SMD 1202/1582.5 MHz Dual-SAW Filter



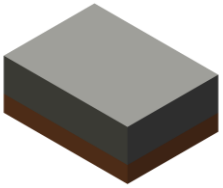
AFII-SW-0075-Q

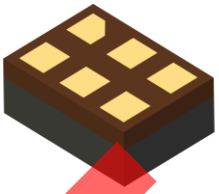
Request Samples | Check Inventory

1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Description

Designed for mission-critical automotive and industrial applications, this AEC-Q200 qualified filter utilizes advanced Dual-SAW technology to support multi-band GNSS operations across L1, L2, and L5 frequencies. Housed in a compact 1.5 x 1.1 x 0.7 mm package, it provides robust performance with > 28 dB out-of-band rejection. Its high reliability and MSL Level 1 rating make it the ideal choice for RTK systems, autonomous vehicles, and precision agriculture equipment requiring unwavering accuracy in harsh environments.





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Features

- AEC-Q200 Qualified
- Dual-SAW Technology
- Supports GNSS L1 / L2 / L5 Band
- 1.5 x 1.1 x 0.7 mm in Size
- Out-of-Band Rejection: > 28 dB
- Maximum Input Power: 10dBm
- RoHS Compliant | MSL Level 1

Applications

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

Ordering Information

Part Number	Description
AFII-SW-0075-Q	SMD 1202/1582.5 MHz Dual-SAW Filter on Cut Tape
AFII-SW-0075-Q-T	SMD 1202/1582.5 MHz Dual-SAW Filter on Tape & Reel
AFII-SW-0075-Q-EVB	SMD 1202/1582.5 MHz Dual-SAW Filter Evaluation Board

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

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RoHS Compliant
MSL Level = 1

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (f_c)	-	1582.5	-	MHz	L1 Band
VSWR (1)	-	1.9	2.3	-	1559 – 1606 MHz
Insertion Loss (1)	-	2.7	3.5	dB	1559 – 1606 MHz
Amplitude Ripple (1)	-	1.0	1.5	dB	1559 – 1606 MHz
Group Delay (1)	-	9	20	ns	1559 – 1606 MHz
Center Frequency (f_c)	-	1202	-	MHz	L2 / L5 Band
VSWR (1)	-	1.7	2.3	dB	1166– 1238 MHz
Insertion Loss (1)	-	1.8	3	dB	1166– 1238 MHz
Amplitude Ripple (1)	-	1.0	1.5	dB	1166– 1238 MHz
Group Delay (1)	-	11	25	ns	1166– 1238 MHz
Attenuation (1) (Reference level from 0 dB)	30	36	-	dB	100 - 1106 MHz
	20	31	-	dB	1106 - 1136 MHz
	25	28	-	dB	1268- 1510 MHz
	28	33	-	dB	1710- 2000 MHz
	25	30	-	dB	2000- 3000 MHz
Input Power Level	-	-	10	dBm	-
DC Voltage (V)	-	-	3	V	-
Temperature Coefficient of Frequency	-	-36	-	ppm/°C	-

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

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Mechanical Specification

Parameters	Specifications
Filter Dimension	1.5 x 1.1 x 0.7 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40ºC ~ +105ºC
Storage Temperature Range	-40ºC ~ +105ºC
ESD	50V(MM), 100V(HBM)
MSL level	1
RoHS Compliant	Yes

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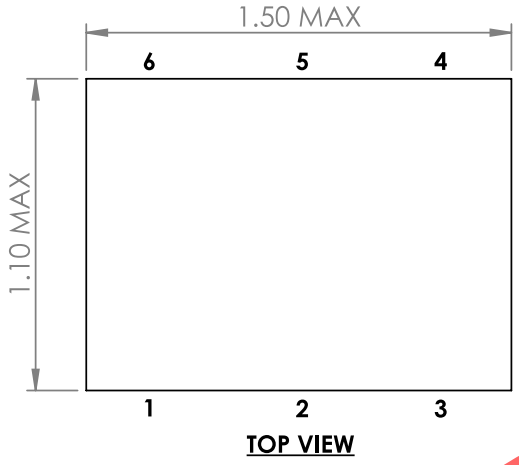
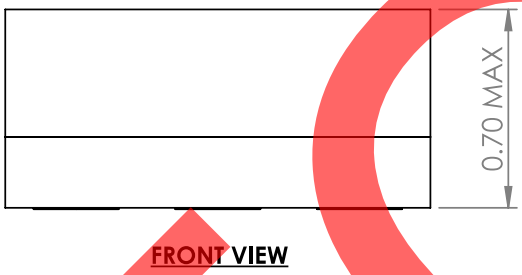
RoHS Compliant
MSL Level = 1

Product Dimensions

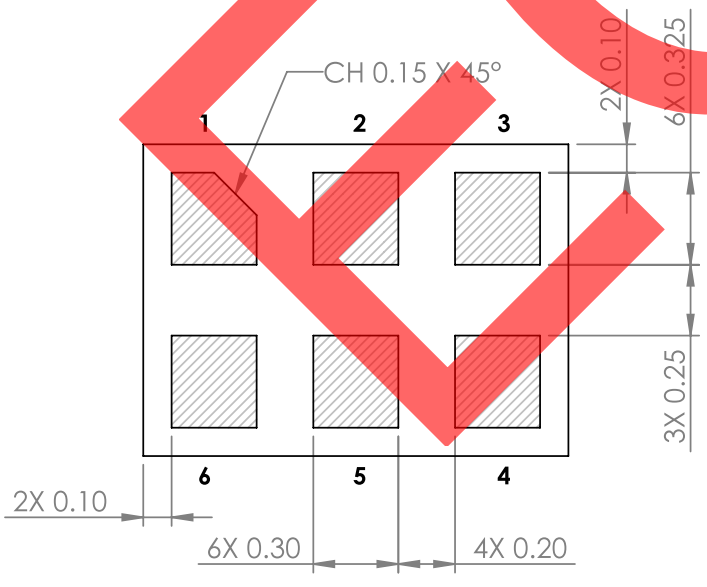


TOP VIEW

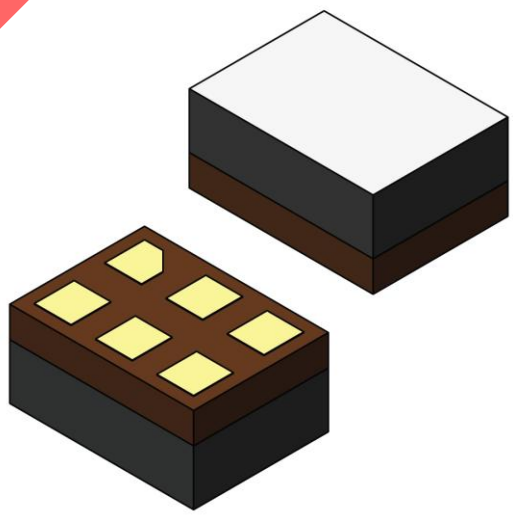
PIN #	FUNCTION
1	GROUND
2	INPUT
3	GROUND
4	GROUND
5	OUTPUT
6	GROUND



FRONT VIEW



BOTTOM VIEW



Unit : mm

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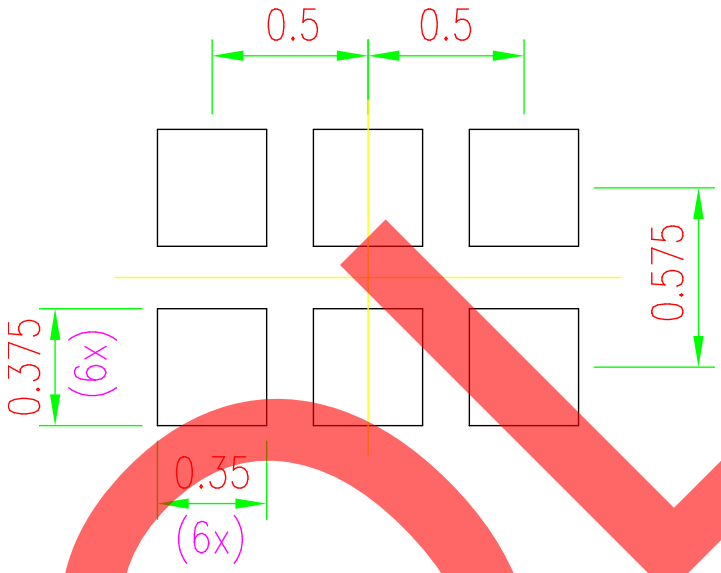
RoHS Compliant
MSL Level = 1

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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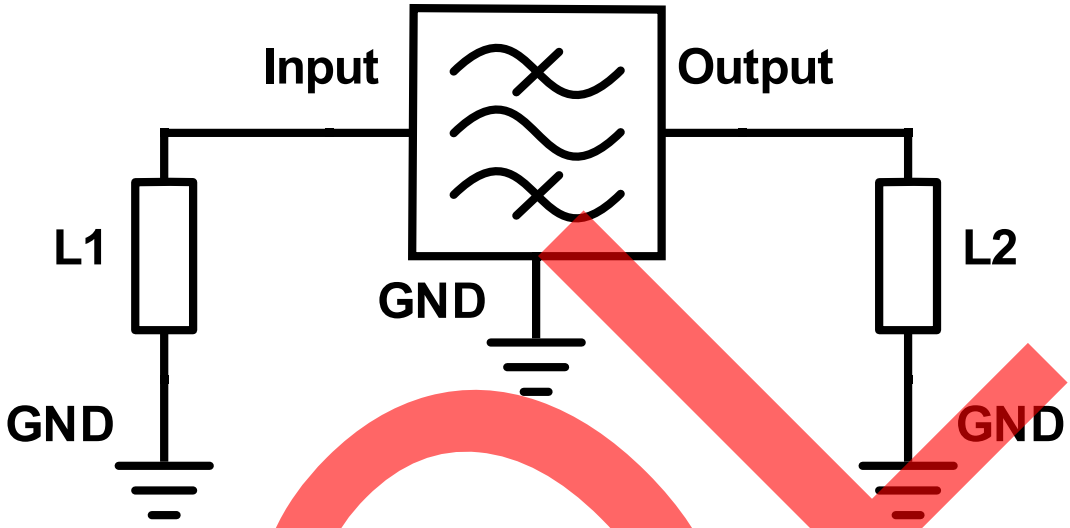
RoHS Compliant
MSL Level = 1

Measurement Circuit



Port	Matching Component
Input (Pin 2)	L1: 4.2 nH
Output (Pin 5)	L2: 4.2 nH

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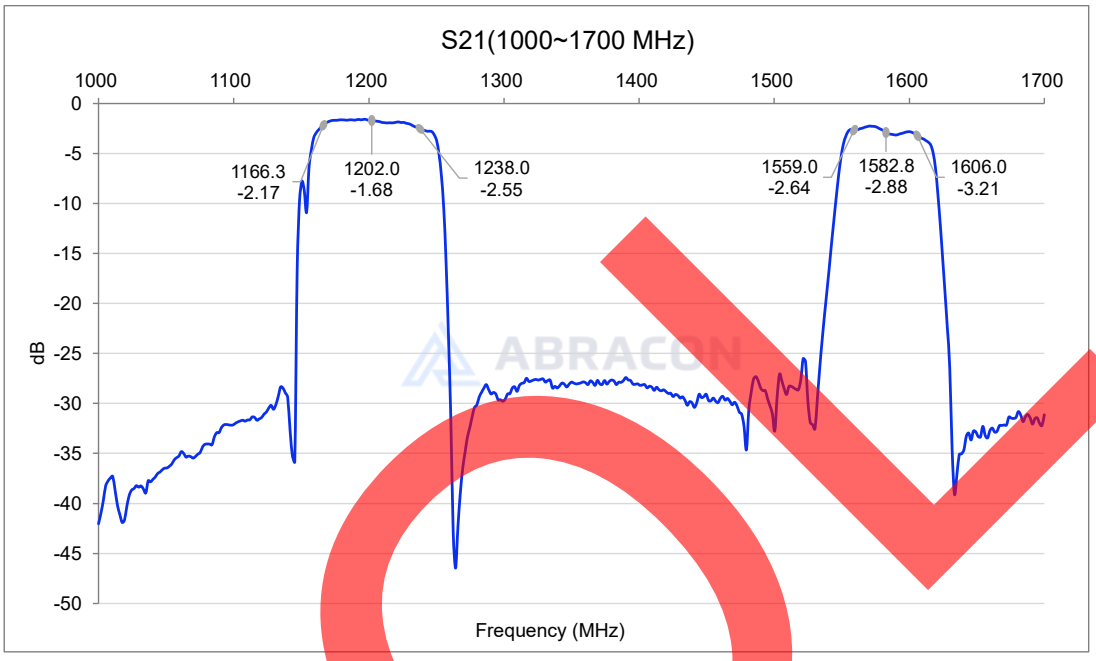
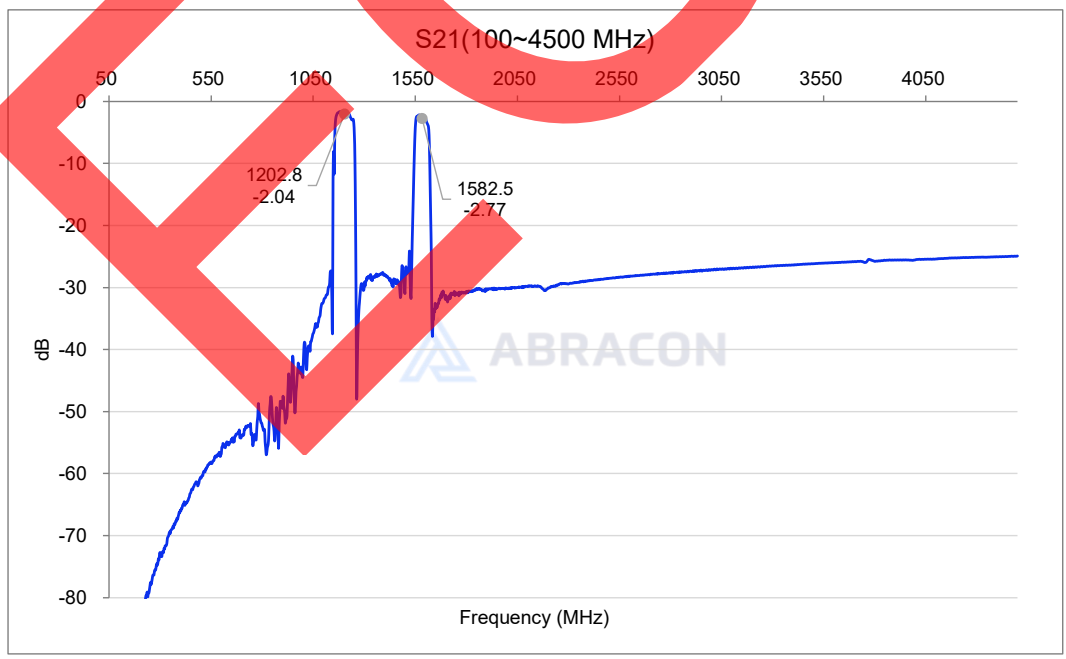
1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Frequency Characteristics

S21 narrow band



S21 wide band



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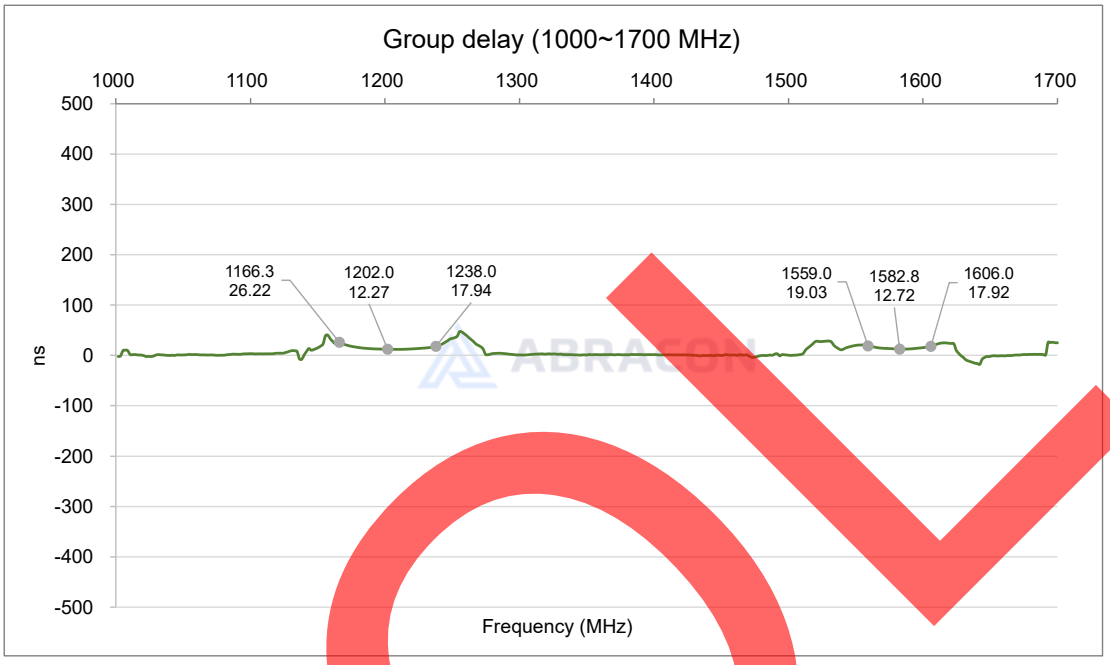
RoHS Compliant
MSL Level = 1

Group Delay Ripple



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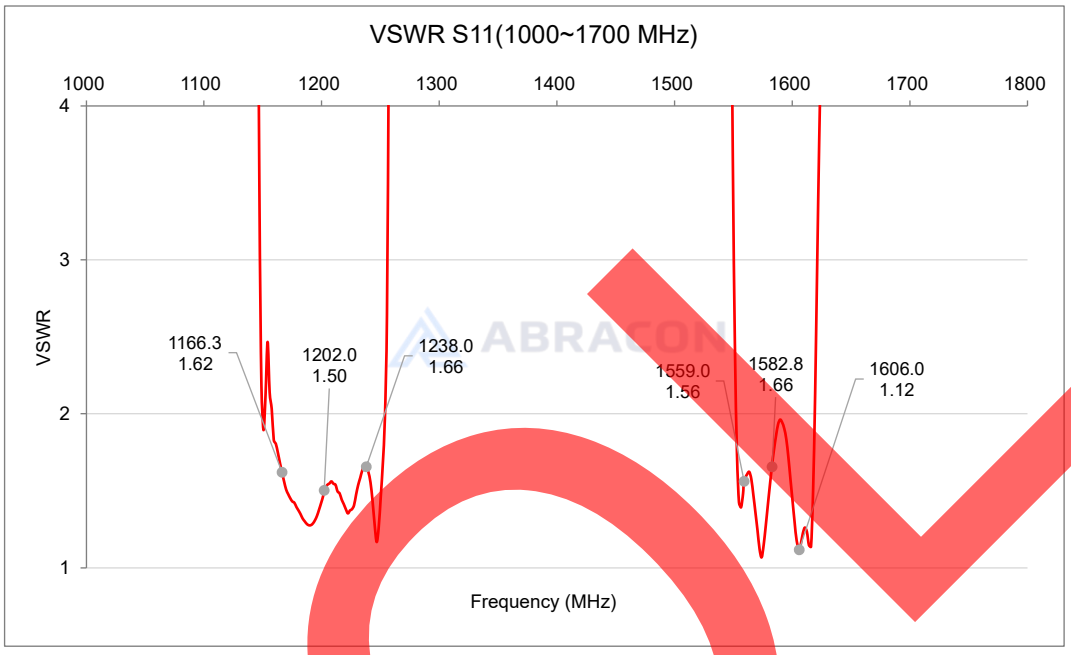
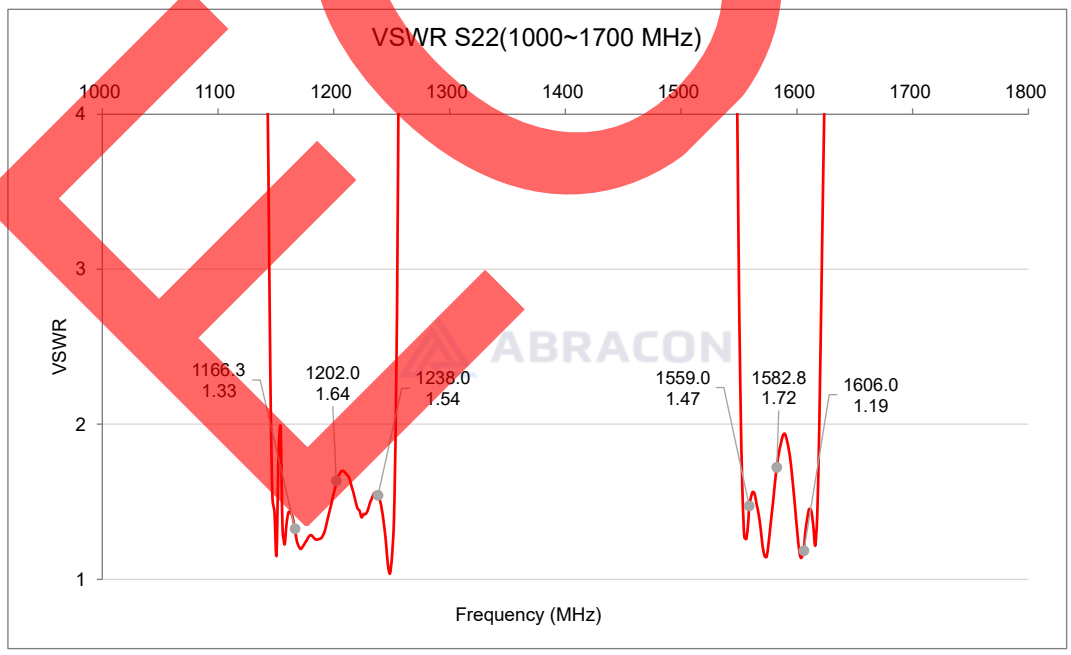
MSL Level = 1

VSWR (S11 & S22)





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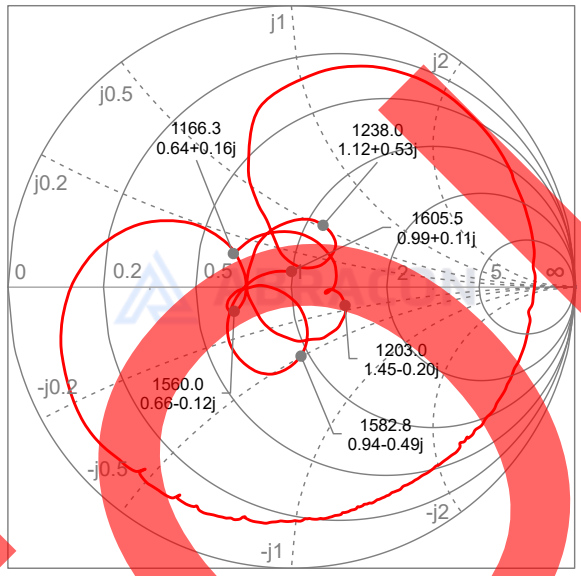
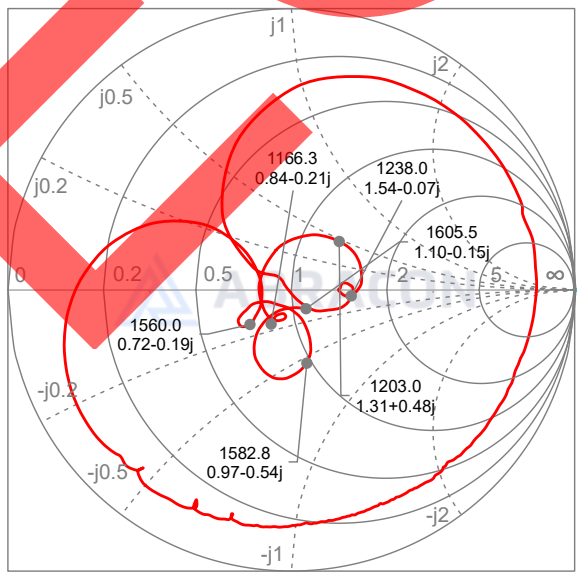
MSL Level = 1

Smith Chart (S11 & S22)

Smith chart S11 (1166~1606MHz)



Smith chart S22 (1166~1606MHz)



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Reflow Profile [JEDEC J-STD-020]

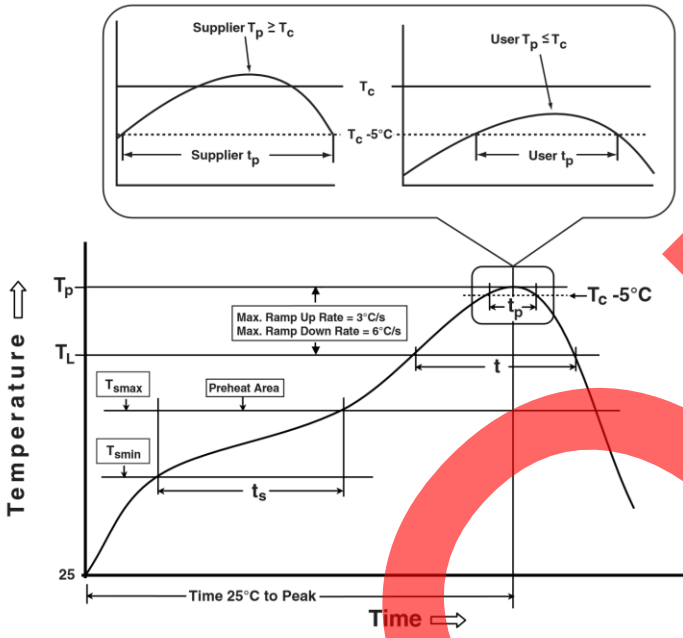

Table 1

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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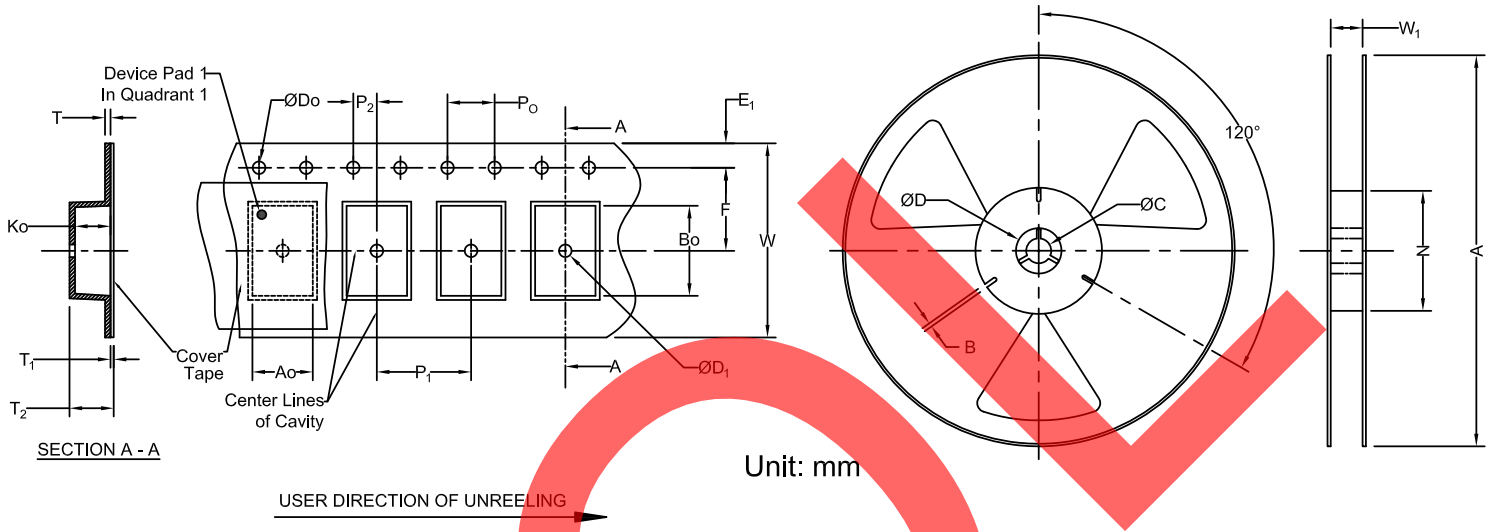
Packaging

Tape & Reel Dimension



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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	2.5

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