

Antenna

YCGS005AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
-	2021-08-24	Kenny YIN/ Xiaodong YANG	Creation of the document
1.0	2021-08-24	Kenny YIN/ Xiaodong YANG	First official release
1.1	2021-09-14	Junsen LI	1. Updated the product feature (Chapter 2.0). 2. Deleted the connector type (Chapter 4.0).
1.2	2021-12-03	Junsen LI	Updated the product description (Chapter 1).
1.3	2023-02-01	Toby WANG/ Vinnie LIU	Updated the drawing (Chapter 7).

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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 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

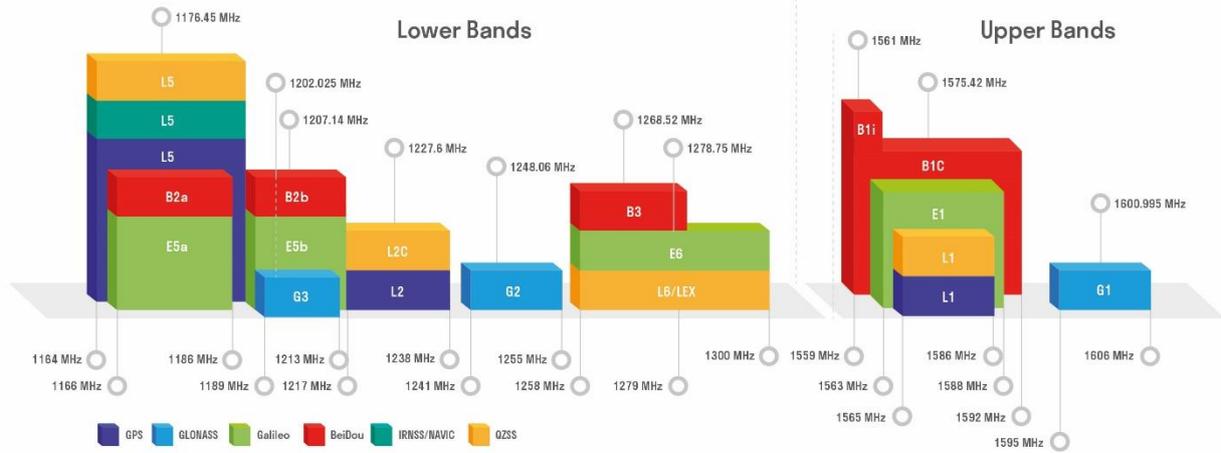
- Ceramic GPS L1; GLONASS G1
- High efficiency
- Excellent performance



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/L10C/L10F Centre 1601 (1595–1606)	G2/L20C/L20F Centre 1248.06 (1241–1255)	G3/L30C 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 70 mm × 70 mm PCB.

Passive Electrical Specifications

Frequency Range	1575.42–1602 MHz (± 1.5 MHz)
Input Impedance	50 Ω
VSWR	≤ 2.8
Gain	≤ 3.0 dBi
Polarization Type	RHCP

Mechanical Specifications

Antenna Size	18 mm × 18 mm × 4 mm
Casing	Ceramics
Working Temperature	-40 °C to +85 °C

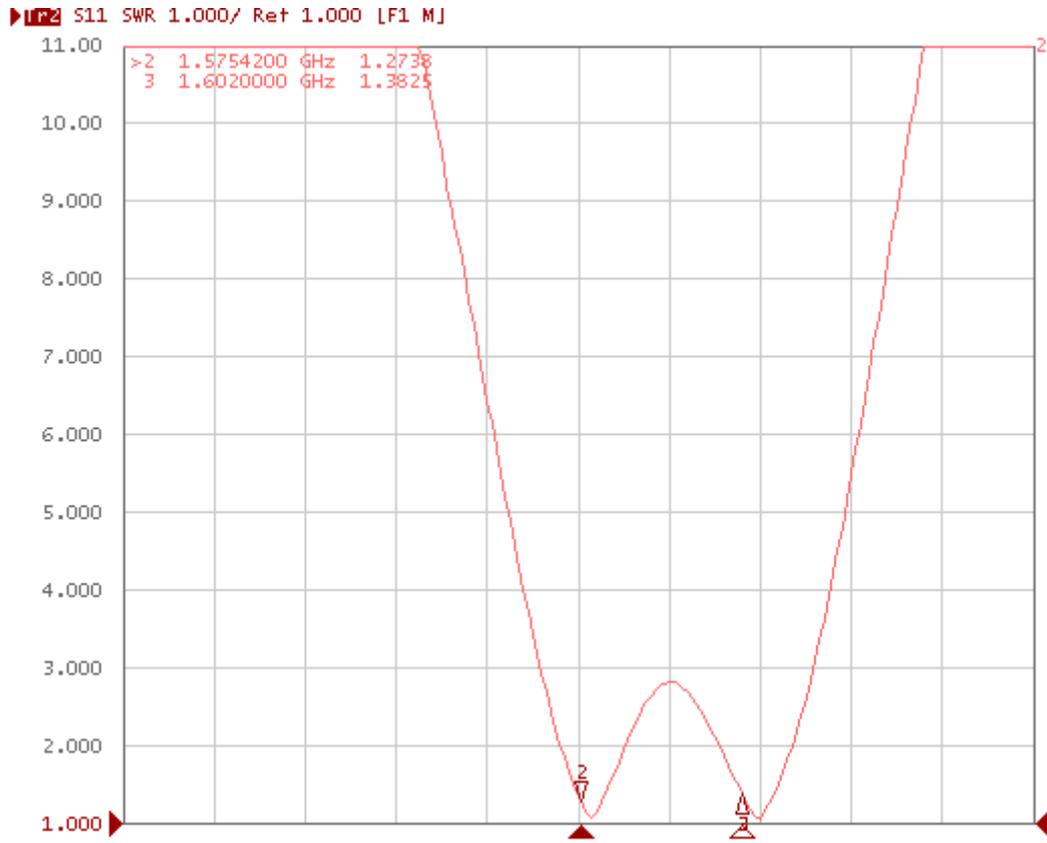
5 Overall Performance

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

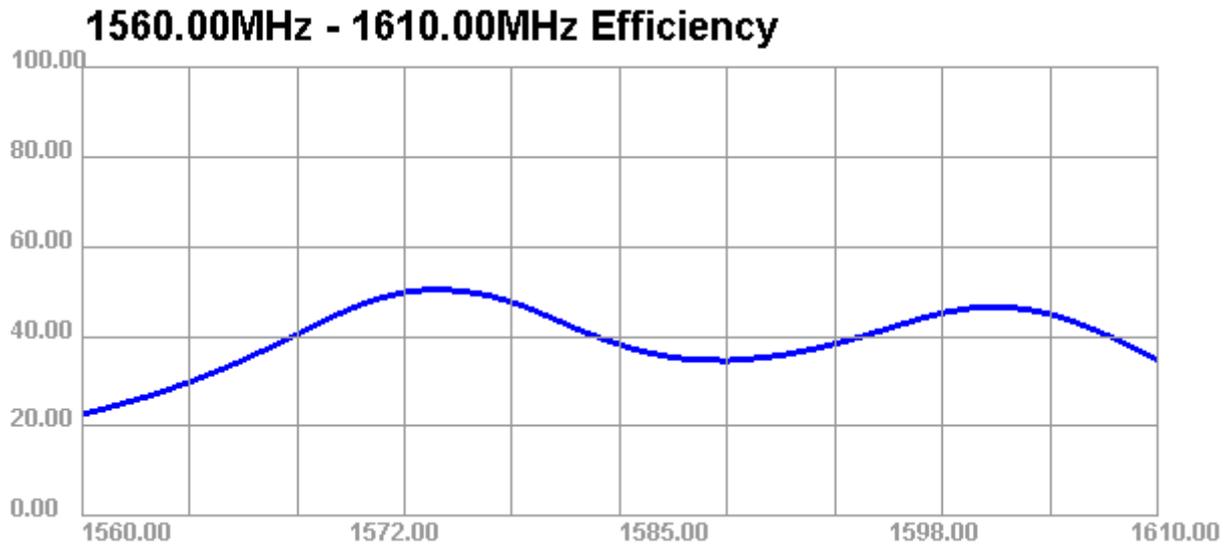


5.2. VSWR



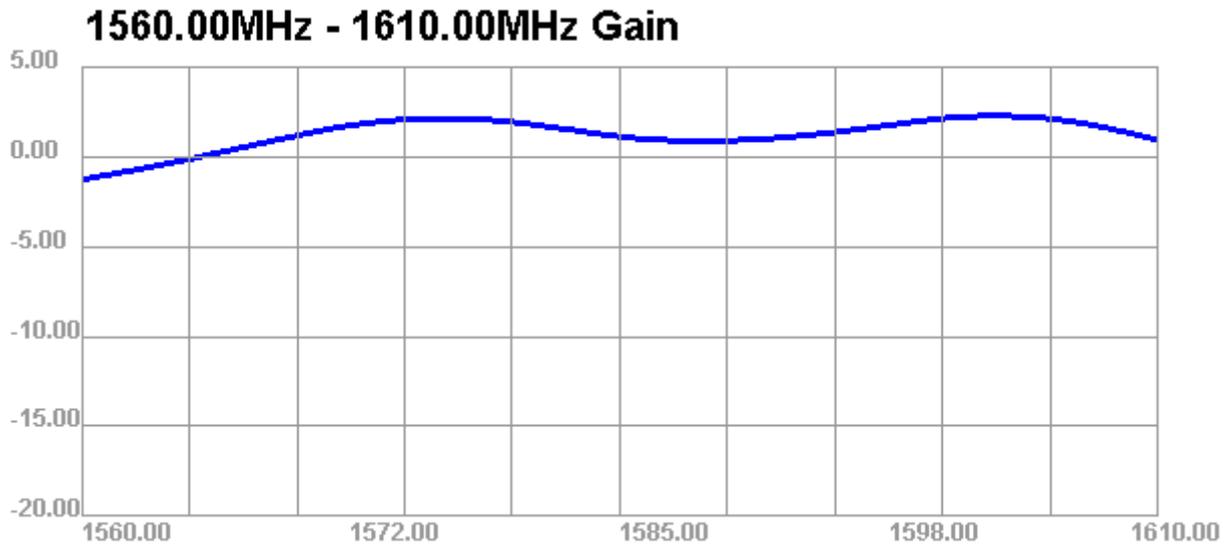
Frequency (MHz)	1575	1602
VSWR	1.2	1.3

5.3. Efficiency



Frequency (MHz)	1575	1602
Efficiency (%)	49.8	46.6

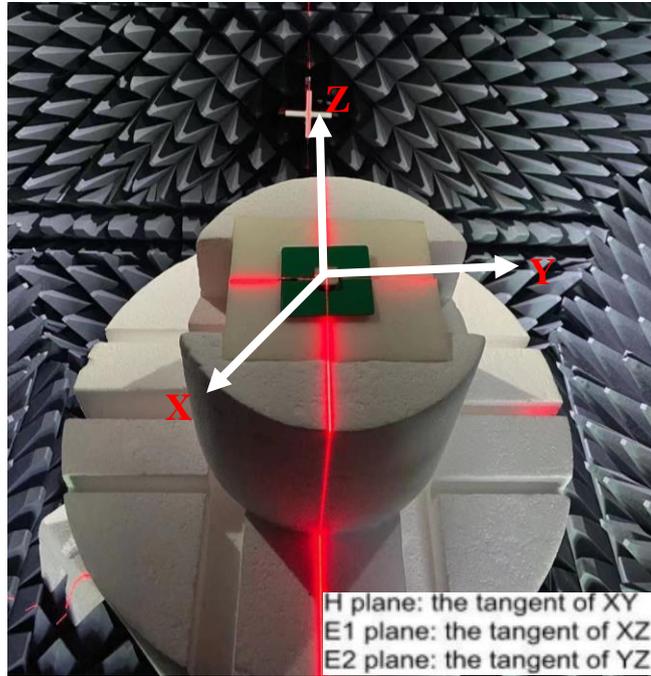
5.4. Gain



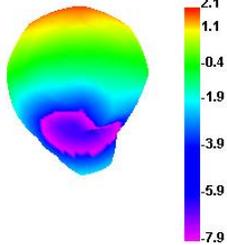
Frequency (MHz)	1575	1602
Gain (dBi)	2	2.2

5.5. Radiation Pattern

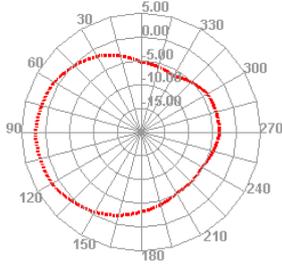
- Test condition: The antenna is tested on a 70 mm x 70 mm PCB.



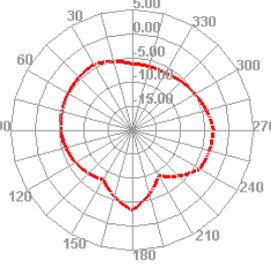
1575.000MHz



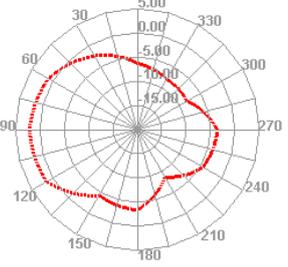
1575.000MHz H



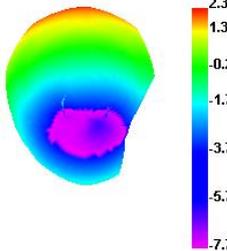
1575.000MHz E1



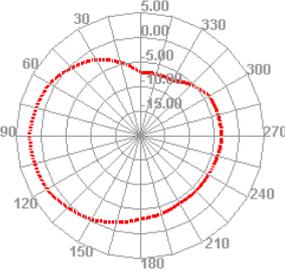
1575.000MHz E2



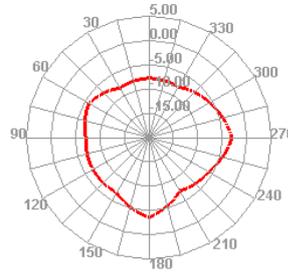
1602.000MHz



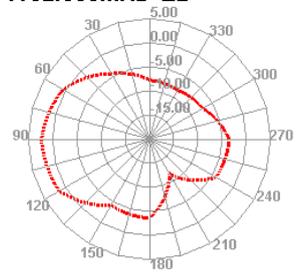
1602.000MHz H



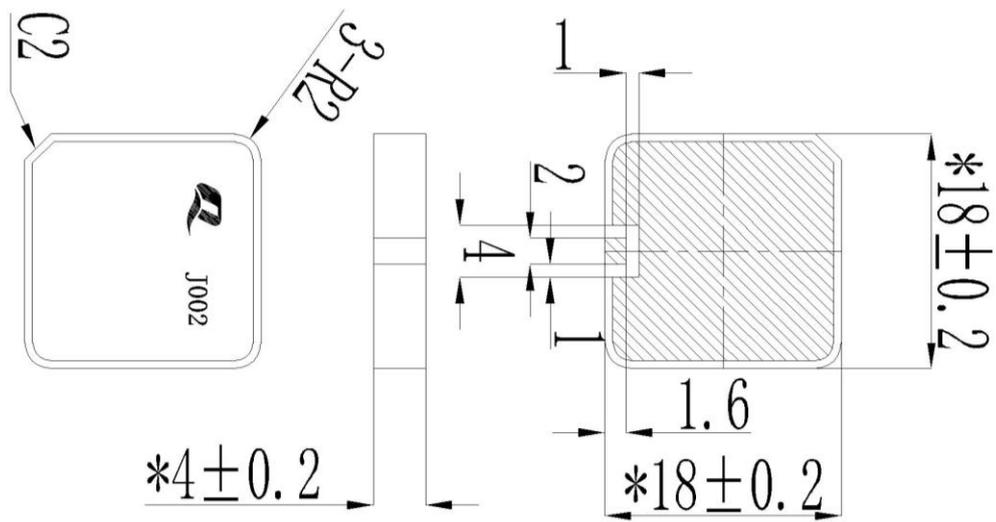
1602.000MHz E1



1602.000MHz E2

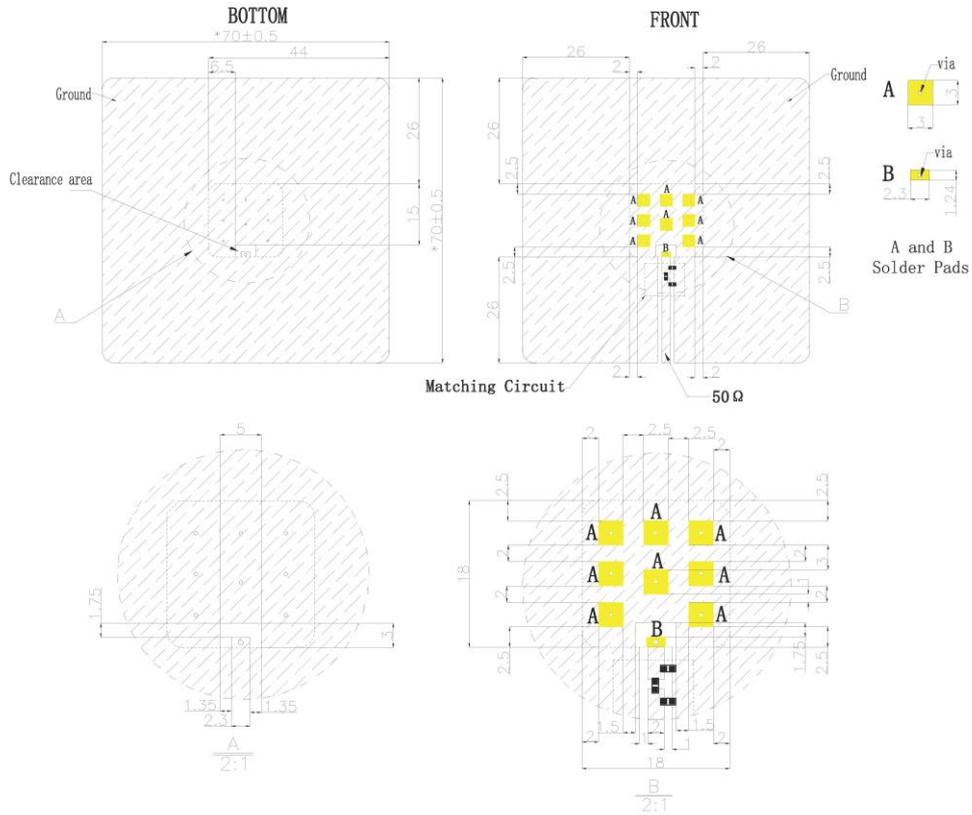


6 Product Size



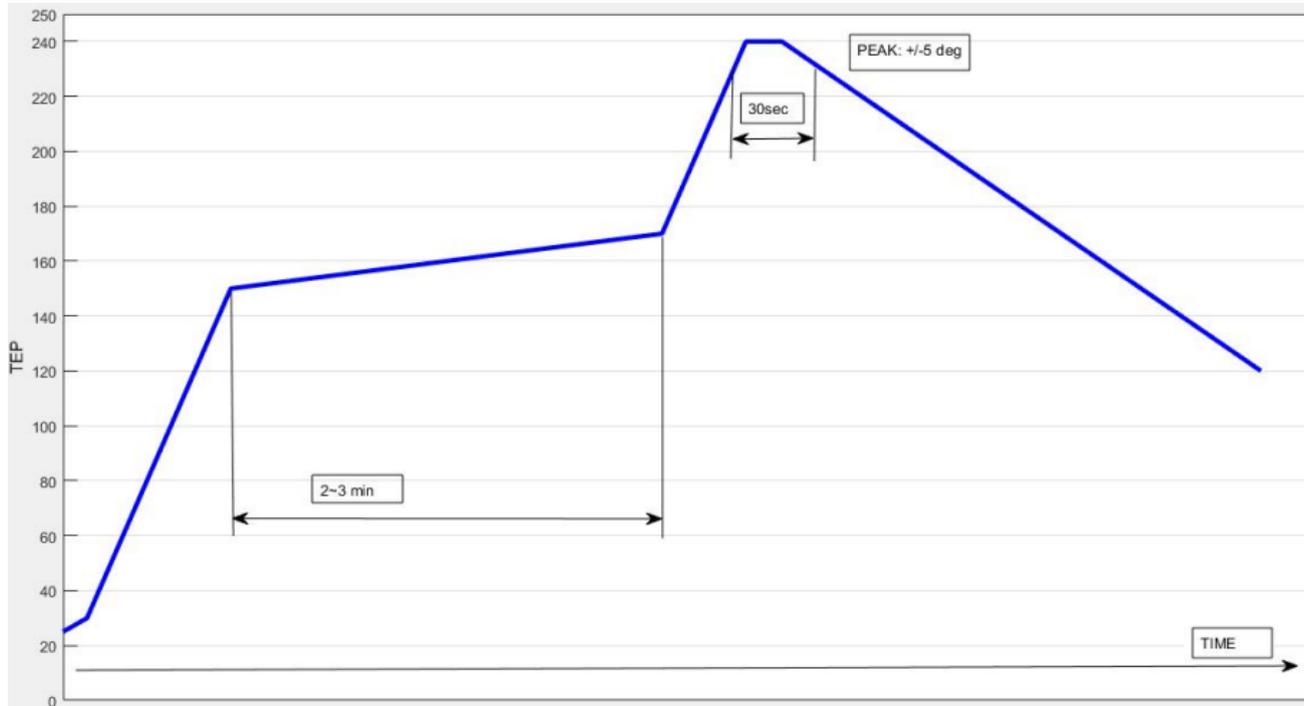
Unit: mm

7 PCB Reference Design



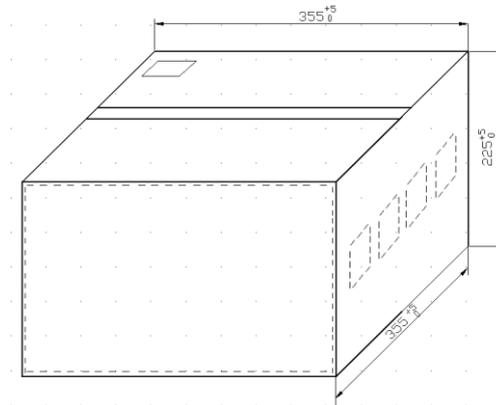
8 Recommended Reflow Soldering Profile

- 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 2 inner boxes, each box has 1 reel (each reel for plastic bag).

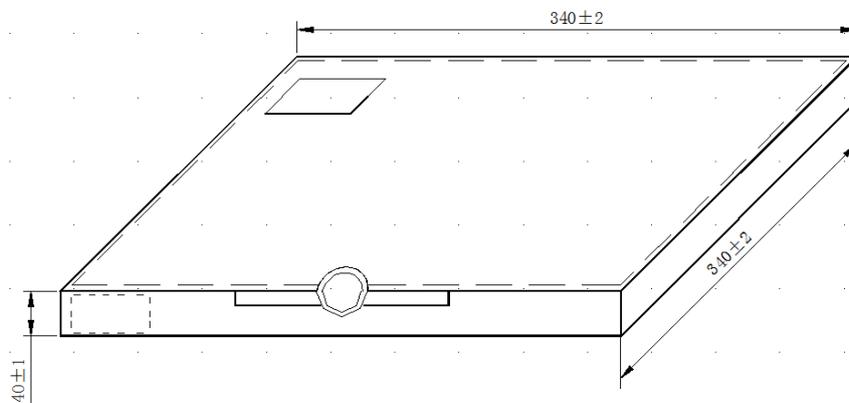
- **Quantity of Package**

Per plastic reel: 600 pcs.

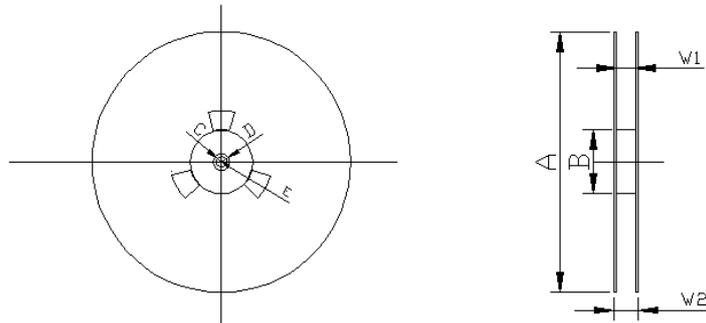
Per inner box: 1 reel.

Per package: 2 inner boxes (1200 pcs of ceramic part).

- **Inner Box Dimensions**



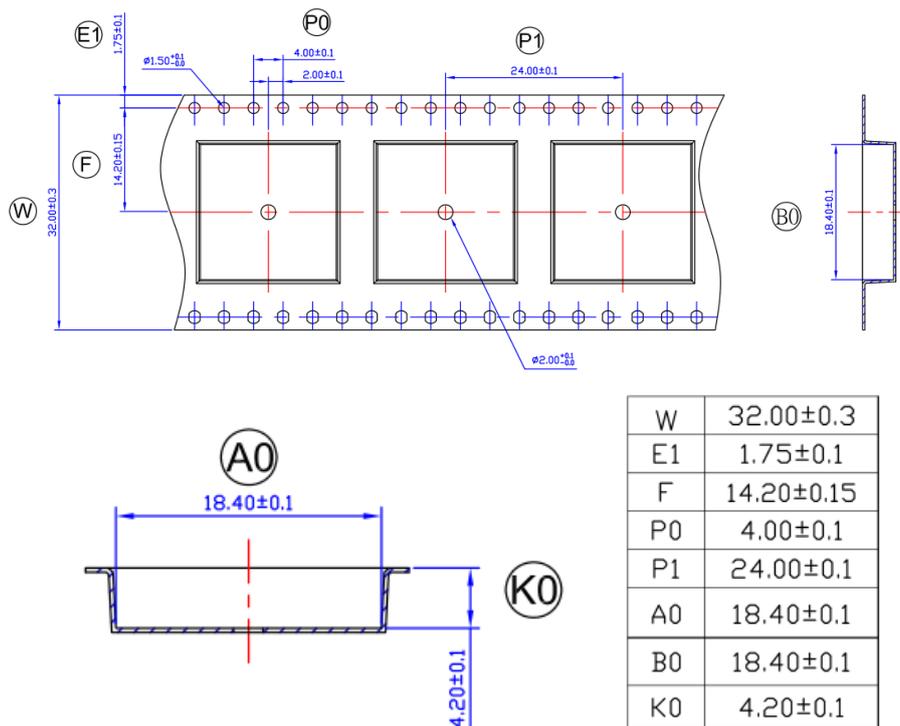
● Reel Dimensions



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	32.5	36.5

● Carrier Tape

Dimensions of Carrier Tape:



● Test Condition of Peeling Strength

