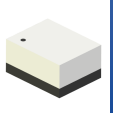


# SMD 1237 MHZ SAW FILTER



**AFII-SW-0059**

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**1.4 x 1.1 x 0.7mm**  
**RoHS Compliant**  
**MSL Level = 3**

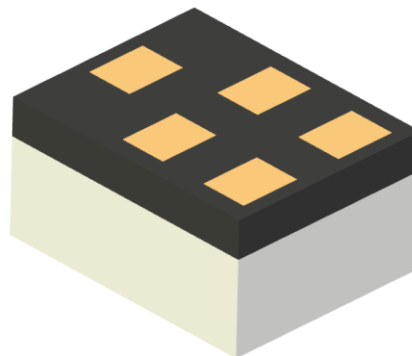
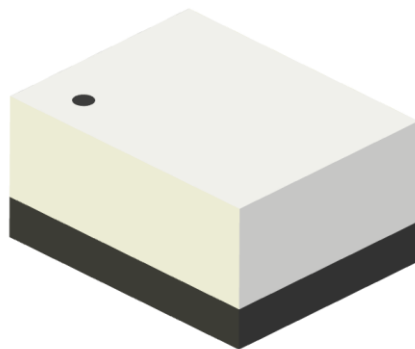
## Features

- Supports GNSS L2/E5b/B2b Band
- 1.4 x 1.1 x 0.7mm in Size
- Low Insertion Loss: 1.9 dB
- Out-of-Band Rejection: > 25 dB
- 50 Ohms Single-Ended Input & Output
- Maximum Input Power: +10 dBm

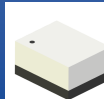
## Applications

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

## Product Image



# SMD 1237 MHZ SAW FILTER



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1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## Electrical Specification

| Parameters                                                                    | Minimum | Typical | Maximum | Units | Notes          |
|-------------------------------------------------------------------------------|---------|---------|---------|-------|----------------|
| Center Frequency(fc)                                                          | -       | 1237    | -       | MHz   | -              |
| VSWR                                                                          | -       | 1.8     | 2.0     |       | 1197 ~ 1277MHz |
| Insertion Loss <sup>(1)</sup>                                                 | -       | 1.9     | 2.6     | dB    | 1197 ~ 1277MHz |
| Amplitude Ripple                                                              | -       | 1.0     | 1.5     |       | 1197 ~ 1277MHz |
| Group Delay <sup>(1)</sup>                                                    | -       | 6.3     | 8.2     | ns    | 1197 ~ 1277MHz |
| Group Delay Ripple <sup>(1)</sup>                                             | -       | 0.05    | 0.4     | ns    | 1197 ~ 1277MHz |
| Attenuation <sup>(2)</sup><br>(Reference level from 0 dB)<br>Amplitude Ripple | 32      | 36      | -       | dB    | DC ~937 MHz    |
|                                                                               | 25      | 28      | -       |       | 937 ~1107 MHz  |
|                                                                               | 20      | 25      | -       |       | 1137 MHz       |
|                                                                               | 30      | 34      | -       |       | 1417 ~1657 MHz |
|                                                                               | 22      | 25      | -       |       | 1657 ~2000 MHz |
|                                                                               | 25      | 28      | -       |       | 2000 ~3000 MHz |
| Source Impedance <sup>(3)</sup><br>(single ended)                             | -       | 50      | -       | Ω     | -              |
| Load Impedance <sup>(3)</sup><br>(single ended)                               | -       | 50      | -       | Ω     | -              |
| RF Power Dissipation                                                          | -       | 10      | -       | dBm   | -              |

Notes: (1) Averaged values of linear S-Parameters over any 18 MHz at +25°C

(2) Averaged values of linear S-Parameters over any 5 MHz at +25°C

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

## Mechanical Specification

| Parameters       | Specifications    |
|------------------|-------------------|
| Filter Dimension | 1.4 x 1.1 x 0.7mm |
| Mounting Type    | Surface Mount     |

## Environmental Specification

| Parameters                  | Specifications |
|-----------------------------|----------------|
| Operating Temperature Range | -40°C ~ +85°C  |
| Storage Temperature Range   | -40°C ~ +85°C  |
| ESD (HBM)                   | >100 V         |
| ESD (CDM)                   | >100 V         |
| MSL level                   | 3              |
| RoHS Compliant              | Yes            |

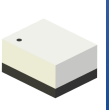


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REVISED: 03-13-25

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# SMD 1237 MHZ SAW FILTER



**AFII-SW-0059**

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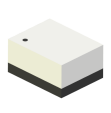


1.4 x 1.1 x 0.7mm  
**RoHS Compliant**  
MSL Level = 3

## Ordering Information

| Part Number      | Description                              |
|------------------|------------------------------------------|
| AFII-SW-0059     | SMD 1237 MHZ SAW FILTER on Cut Tape      |
| AFII-SW-0059-T   | SMD 1237 MHZ SAW FILTER on Tape & Reel   |
| AFII-SW-0059-EVB | SMD 1237 MHZ SAW FILTER Evaluation Board |

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



# SMD 1237 MHZ SAW FILTER

AFII-SW-0059

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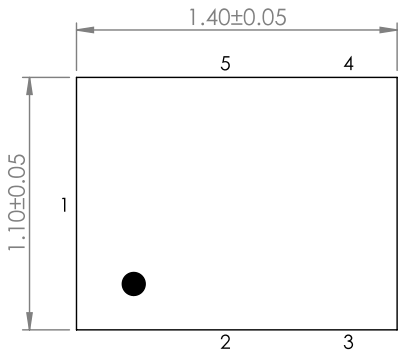


Check Inventory

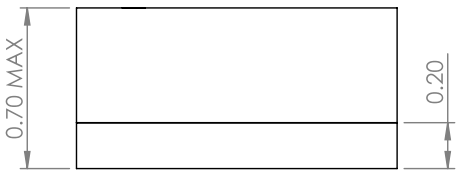


1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

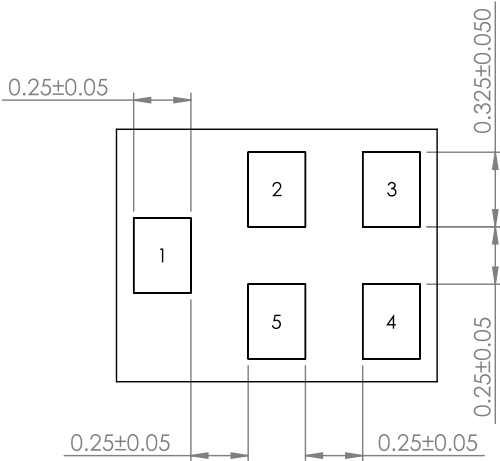
## Product Dimensions



TOP VIEW



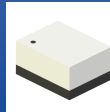
FRONT VIEW



BOTTOM VIEW

Unit : mm

| Pin No. | Description |
|---------|-------------|
| 1       | Input       |
| 4       | Output      |
| 2, 3, 5 | Ground      |



# SMD 1237 MHZ SAW FILTER

AFII-SW-0059

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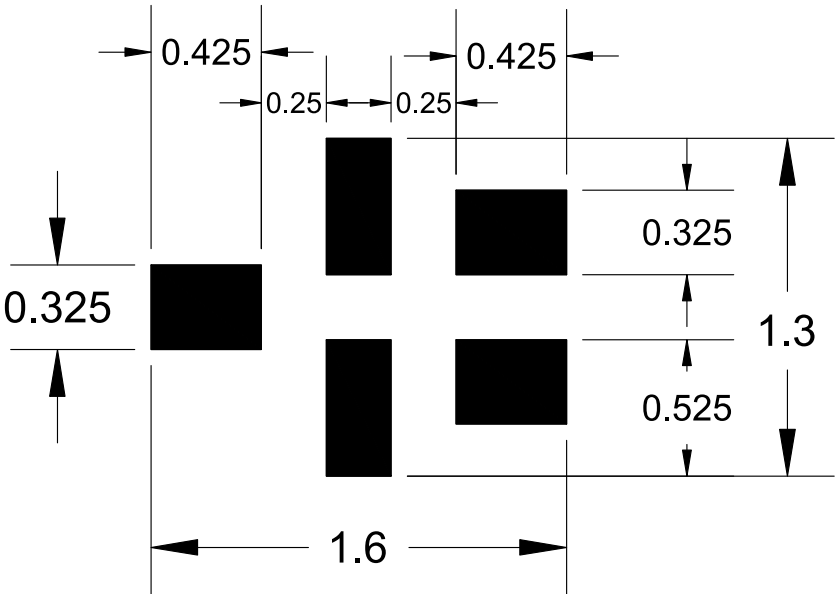


Check Inventory



1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## Recommended Land Pattern

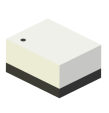


Land Pattern

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 1237 MHZ SAW FILTER



AFII-SW-0059

Request Samples

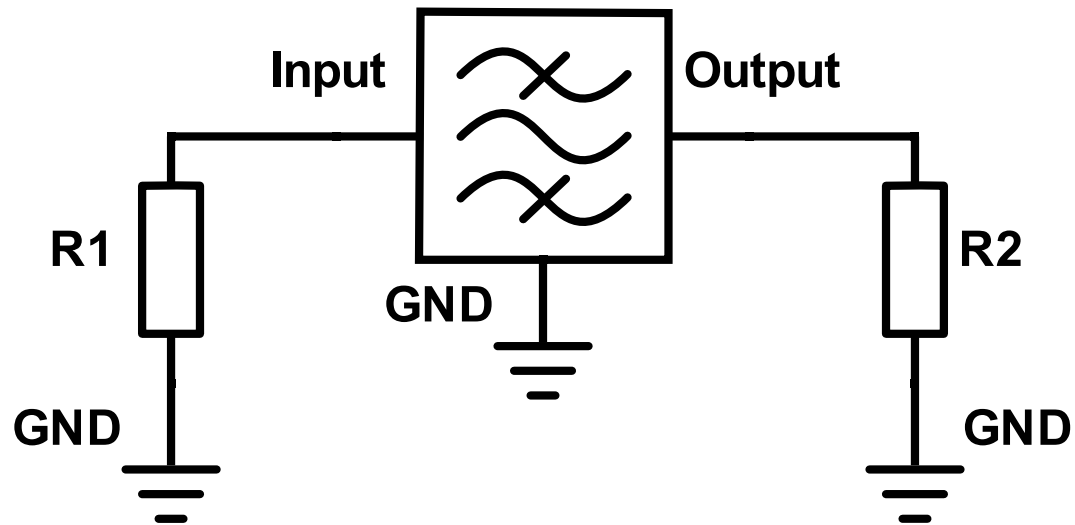


Check Inventory

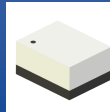


1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## Measurement Circuit



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



# SMD 1237 MHz SAW FILTER

AFII-SW-0059

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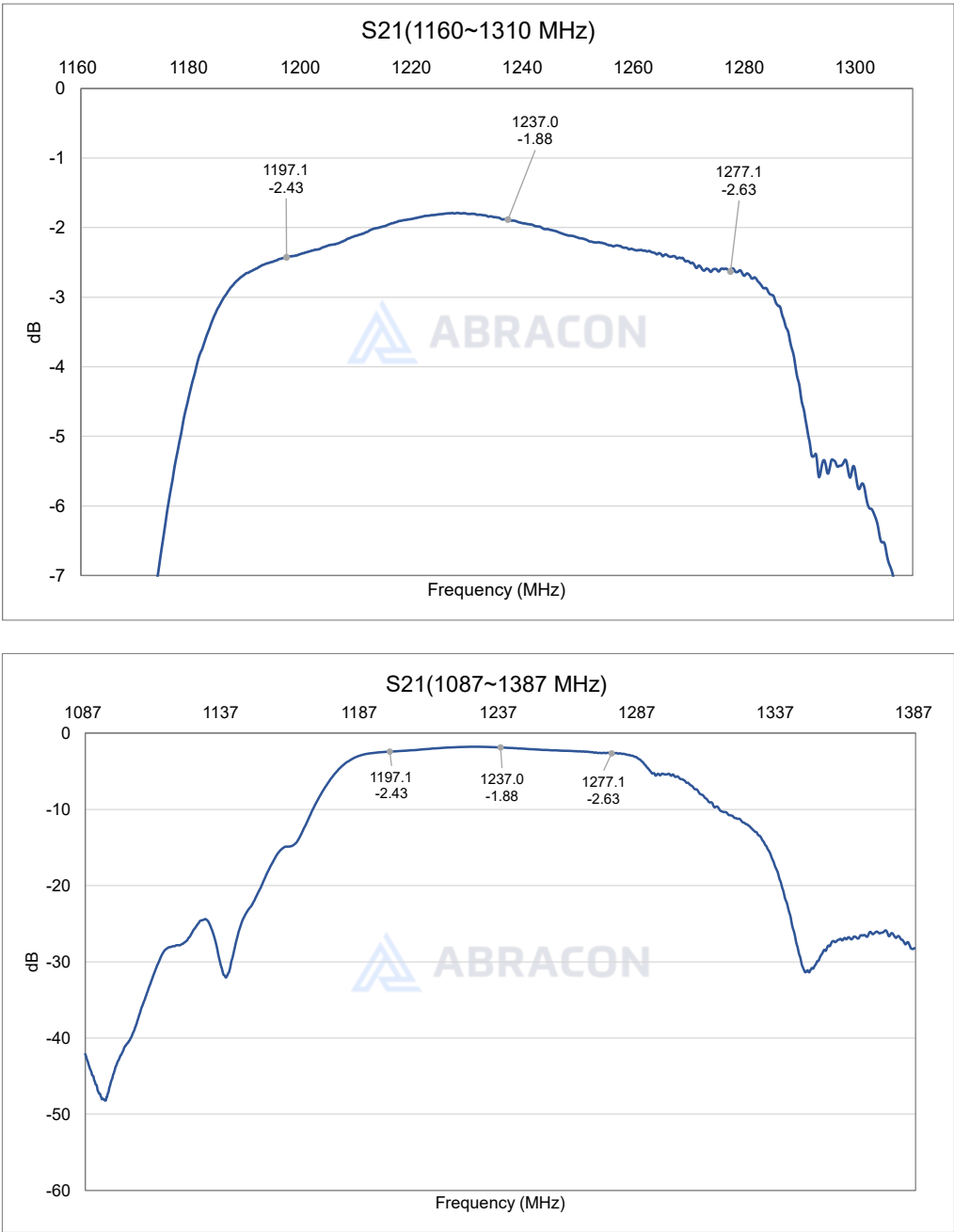
Check Inventory

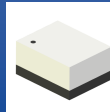


1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## Frequency Characteristics

S21 narrow band





# SMD 1237 MHZ SAW FILTER

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Request Samples

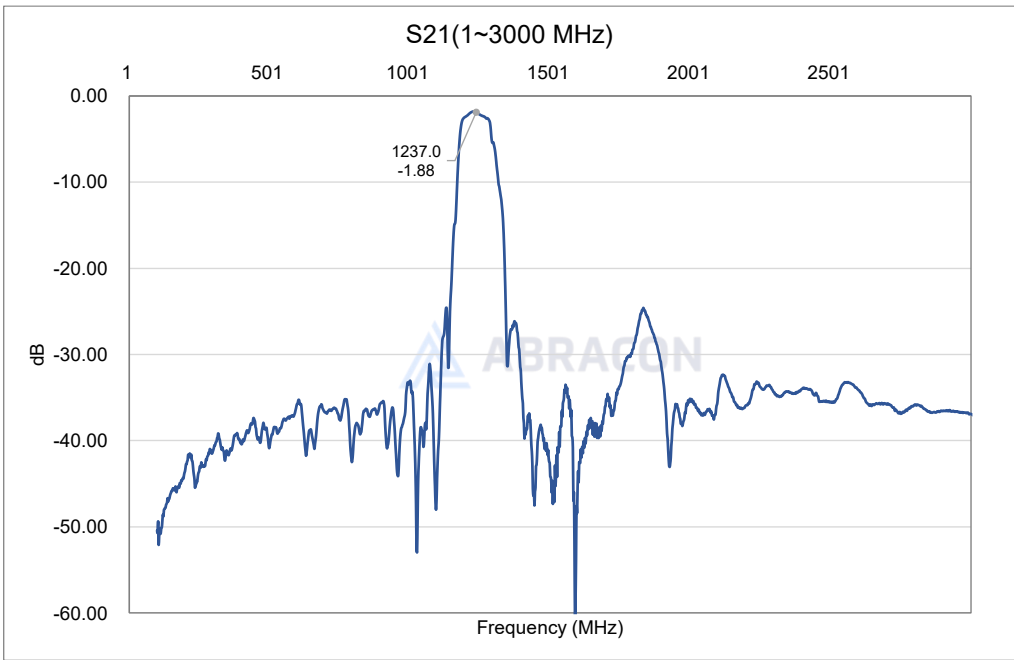


Check Inventory

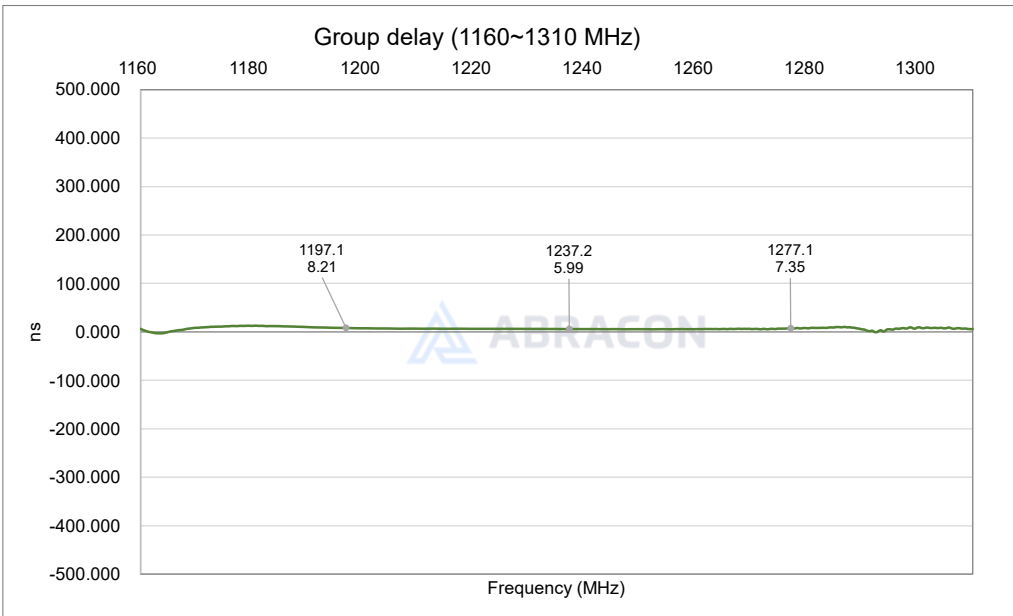


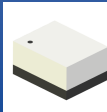
1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## S21 Wide Band



## Group Delay





# SMD 1237 MHz SAW FILTER

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Request Samples

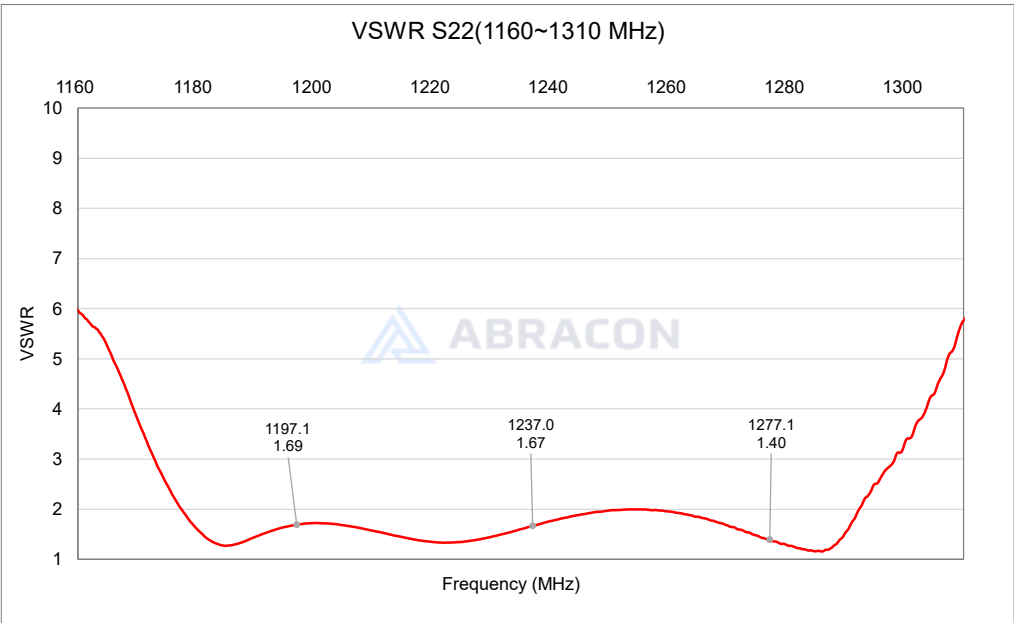
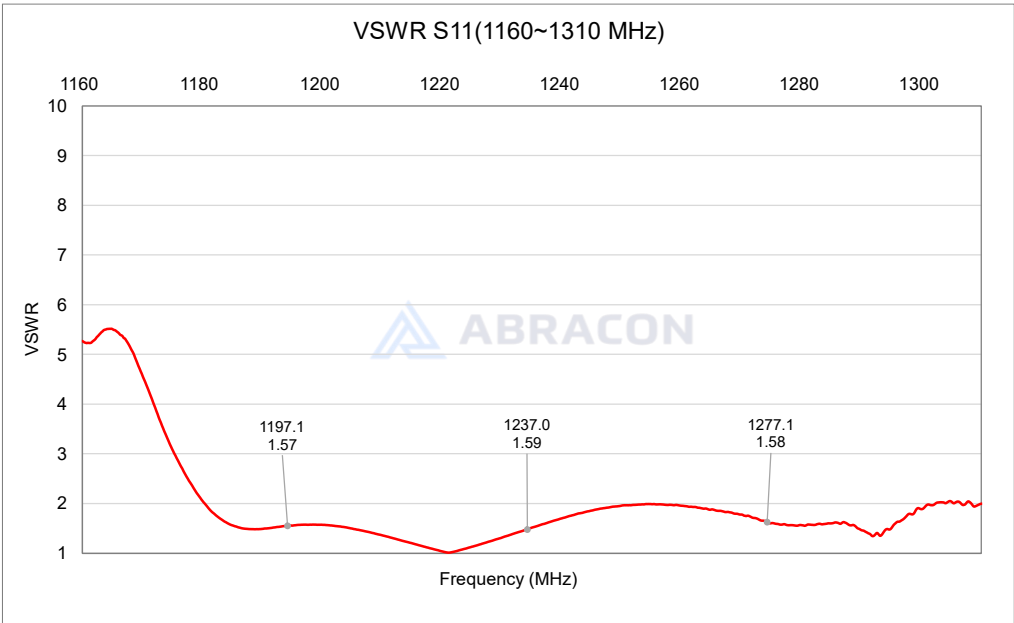


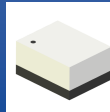
Check Inventory



1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

VSWR (S11 & S22)





# SMD 1237 MHZ SAW FILTER

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Request Samples



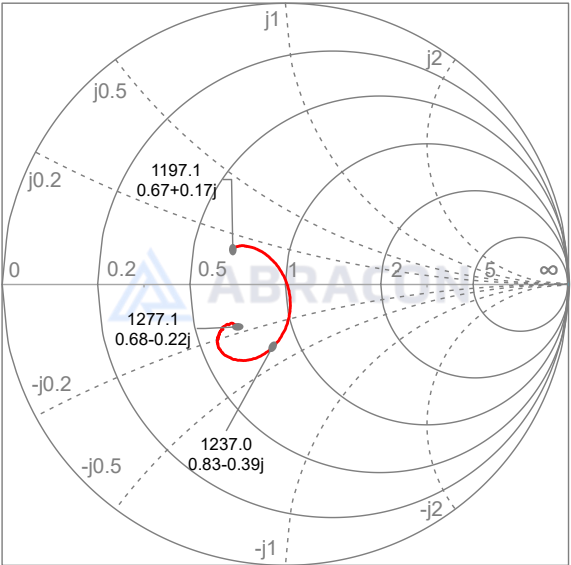
Check Inventory



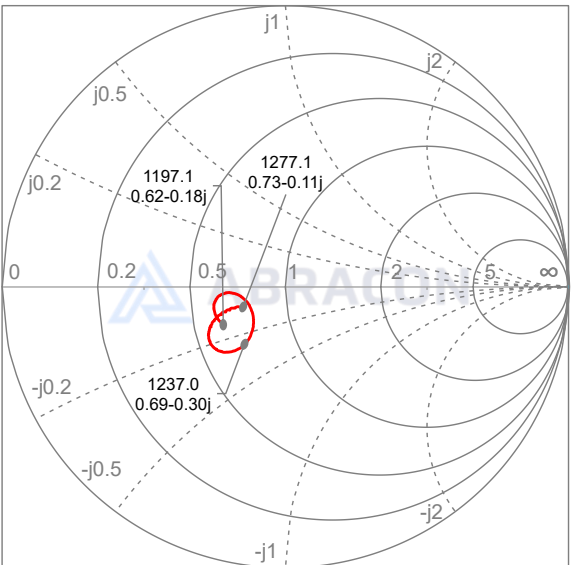
1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

Smith Chart (S11 & S22)

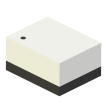
Smith chart S11 (1197~1277MHz)



Smith chart S22 (1197~1277MHz)



# SMD 1237 MHZ SAW FILTER



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1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

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

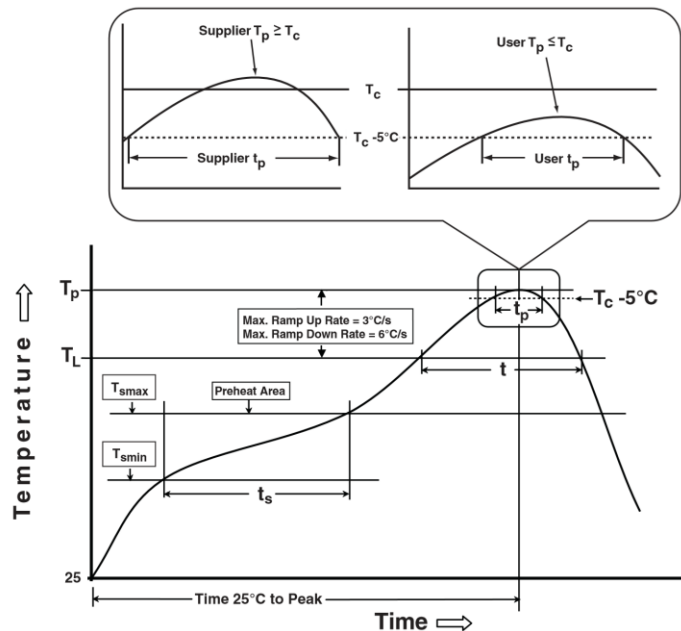


Table 1

### 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

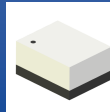
### Pb-Free Process Classification Temperatures (T<sub>c</sub>)

| 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>smmin</sub> )                                                         | 100°C                   | 150°C            |
| Temperature maximum (T <sub>smmax</sub> )                                                         | 150°C                   | 180°C            |
| Time (T <sub>smmin</sub> to T <sub>smmax</sub> ) (t <sub>s</sub> )                                | 60 – 120 sec.           | 60 – 90 sec.     |
| Average ramp-up rate (T <sub>smmax</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>smmax</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 1237 MHZ SAW FILTER

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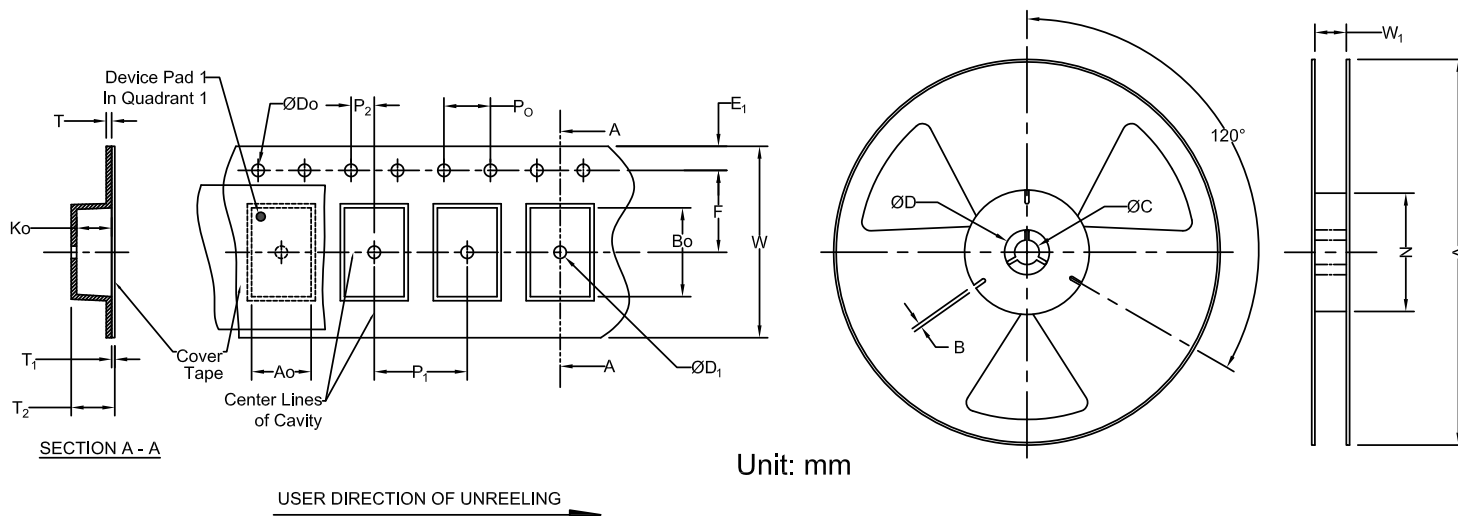
Check Inventory



1.4 x 1.1 x 0.7mm  
RoHS Compliant  
MSL Level = 3

## Packaging

### Tape & Reel Dimension



### Carrier Tape Specifications (mm)

| D0          | D1          | E1         | P0        | P2         | F          | P1        | W         | A0          | B0          | K0          | Reel Qty |
|-------------|-------------|------------|-----------|------------|------------|-----------|-----------|-------------|-------------|-------------|----------|
| 1.55 ± 0.05 | 0.60 ± 0.05 | 1.75 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.05 | 3.5 ± 0.05 | 4.0 ± 0.1 | 8.0 ± 0.1 | 1.30 ± 0.05 | 1.60 ± 0.05 | 0.77 ± 0.05 | 5,000    |

### Reel Specifications (mm)

| A           | W1          | N            | C            |
|-------------|-------------|--------------|--------------|
| 178.0 ± 1.0 | 8.48 ± 0.15 | 57.12 ± 0.15 | 13.12 ± 0.15 |

**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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