

# ACA-5036-A2-CC-S Specification

## 1. APPLICATION:

WLAN, 802.11b/g, Bluetooth, etc...

## 2. Explanation of part number :

**AC    A    -    5036    -    A2    -    CC    -    S    -**  
(1) (2)    (3)    (4)    (5)    (6)    (7)

- (1) Product Type : Chip Antenna
- (2) Center Frequency/Band Code : A--2.45GHz group
- (3) Size Code: 5.0mm(Length) x 3.6mm(Width)
- (4) Design Revision Code: Rev.2
- (5) CC= Coupling Ceramics Type
- (6) Special Code: S=RoHS Compliant
- (7) Suffix For Special Requirements

## 3. Electrical Specification :

ITEM	SPECIFICATION	
Frequency Band	2.40GHz~2.50GHz	
VSWR	Less than 2.5	
Polarization	Linear	
*Peak Gain	Layout A	3 dBi Typ.
	Layout B	2.1 dBi Typ.
*Peak Efficiency	Layout A	80% Typ.
	Layout B	74% Typ
Impedance	50Ω Typ.	

\* Test condition: Test board size 80\*40 mm

Matching circuit: Pi matching circuit will be required

Address: No. 11, Keyi Street, adjacent to Gongyi Lane, Zhunan Town, Miaoli County, Taiwan, 350402

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±            X.X=±            X.XX=±  
ANGLES=±            HOLEDIA=±



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SCALE : -----

UNIT : mm

DRAWN BY : 吳爲盛

CHECKED BY : 楊奇峯

DESIGNED BY : 謝立庭

APPROVED BY : 蘇志銘

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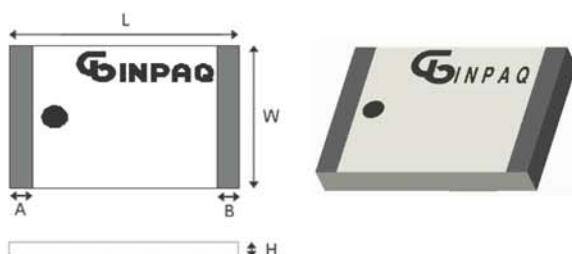
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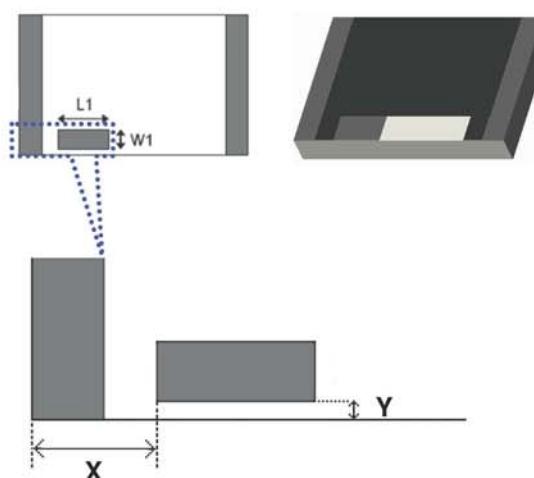
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#### 4. Physical Dimension : (Unit:mm)

TOP view



Bottom view



Chip Antenna	L	W	A	B	L1	W1	H	X	Y
ACA5036	5.2±0.3	3.7±0.3	0.45±0.25	0.45±0.25	1.1±0.20	0.55±0.20	0.70±0.15	0.85±0.25	0.12±0.06

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ANGLES=± HOLEDIA=±

SCALE : ----- UNIT : mm

DRAWN BY : 吳為盛 *Wu Weisheng*

DESIGNED BY : 謝立庭 *Xie Liteng*

CHECKED BY : 楊奇峯 *Yang Qifeng*

APPROVED BY : 蘇志銘 *Su Zhiming*



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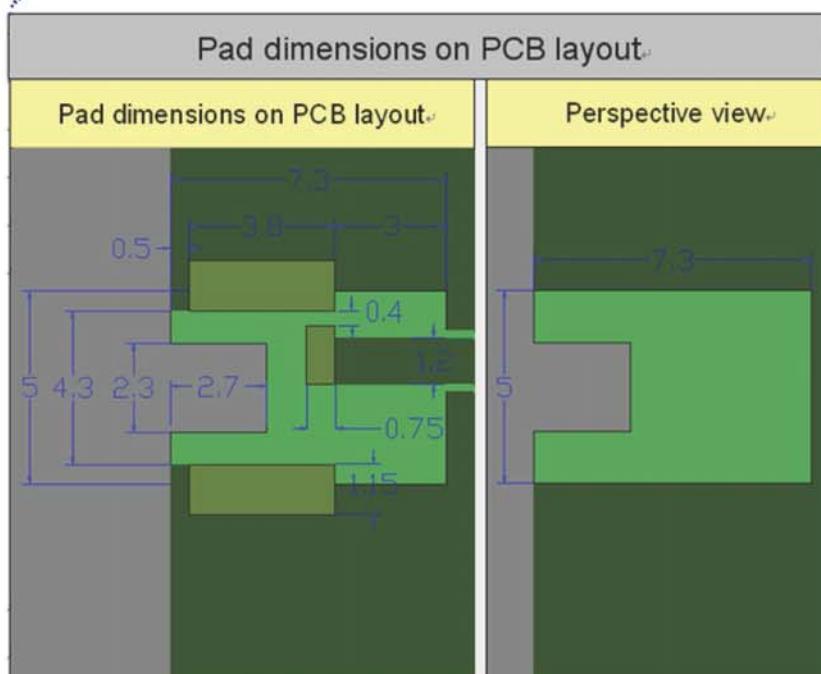
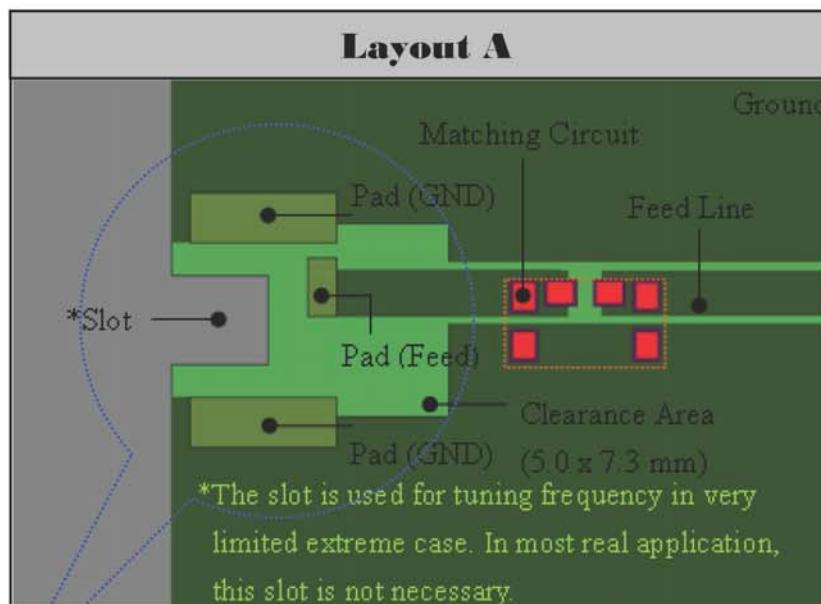
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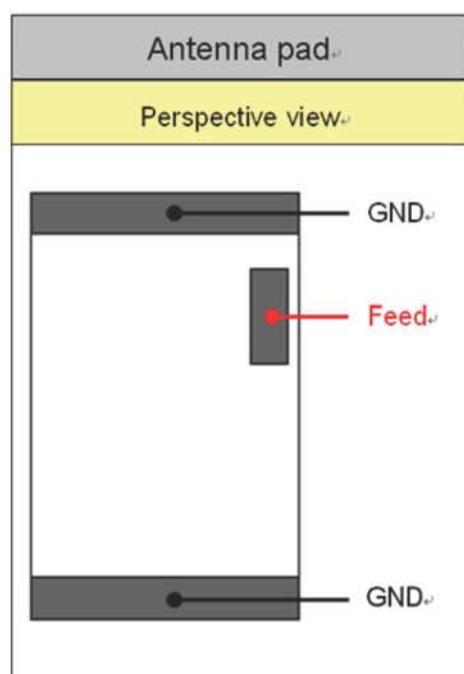
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## 5. Recommend PCB Layout : (Unit:mm)



PCB pad dimensions

Terminal name	Terminal Dimensions
Pad (Feed)	1.65 X 0.75
Pad (GND)	3.8 X 1.15
Pad (GND)	3.8 X 1.15



Antenna pad dimensions

Terminal name	Terminal Dimensions
Feed	1.1 X 0.55
GND	3.7 X 0.45
GND	3.7 X 0.45

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=±  
ANGLES=± HOLEDIA=±

SCALE : ----- UNIT : mm

DRAWN BY : 吳為盛

DESIGNED BY : 謝立庭

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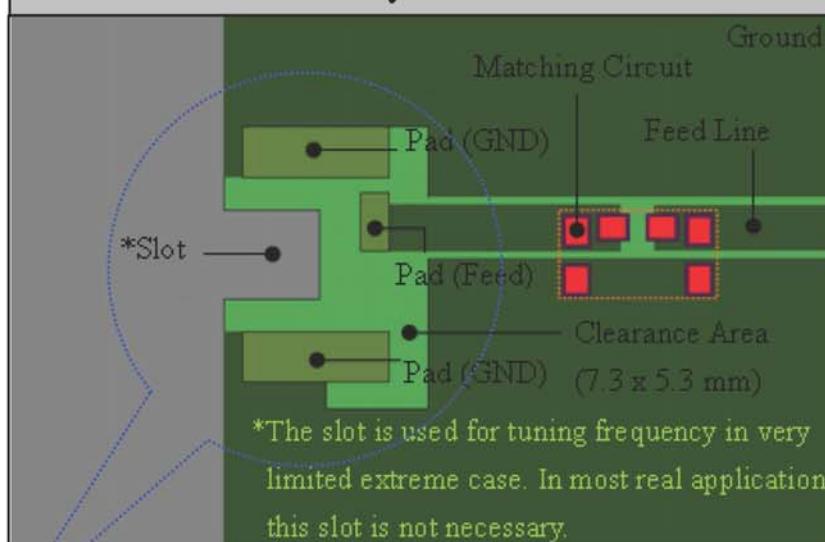
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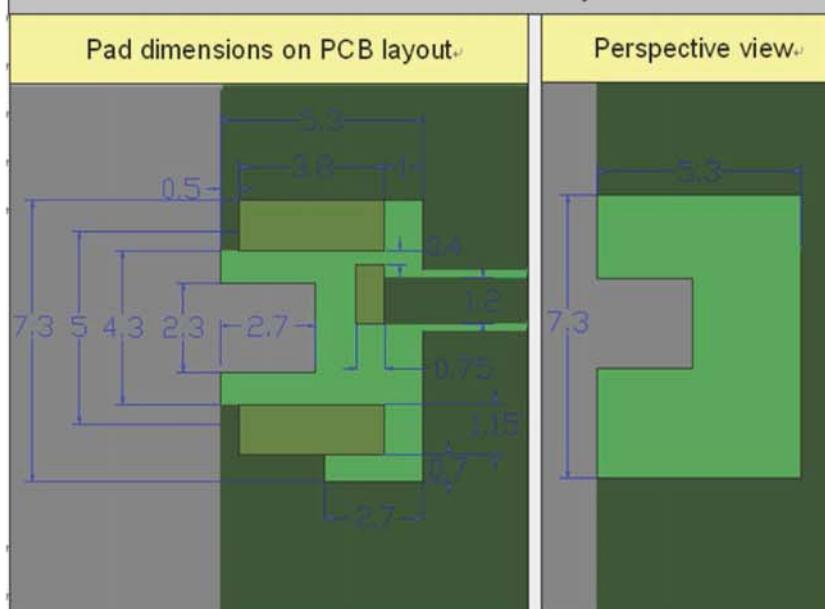
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## Layout B



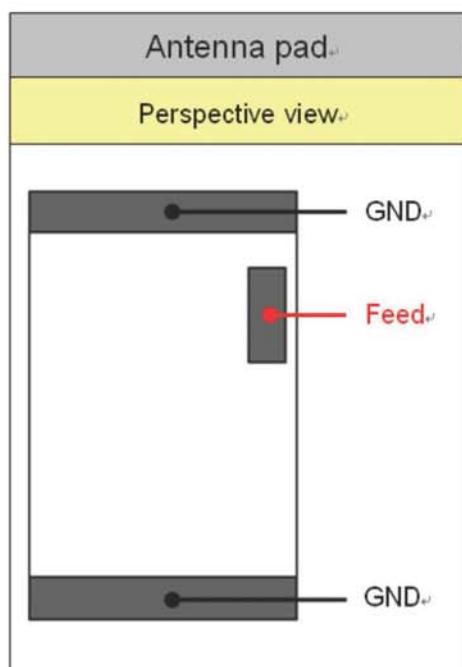
### Pad dimensions on PCB layout



PCB pad dimensions

Terminal name	Terminal Dimensions
Pad (Feed)	1.65 X 0.75
Pad (GND)	3.8 X 1.15
Pad (GND)	3.8 X 1.15

### Antenna pad



Antenna pad dimensions

Terminal name	Terminal Dimensions
Feed	1.1 X 0.55
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SCALE : ----- UNIT : mm

DRAWN BY : 吳為盛 *Wu Wei Sheng*

DESIGNED BY : 謝立庭 *Xie Li Ting*

CHECKED BY : 楊奇峯 *Yang Qi Feng*

APPROVED BY : 蘇志銘 *Su Zhi Ming*



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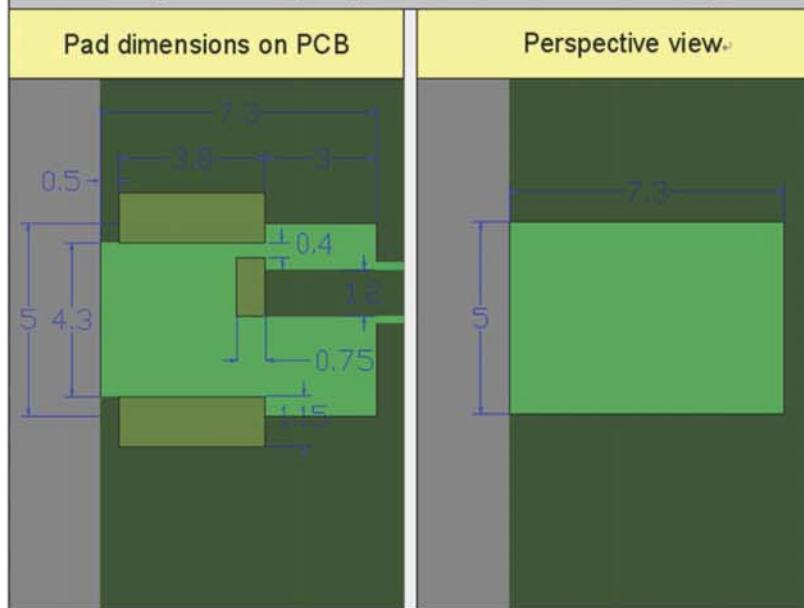
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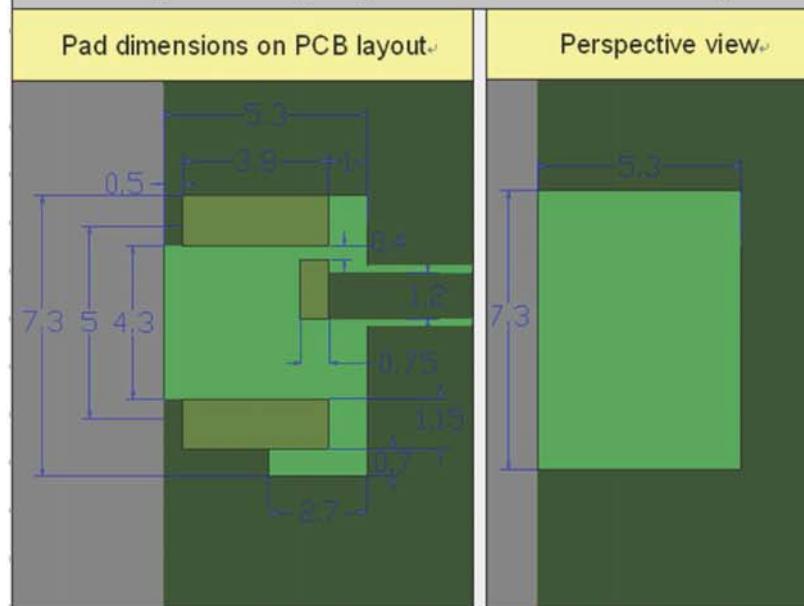
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### Layout C (Layout A without slot)



### Layout D (Layout B without slot)



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 $\text{ANGLES} = \pm$        $\text{HOLEDIA} = \pm$



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SCALE : ----- UNIT : mm

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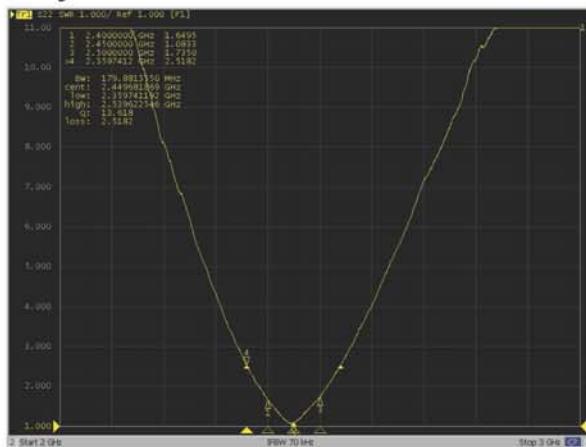
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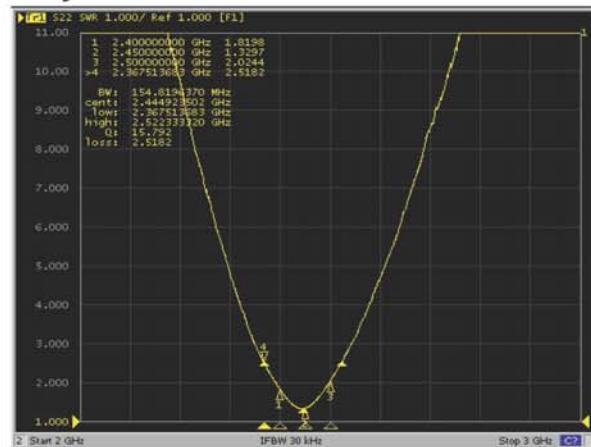
## 6. Electrical Characteristics :

### Layout A : VSWR



Mark	Frequency	VSWR
1	2400 MHz	1.65
2	2450 MHz	1.08
3	2500 MHz	1.73

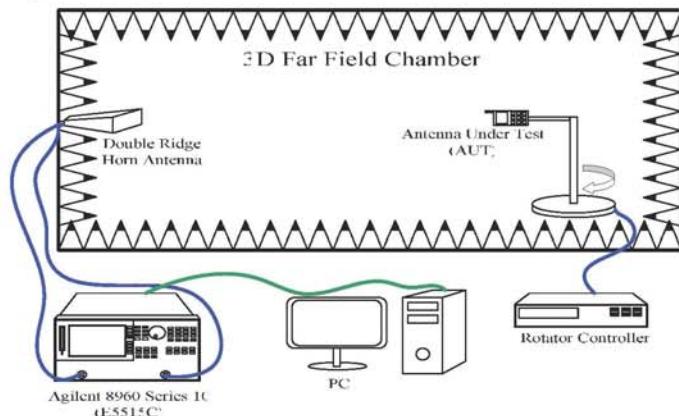
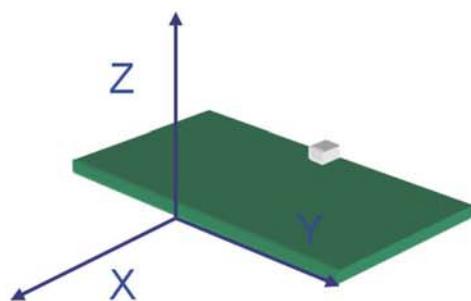
### Layout B : VSWR



Mark	Frequency	VSWR
1	2400 MHz	1.82
2	2450 MHz	1.33
3	2500 MHz	2.02

### Radiation Pattern

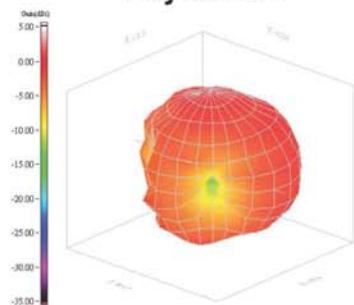
The Gain pattern is measured in INPAQ's FAR-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.



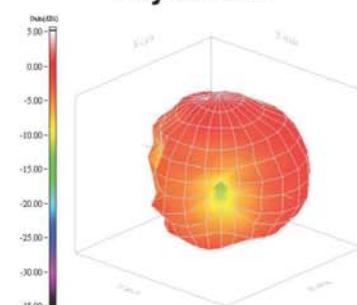
3D Chamber Definition

### ◎ 3D Gain Pattern (2450 MHz)

#### Layout A :



#### Layout B :



UNLESS OTHER SPECIFIED TOLERANCES ON :

$X = \pm$        $X.X = \pm$        $X.XX =$   
 $\text{ANGLES} = \pm$        $\text{HOLEDIA} = \pm$

SCALE : ----- UNIT : mm

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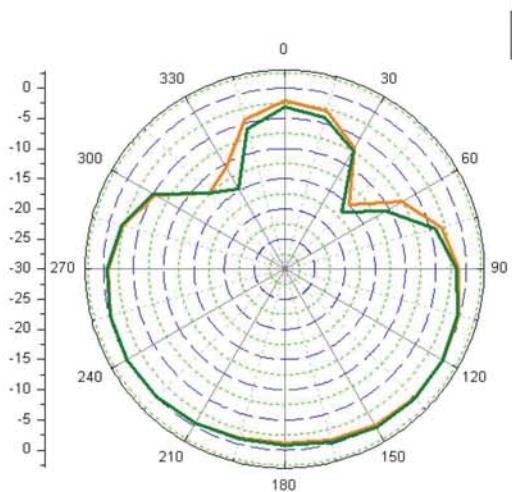
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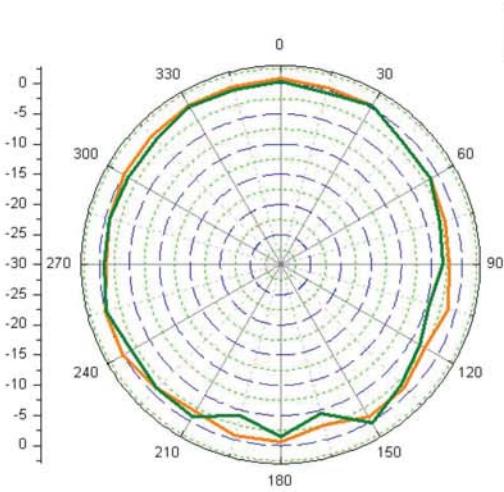
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## ◎ 2D Gain Pattern (2450 MHz)

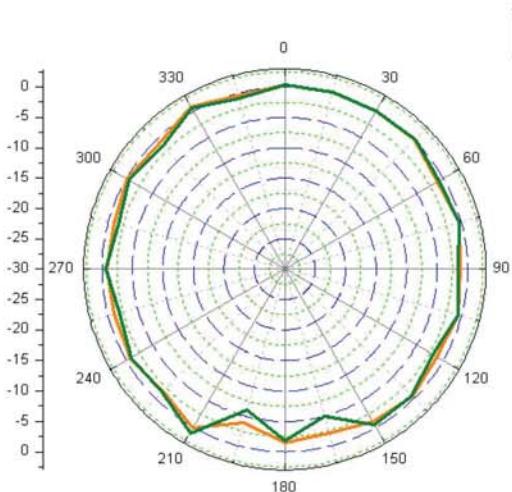
X-Y Plane



X-Z Plane



Y-Z Plane



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X=± X.X=± X.XX=  
ANGLES=± HOLEDIA=±

SCALE : ----- UNIT : mm

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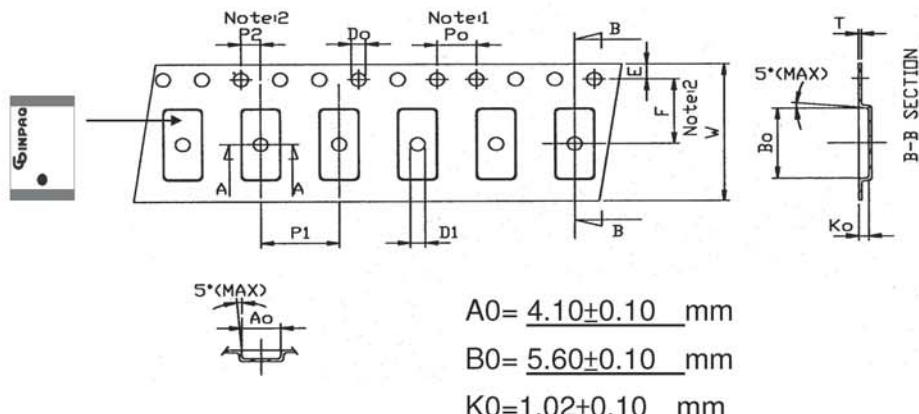
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## 7. Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 2000pcs/Reel

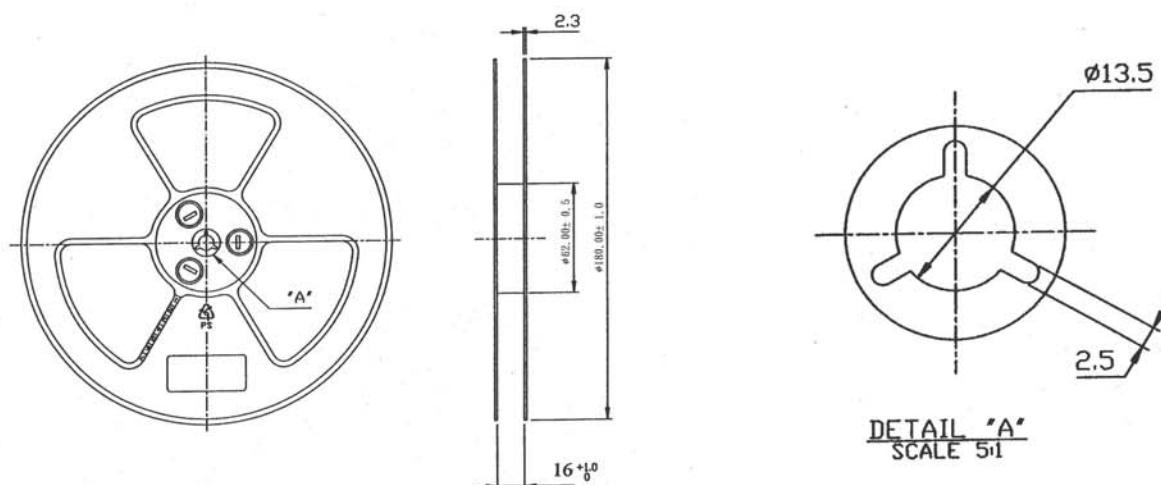
(2) Carrier tape dimensions



Notice:

1. 10 Sprocket hole pitch cumulative tolerance is  $\pm 0.1$ mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

(3) Taping reel dimensions



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ANGLES=± HOLEDIA=±

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DESIGNED BY : 謝立庭

CHECKED BY : 楊奇峯

APPROVED BY : 蘇志銘



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## 8. Environmental Characteristics

### (1) Reliability Test

Item	Condition	Specification
Thermal shock	1. 30±3 minutes at -40°C±5°C, 2. Convert to +105°C (5 minutes) 3. 30±3 minutes at +105°C±5°C, 4. Convert to -40°C (5 minutes) 5. Total 100 continuous cycles	No apparent damage Fulfill the electrical spec. after test.
Humidity resistance	1. Humidity: 85% R.H. 2. Temperature: 85±5°C 3. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
High temperature resistance	1. Temperature: 150°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Low temperature resistance	1. Temperature: -40°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Soldering heat resistance	1. Solder bath temperature : 260±5°C 2. Bathing time: 10±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±5°C for 3±1 seconds.	No apparent damage

### (2) Storage condition

#### (a) At warehouse:

The temperature should be within 0 ~ 30°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:

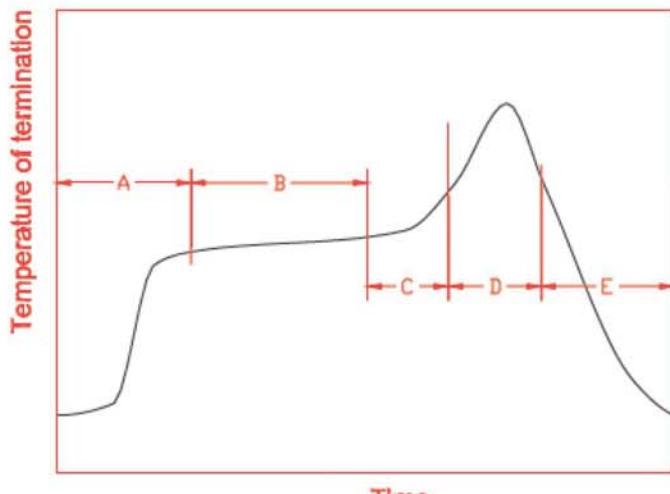
The temperature should be within -40~85°C and humidity should be less than 85% RH.

### (3) Operating temperature range

Operating temperature range : -40°C to +105°C.

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SCALE : -----	UNIT : mm			
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DESIGNED BY : 謝立庭 <i>Li Ting</i>	APPROVED BY : 蘇志銘 <i>Zhi Ming Su</i>	DOCUMENT NO.	ENS000023010	SPEC REV.
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## 9. Recommended reflow soldering



		Time	
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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