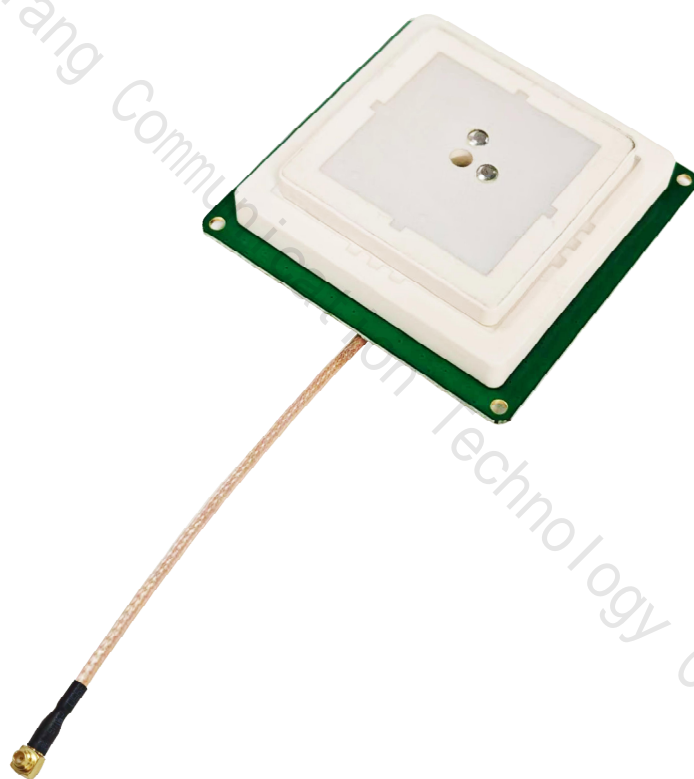


Dalang

AK622





Dalang Communication Technology Co., Ltd Product Specification

Product Name: GPS ANTENNA

Product Model: AK622

Version Number: V 1.0

Revision Date: 2024.07.05

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1 Product Application Scenarios

Our AK622 stacked ceramic (50*40) active antenna is a dual-frequency antenna designed for high-precision positioning with Bei Dou and GPS satellite navigation. It receives GPS L1/L2 and Bei Dou B1/B2 signals, providing broad coverage and high signal stability. Using advanced ceramic stacking technology, the AK622 is durable and adaptable to harsh environments, making it ideal for vehicle navigation, drone positioning, precision agriculture, and more. See Figure 1 for details.



Figure 1 Product Application Scenarios

2 Features

In this chapter, we will delve into and comprehensively elaborate on the functionalities and operating principles of the AK622, detailing how it plays a pivotal role in various applications as follows:

1. **Dual-Frequency High-Precision Positioning:** Meets the needs of applications requiring high-precision GNSS (Global Navigation Satellite System) antenna positioning, providing more accurate location information.
2. **Stacked Antenna Design:** Combines two single-feed antennas into a stacked antenna, enhancing signal reception capability and stability.
3. **High Gain and Wide Bandwidth:** Features high gain and a broad frequency range, effectively improving signal reception quality and coverage.
4. **Environmental Compliance:** Meets RoHS (Restriction of Hazardous Substances) requirements, ensuring the product's environmental performance is up to global market standards.

3 Structural Characteristic

In this section, we will conduct an in-depth analysis of the product's design details, presenting its aesthetic features and precise interface specifications through detailed structural diagrams. This perspective aims to provide a comprehensive framework, thereby enhancing the understanding and perception of the product's architecture. Refer to Figure 2, Figure 3, Figure 4.

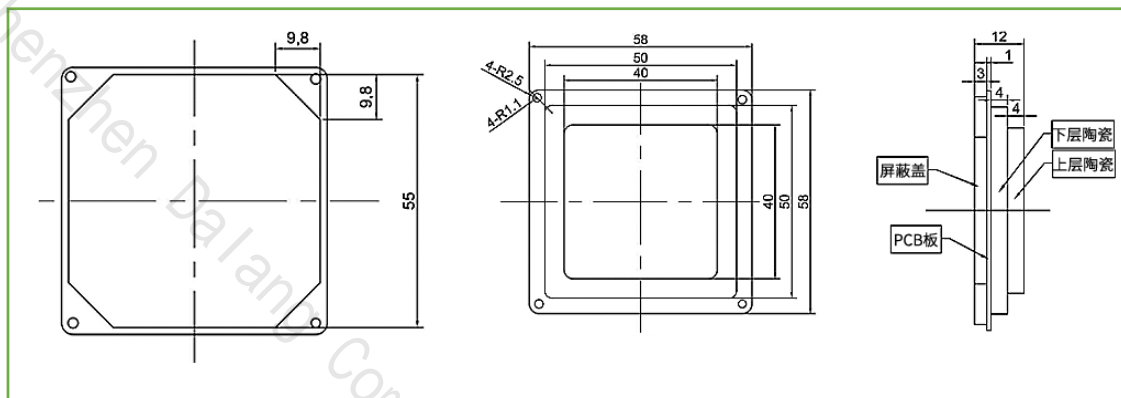


Figure 2 Product structure diagram

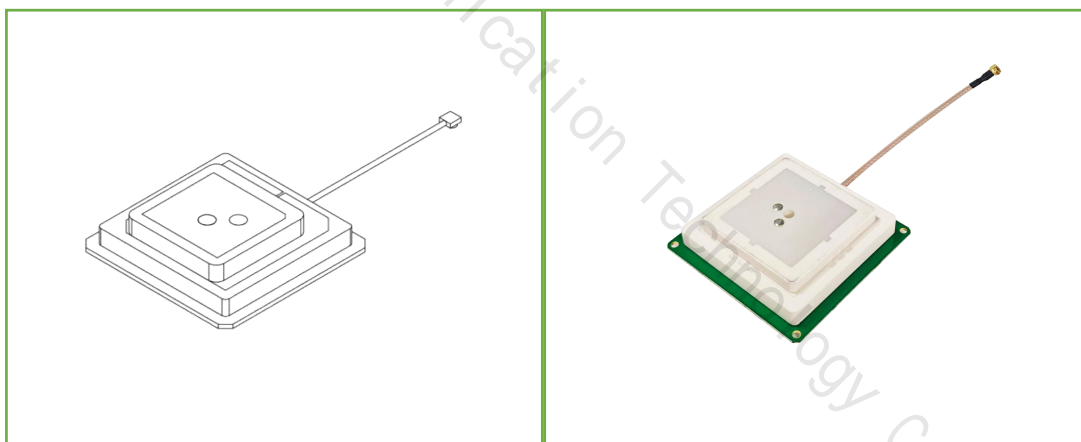


Figure 3 Product correlation chart

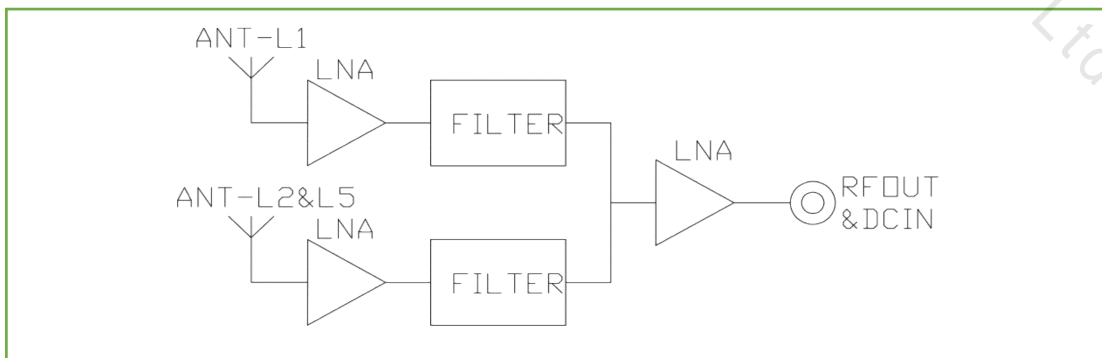


Figure 4 Process flow diagram

4 Specifications

In this section, we will provide a detailed list and explanation of the product's chip features, sensitivity, accuracy, operating principles, and other technical details, as detailed in Table 1.

Table 1 Product Specifications

II. Specification			
Antenna Characteristics	1	Antenna Model	GPS antenna
	2	Ceramic Dimensions	50*50*4/40*40*4
	3	Operating Frequency	GPS: L1:1575.42±1.023MHZ L2:1227±1.023MHZ Bei Dou: B1:1561±2.046MHZ B2:1207±2.046MHZ GLONASS: L1:1602+0.5625*k (MHz) L2:1246+0.4375*k (MHz) GALILEO: E1:1575
	4	Frequency Range	1170-1238/1559-1612MHz
	5	Axial Ratio	Elevation angle 90 degrees; ≤3, Elevation angle 15 degrees
	5	V.S.W. R	≤2
	6	Gain	Elevation angle 90 degrees; ≥6, Elevation angle 20 degrees
	7	Front-to-back Ratio	±60 degrees ≥15dB
	8	Out-of-band Rejection	1238 + 100MHz ≥50db 1170 + 100MHz ≥50db 1602 + 100MHz ≥50db 1561-100MHz ≥50db
9	In-band Flatness	±1dB	

	10	Impedance	50Ω
	11	Polarization Mode	RHCP
	12	Voltage	3.3~12V
	13	Current	25~40mA
	14	Noise Figure	<1.0
Bill Of Materials (BOM)	1	Antenna volume (mm)	58*58*14.5mm
	2	Product weight	86.8g
	3	joint	MCX (customizable)
	4	wire rod	RG178 (customizable)
	5	Line length	150mm (customizable)
	6	PCB	FR4
Operating Environment	1	Working Environment	-40°C~+85°C, 10%~95%RH
	2	Storage Environment	-55°C+100°C, 10%~95%RH

5 Product Photos

In this chapter, we will showcase real-life images of the product, as shown in Figure 5. These images provide a detailed view of our product from various angles and perspectives. We believe that through authentic representation, we can better convey the value and concept of the product, thereby enhancing your trust and satisfaction.

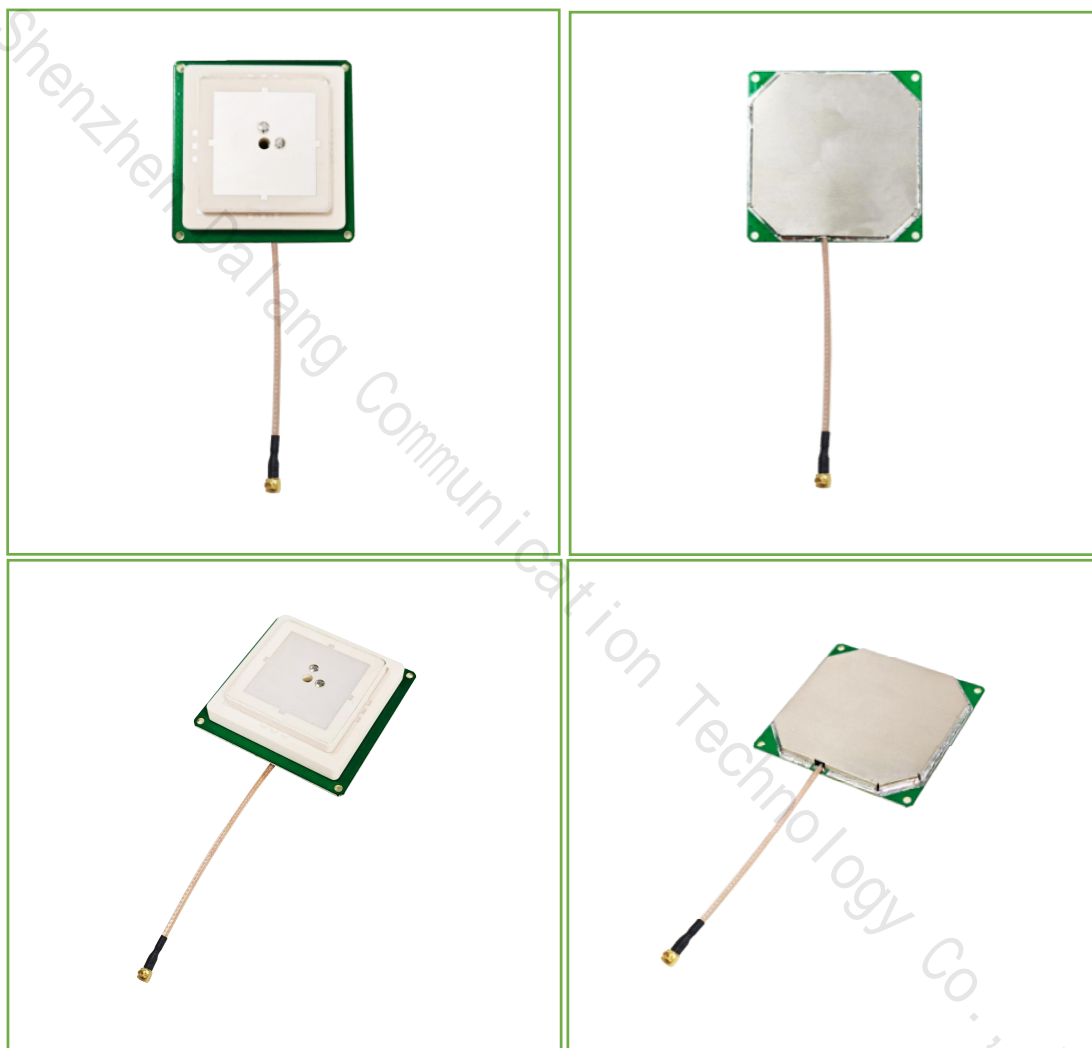


Figure 5 Product Images