

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

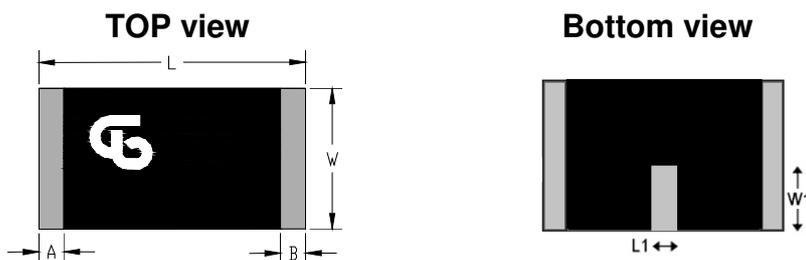
3. Electrical Specification

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.

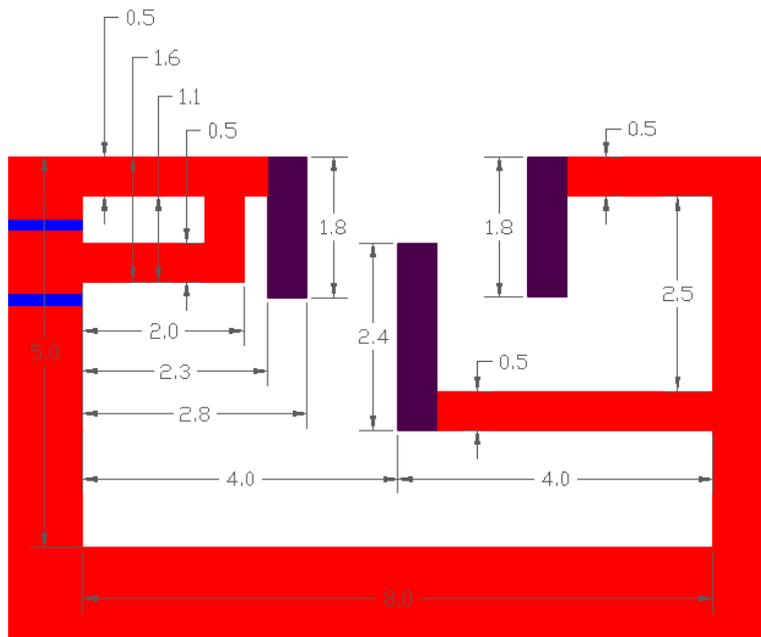
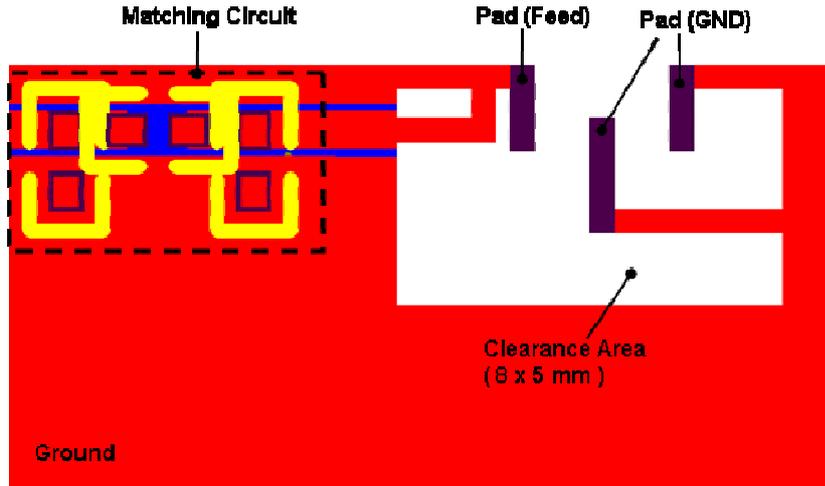
4. Physical Dimension (Unit: mm)



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

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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
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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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 ANGLES=± HOLEDIA=±



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SCALE : -----

UNIT : mm

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DESIGNED BY : 林俊佑 *Lin Jun-you*

APPROVED BY : 蘇志銘 *Su Zhi-ming*

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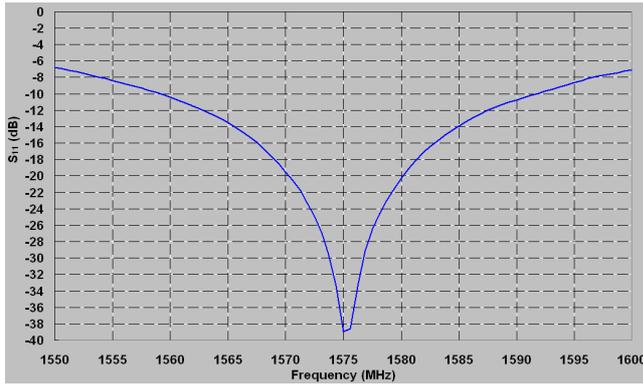
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6. Electrical Characteristics

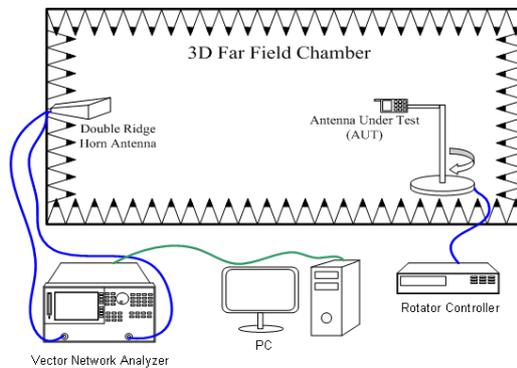
Return Loss



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

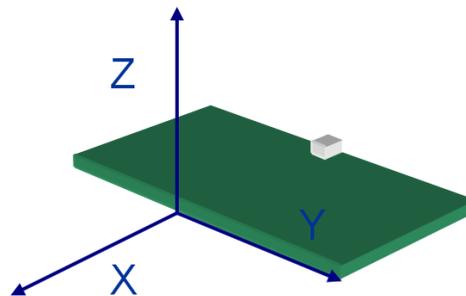
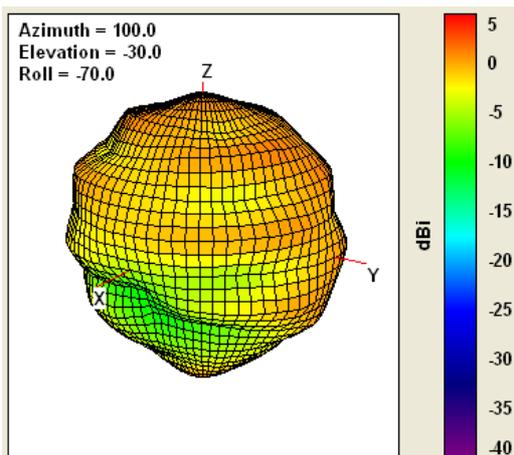
Radiation Pattern

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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UNIT : mm

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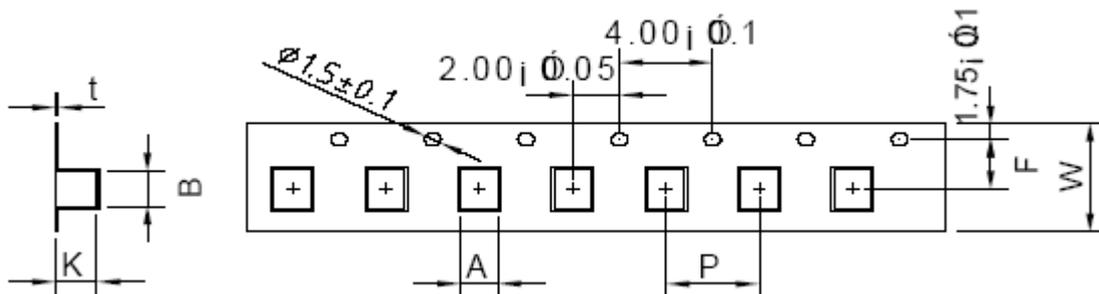
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7. Taping Package and Label Marking (Unit: mm)

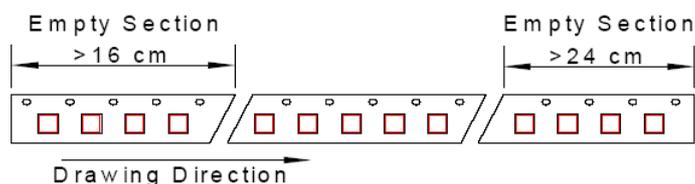
(1) Quantity: 4000pcs/Reel, T(Thickness of chip) ≤ 1.2

(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



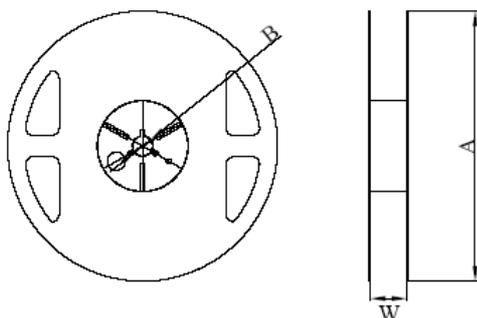
(4) Cover Tape Reel Off Force

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



(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=±

X.X=±

X.XX=

ANGLES=±

HOLEDIA=±



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SCALE : -----

UNIT : mm

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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:

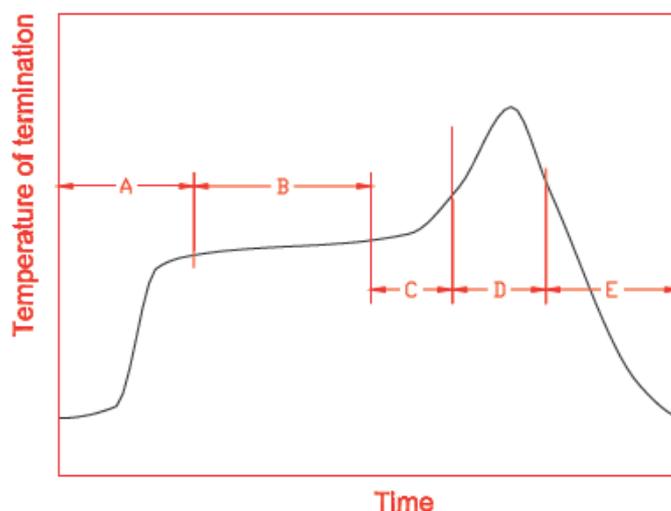
The temperature should be within -40~85°C and humidity should be less than 85% RH.

(3) Operating temperature range

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

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9. Recommended reflow soldering



A	1 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
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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