

ACTIVE GNSS STACKED PATCH

RHEA3

Low Profile High Gain Active GNSS Patch

SZA-N-5G45

BANDS
L1 + L5

LNA GAIN
28 dB

PEAK GAIN
Up to 2.60 dBic

SIZE
25.0 × 25.0 × 6.8 mm

L5	1176 MHz	Covers GNSS L5
L1	1575.42 MHz	Covers GNSS L1

Key Features

- Ultra-low profile double stack patch, total height only 6.8 mm
- Dual-band GNSS support: L1 (1575 MHz) and L5 (1176 MHz)
- Integrated 28 dB low-noise amplifier with low current draw
- Right-hand circular polarization for optimal satellite reception
- 25 mm × 25 mm footprint with FR4 base and tinplate shielding
- 1.13 mm RF cable with IPEX connector for easy integration
- Wide operating temperature range: -45°C to +85°C

1 Introduction

RHEA3 is a precision GNSS antenna built for modern dual-band navigation systems. Its low-profile double stack design combines two 2 mm ceramic patches in a tightly coupled configuration, creating a total height of only 6.8 mm.

This compact form factor is ideal for space-critical applications while preserving superior performance. An integrated 28 dB low-noise amplifier ensures strong signal reception and a low noise figure across the L1 (1575 MHz) and L5 (1176 MHz) bands, delivering exceptional accuracy even in challenging RF environments.

— Features

- ◆ Ultra-low profile double stack patch, total height only 6.8 mm
- ◆ Dual-band GNSS support: L1 (1575 MHz) and L5 (1176 MHz)
- ◆ Integrated 28 dB low-noise amplifier with low current draw
- ◆ Right-hand circular polarization for optimal satellite reception
- ◆ 25 mm × 25 mm footprint with FR4 base and tinfoil shielding
- ◆ 1.13 mm RF cable with IPEX connector for easy integration
- ◆ Wide operating temperature range: -45°C to +85°C

— Applications

- | | |
|--|---|
| ◆ High-precision GNSS receivers and timing modules | ◆ UAV and drone positioning systems |
| ◆ Automotive navigation and advanced driver assistance systems | ◆ Surveying and mapping equipment |
| | ◆ Industrial IoT and asset tracking devices |
| | ◆ Wearable or portable navigation products |

2 Mechanical Specifications

Part Number	SZA-N-5G45
Name	RHEA3
Dimensions (mm)	25.0 × 25.0 × 6.8
Weight	<10 g
Antenna Type	Active Ceramic Patch + Cable
Cable Length (mm)*	100.0, 0.81 Ø
Connector*	MHF1 (U.FL Compatible)
Adhesive Backing	3M

*Alternate cable length and connectors available on request

3 Electrical / RF Specifications

Frequency Range (MHz)	Efficiency (%)	Peak Gain (dBic)	VSWR	Impedance
1575.42	>50	2.60	<2.0:1	50 Ω
1176.0	>45	1.90	<2.0:1	

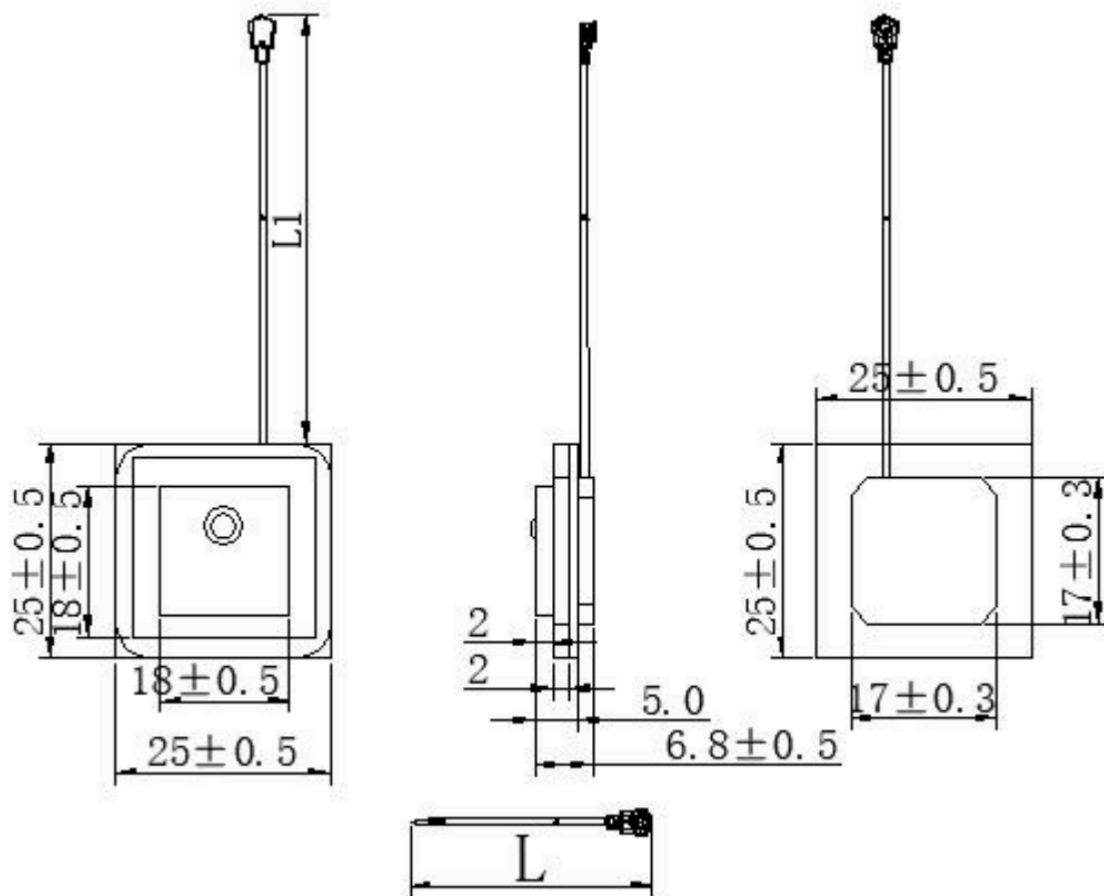
4 LNA

Frequency Range (MHz)	DC Voltage (V)	Current (mA)	Gain (dB)	VSWR	Noise Figure (dB)
1575.42 / 1176	3.0 to 5	20 ±3	28 ±3	<2.0:1	<2.0

5 Environmental

Operational Temperature	-40 to +85°C
Storage Temperature	-40 to +85°C
Relative Humidity (Storage)	65 ±20% RH
Moisture Sensitivity Level (MSL)	1
RoHS and REACH compliant	Yes

6 Mechanical Drawing



All dimensions in mm. L = 100.0 ±1.0, L1 = 88.0 ±1.0

7 Side View



8 Packaging



Antennas packed in tray (50 pcs)

5 trays are packed per bag

4 vacuum bags per carton

Total 1000 pcs per carton (390 × 370 × 180 mm)

9 Compliance

ROHS

Compliant

Conforms to EU RoHS Directive 2011/65/EU as amended by Delegated Directive (EU) 2015/863.

REACH

Compliant

Conforms to EU REACH Regulation (EC) No 1907/2006.

CERTIFICATE

On request

A certificate of conformance is available upon request from sales@synzen.com.tw.

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