

915 MHz SMD SAW Filter



AFII-SW-0091

Request Samples



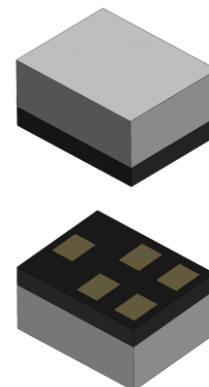
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1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Description

Designed for long-range, low-power Sub-GHz communication, this robust bandpass filter is optimized for LoRa, Sigfox, and Wi-Fi HaLow protocols. With a precise 26 MHz bandwidth, it delivers excellent out-of-band rejection greater than 28 dB to minimize interference, while maintaining a low 1.9 dB insertion loss for optimal signal strength. Housed in a compact 1.4 x 1.1 x 0.7 mm package and rated for a +23 dBm input power, this MSL Level 3 compliant filter is an ideal and reliable solution for enhancing the performance and reliability of IoT RF modules in smart metering and smart lighting networks.



Features

- Bandwidth: 26 MHz
- 1.4 x 1.1 x 0.7 mm in Size
- Insertion Loss: 1.9 dB
- Out-of-Band Rejection: > 28 dB
- Maximum Input Power: +23 dBm
- [RoHS Compliant](#) | [MSL Level 3](#)

Applications

- RF Modules
- Sub-GHz LoRa / Sigfox / Wi-Fi HaLow
- Internet of Things (IoT)
- Smart Metering
- Smart Lighting

Ordering Information

Part Number	Description
AFII-SW-0091	915 MHz SMD SAW Filter on Cut Tape
AFII-SW-0091-T	915 MHz SMD SAW Filter on Tape & Reel
AFII-SW-0091-EVB	915 MHz SMD SAW Filter Evaluation Board

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

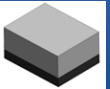


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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	915	-	MHz	
Insertion Loss	-	1.9	2.5	dB	902 - 928 MHz
Amplitude Ripple	-	0.8	1.5	dB _{p-p}	902 - 928 MHz
Group Delay	-	34	44	ns	902 - 928 MHz
Group Delay Ripple	-	2.4	9.8	ns	902 - 928 MHz
Attenuation	42	46	-	dB	10 - 800 MHz
	40	44	-		800 - 845 MHz
	35	38	-		845 - 880 MHz
	13	28	-		947 - 970 MHz
	33	47	-		970 - 1020 MHz
	35	43	-		1020 - 1200 MHz
	28	34	-		1200 - 3000 MHz
VSWR	-	1.6	2	-	902 - 928 MHz
DC Voltage	-	-	3	V	
Input Power	-	-	23	dBm	
Source Impedance (single ended) ⁽¹⁾	-	50	-	Ω	
Load Impedance (single ended) ⁽¹⁾	-	50	-	Ω	
Temperature Coefficient of Frequency	-	-36	-	ppm/°C	

Notes: (1) A matching network is unnecessary (refer to the Measurement Circuits section).

Mechanical Specification

Parameters	Specifications
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
MSL level	3



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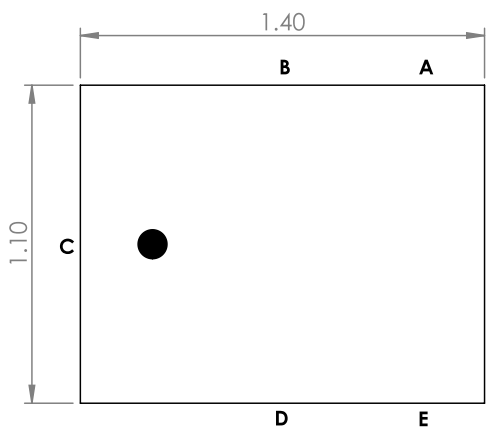


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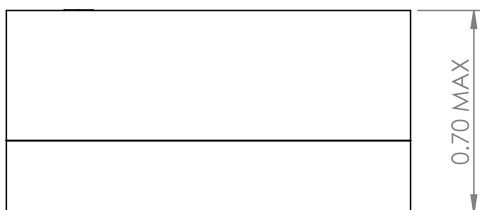


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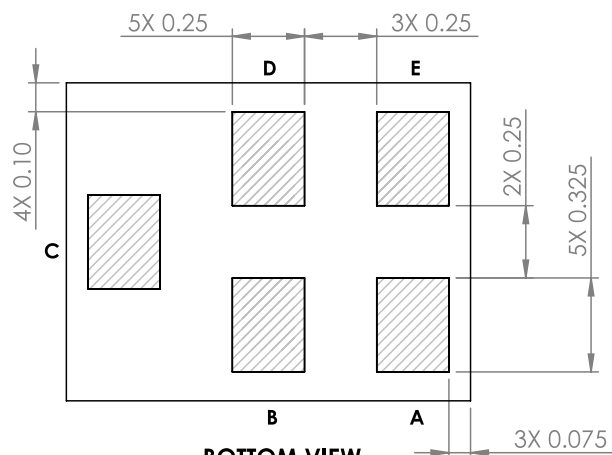
Product Dimensions



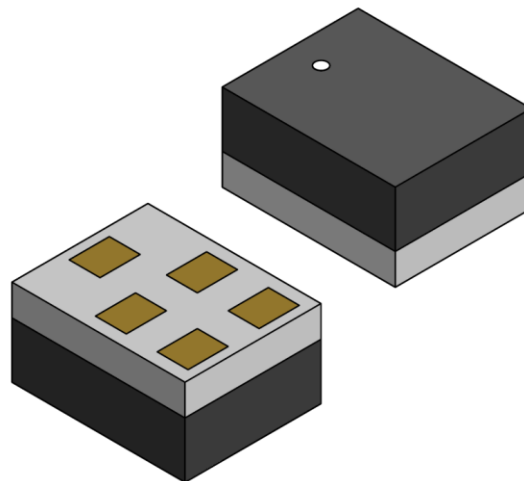
TOP VIEW



FRONT VIEW



BOTTOM VIEW



Unit : mm

Pin No.	Description
C	Input
A	Output
B, D, E	Ground

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

Technical drawing showing a 2D layout with dimensions and labels A, B, C, D, E. The layout consists of a central square area with four shaded rectangular blocks (A, B, C, D) and a central square area (E). The dimensions are as follows:

- Overall width: 1.60
- Overall height: 1.30
- Block A: Width 0.425, Height 0.325
- Block B: Width 0.425, Height 0.325
- Block C: Width 0.425, Height 0.325
- Block D: Width 0.425, Height 0.325
- Block E: Width 0.25, Height 0.25
- Spacing: 0.25 between blocks and 0.525 between blocks and the outer boundary.

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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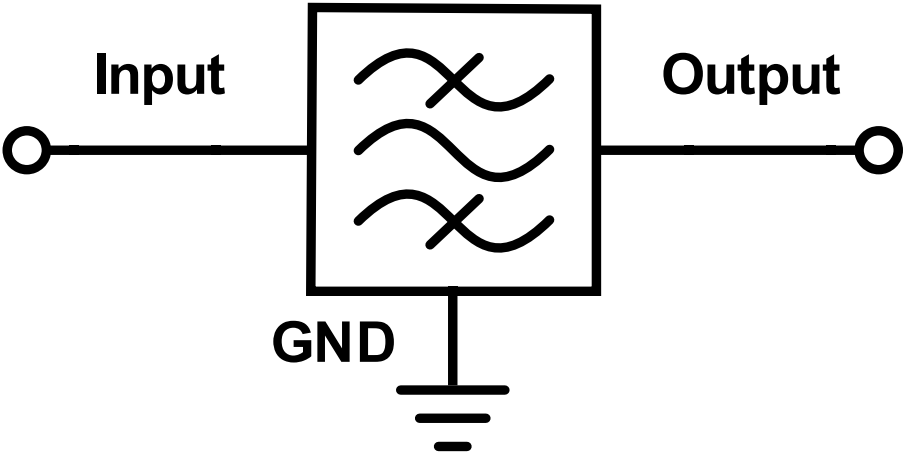


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1.4 x 1.1 x 0.7 mm
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MSL Level = 3

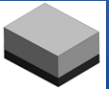
Measurement Circuit



Source & Load Impedance: 50 Ω

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

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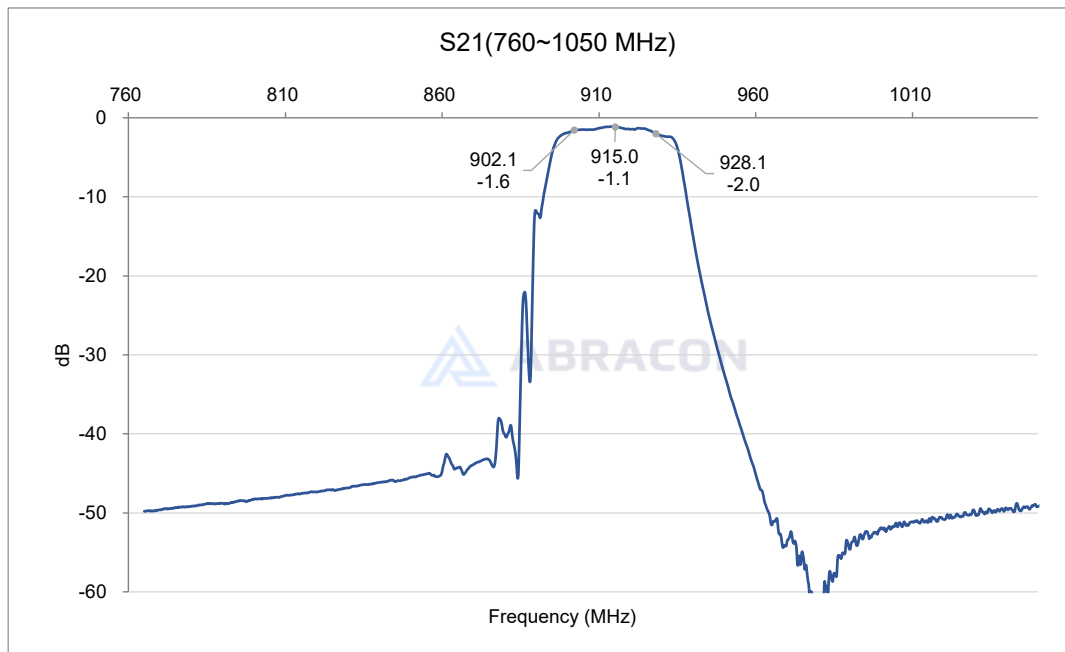
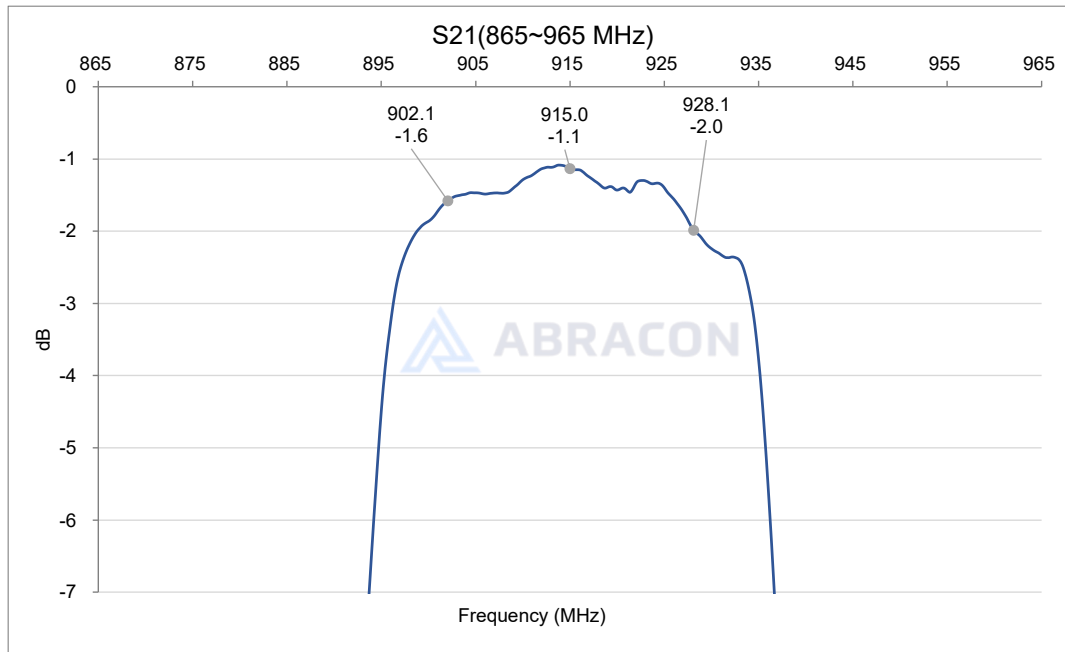
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1.4 x 1.1 x 0.7 mm
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Frequency Characteristics

S21 narrow band



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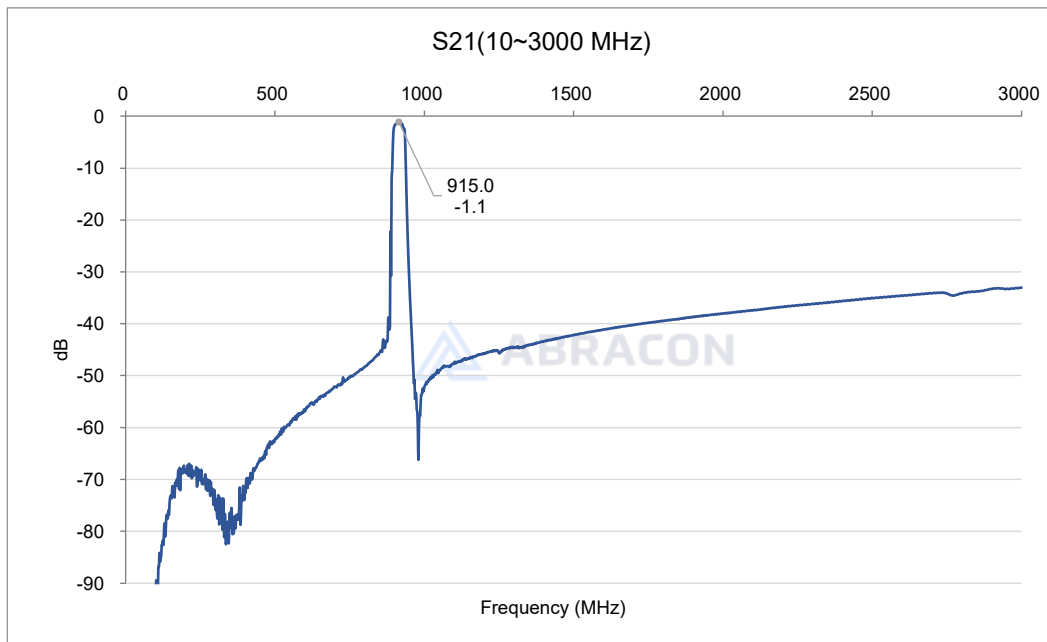


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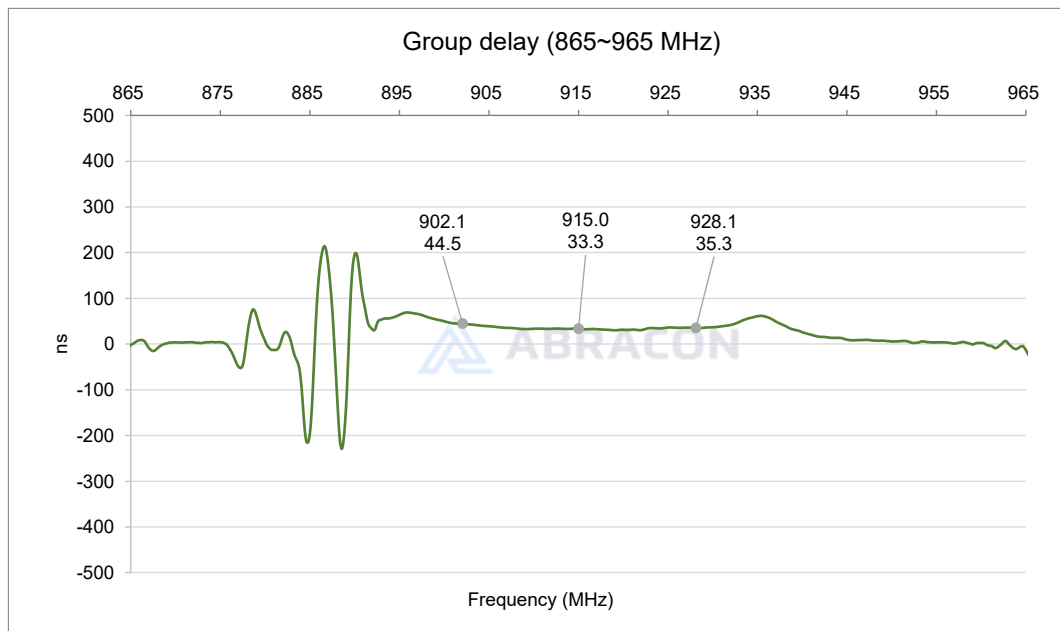


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MSL Level = 3

S21 wide band



Group Delay



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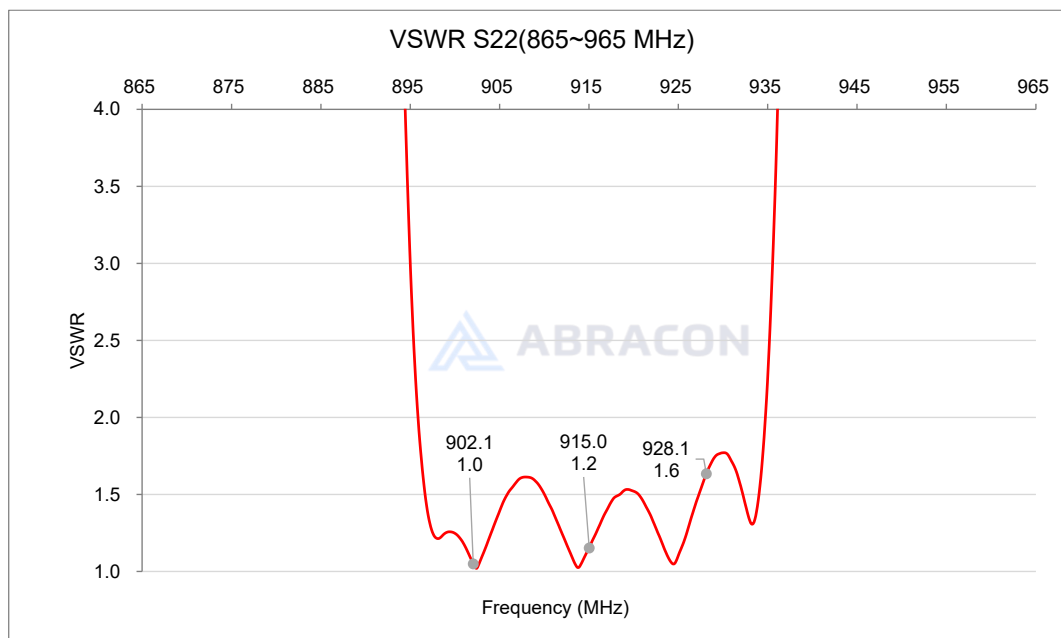
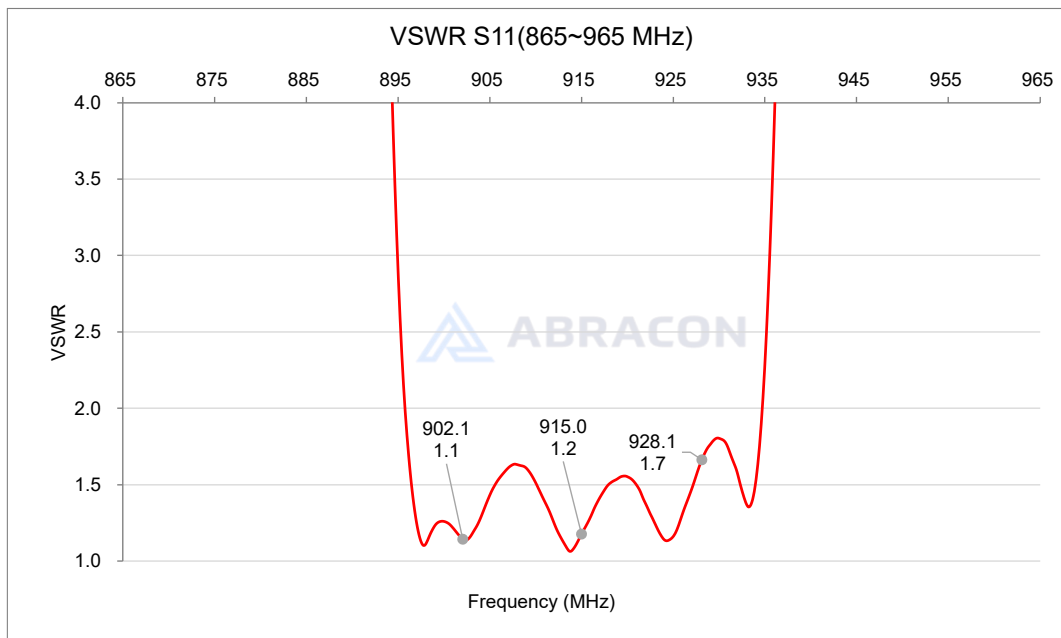


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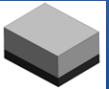


1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



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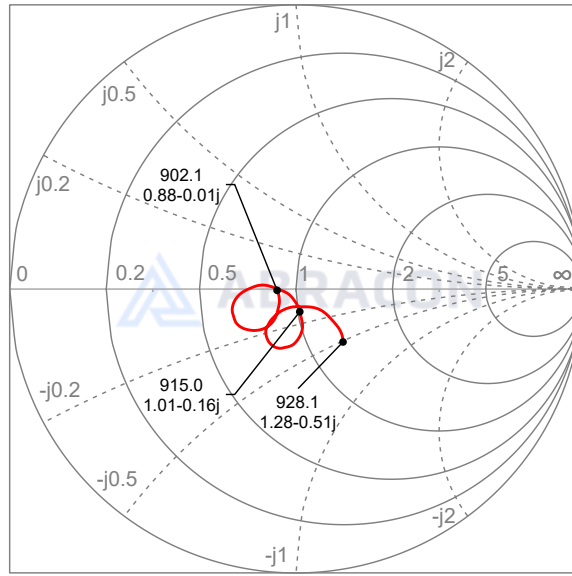
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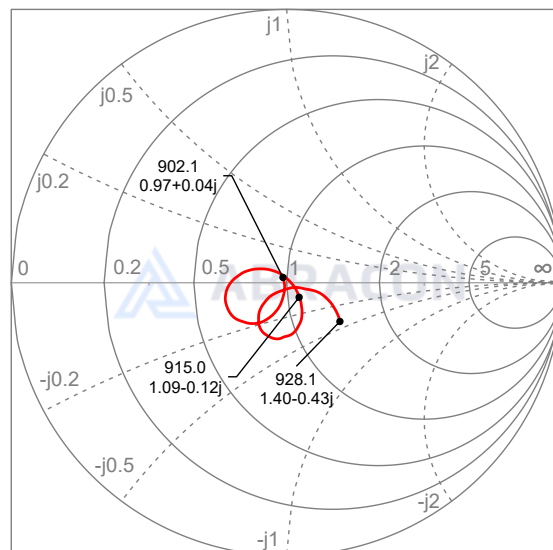
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

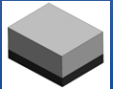
Smith Chart (S11 & S22)

Smith chart S11 (902~928MHz)



Smith chart S22 (902~928MHz)





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Request Samples



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

Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

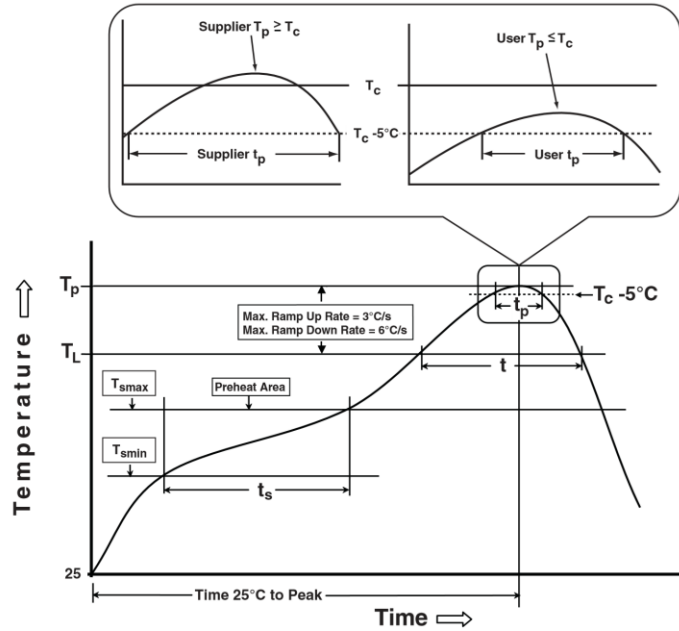


Table 1

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)

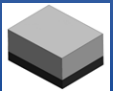
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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	200°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	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.	10 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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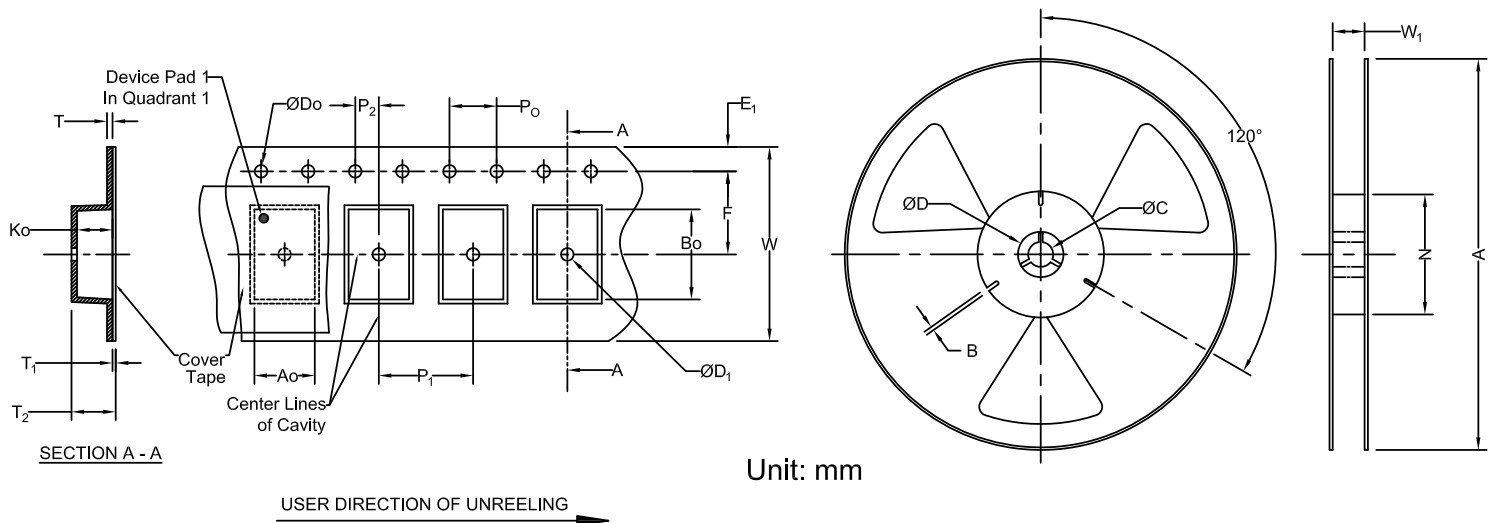
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MSL Level = 3

Packaging

Tape & Reel



Carrier Tape Specifications (mm)

Do	D ₁	E ₁	P ₀	P ₂	T	F	P ₁	W	A ₀	B ₀	K ₀	Reel Qty
1.55 ± 0.05	1.0	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	0.2 ± 0.05	3.5 ± 0.05	4.0 ± 0.1	8.0 ± 0.3	1.47 ± 0.1	1.73 ± 0.1	0.75 ± 0.1	3,000

Reel Specifications (mm)

A	W ₁	N	C	B
178.0 ± 1.0	8.4	72.0 ± 1.0	13.0 ± 0.2	2.0

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