

869 MHz SMD SAW Filter



AFII-SW-0050

Request Samples



Check Inventory



3.0 x 3.0 x 1.25 mm
RoHS Compliant

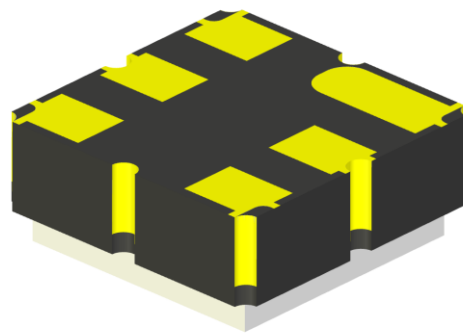
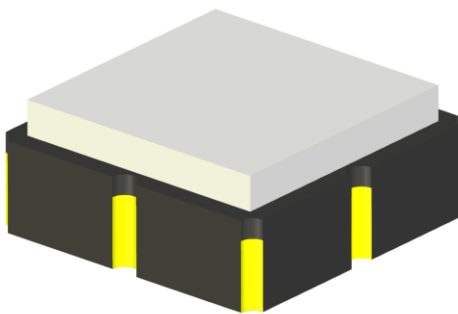
Features

- 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

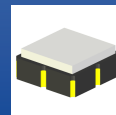
Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	869.0	-	MHz	
VSWR	-	1.6	2.0	-	868~870MHz
Insertion Loss ⁽¹⁾	-	2.1	2.3	dB	868~870MHz
Amplitude Ripple ⁽¹⁾	-	0.5	1.0	dB _{p-p}	868~870MHz
Group Delay ⁽¹⁾		68	70	ns	868~870MHz
Group Delay Ripple ⁽¹⁾	-	0.48	0.95	ns	868~870MHz
Attenuation ⁽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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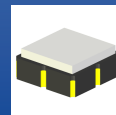
Mechanical Specification

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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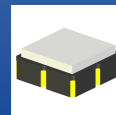
3.0 x 3.0 x 1.25 mm
RoHS Compliant

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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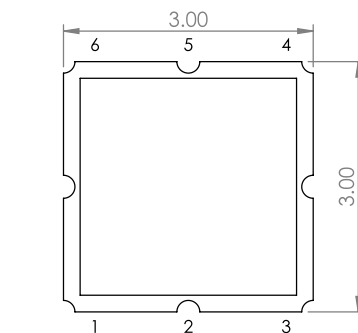


Check Inventory

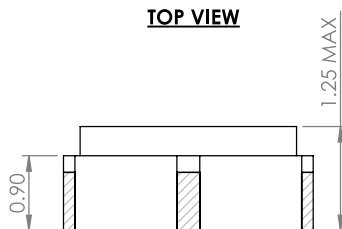


3.0 x 3.0 x 1.25 mm
RoHS Compliant

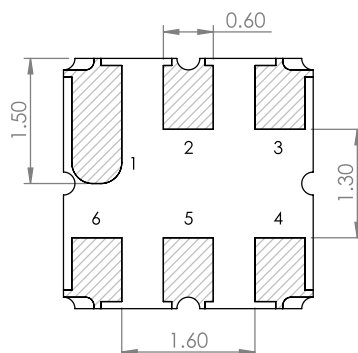
Product Dimensions



TOP VIEW



FRONT VIEW

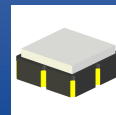


BOTTOM VIEW

Unit: mm

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

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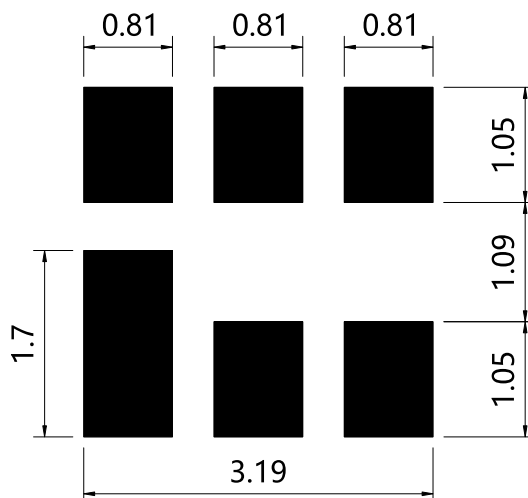


Check Inventory



3.0 x 3.0 x 1.25 mm
RoHS Compliant

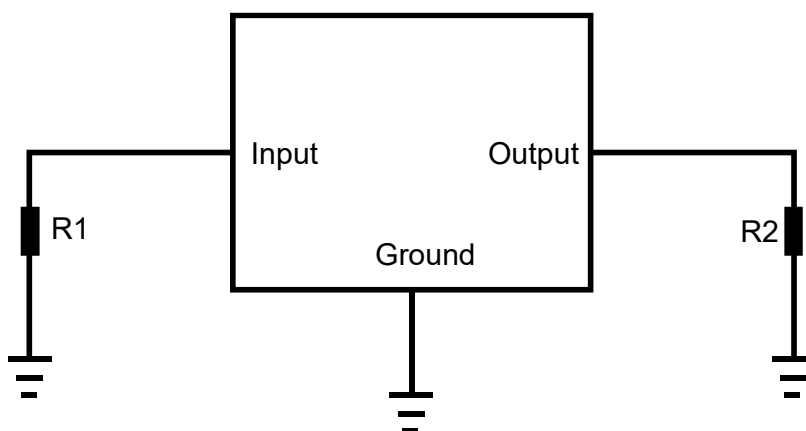
Recommended Land Pattern



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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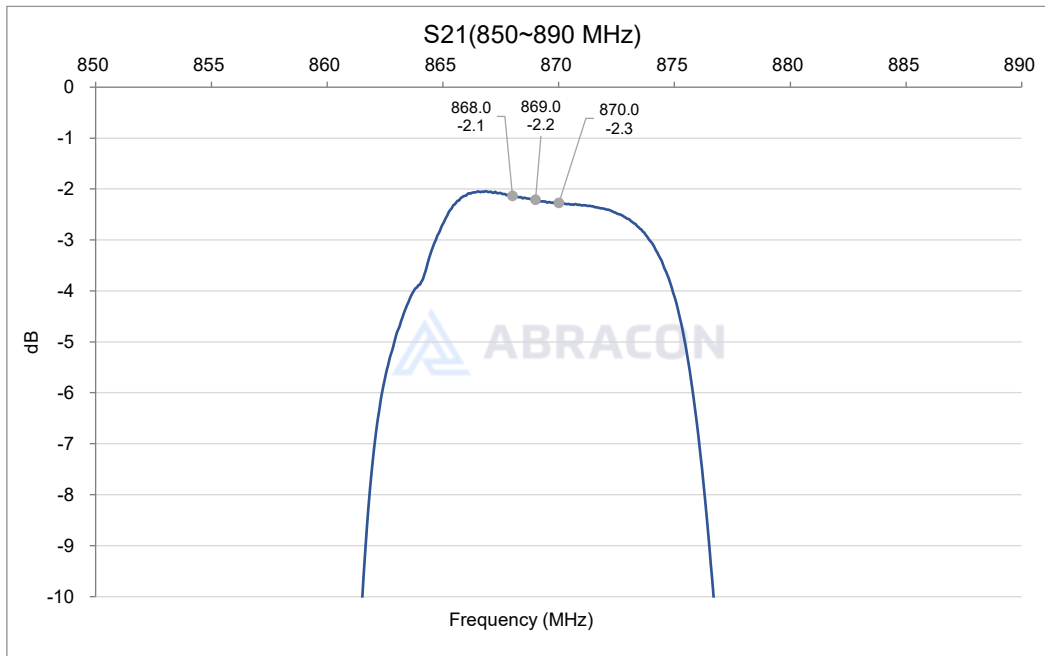
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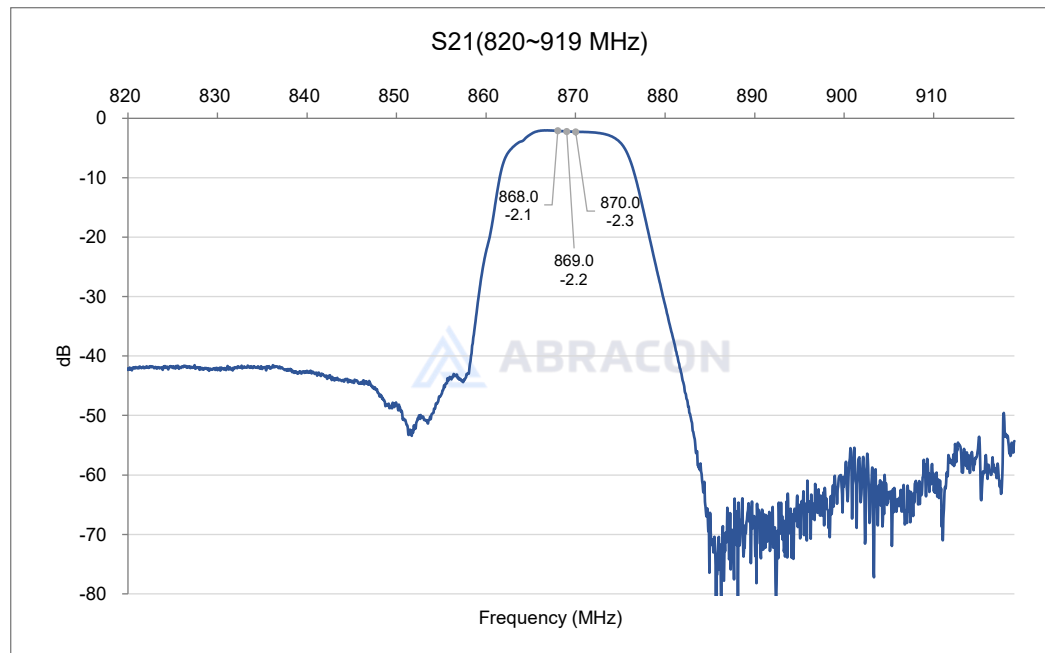
3.0 x 3.0 x 1.25 mm
RoHS Compliant

Frequency Characteristics

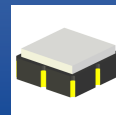
S21 narrow band



S21 wide band



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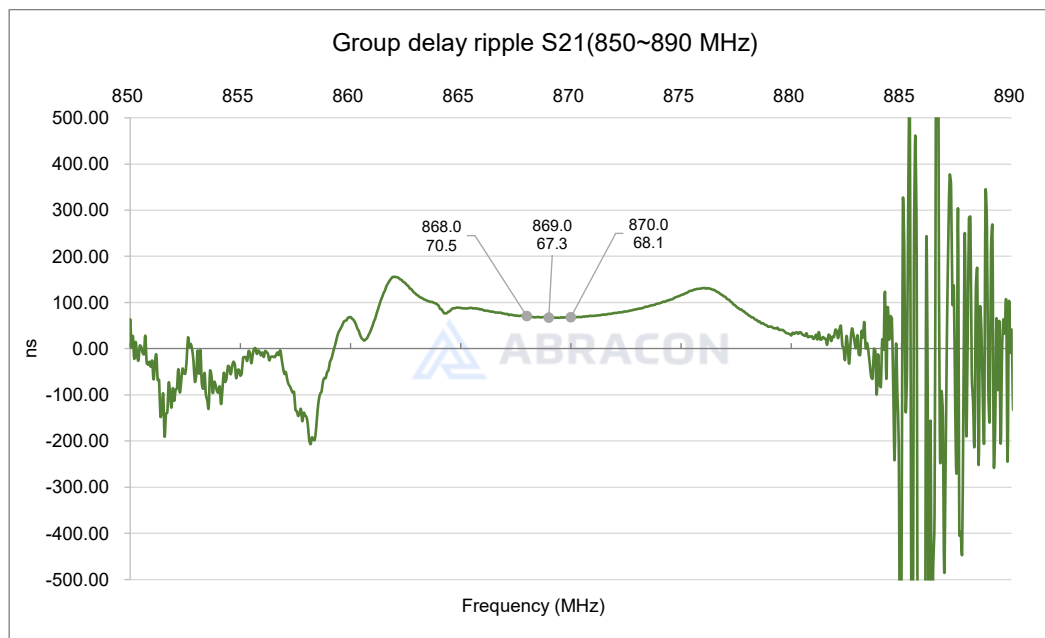


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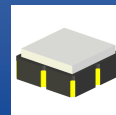


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RoHS Compliant

Group Delay Ripple



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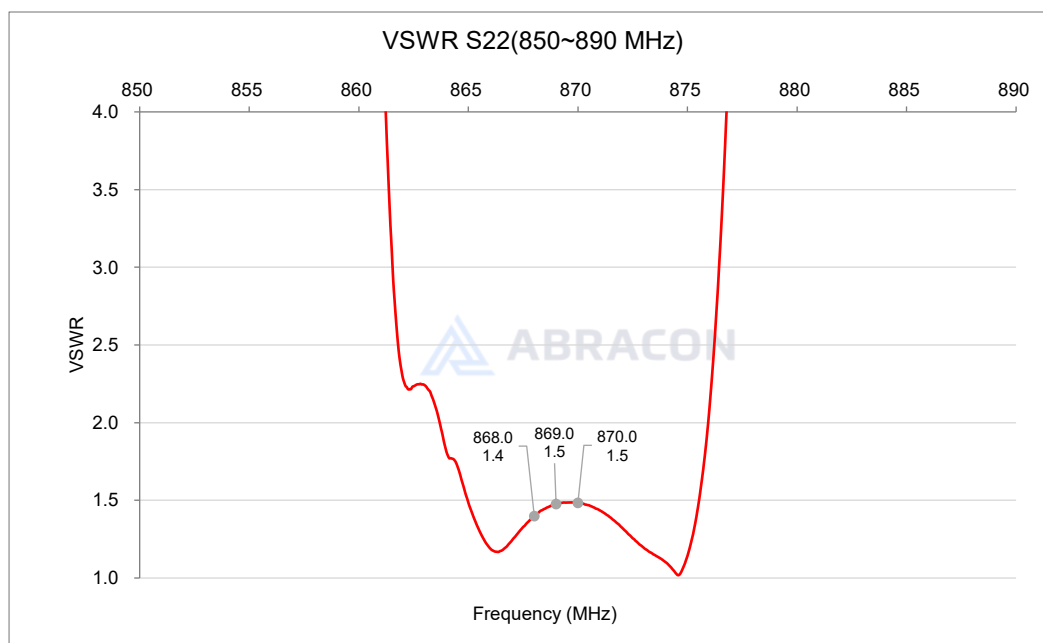
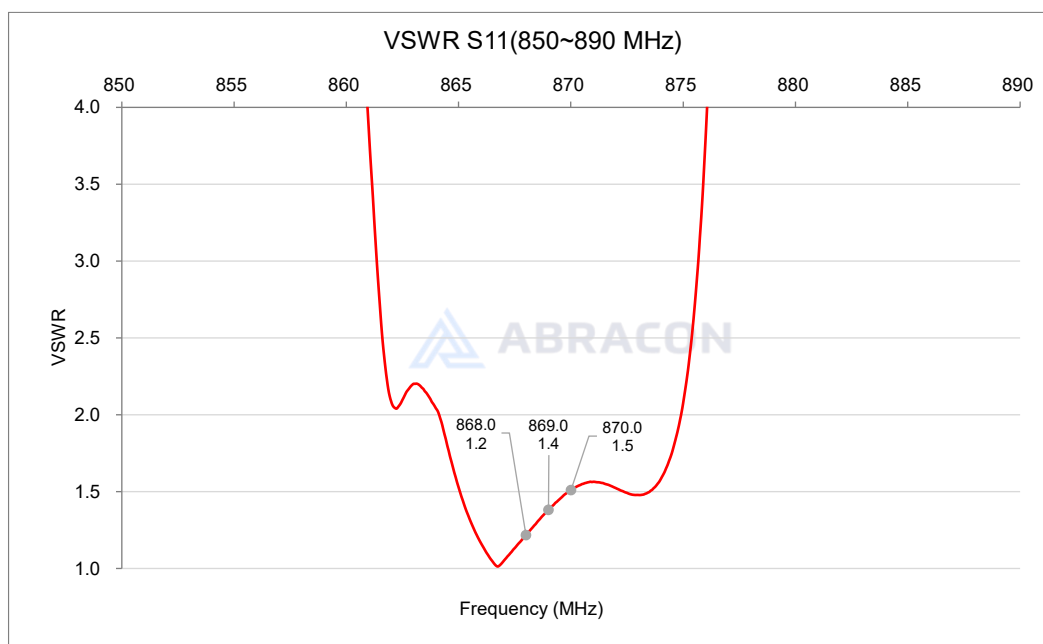


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VSWR (S11 & S22)



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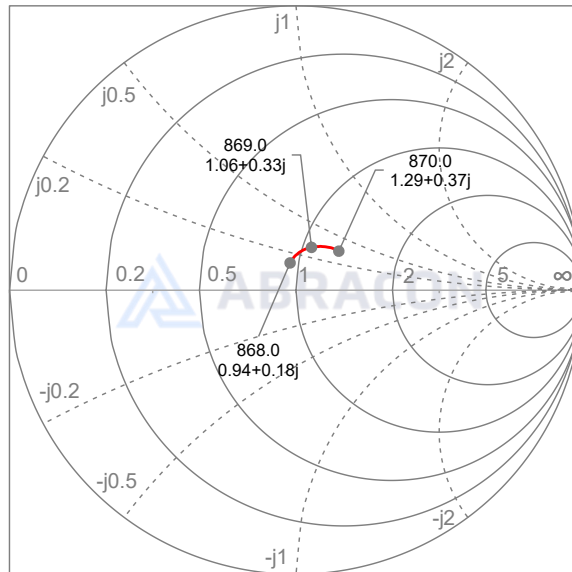
Check Inventory



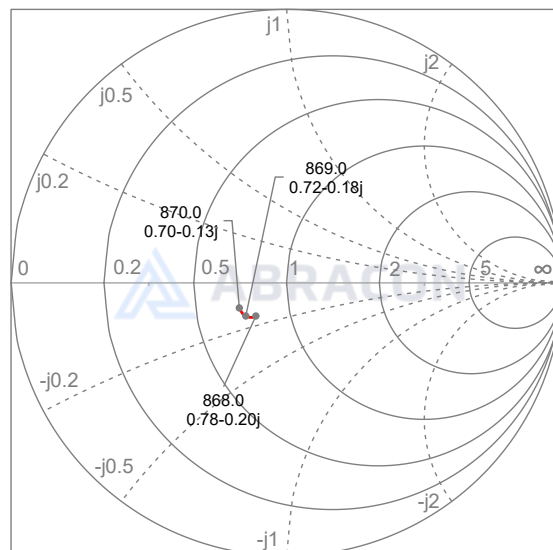
3.0 x 3.0 x 1.25 mm
RoHS Compliant

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

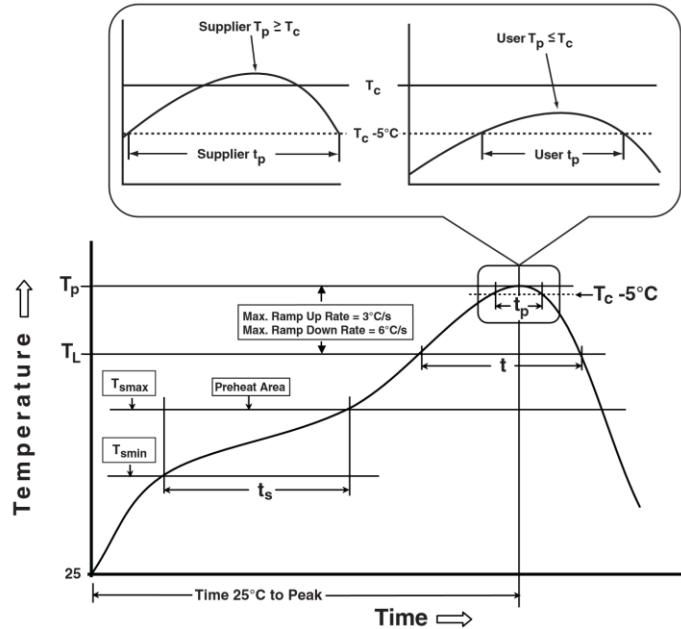


Table 1

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)

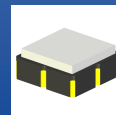
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	240°C	240°C	240°C

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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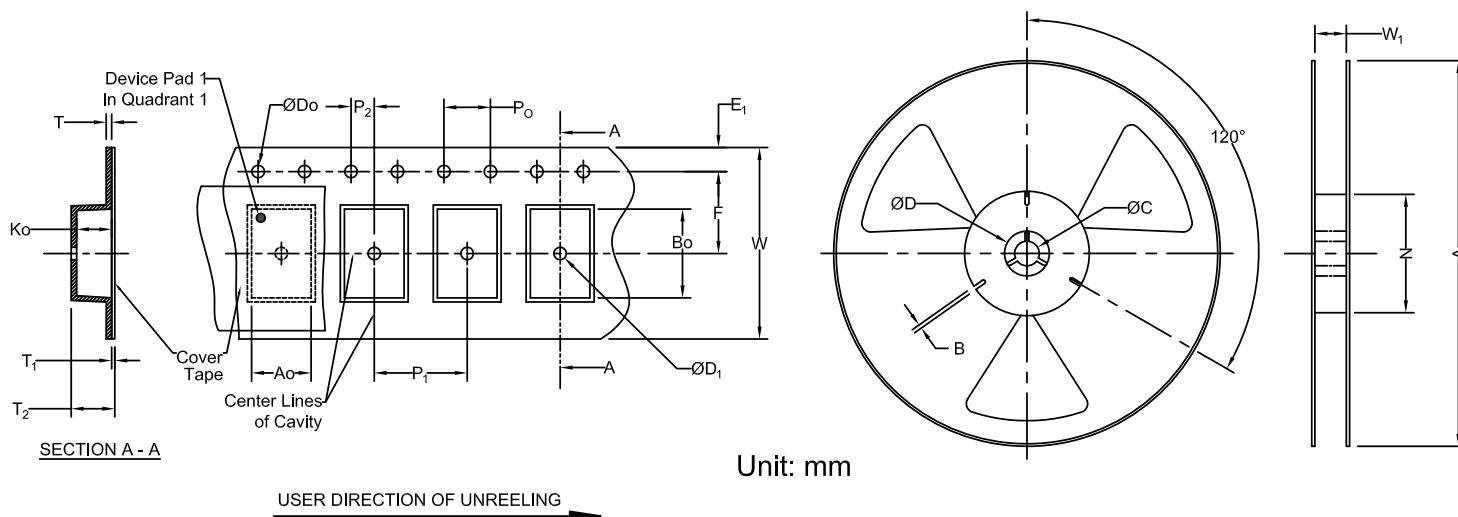
Check Inventory



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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

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