

SMD 2450MHz Low Pass Ceramic Filter



AFII-LC-0084

Request Samples



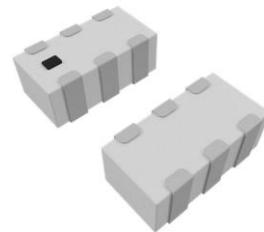
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1.6 x 0.8 x 0.6 mm
RoHS Compliant
MSL Level = 1

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 2nd and 3rd 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 2nd & 3rd 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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Cave, TX 78738
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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (f ₀)	-	2450	-	MHz	-
Passband	2400	-	2500	MHz	-
Insertion Loss ⁽¹⁾	-	0.27	0.28	dB	-
VSWR	-	-	1.5	-	-
Relative Attenuation ⁽¹⁾ (Reference level: 0dB)	40	44	-	dB	2 nd harmonics 4900MHz (4800 - 5000 MHz)
	33	34	-		3 rd harmonics 7350MHz (7200 - 7500 MHz)
Amplitude Ripple ⁽¹⁾	-	0.005	0.011	dB	-
Group Delay ⁽¹⁾	-	0.18	0.19	ns	-
Group Delay Ripple ⁽¹⁾	-	0.002	0.005		-
Source Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
Load Impedance ⁽²⁾ (single ended)	-	50	-	Ω	-
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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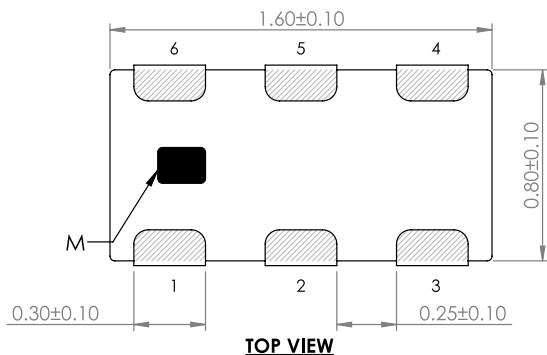


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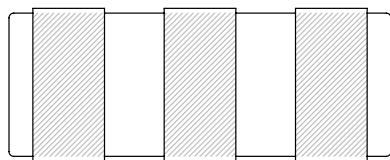


1.6 x 0.8 x 0.6 mm
RoHS Compliant
MSL Level = 1

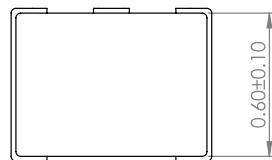
Product Dimensions



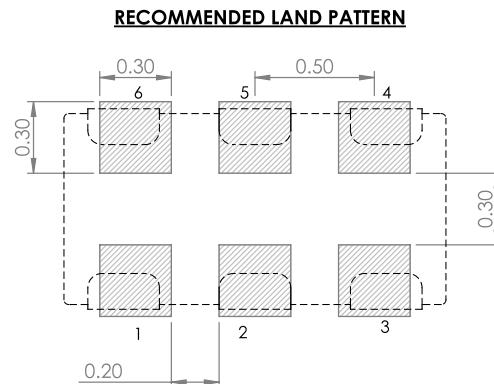
TOP VIEW



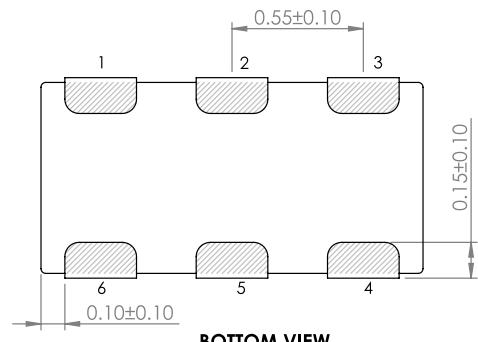
FRONT VIEW



SIDE VIEW

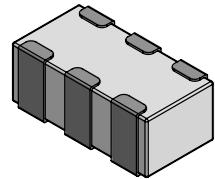


RECOMMENDED LAND PATTERN



BOTTOM VIEW

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



Unit: mm

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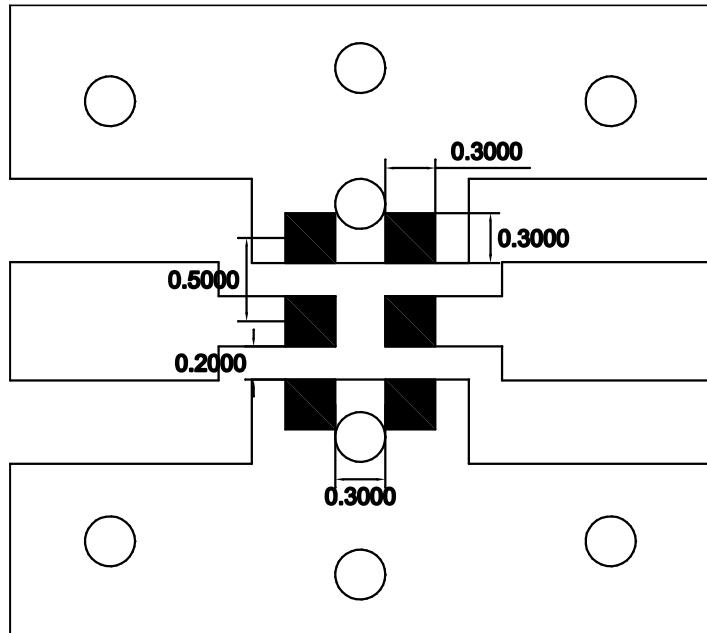


1.6 x 0.8 x 0.6 mm

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.

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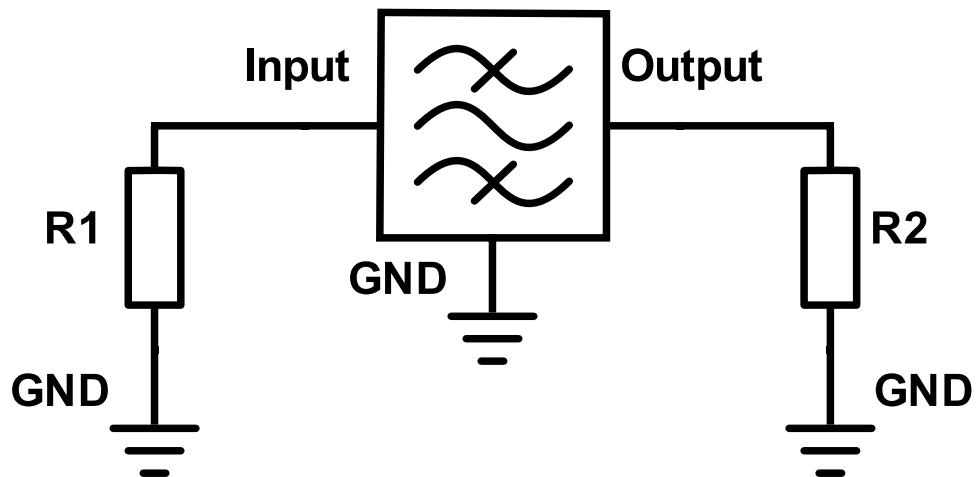


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Measurement Circuit



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

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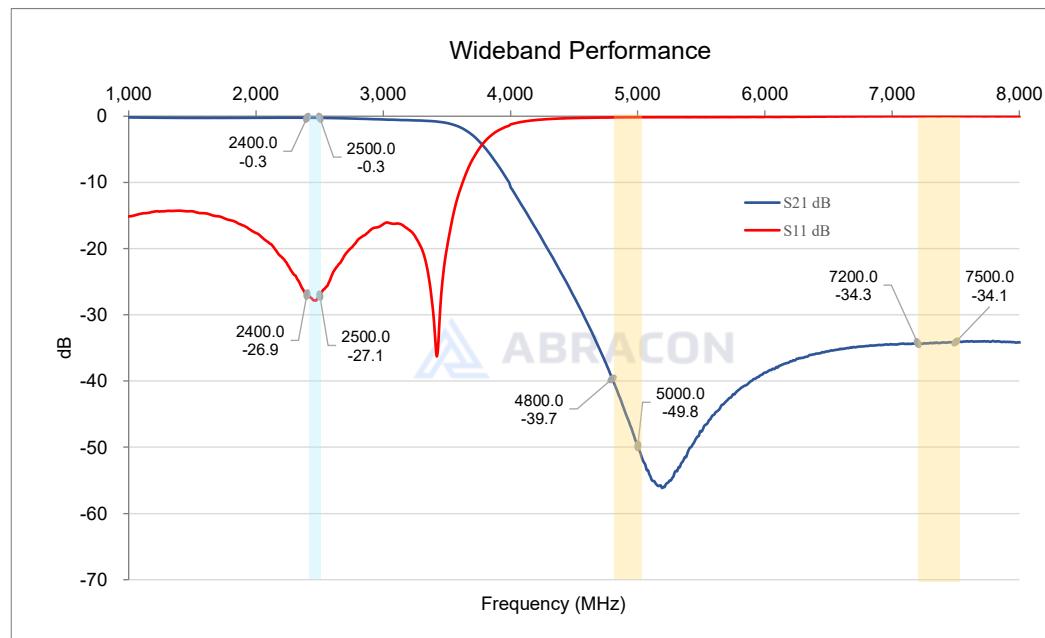


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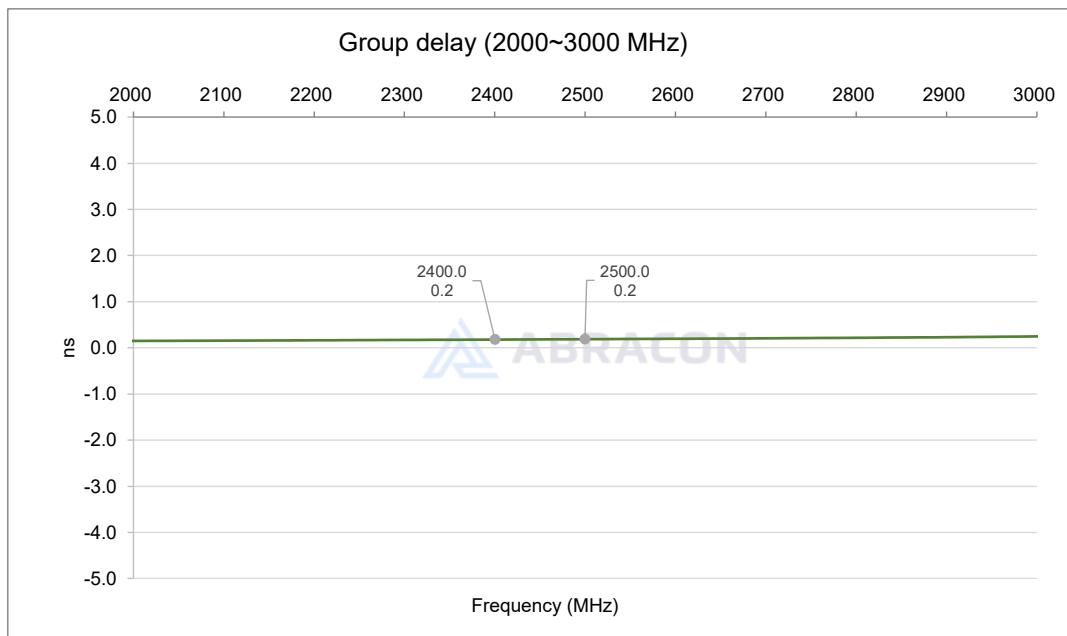


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Frequency Characteristics



Group Delay



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Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

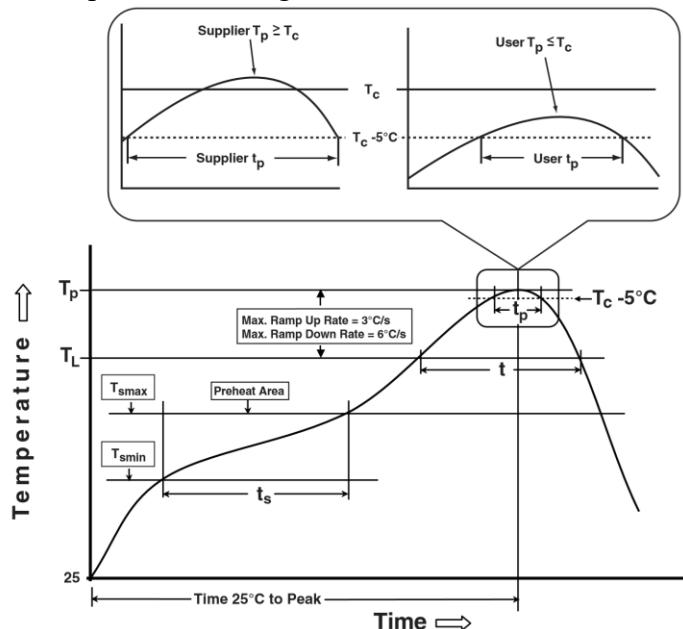


Table 1

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.



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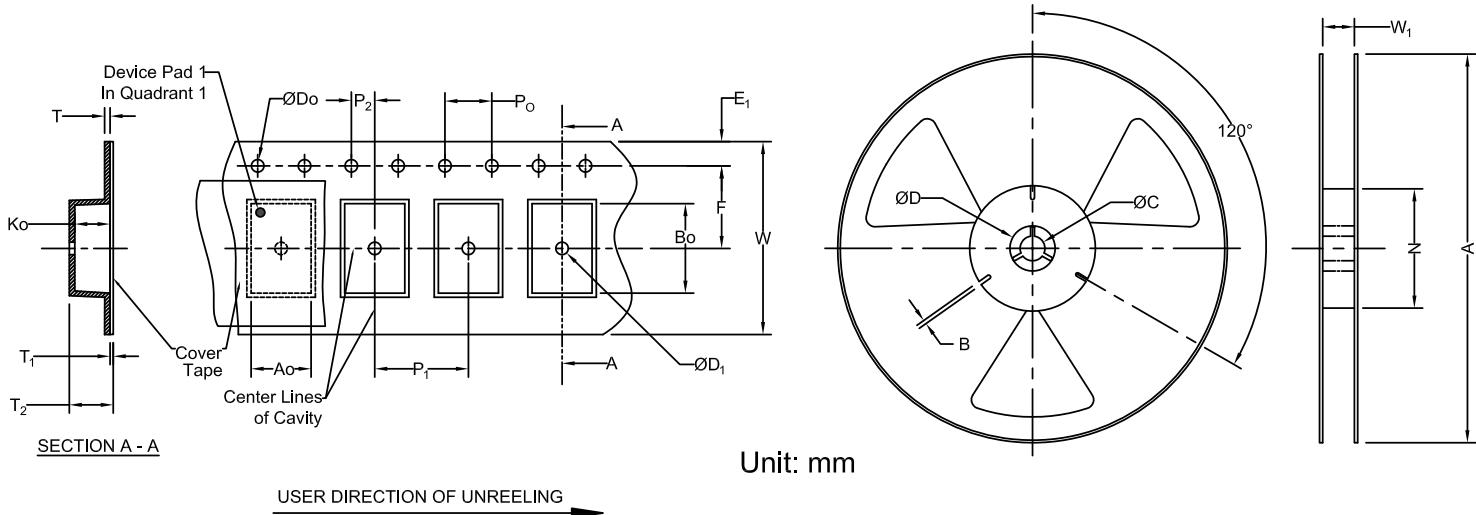
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Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	D0	P0	P2	F	P1	W	A0	B0	T ₂	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 ₁	N	C
178 ± 2.0	10.0 ± 1.5	58 ± 2.0	13.5 ± 0.2

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