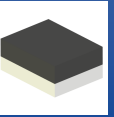


# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

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**1.4 x 1.1 x 0.55 mm**  
**RoHS Compliant**  
**MSL Level = 1**

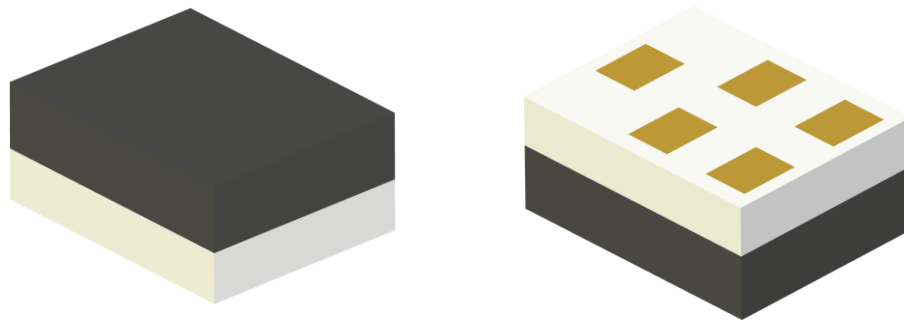
## Features

- AEC-Q200 Qualified
- GPS/GLONASS/BEIDOU/GALILEO Support
- Bandwidth 46.79 MHz
- Small Form Factor 1.4 x 1.1 x 0.55 mm
- Low Insertion Loss: 1.6 dB
- Maximum Input Power: 15 dBm
- RoHS Compliant

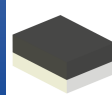
## Applications

- RF Modules
- RTK Systems
- Automotive Transportation & Telematics
- Asset Tracking / Fleet Management
- UAVs, Robotics & Autonomous Vehicles
- Micro-Mobility Solutions
- Precision Agriculture

## Product Image



# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

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**1.4 x 1.1 x 0.55 mm**

**RoHS Compliant**

**MSL Level = 1**

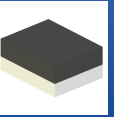
## Electrical Specification

| Parameters                                                | Minimum | Typical | Maximum | Units  | Notes                 |
|-----------------------------------------------------------|---------|---------|---------|--------|-----------------------|
| Center Frequency (fc)                                     | -       | 1583    | -       | MHz    | -                     |
| VSWR <sup>(1)</sup>                                       | -       | 1.8     | 2.4     | -      | 1559.1 - 1605.89 MHz  |
| Insertion Loss <sup>(1)</sup>                             | -       | 1.8     | 2.3     | dB     | 1559.1 – 1563.1 MHz   |
|                                                           | -       | 1.4     | 1.6     |        | 1573.42 – 1577.42 MHz |
|                                                           | -       | 1.9     | 2.6     |        | 1597.55 - 1605.89 MHz |
| Amplitude Ripple <sup>(1)</sup>                           | -       | 0.3     | 1.0     | dB     | 1559.1 - 1605.89 MHz  |
| Attenuation <sup>(1)</sup><br>(Reference level from 0 dB) | 45      | 50      | -       | dB     | 10 - 824 MHz          |
|                                                           | 45      | 50      | -       |        | 824 - 925 MHz         |
|                                                           | 38      | 43      | -       |        | 1427 - 1463 MHz       |
|                                                           | 35      | 40      | -       |        | 1710 - 1785 MHz       |
|                                                           | 33      | 38      | -       |        | 1850 - 1980 MHz       |
|                                                           | 35      | 40      | -       |        | 2400 - 2570 MHz       |
|                                                           | 30      | 35      | -       |        | 2570 - 3000 MHz       |
| Group Delay <sup>(1)</sup> (+25 °C)                       | -       | 17      | 19      | ns     | 1573.42 – 1605.89 MHz |
| Group Delay Ripple <sup>(1)</sup><br>(+25 °C)             | -       | 4       | 8       | ns     | 1559 - 1605 MHz       |
| Source Impedance <sup>(2)</sup><br>(single ended)         | -       | 50      | -       | Ω      | -                     |
| Load Impedance <sup>(2)</sup><br>(single ended)           | -       | 50      | -       | Ω      | -                     |
| Input Power Level                                         | -       | -       | 15      | dBm    | -                     |
| DC Voltage (V)                                            | -       | -       | 5       | V      | -                     |
| Temperature Coefficient of<br>Frequency                   | -       | -36     | -       | ppm/°C | -                     |

Notes: (1) Averaged values of linear S-Parameters at +25°C

(2) A matching network is unnecessary (refer to the Measurement Circuits section)

# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

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**1.4 x 1.1 x 0.55 mm**

**RoHS Compliant**

**MSL Level = 1**

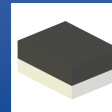
## Mechanical Specification

| Parameters       | Specifications      |
|------------------|---------------------|
| Filter Dimension | 1.4 x 1.1 x 0.55 mm |
| Mounting Type    | Surface Mount       |

## Environmental Specification

| Parameters                  | Specifications      |
|-----------------------------|---------------------|
| Operating Temperature Range | -40°C ~ +105°C      |
| Storage Temperature Range   | -40°C ~ +125°C      |
| ESD                         | 50V(MM) / 100V(HBM) |
| MSL level                   | 1                   |
| RoHS Compliant              | Yes                 |

# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

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1.4 x 1.1 x 0.55 mm

**RoHS Compliant**

MSL Level = 1

## Ordering Information

| Part Number        | Description                              |
|--------------------|------------------------------------------|
| AFII-SW-0072-Q     | SMD 1583 MHz SAW Filter on Cut Tape      |
| AFII-SW-0072-Q-T   | SMD 1583 MHz SAW Filter on Tape & Reel   |
| AFII-SW-0072-Q-EVB | SMD 1583 MHz SAW Filter Evaluation Board |

Note: Other options not listed may be available upon request via [Abracon online support](#)

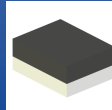


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**REVISED: 07-01-25**

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ISO9001-2015  
CERTIFIED

# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

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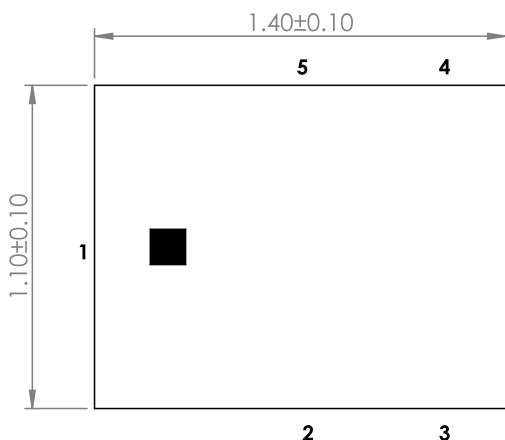


1.4 x 1.1 x 0.55 mm

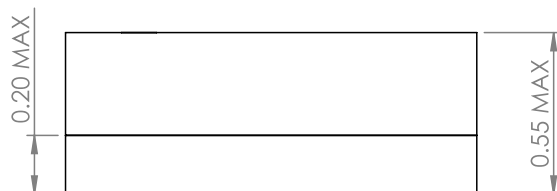
RoHS Compliant

MSL Level = 1

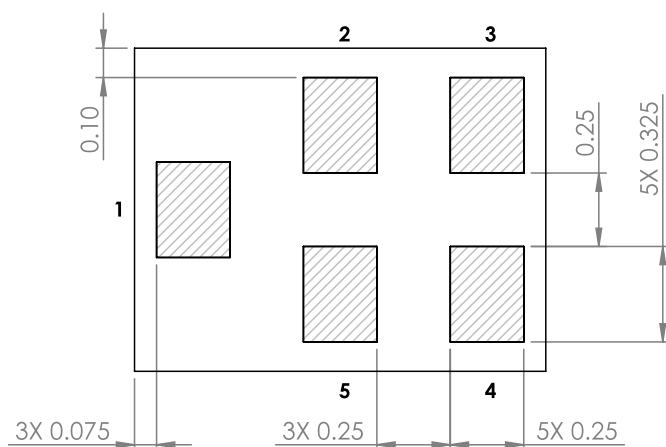
## Package Dimensions



**TOP VIEW**

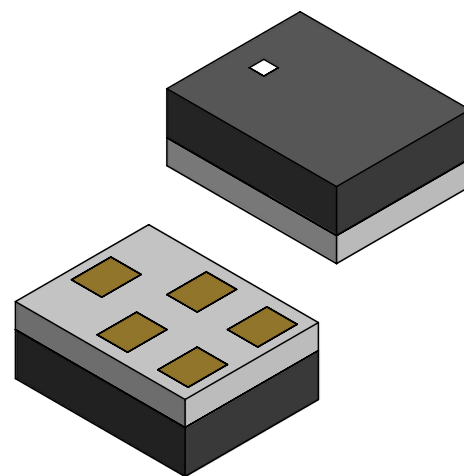


**FRONT VIEW**



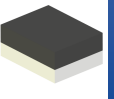
**BOTTOM VIEW**

| PIN # | SYMBOL | FUNCTION |
|-------|--------|----------|
| 1     | IN     | INPUT    |
| 2     | GND    | GROUND   |
| 3     | GND    | GROUND   |
| 4     | OUT    | OUTPUT   |
| 5     | GND    | GROUND   |



Unit: mm

# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

Request Samples



Check Inventory

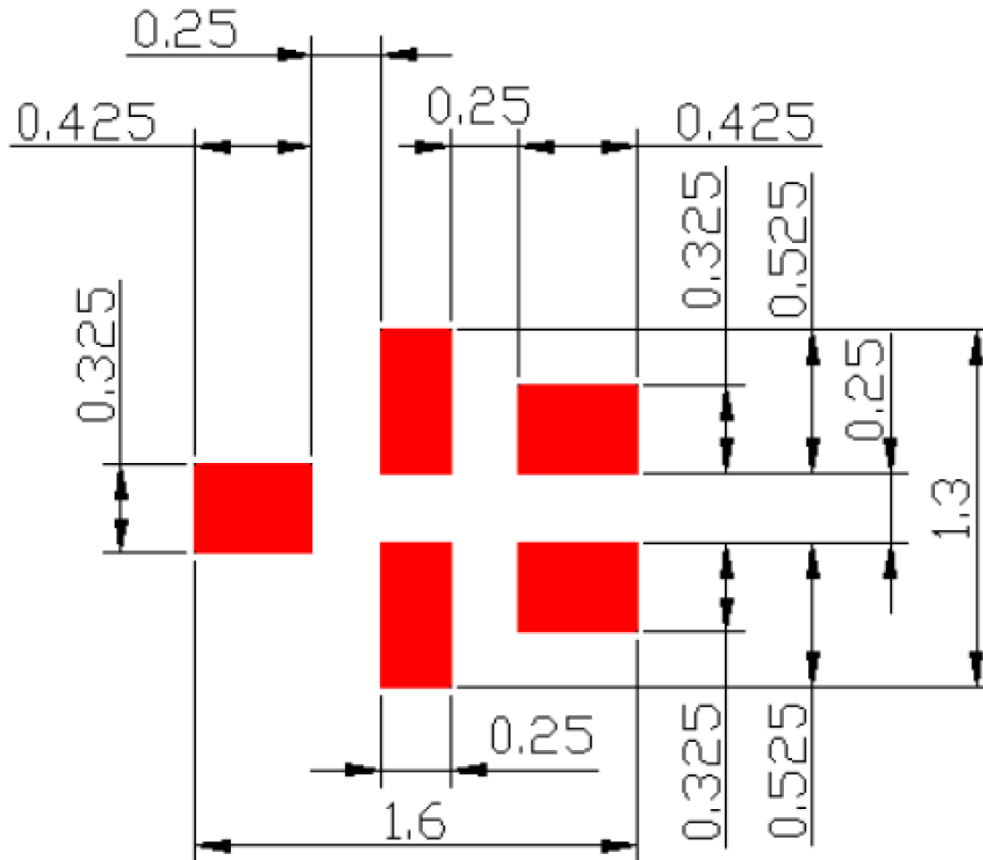


1.4 x 1.1 x 0.55 mm

RoHS Compliant

MSL Level = 1

## Recommended Land Pattern

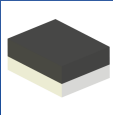


 : Land Pattern

Unit: mm

Please note: The line width should be designed to achieve a 50-ohm characteristic impedance, depending on the PCB material and thickness. For technical assistance, please contact [Abracon online support](#) through our online support platform

# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

Request Samples

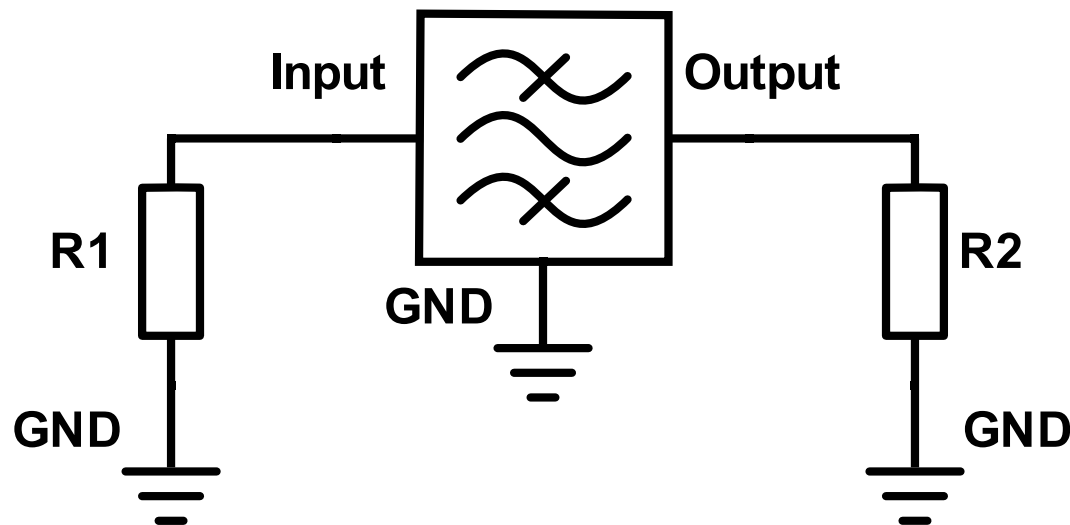


Check Inventory



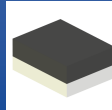
1.4 x 1.1 x 0.55 mm  
RoHS Compliant  
MSL Level = 1

## Measurement Circuit



| Port           | Matching Component |
|----------------|--------------------|
| Input (Pin 1)  | R1: 50 $\Omega$    |
| Output (Pin 4) | R2: 50 $\Omega$    |

# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

Request Samples



Check Inventory



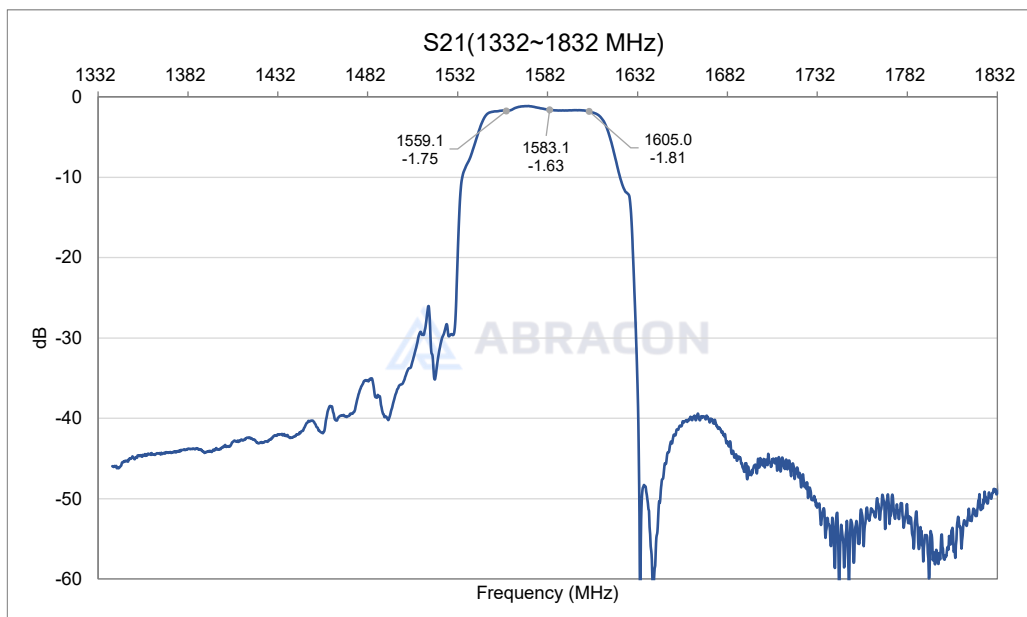
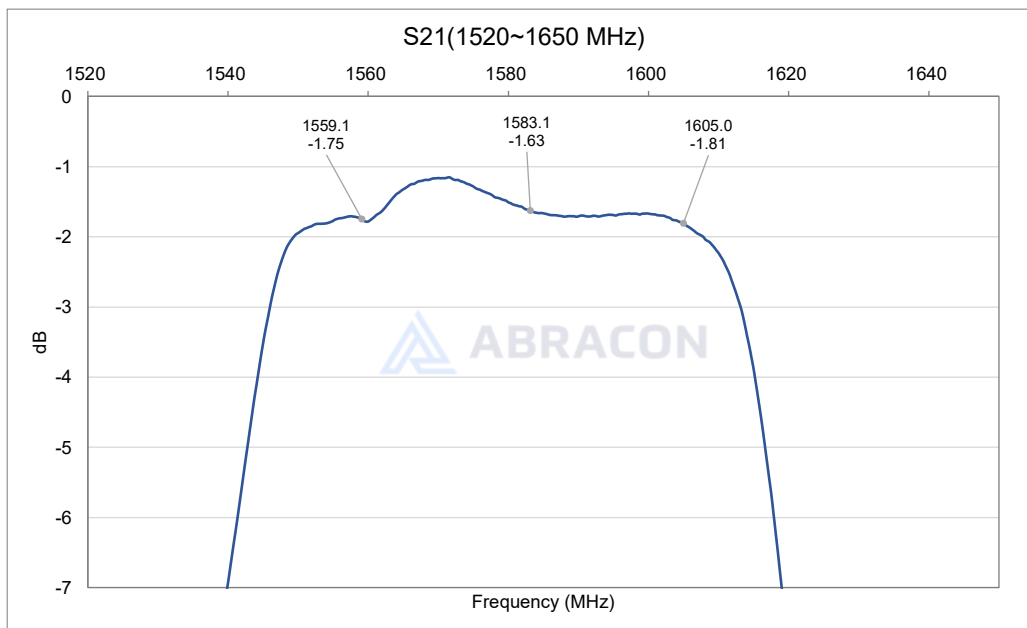
1.4 x 1.1 x 0.55 mm

RoHS Compliant

MSL Level = 1

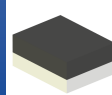
## Frequency Characteristics

S21 narrow band





# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

Request Samples



Check Inventory

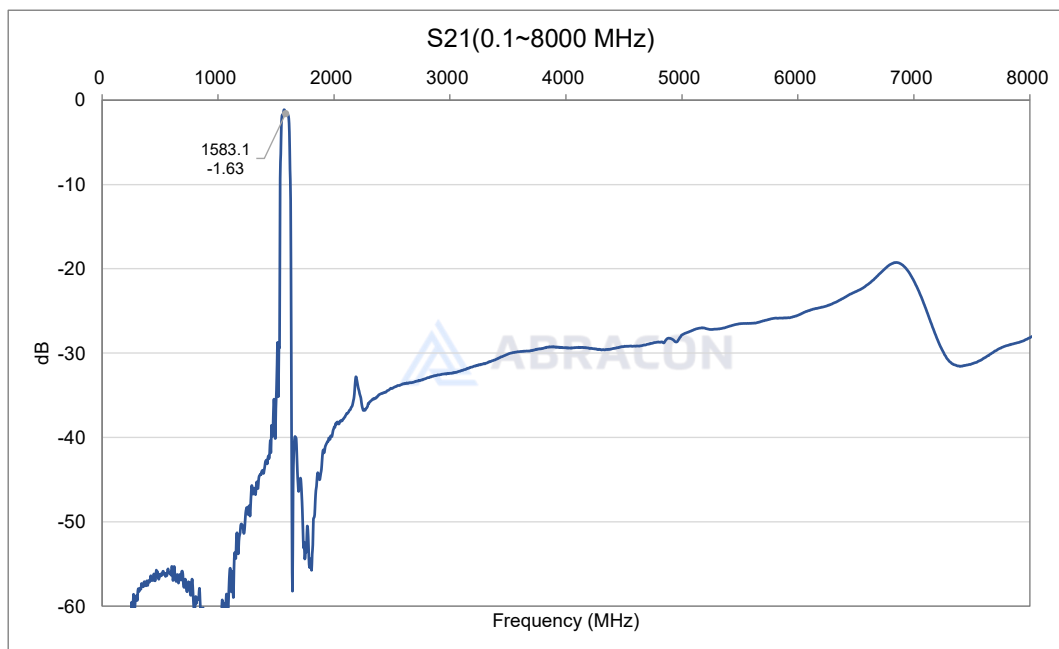


1.4 x 1.1 x 0.55 mm

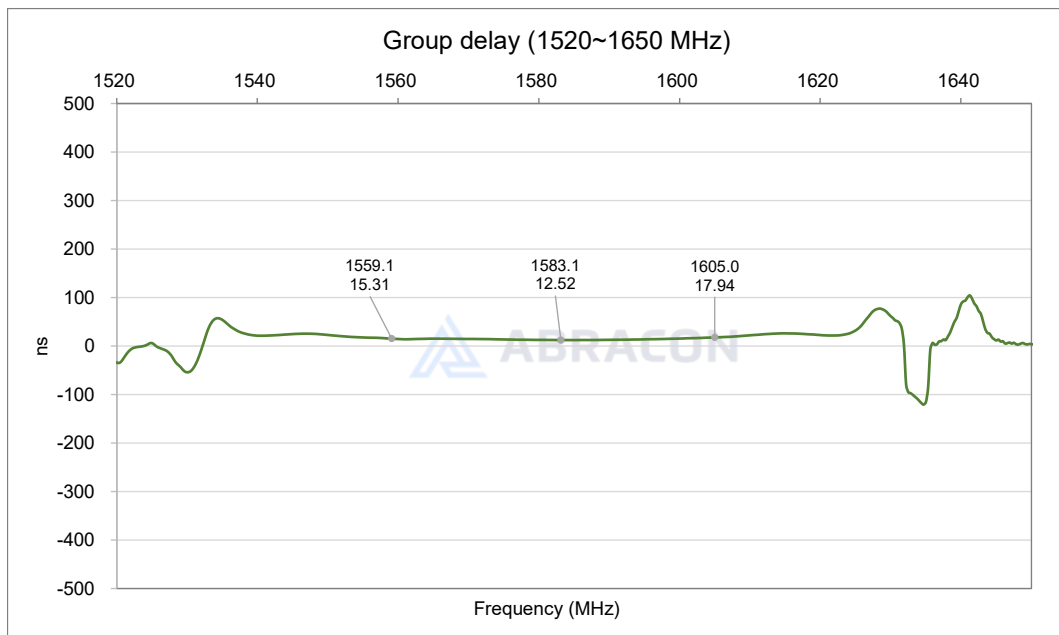
RoHS Compliant

MSL Level = 1

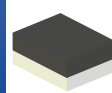
S21 wide band



Group Delay



# SMD 1583 MHz SAW Filter



**AFII-SW-0072-Q**

Request Samples



Check Inventory

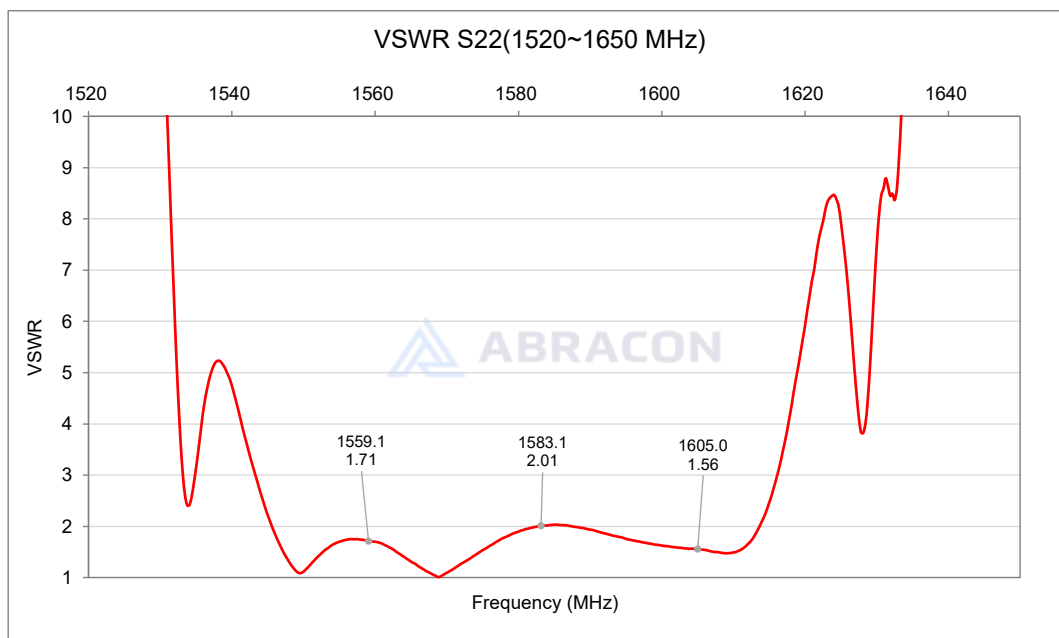
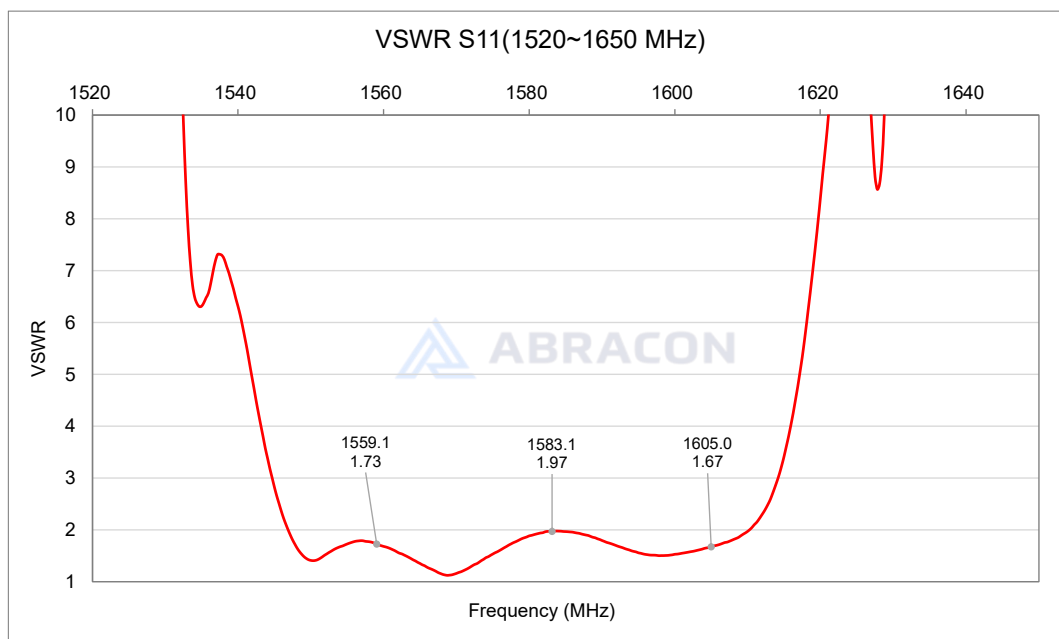


**1.4 x 1.1 x 0.55 mm**

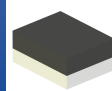
**RoHS Compliant**

**MSL Level = 1**

VSWR (S11 & S22)



# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

Request Samples

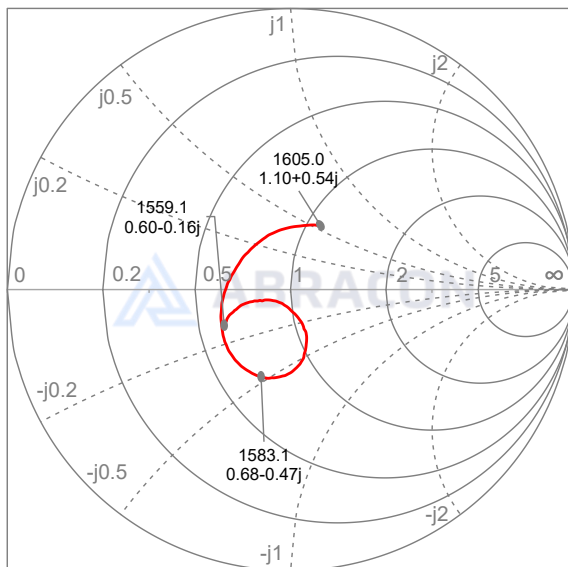


Check Inventory

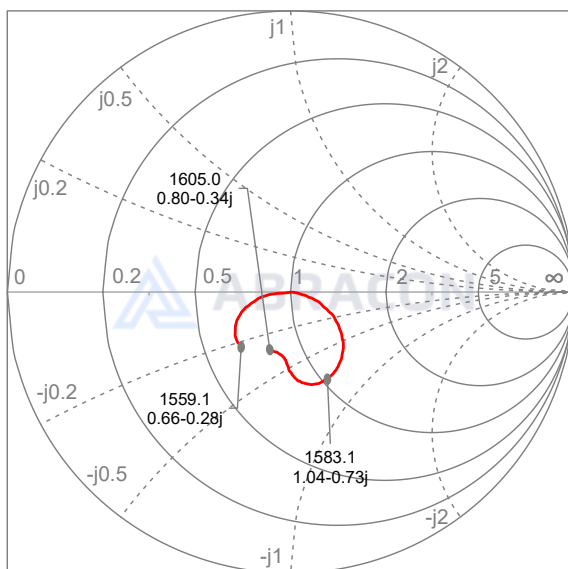


1.4 x 1.1 x 0.55 mm  
RoHS Compliant  
MSL Level = 1

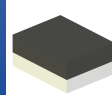
Smith chart S11 (1559~1605MHz)



Smith chart S22 (1559~1605MHz)



# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

Request Samples



Check Inventory



1.4 x 1.1 x 0.55 mm  
RoHS Compliant  
MSL Level = 1

## Reflow Profile [JEDEC J-STD-020]

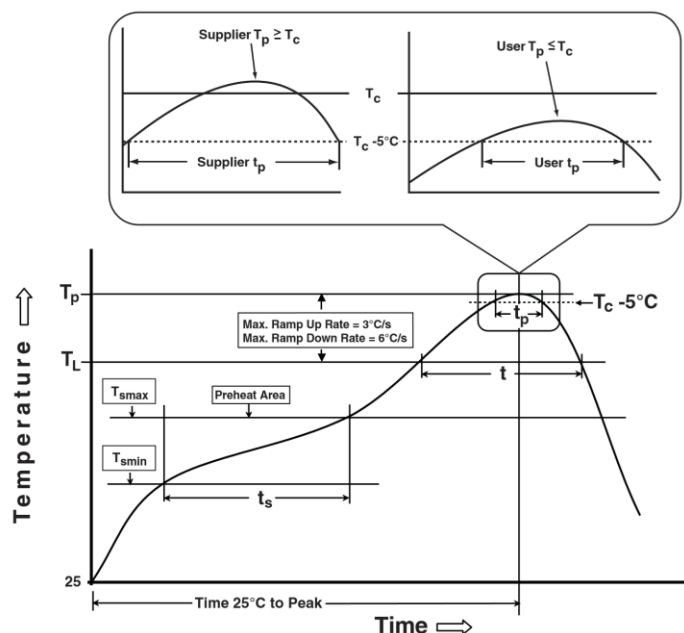


Table 1

### SnPb Eutectic Process Classification Temperatures (T<sub>c</sub>)

| Package Thickness | Volume mm <sup>3</sup> <350 | Volume mm <sup>3</sup> ≥ 350 |
|-------------------|-----------------------------|------------------------------|
| <2.5mm            | 235°C                       | 220°C                        |
| ≥ 2.5mm           | 220°C                       | 220°C                        |

Table 2

### Pb-Free Process Classification Temperatures (T<sub>c</sub>)

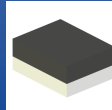
| Package Thickness | Volume mm <sup>3</sup> <350 | Volume mm <sup>3</sup> 350-2000 | Volume mm <sup>3</sup> >2000 |
|-------------------|-----------------------------|---------------------------------|------------------------------|
| <1.6mm            | 260°C                       | 260°C                           | 260°C                        |
| 1.6mm - 2.5mm     | 260°C                       | 250°C                           | 245°C                        |
| >2.5mm            | 250°C                       | 245°C                           | 245°C                        |

| Profile Feature                                                                                     | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|-----------------------------------------------------------------------------------------------------|-------------------------|------------------|
| Preheat / soak                                                                                      |                         |                  |
| Temperature minimum (T <sub> Amin</sub> )                                                           | 100°C                   | 150°C            |
| Temperature maximum (T <sub> smax</sub> )                                                           | 150°C                   | 180°C            |
| Time (T <sub> Amin</sub> to T <sub> smax</sub> ) (t <sub> s</sub> )                                 | 60 – 120 sec.           | 60 – 90 sec.     |
| Average ramp-up rate (T <sub> smax</sub> to T <sub> p</sub> )                                       | 3°C/sec. max            | 3°C/sec. max     |
| Liquidous temperature (T <sub> L</sub> )                                                            | 183°C                   | 220°C            |
| Time at Liquidous (T <sub> L</sub> )                                                                | 60 – 150 sec.           | 50 – 80 sec.     |
| Peak package body temperature (T <sub> p</sub> )*                                                   | See Table 1             | See Table 2      |
| Time (T <sub> p</sub> )** within 5°C of the specified classification temperature (T <sub> c</sub> ) | 20 sec.                 | 20 ~ 40 sec.     |
| Ramp-down rate (T <sub> p</sub> to T <sub> smax</sub> )                                             | 6°C/sec. max            | 6°C/sec. max     |
| Time 25°C to peak temperature                                                                       | 6 min. max              | 8 min. max       |
| Reflow cycles                                                                                       | 2 max                   | 2 max            |

\*Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.

# SMD 1583 MHz SAW Filter



AFII-SW-0072-Q

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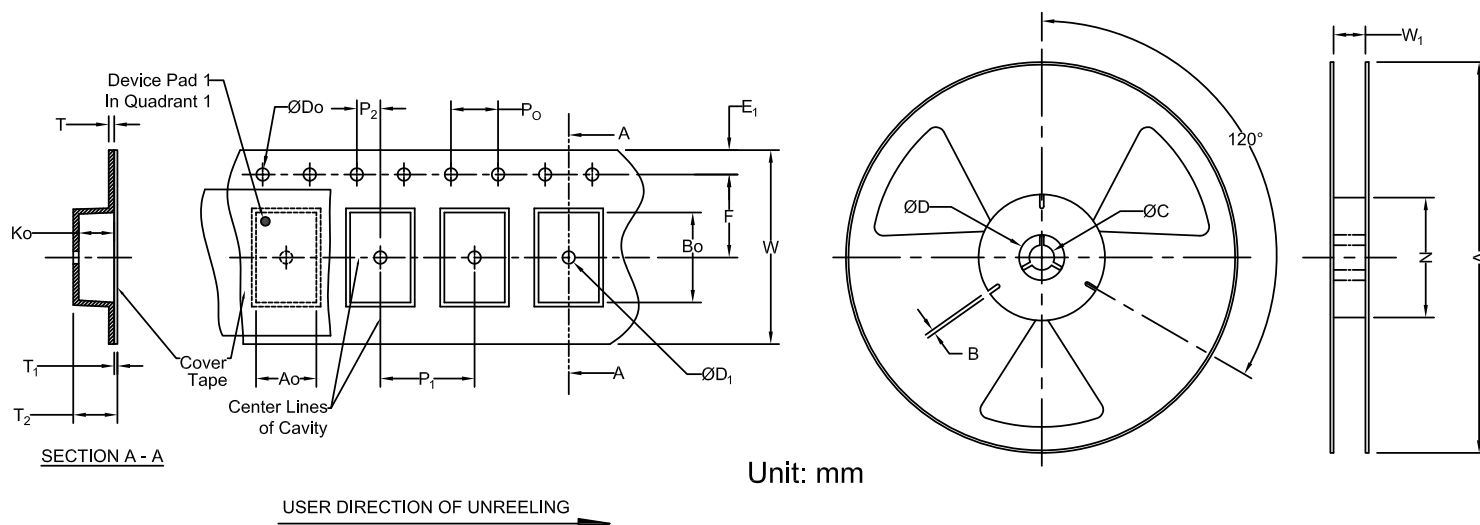


1.4 x 1.1 x 0.55 mm  
RoHS Compliant  
MSL Level = 1

## Packaging

### Tape & Reel

#### 1. Tape & Reel Dimension



Carrier Tape Specifications (mm)

| Do          | D <sub>1</sub> | E <sub>1</sub> | P <sub>0</sub> | P <sub>2</sub> | T          | F          | P <sub>1</sub> | W         | A <sub>0</sub> | B <sub>0</sub> | K <sub>0</sub> | Reel Qty |
|-------------|----------------|----------------|----------------|----------------|------------|------------|----------------|-----------|----------------|----------------|----------------|----------|
| 1.55 ± 0.05 | 1.0 ± 0.05     | 1.75 ± 0.1     | 4.0 ± 0.1      | 2.0 ± 0.05     | 0.2 ± 0.05 | 3.5 ± 0.05 | 4.0 ± 0.1      | 8.0 ± 0.3 | 1.47 ± 0.1     | 1.73 ± 0.1     | 0.75 ± 0.1     | 3,000    |

Reel Specifications (mm)

| A           | W <sub>1</sub> | N          | C          | D          | B         |
|-------------|----------------|------------|------------|------------|-----------|
| 178.0 ± 1.0 | 8.4 ± 0.5      | 72.0 ± 1.0 | 13.0 ± 0.2 | 24.3 ± 0.5 | 2.5 ± 0.5 |

**ATTENTION:** Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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