

# 1176.5 MHz SMD SAW Filter

ABSTS5A2-210M011M

Request Samples



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1.1 x 0.9 x 0.5 mm  
RoHS/RoHS II Compliant  
MSL Level = 2a

## Features

- Low Insertion Loss
- High out of Band Attenuation
- Compact Package Size

## Applications

- RF Filter for Front End GPS L5 Applications
- Navigational and Positioning Applications
- GPS Receivers

## Electrical Specifications

| Parameters                                              |                 | Specifications |            |     |
|---------------------------------------------------------|-----------------|----------------|------------|-----|
|                                                         |                 | Min            | Typ        | Max |
| Nominal Center Frequency (Fc) (MHz)                     |                 |                | 1176.5     |     |
| Insertion Loss (1164 ~ 1189 MHz) (dB)                   |                 |                | 1.8        | 2.4 |
| Amplitude Ripple (1164 ~ 1189 MHz) (dB <sub>p-p</sub> ) |                 |                | 0.5        | 1.3 |
| VSWR (1164 ~ 1189 MHz)                                  |                 |                | 1.8        | 2.1 |
| Group Delay Deviation (1164 ~ 1189 MHz) (ns)            |                 |                | 7          | 13  |
| Temperature Coefficient (ppm/K)                         |                 |                | -36        |     |
| Attenuation (dB)                                        | 100 ~ 814 MHz   | 53             | 63         |     |
|                                                         | 814 ~ 849 MHz   | 53             | 62         |     |
|                                                         | 849 ~ 980 MHz   | 51             | 57         |     |
|                                                         | 980 ~ 1010 MHz  | 51             | 56         |     |
|                                                         | 1010 ~ 1100 MHz | 50             | 54         |     |
|                                                         | 1100 ~ 1130 MHz | 40             | 46         |     |
|                                                         | 1250 ~ 1427 MHz | 25             | 50         |     |
|                                                         | 1427 ~ 1463 MHz | 45             | 50         |     |
|                                                         | 1710 ~ 2025 MHz | 40             | 45         |     |
|                                                         | 2300 ~ 2690 MHz | 38             | 42         |     |
|                                                         | 2690 ~ 3000 MHz | 37             | 42         |     |
|                                                         | 3000 ~ 6000 MHz | 17             | 22         |     |
| Terminating Source & Load Impedance (Ω)                 |                 |                | 50         |     |
| Input Power Level (dBm)                                 |                 |                | 13 (2000h) |     |
| DC Voltage (V)                                          |                 |                | 3          |     |

## Mechanical Specifications

| Parameters       | Specifications    |
|------------------|-------------------|
| Filter Dimension | 1.1 x 0.9 x 0.5mm |
| Mounting Type    | SMD Mount         |



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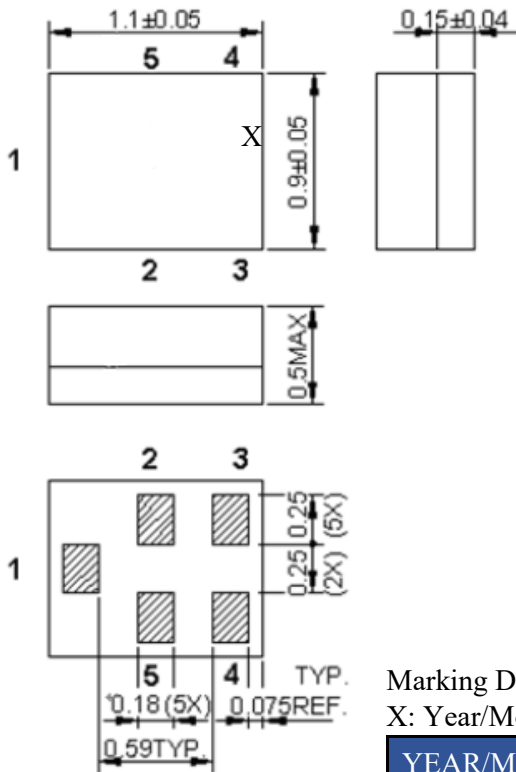


1.1 x 0.9 x 0.5 mm  
RoHS/RoHS II Compliant  
MSL Level = 2a

## Environmental Specifications

| Parameters                  | Specifications       |
|-----------------------------|----------------------|
| Operating Temperature Range | -20°C to +85°C       |
| Storage Temperature Range   | 40°C to +85°C        |
| RoHS/ RoHS II Compliant     | Yes                  |
| MSL level                   | 2a                   |
| ESD                         | 50V (MM), 100V (HBM) |

## Package Dimensions



All tolerances are +/-0.05 mm unless otherwise specified  
Coplanarity: 0.1mm max  
1 to 5: Pin numbers  
Unit: mm

| Pin No. | Symbol | Function |
|---------|--------|----------|
| 1       | IN     | Input    |
| 2       | GND    | Ground   |
| 3       | GND    | Ground   |
| 4       | OUT    | Output   |
| 5       | GND    | Ground   |

## Marking Description:

X: Year/Month Code (Follow the table)

| YEAR/Month | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2013       | A        | B        | C        | D        | E        | F        | G        | H        | J        | K        | L        | M        |
| 2014       | N        | P        | Q        | R        | S        | T        | U        | V        | W        | X        | Y        | Z        |
| 2015       | a        | b        | c        | d        | e        | f        | g        | h        | j        | k        | l        | m        |
| 2016       | n        | p        | q        | r        | s        | t        | u        | v        | w        | x        | y        | z        |
| 2017       | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>E</u> | <u>F</u> | <u>G</u> | <u>H</u> | <u>J</u> | <u>K</u> | <u>L</u> | <u>M</u> |
| 2018       | <u>N</u> | <u>P</u> | <u>Q</u> | <u>R</u> | <u>S</u> | <u>T</u> | <u>U</u> | <u>V</u> | <u>W</u> | <u>X</u> | <u>Y</u> | <u>Z</u> |
| 2019       | <u>a</u> | <u>b</u> | <u>c</u> | <u>d</u> | <u>e</u> | <u>f</u> | <u>g</u> | <u>h</u> | <u>j</u> | <u>k</u> | <u>l</u> | <u>m</u> |
| 2020       | <u>n</u> | <u>p</u> | <u>q</u> | <u>r</u> | <u>s</u> | <u>t</u> | <u>u</u> | <u>v</u> | <u>w</u> | <u>x</u> | <u>y</u> | <u>z</u> |

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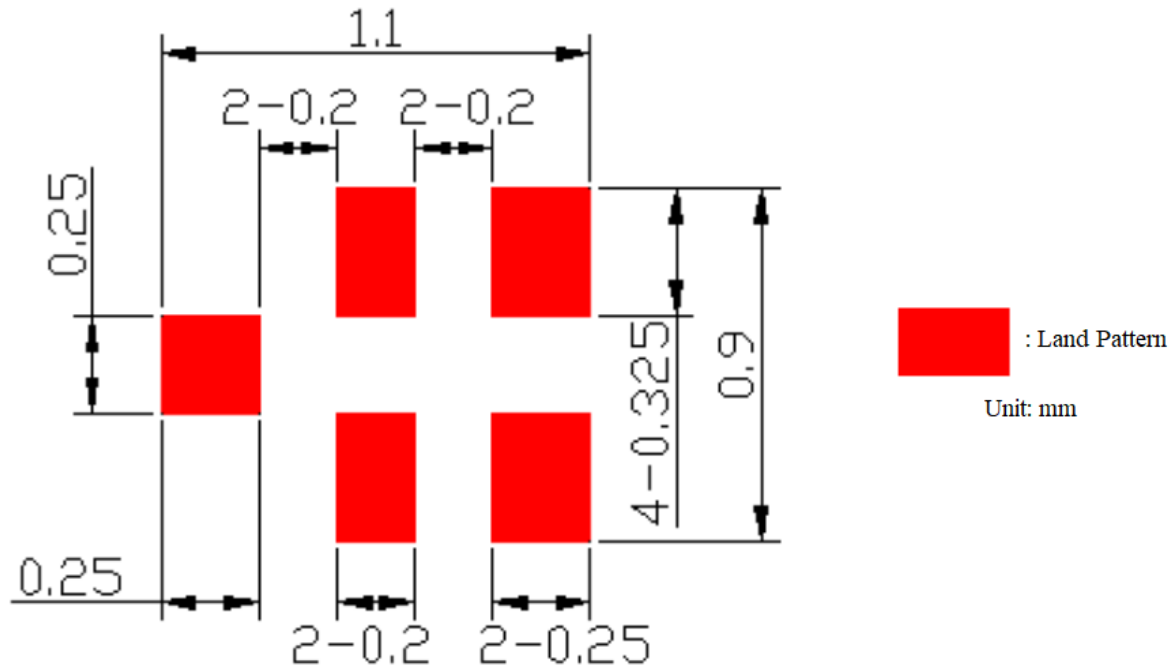


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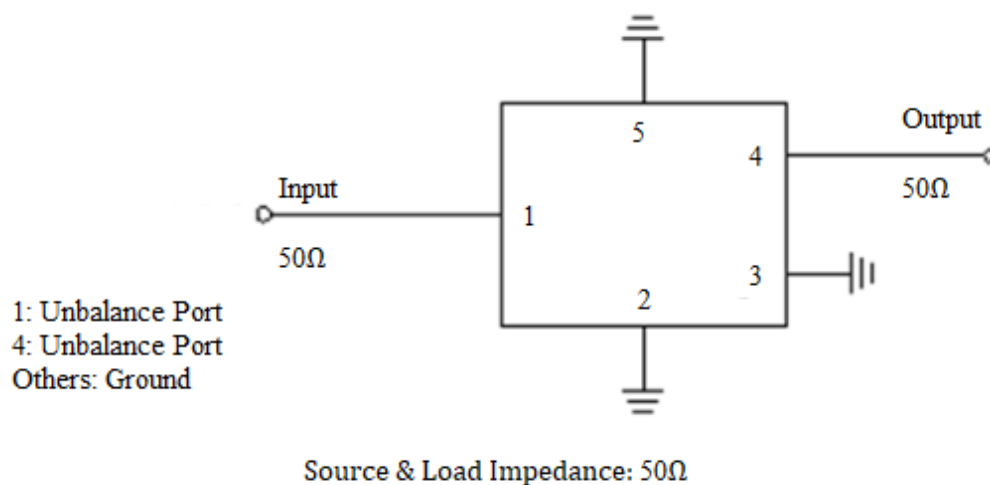


1.1 x 0.9 x 0.5 mm  
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## PCB Footprint



## Measurement Circuit



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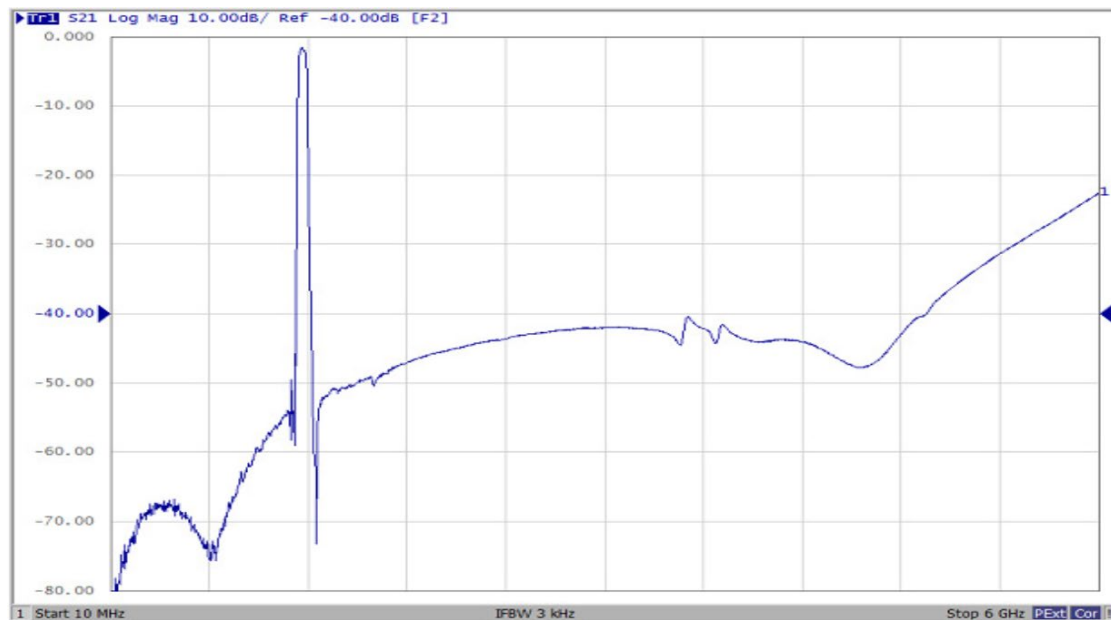
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## Transmission Characteristics

S21 (Narrowband)



S21 (Broadband)



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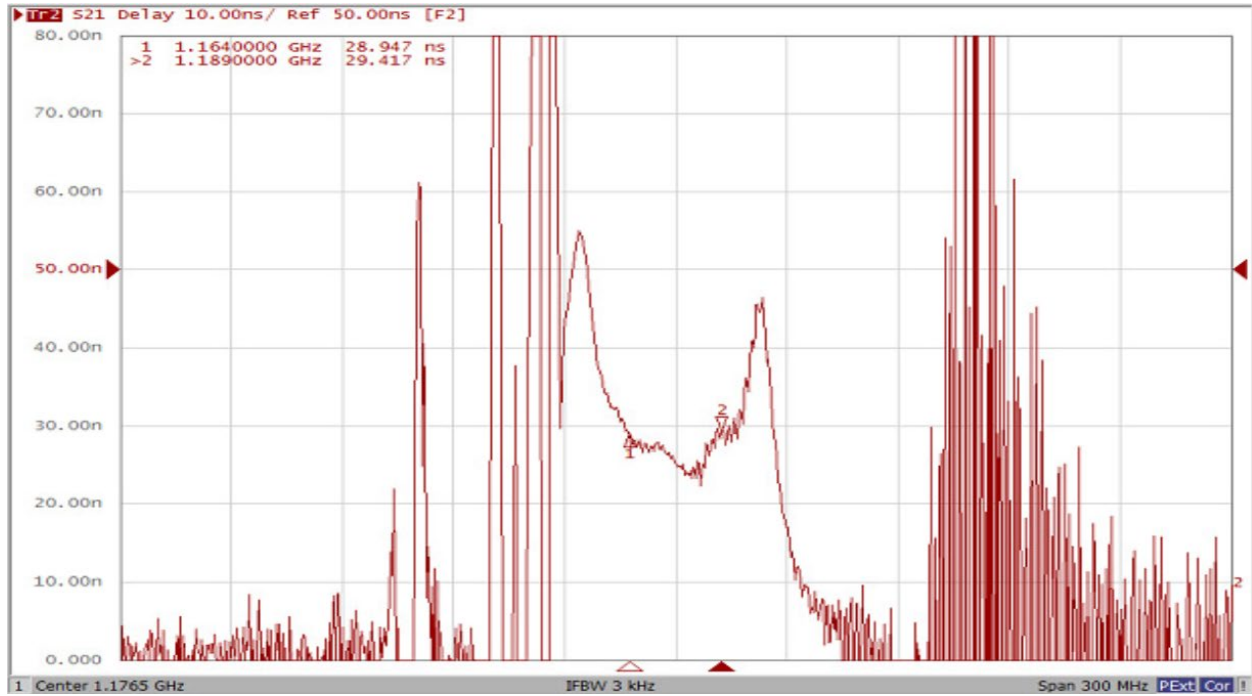


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S21 (Narrowband Delay)



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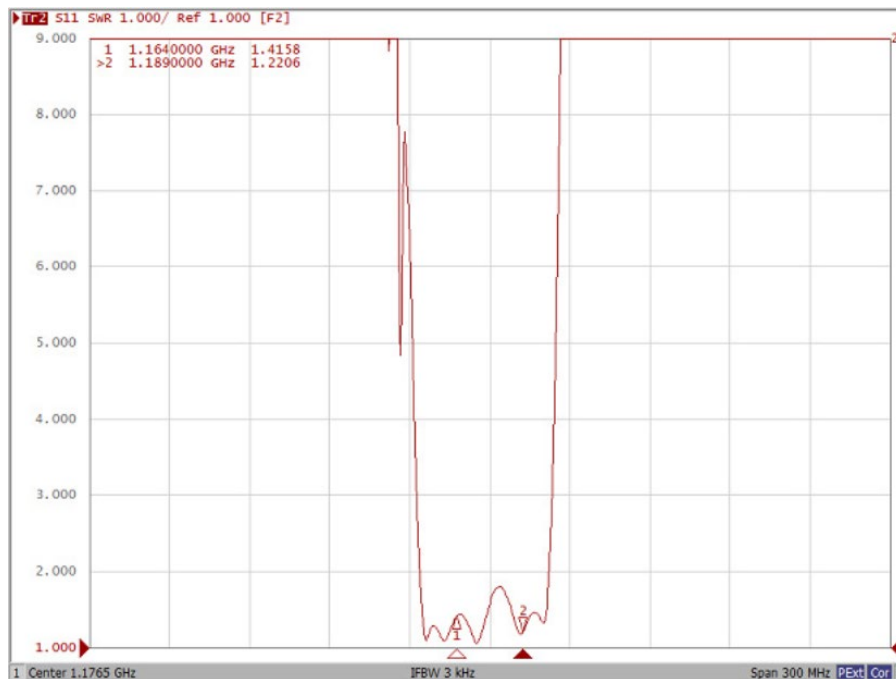
Check Inventory



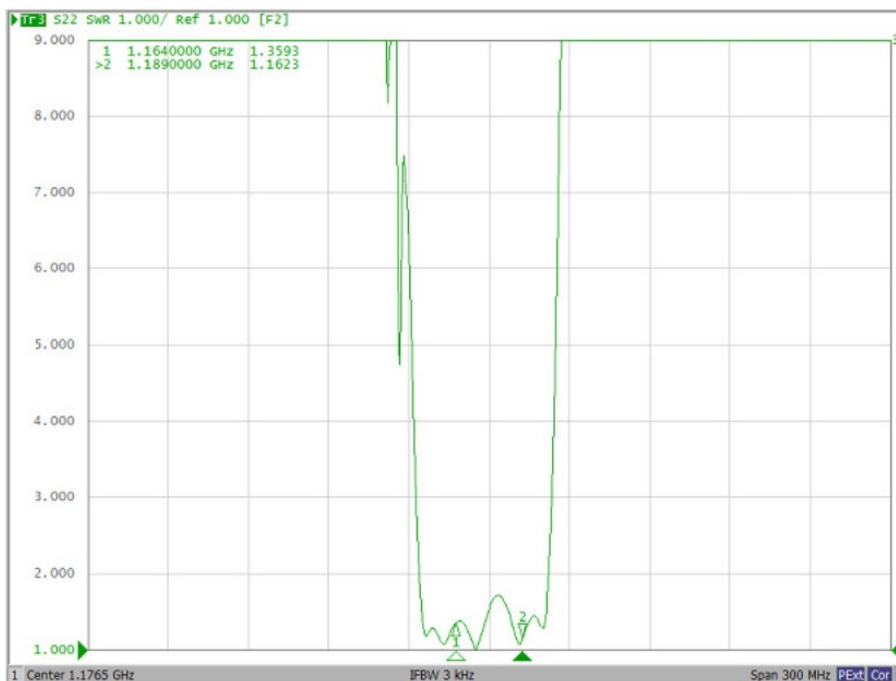
1.1 x 0.9 x 0.5 mm  
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## VSWR Graphs

S11 (Narrowband)



S22 (Narrowband)



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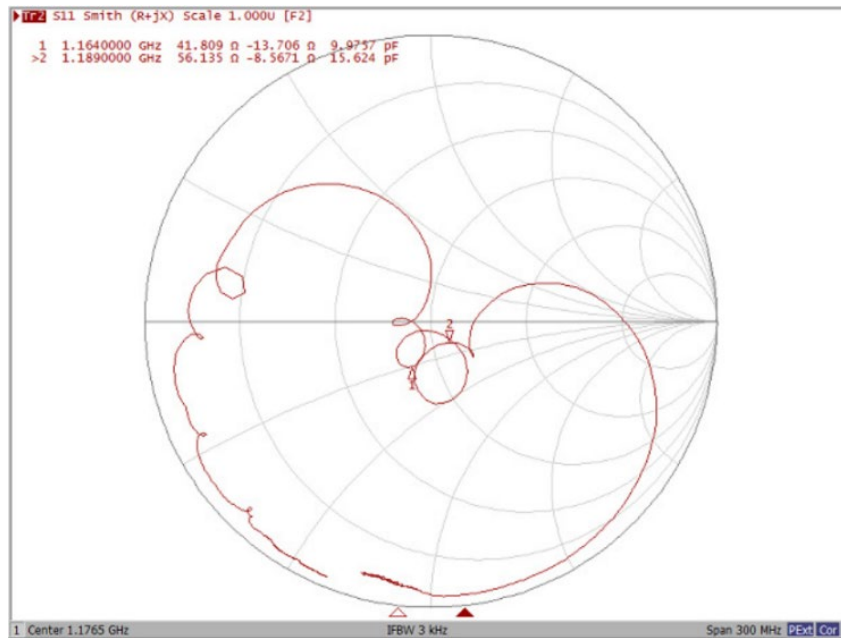
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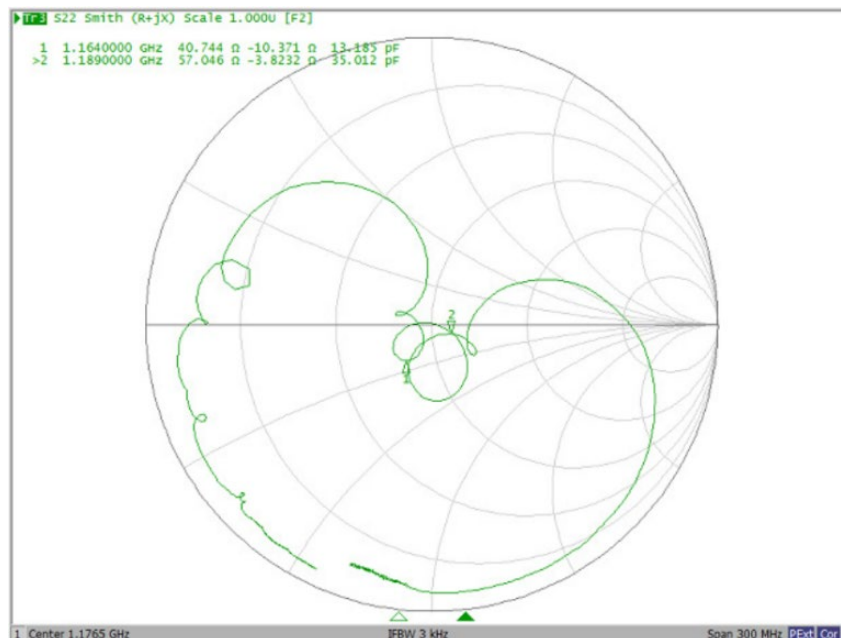
1.1 x 0.9 x 0.5 mm  
RoHS/RoHS II Compliant  
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## Smith Charts

S11 (Narrowband)



S22 (Narrowband)



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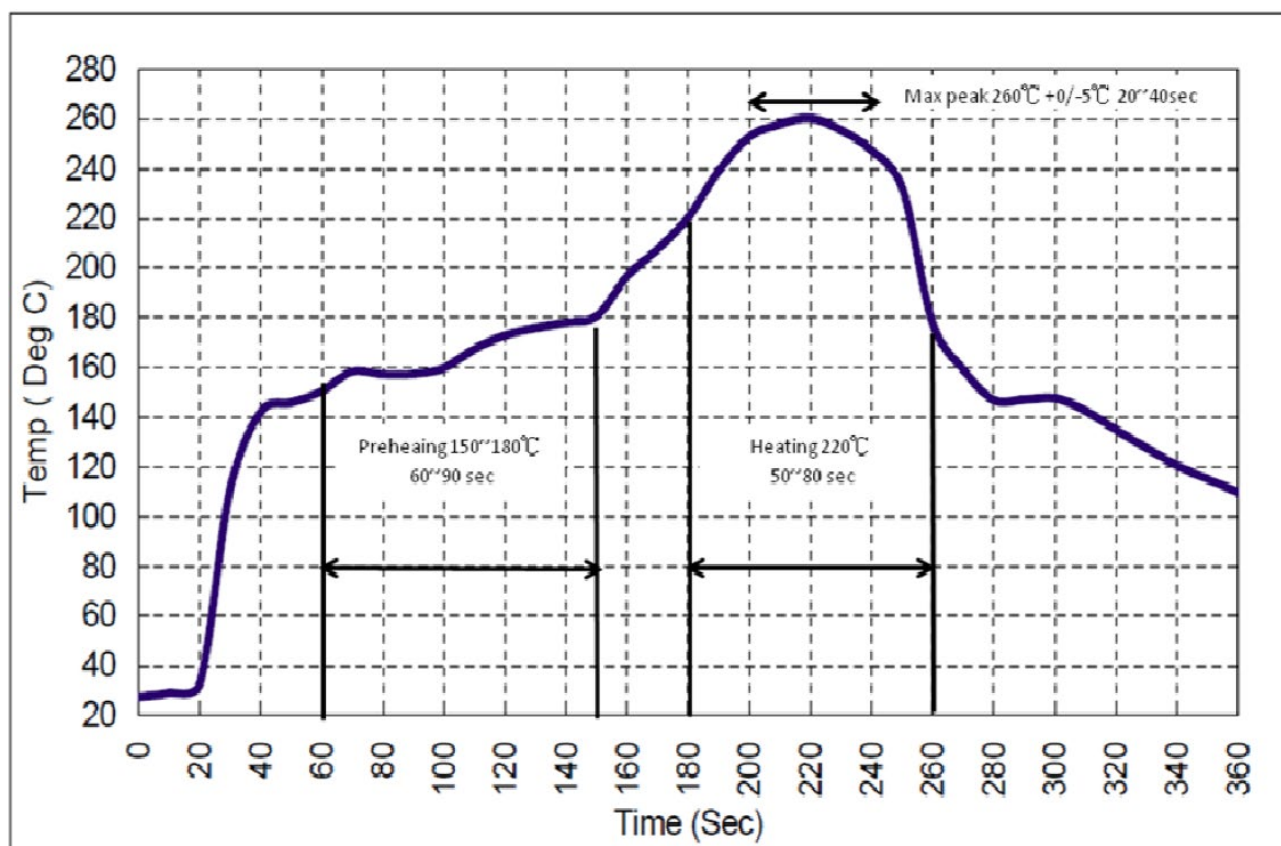
Check Inventory



1.1 x 0.9 x 0.5 mm  
RoHS/RoHS II Compliant  
MSL Level = 2a

## Recommended Reflow Profile

1. Preheating shall be fixed at 150°C~180°C for 60-90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds minimum.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 245~260°C peak (min 10 sec.)
4. Time :2 times



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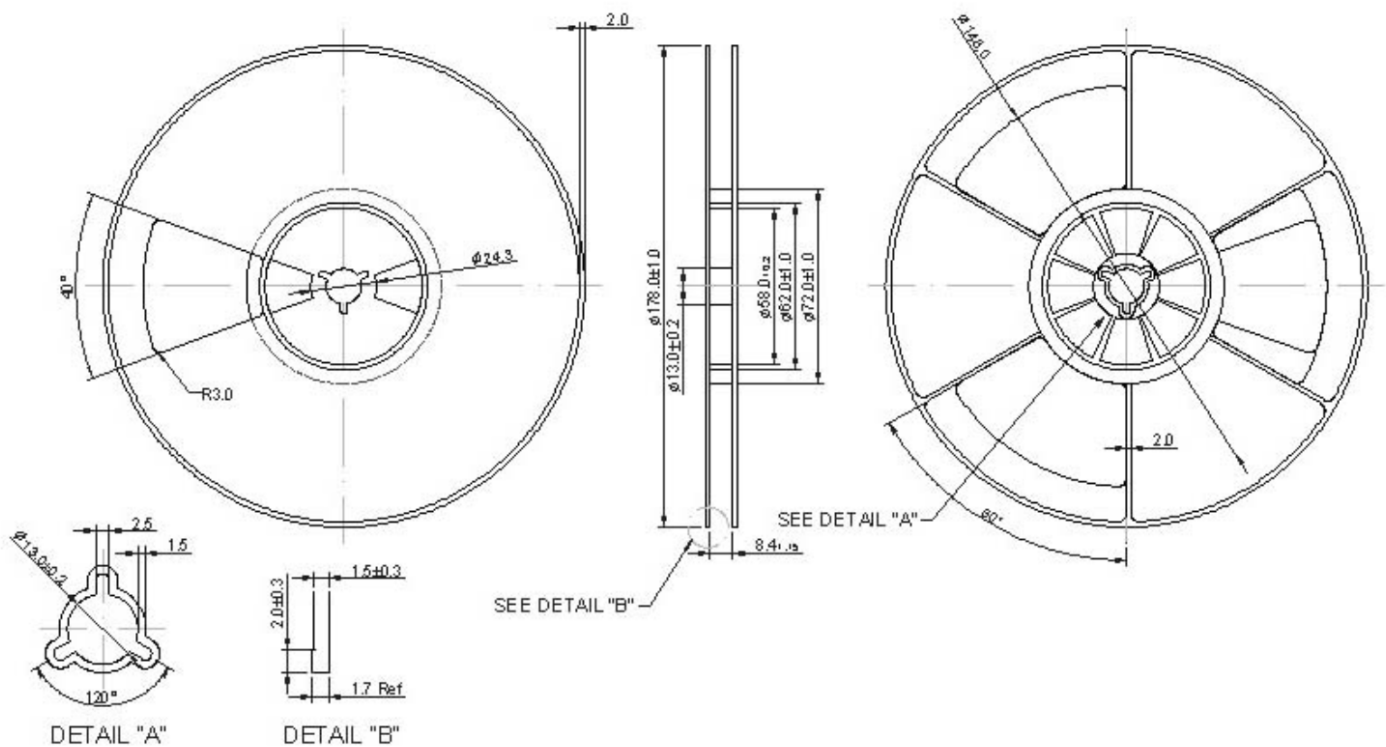


**1.1 x 0.9 x 0.5 mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 2a**

## Packaging

Packaging Type: Reel and Tape  
Pieces per Reel: 5k

## Reel Dimension



Unit: mm



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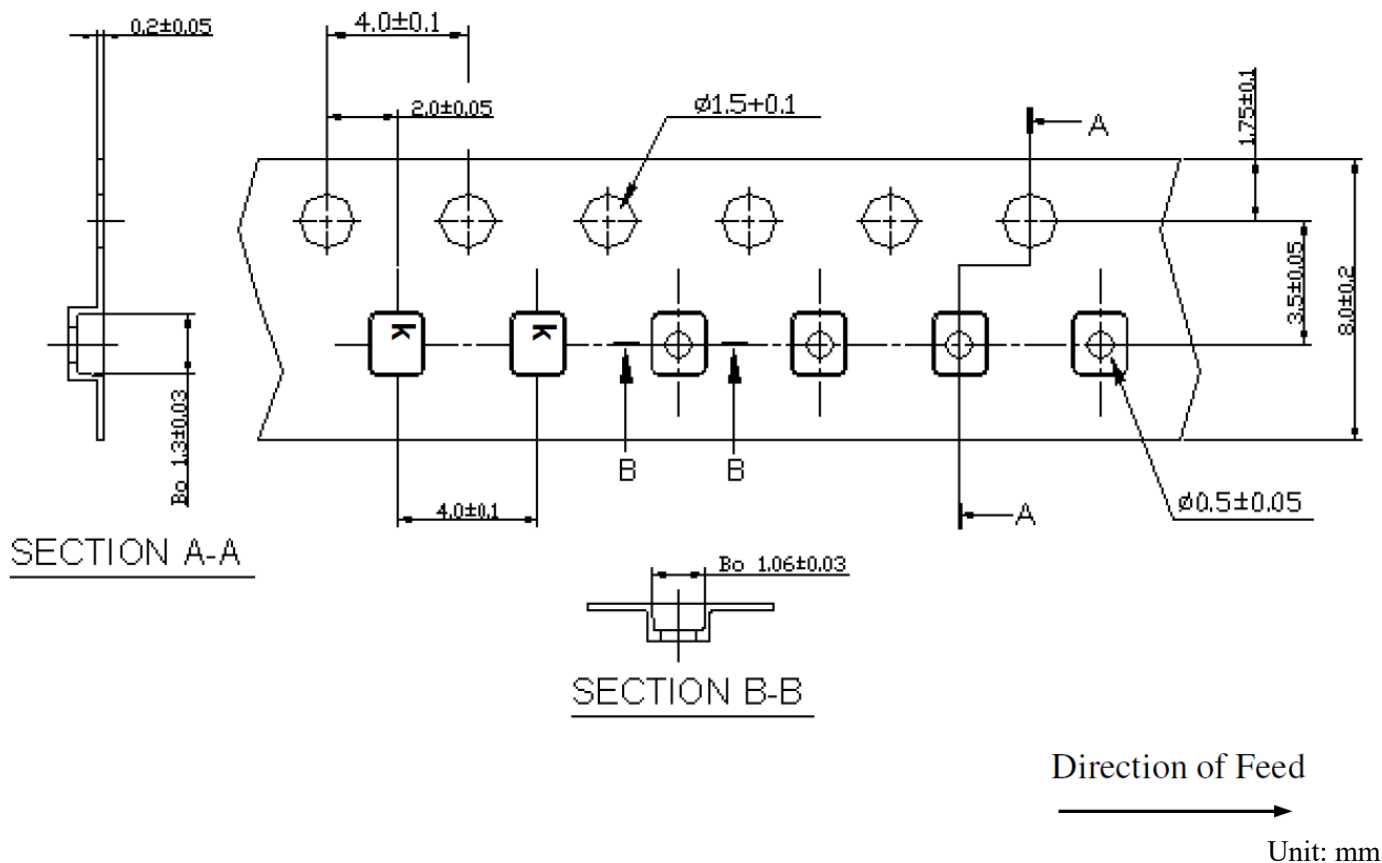


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1.1 x 0.9 x 0.5 mm  
RoHS/RoHS II Compliant  
MSL Level = 2a

Tape Dimension



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