

AN3216 Series

Multilayer Chip Antenna

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ Wide bandwidth
- ❖ RoHS compliant



Applications

- ❖ Bluetooth/Wireless LAN/Home RF
- ❖ ISM band 2.4GHz applications

Specifications

| Part Number | Operating Frequency (MHz) | Peak Gain (XZ-V) | Average Gain (XZ-V) | VSWR | Impedance |
|-------------------------------------|---------------------------|--------------------|-----------------------|--------|-----------|
| JTW2G45 AN3216A100 | 2400 ~ 2500 | 0.5 dBi typ. | -0.5 dBi typ. | 2 max. | 50 Ω |

Q'ty/Reel (pcs) : 3,000pcs
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : +5 ~ +35°C, Humidity 45~75%RH
 Storage Period : 12 months max.
 Power Capacity : 2W max.

Part Number

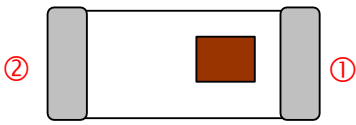
JTW 2G45 AN 3216 A100 □

① ② ③ ④ ⑤ ⑥

Material Code

| | | | |
|--------------------|--------------|------------------------|---------------------------|
| ① Identifier | JTW | ② Frequency Range | 2G45=2450MHz |
| ③ Type | AN : Antenna | ④ Dimensions (L × W) | 3.2× 1.6 mm |
| ⑤ Material Code+BW | A100=100MHz | ⑥ Packaging | R: Tape & Reel B: Bulk |

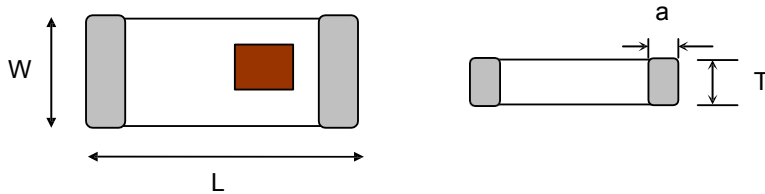
Terminal Configuration



| No. | Terminal Name | No. | Terminal Name |
|-----|---------------|-----|---------------|
| ① | Feeding Point | ② | NC |

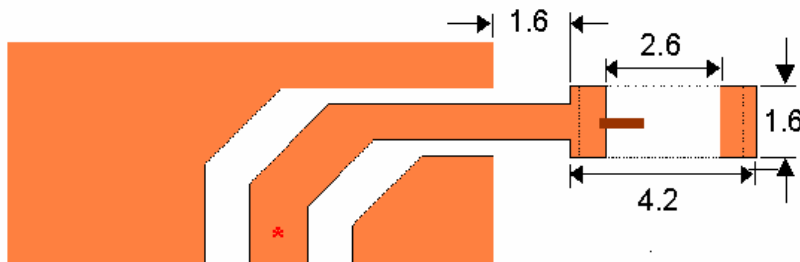
Dimensions and Recommended PC Board Pattern

Unit : mm

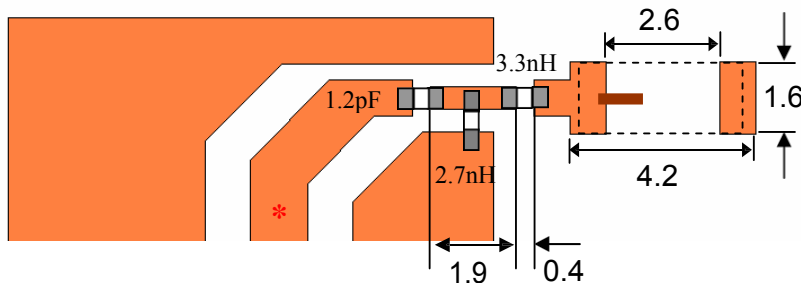


| Mark | L | W | T | a |
|------------|---------|---------|------------------|---------|
| Dimensions | 3.2±0.2 | 1.6±0.2 | 1.3+ 0.1/-0.2 | 0.5±0.3 |

(a) Without Matching Circuits



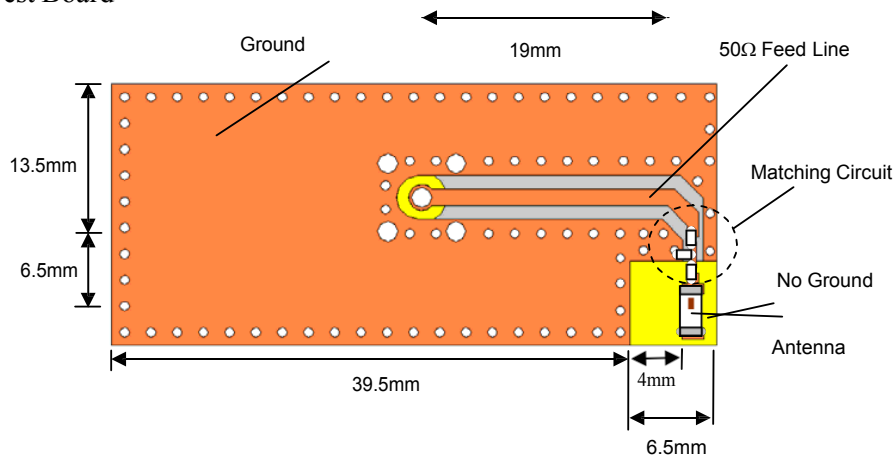
(b) With Matching Circuits



*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Typical Electrical Characteristics (T=25°C)

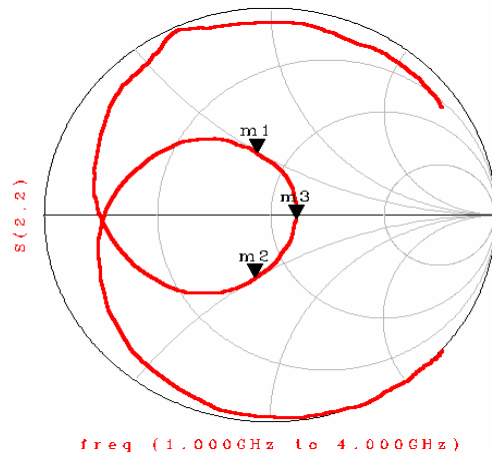
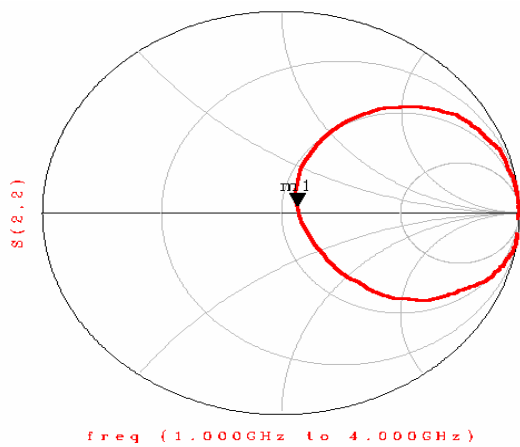
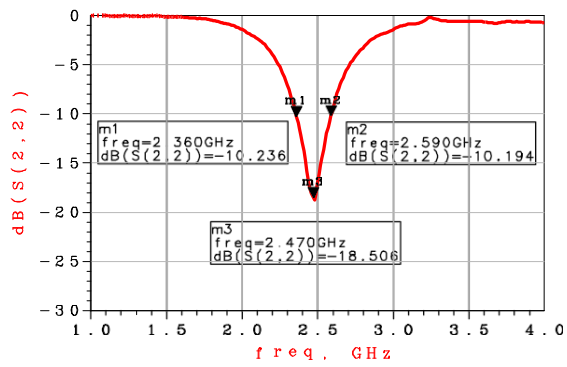
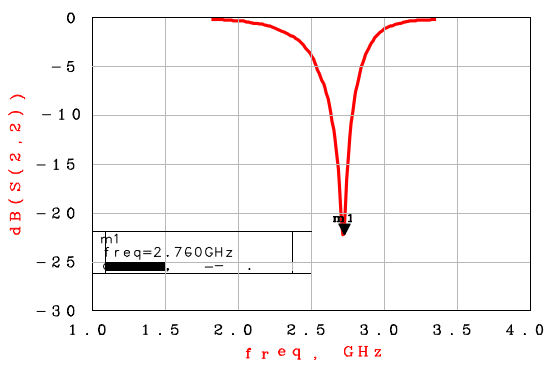
❖ Test Board



❖ Return Loss

(a) Without Matching Circuits

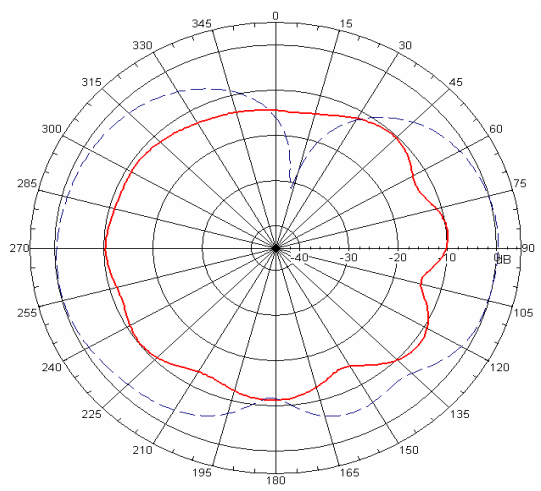
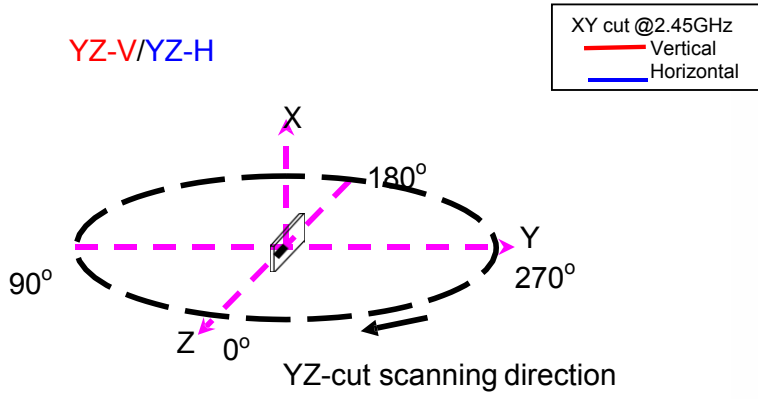
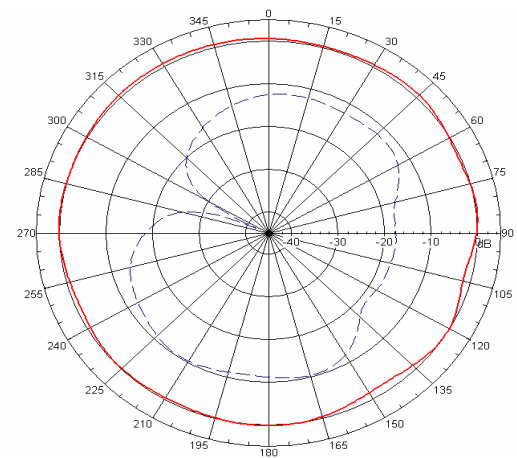
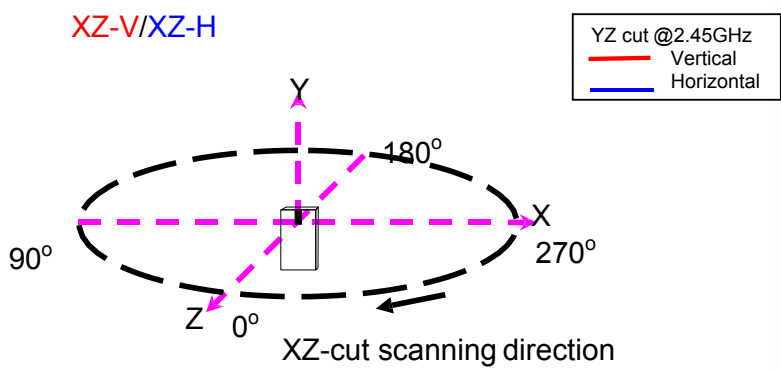
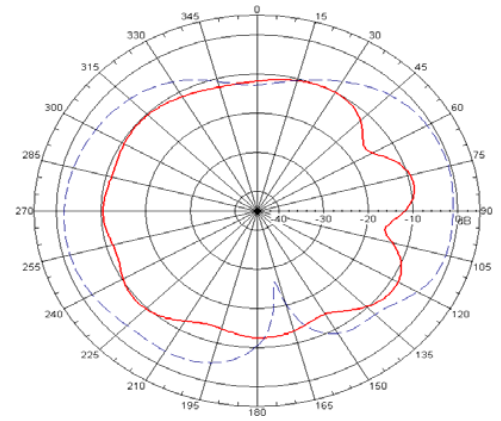
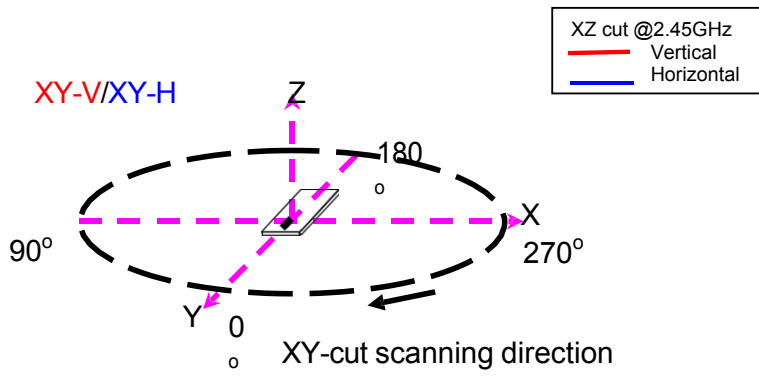
(b) With Matching Circuits



Radiation Patterns

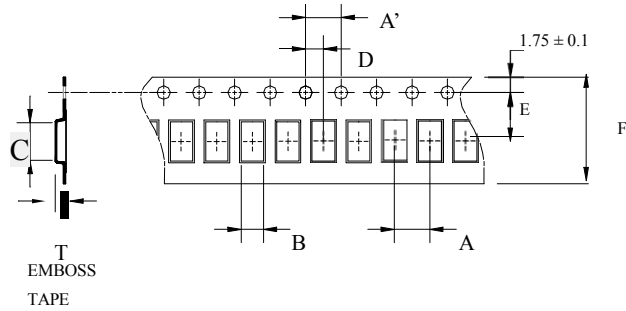
ANT Gain results:

| Freq. (MHz) | Effi (%) | Peak Gain) (dBi) |
|----------------|-------------|---------------------|
| 2400 | 44.06 | -0.17 |
| 2410 | 43.39 | -0.29 |
| 2420 | 46.53 | 0.14 |
| 2430 | 45.79 | 0.25 |
| 2440 | 49.88 | 0.33 |
| 2450 | 49.25 | 0.50 |
| 2460 | 47.29 | 0.08 |
| 2470 | 48.36 | 0.27 |
| 2480 | 52.66 | 0.31 |
| 2490 | 51.17 | 0.29 |
| 2500 | 51.10 | 0.30 |



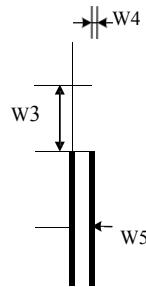
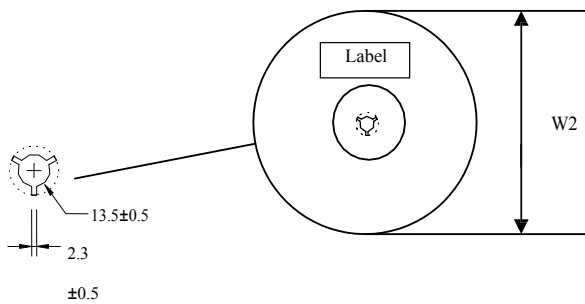
Taping Specifications

❖Tape & Reel Dimensions (Unit: mm) vs. Quantity (pcs)



| Type | A | A' | B | C | D | E | F | T | Quantity/per reel | Tape material |
|--------|------|------|-------|------|------|------|-------|-------|-------------------|-----------------------|
| AN3216 | 4.0± | 4.0± | 1.95± | 3.5± | 2.0± | 3.5± | 8.00± | 1.50± | 3,000pcs | Plastic (Embossed) |
| | 0.1 | 0.05 | 0.1 | 0.1 | 0.05 | 0.05 | 0.2 | 0.1 | | |

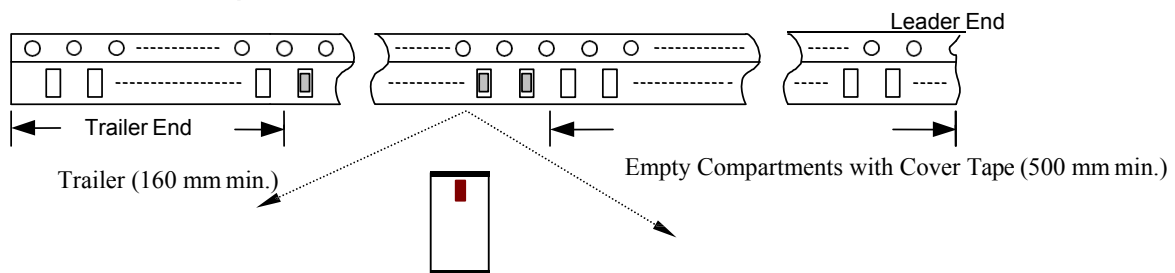
❖Reel Dimensions (Unit: mm)



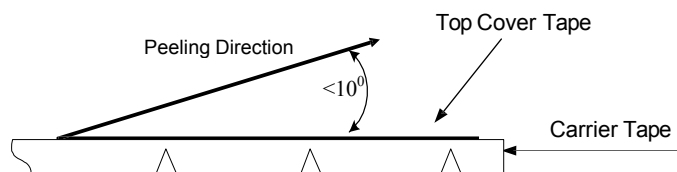
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

| Type | W2 | W3 | W4 | W5 |
|--------|-------|------|---------|--------|
| AN3216 | 178±1 | 60±1 | 1.4±0.2 | 17±0.5 |

❖Leader and Trailer Tape



❖ Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300 ± 10 mm/min .

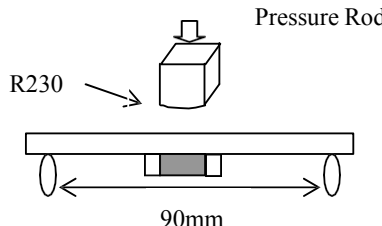
❖ Storage Conditions

- (1) Temperature: 15 ~35°C, relative humidity (RH): 45~75%.
- (2) Non-corrosive environment

Notes

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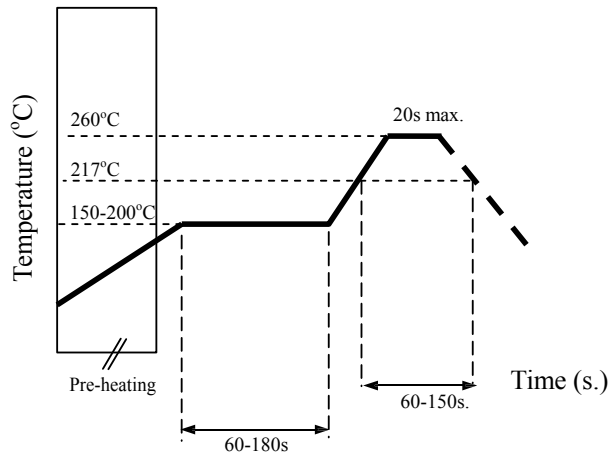
Mechanical & Environmental Characteristics

| Item | Requirements | Procedure |
|--|--|--|
| Solderability | <ol style="list-style-type: none"> 1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder | <ol style="list-style-type: none"> 1. Preheat: $120 \pm 5^{\circ}\text{C}$ 2. Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec |
| Soldering strength (Termination Adhesion) | <ol style="list-style-type: none"> 1. 1kg minimum | <ol style="list-style-type: none"> 1. Solder specimen onto test jig. 2. Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction |
| Deflection (Substrate Bending) | <ol style="list-style-type: none"> 1. No apparent damage | <ol style="list-style-type: none"> 1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection  |
| Heat/Humidity Resistance | <ol style="list-style-type: none"> 1. No apparent damage 2. Fulfill the electrical specification after test | <ol style="list-style-type: none"> 1. Temperature: $85 \pm 2^{\circ}\text{C}$ 2. Humidity: 90% ~ 95% RH 3. Duration: 1000 ± 48hrs 4. Recovery: 1-2hrs |
| Thermal shock (Temperature Cycle) | <ol style="list-style-type: none"> 1. No apparent damage 2. Fulfill the electrical specification after test | <ol style="list-style-type: none"> 1. One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 5^{\circ}\text{C}$ for 30 min 2. No of cycles : 100 3. Recovery: 1-2 hrs |
| Low Temperature Resistance | <ol style="list-style-type: none"> 1. No apparent damage 2. Fulfill the electrical specification after test | <ol style="list-style-type: none"> 1. Temperature: $-40 \pm 5^{\circ}\text{C}$ 2. Duration: 500 ± 24hrs 3. Recovery: 1-2hrs |

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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