

Antenna

YCGS008AA Datasheet

Antenna Services

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Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: info@quectel.com

Or our local offices. For more information, please visit:

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About the Document

Revision History

Version	Date	Author	Note
-	2021-11-12	Xiaodong YANG/ Kenny YIN	Creation of the document
1.0	2021-11-12	Xiaodong YANG/ Kenny YIN	First official release
1.1	2022-02-10	Xiaodong YANG	Updated the grounding size (Chapter 4.0).

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1 Product Description

This Quectel GNSS antenna adopts a diversity of forms to guarantee the most suitable polarization type. Quectel's positioning products support single-band or multi-band operation modes to meet various high-precision positioning requirements of customers' products. Quectel also provides both passive and active antennas to satisfy the customer demand for high gain. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external SMA. Customized connector type and cable length are provided according to requirements.

2 Product Features

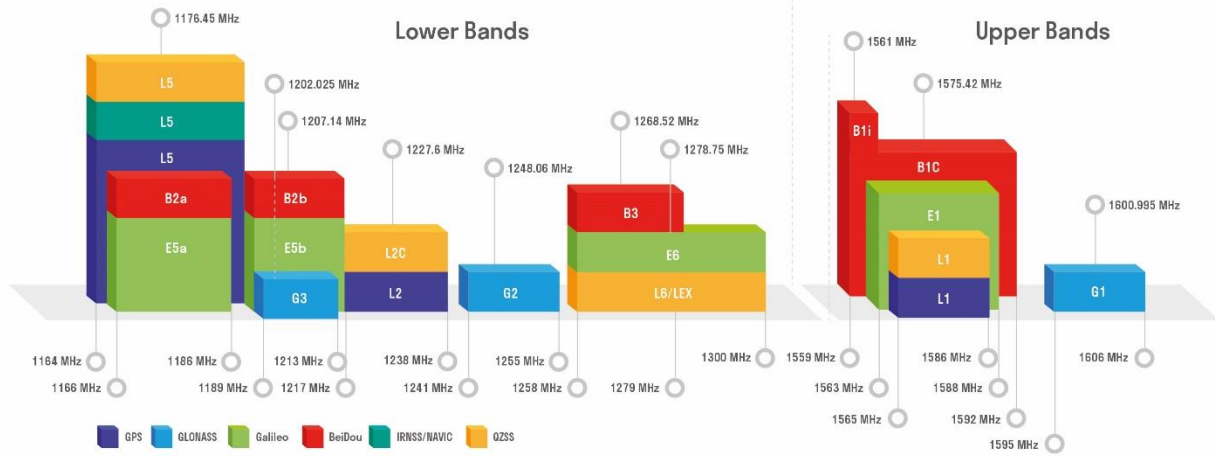
- Ceramic GNSS
- High efficiency
- Excellent performance



3 GNSS Frequency Band Checklist

GNSS Frequency Bands (MHz)					
GPS	L1 Centre 1575.42 (1565–1586)	L2 Centre 1227.6 (1217–1238)	L5 Centre 1176.45 (1164–1189)		
	●	-	-		
GLONASS	G1/L1OC/L1OF Centre 1601 (1595–1606)	G2/L2OC/L2OF Centre 1248.06 (1241–1255)	G3/L3OC Centre 1202.025 (1189–1213)		
	●	-	-		
GALILEO	E1 Centre 1575.42 (1563–1588)	E5a Centre 1176.45 (1166–1187)	E5b Centre 1207.14 (1197–1218)	E6 Centre 1278.75 (1258–1300)	
	●	-	-	-	
BEIDOU	B1I Centre 1561.098 (1559–1564)	B1C (BeiDou-3) Centre 1575.42 (1559–1592)	B2a/B2I Centre 1176.45 (1166–1187)	B2b Centre 1207.14 (1197–1217)	B3 Centre 1268.52 (1258–1279)
	-	●	-	-	-
QZSS	L1 Centre 1575.42 (1573–1578)	L2C Centre 1227.6 (1226–1229)	L5 Centre 1176.45 (1166–1187)	L6 Centre 1278.75 (1257–1300)	
	●	-	-	-	
IRNSS	L5 Centre 1176.45 (1164–1189)				
	-				

GNSS Bands and Constellations



4 Product Specifications (Testing Description)

- The antenna is tested on a 50 mm × 50 mm PCB.

Passive Electrical Specifications

Frequency Range	1575.42 ±1.5 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≥ 1.0 dBi (50 mm × 50 mm GND)
Polarization Type	RHCP

Mechanical Specifications

Antenna Size	12 mm × 12 mm × 2 mm
Radiator	Ceramics
Connector Type	SMD
Working Temperature	-40 °C to +85 °C
Radome Color	-

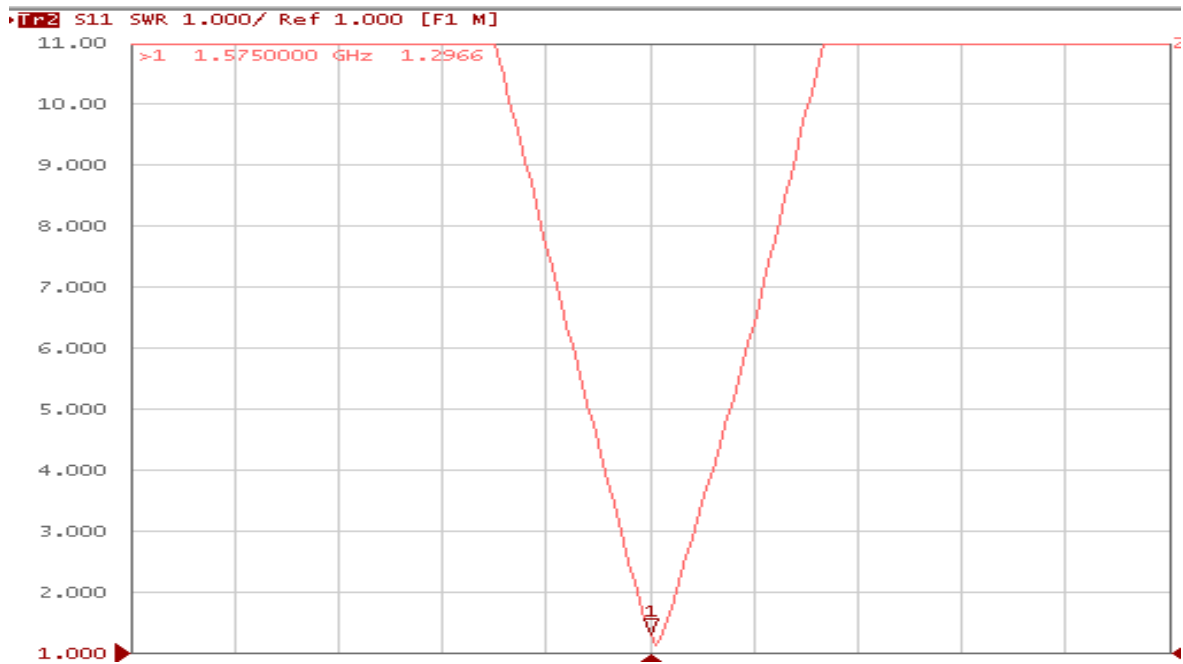
5 Overall Performance

5.1. Test Environment

- KEYSIGHT ENA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 600 MHz – 8.5 GHz

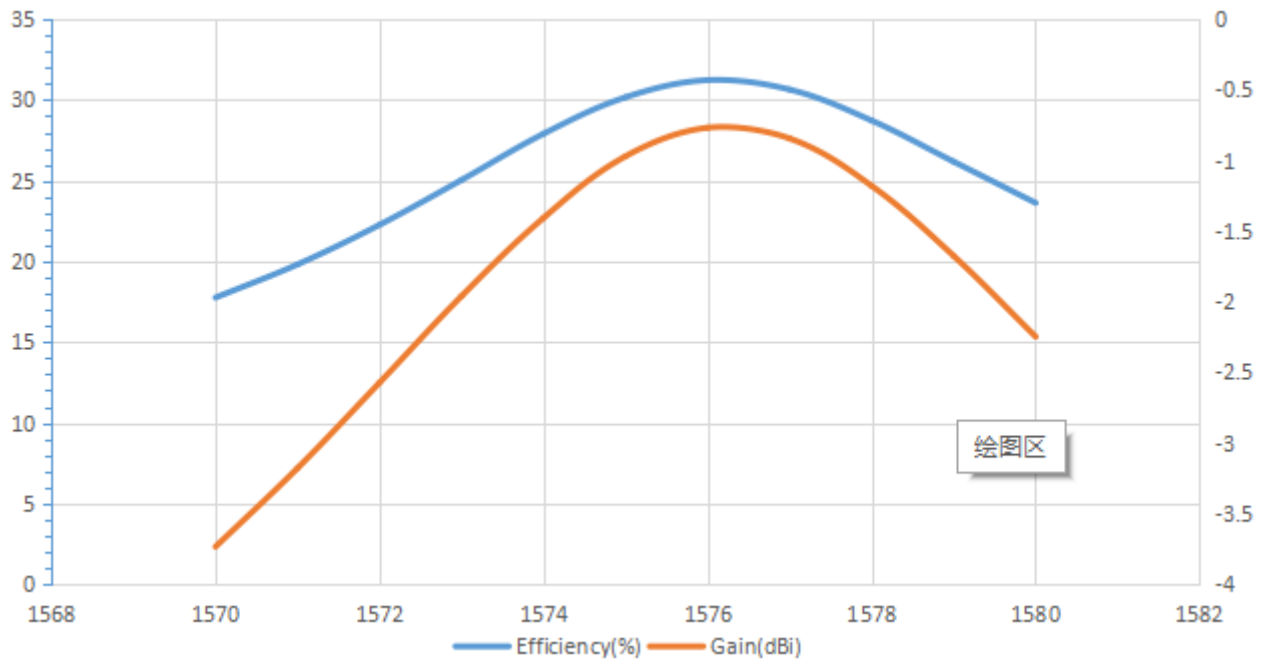


5.2. VSWR or S11



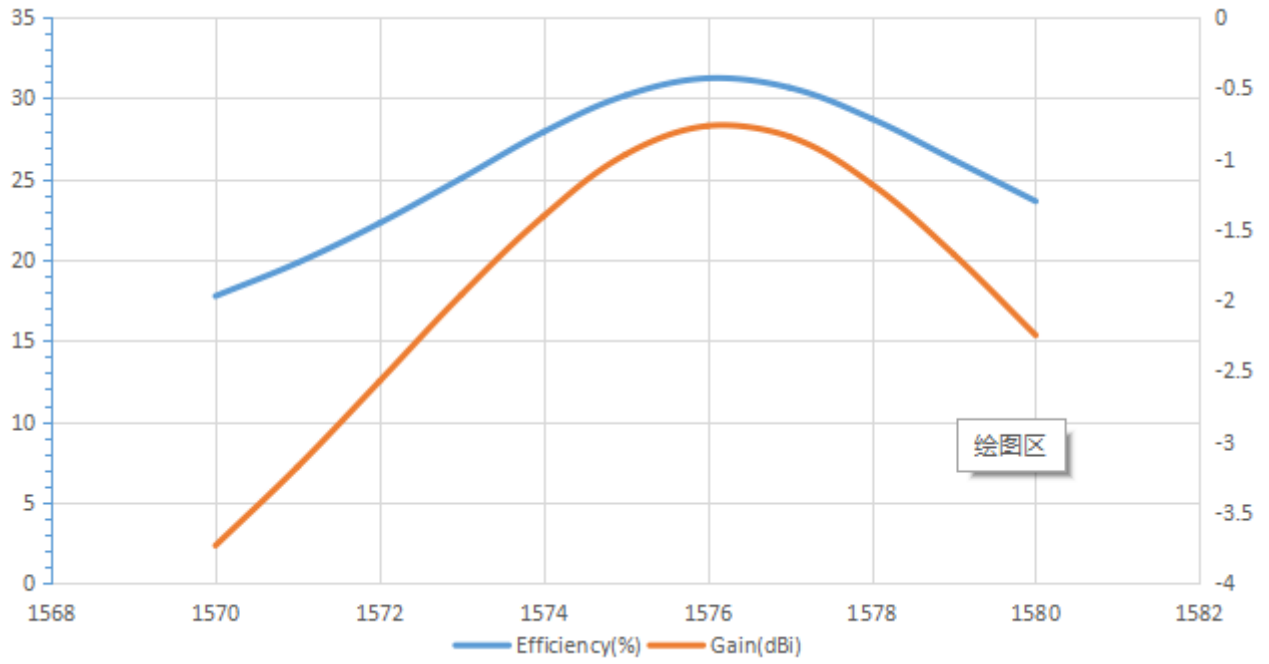
Frequency (MHz)	1575
VSWR	1.29

5.3. Efficiency



Frequency (MHz)	1575
Efficiency (%)	30.17

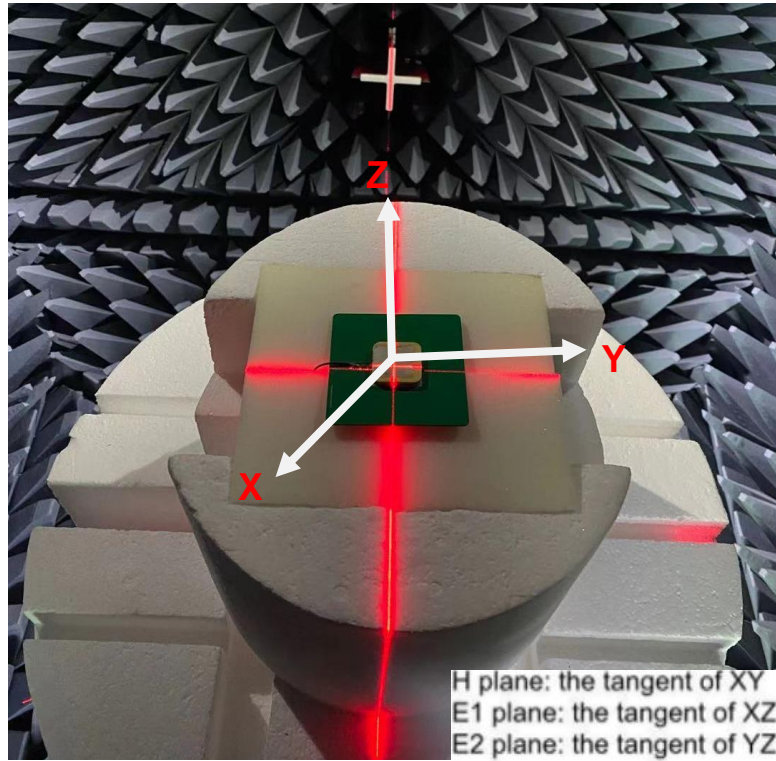
5.4. Gain



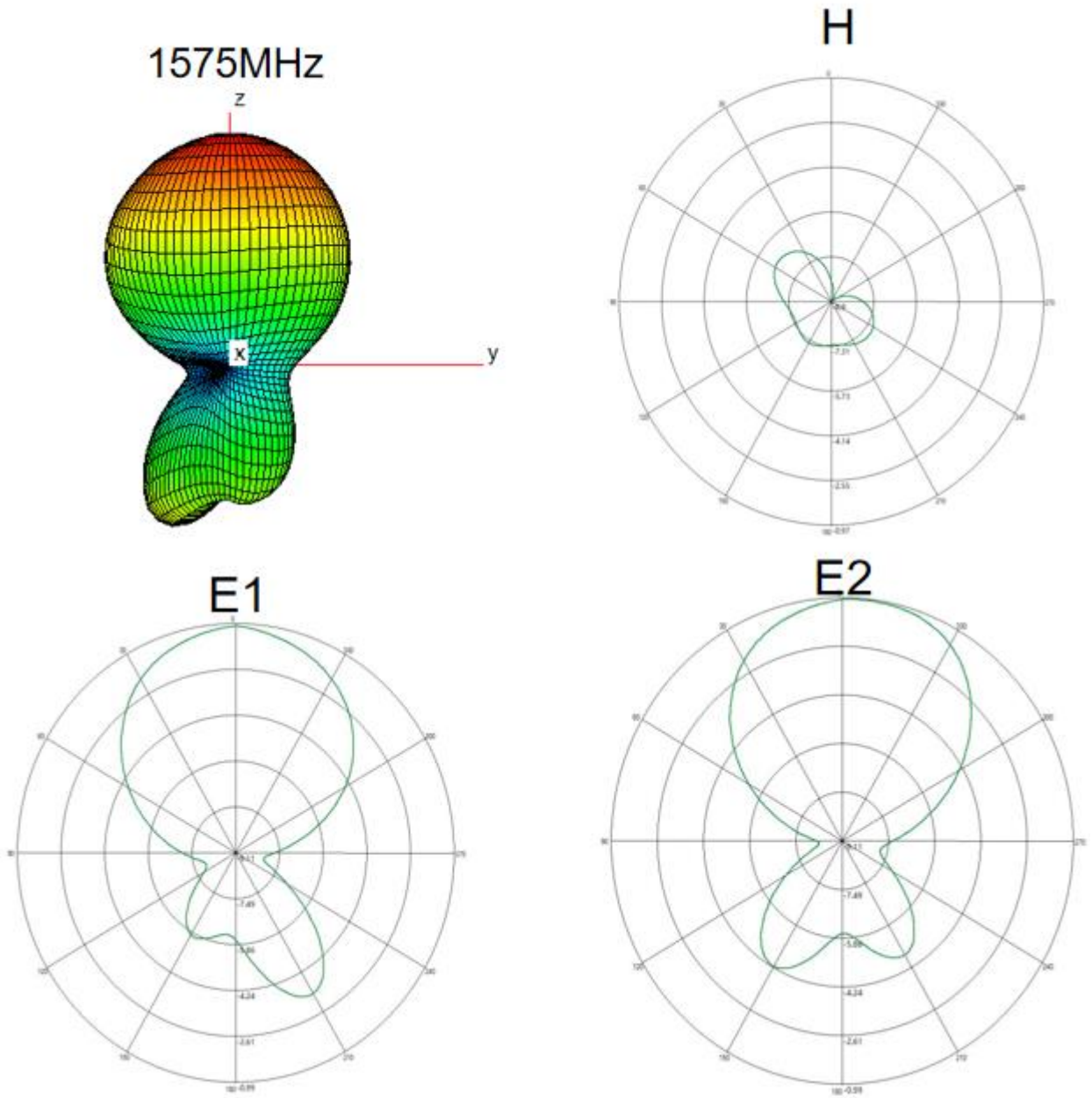
Frequency (MHz)	1575
Gain (dBi)	-0.96

5.5. Antenna Test in Chamber

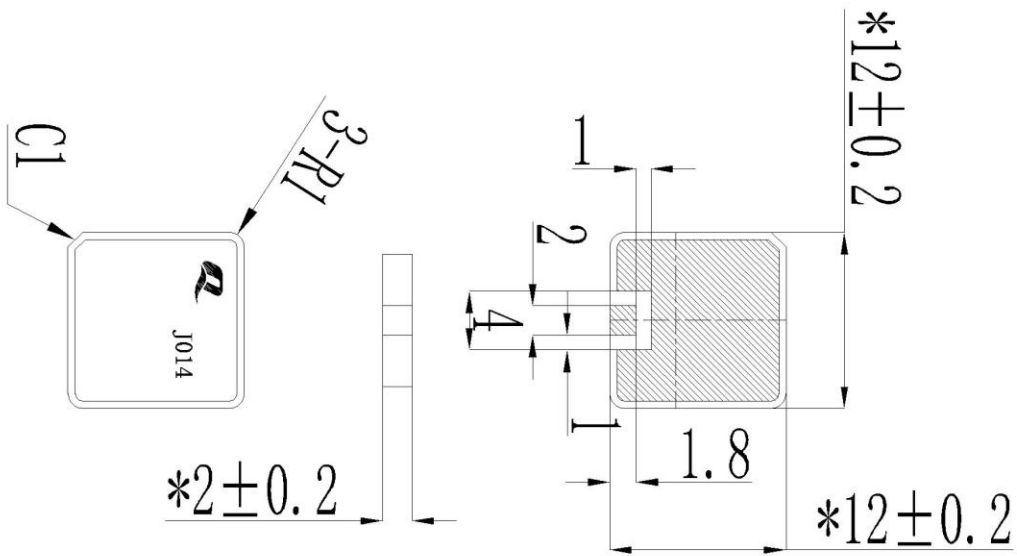
- Test condition status: free space state.



5.6. 2D&3D Radiation

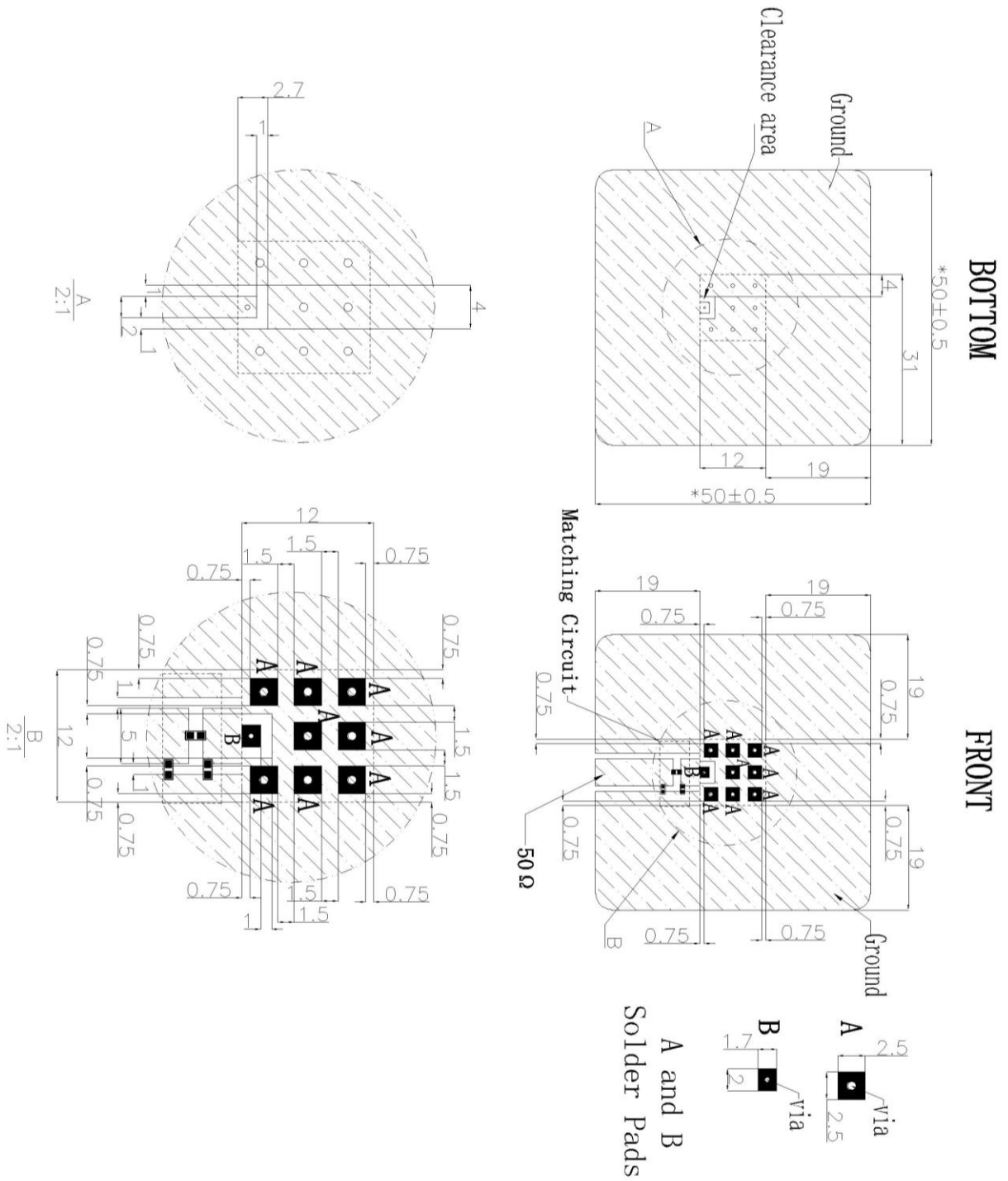


6 Product Size



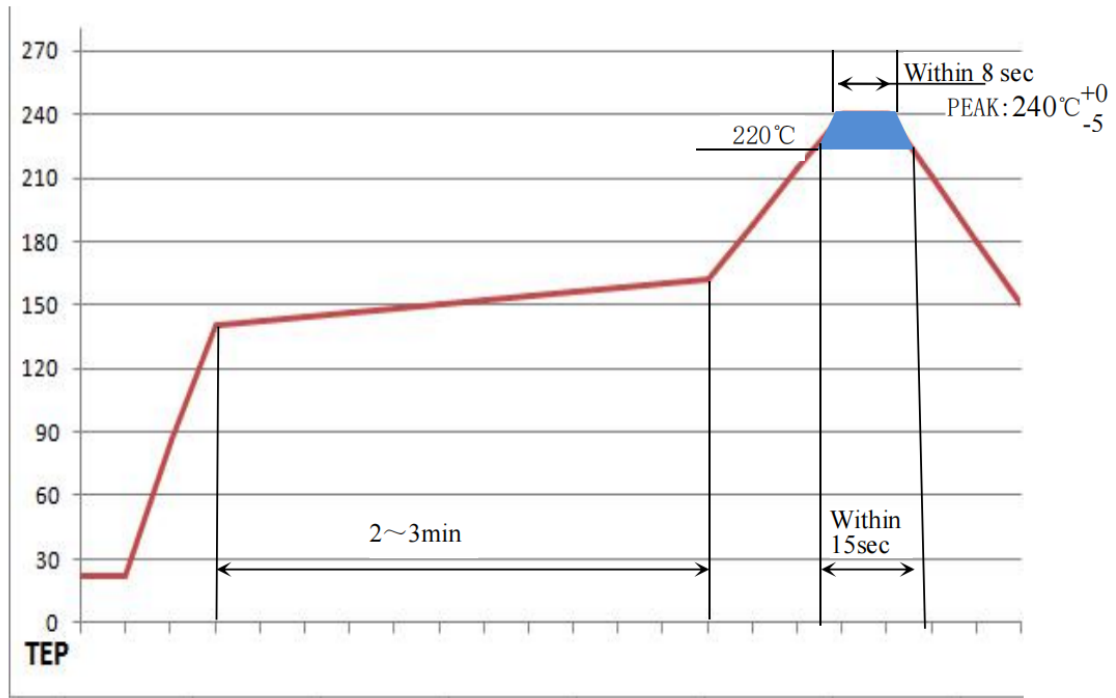
Unit: mm

7 PCB Footprint Recommendation



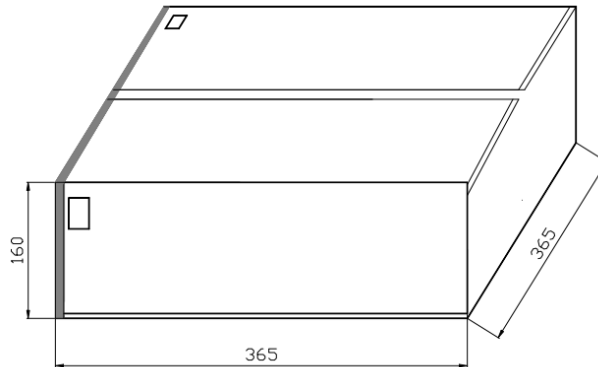
8 Recommended Reflow Soldering Profile

- Solder Paste: Sn/Ag/Cu: 96.5/3.0/0.5
- Recommended reflow condition:



9 Packaging

- Dimensions and Mark



- Section of Package

Package is made of corrugated paper with thickness of 0.8 cm. Package has 3 inner boxes, and each box has 1 reel (vacuum packaging per volume).

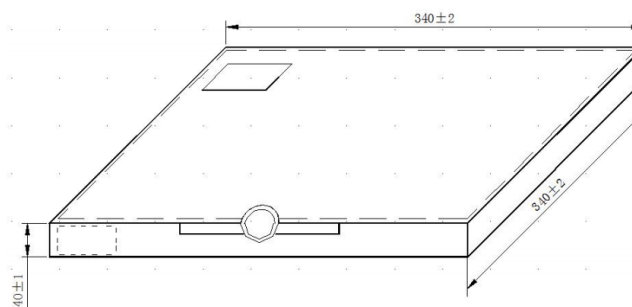
- Quantity of Package

Per plastic reel 1000 Pieces

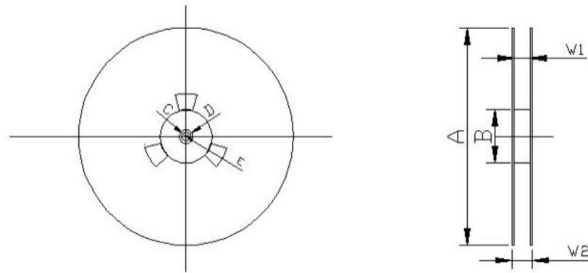
Per inner box 1 Reel

Per package 3 Inner Boxes (3000 pieces of ceramic part)

- Inner Box Dimensions

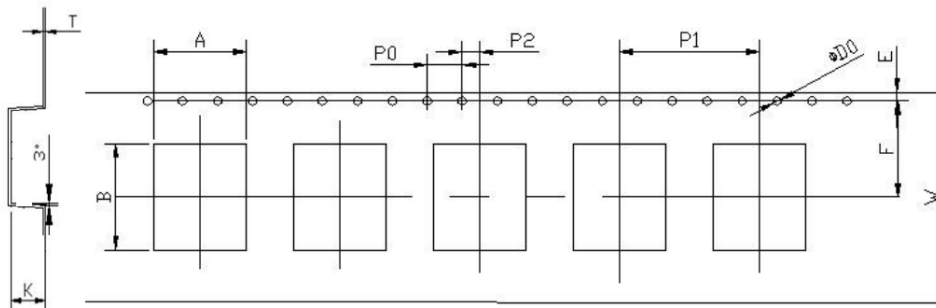


● Reel Dimensions



A	B	C	D	E	W1	W2
±5.0	±5.0	±5.0	±1.0	±5.0	±2.0	±3.0
Φ330	Φ80	Φ13.5	Φ21	2.0	24.5	30.5

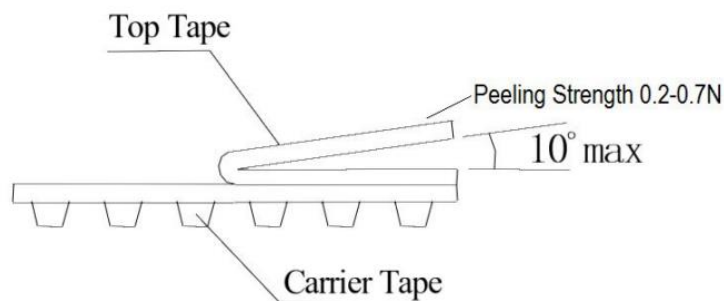
● Dimensions of Carrier Tape



A	B	W	F	E	P1	P2	P0	ΦD0	T	K
±0.1	±0.1	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.05	±0.1
12.3	12.3	24.0	11.5	1.75	16.0	2.0	4.0	1.5	0.4	2.5

Unit: mm

● Test Condition of Peeling Strength



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