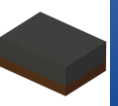


SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

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

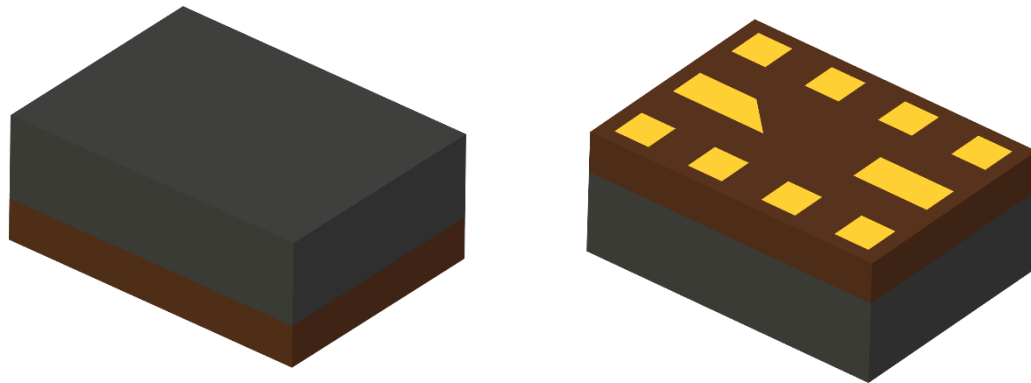
Features

- AEC-Q200 GNSS L1/ L5 Dual SAW Filter
- 1.5 x 1.1 x 0.7 mm in Size
- Insertion Loss: 1.9 dB (L1) / 2.2 dB (L5)
- Out-of-Band Rejection: > 27 dB (L1) / 32 dB (L5)
- Maximum Input Power: +15 dBm
- Stable Performance Across -40°C ~ +105°C

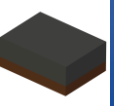
Applications

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

Product Image



SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

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

Electrical Specification

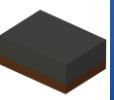
Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency	1559.05	1585.47	1611.89		L1 / G1 Band
VSWR ⁽¹⁾	-	2.1	2.8		1559.05 ~ 1611.89 MHz
Insertion Loss ⁽¹⁾	-	1.9	2.3	dB	
Amplitude Ripple ⁽¹⁾	-	0.2	0.4	dB	
Group Delay ⁽¹⁾	-	10	14	ns	
Group Delay Ripple ⁽¹⁾	-	1.3	5.3	ns	
Attenuation ⁽²⁾ (Reference level from 0 dB)	30	40	-	dB	10 ~ 960 MHz
	30	42	-		960 ~ 1463 MHz
	20	27	-		1710 ~ 1785 MHz
	20	32	-		1785 ~ 1990 MHz
	35	42	-		1990 ~ 2280 MHz
	30	51	-		2280 ~ 3000 MHz
	30	46	-		3000 ~ 6000 MHz
Input Power Level	-	-	15	dBm	-
Temperature Coefficient of Frequency	-	-36	-	ppm/°C	-

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

(2) Averaged values of linear S-Parameters at +25°C

(3) A matching network is necessary (refer to the Measurement Circuits section)

SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

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

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency	1166.22	1176.45	1186.68		L5 Band
VSWR ⁽¹⁾	-	2.1	2.8		1166.22 ~ 1186.68 MHz
Insertion Loss ⁽¹⁾	-	2.2	2.5	dB	
Amplitude Ripple ⁽¹⁾	-	0.18	0.37	dB	
Group Delay ⁽¹⁾	-	24	40	ns	
Group Delay Ripple ⁽¹⁾	-	26	35	ns	
Attenuation ⁽²⁾ (Reference level from 0 dB)	30	51	-	dB	850 ~ 980 MHz
	30	52	-		980 ~ 1010 MHz
	30	52	-		1010 ~ 1100 MHz
	30	39	-		1100 ~ 1130 MHz
	20	32	-		1220 ~ 1250 MHz
	25	41	-		1260 ~ 1427 MHz
Input Power Level	-	-	15	dBm	-
Temperature Coefficient of Frequency	-	-36	-	ppm/°C	-

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

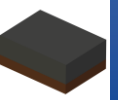
(2) Averaged values of linear S-Parameters at +25°C

(3) A matching network is necessary (refer to the Measurement Circuits section).

Isolation:

Parameters	Minimum	Typical	Maximum	Units	Notes
Attenuation (Reference level from 0 dB)	35	40	-	dB	1166.22 ~ 1186.68 MHz
	35	38	-		1559.05 ~ 1611.89 MHz

SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples



Check Inventory



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

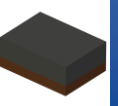
Mechanical Specification

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

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40°C ~ +105°C
Storage Temperature Range	-40°C ~ +105°C
MSL level	1
RoHS Compliant	Yes

SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples



Check Inventory



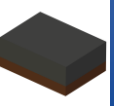
1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Ordering Information

Part Number	Description
AFII-SW-0076-Q	SMD GNSS L1 / L5 SAW Diplexer Filter on Cut Tape
AFII-SW-0076-Q-T	SMD GNSS L1 / L5 SAW Diplexer Filter on Tape & Reel
AFII-SW-0076-Q-EVB	SMD GNSS L1 / L5 SAW Diplexer Filter Evaluation Board

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

SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples

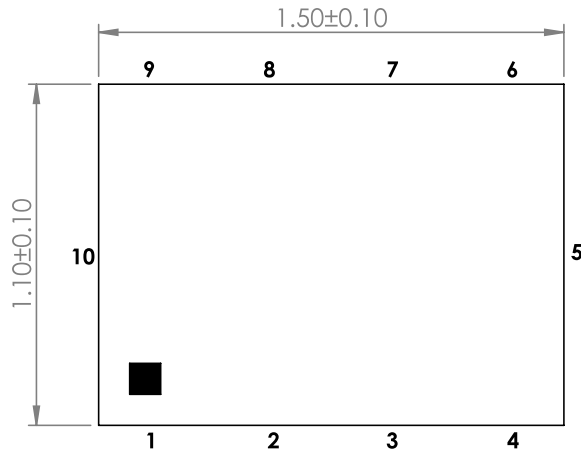


Check Inventory

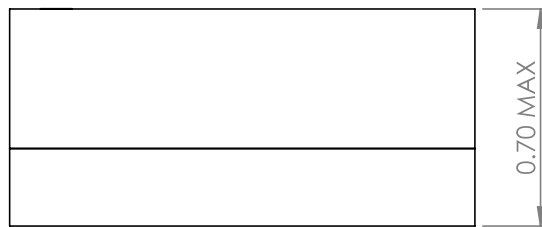


1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

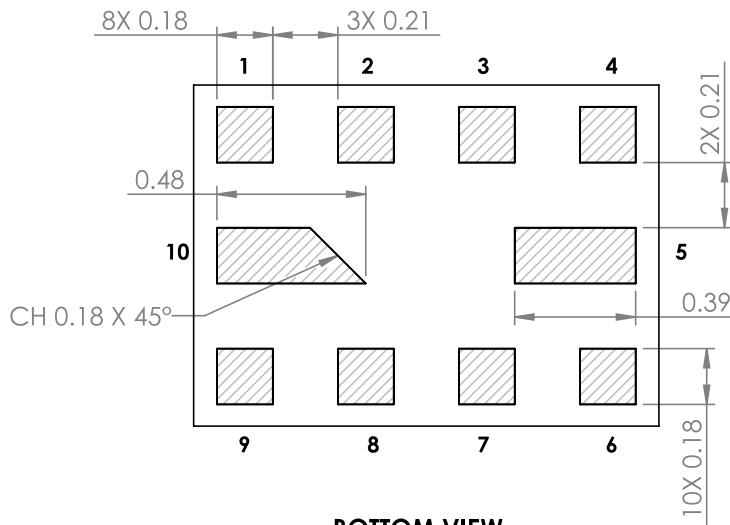
Product Dimensions



TOP VIEW

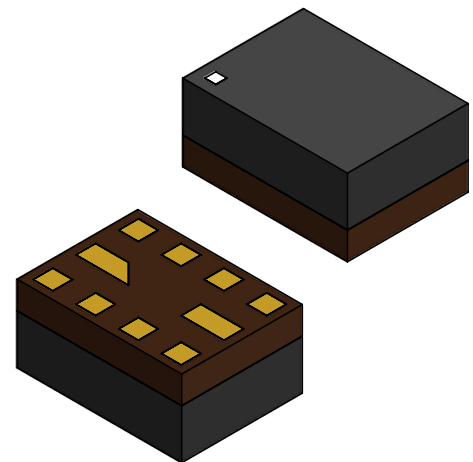


FRONT VIEW



BOTTOM VIEW

PIN #	FUNCTION
1	ANTENNA
2	GROUND
3	GROUND
4	GROUND
5	GROUND
6	L1 BAND
7	GROUND
8	GROUND
9	L5 BAND
10	GROUND



Unit : mm

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

Technical drawing of a rectangular plate with dimensions and a central hole. The overall dimensions are 1,350 (width) and 0,960 (height). The central hole has a diameter of 0,210. The plate has a thickness of 0,180. The drawing shows the plate with a central hole and four rectangular cutouts. The dimensions are given in mm.

Dimensions:

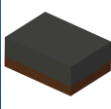
- Overall width: 1,350
- Overall height: 0,960
- Central hole diameter: 0,210
- Plate thickness: 0,180
- Distance from top edge to center of hole: 0,210
- Distance from bottom edge to center of hole: 0,180
- Distance from left edge to center of hole: 0,490
- Distance from right edge to center of hole: 0,390

UNIT : mm



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SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples

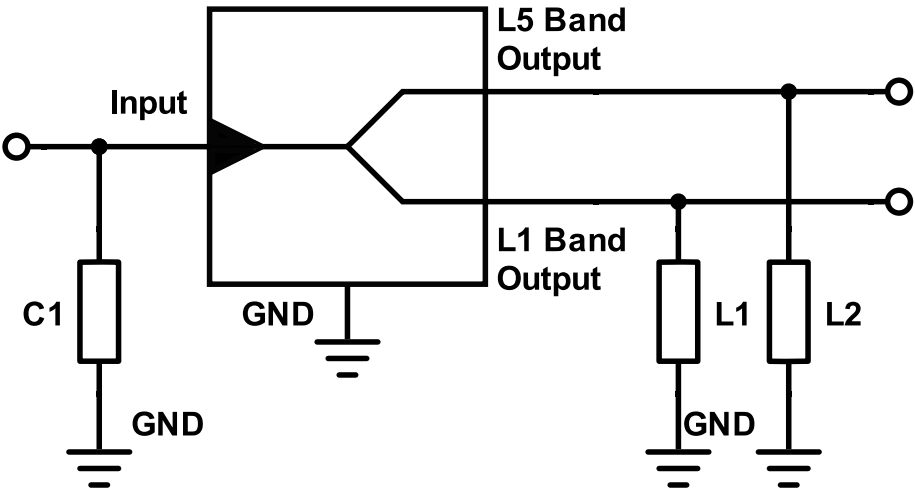


Check Inventory



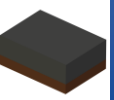
1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Measurement Circuit



Port	Matching Component
Input (Pin 1)	C1: 3.0 pF
L1 Output (Pin 6)	L1: 15 nH
L5 Output (Pin 9)	L2: 15 nH

SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples



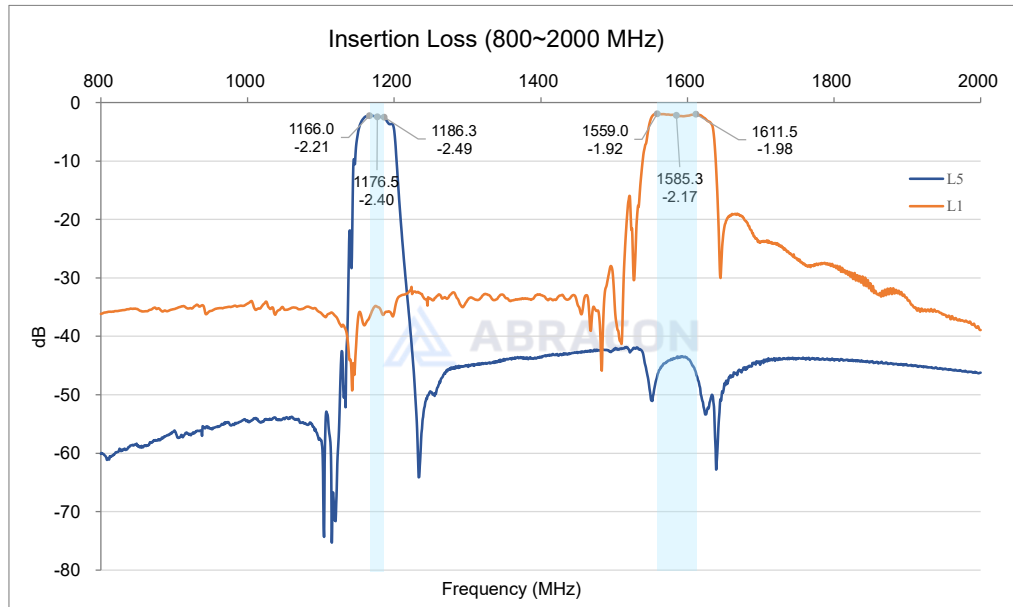
Check Inventory



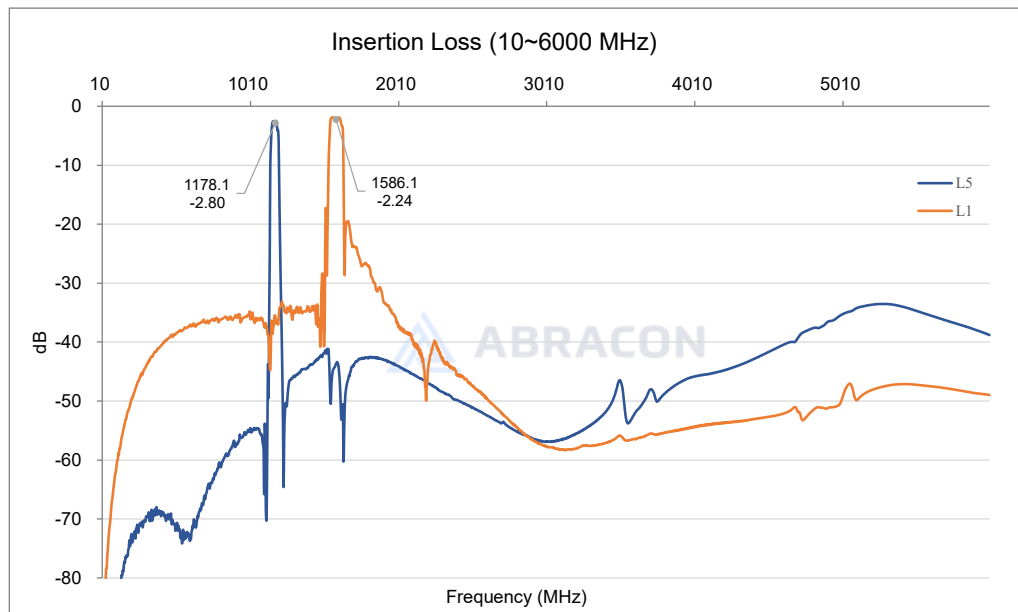
1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Frequency Characteristics

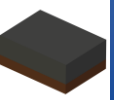
Insertion Loss 800 - 2000MHz



Insertion Loss 10 - 6000MHz



SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples

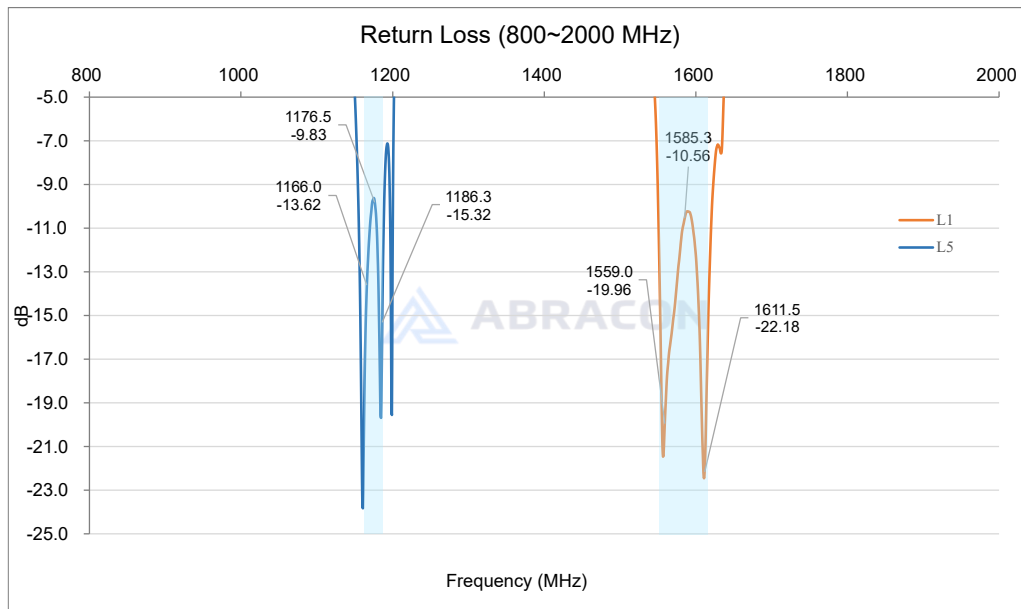


Check Inventory

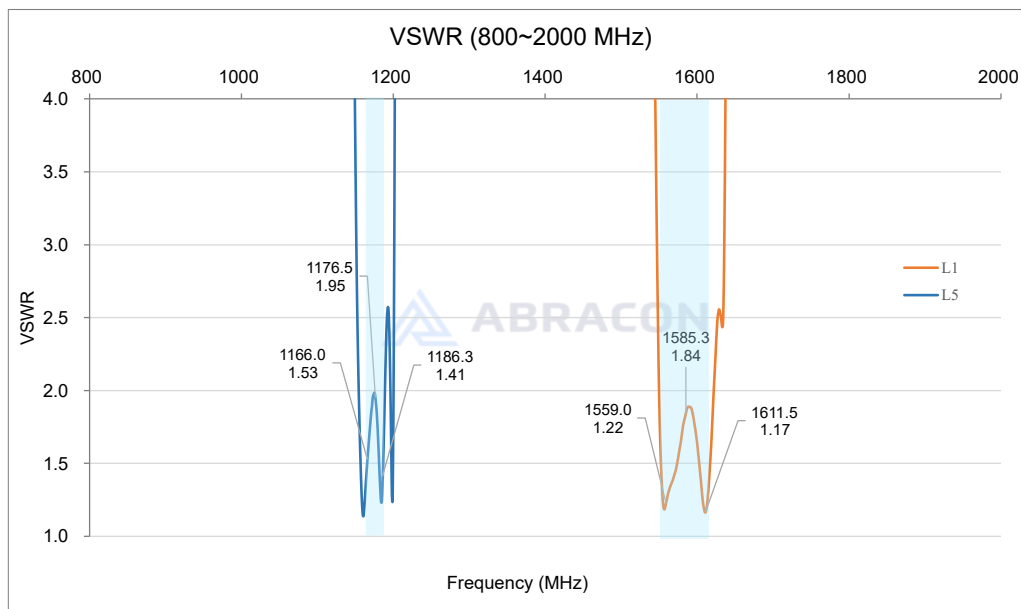


1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

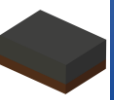
Return Loss 800 - 2000MHz



VSWR 800 - 2000MHz



SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples

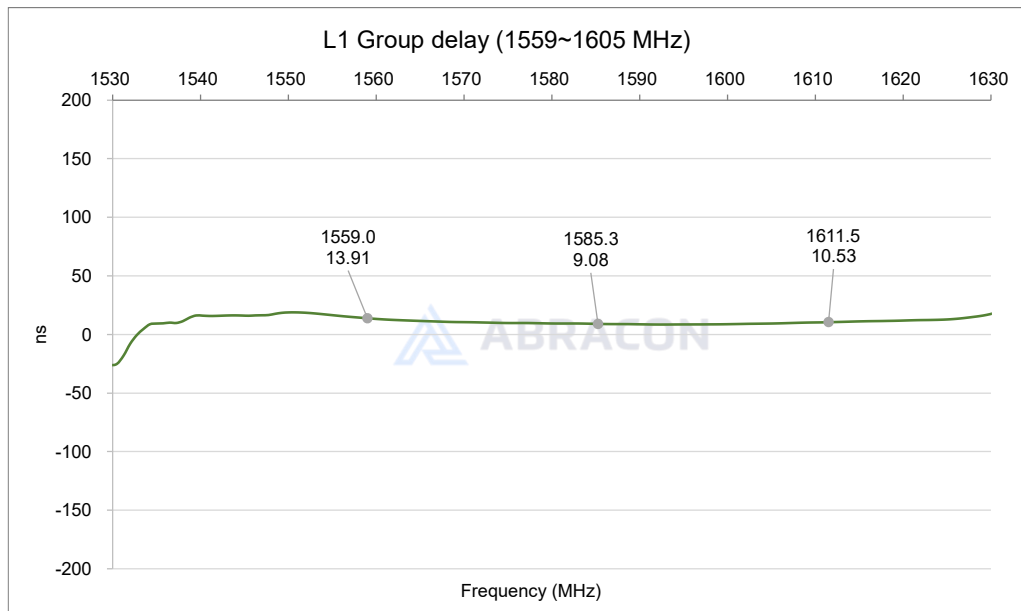


Check Inventory

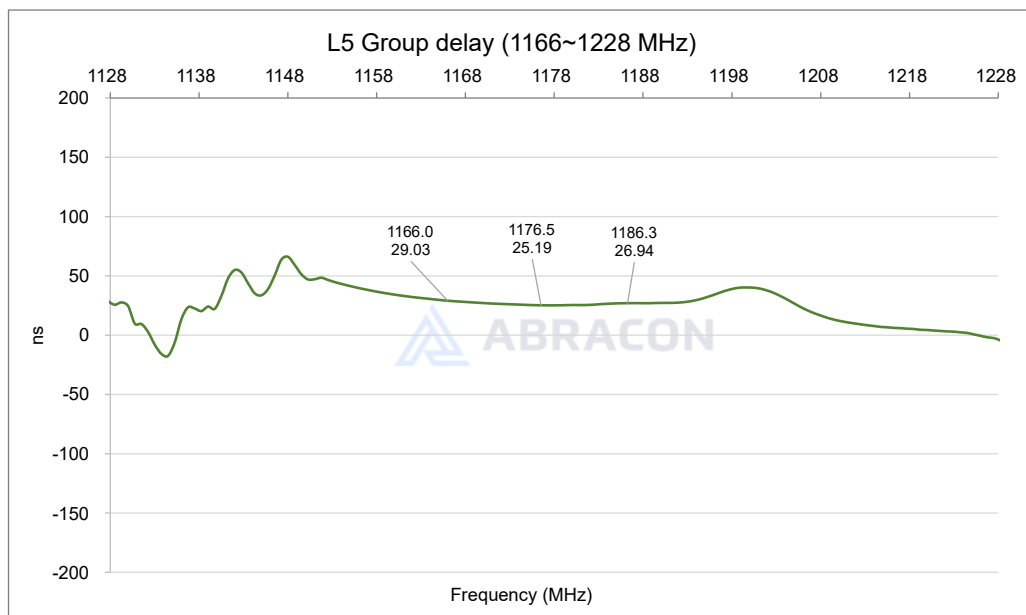


1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

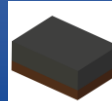
Group Delay (L1)



Group Delay (L5)



SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples

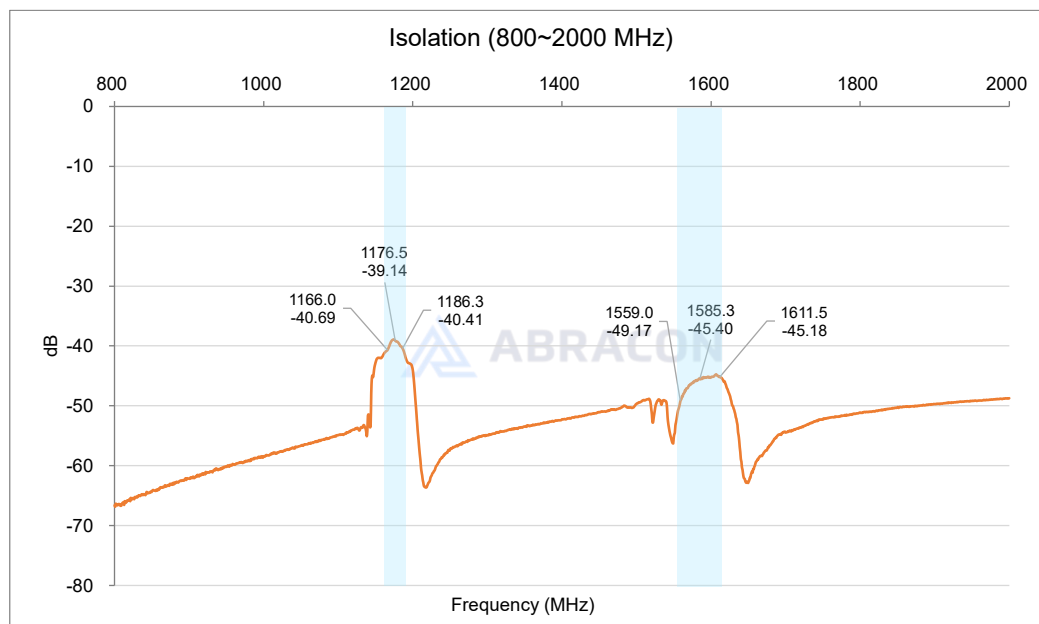


Check Inventory

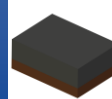


1.5 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 1

Isolation 800 - 2000MHz



SMD GNSS L1 / L5 SAW Diplexer Filter



AFII-SW-0076-Q

Request Samples



Check Inventory



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

Reflow Profile [JEDEC J-STD-020]

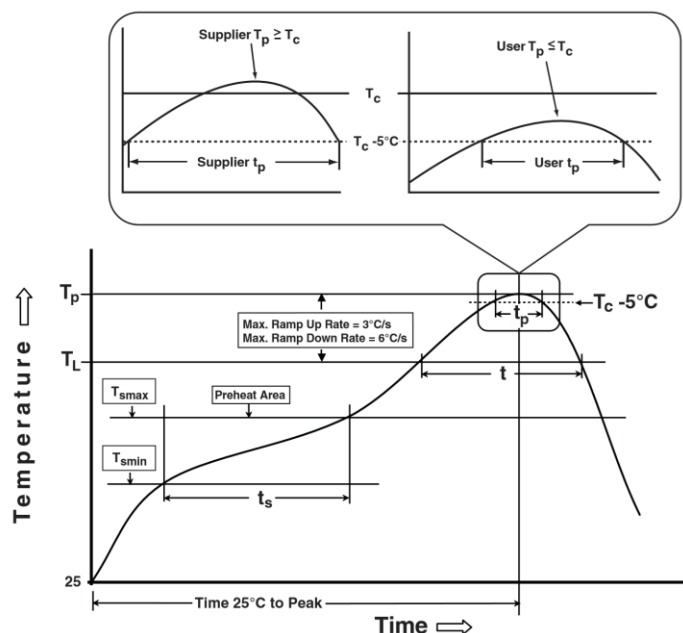


Table 1

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)

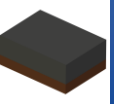
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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	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.

SMD GNSS L1 / L5 SAW Diplexer Filter



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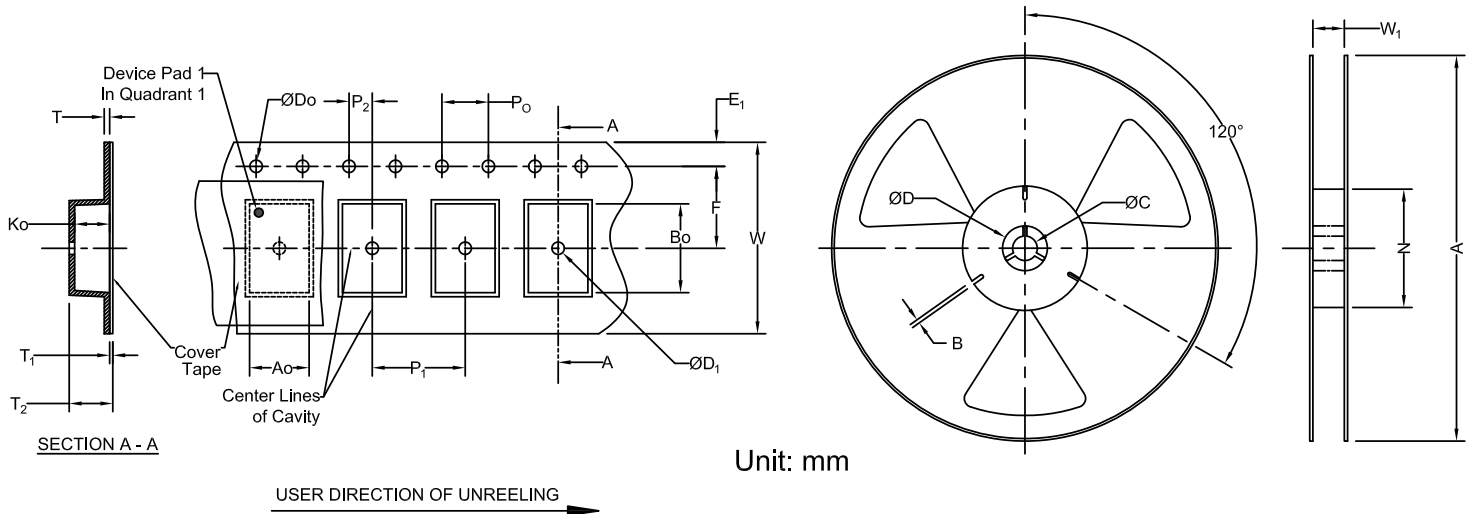
Check Inventory



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

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

Do	D1	E1	P0	P2	F	P1	W	A0	B0	K0	Reel Qty
1.55 ± 0.05	0.60 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	3.5 ± 0.05	4.0 ± 0.1	8.0 ± 0.1	1.30 ± 0.05	1.70 ± 0.05	0.65 ± 0.05	3,000

Reel Specifications (mm)

A	W1	N	C
178.0 ± 1.0	8.48 ± 0.15	57.12 ± 0.15	13.12 ± 0.15

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