



SMD 1237 MHZ SAW FILTER

AFII-SW-0059

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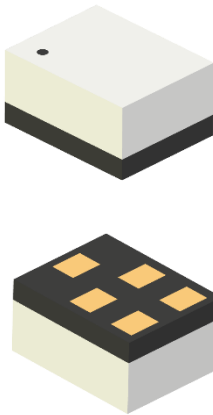
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1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

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](#)

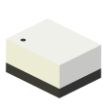


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Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit: [www.abracon.com](#)

REVISED: 10-20-25

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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

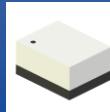
Parameters	Specifications
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
ESD (HBM)	>100 V
ESD (CDM)	>100 V
MSL level	3
RoHS Compliant	Yes



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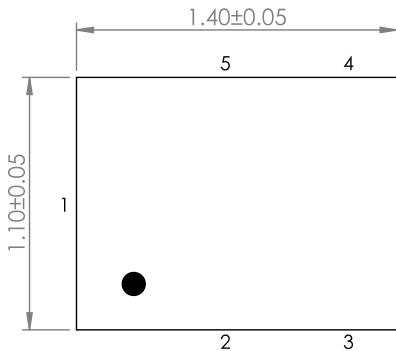
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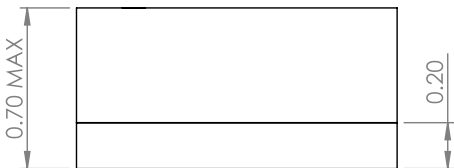
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MSL Level = 3

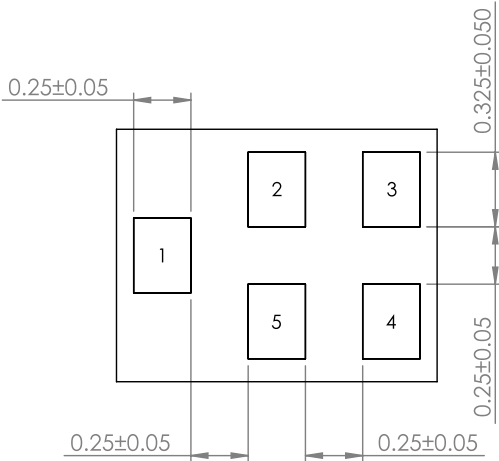
Product Dimensions



TOP VIEW



FRONT VIEW

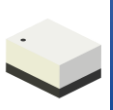


BOTTOM VIEW

Unit : mm

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

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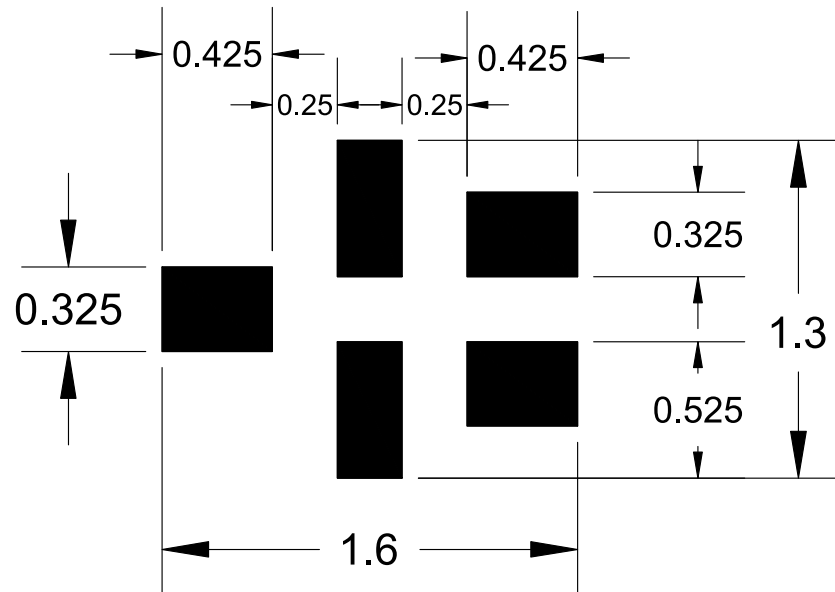


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1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Recommended Land Pattern

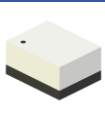


Land Pattern

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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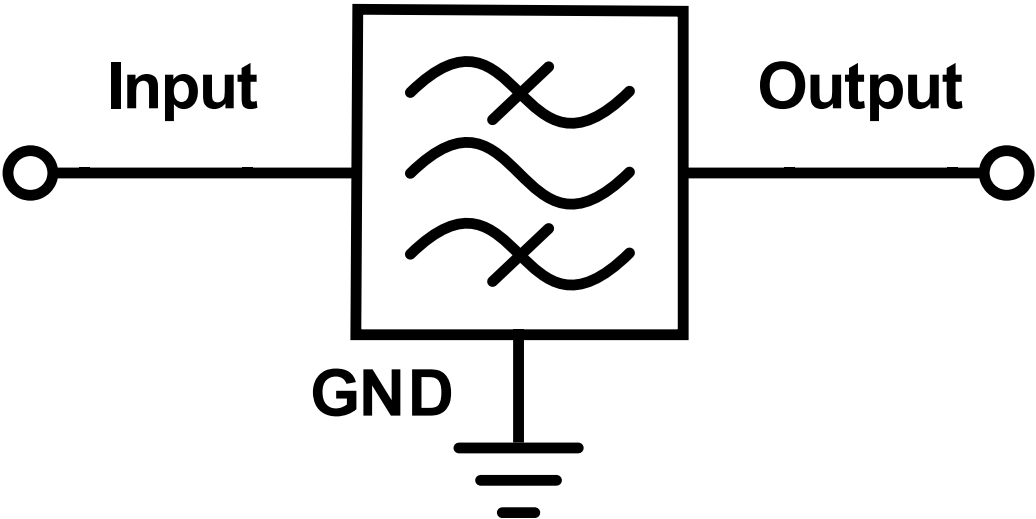


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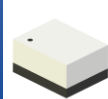


1.4 x 1.1 x 0.7mm
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Measurement Circuit



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



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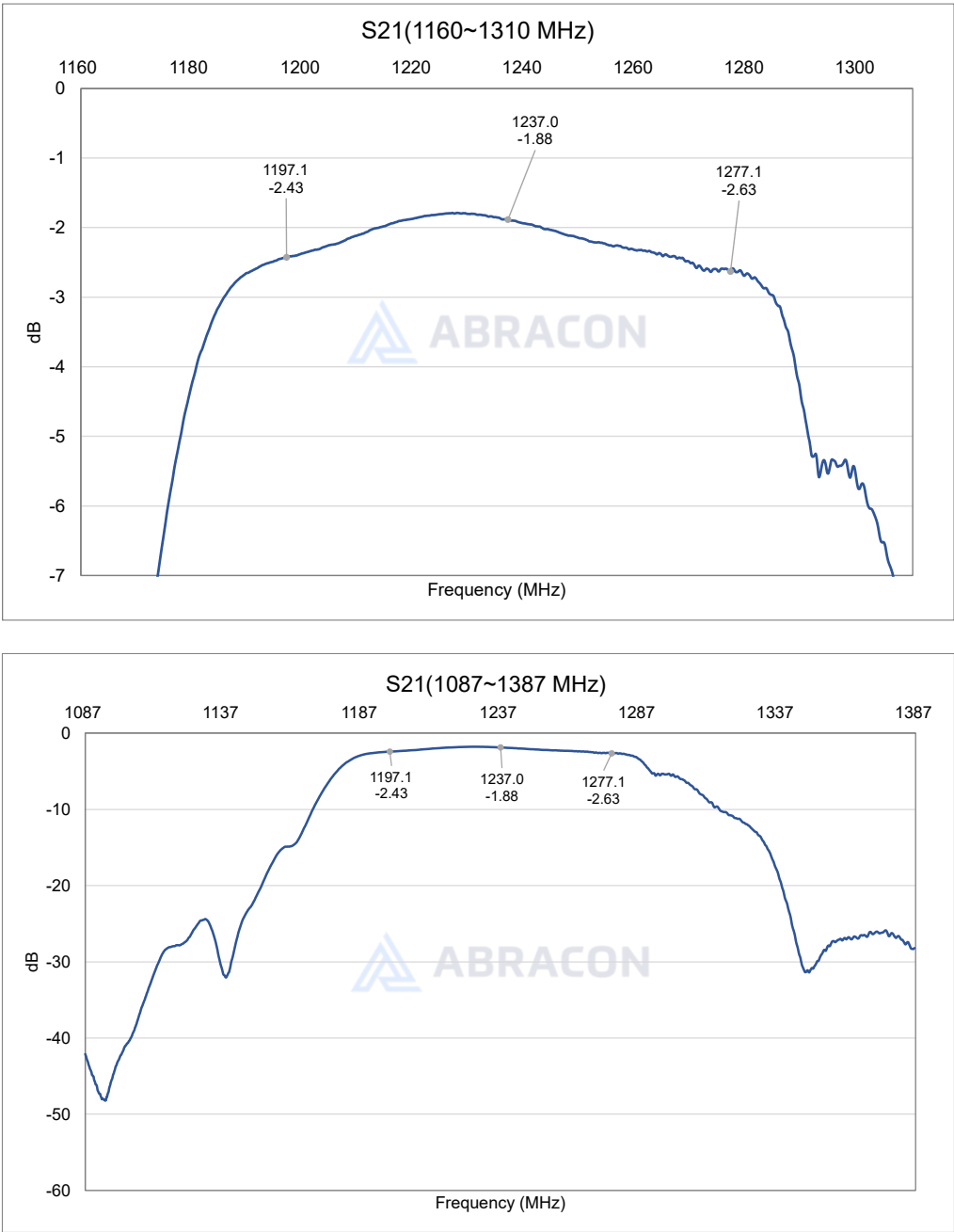
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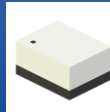


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band





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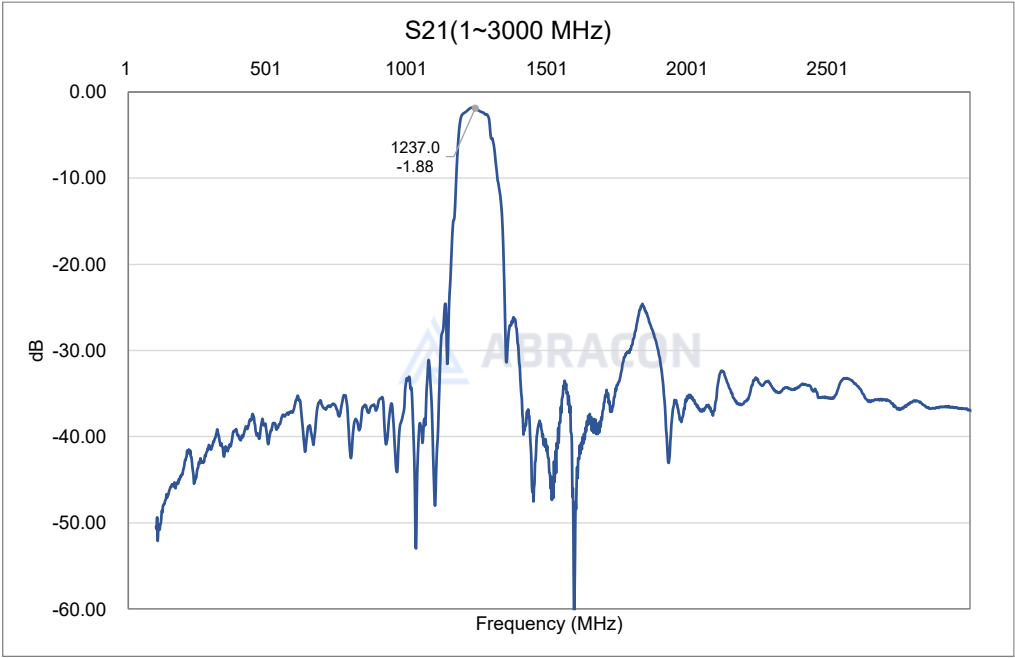


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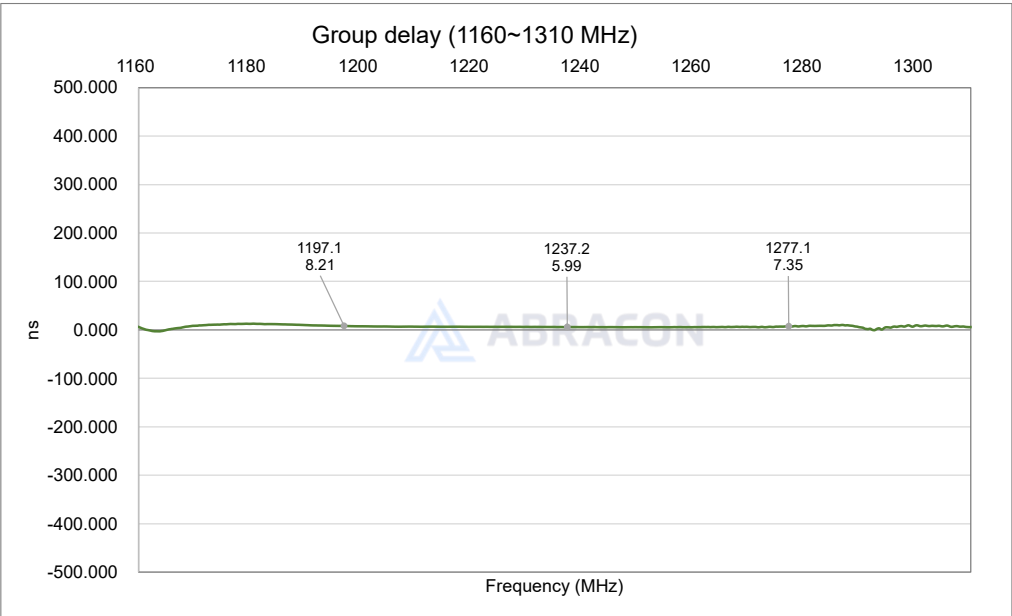


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

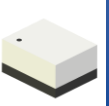
S21 Wide Band



Group Delay



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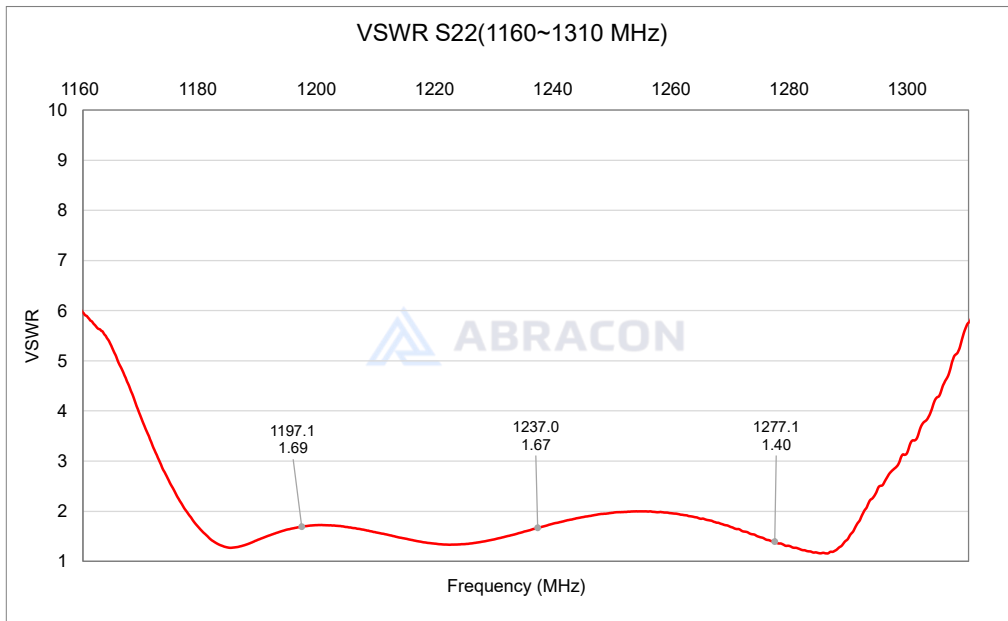
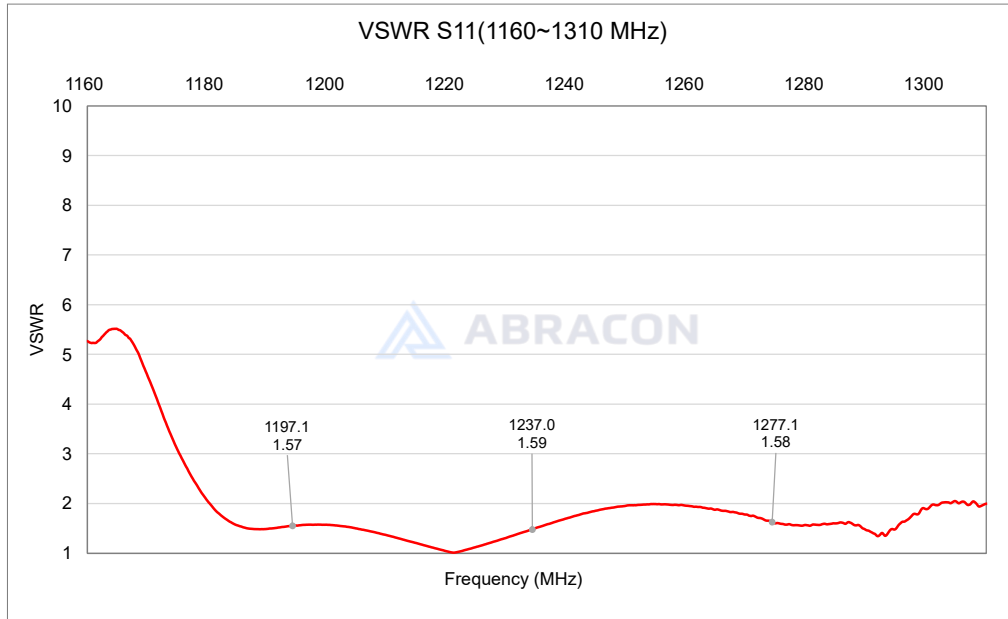


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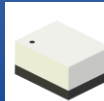


1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



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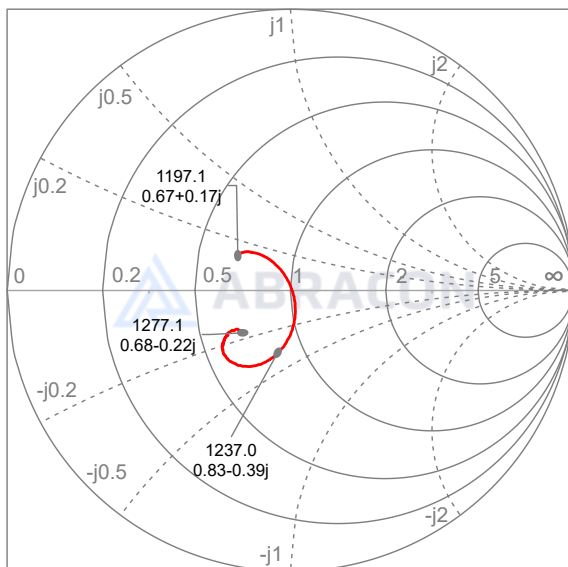
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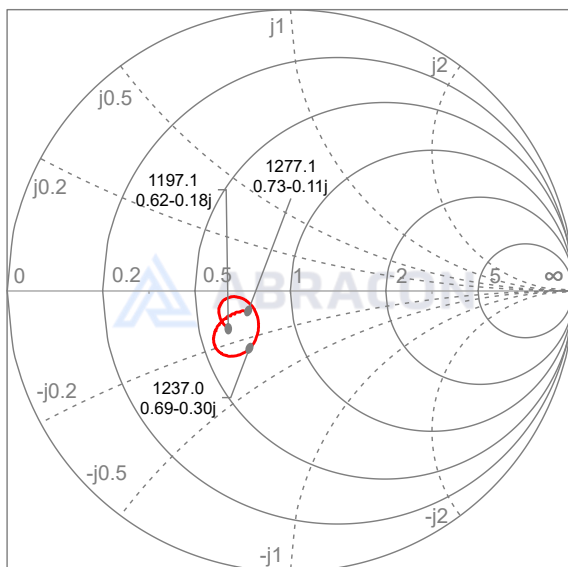
1.4 x 1.1 x 0.7mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

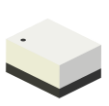
Smith chart S11 (1197~1277MHz)



Smith chart S22 (1197~1277MHz)



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Reflow Profile [JEDEC J-STD-020]

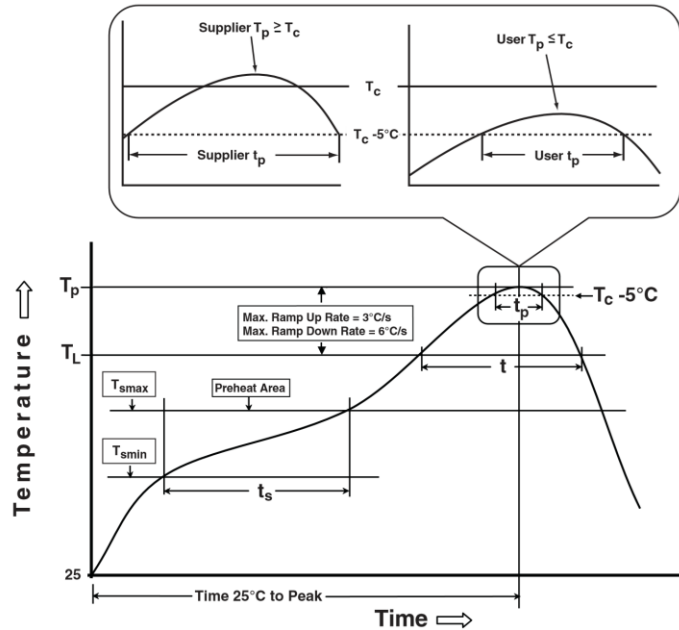


Table 1

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_{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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