

SMD 1583 MHz SAW FILTER

AFII-SW-0061

Request Samples



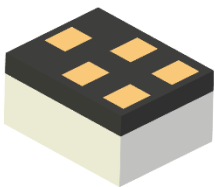
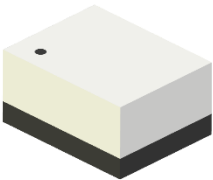
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1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

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](#)

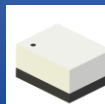


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Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency(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

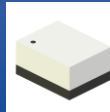
Parameters	Specifications
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
ESD (HBM)	>100 V
ESD (CDM)	>100 V
MSL level	3
RoHS Compliant	Yes



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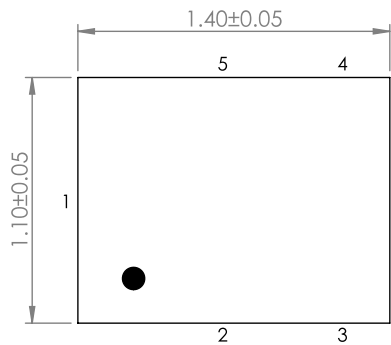
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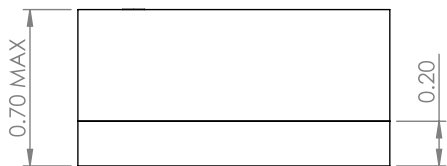
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1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

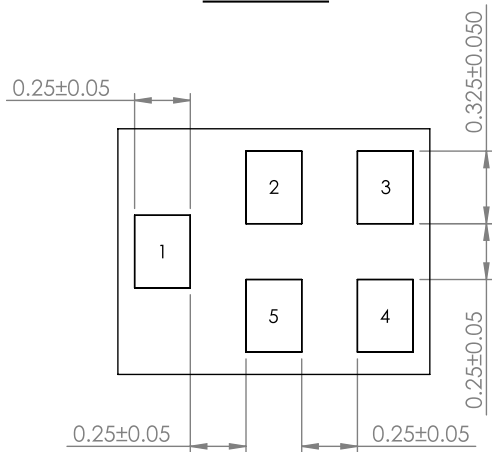
Product Dimensions



TOP VIEW



FRONT VIEW



BOTTOM VIEW

Unit : mm

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

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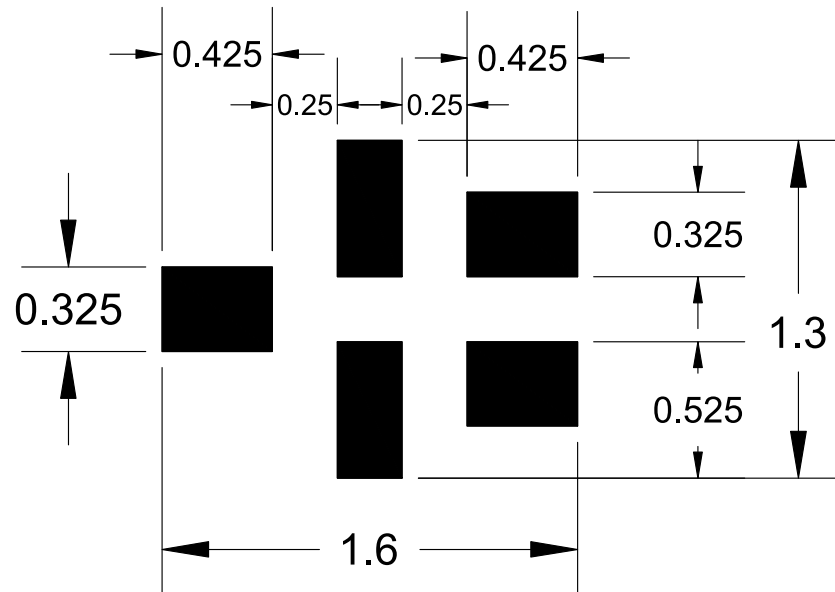


Check Inventory



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

Recommended Land Pattern

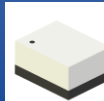


Land Pattern

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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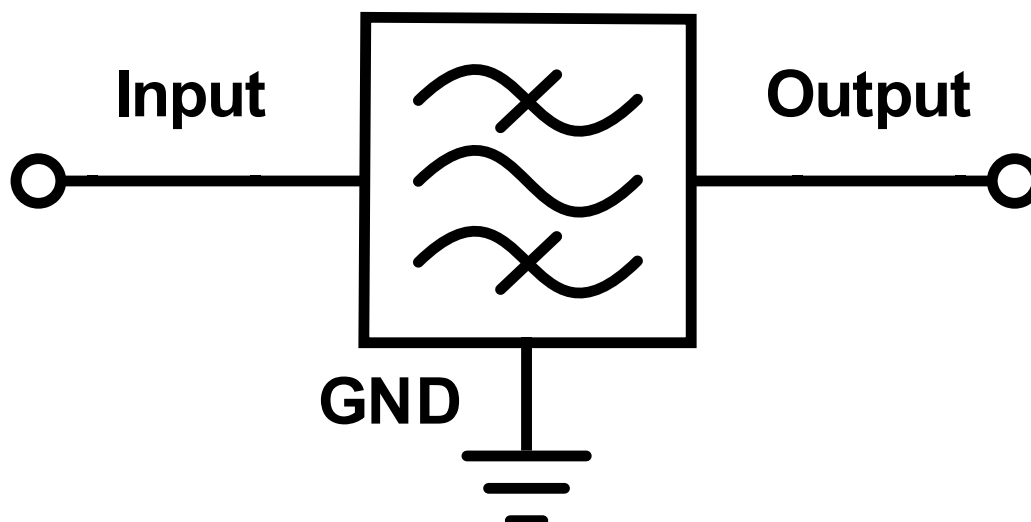


Check Inventory

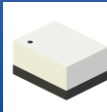


1.4 x 1.1 x 0.7 mm
RoHS Compliant
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Measurement Circuit



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



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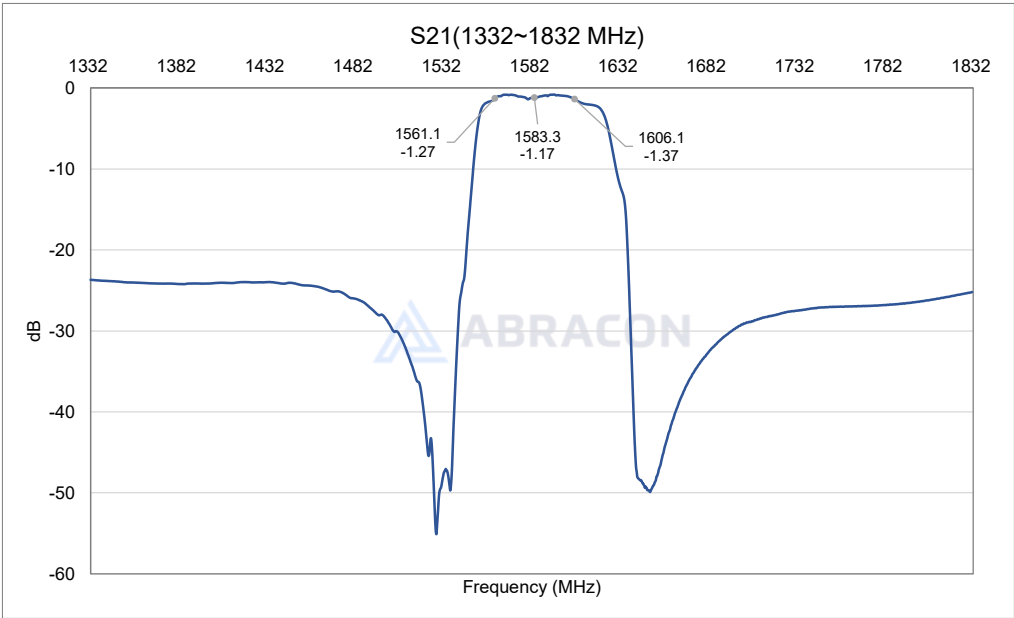
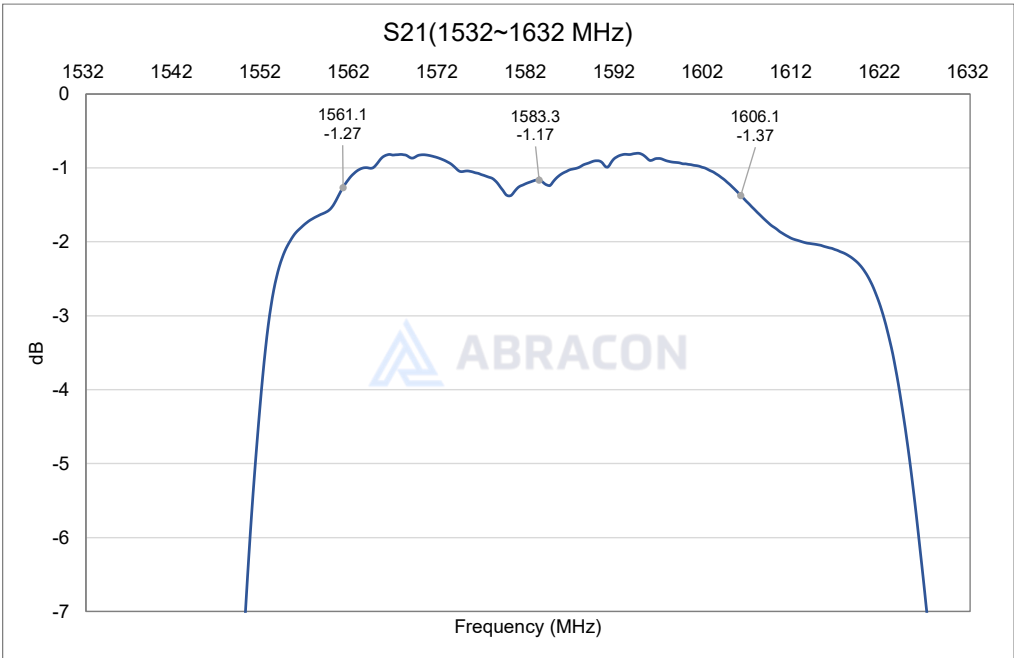
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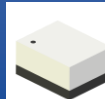
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band



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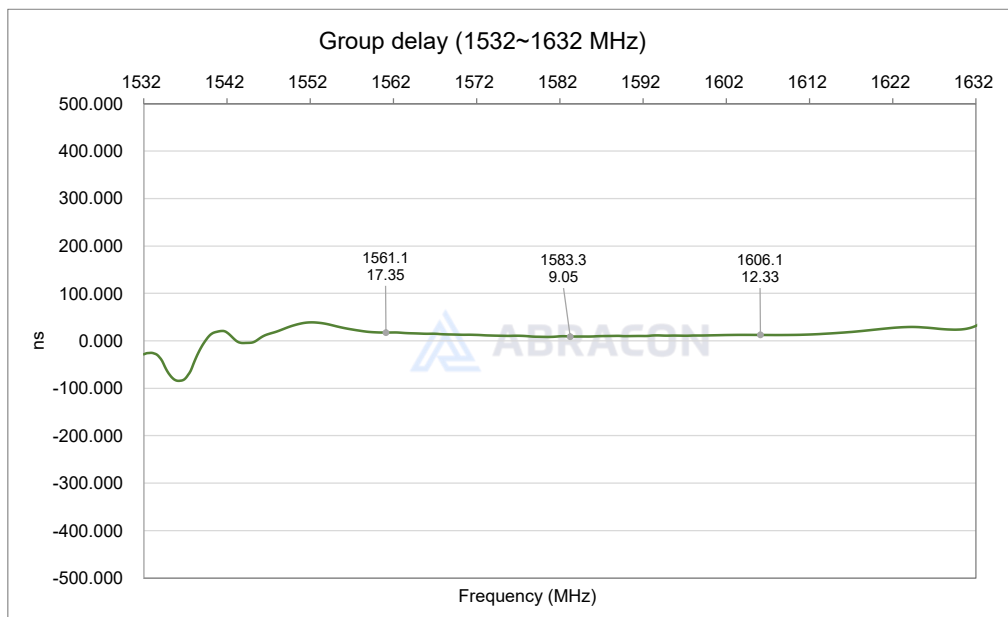


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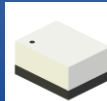


1.4 x 1.1 x 0.7 mm
RoHS Compliant
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Group Delay



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Request Samples

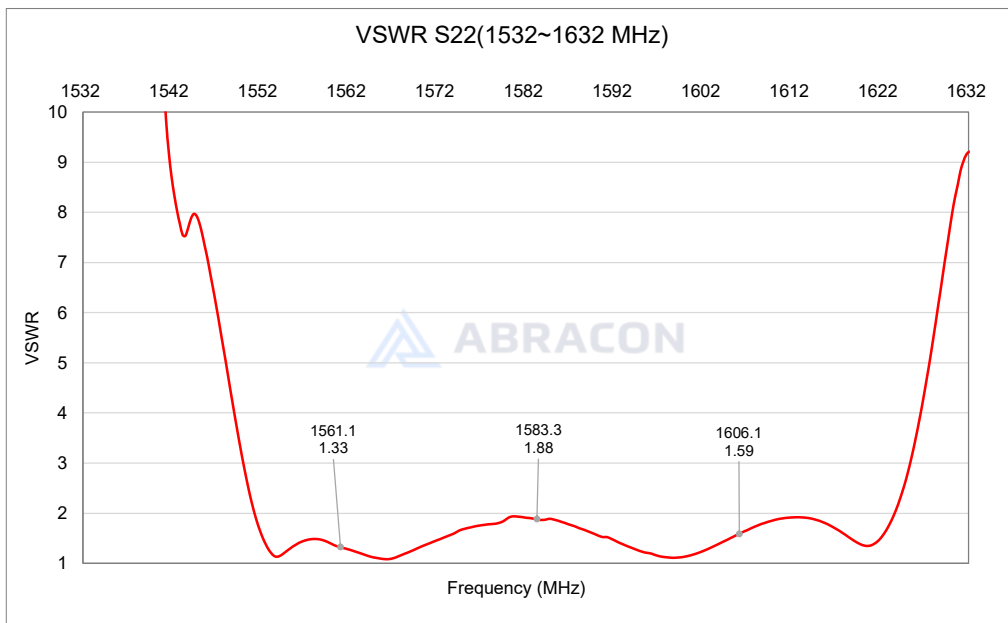
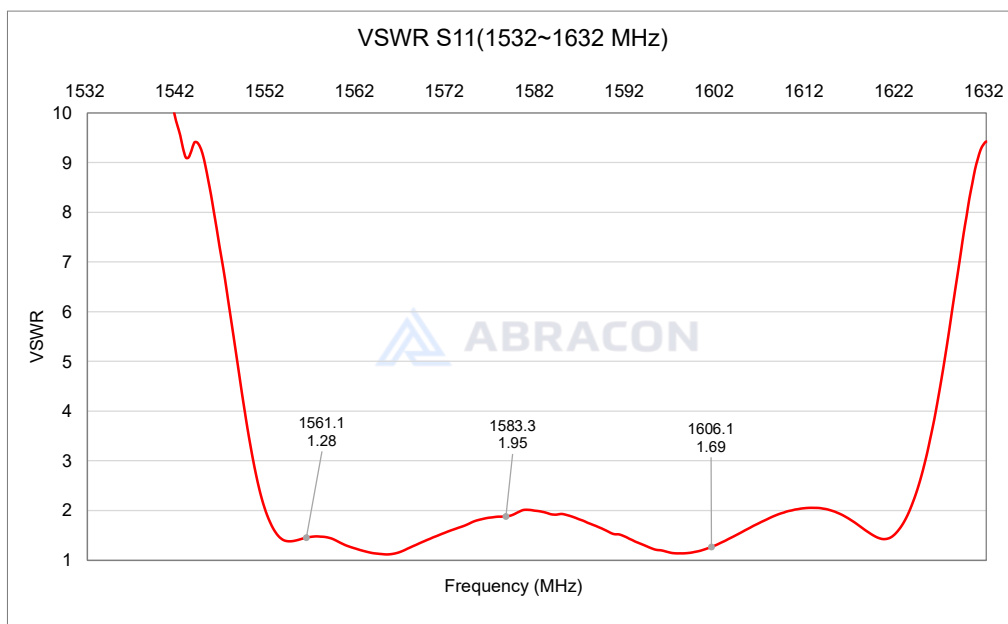


Check Inventory

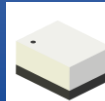


1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



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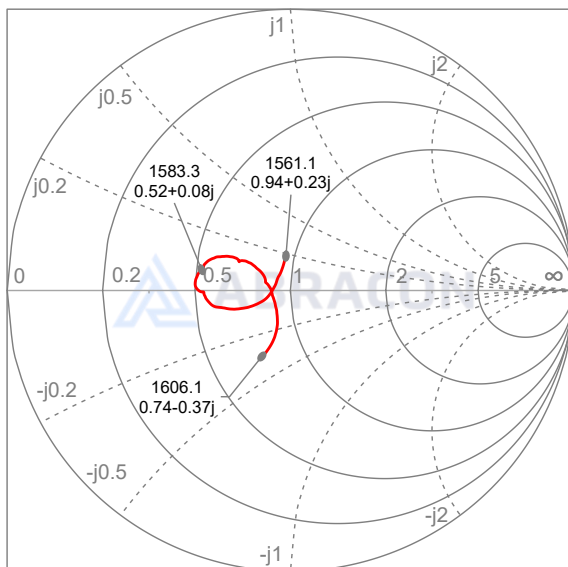
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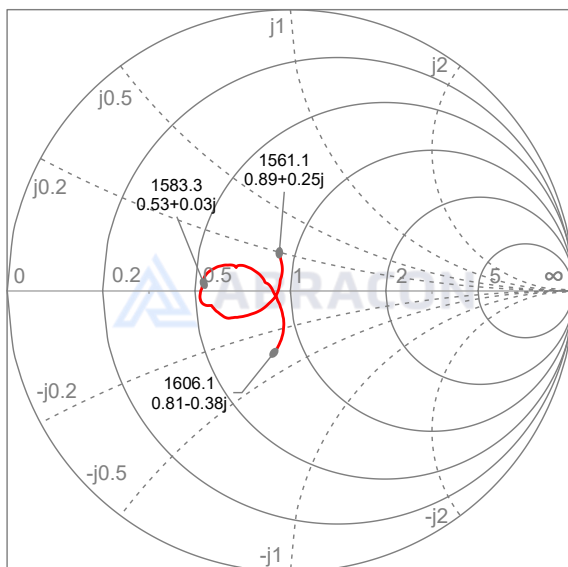
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

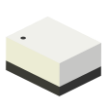
Smith chart S11 (1561~1606MHz)



Smith chart S22 (1561~1606MHz)



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RoHS Compliant
MSL Level = 3

Reflow Profile [JEDEC J-STD-020]

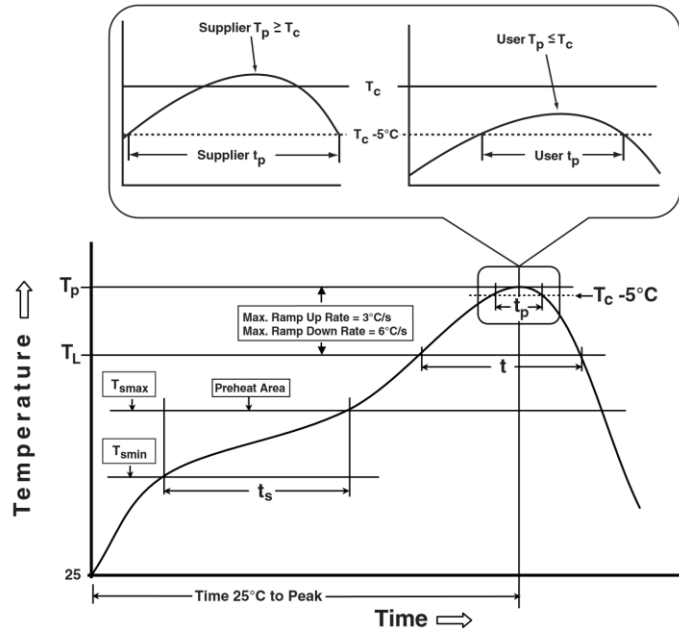


Table 1

SnPb Eutectic Process

Classification Temperatures (Tc)

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

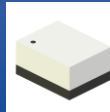
Classification Temperatures (Tc)

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 _{Amin})	100°C	150°C
Temperature maximum (T _{smax})	150°C	180°C
Time (T _{Amin} 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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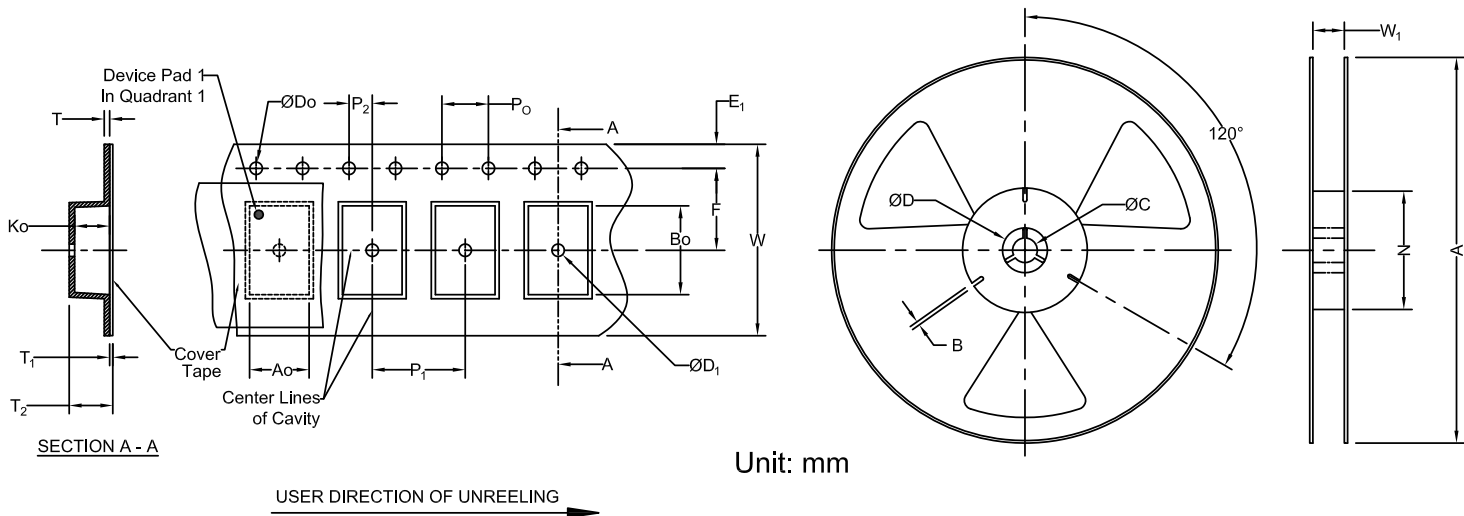
Check Inventory



1.4 x 1.1 x 0.7 mm
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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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