

# SMD 2442 MHZ SAW FILTER

AFS2442.0S4

Request Samples



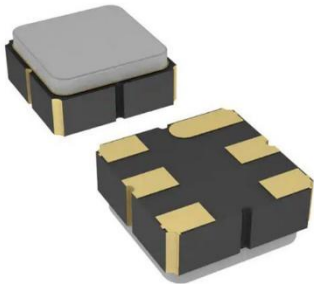
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3.0 x 3.0 x 1.4 mm  
RoHS Compliant  
MSL Level = 1

## Description

This 3.0 x 3.0 x 1.4 mm filter delivers robust performance for mainstream Wi-Fi and wireless coexistence. Supporting Wi-Fi 4/5, Bluetooth®, Zigbee®, Thread, and Matter, its 78 MHz bandwidth and > 31 dB out-of-band rejection ensure reliable signal integrity in crowded environments. With a 2 dB insertion loss and +10 dBm power handling, it balances performance and efficiency. The component's RoHS compliance and MSL Level 1 rating offer superior moisture sensitivity for simplified manufacturing, making it an excellent, reliable choice for cost-effective routers, home automation systems, and networking devices.



## Features

- Bandwidth: 78 MHz
- Ultra-small 3.0 x 3.0 x 1.4 mm in Size
- Low Insertion Loss: 2 dB
- Out-of-Band Rejection: > 31 dB
- Maximum Input Power: +10 dBm
- [RoHS Compliant](#) | [MSL Level 1](#)

## Applications

- Wi-Fi/WLAN Coverage
  - Wi-Fi 4/5 (802.11b/g/n/ac)
- Bluetooth®/ ZigBee® / Thread/ Matter
- Router and Networking
- Home Automation and Remote Sensing

## Ordering Information

Part Number	Description
AFS2442.0S4	SMD 2442 MHZ SAW FILTER on Tape & Reel
AFS2442.0S4-EVB	SMD 2442 MHZ SAW FILTER Evaluation Board

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

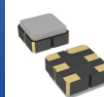


12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738  
Phone: 512-371-6159 | Fax: 512-351-8858  
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## Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	2437	2442	2447	MHz	
Bandwidth	55	78	-	MHz	
Insertion Loss	-	1.9	6.0	dB	2437~2447 MHz
Amplitude Ripple	-	0.6	2.0	dB	fc ± 12.5 MHz
VSWR	-	1.6	2.5	-	fc ± 12.5 MHz
Group Delay	-	14	50	ns	fc ± 12.5 MHz
Group Delay Ripple	-	5	20	ns	fc ± 12.5 MHz
Attenuation (Refer to min. insertion loss)	37	41	-	dB	DC ~ 2300 MHz
	20	31	-		2300 ~ 2367 MHz
	40	44	-		2517 ~ 2650 MHz
	25	31	-		2650 ~ 4000 MHz
DC Voltage	-	-	0	V	
Input Power Level	-	-	10	dBm	
Terminating Source Impedance	-	50	-	Ω	
Terminating Load Impedance	-	50	-	Ω	

## Mechanical Specification

Parameters	Specifications
Filter Dimension	3.0 x 3.0 x 1.4 mm
Mounting Type	Surface Mount

## Environmental Specification

Parameters	Specifications
Operating Temperature Range	-20°C ~ +70°C
Storage Temperature Range	-40°C ~ +85°C
MSL level	1



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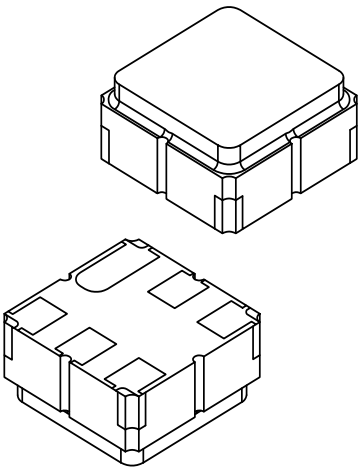
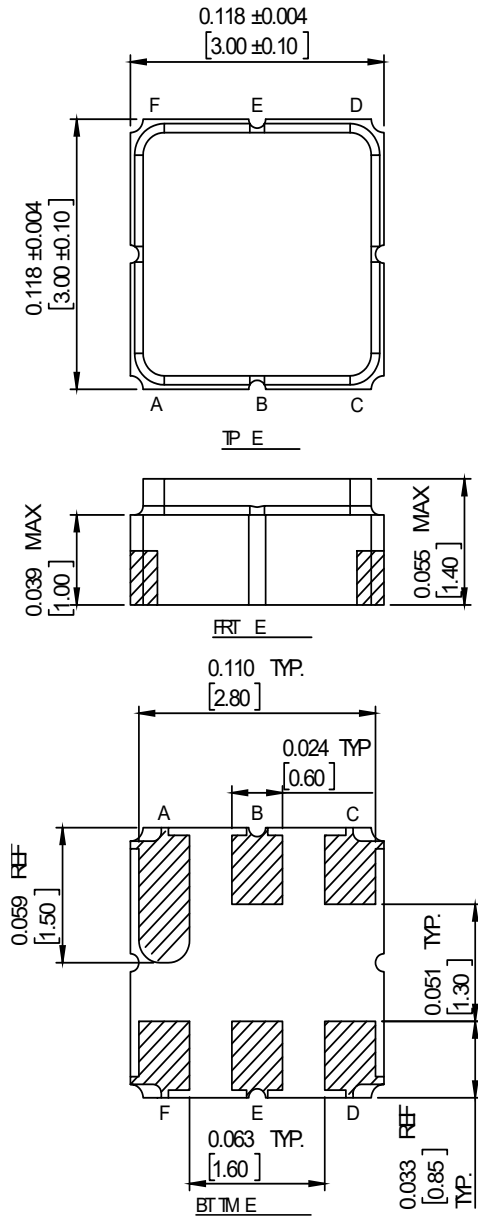


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## Product Dimensions



Unit : inches[mm]

Pin No.	Description
A, C, D, F	Ground
B	Input
E	Output

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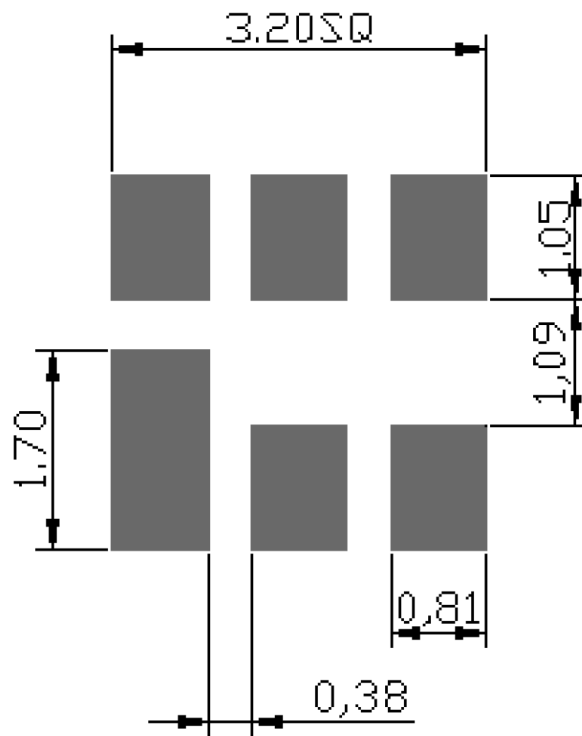


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3.0 x 3.0 x 1.4 mm  
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## Recommended Land Pattern



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.

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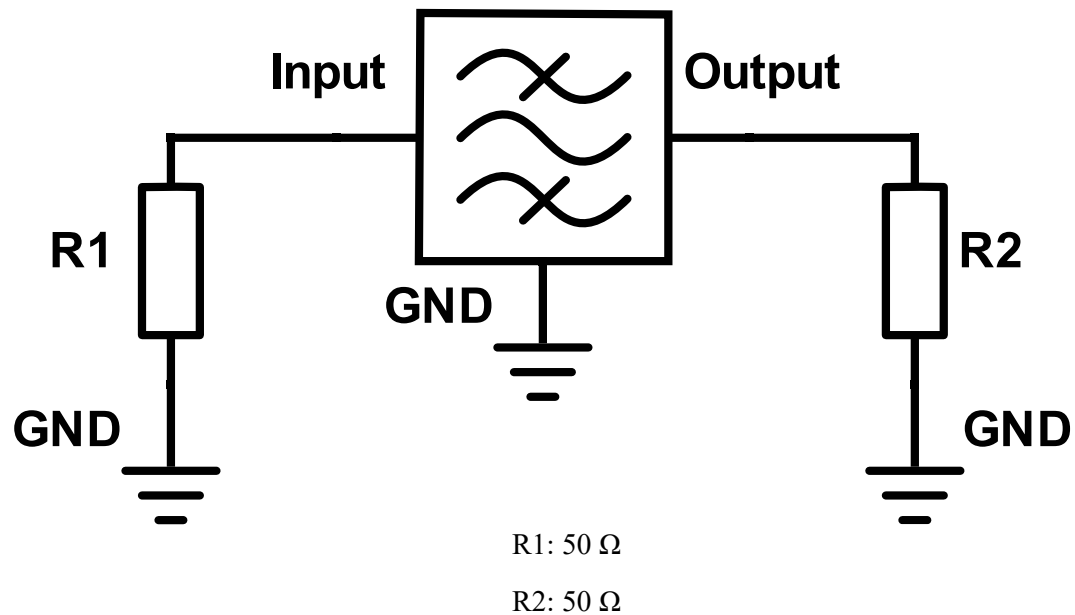


3.0 x 3.0 x 1.4 mm

RoHS Compliant

MSL Level = 1

## Measurement Circuit



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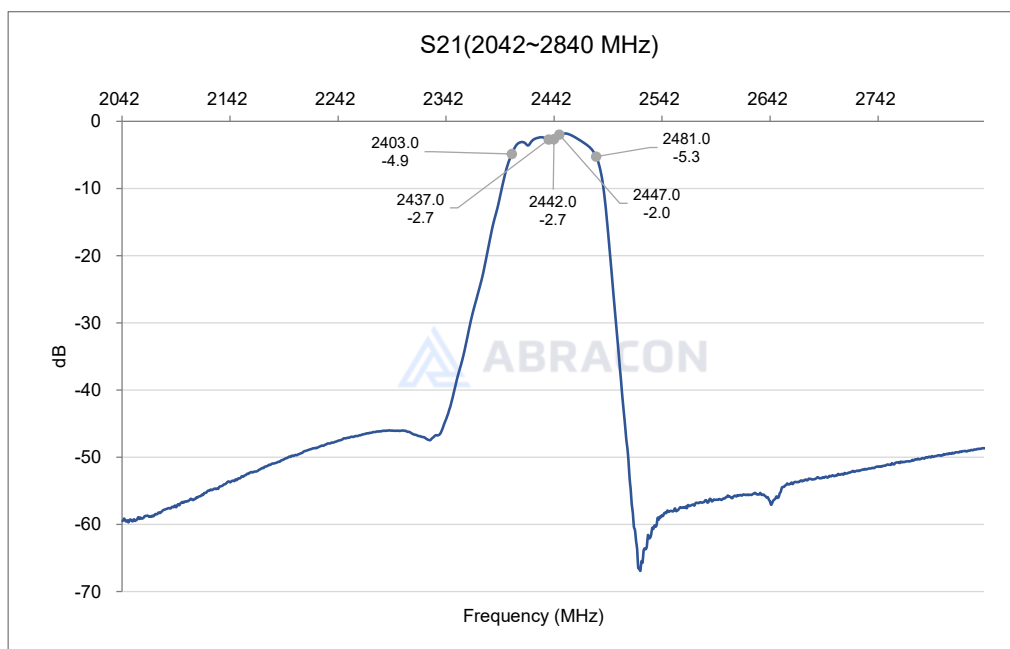
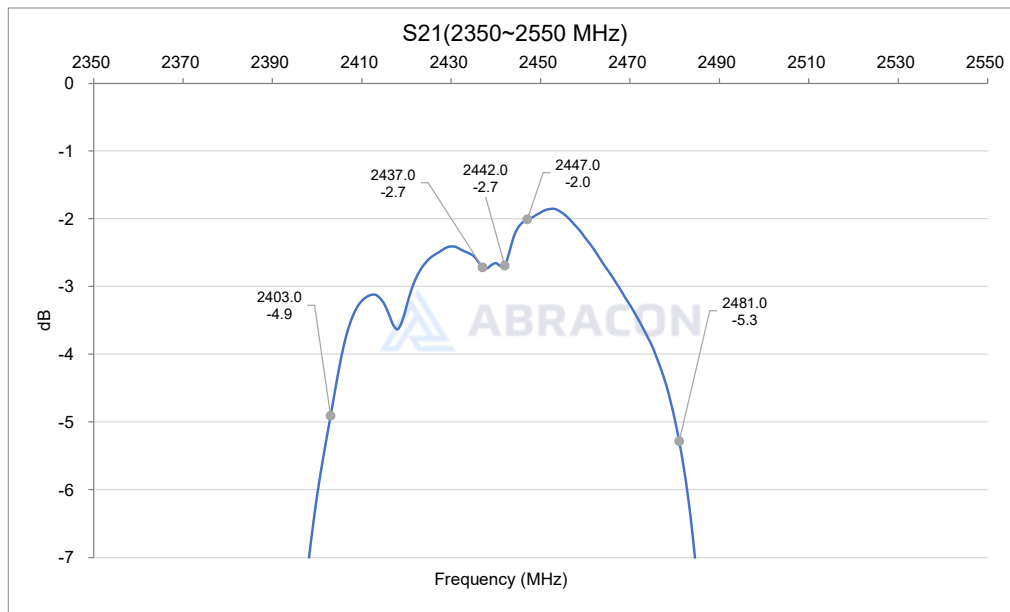
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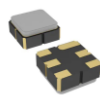
3.0 x 3.0 x 1.4 mm  
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## Frequency Characteristics

S21 narrow band



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**AFS2442.0S4**

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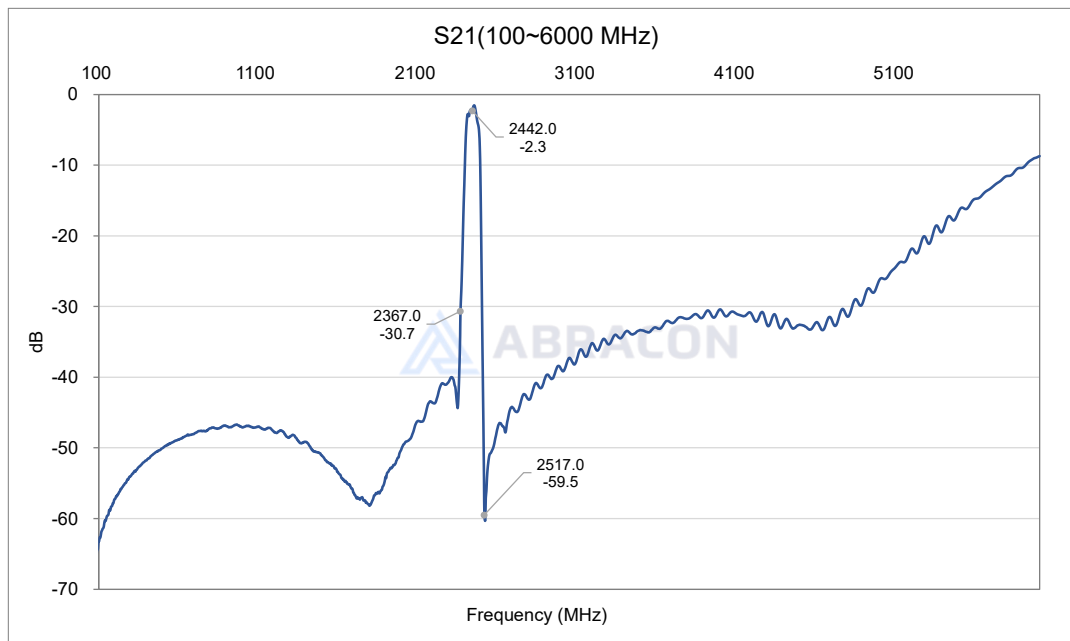


Check Inventory

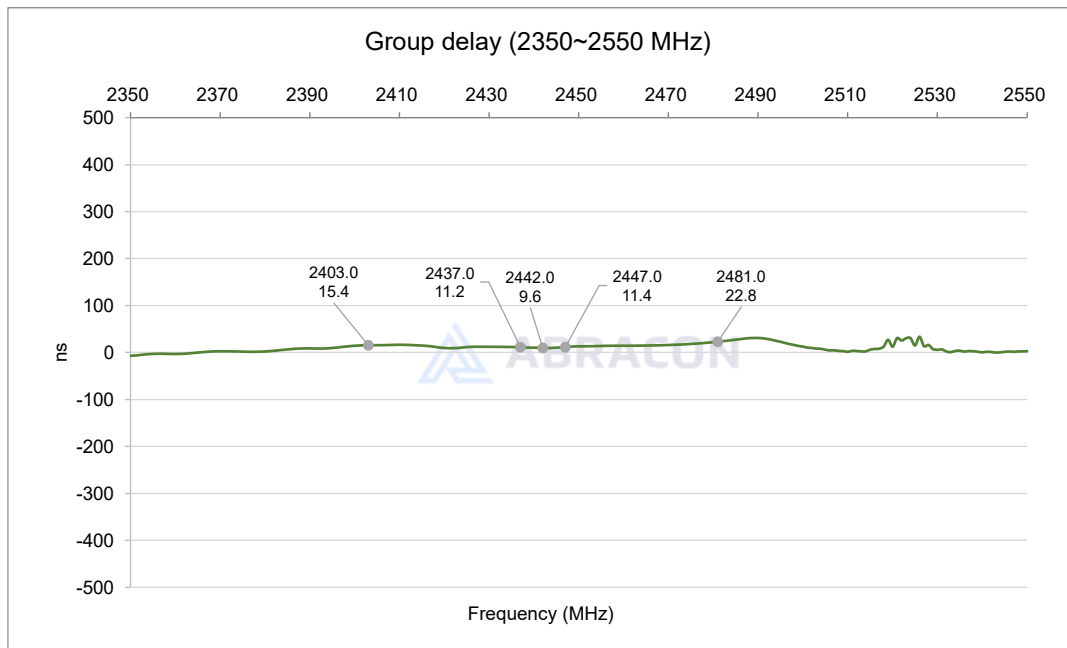


**3.0 x 3.0 x 1.4 mm**  
**RoHS Compliant**  
**MSL Level = 1**

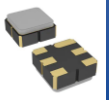
## S21 Wide Band



## Group Delay



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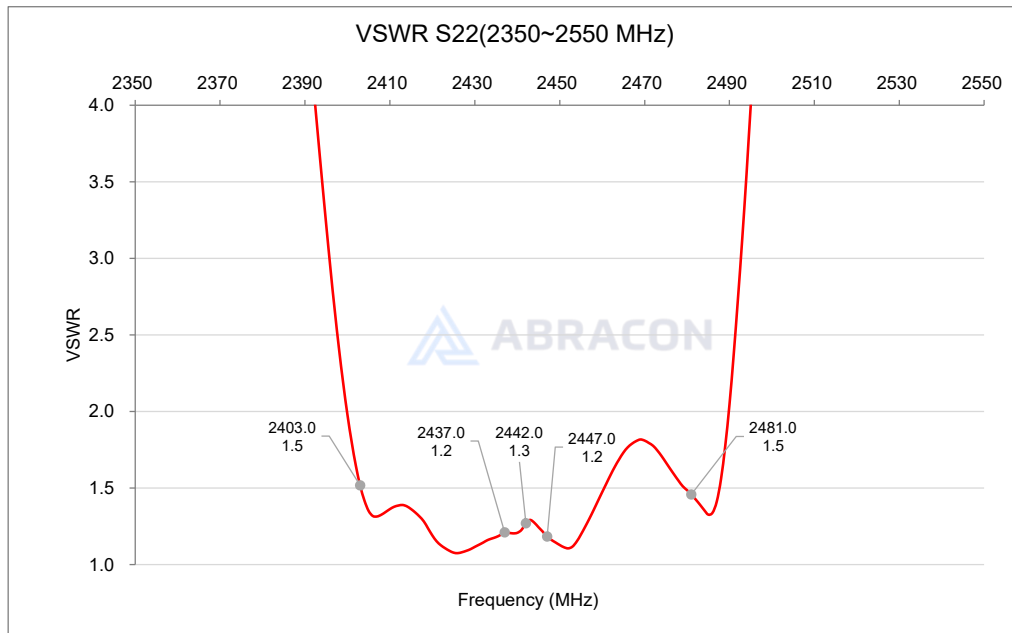
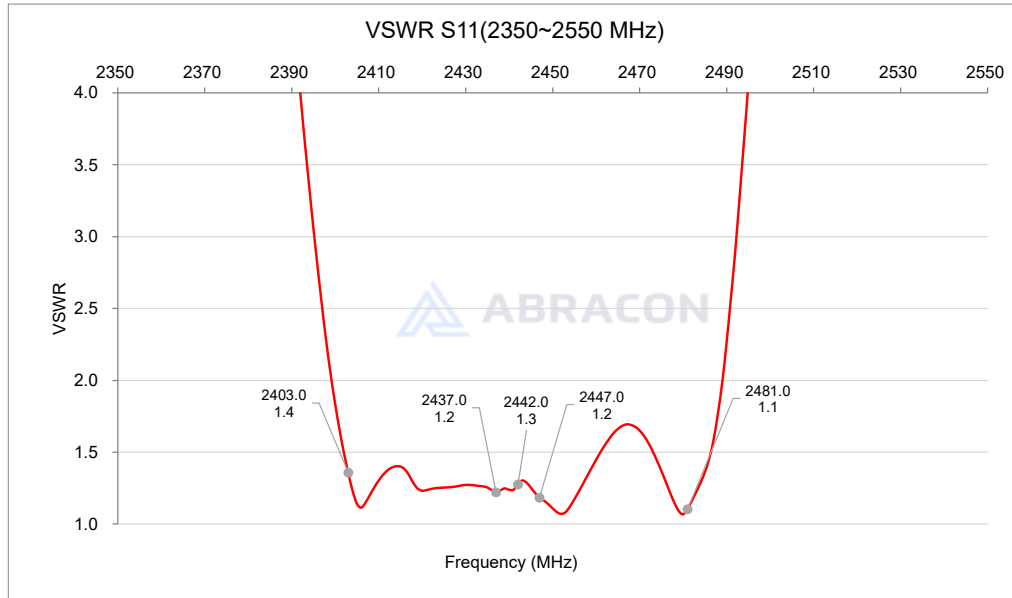


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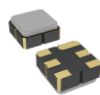


**3.0 x 3.0 x 1.4 mm**  
**RoHS Compliant**  
**MSL Level = 1**

VSWR (S11 & S22)



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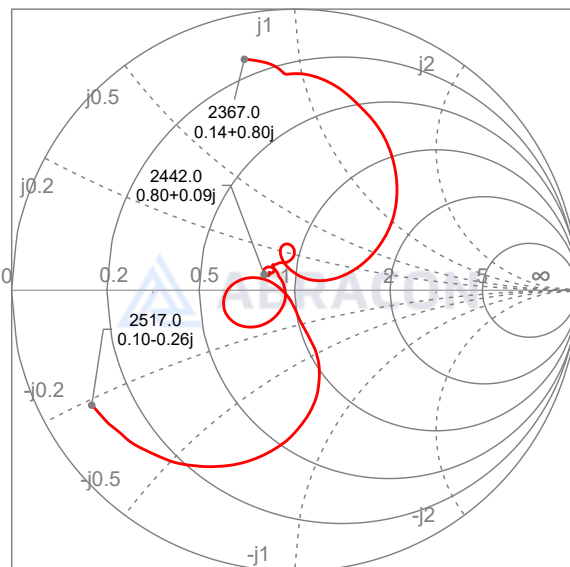
Check Inventory



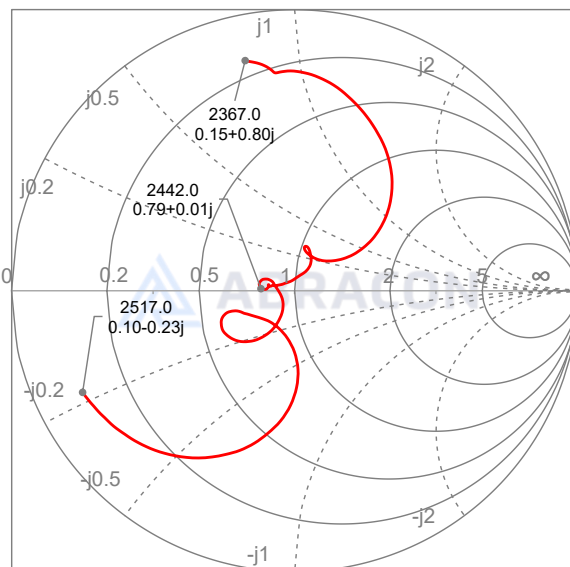
**3.0 x 3.0 x 1.4 mm**  
**RoHS Compliant**  
**MSL Level = 1**

Smith Chart (S11 & S22)

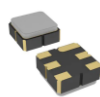
Smith chart S11 (2367~2517 MHz)



Smith chart S22 (2367~2517 MHz)



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

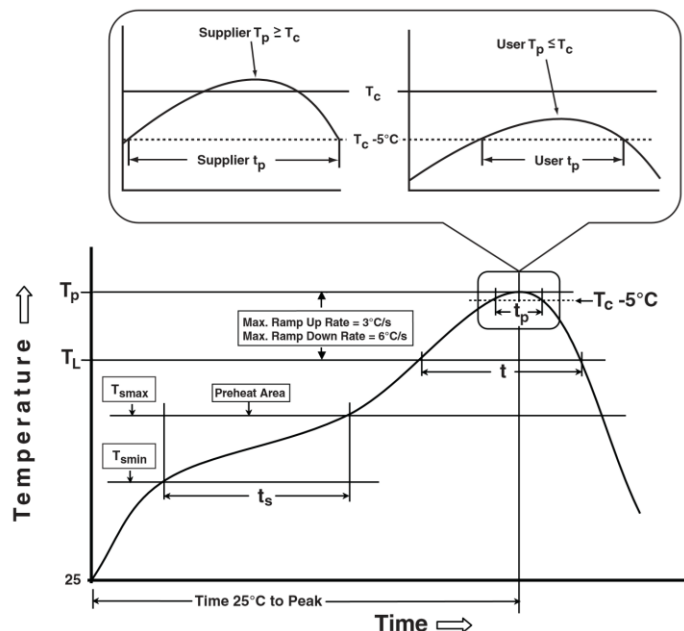


Table 1

SnPb Eutectic Process  
Classification Temperatures ( $T_c$ )

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

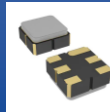
Pb-Free Process  
Classification Temperatures ( $T_c$ )

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 ( $T_{smin}$ )	100°C	150°C
Temperature maximum ( $T_{smax}$ )	150°C	180°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60 – 120 sec.	60 – 90 sec.
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/sec. max	3°C/sec. max
Liquidous temperature ( $T_L$ )	183°C	220°C
Time at Liquidous ( $T_L$ )	60 – 150 sec.	50 – 80 sec.
Peak package body temperature ( $T_p$ )*	See Table 1	See Table 2
Time ( $T_p$ )* within 5°C of the specified classification temperature ( $T_c$ )	20 sec.	20 ~ 40 sec.
Ramp-down rate ( $T_p$ to $T_{smax}$ )	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 ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.



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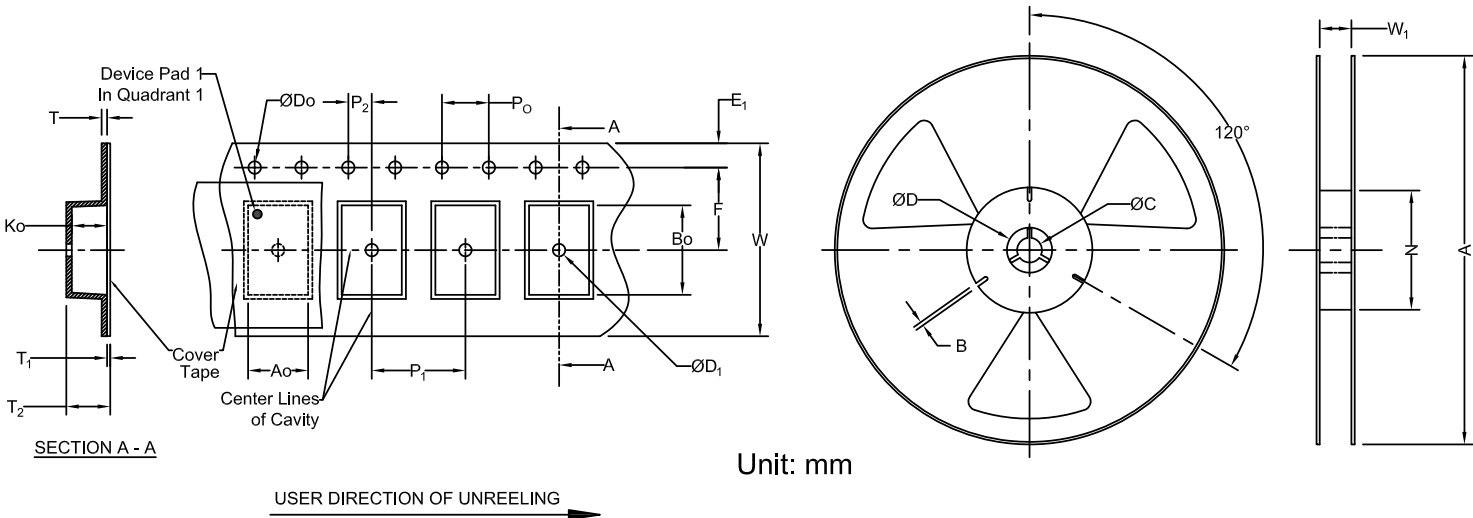
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MSL Level = 1

## Packaging

### Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	P0	F	P1	P2	W	A0	B0	K0	Reel Qty
1.75 ± 0.1	4.0 ± 0.05	5.5 ± 0.05	8.0 ± 0.05	2.0 ± 0.05	12.0 ± 0.3	3.35 ± 0.1	3.35 ± 0.1	1.4 ± 0.1	13" = 3,000

Reel Specifications (mm)

A	W <sub>1</sub>	N	B	C	D
330 ± 1.0	12.0 ± 1.0	100 ± 1.0	2.0 ± 0.5	13 ± 0.5	20.2 min

**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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