

## **SAW Single Filter**

**for GPS / GLONASS / BEIDOU / GALILEO / Unbalanced / 5pin / 1109**

- **Small Size 1.1 x 0.9 mm**
- **Low Insertion Loss**
- **Good Attenuations in Cellular Bands**

## 1 Description

SAWF11091G56AT is a high-performance Surface Acoustic Wave (SAW) Bandpass filter optimized for GPS / GLONASS / BEIDOU / GALILEO applications operating in the range of 1.55905 GHz to 1.60566 GHz. It is designed to provide both low insertion loss in GPS / GLONASS / BEIDOU / GALILEO and high rejection in the adjacent cellular Bands for mobile devices.

SAWF11091G56AT uses advanced Chip Scale Package (CSP) technology and is housed in an industry-standard, 5-pin 1.1mm x 0.9mm package with a low profile of 0.6mm max.

## 2 Features

- Low Insertion Loss
- Small Footprint:  $0.25 \pm 0.03\text{mm} \times 0.20 \pm 0.03\text{mm}$ .
- Package size  $1.1 \pm 0.05\text{mm} \times 0.9 \pm 0.05\text{mm}$
- Electrostatic Sensitive Device(ESD)
- Package height 0.6mm max.
- Single-Ended Operation
- RoHS Compliant

### 3 Package & Dimensions:

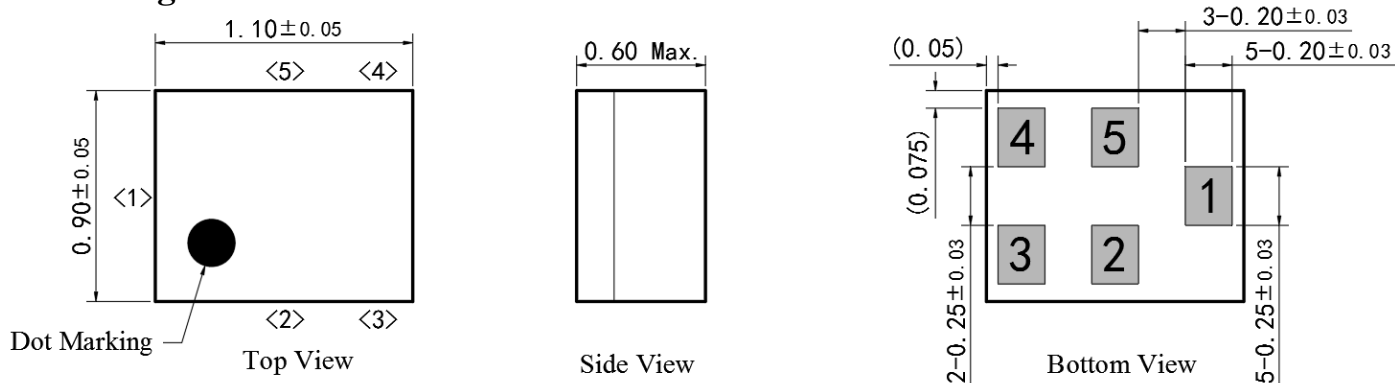


Figure 1: Drawing of Package with each tolerance range

### 4 Pin configuration

- 1 Input (recommended)
- 4 Output (recommended)
- 2,3,5 To be grounded

### 5 Matching Circuit(recommended)

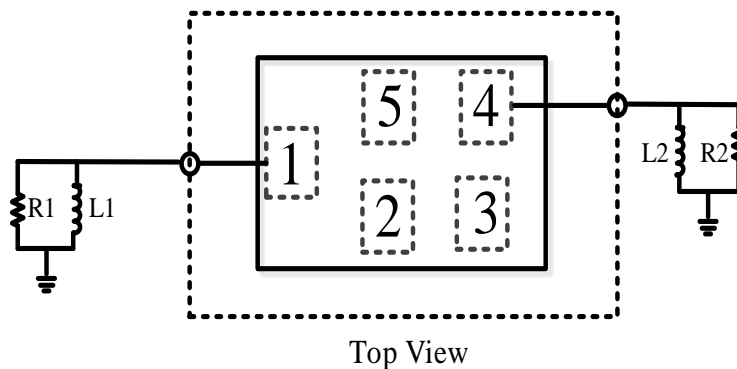


Figure 2: Schematic of matching circuit.

|            |        |
|------------|--------|
| R1: 50 Ohm | L1: NC |
| R2: 50 Ohm | L2: NC |

**6 Absolute Maximum Ratings**

| <b>Parameter</b>      | <b>Rating</b> | <b>Unit</b> |
|-----------------------|---------------|-------------|
| Operating Temperature | -30 to +85    | °C          |
| Storage Temperature   | -40 to +85    | °C          |
| Maximum Input Power   | +15           | dBm         |
| Maximum DC Voltage    | 5             | V           |

## 7 Electrical Specifications

(At  $T_a=25^{\circ}\text{C}$ , unless otherwise specified, as measured on the evaluation board of SAWF11091G56AT with feed line loss de-embedded.)

| Parameter       | Conditions            | Min | Typ. | Max | Unit | Note |
|-----------------|-----------------------|-----|------|-----|------|------|
| Insertion Loss  | 1559.05 - 1563.15 MHz | -   | 1.5  | 1.8 | dB   |      |
|                 | 1574.39 - 1576.45 MHz | -   | 1.3  | 1.7 | dB   |      |
|                 | 1597.78 - 1605.66 MHz | -   | 1.4  | 1.7 | dB   |      |
| Passband Ripple | 1559.05 - 1563.15 MHz | -   | 0.2  | 0.5 | dB   |      |
|                 | 1574.39 - 1576.45 MHz |     | 0.2  | 0.5 | dB   |      |
|                 | 1597.78 - 1605.66 MHz |     | 0.2  | 0.5 | dB   |      |
| Attenuation     | 824 - 925 MHz         | 36  | 45   | -   | dB   |      |
|                 | 1710 - 1785 MHz       | 37  | 45   | -   | dB   |      |
|                 | 1850 - 1980 MHz       | 37  | 48   | -   | dB   |      |
|                 | 2400 - 2570 MHz       | 40  | 42   | -   | dB   |      |
| VSWR Input      | 1559.05 - 1563.15 MHz | -   | 1.4  | 1.7 | -    |      |
|                 | 1574.39 - 1576.45 MHz | -   | 1.2  | 1.6 | -    |      |
|                 | 1597.78 - 1605.66 MHz | -   | 1.2  | 1.6 | -    |      |
| VSWR Output     | 1559.05 - 1563.15 MHz | -   | 1.4  | 1.6 | -    |      |
|                 | 1574.39 - 1576.45 MHz | -   | 1.2  | 1.6 | -    |      |
|                 | 1597.78 - 1605.66 MHz | -   | 1.3  | 1.7 | -    |      |

## 8 Transmission coefficient

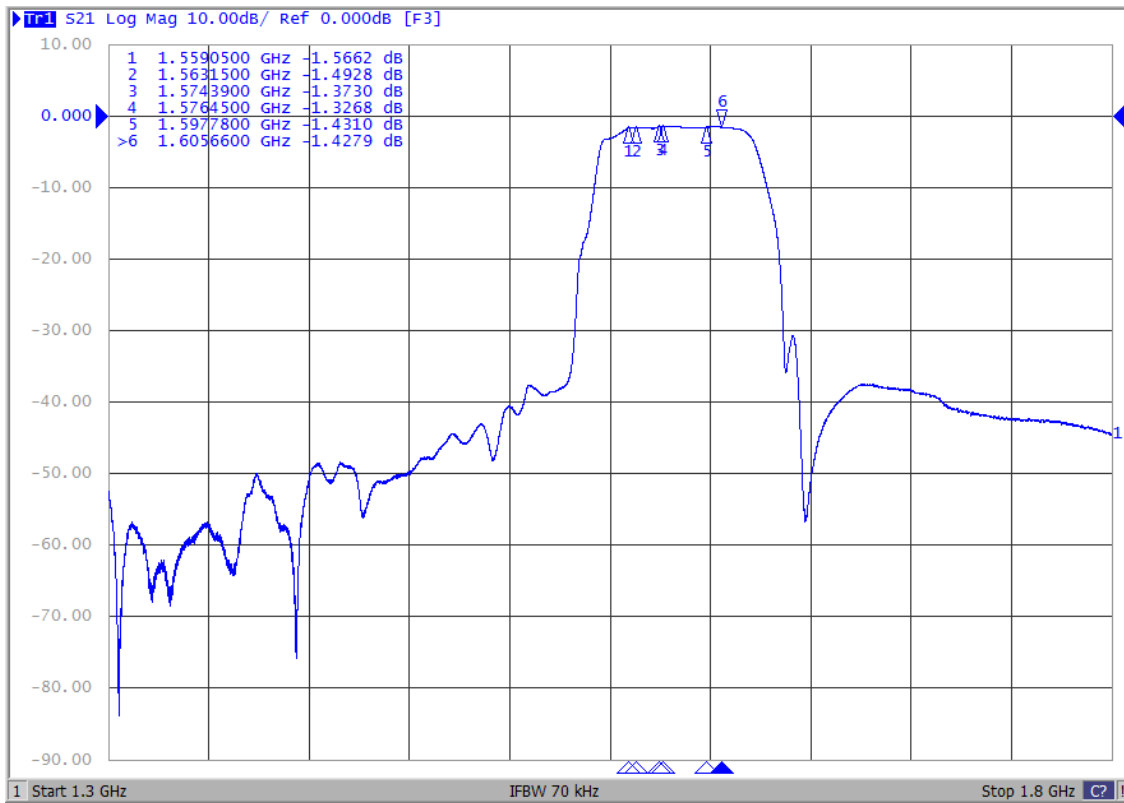


Figure 3: |S21|

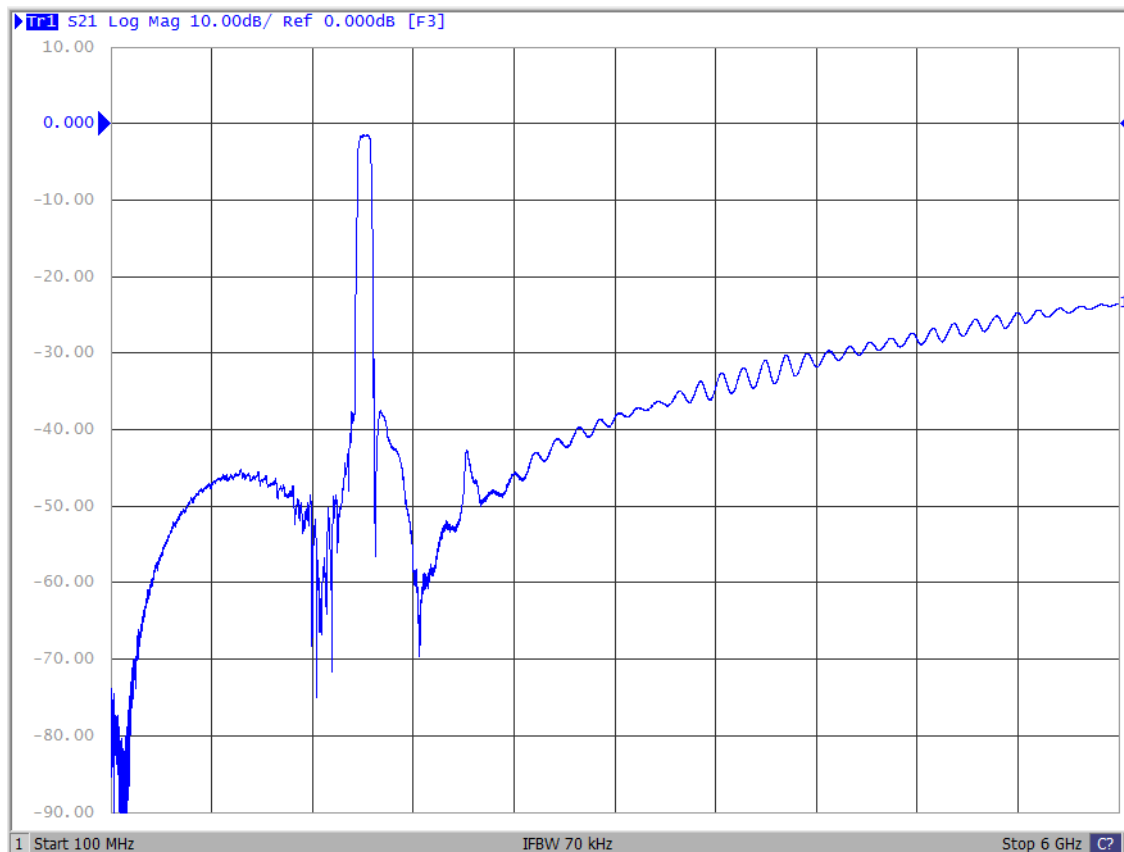


Figure 4: Wide Band |S21|

## 9 Reflection coefficients

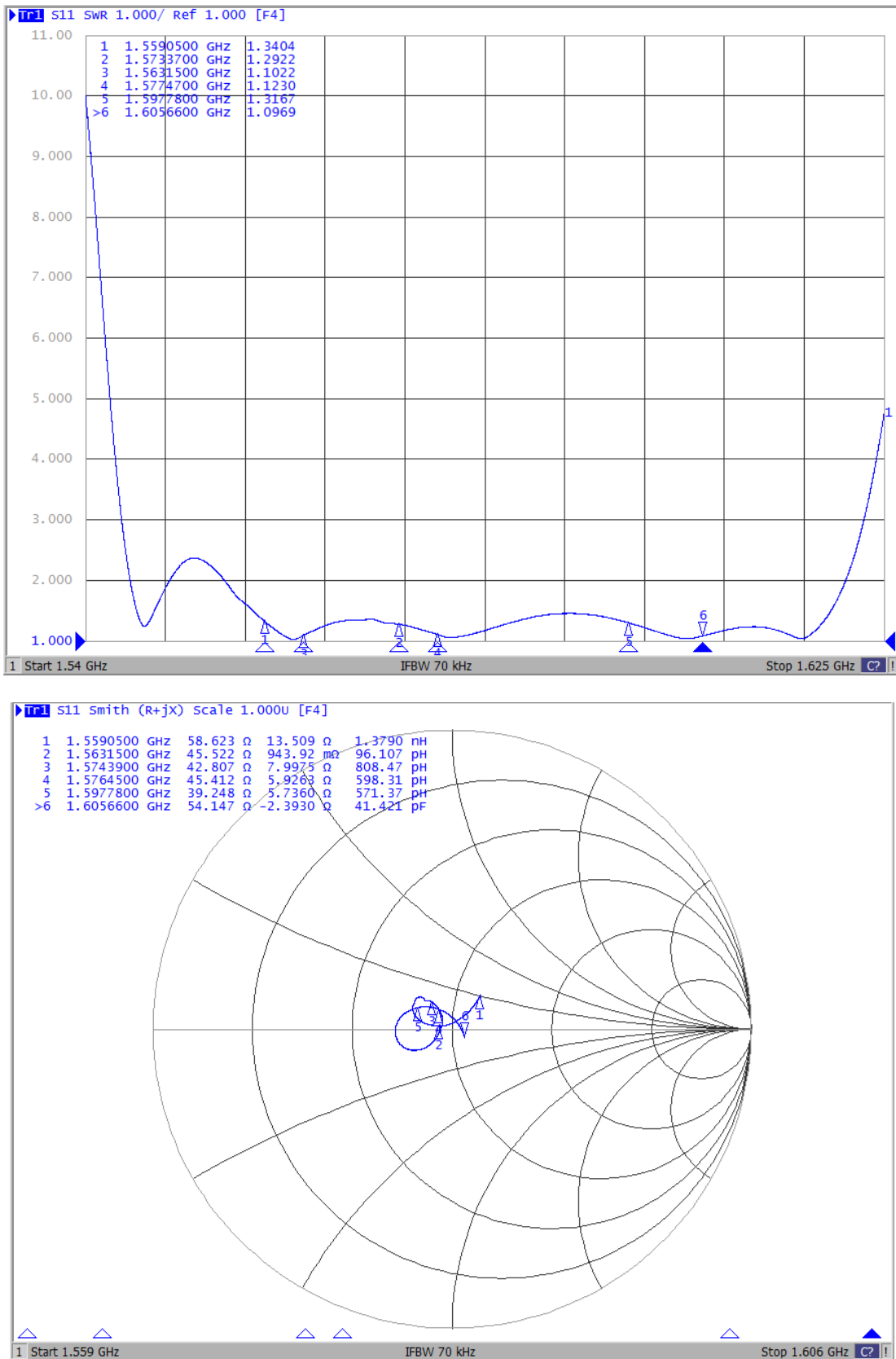


Figure 5: Reflection coefficient for S11

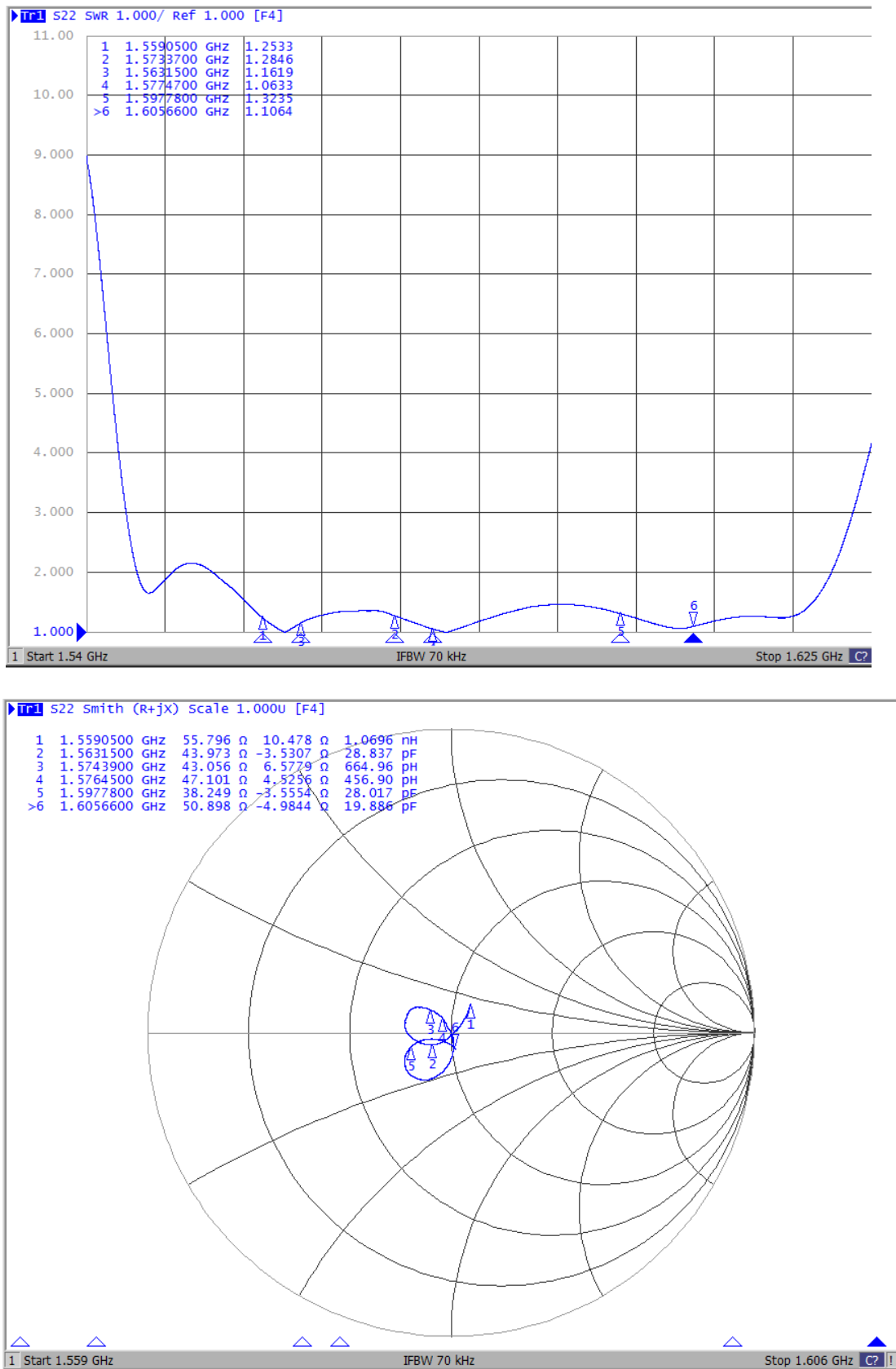


Figure 6: Reflection coefficient for S22



## 10 Packing material

### 10.1 Tape

Tensile Strength of Carrier Tape: Carrier tape 10N or more; Cover tape 5N or more. Packaging quantities: 5000 PCS / Reel.

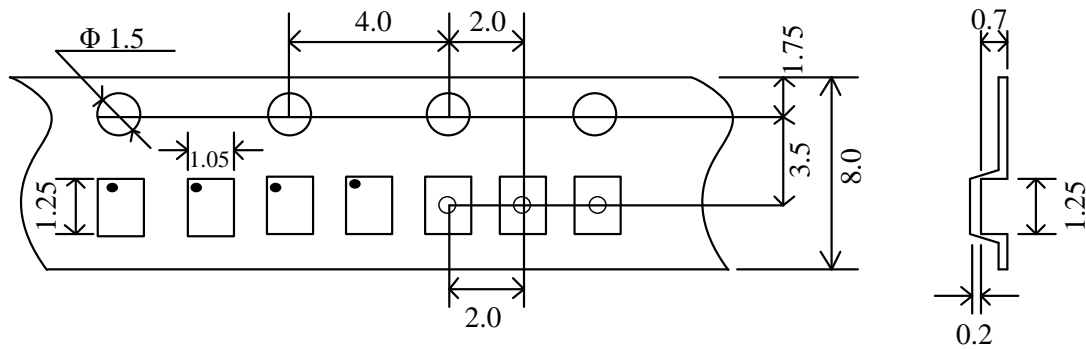


Figure 7: Drawing of tape with tape dimensions according above.

### 10.2 Reel with diameter of 178mm

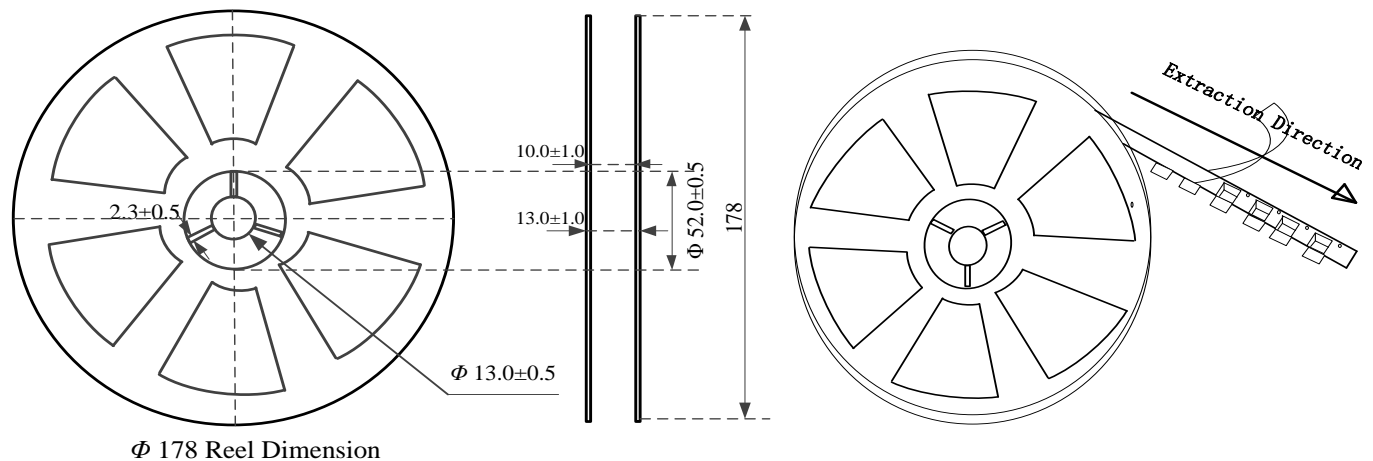


Figure 8: Drawing of reel with diameter of 178mm.

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