SMD 915MHz SAW Filter



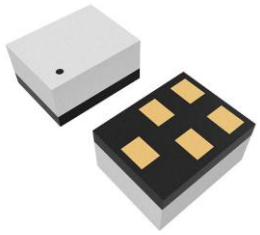
ABSES5AD-1E3M012M

Request Samples | Check Inventory

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

Description

This SMD 915 MHz SAW filter is engineered for the 902–928 MHz ISM band, supporting LPWA, LoRa, Sigfox, Wi-SUN, Wi-Fi HaLow, and Amazon Sidewalk protocols. Housed in a compact 1.4 x 1.1 x 0.7 mm package with 26 MHz bandwidth, it delivers low 1.6 dB typical insertion loss and exceptional out-of-band rejection exceeding 36 dB for superior interference suppression. Rated for +10 dBm input power and RoHS-compliant with MSL Level 3, this filter ensures reliable performance for smart metering, irrigation systems, home security cameras, and agricultural sensing applications.



Features

- Frequency Range: 902 – 928 MHz
- Bandwidth: 26 MHz
- Small Form Factor: 1.4 x 1.1 x 0.7 mm
- Low Insertion Loss: 1.6 dB Typ.
- Out-of-Band Rejection: > 36 dB Typ.
- Maximum Input Power: +10 dBm
- RoHS Compliant | MSL Level 3

Applications

- LPWA / LoRa / Sigfox / Wi-SUN
- Wi-Fi HaLow (IEEE 802.11ah)
- Amazon Sidewalk
- Home Security Cameras
- Smart Metering Solutions
- Smart Irrigation Systems
- Agriculture/Environment Sensing

Ordering Information

Part Number	Description
ABSES5AD-1E3M012M	SMD 915MHz SAW Filter on Tape & Reel

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	-
VSWR (1)	-	1.5	2.0	:1	902 - 928 MHz
Insertion Loss (1)	-	1.6	2.6	dB	902 - 928 MHz
Amplitude Ripple (1)	-	0.6	1.5	dB	902 - 928 MHz
Attenuation (1)	50.0	53.0	-	dB	0.10 - 702.00 MHz
	49.0	53.0	-		738.00 - 764.00 MHz
	42.0	50.0	-		820.00 - 846.00 MHz
	42.0	50.0	-		990.00 - 1010.00 MHz
	49.0	53.0	-		1072.00 - 1092.00 MHz
	40.0	42.0	-		1128.00 - 1804.00 MHz
	40.0	42.0	-		1804.00 - 1856.00 MHz
	30.0	36.0	-		1856.00 - 3000.00 MHz
Group Delay (1)	-	42	53	ns	902 - 928 MHz
Group Delay Ripple (1)	-	7.0	11.4	ns	902 - 928 MHz
Source Impedance (single ended)	-	50	-	Ω	-
Load Impedance (single ended)	-	50	-	Ω	-
Input Power Level	-	-	10	dBm	-
DC Voltage (V)	-	-	3	V	-

Notes: (1) Averaged values of linear S-Parameters at +25ºC

Mechanical Specification

Parameters	Specifications
Dimension	1.4 x 1.1 x 0.7 mm
Mounting Type	Surface Mount
Additional Resources	Download STEP File, Package Drawing, 3D PDF

Environmental Specification

Parameters	Specifications
Operating & Storage Temperature (Unpackaged Component)	-40ºC ~ +85ºC
Storage Temperature in Packaging	-5ºC ~ +40ºC
Packaging Storage Relative Humidity	70% (Max.)
Moisture sensitivity level	3
ESD Voltage	>100V(CDM), >100V(HBM)

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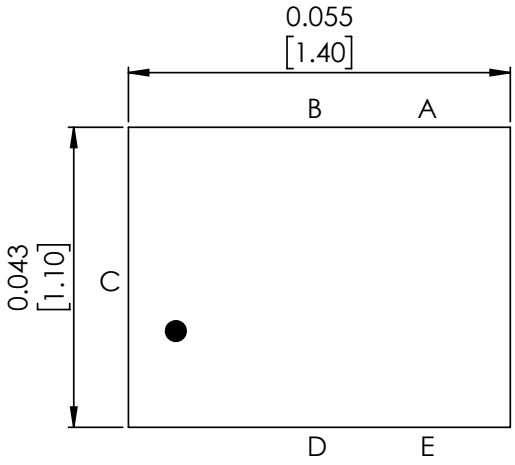
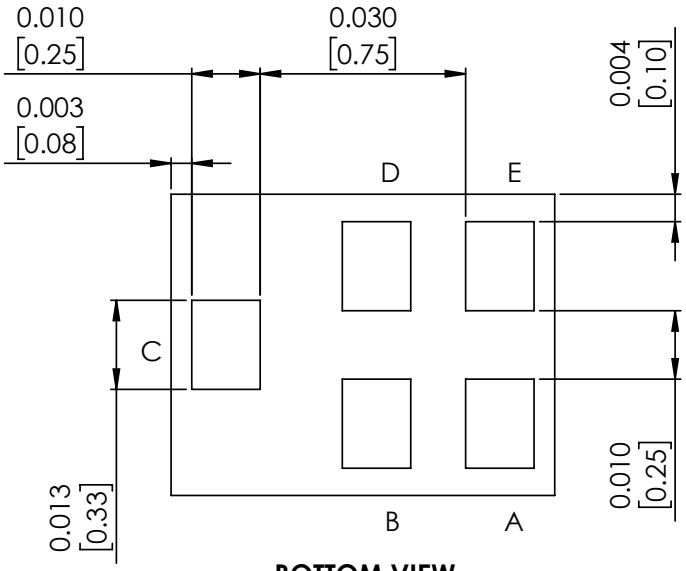
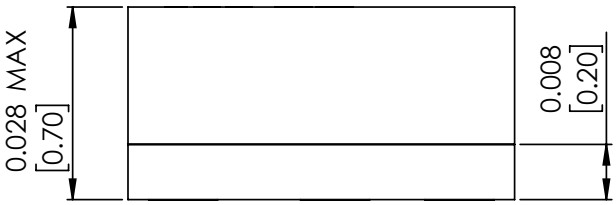
Product Dimensions



TOP VIEW



BOTTOM VIEW



FRONT VIEW

Unit: inches [mm]

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

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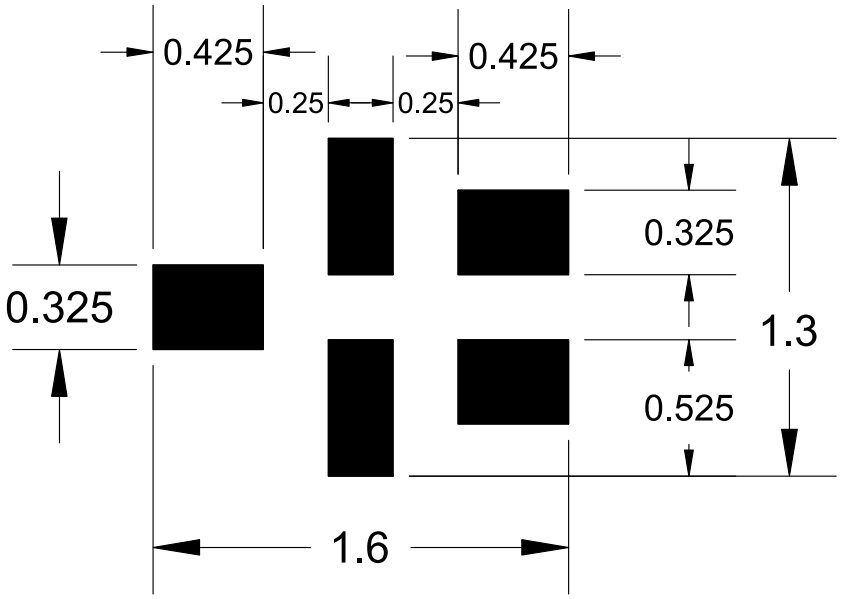
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

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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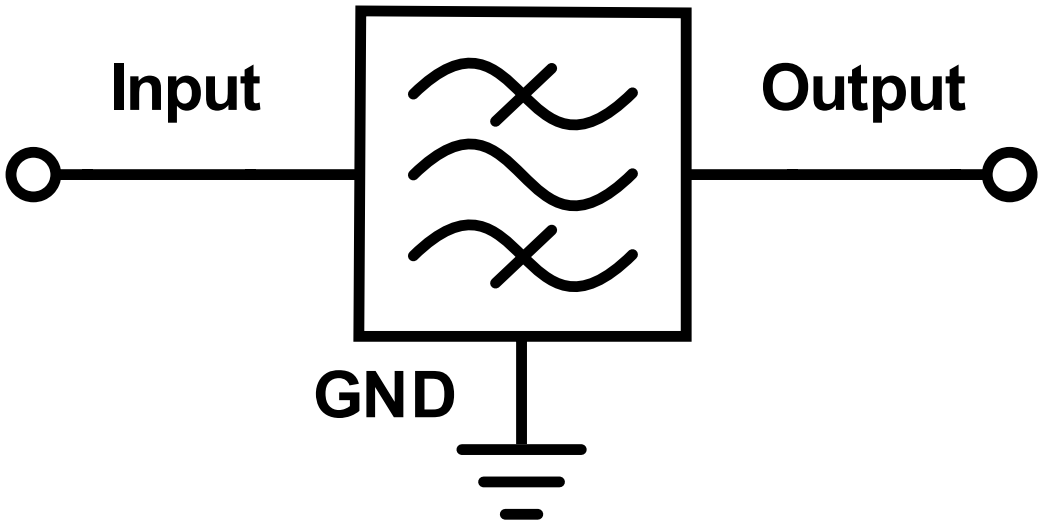
RoHS Compliant
MSL Level = 3

Measurement Circuit



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

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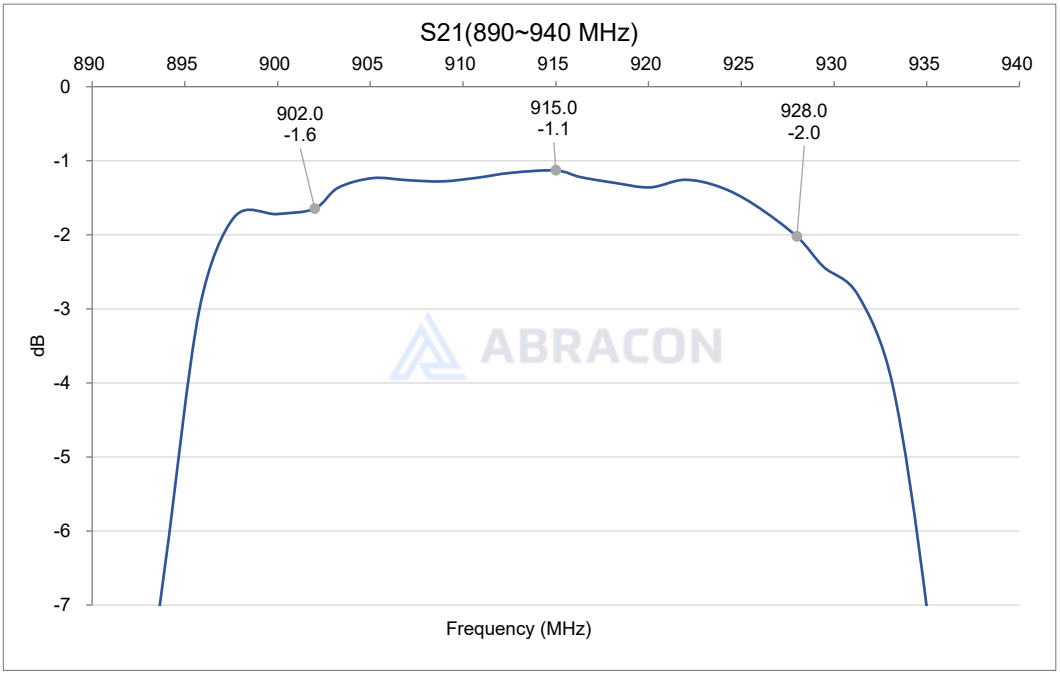
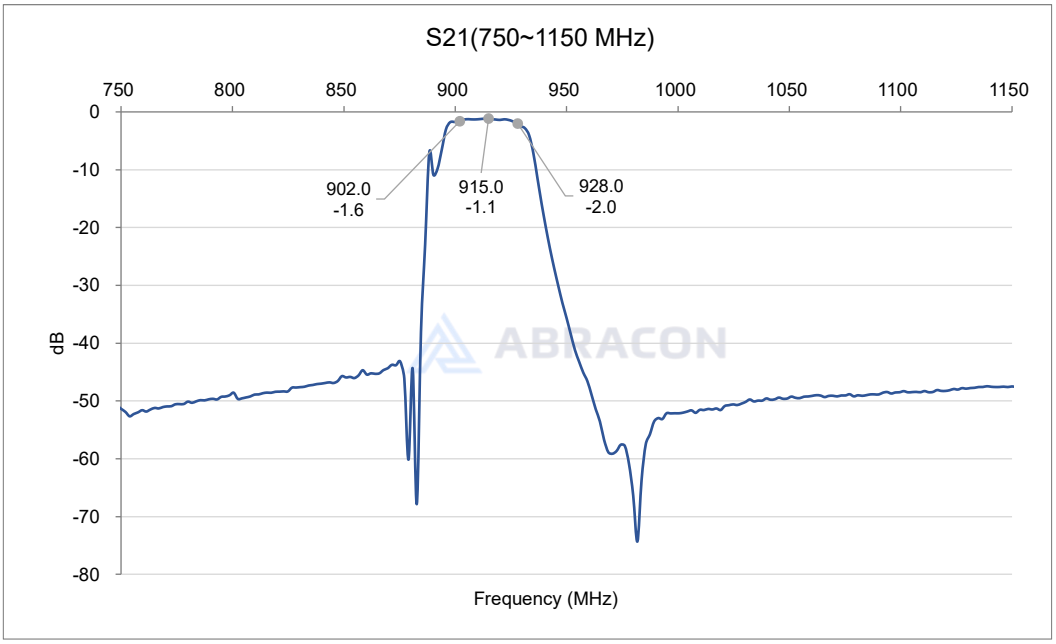
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band





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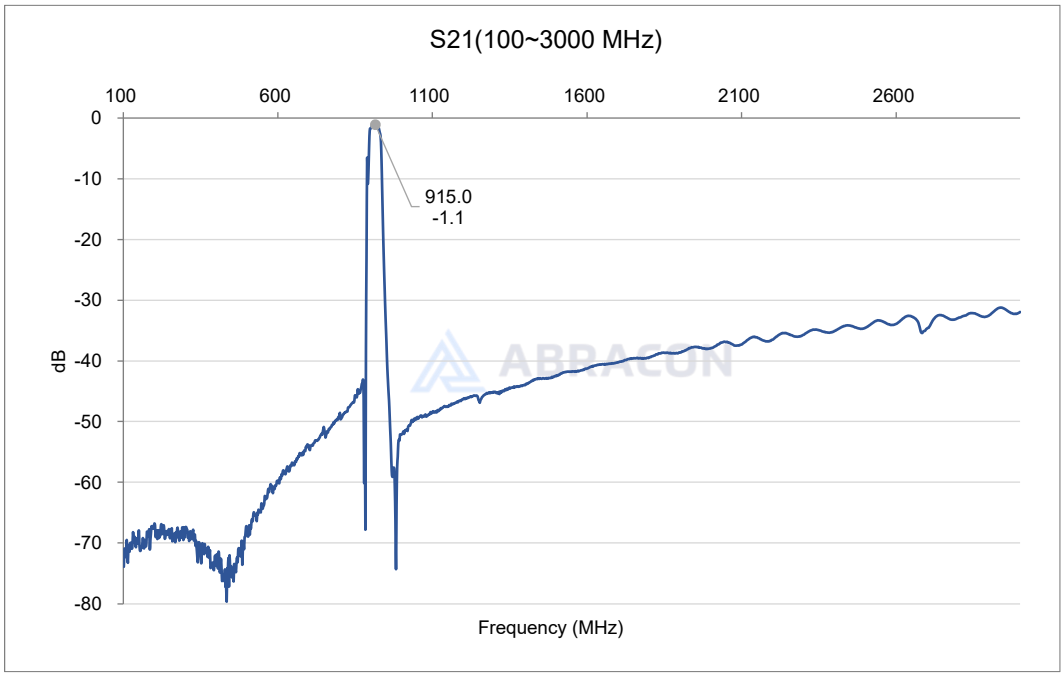
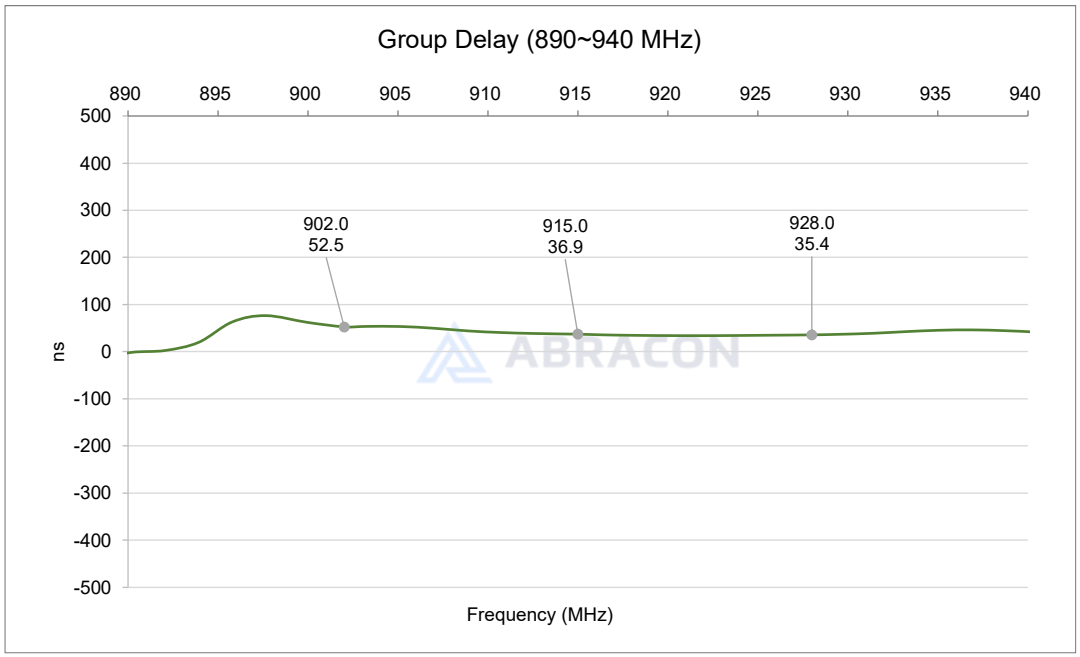
MSL Level = 3

S21 wide band



Group Delay



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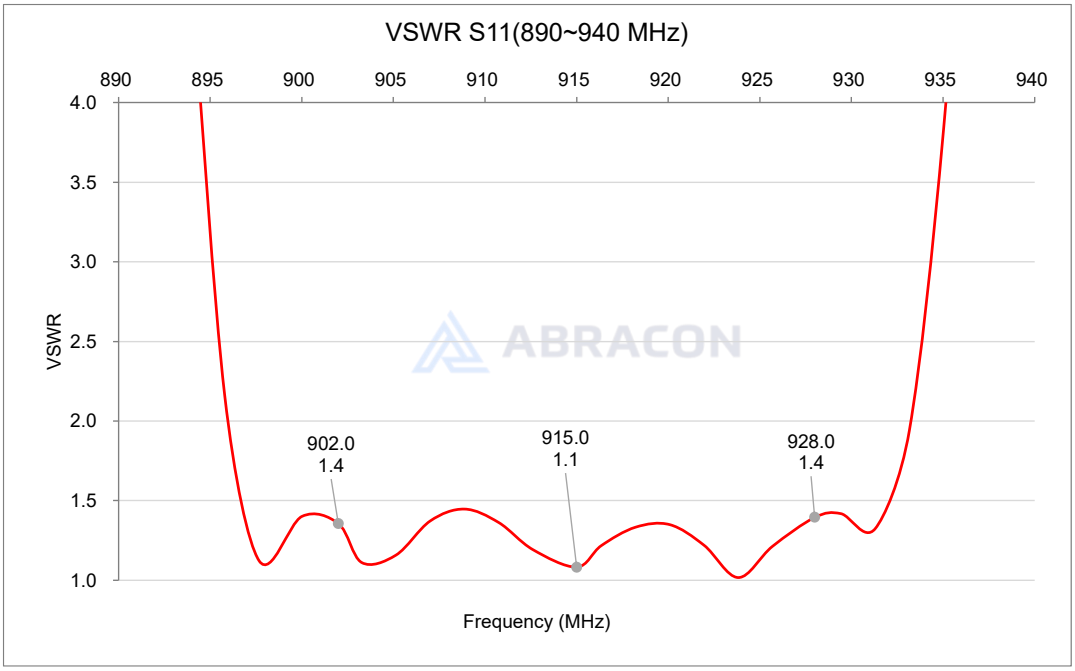
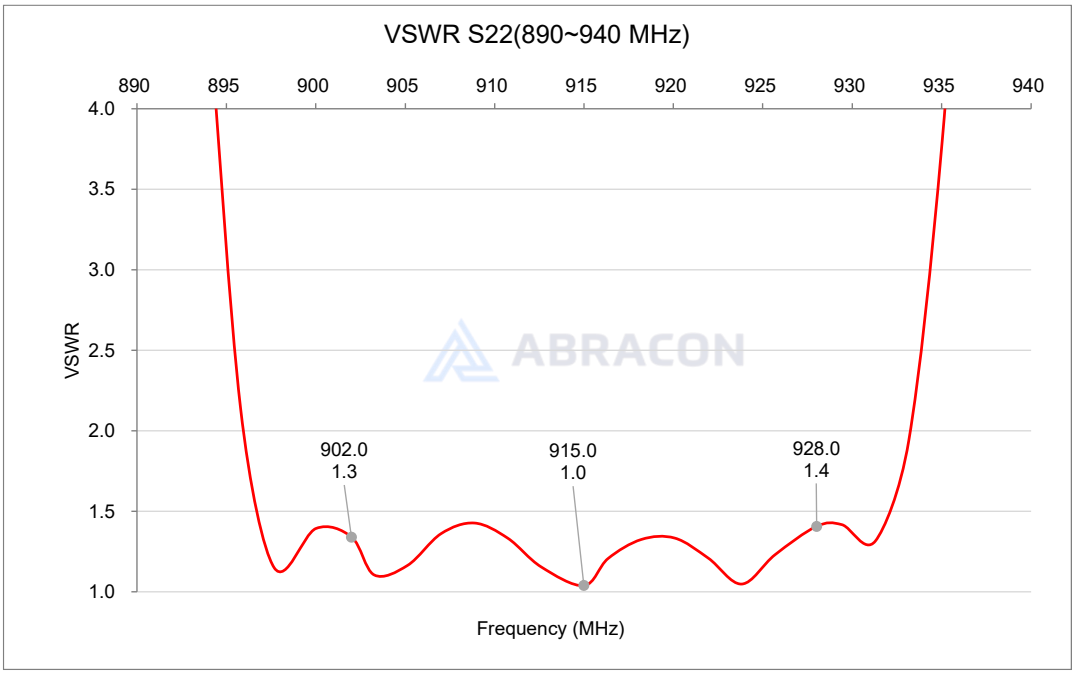
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)





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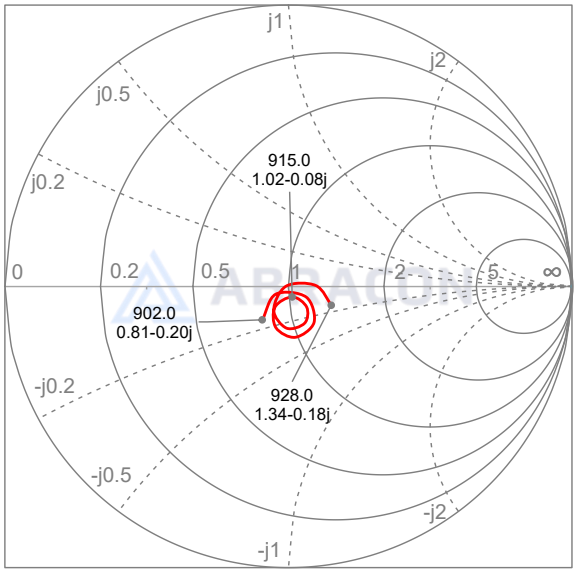
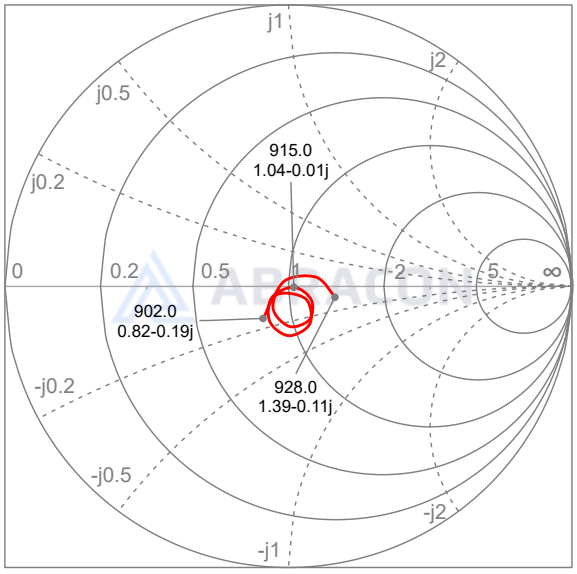
MSL Level = 3

Smith Chart (S11 & S22)

Smith chart S11 (902~928MHz)



Smith chart S22 (902~928MHz)



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Reflow Profile [JEDEC J-STD-020]

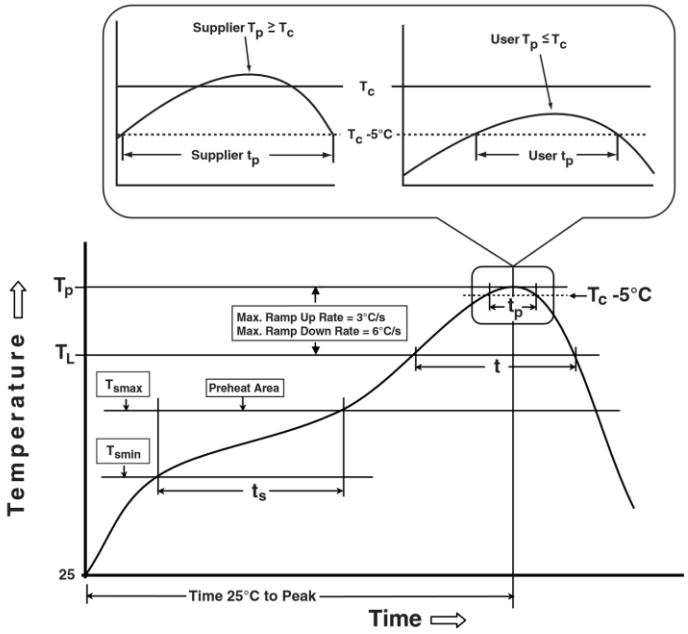

Table 1

SnPb Eutectic Process Classification Temperatures (T_c)		
Package Thickness	**Volume mm³ <350**	**Volume mm³ ≧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 mm³ <350**	**Volume mm³ 350-2000**	**Volume mm³ >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	180°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	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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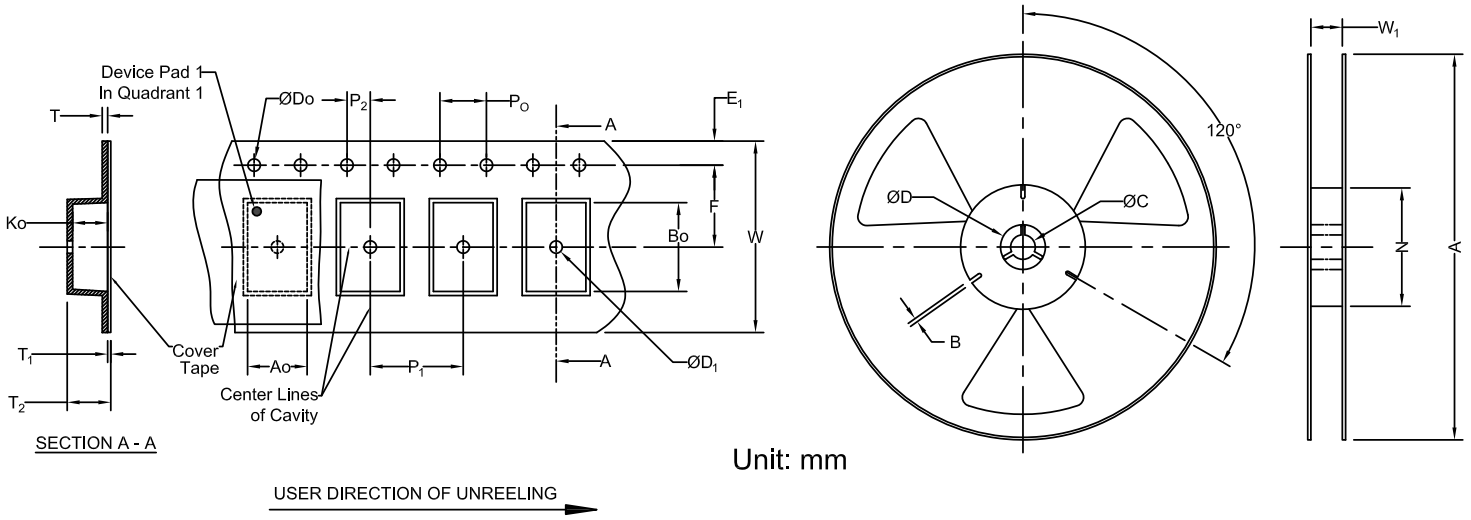
Packaging

Tape & Reel (5,000 pcs / reel)

1. Tape & Reel Dimension



Unit: mm

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	0.6 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	0.2 ± 0.03	3.5 ± 0.05	4.0 ± 0.1	8.0 ± 0.1	1.3 ± 0.05	1.6 ± 0.05	0.77 ± 0.05	5,000

Reel Specifications (mm)				
A	W_1	N	C	B
180.9 ± 0.15	8.48 ± 0.15	57.12 ± 0.15	13.12 ± 0.15	2.2 ± 0.2

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