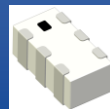


# SMD 2450MHz Low Pass Ceramic Filter



**AFII-LC-0084**

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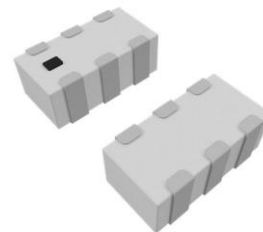
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**1.6 x 0.8 x 0.6 mm**  
**RoHS Compliant**  
**MSL Level = 1**

## Description

Achieving new heights in performance and miniaturization, this advanced harmonic rejection filter is engineered for the most compact IoT, Wi-Fi, and wearable designs. Its 1.6 x 0.8 x 0.6 mm footprint houses exceptional RF characteristics, including an ultra-low 0.27 dB insertion loss and high harmonic rejection exceeding 34 dB. By efficiently suppressing 2<sup>nd</sup> and 3<sup>rd</sup> harmonics between the power amplifier and antenna, it significantly improves spectral purity. With a 50-ohm single-ended design and an MSL Level 1 rating, it ensures reliable, high-volume integration for 2.4GHz applications in Bluetooth®, home automation, and audio, contributing to superior signal integrity and enhanced power efficiency.



## Features

- 1.6 x 0.8 x 0.6 mm in Size
- Low Insertion Loss: 0.27 dB
- Out-of-Band Rejection: > 34 dB (at 2<sup>nd</sup> & 3<sup>rd</sup> harmonics)
- 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-0084	SMD 2450MHz Low Pass Ceramic Filter on Cut Tape
AFII-LC-0084-T	SMD 2450MHz Low Pass Ceramic Filter on Tape & Reel
AFII-LC-0084-EVB	SMD 2450MHz Low Pass Ceramic Filter Evaluation Board

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

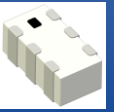


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1.6 x 0.8 x 0.6 mm  
RoHS Compliant  
MSL Level = 1

## Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency ( $f_0$ )	-	2450	-	MHz	-
Passband	2400	-	2500	MHz	-
Insertion Loss <sup>(1)</sup>	-	0.27	0.28	dB	-
VSWR	-	-	1.5	-	-
Relative Attenuation <sup>(1)</sup> (Reference level: 0dB)	40	44	-	dB	2 <sup>nd</sup> harmonics 4900MHz (4800 - 5000 MHz)
	33	34	-		3 <sup>rd</sup> harmonics 7350MHz (7200 - 7500 MHz)
Amplitude Ripple <sup>(1)</sup>	-	0.005	0.011	dB	
Group Delay <sup>(1)</sup>	-	0.18	0.19	ns	
Group Delay Ripple <sup>(1)</sup>	-	0.002	0.005		
Source Impedance <sup>(2)</sup> (single ended)	-	50	-	$\Omega$	-
Load Impedance <sup>(2)</sup> (single ended)	-	50	-	$\Omega$	-
Power Capacity		3		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	1.6 x 0.8 x 0.6 mm
Mounting Type	Surface Mount

## Environmental Specification

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

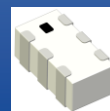


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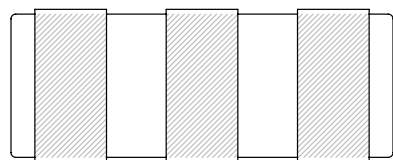
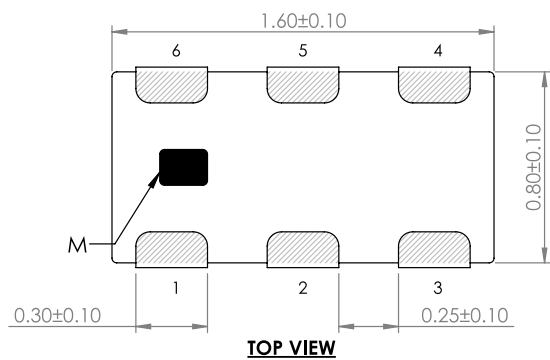


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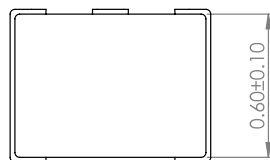


**1.6 x 0.8 x 0.6 mm**  
**RoHS Compliant**  
**MSL Level = 1**

## Product Dimensions

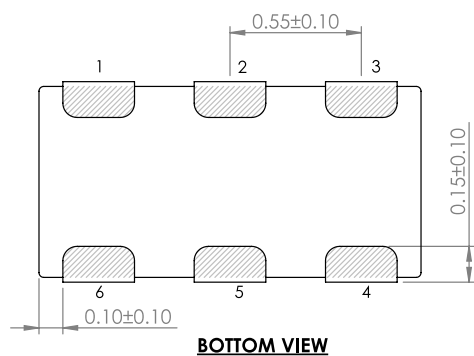
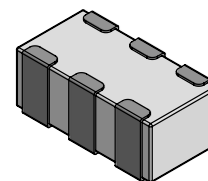
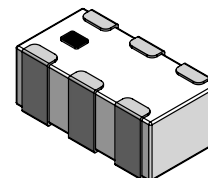
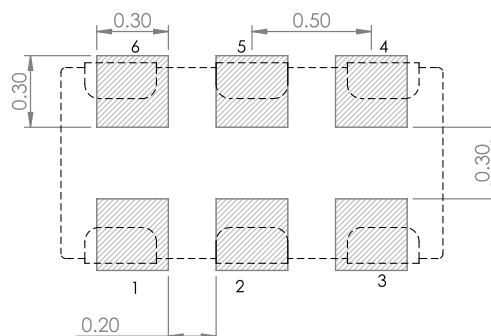


**FRONT VIEW**



**SIDE VIEW**

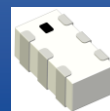
### RECOMMENDED LAND PATTERN



Pin #	Function
1, 3, 4, 6	GND
2, 5	Out/IN
M	Mark

Unit: mm

# SMD 2450MHz Low Pass Ceramic Filter



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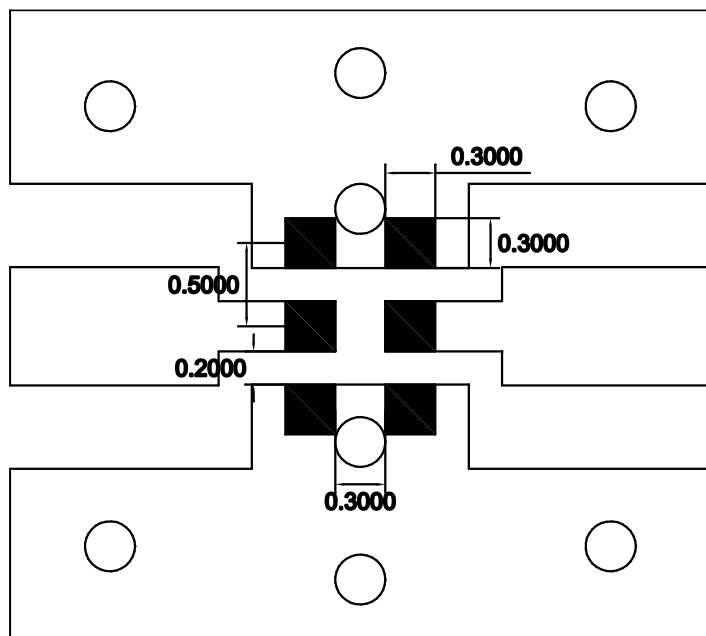


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1.6 x 0.8 x 0.6 mm  
RoHS Compliant  
MSL Level = 1

## Recommended Land Pattern



Land

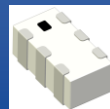


Through-hole( $\phi 0.3$ )

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 Low Pass Ceramic Filter



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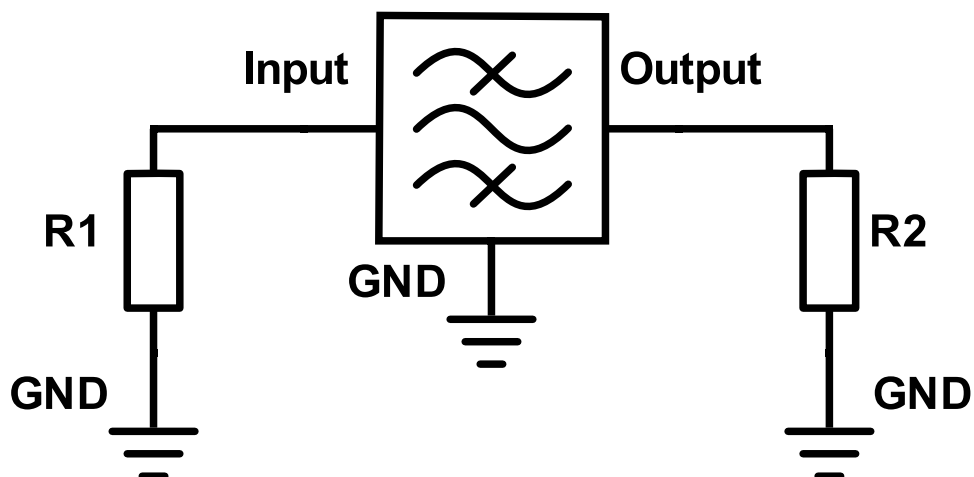


1.6 x 0.8 x 0.6 mm

RoHS Compliant

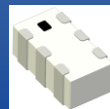
MSL Level = 1

## Measurement Circuit



Port	Matching Component
Input	R1: 50Ω
Output	R2: 50Ω

# SMD 2450MHz Low Pass Ceramic Filter



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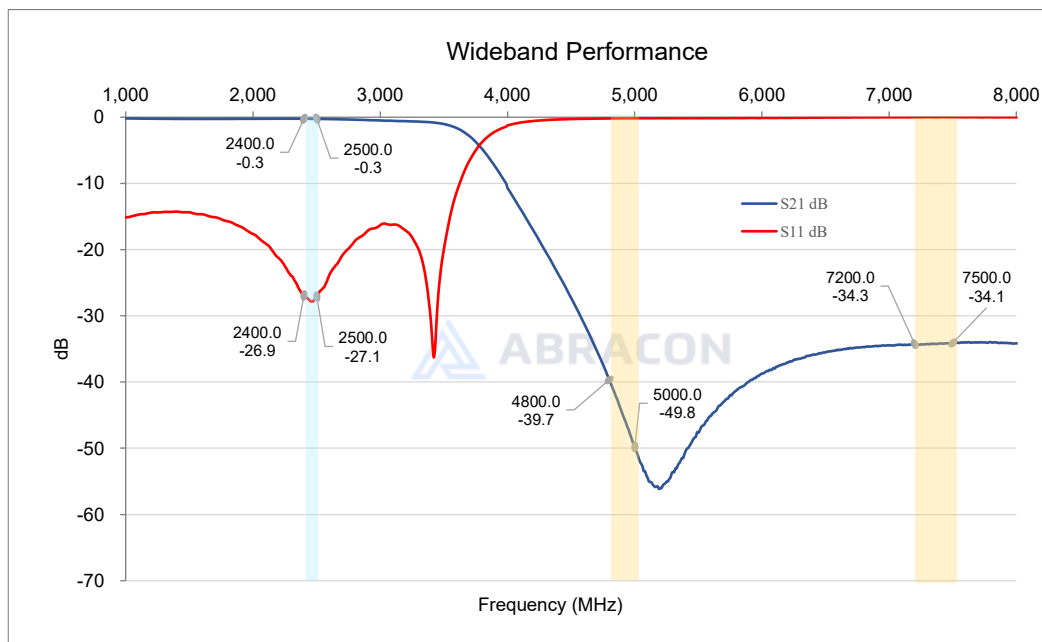


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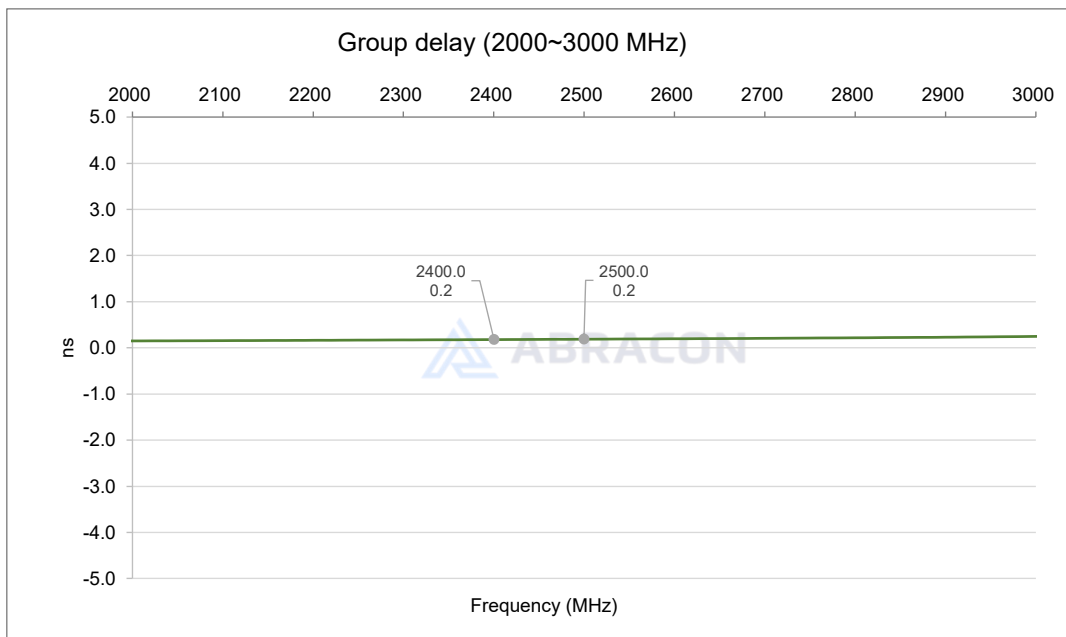


1.6 x 0.8 x 0.6 mm  
RoHS Compliant  
MSL Level = 1

## Frequency Characteristics



## Group Delay

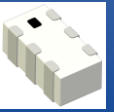


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RoHS Compliant  
MSL Level = 1

## Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

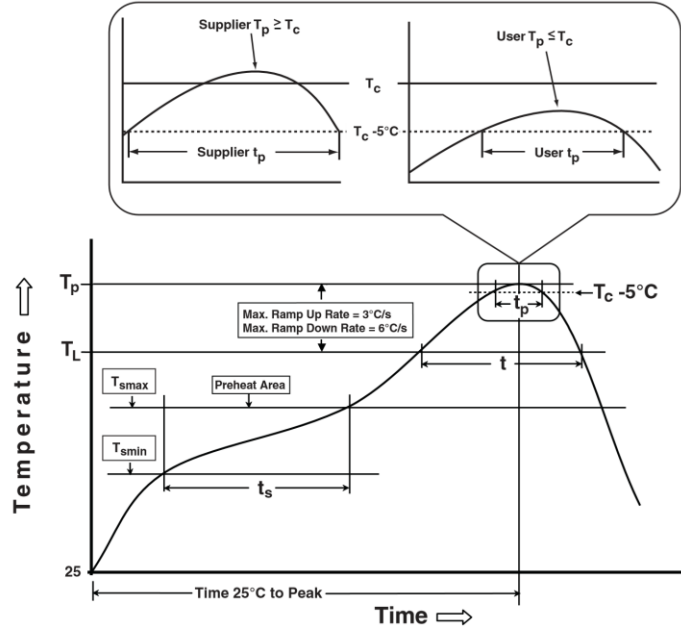


Table 1

### SnPb Eutectic Process Classification Temperatures ( $T_c$ )

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥ 350
<2.5mm	235°C	220°C
≥ 2.5mm	220°C	220°C

Table 2

### Pb-Free Process Classification Temperatures ( $T_c$ )

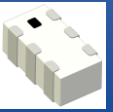
Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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 Low Pass Ceramic Filter



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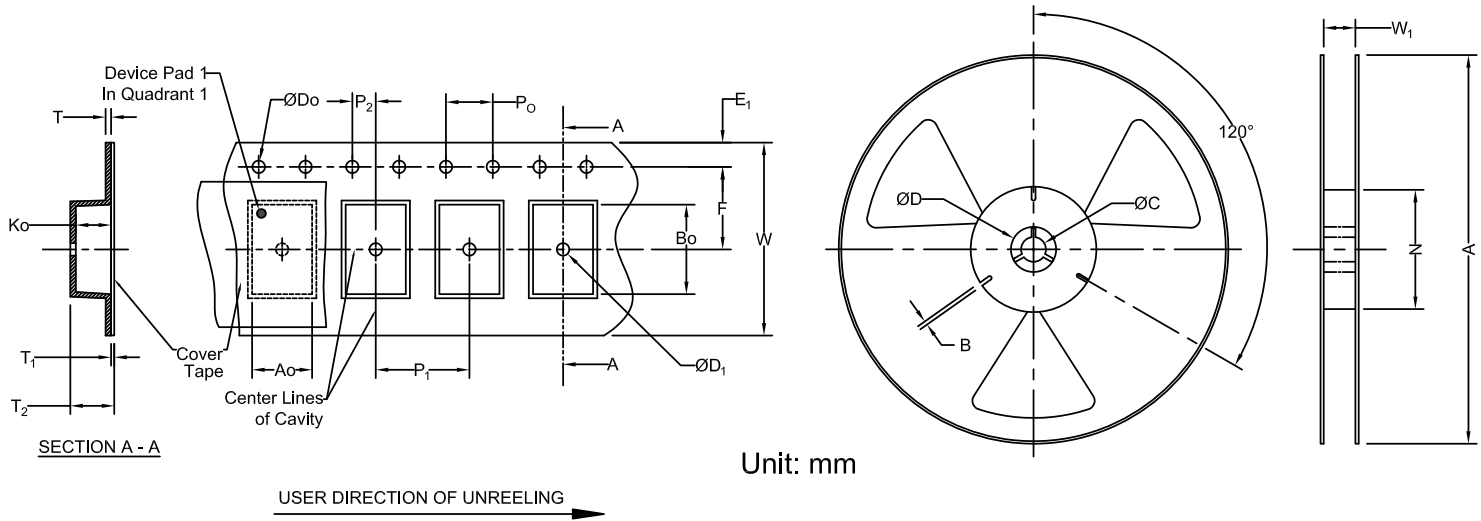
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1.6 x 0.8 x 0.6 mm  
RoHS Compliant  
MSL Level = 1

## Packaging

### Tape & Reel Dimension



### Carrier Tape Specifications (mm)

E1	D0	P0	P2	F	P1	W	A0	B0	T <sub>2</sub>	Reel Qty
1.75 ± 0.1	1.5 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	3.5 ± 0.05	2.0 ± 0.05	8.0 ± 0.3	1.00 ± 0.10	1.80 ± 0.10	0.75 Max	4,000

### Reel Specifications (mm)

A	W <sub>1</sub>	N	C
178 ± 2.0	10.0 ± 1.5	58 ± 2.0	13.5 ± 0.2

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