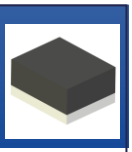
1176.5 MHz SMD SAW Filter



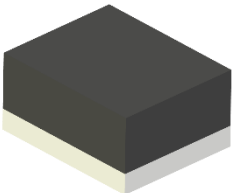
ABSTS5A2-210M011M

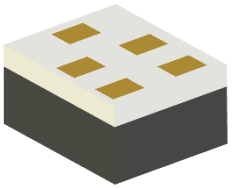
Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Description

Engineered for next-generation precision, this ultra-miniature RF filter is optimized for the GNSS L5 band. Its compact 1.1 x 0.9 x 0.5 mm package delivers exceptional performance with a 25 MHz bandwidth and a low insertion loss of 1.8 dB. Superior out-of-band rejection (>42 dB) and high-power handling (13 dBm) ensure robust signal integrity in challenging environments. Ideal for high-accuracy RTK systems, autonomous vehicles, and asset tracking, this component is RoHS compliant and rated MSL 2a for reliable manufacturing.





Features

- Support GNSS L5 Band
- Bandwidth 25 MHz
- 1.1 x 0.9 x 0.5 mm in Size
- Low Insertion Loss: 1.8 dB
- Out-of-Band Rejection: > 42 dB
- Maximum Input Power: 13 dBm
- RoHS Compliant | MSL Level 2a

Applications

- RF Modules
- RTK Systems
- Automotive Transportation & Telematics
- Asset Tracking / Fleet Management
- UAVs, Robotics & Autonomous Vehicles
- Micro-Mobility Solutions
- Precision Agriculture

Ordering Information

Part Number	Description
ABSTS5A2-210M011M	1176.5 MHz SMD SAW Filter on Tape & Reel
ABSTS5A2-210M011M-EVB	1176.5 MHz SMD SAW Filter Evaluation Board

Note: Other options not listed may be available upon request via Abracon online support

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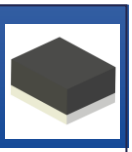

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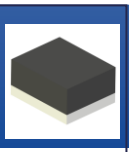
1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	1176.5	-	MHz	-
VSWR (1)	-	1.8	2.1	-	1164 ~ 1189MHz
Insertion Loss (1)	-	1.8	2.4	dB	1164 ~ 1189MHz
Amplitude Ripple (1)	-	0.5	1.3	dB	1164 ~ 1189MHz
Attenuation (1) (Reference level from 0 dB)	53	63	-	dB	100 ~ 814 MHz
	53	62	-		814 ~ 849 MHz
	51	57	-		849 ~ 980 MHz
	51	56	-		980 ~ 1010 MHz
	50	54	-		1010 ~ 1100 MHz
	40	46	-		1100 ~ 1130 MHz
	25	50	-		1250 ~ 1427 MHz
	45	50	-		1427 ~ 1463 MHz
	40	45	-		1710 ~ 2025 MHz
	38	42	-		2300 ~ 2690 MHz
	37	42	-		2690 ~ 3000 MHz
Group Delay (1)	-	27	33	ns	1164 ~ 1189MHz
Group Delay Ripple (1)	-	7	13	ns	1164 ~ 1189MHz
Source Impedance (2) (single ended)	-	50	-	Ω	-
Load Impedance (2) (single ended)	-	50	-	Ω	-
Input Power Level	-	13	-	dBm	-
DC Voltage	-	3	-	V	-
Temperature Coefficient	-	-36	-	ppm/K	-

Notes: (1) Averaged values of linear S-Parameters at +25ºC
(2) A matching network is unecessary (refer to the Measurement Circuits section)

1176.5 MHz SMD SAW Filter



ABSTS5A2-210M011M

Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Mechanical Specification

Parameters	Specifications
Filter Dimension	1.1 x 0.9 x 0.5 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-20°C to +85°C
Storage Temperature Range	-40°C to +85°C
MSL level	2a
ESD	50V (MM), 100V (HBM)
RoHS/ RoHS II Compliant	Yes

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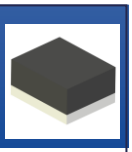

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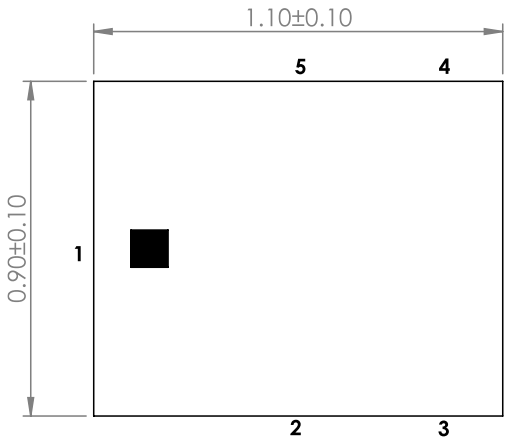
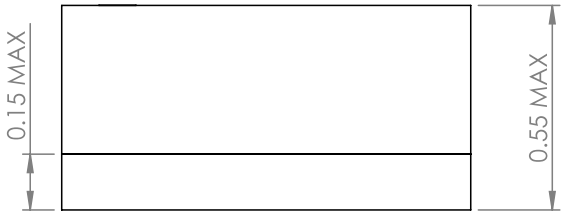
RoHS/RoHS II Compliant
MSL Level = 2a

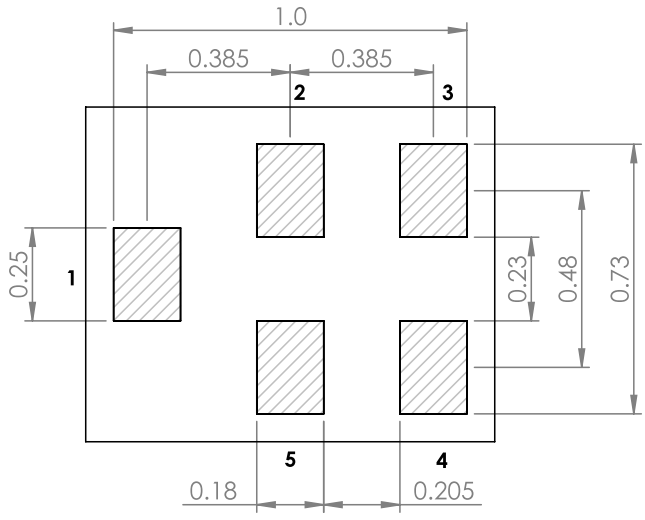
Package Dimensions



TOP VIEW

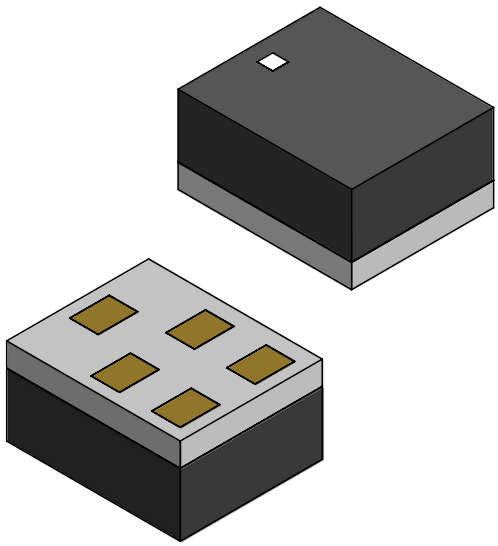


FRONT VIEW



BOTTOM VIEW

PIN #	SYMBOL	FUNCTION
1	IN	INPUT
2	GND	GROUND
3	GND	GROUND
4	OUT	OUTPUT
5	GND	GROUND



Unit: mm

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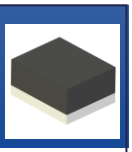
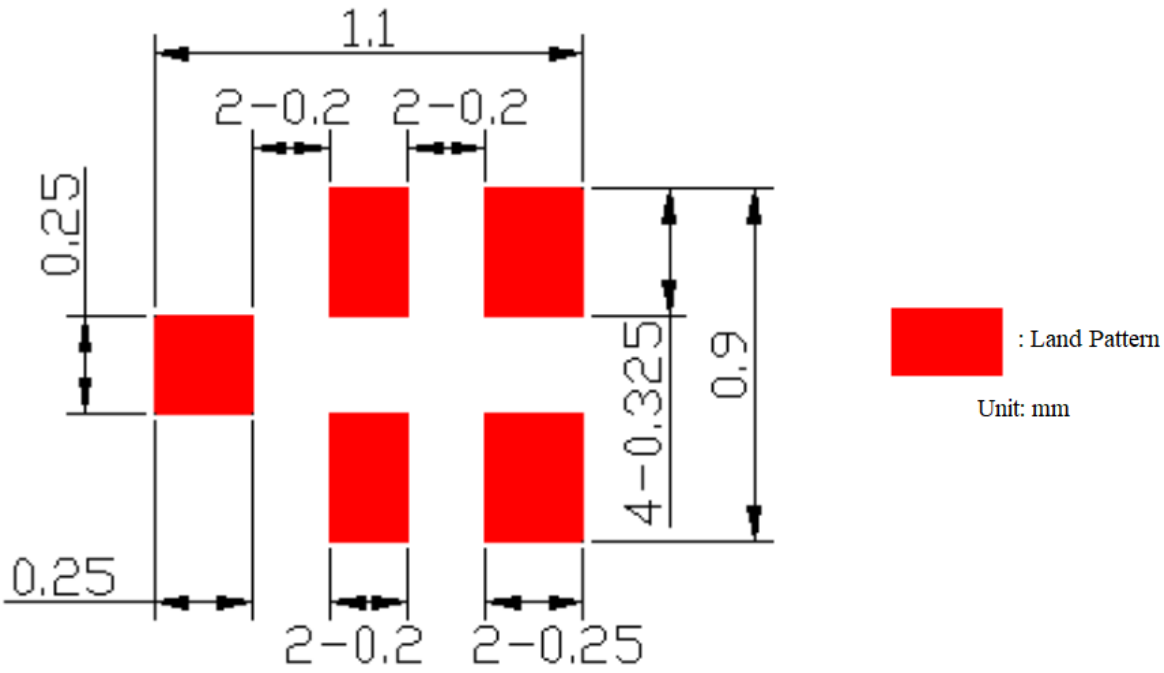


ABSTS5A2-210M011M

Request Samples Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Land Pattern



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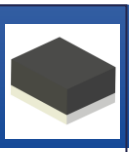

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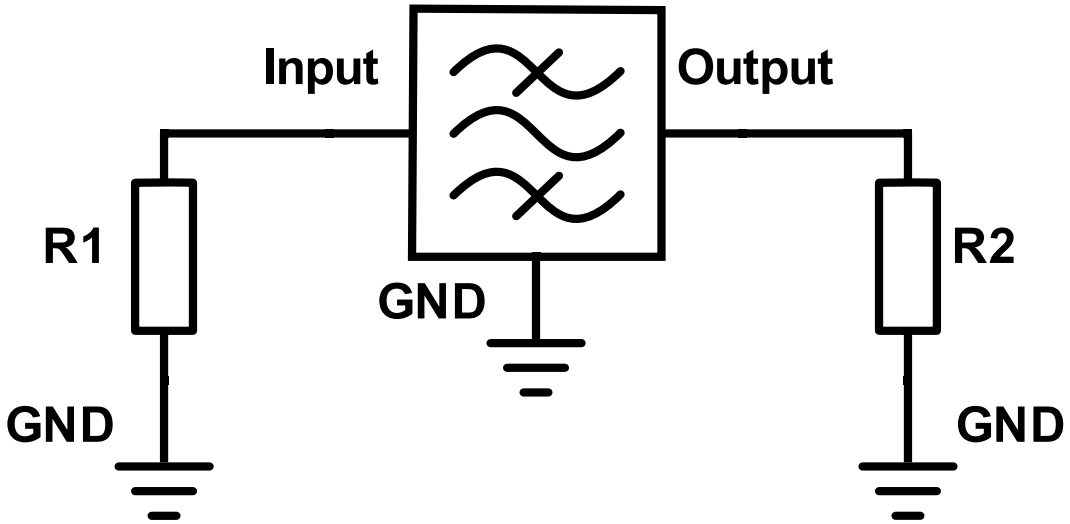
Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Measurement Circuit



Port	Matching Component
Input (Pin 1)	R1: 50 Ω
Output (Pin 4)	R2: 50 Ω

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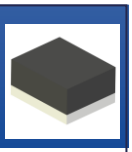

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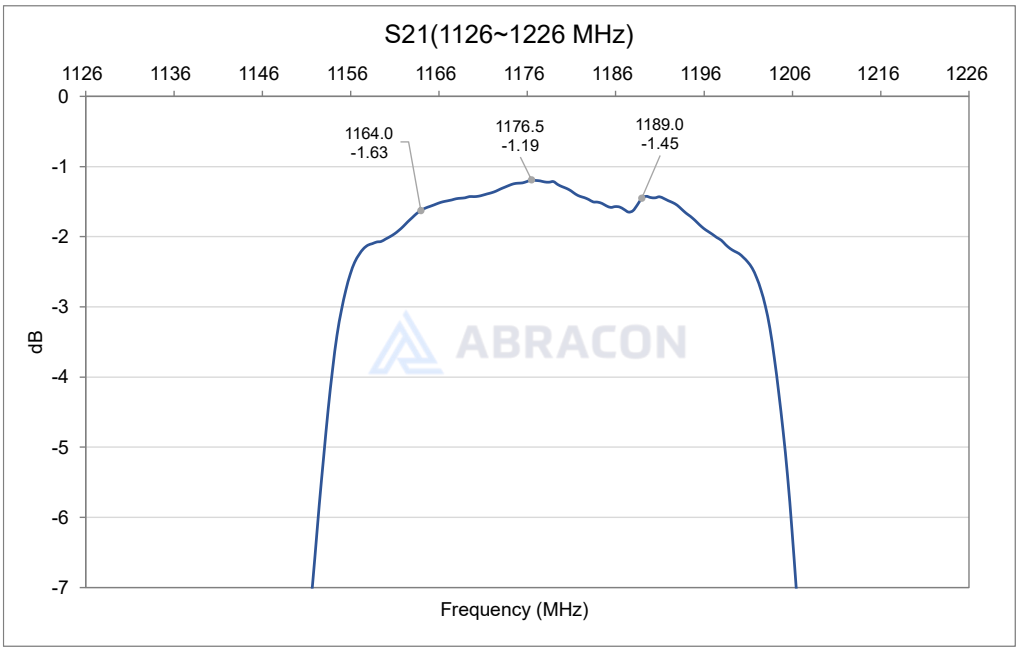
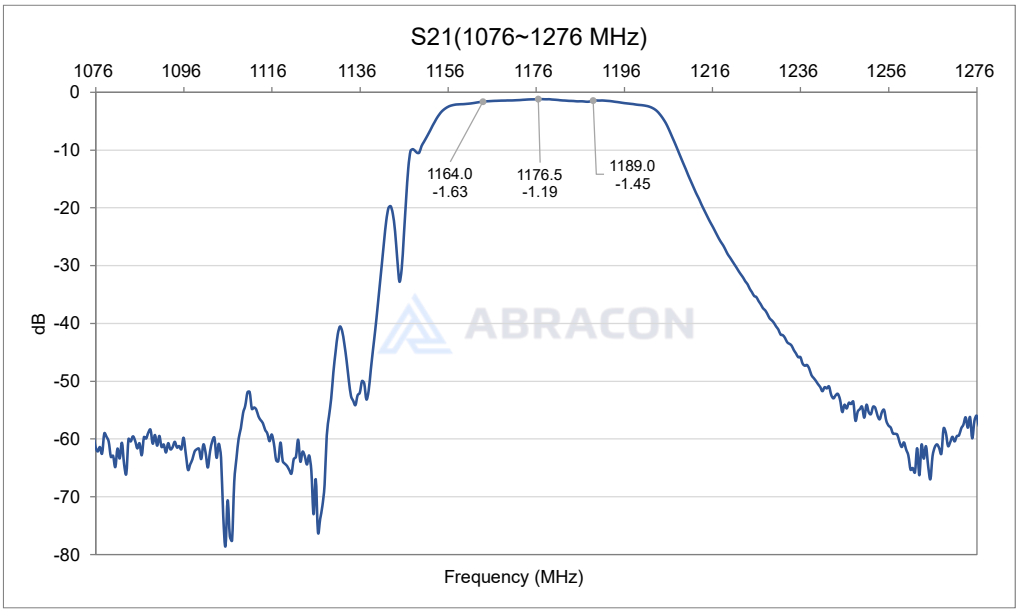
Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

Frequency Characteristics

S21 narrow band





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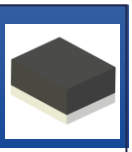

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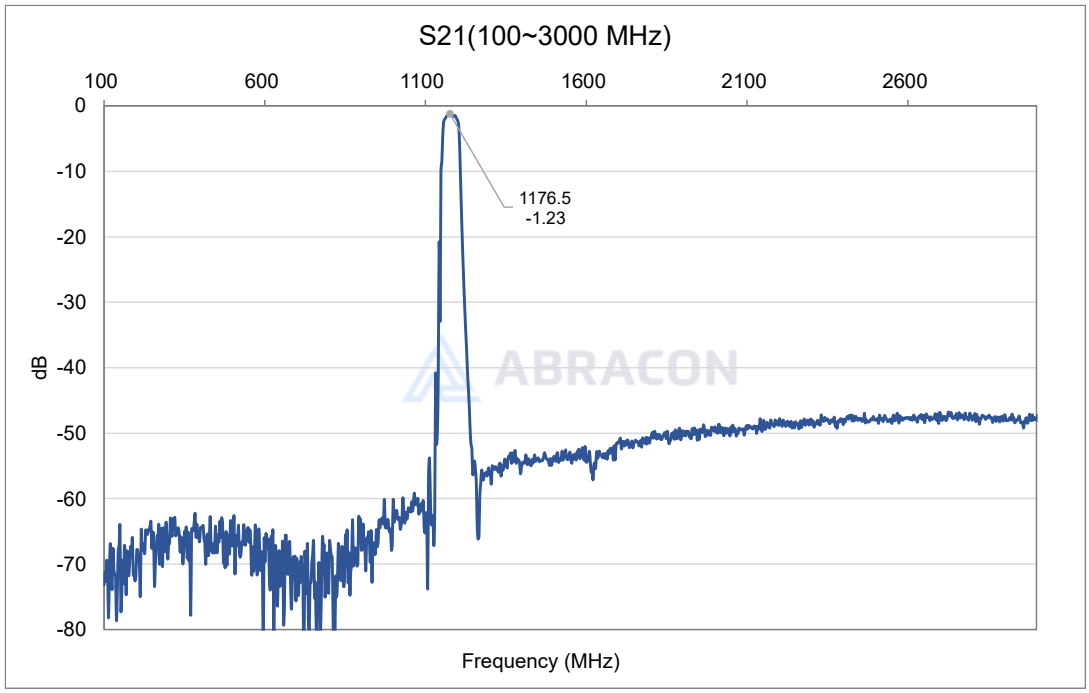
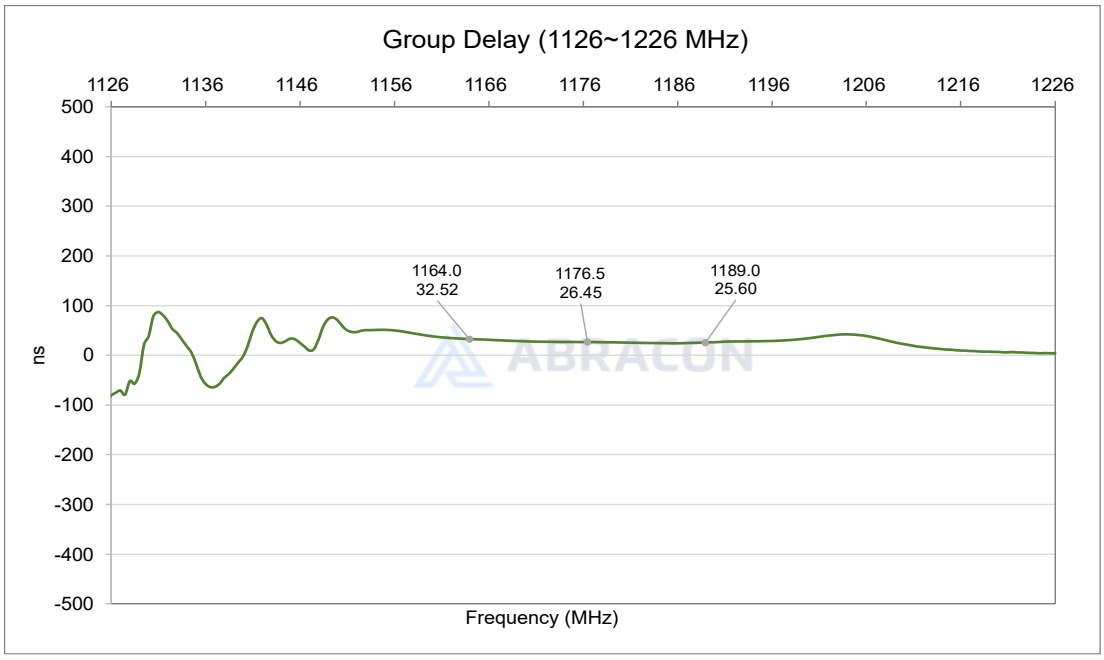
Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

S21 Wide Band



Group Delay



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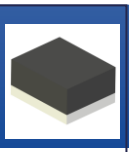

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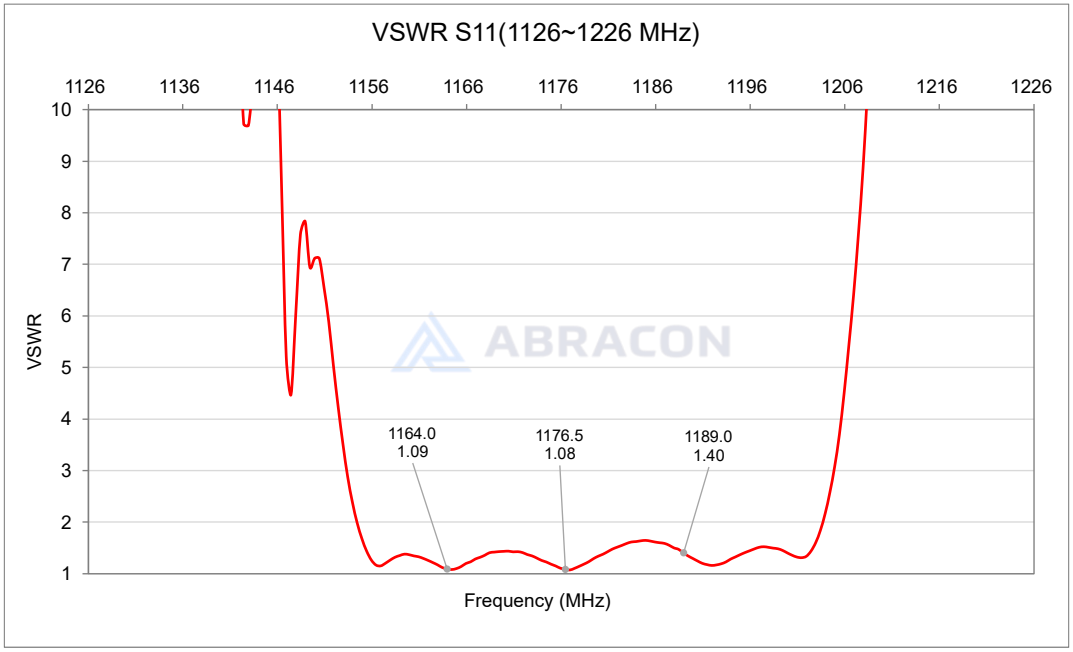
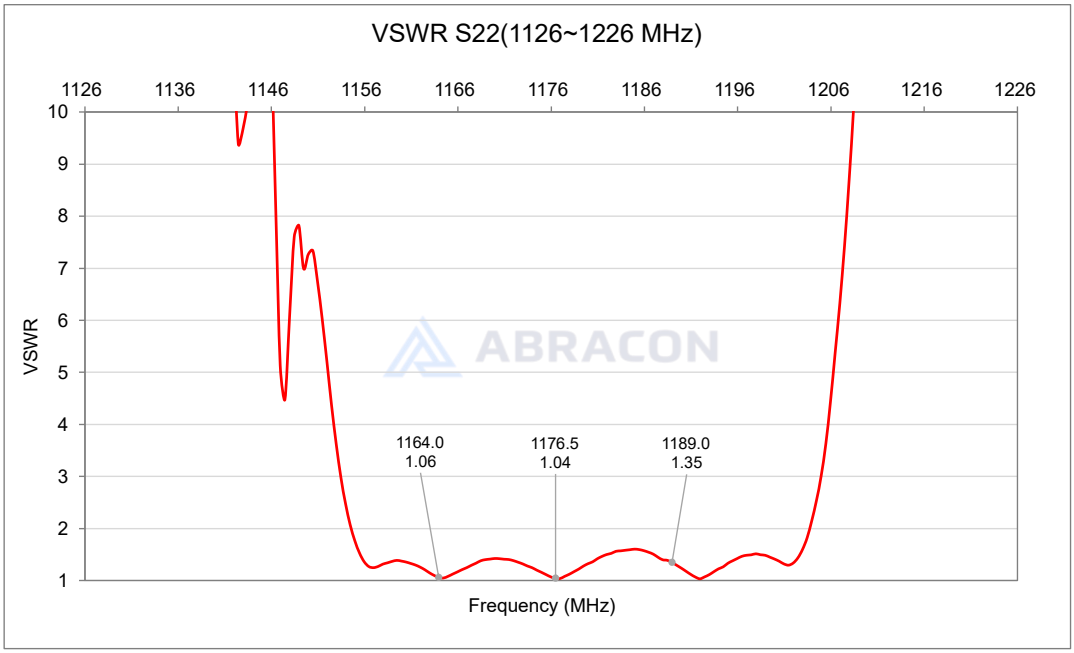
Request Samples | Check Inventory

1.1 x 0.9 x 0.5 mm
RoHS/RoHS II Compliant
MSL Level = 2a

VSWR (S11 & S22)





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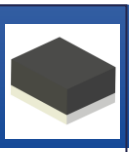

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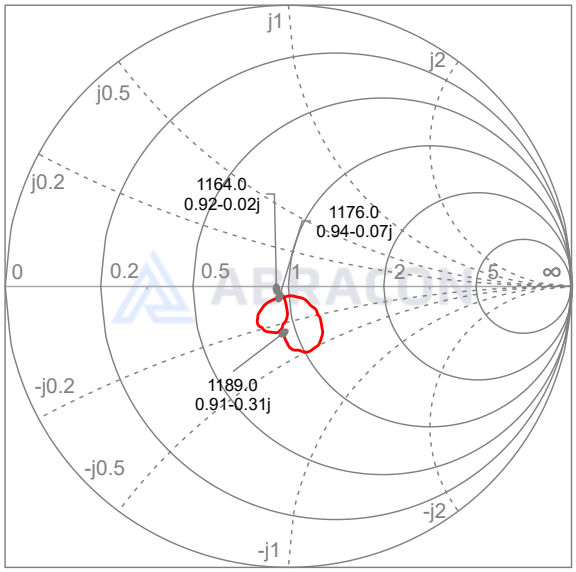
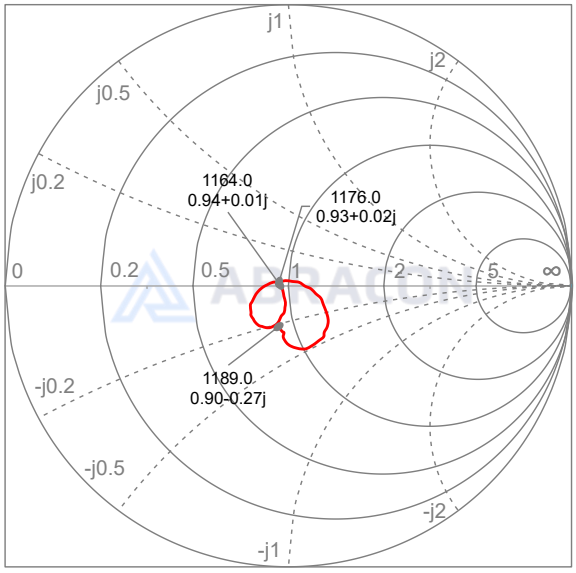
RoHS/RoHS II Compliant
MSL Level = 2a

Smith Chart (S11 & S22)

Smith chart S11 (1164~1189MHz)



Smith chart S22 (1164~1189MHz)



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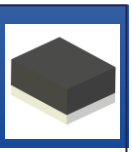

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RoHS/RoHS II Compliant
MSL Level = 2a

Reflow Profile [JEDEC J-STD-020]

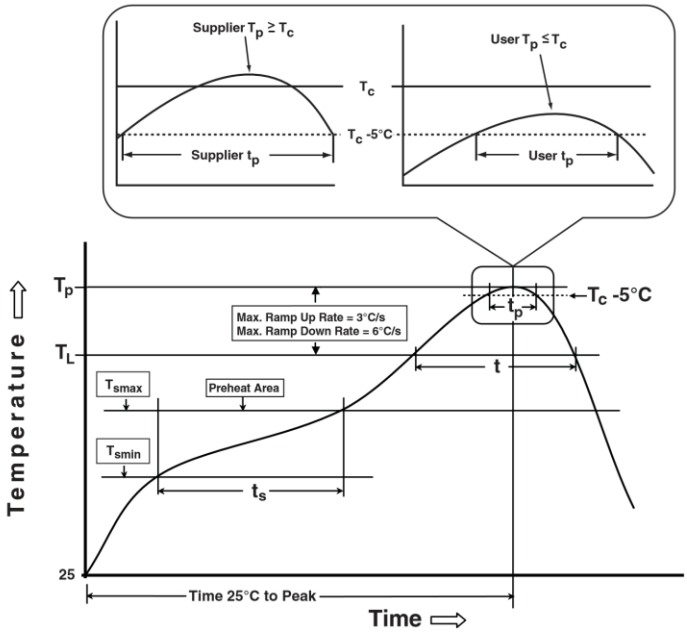

Table 1

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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