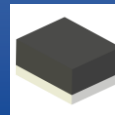


866.5 MHz SMD SAW Filter



AFII-SW-0092

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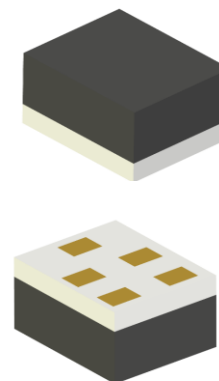
Check Inventory



1.4 x 1.1 x 0.6 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 7 MHz bandwidth, it delivers excellent out-of-band rejection greater than 20 dB to minimize interference, while maintaining a low 2.0 dB insertion loss for optimal signal strength. Housed in a compact 1.4 x 1.1 x 0.6 mm package and rated for +20 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: 7 MHz
- 1.4 x 1.1 x 0.6 mm in Size
- Insertion Loss: 2.0 dB
- Out-of-Band Rejection: > 20 dB
- Maximum Input Power: +20 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-0092	866.5 MHz SMD SAW Filter on Cut Tape
AFII-SW-0092-T	866.5 MHz SMD SAW Filter on Tape & Reel
AFII-SW-0092-EVB	866.5 MHz SMD SAW Filter Evaluation Board

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

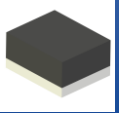


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1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	866.5	-	MHz	
Insertion Loss	-	2.0	3.0	dB	863 - 870 MHz
Amplitude Ripple	-	0.6	1.2	dB _{p-p}	863 - 870 MHz
Group Delay	-	47	170	ns	863 - 870 MHz
Group Delay Ripple	-	1.2	2.5	ns	863 - 870 MHz
Attenuation	35	45	-	dB	10 - 810 MHz
	35	42	-		810 - 830 MHz
	20	38	-		830 - 840 MHz
	15	20	-		840 - 850 MHz
	20	28	-		890 - 900 MHz
	25	45	-		900 - 1100 MHz
	30	36	-		1100 - 1800 MHz
	26	35	-		1800 - 2000 MHz
VSWR	-	1.8	2.0	-	863 - 870 MHz
DC Voltage	-	0	-	V	
Input Power	-	-	20	dBm	
Source Impedance (single ended) ⁽¹⁾	-	50	-	Ω	
Load Impedance (single ended) ⁽¹⁾	-	50	-	Ω	

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

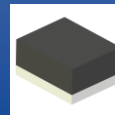


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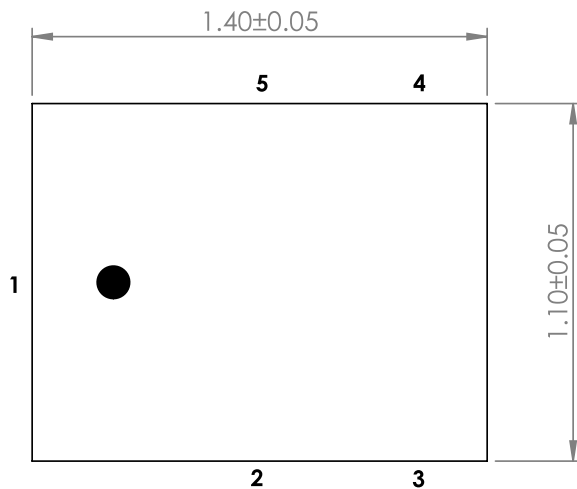


Check Inventory



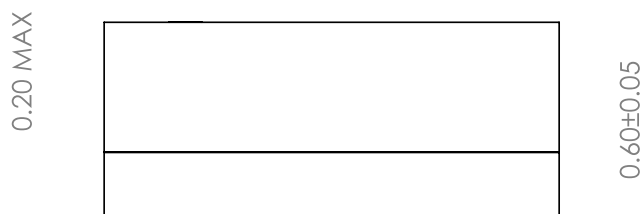
1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

Product Dimensions

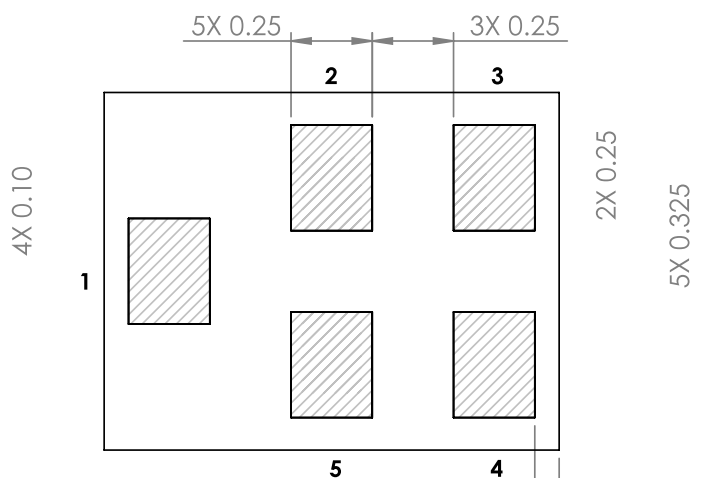


TOP VIEW

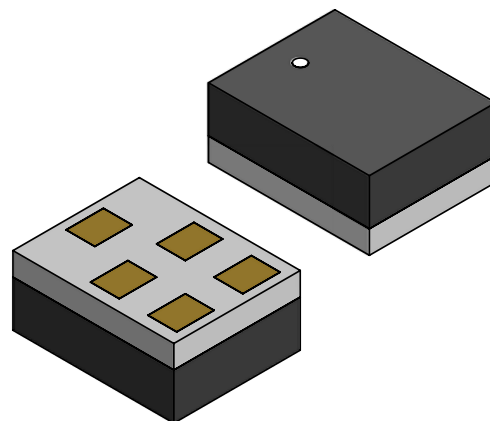
PIN #	FUNCTION
1	INPUT
2	GROUND
3	GROUND
4	OUTPUT
5	GROUND



FRONT VIEW



BOTTOM VIEW



Unit : mm

1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

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

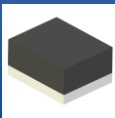


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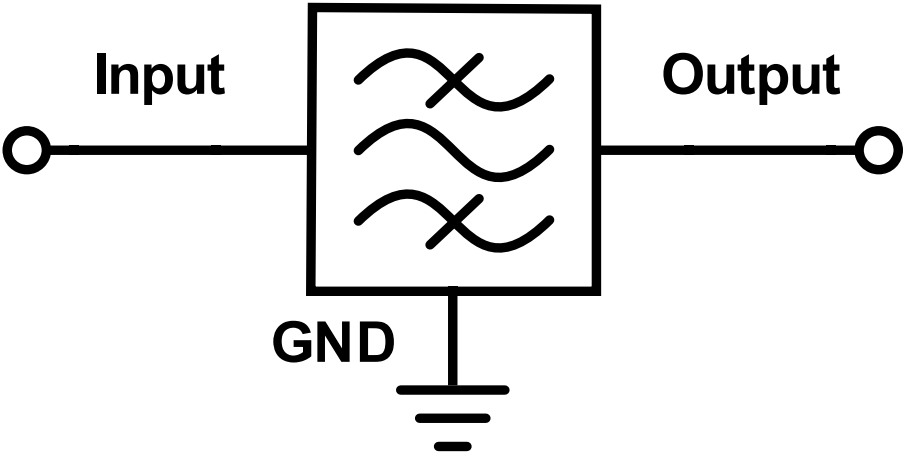


Check Inventory



1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

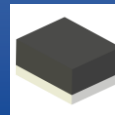
Measurement Circuit



Source & Load Impedance: 50 Ω

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

866.5 MHz SMD SAW Filter



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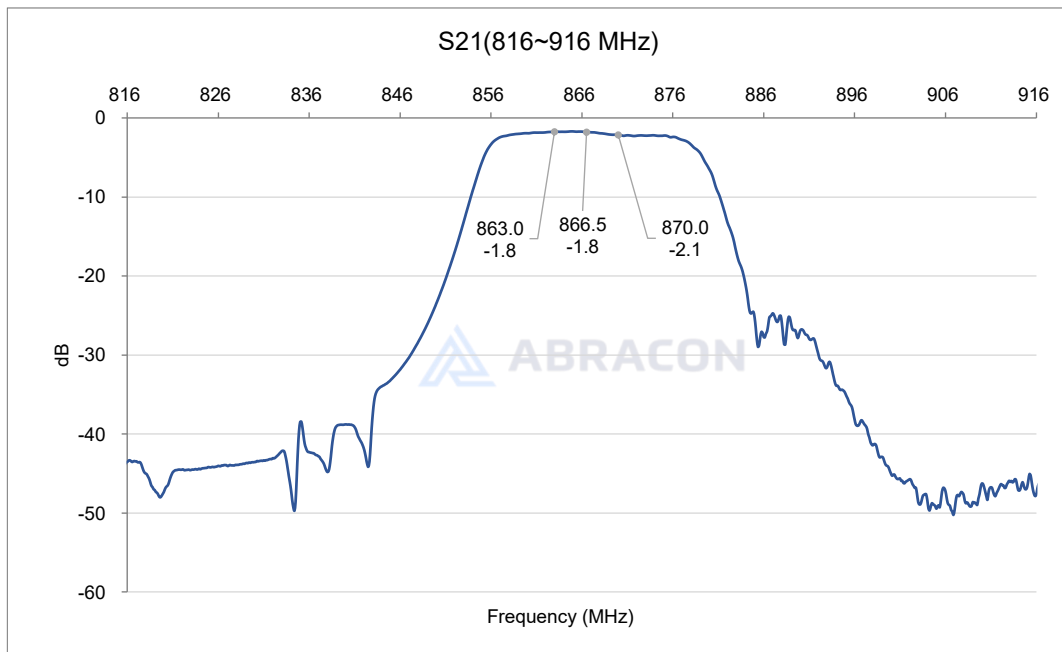
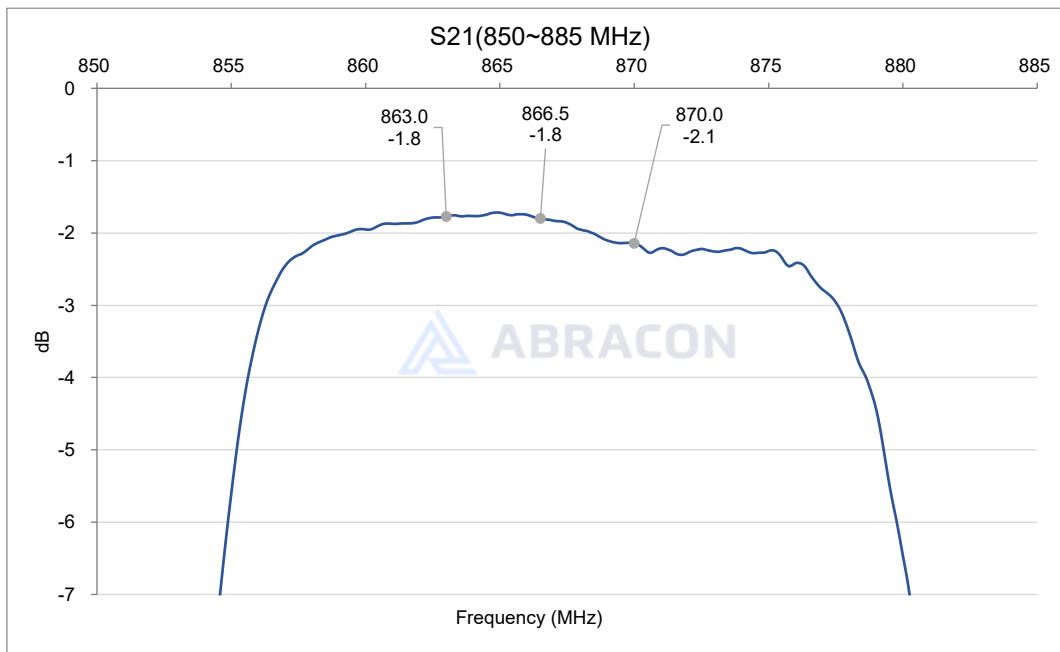
Check Inventory



1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 narrow band

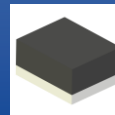


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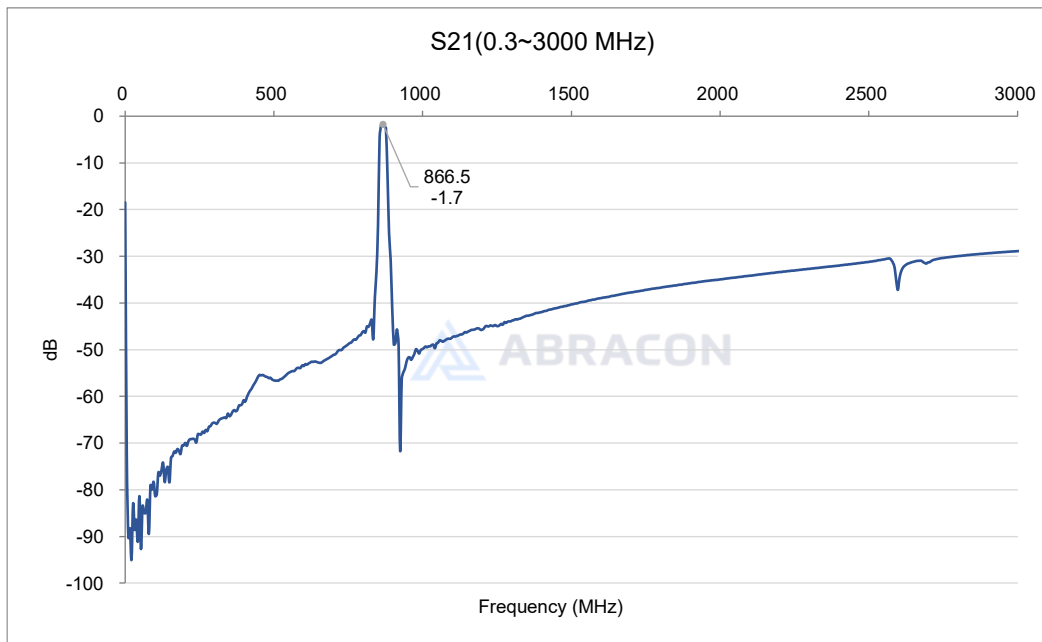


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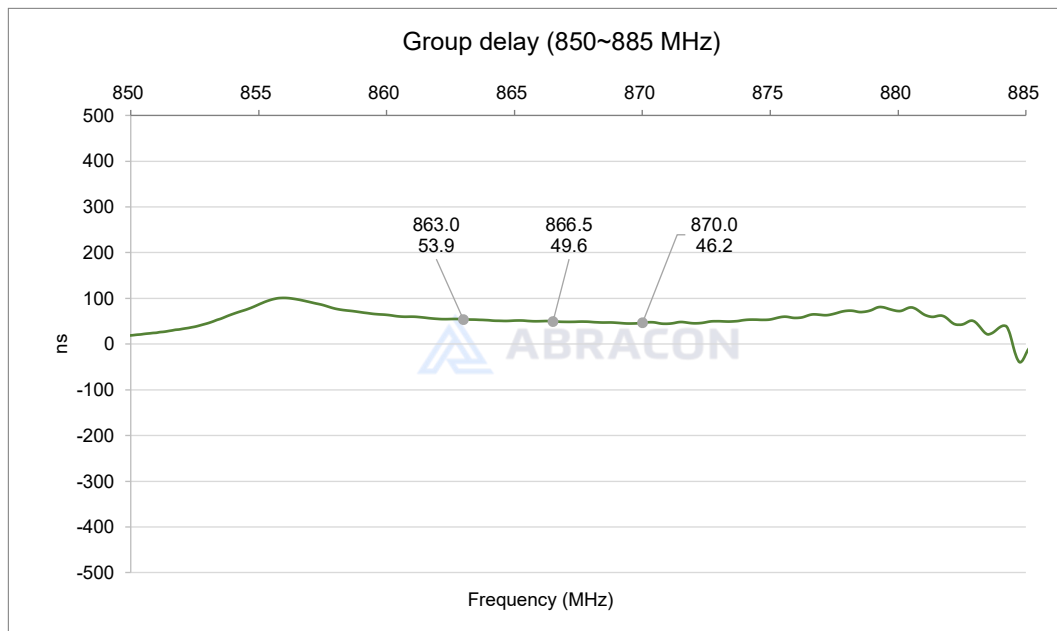


1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

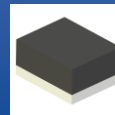
S21 wide band



Group Delay



866.5 MHz SMD SAW Filter



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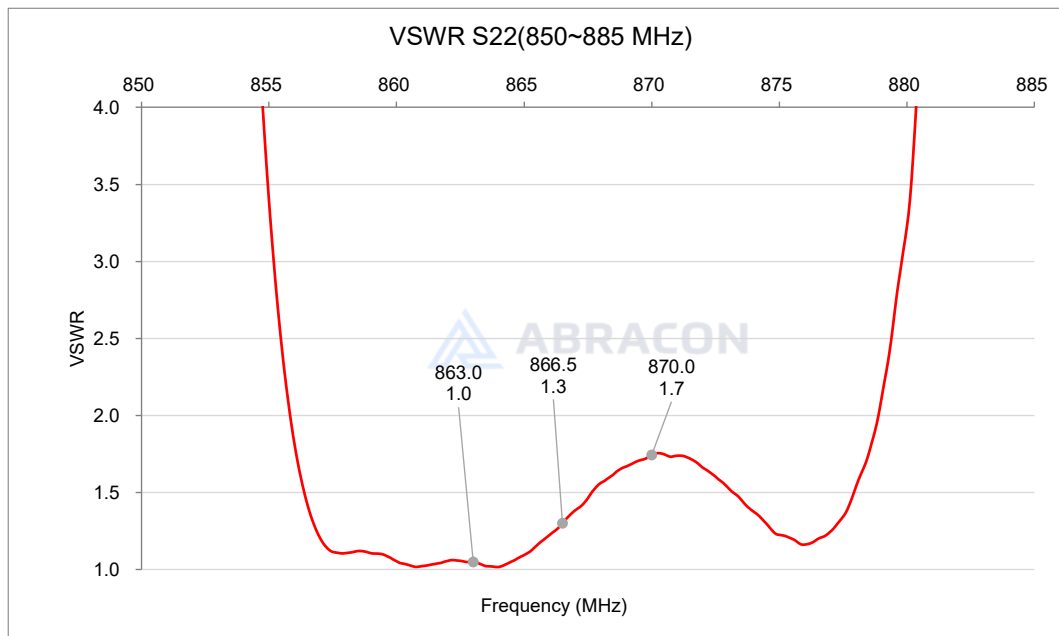
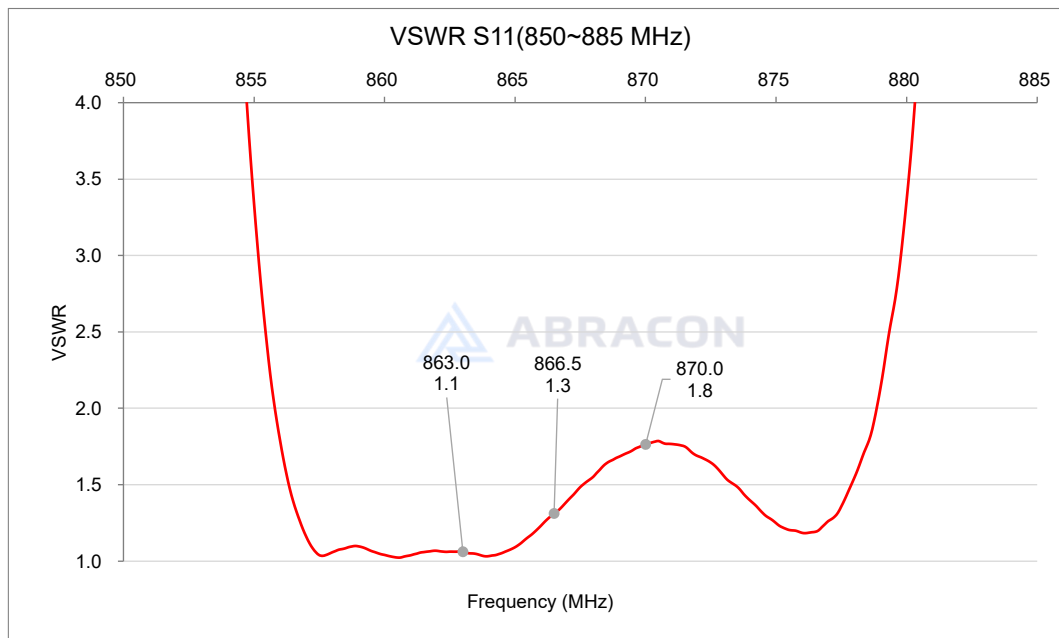


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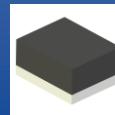


1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)



866.5 MHz SMD SAW Filter



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Request Samples



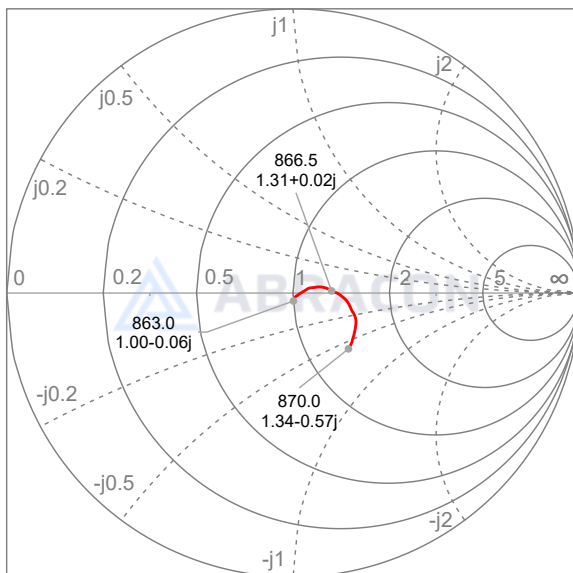
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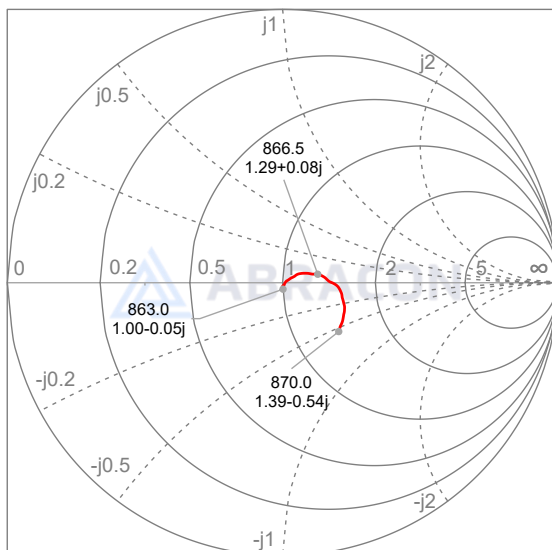
1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

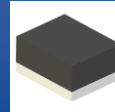
Smith chart S11 (863~870MHz)



Smith chart S22 (863~870MHz)



866.5 MHz SMD SAW Filter



AFII-SW-0092

Request Samples



Check Inventory



1.4 x 1.1 x 0.6 mm
RoHS Compliant
MSL Level = 3

Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

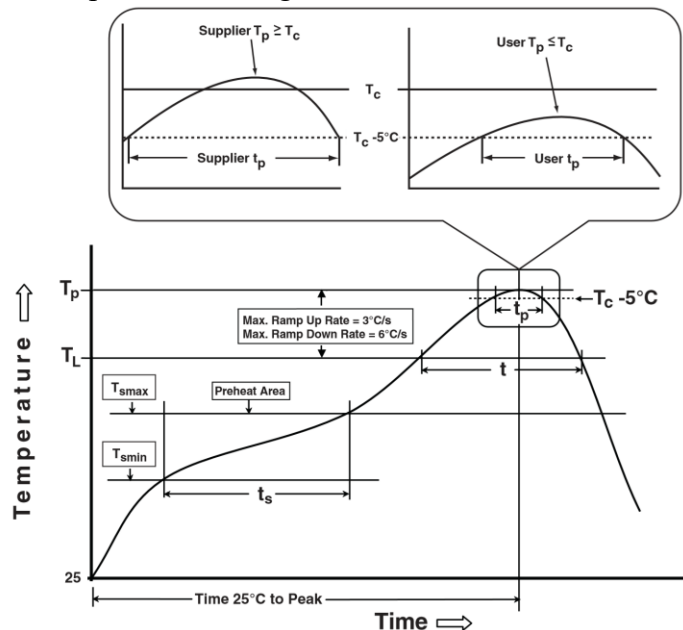


Table 1

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)

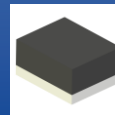
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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.

866.5 MHz SMD SAW Filter



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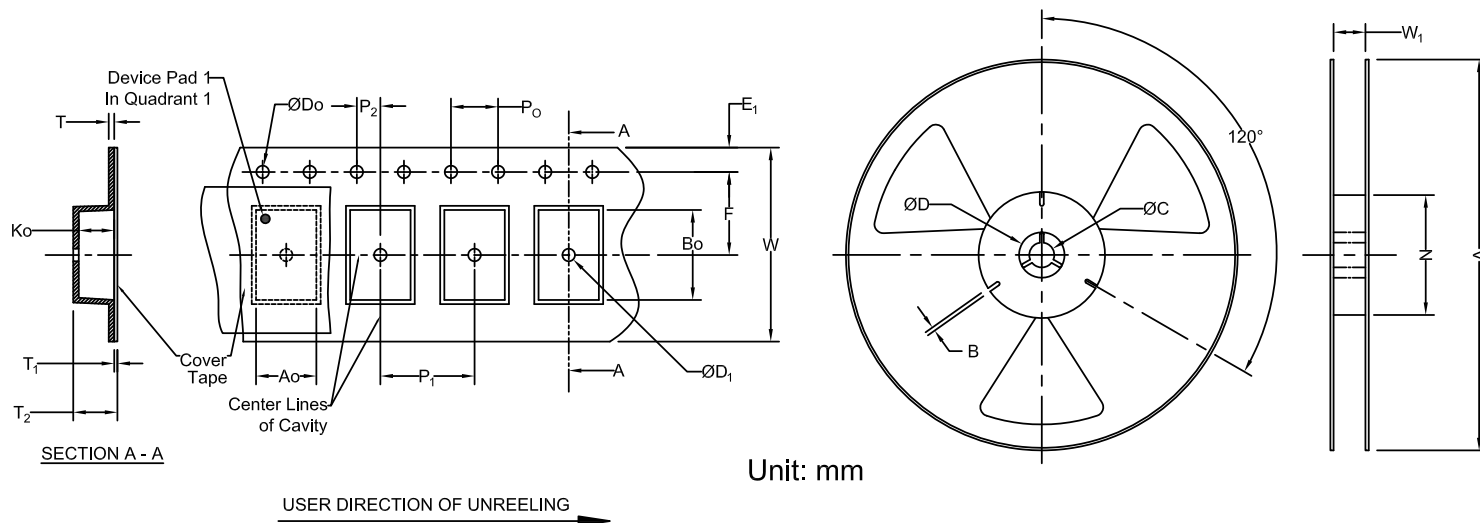
Check Inventory



1.4 x 1.1 x 0.6 mm
RoHS Compliant
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 ± 0.05	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	D	B
178.0 ± 1.0	8.4 ± 0.5	72.0 ± 1.0	13.0 ± 0.2	24.3 ± 0.5	2.5 ± 0.5

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