

915 MHz SMD SAW Filter



AFII-SW-0087

Request Samples



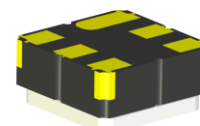
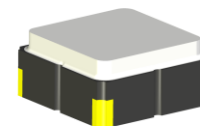
Check Inventory



3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

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 2.2 dB insertion loss for optimal signal strength. Housed in a compact 3.0 x 3.0 x 1.4 mm package and rated for a +15 dBm input power, this MSL Level 1 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
- 3.0 x 3.0 x 1.4 mm in Size
- Insertion Loss: 2.2 dB
- Out-of-Band Rejection: > 28 dB
- Maximum Input Power: +15 dBm
- [RoHS Compliant](#) | [MSL Level 1](#)

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-0087	915 MHz SMD SAW Filter on Cut Tape
AFII-SW-0087-T	915 MHz SMD SAW Filter on Tape & Reel
AFII-SW-0087-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	-	2.2	3.5	dB	902 - 928 MHz
Amplitude Ripple	-	0.6	2.0	dB _{p-p}	902 - 928 MHz
Group Delay	-	32.5	46.2	ns	902 - 928 MHz
Group Delay Ripple	-	2.8	13.7	ns	902 - 928 MHz
Attenuation	50	63	-	dB	D.C. - 800 MHz
	40	48	-		800 - 880 MHz
	32	39	-		960 - 1080 MHz
	45	65	-		1080 - 1500 MHz
	22	28	-		1500 - 3000 MHz
VSWR	-	1.6	2.3	-	902 - 928 MHz
DC Voltage	-	-	5	V	
Input Power	-	-	15	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	3.0 x 3.0 x 1.4 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	1
ESD	N/A



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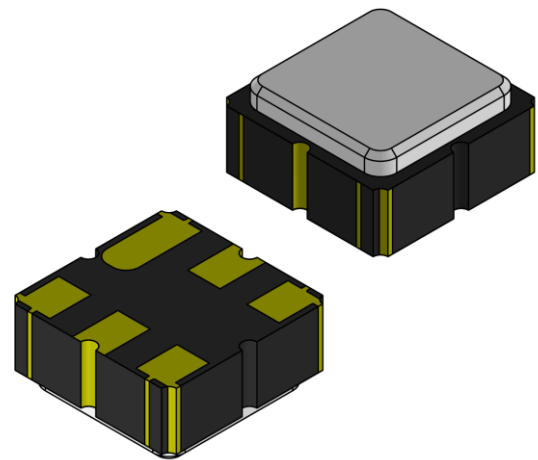
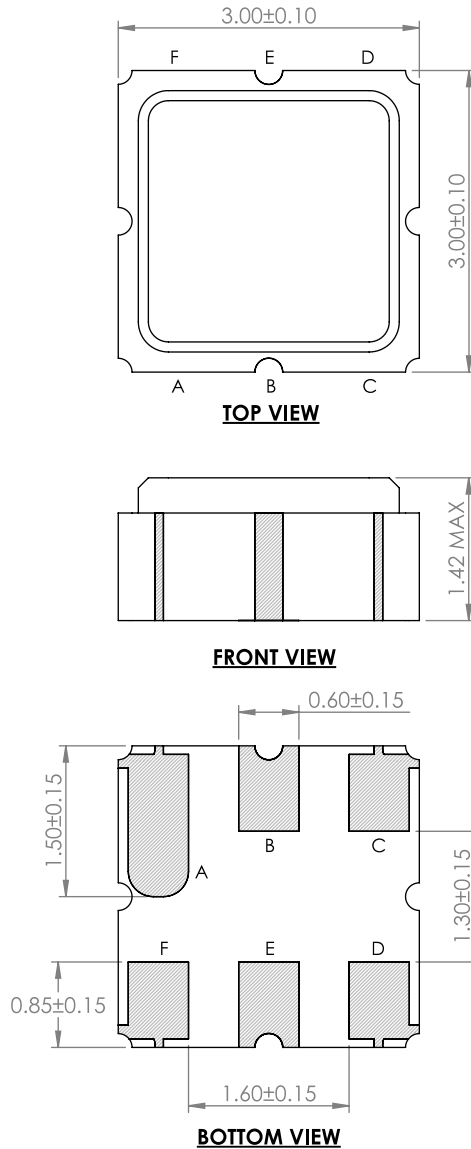


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3.0 x 3.0 x 1.4 mm
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Product Dimensions



Unit : mm

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

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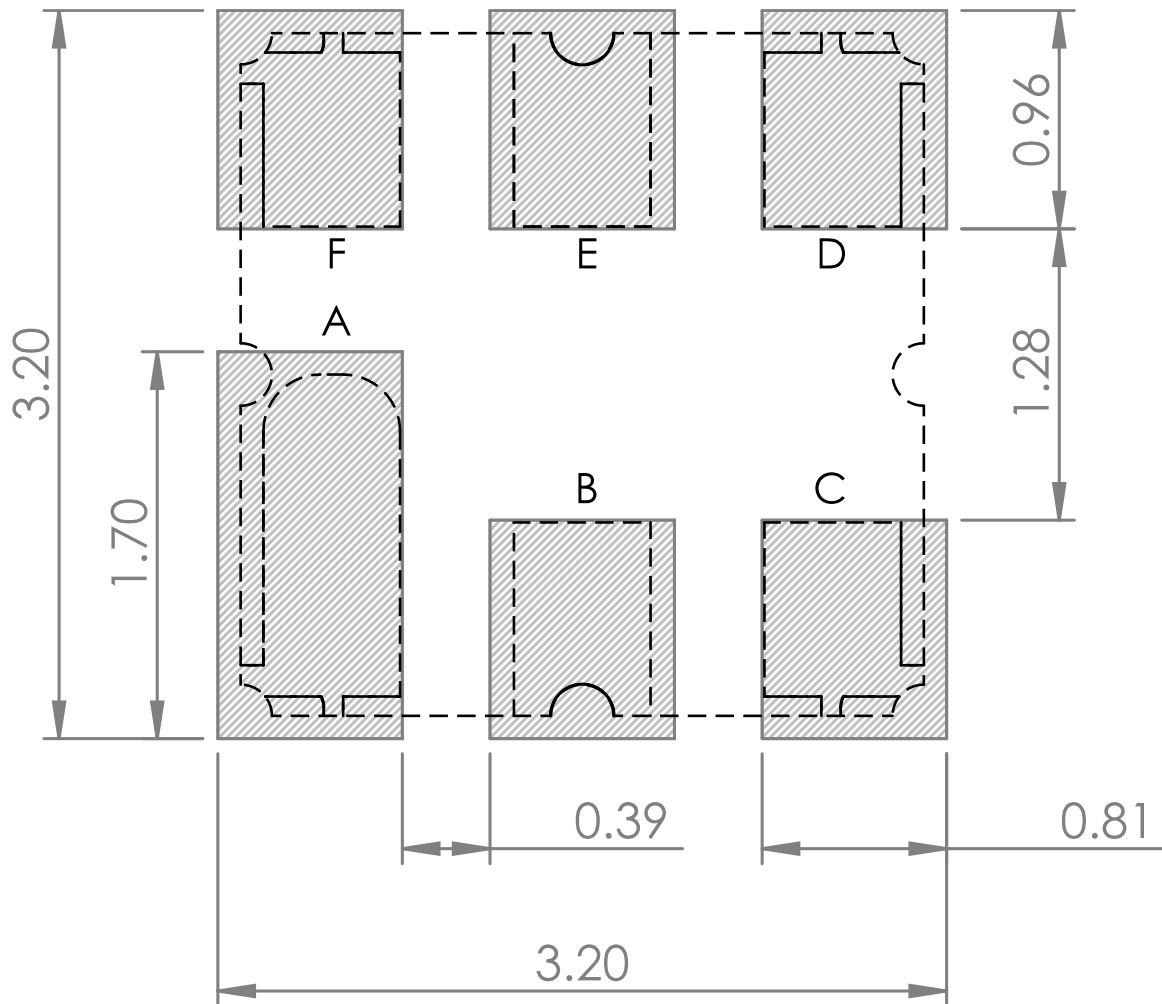


Check Inventory



3.0 x 3.0 x 1.4 mm
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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

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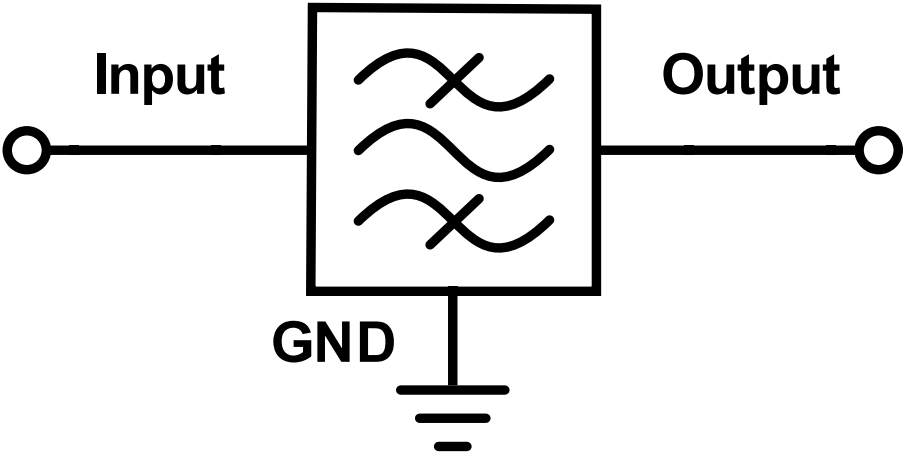


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3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

Measurement Circuit



Source & Load Impedance: 50 Ω

Pin No.	Description
B	Input Impedance: 50 Ω
E	Output Impedance: 50 Ω
A, C, D, F	Ground

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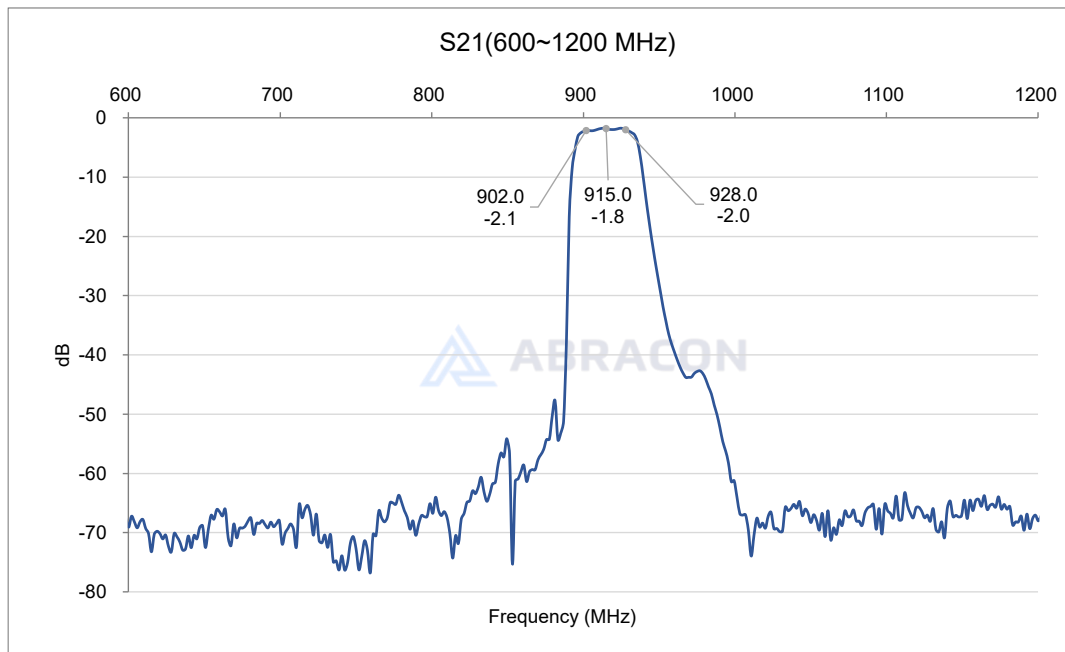
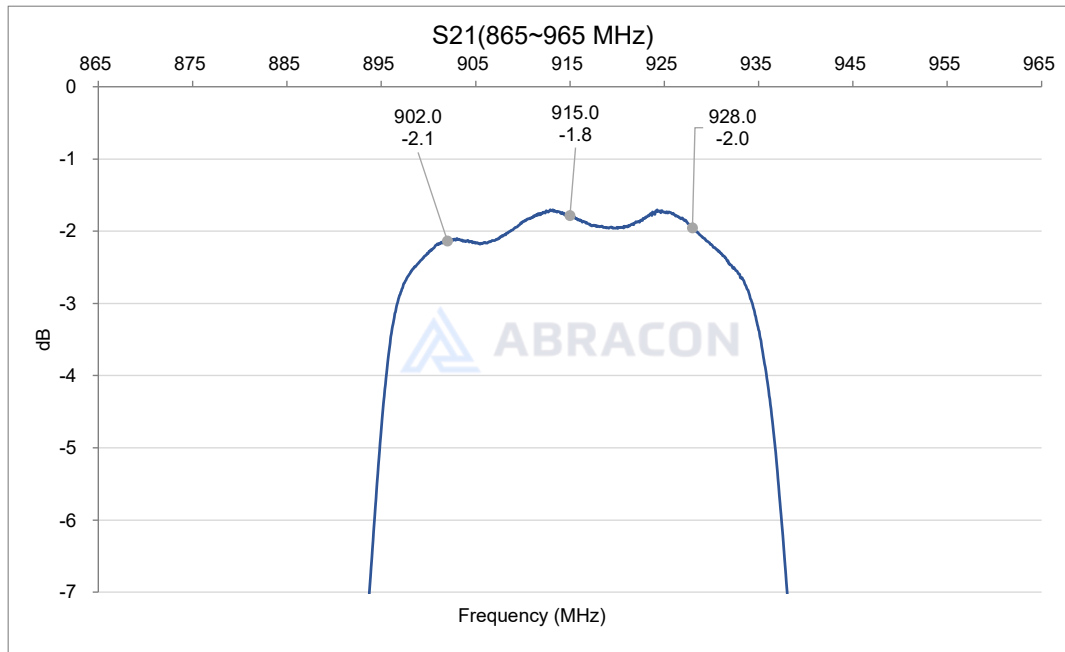
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3.0 x 3.0 x 1.4 mm
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Frequency Characteristics

S21 narrow band



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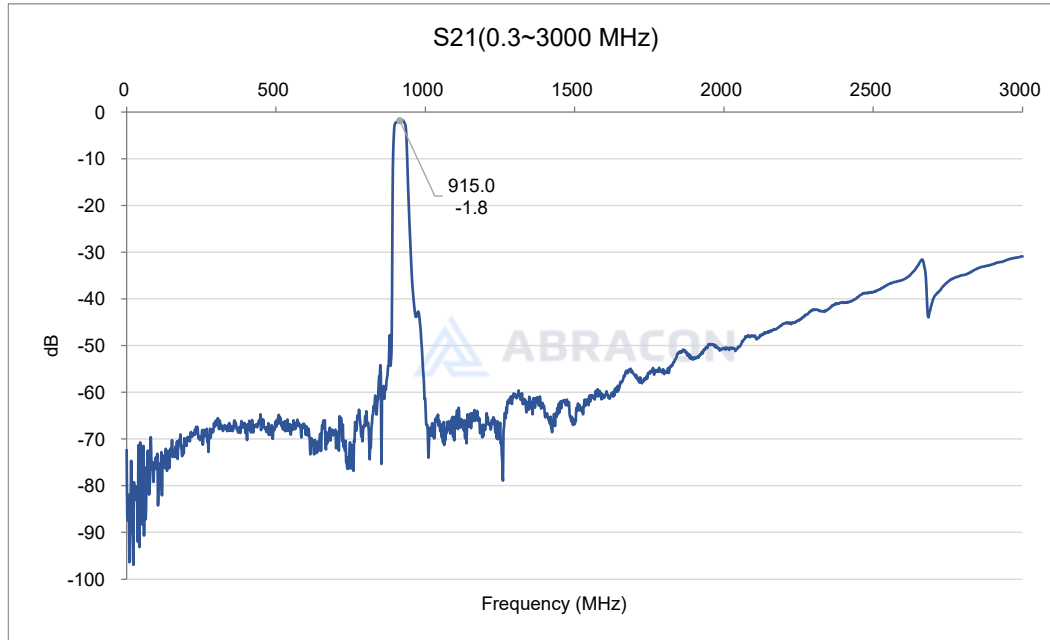


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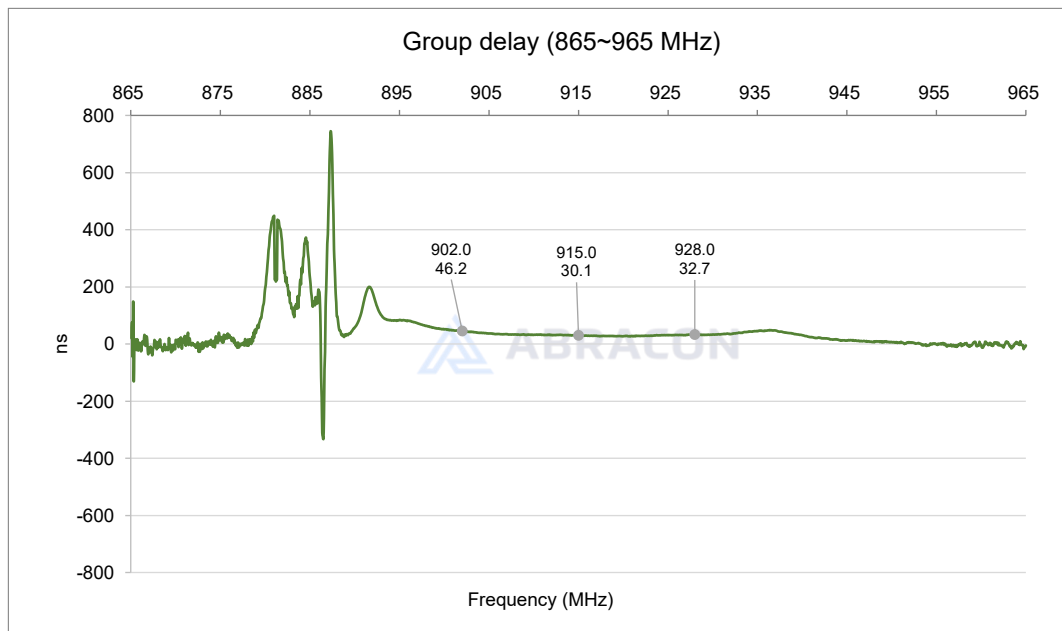


3.0 x 3.0 x 1.4 mm
RoHS Compliant
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S21 wide band



Group Delay



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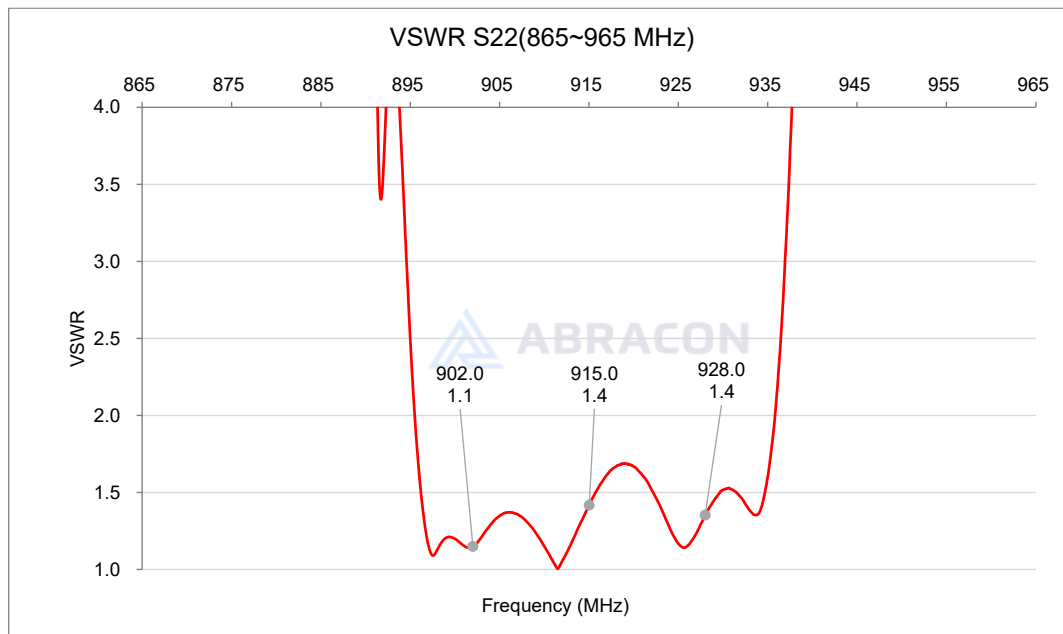
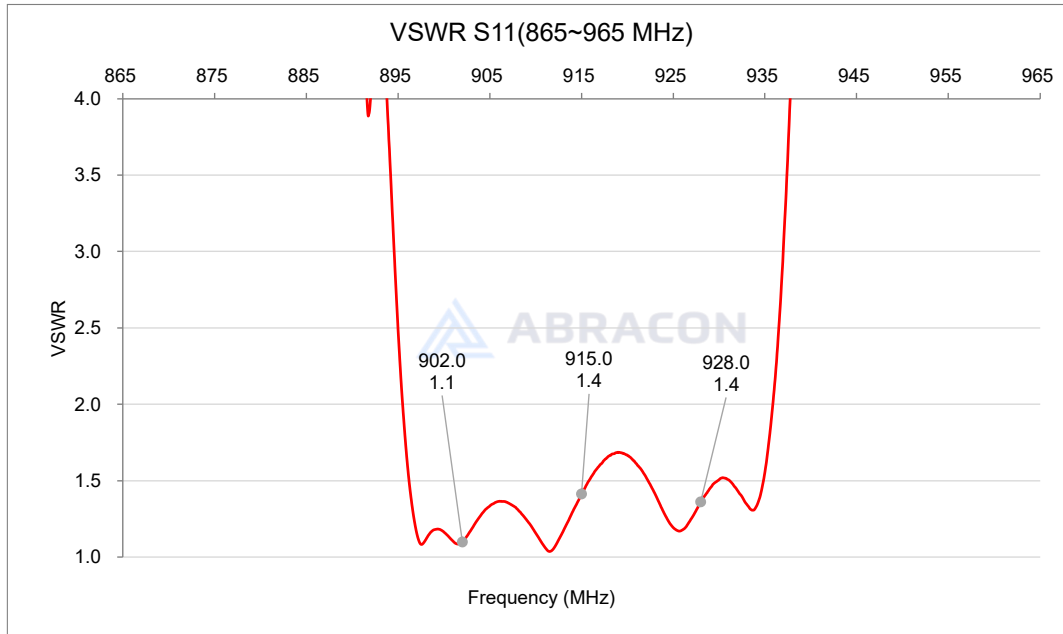


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3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

VSWR (S11 & S22)



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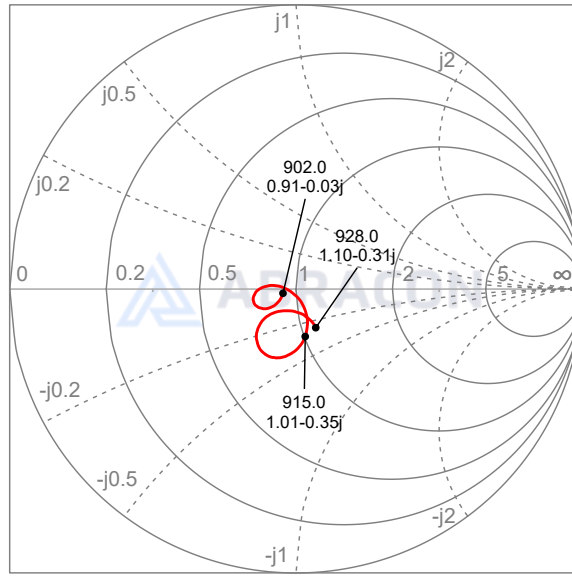
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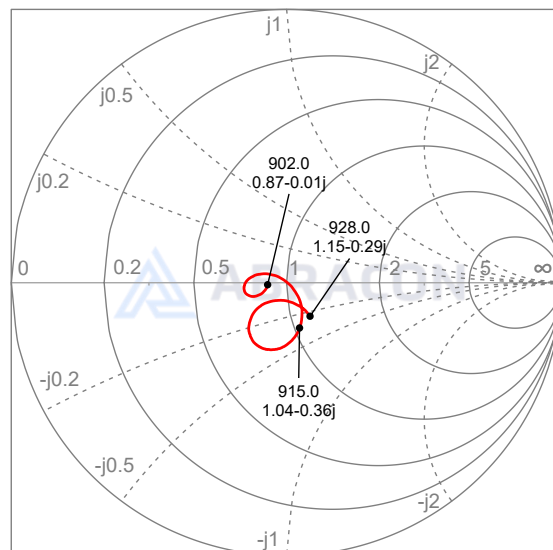
3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

Smith Chart (S11 & S22)

Smith chart S11 (902~928MHz)



Smith chart S22 (902~928MHz)



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3.0 x 3.0 x 1.4 mm
RoHS Compliant
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Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

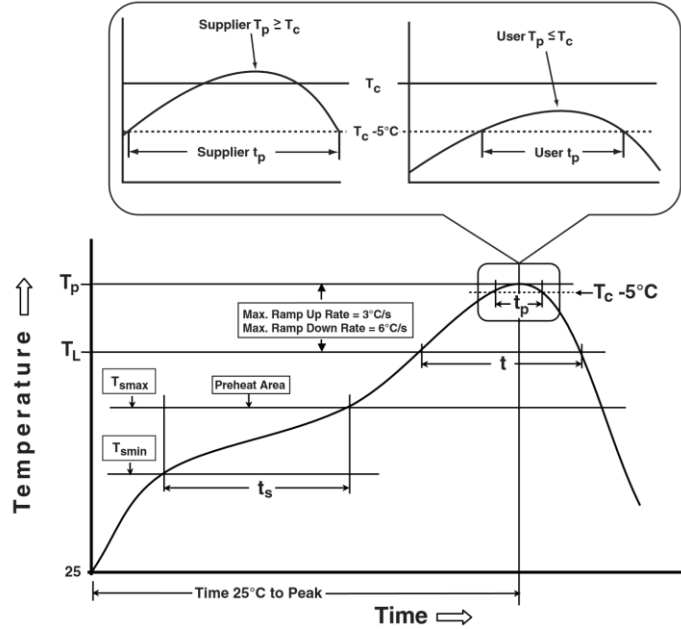


Table 1

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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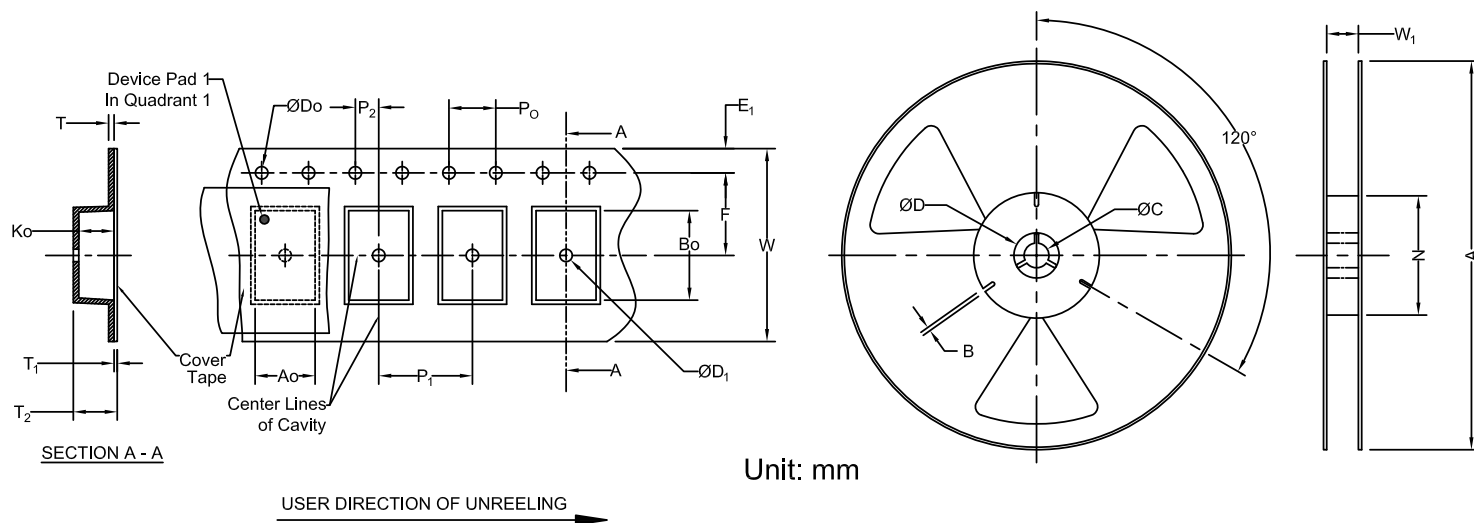
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3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	P0	F	P1	P12	W	A0	B0	K0	Reel Qty
1.75 ± 0.1	4.0 ± 0.1	5.5 ± 0.10	8.0 ± 0.1	2.0 ± 0.1	12.0 ± 0.3	3.35 ± 0.1	3.35 ± 0.1	1.4 ± 0.1	3,000

Reel Specifications (mm)

A	W1	N	B	C	D
330 +0/-3	15.5 ± 1	101.5 ± 0.5	2.0 ± 0.2	13 ± 0.2	20.2 ± 0.2

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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