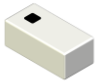


SMD 2450MHz Low Pass Ceramic Filter



AFII-LC-0083

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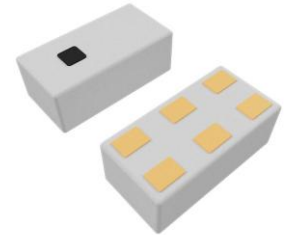
Check Inventory



1.0 x 0.5 x 0.38 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 1.0 x 0.5 x 0.38 mm package. It achieves an exceptional blend of ultra-low 0.38 dB insertion loss and outstanding out-of-band rejection exceeding 47 dB at the 2nd and 3rd harmonics. 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

- 1.0 x 0.5 x 0.38 mm in Size
- Low Insertion Loss: 0.38 dB
- Out-of-Band Rejection: > 47 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-0083	SMD 2450MHz Low Pass Ceramic Filter on Cut Tape
AFII-LC-0083-T	SMD 2450MHz Low Pass Ceramic Filter on Tape & Reel
AFII-LC-0083-EVB	SMD 2450MHz Low Pass Ceramic Filter Evaluation Board

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

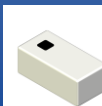


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1.0 x 0.5 x 0.38 mm

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 ⁽¹⁾	-	0.38	0.4	dB	-
VSWR	-	-	1.06	-	-
Relative Attenuation ⁽¹⁾ (Reference level: 0dB)	41	47	-	dB	2 nd harmonics 4900MHz (4800 - 5000 MHz)
	53	55	-		3 rd harmonics 7350MHz (7200 - 7500 MHz)
Amplitude Ripple ⁽¹⁾	-	0.01	-	dB	
Group Delay ⁽¹⁾	-	0.16	0.17	ns	
Group Delay Ripple ⁽¹⁾	-	0.002	0.004		
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	1.0 x 0.5 x 0.38 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

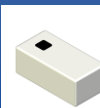


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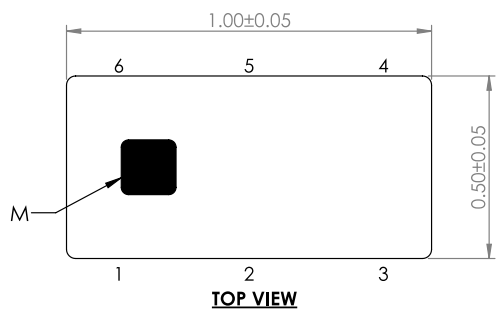


Check Inventory

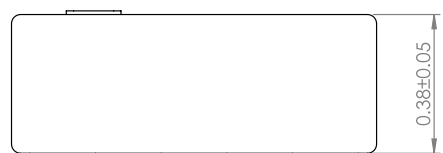


1.0 x 0.5 x 0.38 mm
RoHS Compliant
MSL Level = 1

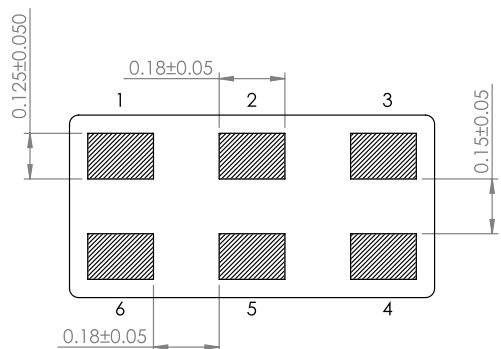
Product Dimensions



TOP VIEW

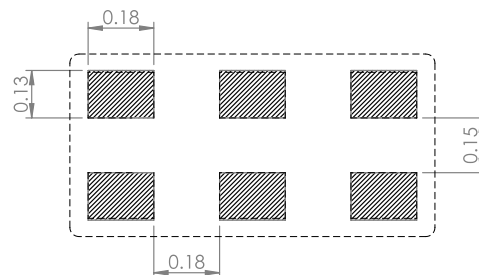


FRONT VIEW

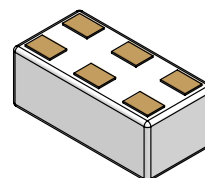
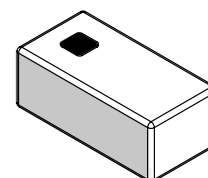


BOTTOM VIEW

RECOMMENDED LAND PATTERN

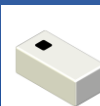


Pin #	Function
1, 3	NC
2, 5	GND
4, 6	IN/OUT
M	MARK



Unit: mm

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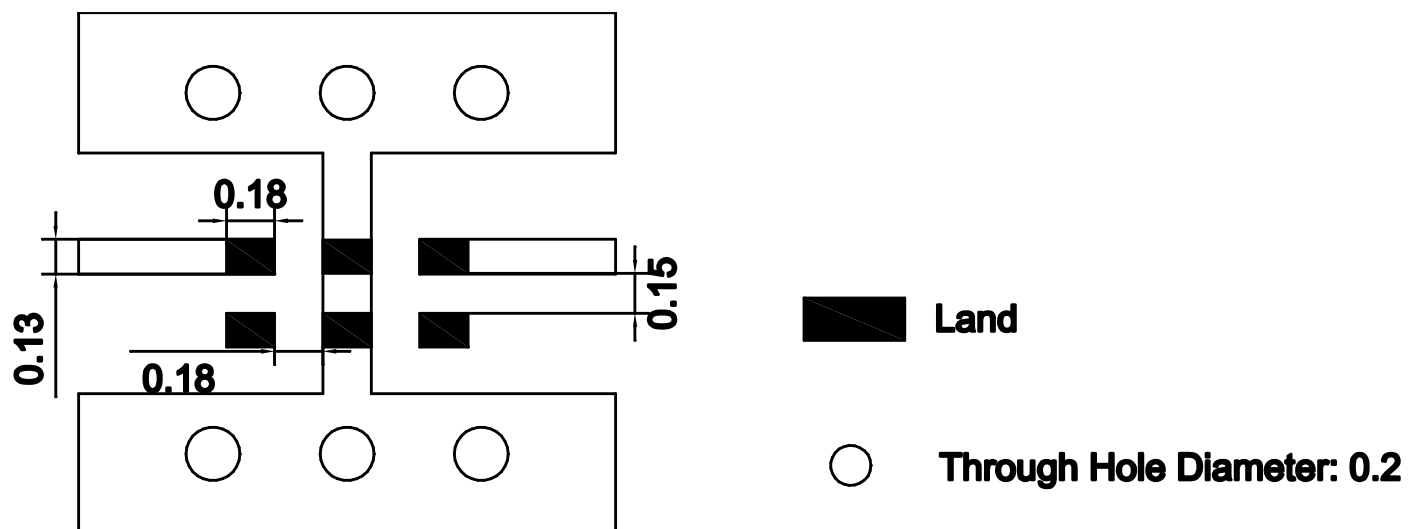


1.0 x 0.5 x 0.38 mm

RoHS Compliant

MSL Level = 1

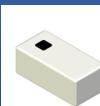
Recommended Land Pattern



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.

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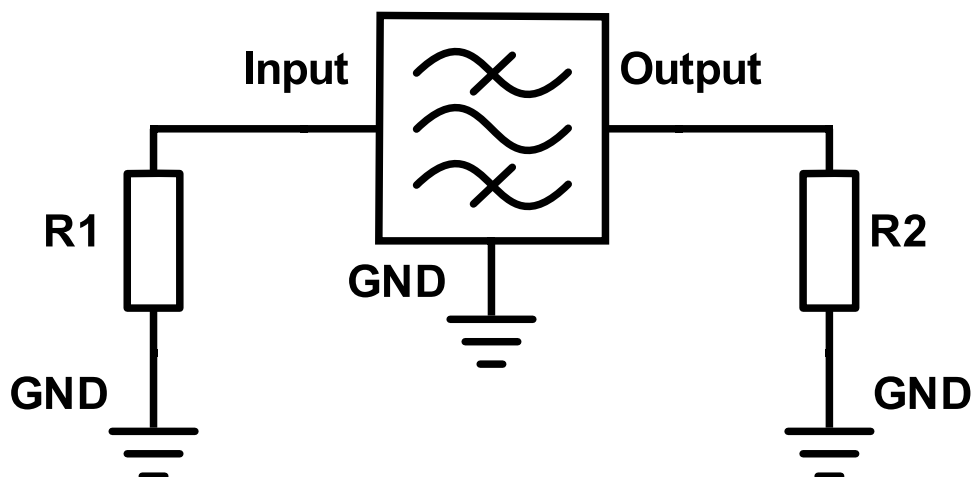


1.0 x 0.5 x 0.38 mm

RoHS Compliant

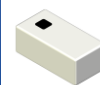
MSL Level = 1

Measurement Circuit



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

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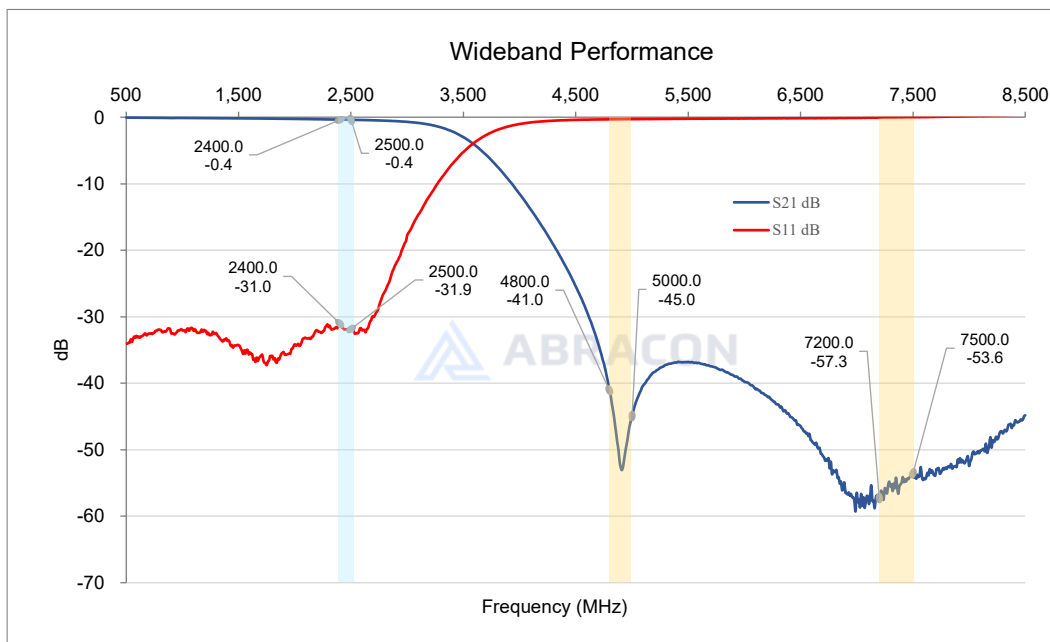


1.0 x 0.5 x 0.38 mm

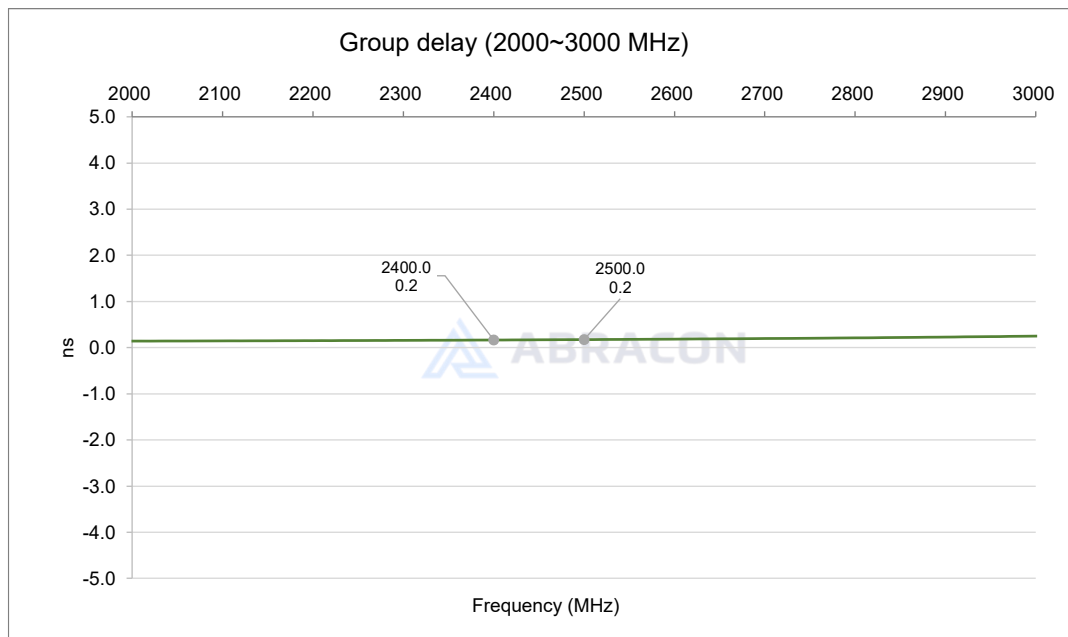
RoHS Compliant

MSL Level = 1

Frequency Characteristics



Group Delay

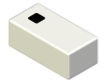


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RoHS Compliant
MSL Level = 1

Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

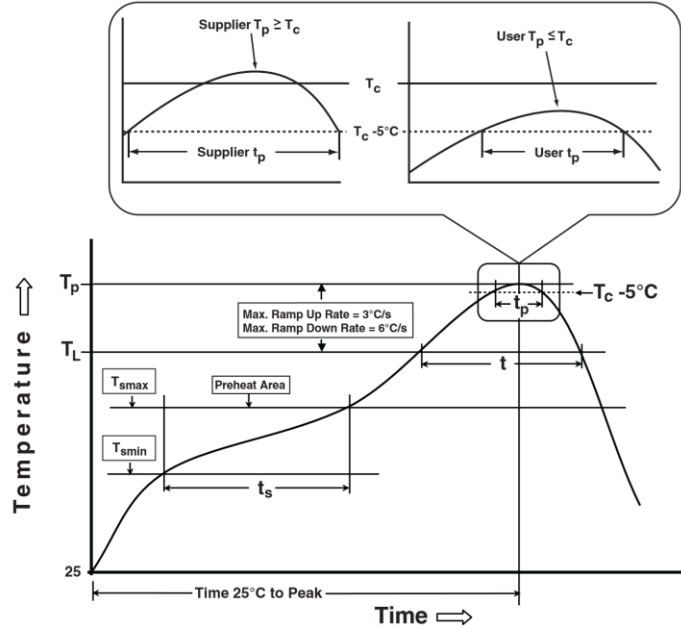


Table 1

SnPb Eutectic Process

Classification Temperatures (T_c)

Package Thickness	Volume mm 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)

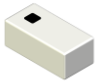
Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

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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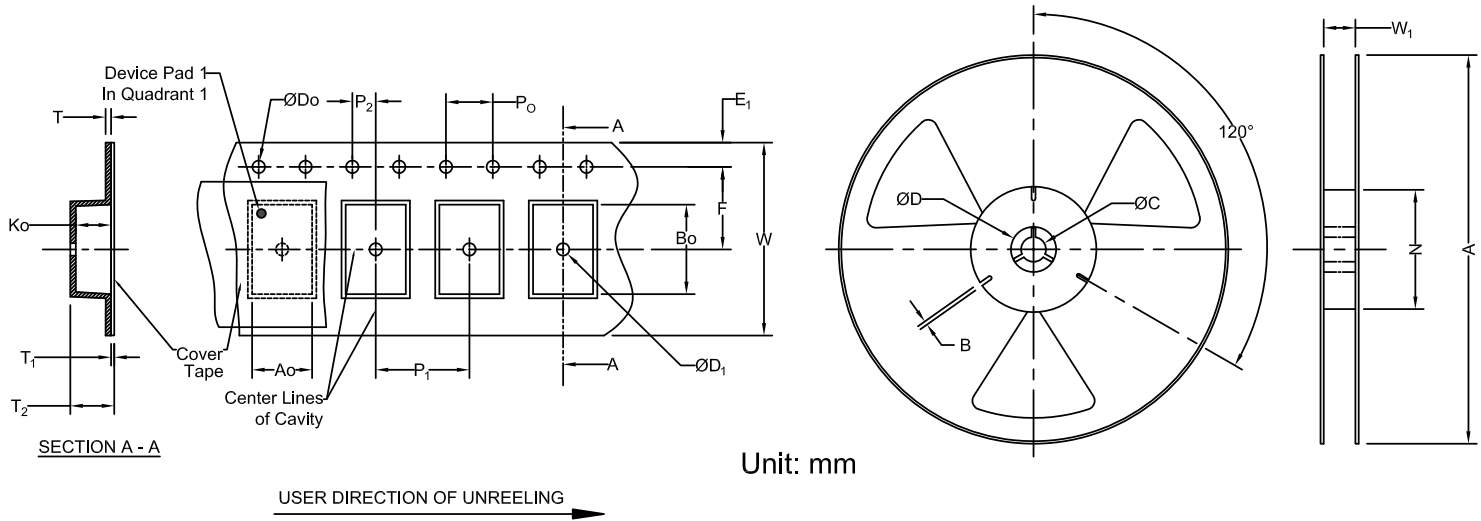
Check Inventory



1.0 x 0.5 x 0.38 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	2.0 ± 0.05	8.0 ± 0.3	0.62 ± 0.10	1.12 ± 0.10	0.6 Max	10,000

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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