

深圳市朋伴兴业科技有限公司

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# 产品规格承认书

## SPECIFICATIONS

|      |             |
|------|-------------|
| 编号   |             |
| 品名   | PBX5021MA01 |
| 客户型号 |             |
| 制作   | 刘小美         |
| 审核   | 刘飞          |
| 日期   | 2019.10.18  |

|        |  |
|--------|--|
| 客户承认签印 |  |
| 日期     |  |

UNLESS OTHER SPECIFIED TOLERANCES ON:

X=± X.X=± X.XX=

ANGLES=±

HOLE DIA=±



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Shenzhen Pengbian Xingye Technology Co., LTD

SCALE: N/A

UNIT: mm

DRAWN BY: Sera

CHECKED BY: ZL

DESIGNED BY: Sera

APPROVED BY: XL

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# PBX5021MA01 Specification

Operating Temp. : -40℃~+85℃

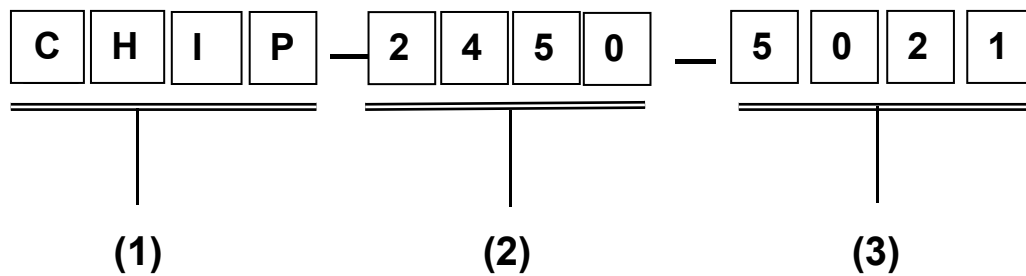
## 1. FEATURES:

- Light weight, compact
- Wide bandwidth, low cost
- Built-in antenna with high gain

## 2. APPLICATIONS:

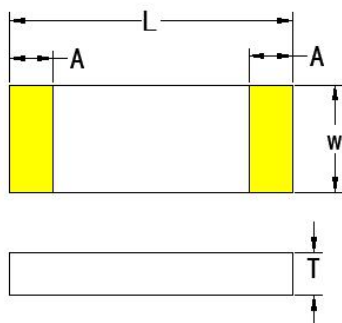
- Bluetooth, Wireless LAN, Mobile TV
- Home RF system, etc

## 3. PRODUCT IDENTIFICATION



- (1) Product type: Multilayer chip Antenna  
 (2) Center Frequency: 2450MHz  
 (3) External Dimensions (L×W) (mm): 5.0\*2.1

## 4. SHAPE AND DIMENSIONS:



| Unit:mm   | L       | W        | A        | T        |
|-----------|---------|----------|----------|----------|
| CHIP-5021 | 5.0±0.2 | 2.15±0.1 | 0.45±0.1 | 0.85±0.1 |

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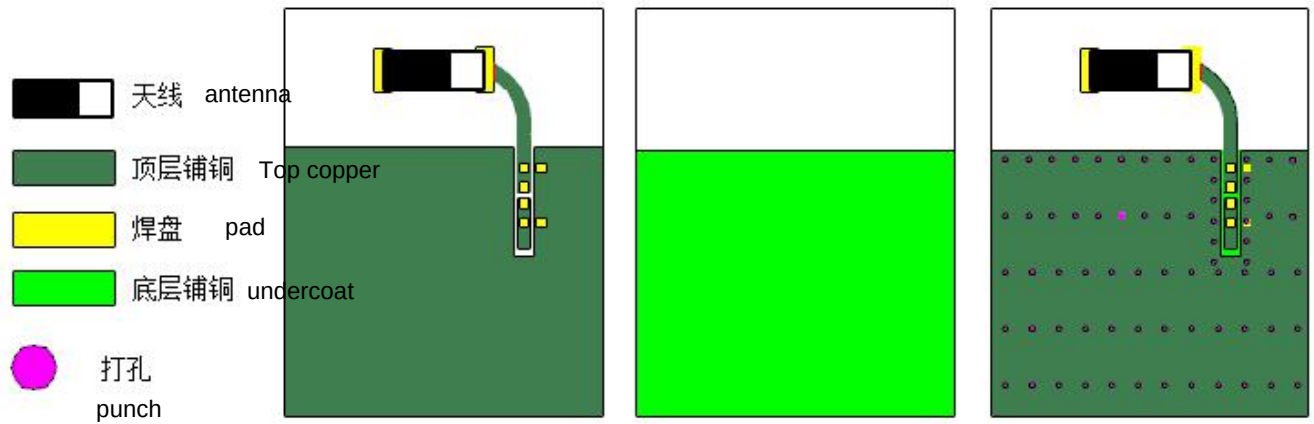
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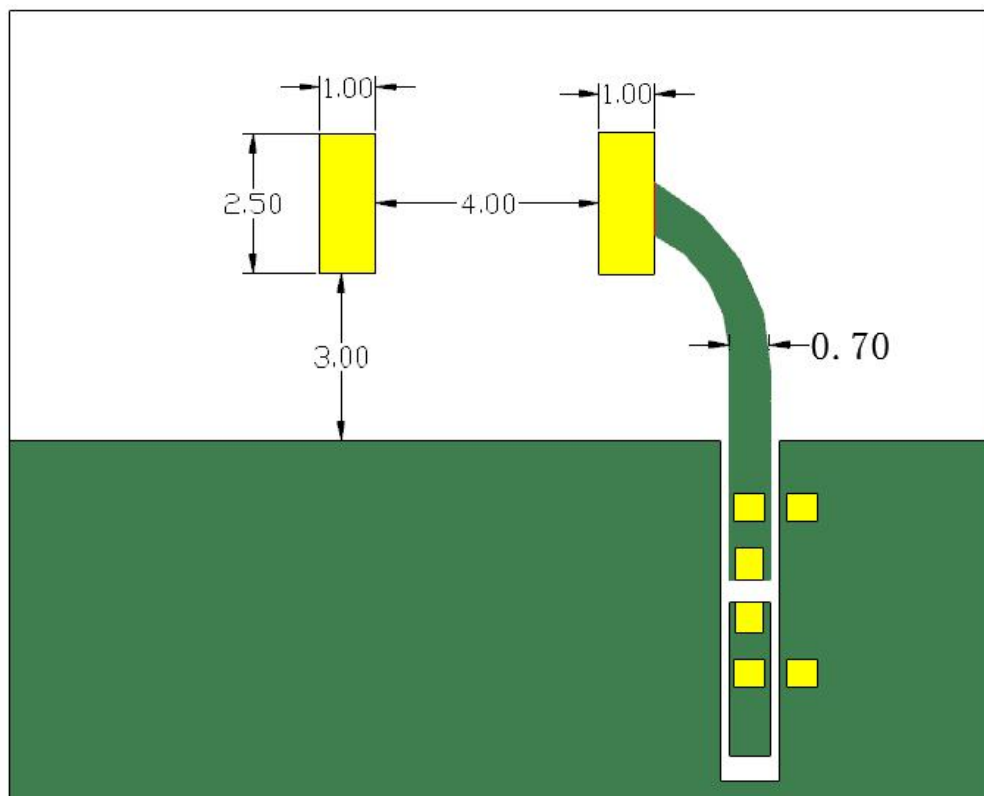
测试板参考尺寸: Test plate reference size

单位: mm

unit



PBX5021MA01 焊盘尺寸: Pad size



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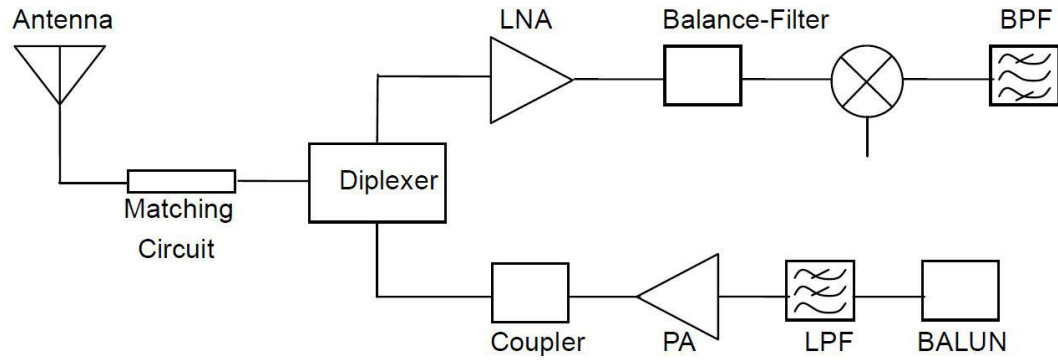
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## APPLICATION GUIDE



## 5. SPECIFICATIONS:

| Test item              | Result              |
|------------------------|---------------------|
| Applied frequency band | 2400-2500MHz        |
| Polarization mode      | Linear polarization |
| Howling gain           | 2.73dBi             |
| * efficiency           | 67.16%              |
| Input impedance        | 50Q                 |
| Maximum power          | 5W                  |

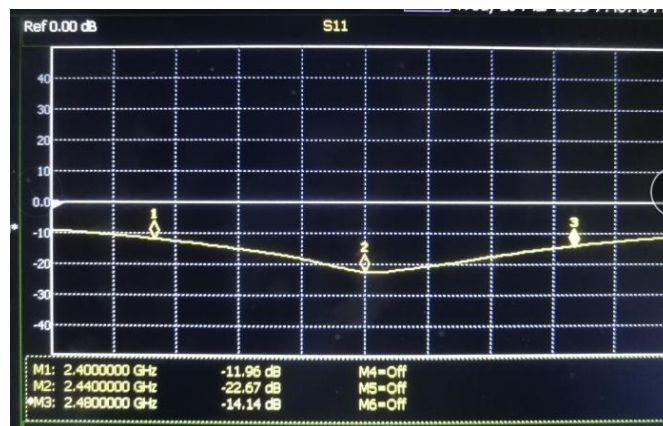
\* Test condition: Test board size 86\*50 mm

Matching circuit: Pi matching circuit will be required

## 6. Electrical Characteristics :

### 回波损耗

Return loss



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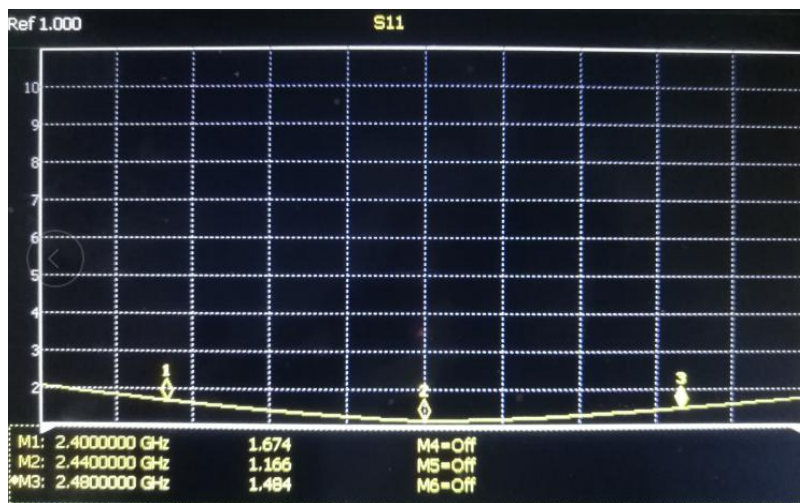
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驻波比 Standing wave ratio



| Mark | Frequency | VSWR  |
|------|-----------|-------|
| 1    | 2400 MHz  | 1.674 |
| 2    | 2440 MHz  | 1.166 |
| 3    | 2480 MHz  | 1.484 |

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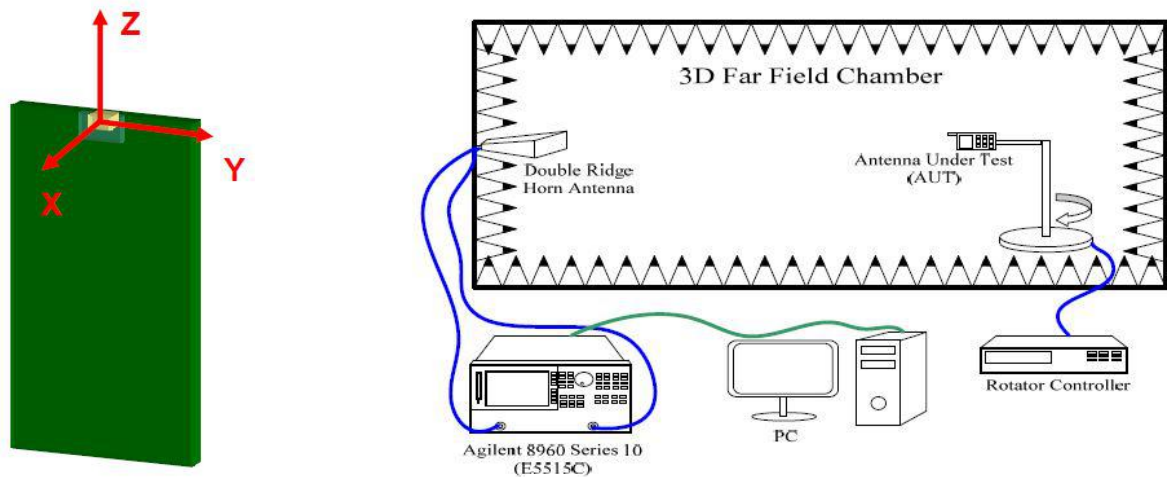
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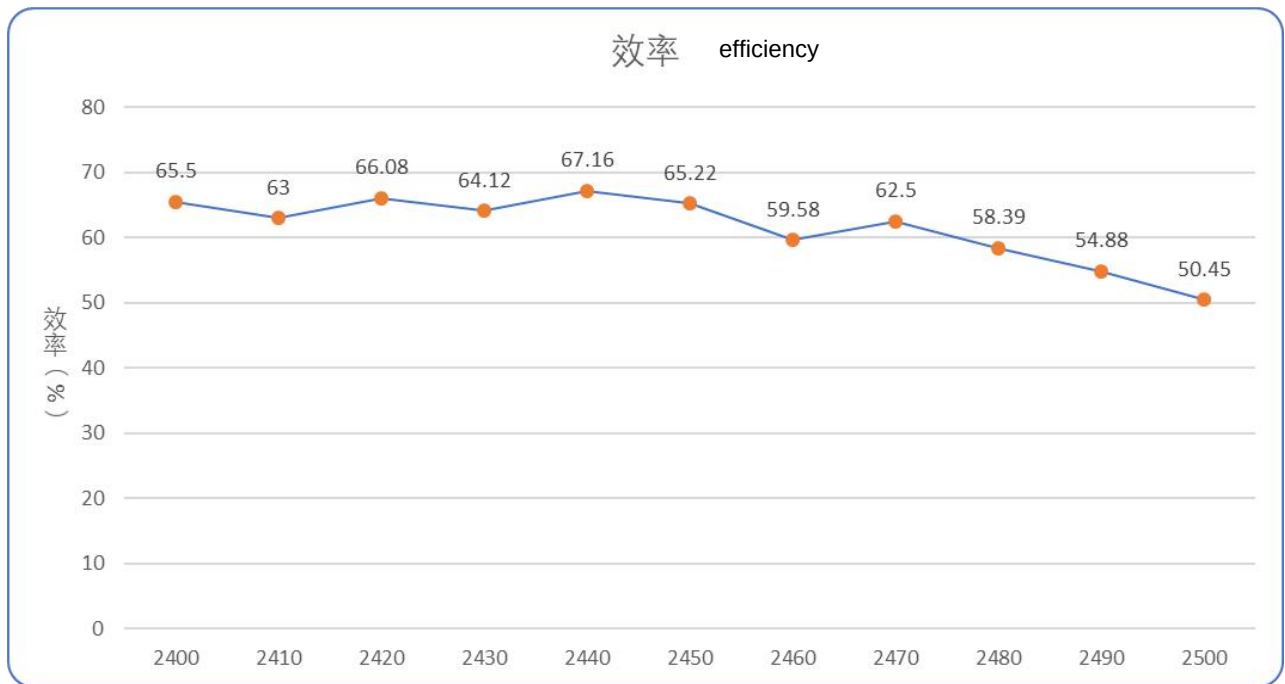
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## Radiation Pattern

The Gain pattern is measured in FAR-field chamber. DUT is placed on the table of rotator,a standard horn antenna and Vector Network Analyzer is used to collect data.



◎ 效率 efficiency



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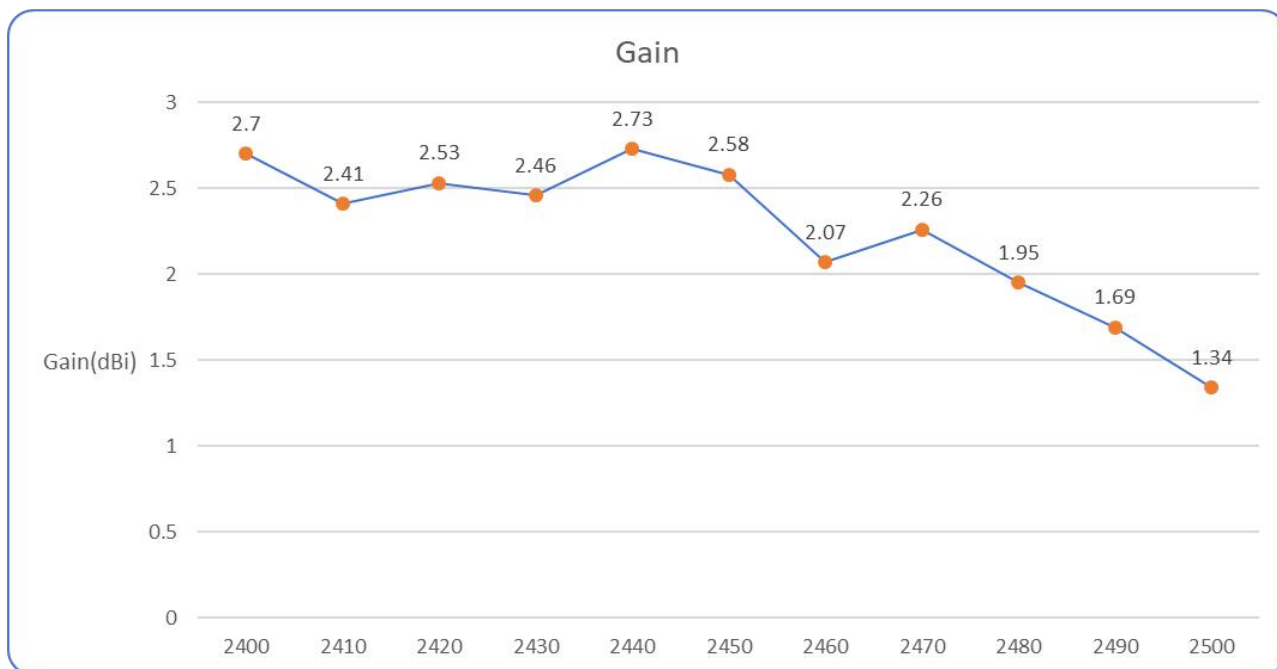


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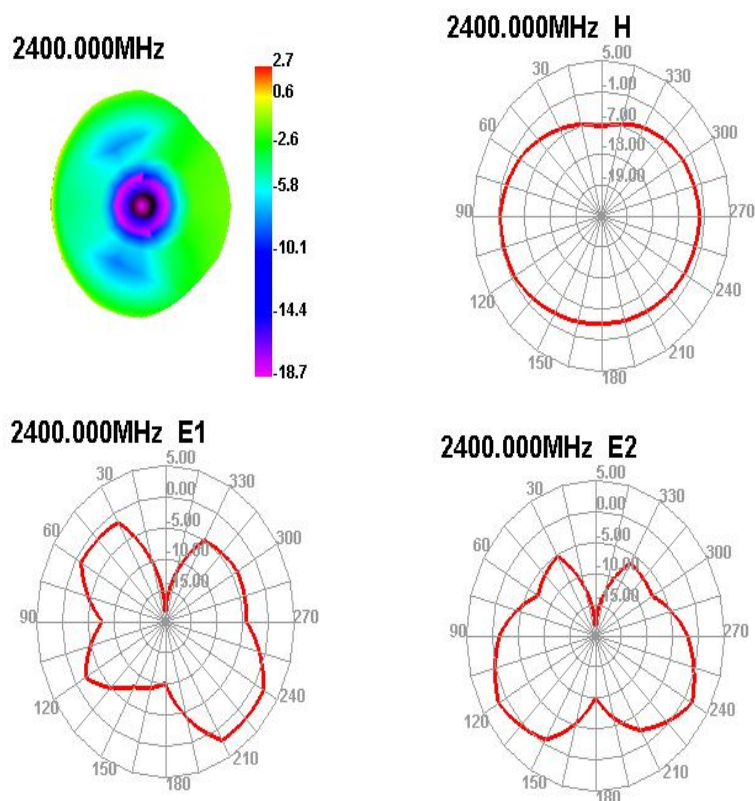
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◎ 最大增益 Maximum gain



◎ 3D Gain Pattern (2400 MHz)



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**UNIT: mm**

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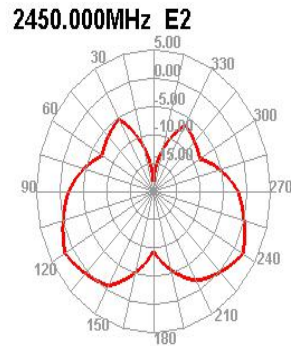
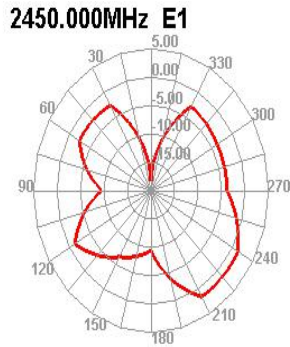
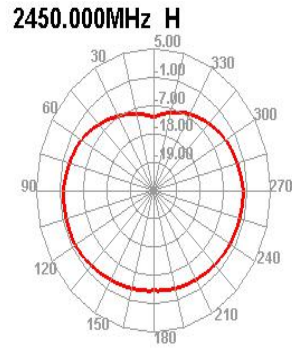
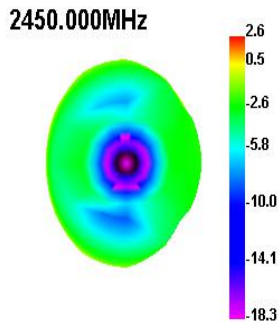
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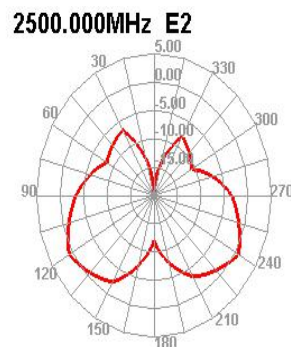
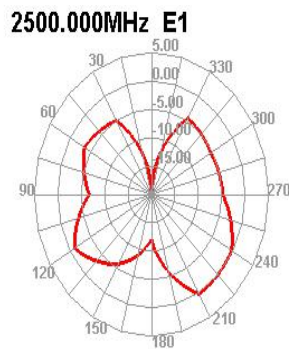
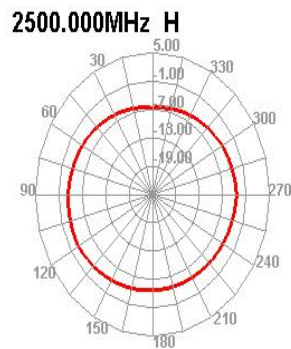
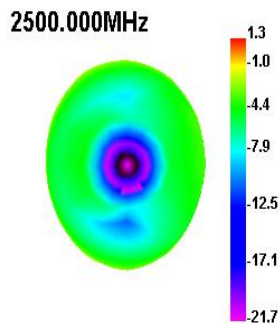
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◎ 3D Gain Pattern (2450 MHz)



◎ 3D Gain Pattern (2500 MHz)



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## 7. Environmental Characteristics

### (1) Reliability Test

| Item                        | Condition                                                                                                                                                                                                                                                                                        | Specification                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Thermal shock               | 1. $30 \pm 3$ minutes at $-40^{\circ} \text{C} \pm 5^{\circ} \text{C}$ ,<br>2. Convert to $+105^{\circ} \text{C}$ (5 minutes)<br>3. $30 \pm 3$ minutes at $+105^{\circ} \text{C} \pm 5^{\circ} \text{C}$ ,<br>4. Convert to $-40^{\circ} \text{C}$ (5 minutes)<br>5. Total 100 continuous cycles | No apparent damage<br>Fulfill the electrical spec. after test. |
| Humidity resistance         | 1. Humidity: 85% R.H.<br>2. Temperature: $85 \pm 5^{\circ} \text{C}$<br>3. Time: 1000 hours.                                                                                                                                                                                                     | No apparent damage<br>Fulfill the electrical spec. after test. |
| High temperature resistance | 1. Temperature: $150^{\circ} \text{C} \pm 5^{\circ} \text{C}$<br>2. Time: 1000 hours.                                                                                                                                                                                                            | No apparent damage<br>Fulfill the electrical spec. after test. |
| Low temperature resistance  | 1. Temperature: $-40^{\circ} \text{C} \pm 5^{\circ} \text{C}$<br>2. Time: 1000 hours.                                                                                                                                                                                                            | No apparent damage<br>Fulfill the electrical spec. after test. |
| Soldering heat resistance   | 1. Solder bath temperature : $260 \pm 5^{\circ} \text{C}$<br>2. Bathing time: $10 \pm 1$ seconds                                                                                                                                                                                                 | No apparent damage                                             |
| Solderability               | The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of $245 \pm 5^{\circ} \text{C}$ for $3 \pm 1$ seconds.                                                                                                                                  | No apparent damage                                             |

### (2) Storage Condition

#### (a) At warehouse:

The temperature should be within  $0 \sim 30^{\circ} \text{C}$  and humidity should be less than 60% RH.

The product should be used within 1 year from the time of delivery.

#### (b) On board:

The temperature should be within  $-40 \sim 85^{\circ} \text{C}$  and humidity should be less than 85% RH.

### (3) Operating Temperature Range

Operating temperature range :  $-40^{\circ} \text{C}$  to  $+105^{\circ} \text{C}$ .

UNLESS OTHER SPECIFIED TOLERANCES ON:

$X = \pm$        $X.X = \pm$        $X.XX =$   
**ANGLES** =  $\pm$       **HOLE DIA** =  $\pm$



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SCALE: N/A

UNIT: mm

DRAWN BY : Sera

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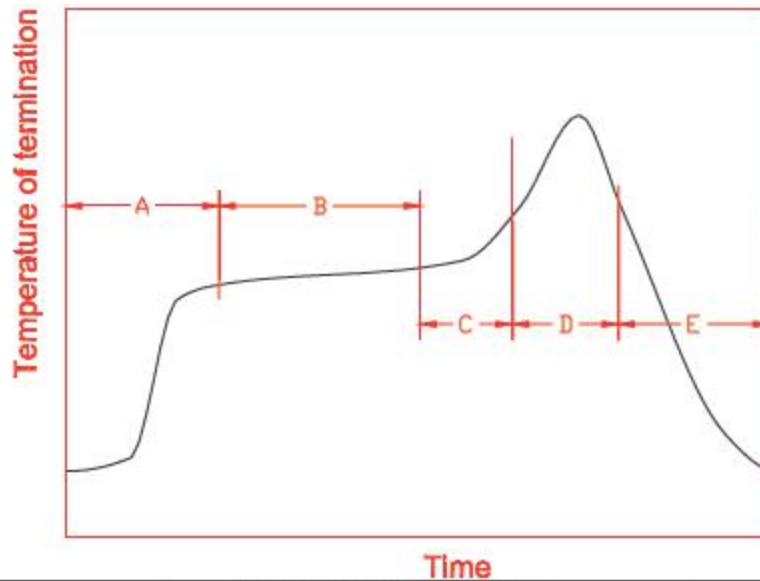
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## 8. Recommended Reflow Soldering



|   |                                    |                                      |               |
|---|------------------------------------|--------------------------------------|---------------|
| A | 1 <sup>st</sup> rising temperature | The normal to Preheating temperature | 30s to 60s    |
| B | Preheating                         | 140°C to 160°C                       | 60s to 120s   |
| C | 2 <sup>nd</sup> rising temperature | Preheating to 200°C                  | 20s to 40s    |
| D | Main heating                       | if 220°C                             | 50s~60s       |
|   |                                    | if 230°C                             | 40s~50s       |
|   |                                    | if 240°C                             | 30s~40s       |
|   |                                    | if 250°C                             | 20s~40s       |
|   |                                    | if 260°C                             | 20s~40s       |
| E | Regular cooling                    | 200°C to 100°C                       | 1°C/s ~ 4°C/s |

\*reference: J-STD-020C

### (1) Soldering Gun Procedure

Note the follows, in case of using solder gun for replacement.

- (a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- (b) The soldering gun tip shall not touch this product directly.

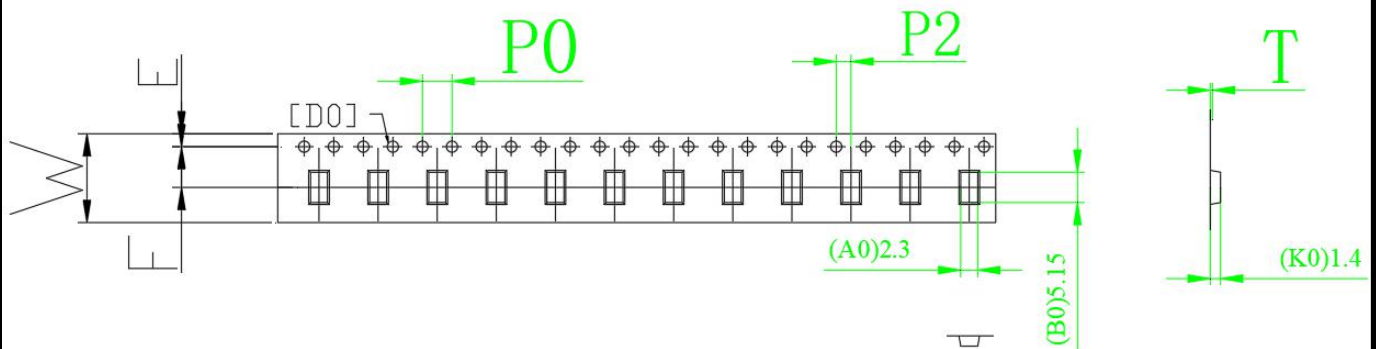
### (2) Soldering Volume

Note that excess of soldering volume will easily get crack the body of this product.

|                                                                                                 |                 |                                                                                                                                                                                                      |                        |
|-------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
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## 9. Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 3000pcs/Reel



| ITEM | W     | A0   | B0   | K0   | K1   | P    | F    | E    | S0    | D0   | D1   | P0   | P2   | T    |
|------|-------|------|------|------|------|------|------|------|-------|------|------|------|------|------|
| DIM  | 12.00 | 2.30 | 5.15 | 1.40 | 0.00 | 8.00 | 5.50 | 1.75 | 52.40 | 1.50 | 0.00 | 4.00 | 2.00 | 0.30 |

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