Antenna

YCGS007AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
-	2021-11-04	Xiaodong YANG/ Kenny YIN	Creation of the document
1.0	2021-11-04	Xiaodong YANG/ Kenny YIN	First official release

Contents

1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

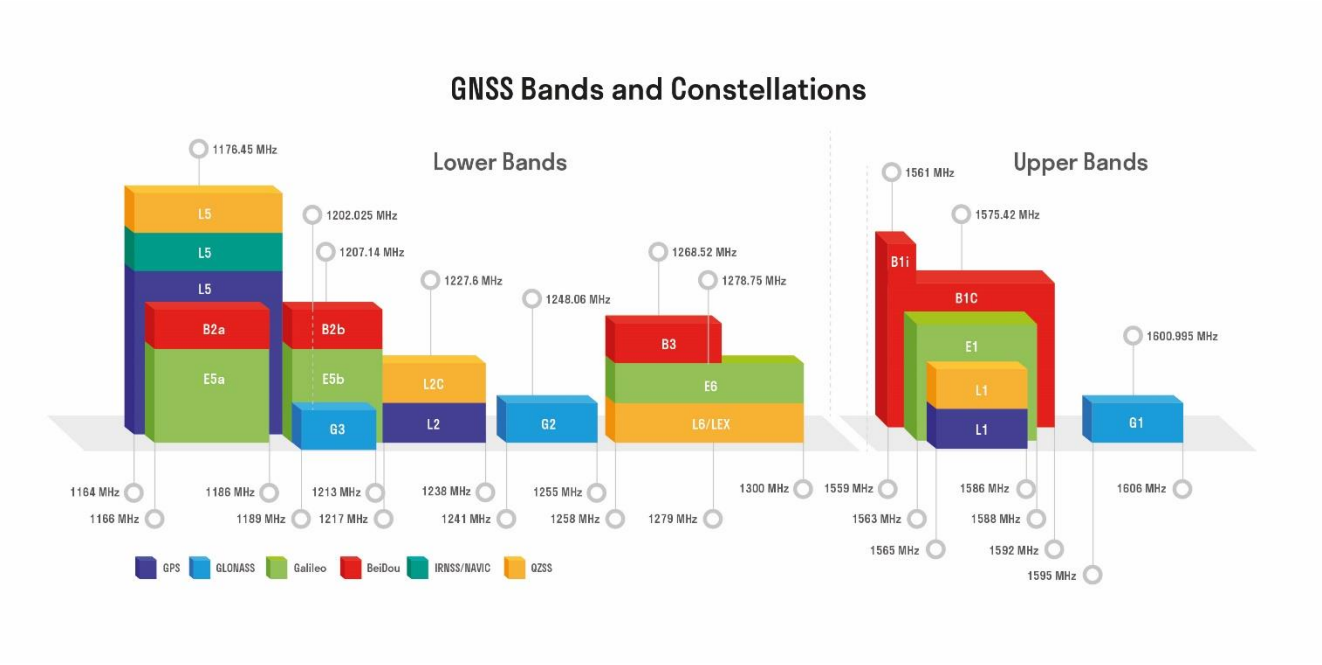
We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

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
Lower Bands
Upper Bands
1176.45 MHz
L5
L5
L5
B2a
E5a
1202.025 MHz
1207.14 MHz
B2b
E5b
B3
1227.6 MHz
L2C
L2
1248.06 MHz
G2
1268.52 MHz
1278.75 MHz
E6
L6/LEX
1561 MHz
1575.42 MHz
B1i
B1C
E1
L1
L1
1600.995 MHz
G1
1164 MHz
1166 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1559 MHz
1563 MHz
1565 MHz
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

4 Product Specifications (Testing description)

- The antenna is tested on a 70 mm × 70 mm PCB.

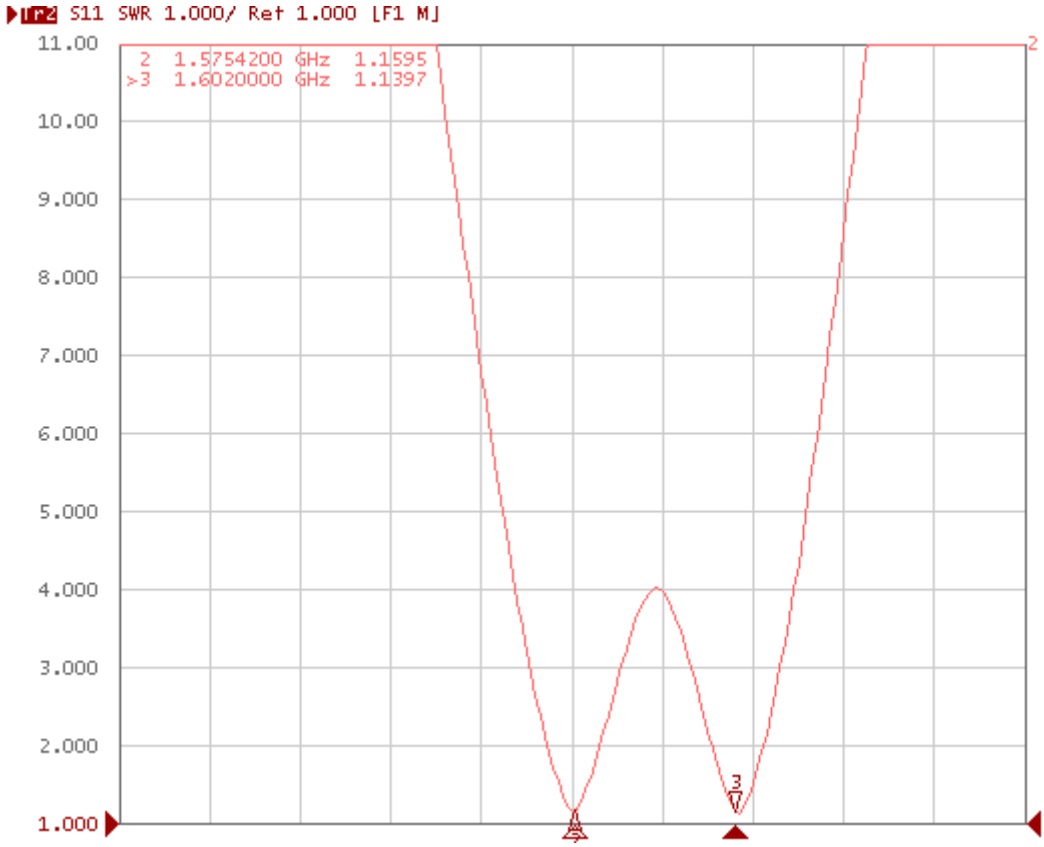
Passive Electrical Specifications	
Frequency Range	1575.42–1602 MHz (±1.5 MHz)
Input Impendence	50 Ω
VSWR	≤ 2.0
Gain	≥3.0 dBi (70 mm × 70 mm GND)
Polarization Type	RHCP
Mechanical Specifications	
Antenna Size	25 mm × 25 mm × 2 mm
Working Temperature	-40 °C to +85 °C

5 Overall Performance

5.1. Test Environment

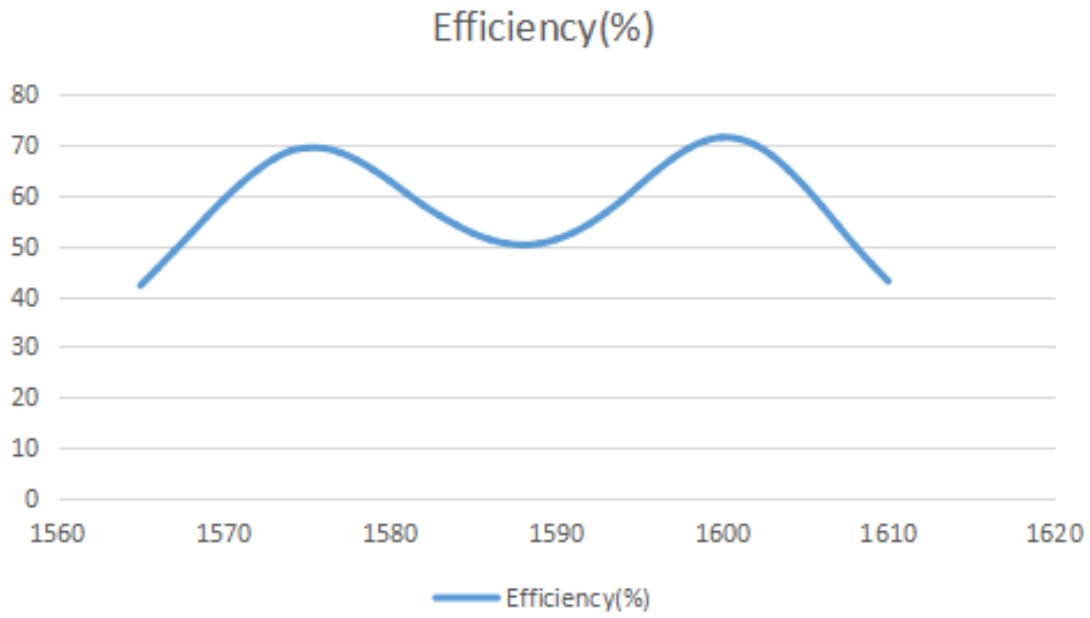
- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 8.0 GHz

5.2. VSWR



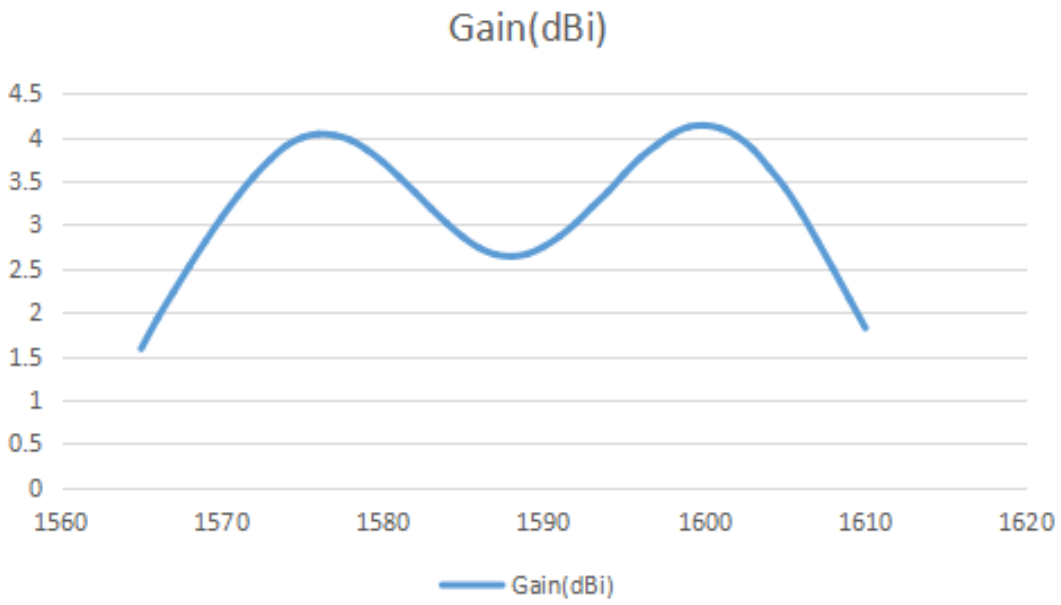
Frequency (MHz)	1575	1602
VSWR	1.1	1.1

5.3. Efficiency



Frequency (MHz)	1575	1602
Efficiency (%)	69.43	70.00

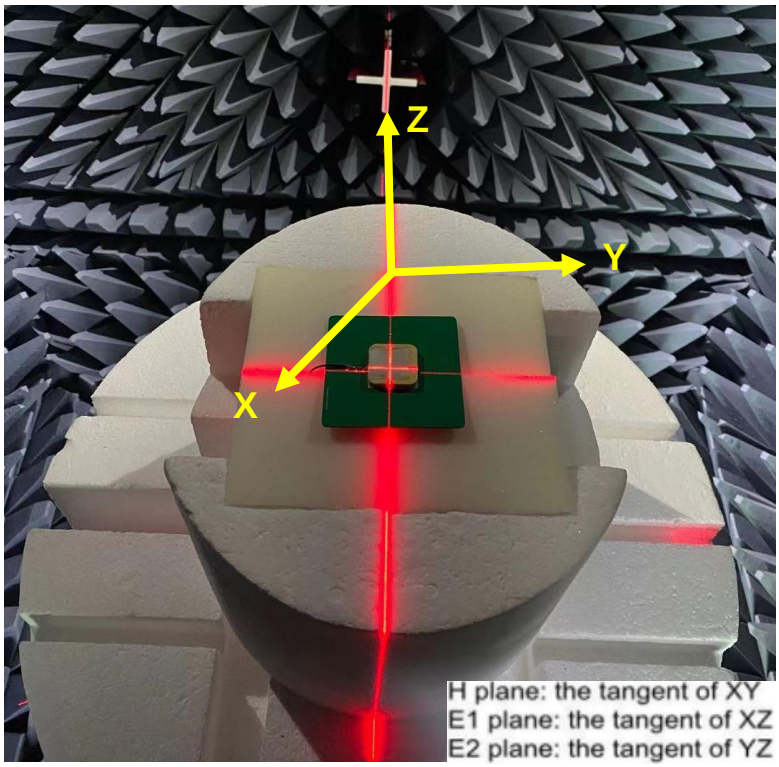
5.4. Gain



Frequency (MHz)	1575	1602
Gain (dBi)	3.9	4.0

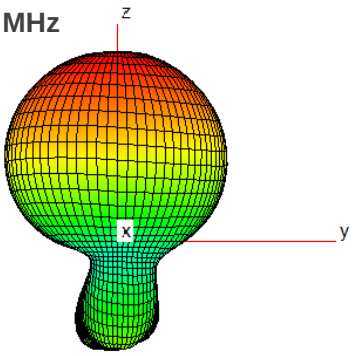
5.5. Antenna Test in Chamber

- Test condition: free space.



5.6. 2D&3D Radiation

1575 MHz



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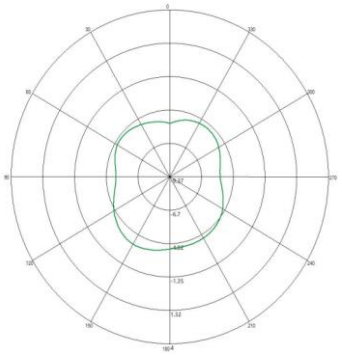
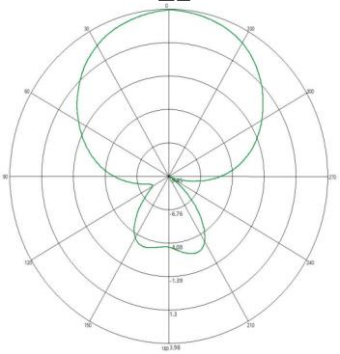
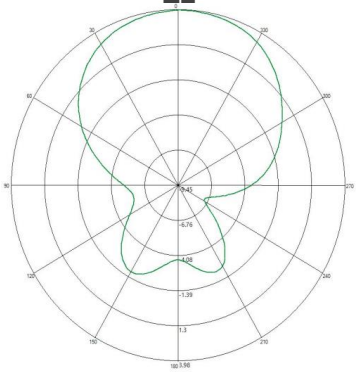


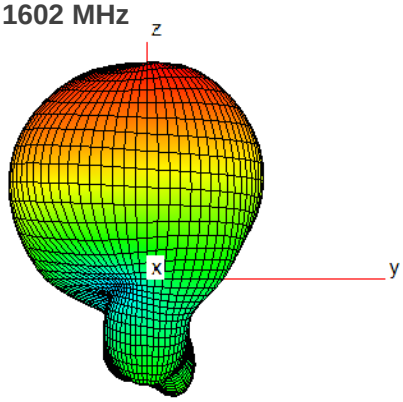
E1



E2



1602 MHz



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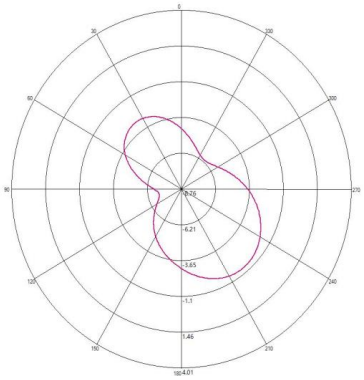
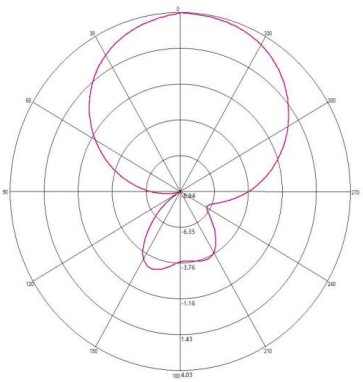
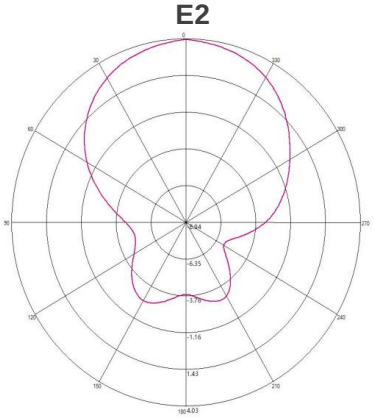


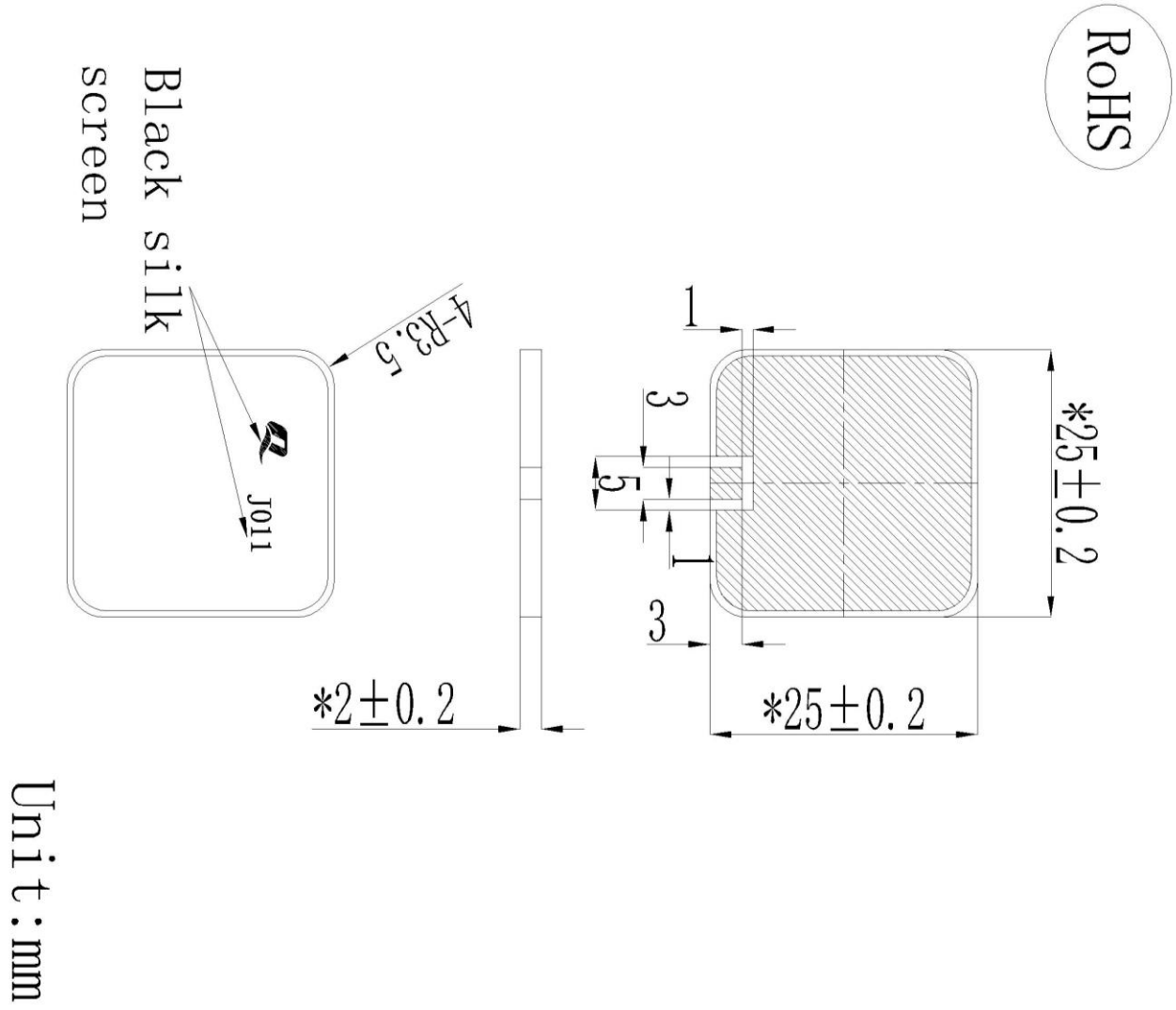
E1



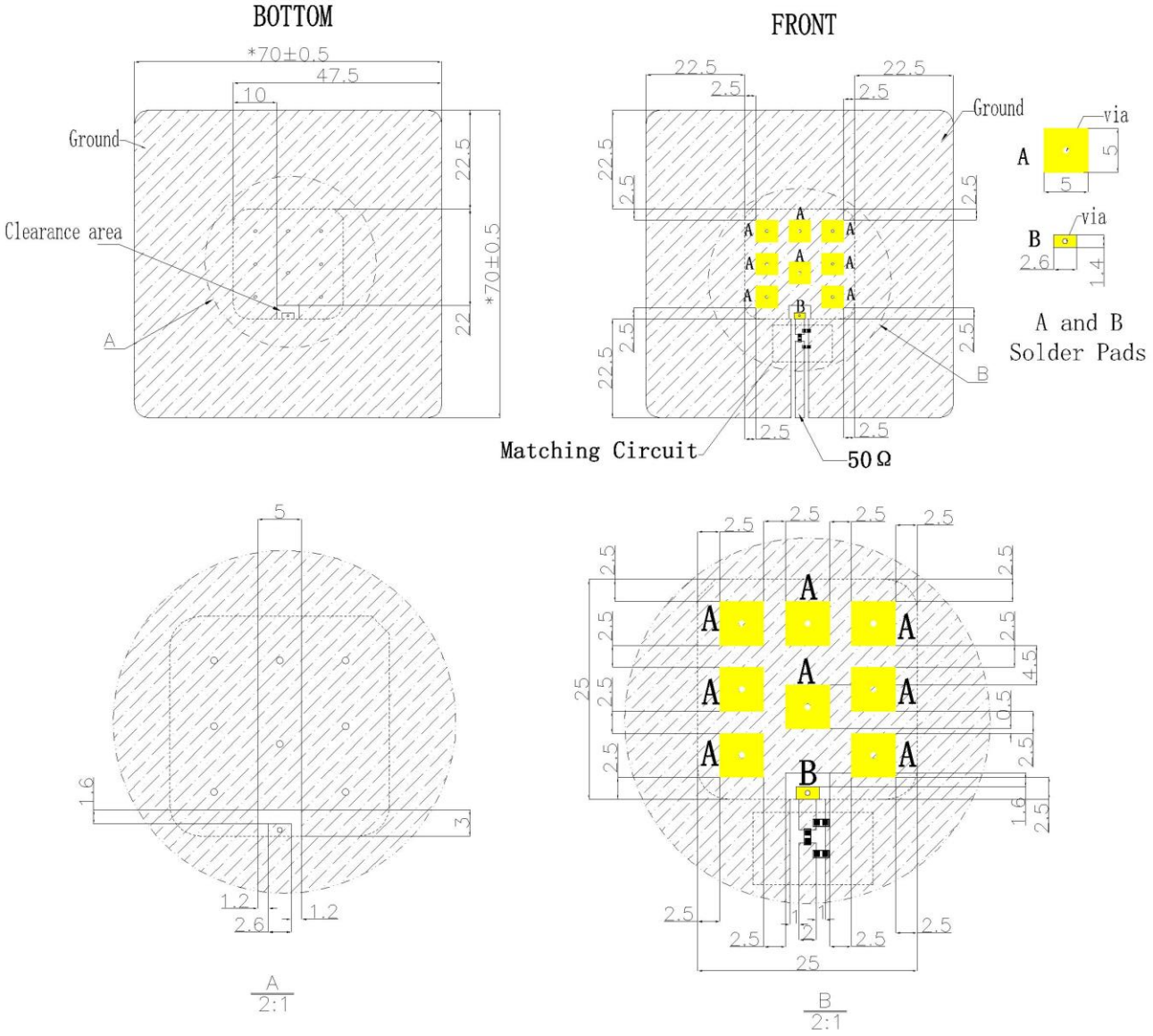
E2



6 Product Size

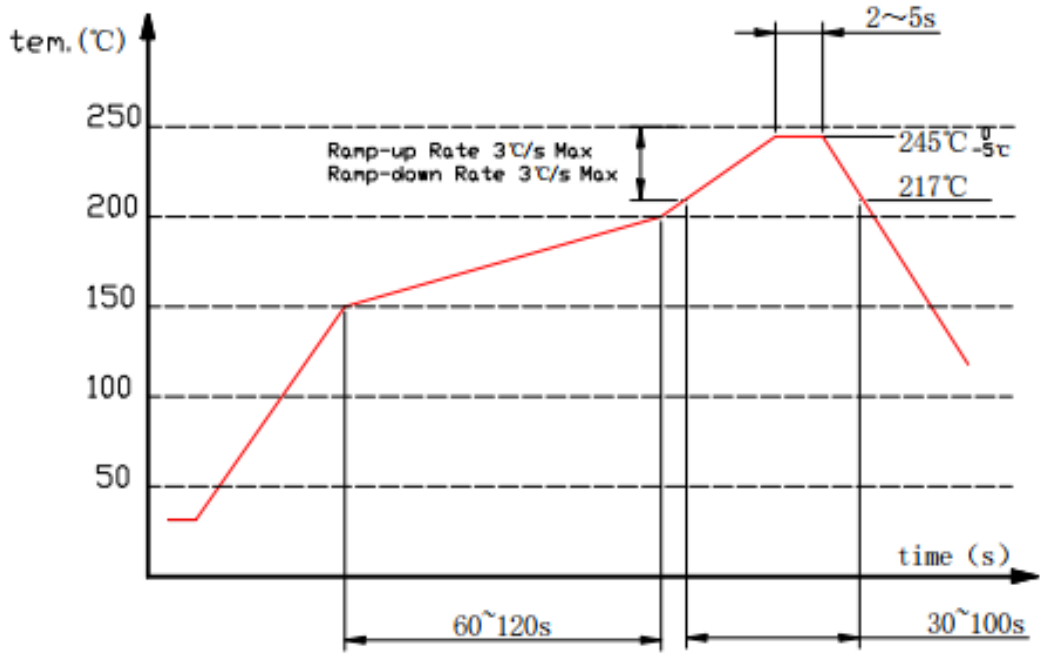


7 PCB Footprint Recommendation



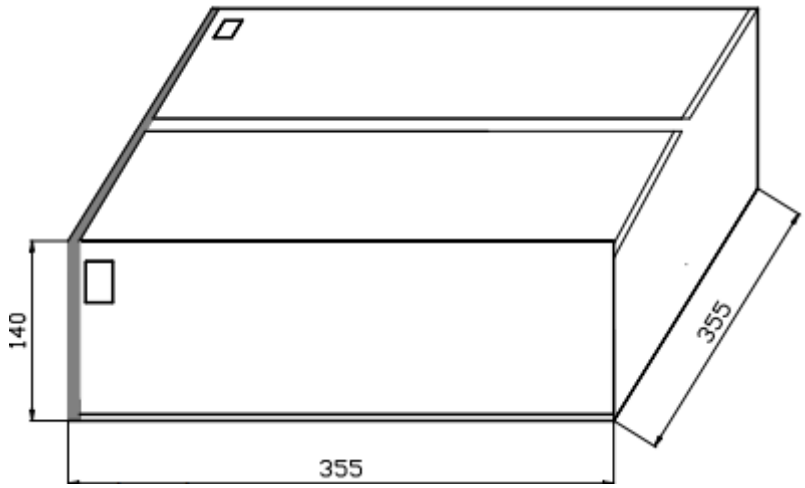
8 Recommended Reflow Soldering Profile

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



9 Packaging

9.1 Dimensions and Mark



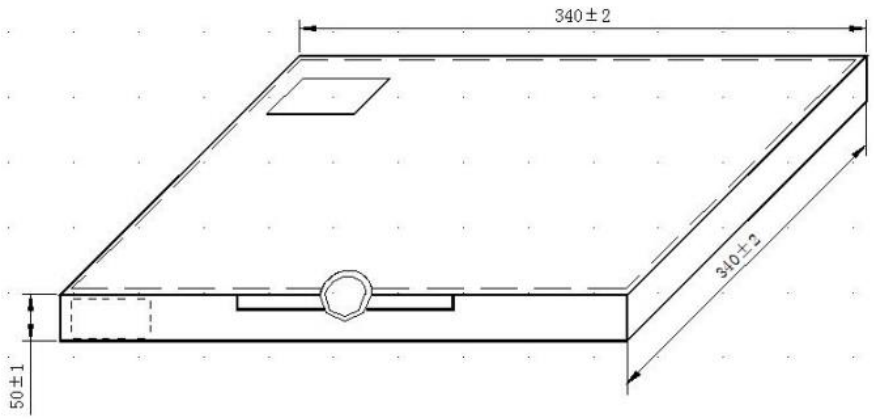
- Section of Package

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).

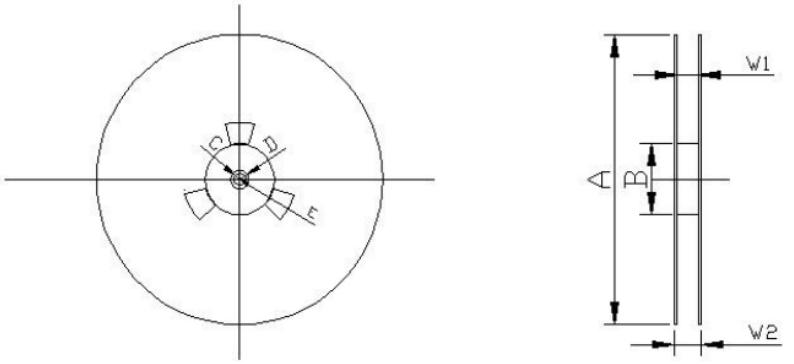
- Quantity of Package

Per plastic reel: 400 pcs.
Per inner box: 1 reel.
Per package: 2 inner boxes (800 pcs of ceramic part).

- Inner Box Dimensions



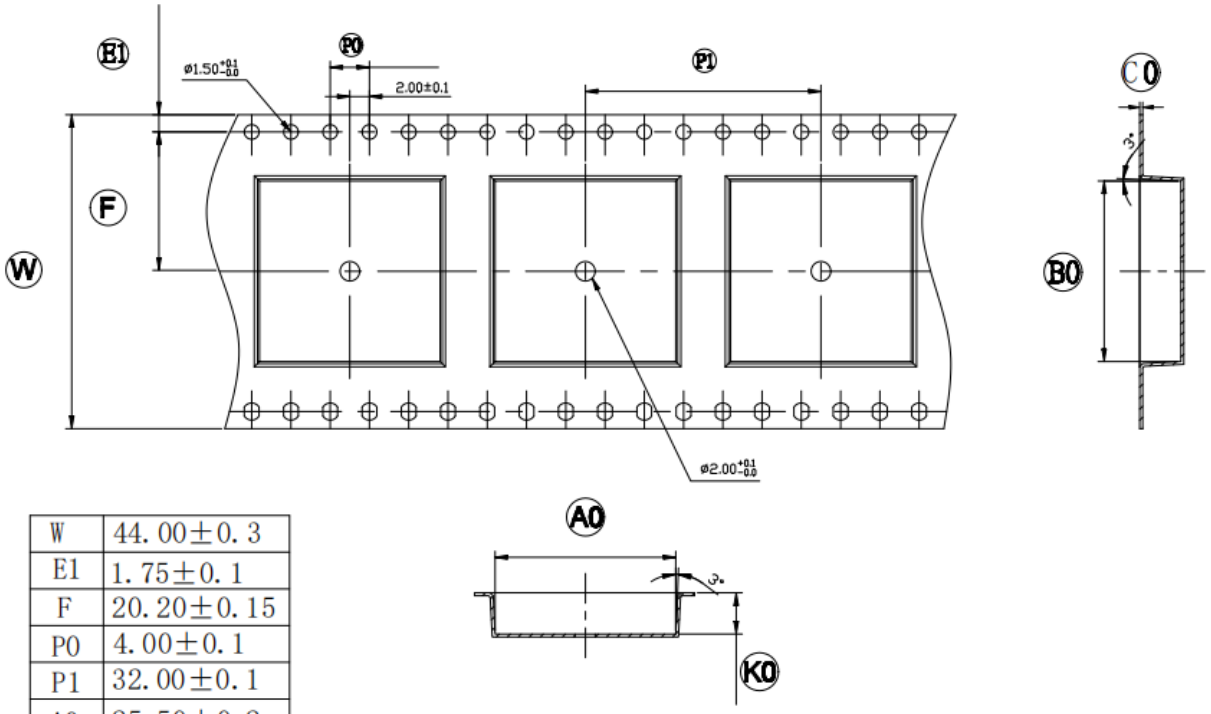
- Reel Dimensions



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	44.5	48.5

- Carrier Tape

Dimensions of Carrier Tape:



W	44.00±0.3
E1	1.75±0.1
F	20.20±0.15
P0	4.00±0.1
P1	32.00±0.1
A0	25.50±0.2
B0	25.50±0.2
C0	0.40±0.05
K0	2.50±0.2

Unit: mm

- Test Condition of Peeling Strength