

GNSS L1 Ceramic Patch Antenna



AANI-PP-0055

Request Samples



Check Inventory



25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

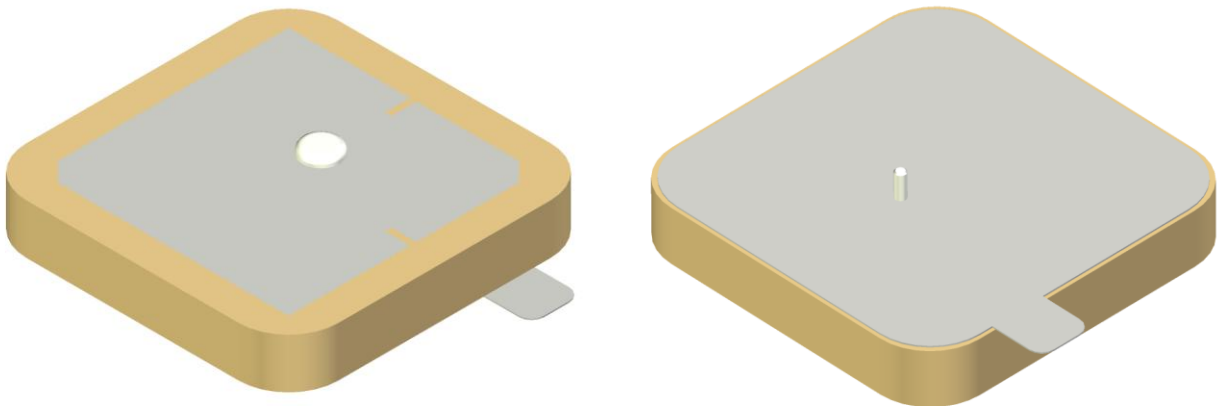
Features

- GPS/GLONASS/Galileo/Beidou Pin-fed Patch Antenna
- Size: 25.0 x 25.0 x 4.0 mm
- Peak Gain: 4.3 dBic
- Antenna Efficiency: 86%
- RHCP Polarization
- Through Hole & Adhesive Mounting
- Light Weight: 10 g

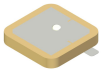
Applications

- IoT / M2M
- Unmanned Aerial Vehicle (UAV)
- Fleet Management and Asset Tracking
- Transportation
- Precision Agriculture
- Geolocation and Tracking

Product Image



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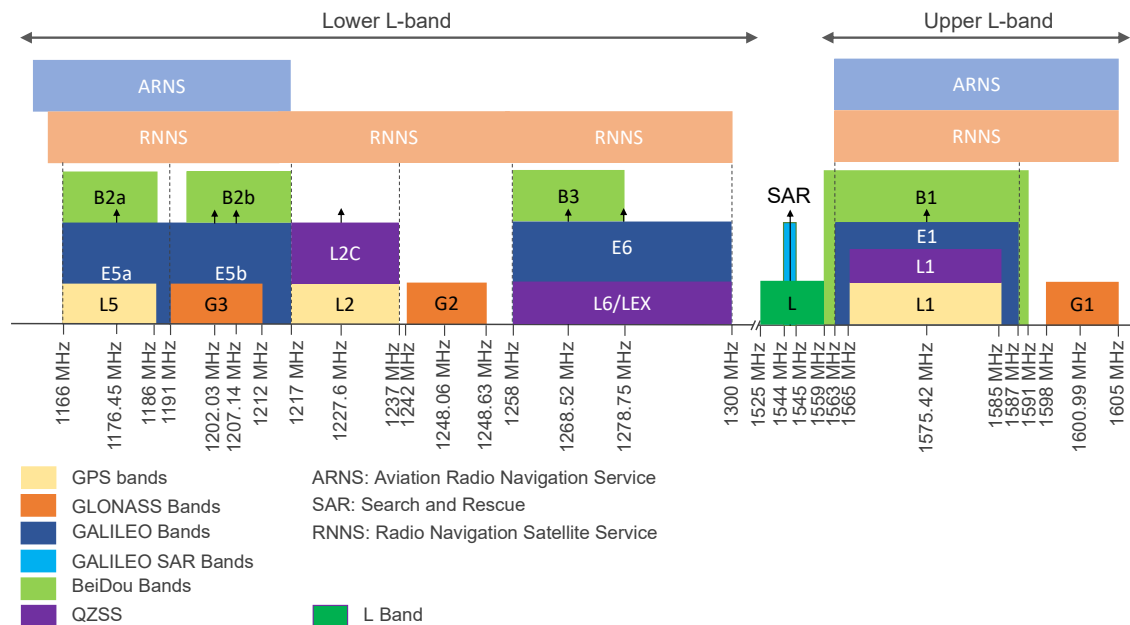
25.0 x 25.0 x 4.0mm

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MSL Level = N/A

GNSS Frequency Bands Covered

GPS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	
	■	□	□	
GLONASS	G1 1598.06-1609.31MHz	G2 1242.93-1251.68MHz	G3 1202.025MHz	
	■	□	□	
Galileo	E1 1575.42MHz	E5a 1176.45MHz	E5b 1201.5MHz	E6 1278.75MHz
	■	□	□	□
BeiDou	B1I 1561MHz	B2 1207.14MHz	B3 1268.52MHz	
	■	□	□	
QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz
	■	□	□	□
IRNSS/NAVIC			L5 1176.45MHz	
			□	
SBAS	L1/E1/B1 1575.42MHz		L5/B2a/E5a 1176.45MHz	
	■		□	



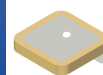
Frequency allocation: GNSS systems, upper L bands and lower L bands



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Electrical Specification

Parameters	Typ.			Units	Note
Antenna					
Frequency	11561 (B1I)	1575.42 (L1/E1)	1602 (G1)	MHz	
VSWR	< 2.0			-	
Peak Gain	3.2	4.1	4.3	dBic	
Maximum Efficiency	78	79	86	%	
Average Efficiency	77	78	85	%	
Polarization	RHCP			-	(Right Hand Circular Polarization)
Nominal Impedance	50			Ω	

Note: With 60 × 60 mm Ground Plate

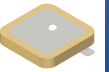
Mechanical Specification

Parameter	Specification
Antenna Dimension	25.0 x 25.0 x 4.0mm
Evaluation Board Dimension	60 x 60 mm
Mounting Type	Through Hole & Adhesive
Mounting Location	PCB Center Mounting
Material(s)	Ceramic
Weight	10 g

Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
RoHS Compliance	Yes

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Ordering Information

Part Number	Description
AANI-PP-0055	GNSS L1 Ceramic Patch Antenna
AANI-PP-0055-EVB	GNSS L1 Ceramic Patch Antenna EVB

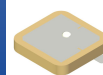


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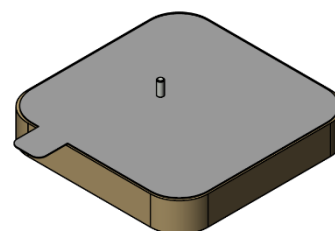
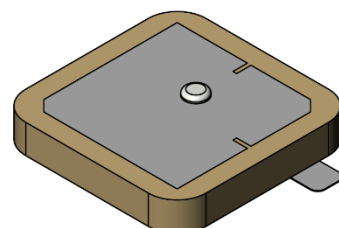
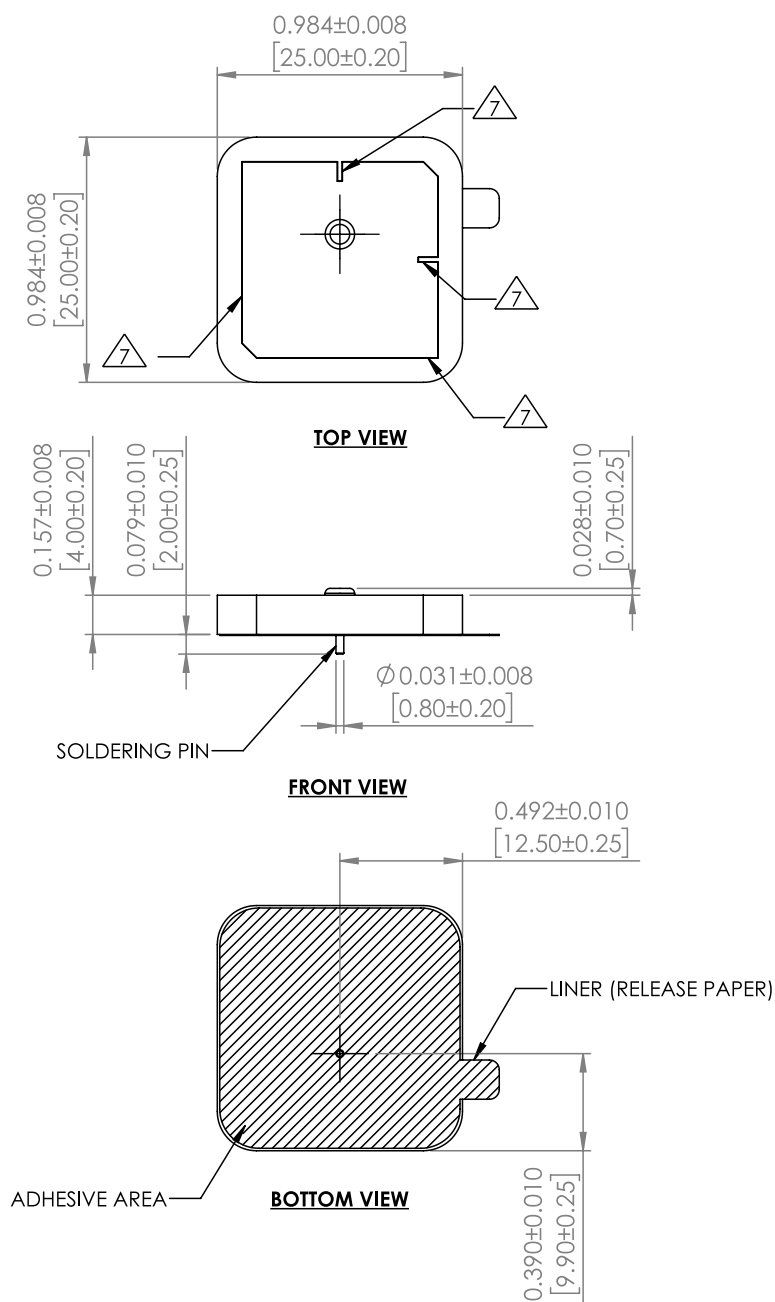


25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Product Dimensions



Unit: inches [mm]

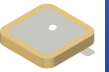


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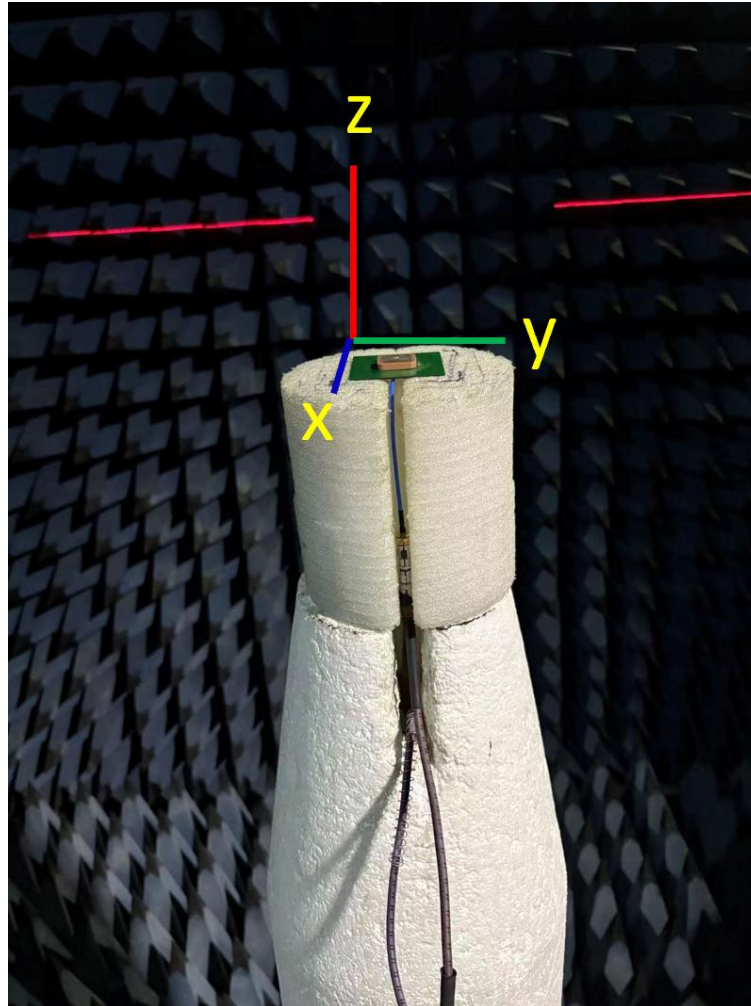


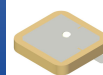
25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Measurement Setup





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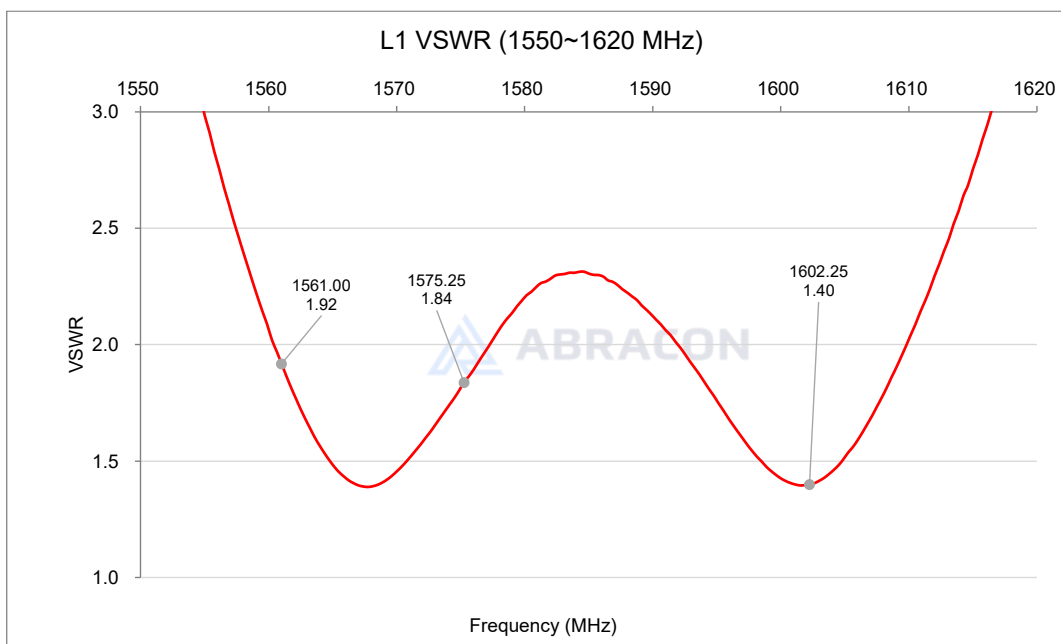
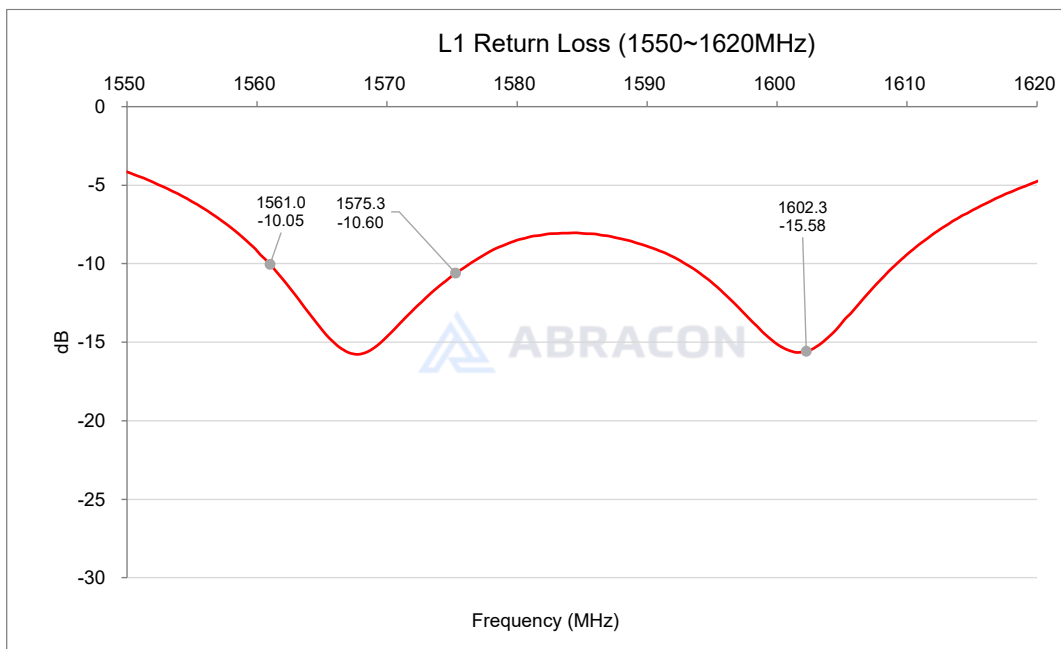


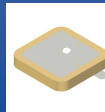
25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Reflection Characteristics – Return Loss & VSWR





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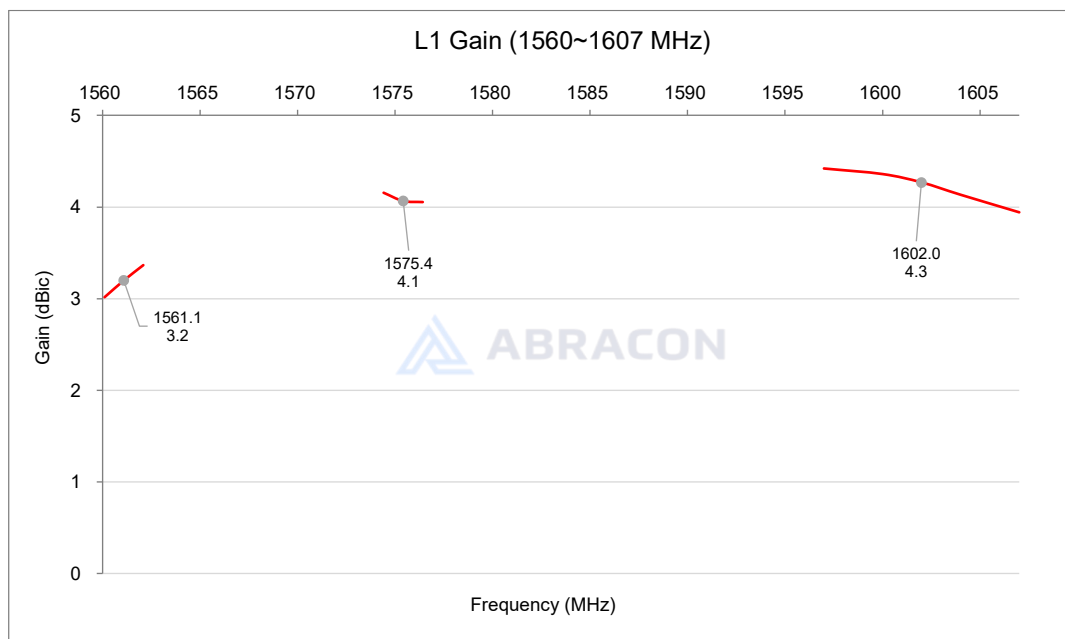


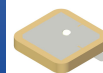
25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Radiation Characteristics – Peak Gain





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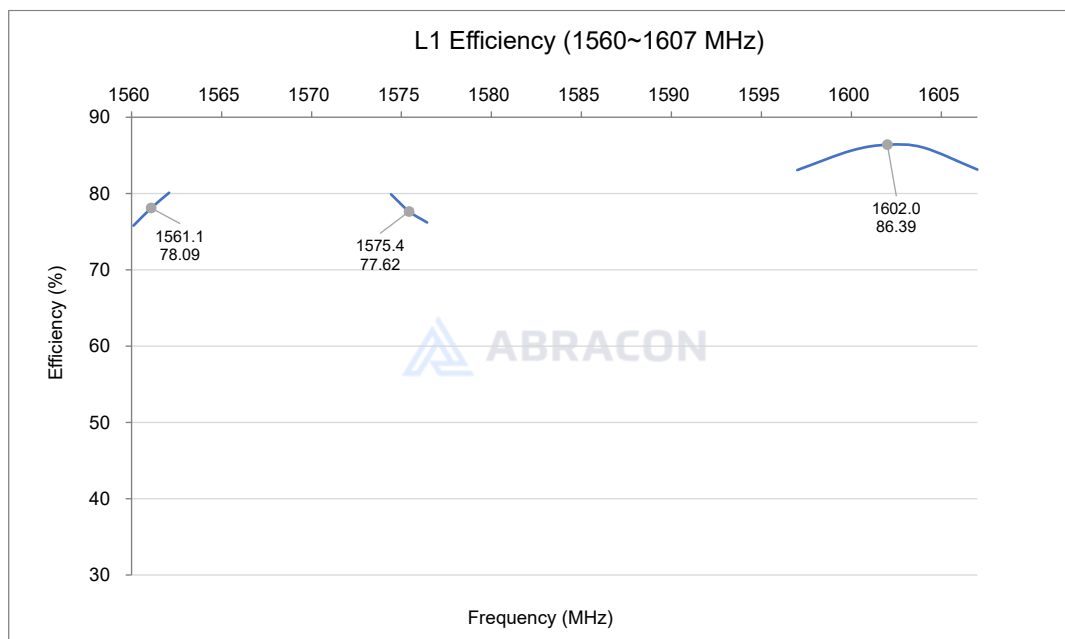


25.0 x 25.0 x 4.0mm

RoHS Compliant

MSL Level = N/A

Radiation Characteristics – Total Efficiency (%)





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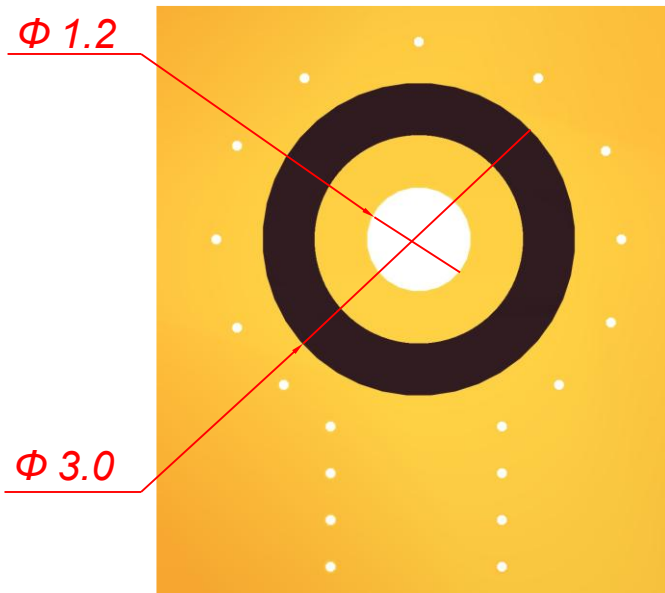
25.0 x 25.0 x 4.0mm

RoHS Compliant

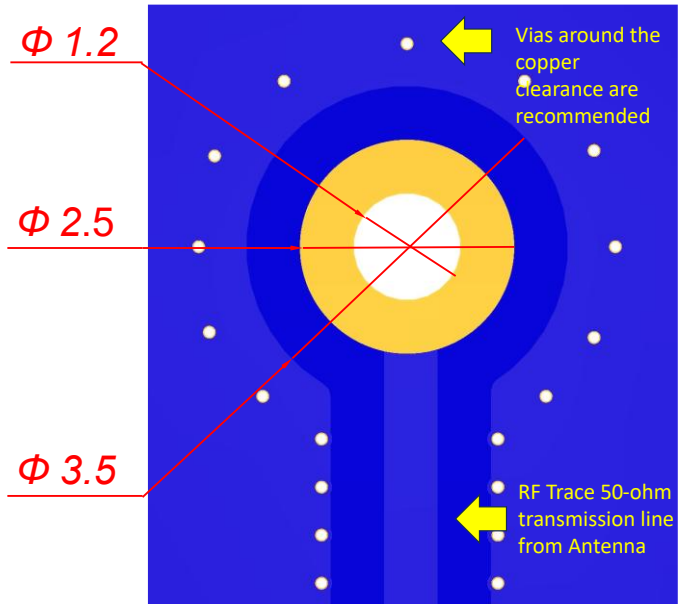
MSL Level = N/A

Antenna Footprint & PCB Layout Guide

Top



Bottom



Unit: mm

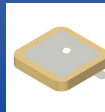
Note: Antenna welding does not support reflow soldering, please use manual soldering, the recommended soldering time is $\leq 3s$, and the temperature is $390 \pm 20^\circ C$.

For reference layout, please contact [Abracon online support](#) through our online support platform.

Transmission Line

The transmission line should be kept as short as possible and be designed to have a characteristic impedance of 50Ω. Abracon recommends using a Co-Planar Waveguide with Ground (CPWG), which dimensions can be derived by any trusted calculator, using the correct input for PCB materials and layer stack-up.

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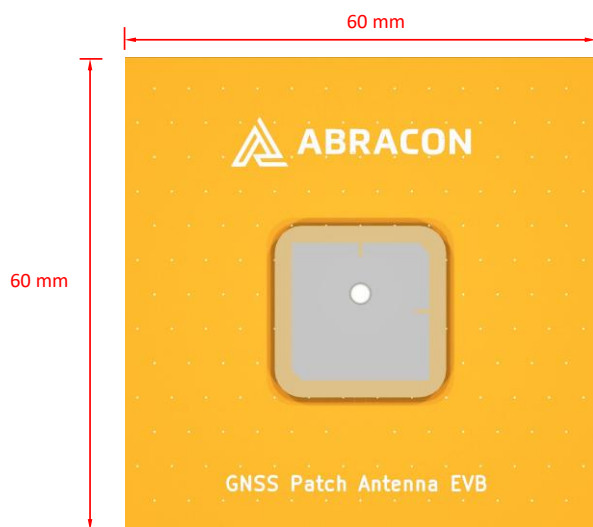


25.0 x 25.0 x 4.0mm

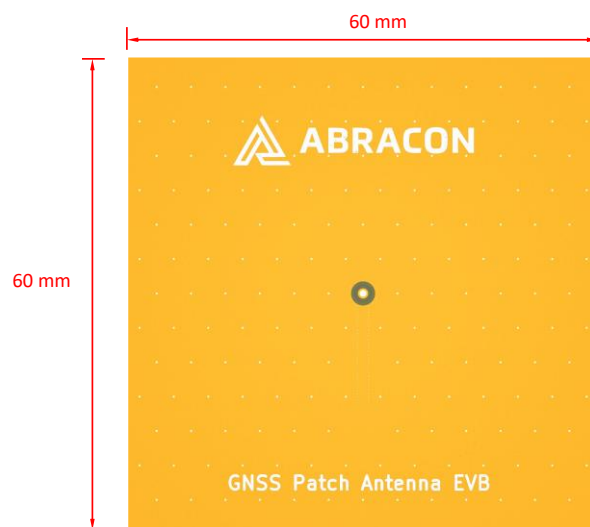
RoHS Compliant

MSL Level = N/A

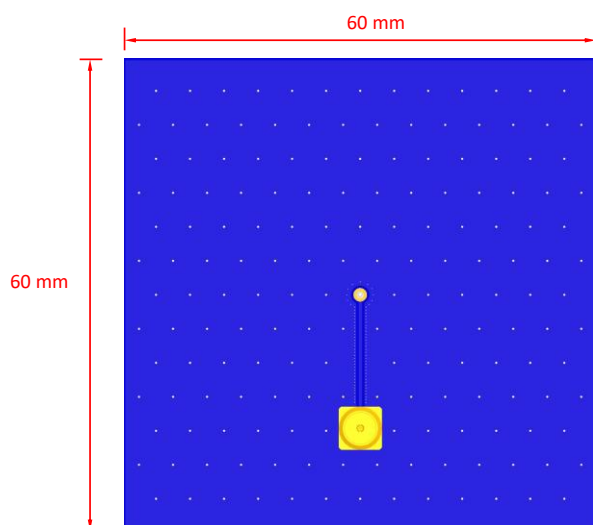
Integration Recommendation



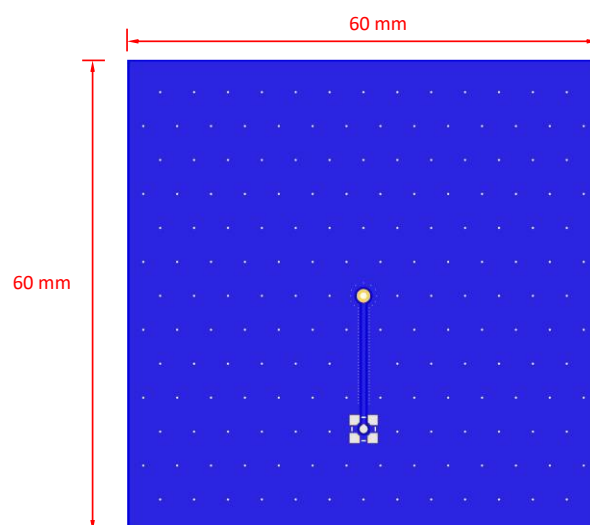
Top with Antenna



Top without Antenna



Bottom with Connector



Bottom without Connector

Unit: mm

The transmission line is located at the bottom of the antenna evaluation board.

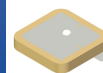


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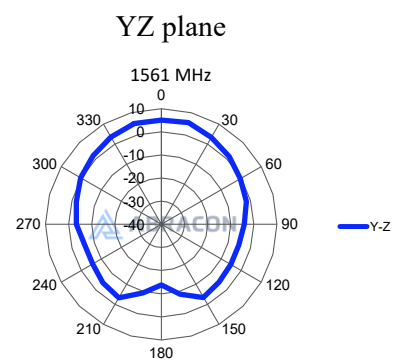
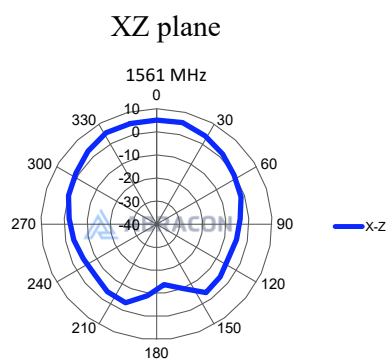
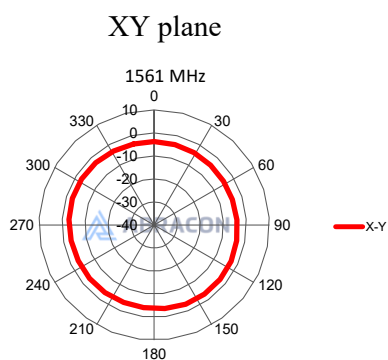
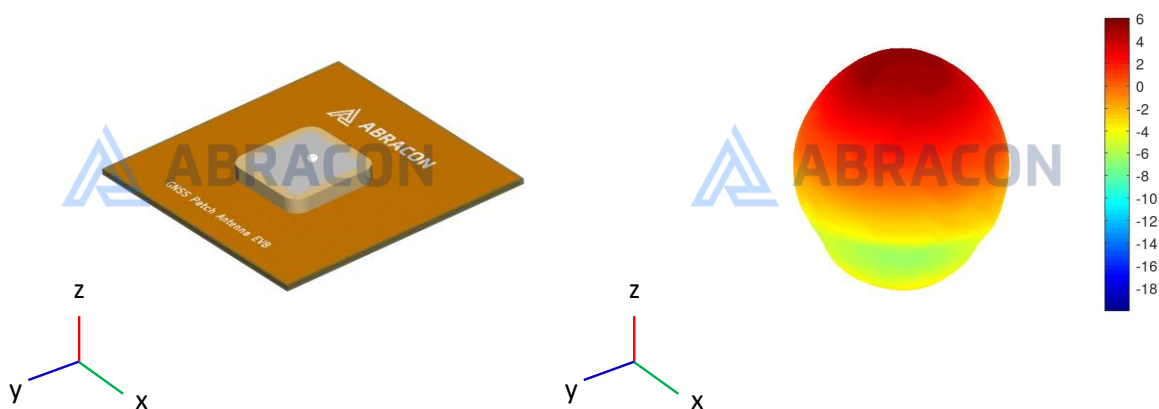
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Radiation Characteristics – 3D & 2D Pattern

1561MHz

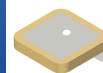


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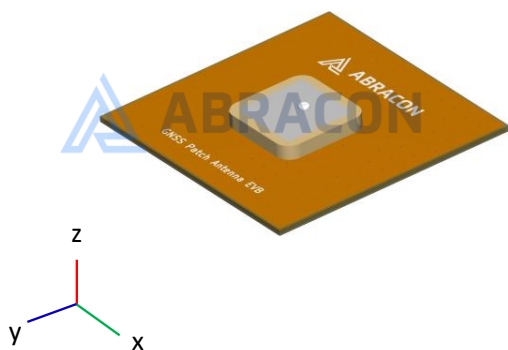


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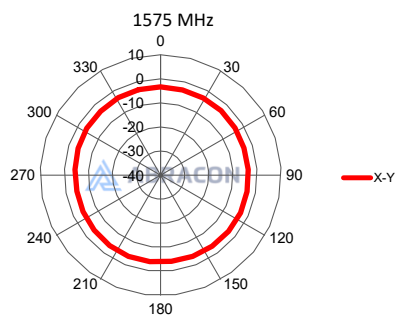
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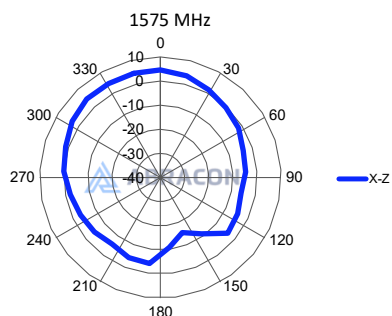
1575MHz



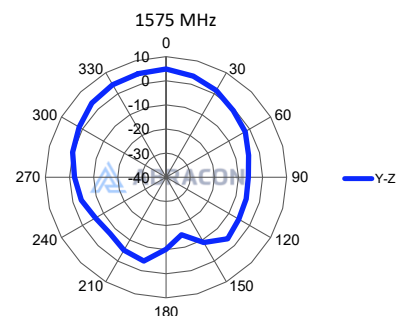
XY plane



XZ plane



YZ plane

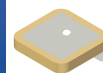


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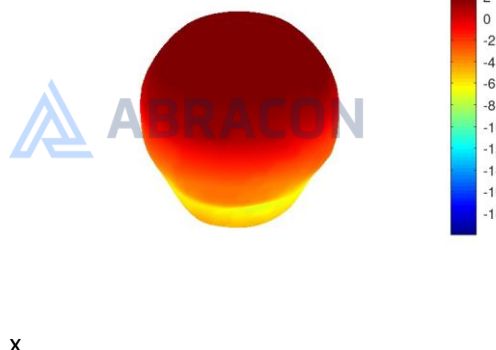
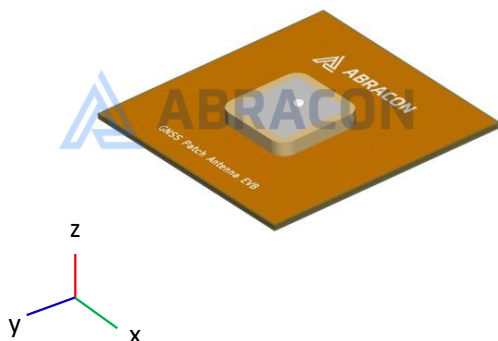


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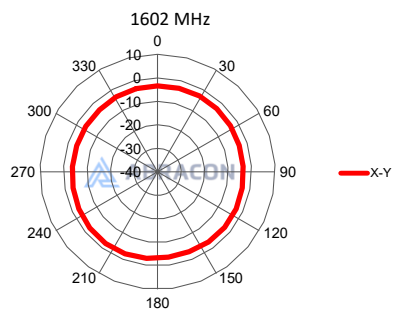
RoHS Compliant

MSL Level = N/A

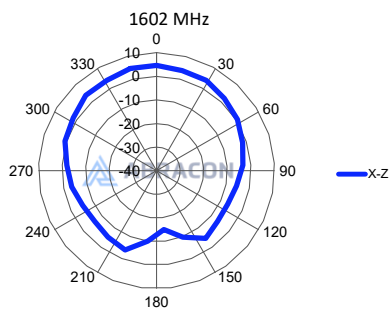
1602MHz



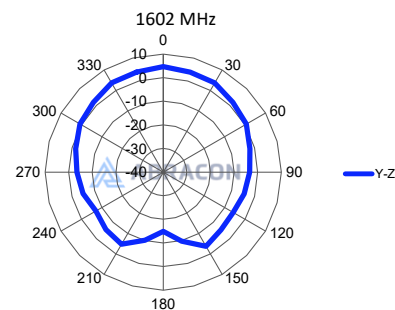
XY plane



XZ plane



YZ plane

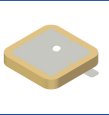


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Packaging

1. 50 pcs per tray
2. 500 pcs per inner box
3. 1000 pcs per carton

Dimension of the carton: 345 x 210 x 255 mm

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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