

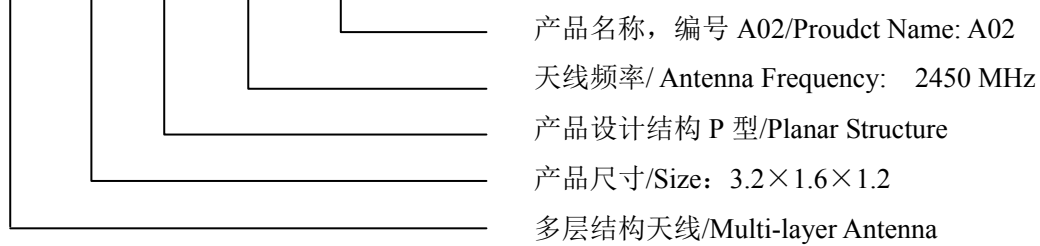
1. 概述 INTRODUCTION

微波多层片状陶瓷天线 LA 系列产品设计用于 WLAN、蓝牙天线、PHS，手机多频天线, FM 等小体积 SMD 片式设计。

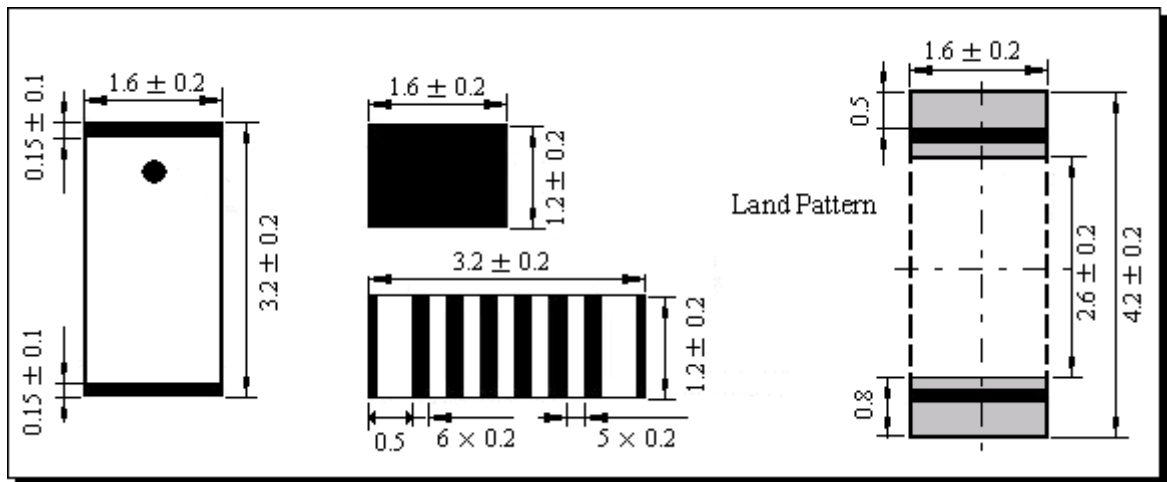
Microwave Multi-Layer Chip Type Ceramic Antenna LA series are designed to be used in WLAN、Bluetooth、PHS、 Multiple-band Mobile phone antenna, FM, etc and compact size SMD chip design.

2. 型号 Part Number

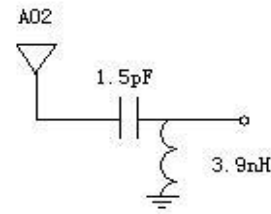
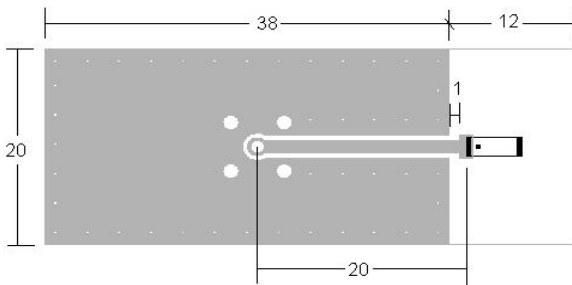
LA 31 P 2450 - A02



3. 外型尺寸 Dimensions (Unit: mm)



4. 测试电路和匹配电路 Evaluation Board and Matching Circuits



A02 Antenna Matching Circuit  
 \* Recommended

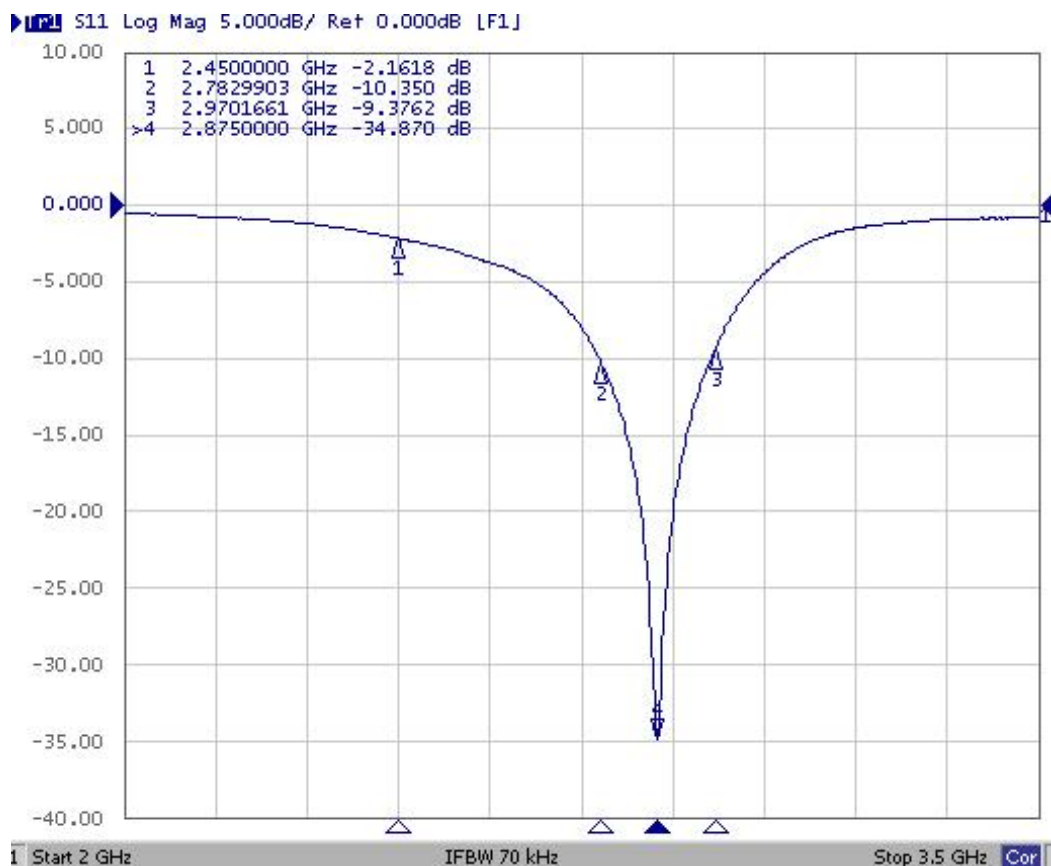
## 5. 电气性能

*Electrical Characteristics*

No.	Item (项目)	Specifications (特性)
5.1	Central Frequency 中心频率(No matching)	2875MHz
	(带匹配电路测试)After Matching	2450 MHz
5.2	Band Width 通带宽度(No matching)	100 MHz ( 2780~2970MHz )
5.3	Gain 增益	0~1 dBi
5.4	V.S.W.R (in BW) 驻波比	≤2.0
5.5	Polarization 极化方式	Linear 线性
5.6	Azimuth Beam width 方位角	Omni-directional 全向
5.7	Impedance 阻抗	50 Ω

\*本天线在应用 PCB 上通过设计匹配电路，将天线工作频率调整到 2.45GHz 中心工作频率。

## 6. 特性曲线

*Characteristic curve*


**7 环境试验后允许误差 Post Environmental Tolerance**

经环境试验后允许比起始读数偏差见下表

Post Environmental Tolerance (Refer to the table)

No.	Item (项目)	Post Environmental Tolerance (环境试验后允许附加误差)
7.1	Central Frequency 中心频率	$\pm 25$ MHz
7.2	Band Width 通带宽度	$\pm 20$ MHz
7.3	Gain 增益	$\pm 0.2$ dBi
7.4	V.S.W.R (in BW) 驻波比	$\pm 0.5$

**8 环境试验 Environmental Test**

基准条件：温度范围	Temperature range	$25 \pm 5^\circ\text{C}$
相对湿度范围	Relative Humidity range	55~75%RH
工作温度	Operating Temperature range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
贮藏温度	Storage Temperature range	$-40^\circ\text{C} \sim +85^\circ\text{C}$

**8.1 耐振动 Vibration Resist**

在振动频率为 10~55Hz 振幅为 1.5mm 沿 X.Y.Z 方向各振动 2 小时后测试符合表 7.1~7.4 规定。

The device should satisfy the electrical characteristics specified in paragraph 7.1~7.4 after applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X, Y and Z directions.

**8.2 耐跌落冲击 Drop Shock**

在 100cm 高度处按 X, Y, Z 三个面分别自由跌落在木制地板上共 3 次后测试符合表 7.1~7.4 规定。

The device should satisfy the electrical characteristics specified in paragraph 7.1~7.4 after dropping onto the hard wooden board from the height of 100cm for 3 times each facet of the 3 dimensions of the device.

**8.3 耐焊接热 Solder Heat Proof**

能承受经 120~150°C 的温度预热 120 秒后, 在 255°C+10°C 的焊锡浸 5±0.5 秒, 或 300°C-10°C 的电烙铁焊接 3±0.5 秒, 焊接面无损伤。

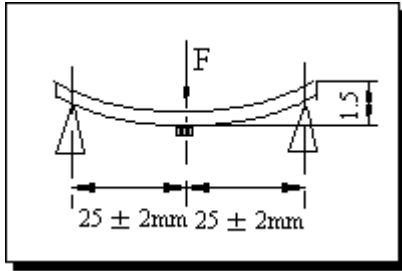
The device should be satisfied after preheating at 120°C~150°C for 120 seconds and dipping in soldering Sn at 255°C+10°C for 5±0.5 seconds, or electric iron 300°C-10°C for 3±0.5 seconds, without damage.

**8.4 结合力试验 Tensile Strength of Terminal**

在产品电极端子上或表面上应能承受 1kg 垂直拉力 10±1 秒。

The device should not be broken after tensile force of 1.0kg is slowly applied to pull a lead pin of the fixed device in the lead axis direction for 10±1 seconds.

8.5 耐弯曲试验 *Bending Resist Test*



将产品按图焊在  $1.6 \pm 0.2\text{mm}$  的 PCB 板中间, 由箭头方向施力:  $1\text{mm/S}$ , 弯曲距离:  $1.5\text{mm}$ , 保持  $5 \pm 1\text{S}$ , 产品金属层无脱落。

Weld the product to the center part of the PCB with the thickness  $1.6 \pm 0.2\text{mm}$  as the illustration shows, and keep exerting force arrow-ward on it at speed of  $1\text{mm/S}$ , and hold for  $5 \pm 1\text{S}$  at the position of  $1.5\text{mm}$  bending distance, so far, any peeling off of the

product metal coating should not be detected.

8.6 耐湿热特性 *Moisture Proof*

在温度为  $60 \pm 2^\circ\text{C}$  相对湿度  $90 \sim 95\%$  的恒温湿箱中放置 96 小时, 在常温中恢复 1~2 小时后测试, 符合表 7.1~7.4 规定。

The device should satisfy the electrical characteristics specified in paragraph 7.1~7.4 after exposed to the temperature  $60 \pm 2^\circ\text{C}$  and the relative humidity  $90 \sim 95\%$  RH for 96 hours and 1~2 hours recovery time under normal condition.

8.7 高温特性 *High Temperature Endurance*

在温度为  $85 \pm 5^\circ\text{C}$  的恒温箱中放置  $96 \pm 2$  小时, 在常温中恢复 1~2 小时后测试。符合表 7.1~7.4 规定。

The device should satisfy the electrical characteristics specified in paragraph 7.1~7.4 after exposed to temperature  $85 \pm 5^\circ\text{C}$  for  $96 \pm 2$  hours and 1~2 hours recovery time under normal temperature.

8.8 低温特性 *Low Temperature Endurance*

在温度为  $-40^\circ\text{C} \pm 5^\circ\text{C}$  低温箱中放置  $96 \pm 2$  小时后恢复 1~2 小时测试符合表 7.1~7.4 规定。

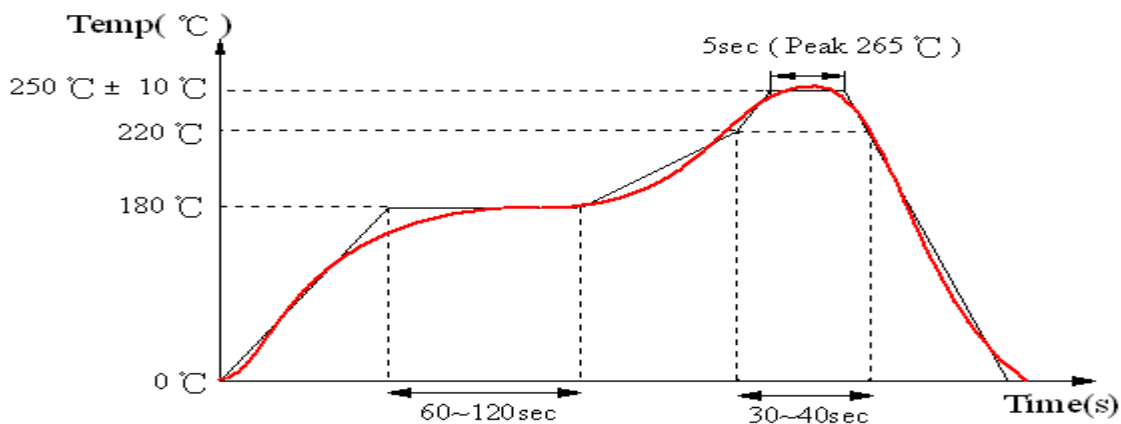
The device should also satisfy the electrical characteristics specified in paragraph 7.1~7.4 after exposed to the temperature  $-40^\circ\text{C} \pm 5^\circ\text{C}$  for  $96 \pm 2$  hours and to 2 hours recovery time under normal temperature.

8.9 温度循环 *Temperature Cycle Test*

在  $-40^\circ\text{C}$  温度中保持 30 分钟, 再在  $+85^\circ\text{C}$  温度中保持 30 分钟, 共循环 5 次后在常温中恢复 1~2 小时后测试符合表 7.1~7.4 规定。

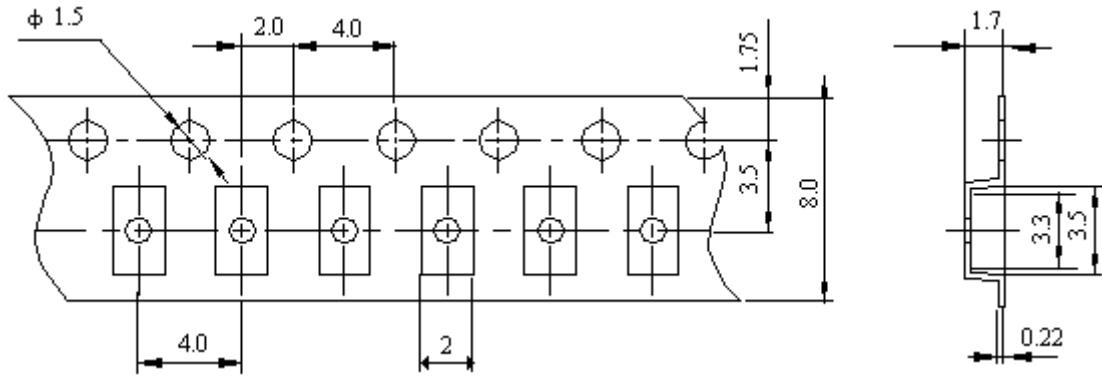
The device should also satisfy the electrical characteristics specified in paragraph 7.1~7.4 after exposed to the low temperature  $-40^\circ\text{C}$  and high temperature  $+85^\circ\text{C}$  for  $30 \pm 2$  min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

9 回流焊温度 *Reflow Soldering Standard Condition*



10 包装尺寸 (3216) Packaging and Dimensions

10.1 Plastic Tape



包装说明： Remarks for Package

载带尾部空穴长度 150~200mm，载带头部空穴长度 250~300mm，头部的盖带加长 250mm。

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.

10.2 Reel (3000 pcs/Reel)

