

GPS L1 + L5 Stacked Patch Antenna



APAKM2507S-SGL5



25.0 x 25.0 x 7.5 mm
RoHS/RoHS II Compliant
MSL = 1

Features

- Dual stacked patch for GPS L1 and L5
- Low VSWR
- RHCP polarization
- Gain of 4.0 dBi (L1), -3.0 dBi (L5)

Applications

- GPS L1 and L5 applications
- IoT
- M2M
- Remote technology monitoring
- Geofencing
- Navigation
- Surveying and mapping systems
- Logistics
- Precision transportation

Electrical Characteristics

| Parameters | L1 | | | L5 | | | Units |
|-----------------------------------|-----------------|---------|-----|-----------------|---------|-----|--------|
| | Min | Typical | Max | Min | Typical | Max | |
| Operating Frequency | 1575.42 ± 1.023 | | | 1176.45 ± 1.023 | | | MHz |
| Return Loss | | | -20 | | | -20 | dB |
| Gain | | 4.0 | | | -3.0 | | dBi |
| Polarization Model | RHCP | | | RHCP | | | |
| Impedance | 50 | | | 50 | | | Ω |
| Frequency Temperature Coefficient | | | 20 | | | 20 | ppm/°C |

Note:

- Ground plane size: 70 x 70 mm
- Application environment, including size of the ground plane, proximity to adjacent components, etc., will affect stated performance. Antenna fine tuning might be essential to optimize the end solution performance. Please contact Abracon sales team for optimization services.

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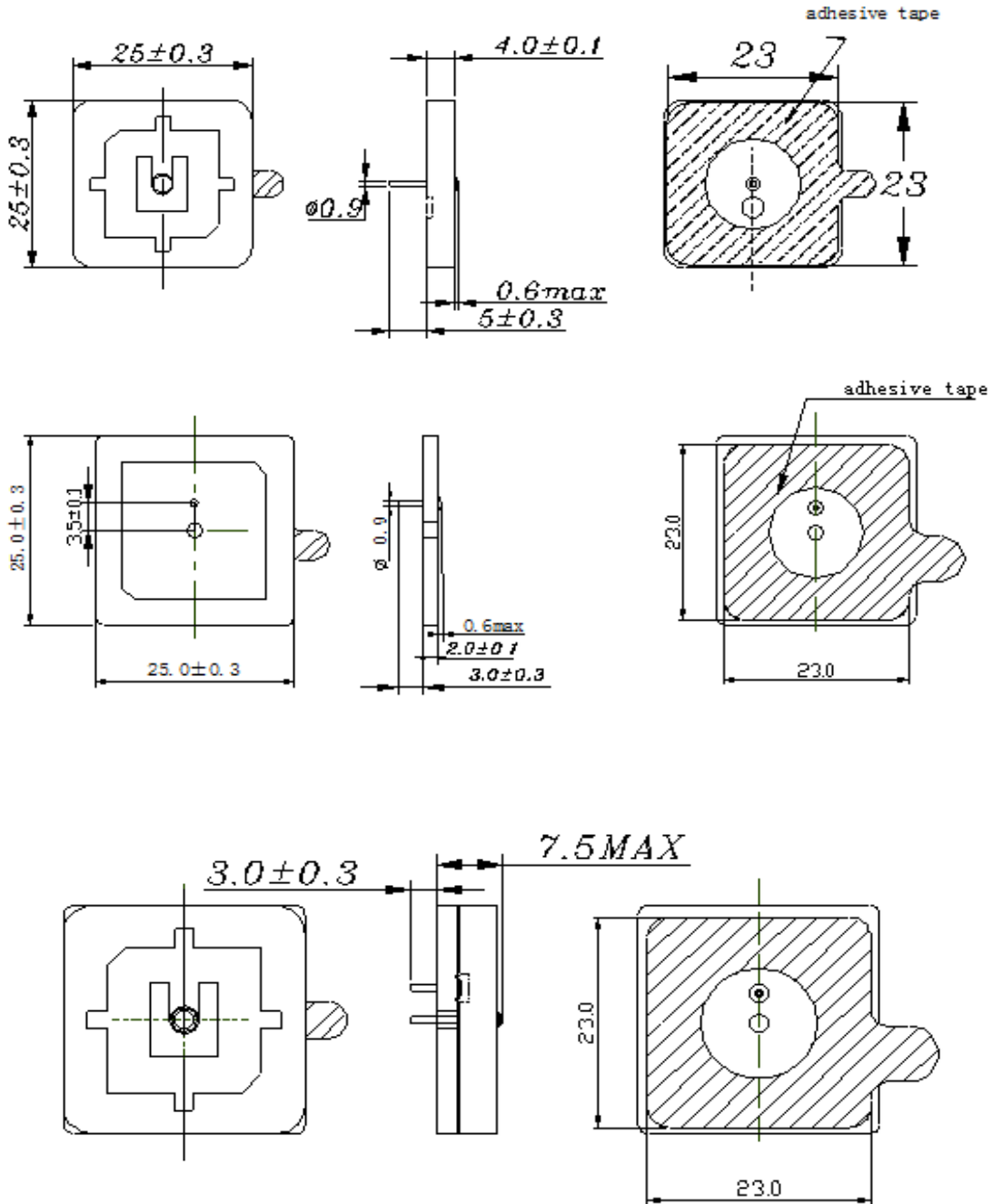


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Outline Drawing and Dimensions (Unit: mm)



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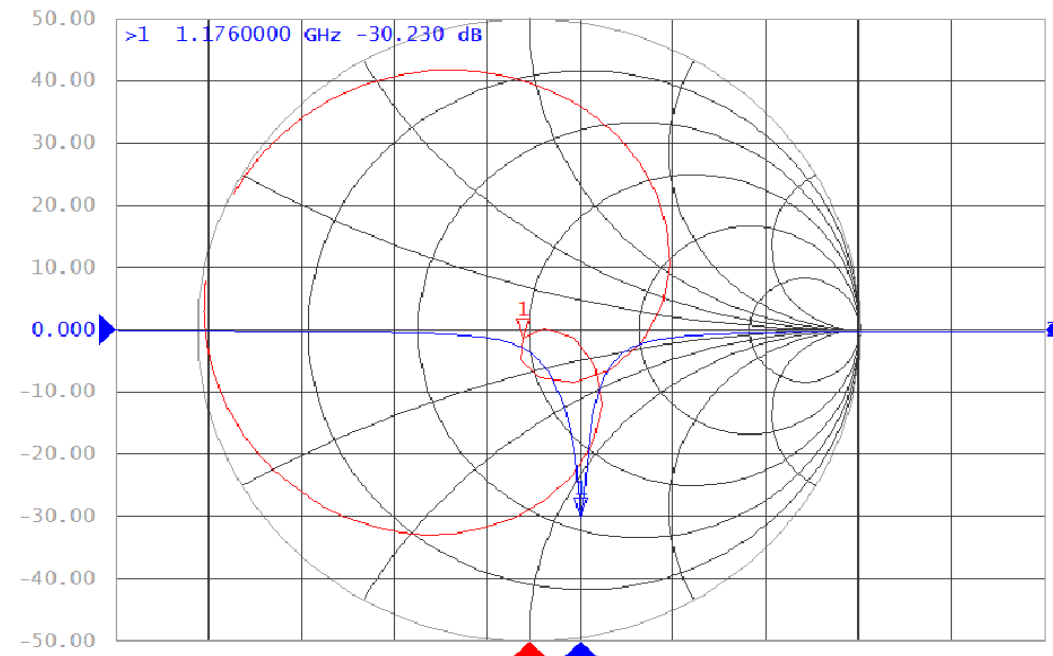
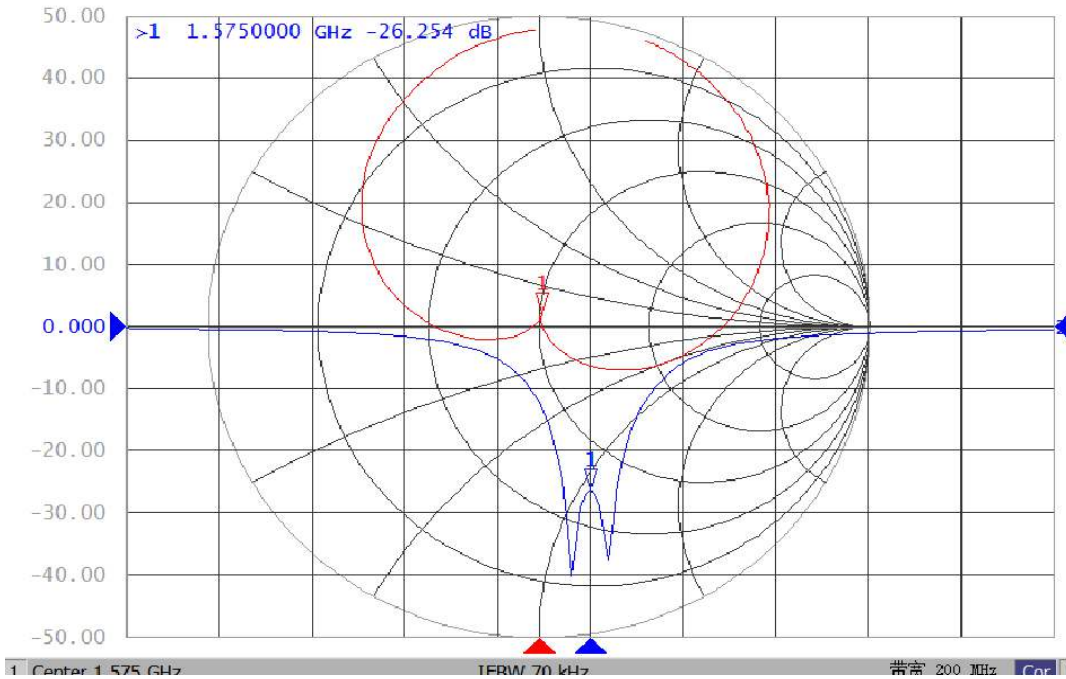


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Impedance Characteristic



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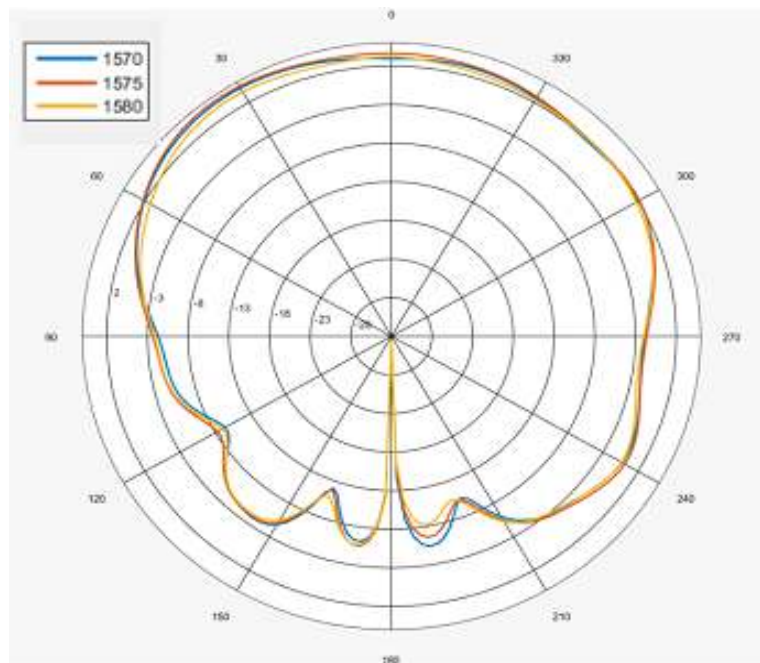
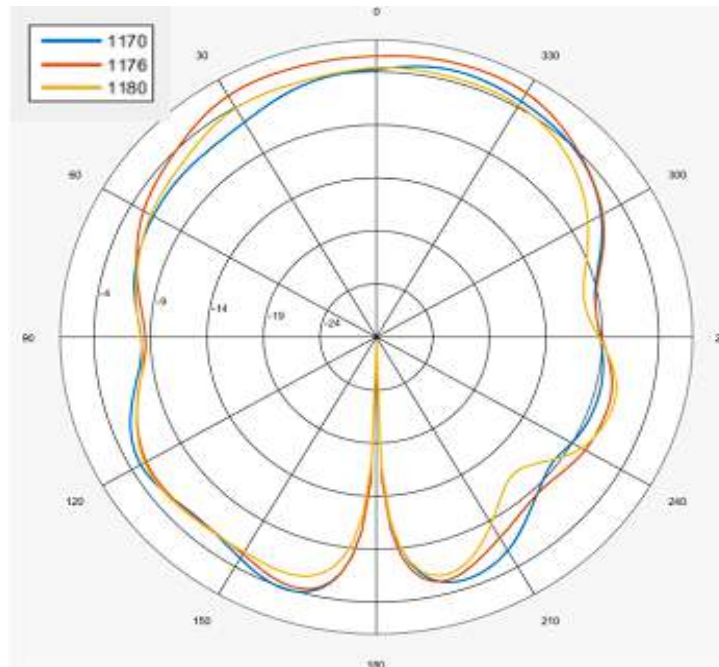


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Gain



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Reliability Tests

| Item | Test Condition | Remark |
|----------------------------|--|--|
| Humidity Test | The device is subjected to 90~95% relative humidity $60\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ for 96 hours, then dry out at $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and less than 65% relative humidity for 2~4 hours. After dry out the device shall satisfy the table.1 specification. | It shall fulfill the table.1 specifications. |
| High Temperature Exposure | The device shall satisfy the table.1 specification after leaving at $105\text{ }^{\circ}\text{C}$ for 96 hours, provided it would be measured after 2~4 hours leaving in $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and less than 65% relative humidity. | It shall fulfill the table.1 specifications. |
| Low Temperature Exposure | The device shall satisfy the table.1 specification after leaving at $-40\text{ }^{\circ}\text{C}$ for 96 hours, provided it would be measured after 2~4 hours leaving in $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and less than 65% relative humidity. | It shall fulfill the table.1 specifications. |
| Temperature Cycle | Subject the device to $-40\text{ }^{\circ}\text{C}$ for 30 min. followed by a high temperature of $105\text{ }^{\circ}\text{C}$ for 30 min cycling shall be repeated 5 times. At the room temperature for 1 hour prior to the measurement. | It shall fulfill the table.1 specifications. |
| Vibration | Subject the device to vibration for 2 hours each in x, y and z axis with the amplitude of 1.5 mm, the frequency shall be varied uniformly between the limits of 10~55 Hz. | It shall fulfill the table.1 specifications. |
| Soldering Test | Lead terminals are heated up to $350\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$ for 5 ± 0.5 s with brand iron and then element shall be measured after being placed in natural conditions for 1 hour. No visible damage and it shall fulfill the table specifications in 1.0. | It shall fulfill the table.1 specifications. |
| Solderability | Lead terminals are immersed in soldering bath of $260\text{ }^{\circ}\text{C} \sim 290\text{ }^{\circ}\text{C}$ for 3 ± 0.5 s. More than 95% of the terminal surface of the device shall be covered with fresh solder. | The terminals shall be at least 95% covered by solder. |
| Terminal Pressure Strength | Force of 2 kg is applied to each lead in axial direction for 10 ± 1 s (see drawing). No visible damage and it shall fulfill the specifications in Fig.1. | Mechanical damage such as breaks shall not occur. |

Fig. 1

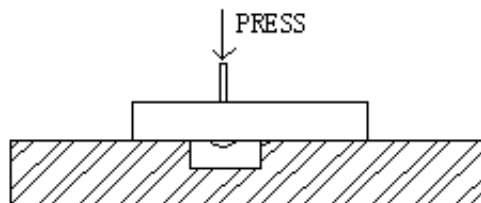


Table 1

| Item | Post Environmental Tolerance | Unit |
|-------------------------|------------------------------|------|
| Center Frequency Change | ± 2.0 | MHz |

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Packaging

The carton of dimension 365.0 x 356.0 x 160.0 mm encloses 800 pieces and weighs 14 Kg.

| | |
|------------------|-----------------|
| Per package base | 50 elements |
| Per vacuum bag | 4 package bases |
| Per inner box | 1 vacuum bag |
| Per package | 4 inner boxes |

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