



# SYNZEN

## PRODUCT DATASHEET

TETHYS | 18mm ACTIVE CERMIC PATCH | GPS / GLONASS / GALILEO

### Part Number / Name

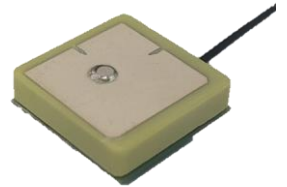
- SZZ-N-3G24
- TETHYS

### Description

- 18x18mm active ceramic patch with single stage LNA with front and back SAW filters.

### Features

- GPS/GALILEO/GLONASS constellations
- IPEX MHF1 (U.FL) connector
- 1.13mm diameter cable
- 26dB single stage LNA

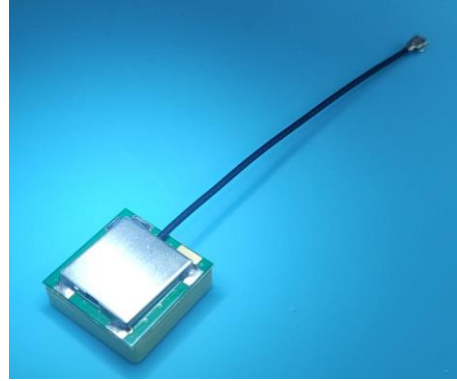
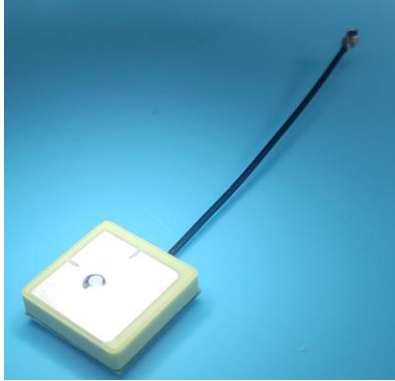




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## Introduction



Introducing the Synzen TETHYS, a cutting-edge internal GPS/GLONASS/GALILEO/BeiDou active patch antenna boasting an enhanced LNA gain of 26dB.

### Key Features:

- High LNA Gain: 26dB
- Comprehensive GNSS Support: GPS/GLONASS/GALILEO/BeiDou
- Excellent Out-of-Band Rejection
- Ideal for Transmitter-Heavy Environments

### Typical Applications:

- Wearables
- Connected Health
- Transportation

The Synzen TETHYS (SZA-N-3G24) incorporates front-end and back-end SAW filters with exceptional rejection across all non-GNSS frequencies, safeguarding your GPS receiver from potential overdriving or damage caused by nearby transmitters. Specifically, at LTE frequencies (700MHz-850MHz), the antenna provides over 50dB rejection, and between 1700MHz-1910MHz, it offers greater than 45dB rejection.

Despite its remarkable out-of-band rejection capabilities, the TETHYS maintains an impressively low noise figure of 2.0dB at 1575.42MHz. This low noise figure significantly minimizes signal degradation, typical of losses in transmission lines.

For further optimization tailored to specific device environments, Synzen offers custom-tuned patch antennas. Elevate your GNSS experience with the Synzen TETHYS (SZA-N-3G24).

## General

### Mechanical Specifications

Part Number	SZC-N-3M13
Name	ARIEL1
Dimensions (mm)	18.0 x 18.0 x 6.3 (mm)
Weight (g)	8.0
Antenna Type	Through Hole Patch
Material	Ceramic
Cable Length (mm)	66.0
Connector	IPEX MHF1 (U.FL)

### Electrical / RF Specifications

#### Antenna

Frequency Range (MHz)	VSWR	Avg Efficiency (%)	Peak Gain (dBi)	Impedance	Polarization
1575.42 ± 1.023	≤2.0	>50	1.8	50Ω	RHCP
1602.56 ± 4.0	≤2.0	<40	1.6		

#### LNA

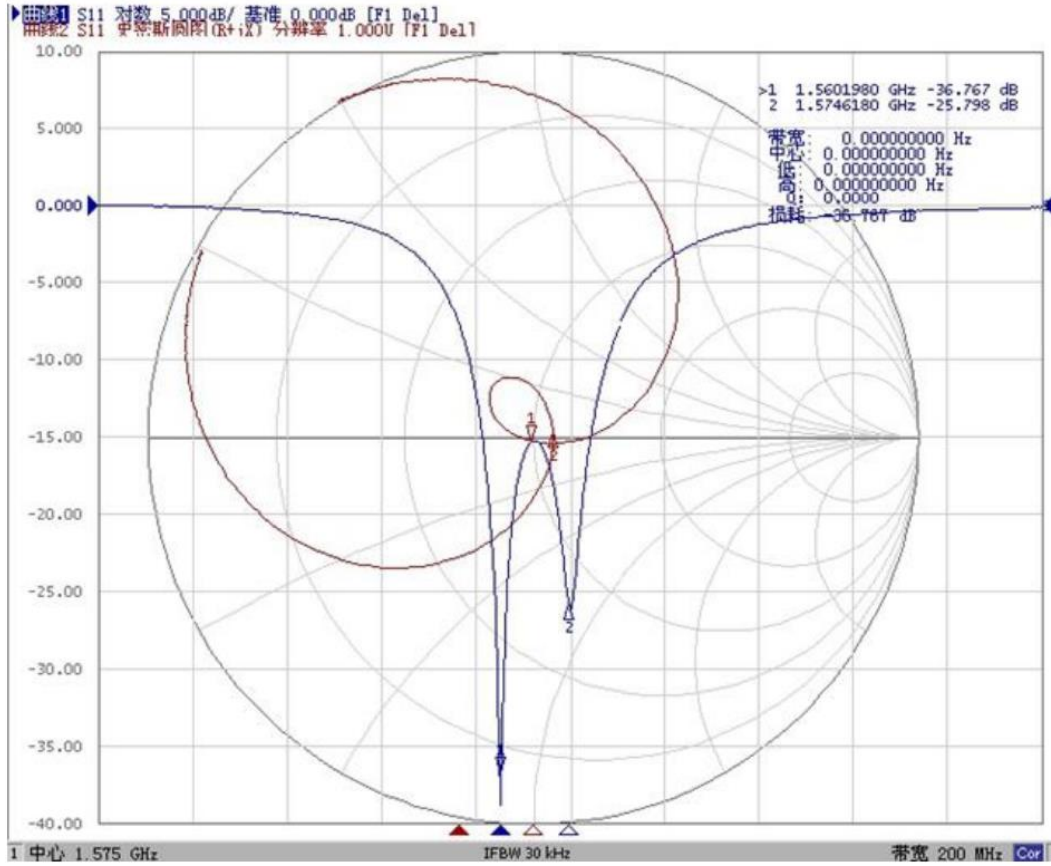
Frequency Range (MHz)	DC Voltage	Current Consumption (mA)	Gain (dB)	VSWR	Noise Figure
1575.42 ± 1.023 / 1602.56 ± 4.0	3.0 ± 0.3V	13 ± 2	26.0	≤2.0	≤1.5

### Environmental Specifications

Operational Temperature	-40 to +85 (°C)
Storage Temperature	-40 to +85 (°C)
Relative Humidity	≤75%
Moisture Sensitivity Level (MSL)	NA
RoHs & REACH compliant	Yes

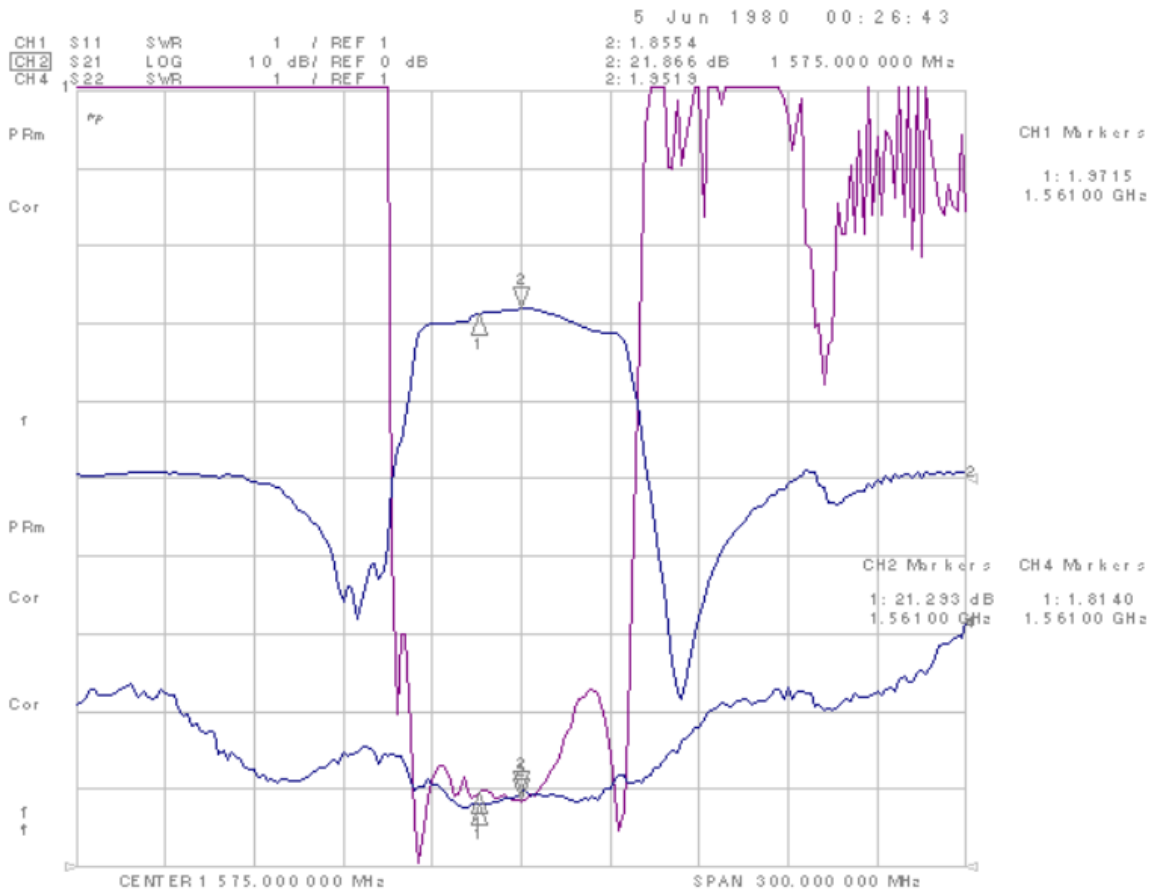
## RF Characteristics

### S11 / Smith



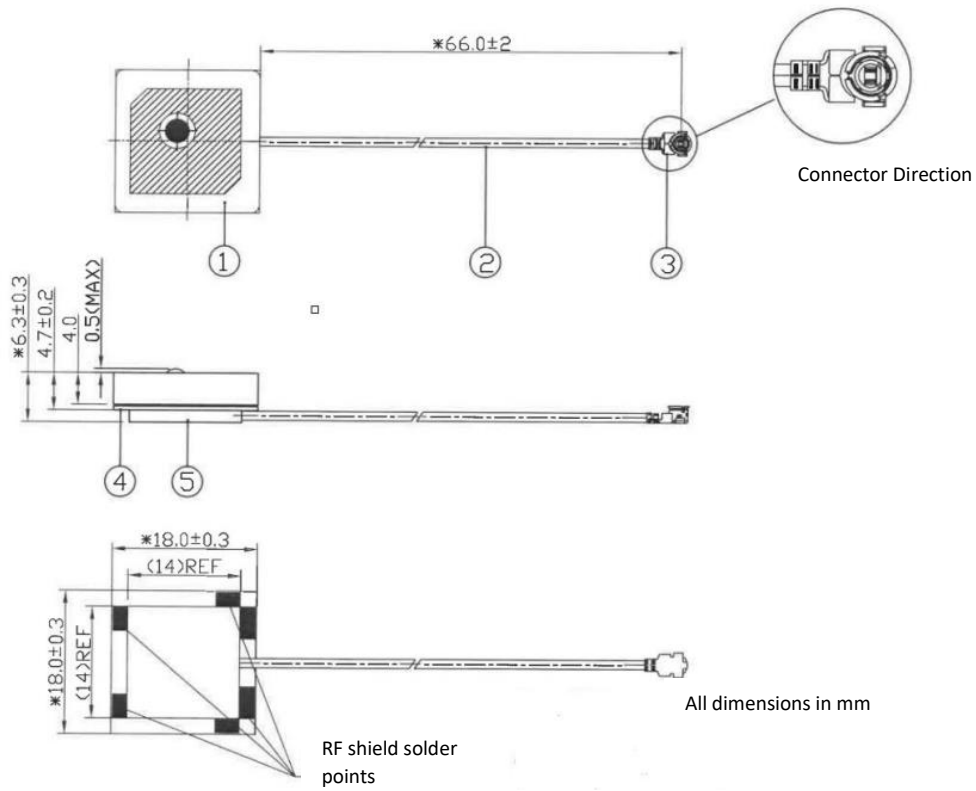
## LNA Characteristics

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



## Mechanical

### Antenna Mechanical Drawing



## Packaging

50 pcs per bag

100pcs per box

Outer Box dimensions = 345 x 210 x 275 cm





## Material Regulation

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

<b>Description</b>	<b>Material</b>	<b>Specification</b>
<b>Antenna Substrate</b>	<b>Microwave dielectric</b>	<b>65±2</b>
<b>Pin</b>	<b>Copper and Ag-plated</b>	<b>4MM</b>
<b>Electrode</b>	<b>Ag Plated</b>	
<b>Adhesive Type</b>	<b>3M 55236</b>	<b>S21.5*21.5</b>
<b>Sn</b>	<b>Sn:Ag:Cu</b>	<b>96.5:3:0.5</b>



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