

1582.47 MHz SMD SAW Filter

ABSTS5A2-2HMM01MM

Request Samples



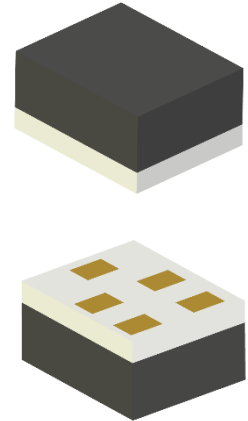
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1.1 x 0.9 x 0.55 mm
RoHS/RoHS II Compliant
MSL Level = 3

Description

This advanced multi-constellation GNSS filter provides comprehensive support for GPS, GLONASS, BEIDOU, and GALILEO systems. Engineered for space-constrained applications, its ultra-compact 1.1 x 0.9 x 0.55 mm form factor houses impressive performance: a wide 46.84 MHz bandwidth with minimal signal degradation (1.2 dB insertion loss) and robust 15 dBm power handling. This combination makes it ideal for demanding positioning tasks in automotive telematics, UAV navigation, asset tracking, and autonomous vehicles, ensuring reliable operation where precision matters. The component is RoHS compliant with an MSL Level 3 rating.



Features

- GPS/GLONASS/BEIDOU/GALILEO Support
- Bandwidth 46.84 MHz
- Small Form Factor 1.1 x 0.9 x 0.55 mm
- Low Insertion Loss: 1.2 dB
- Maximum Input Power: 15 dBm
- [RoHS Compliant](#) | [MSL Level 3](#)

Applications

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

Ordering Information

Part Number	Description
ABSTS5A2-2HMM01MM	1582.47 MHz SMD SAW Filter Tape & Reel
ABSTS5A2-2HMM01MM-EVB	1582.47 MHz SMD SAW Filter Evaluation Board

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



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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)	-	1582.469	-	MHz	-
VSWR ⁽¹⁾	-	1.4	2.1	-	1559.052 - 1605.886MHz
Insertion Loss ⁽¹⁾	-	1.7	2.5	dB	1559.052 – 1563.144 MHz (B1I)
	-	1.2	1.7		1574.39 – 1576.45 MHz (L1 BW 2MHz)
	-	2.0	2.5		1597.552 - 1605.886 MHz (G1)
Amplitude Ripple ⁽¹⁾	-	0.2	1.2	dB	1559.052 – 1563.144 MHz (B1I)
	-	0.1	0.8		1574.39 – 1576.45 MHz (L1 BW 2MHz)
	-	0.55	1.4		1597.552 - 1605.886 MHz (G1)
Attenuation ⁽¹⁾ (Reference level from 0 dB)	37	42	-	dB	699 ~ 716 MHz
	37	42	-		777 ~ 787 MHz
	37	42	-		814 ~ 849 MHz
	37	42	-		880 ~ 915 MHz
	43	48	-		1427.9 ~ 1446.9 MHz
	45	50	-		1447.9 ~ 1462.9 MHz
	40	47	-		1710 ~ 1785 MHz
	40	46	-		1850 ~ 1915 MHz
	40	46	-		1920 ~ 1980 MHz
	37	42	-		2400 ~ 2500 MHz
	37	42	-		2500 ~ 2570 MHz
Group Delay ⁽¹⁾	-	23.8	37.0	ns	1559 - 1605 MHz
Group Delay Ripple ⁽¹⁾	-	4.9	13.2	-	1559 - 1605 MHz
Source Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
Load Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
Input Power Level	-	-	15	dBm	-
DC Voltage (V)	-	-	3	V	-

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

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

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Mechanical Specification

Parameters	Specifications
Filter Dimension	1.1 x 0.9 x 0.55 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-30°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
ESD	50V(MM) / 100V(HBM)
MSL level	3
RoHS Compliant	Yes

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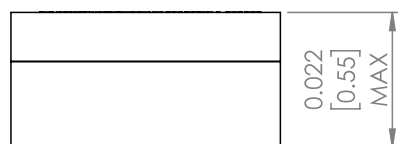
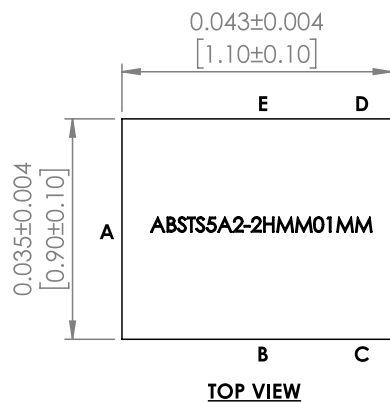


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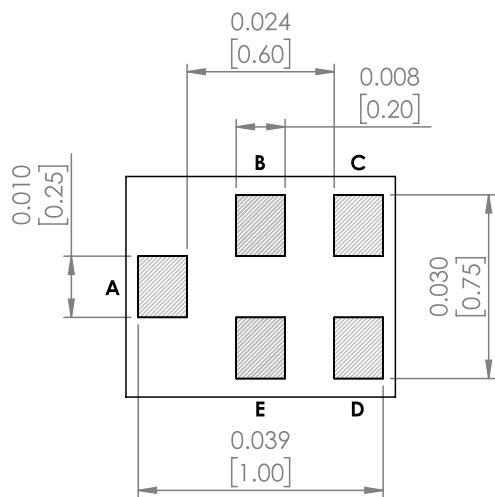


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Package Dimensions

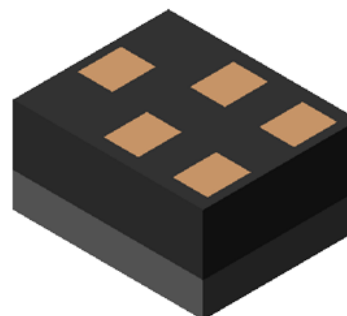


FRONT VIEW



BOTTOM VIEW

Pin Description	
B,C,E	Ground
A	Input
D	Output



Unit: mm

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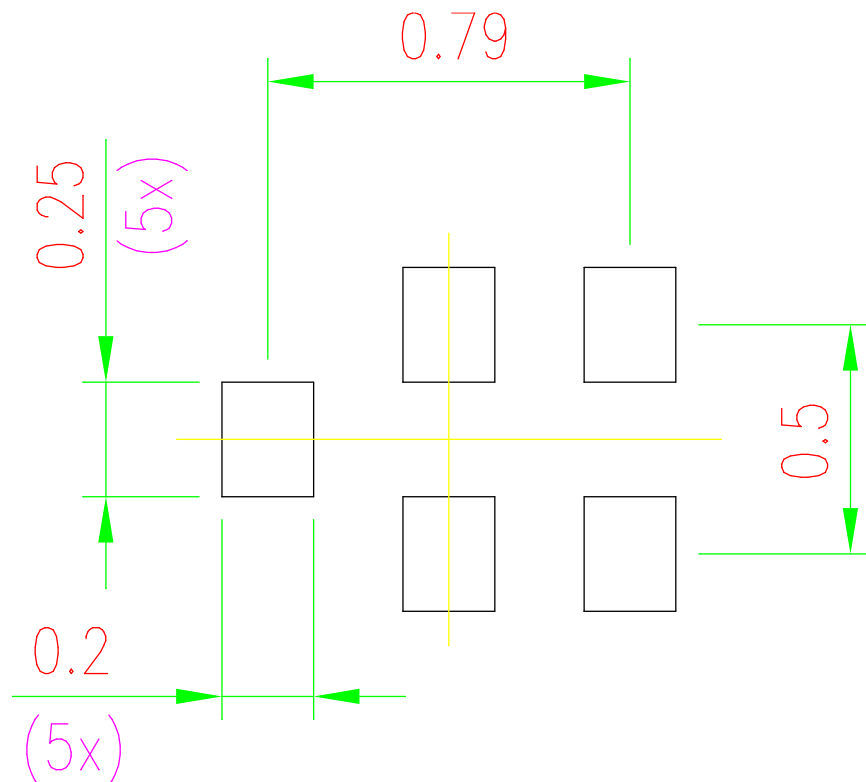


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1.1 x 0.9 x 0.55 mm
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Recommended Land Pattern



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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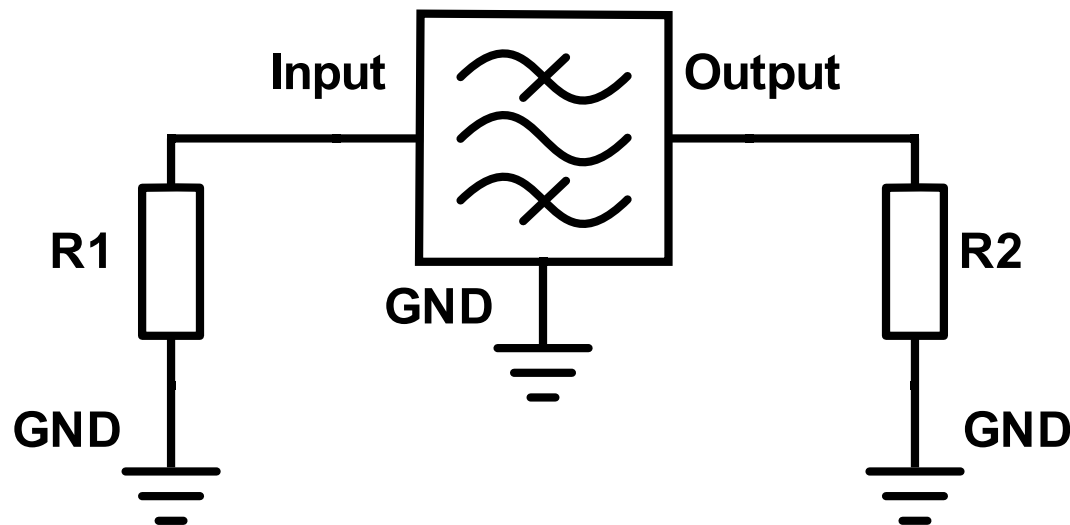


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1.1 x 0.9 x 0.55 mm
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Measurement Circuit



Port	Matching Component
Input (Pin A)	R1: 50 Ω
Output (Pin D)	R2: 50 Ω

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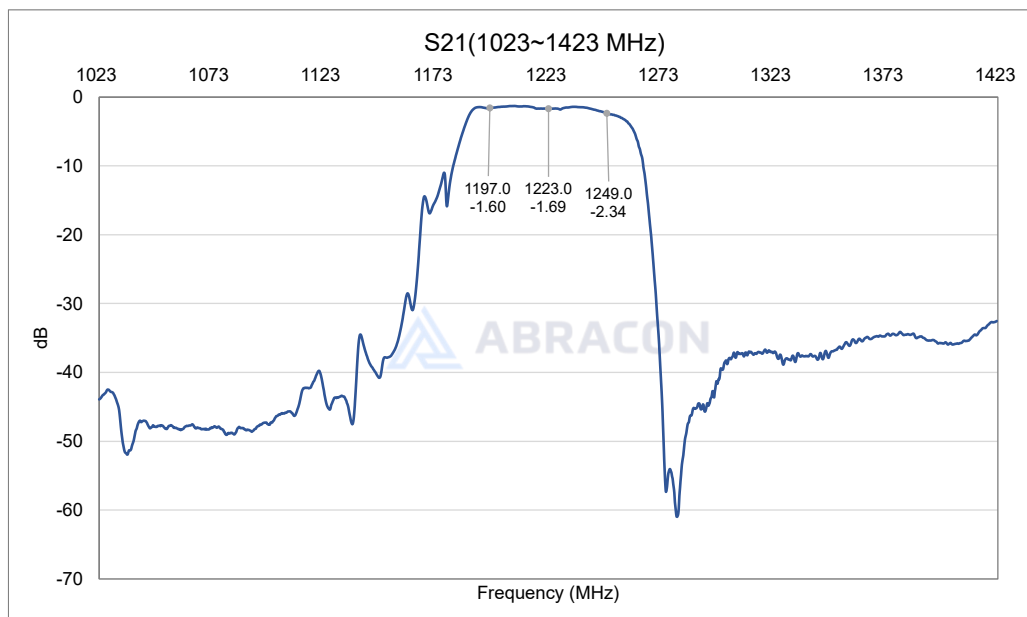
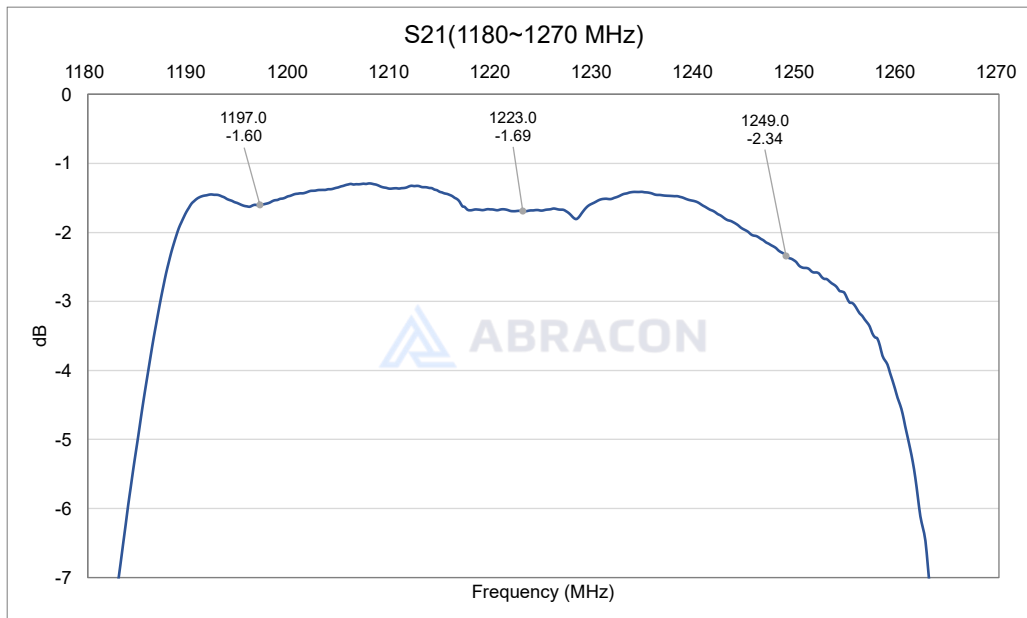
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Frequency Characteristics

S21 narrow band



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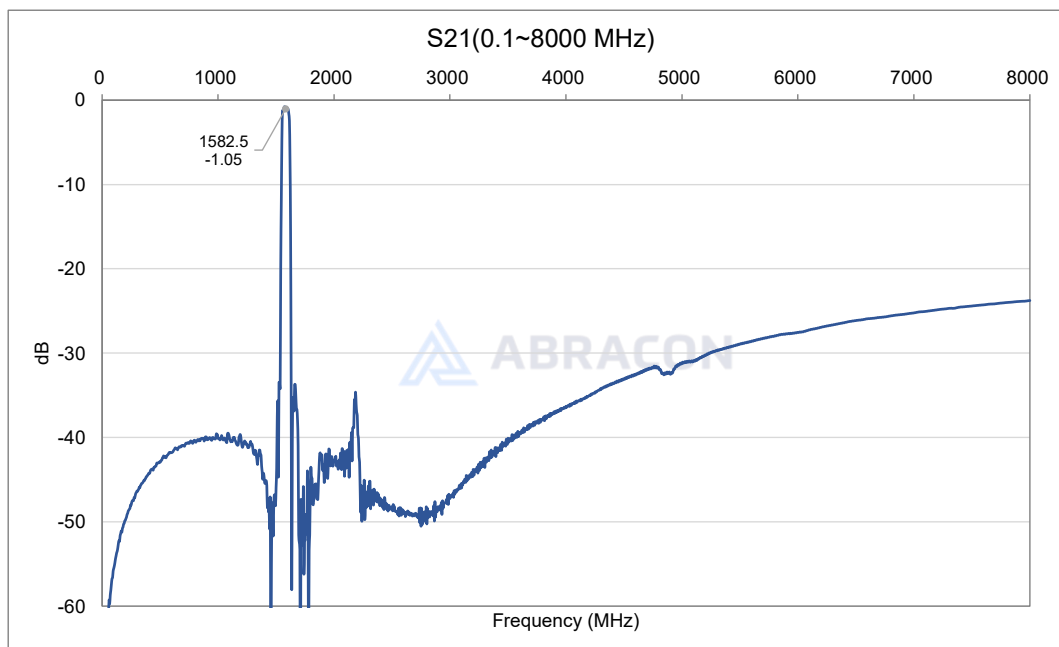


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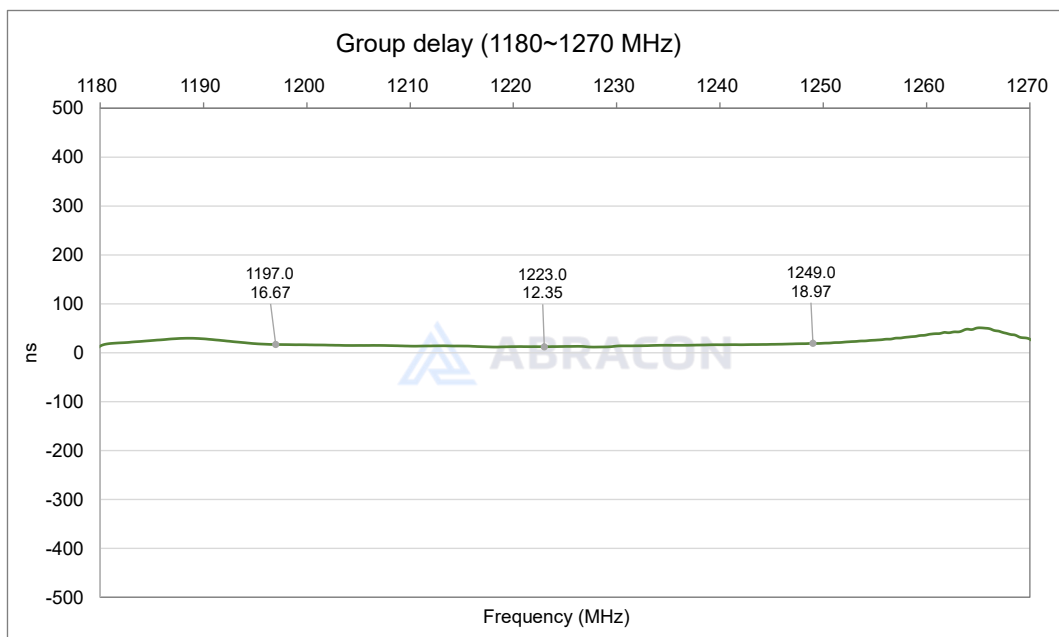


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S21 wide band



Group Delay



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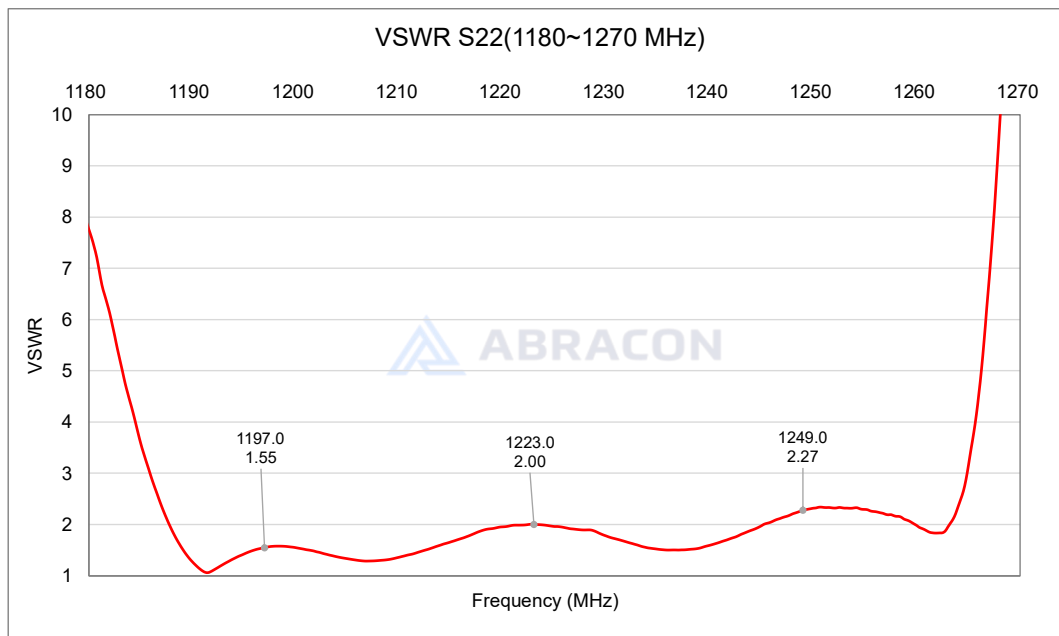
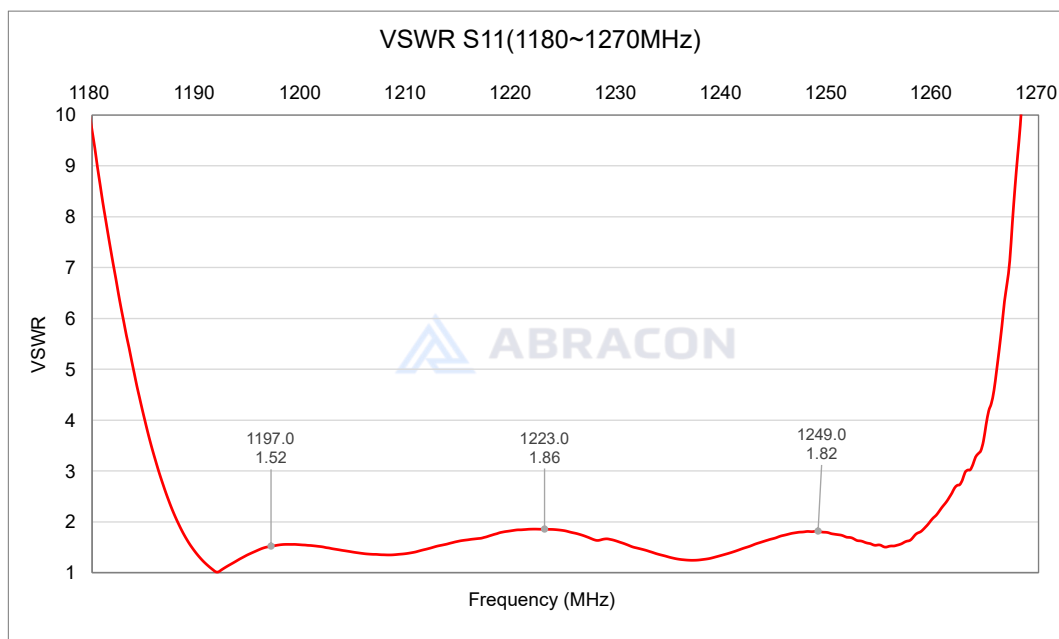


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VSWR (S11 & S22)



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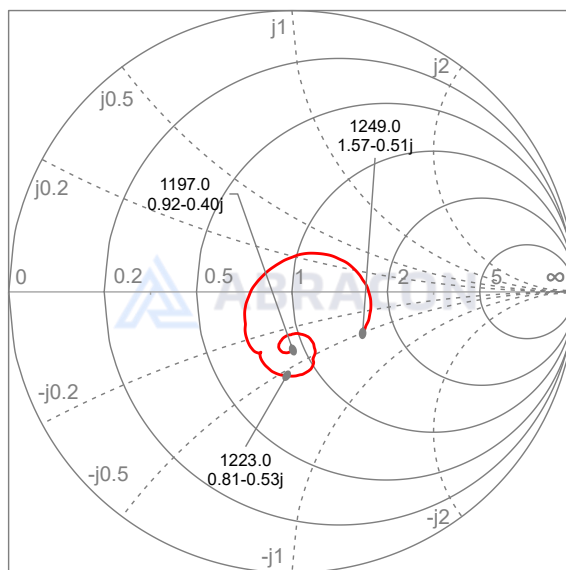


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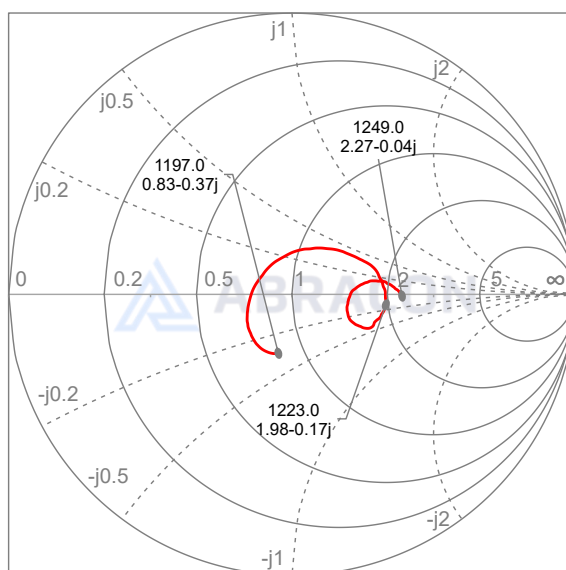


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Smith chart S11 (1197~1249MHz)



Smith chart S22 (1197~1249MHz)



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Reflow Profile [JEDEC J-STD-020]

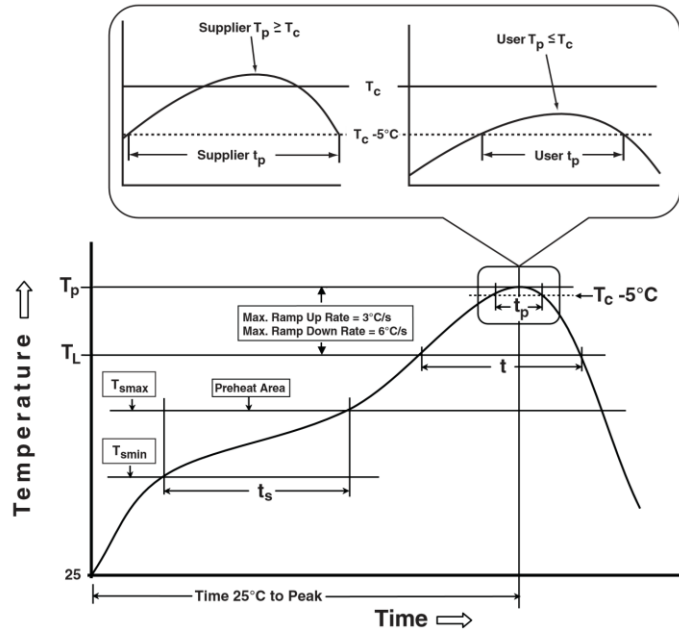


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm^3 <350	Volume mm^3 ≥ 350
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	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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