

2.4GHz 2 0 1 2 Chip Antenna: HXDANT2012- BT(E)-

05SApplication:

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)

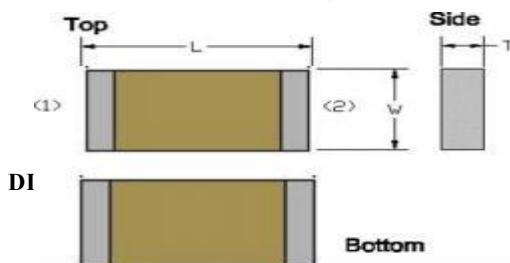
(A) Product Type	Chip Antenna
(B) Size Code	2.0x1.2mm(: 0.1mm)
(C) Material	High K material
(D) Frequency	2.4 ~ 2.5GHz
(E) Feeding mode	PIFA & Single Feeding
(F) Antenna type	Type=01

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



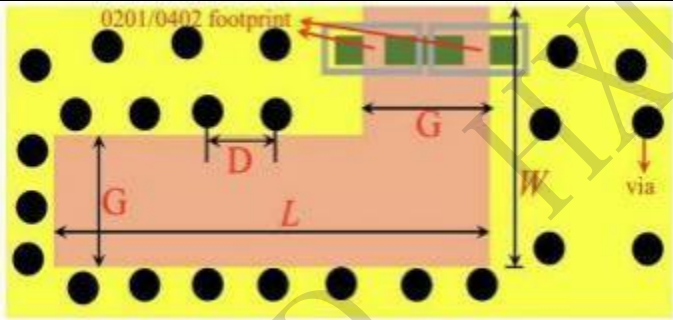
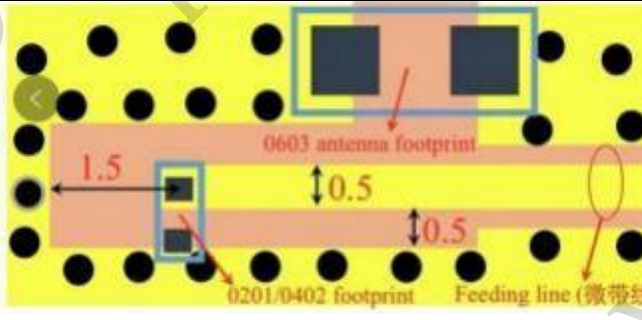
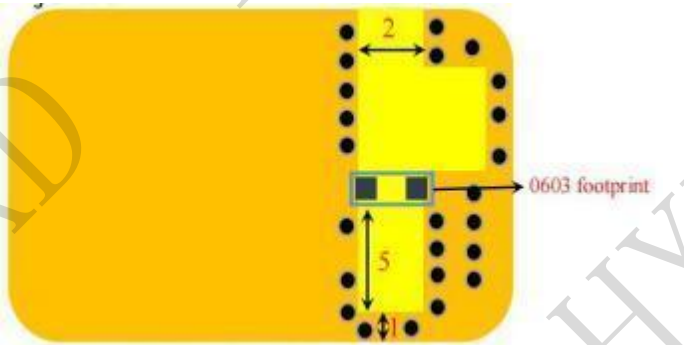
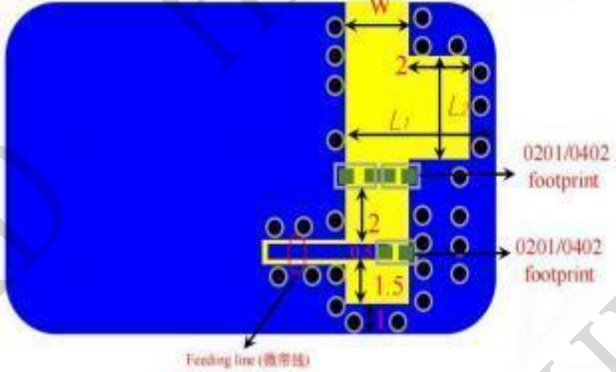
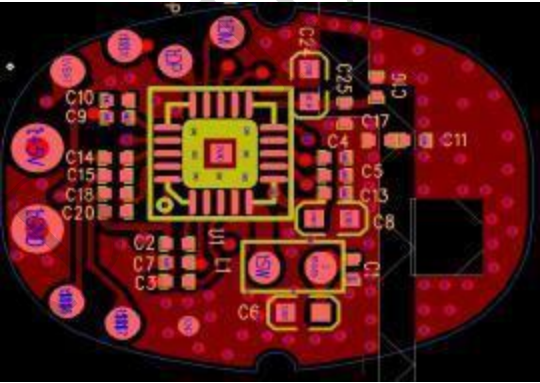
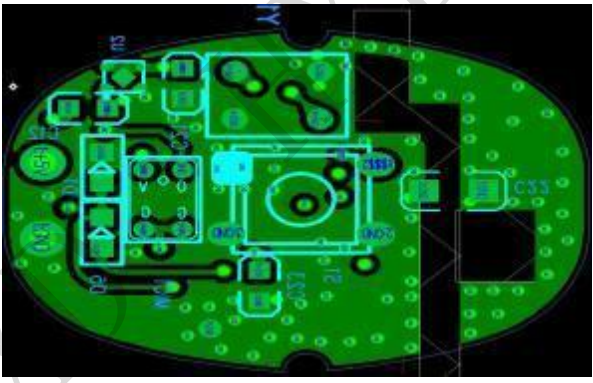
Dimension (mm)		No.	Terminal Name
L	2.0 : 0.10	1	Feeding/ GNG
W	1.2 : 0.10	2	GND/ Feeding
T	0.80 : 0.10		

SHENZHEN HENGXINDA COMMUNICATION TECH CO.,LTD

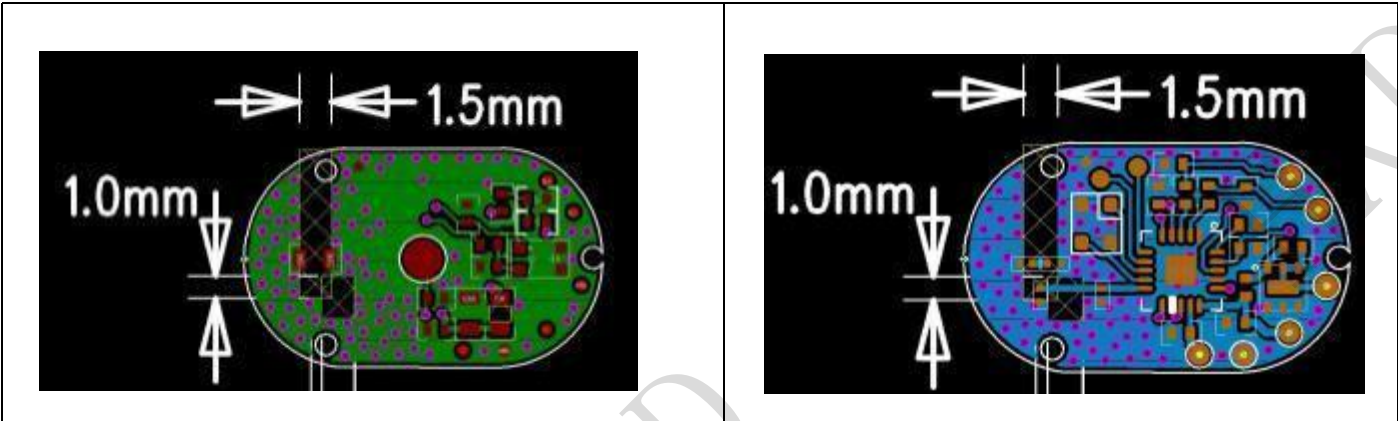
3rd Floor, Huihuang Comprehensive Building, Tongsheng Community, Dalang Road, Longhua District, Shenzhen, Guangdong, China

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Evaluation Board Reference

	
	
design guide In principle, the distance L1 between the left edge of the clearance zone and the panel edge should be as large as possible, while ensuring adequate spacing from the bottom battery. The optimal width W of the clearance zone is 1.5 mm to 2 mm. The length L2 of the clear space ranges from 2 mm to 4 mm.	
	

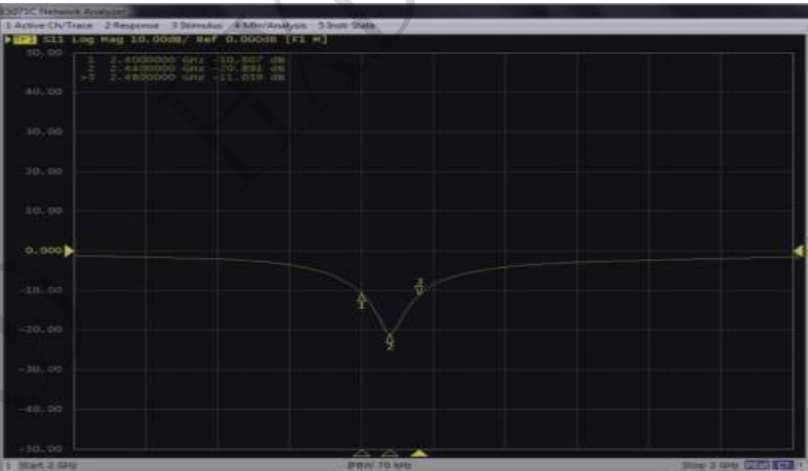
2.4GHz 2 0 1 2 Chip Antenna: HXDANT2012-BT(E)-05S



Electrical Characteristics

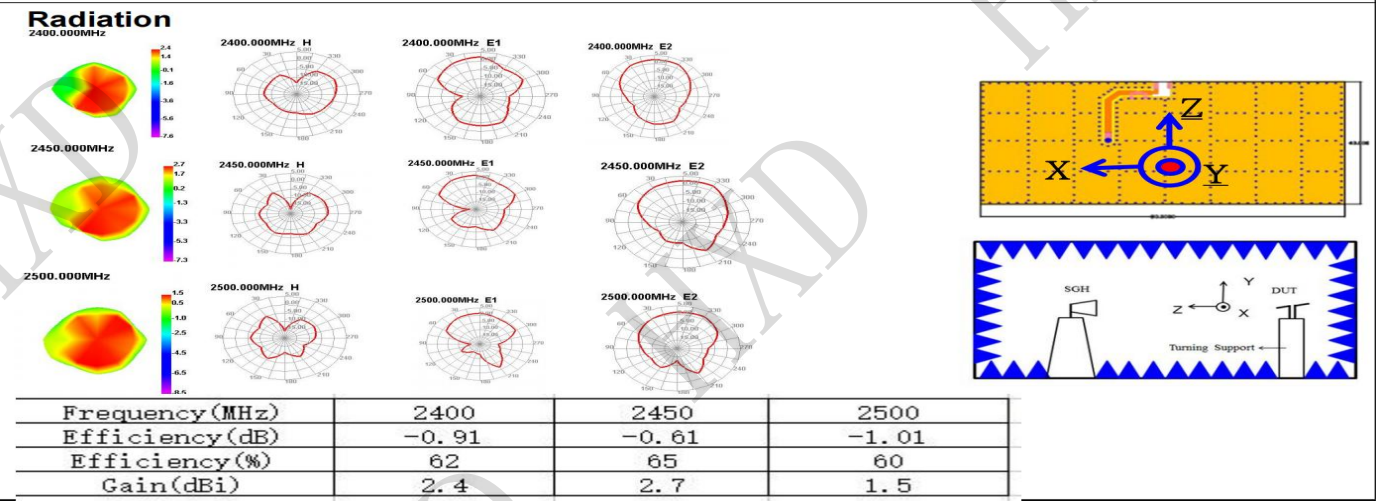
Return Loss & Radiation

ELECTRICAL CHARACTERISTICSS1 1



Frequency(MHz)	S11 (dB)
2400	-10.50
2450	-30.62
2500	-11.47

Radiation Pattern



2.4GHz 2 0 1 2 Chip Antenna: HXDANT2012-BT(E)-05S**Radiation****Electrical Characteristics**

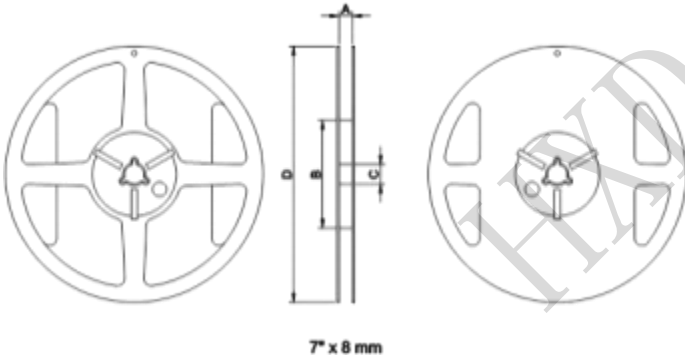
	Feature	Specification
1	Central frequency	2445MHz
2	Bandwidth	>100MHz
3	Peak gain	>3dBi
4	VSWR	<2
5	Polarization	Linear
6	Azimuth beamwidth	Omnidirectional
7	Impedance	50 Ω

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Taping Specifications

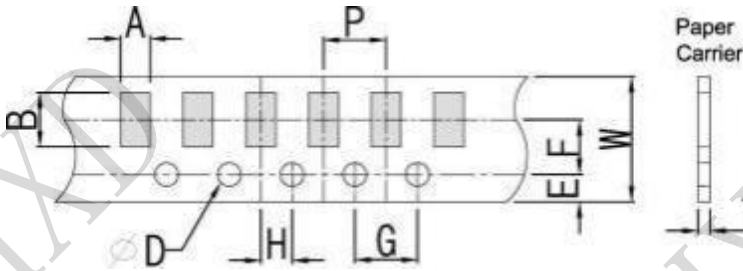
Reel and Taping Specification

Reel Specification



TYPE	SIZE		A	B	C	D
2012	8	4K/ Reel	9.0±0.5	60±2	13.5±0.5	178±2

Tapping Specification



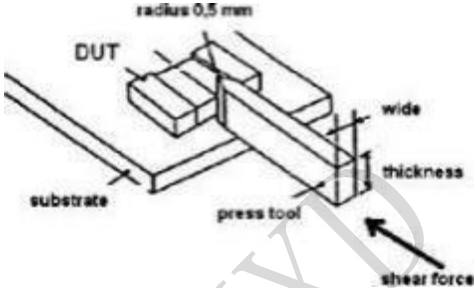
Packaging	Type	A	B	W	E	F	G	H	T	ψ D	P
Paper Type	2012	1.90±0.20	3.50±0.20	8.0±0.20	1.75±0.10	3.5±0.05	4.0±0.10	2.0±0.05	0.75±0.10	1.50±0.10	4.0±0.1

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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; 500 hours @ $T=+85^\circ\text{C}$. 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: 500 hours @ $T= -30^\circ\text{C}$. 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	5 g'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

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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
Ad hes ion	Force of 1.8Kg for 60 seconds.  The diagram illustrates the adhesion test setup. A DUT (Device Under Test) is mounted on a substrate. A press tool is used to apply a shear force to the DUT. The diagram labels the following components: DUT, substrate, press tool, shear force, radius 0.5 mm, wide, and thickness.	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 applicab le met hod us ing x10 mag nification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions.	In accorda nce with specification.	JESD22 JB100

Revision History

Revision	Date	Content
1	2023/03/01	New Datasheet
2	2024/02/23	Add 2D radiation characteristic