

2332.5 MHz SMD TC-SAW Filter



AFII-TC-0014

Request Samples



Check Inventory



1.1 x 0.9 x 0.55 mm
RoHS Compliant
MSL Level=2a

Features

- Temperature-Compensated SAW (TC-SAW) Filter
- Compact Size: 1.1 x 0.9 x 0.55 mm
- Frequency Range: 2320~2345 MHz
- Insertion Loss: 3.4 dB (Typ.)
- Excellent Selectivity with High Out-of-Band Rejection
- +105°C maximum Operating Temperature
- Max Input Power: +10 dBm
- 50 Ohms Single-Ended Input & Output

Applications

- Automotive Telematics
- Satellite Digital Audio Radio Services (SDARS)
- Satellite Radio Services
- Automotive Radio Receivers

Product Image



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Electrical Specification

Parameters	Minimum	Typical	Maximum	Units	Notes
Center Frequency (fc)	-	2332.5	-	MHz	
Bandwidth	-	25	-	MHz	
VSWR ⁽¹⁾	-	1.4	1.6	:1	2320~2345 MHz
Insertion Loss ⁽¹⁾	-	3.4	4.2	dB	2320~2345 MHz
Group Delay ⁽¹⁾	-	37.4	49.5	ns	2320~2345 MHz
Group Delay Ripple ⁽¹⁾	-	3.3	16	ns	2320~2345 MHz
Amplitude Ripple ⁽¹⁾	-	1.3	2.3	dB _{p-p}	2320~2324.5 MHz
	-	0.6	1.2		2324.5~2328.2 MHz
	-	0.2	1.2		2328.2~2332.5 MHz
	-	0.4	1.2		2332.5~2334.38 MHz
	-	0.2	1.2		2334.38 ~2336.25 MHz
	-	0.2	1.2		2336.25~2337.75 MHz
	-	0.3	1.2		2337.75~2341.25MHz
	-	0.2	1.2		2341.25~2343.125MHz
	-	0.5	2.1		2343.125~2345 MHz
Attenuation ⁽²⁾ (Reference level from 0 dB)	35	65	-	dB	100~800 MHz
	31	42	-		800~2100 MHz
	32	37	-		2100~2275 MHz
	30	32	-		2275~2288 MHz
	25	32	-		2288 ~ 2300 MHz
	39	42	-		2365 ~ 2377 MHz
	35	39	-		2377 ~ 2390 MHz
	28	30	-		2390~3000 MHz
Source Impedance ⁽³⁾ (single ended)	-	50	-	Ω	
Load Impedance ⁽³⁾ (single ended)	-	50	-	Ω	
DC Voltage	-	-	3	V	
Input Power	-	-	10	dBm	
Temperature Coefficient	-	-6.5	-	ppm/°C	

Notes: (1) Averaged values of linear S-Parameters at +25°C

(2) Averaged values of linear S-Parameters at +25°C

(3) A matching network is unnecessary (refer to the Measurement Circuits section).

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Mechanical Specification

Parameters	Specifications
Dimension	1.1 x 0.9 x 0.55 mm
Mounting Type	Surface Mount

Environmental Specification

Parameters	Specifications
Operating Temperature Range	-40°C ~ +105°C
Storage Temperature Range	-45°C ~ +125°C
MSL level	2a
ESD Machine Mode	50V
ESD Human Body Mode	100V
RoHS Compliant	Yes

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Ordering Information

Part Number	Description
AFII-TC-0014	2332.5 MHz SMD TC-SAW Filter on Cut Tape
AFII-TC-0014-T	2332.5 MHz SMD TC-SAW Filter on Tape & Reel
AFII-TC-0014-EVB	2332.5 MHz SMD TC-SAW Filter Evaluation Board

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

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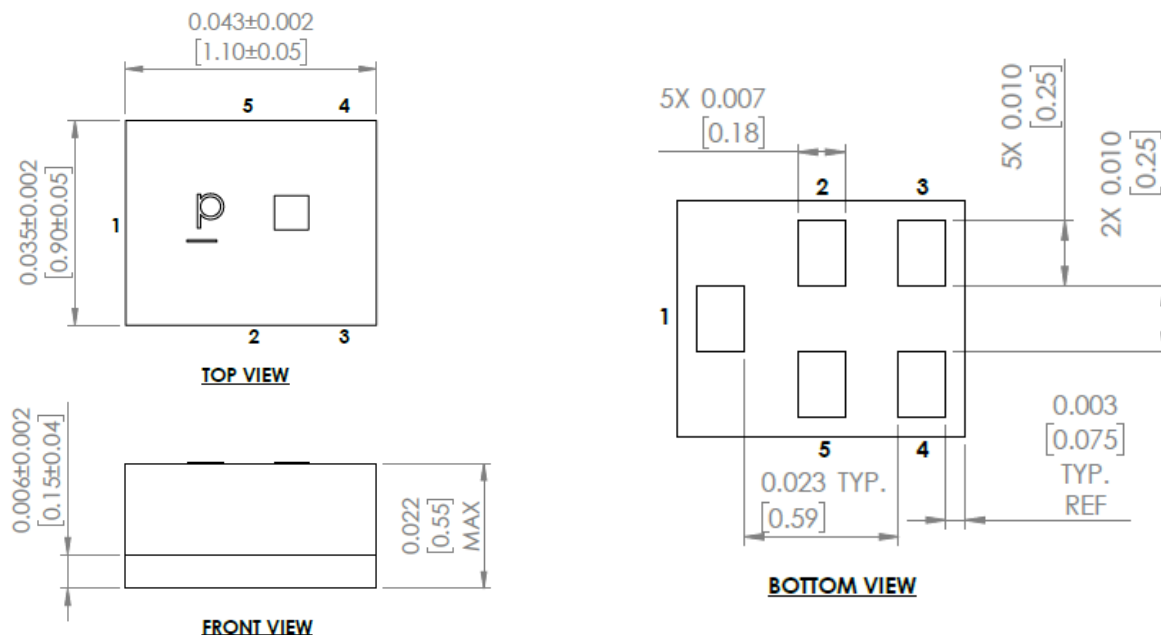


1.1 x 0.9 x 0.55 mm

RoHS Compliant

MSL Level=2a

Product Dimensions



Unit: inches[mm]

Pin No.	Symbol	Function
1	IN	Input
2	GND	Ground
3	GND	Ground
4	OUT	Output
5	GND	Ground

Note: All tolerances are +/-0.05mm unless otherwise specified.

Coplanarity: 0.1mm max

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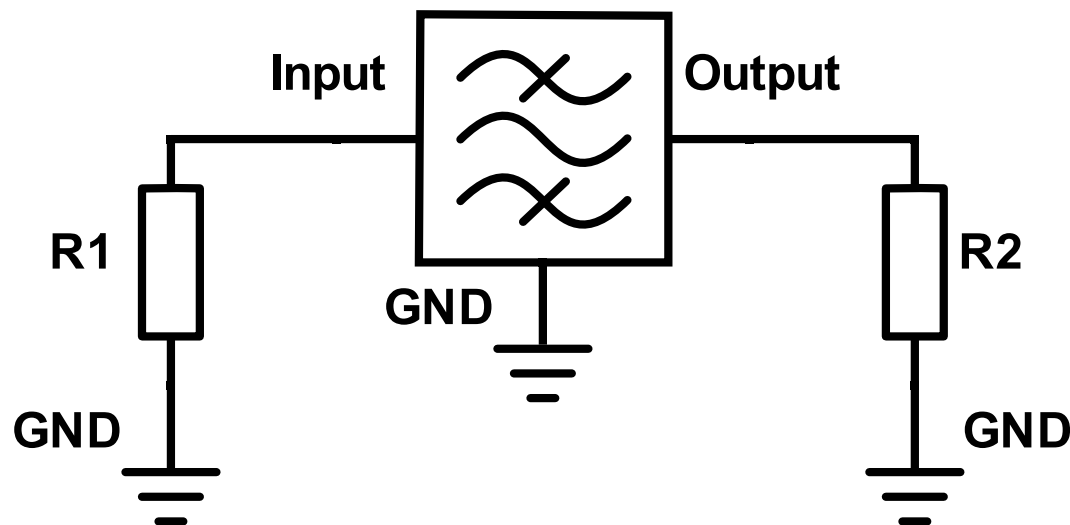


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Measurement Circuit



Pin No.	Description
1	Input (R1): 50 Ω
4	Output (R2): 50 Ω
2, 3, 5	Ground

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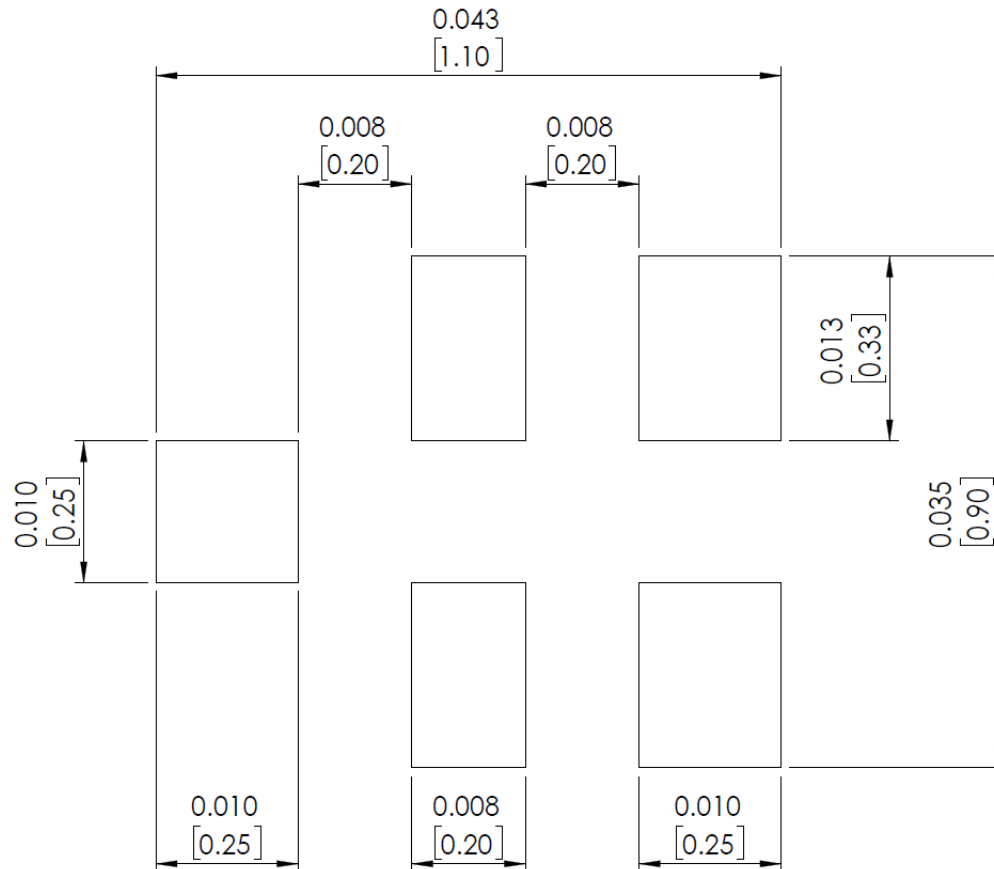


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Land Pattern



Unit: Inches[mm]

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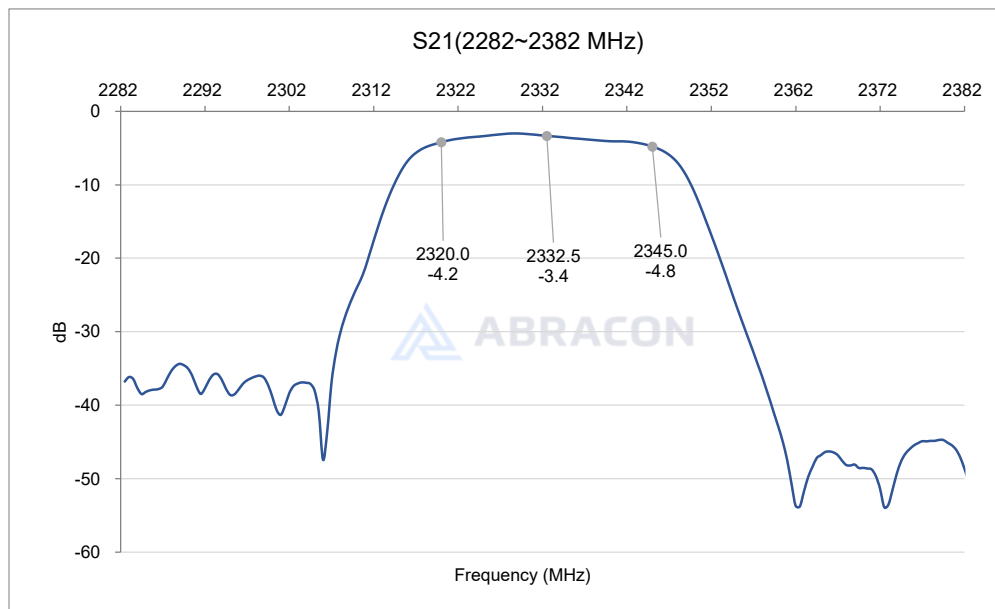
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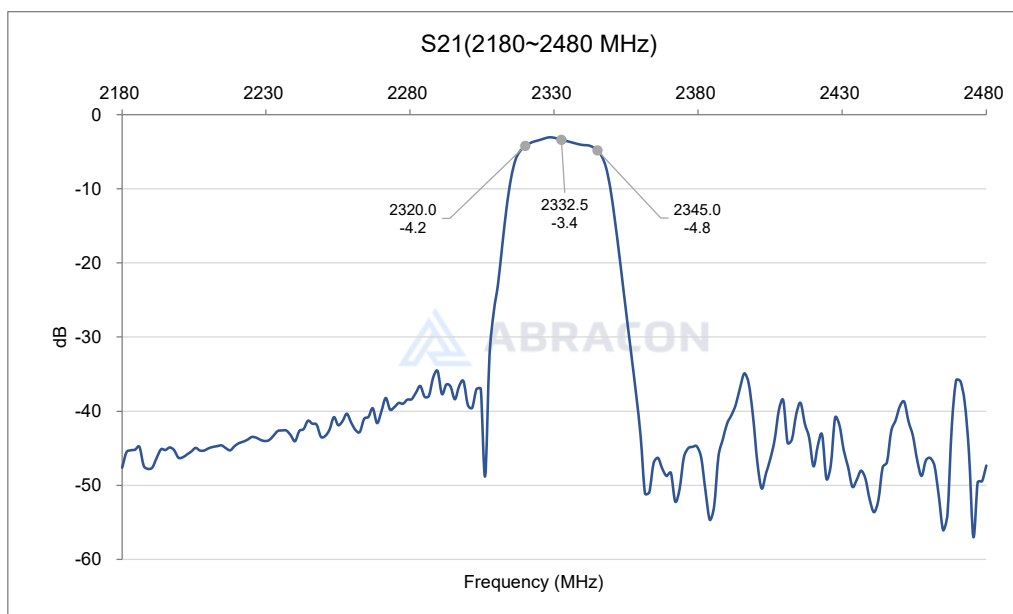
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Frequency Characteristics

S21 Narrow Band



S21 Wide Band



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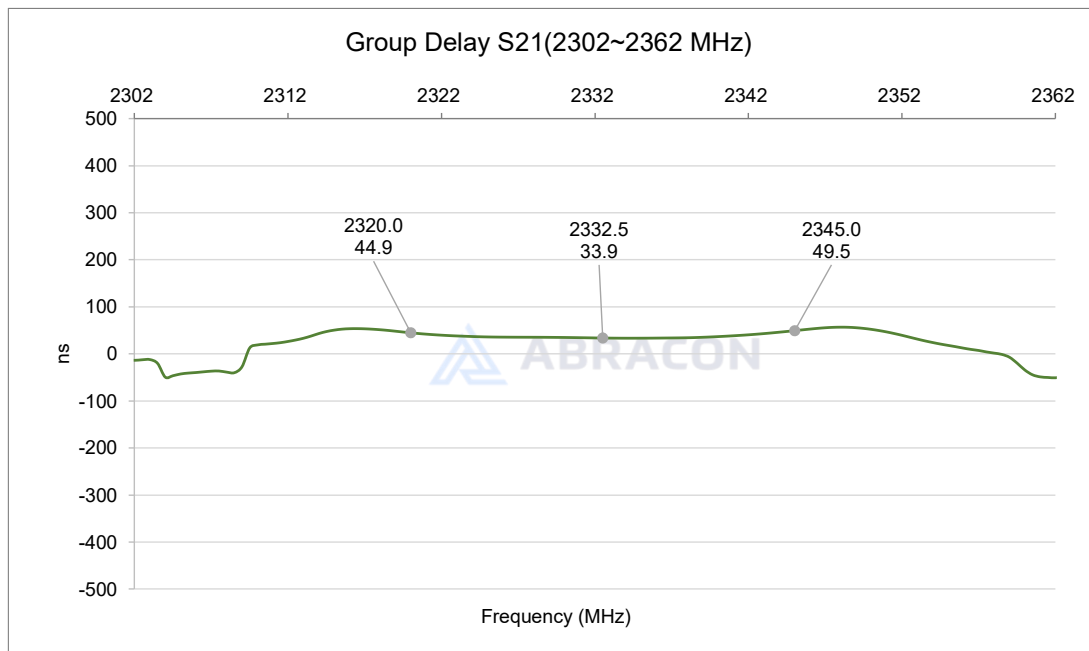


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Group Delay



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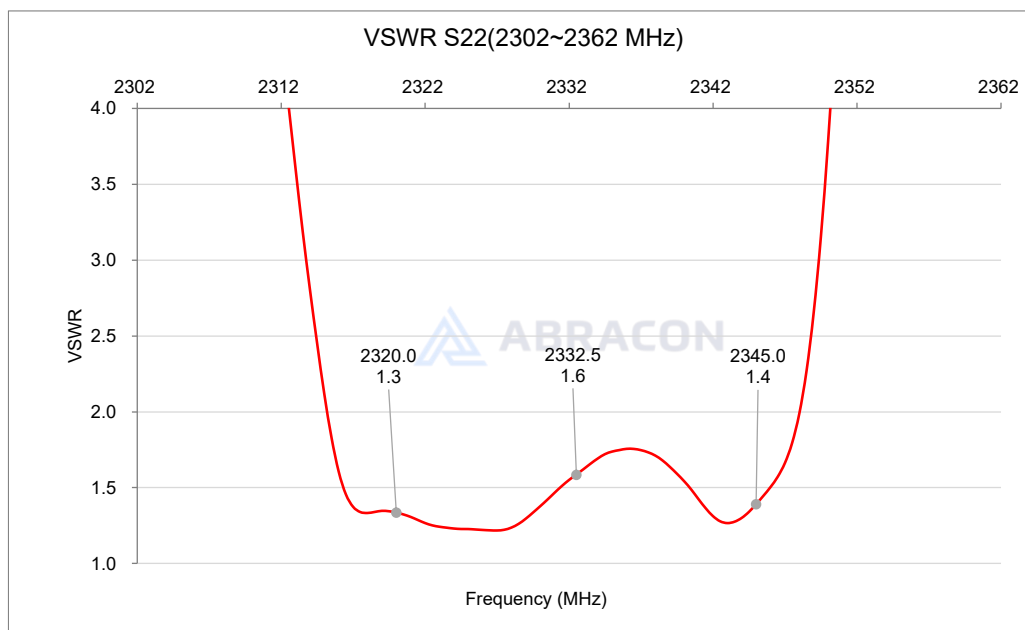
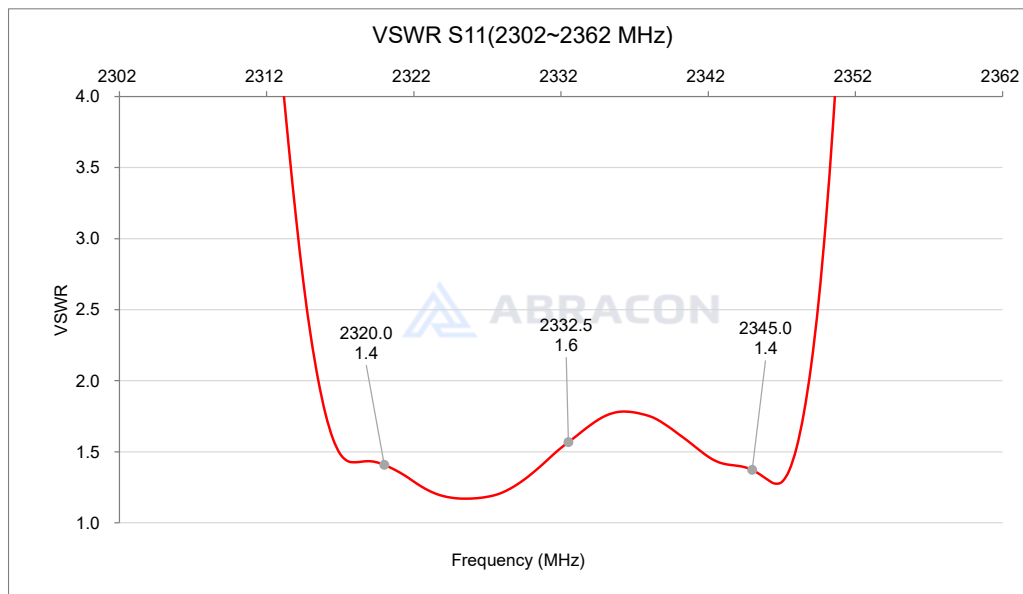


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VSWR (S11 & S22)



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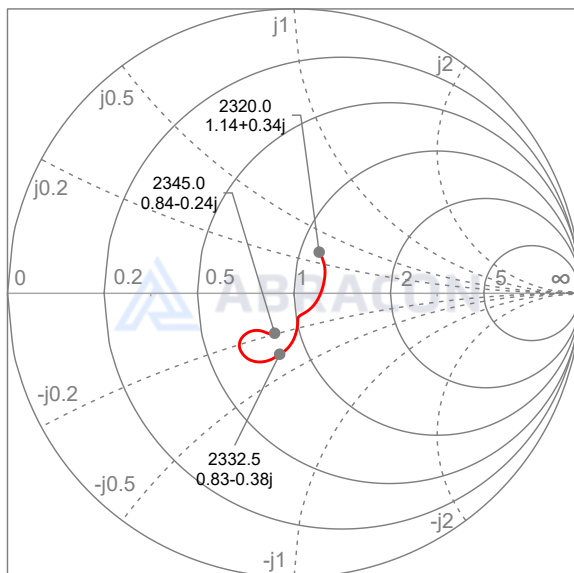
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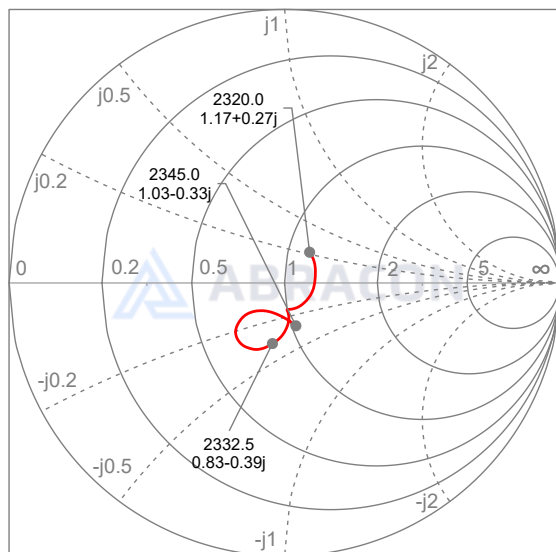
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Smith Chart (S11 & S22)

Smith chart S11 (2320~2345MHz)



Smith chart S22 (2320~2345MHz)



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Reflow Profile [JEDEC J-STD-020]

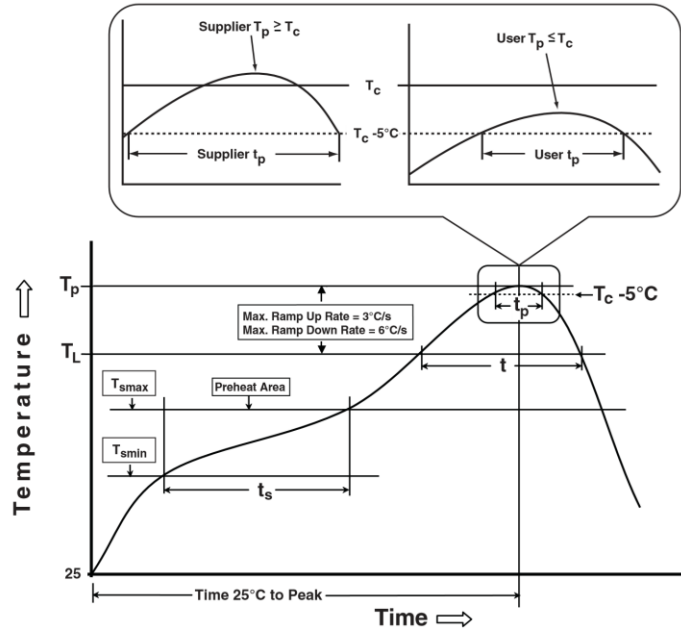


Table 1

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_{smx})	150°C	180°C
Time (T_{smin} to T_{smx}) (t_s)	60 – 120 sec.	60 – 90 sec.
Average ramp-up rate (T_{smx} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	220°C
Time at Liquidous (T_L)	60 – 150 sec.	50 – 80 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.	20 ~ 40 sec.
Ramp-down rate (T_p to T_{smx})	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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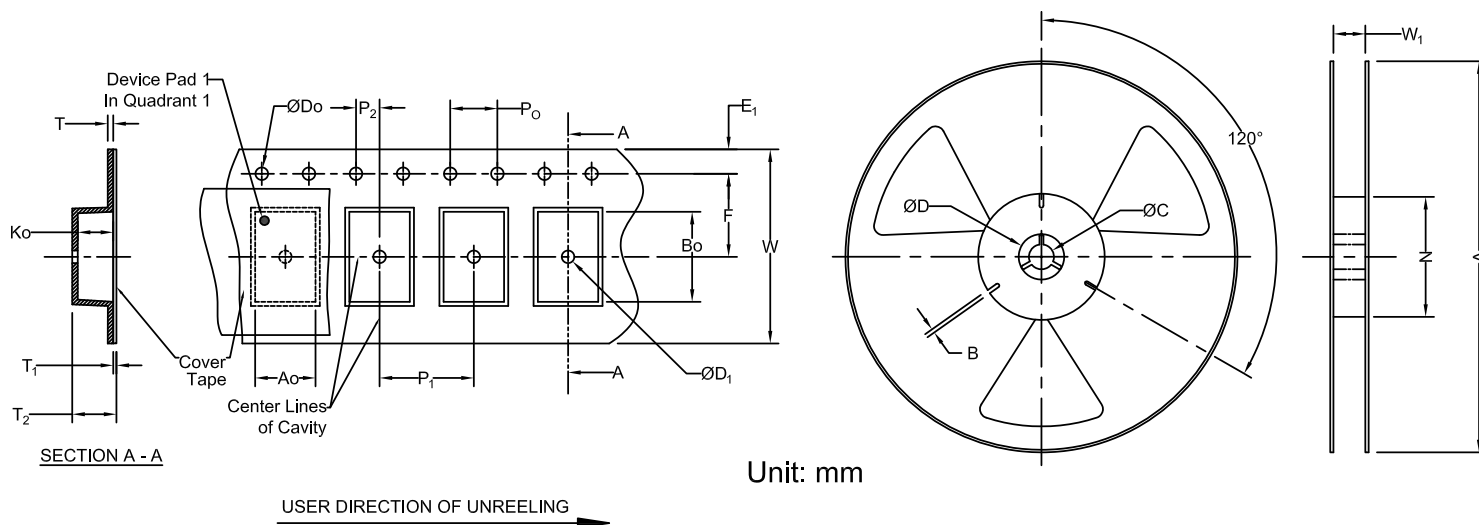
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Packaging

Tape & Reel Dimension



Unit: mm

Carrier Tape Specifications (mm)

Do	D ₁	E ₁	P ₀	P ₂	T	F	P ₁	W	A ₀	B ₀	K ₀	Reel Qty
1.55 ± 0.05	0.6 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	0.25 ± 0.02	3.5 ± 0.05	4.0 ± 0.1	8.0 ± 0.2	1.1 ± 0.1	1.3 ± 0.1	0.75 ± 0.05	5,000

Reel Specifications (mm)

A	W ₁	N	C	D	B
178.0 ± 1.0	9.5 ± 0.5	60.0 ± 0.5	13.5 ± 0.5	21.0 ± 0.8	2.0 ± 0.5

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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