

DATASHEET

# Serica

SR4W035 · lamiiANT®



## Features

- Antenna for 2.4GHz applications
- Bluetooth®, Wi-Fi®, ZigBee®, ISM.
- Maintains high performance on device: DFI (Designed for Integration)
- Ultra-low profile innovative design.
- SMD mounting
- Supplied on Tape and Reel
- Automotive temperature rating.

# 1. Description

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Serica is intended for use with 2.4GHz applications. The antenna only requires a small ground plane. It is ideal for single and MIMO antenna systems.

This product specification shows the performance of the antenna over the frequency range 2.4 – 2.5GHz.

# 2. Applications

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- Wearable devices
- Medical equipment
- Tablets
- Network Devices
- MIMO Systems
- IP Cameras
- Access Points

# 3. Part number

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SR4W035



## 4. General data

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|                              |                                  |
|------------------------------|----------------------------------|
| Frequency                    | 2.4 - 2.5 (GHz)                  |
| Polarization                 | Linear                           |
| Operating Temperature        | -40°C to 140°C                   |
| Environmental Condition Test | ISO16750-4 5.1.1.1/5.1.2.1/5.3.2 |
| Impedance with Matching      | 50 $\Omega$                      |
| Weight                       | < 1g                             |
| Antenna Type                 | SMD                              |
| Dimensions                   | 6.0 x 4.0 x 0.4 (mm)             |

## 5. RF characteristics

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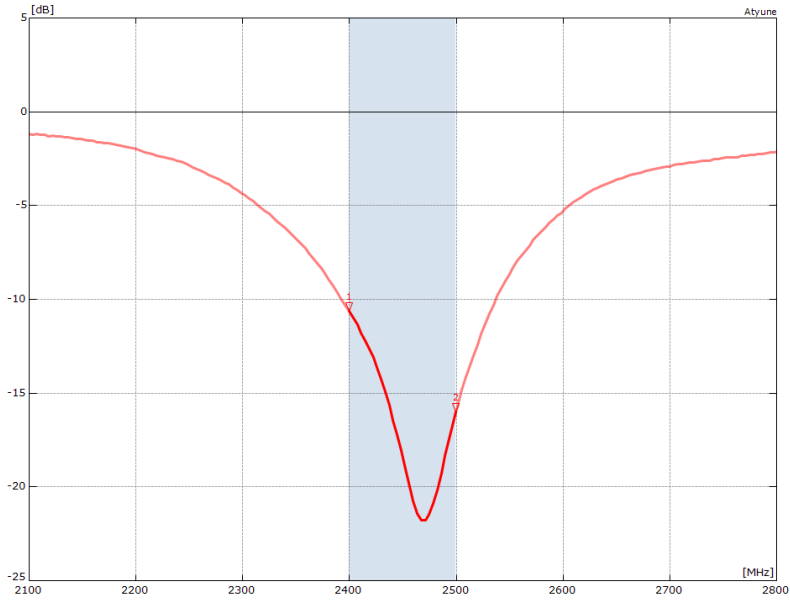
| Frequency                   | 2400 - 2500 MHz |
|-----------------------------|-----------------|
| Peak Gain                   | 3.50dBi         |
| Average Gain (Linear)       | -1.50dBi        |
| Average Efficiency (Linear) | >65%            |
| Maximum Return Loss         | -10.0dB         |
| Maxium VSWR                 | 1.85:1          |

All data measured on Antenova's evaluation PCB

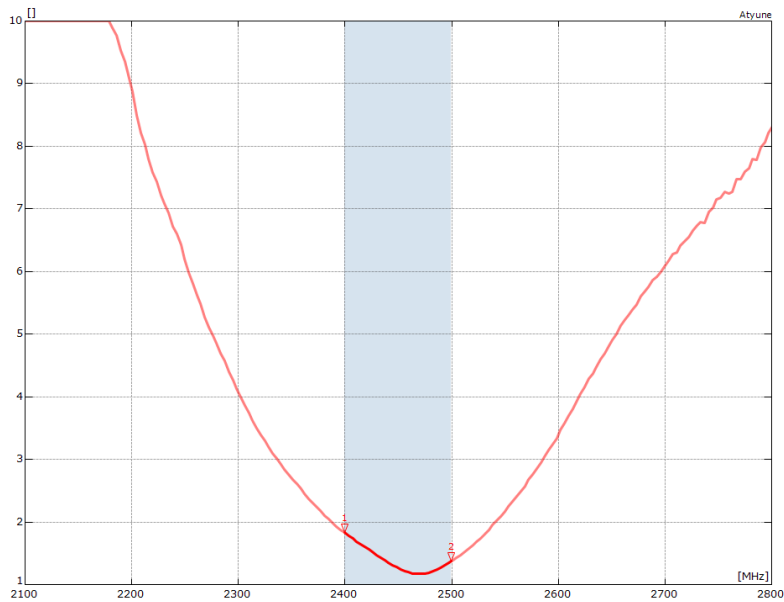
Part No. SR4W035-EVB-1

## 6. RF performance

### 6.1. Return loss



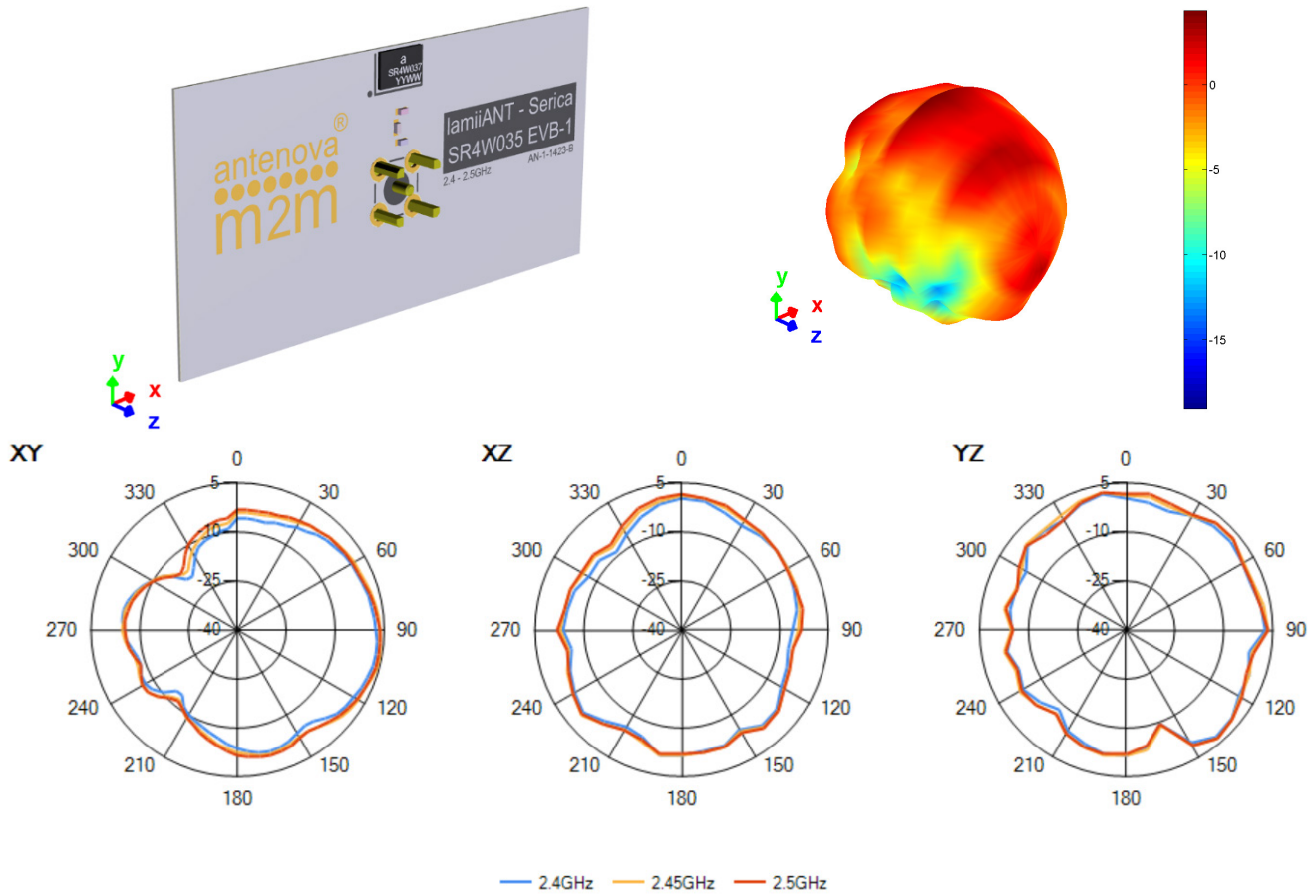
### 6.2. VSWR



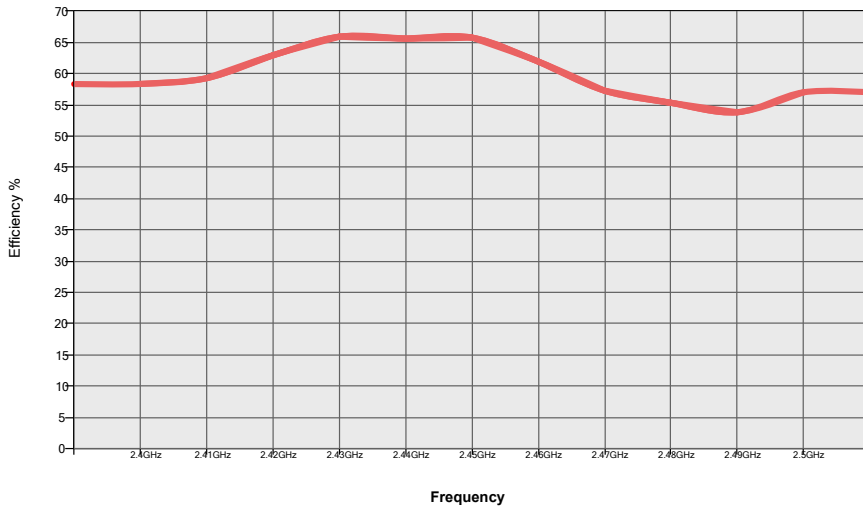
### 6.3. Antenna pattern

#### 6.3.1. 2400 MHz - 2500 MHz

3D pattern at 2.45 GHz

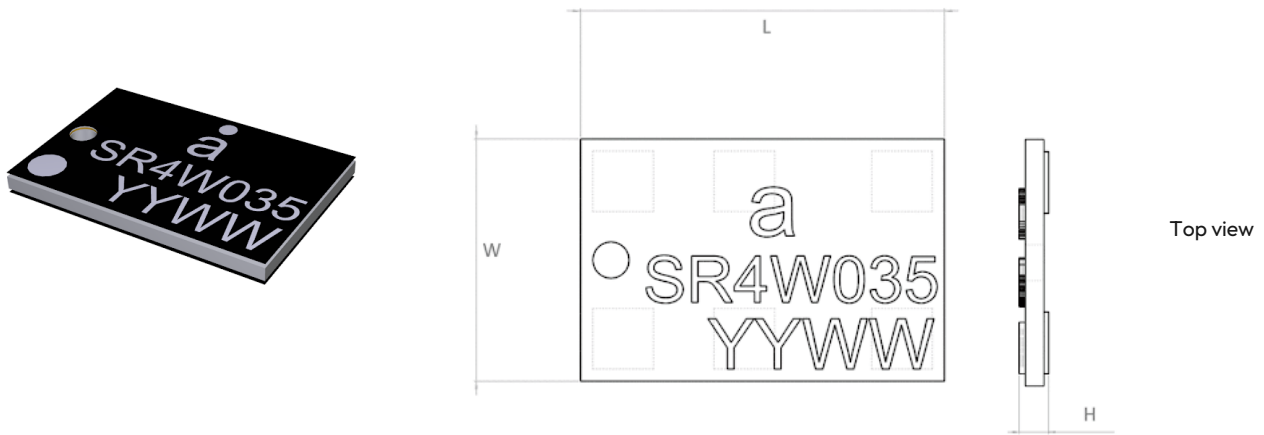


## 6.4. Efficiency



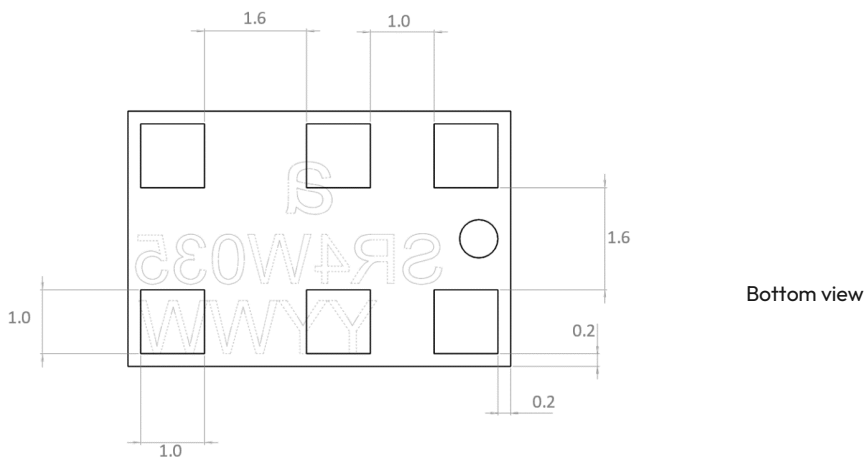
All data measured on Antenova's evaluation PCB Part No. SR4W035-EVB-1 (EVK size 60mm x 30mm)

# 7. Antenna dimensions



| L        | W        | H              |
|----------|----------|----------------|
| 6.0 ±0.1 | 4.0 ±0.1 | 0.4 ±0.1 - 0.0 |

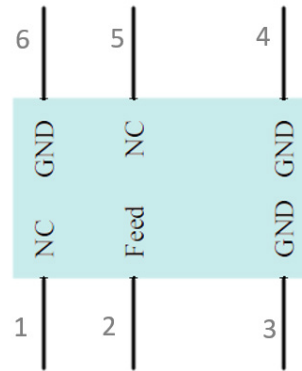
All dimensions in (mm)



## 8. Schematic symbol and pin definition

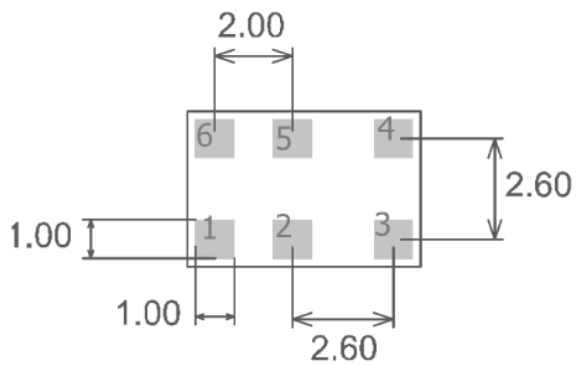
The circuit symbol for the antenna is shown below. The antenna has 6 pins with only four as functional. All other pins are for mechanical strength.

| Pin     | Description                    |
|---------|--------------------------------|
| 2       | Feed (Transceiver port)        |
| 3, 4, 6 | Return/GND                     |
| 1, 5    | NC (Not used, mechanical only) |



## 9. Host PCB footprint

The recommended host PCB footprint is below.



6 copper pads all 1.0 x 1.0 (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:

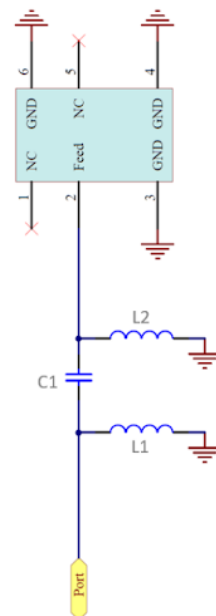
<https://blog.antenova.com/rf-transmission-line-calculator>

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.

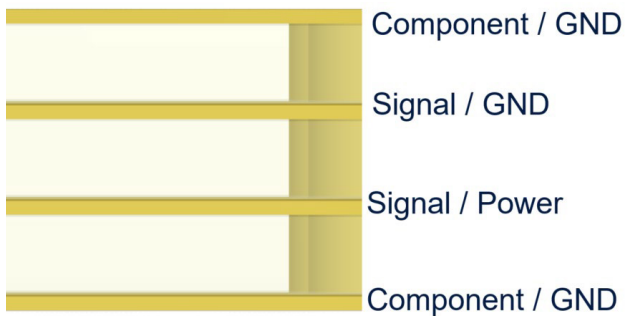


## 11. Antenna integration guide

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, in addition Antenova provide technical support to help you through all stages of your design. Register for an account on <https://ask.antenova.com/> to access technical support.

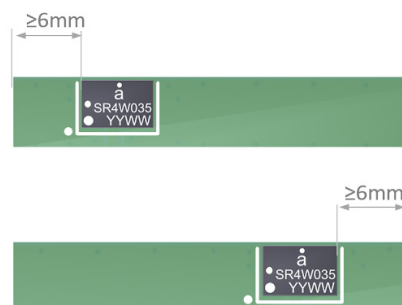
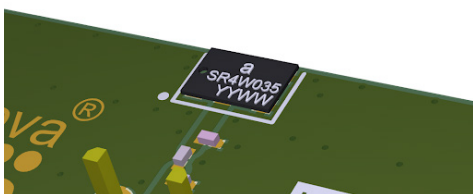


### 11.1. Antenna placement

The best position for the antenna is at the centre of the longest edge of the PCB.

Where the centre is not a viable option the antenna can be placed offset on the PCB to within the limits shown below. A minimum of 6mm from either PCB edge should be observed. Where possible this distance should be greater than 6mm.

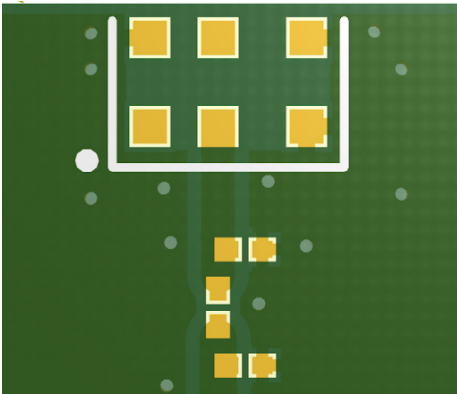
The Antenova placement tool can be used to advise on antenna placement, see: <https://blog.antenova.com/intelligent-antenna-selection-and-placement-tool-antenova>



## 11.2. Host PCB layout

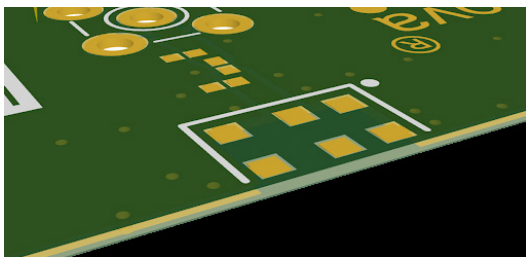
The host PCB must be designed using the PCB footprint shown with the correct clearances. An example of the PCB layout shows the antenna footprint. Please note this clearance area is critical to the performance of the antenna and must be applied through all layers of the PCB.

Pins 3, 4 and 6 (GND) are shown directly connecting to the GND with the shortest route. The feed (Pin 2) connects to the matching circuit close to the antenna.

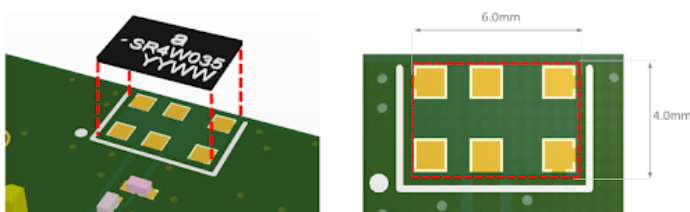


## 11.3. Host PCB clearance

The diagram below shows the antenna footprint and clearance through all layers on the PCB. Only the antenna pads and connections to feed and GND are present within this clearance area. The clearance area required is 6.0 x 4.0 (mm).



The clear-out area is simply defined as the same size as the antenna. No additional clearance is required.

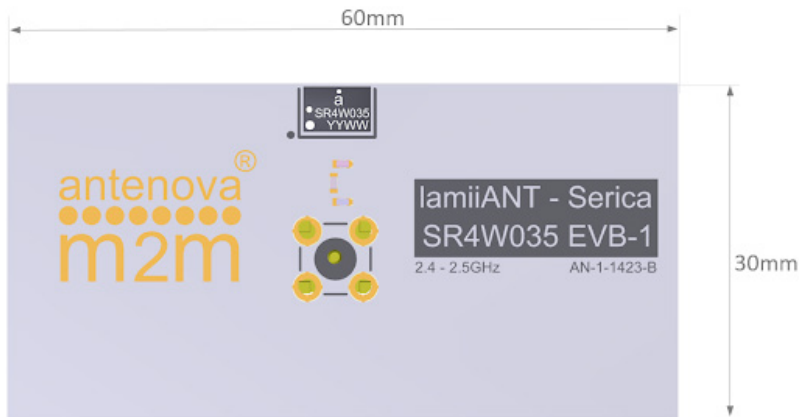


--- Clearance area

## 12. Reference board

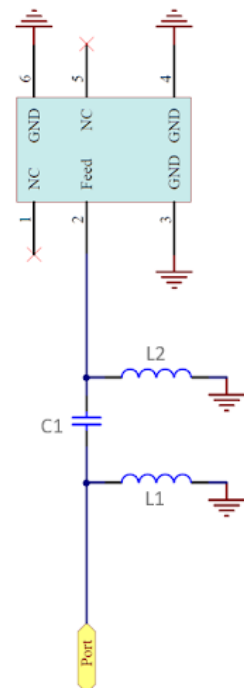
The reference board has been designed for the purpose of evaluating SR4W035 and includes an SMA female connector.

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



### 12.1. Reference board matching circuit

| Designator | Type       | Value      | Description                         |
|------------|------------|------------|-------------------------------------|
| L1         | Not fitted | Not fitted | Not fitted                          |
| L2         | Inductor   | 2.2nH      | Murata LQG15HN series or equivalent |
| C1         | Capacitor  | 1.5pF      | Murata GRM15HS series or equivalent |



## 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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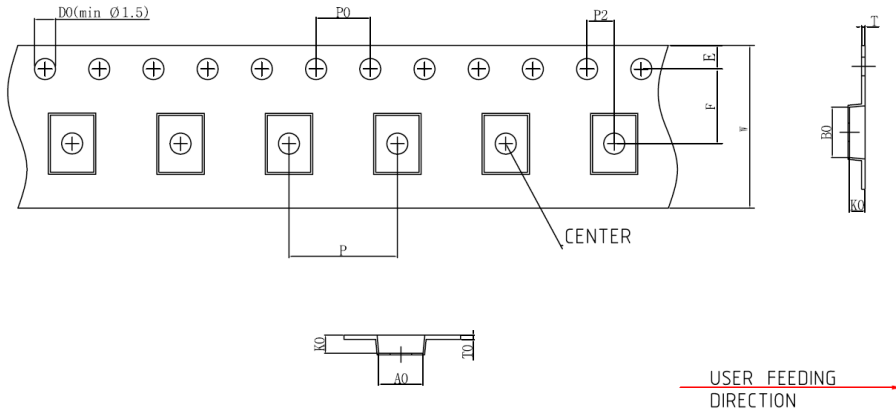
### 15.1. Optimal storage conditions

|               |  |
|---------------|--|
| 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 tabel 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

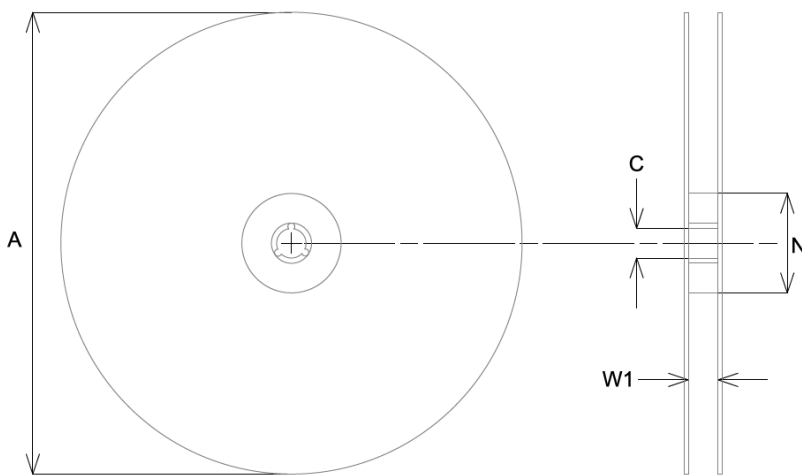


| Ko         | Ao         | Bo         | P0         | P1         | P2         |
|------------|------------|------------|------------|------------|------------|
| 0.95 ± 0.1 | 4.20 ± 0.1 | 6.20 ± 0.1 | 4.00 ± 0.1 | 8.00 ± 0.1 | 2.00 ± 0.1 |

| E          | F           | W           |
|------------|-------------|-------------|
| 1.75 ± 0.1 | 7.50 ± 0.15 | 12.00 ± 0.3 |

All dimensions in (mm)

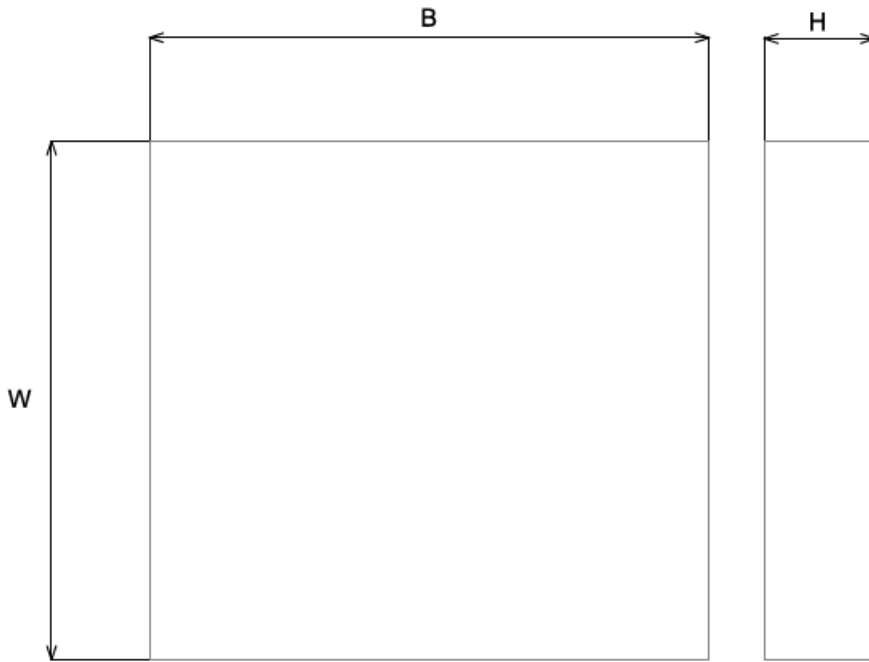
### 15.3. Reel dimensions



| A           | C          | N          | W1         |
|-------------|------------|------------|------------|
| 178.0 ± 2.0 | 13.5 ± 0.5 | 60.0 ± 0.2 | 13.0 ± 0.3 |

All dimensions in (mm)

### 15.4 Box dimensions



| Width (W) | Breadth (B) | Height (H) |
|-----------|-------------|------------|
| 203mm     | 188mm       | 40mm       |

### 15.5. Bag properties

Reels are supplied in protective plastic packaging.

### 15.6. Reel label information

**Antenova Limited** **antenova**  
[www.antenova.com](http://www.antenova.com)

DESCRIPTION: SERICA   
 PART NUMBER: SR4W035   
 QTY: 1,000 pcs   
 DATE CODE: YYWW 

  **lamiiANT®**

## Quality statements

Antenova's products conform to REACH and RoHS legislation. For our statements regarding these and other quality standards, please see [antenova.com](https://www.antenova.com).

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## Datasheet version

3.01 release Oct 21st th 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.

Share knowledge with RF Experts around the world

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**+ 44 (0) 23 9400 1023**

Global headquarters

**Antenova Ltd, 7 The Briars,  
Waterberry Drive, Waterlooville,  
Hampshire, PO7 7YH**