

# 产 品 技 术 规 格 书

## SPECIFICATION

产品型号 PART NO : GL2012H2450-D06

客户料号 CUSTOMER PART NO :

客户确认 CUSTOMER APPROVED BY :

确认日期 APPROVED DATE :

**RoHS Compliant Parts**

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|                  |                                   |                  |
|------------------|-----------------------------------|------------------|
| 拟制 Prepared by : | 审核 Checked by :                   | 批准 Approved by : |
| 送样日期 Formed On   | 产品版本 Document Version<br>( V1.5 ) |                  |

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## 产品规格书版本更改记录

## Version rejigger track record

| 版本号<br>Version                                                                                                          | 更改记录 Rejigger                                          | 拟制<br>Prepared | 批准<br>Approve | 日期<br>Date |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------|---------------|------------|
| V1.0                                                                                                                    | 首次发行                                                   | 孙超             | 陆德龙           | 2015.2.30  |
| V1.1                                                                                                                    | 更改产品尺寸公差值                                              | 罗昌桅            | 卢冠宇           | 2017.05.24 |
| V1.2                                                                                                                    | 修正可靠性试验说明内容 8.1~8.4                                    | 潘枫             | 卢冠宇           | 2017.11.07 |
| V1.3                                                                                                                    | 修改焊盘尺寸图                                                | 潘枫             | 卢冠宇           | 2017.11.23 |
| V1.4                                                                                                                    | 修正可靠性项目 9.4 内容<br>更新回流焊温度曲线图表<br>修正 11.3 产品储存条件为 MSL:1 | 潘枫             | 卢冠宇           | 2018.06.13 |
| V1.5                                                                                                                    | 修正 11.2 载盘宽度                                           | 潘枫             | 卢冠宇           | 2018.12.28 |
|                                                                                                                         |                                                        |                |               |            |
|                                                                                                                         |                                                        |                |               |            |
|                                                                                                                         |                                                        |                |               |            |
|                                                                                                                         |                                                        |                |               |            |
|                                                                                                                         |                                                        |                |               |            |
|                                                                                                                         |                                                        |                |               |            |
| 备注：<br>1、更改产品电性能指标时，版本号需更换（V1.0 换为 V2.0、V3.0.....）；<br>2、更改产品测试方法（包括可靠性测试条件），或更改使用条件时，当前版本号加系列（V1.0 换为 V1.1、V1.2.....）。 |                                                        |                |               |            |

## Specification

## 1 概述 INTRODUCTION

"佳利"微波多层陶瓷天线 GL 系列产品设计用于 WLAN、Wi-Fi、蓝牙、PHS、手机多频天线, FM 等小体积 SMD 片式设计。

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

## 2 型号 Part Number

GL 2012 H 2450 – D06

产品名称·编号 D06 /Product Name:D06

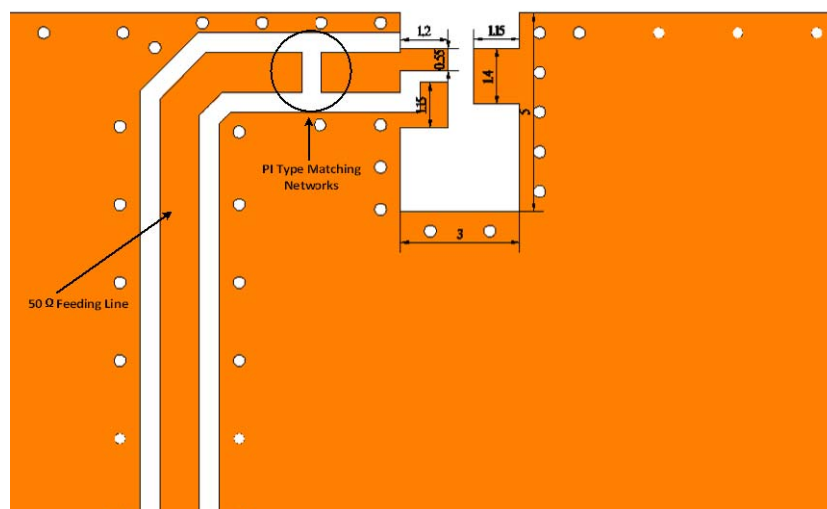
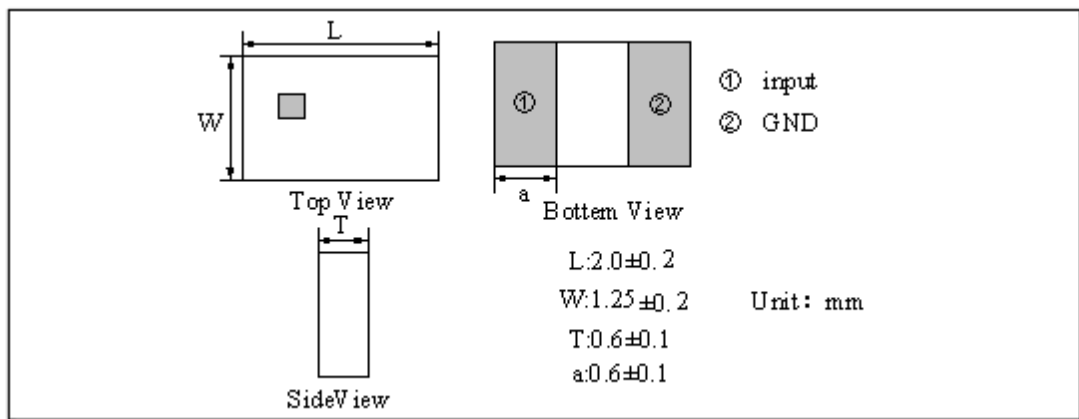
天线频率/ Antenna Frequency: 2450 MHz

产品设计结构 H 型/Via Design Series

产品尺寸/Size :  $2.0 \times 1.25 \times 0.6$

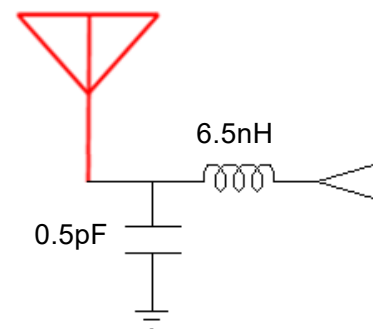
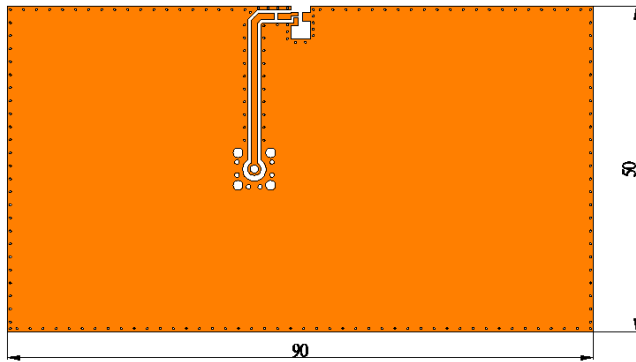
多层结构天线/Multi-layer Antenna

## 3 外型尺寸及焊盘尺寸 Dimensions ( Unit : mm )



## Specification

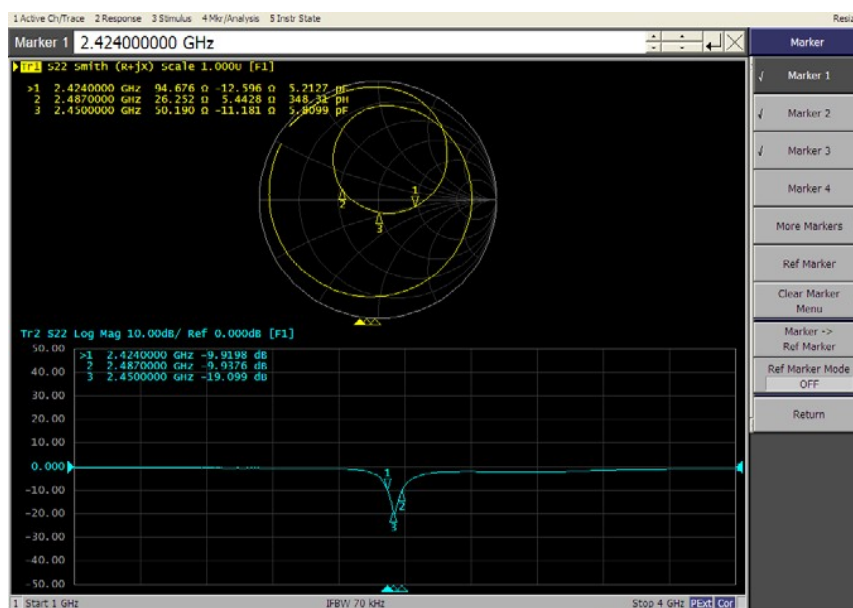
## 4 测试板和匹配电路 Evaluation Board and Matching Circuits



## 5 电气性能 Electrical Characteristics

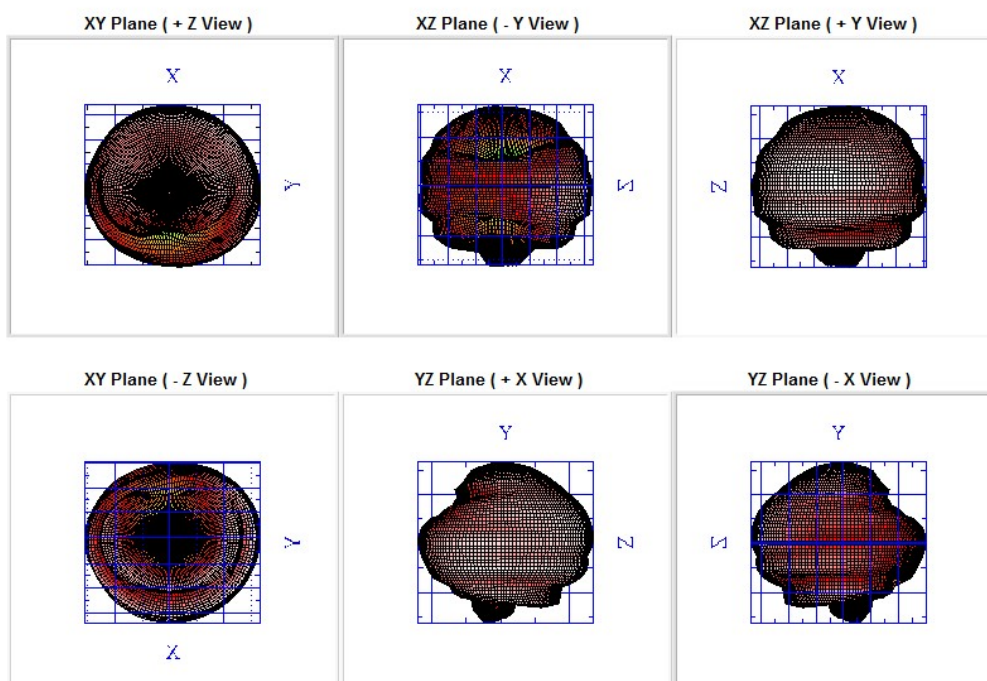
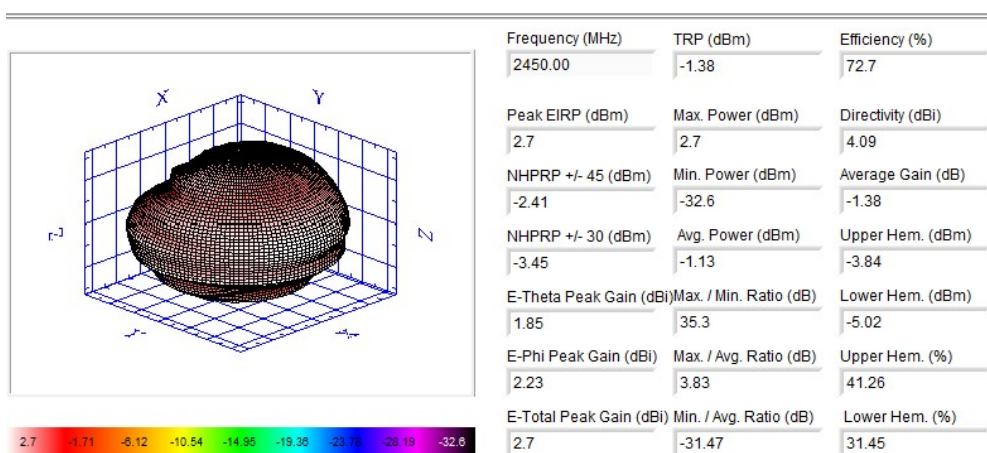
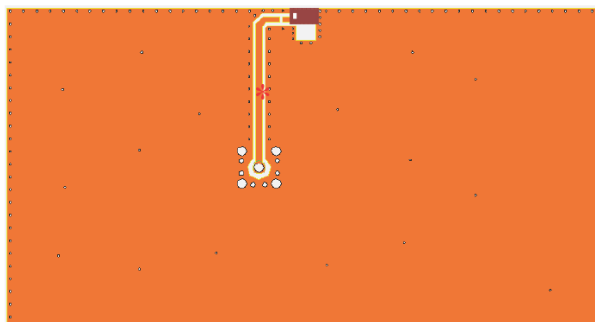
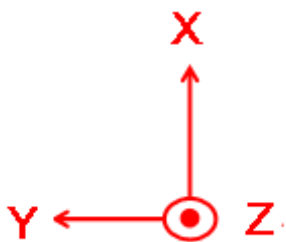
| No. | Item (项目)                                            | Specifications (特性) |
|-----|------------------------------------------------------|---------------------|
| 5.1 | Working Central Frequency 中心工作频率<br>(After matching) | 2450 MHz            |
| 5.2 | Band Width 通带宽度                                      | 65MHz typ.          |
| 5.3 | Peak Gain 峰值增益                                       | 2.7 dBi             |
| 5.4 | V.S.W.R (in BW) 驻波比                                  | $\leq 2.0$          |
| 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 $\Omega$         |

## 6 特性曲线 Characteristic curve



## Specification

## 7 方向图 Radiation Pattern



## Specification

## 8 可靠性试验后允许误差 Post Dependability Tolerance

经可靠性试验后允许比起始读数偏差见下表

Post Dependability Tolerance (Refer to the table)

| No. | Item (项目)              | Post Dependability Tolerance<br>(可靠性试验后允许附加误差) |
|-----|------------------------|------------------------------------------------|
| 8.1 | Central Frequency 中心频率 | $\pm 5$ MHz                                    |
| 8.2 | Band Width 通带宽度        | $\pm 5$ MHz                                    |
| 8.3 | Gain 增益                | $\pm 0.1$ dBi                                  |
| 8.4 | V.S.W.R (in BW) 驻波比    | $\pm 0.1$                                      |

## 9 可靠性试验 Dependability 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   | $-40^\circ\text{C} \sim +85^\circ\text{C}$ |

## 9.1 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 8.1~8.4 规定。

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 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 8.1~8.4 规定。

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 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.

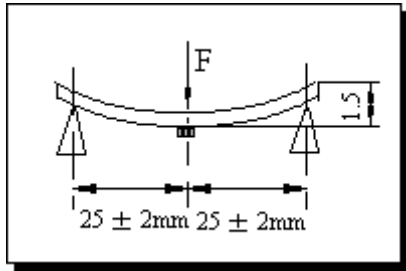
## 9.4 推力试验 Adhesive Strength of Termination

在产品电极端子上或表面上可承受 5N( $\leq 0603$ ); 10N(>0603) 水平推力 10±1 秒而无明显外观损坏与电极移位。

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

### Specification

#### 9.5 耐弯曲试验 Ben ding 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： $1.0\text{mm}$ ，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.

#### 9.6 耐湿热特性 Mois ture 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  $1 \sim 2$  小时后测试，符合表 8.1~8.4 规定。

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  $90 \sim 95\%$  RH for 96 hours and  $1 \sim 2$  hours recovery time under normal condition.

#### 9.7 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  $1 \sim 2$  小时后测试。符合表 8.1~8.4 规定。

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  $96 \pm 2$  hours and  $1 \sim 2$  hours recovery time under normal temperature.

#### 9.8 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  $1 \sim 2$  小时测试符合表 8.1~8.4 规定。

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  $96 \pm 2$  hours and to 2 hours recovery time under normal temperature.

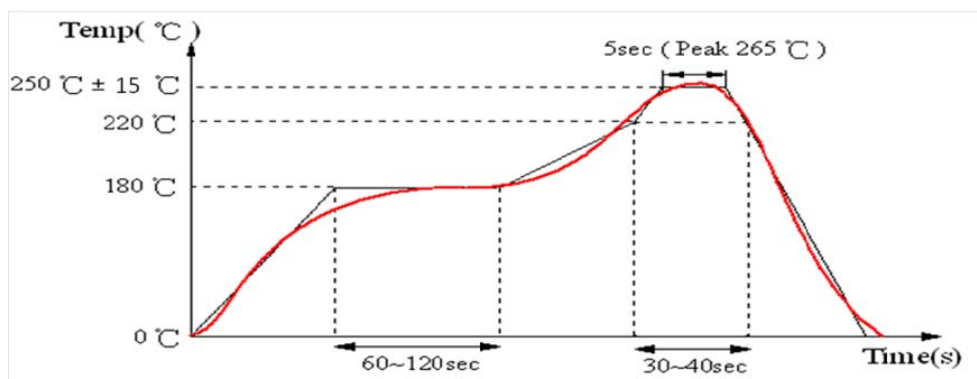
#### 9.9 温度循环 Temperature Cycle Test

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  $1 \sim 2$  小时后测试符合表 8.1~8.4 规定。

The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 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.

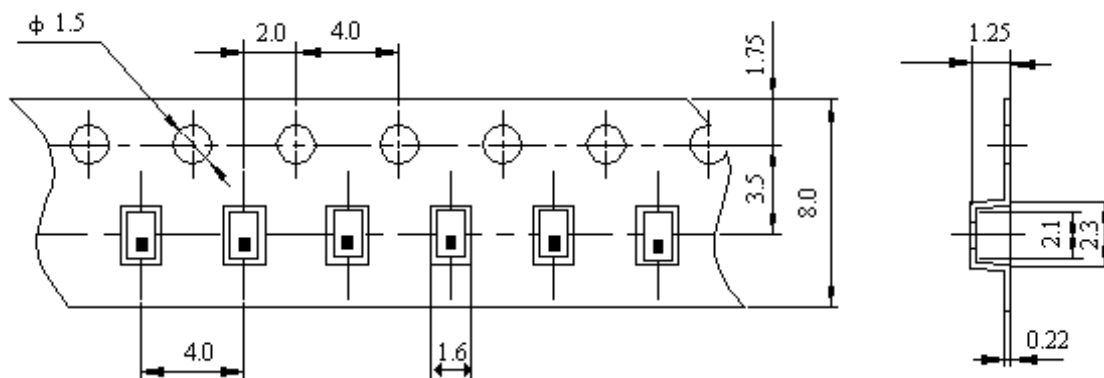
## Specification

## 10 回流焊温度 Reflow Soldering Standard Condition



## 11 包装尺寸(2012) Packaging and Dimensions

## 11.1 Plastic Tape



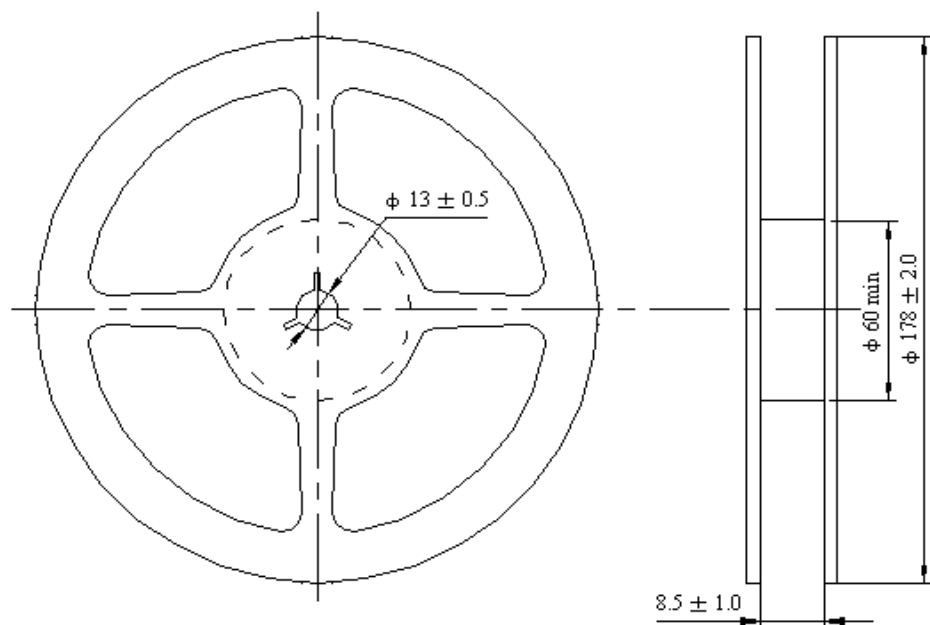
## 包装说明： Remarks for Package

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.

## Specification

### 11.2 Reel (4000 pcs/Reel)



### 11.3 储存条件 Storage Period

产品收到后半年内使用完毕。

Product should be used within six months of receipt.

湿敏等级 1 / 储存温度与湿度：

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