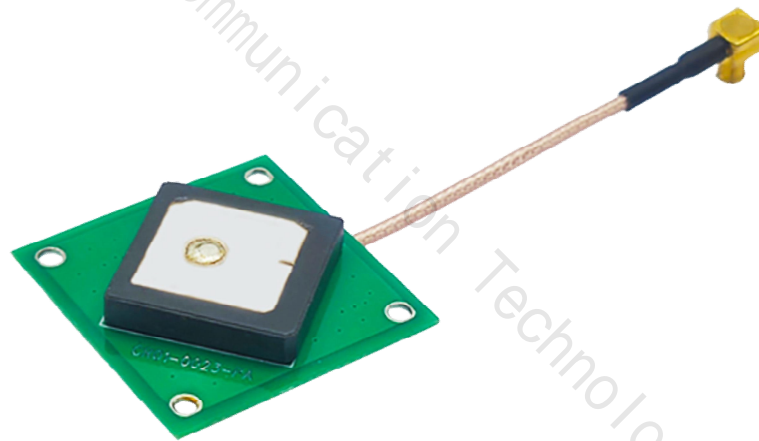


Dalang

AK153





Dalang Communication Technology Co., Ltd Product Specification

Product Name:	GPS Antenna
Product Model:	AK153
Version Number:	V 1.0
Revision Date:	2024.07.04

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1 Product Application Scenarios

Our company's AK153 single polarization ceramic antenna is a special type of ceramic antenna that uses ceramic materials as the substrate and utilizes the high dielectric constant and low loss characteristics of ceramics to achieve efficient signal transmission and reception. Its uniqueness lies in the fact that the feed point is only offset in a single axis direction, which allows the antenna to accurately match specific frequency bands and improve signal transmission efficiency. Single polarization ceramic antennas not only have the advantages of high gain and low loss, which can achieve long-distance and high-quality signal transmission, but also have good environmental adaptability due to the characteristics of ceramic materials, and can work stably in harsh environments such as high temperature and humidity. Can be applied to automotive electronics, in car positioning, navigation, anti-theft, area measurement, monitoring devices and other equipment, as shown in Figure 1.



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 AK153, detailing how it plays a pivotal role in various applications as follows:

- 1. High precision positioning:** It can meet the application requirements of high-precision GNSS (Global Navigation Satellite System) antenna positioning and provide more accurate location information.
- 2. Single polarization antenna design:** Adopting a 20 * 20 * 4 single polarization antenna design to increase phase center stability and enhance signal reception capability.
- 3. High gain and wide frequency band:** Antennas have high gain and a wide frequency band range, which can effectively improve the reception quality and coverage range of signals.
- 4. Environmental compliance:** Compliant with RoHS (Restriction of Hazardous Substances Directive) requirements, ensuring that the product meets environmental performance standards and is suitable for the global market.

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.

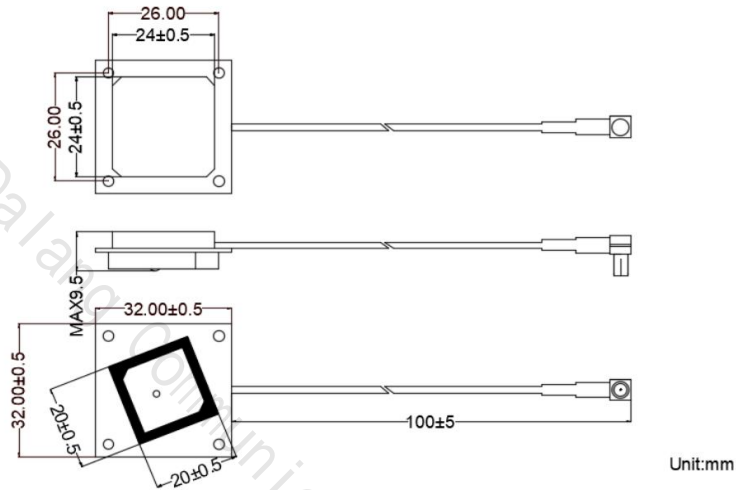


Figure 2 Product structure diagram

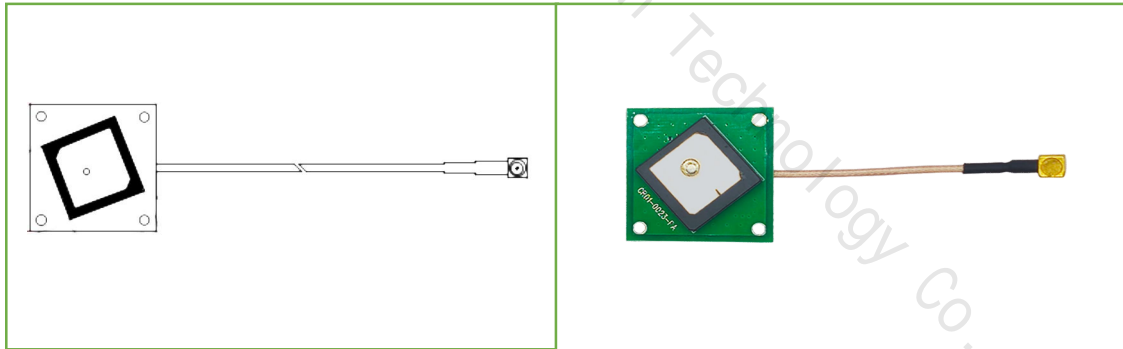


Figure 3 Product correlation chart



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

Specification parameters			
Antenna characteristics	1	Antenna model	GNSS antenna
	2	Antenna size	20*20*4mm
	3	Usage frequency	GPS: L1:1575.42±1.023MHZ GLONASS: L1:1602+0.5625MHZ BDS: B1:1561±1.023MHZ GALILEO: E1:1575
	4	bandwidth	10 MHz min. @S11≤-10 dB
	5	In band standing wave	≤2.0
	6	Antenna gain	2dBic
	7	Polarization form	R.H.C.P.
	8	Axis ratio	≤6.0 dB Typ.
LNA performance index	1	gain	32±1.5dB
	2	Noise coefficient	1.5dB typ.
	3	output vswr	<2.0 typ.
	4	Voltage	DC 3.3-15V
	5	electric current	<10mA
	6	impedance	50Ω
Working characteristics	1	size	32*32*9.5*mm
	2	Product weight	12.8g
	3	Connector	MCX elbow
	4	wire rod	RG178

	5	Line length	100mm
	6	PCB	FR4
	7	work environment	-40°C~+85°C, 10%~95%RH
	8	Storage environment	-40°C~+85°C, 10%~95%RH

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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.

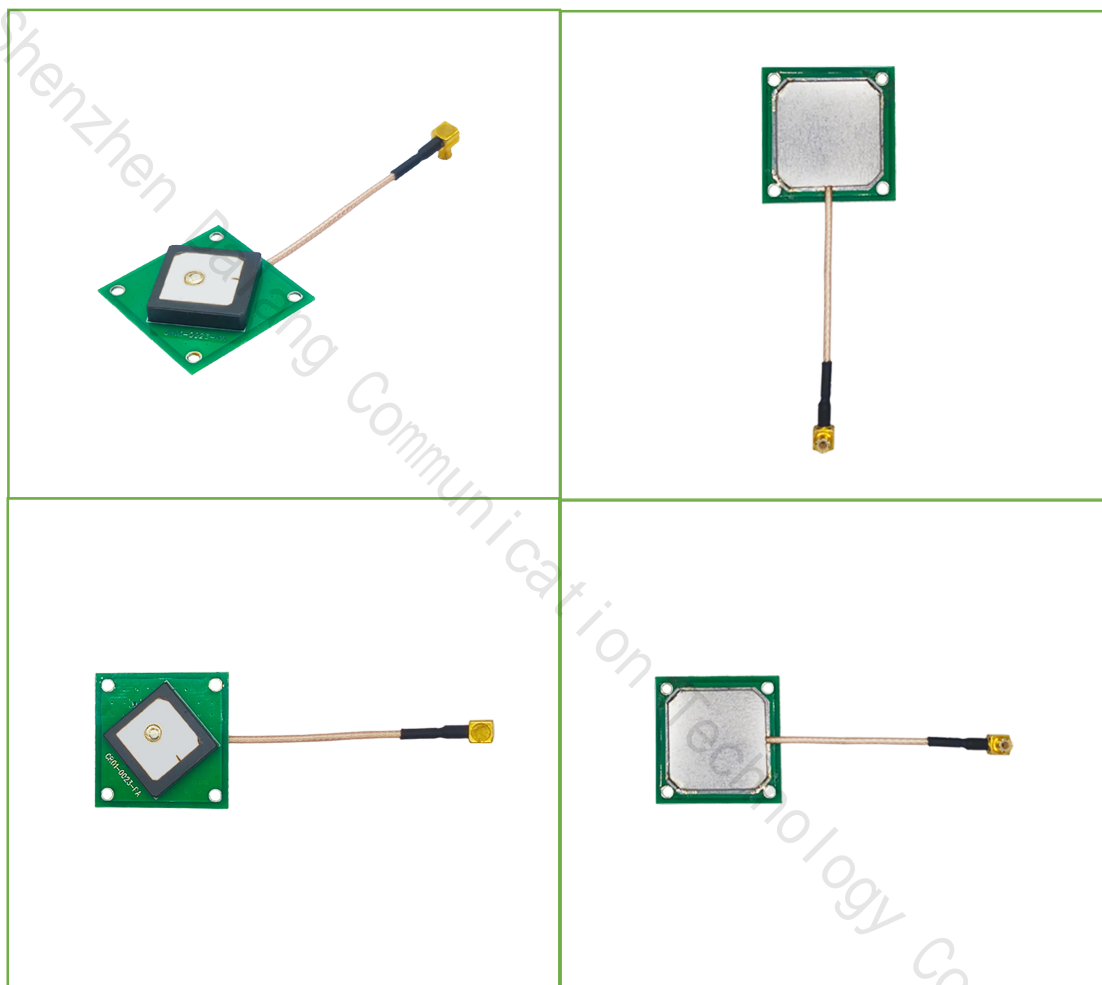


Figure 5 Product Images

6 Smith Chart and Return Loss

