

2.4GHz 1608 Chip Antenna: RANT1608F245C01/1608F245C04/1608F245C05



Application:

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

Features

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

Part number Information

RANT 1608 F 245 C 01/04
(A) (B) (C) (D) (E) (F)

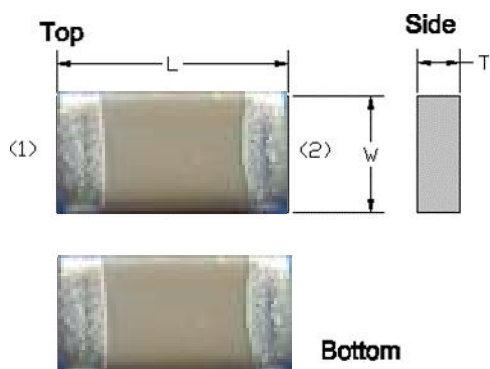
| | |
|------------------|-----------------------|
| (A)Product Type | Chip Antenna |
| (B) Size Code | 1.6x0.8mm(±0.1mm) |
| (C) Material | High K material |
| (D) Frequency | 2.4 ~ 2.5GHz |
| (E) Feeding mode | PIFA & Single Feeding |
| (F) Antenna type | Type=01/04/05 |



Electrical Specification

| | |
|-------------------------------|--------------------|
| Working Frequency Range | 2400 ~2500 MHz |
| Bandwidth | 120 MHz (Min.) |
| Peak Gain | 2.7 dBi (Typ.) |
| Impedance | 50 Ohm |
| Return loss | 10 dB (Min) |
| Polarization | Linear |
| Azimuth Beamwidth | Omni-directional |
| Operation Temperature(°C) | -40 ~85°C |
| Resistance to Soldering Heats | 10sec. (@ 280°C) |
| Termination | Ni / Au (Leadless) |

Dimension and Terminal Configuration



| Dimension (mm) | |
|----------------|-------------|
| L | 1.60 ± 0.10 |
| W | 0.80 ± 0.10 |
| T | 0.80 ± 0.10 |

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

咏成國際科技有限公司
RAIN International Technology Co., Ltd.

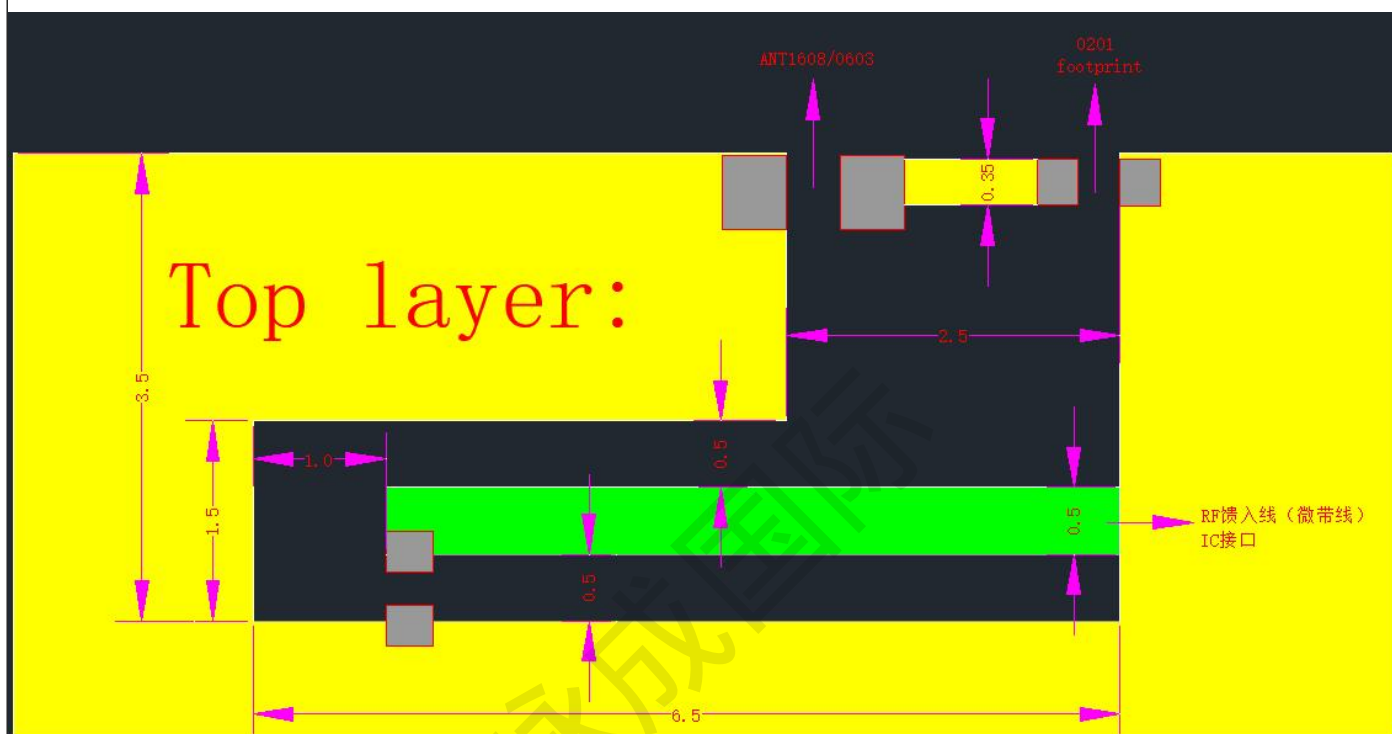
電話: 13530576606
TEL: 13530576606



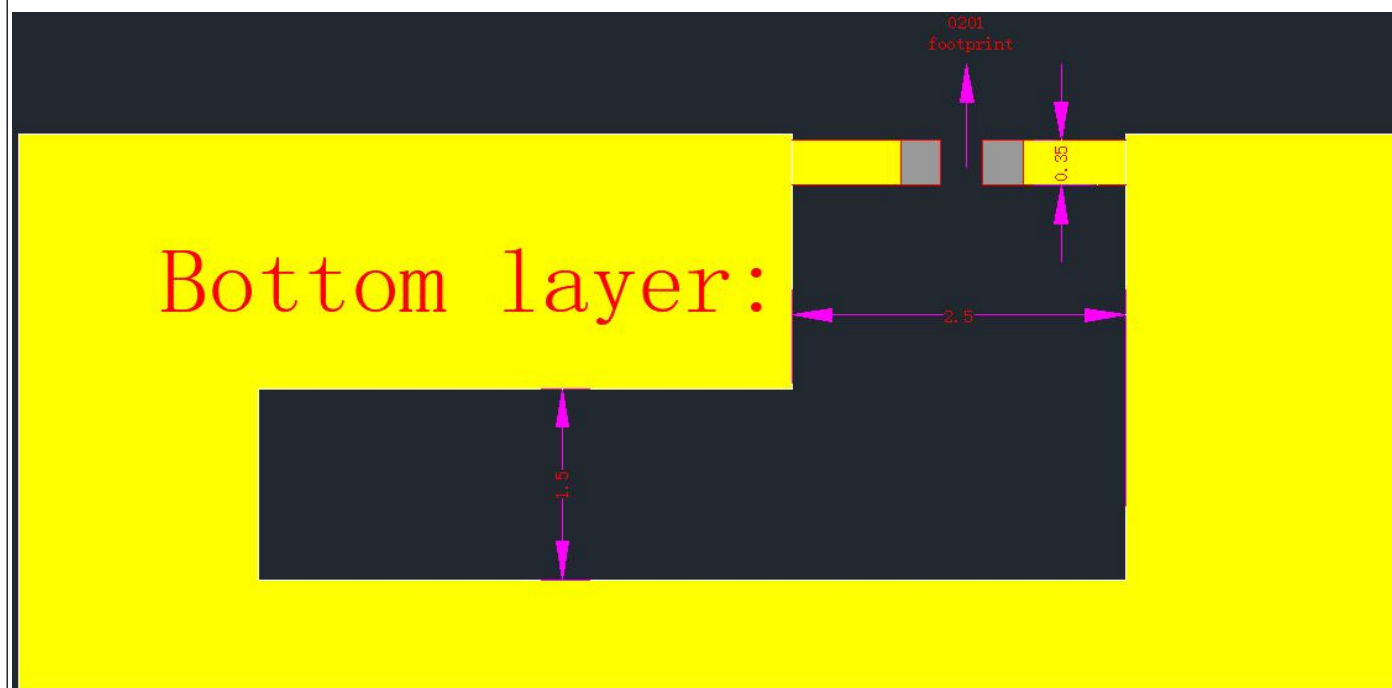
Evaluation Board Reference

长条板Layout建议参考如下：

Top layer:



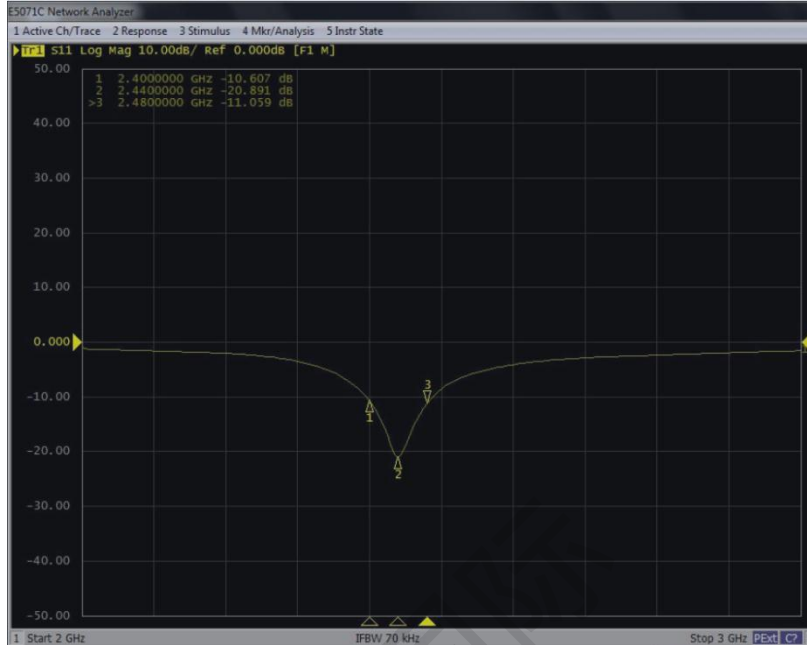
Bottom layer:



Electrical Characteristics

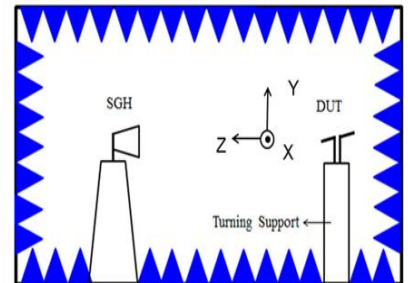
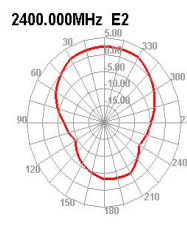
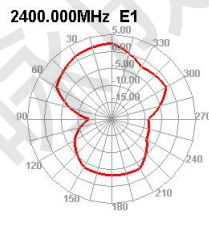
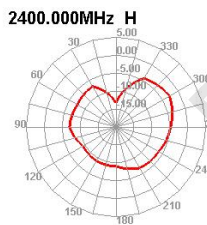
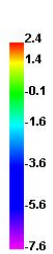
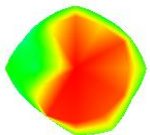
Return Loss & Radiation

ELECTRICAL CHARACTERISTICSS11

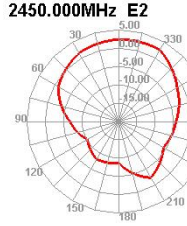
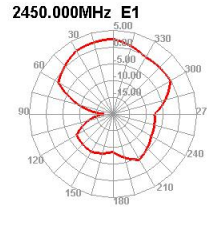
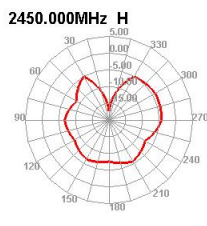
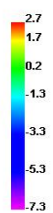
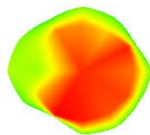


Radiation Pattern

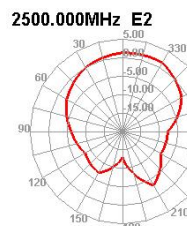
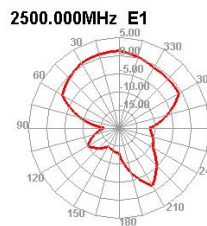
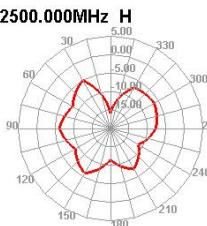
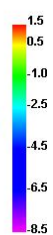
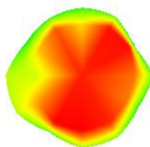
2400.000MHz



2450.000MHz



2500.000MHz



Electrical Characteristics

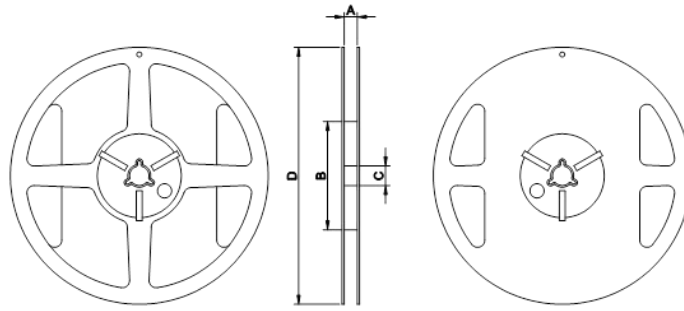
| | Feature | Specification |
|---|-------------------|-----------------|
| 1 | Central frequency | 2.45GHz&5.5GHz |
| 2 | Bandwidth | >150MHz |
| 3 | Peak gain | 2~3dBi |
| 4 | VSWR | <2 |
| 5 | Polarization | Linear |
| 6 | Azimuth beamwidth | Omnidirectional |
| 7 | Impedance | 50 Ω |

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Taping Specifications

Reel and Taping Specification

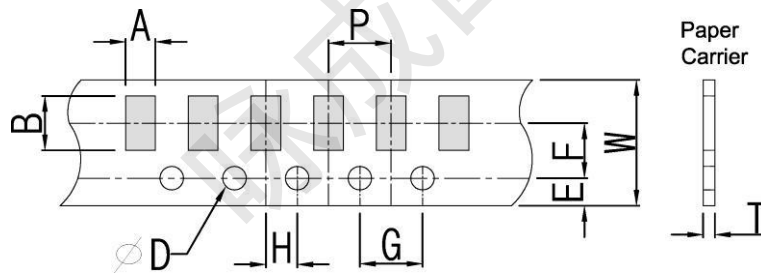
Reel Specification



7" x 8 mm

| TYPE | SIZE | | A | B | C | D |
|------|------|---------|---------|-------|----------|-------|
| 1608 | 7" | 4K/Reel | 4.0±0.5 | 4.0±2 | 13.5±0.5 | 178±2 |

Tapping Specification



| Packaging | Type | A | B | W | E | F | G | H | T | ψD | P |
|------------|------|-----------|-----------|----------|-----------|----------|----------|----------|-----------|-----------|---------|
| Paper Type | 1608 | 1.90±0.20 | 3.50±0.20 | 8.0±0.20 | 1.75±0.10 | 3.5±0.05 | 4.0±0.10 | 2.0±0.05 | 0.75±0.10 | 1.50±0.10 | 4.0±0.1 |

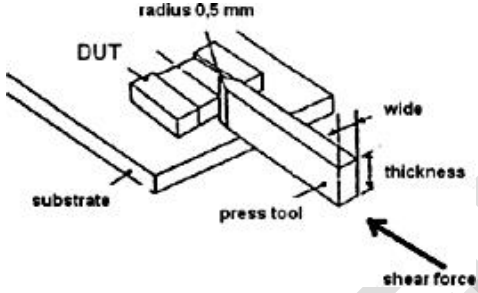
2.4GHz 1608 Chip Antenna: RANT1608F245C01/1608F245C04/1608F245C05 Reliability Table



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

2.4GHz 3216 Chip Antenna: RANT1608F245C01/RANT1608F245C04/1608F245C05



| | | | |
|---------------------------|--|--|-----------------|
| Board Flex (SMD) | 1. Mounting method: IR-Reflow. PCB Size (L:100 × W:40 × T:1.6mm) 2. Apply the load in direction of the arrow until bending reaches 2 mm. | No Visible Damage. | AEC-Q200 005 |
| Adhesion | Force of 1.8Kg for 60 seconds.  | No Visible Damage 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 |
| Physical Dimension | 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 | 2019/03/01 | New Datasheet |
| 2 | 2020/02/22 | Add 2D radiation characteristic |