

# APPROVAL SHEET

DESCRIPTION

:

Chip series antenna 2.4 GHz  
Bandwidth 100MHz

NOMINAL FREQ.

:

2.4GHz

P/N

:

ACA-3216-ANT-00061

MODEL

:

3216

REVISION

:

01

DATE

:

07/18/2019

|          |         |          |
|----------|---------|----------|
| Approved | Checked | Prepared |
|          |         |          |

CUSTOMER:\_\_\_\_\_

Customer Signature

Approved:\_\_\_\_\_

Date:\_\_\_\_\_

# REVISION HISTORY

| Rev. | Revised Page | Revision Content | Date       | Ref. No. | Reviser   |
|------|--------------|------------------|------------|----------|-----------|
| 01   | N/A          | Initial Released | 07/18/2019 | N/A      | IrwinChen |
|      |              |                  |            |          |           |

1.SCOPE :This specification applies to Chip series antenna

2.Rating:

Operating Temperature : -25 °C ~ 125 °C  
Storage Temperature : 20 °C ~ 25 °C R.H. 65% (For Reference)

3.Marking:



4.Standard Testing Condition:

|             | Unless otherwise specified       | In case of doubt |
|-------------|----------------------------------|------------------|
| Humidity    | Ordinary Humidity(25 to 85% RH)  | 60 to 70 % RH    |
| Temperature | Ordinary Temperature(15 to 35°C) | 20±2°C           |

5.Configuration and Dimensions:

| Figure | Dimensions(mm) |         |
|--------|----------------|---------|
|        | L              | 3.2±0.2 |
|        | W              | 1.6±0.2 |
|        | D              | 0.5±0.2 |
|        | T              | 0.5±0.2 |
|        |                |         |
|        |                |         |
|        |                |         |
|        |                |         |

**TERMINAL CONFIGURATION**

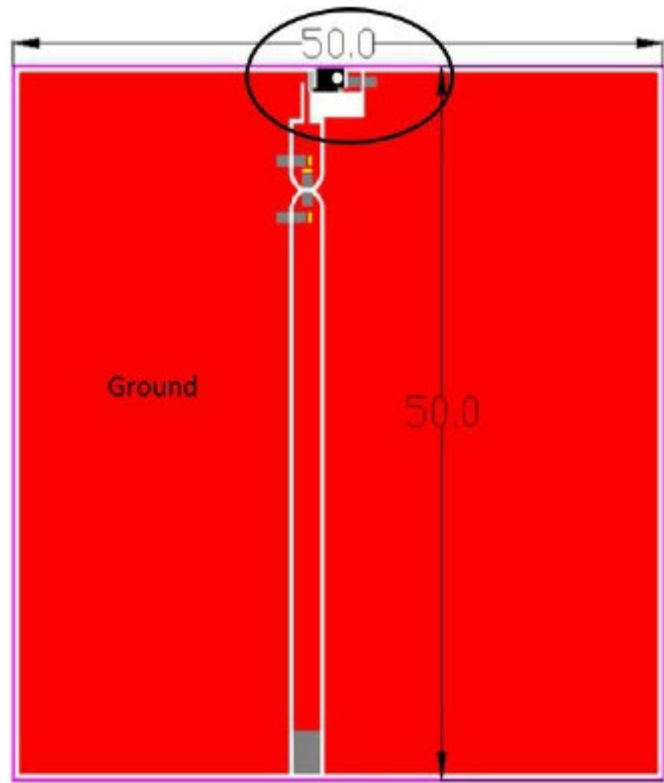


(1) Feed Termination  
(2) Solder Termination

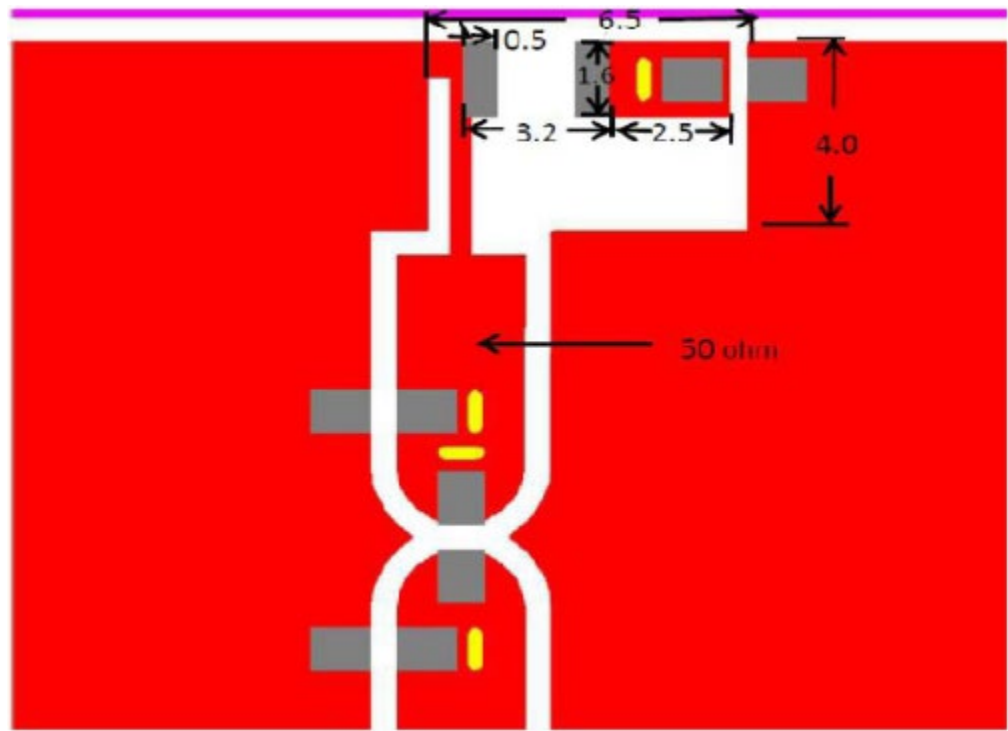
6. Electrical Characteristics:

|                    | Impedance    | Test Freq. | Bandwidth* | Peak Gain* | VSWR  | Polarization |
|--------------------|--------------|------------|------------|------------|-------|--------------|
| Part No.           | ( $\Omega$ ) | (GHz)      | (MHz)      | (dBi)      | (max) | (Linear)     |
| ACA-3216-ANT-00061 | 50           | 2.4        | 100        | 2.72       | 2     | Linear       |

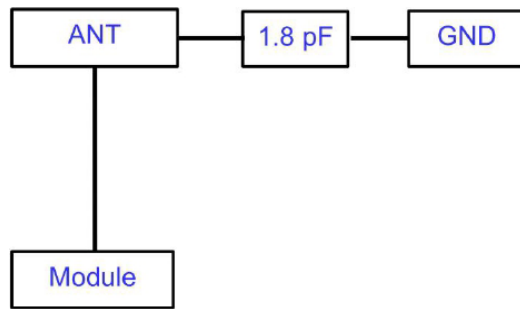
7.Dimensions and Recommended PC Board Pattern:



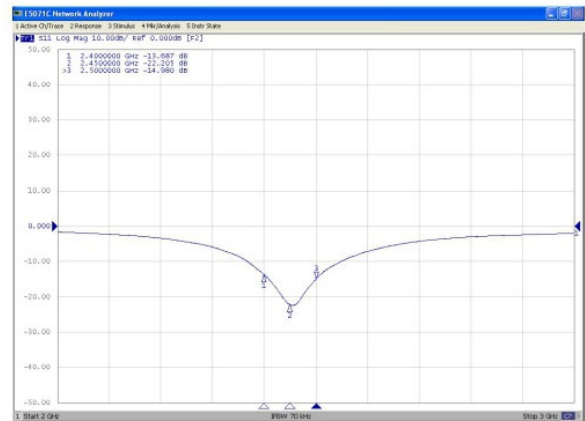
NOTE: Dimensions in mm



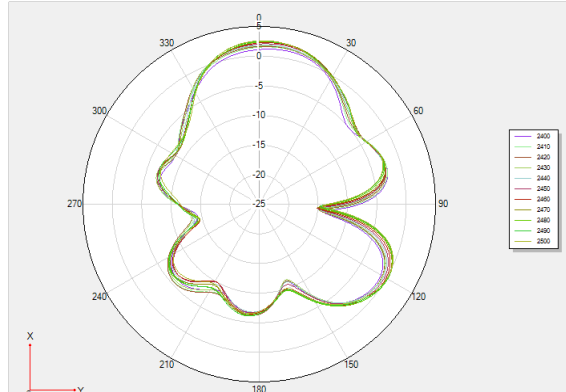
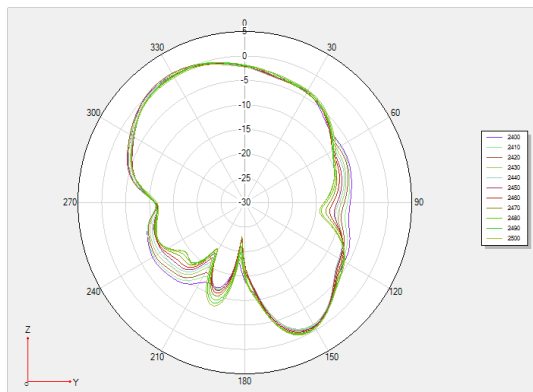
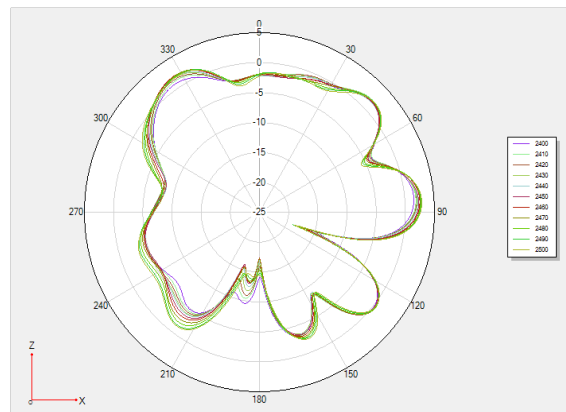
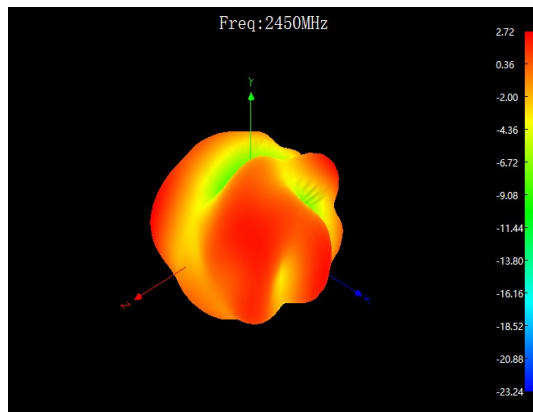
## 8. Matching Circuit:



Return Loss



2D/3D Gain Pattern

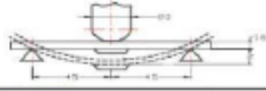


Efficiency And Peak Gain

| Frequency (MHz) | Efficiency (%) | Peak Gain (dBi) |
|-----------------|----------------|-----------------|
| 2400            | 65.46          | 2.48            |
| 2420            | 66.12          | 2.69            |
| 2440            | 67.68          | 2.51            |
| 2450            | 68.61          | 2.72            |
| 2460            | 67.38          | 2.67            |
| 2480            | 67.28          | 2.34            |
| 2500            | 66.08          | 2.26            |

## 9.Dimensions and Recommended PC Board

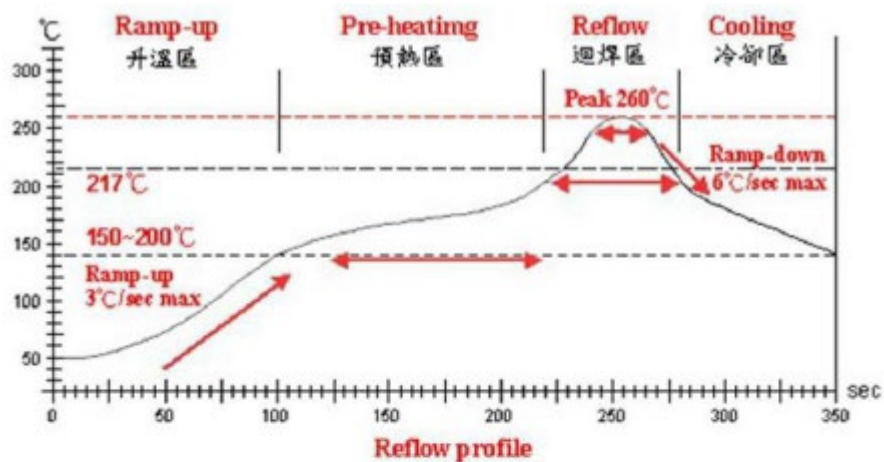
### 1-1.Mechanical Performance

| No    | Item                         | Specification                                                                                     | Test Method                                                                                                                                                                                                                                                                                                                          |
|-------|------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-1-1 | Board Flex                   | The forces applied on the right conditions must not damage the terminal electrode and the ferrite | Test device shall be soldered on the substrate<br>Substrate Dimension: 100x40x1.6mm<br>Deflection: 2.0mm<br>Keeping Time: 60 sec<br>                                                                                                              |
| 1-1-2 | Resistance to Soldering Heat | Meet the electrical Specification after test                                                      | Refer to MIL-STD-202 Method 210<br>Pre-heating: 150-200℃, 60-100 sec<br>Above 217℃, 60-150 secs<br>Peak Temperature: 260±5℃, 20-40 sec<br>Cycles : 2 times                                                                                                                                                                           |
| 1-1-3 | Solder ability               | The electrodes shall be at least 95% covered with new solder coating                              | Refer to J-STD-002<br>Pre-heating: 150℃, 1min<br>Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free)<br>Solder Temperature: 245±5℃ (Pb-Free)<br>Immersion Time: 4±1sec                                                                                                                                                                       |
| 1-1-4 | Terminal Strength Test       | The chip must not damage the terminal electrode and the ferrite                                   | Test device shall be soldered on the substrate<br>Force 2N for 60±1 seconds for 0603 series<br>Force 5N for 60±1 seconds for 1005 series<br>Force 10N for 60±1 seconds for 1608 series<br>Force 1.8Kg for 60±1 seconds for the other series.<br> |
| 1-1-5 | Vibration Test               | Meet the electrical Specification after test                                                      | Refer to MIL-STD-202 Method 204<br>Vibration waveform: Sine waveform<br>Vibration frequency: 10Hz~2000Hz<br>Vibration acceleration: 5g<br>10Hz~20KHz and back to 10Hz should be down in 20 minutes<br>Duration of test: 12 cycles each of 3 orientations, 20 minutes for each cycle, 12 hr total<br>Vibration axes: X, Y & Z         |
| 1-1-6 | Resistance to Solvent        | There must be no change in appearance or obliteration of marking                                  | Refer to MIL-STD-202 Method 215<br>Inductors must withstand 6 minutes of alcohol or water.                                                                                                                                                                                                                                           |

## Dimensions and Recommended PC Board

### 1-2.Environmental Performance

| No    | Item                                | Specification                                | Test Method                                                                                                                                                                                                                             |
|-------|-------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-2-1 | Temperature Cycle                   | Meet the electrical Specification after test | Refer to JESD Method JA-104<br>Total cycles: 1000 cycles<br>30 minutes exposure to -40℃<br>30 minutes exposure to 125℃<br>1 min. maximum transition between temperatures<br><br>Measured after exposure in the room condition for 24hrs |
| 1-2-2 | Biased Humidity Resistance          |                                              | Refer to MIL-STD-202 Method 103<br>Temperature: 85±2℃<br>Relative Humidity:85% / Time: 1000hrs<br><br>Measured after exposure in the room condition for 24hrs                                                                           |
| 1-2-3 | High Temperature Exposure (Storage) |                                              | Refer to MIL-STD-202 Method 108<br>Temperature: 125±3℃ / Relative Humidity: 0%<br>Time: 1000hrs<br><br>Measured after exposure in the room condition for 24hrs                                                                          |
| 1-2-4 | Low Temperature Exposure (Storage)  | Meet the electrical Specification after test | Refer to MIL-STD-202 Method 108<br>Temperature: -40±3℃ / Relative Humidity : 0%<br>Applied Current: Rated Current/ Time: 1000hrs<br><br>Measured after exposure in the room condition for 24 hrs                                        |



### Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

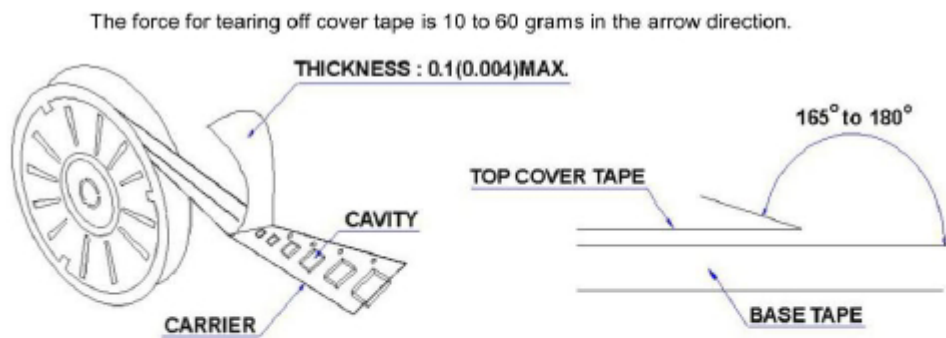
| 管制項目<br>Item.       | 升溫區<br>Ramp-up | 預熱區<br>Pre-heating | 迴焊區<br>Reflow | Peak Temp   | 冷卻區<br>Cooling    |
|---------------------|----------------|--------------------|---------------|-------------|-------------------|
| 溫度範圍<br>Temp.scope  | R.T. ~ 150℃    | 150℃ ~ 200℃        | 217℃          | 260±5℃      | Peak Temp. ~ 150℃ |
| 標準時間<br>Time spec.  | —              | 60 ~ 180 sec       | 60 ~ 150 sec  | 20 ~ 40 sec | —                 |
| 實際時間<br>Time result | —              | 75 ~ 100 sec       | 90 ~ 120 sec  | 20 ~ 35 sec | —                 |

NOTE :

1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

10. Packaging:

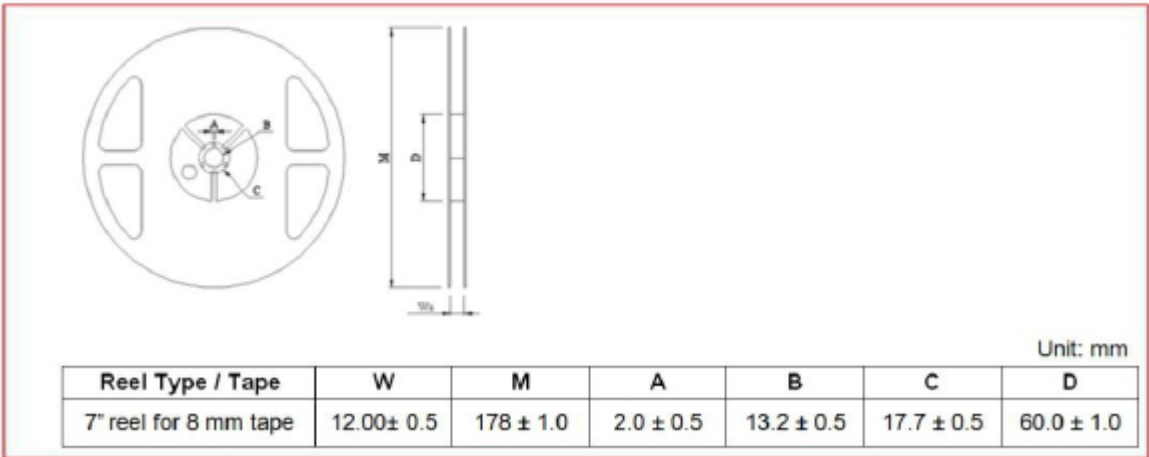
Packaging - Cover tape



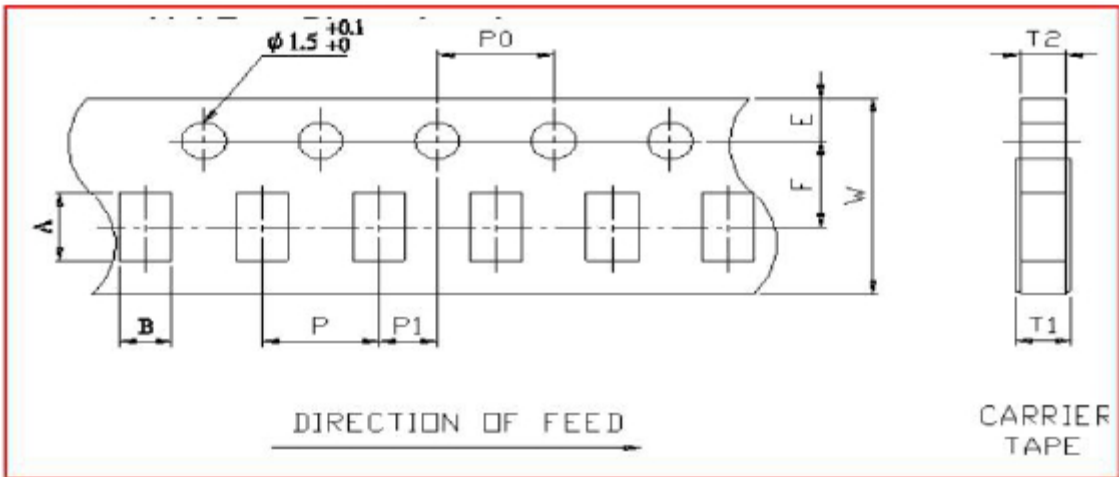
11.2 Packaging Quantity

| TYPE       | BULK | PCS/REEL |
|------------|------|----------|
| BTCA321605 | X    | 5000     |

11.3 Reel Dimensions in mm



Tape Dimensions in mm



Unit: mm

| Item       | DIM. | A         | B         | W        | E         | F        | T1          | T2        | P        | P0       | 10*P0     | P1       |
|------------|------|-----------|-----------|----------|-----------|----------|-------------|-----------|----------|----------|-----------|----------|
| BTCA321605 |      | 3.50±0.20 | 1.90±0.20 | 8.0±0.20 | 1.75±0.10 | 3.5±0.05 | 0.75+0.2/-0 | 0.75±0.10 | 4.0±0.10 | 4.0±0.10 | 40.0±0.20 | 2.0±0.05 |

**Note:** The moisture sensitivity level (MSL) of products is classified as level 1.