



AK351





Dalang Communication Technology Co., Ltd Product Specification

Product Name: GNSS ANTENNA

Product Model: AK351

Version Number: V 1.0

Revision Date: 2025.12.05

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1 Product Application Scenarios

Our company's AK351-GNSS antenna is a core component of a positioning device that balances miniaturization and practicality. It is made of 35mm ceramic material and can simultaneously receive signals from mainstream satellite positioning frequency bands. The signal gain in the zenith direction is good, and when paired with a low-noise amplifier module, the signal reception efficiency is higher. The accuracy and stability of daily positioning are guaranteed. Its volume is made very compact, weighing only 15 grams, and with the compatible short cable interface, it does not take up space whether installed in portable devices or car terminals; At the same time, it can adapt to different environments from low temperature to high temperature, and even slight vibrations will not affect work. Its "anti manufacturing" ability is sufficient for daily use. Very suitable for commonly used positioning scenarios such as in car and portable devices. Refer to 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 AK351, detailing how it plays a pivotal role in various applications as follows:

- 1. Multi mode compatibility and high positioning reliability:** Supports mainstream GNSS frequency bands such as GPS, GLONASS, BDS, GALILEO, etc., enabling joint positioning of multiple systems, effectively increasing the number of visible stars in complex occlusion environments, and ensuring the continuity and accuracy of positioning.
- 2. High sensitivity and low loss, outstanding weak signal capture capability:** Equipped with a low-noise amplifier with a noise coefficient of less than 1.5dB, coupled with a high gain design in the zenith direction, it can significantly reduce signal link loss. In weak signal scenarios such as urban high-rise buildings and tree lined roads, satellite signals can still be stably captured.
- 3. Excellent RF matching, efficient and stable signal transmission:** The impedance is completely matched with the general RF system, and the standing wave ratio is controlled within the ideal range, which can greatly reduce signal reflection, ensure the transmission efficiency of the RF link, and reduce the risk of signal distortion.
- 4. Small size and high integration, strong equipment adaptability:** adopting a compact ceramic medium design, the overall weight is light and the volume is small. Paired with short cables and IPEX interfaces, it does not require too much equipment space and is easy to integrate into various products such as car terminals and portable positioning devices.
- 5. Wide temperature and vibration resistance, excellent environmental robustness:** It has a wide range of working and storage temperature adaptability, and can withstand sinusoidal vibrations of certain frequency and amplitude. It can adapt to complex usage environments such as vehicle mounted and outdoor portable scenarios, and has excellent stability performance.

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.

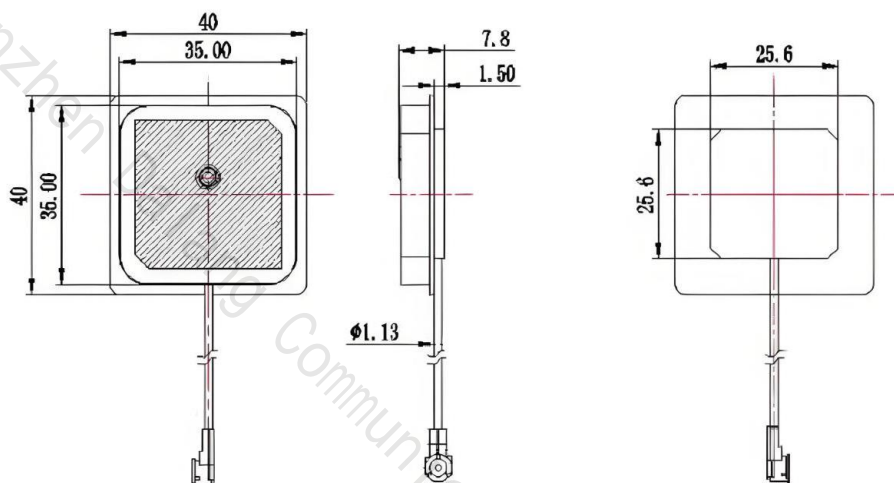


Figure 2 Product structure diagram

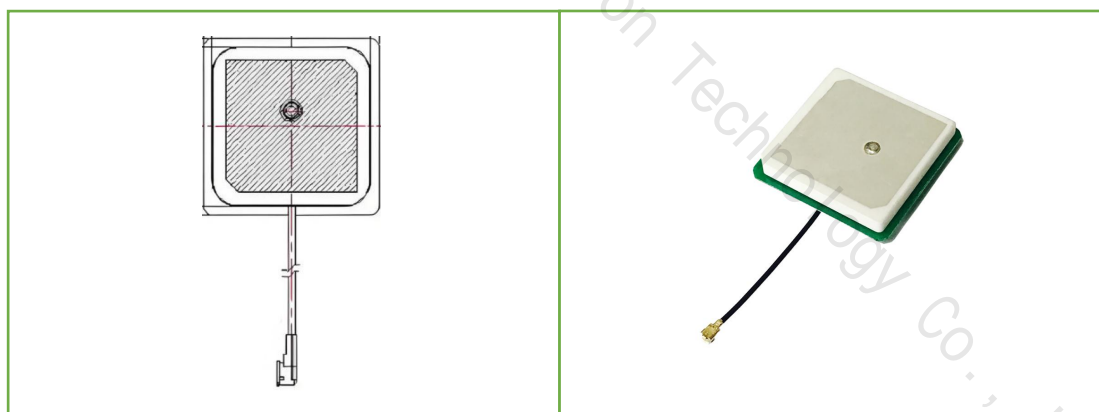


Figure 3 Product correlation chart



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	Ceramic size	35*35*4
	3	Usage frequency	GPS: L1: 1575.42±1.023MHz GLONASS: L1:1602+0.5625*K(MHz) BDS: B1 1561±1.023MHz GALILEO : E1: 1575
	4	Gain (Peak gain of 70 * 70mm facing the zenith plane.)	6dBic
	5	V.S.W.R	≤1.5
	6	-10dB bandwidth MHz minimum	25 min
	7	Impedance	50 Ω
	8	polarization	RHCP
	9	tcf	20ppm/deg. °C max
LNA performance indicators	1	parameter	specifications
	2	gain	32 ± 2dB
	3	figure	<1.5dB
	4	VSWR	<2.0
	5	output vswr	<2.0
	6	voltage	DC 3~5V
	7	electric current	<20mA
	8	impedance	50 Ω
Physical parameters	1	Line length	L=150mm
	1	Overall size	40*7.8mm
	2	weight	15g
	3	Line type	RG1.13
	4	Linear interface	IPEX

Component	5	Part name	specifications
	2	antenna	ceramics
	3	pcb	FR4
Environmental	1	work environment	-40°C ~ +85°C, 10% ~ 95% RH
	2	storage environment	-55°C ~ +100°C, 10% ~ 95% RH
	3	vibrate	Sine scan @ 1.5mm AM 10~55Hz per axis

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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.

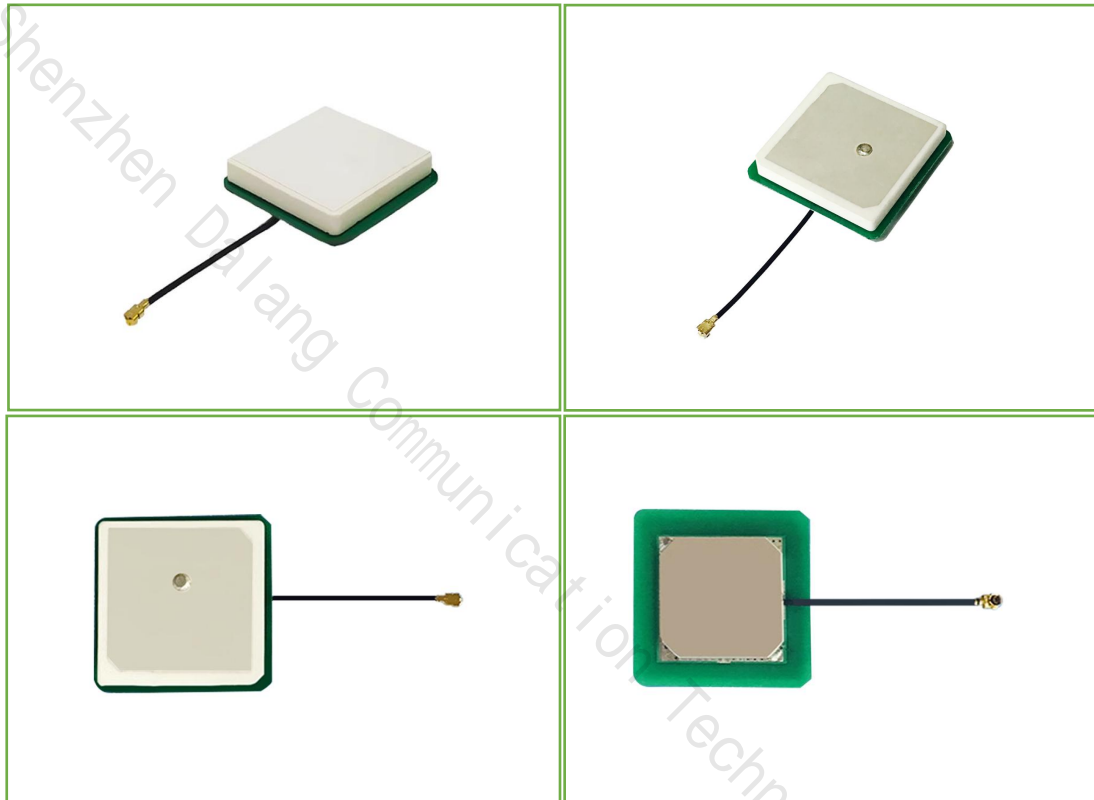


Figure 5 Product Images