SMD 1575.42 MHz SAW Filter

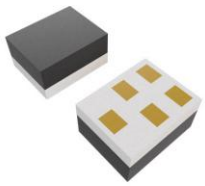
AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Description

Engineered for reliability, this compact GPS L1 band filter delivers exceptional signal clarity with an ultra-low insertion loss of just 0.9 dB. Housed in a small 1.4 x 1.1 x 0.7 mm package, it features a 50-ohm single-ended design and robust +15 dBm power handling. Its performance is critical for mission-critical timing, precision positioning, and geofencing in applications ranging from asset tracking and fleet management to autonomous vehicles and UAVs, ensuring unwavering accuracy in demanding environments. The component is RoHS compliant with an MSL Level 3 rating.



Features

- Supports GPS L1 Band
- 1.4 x 1.1 x 0.7 mm in Size
- Low Insertion Loss: 0.9 dB
- Out-of-Band Rejection: > 22 dB
- 50 Ohms Single-Ended Input & Output
- Maximum Input Power: +15 dBm
- RoHS Compliant | MSL Level 3

Applications

- Asset Tracking
- Fleet Management
- Micro-Mobility Solutions
- UAVs, Robotics & Autonomous Vehicles
- Precision GNSS Positioning
- Mission-Critical GNSS Timing
- Geofencing

Ordering Information

Part Number	Description
AFS14A04-1575.42	SMD 1575.42 MHz SAW Filter on Cut Tape
AFS14A04-1575.42-T3	SMD 1575.42 MHz SAW Filter 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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

SMD 1575.42 MHz SAW Filter



AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	1575.42	-	MHz	
VSWR (1)	-	1.15	1.6	-	1575.42~1576.42 MHz
Insertion Loss (1)	-	0.9	1.5	dB	1575.42~1576.42 MHz
Amplitude Ripple (1)	-	0.1	0.75	dB	1575.42~1576.42 MHz
Group Delay (1)	-	27.81	29.48	ns	1575.42~1576.42 MHz
Group Delay Ripple (1)	-	0.10	0.11	ns	1575.42~1576.42 MHz
Attenuation (Refer to min. insertion loss) (1)	35	38	-	dB	DC~1450 MHz
	30	45	-		1450~1520 MHz
	45	48	-		1625~1640MHz
	38	40	-		1640 ~ 1805 MHz
	38	40	-		1805 ~ 1910 MHz
	38	43	-		1910 ~ 2000 MHz
	30	45	-		2000 ~ 4000 MHz
	20	22	-		4000 ~ 6000 MHz
DC Voltage	-	-	3	V	
Input Power	-	-	15	dBm	
Terminating Source Impedance	-	50	-	Ω	
Terminating Load Impedance	-	50	-	Ω	

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

Mechanical Specification

Parameters	Specifications
Dimension	1.4 x 1.1 x 0.7 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40ºC ~ +85ºC
Storage Temperature Range	-40ºC ~ +85ºC
MSL level	3

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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

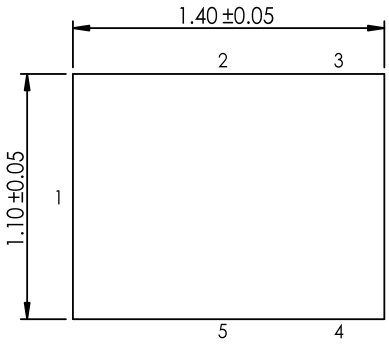
SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

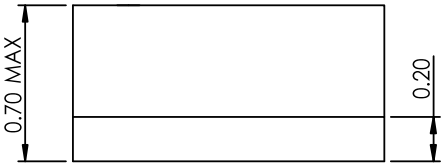
Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

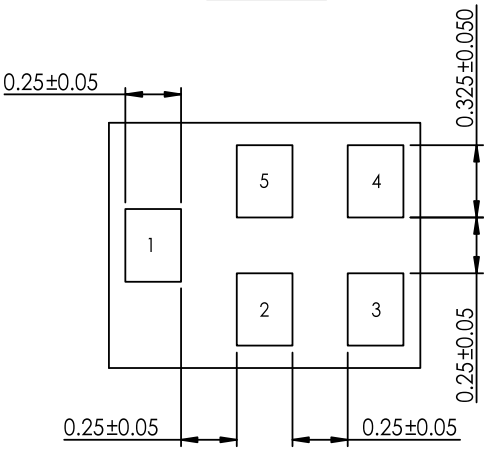
Product Dimensions



TOP VIEW



FRONT VIEW



BOTTOM VIEW

Unit : mm

Pin No.	Description
1	Input
3	Output
2, 4, 5	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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

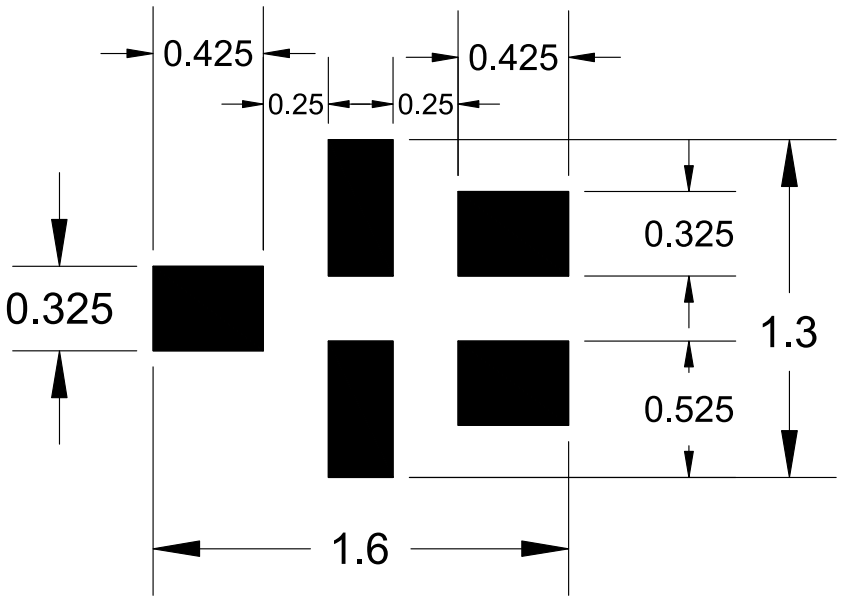
SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Recommended Land Pattern



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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

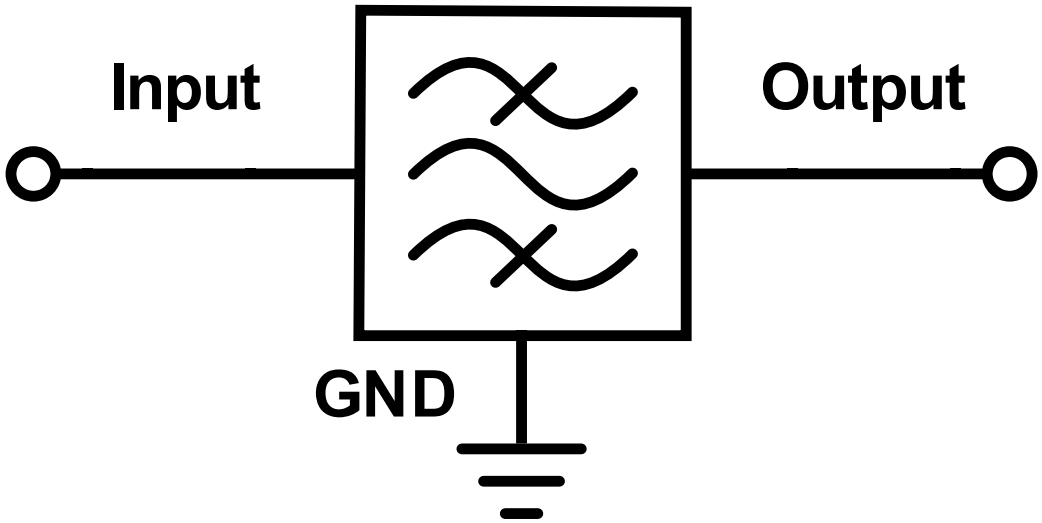
SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Measurement Circuit



Pin No.	Description
1	Input Impedance: 50 Ω
3	Output Impedance: 50 Ω
2, 4,5	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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

SMD 1575.42 MHz SAW Filter

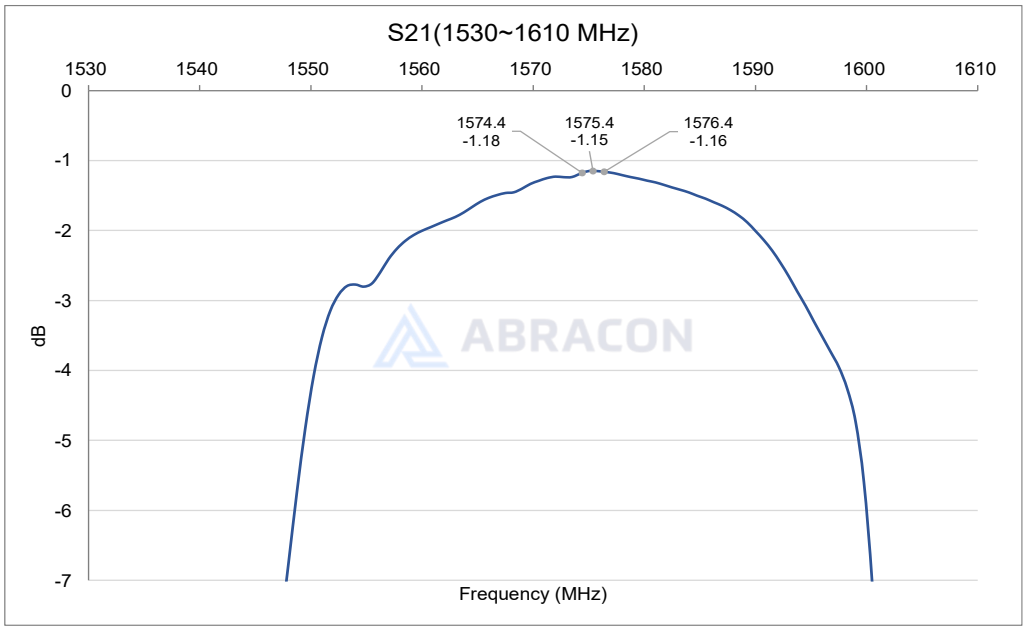
AFS14A04-1575.42

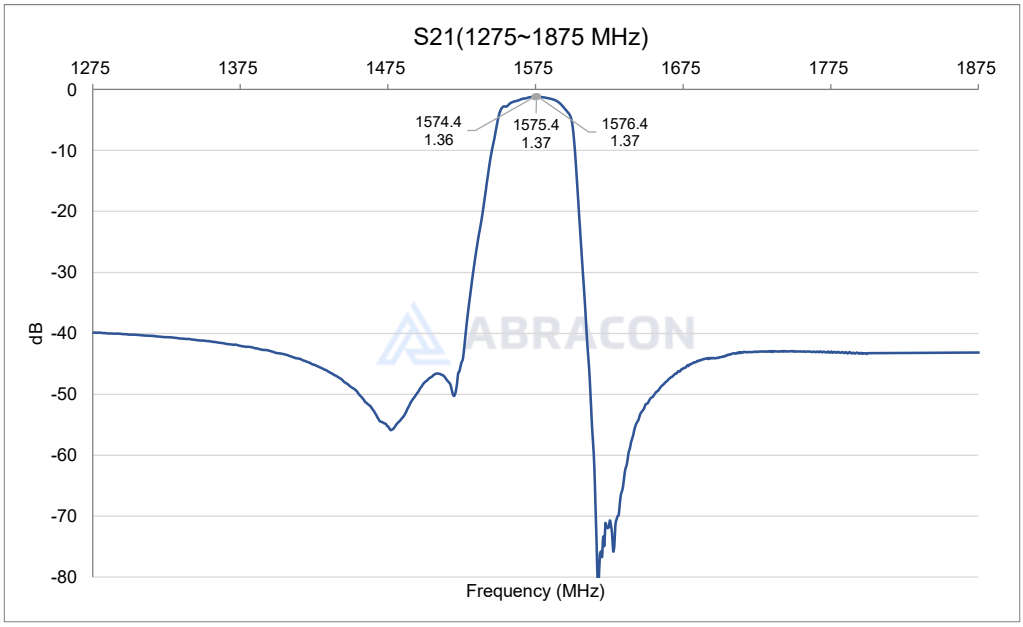
Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Frequency Characteristics

S21 Narrow Band





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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

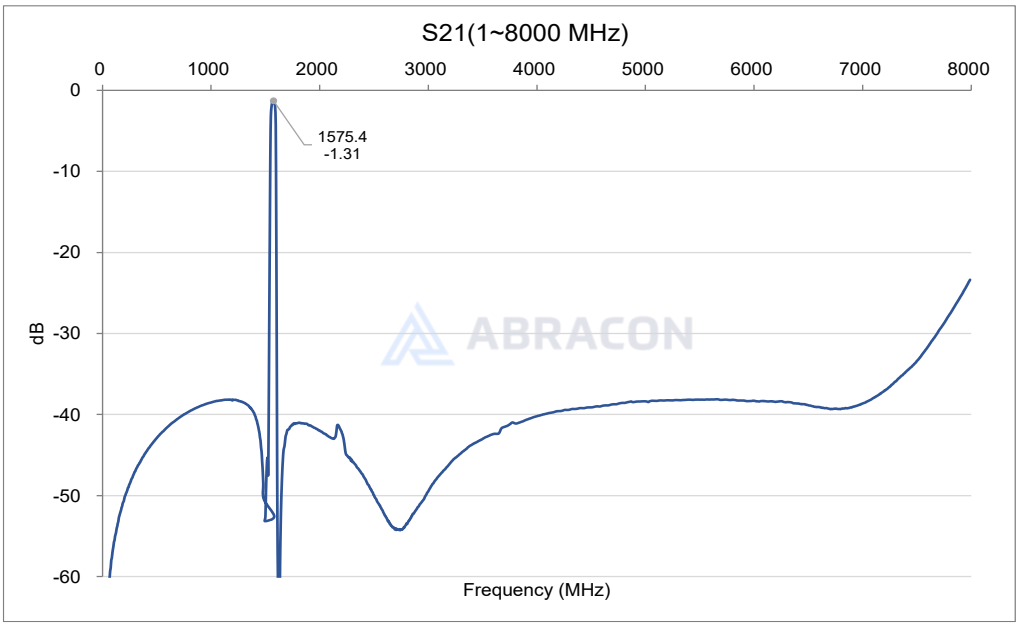
SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

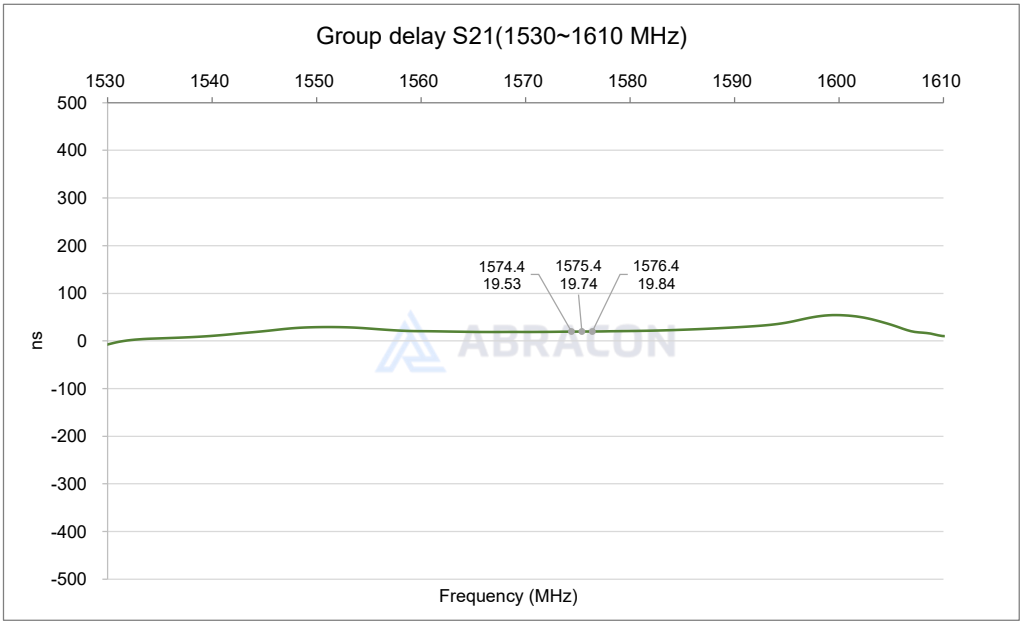
Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

S21 Wide Band



Group Delay



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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

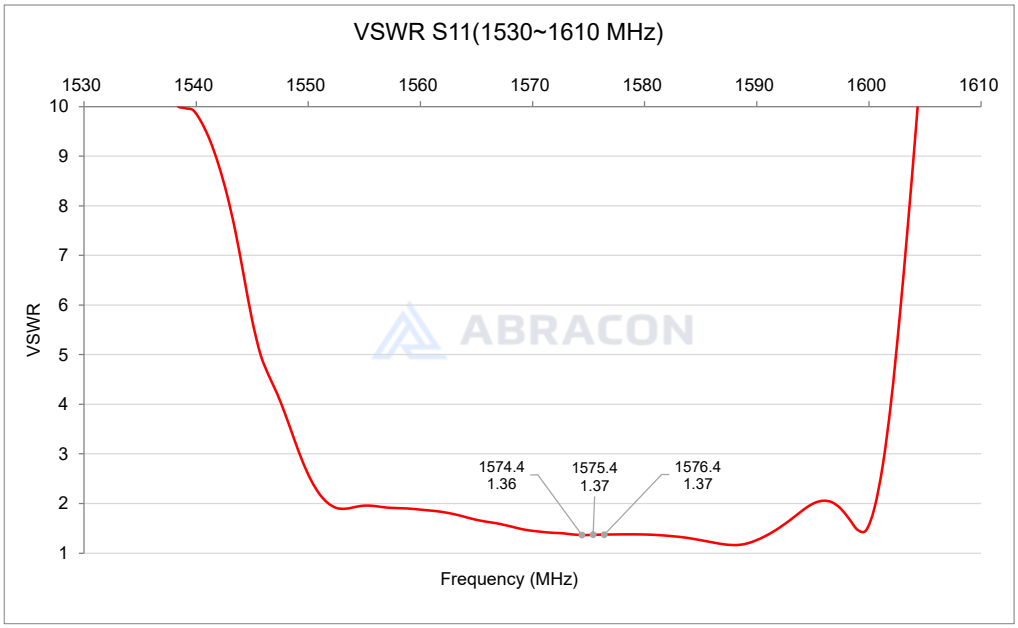
SMD 1575.42 MHz SAW Filter

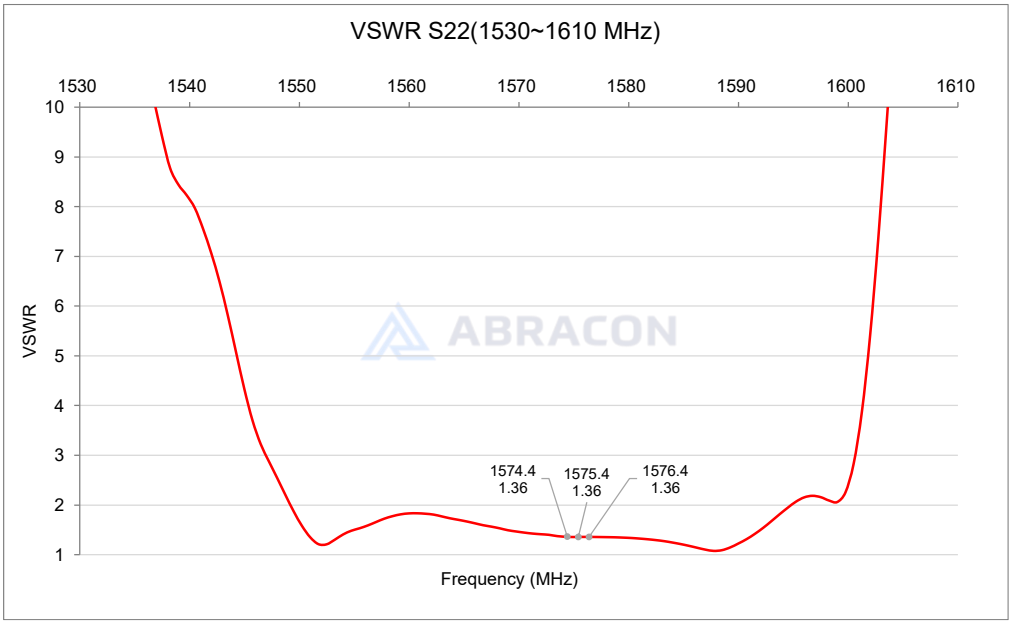
AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

VSWR (S11 & S22)





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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

SMD 1575.42 MHz SAW Filter

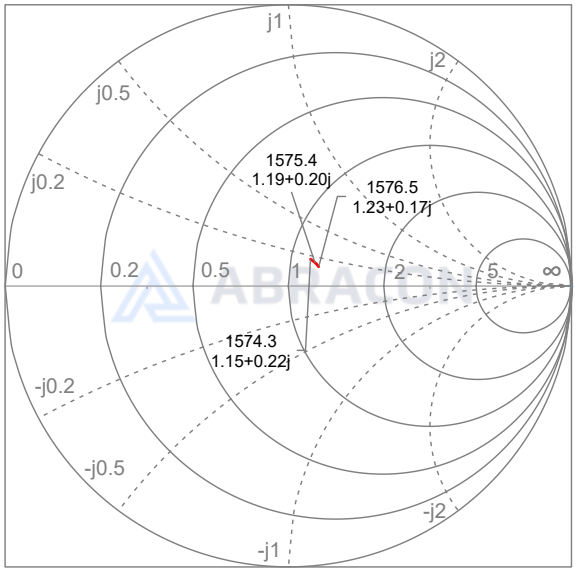
AFS14A04-1575.42

Request Samples | Check Inventory

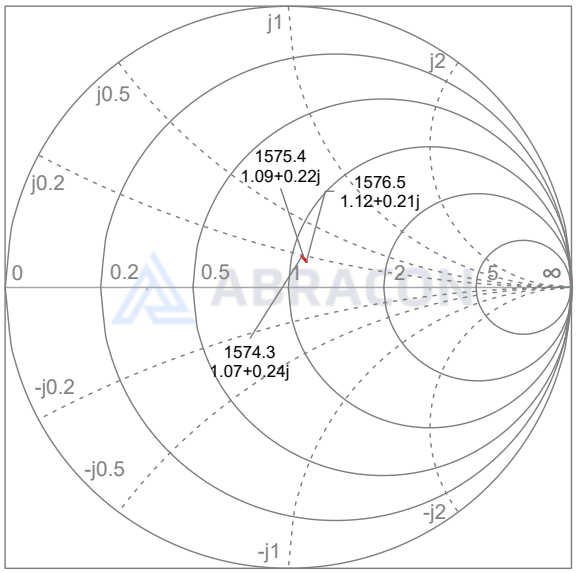
1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Smith Chart (S11 & S22)

Smith chart S11 (1574.4~1576.5MHz)



Smith chart S22 (1574.4~1576.5MHz)



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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Reflow Profile [JEDEC J-STD-020]

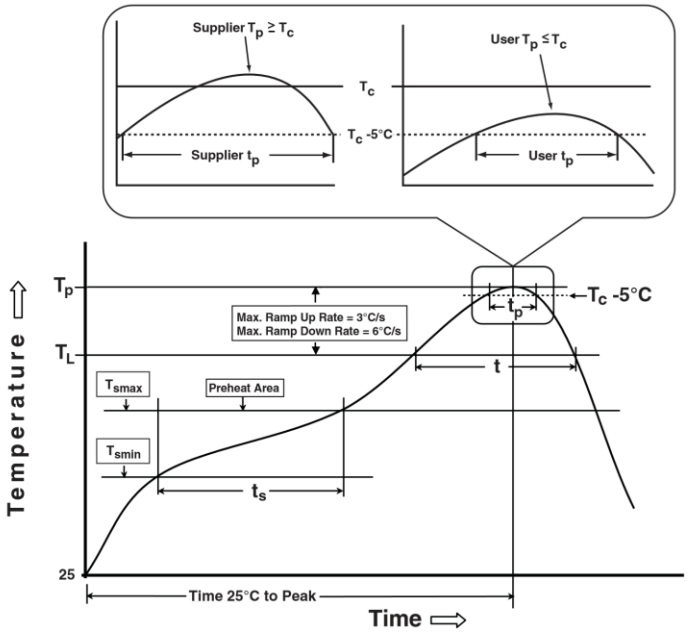


Table 1

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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED

SMD 1575.42 MHz SAW Filter

AFS14A04-1575.42

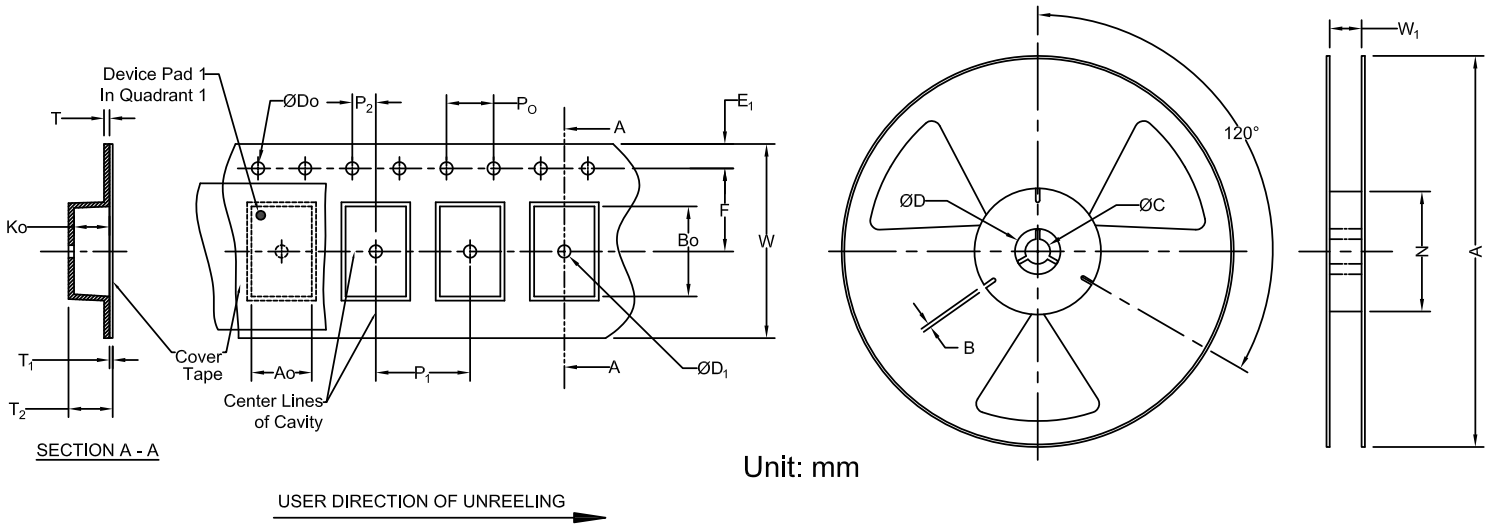
Request Samples | Check Inventory

1.4 x 1.1 x 0.7 mm
RoHS Compliant
MSL Level = 3

Packaging

Tape & Reel

1. Tape & Reel Dimension



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	2.0

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: 04-26-25

ABRACON IS ISO9001-2015 CERTIFIED