

# ACD-3216-A1-CC-S Specification

## 1. Application

GPS L1 band、1575.42MHz

## 2. Explanation of Part Number

**AC** **D** - **3216** - **A1** - **CC** - **S** **(7)**  
 (1) (2) (3) (4) (5) (6) (7)

- (1) Product Type : Chip Antenna
- (2) Center Frequency/Band Code : D—1575.42 MHz group
- (3) Product Code: 3.2mm(Length) x 1.6mm(Width)
- (4) Design Revision Code: Rev.1
- (5) CC= Coupling Ceramic Type
- (6) Special Code: S=RoHS Compliant
- (7) Suffix For Special Requirements

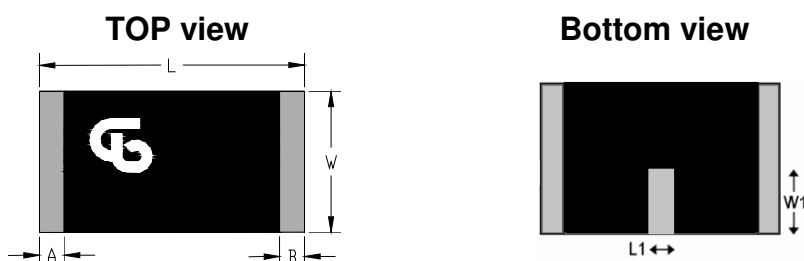
## 3. Electrical Specification

Electrical Specification*	
Center Frequency	1575.42 MHz
Frequency Range	1570 ~ 1580 MHz (S11 ≤ -10dB)*
Polarization	Linear
Pattern	Omni-Directional
Ref. Impedance	50 ohm
Peak Gain	1.80 dBi (typ.)@1575.42 MHz
Efficiency	62.2% (typ.)@1575.42 MHz
Size	3.2mm x 1.7mm x 0.5mm


\* Test condition: Test board size 100\*50 mm.

Matching circuit: Pi matching circuit will be required.

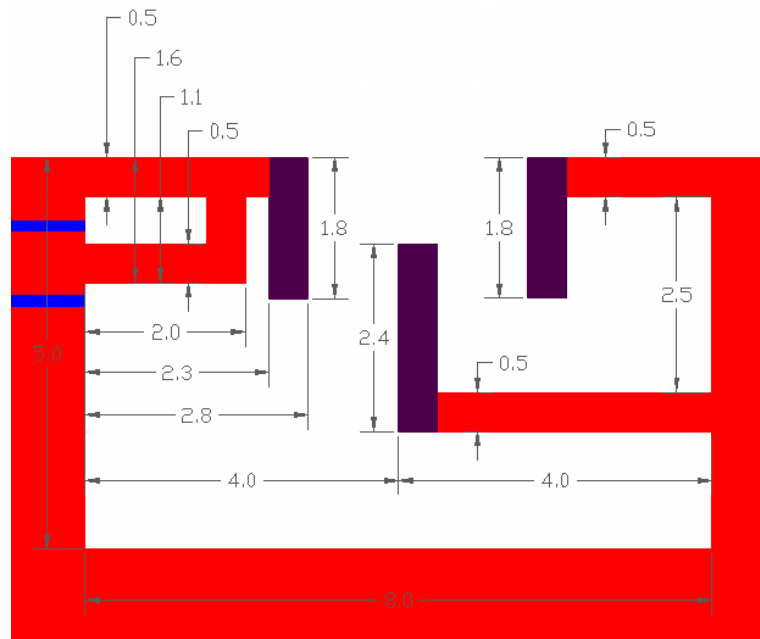
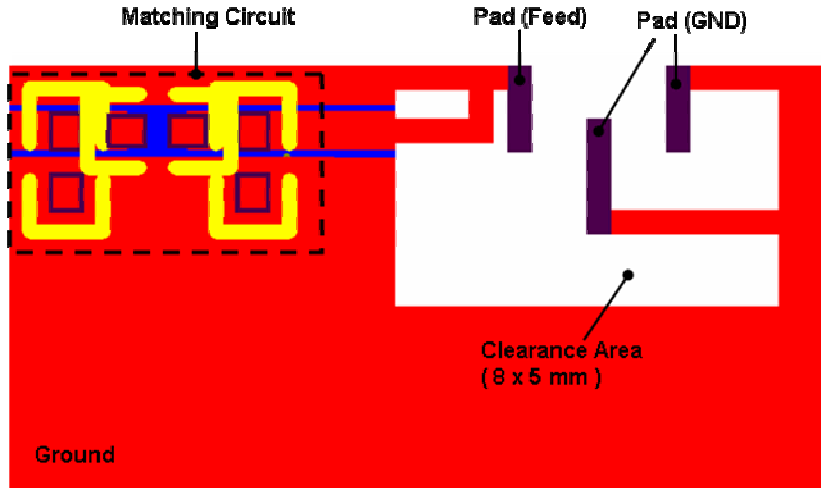
## 4. Physical Dimension (Unit: mm)



Chip Antenna	L	W	A	B	L1	W1	H
ACD-3216	3.2±0.30	1.7±0.30	0.3±0.15	0.3±0.15	0.47±0.20	0.7±0.20	0.5±0.1

UNLESS OTHER SPECIFIED TOLERANCES ON : X=±      X.X=±      X.XX= ANGLES=±      HOLEDIA=±		 INPAQ TECHNOLOGY CO., LTD.	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
SCALE : -----	UNIT : mm		
DRAWN BY : 趙彥年 <i>Chen</i>	CHECKED BY : 楊奇峯 <i>Kenny</i>		
DESIGNED BY : 林俊佑 <i>Richard</i>	APPROVED BY : 蘇志銘 <i>Joe</i>		
TITLE : ACD-3216-A1-CC-S Specification		DOCUMENT NO.	ENS000060230
		SPEC REV. A0	

## 5. Recommended PCB layout (Unit: mm)



PCB pad dimensions

Terminal name	Terminal Dimensions
Pad (Feed)	1.8 X 0.5
Pad (GND)	1.8 X 0.5
Pad (GND)	2.4 X 0.5

Antenna pad dimensions

Terminal name	Terminal Dimensions
Feed Pad	1.7 X 0.2
Feed Pad	1.7 X 0.2
GND Pad	0.7 X 0.47

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SCALE : -----

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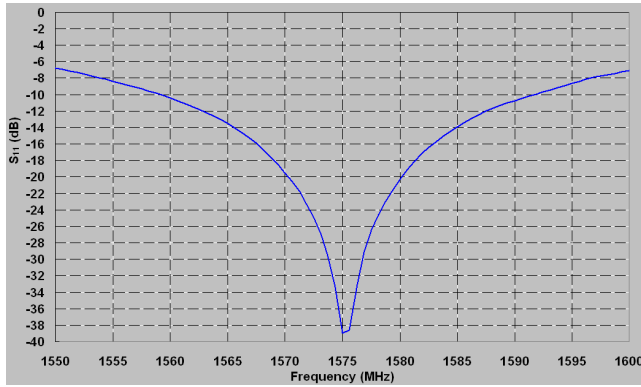
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## 6. Electrical Characteristics

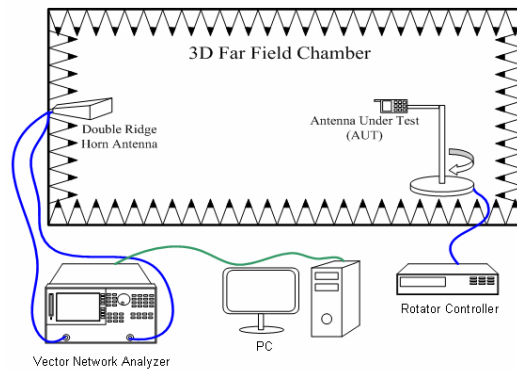
### Return Loss



Frequency (MHz)	Return Loss (dB)
1570	-19.5
1575	-39.0
1580	-20.3

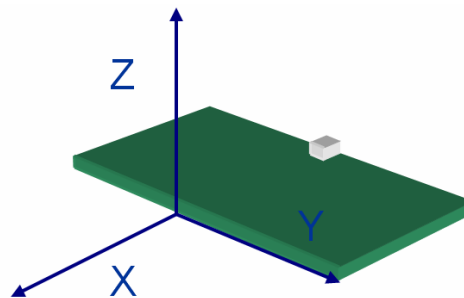
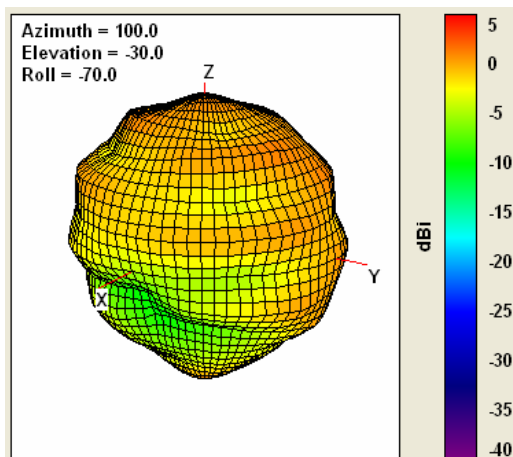
### Radiation Pattern

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 (1575 MHz)



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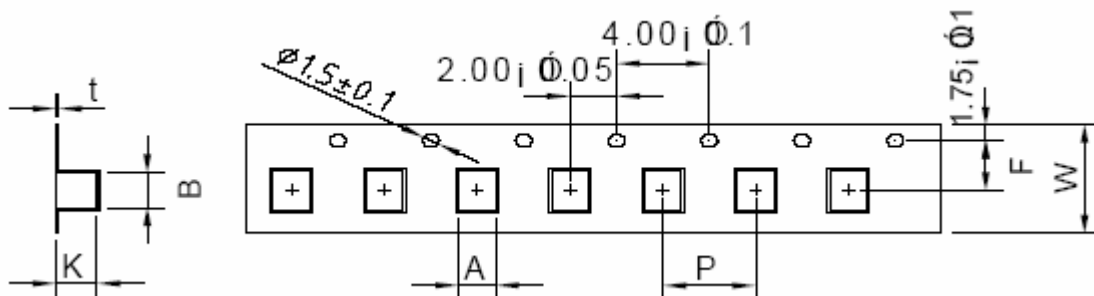
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## 7. Taping Package and Label Marking (Unit: mm)

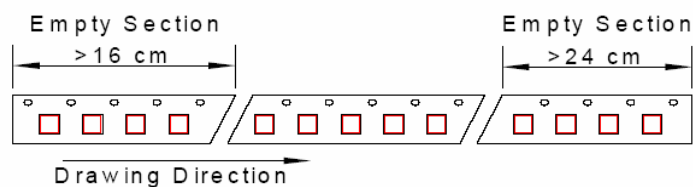
(1) Quantity: 4000pcs/Reel, T(Thickness of chip)  $\leq 1.2$

(2) Plastic Tape (Unit: mm)



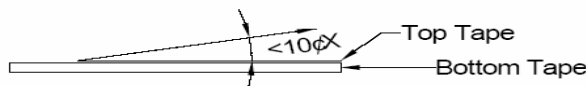
Type	W	A	B	K	t	F	P
3216	8±0.1	2.0~2.2	3.50~3.60	Max. 1.40	0.22±0.05	3.50±0.1	4.00±0.1

(3) Tape Packing



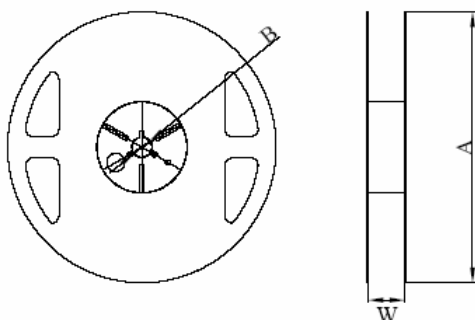
(4) Cover Tape Reel Off Force

$$5g \cdot f \leq \text{Peel-Off Force} \leq 70g \cdot f$$



(5) Reel Dimensions (Unit: mm)

Reel Material: Polystyrene



W	A	B
8±0.5	178±0.5	13±0.5
12±0.5	178±0.5	13±0.5

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X.XX=

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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:

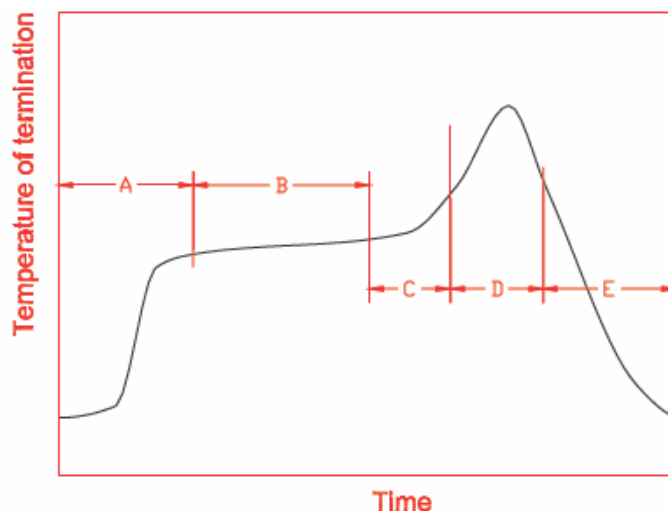
The temperature should be within -40~85°C and humidity should be less than 85% RH.

### (3) Operating temperature range

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

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## 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
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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