

DATASHEET

# Sharpi

SRC5G027 • ceriiANT®



## Features

- Antenna for 4.9 – 5.9 GHz applications: Wi-Fi 802.11a/h//j/n/p/ac® including vehicle to vehicle (V2X) applications
- Maintains high performance on device: DFI (Designed For Integration)
- Ultra-compact ceramic solution
- SMD mounting
- Supplied on Tape and Reel

# 1. Description

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Sharpi is intended for use with 5G Wi-Fi applications. Only requires a small ground plane. Ideal for single and MIMO antenna systems. This product specification shows the performance of the antenna over the frequency range 4.9-5.9GHz.

# 2. Applications

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- Access Points
- Portable Devices
- PC-cards
- Set-Top-Box
- Network Devices
- Wearable devices
- V2X networks
- MIMO Systems
- IP Cameras

# 3. Part number

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SRC5G027



## 4. General data

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Frequency	4.9-6.0GHz
Polarization	Linear
Operating temperature	-40°C to 125°C
Impedance with matching	50 $\Omega$
Weight	<0.015g
Antenna type	SMD
Dimensions	1.0 x 0.5 x 0.5 (mm)
Footprint Area	5.0 x 3.0 (mm)

## 5. RF characteristics

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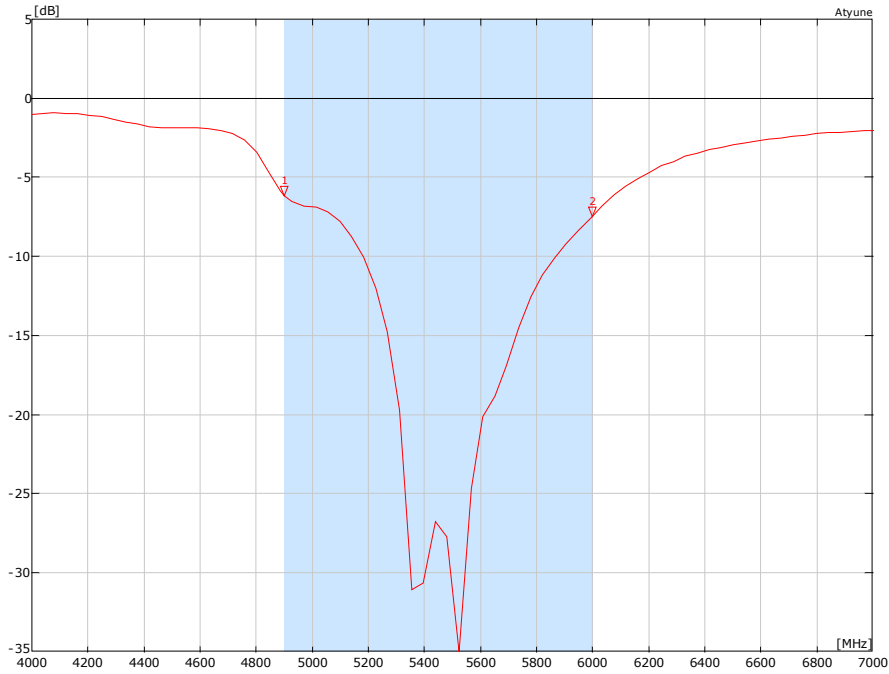
Frequency	4.9-5.9 GHz
Peak gain	3.50dBi
Average gain	-2.50dBi
Average efficiency	>60%
Maximum return loss	-6.0dB
Maximum VSWR	3.0:1

All data measured on Antenova's evaluation PCB

Part No. SRC5G027-EVB-1

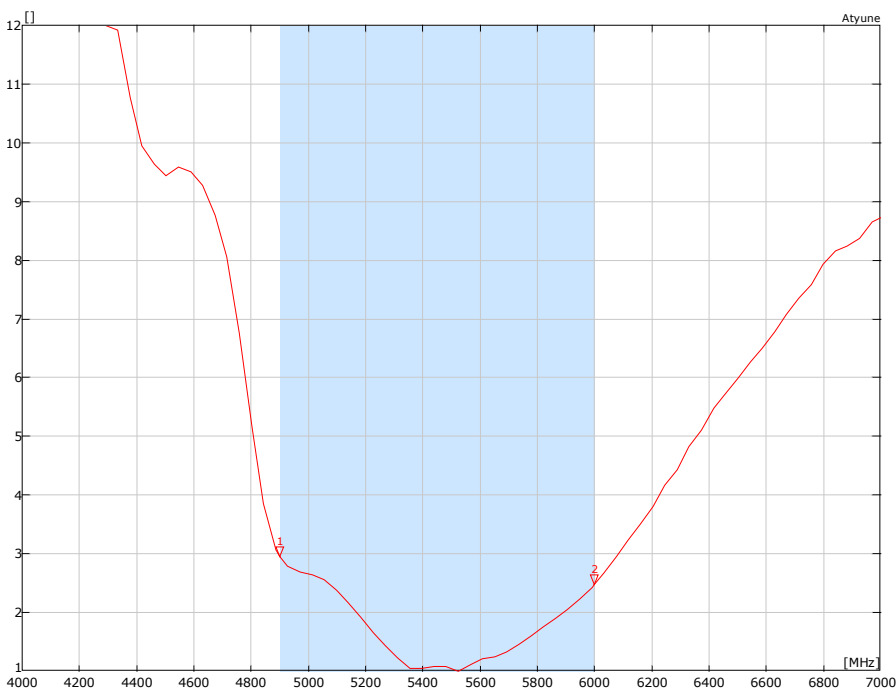
## 6. RF performance

### 6.1. Return loss



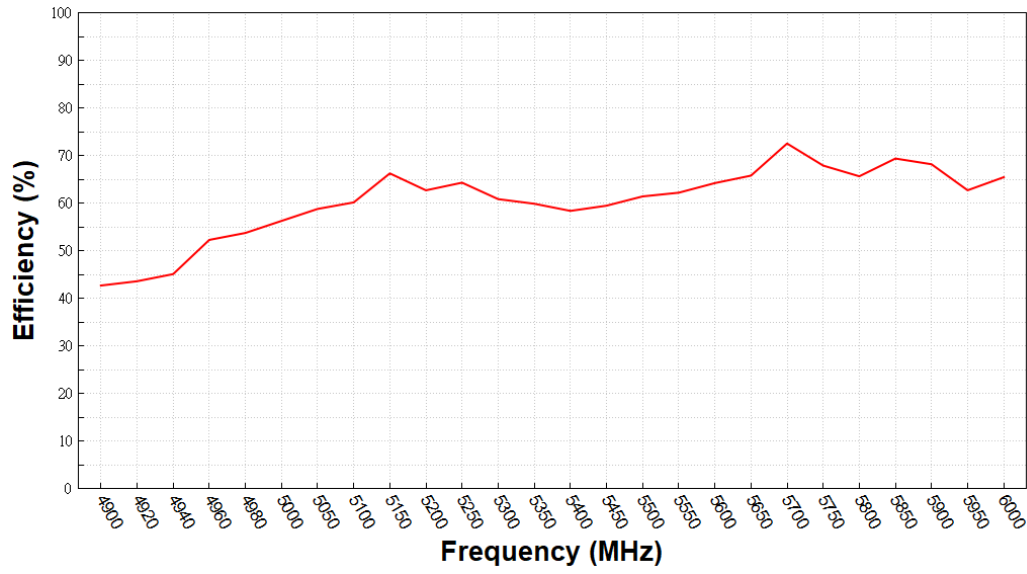
All data measured on Antenova's evaluation PCB Part No. SRC5G027-EVB-1

### 6.2. VSWR



All data measured on Antenova's evaluation PCB Part No. SRC5G027-EVB-1

### 6.3. Efficiency

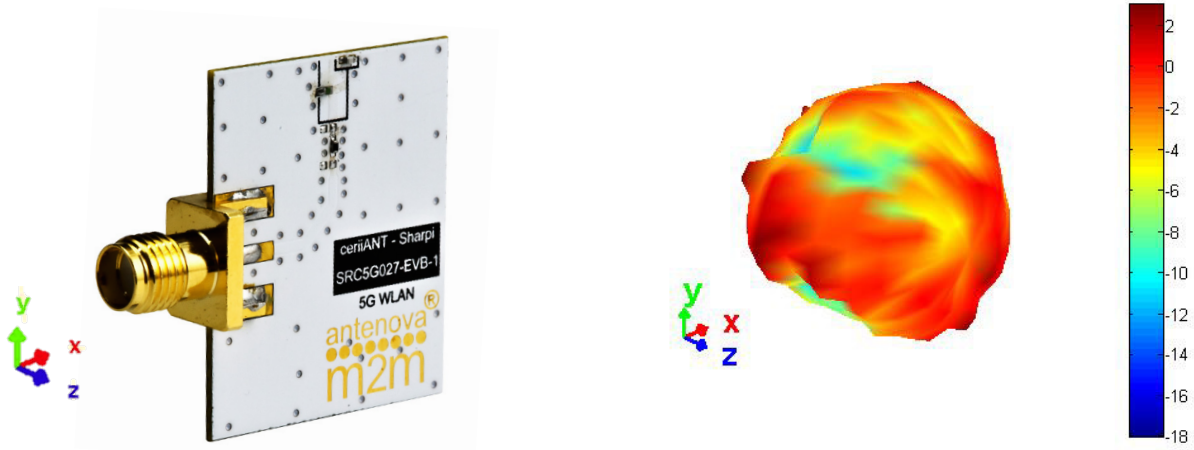


All data measured on Antenova's evaluation PCB Part No. SRC5G027-EVB-1

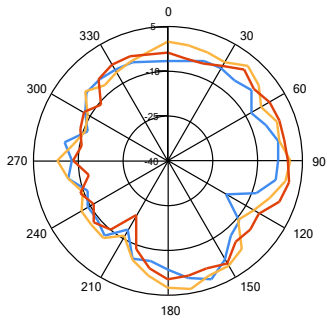
## 6.4. Antenna patterns

### 6.4.1. 4900 - 5900 MHz

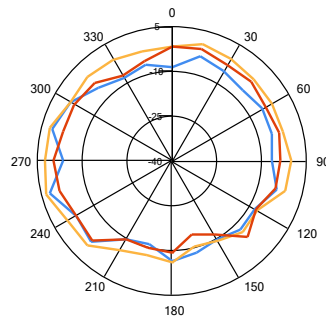
3D pattern at 5.54 GHz



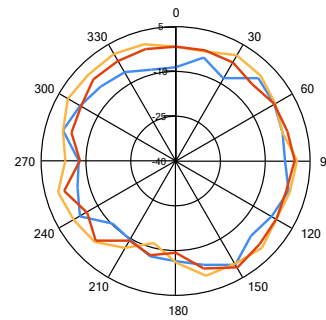
XY



XZ



YZ

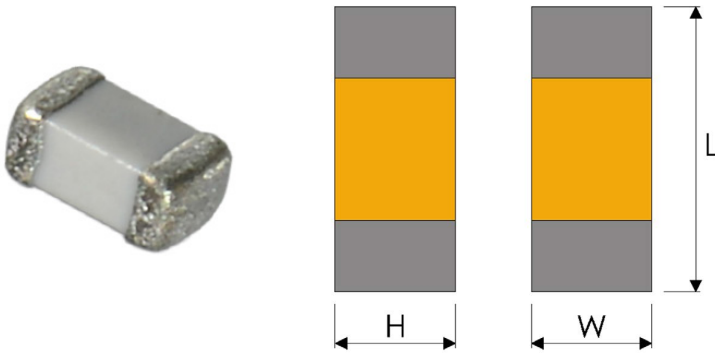


— 4.9GHz — 5.54GHz — 5.9GHz

## 7. Antenna dimensions

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### 7.1. Antenna dimensions



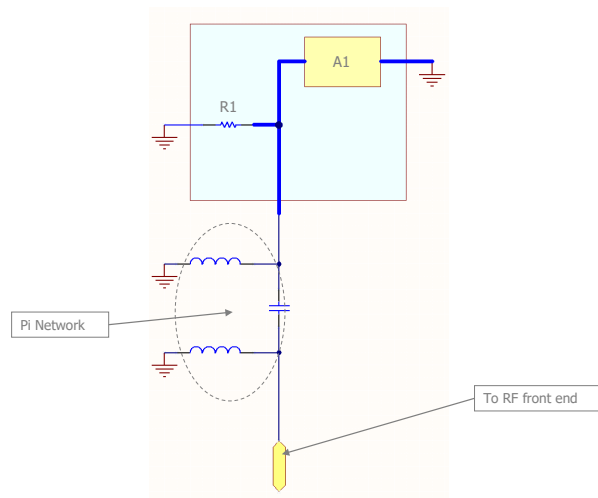
L	W	H
1.0 ±0.1	0.5 ±0.1	0.5 ±0.1

All dimensions in (mm)

## 8. Schematic

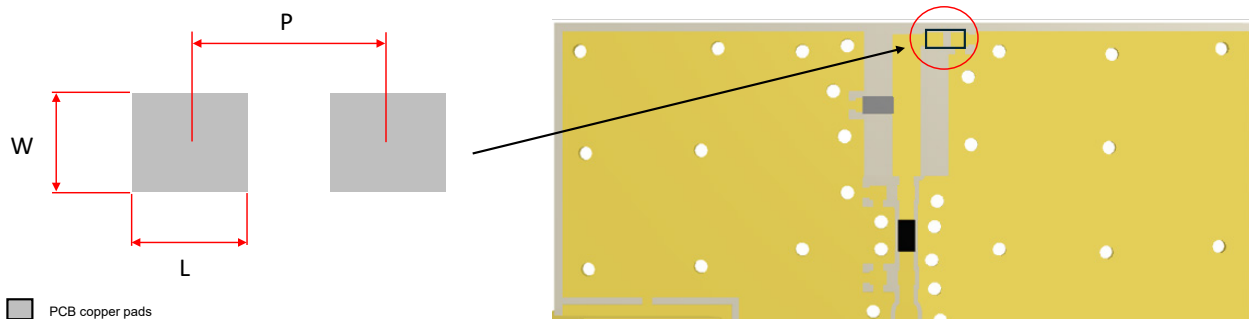
The circuit symbol for the antenna is shown below.

Name	Description
A1	SRC5G027 Antenna
R1	Tuning Component
Pi network	Antenna matching network



## 9. Host PCB footprint

The recommended host PCB footprint is below.



L	W	P
0.6 ±0.1	0.5 ±0.1	1.0 ±0.1

All dimensions in (mm)

## 10. Electrical interface

### 10.1. Transmission line

All transmission lines should be designed to have a characteristic impedance of  $50\Omega$ .

- The length of each transmission lines should be kept to a minimum
- All other parts of the RF system like transceivers, power amplifiers, etc, should also be designed to have a  $50\Omega$  impedance

A co-planar transmission line can be designed using an online transmission line calculator tool, such as:

<https://blog.antenova.com/rf-transmission-line-calculator>

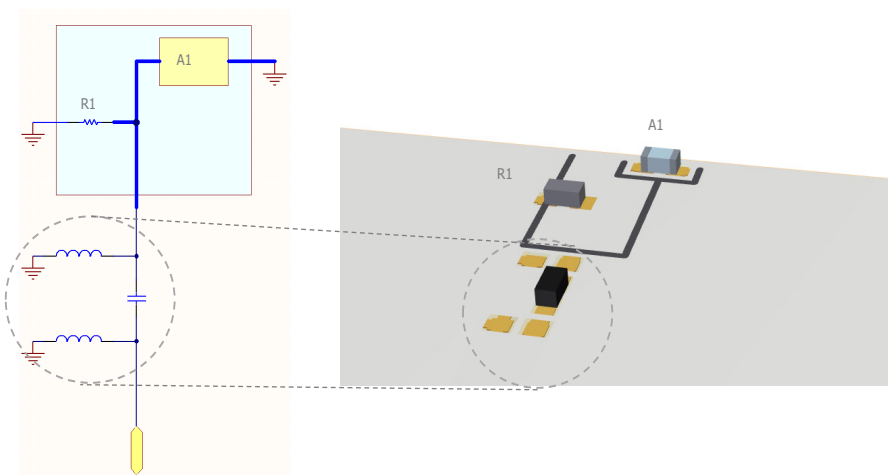
The PCB thickness, copper thickness and substrate dielectric constant are entered, then the tool calculates the transmission line width and gaps on either side of the track to give a  $50\Omega$  impedance.

### 10.2. Matching circuit

The antenna requires a matching circuit that must be optimized for each product. The matching circuit will require up to three components and the following pad layout should be designed into the device so the correct circuit can be installed.

The Pi matching network must be placed close to the antenna feed to ensure it is more effective in tuning the antenna.

An additional tuning component is designed in to aid the tuning of the antenna. This is default not fitted.



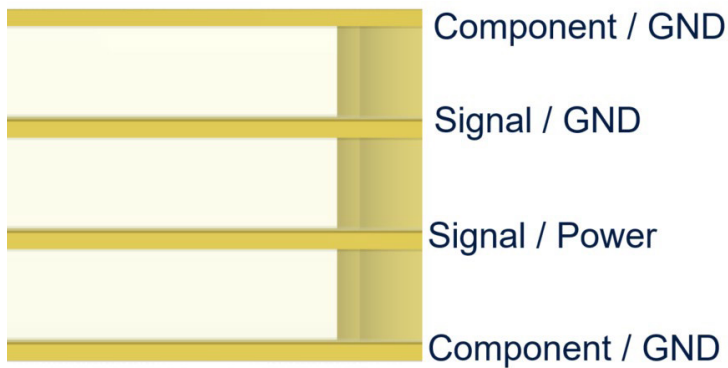
## 11. Antenna integration guide

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We recommend the following during the design phase to maximise antenna performance and minimize noise:

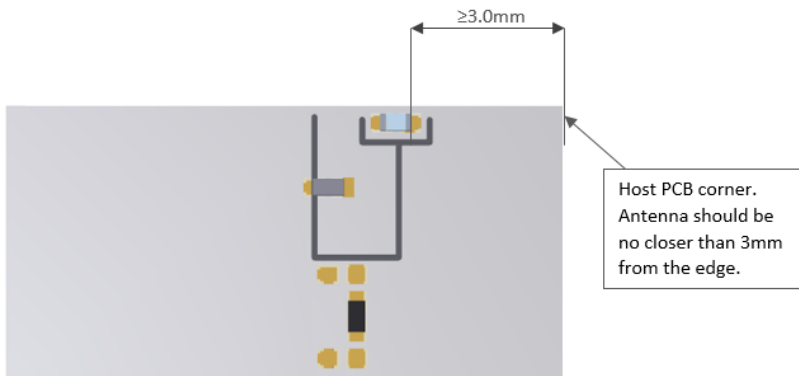
- Minimum 4 layer PCB
- Route signals and power internally where possible
- Flood all layers with ground
- Knit ground on all layers together with plenty of vias

Follow placement guidance carefully. Antenova provide technical support to help you with your design, and also provide design assistance on PTCRB certification. Register for an account on <https://ask.antenova.com/> to access technical support.



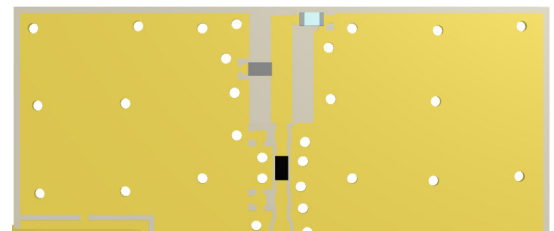
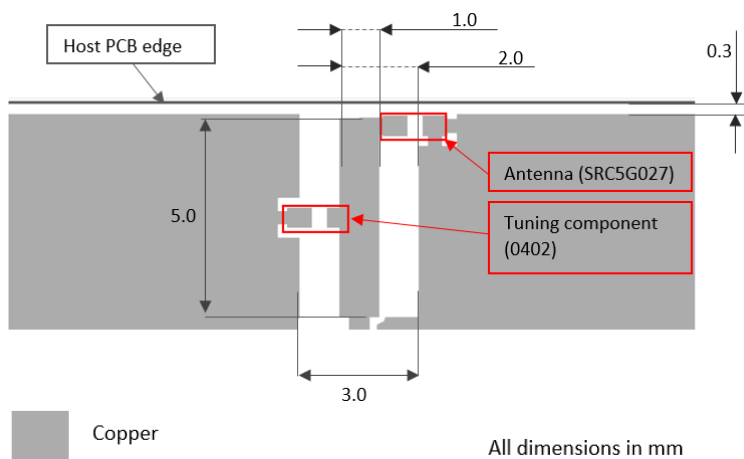
## 11.1. Antenna placement

The antenna should be placed close along the PCB edge. This is best near to the corner of the host for optimal performance.



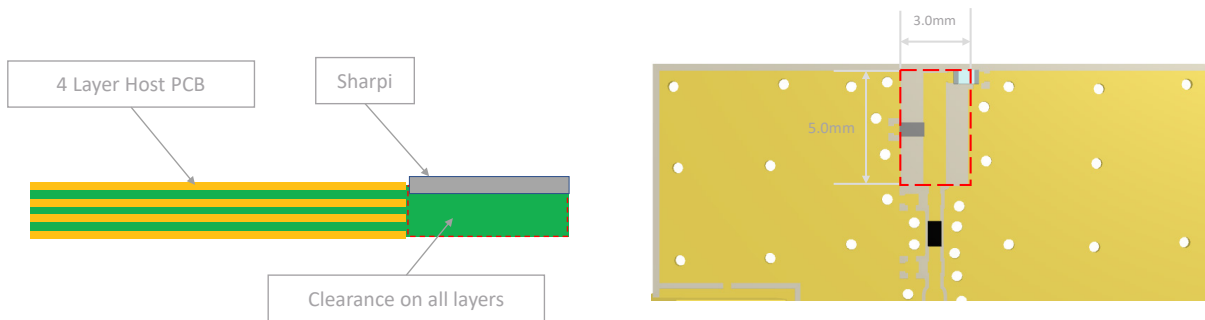
## 11.2. Host PCB layout

The host PCB must ensure the footprint and clearance meets the antenna specification. The layout shown forms an integral part of the antenna, and any deviation from this will result in sub optimal performance. It is best that the copper trace layout is imported from the CAD files which are available from the Antenova website.



### 11.3. Host PCB clearance

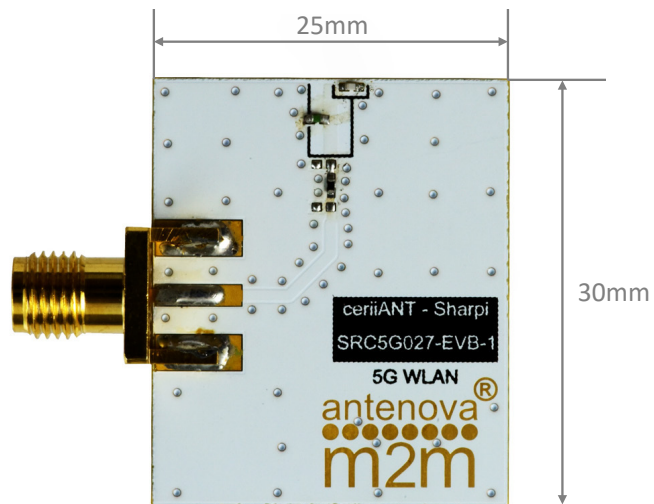
The host PCB must be designed using the PCB footprint shown with the correct clearances. An example of the PCB layout shows the antenna footprint. Please note this clearance area is critical to the performance of the antenna and must be applied through all layers of the PCB.



## 12. Reference board

The reference board has been designed for evaluation purposes of SRC5G027 includes a SMA female connector. (Part number SRC5G027-EVB-1)

To order a reference board please see [antenna.com](http://antenna.com)



## 13. Soldering

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This antenna is suitable for lead free soldering. The reflow profile should be adjusted to suit the device, oven and solder paste, while observing the following conditions:

- For leaded soldering, the maximum temperature should not exceed 240 °C.
- For lead free soldering, a maximum temperature of 255 °C for no more than 20 seconds is permitted.
- The antenna should not be exposed to temperatures exceeding 120 °C more than 3 times during the soldering process.

## 14. Hazardous material regulation conformance

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The antenna has been tested to conform to RoHS and REACH requirements. A certificate of conformance is available from Antenova's website.

## 15. Packaging

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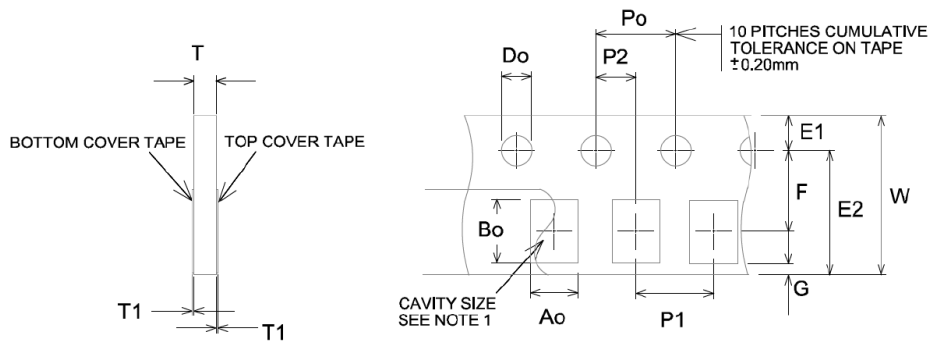
### 15.1. Optimal storage conditions

Temperature	-10°C to 40°C
Humidity	Less than 75% RH
Shelf life	24 Months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacturer's plastic packaging.

Note: Storage of open reels of antennas is not recommended due to possible oxidization of pads on antennas. If short term storage is necessary, then it is highly recommended that the bag containing the antenna reel is re-sealed and stored in conditions as described in the table above .

The shelf life of the antenna is 2 years provided the factory seal on the package has not been broken.

## 15.2. Tape characteristics



All dimensions in mm

D0	E1	E2	F	G	P0
1.50 +0.1	1.75 ± 0.1	6.25 ± 0.1	3.50 ± 0.05	0.75min	4.0±0.1

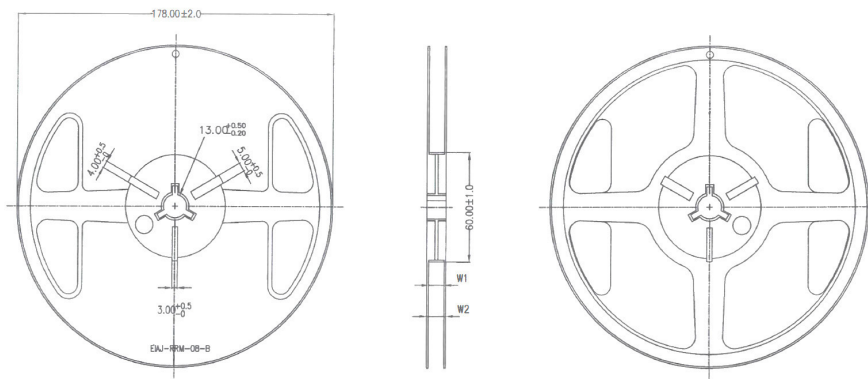
P1	P2	T	T1	W	A0 & B0
4.00±0.1	2.00±0.5	1.10 max	0.1 max	8.00±0.3	See note 1

### Notes:

The cavity defined by Ao, Bo and T shall be configured to provide sufficient clearance surrounding the antenna so that:

- The component does not protrude beyond either surface of the carrier
- The component can be removed from the cavity in a vertical direction without mechanical restriction after the top cover tape has been removed
- Rotation of the component is limited to 20 degrees maximum.
- Lateral movement of the component is restricted to 0.5mm maximum.

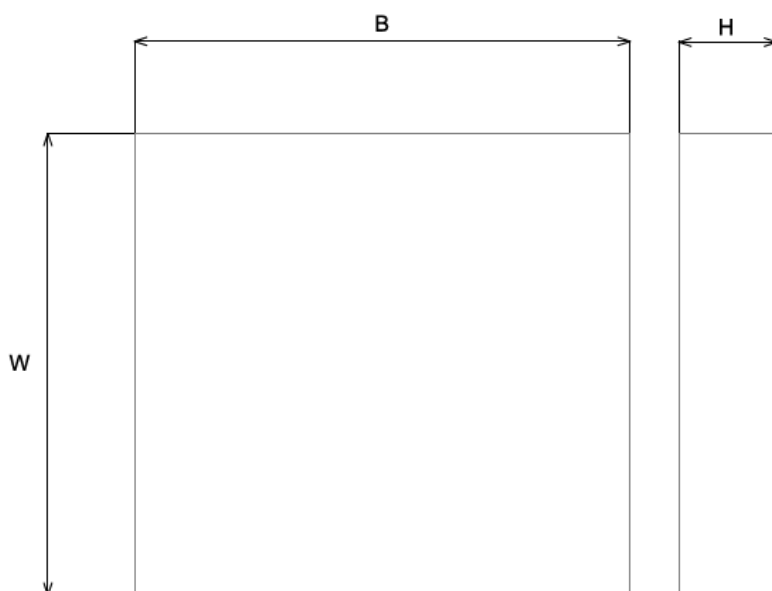
### 15.3. Reel Dimensions



W1	W2
9.0 ± 0.5mm	11.4 ± 0.5mm

Quantity	Leading space	Trailing space
10000 pcs/reel	16 blank holders	24 blank holders

### 15.4. Box Dimensions



Width (W)	Breadth (B)	Height (H)
200 mm	185 mm	40 mm

## 15.5. Bag properties

Reels are supplied in protective plastic packaging.

## 15.6. Reel label information

**Antenova Limited** **antenova**  
 www.antenova.com

DESCRIPTION: SHARPI  
 PART NUMBER: SRC5G027  
 QTY: 10,000 pcs  
 DATE CODE: YYWW





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## Quality statements

Antenova’s products conform to REACH and RoHS legislation. For our statements regarding these and other quality standards, please see

[antenova.com](http://antenova.com)

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## Datasheet version

2.01 released August 31 2025

## Antenna design, integration and test resources

Product designers – the details contained in this datasheet will help you to complete your embedded antenna design. Please follow our technical advice carefully to obtain optimum antenna performance.

We aim to support our customers to create high performance wireless products. You will find a wealth of design resources, calculators and case studies to aid your design on our website.

Antenova's design laboratories are equipped with the latest antenna design tools and test chambers. We provide antenna design, test and technical integration services to help you complete your design and obtain the required certifications.

If you cannot find the antenna you require in our product range, please contact us to discuss creating a custom antenna to meet your exact requirements.

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