

[illegible]

ACA-5036-A2-CC-S Specification

1. APPLICATION:

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

2. Explanation of part number :

$\frac{AC}{(1)} \quad \frac{A}{(2)} - \frac{5036}{(3)} - \frac{A2}{(4)} - \frac{CC}{(5)} - \frac{S}{(6)} \quad \bar{(7)}$

- (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 :

X=± X.X=± X.XX=

ANGLES=± HOLEDIA=±



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SCALE : -----

UNIT : mm

DRAWN BY : 吳為盛 *wid*

CHECKED BY : 楊奇峯 *ken*

DESIGNED BY : 謝立庭 *LT*

APPROVED BY : 蘇志銘 *Jing*

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DOCUMENT
NO.

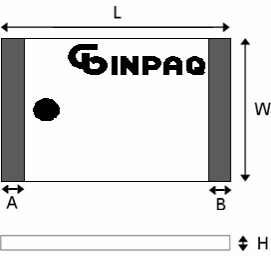
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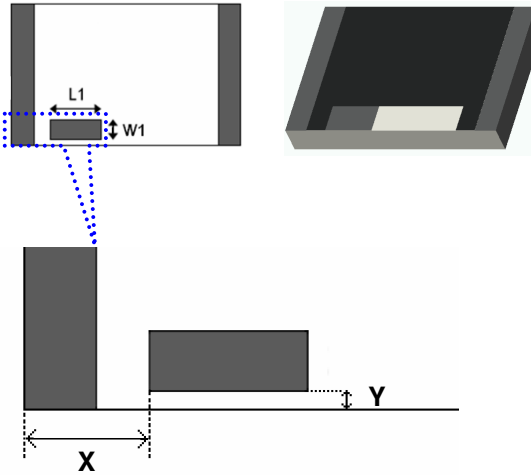
A6

4. Physical Dimension : (Unit:mm)


TOP view



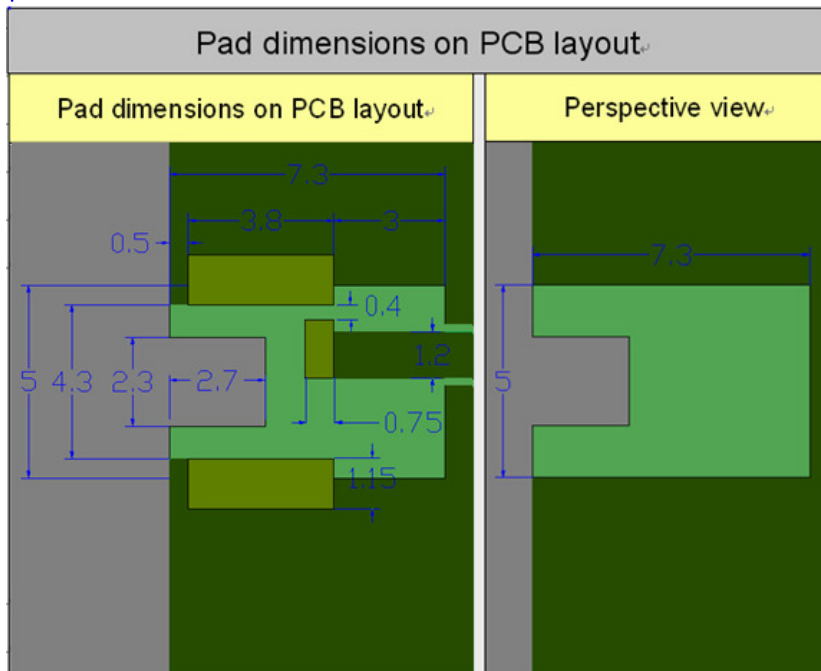
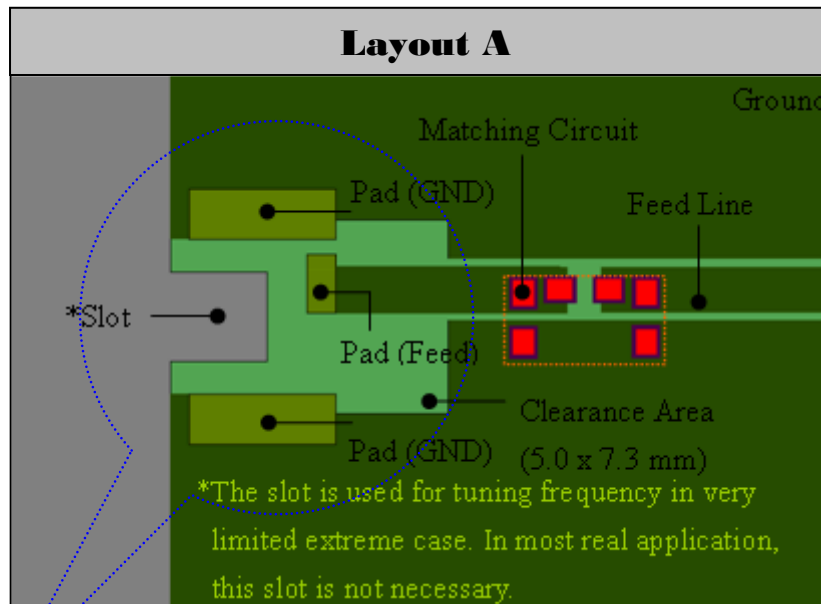
Bottom view



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

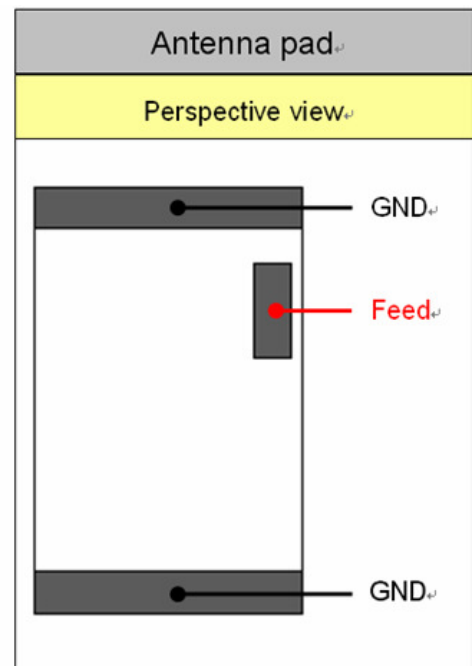
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DRAWN BY : 吳為盛 <i>wdd</i>	CHECKED BY : 楊奇峯 <i>Kenng</i>				
DESIGNED BY : 謝立庭 <i>LT</i>	APPROVED BY : 蘇志銘 <i>Jing</i>				
TITLE : ACA-5036-A2-CC-S Specification		DOCUMENT NO.	ENS000023010		SPEC REV. A6

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 :

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UNIT : mm

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DESIGNED BY : 謝立庭 LT

APPROVED BY : 蘇志銘 Jerry

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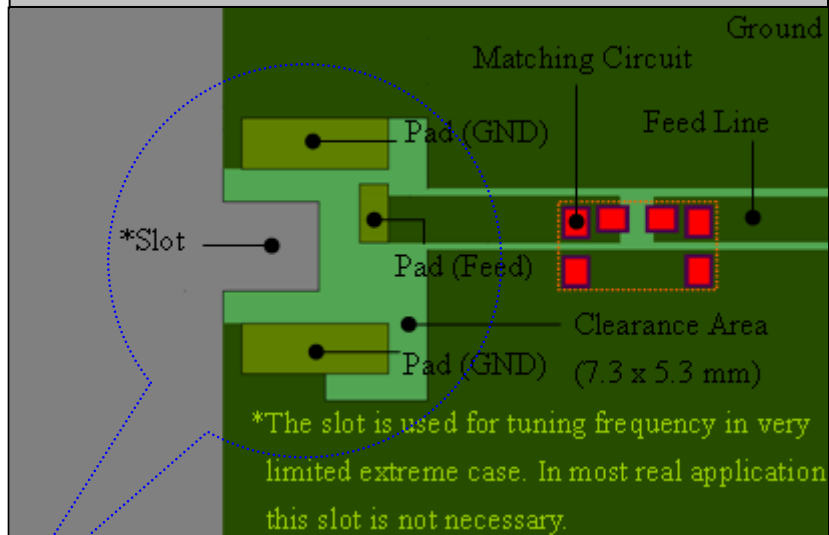
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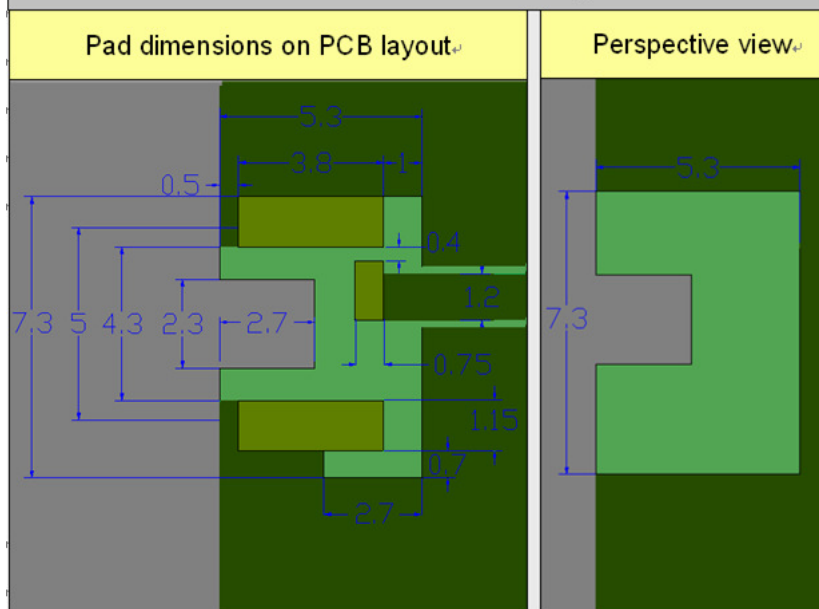
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Layout B



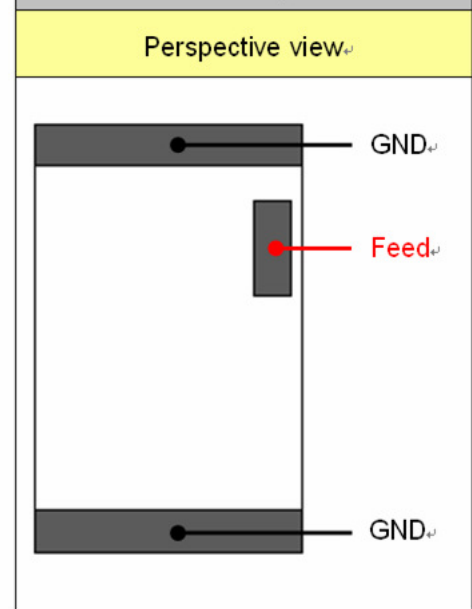
Pad dimensions on PCB layout



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
GND	3.7 X 0.45
GND	3.7 X 0.45

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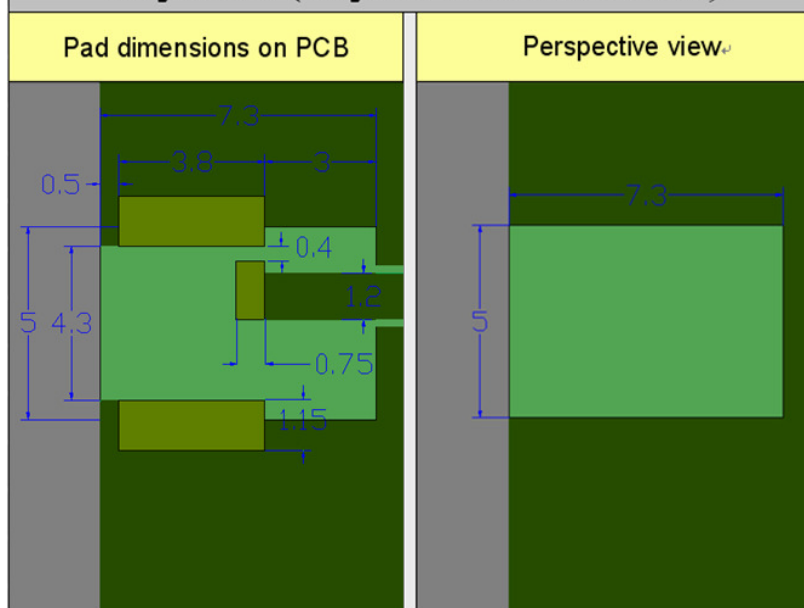
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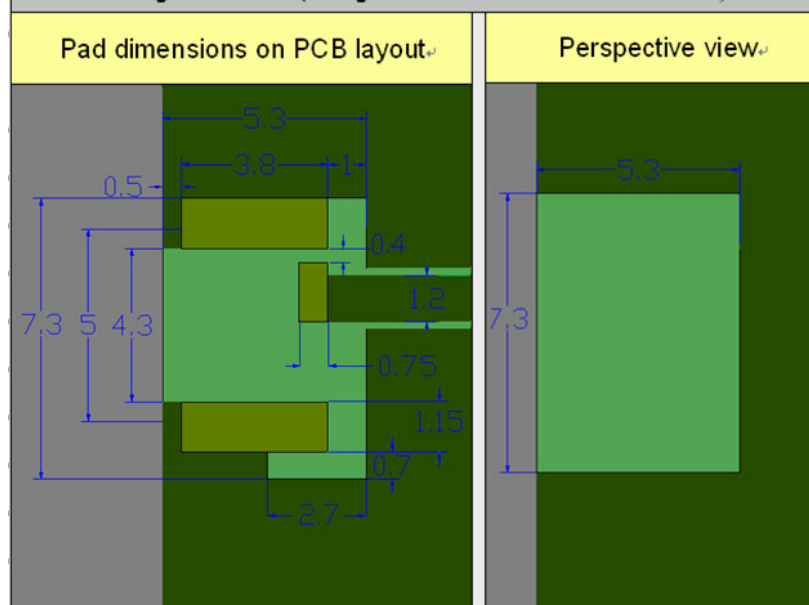
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Layout C (Layout A without slot)



Layout D (Layout B without slot)



UNLESS OTHER SPECIFIED TOLERANCES ON :

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 ANGLES=± HOLEDIA=±



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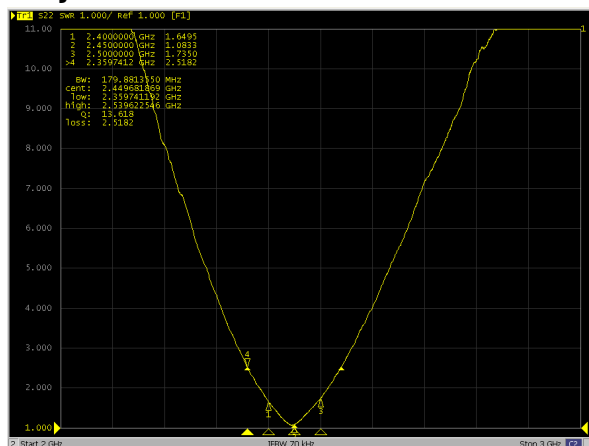
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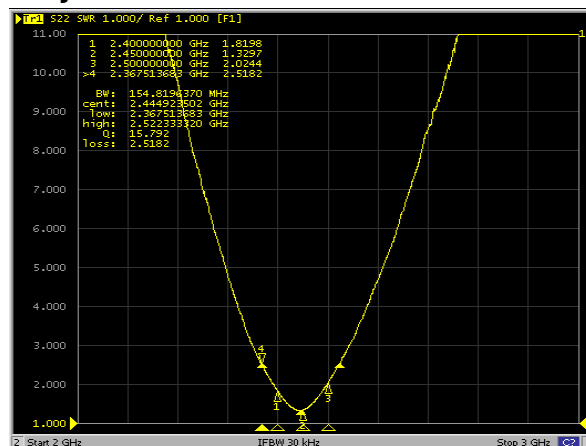
6. Electrical Characteristics :

Layout A : VSWR



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

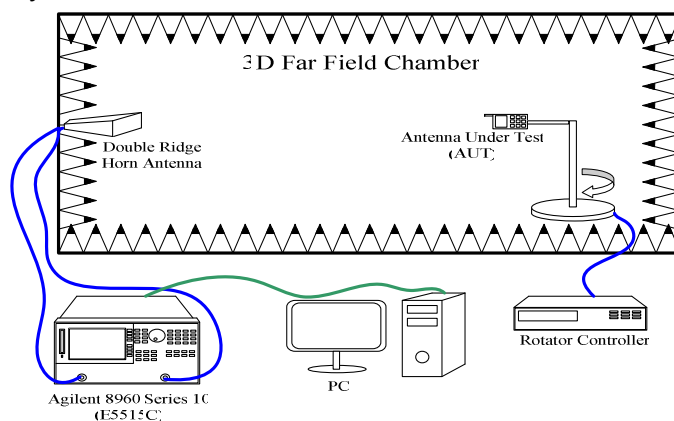
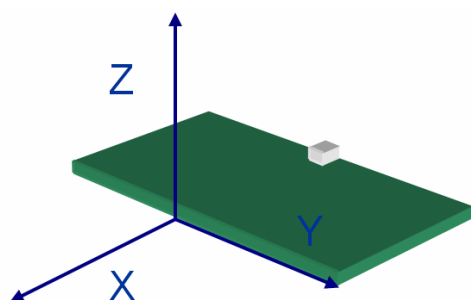
Layout B : VSWR



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

Radiation Pattern

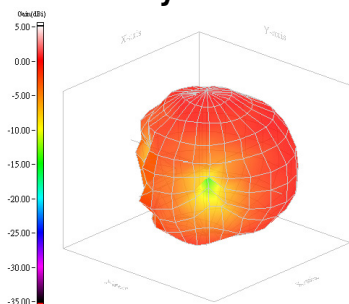
The Gain pattern is measured in INPAQ's FAR-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.



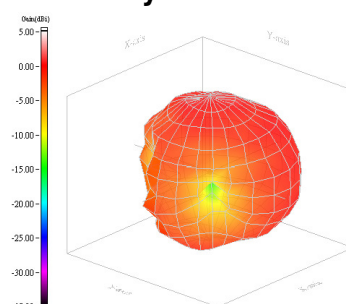
3D Chamber Definition

© 3D Gain Pattern (2450 MHz)

Layout A :



Layout B :



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X=± X.X=± X.XX=±
 ANGLES=± HOLEDIA=±

SCALE : -----

UNIT : mm

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CHECKED BY : 楊奇峯 Kenny

DESIGNED BY : 謝立庭 LT

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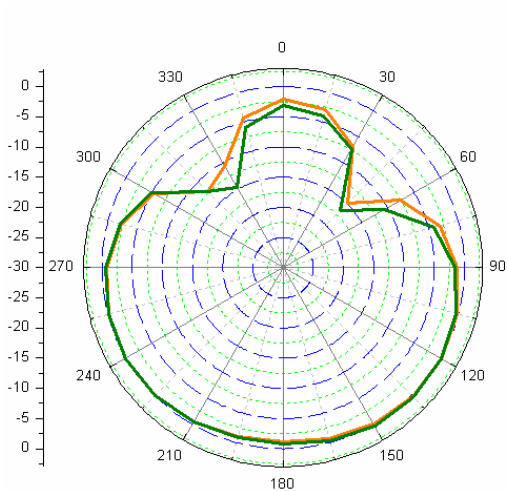
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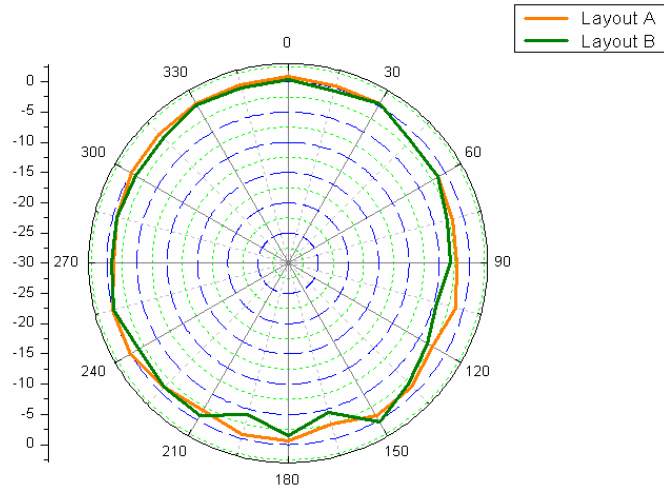
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◎ 2D Gain Pattern (2450 MHz)

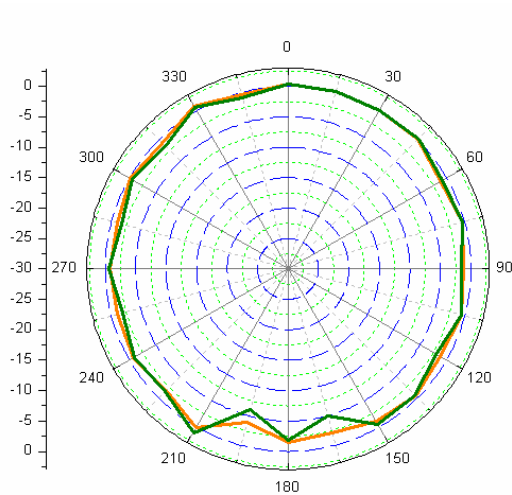
X-Y Plane



X-Z Plane



Y-Z Plane



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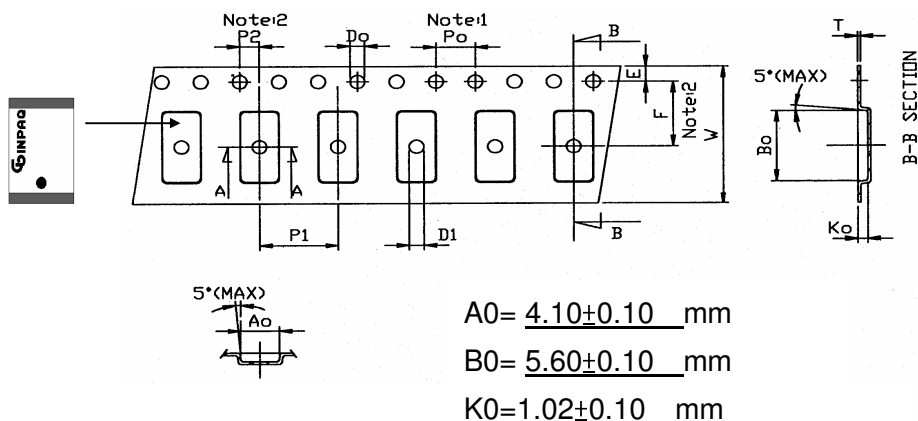
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7.Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 2000pcs/Reel

(2) Carrier tape dimensions

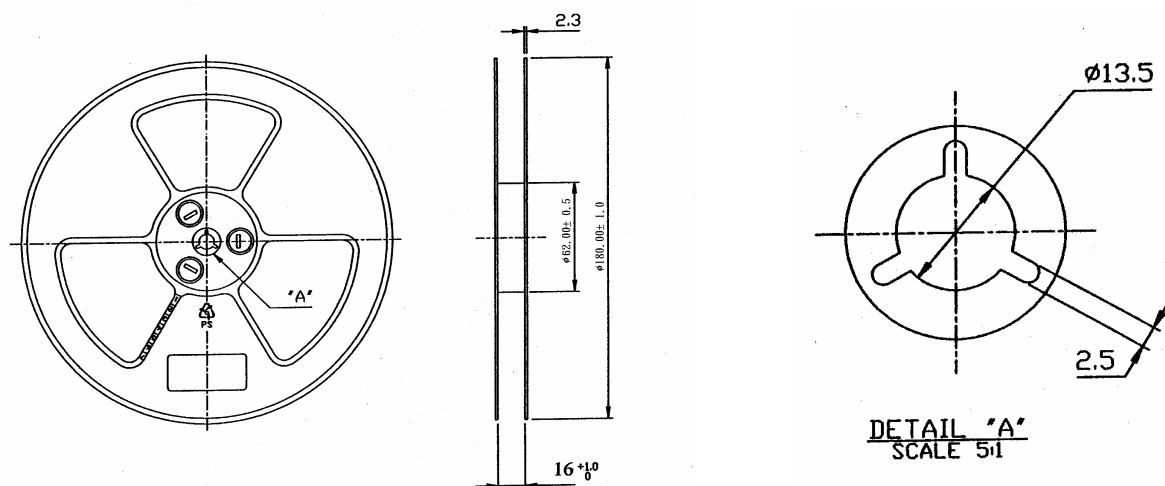


Symbol	Spec.
P_0	4.00 ± 0.1
P_1	8.00 ± 0.1
P_2	2.00 ± 0.05
D_0	1.55 ± 0.05
D_1	$1.50(\text{MIN})$
E	1.75 ± 0.1
F	5.50 ± 0.05
$10P_0$	40.00 ± 0.2
W	12.00 ± 0.1
T	0.25 ± 0.05

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_0 & B_0 measured on a plane 0.3mm above the bottom of the pocket to top surface of the carrier.
4. K_0 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=± X.X=± X.XX= HOLEDIA=±
ANGLES=±



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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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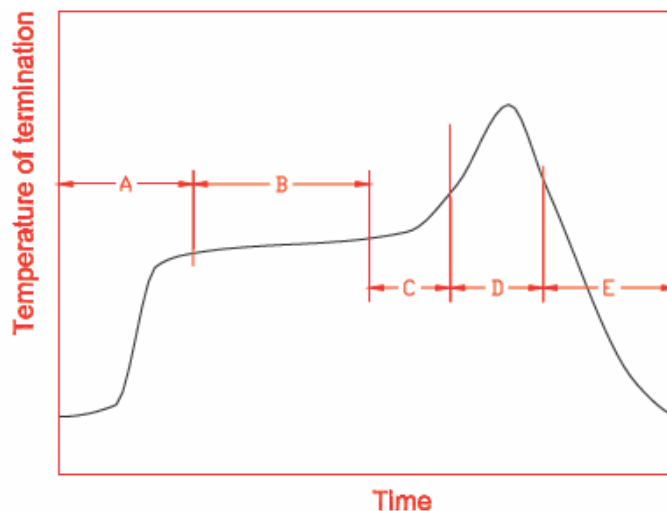
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9. Recommended reflow soldering



A	1 st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 160°C	60s to 120s
C	2 nd 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.

- The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- 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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