

SMD 868 MHz Low Pass Ceramic Filter



AFII-LC-0085

Request Samples



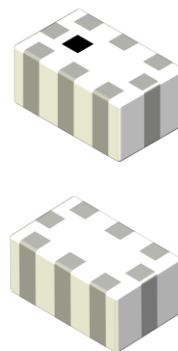
Check Inventory



2.0 x 1.25 x 0.95 mm
RoHS Compliant
MSL Level = 1

Description

Designed for long-range, low-power Sub-GHz applications, this compact harmonic rejection filter is optimized for LoRa, Sigfox, and Wi-Fi HaLow protocols. Housed in a 2.0 x 1.25 x 0.95 mm package, it delivers exceptional performance with an ultra-low 0.27 dB insertion loss and high harmonic rejection exceeding 37 dB. Positioned between power amplifiers and antennas, it effectively suppresses 2nd and 3rd harmonics to ensure regulatory compliance and improve spectral purity. With its 50-ohm single-ended design and MSL Level 1 rating, this filter provides a reliable, high-efficiency solution for antenna matching and filtering in smart metering, smart lighting, and other industrial IoT RF modules.



Features

- 2.0 x 1.25 x 0.95 mm in Size
- Low Insertion Loss: 0.27 dB
- Out-of-Band Rejection: > 37 dB (at 2nd & 3rd harmonics)
- 50 Ohms Single-Ended Input & Output
- [RoHS Compliant](#) | [MSL Level 1](#)

Applications

- Sub-GHz LoRa / Sigfox / Wi-Fi HaLow
- Smart Metering & Smart Lighting
- Suppress Harmonics and Improve Spectral Purity Between Power Amplifiers and Antennas
- Antenna Matching & Filtering in RF Modules

Ordering Information

Part Number	Description
AFII-LC-0085	SMD 868 MHz Low Pass Ceramic Filter on Cut Tape
AFII-LC-0085-T	SMD 868 MHz Low Pass Ceramic Filter on Tape & Reel
AFII-LC-0085-EVB	SMD 868 MHz Low Pass Ceramic Filter Evaluation Board

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



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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (f_0)	-	868	-	MHz	-
Passband	858	-	878	MHz	-
Insertion Loss ⁽¹⁾	-	0.27	0.28	dB	-
VSWR	-	-	1	-	-
Relative Attenuation ⁽¹⁾ (Reference level: 0dB)	34	37	-	dB	2 nd harmonics 1736MHz (1716 - 1756 MHz)
	60	61	-		3 rd harmonics 2604MHz (2574 - 2634 MHz)
Amplitude Ripple ⁽¹⁾	-	0.0019	0.002	dB	
Group Delay ⁽¹⁾	-	0.59	0.6	ns	
Group Delay Ripple ⁽¹⁾	-	0.005	0.007		
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	2.0 x 1.25 x 0.95 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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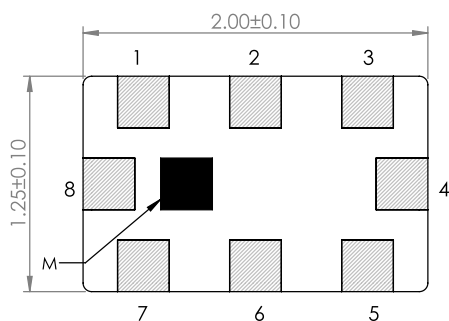


2.0 x 1.25 x 0.95 mm

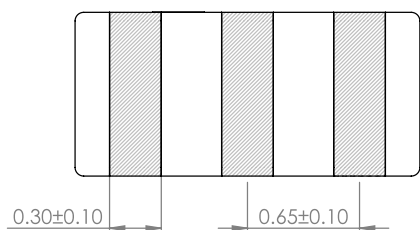
RoHS Compliant

MSL Level = 1

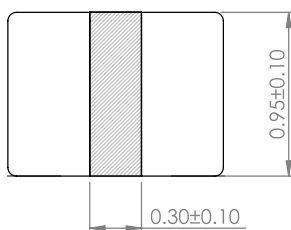
Product Dimensions



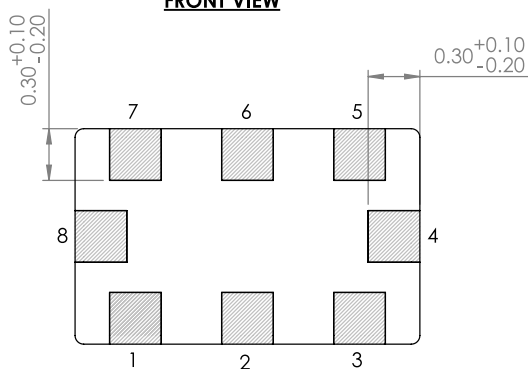
TOP VIEW



FRONT VIEW

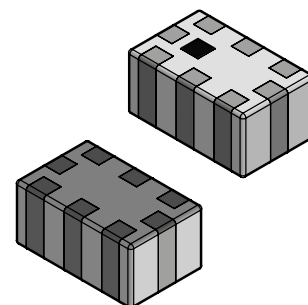
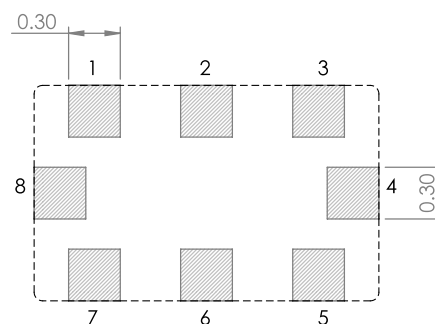


SIDE VIEW



BOTTOM VIEW

RECOMMENDED LAND PATTERN



Pin #	Function
1, 3, 5, 7	GND
2, 6	NC
4, 8	IN/OUT
M	MARK

Unit: mm

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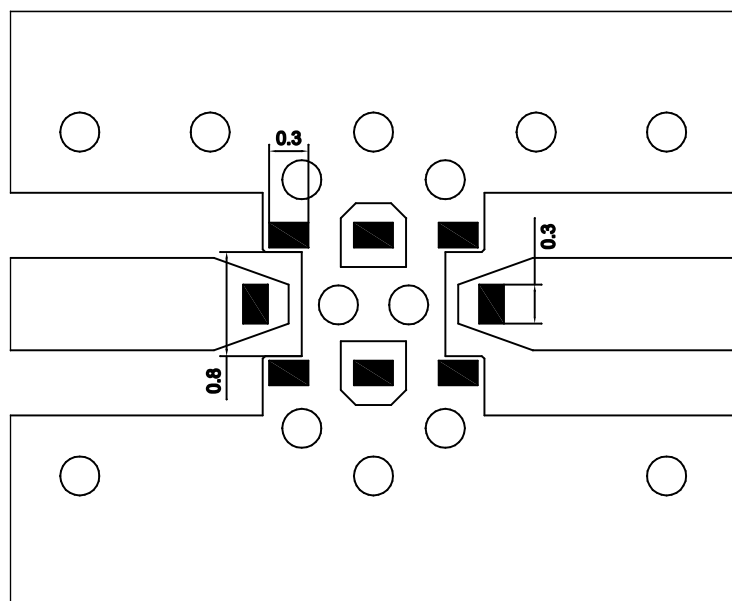


2.0 x 1.25 x 0.95 mm

RoHS Compliant

MSL Level = 1

Recommended Land Pattern



 Land

 Through-hole(0.2&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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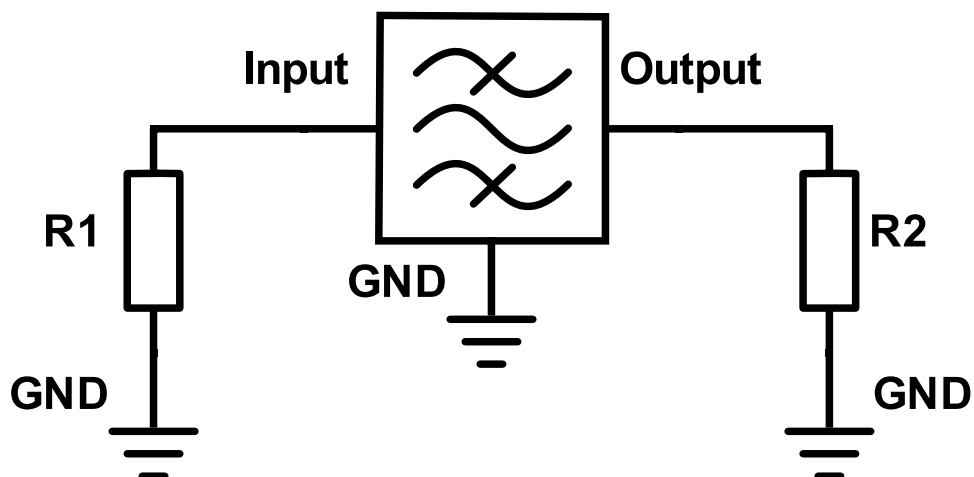


2.0 x 1.25 x 0.95 mm

RoHS Compliant

MSL Level = 1

Measurement Circuit



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

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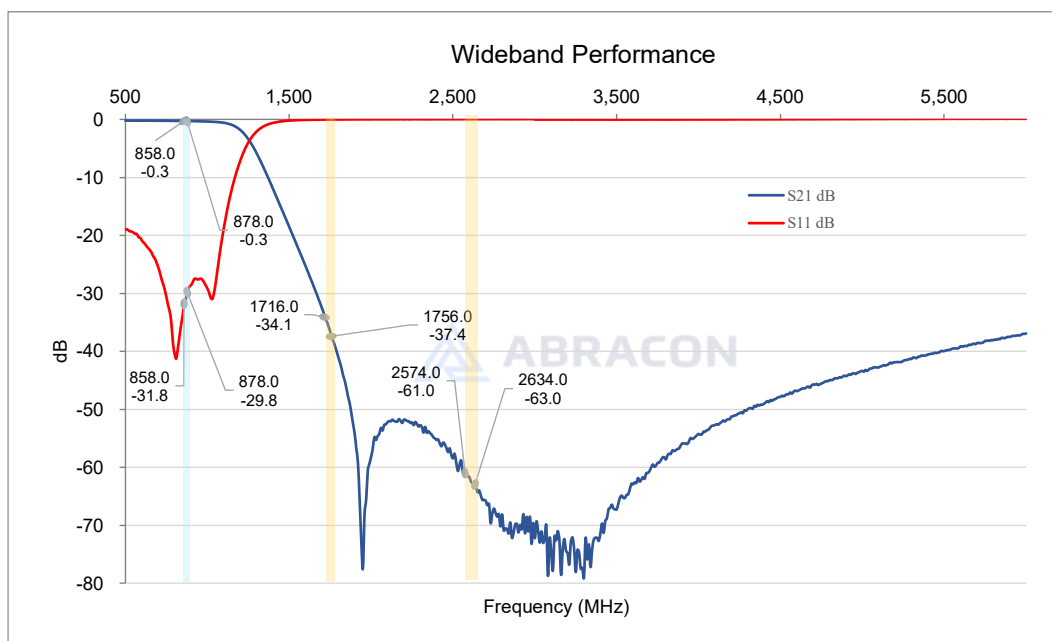


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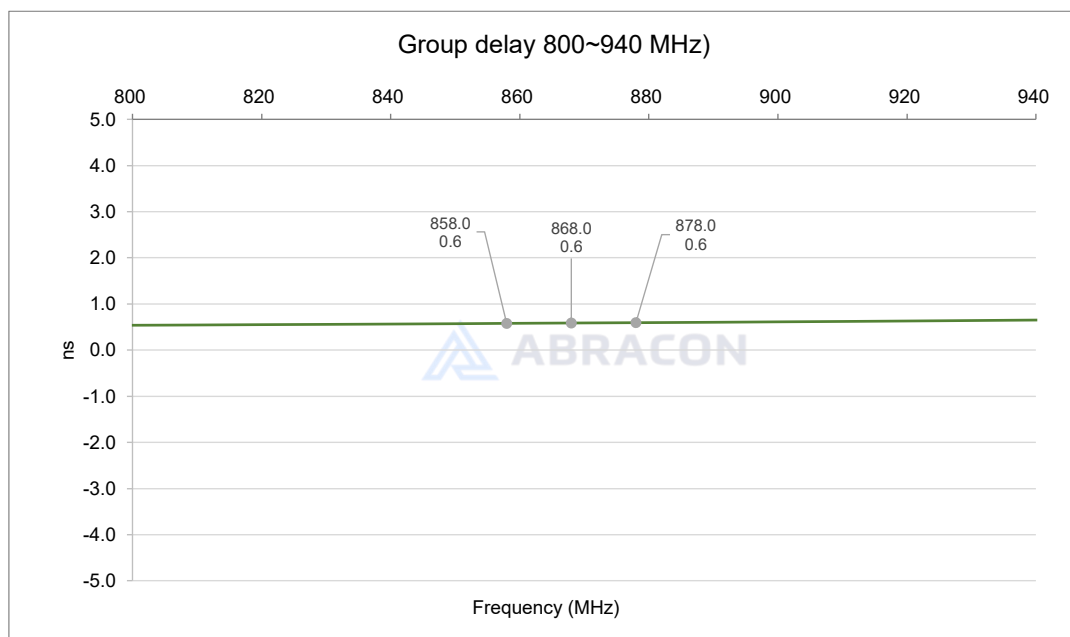


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Frequency Characteristics



Group Delay



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Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

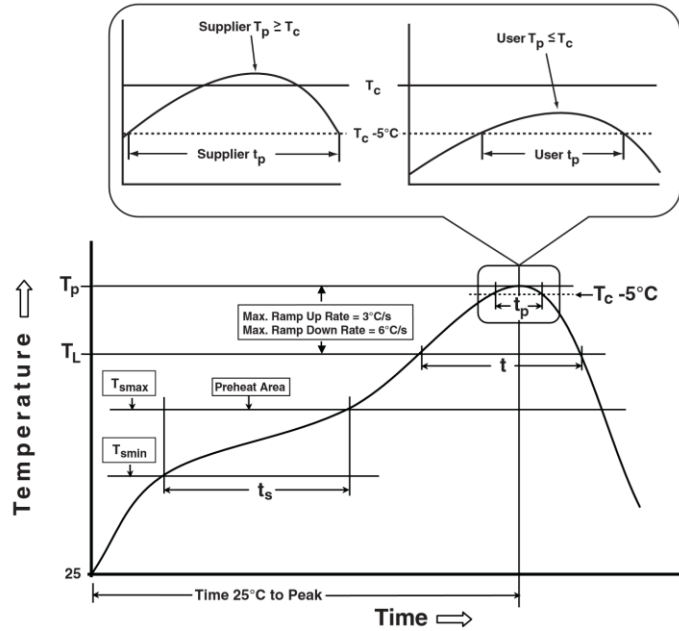


Table 1

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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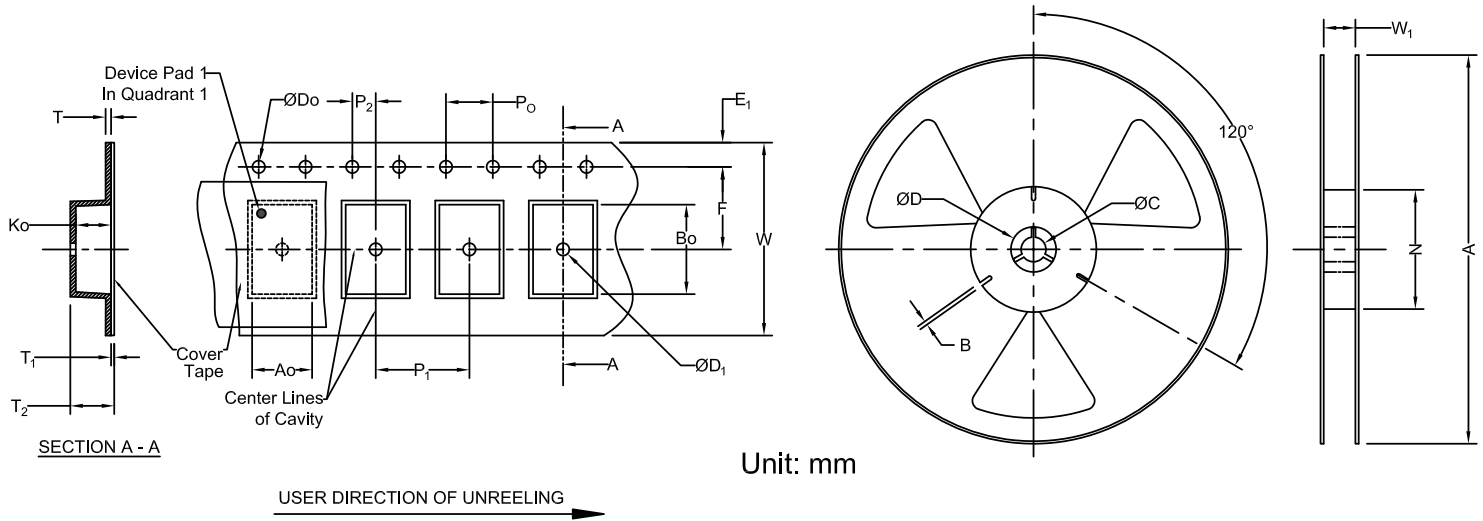
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RoHS Compliant

MSL Level = 1

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	D0	P0	P2	F	P1	W	A0	B0	K ₀	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	1.42 ± 0.10	2.25 ± 0.10	1.14 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

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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