

SMD 1583 MHz SAW FILTER

AFII-SW-0061

Request Samples



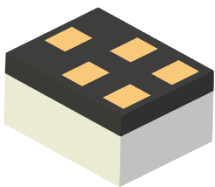
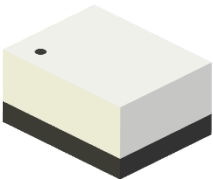
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1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Description

This ultra-compact multi-constellation L1 band filter delivers exceptional performance for global navigation. Supporting GPS, Glonass, Galileo, and Beidou systems, it features impressively low insertion loss of just 1.1 dB within a miniature 1.4 x 1.1 x 0.7 mm package. The 50-ohm single-ended design ensures easy integration, while >25 dB out-of-band rejection provides critical signal clarity. These characteristics make it an ideal solution for high-precision applications including automotive telematics, autonomous vehicles, and asset tracking, ensuring reliable positioning accuracy. The component is RoHS compliant and rated MSL Level 3.



Features

- Supports GPS/Glonass/Galileo/Beidou L1 Band
- 1.4 x 1.1 x 0.7 mm in Size
- Low Insertion Loss: 1.1 dB
- Out-of-Band Rejection: > 25 dB
- 50 Ohms Single-Ended Input & Output
- Maximum Input Power: +10 dBm
- [RoHS Compliant](#) | [MSL Level 3](#)

Applications

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

Ordering Information

Part Number	Description
AFII-SW-0061	SMD 1583 MHz SAW FILTER on Cut Tape
AFII-SW-0061-T	SMD 1583 MHz SAW FILTER on Tape & Reel
AFII-SW-0061-EVB	SMD 1583 MHz SAW FILTER Evaluation Board

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

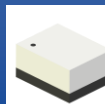


12117 Bee Caves Rd, Bldg-3, Suite 200 Bee
Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
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REVISED: 10-21-25

ABRACON IS
ISO9001-2015
CERTIFIED

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MSL Level = 3

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency(f_c)	-	1583	-	MHz	-
VSWR	-	1.8	2.3		1561 ~ 1606MHz
Insertion Loss ⁽¹⁾	-	1.1	1.3	dB	1561 ~ 1606MHz
Amplitude Ripple ⁽¹⁾	-	0.8	1.3		1561 ~ 1606MHz
Group Delay ⁽¹⁾		9	17	ns	1561 ~ 1606MHz
Group Delay Ripple ⁽¹⁾	-	0.14	0.55	ns	1561 ~ 1606MHz
Attenuation ⁽²⁾ (Reference level from 0 dB)	20	25	-	dB	DC ~925 MHz
	20	25	-		1427 ~1463 MHz
	22	27	-		1710 ~1785 MHz
	20	25	-		1850 ~1980 MHz
	20	25	-		2400 ~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 at +25°C

(2) Averaged values of linear S-Parameters 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 0.7 mm
Mounting Type	Surface Mount

Environmental Specification

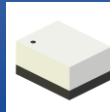
Parameters	Specifications
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
ESD (HBM)	>100 V
ESD (CDM)	>100 V
MSL level	3
RoHS Compliant	Yes



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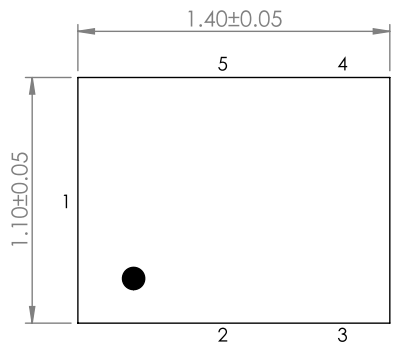


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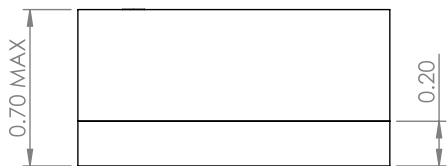


1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

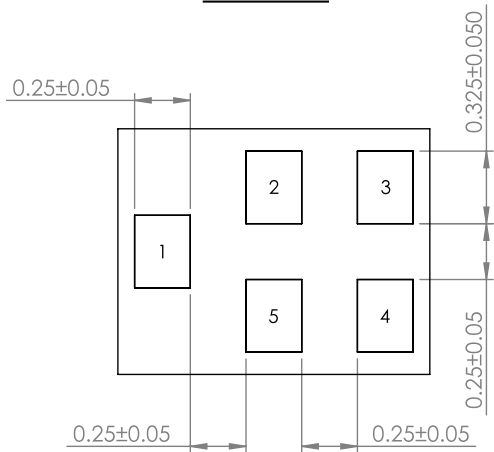
Product Dimensions



TOP VIEW



FRONT VIEW



BOTTOM VIEW

Unit : mm

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

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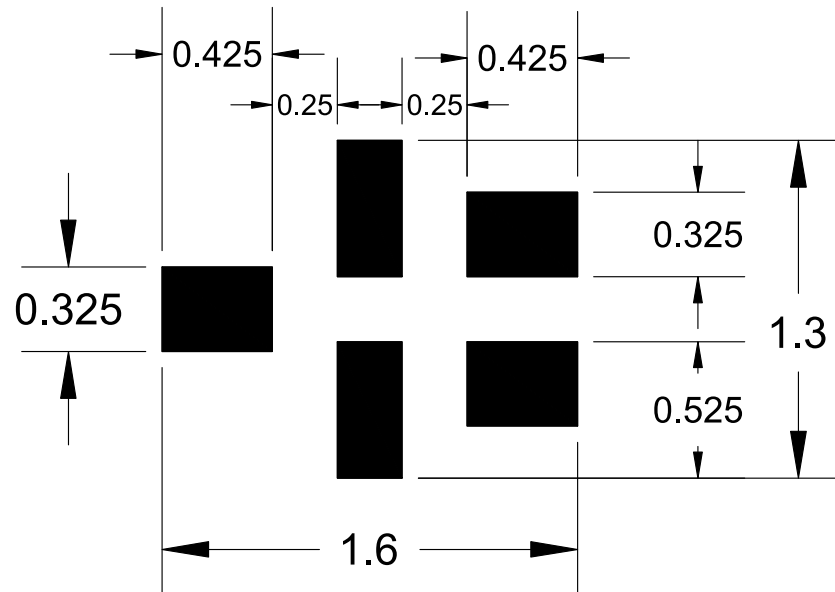


Check Inventory



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

Recommended Land Pattern

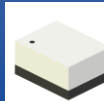


Land Pattern

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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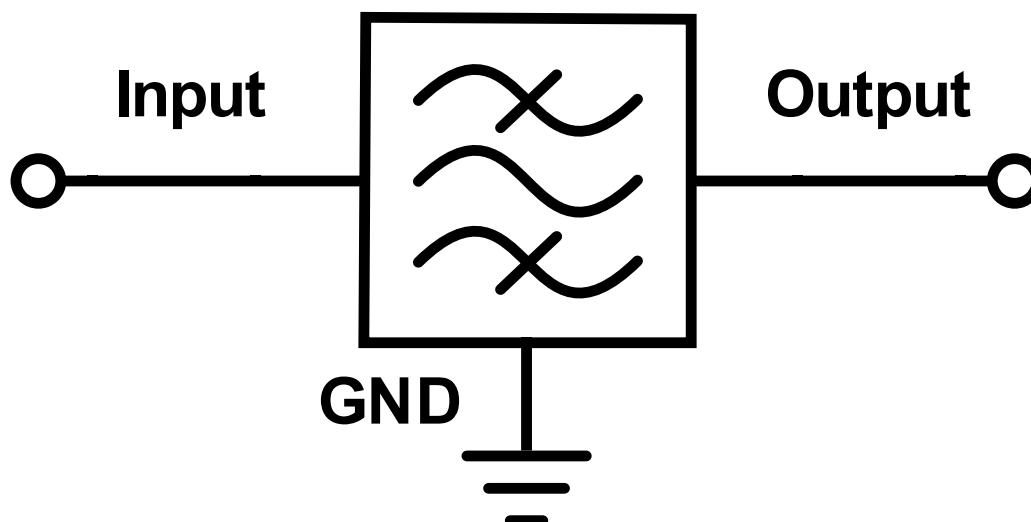


1.4 x 1.1 x 0.7 mm

RoHS Compliant

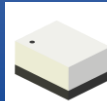
MSL Level = 3

Measurement Circuit



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

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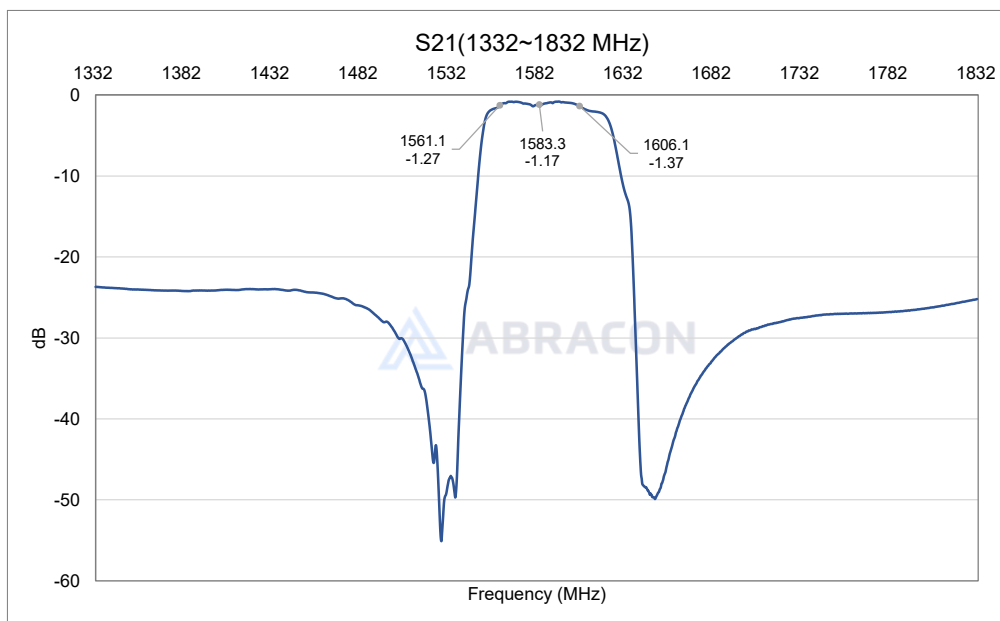
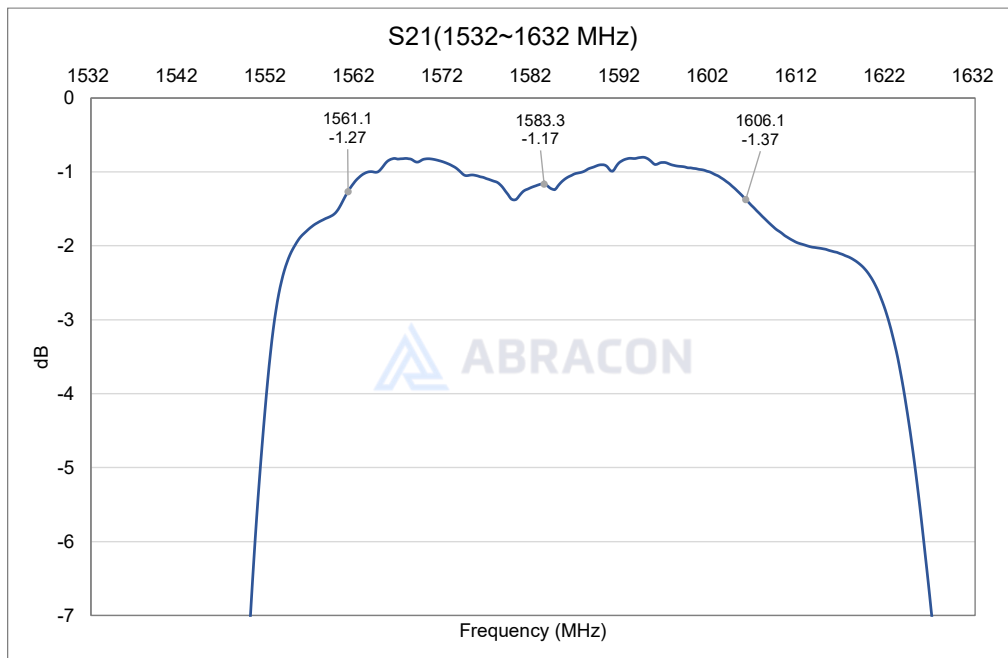
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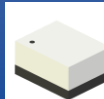
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band



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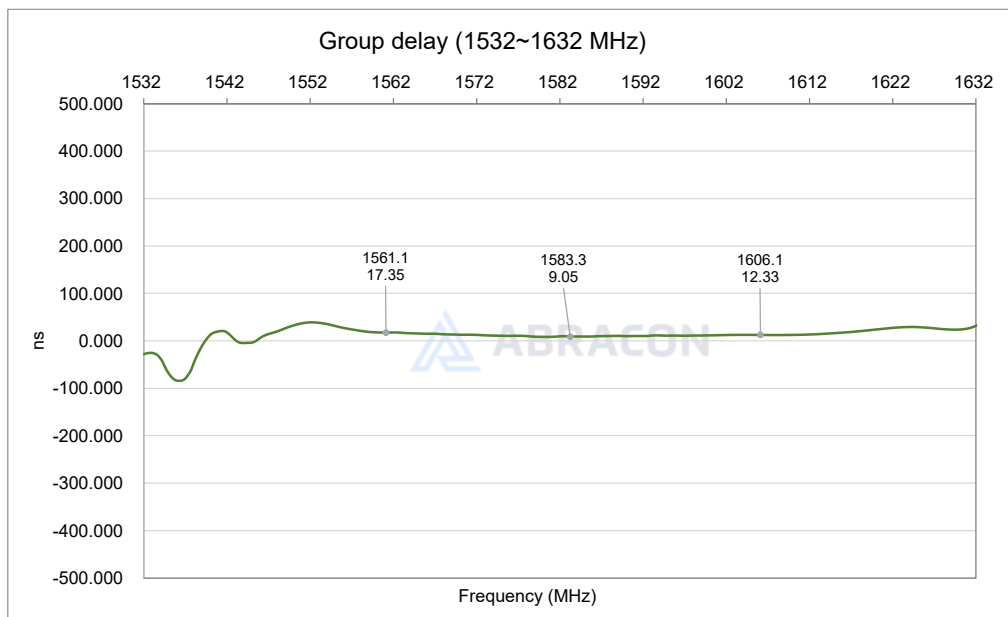


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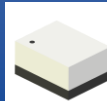


1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Group Delay



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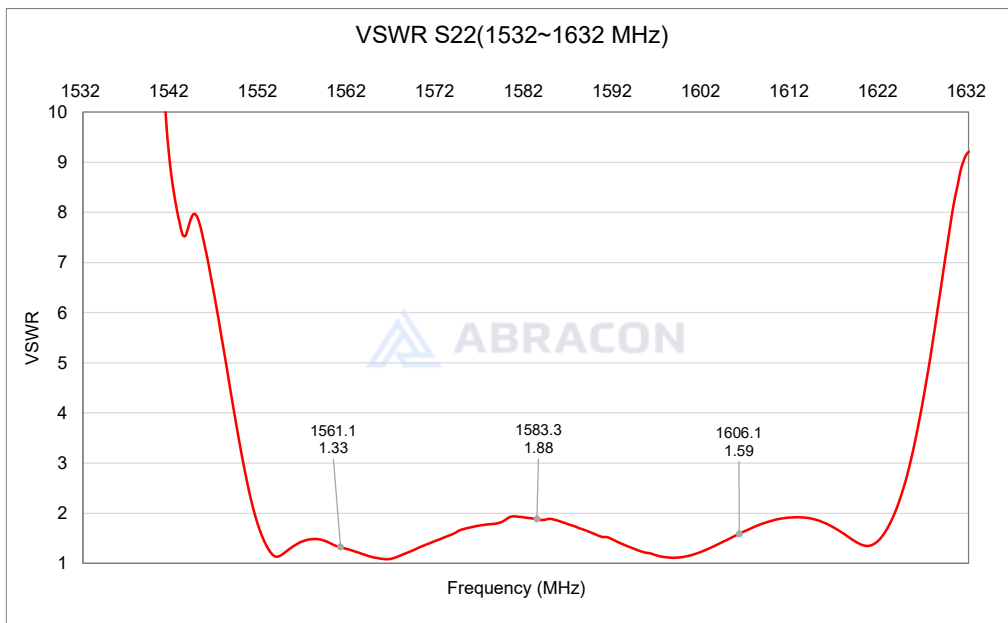
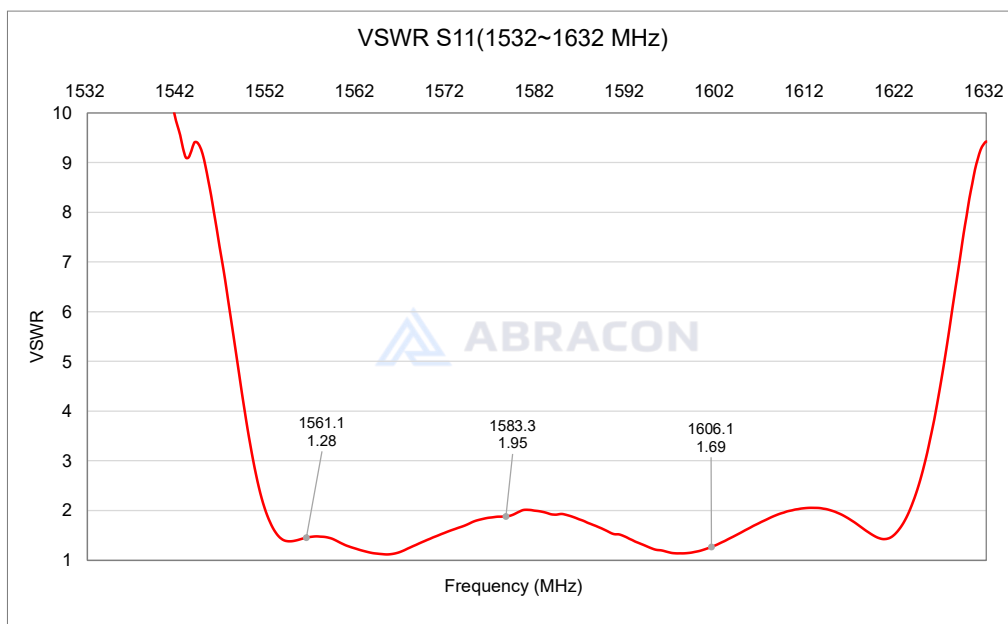


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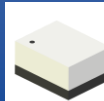


1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



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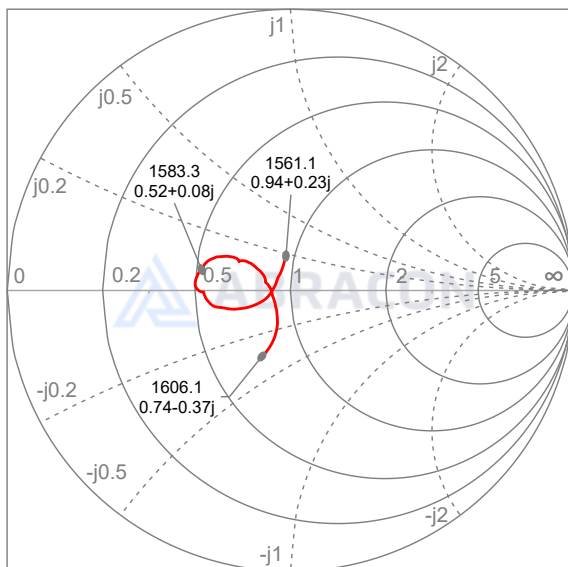
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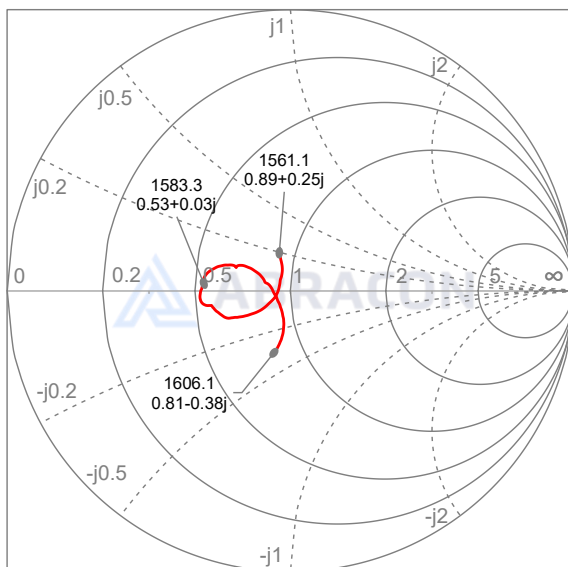
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

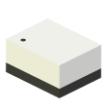
Smith chart S11 (1561~1606MHz)



Smith chart S22 (1561~1606MHz)



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MSL Level = 3

Reflow Profile [JEDEC J-STD-020]

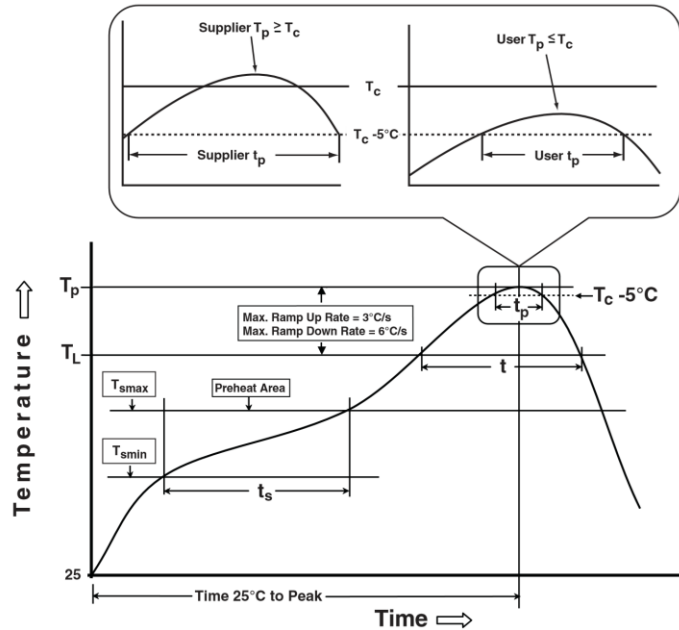


Table 1

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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