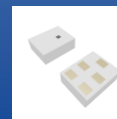


SMD 2450MHz Band Pass Ceramic Filter



AFII-LC-0097

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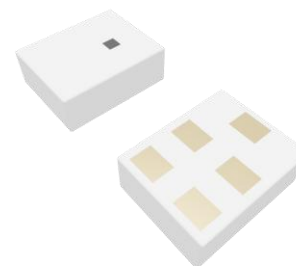
Check Inventory



1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Description

Setting a new industry benchmark for miniaturization and performance, this advanced harmonic rejection filter is housed in an ultra-compact 1.4 x 1.1 x 0.5 mm package with a footprint compatible with standard SAW filters, enabling drop-in replacement and seamless integration. It achieves an exceptional blend of low 0.8 dB insertion loss and outstanding out-of-band rejection exceeding 15 dB. Designed for 50-ohm systems, it is ideally positioned between PAs and antennas to dramatically suppress harmonics and improve spectral purity. Its MSL Level 1 rating ensures superior manufacturability for high-volume IoT, Bluetooth®, and 2.4GHz home automation devices, enabling cleaner signals and extended battery life.



Features

- 1.4 x 1.1 x 0.5 mm in Size
- Low Insertion Loss: 0.8 dB Typ.
- Out-of-Band Rejection: > 15 dB
- 50 Ohms Single-Ended Input & Output
- [RoHS Compliant](#) | [MSL Level 1](#)

Applications

- IoT, Wi-Fi, V2X, Wearables, ISM
- Bluetooth® / ZigBee® / Thread / Matter
- Suppress Harmonics and Improve Spectral Purity Between Power Amplifiers and Antennas
- Antenna Matching and Filtering in 2.4GHz Audio and Home Automation Applications

Ordering Information

Part Number	Description
AFII-LC-0097	SMD 2450MHz Band Pass Ceramic Filter on Cut Tape
AFII-LC-0097-T	SMD 2450MHz Band Pass Ceramic Filter on Tape & Reel
AFII-LC-0097-EVB	SMD 2450MHz Band Pass Ceramic Filter Evaluation Board

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



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AFII-LC-0097

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1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (f_0)	-	2450	-	MHz	-
Passband	2400	-	2500	MHz	-
VSWR	-	-	1.9	-	-
Insertion Loss ⁽¹⁾	-	0.8	1	dB	-
Amplitude Ripple ⁽¹⁾	-	0.03	0.04	dB	-
Group Delay ⁽¹⁾	-	0.73	0.75	ns	-
Group Delay Ripple ⁽¹⁾	-	0.007	0.02		-
Relative Attenuation ⁽¹⁾ (Reference level: 0dB)	25	-	-	dB	50 - 960MHz
	35	-	-		1560 - 1606 MHz
	15	-	-		1710 - 1990MHz
	15	-	-		3600MHz
	30	-	-		4800 - 5000MHz
	25	-	-		5000 - 7200MHz
Source Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
Load Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
Power Capacity		2		W	-

Notes: (1) Typical values are the average values within the corresponding frequency band.

(2) A matching network is unnecessary (refer to the Measurement Circuits section).

Mechanical Specification

Parameters	Specifications
Dimension	1.4 x 1.1 x 0.5 mm
Mounting Type	Surface Mount
Additional Resources	Download STEP File, Package Drawing, 3D PDF

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-10°C ~ +40°C
MSL level	1
RoHS Complaint	Yes

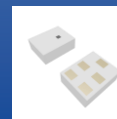


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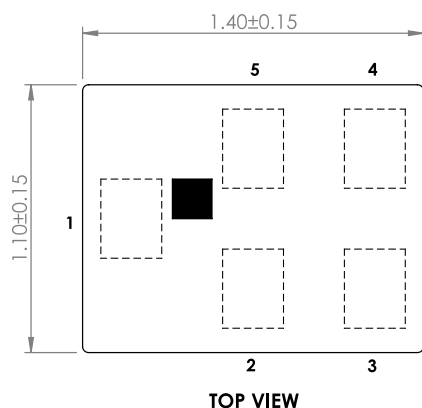


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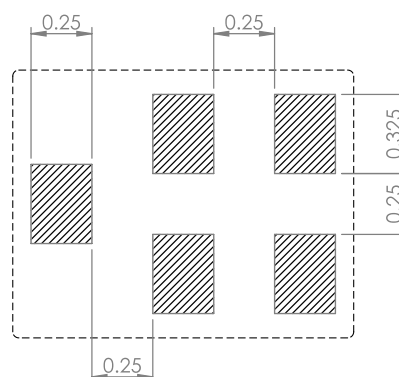
1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Product Dimensions

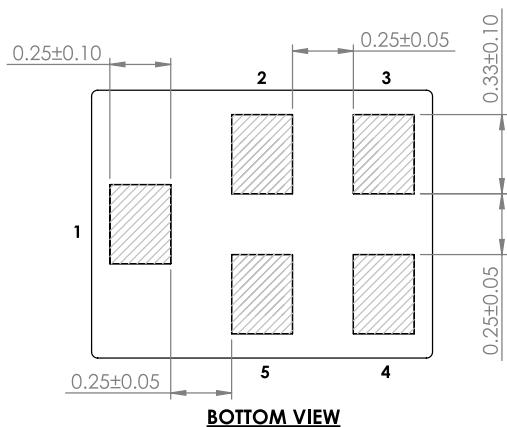


TOP VIEW

RECOMMENDED LAND PATTERN

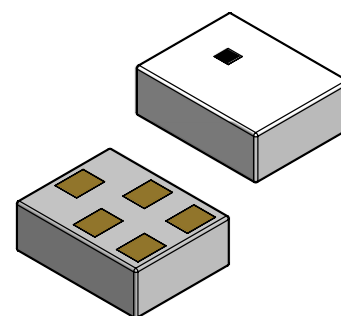


FRONT VIEW



BOTTOM VIEW

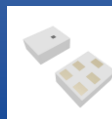
PIN #	FUNCTION
1	INPUT
2	GROUND
3	GROUND
4	OUTPUT
5	GROUND



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.

SMD 2450MHz Band Pass Ceramic Filter



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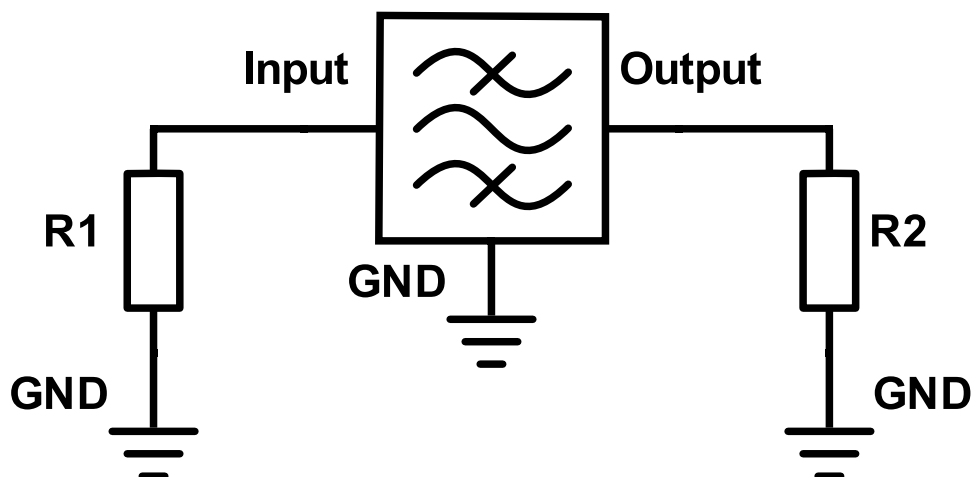


Check Inventory



1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Measurement Circuit



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

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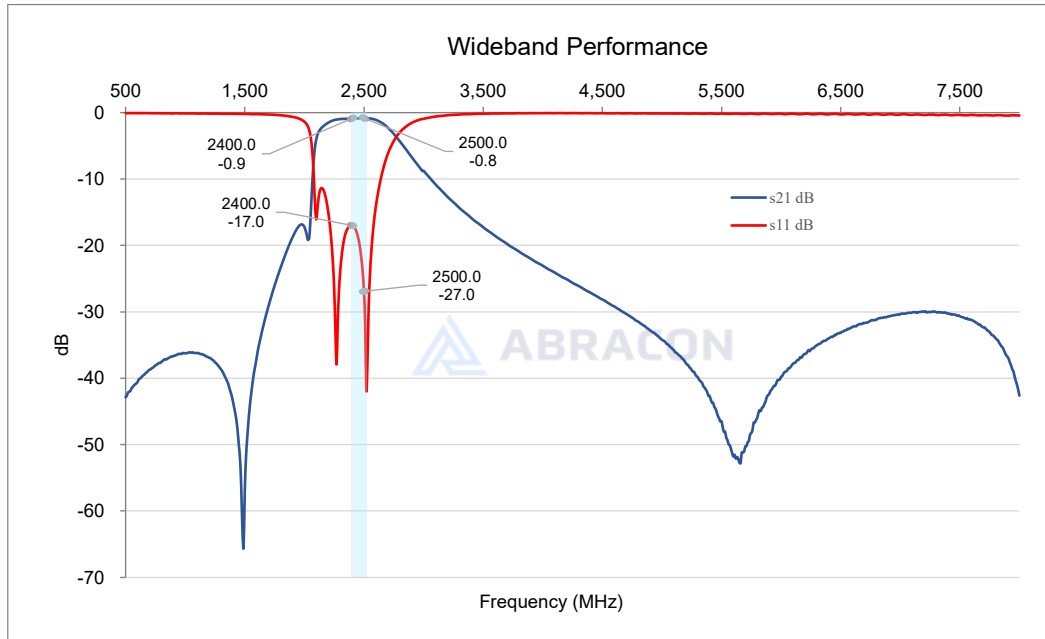


Check Inventory

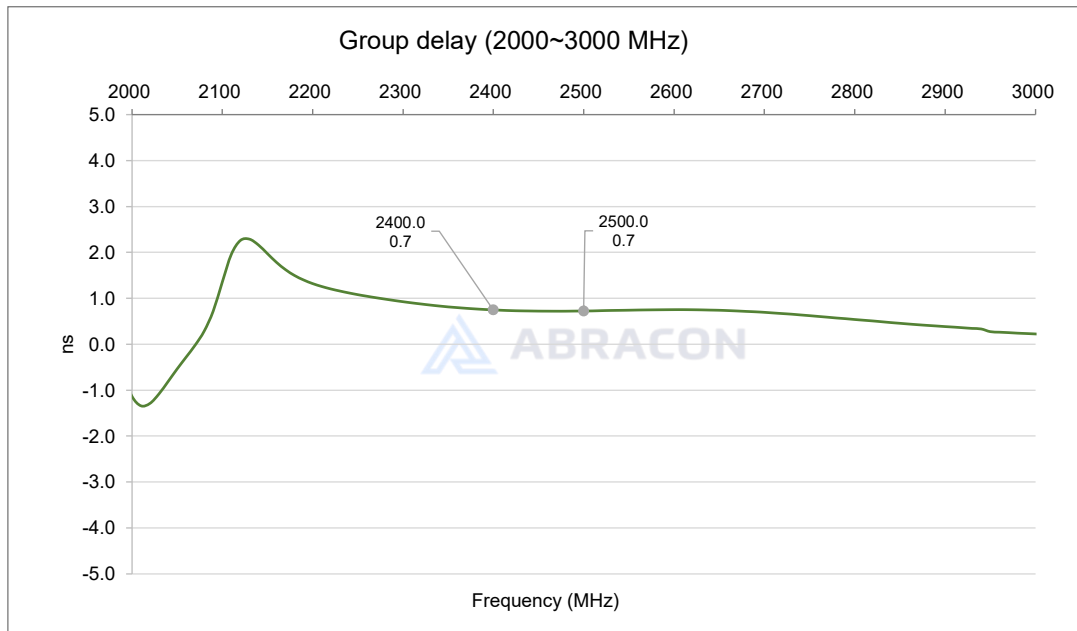


1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Frequency Characteristics



Group Delay

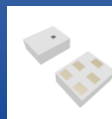


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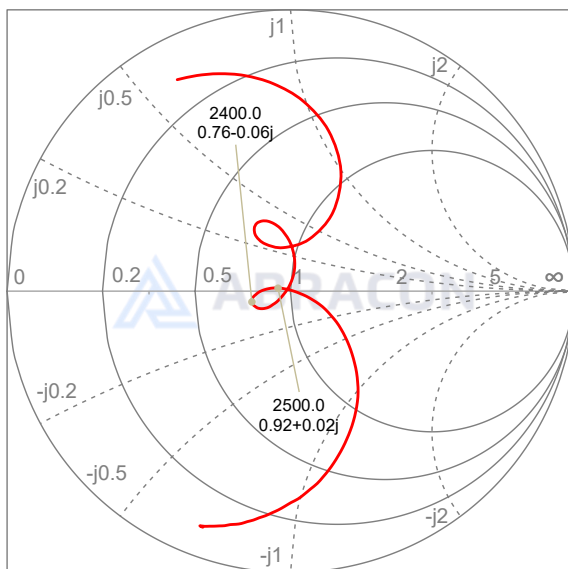
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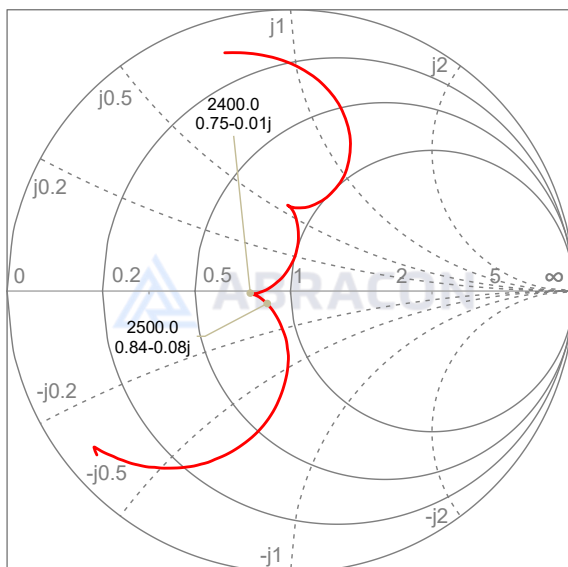
1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Smith Chart (S11 & S22)

Smith chart S11 (2000~3000MHz)



Smith chart S22 (2000~3000MHz)



SMD 2450MHz Band Pass Ceramic Filter



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1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

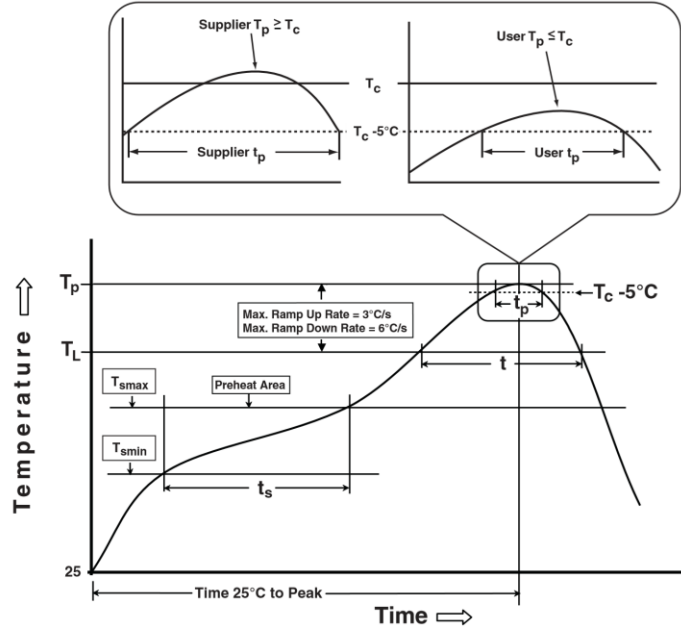


Table 1

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)

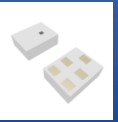
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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	200°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	217°C
Time at Liquidous (T_L)	60 – 150 sec.	60 – 150 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.	10 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 2450MHz Band Pass Ceramic Filter



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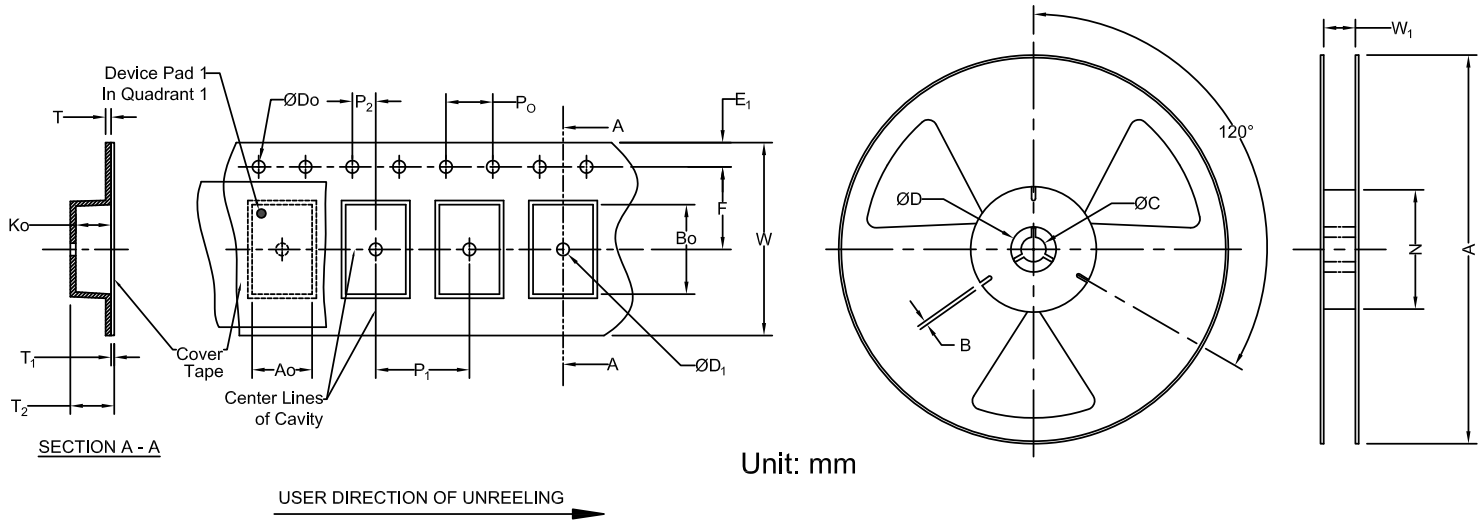
Check Inventory



1.4 x 1.1 x 0.5 mm
RoHS Compliant
MSL Level = 1

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	D0	P0	P2	F	P1	W	A0	B0	K0	Reel Qty
1.75 ± 0.1	1.5 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	3.5 ± 0.05	4.0 ± 0.1	8.0 ± 0.3	1.25 ± 0.10	1.55 ± 0.10	0.7 Max	5,000

Reel Specifications (mm)

A	W1	N	C
178 ± 2.0	10.0 ± 1.5	58 ± 2.0	13.5 ± 0.2

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.



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