

## 2.4GHz 2012 Chip Antenna:2012F245C02

### Application:

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

### Features

SMD, high reliability, ultra Impact, Omni-directional...



### Part number

RANT   2012     F     245        C02  
(1)        (2)        (3)        (4)        (5)

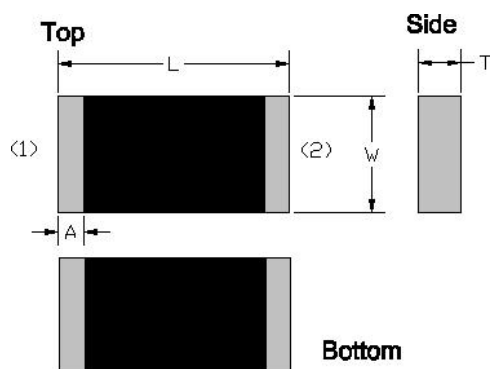
|                  |              |
|------------------|--------------|
| (1)Product Type  | Chip Antenna |
| (2)Size Code     | 2.0x1.2mm    |
| (3)Type Code     | F            |
| (5)Frequency     | 2.45GHz      |
| (6)Internal code | C02          |

### Electrical Specification

|                           |                  |
|---------------------------|------------------|
| Working Frequency Range   | 2400 ~2484 MHz   |
| Peak Gain                 | 1.06 dBi (Typ.)  |
| Impedance                 | 50 Ohm           |
| Return loss               | 10 dB ( Min)     |
| Polarization              | Linear           |
| Azimuth Beamwidth         | Omni-directional |
| Operation Temperature(°C) | -40 ~85°C        |

The specification is defined on EVB.

### Dimension and Terminal Configuration



| Dimension (mm) |             |
|----------------|-------------|
| L              | 2.05+/-0.15 |
| W              | 1.20+/-0.15 |
| T              | 0.50+/-0.10 |
| A              | 0.20+/-0.10 |

| No. | Terminal Name |
|-----|---------------|
| 1   | Feeding/GNG   |
| 2   | GND/Feeding   |

*P.S : Top & down and left & right side are symmetrical, No direction*

咏成國際科技有限公司

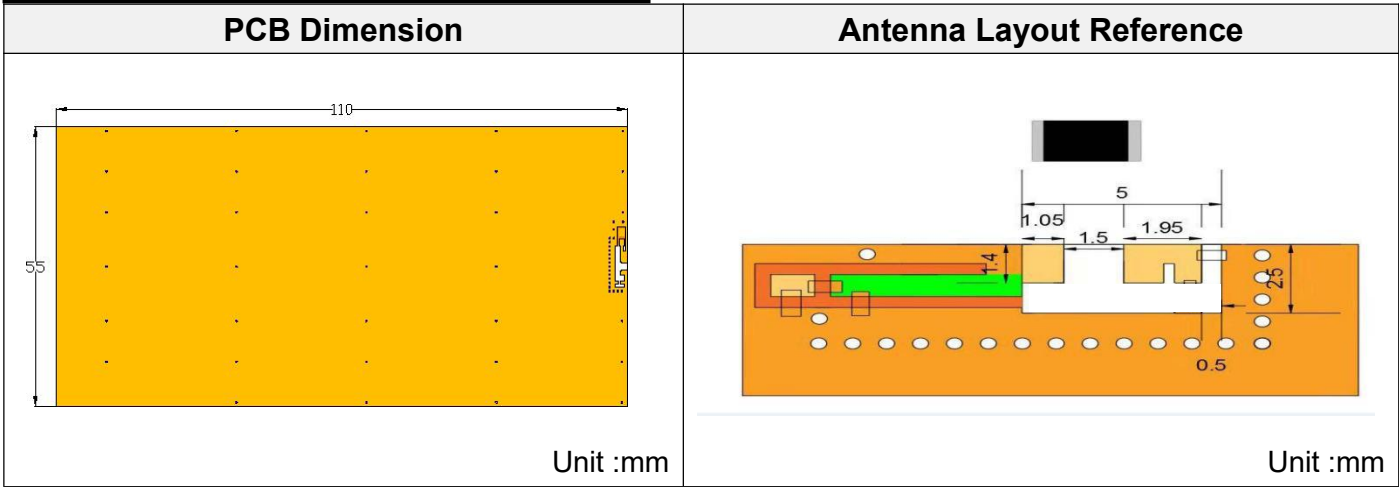
電話: 13530576606

Manufacturer:RAIN International Technology Co., Ltd. TEL: 13530576606

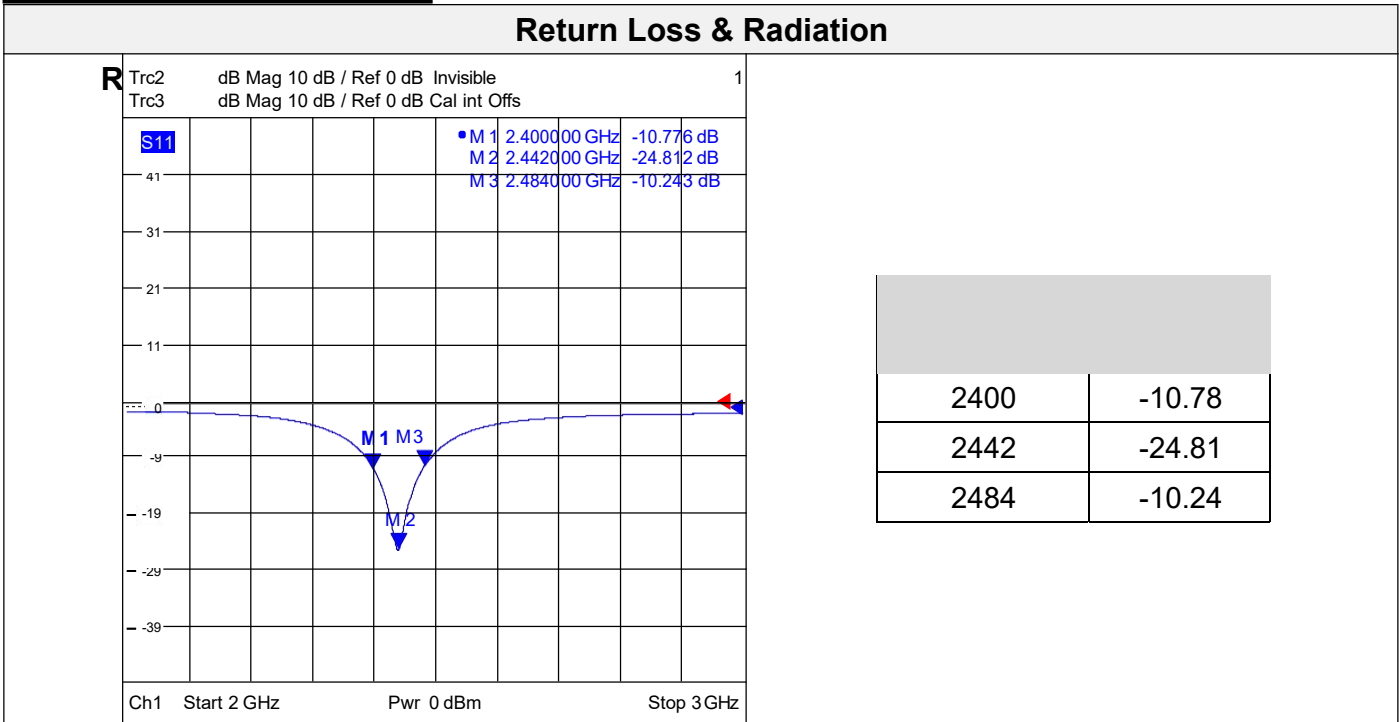
Address: Building F 709, Yuxing Science and Technology Industrial Park, Nanchang Third Industrial Zone, Nanchang Community, Xixiang Street, Bao 'an District, Shenzhen

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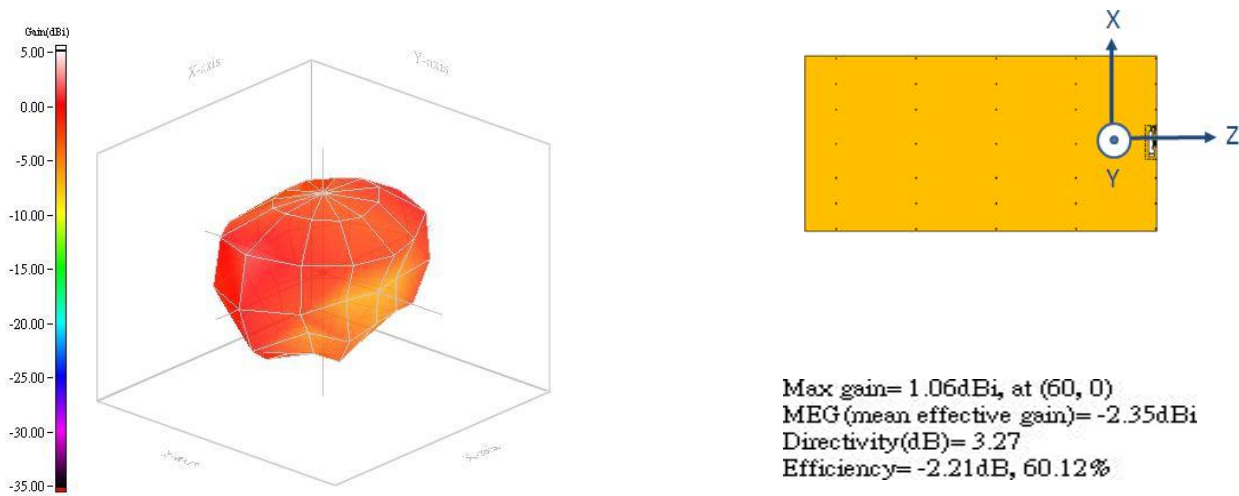
Evaluation Board Reference



Electrical Characteristics



Radiation



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Taping Specifications

| Reel and Taping Specification |  |      |  |         |             |              |            |            |              |  |  |
|-------------------------------|--|------|--|---------|-------------|--------------|------------|------------|--------------|--|--|
| Reel Specification            |  |      |  |         |             |              |            |            |              |  |  |
|                               |  |      |  |         |             |              |            |            |              |  |  |
| TYPE                          |  | SIZE |  | A       | $\psi B$    | $\psi C$     | $\psi D$   | W          | $\psi M$     |  |  |
| 2012                          |  | 7"   |  | 5K/Reel | $2.0\pm0.5$ | $13.5\pm1.0$ | $21\pm1.0$ | $60\pm1.0$ | $11.5\pm2.0$ |  |  |

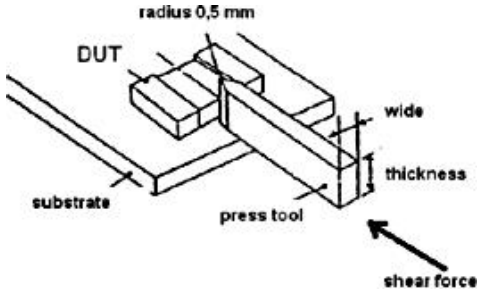
|                       |      |               |               |              |               |              |              |              |               |                     |             |
|-----------------------|------|---------------|---------------|--------------|---------------|--------------|--------------|--------------|---------------|---------------------|-------------|
| Tapping Specification |      |               |               |              |               |              |              |              |               |                     |             |
|                       |      |               |               |              |               |              |              |              |               |                     |             |
| Packaging             | Type | A             | B             | W            | E             | F            | G            | H            | T             | $\psi D$            | P           |
| Paper Type            | 3216 | $1.90\pm0.20$ | $3.50\pm0.20$ | $8.0\pm0.20$ | $1.75\pm0.10$ | $3.5\pm0.05$ | $4.0\pm0.10$ | $2.0\pm0.05$ | $0.75\pm0.10$ | $1.50^{+0.10}_{-0}$ | $4.0\pm0.1$ |

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### Reliability Table

| Test Item                              | Procedure                                                                                                                                                                                                                                                                                         | Requirements<br>Ceramic Type                                          | Remark<br>(Reference)     |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------|
| <b>Electrical Characterization</b>     |                                                                                                                                                                                                                                                                                                   | Fulfill the electrical specification                                  | User Spec.                |
| <b>Thermal Shock</b>                   | 1. Preconditioning:<br>50 ± 10°C / 1 hr , then keep for 24 ± 1 hrs at room temp.<br>2. Initial measure: Spec: refer Initialspec.<br>3. Rapid change of temperature test:<br>-30°C to +85°C; 100 cycles;<br>15 minutes at Lower category temperature;<br>15 minutes at Upper category temperature. | No Visible Damage.<br>Fulfill the electrical specification.           | MIL-STD-202<br>107        |
| <b>Temperature Cycling</b>             | 1. Initial measure: Spec: refer Initialspec.<br>2. 100 Cycles (-30°C to +85°C), Soak Mode=1 (2 Cycle/hours).<br>3. Measurement at 24 ± 2Hours after test condition.                                                                                                                               | No Visible Damage.<br>Fulfill the electrical specification.           | JESD22<br>JA104           |
| <b>High Temperature Exposure</b>       | 1. Initial measure: Spec: refer Initialspec.<br>2. Unpowered; 500hours @ T=+85°C.<br>3. Measurement at 24 ± 2 hours after test.                                                                                                                                                                   | No Visible Damage.<br>Fulfill the electrical specification.           | MIL-STD-202<br>108        |
| <b>Low Temperature Storage</b>         | 1. Initial measure: Spec: refer Initialspec.<br>2. Unpowered: 500hours @ T= -30°C.<br>3. Measurement at 24 ± 2 hours after test.                                                                                                                                                                  | No Visible Damage.<br>Fulfill the electrical specification.           | MIL-STD-202<br>108        |
| <b>Solderability (SMD Bottom Side)</b> | Dipping method:<br>a. Temperature: 235 ± 5°C<br>b. Dipping time: 3 ± 0.5s                                                                                                                                                                                                                         | The solder should cover over 95% of the critical area of bottom side. | IEC 60384-21/22<br>4.10   |
| <b>Soldering Heat Resistance (RSH)</b> | Preheating temperature: 150 ± 10°C.<br>Preheating time: 1~2 min.<br>Solder temperature: 260 ± 5°C.<br>Dipping time: 5 ± 0.5s                                                                                                                                                                      | No Visible Damage.                                                    | IEC 60384-21/22<br>4.10   |
| <b>Vibration</b>                       | 5g's for 20 min., 12 cycles each of 3 orientations<br>Note: Use 8"X5" PCB .031" thick 7 secure points on, one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.                                                    | No Visible Damage.                                                    | MIL-STD-202<br>Method 204 |
| <b>Mechanical Shock</b>                | Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks)<br>Peak value: 1,500g's<br>Duration: 0.5ms<br>Velocity change: 15.4 ft/s<br>Waveform: Half-sine                                                                      | No Visible Damage.                                                    | MIL-STD-202<br>Method 213 |
| <b>Humidity Bias</b>                   | 1. Humidity: 85% R.H., Temperature: 85 ± 2 °C.<br>2. Time: 500 ± 24 hours.<br>3. Measurement at 24 ± 2hrs after test condition.                                                                                                                                                                   | No Visible Damage.<br>Fulfill the electrical specification.           | MIL-STD-202<br>Method 106 |

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|                           |                                                                                                                                                                                        |                                                                                                                                                                          |              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Board Flex (SMD)</b>   | 1. Mounting method:<br>IR-Reflow. PCB Size (L:100 × W:40 × T:1.6mm)<br>2. Apply the load in direction of the arrow until bending reaches 2 mm.                                         | No Visible Damage.                                                                                                                                                       | AEC-Q200 005 |
| <b>Adhesion</b>           | Force of 1.8Kg for 60 seconds.<br>                                                                    | No Visible Damage<br>Magnification of 20X or greater may be employed for inspection of the mechanical integrity of the device body terminals and body/terminal junction. | AEC-Q200 006 |
| <b>Physical Dimension</b> | Any applicable method using x10 magnification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions. | In accordance with specification.                                                                                                                                        | JESD22 JB100 |

## Revision History

| Revision | Date      | Content                                   |
|----------|-----------|-------------------------------------------|
| 1        | 2015/8/20 | New issue                                 |
| 2        | 2017/4/20 | Update detail dimension on antenna layout |
| 3        | 2018/2/1  | Part number and coding rule updated       |