

Antenna

YCGA002AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
-	2021-06-25	Kenny YIN/ Aria CHU	Creation of the document
1.0	2021-06-25	Kenny YIN/ Aria CHU	First official release
1.1	2021-07-13	Aria CHU	Added Chapters 3 and 7.
1.2	2021-12-03	Aria CHU	Updated the product description in Chapter 1.

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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.

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

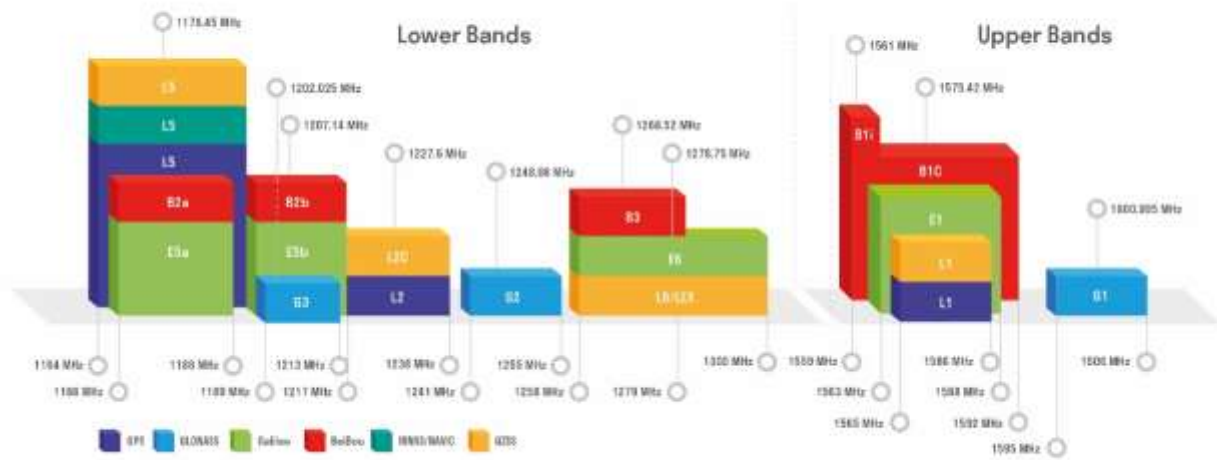
- Ceramic GNSS
- High efficiency
- Excellent performance



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



4 Product Specifications

- This antenna is tested on a 12 mm × 12 mm PCB.

Passive Electrical Specifications

Frequency Range	1560–1602 MHz
Input Impedence	50 Ω
VSWR	≤ 4
Gain	≤ 0 dBi
Polarization Type	Linear

Mechanical Specifications

Antenna Size	12 mm × 12 mm × 4 mm
Casing	Ceramic
Connector Type	-
Working Temperature	-40 °C to +85 °C
Radome Color	-

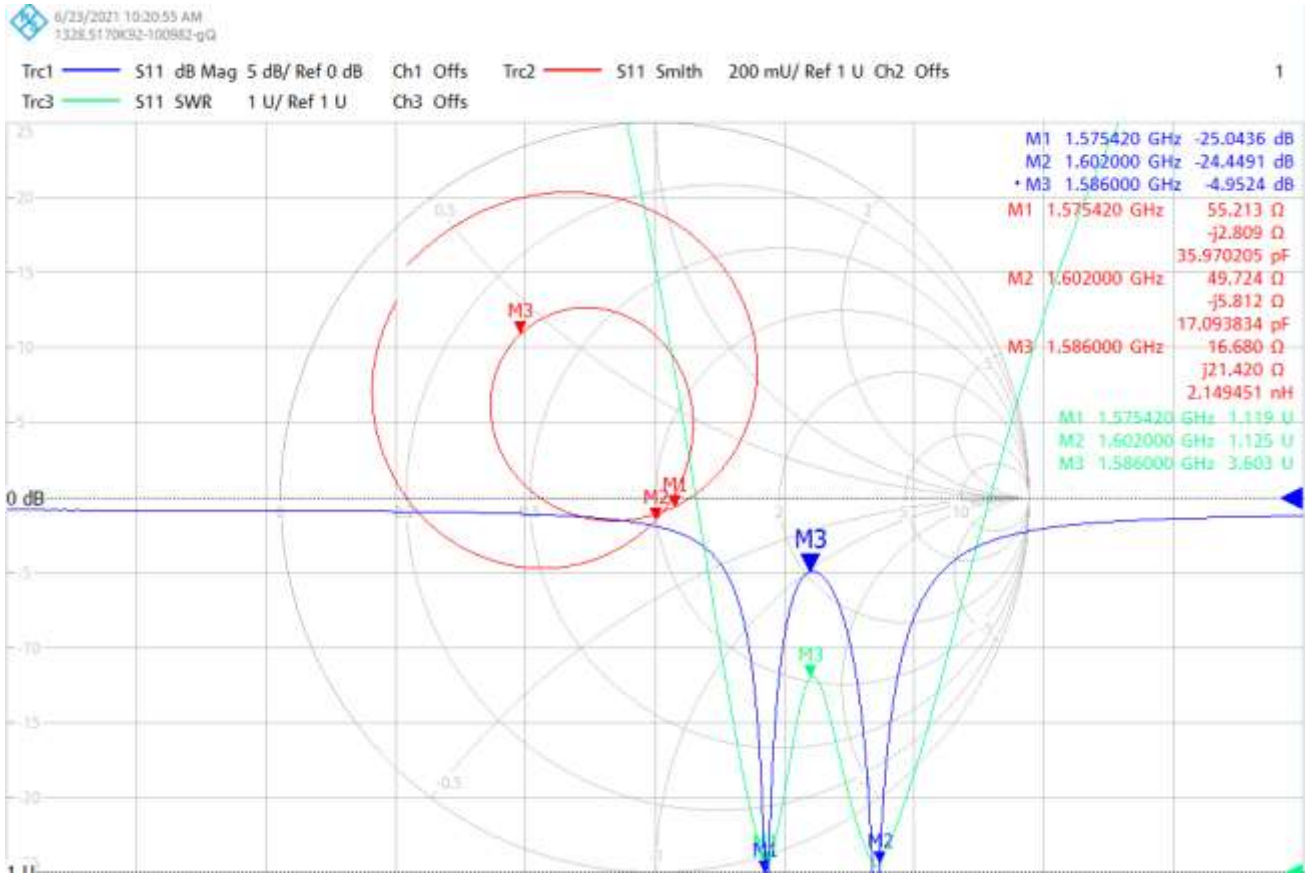
5 Overall Performance

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

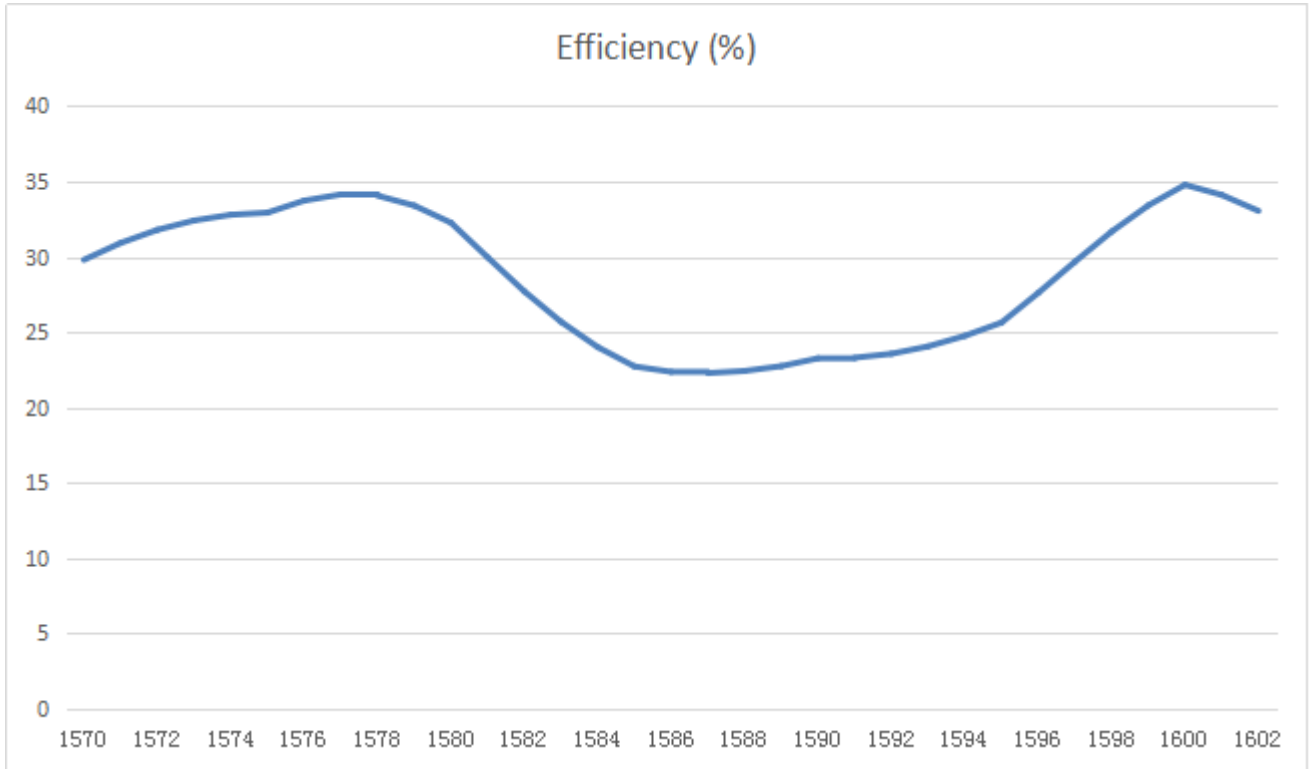


5.2. VSWR



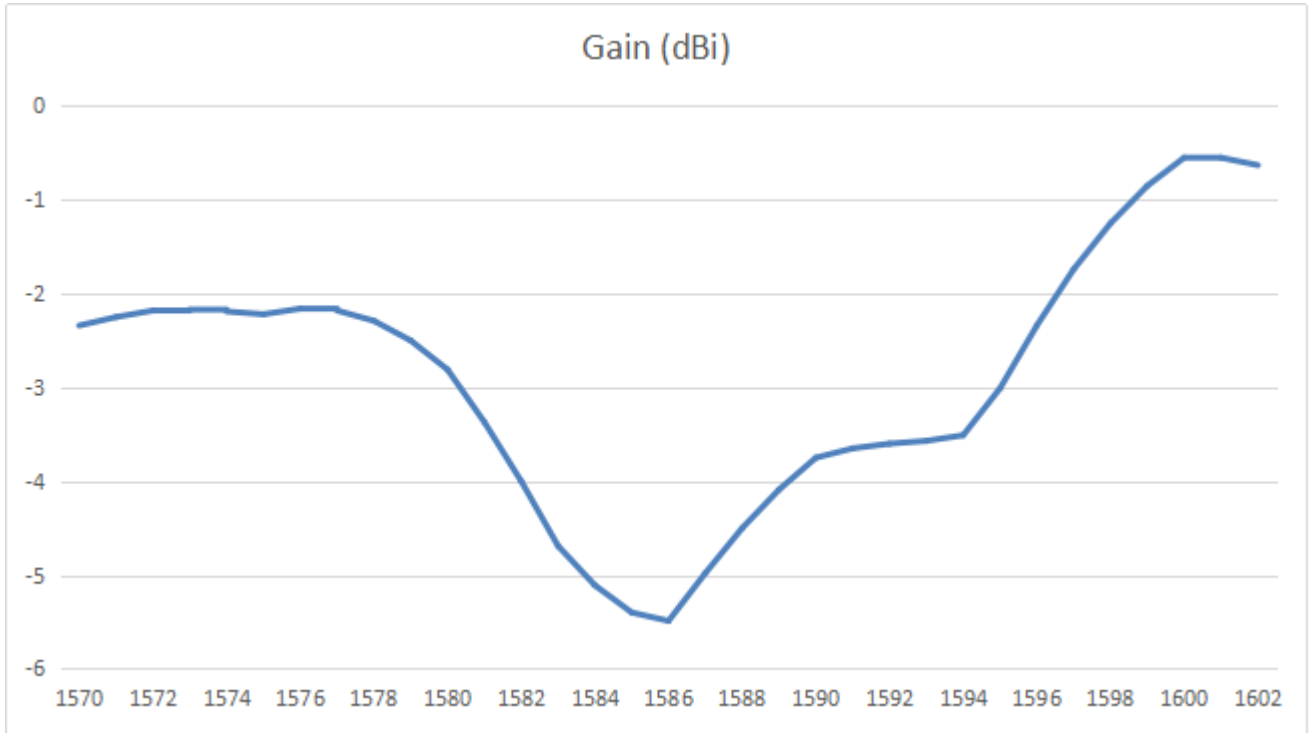
Frequency (MHz)	1575	1602
VSWR	1.11	1.12

5.3. Efficiency



Frequency (MHz)	1575	1602
Efficiency (%)	32.93	33.05

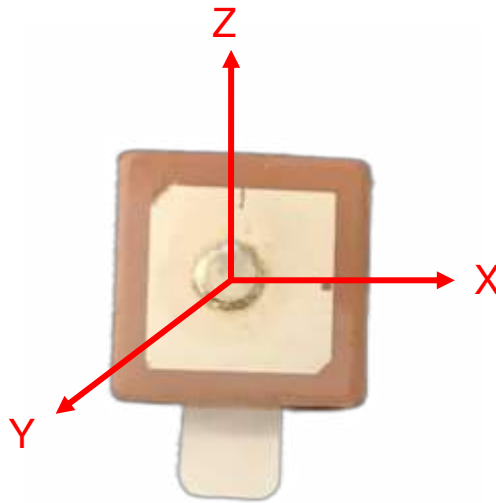
5.4. Gain



Frequency (MHz)	1575	1602
Gain (dBi)	-2.22	-0.63

5.5. Radiation Pattern

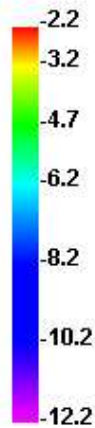
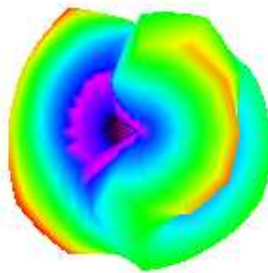
- Test condition: free space.



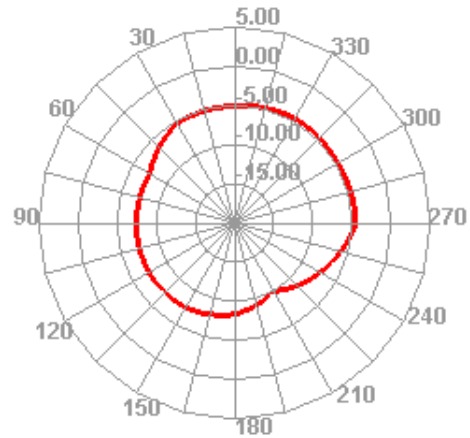
H plane: the tangent of XY
E1 plane: the tangent of XZ
E2 plane: the tangent of YZ

5.5.1. 1575 MHz

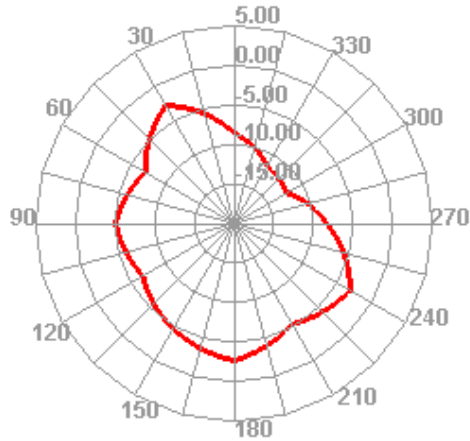
1575.000MHz



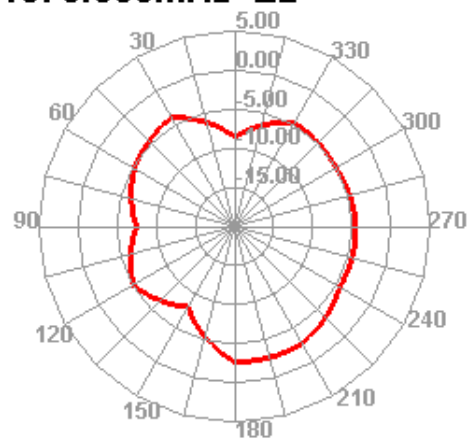
1575.000MHz H



1575.000MHz E1

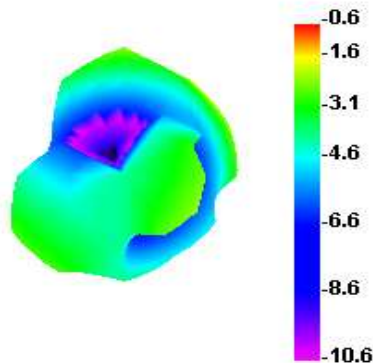


1575.000MHz E2

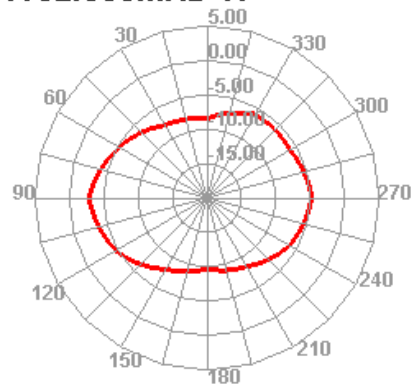


5.5.2. 1602 MHz

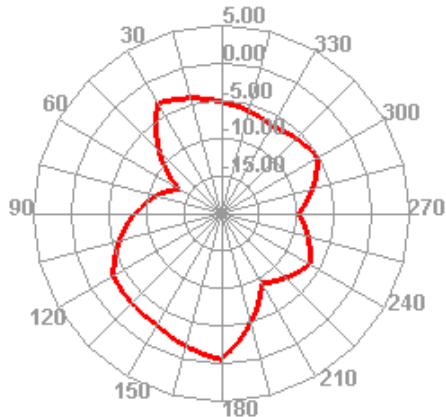
1602.000MHz



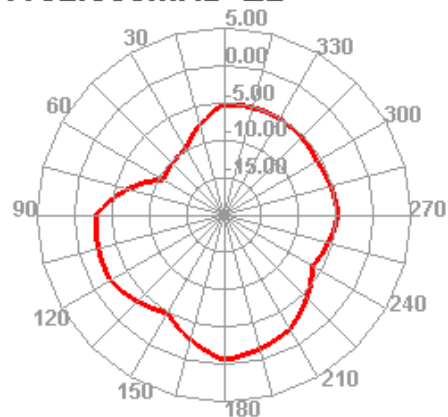
1602.000MHz H



1602.000MHz E1

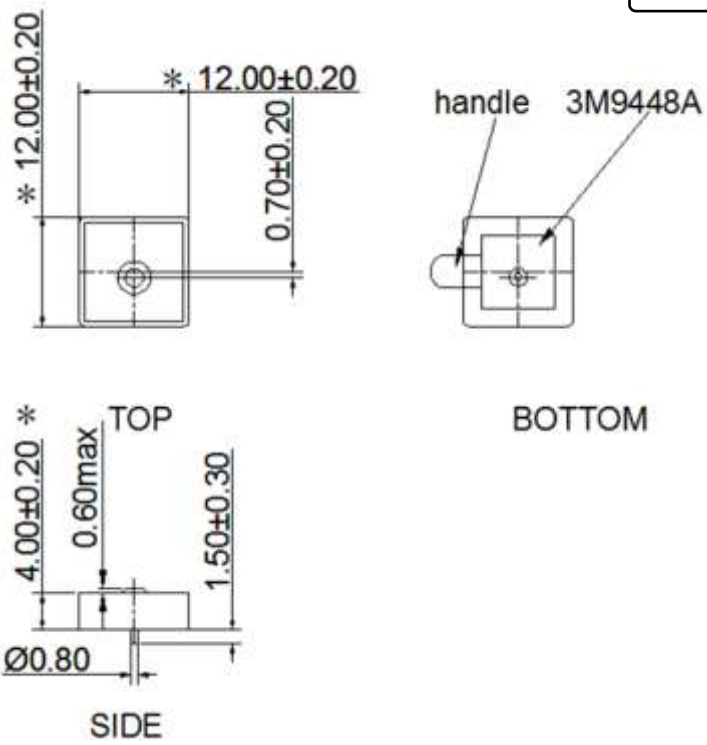


1602.000MHz E2

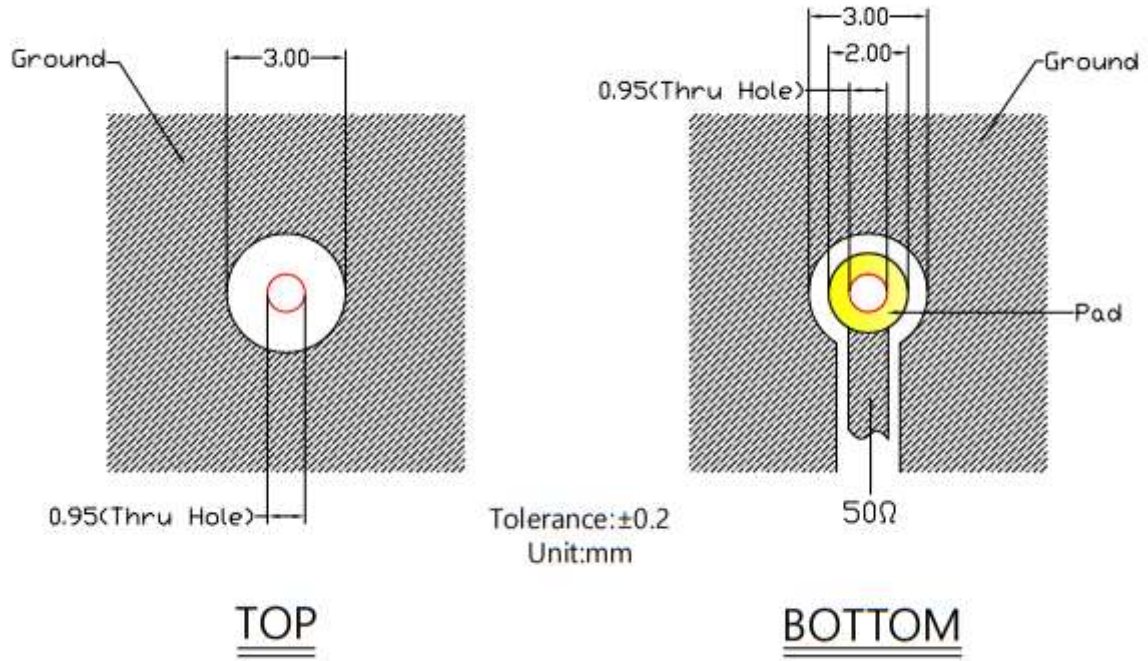


6 Product Size

RoHS

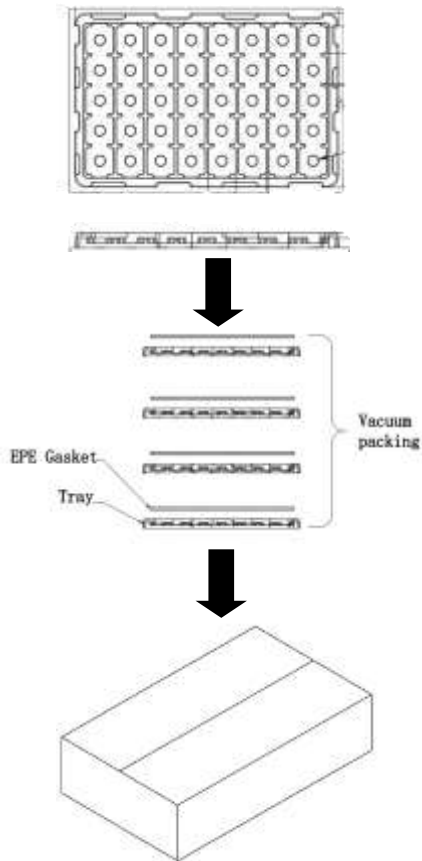


7 PCB Footprint Recommendation



8 Packaging

- 150 pcs/Tray, 2850 pcs/Carton.
- The packaging steps are as follows:



Step 1:

1. 150 pcs/Tray;
2. Place 1 pcs in each cell.

Step 2:

1. Nineteen trays are staggered;
2. Vacuum sealing.

Step 3:

1. Place the sealed one in the carton;
2. 2850 pcs/Carton.