

品名 : ACA-5036-A2-CC-S

## History List

# 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.	

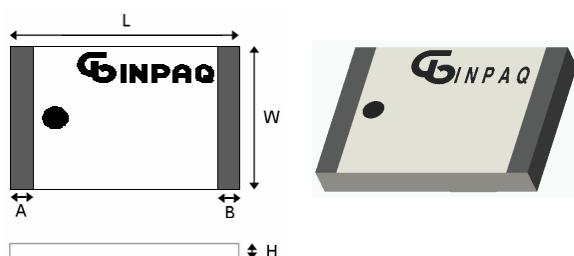
\* Test condition: Test board size 80\*40 mm

Matching circuit: Pi matching circuit will be required

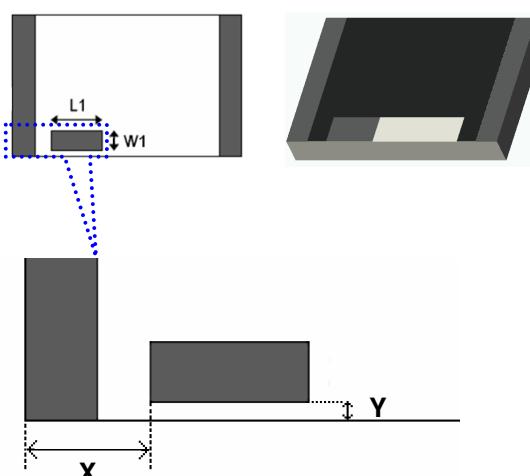
UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.	
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DRAWN BY : 吳爲盛 <small>Wu Wei Sheng</small>	CHECKED BY : 楊奇峯 <small>Yang Qi Feng</small>			
DESIGNED BY : 謝立庭 <small>Xie Li Ting</small>	APPROVED BY : 蘇志銘 <small>Su Zhi Ming</small>			
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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

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DESIGNED BY : 謝立庭 *Xie Liteng* APPROVED BY : 蘇志銘 *Su Zhiming*



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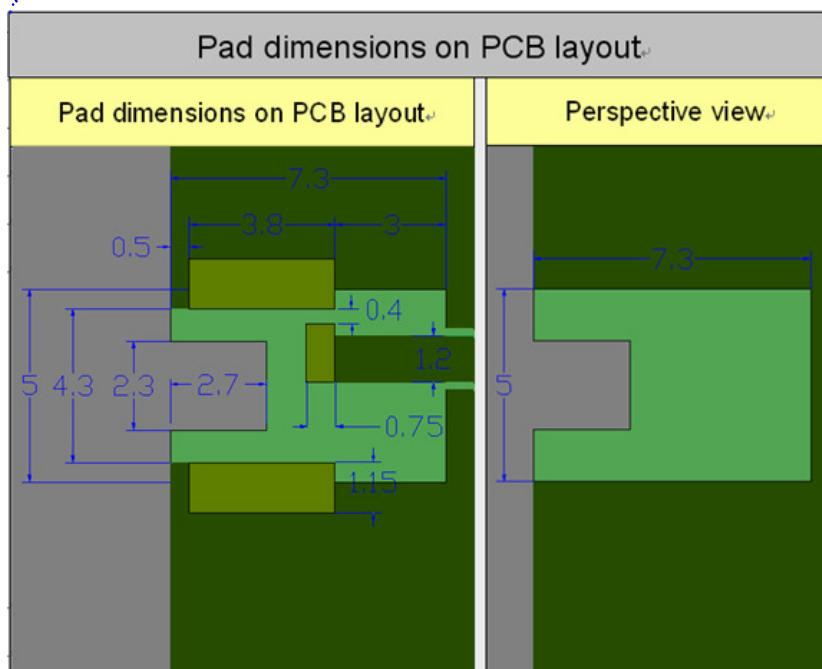
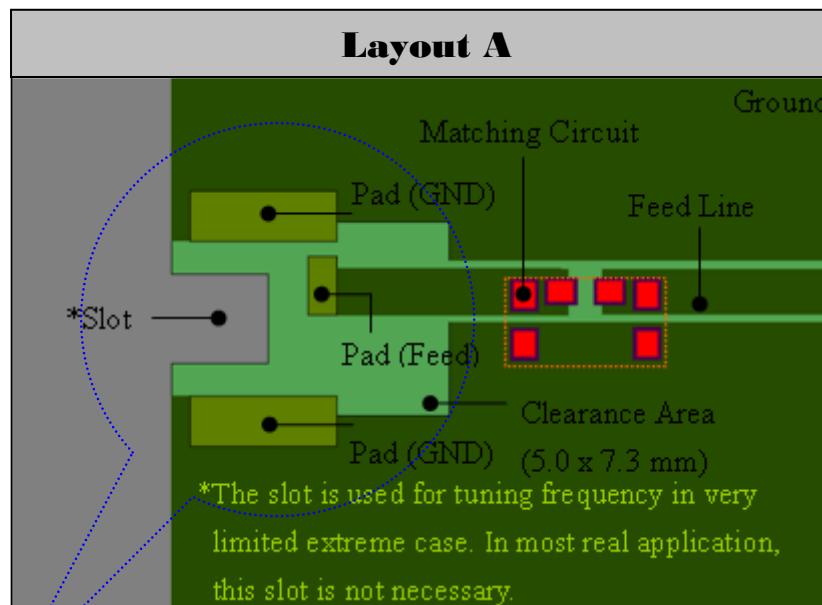
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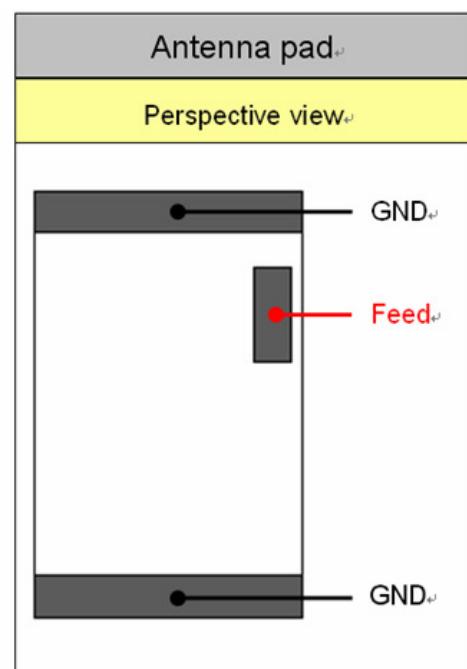
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## 5. Recommend PCB Layout : (Unit:mm)



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

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DESIGNED BY : 謝立庭

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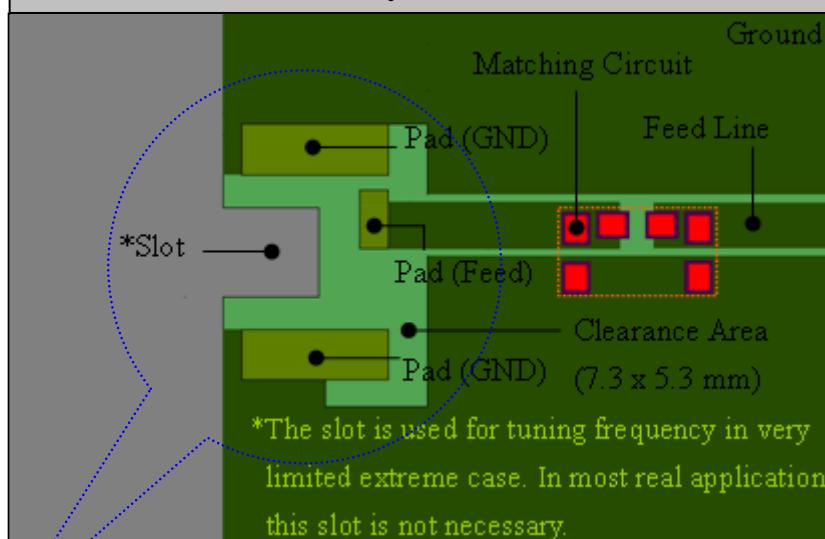
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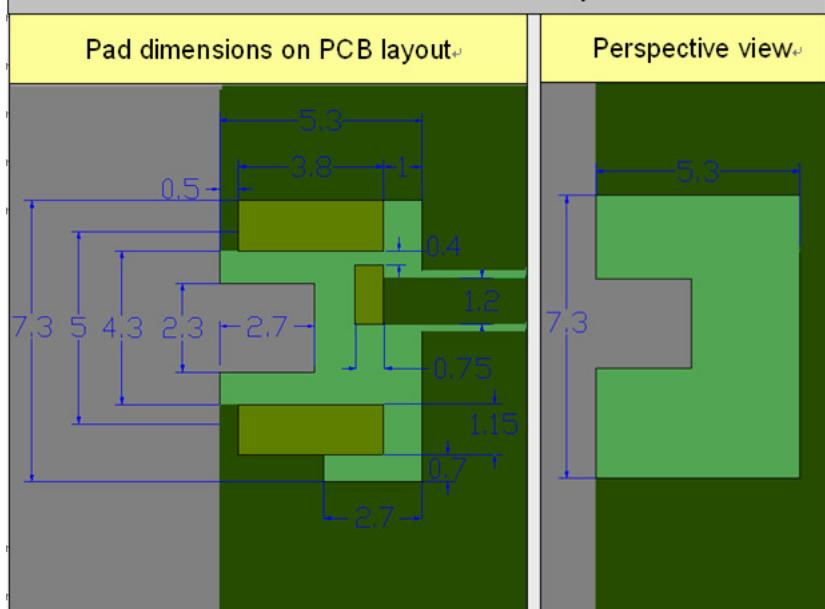
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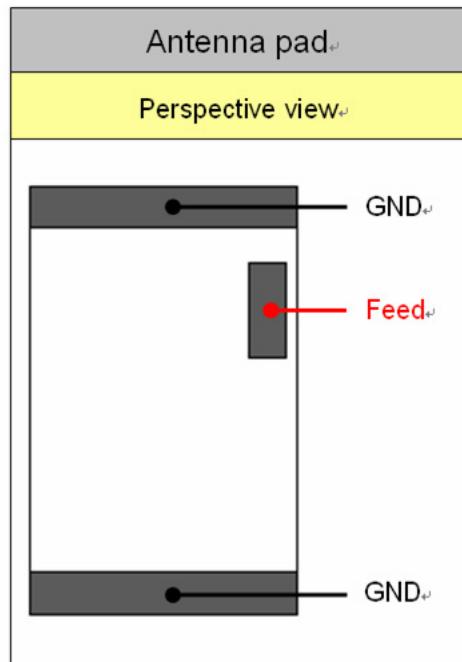
## Layout B



### Pad dimensions on PCB layout



### Antenna pad



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=±



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SCALE : -----

UNIT : mm

DRAWN BY : 吳為盛

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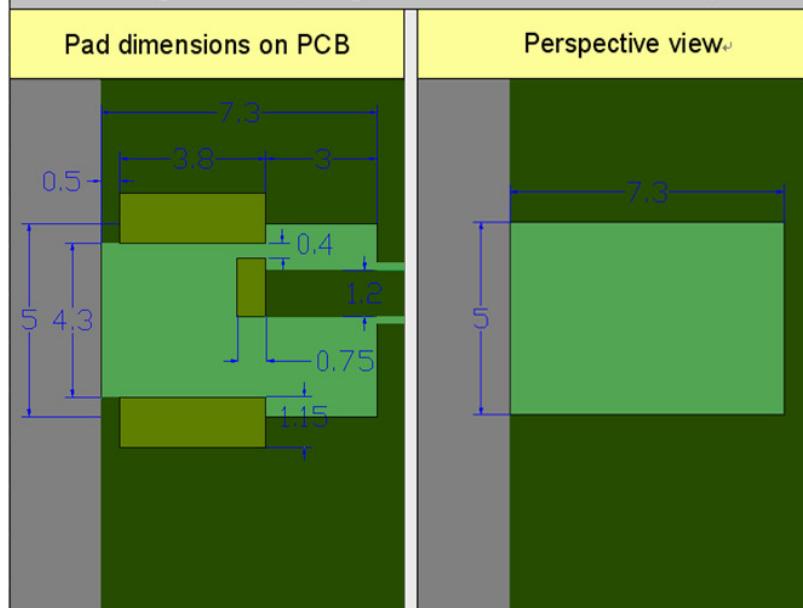
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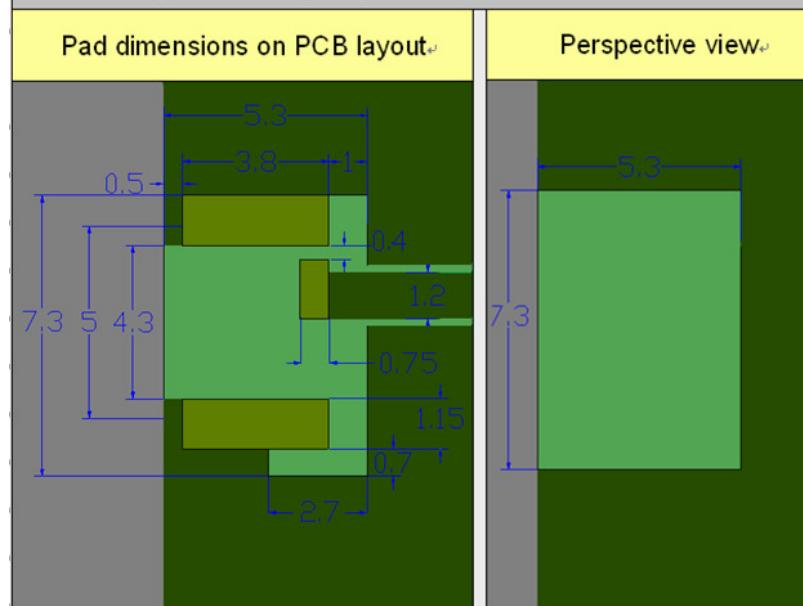
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### Layout C (Layout A without slot)



### Layout D (Layout B without slot)



UNLESS OTHER SPECIFIED TOLERANCES ON :

$X = \pm$        $X.X = \pm$        $X.XX =$

ANGLES  $= \pm$       HOLEDIA  $= \pm$



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SCALE : -----

UNIT : mm

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APPROVED BY : 蘇志銘 Su Zhi Ming

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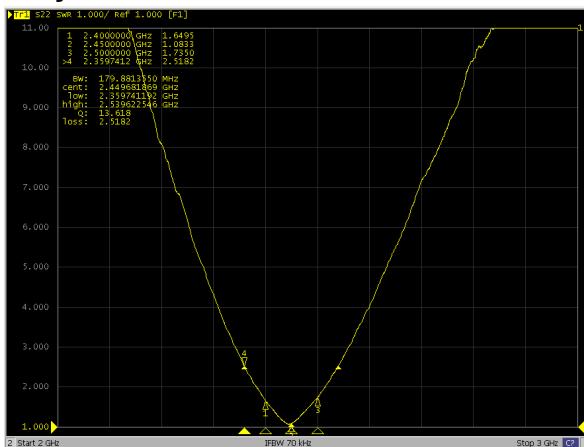
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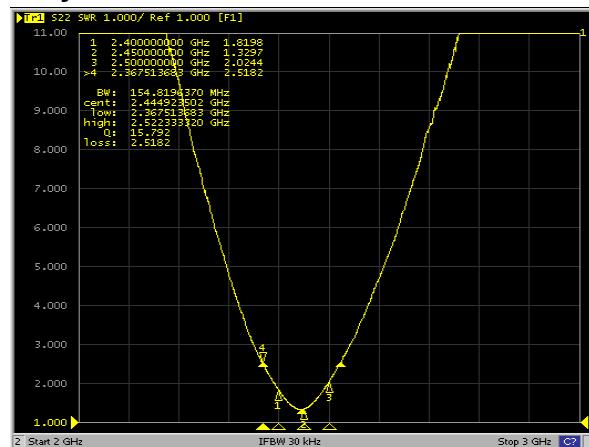
## 6. Electrical Characteristics :

### Layout A : VSWR



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

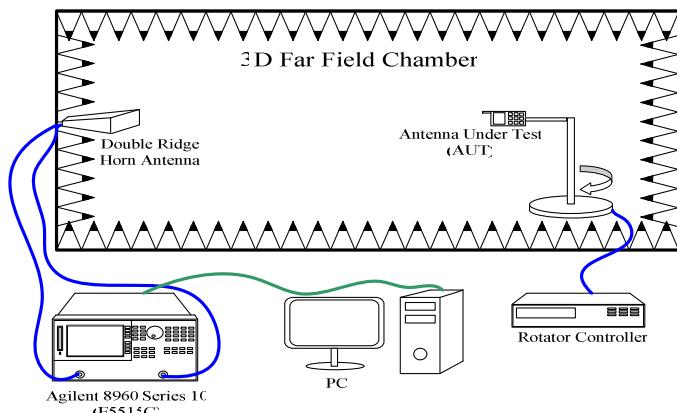
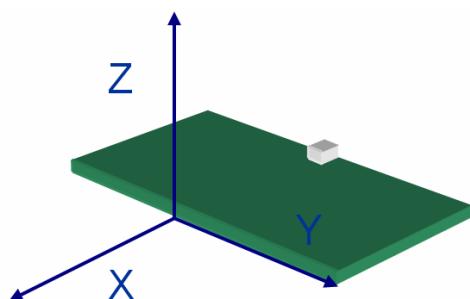
### Layout B : VSWR



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

### Radiation Pattern

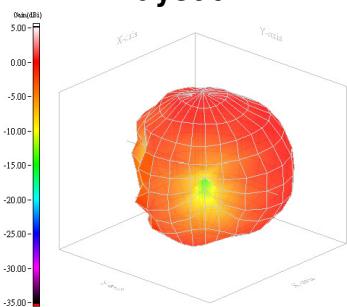
The Gain pattern is measured in INPAQ's FAR-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.



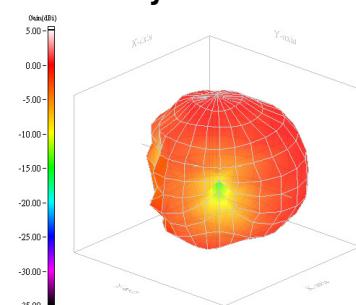
3D Chamber Definition

### ◎ 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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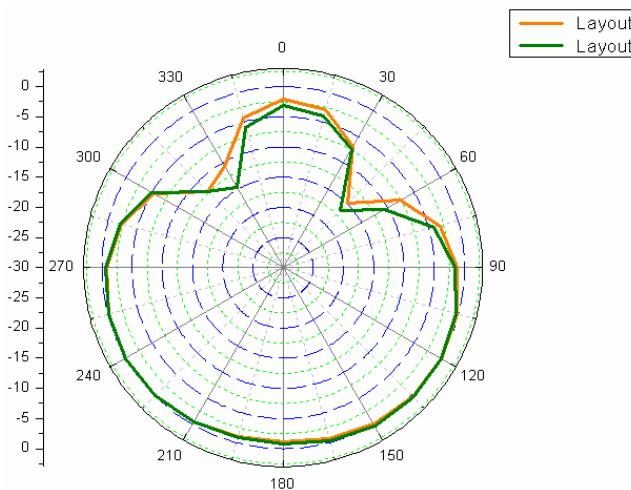
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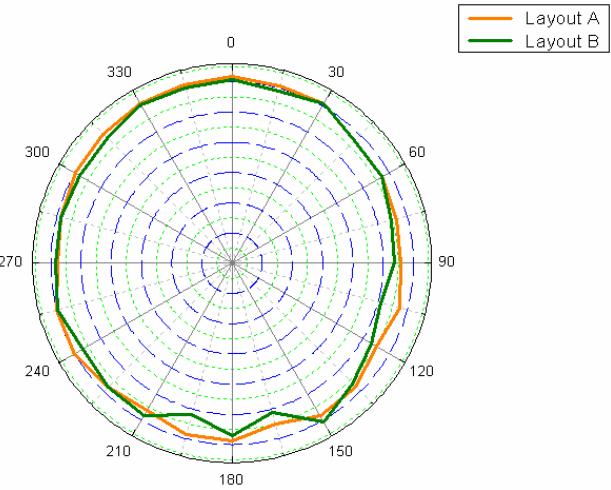
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## ◎ 2D Gain Pattern (2450 MHz)

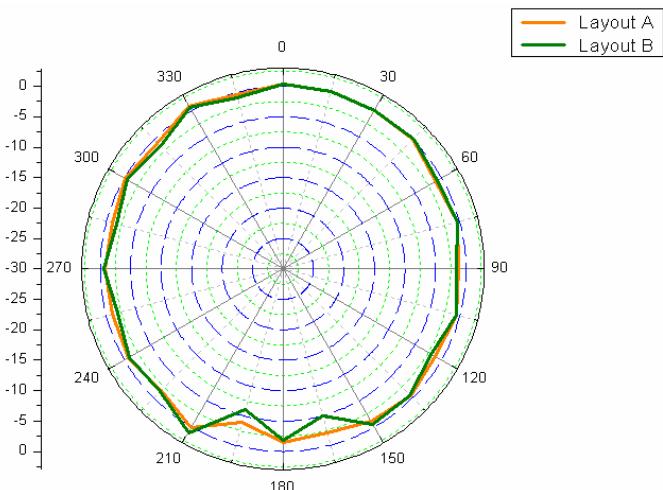
X-Y Plane



X-Z Plane



Y-Z Plane



UNLESS OTHER SPECIFIED TOLERANCES ON :

X=± X.X=± X.XX=

ANGLES=± HOLEDIA=±

SCALE : ----- UNIT : mm

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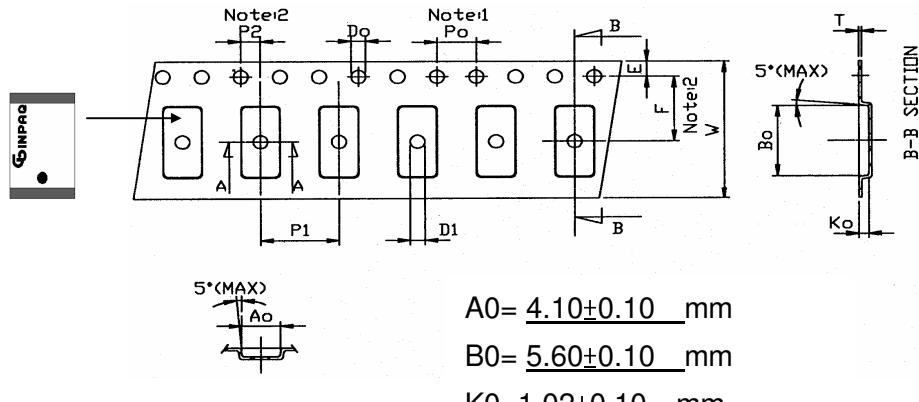
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## 7. Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 2000pcs/Reel

(2) Carrier tape dimensions

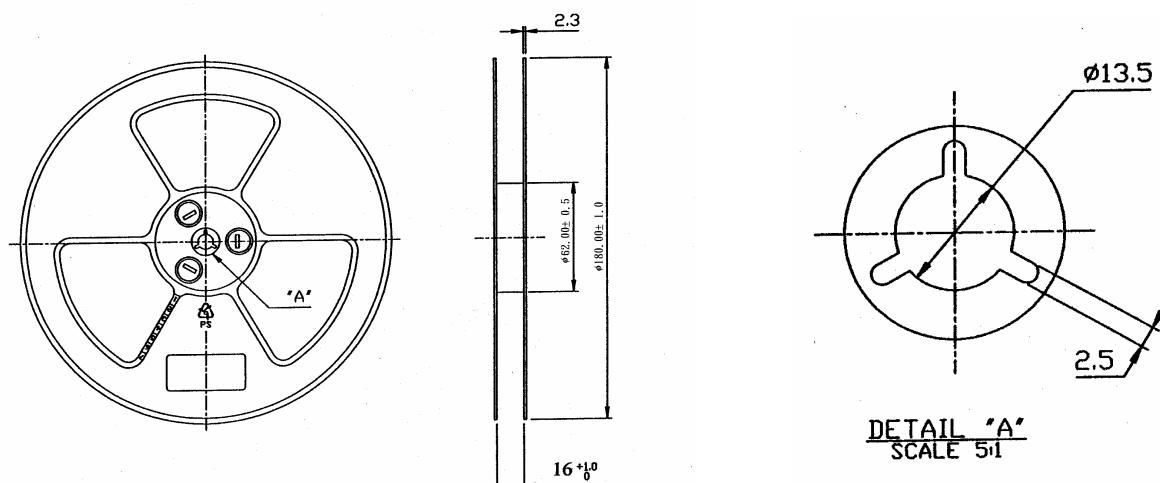


Symbol	Spec.
$P_o$	$4.00 \pm 0.1$
$P_1$	$8.00 \pm 0.1$
$P_2$	$2.00 \pm 0.05$
$D_o$	$1.55 \pm 0.05$
$D_1$	$1.50(\text{MIN})$
$E$	$1.75 \pm 0.1$
$F$	$5.50 \pm 0.05$
$10P_o$	$40.00 \pm 0.2$
$W$	$12.00 \pm 0.1$
$T$	$0.25 \pm 0.05$

Notice:

1. 10 Sprocket hole pitch cumulative tolerance is  $\pm 0.1\text{mm}$
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3.  $A_o$  &  $B_o$  measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4.  $K_o$  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



UNLESS OTHER SPECIFIED TOLERANCES ON :

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

SCALE : ----- UNIT : mm

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## 8. Environmental Characteristics

### (1) Reliability Test

Item	Condition	Specification
<b>Thermal shock</b>	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.
<b>Humidity resistance</b>	1. Humidity: 85% R.H. 2. Temperature: 85±5°C 3. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
<b>High temperature resistance</b>	1. Temperature: 150°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
<b>Low temperature resistance</b>	1. Temperature: -40°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
<b>Soldering heat resistance</b>	1. Solder bath temperature : 260±5°C 2. Bathing time: 10±1 seconds	No apparent damage
<b>Solderability</b>	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:

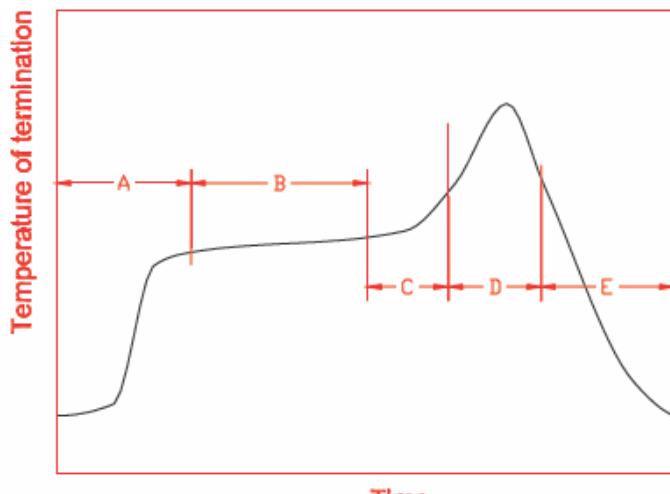
The temperature should be within -40~85°C and humidity should be less than 85% RH.

### (3) Operating temperature range

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

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## 9. 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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