

# Antenna

# YCGS008AA Datasheet

## Antenna Services

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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

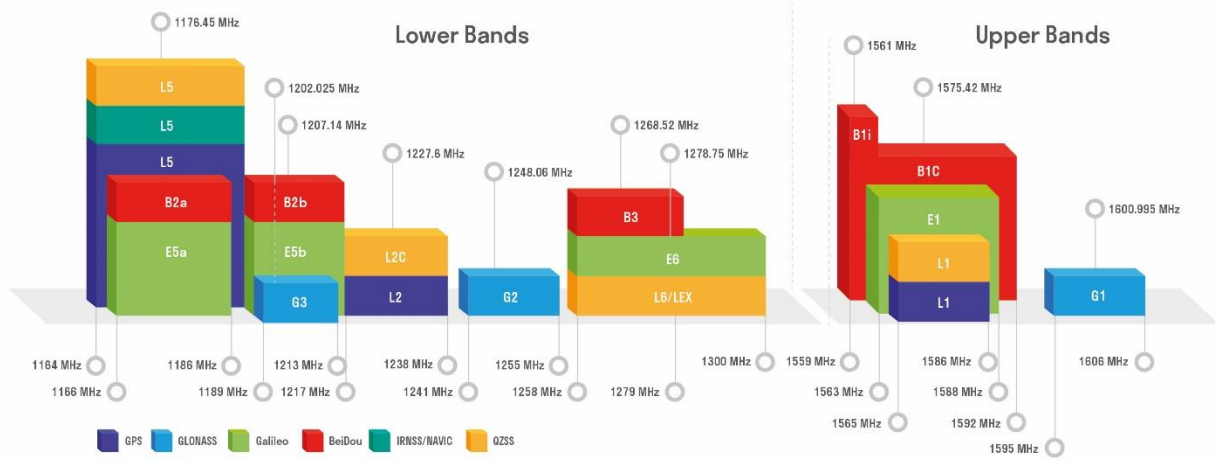
- Ceramic GNSS
- High efficiency
- Excellent performance



### 3 GNSS Frequency Band Checklist

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

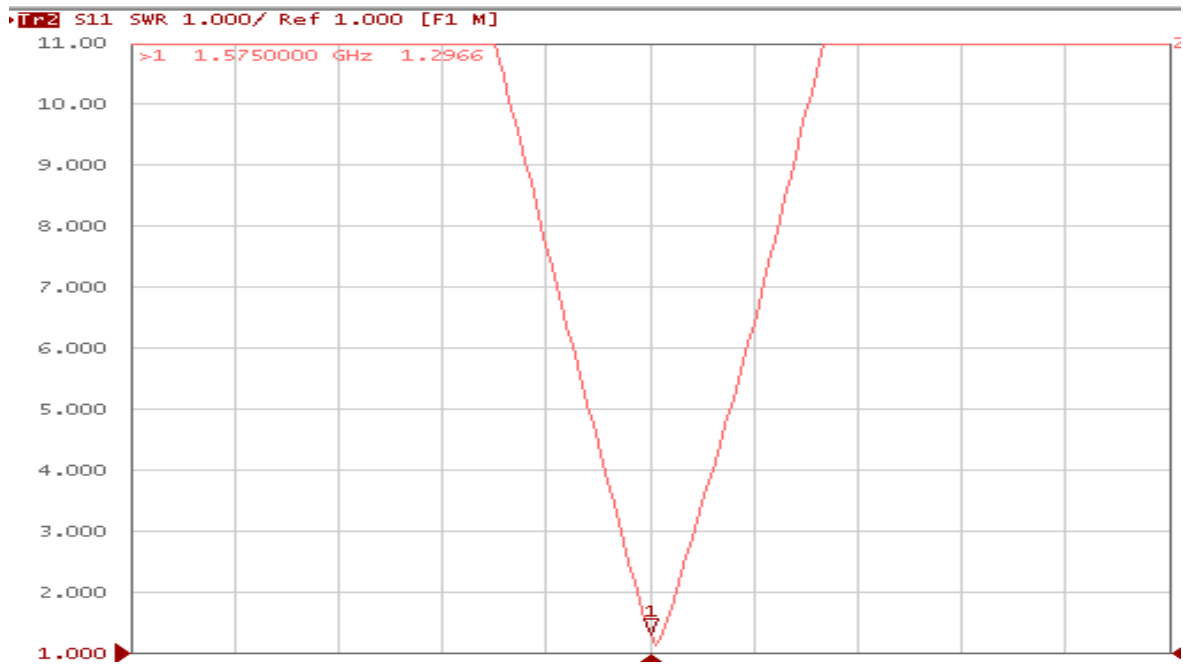
## 5 Overall Performance

### 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

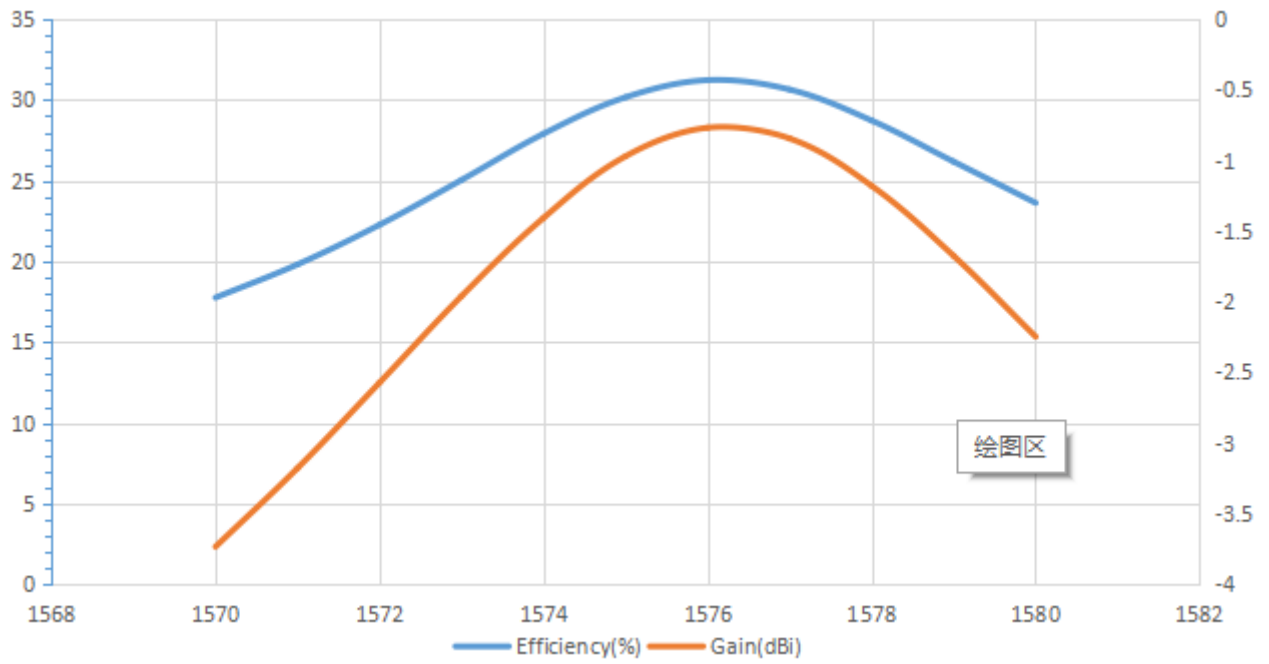


### 5.2. VSWR or S11



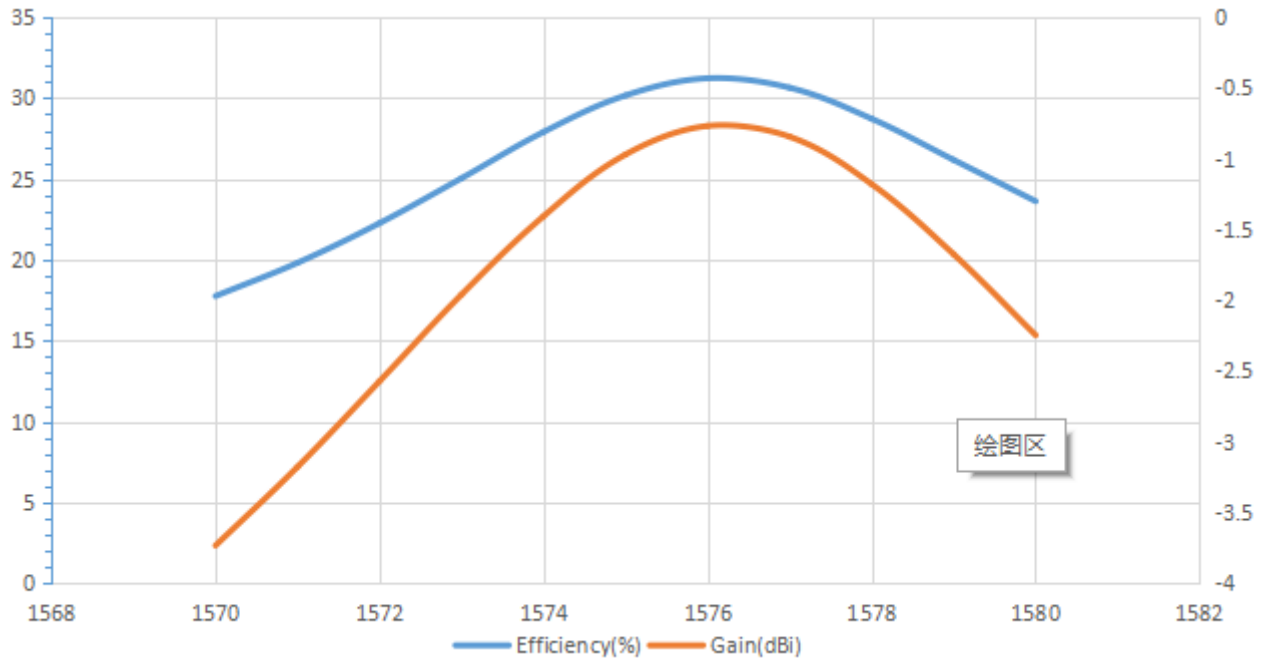
Frequency (MHz)	1575
VSWR	1.29

### 5.3. Efficiency



Frequency (MHz)	1575
Efficiency (%)	30.17

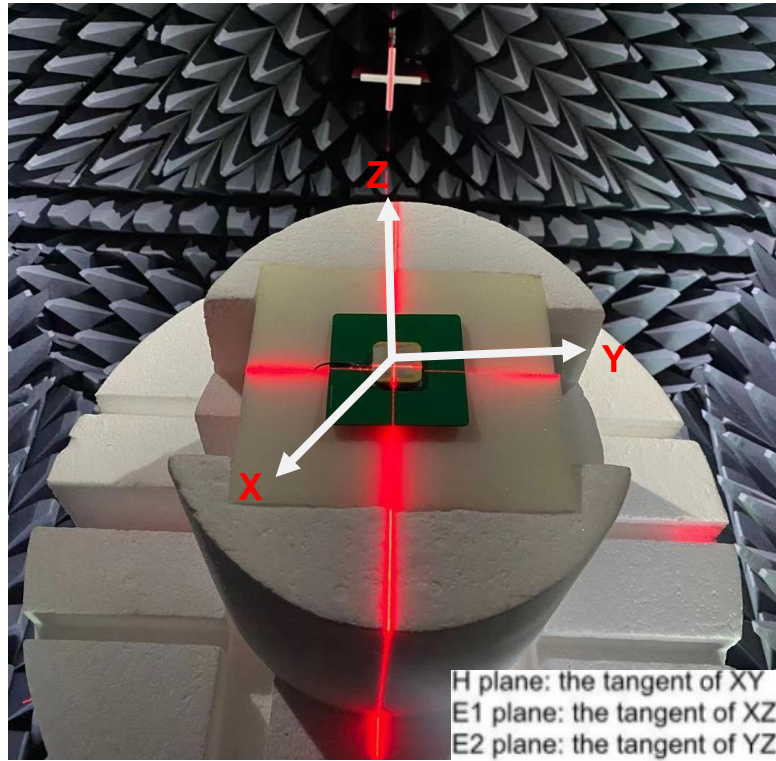
### 5.4. Gain



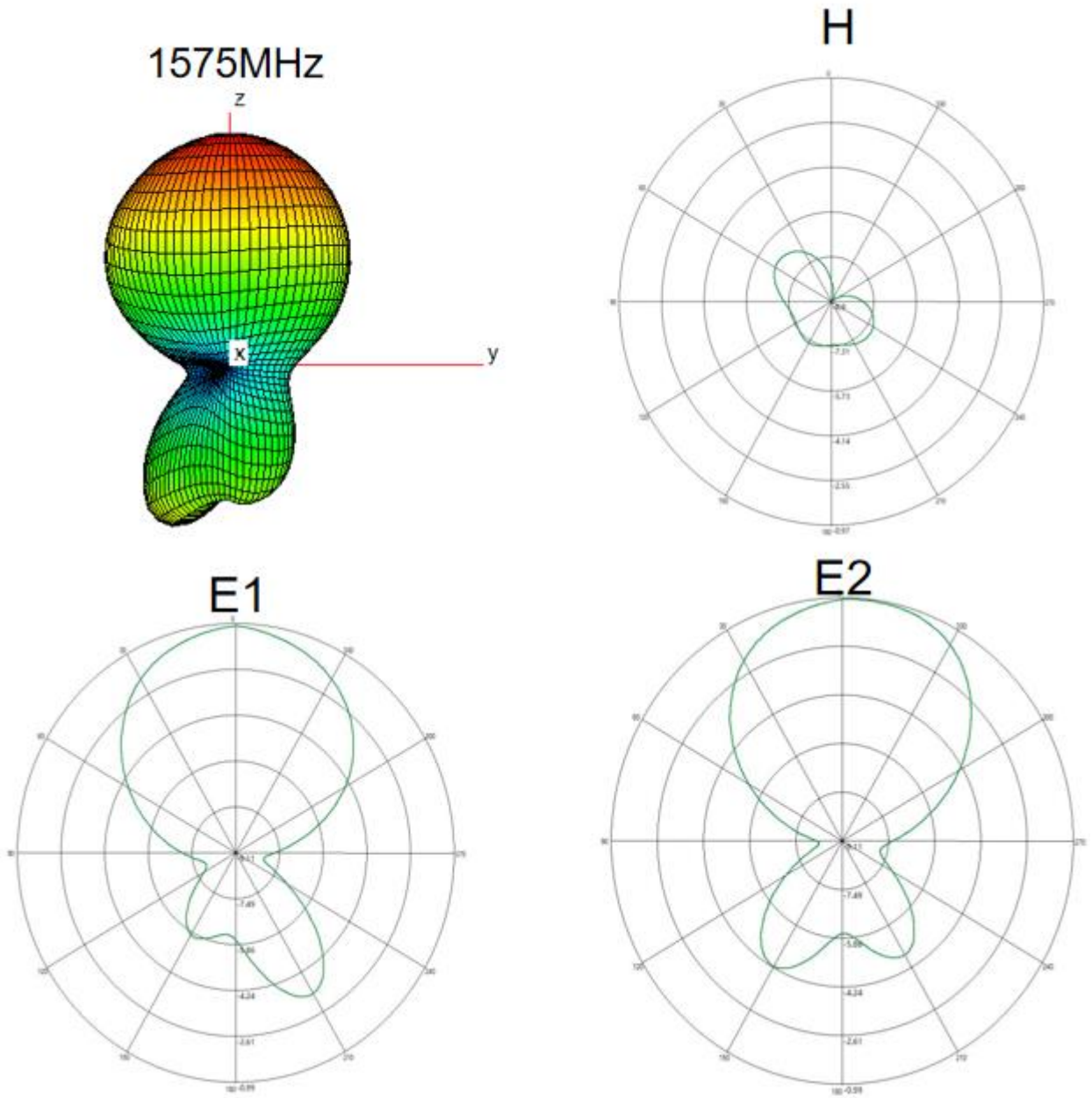
Frequency (MHz)	1575
Gain (dBi)	-0.96

## 5.5. Antenna Test in Chamber

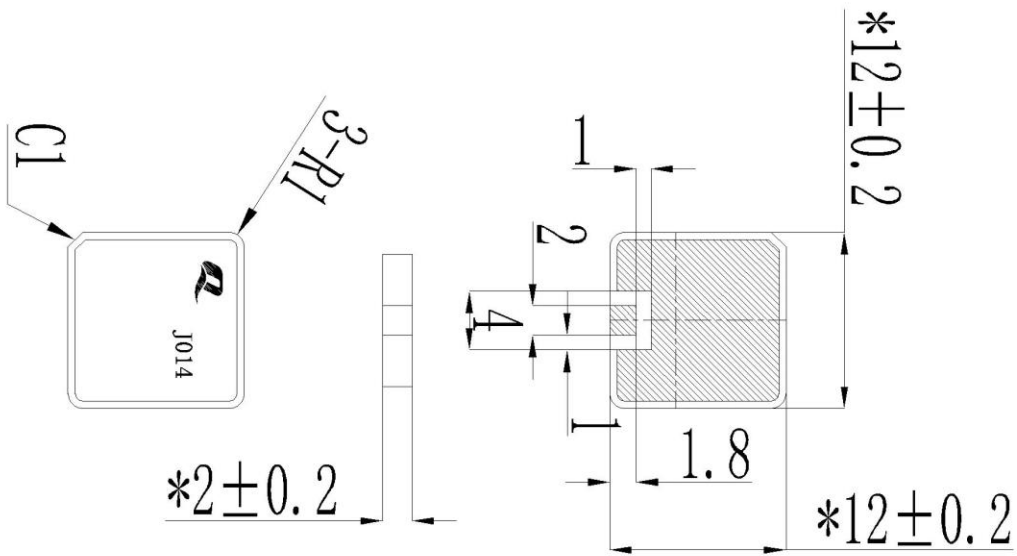
- Test condition status: free space state.



### 5.6. 2D&3D Radiation



## 6 Product Size



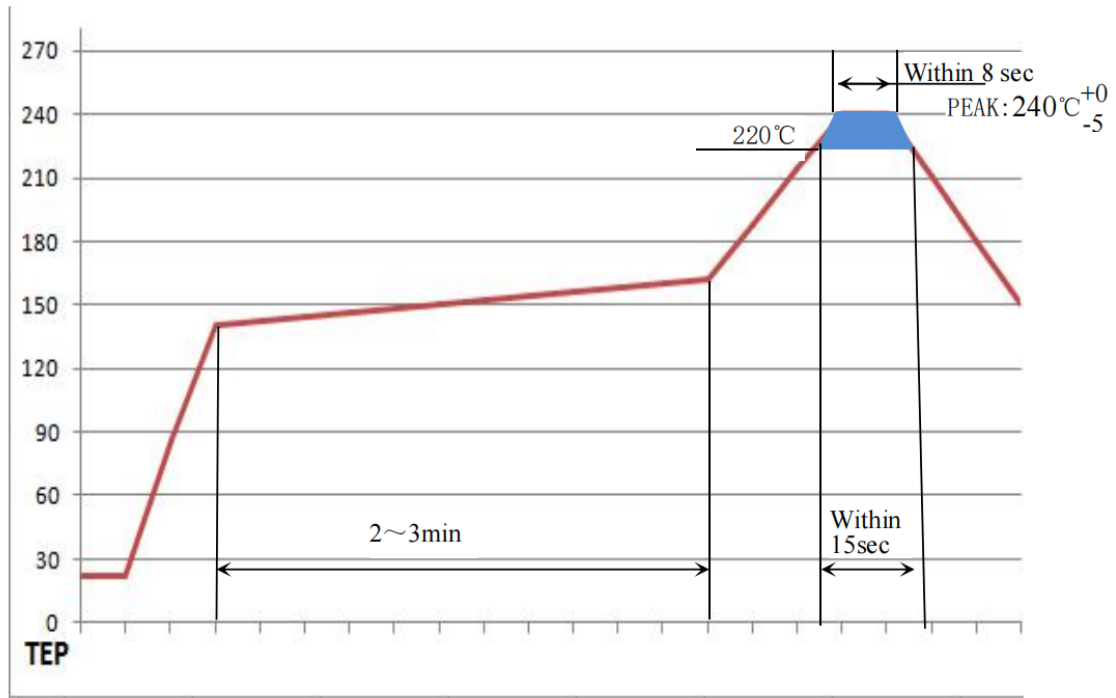
Unit: mm





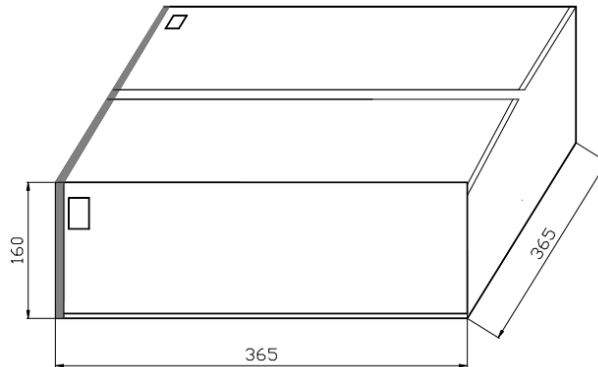
## 8 Recommended Reflow Soldering Profile

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



## 9 Packaging

- Dimensions and Mark



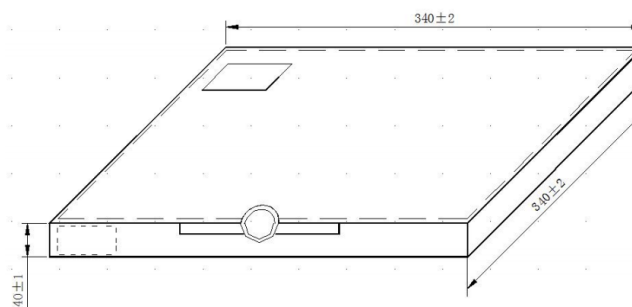
- Section of Package

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).

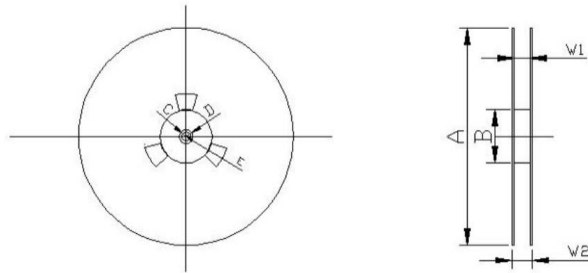
- Quantity of Package

Per plastic reel	1000 Pieces
Per inner box	1 Reel
Per package	3 Inner Boxes (3000 pieces of ceramic part)

- Inner Box Dimensions

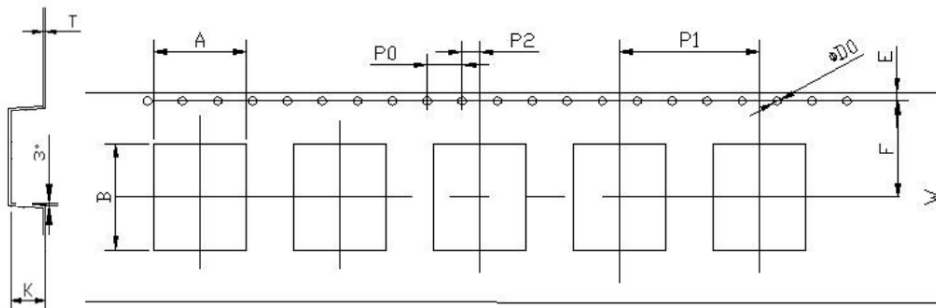


● Reel Dimensions



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

