



SMD 1237 MHZ SAW FILTER

AFII-SW-0059

Request Samples



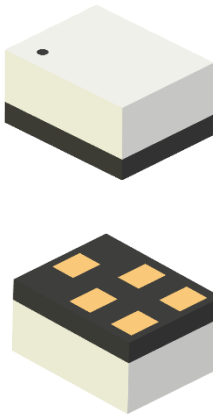
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1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Description

Designed for next-generation high-precision navigation systems, this advanced GNSS filter targets the critical L2, E5b, and B2b frequency bands. The component combines an compact 1.4 x 1.1 x 0.7mm footprint with exceptional electrical performance, featuring a low 1.9 dB insertion loss and strong >25 dB out-of-band rejection. Its 50-ohm single-ended architecture ensures straightforward integration while maintaining signal integrity. These characteristics make it ideally suited for centimeter-level accuracy applications including RTK positioning, autonomous vehicle navigation, and precision agriculture equipment where reliable performance is essential. The filter is RoHS compliant and carries an MSL Level 3 rating.



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
- [RoHS Compliant](#) | [MSL Level 3](#)

Applications

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

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](#)

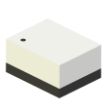


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Phone: 512-371-6159 | Fax: 512-351-8858
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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	1237	-	MHz	-
VSWR	-	1.8	2.0		1197 ~ 1277MHz
Insertion Loss ⁽¹⁾	-	1.9	2.6	dB	1197 ~ 1277MHz
Amplitude Ripple	-	1.0	1.5		1197 ~ 1277MHz
Group Delay ⁽¹⁾	-	6.3	8.2	ns	1197 ~ 1277MHz
Group Delay Ripple ⁽¹⁾	-	0.05	0.4	ns	1197 ~ 1277MHz
Attenuation ⁽²⁾ (Reference level from 0 dB) 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 ⁽³⁾ (single ended)	-	50	-	Ω	-
Load Impedance ⁽³⁾ (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

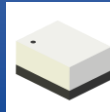
Parameters	Specifications
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
ESD (HBM)	>100 V
ESD (CDM)	>100 V
MSL level	3
RoHS Compliant	Yes



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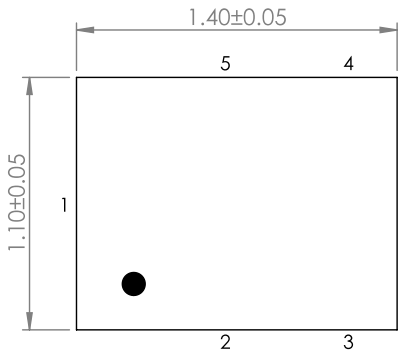
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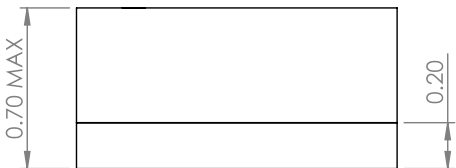
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RoHS Compliant
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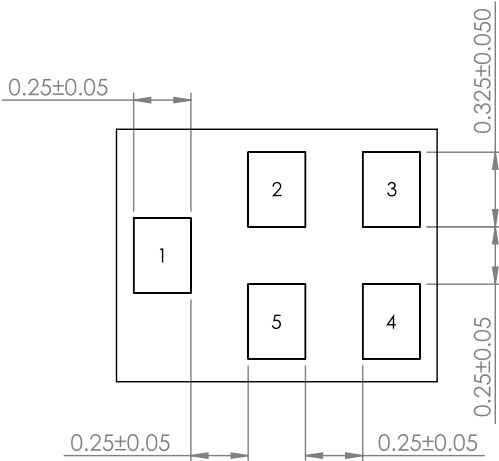
Product Dimensions



TOP VIEW



FRONT VIEW

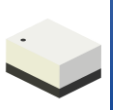


BOTTOM VIEW

Unit : mm

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

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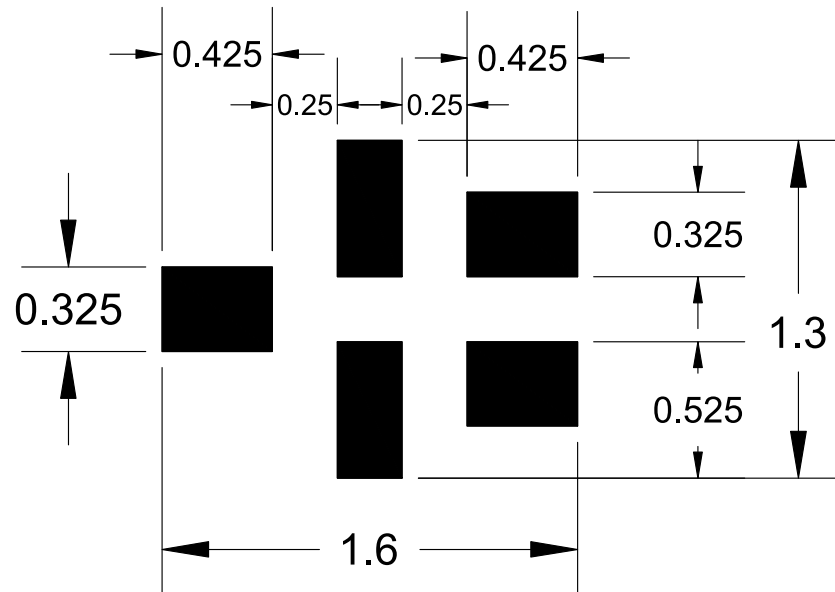


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1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Recommended Land Pattern

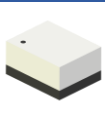


Land Pattern

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.

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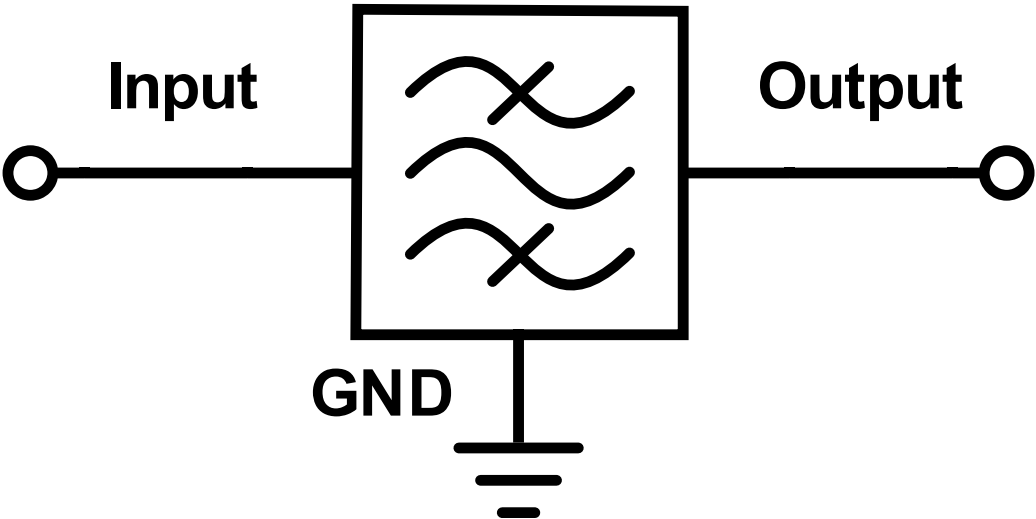


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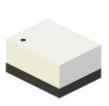
1.4 x 1.1 x 0.7mm
RoHS Compliant
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Measurement Circuit



Pin No.	Description
1	Input Impedance: 50 Ω
4	Output Impedance: 50 Ω
2, 3,5	Ground

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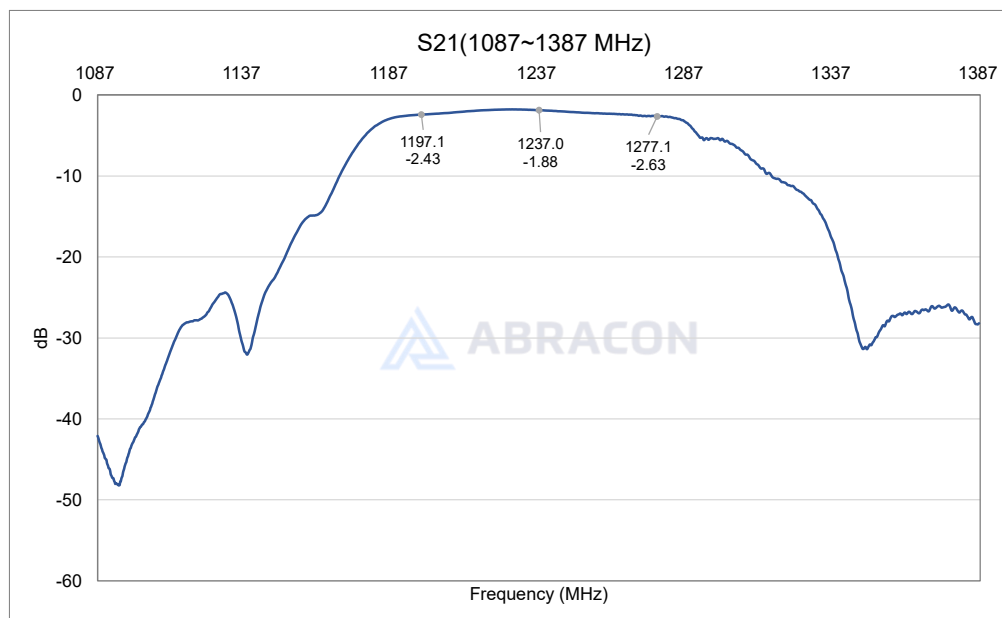
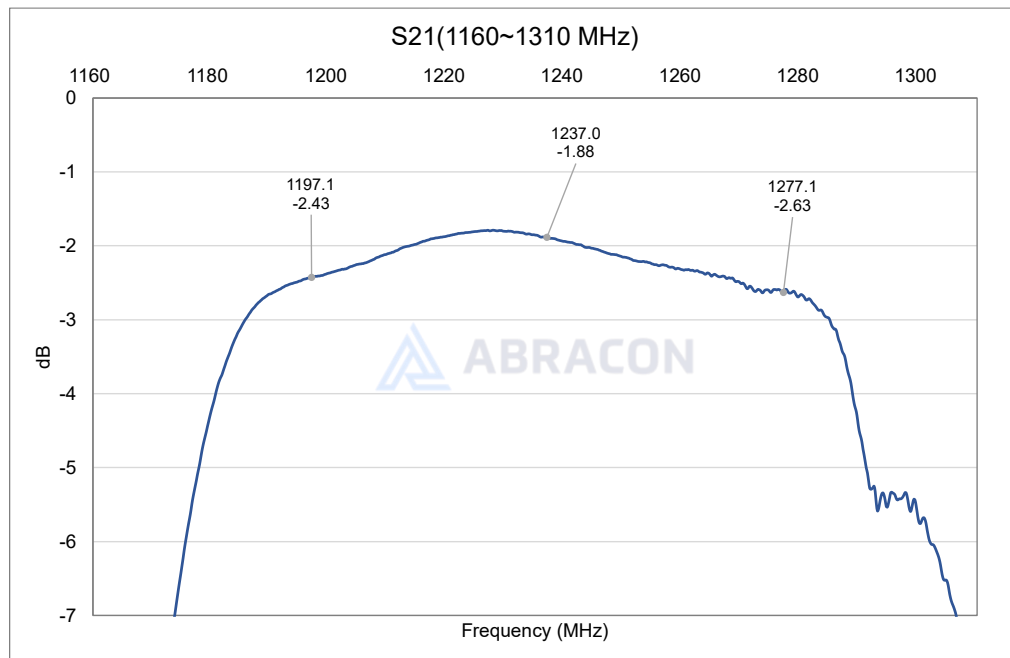
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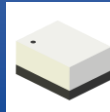


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band





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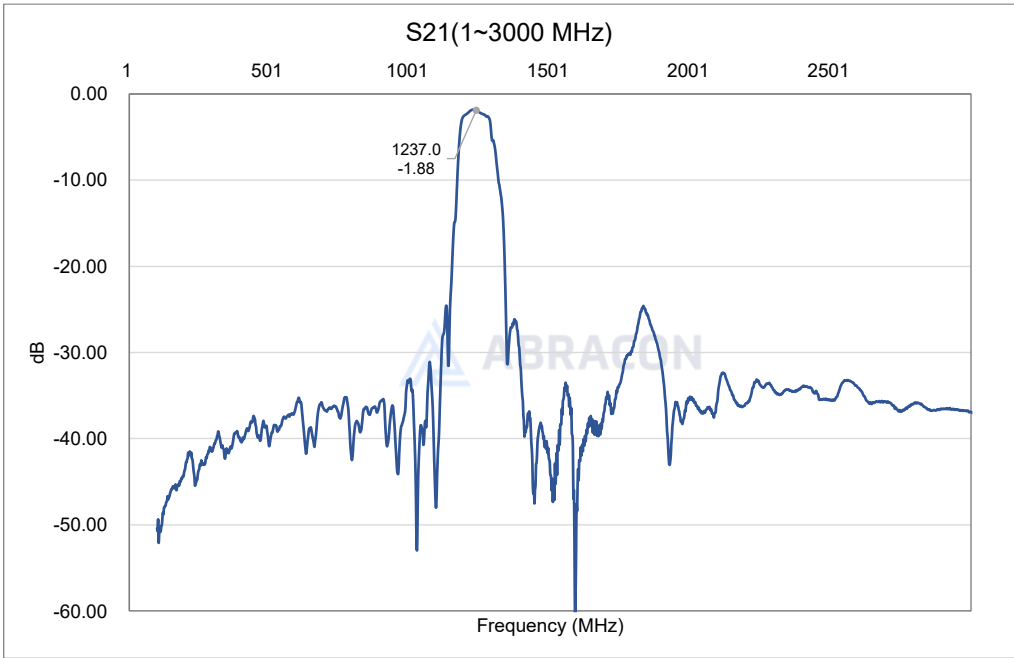


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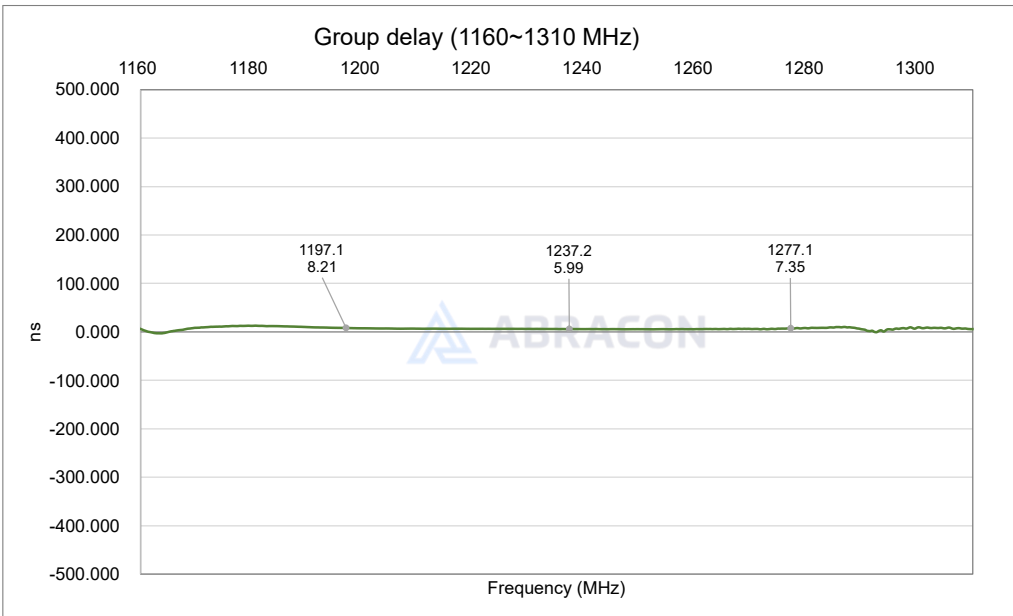


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

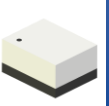
S21 Wide Band



Group Delay



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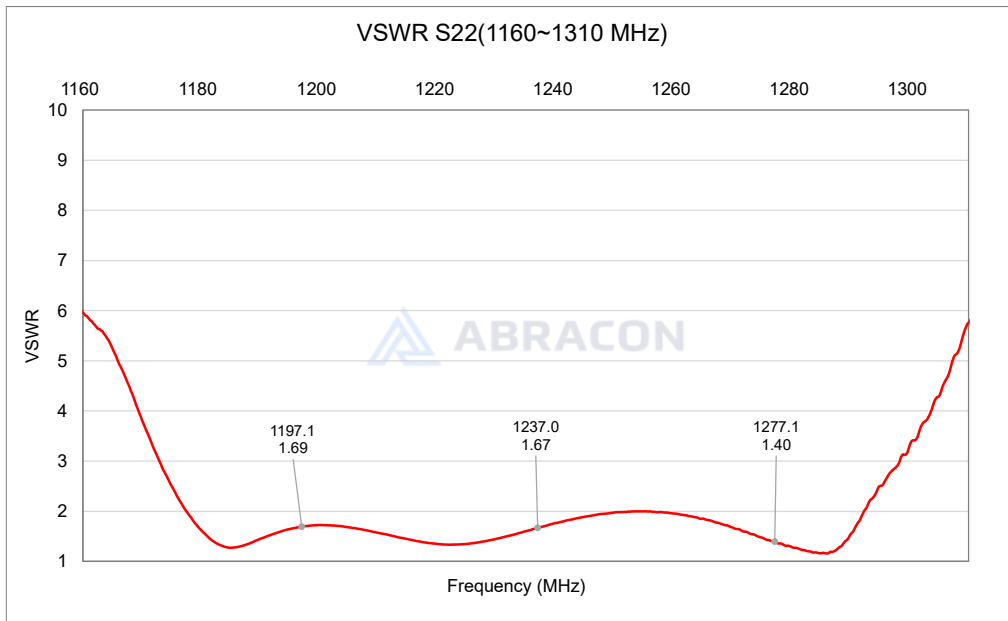
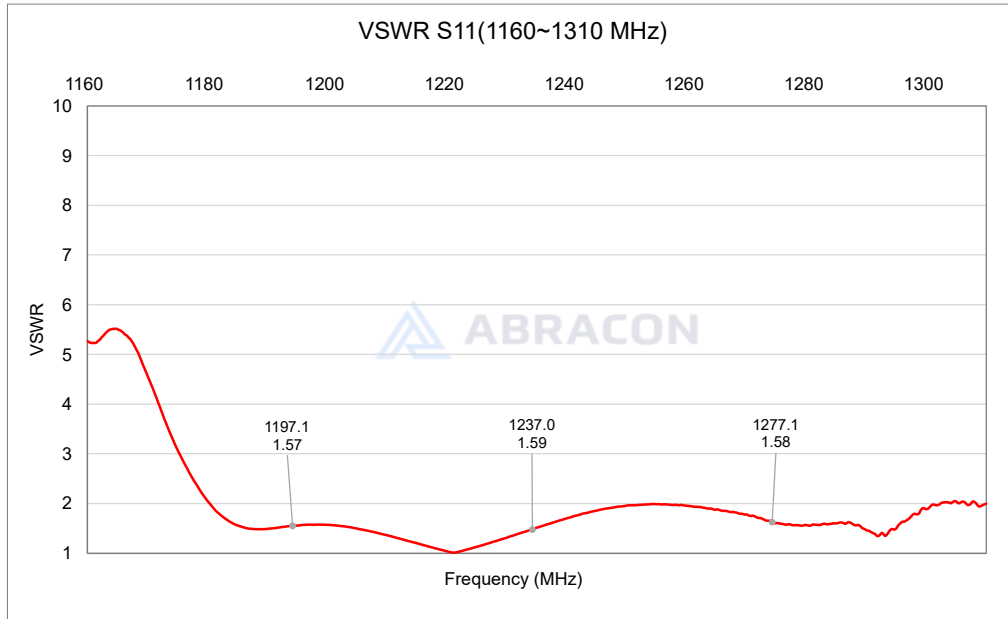


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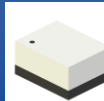


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



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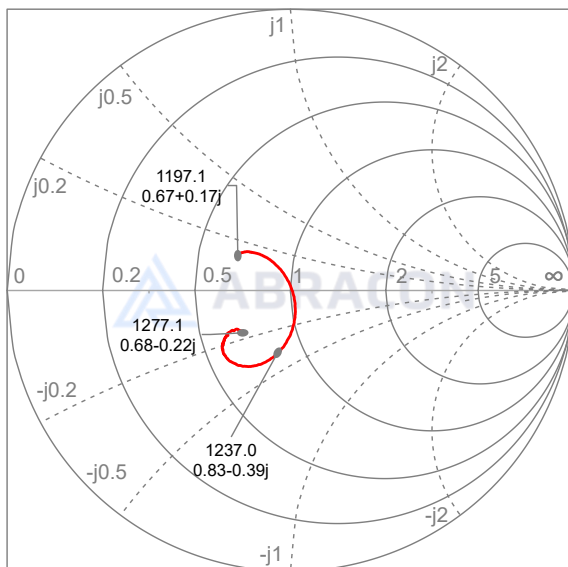
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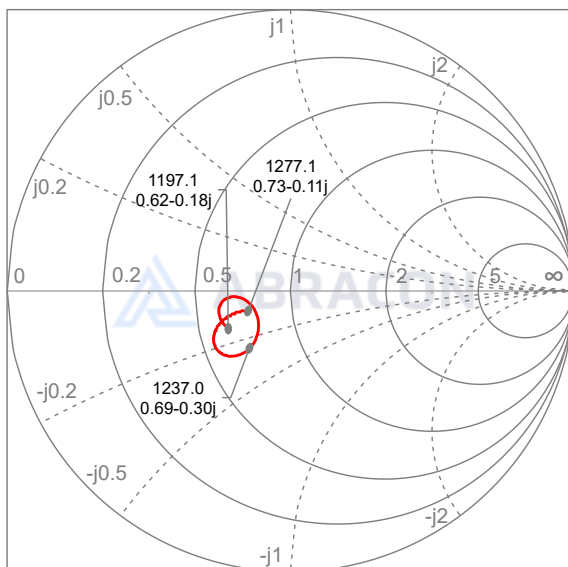
1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

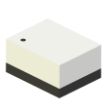
Smith chart S11 (1197~1277MHz)



Smith chart S22 (1197~1277MHz)



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Reflow Profile [JEDEC J-STD-020]

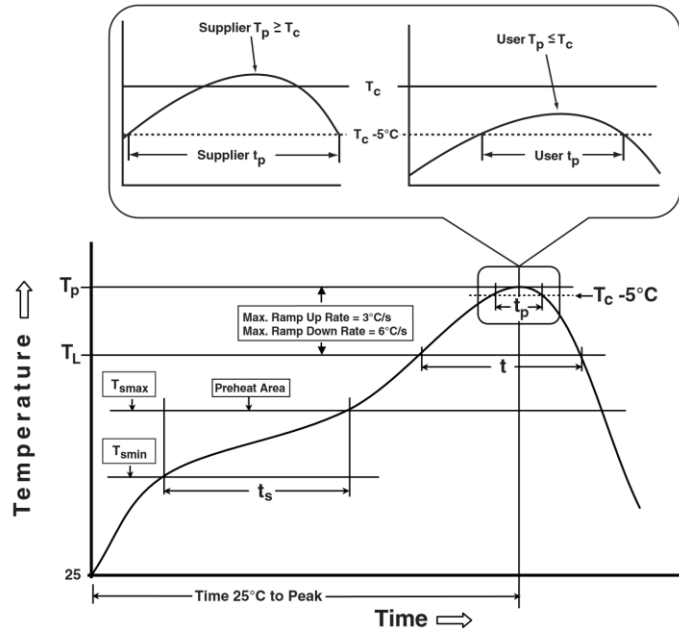


Table 1

SnPb Eutectic Process Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2

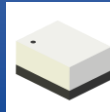
Pb-Free Process Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >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 _{smmin})	100°C	150°C
Temperature maximum (T _{smmax})	150°C	180°C
Time (T _{smmin} to T _{smmax}) (t _s)	60 – 120 sec.	60 – 90 sec.
Average ramp-up rate (T _{smmax} 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 _{smmax})	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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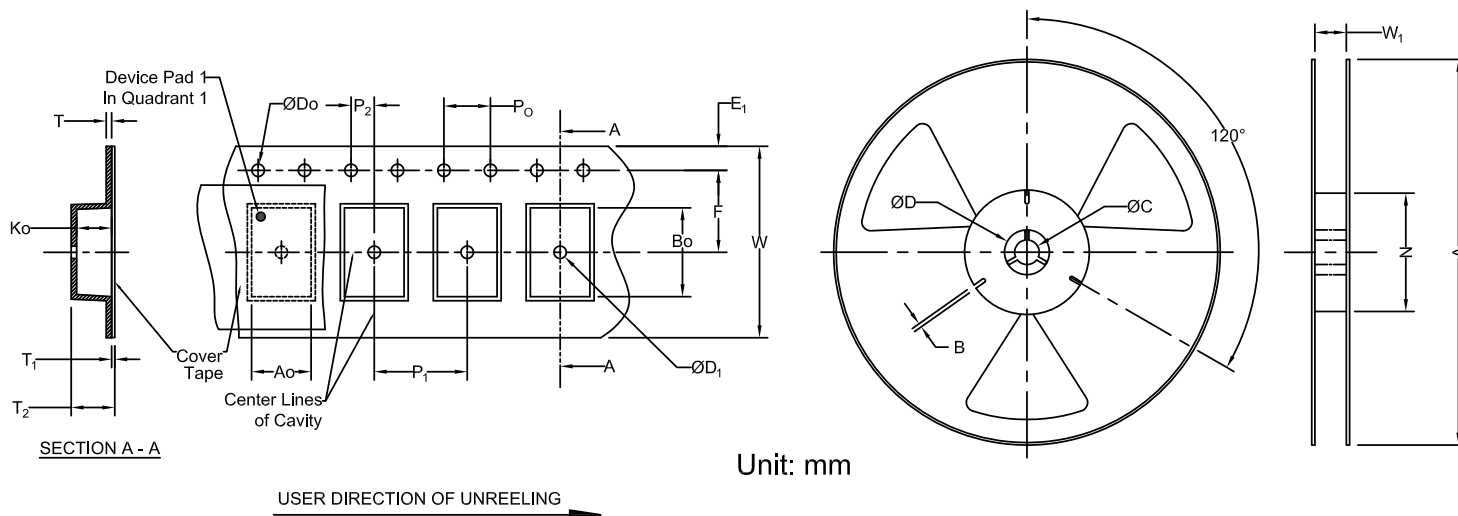
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MSL Level = 3

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

Do	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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