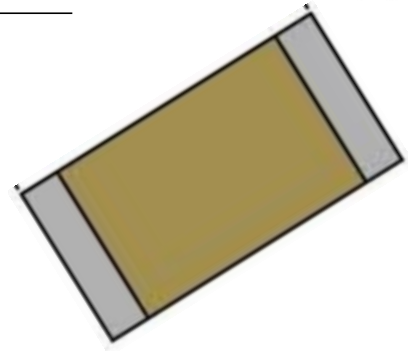


2.4GHz 1608 Chip Antenna: RANT1608F245C01



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
(A) (B) (C) (D) (E) (F)

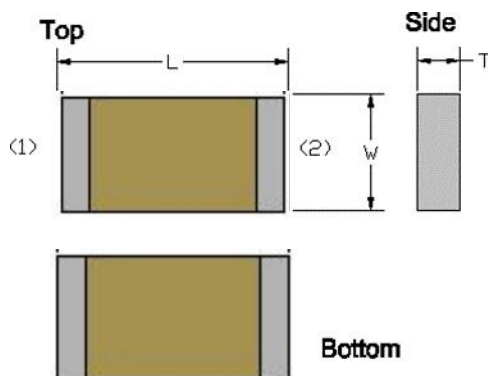
(A) Product Type	Chip Antenna
(B) Size Code	1.6x0.8mm(±0.1mm)
(C) Material	High K material
(D) Frequency	2.4 ~ 2.5GHz
(E) Feeding mode	PIFA & Single Feeding
(F) Antenna type	Type=01

Electrical Specification

Working Frequency Range	2400 ~2500 MHz
Bandwidth	120 MHz (Min.)
Peak Gain	3.35 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)

The specification is defined on EVB.

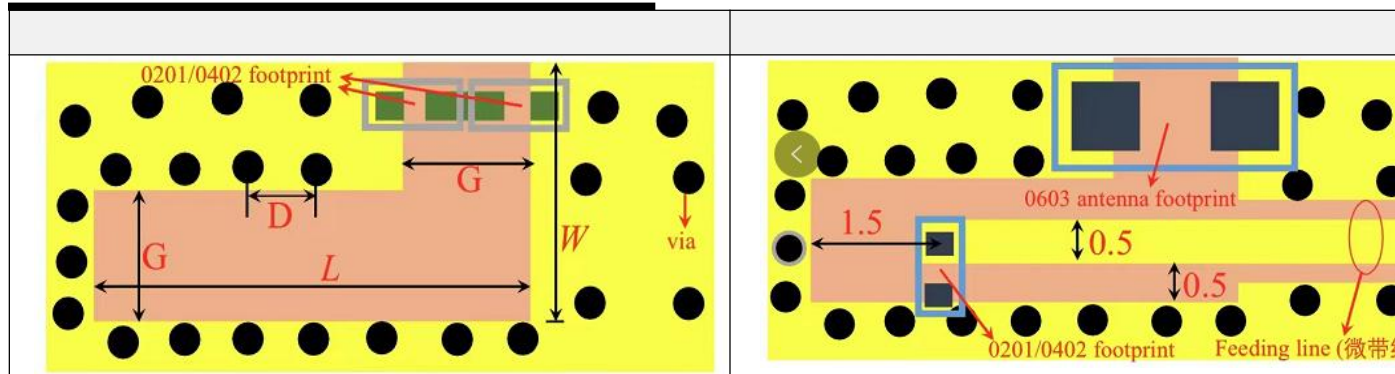
Dimension and Terminal Configuration



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

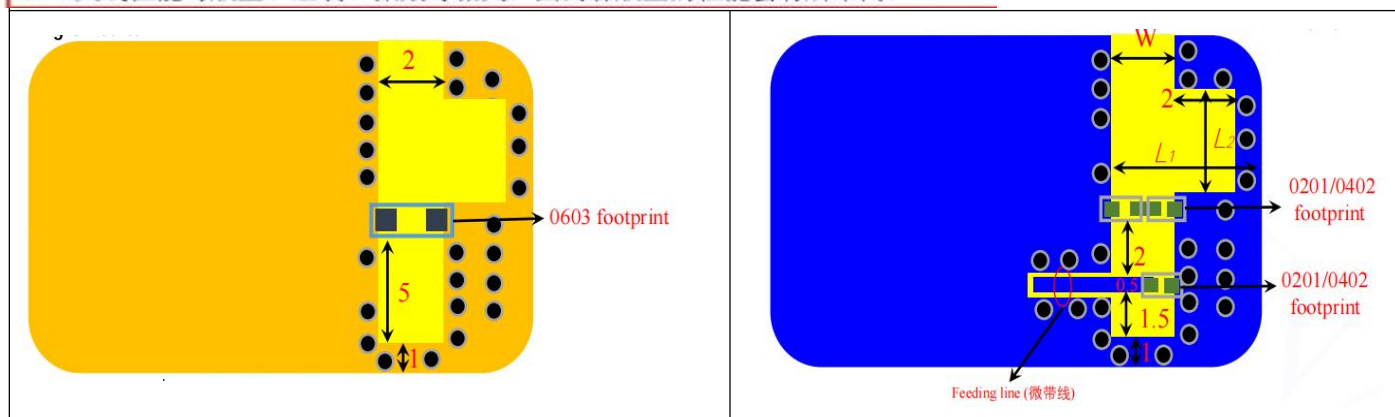
No.	Terminal Name
1	Feeding/GNG
2	GND/Feeding

Evaluation Board Reference



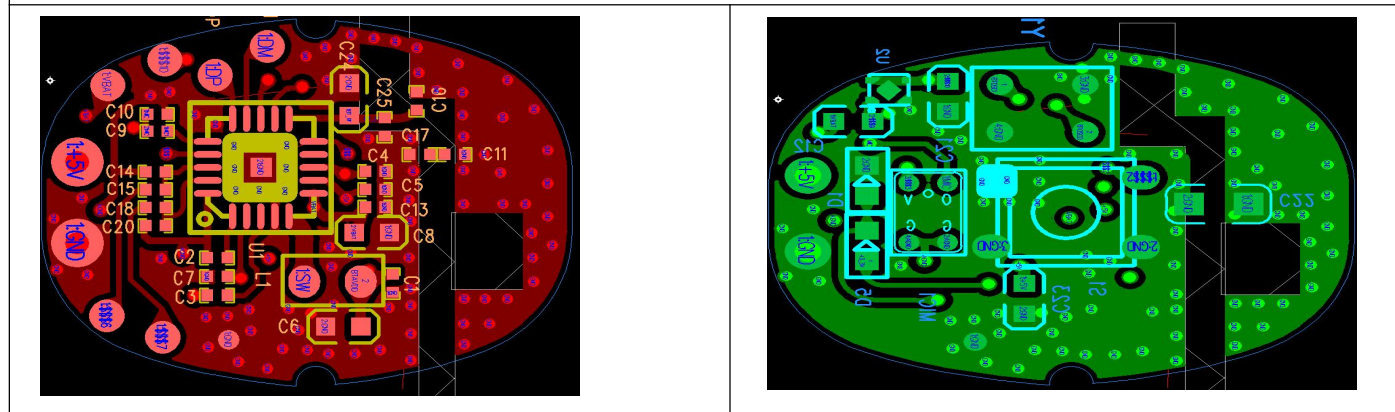
设计标准:

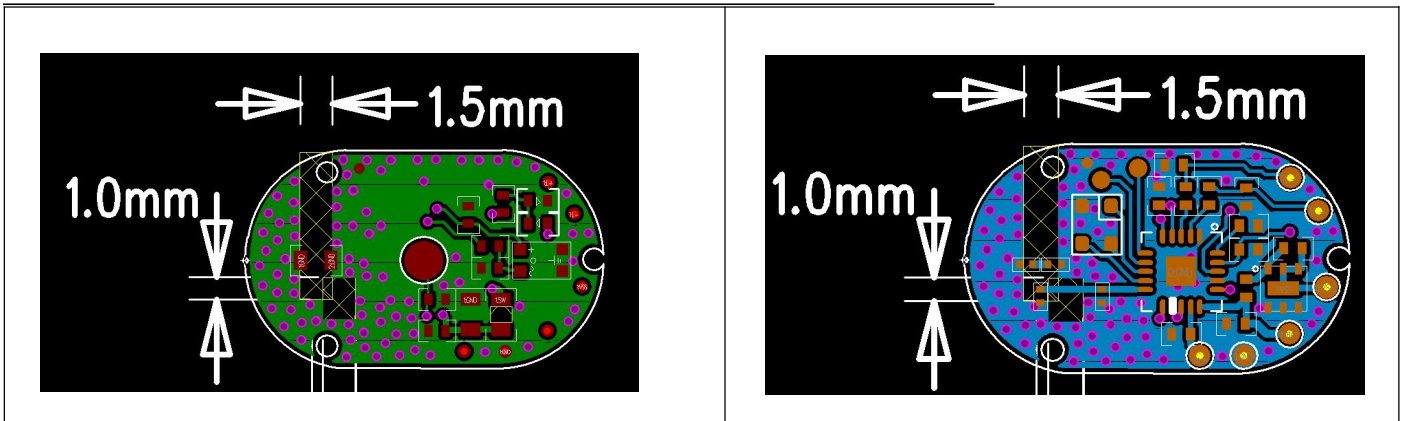
1. 图示中的尺寸为标准封装，仅作为参考；净空区的尺寸会根据每个版型进行调整和优化。
2. 天线最优放置于PCBA的中间区域；天线及其板后的匹配物料最优放置于板边缘。
3. 净空区周围需一排过孔，与PCBA上的其它回路或物料进行隔离。
4. G最优为1.5~2mm, W最优为3~5mm, L最优为4~6mm, D最优为0.5~1mm。
5. 天线性能与版型、组装、佩戴等相关，因而各版型的性能会有所不同。



设计指导:

- 1、原则上，净空区左侧边缘距离板边的间距L1应该尽量大，且注意与底部电池的间距。
- 2、净空区的宽度W最优为1.5mm~2mm。
- 3、净空区的长度L2的长度为2mm~4mm。

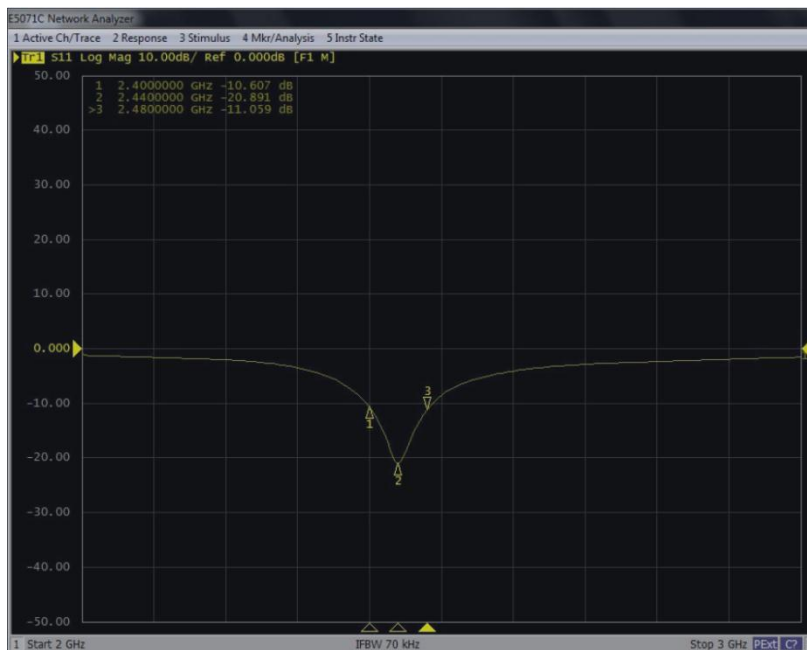




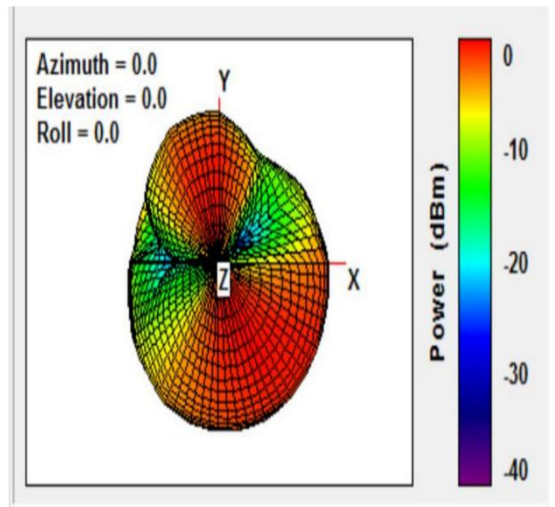
Electrical Characteristics

Return Loss & Radiation

ELECTRICAL CHARACTERISTICSS11



Radiation Pattern



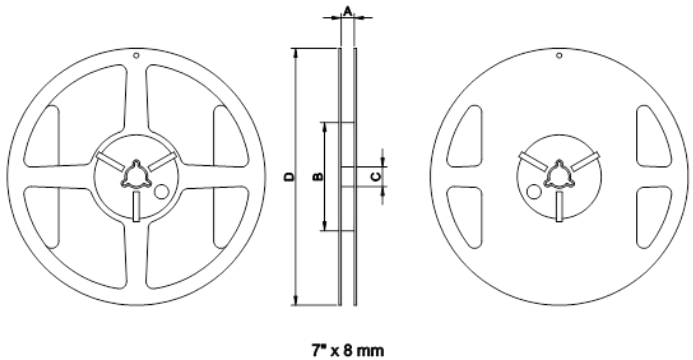
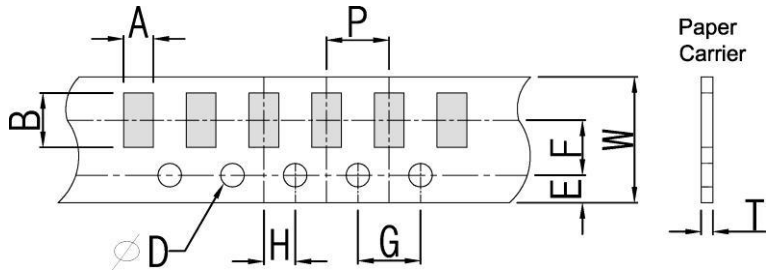
Frequency	Gain (dBi)	Efficiency (%)
2400	3.00	70
2420	3.31	71
2440	3.30	70
2460	3.35	74
2480	3.12	68
2500	2.89	69

Radiation

Electrical Characteristics

	Feature	Specification
1	Central frequency	2445MHz
2	Bandwidth	>100MHz
3	Peak gain	>3dBi
4	VSWR	<2
5	Polarization	Linear
6	Azimuth beamwidth	Omnidirectional
7	Impedance	50 Ω

Taping Specifications

Reel and Taping Specification											
Reel Specification											
 <p style="text-align: center;">7" x 8 mm</p>											
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

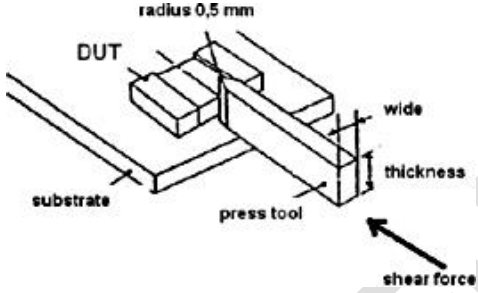
2.4GHz 1608 Chip Antenna: RANT1608F245C01



Reliability Table

Test Item	Procedure	Requirements Ceramic Type	Remark (Reference)
Electrical Characterization		Fulfill the electrical specification	User Spec.
Thermal Shock	<ol style="list-style-type: none"> Preconditioning: 50 ± 10°C / 1 hr , then keep for 24 ± 1 hrs at room temp. Initial measure: Spec: refer Initialspec. Rapid change of temperature test: -30°C to +85°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	<ol style="list-style-type: none"> Initial measure: Spec: refer Initialspec. 100 Cycles (-30°C to +85°C), Soak Mode=1 (2 Cycle/hours). Measurement at 24 ± 2Hours after test condition. 	No Visible Damage. Fulfill the electrical specification.	JESD22 JA104
High Temperature Exposure	<ol style="list-style-type: none"> Initial measure: Spec: refer Initialspec. Unpowered; 500hours @ T=+85°C. Measurement at 24 ± 2 hours aftertest. 	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
Low Temperature Storage	<ol style="list-style-type: none"> Initial measure: Spec: refer Initialspec. Unpowered: 500hours @ T=-30°C. Measurement at 24 ± 2 hours aftertest. 	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
Solderability (SMD Bottom Side)	Dipping method: <ol style="list-style-type: none"> Temperature: 235 ± 5°C Dipping time: 3 ± 0.5s 	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 ± 10°C. Preheating time: 1~2 min. Solder temperature: 260 ± 5°C. Dipping time: 5 ± 0.5s	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	<ol style="list-style-type: none"> Humidity: 85% R.H., Temperature: 85 ± 2 °C. Time: 500 ± 24 hours. Measurement at 24 ± 2hrs after test condition. 	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 Method 106

2.4GHz 3216 Chip Antenna: RANT1608F245C01

Board Flex (SMD)	<p>1. Mounting method: IR-Reflow. PCB Size (L:100 × W:40 × T:1.6mm)</p> <p>2. Apply the load in direction of the arrow until bending reaches 2 mm.</p>	<p>No Visible Damage.</p>	<p>AEC-Q200 005</p>
Adhesion	<p>Force of 1.8Kg for 60 seconds.</p> 	<p>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.</p>	<p>AEC-Q200 006</p>
Physical Dimension	<p>Any applicable method using x10 magnification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions.</p>	<p>In accordance with specification.</p>	<p>JESD22 JB100</p>

Revision History

Revision	Date	Content
1	2019/03/01	New Datasheet
2	2020/02/22	Add 2D radiation characteristic