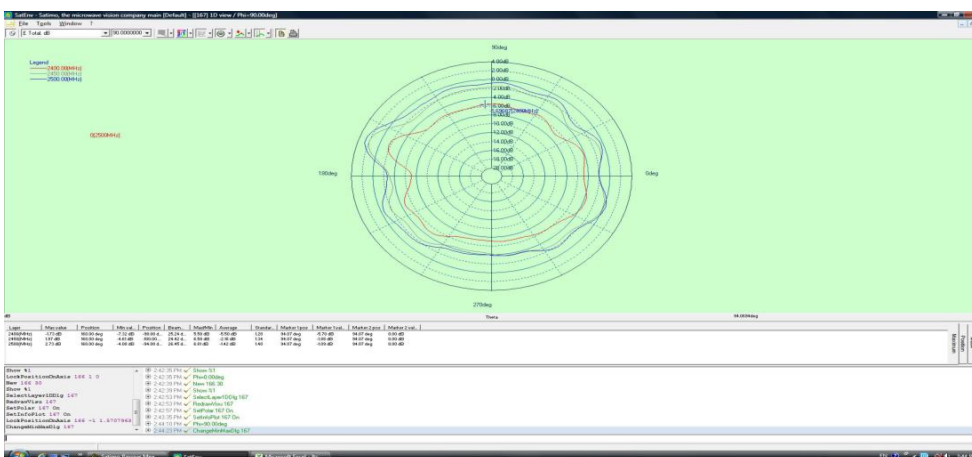


2. 4G

X-Z Plane



Y-Z Plane



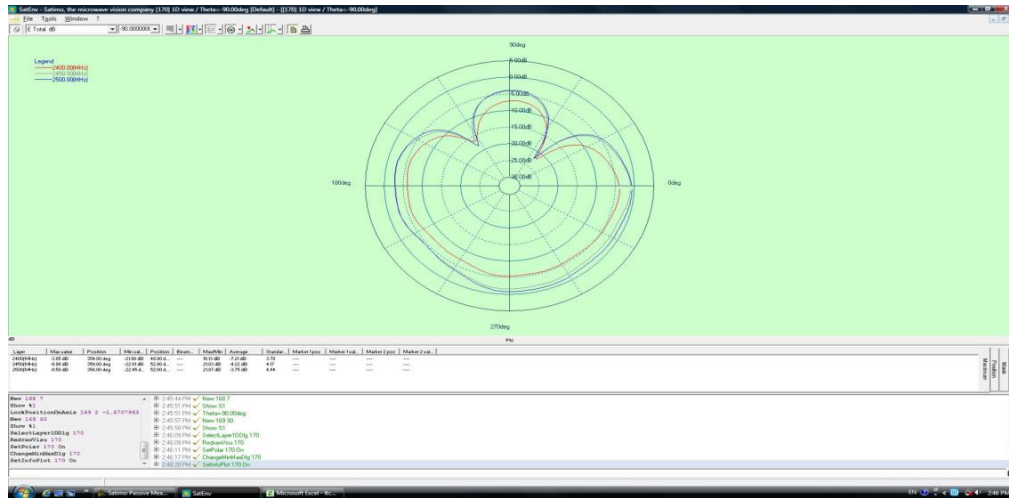
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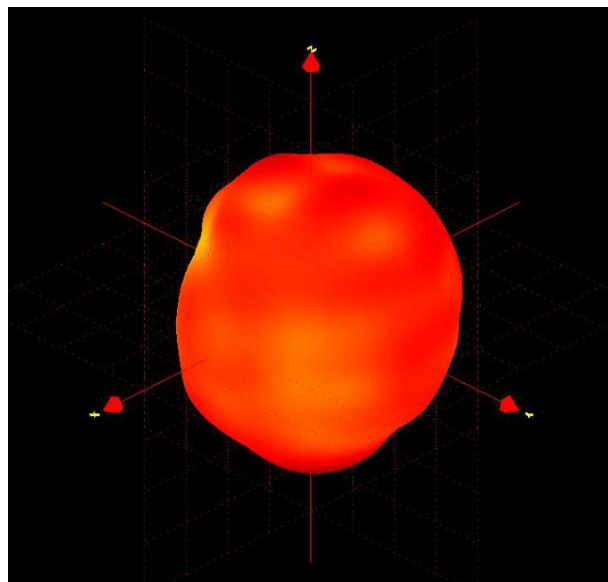


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X-Y Plane



3D Radiation Pattern



Frequency (MHz)	2400	2450	2500
Avg. Gain (dBi)	-4.75	-1.61	-1.36
Peck Gain (dBi)	1.95	2.23	2.07
Efficiency (%)	42	66.5	50

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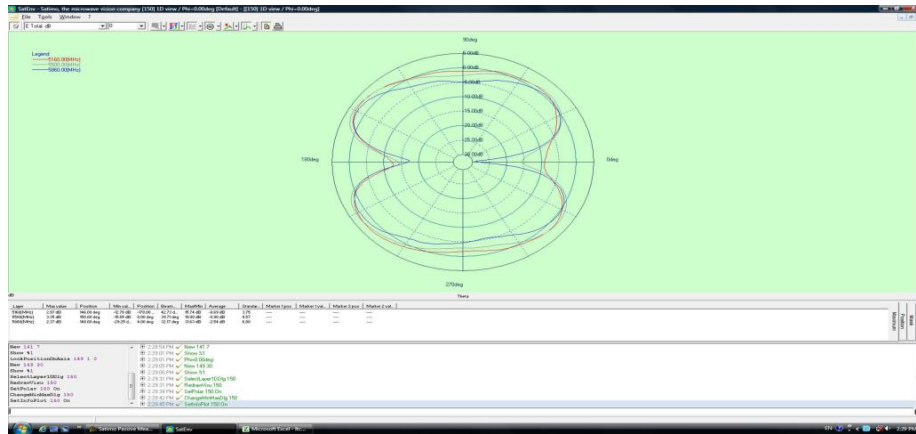
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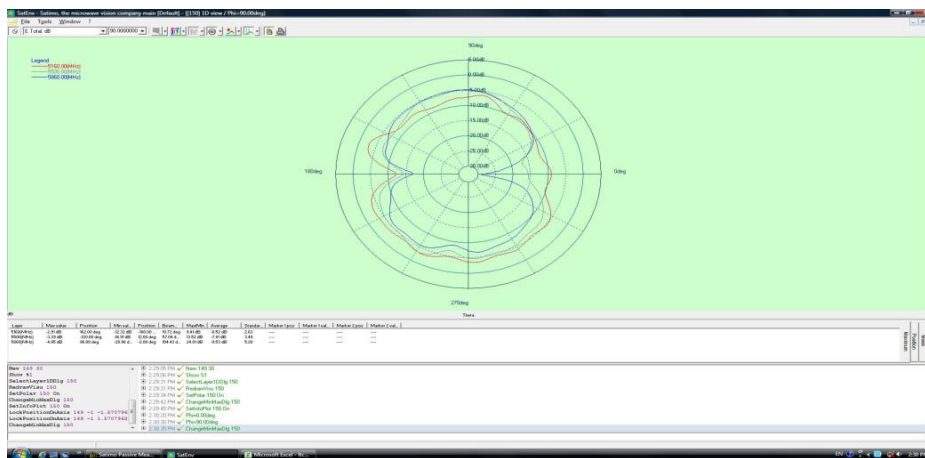
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5G

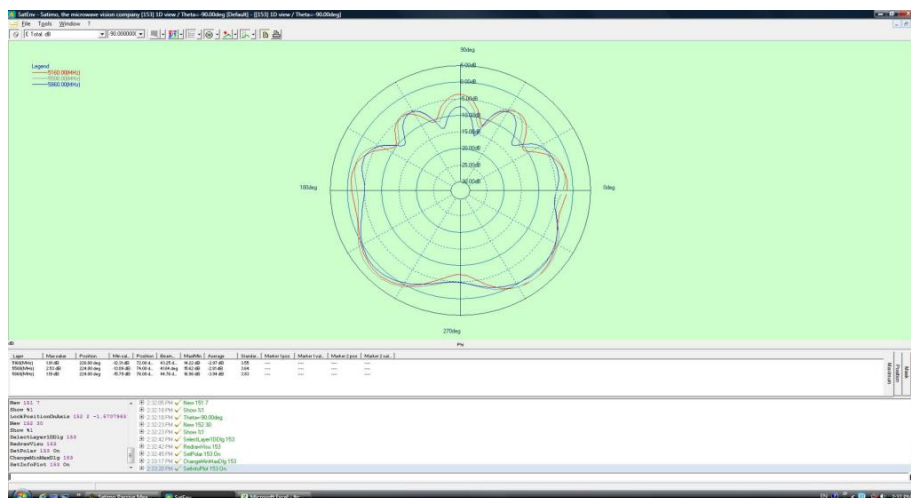
X-Z Plane



Y-Z Plane



X-Y Plane



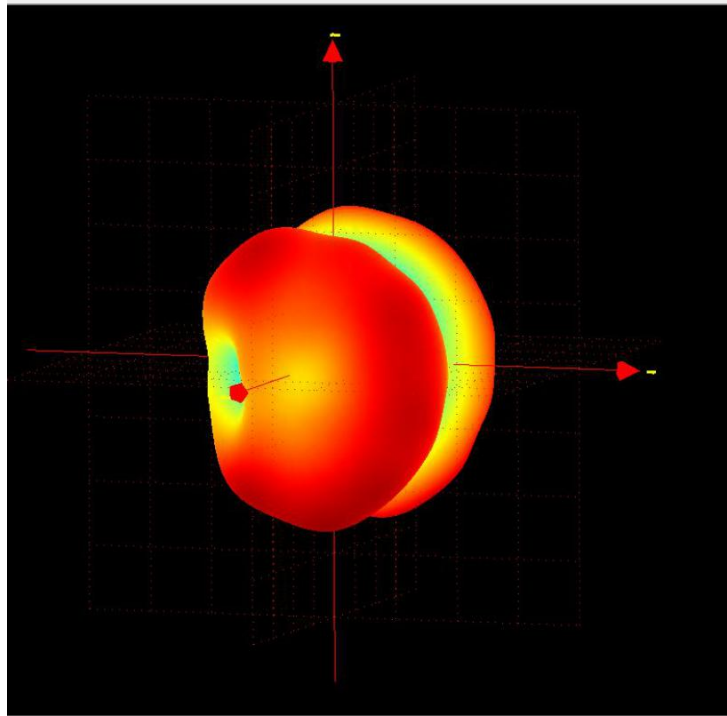
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3D Radiation Pattern

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Frequency (MHz)	5150	5500	5850
Avg. Gain (dBi)	-4.75	-1.61	-1.36
Peck Gain (dBi)	3.87	4.05	3.92
Efficiency (%)	70	76.8	64



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8 Allowable error after reliability testing(**Post-Reliability Tolerance**):The allowable deviations from the initial reading after reliability testing are shown in the table below

Post Dependability Tolerance (Refer to the table)

No.	Item (Project)	Post-Reliability Tolerance (allowable additional error after reliability testing)
8.1	Central Frequency	± 5 MHz
8.2	Band Width: Passband width	± 5 MHz
8.3	Gain gain	± 0.1 dBi
8.4	V.S.W.R (in BW) Standing Wave Ratio	± 0.1

9 Reliability Test **Dependability Test**

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

Relative humidity range $55 \sim 75\% \text{RH}$

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

Storage temperature range: -40°C to $+85^{\circ}\text{C}$

9.1 Vibration-resistant **Vibration Resistance**

After vibrating for 2 hours along the X, Y, and Z directions at a frequency of 10–55 Hz with an amplitude of 1.5 mm, the test results comply with the specifications 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 Fall and Impact Resistance **Drop Shock**

After being dropped freely three times from a height of 100 cm onto the wooden floor along the X, Y, and Z axes respectively, the test results comply with the specifications outlined 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-resistant **Solder Heat Proof**

The material can withstand preheating at $120 \sim 150^{\circ}\text{C}$ for 120 seconds, followed by solder immersion at $255^{\circ}\text{C} \pm 10^{\circ}\text{C}$ for 5 ± 0.5 seconds or soldering with a soldering iron at $300^{\circ}\text{C} \pm 10^{\circ}\text{C}$ for 3 ± 0.5 seconds without any damage to the weld surface.

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 without damage.

Adhesive Strength of Termination

9.4 thrust test

The product's electrode terminals or surfaces can withstand horizontal thrust forces of 5 N (≤ 0.603) or 10 N (> 0.603) for 10 ± 1 seconds without significant visual damage or electrode displacement.

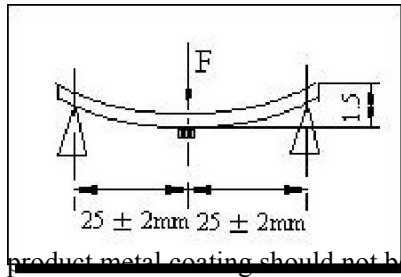
The device have no remarkable damage or removal of the termination after horizontal force of 5N(≤ 0.603); 10N(> 0.603)with 10 ± 1 seconds.



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9.5 Bending Resistance Test



weld the product to the central area of the PCB (with a thickness of 1.6 ± 0.2 mm) as illustrated, applying force in the direction indicated by the arrow at a speed of 1 mm/s and maintaining pressure for 5 ± 1 seconds at a bending distance of 1.5 mm; ensure no detachment occurs on the metal layer.

any peeling off of the

product metal coating should not be detected.

9.6 Moisture and Heat Resistance Property **Moisture Proof**

After being placed in a constant temperature and humidity chamber at $60 \pm 2^\circ\text{C}$ with relative humidity of 90–95% for 96 hours, and after recovery at room temperature for 1–2 hours, the test results comply with the specifications 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 $60 \pm 2^\circ\text{C}$ and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

9.7 High Temperature Characteristics **High Temperature Endurance**

The samples were stored in a constant temperature incubator at $85 \pm 5^\circ\text{C}$ for 96 ± 2 hours, then allowed to recover at room temperature for 1–2 hours before testing. The results comply with the specifications outlined in Tables 8.1–8.4.

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to temperature $85 \pm 5^\circ\text{C}$ for 96 ± 2 hours and 1~2 hours recovery time under normal temperature.

9.8 Low Temperature Characteristics **Low Temperature Endurance**

After being placed in a low-temperature chamber at $-40^\circ\text{C} \pm 5^\circ\text{C}$ for 96 ± 2 hours and then allowed to recover for 1–2 hours, the test results comply with the specifications specified in Tables 8.1–8.4.

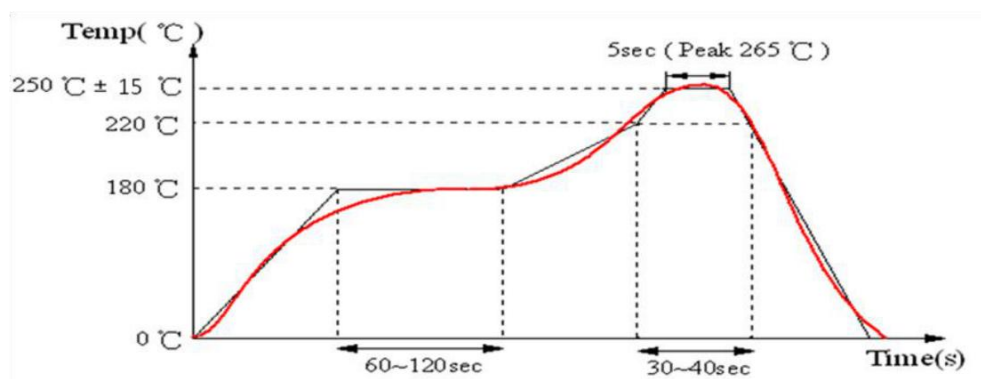
The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature $-40^\circ\text{C} \pm 5^\circ\text{C}$ for 96 ± 2 hours and to 2 hours recovery time under normal temperature.

9.9 Temperature Cycle **Temperature Cycle Test**

After maintaining at -40°C for 30 minutes, followed by maintaining at $+85^\circ\text{C}$ for 30 minutes, and repeating this cycle a total of 5 times, the sample is then allowed to recover at room temperature for 1–2 hours before testing in accordance with the specifications 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 $+85^\circ\text{C}$ for 30 ± 2 min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

10 Reflow soldering temperature **Standard condition for reflow soldering**



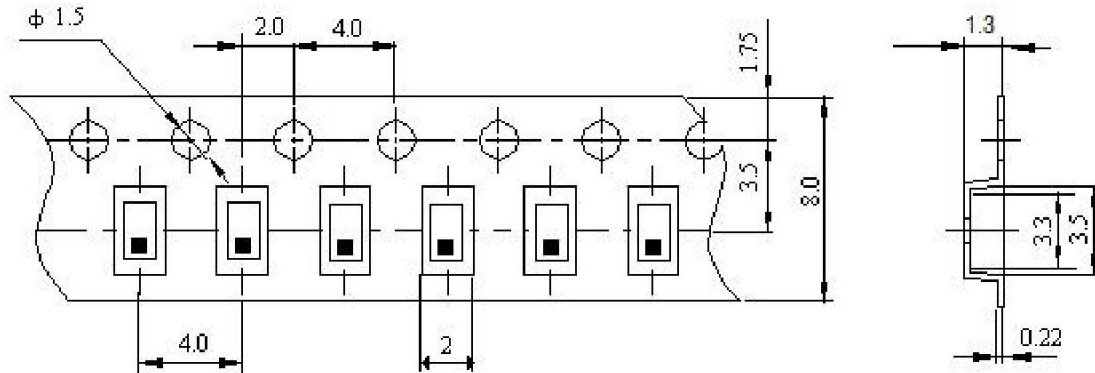


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11 Packaging Size (3216): Packaging and Dimensions

11.1 Plastic Tape

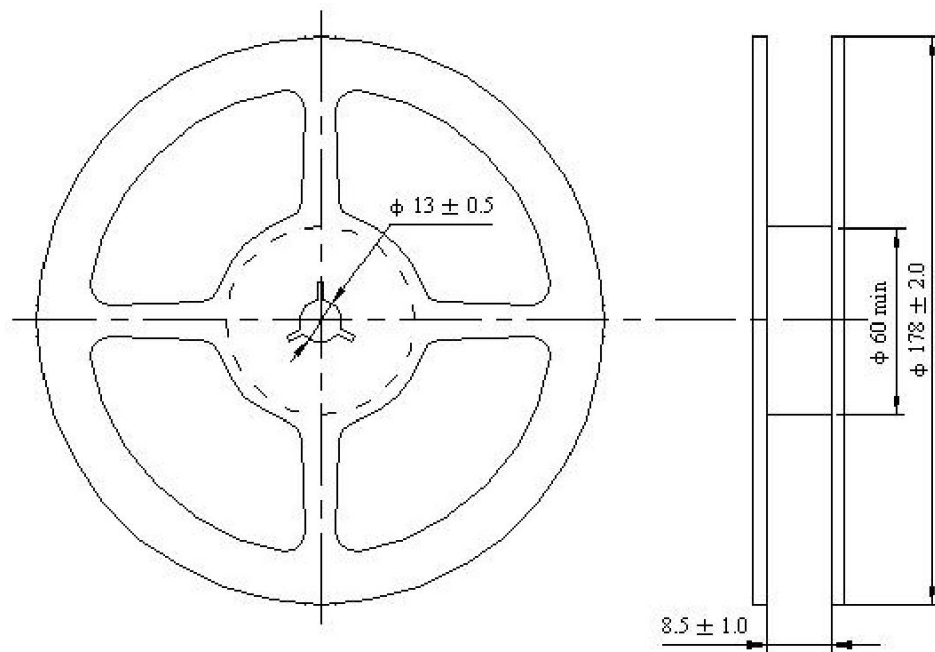


Package Instructions: Remarks for Package

The hole length at the tail end of the carrier strap is 150–200 mm; the hole length at the head end is 250–300 mm; and the cover strap at the head has been 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

Use the product within six months after receipt.

Product should be used within six months of receipt.

Moisture sensitivity grade 1 / Storage temperature and humidity:

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