



# SYNZEN

## PRODUCT DATASHEET

### RHEA | DUAL BAND ACTIVE CERMIC PATCH | L1/L5

#### Part Number / Name

- SZZ-N-3G26
- RHEA

#### Description

- 25x25 + 15x15 mm active ceramic patch with single stage LNA with front and back SAW filters.
- L1 + L5 support

#### Features

- GPS/GALILEO/GLONASS constellations (L1 and L5)
- IPEX MHF1 (U.FL) connector
- 1.13mm diameter cable
- 18dB single stage LNA

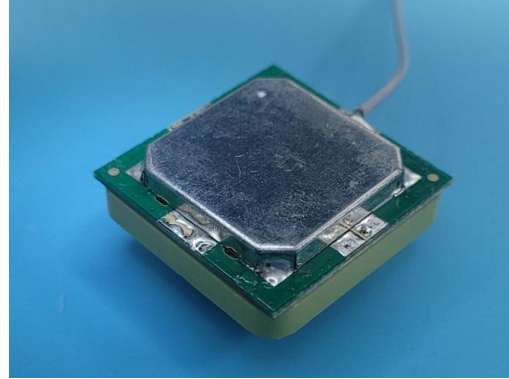
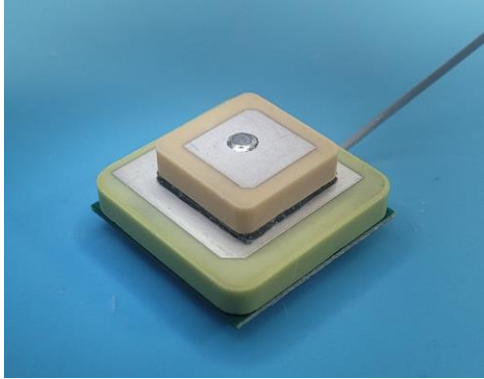




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## Introduction



Introducing the Synzen RHEA, a cutting-edge internal multi-band active stacked patch for high precision applications.

### Key Features:

- High LNA Gain: 18dB
- Comprehensive GNSS Support: GPS/GLONASS/GALILEO/BeiDou/IRNSS
- Excellent Out-of-Band Rejection
- Ideal for Transmitter-Heavy Environments

### Typical Applications:

- RTK
- Connected Health
- Transportation
- Automotive
- Agriculture

A compact yet powerful solution for precision applications. With a primary 25x25mm patch tuned to 1176MHz and a secondary 15x15mm patch for 1575MHz, each integrated with dual SAW filters and dual LNAs, this antenna ensures exceptional signal purity and strength. These signals combine through an integrated hybrid coupler, it optimizes signal transmission for superior performance in navigation.

Despite its remarkable out-of-band rejection capabilities, RHEA maintains an impressively low noise figure of less than 3.0dB for both L1 and L5 bands.

For further optimization tailored to specific device environments, Synzen offers custom-tuned patch antennas. Elevate your GNSS experience with RHEA (SZA-N-3G26).

## General

### Mechanical Specifications

Part Number	SZC-N-3G26
Name	RHEA
Dimensions (mm)	25.0 x 25.0 x 4.0 +15.0 x 15.0 x 4.0
Weight (g )	20
Antenna Type	Through Hole Patch
Material	Ceramic
Cable Length (mm)	150
Connector	IPEX MHF1 (U.FL)

### Electrical / RF Specifications

#### Antenna

Frequency Range (MHz)	VSWR	Avg Efficiency (%)	Peak Gain (dBi)	Impedance	Polarization	Axial Ratio
1575.42	≤2.0	>60	3.00	50Ω	RHCP	<5dB at Zenith
1176.0 ±	≤2.0	<50	2.60			

#### LNA

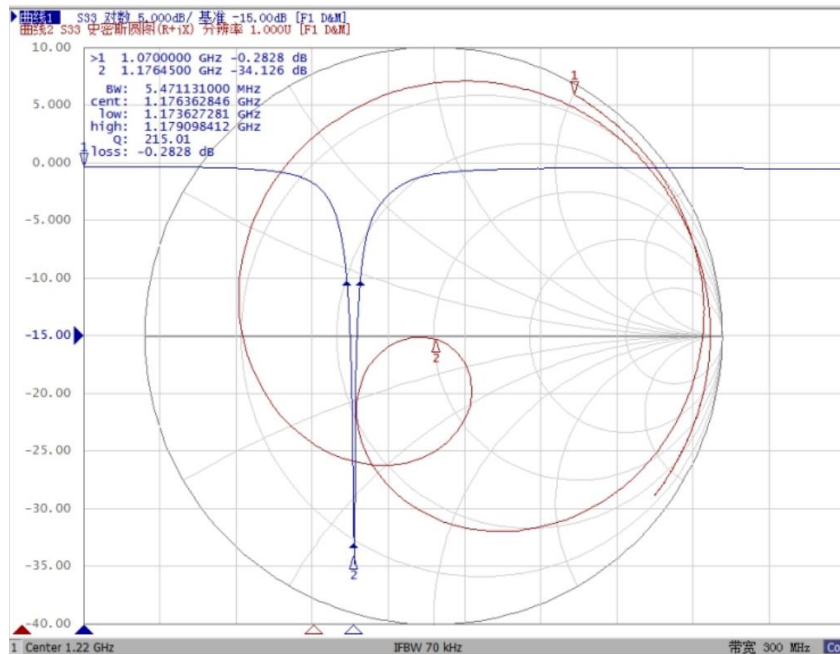
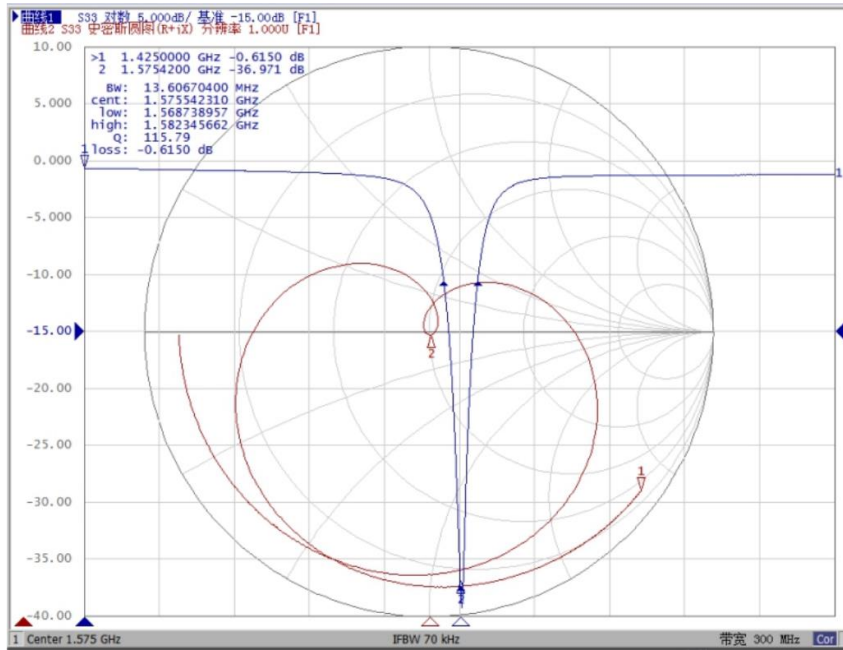
Frequency Range (MHz)	DC Voltage	Current Consumption (mA)	Gain (dB)	VSWR	Noise Figure	Out of band Rejection
1575.42 ± 1.023 / 1602.56 ± 4.0	3.0 - 5.0	20 ± 3 @3V	18.0	≤2.0	≤3.0	≥25dB

### Environmental Specifications

Operational Temperature	-40 to +85 (°C)
Storage Temperature	-40 to +85 (°C)
Relative Humidity	≤75%
Vibration	Sine sweep 1g (0-p)
	0~55~10Hz each axis
Moisture Sensitivity Level (MSL)	NA
RoHs & REACH compliant	Yes

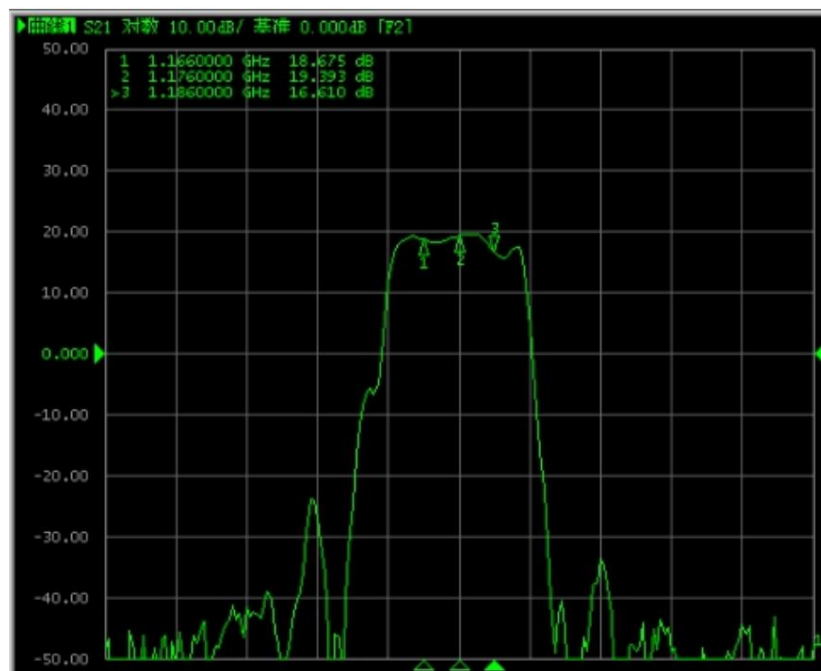
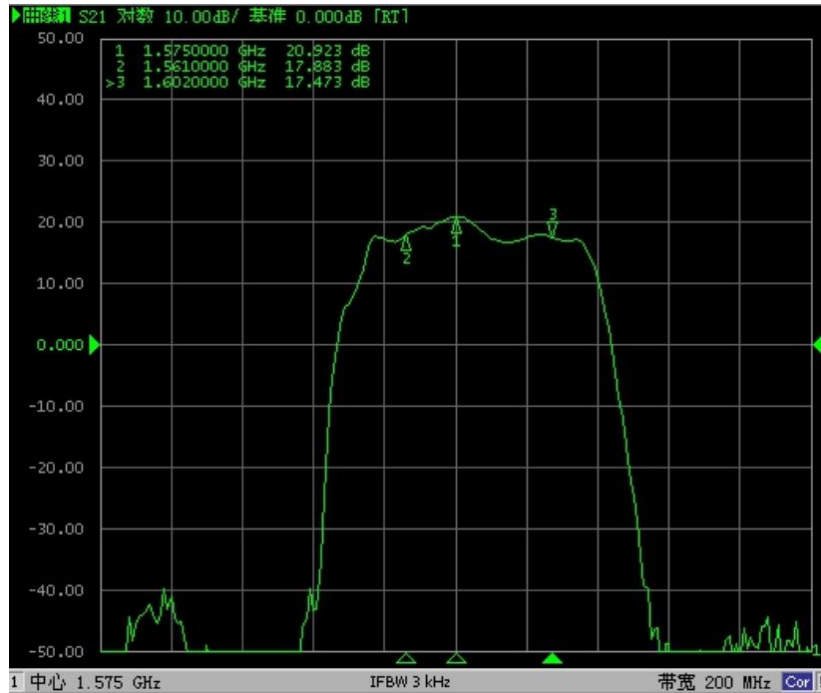
## RF Characteristics

### S11 / Smith

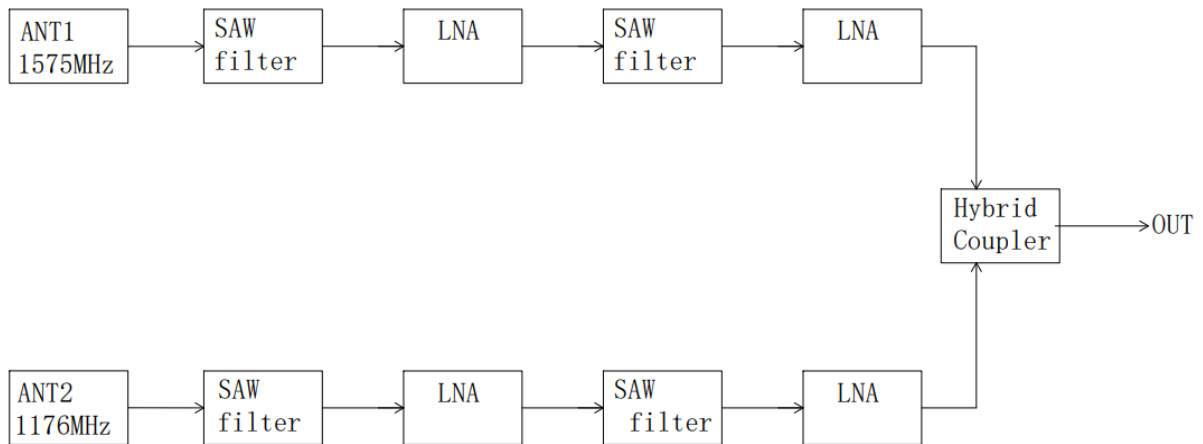


## LNA Characteristics

### LNA Test Curve (Test Condition: DC 3.0V)

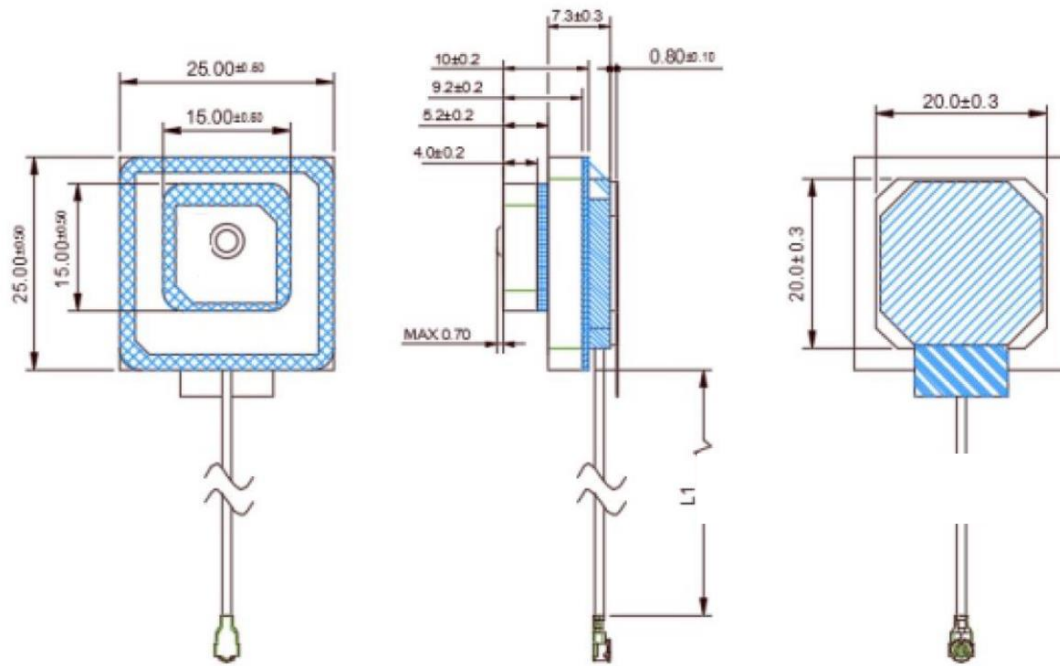


## Block Diagram



## Mechanical

### Antenna Mechanical Drawing



$L1 = 150\text{mm} \pm 3.0\text{mm}$

All dimensions in mm



## Packaging

**25 pcs per tray**

**6 trays per vacuum bag**

**4 vacuum bags per carton**

**600pcs per carton**

**Outer Box dimensions = 345 x 210 x 275 cm**



## Environmental

### Material Regulation

The antenna has been tested to conform to RoHS requirements. A certificate of conformance is available upon request.

No.	Part Name	Spec
1	Antenna	Dielectric Ceramics
2	PCB	FR4
3	Shielding	Tinplate
4	RF Connector	IPEX-1



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