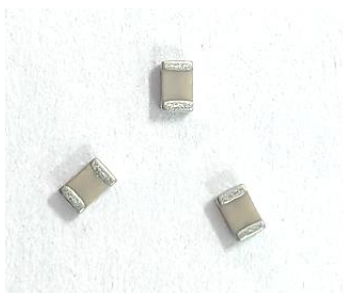


## 2.0X1.2X0.65 (mm) WiFi/Bluetooth Ceramic Chip Antenna (YF2012C1) Engineering Specification

### 1. Product Number

YF    2012    C1    P    2G45  
1        2        3        4        5



|                 |                |
|-----------------|----------------|
| (1)Product Type | Chip Antenna   |
| (2)Size Code    | 2.0x1.2x0.65mm |
| (3)Type Code    | C1             |
| (4)Packing      | Paper &Reel    |
| (5)Frequency    | 2.45GHz        |



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Designed by : Jason

Checked by : Jason

Approved by : MR.FANG

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## 2. Features

- \*Stable and reliable in performances
- \*Low temperature coefficient of frequency
- \*Low profile, compact size
- \*RoHS compliance
- \*SMT processes compatible

## 3. Applications

- \*Bluetooth earphone systems
- \*Hand-held devices when WiFi /Bluetooth functions are needed, e.g., Smart phone.
- \*IEEE802.11 b/g/n
- \*ZigBee
- \*Wireless PCMCIA cards or USB dongle

## 4. Description

Yingfeng chip antenna series are specially designed for WiFi/Bluetooth applications. Based on yingfeng proprietary design and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

## 5. Electrical Specifications (80 x 40 mm<sup>2</sup> ground plane)

### 5-1. Electrical Table

| Characteristics    |            | Specifications      | Unit |
|--------------------|------------|---------------------|------|
| Outline Dimensions |            | 2.0x1.2x0.65        | mm   |
| Working Frequency  |            | 2400~2500           | MHz  |
| VSWR               |            | 2 Max.              |      |
| Impedance          |            | 50                  | Ω    |
| Polarization       |            | Linear Polarization |      |
| Gain               | Peak       | 2.5 (typical)       | dBi  |
|                    | Efficiency | 75 (typical)        | %    |



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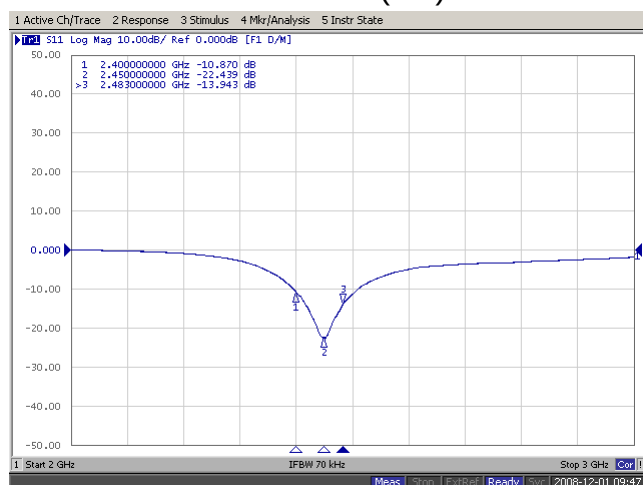
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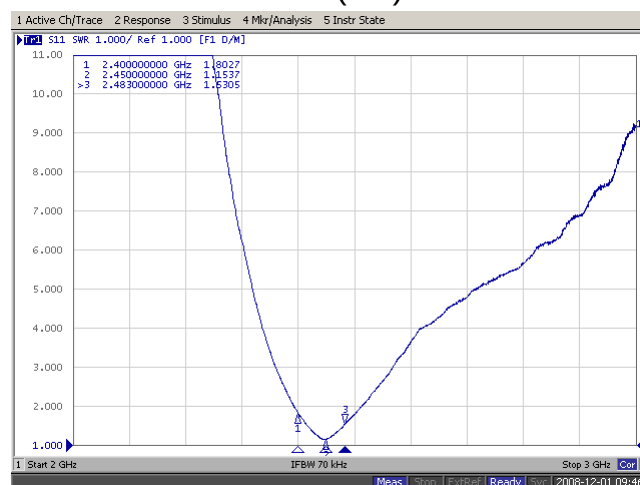
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## 5-2. Return Loss & VSWR

Return Loss ( $S_{11}$ )

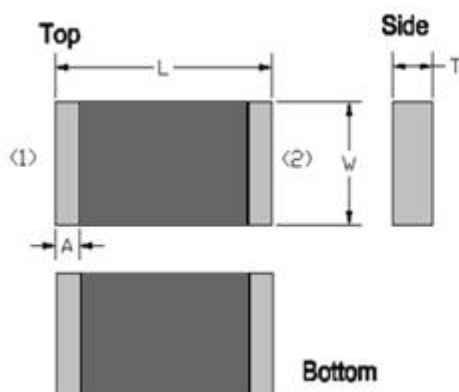


VSWR( $S_{11}$ )



## 6. Antenna Dimensions & Test Board (unit: mm)

### a. Antenna Dimensions



| Dimension (mm) |           |
|----------------|-----------|
| L              | 2.05+0.15 |
| W              | 1.20+0.15 |
| T              | 0.65+0.10 |
| A              | 0.20+0.10 |

| No. | Terminal Name |
|-----|---------------|
| 1   | Feeding/GNG   |
| 2   | GND/Feeding   |

P.S : Top & down and left & right side are symmetrical, No direction



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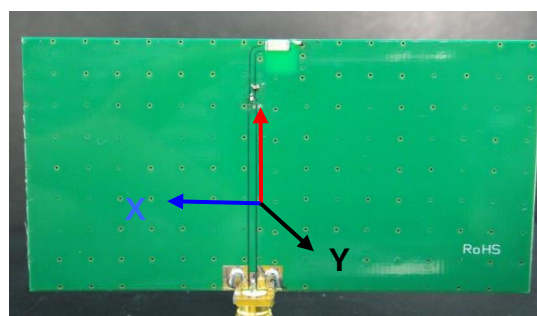
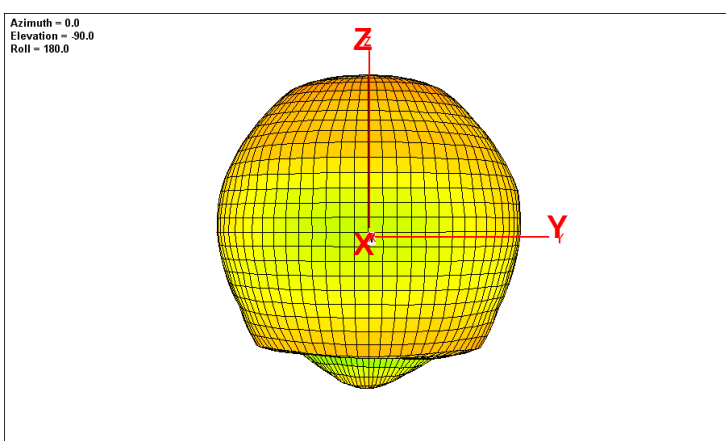
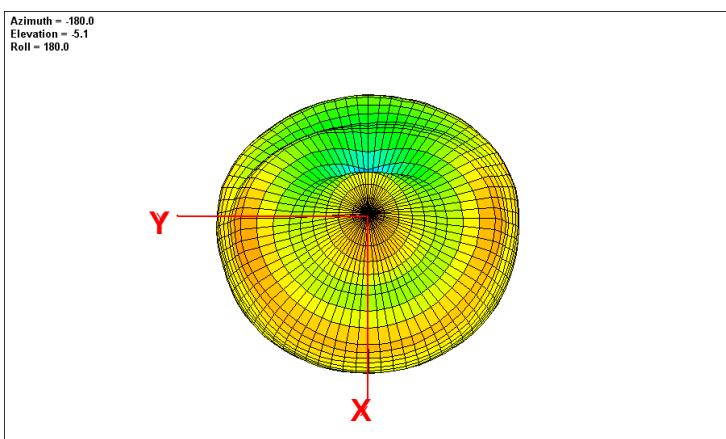
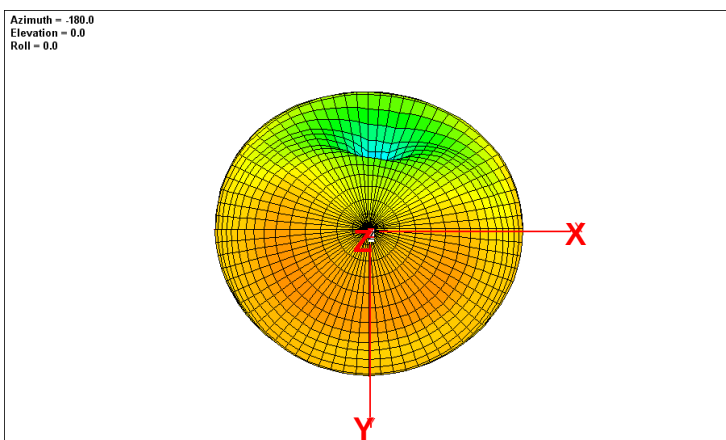
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## 7. Radiation Pattern (80 x 40 mm<sup>2</sup> ground plane)

### 7-1. 3D Gain Pattern @ 2442 MHz



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## 7-2. 3D Efficiency Table

| Frequency( MHz) | 2400 | 2410 | 2420 | 2430 | 2442 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|
| Efficiency (dB) | -1.4 | -1.0 | -0.9 | -0.7 | -0.7 | -0.8 | -0.9 | -1.1 | -1.2 | -1.3 | -1.4 |
| Efficiency (%)  | 72.8 | 73.7 | 74.3 | 74.4 | 75.5 | 75.0 | 74.0 | 73.6 | 73.1 | 72.6 | 71.5 |
| Gain (dBi)      | 2.1  | 2.2  | 2.3  | 2.4  | 2.5  | 2.5  | 2.4  | 1.8  | 1.7  | 1.6  | 1.4  |

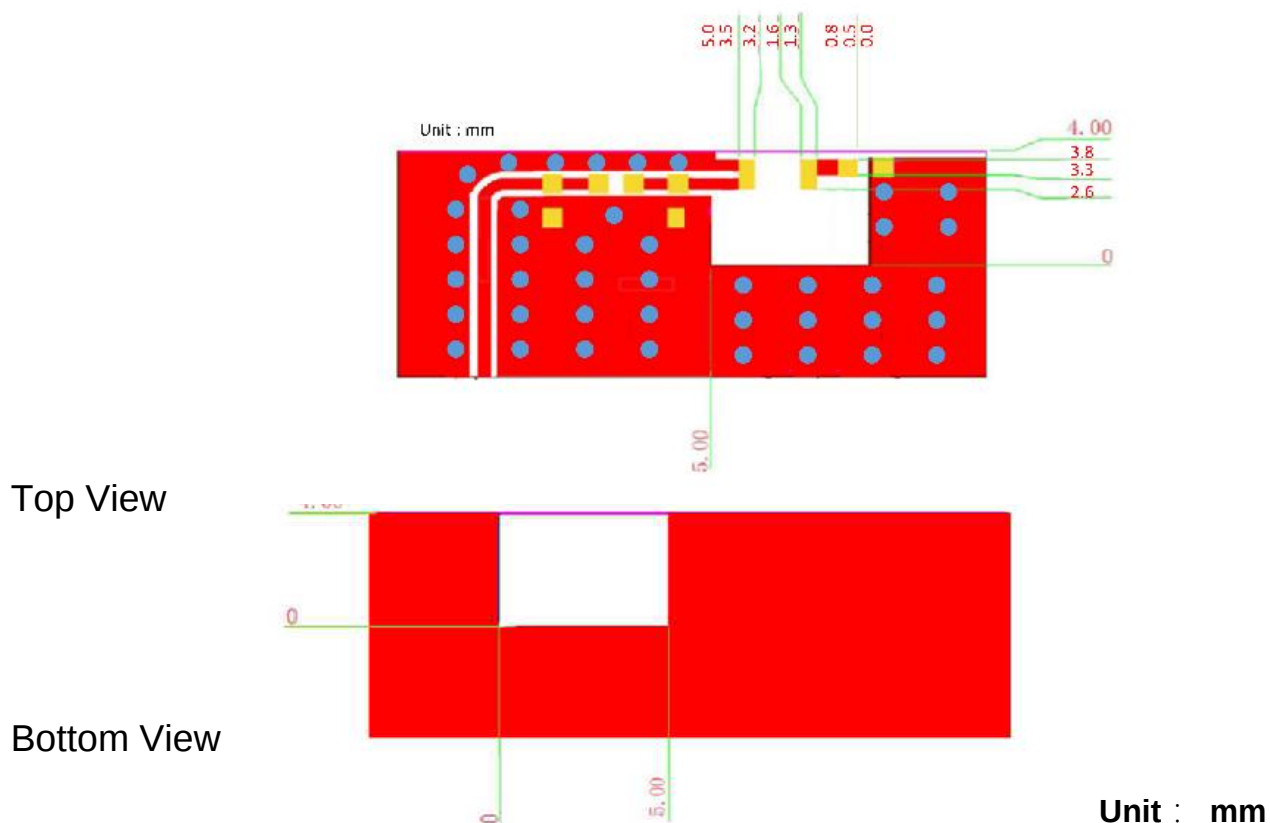
## 8. Layout Guide

### a. Solder Land Pattern:

Land pattern for soldering (gray marking areas) is as shown below. Depending on Customer's requirement, matching circuit as shown below is also recommended.

### 2). PCB Top View :

#### Type1 :



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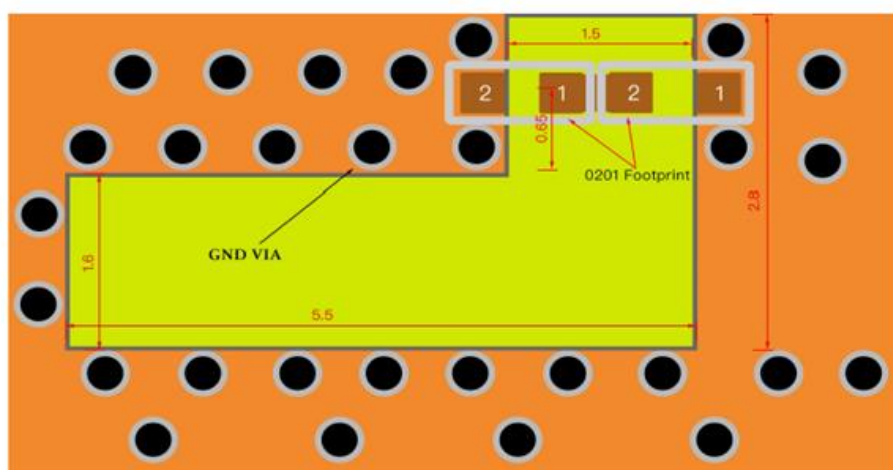
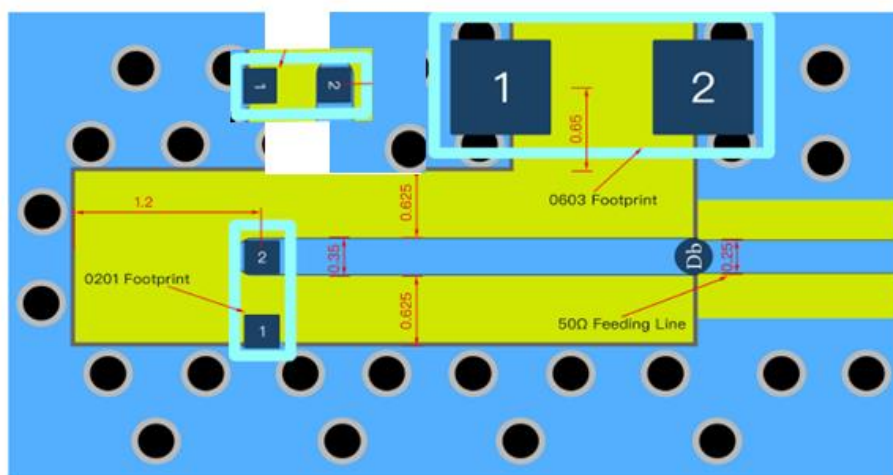
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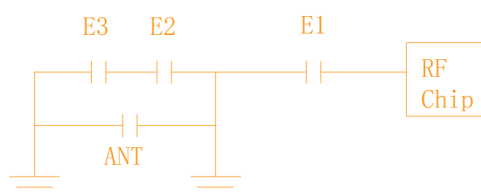
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## b. Test Board with Antenna



原理图



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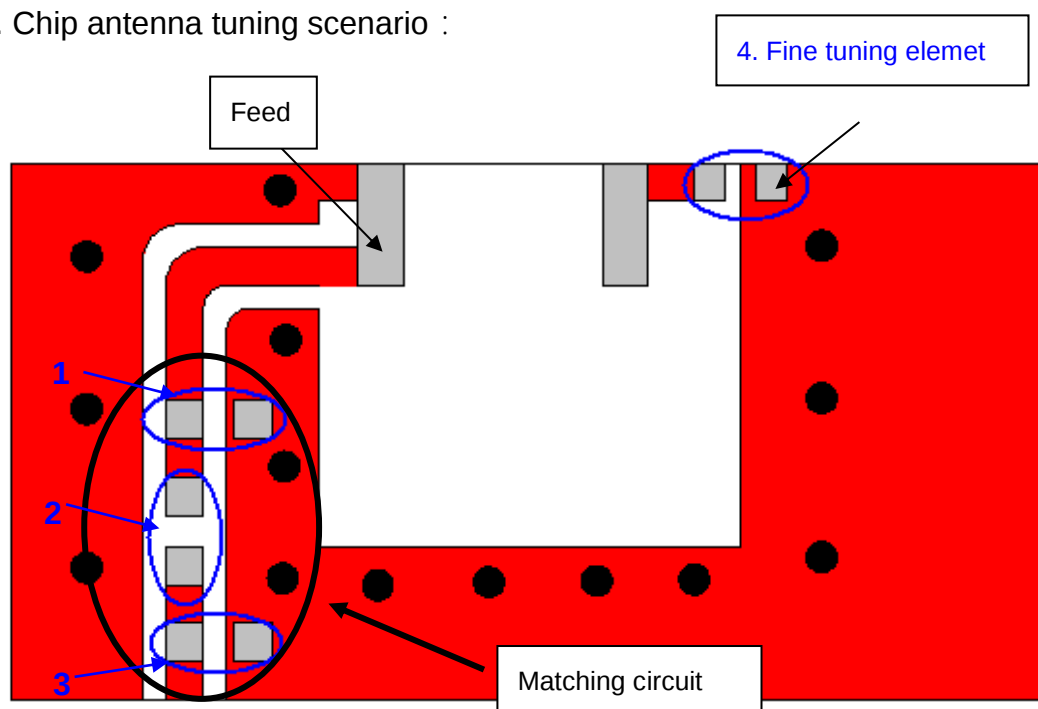
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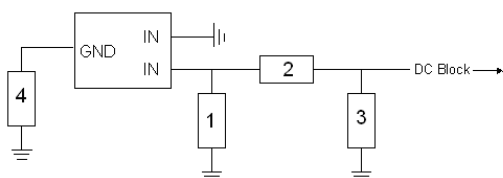
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## 9. Frequency tuning

a. Chip antenna tuning scenario :



b. Matching circuit : (Center frequency is about 2442 MHz @ 80 x 40 mm<sup>2</sup> ground plane)



| System Matching Circuit Component |             |               |           |
|-----------------------------------|-------------|---------------|-----------|
| Location                          | Description | Vendor        | Tolerance |
| 1                                 | 1.2 pF*     | Murata (0402) | ±0.1 pF   |
| 2                                 | 10PF*       | Murata(0402)  | ±0.5 PF   |
| 3                                 | N/A*        | -             | -         |
| Fine tuning element 4             | 10 pF*      | Murata (0402) | ±0.1 pF   |

\*Typical reference values which may need to be changed when circuit boards or part vendors are different.

c. Fine tuning element vs. Center frequency



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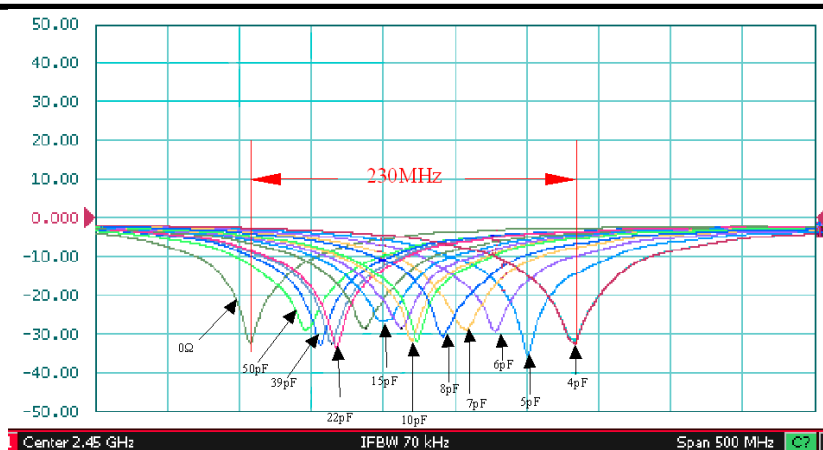
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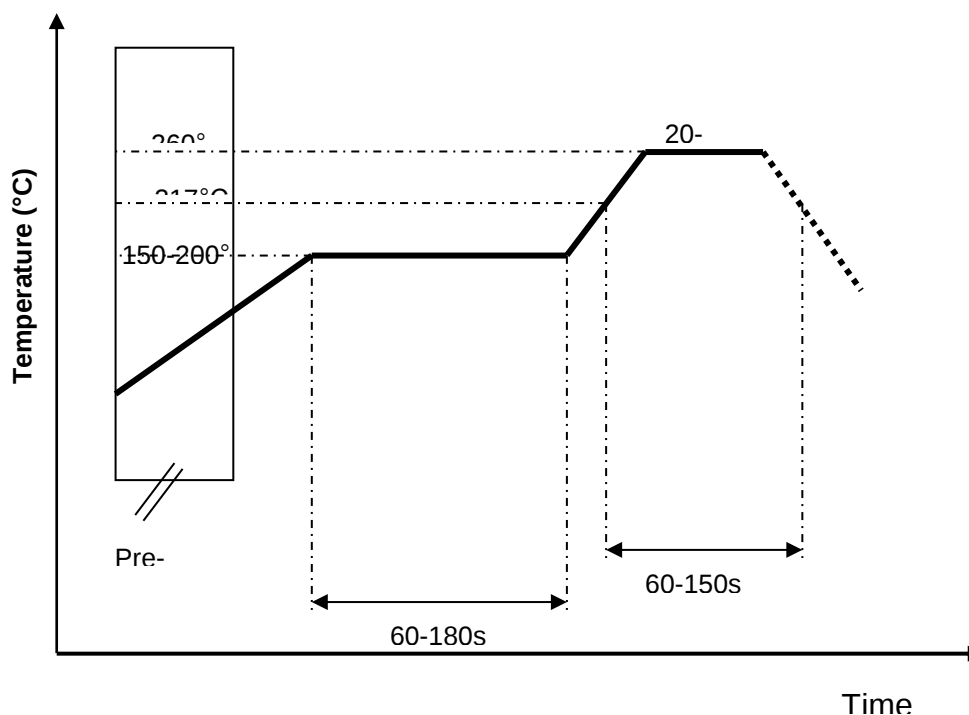
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## 10. Soldering Conditions

### a. Typical Soldering Profile for Lead-free Process



## 11. Packing

- (1) Quantity/Reel: 4000 pcs/Reel
- (2) Plastic tape:



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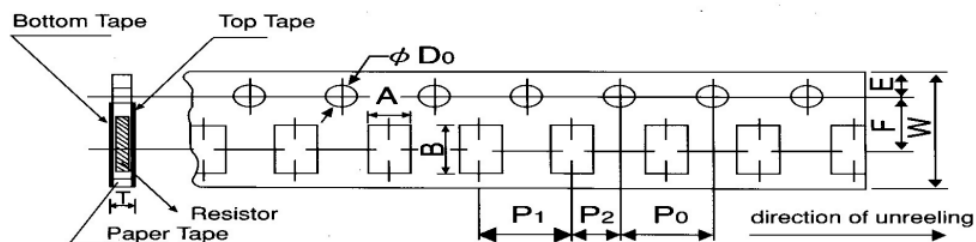
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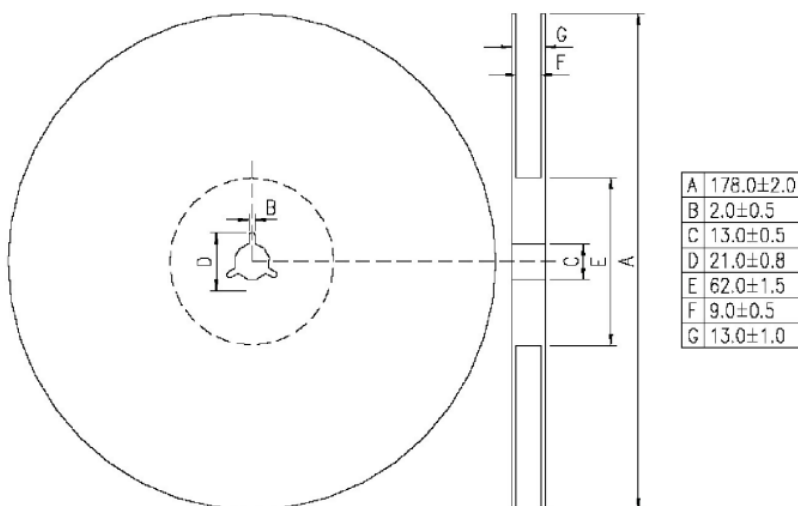
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| Packing | Style | A        | B       | W       | F        | E        | P <sub>1</sub> | P <sub>2</sub> | P <sub>0</sub> | D <sub>0</sub>         | T        |
|---------|-------|----------|---------|---------|----------|----------|----------------|----------------|----------------|------------------------|----------|
| Paper   | 2012  | 1.6±0.15 | 2.4±0.2 | 8.0±0.2 | 3.5±0.05 | 1.75±0.1 | 4.0±0.1        | 2.0±0.05       | 4.0±0.1        | $\psi 1.5^{+0.1}_{-0}$ | 0.84±0.1 |

### (3) Taping reel dimensions



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