

433.92 MHz SMD SAW Filter



AFII-SW-0082-Q

Request Samples



Check Inventory



3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

Description

This AEC-Q200 compliant filter is engineered for high-reliability automotive and industrial wireless systems. It's very narrow 1.6 MHz bandwidth and sharp >30 dB out-of-band rejection provide exceptional signal selectivity for precise frequency control. Housed in a 3.0 x 3.0 x 1.4 mm package, it features a low 1.8 dB insertion loss and handles up to +10 dBm of power. This robust, RoHS-compliant and MSL Level 1 component is the ideal choice for demanding applications including Remote Keyless Entry (RKE), industrial automation, wireless sensor networks, and security systems.



Features

- Frequency Range: 433.12 – 434.72 MHz
- AEC-Q200 Compliant
- Bandwidth: 1.6 MHz
- 3.0 x 3.0 x 1.4 mm in Size
- Insertion Loss: 1.8 dB
- Out-of-Band Rejection: > 30 dB
- Maximum Input Power: +10 dBm
- [RoHS Compliant](#) | [MSL Level 1](#)

Applications

- Remote Keyless Entry (RKE) Systems
- Internet of Things (IoT) Devices
- Wireless Sensor Networks
- Remote-Controlled Devices
- Industrial Automation
- Smart Metering
- Wireless Alarms and Security Systems

Ordering Information

Part Number	Description
AFII-SW-0082-Q	433.92 MHz SMD SAW Filter on Cut Tape
AFII-SW-0082-Q-T	433.92 MHz SMD SAW Filter on Tape & Reel

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



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Cave, TX 78738
Phone: 512-371-6159 | Fax: 512-351-8858
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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	433.92	-	MHz	
Insertion Loss	-	1.8	2.9	dB	433.12 – 434.72 MHz
Amplitude Ripple	-	0.4	1.0	dB _{p-p}	433.12 – 434.72 MHz
Group Delay	-	129.3	135.6	ns	433.12 – 434.72 MHz
Group Delay Ripple	-	2.35	6.28	ns	433.12 – 434.72 MHz
Attenuation	58	61	-	dB	10.0 ~ 380.0 MHz
	46	50	-		380.0 ~ 423.42 MHz
	25	30	-		443.42 ~ 453.42 MHz
	35	40	-		453.42 ~ 460.0 MHz
	50	54	-		460.0 ~ 700.0 MHz
	42	46	-		700.0 ~ 1000.0 MHz
VSWR	-	1.6	2.0	-	433.12 – 434.72 MHz
DC Voltage	-	-	3	V	-
Input Power	-	-	10	dBm	-
Source Impedance (single ended) ⁽¹⁾	-	50	-	Ω	-
Load Impedance (single ended) ⁽¹⁾	-	50	-	Ω	-

Notes: (1) A matching network is unnecessary (refer to the Measurement Circuits section).

Mechanical Specification

Parameters	Specifications
Dimension	3.0 x 3.0 x 1.4 mm
Mounting Type	Surface Mount
Additional Resources	Download STEP File, Package Drawing, 3D PDF

Environmental Specification

Parameters	Specifications
Operating & Storage Temperature (Unpackaged Component)	-40°C ~ +85°C
Storage Temperature in Packaging	5°C ~ +40°C
Packaging Storage Relative Humidity	70% (Max.)
MSL level	1
ESD	N/A



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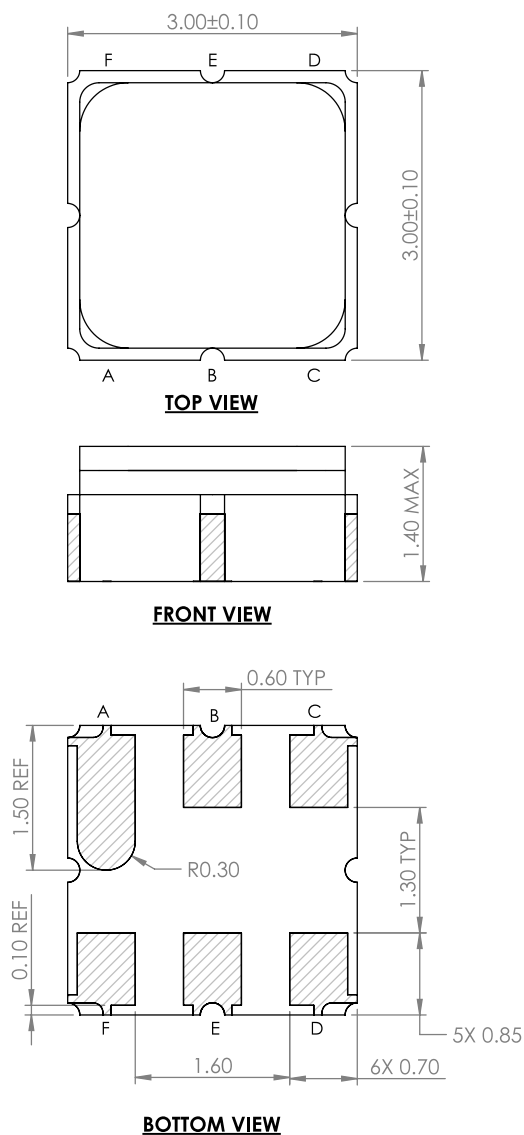


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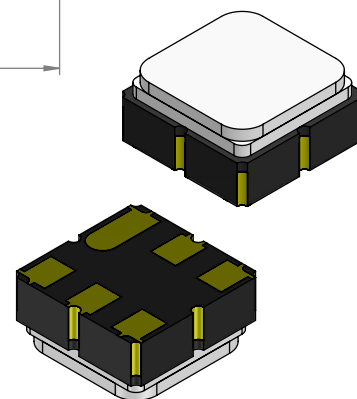
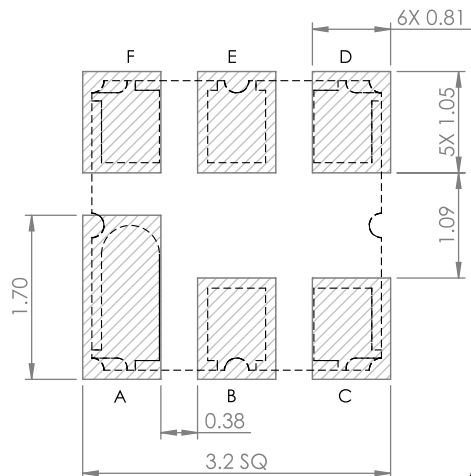


3.0 x 3.0 x 1.4 mm
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Product Dimensions



RECOMMENDED LAND PATTERN



Unit : mm

Pin No.	Description
A, C, D, F	Ground
B	Input
E	Output

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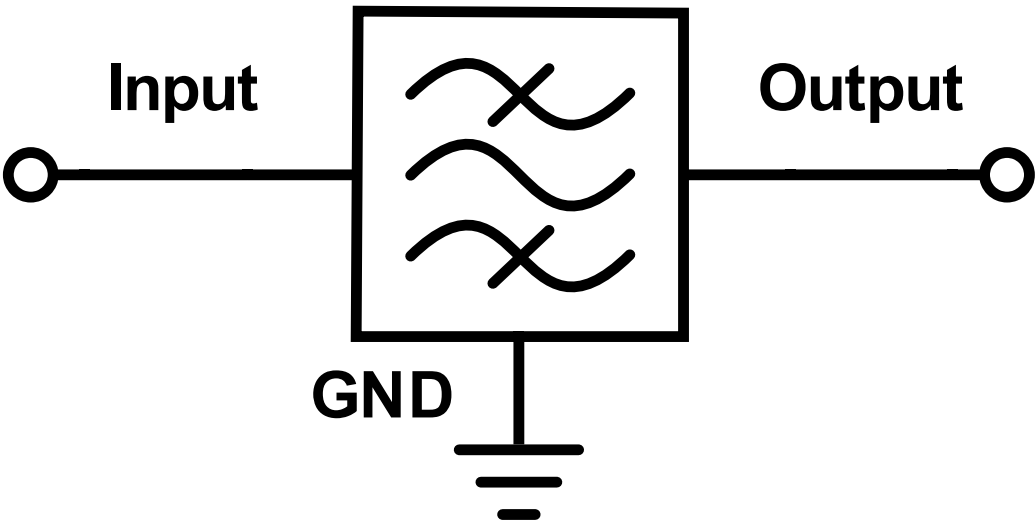


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3.0 x 3.0 x 1.4 mm
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Measurement Circuit



Pin No.	Description
B	Input Impedance: 50 Ω
E	Output Impedance: 50 Ω
A, C, D, F	Ground

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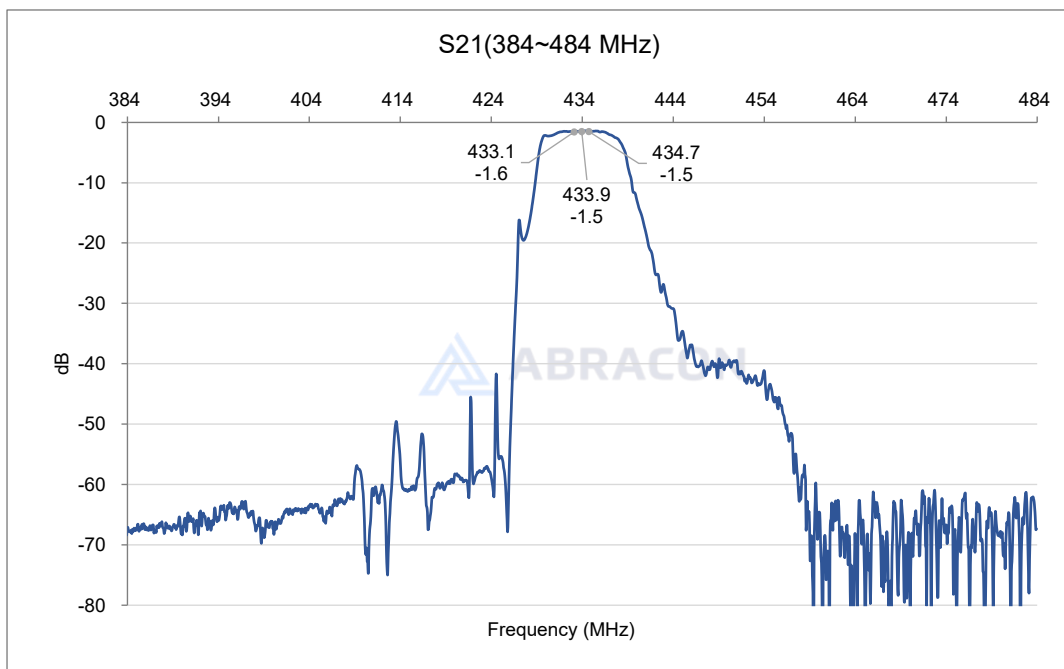
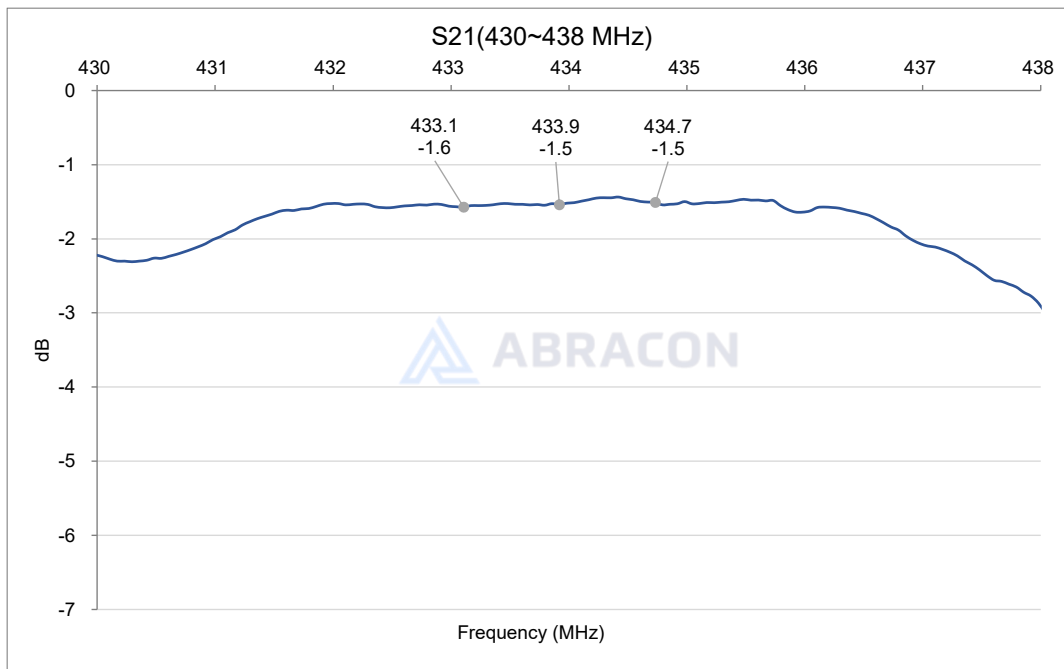
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3.0 x 3.0 x 1.4 mm
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Frequency Characteristics

S21 narrow band



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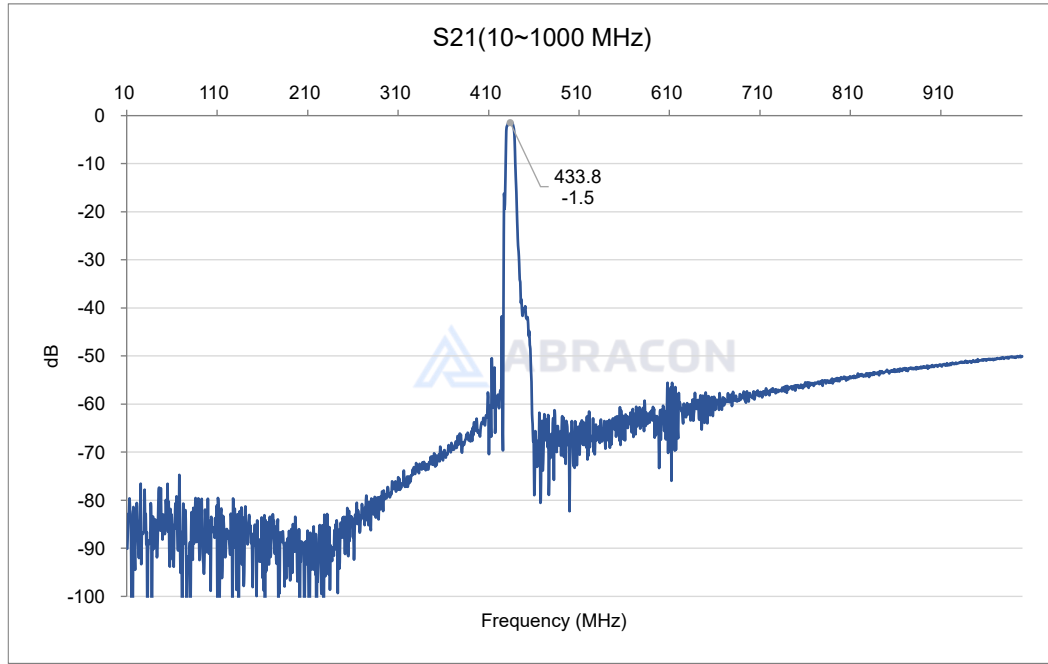


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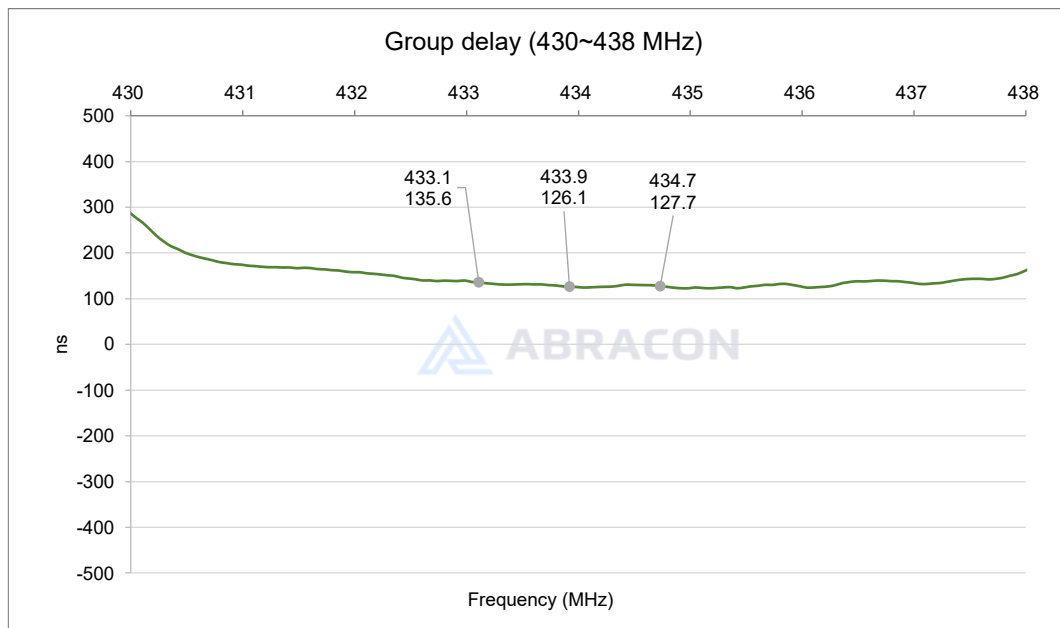


3.0 x 3.0 x 1.4 mm
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S21 wide band



Group Delay Ripple



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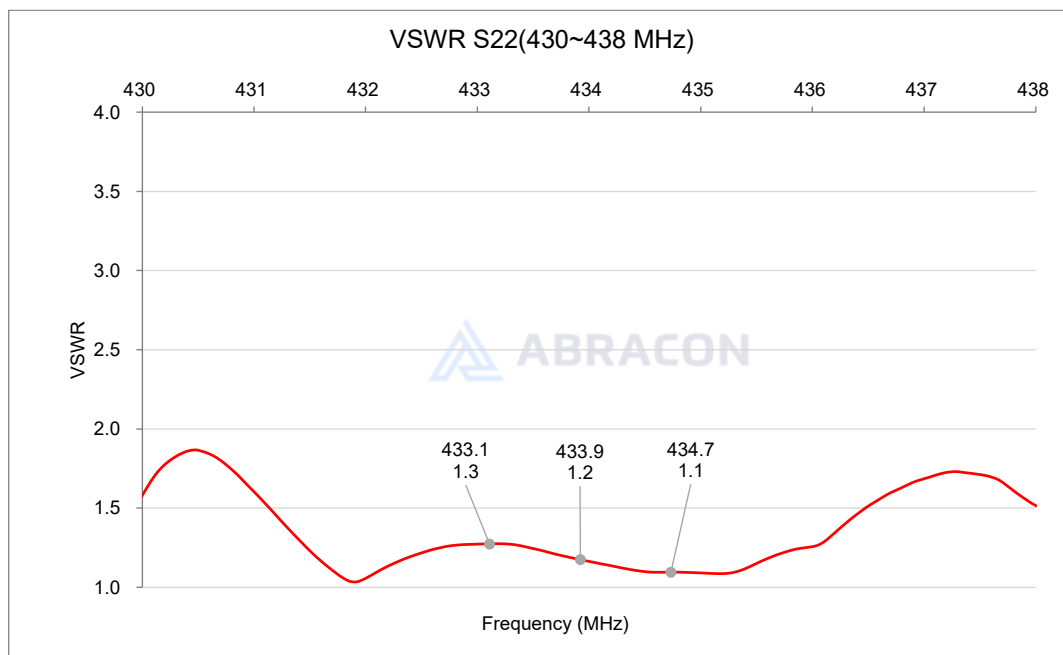
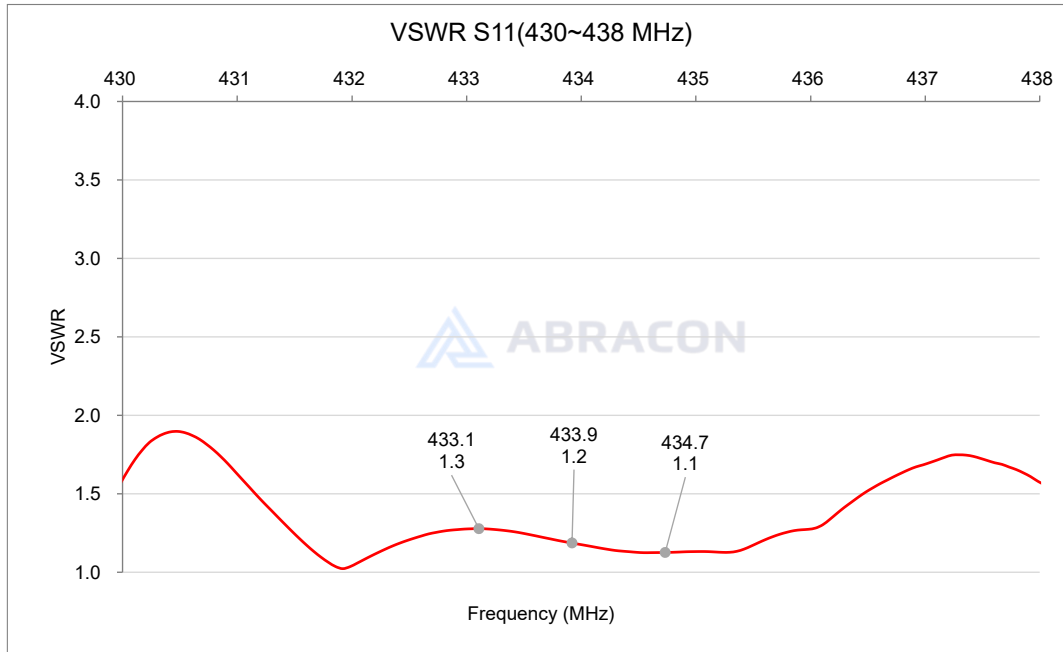


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3.0 x 3.0 x 1.4 mm
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MSL Level = 1

VSWR (S11 & S22)



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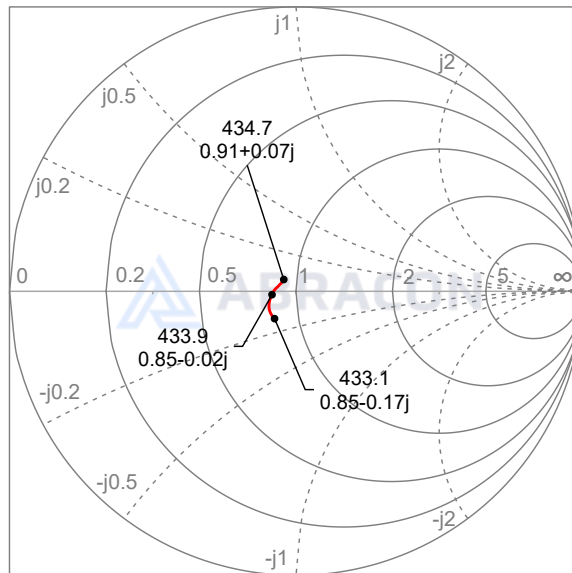
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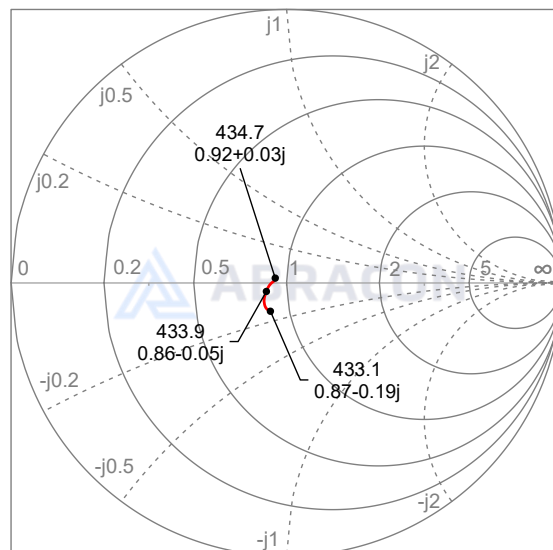
3.0 x 3.0 x 1.4 mm
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Smith Chart (S11 & S22)

Smith chart S11 (431~436MHz)



Smith chart S22 (431~436MHz)



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Reflow Profile [JEDEC J-STD-020]

Solder paste: Sn/3.0Ag/0.5Cu

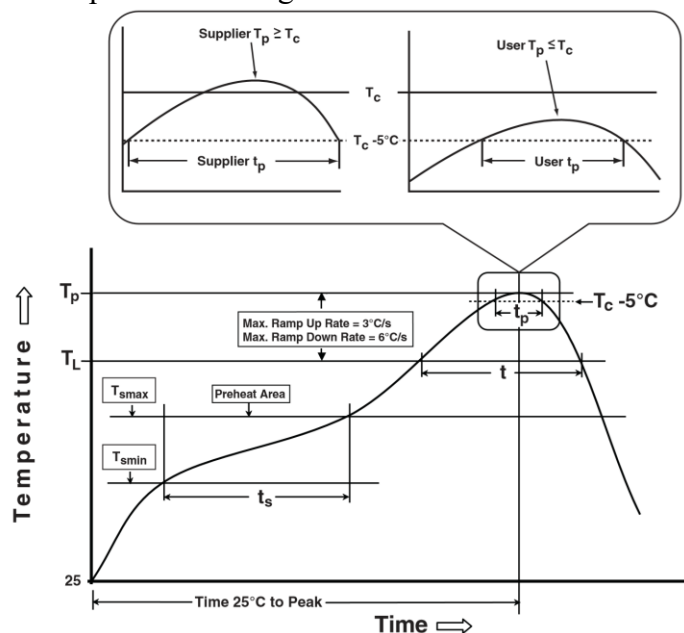


Table 1

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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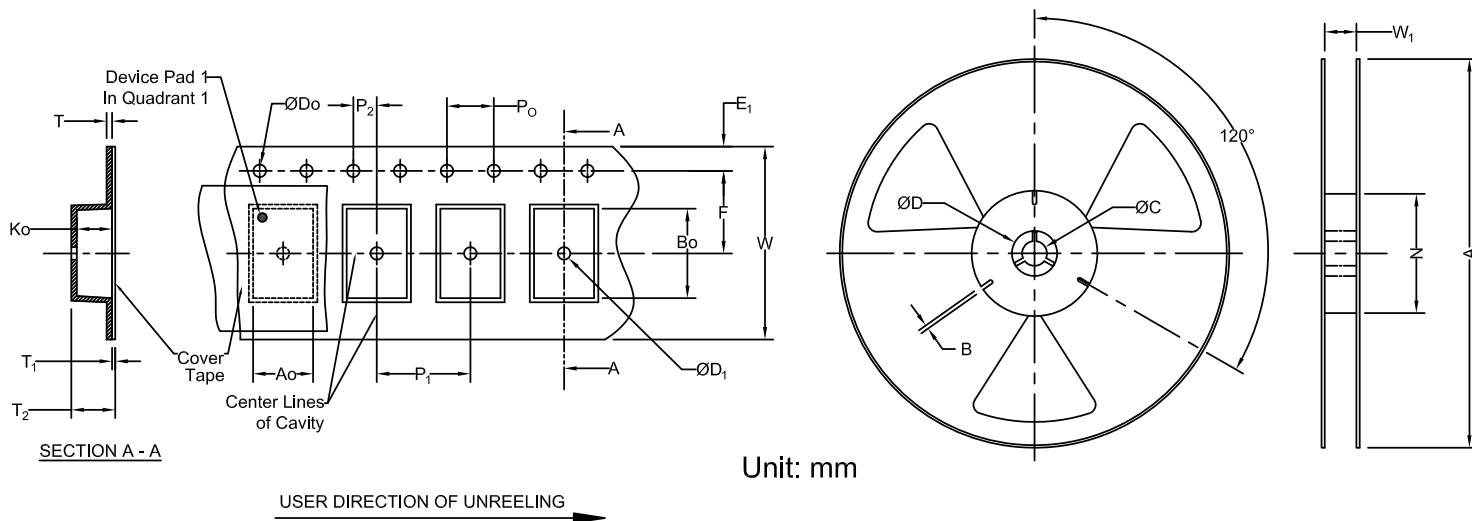
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3.0 x 3.0 x 1.4 mm
RoHS Compliant
MSL Level = 1

Packaging

Tape & Reel Dimension



Carrier Tape Specifications (mm)

E1	P0	F	P1	P12	W	A0	B0	K0	Reel Qty
1.75 ± 0.1	4.0 ± 0.1	5.5 ± 0.10	8.0 ± 0.1	2.0 ± 0.1	12.0 ± 0.3	3.35 ± 0.1	3.35 ± 0.1	1.4 ± 0.1	2,500

Reel Specifications (mm)

A	W1	N	B	C	D
330 +0/-3	15.5 ± 1	101.5 ± 0.5	2.0 ± 0.2	13 ± 0.2	20.2 ± 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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