

869 MHz SMD SAW Filter



AFII-SW-0050

Request Samples



Check Inventory



3.0 x 3.0 x 1.25 mm
RoHS Compliant

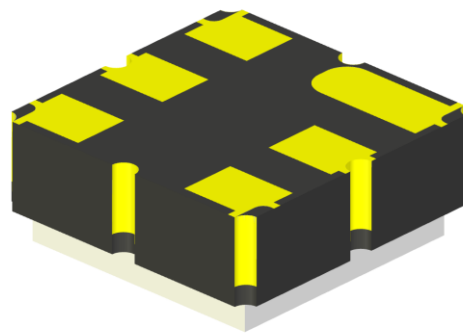
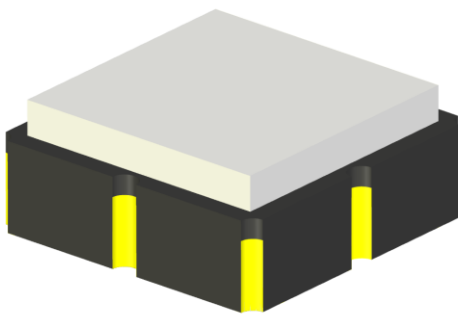
Features

- 3.0 x 3.0 x 1.25 mm in Size
- Low Insertion Loss: 2.1 dB
- Out-of-Band Rejection: > 30 dB
- 50 Ohms Single-Ended Input & Output
- Maximum Input Power: +20dBm

Applications

- Sub-GHz/LoRa/Sigfox
- Smart Lighting
- Utility & Smart Metering
- Amazon Sidewalk
- Traffic Control and Monitoring
- Energy Generation and Storage System

Product Image



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Electrical Specification

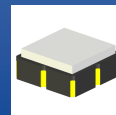
Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	869.0	-	MHz	
VSWR	-	1.6	2.0	-	868~870MHz
Insertion Loss ⁽¹⁾	-	2.1	2.3	dB	868~870MHz
Amplitude Ripple ⁽¹⁾	-	0.5	1.0	dB _{p-p}	868~870MHz
Group Delay ⁽¹⁾		68	70	ns	868~870MHz
Group Delay Ripple ⁽¹⁾	-	0.48	0.95	ns	868~870MHz
Attenuation ⁽²⁾ (Reference level from 0 dB)	45	50	-	dB	DC ~ 300 MHz
	40	45	-		300 ~ 845 MHz
	35	40	-		845 ~ 853 MHz
	20	30	-		879 ~ 883 MHz
	45	50	-		883 ~ 915 MHz
	35	38	-		945 ~ 1200 MHz
	25	30	-		1200 ~ 2000 MHz
Source Impedance (single ended) ⁽³⁾	-	50	-	Ω	
Load Impedance (single ended) ⁽³⁾	-	50	-	Ω	
RF Power Dissipation	-	-	20	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).

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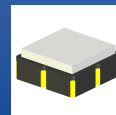
Mechanical Specification

Parameters	Specifications
Dimension	3.0 x 3.0 x 1.25 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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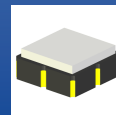
3.0 x 3.0 x 1.25 mm
RoHS Compliant

Ordering Information

Part Number	Description
AFII-SW-0050	869 MHz SMD SAW Filter on Cut Tape
AFII-SW-0050-T	869 MHz SMD SAW Filter on Tape & Reel
AFII-SW-0050-EVB	869 MHz SMD SAW Filter Evaluation Board

Note: Different cable and connector configurations that are not listed may be available upon request via [Abracon online support](#)

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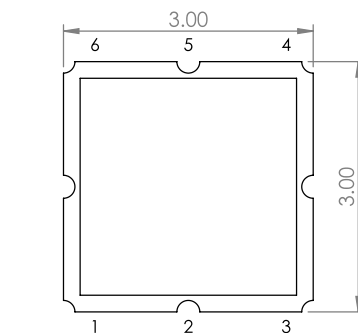


Check Inventory

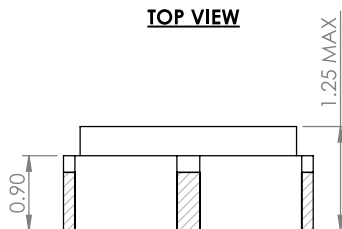


3.0 x 3.0 x 1.25 mm
RoHS Compliant

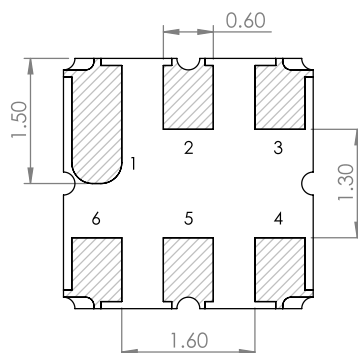
Product Dimensions



TOP VIEW



FRONT VIEW

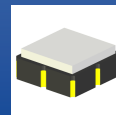


BOTTOM VIEW

Unit: mm

Pin No.	Description
2	Input
5	Output
1,3,4,6	Ground

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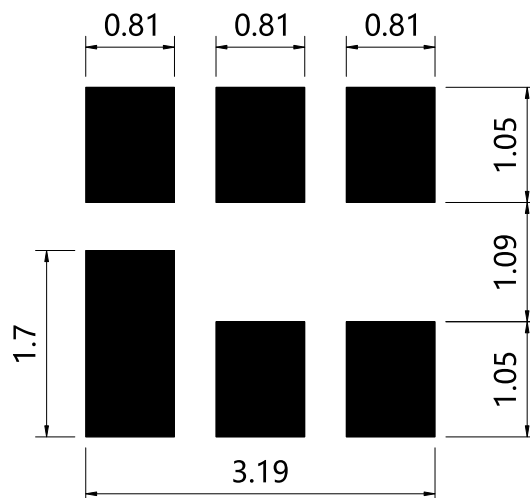
Check Inventory



3.0 x 3.0 x 1.25 mm

RoHS Compliant

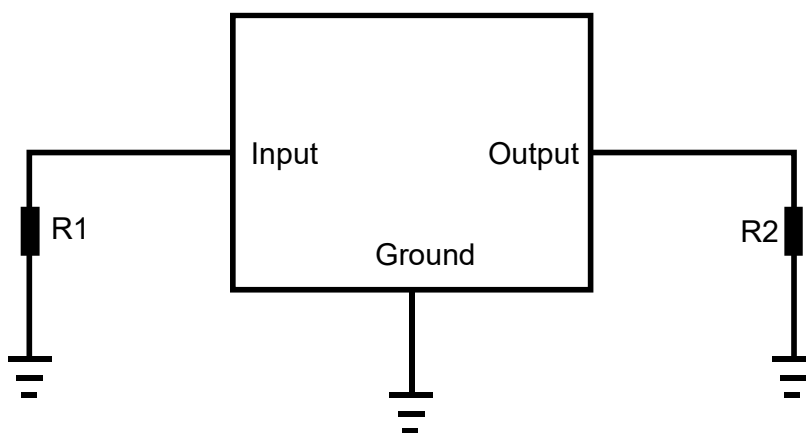
Recommended Land Pattern



Unit : mm

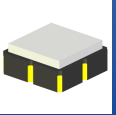
Please note: The line width should be designed to achieve a 50-ohm characteristic impedance, depending on the PCB material and thickness. For technical assistance, please contact [Abracon online support](#) through our online support platform.

Measurement Circuit



Port	Matching Component
Input	R1:50Ω
Output	R2:50Ω

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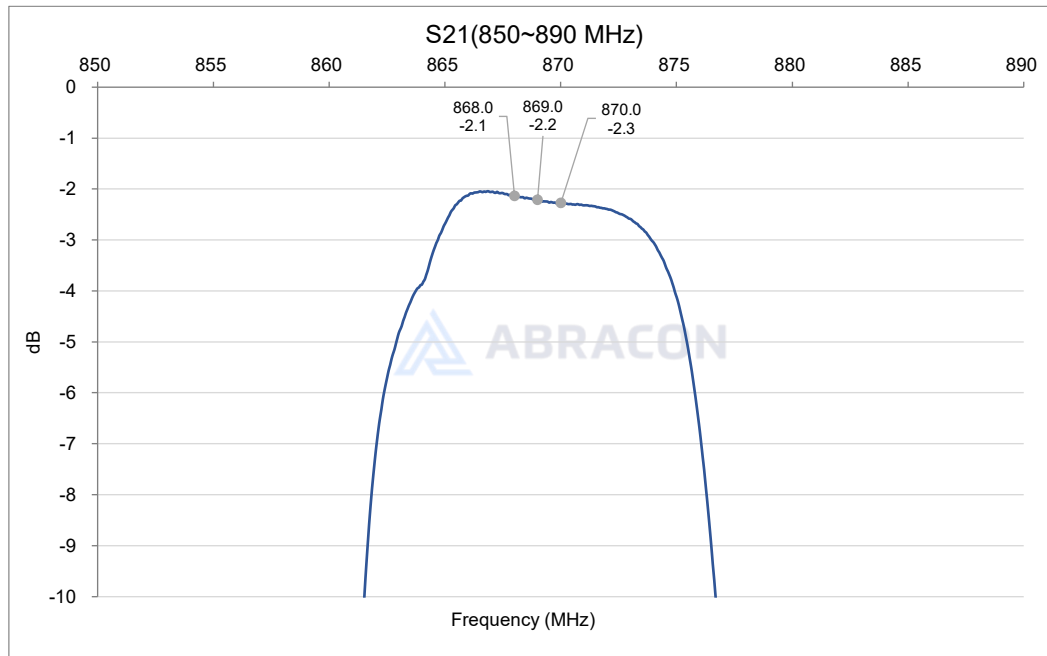
Check Inventory



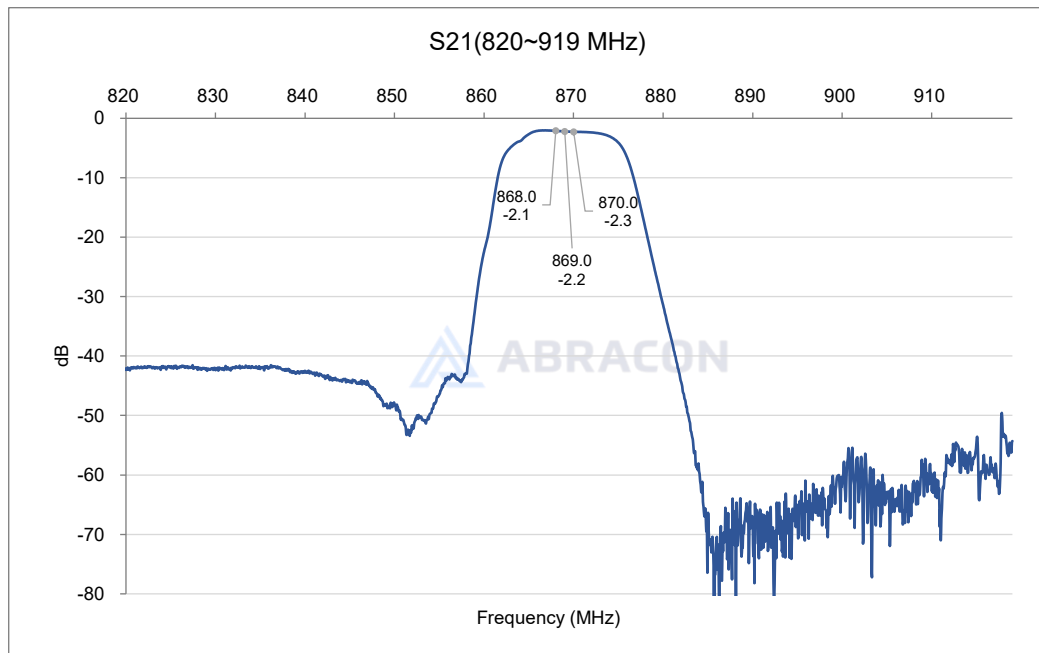
3.0 x 3.0 x 1.25 mm
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Frequency Characteristics

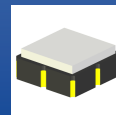
S21 narrow band



S21 wide band



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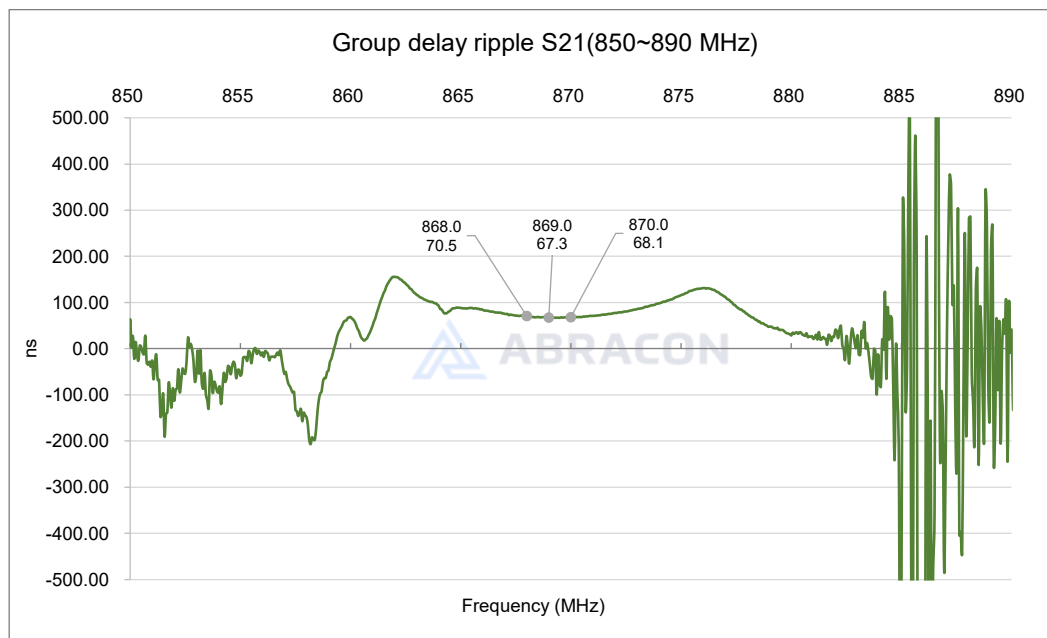


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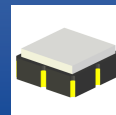


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Group Delay Ripple



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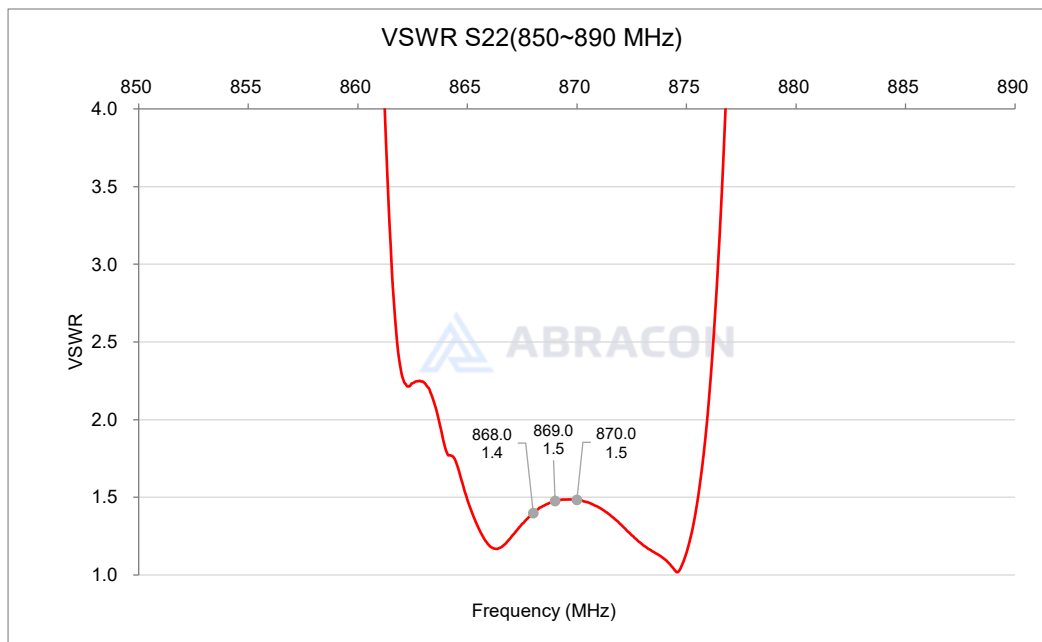
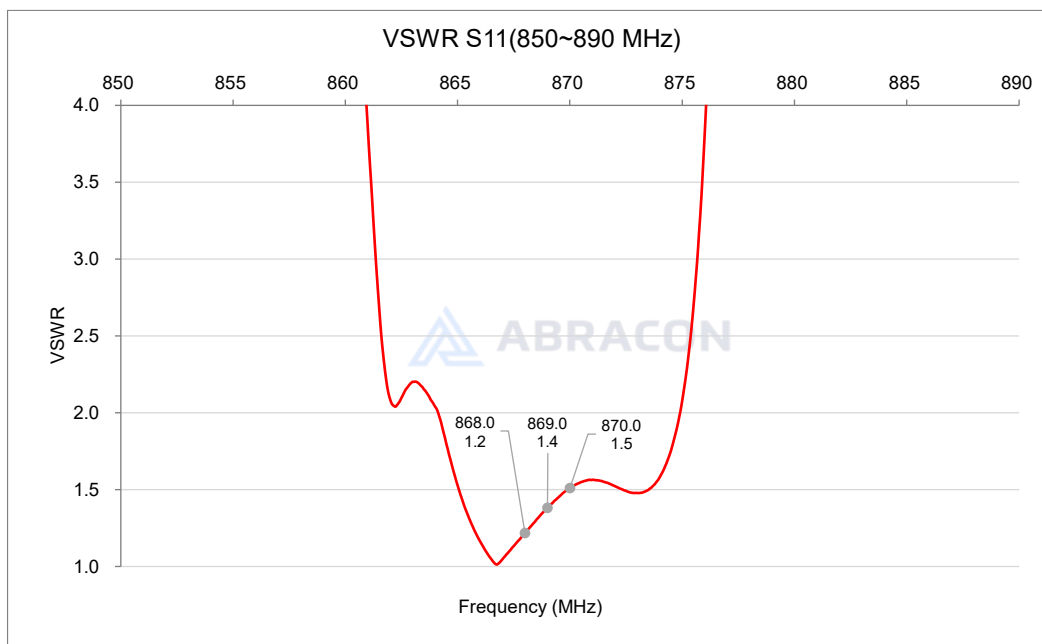


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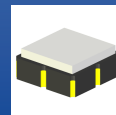


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VSWR (S11 & S22)



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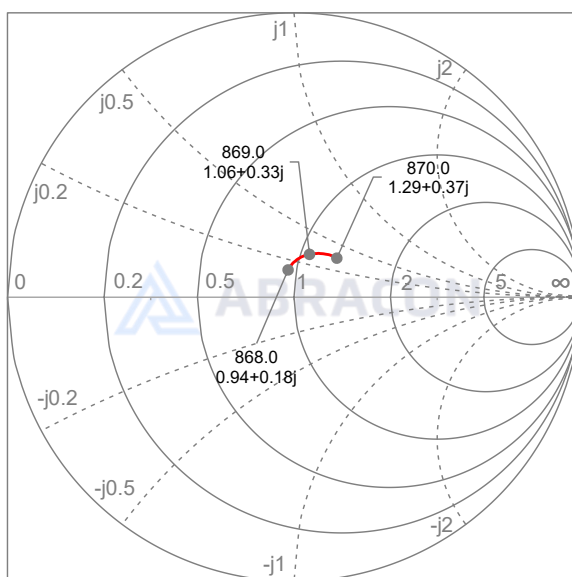
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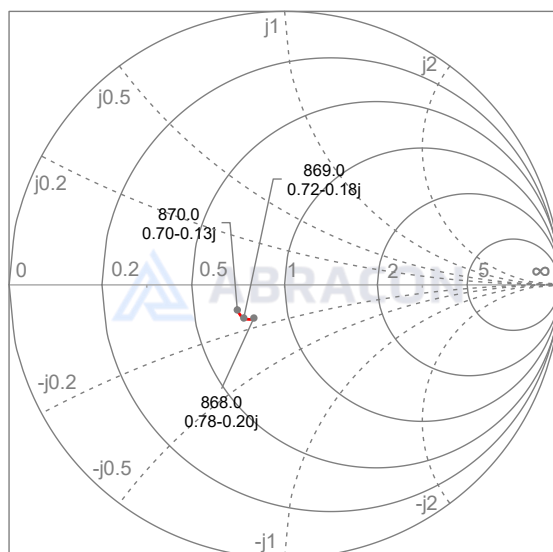
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Smith Chart (S11 & S22)

Smith chart S11 (868~870MHz)



Smith chart S22 (868~870MHz)





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Reflow Profile [JEDEC J-STD-020]

Solder Paste: Ag3.0/Cu0.5/Sn

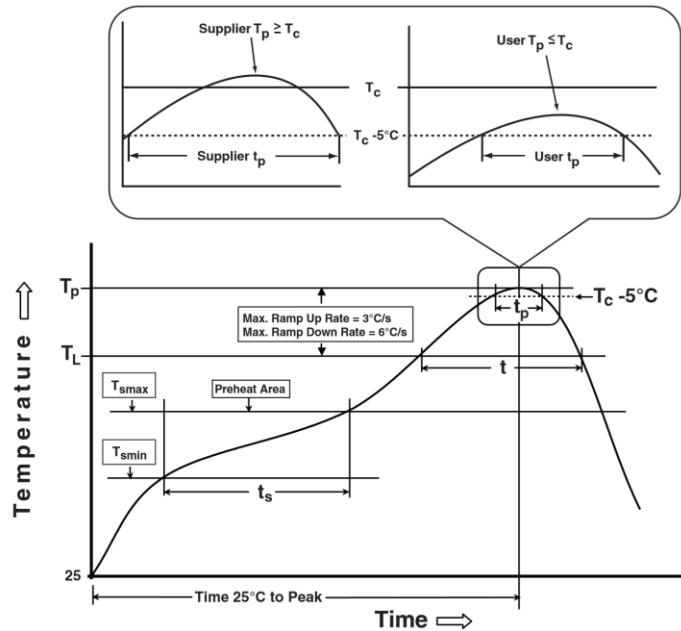


Table 1

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	240°C	240°C	240°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	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 – 120 sec.	60 – 180 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at Liquidous (T_L)	60 – 150 sec.	60 – 150 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.	5 sec.
Ramp-down rate (T_p to T_{smax})	6°C/sec. max	3°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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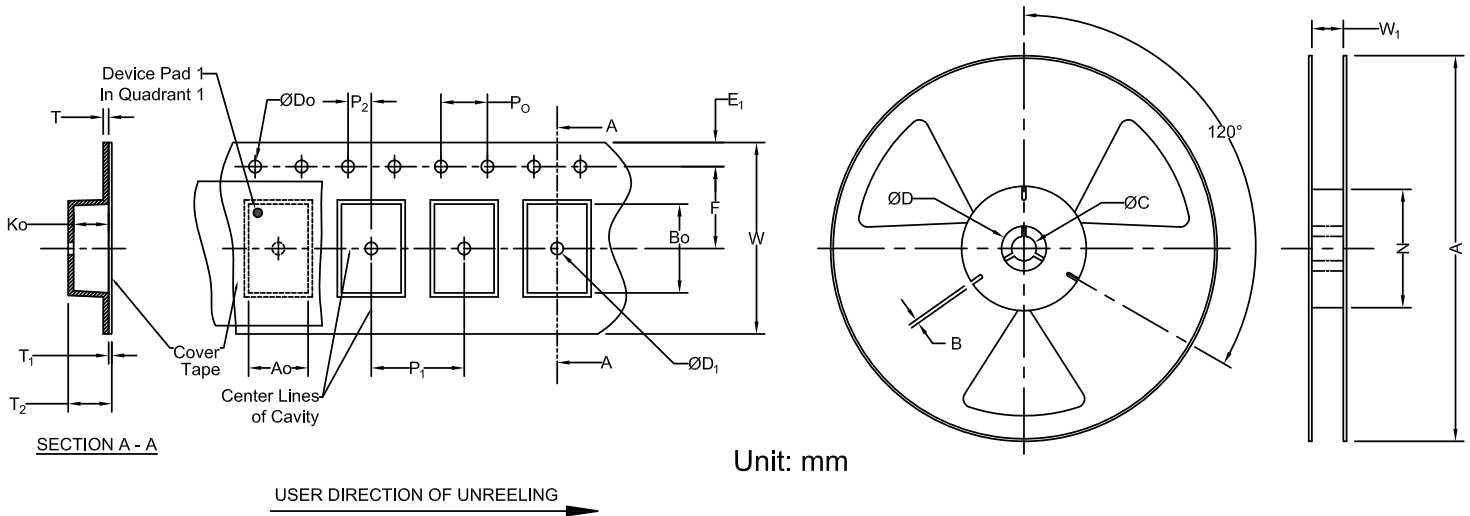
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RoHS Compliant

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

Do	T ₂	E ₁	P ₀	P ₂	T	F	P ₁	W	A ₀	B ₀	Reel Qty
1.50 ± 0.1	1.60 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.10	0.3 ± 0.05	5.5 ± 0.10	4.0 ± 0.1	12.0 ± 0.10	3.2 ± 0.05	3.2 ± 0.05	1,000

Reel Specifications (mm)

A	W ₁	N	C	B
178.0	12.4 ± 0.1	60.00	13.00 ± 0.50	2.0 ± 0.50

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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