GNSS L1/L2/L5 SMD SAW Diplexer



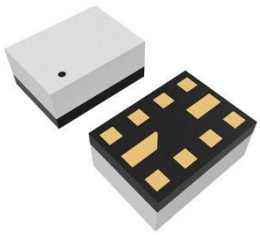
AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Description

This AEC-Q200 compliant SAW Diplexer is engineered for high-precision GNSS applications, simultaneously supporting L1 and L2/L5 bands within a compact 1.5 x 1.1 x 0.65 mm package. It delivers low insertion loss of 2.0 dB (L1) and 2.6 dB (L2+L5), ensuring minimal signal degradation while providing exceptional out-of-band rejection greater than 35 dB to mitigate interference. Rated for +15 dBm input power and an extended -40 to +105 °C temperature range, this RoHS-compliant, MSL Level 3 component is ideal for demanding automotive telematics, RTK systems, UAVs, and autonomous vehicles requiring robust, multi-band positioning accuracy.



Features

- AEC-Q200 GNSS L1/L2/L5 SAW Diplexer
- Compact Size: 1.5 x 1.1 x 0.65 mm
- Insertion Loss: 2.0 dB (L1) / 2.6 dB (L2/L5)
- Out-of-Band Rejection: > 35 dB
- Maximum Input Power: +15 dBm
- Extended Temperature -40 to +105 °C
- RoHS Compliant | MSL Level 3

Applications

- High-Precision 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-0063-Q	GNSS L1/L2/L5 SMD SAW Diplexer on Cut Tape
AFII-SW-0063-Q-T	GNSS L1/L2/L5 SMD SAW Diplexer on Tape & Reel

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

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer



AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	1559.05	-	1605.89	MHz	-
VSWR	-	1.6	2.1	:1	1559.05 ~ 1605.89 MHz
Insertion Loss (1) (L1)	-	1.6	2.1	dB	1574.39 ~ 1576.45 MHz
Insertion Loss (1) (B1)	-	2.0	2.5		1559.05 ~ 1563.15 MHz
Insertion Loss (1) (G1)	-	2.2	2.5		1597.55 ~ 1605.89 MHz
Amplitude Ripple (1)	-	0.6	1.0	dB	1559.05 ~ 1605.89 MHz
Group Delay (1)	-	7	20	ns	1559.05 ~ 1605.89 MHz
Group Delay Ripple (1)	-	0.2	1.8	ns	1559.05 ~ 1605.89 MHz
Attenuation (2) (Reference level from 0 dB)	37	42	-	dB	638 ~ 698 MHz
	35	41	-		698 ~ 748 MHz
	35	39	-		777 ~ 798 MHz
	30	36	-		807 ~ 915 MHz
	30	35	-		925 ~ 960 MHz
	35	39	-		1427 ~ 1463 MHz
	34	37	-		1710 ~ 1800 MHz
	33	38	-		1850 ~ 1910 MHz
	33	38	-		1910 ~ 1980 MHz
	35	40	-		2010 ~ 2025 MHz
	38	42	-		2300 ~ 2315 MHz
	38	43	-		2401 ~ 2483 MHz
	38	43	-		2496 ~ 2690 MHz
	40	45	-		5150 ~ 5925 MHz
Source Impedance (3) (single ended)	-	50	-	Ω	-
Load Impedance (3) (single ended)	-	50	-	Ω	-
RF Power Dissipation	-	-	15	dBm	-

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

GNSS L1/L2/L5 SMD SAW Diplexer



AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	1166.22	-	1228.62	MHz	-
VSWR	-	1.6	2.1	:1	1166.22 ~ 1228.62 MHz
Insertion Loss (1) (L5)	-	2.5	2.9	dB	1166.22 ~ 1186.68 MHz
Insertion Loss (1) (B2)	-	2.3	2.8		1205.09 ~ 1209.19 MHz
Insertion Loss (1) (L2)	-	2.6	3.0		1226.58 ~ 1228.62 MHz
Amplitude Ripple	-	0.8	1.2	dB	1166.22 ~ 1228.62 MHz
Group Delay (1)	-	10	25	ns	1166.22 ~ 1228.62 MHz
Group Delay Ripple (1)	-	0.1	0.6	ns	1166.22 ~ 1228.62 MHz
Attenuation (2) (Reference level from 0 dB)	40	46	-	dB	0 ~ 748 MHz
	35	43	-		777 ~ 798 MHz
	32	38	-		807 ~ 915 MHz
	32	37	-		925 ~ 960 MHz
	25	31	-		1427 ~ 1463 MHz
	25	32	-		1626.5 ~ 1660.5 MHz
	28	35	-		1695 ~ 1785 MHz
	32	36	-		1850 ~ 2025 MHz
	32	37	-		2300 ~ 2400 MHz
	32	37	-		2400 ~ 2483 MHz
	30	34	-		2496 ~ 2690 MHz
	25	30	-		3400 ~ 3800 MHz
	27	31	-		4400 ~ 4900 MHz
	27	32	-		5150 ~ 5925 MHz
Source Impedance (3) (single ended)	-	50	-	Ω	-
Load Impedance (3) (single ended)	-	50	-	Ω	-
RF Power Dissipation	-	-	15	dBm	-

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

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer



AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Mechanical Specification

Parameters	Specifications
Dimension	1.5 x 1.1 x 0.65 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40ºC ~ +105ºC
Storage Temperature Range	-40ºC ~ +85ºC
ESD Voltage (HBM)	＞125 V
ESD Voltage (MM)	＞100 V
ESD Voltage (CDM)	＞175 V
MSL level	3
RoHS Compliant	Yes

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

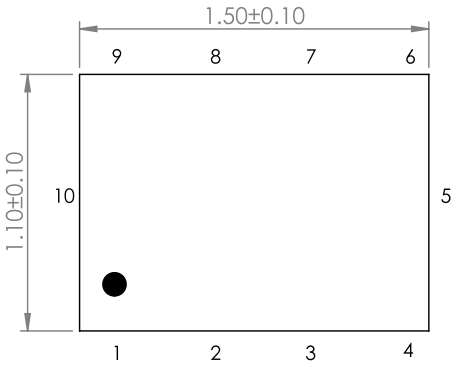


AFII-SW-0063-Q

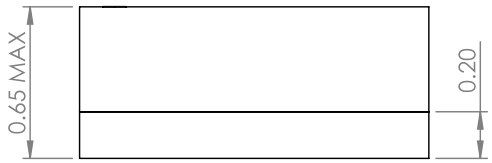
Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

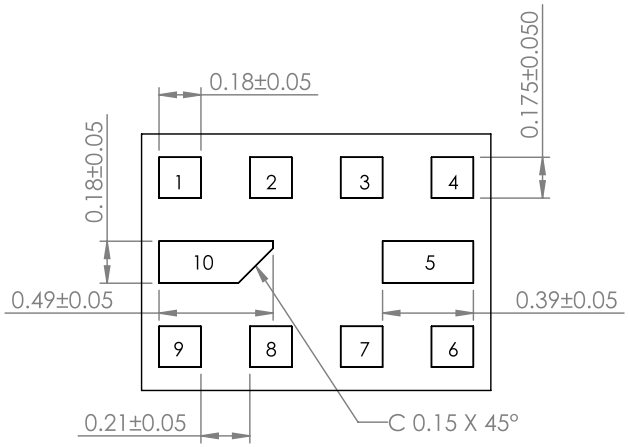
Product Dimensions



TOP VIEW



FRONT VIEW



BOTTOM VIEW

Unit : mm

Pin No.	Description
1	Input
6	L1 Output
9	L2/L5 Output
2, 3, 4, 5, 7, 8, 10	Ground

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

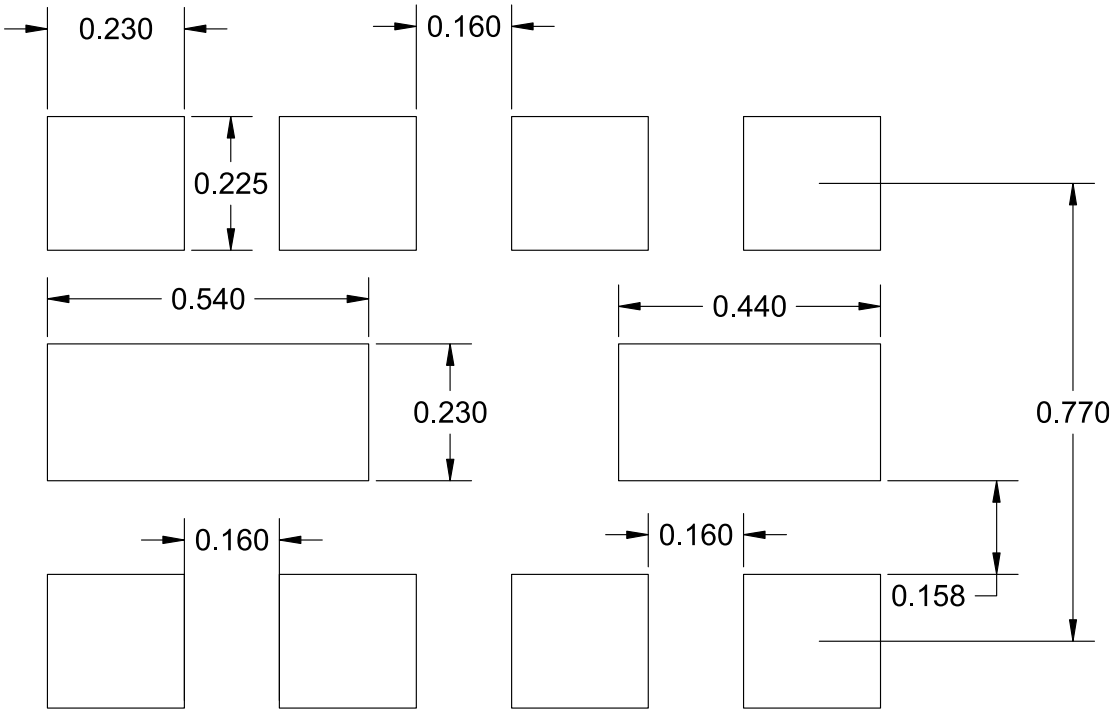


AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

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

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

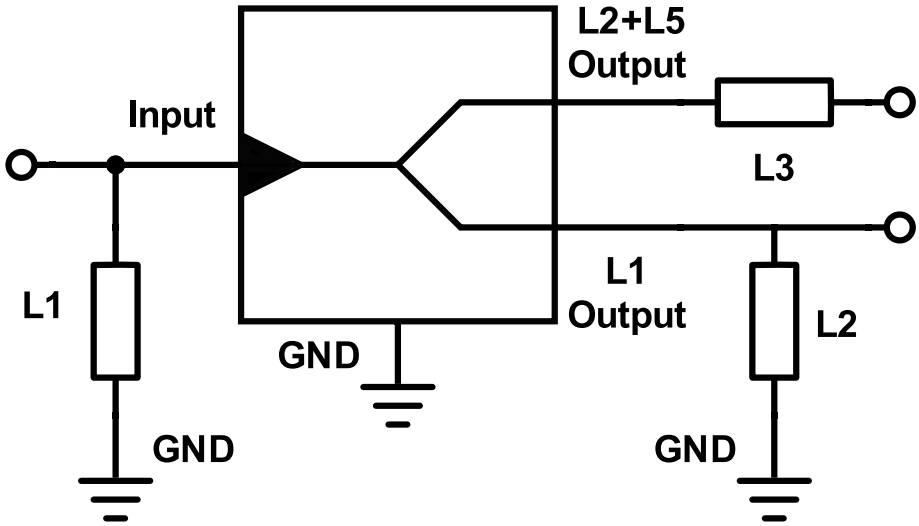


AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Measurement Circuit



Port	Matching Component
Input (Pin 1)	L1: 4.3 nH
L1 Output (Pin 6)	L2: 15 nH
L2/L5 Output (Pin 9)	L3: 3.6 nH

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer



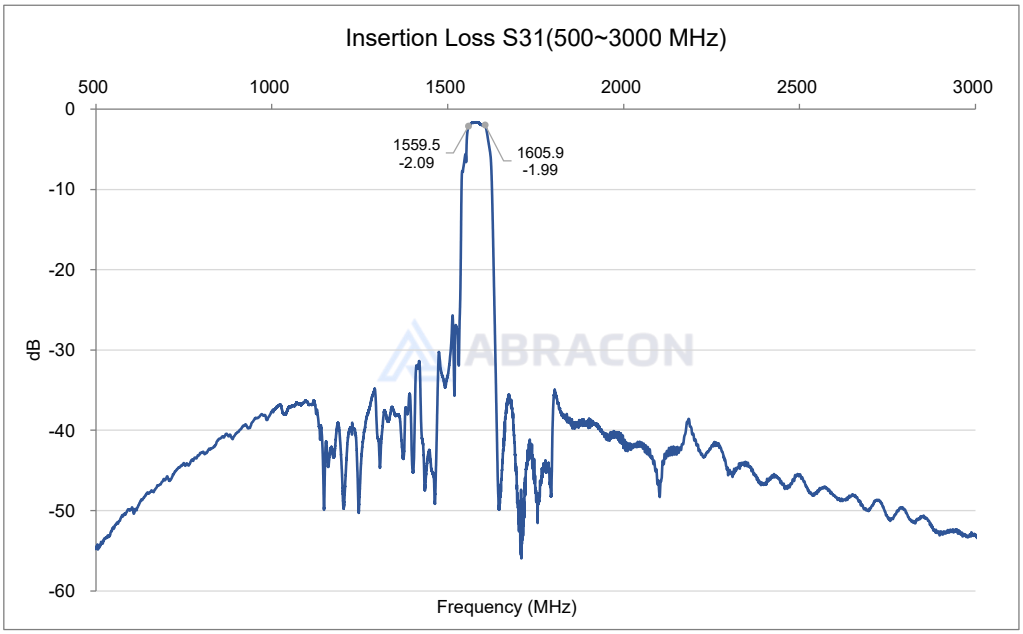
AFII-SW-0063-Q

Request Samples | Check Inventory

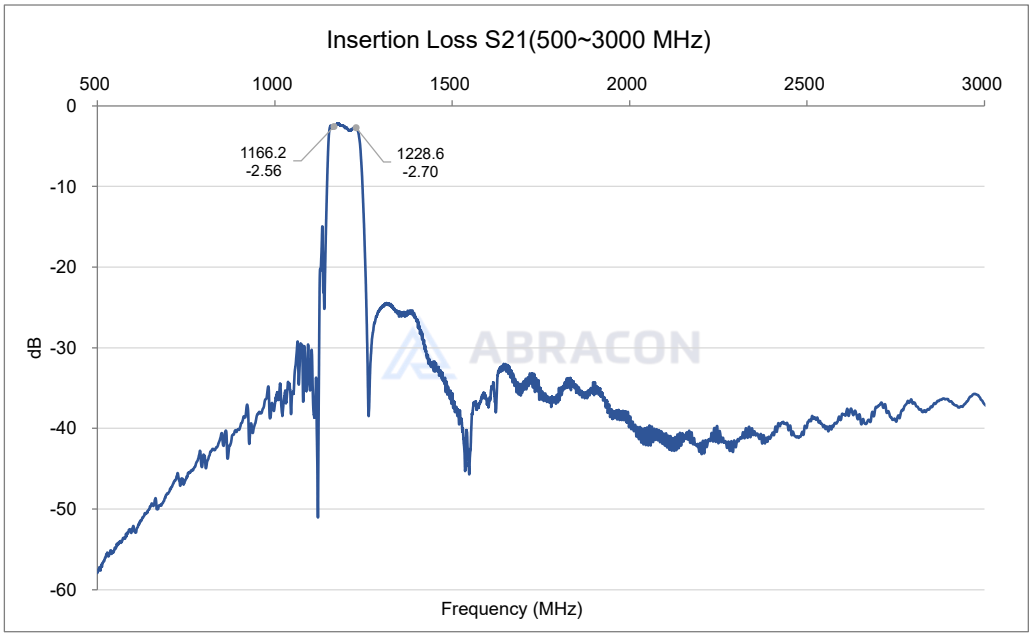
1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

Insertion Loss (L1) 500 - 3000MHz



Insertion Loss (L2/L5) 500 - 3000MHz



ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

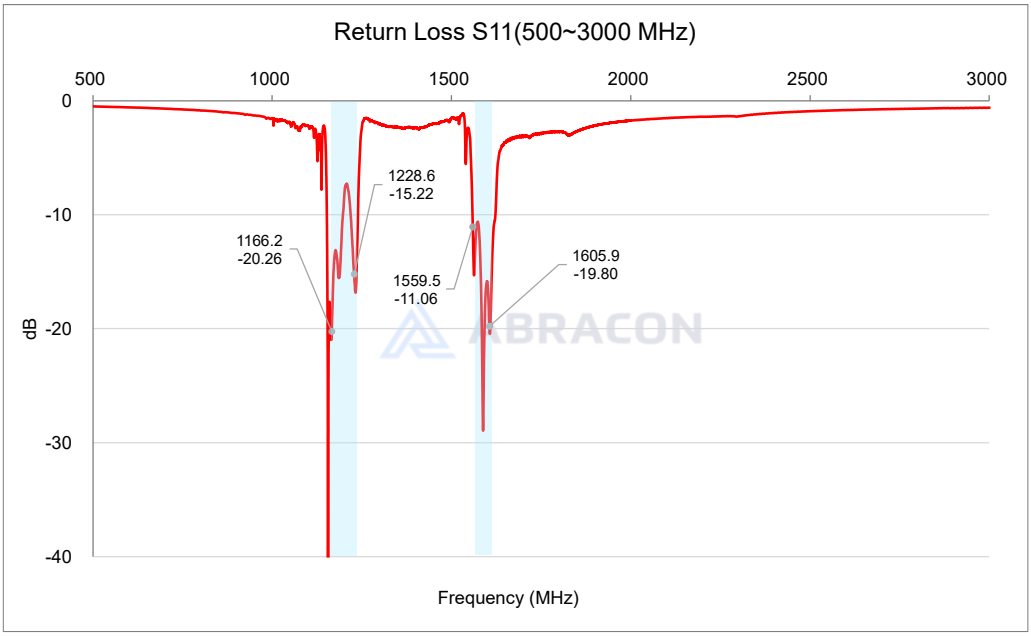


AFII-SW-0063-Q

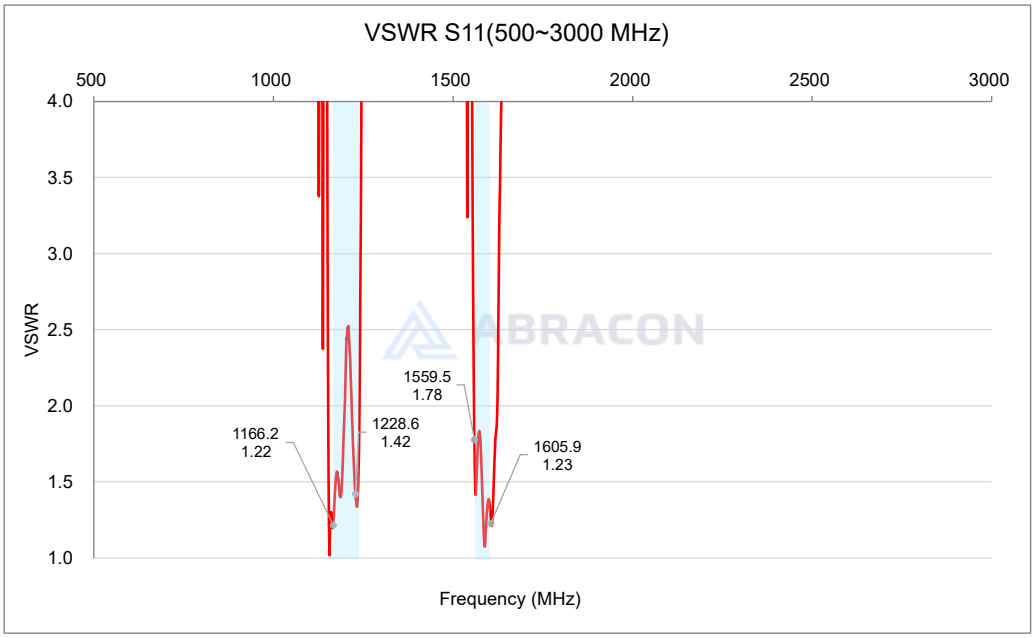
Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Return Loss (S11) 500 - 3000MHz



VSWR (S11) 500 - 3000MHz



ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

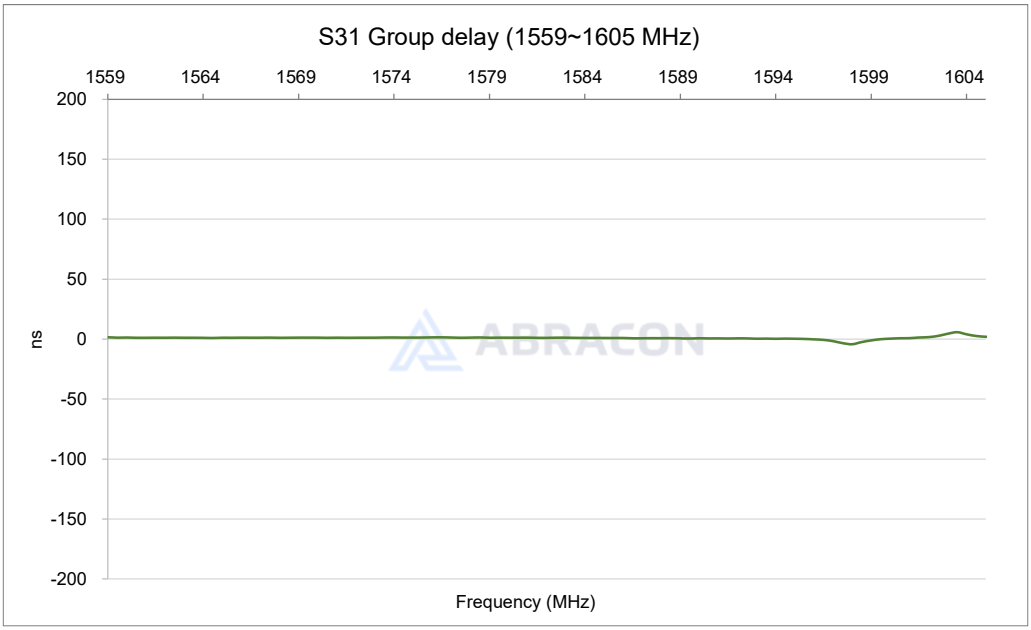


AFII-SW-0063-Q

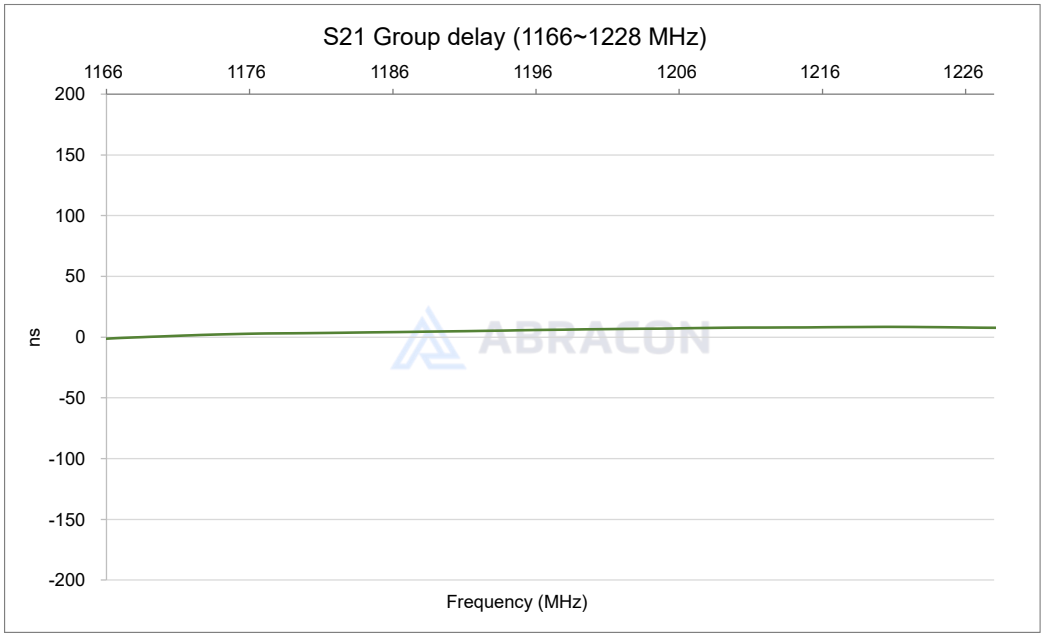
Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Group Delay (L1)



Group Delay (L2/L5)



ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer

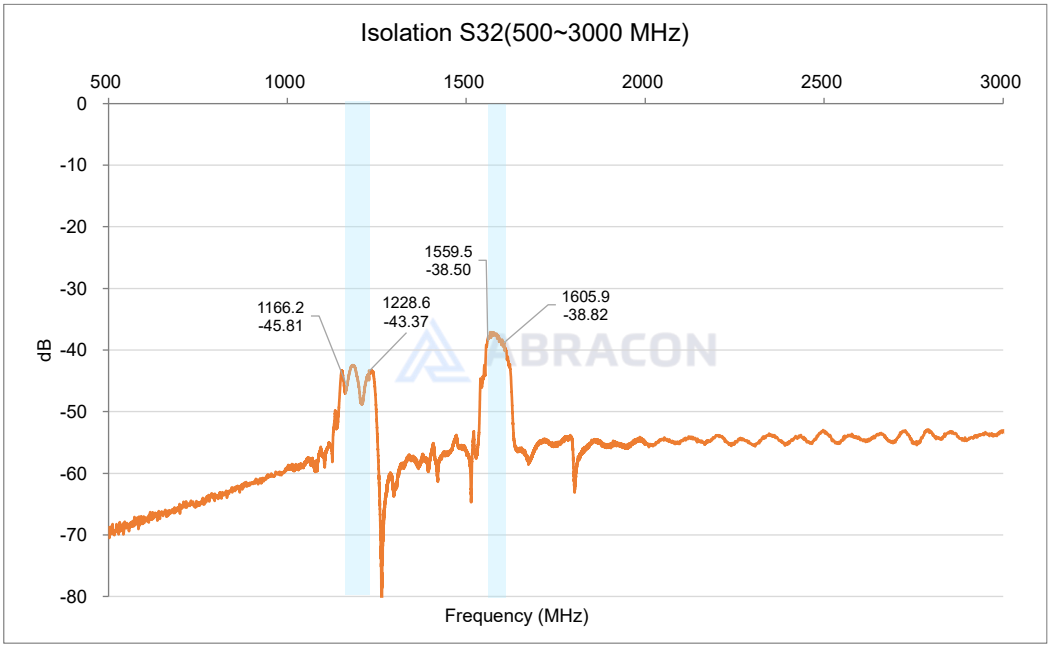


AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Isolation (S32) 500 - 3000MHz



ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer



AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Reflow Profile [JEDEC J-STD-020]

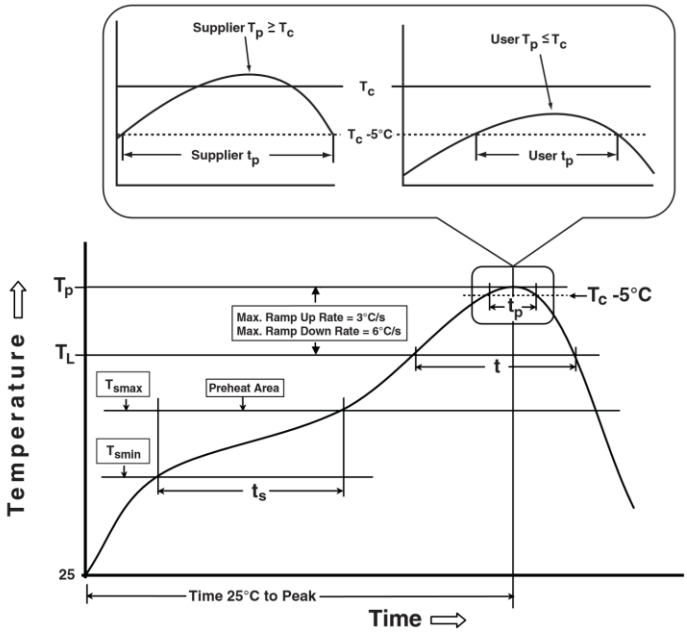


Table 1

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.

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED

GNSS L1/L2/L5 SMD SAW Diplexer



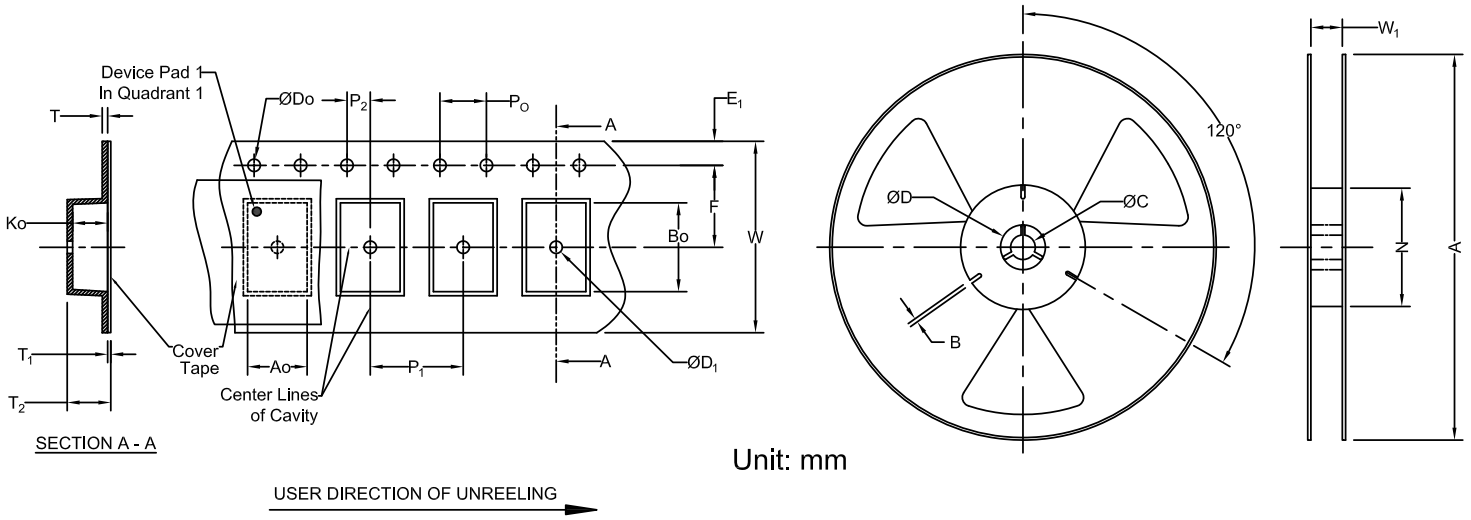
AFII-SW-0063-Q

Request Samples | Check Inventory

1.5 x 1.1 x 0.65 mm
RoHS Compliant
MSL Level = 3

Packaging

Tape & Reel Dimension



Unit: mm

Carrier Tape Specifications (mm)											
Do	D_1	E_1	P_0	P_2	F	P_1	W	A_0	B_0	K_0	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	4,000

Reel Specifications (mm)			
A	W_1	N	C
178.0 ± 1.0	8.48 ± 0.15	57.12 ± 0.15	13.12 ± 0.15

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.

ABRACON

12117 Bee Caves Rd, Bldg-3, Suite 200 Bee Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 07-10-26

ABRACON IS ISO9001-2015 CERTIFIED