

ECN/PCN No.: 4735

For Manufacturer			
<b>Product Description:</b> Ceramic SMD Microprocessor Crystal	<b>Abracon Part Number / Part Series:</b> ABM7	<input type="checkbox"/> Documentation only <input checked="" type="checkbox"/> ECN <input type="checkbox"/> EOL	<input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number
<b>Affected Revision:</b> S	<b>New Revision:</b> T	<b>Application:</b>	<input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety

**Prior to Change:**  
Rev S

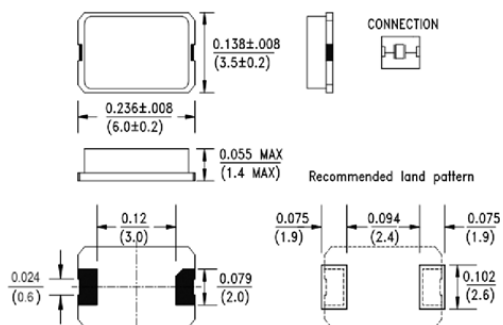
**After Change:**

Added spurious specification:

Spurious			-3	dB	EQ to Fo+5000 ppm
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Added alternative mechanical dimension:

6.2 Mechanical Dimensions (Alternative 500021)



Dimensions: inches(mm) Pin 2 Pin 1

**Cause/Reason for Change:**

Added spurious specification and alternate mechanical dimensions to reflect existing production capability.

**Change Plan**

<b>Effective Date:</b> 4/17/2024	<b>Additional Remarks:</b>
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<b>Change Declaration:</b> N/A
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<b>Issued Date:</b> 4/17/2024	<b>Issued By:</b> Arturo Longoria	<b>Issued Department:</b> Engineering
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<b>Approval:</b> Thomas Culhane Engineering Director	<b>Approval:</b> Reuben Quintanilla Quality Director	<b>Approval:</b> Ying Huang Purchasing Director
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**For Abracon EOL only**

<b>Last Time Buy (if applicable):</b> N/A	<b>Alternate Part Number / Part Series:</b> N/A
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<b>Additional Approval:</b>	<b>Additional Approval:</b>	<b>Additional Approval:</b>
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**Customer Approval (If Applicable)**

**Qualification Status:**

Approved  Not accepted

Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.

<b>Customer Part Number:</b>		<b>Customer Project:</b>	
<b>Company Name:</b>	<b>Company Representative:</b>	<b>Representative Signature:</b>	
<b>Customer Remarks:</b>			

Brand	Affected PN	Discontinued/EOL PN	Added PN	Series	ECO#	Datasheet Link	ECN Notification Link
Abracon	ABM7-10.000MHZ			ABM7	4735		???
Abracon	ABM7-10.000MHZ-10-B4Y			ABM7	4735		???
Abracon	ABM7-10.000MHZ-B4			ABM7	4735		???
Abracon	ABM7-10.000MHZ-B4-T			ABM7	4735		???
Abracon	ABM7-10.000MHZ-B4Z			ABM7	4735		???
Abracon	ABM7-10.000MHZ-D2Y			ABM7	4735		???
Abracon	ABM7-10.000MHZ-D2Y-T			ABM7	4735		???
Abracon	ABM7-10.000MHZ-D2Y-T2			ABM7	4735		???
Abracon	ABM7-10.000MHZ-DQ-T			ABM7	4735		???
Abracon	ABM7-10.000MHZ-N4Q			ABM7	4735		???
Abracon	ABM7-10.000MHZ-T			ABM7	4735		???
Abracon	ABM7-11.0592MHZ-D2Y			ABM7	4735		???
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Abracon	ABM7-11.0592MHZ-D2Y-T2			ABM7	4735		???
Abracon	ABM7-11.2896MHZ			ABM7	4735		
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Abracon	ABM7-11.2896MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-11.2896MHZ-T			ABM7	4735		
Abracon	ABM7-11.4286MHZ-D4			ABM7	4735		
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Abracon	ABM7-12.000MHZ			ABM7	4735		
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Abracon	ABM7-12.000MHZ-10B			ABM7	4735		
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Abracon	ABM7-12.000MHZ-20-C4Y-T			ABM7	4735		
Abracon	ABM7-12.000MHZ-20-D2Y			ABM7	4735		
Abracon	ABM7-12.000MHZ-20-R50-D3W			ABM7	4735		
Abracon	ABM7-12.000MHZ-4			ABM7	4735		
Abracon	ABM7-12.000MHZ-4-T			ABM7	4735		
Abracon	ABM7-12.000MHZ-4Y			ABM7	4735		
Abracon	ABM7-12.000MHZ-4Y-T			ABM7	4735		
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Abracon	ABM7-24.000MHZ-R30-D4-T			ABM7	4735		
Abracon	ABM7-24.000MHZ-R50-D2Y			ABM7	4735		
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Abracon	ABM7-25.000MHZ-22-B-4-Y-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-22-D2Y			ABM7	4735		
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Abracon	ABM7-25.000MHZ-4-Y-T			ABM7	4735		
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Abracon	ABM7-25.000MHZ-B4-T			ABM7	4735		
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Abracon	ABM7-25.000MHZ-D-4			ABM7	4735		
Abracon	ABM7-25.000MHZ-D-4-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D2-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D2X-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D2Y			ABM7	4735		
Abracon	ABM7-25.000MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D2Y-T2			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4H-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4W-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4X-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4Y			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4Y-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-D4Z			ABM7	4735		
Abracon	ABM7-25.000MHZ-E4-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-E4H-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-JQ			ABM7	4735		
Abracon	ABM7-25.000MHZ-JQ-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-L2Q			ABM7	4735		
Abracon	ABM7-25.000MHZ-L2Q-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-R30-D4-T			ABM7	4735		
Abracon	ABM7-25.000MHZ-SB4H-T			ABM7	4735		
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Abracon	ABM7-26.000MHZ-10-B4Y-T			ABM7	4735		
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Abracon	ABM7-26.000MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-26.45125MHZ-B			ABM7	4735		
Abracon	ABM7-27.000MHZ-4H			ABM7	4735		
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Abracon	ABM7-27.000MHZ-D2Y-T2			ABM7	4735		
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Abracon	ABM7-27.000MHZ-D4Y-T			ABM7	4735		
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Abracon	ABM7-28.2240MHZ-30-B-4-Y-T			ABM7	4735		
Abracon	ABM7-28.224MHZ-E4Y			ABM7	4735		
Abracon	ABM7-28.375MHZ			ABM7	4735		
Abracon	ABM7-28.63636MHZ-4-T			ABM7	4735		
Abracon	ABM7-28.63636MHZ-B2			ABM7	4735		
Abracon	ABM7-28.63636MHZ-B4			ABM7	4735		
Abracon	ABM7-28.63636MHZ-D2Y			ABM7	4735		
Abracon	ABM7-28.63636MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-28.63636MHZ-D4-T			ABM7	4735		
Abracon	ABM7-28.6363MHZ-D4-T			ABM7	4735		
Abracon	ABM7-29.4912MHZ-D2Y			ABM7	4735		
Abracon	ABM7-29.4912MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-30.000MHZ-10-B-Y-T			ABM7	4735		
Abracon	ABM7-30.000MHZ-22-T			ABM7	4735		
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Abracon	ABM7-30.000MHZ-B4-T			ABM7	4735		
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Abracon	ABM7-32.000MHZ-D4			ABM7	4735		
Abracon	ABM7-32.000MHZ-J4-T			ABM7	4735		
Abracon	ABM7-33.000MHZ			ABM7	4735		
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Abracon	ABM7-33.000MHZ-D2X-T			ABM7	4735		
Abracon	ABM7-33.000MHZ-D2Y			ABM7	4735		
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Abracon	ABM7-48.000MHZ-B-4-T			ABM7	4735		
Abracon	ABM7-48.000MHZ-C4-T			ABM7	4735		
Abracon	ABM7-48.000MHZ-D			ABM7	4735		
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Abracon	ABM7-48.000MHZ-S-B4Y-T			ABM7	4735		
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Abracon	ABM7-49.452MHZ-D4Y			ABM7	4735		
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Abracon	ABM7-8.000MHZ-10-L4Q-T2			ABM7	4735		
Abracon	ABM7-8.000MHZ-10-R80-E4Y			ABM7	4735		
Abracon	ABM7-8.000MHZ-14-D2Y			ABM7	4735		
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Abracon	ABM7-8.000MHZ-8-R80-D2Y			ABM7	4735		
Abracon	ABM7-8.000MHZ-8-R80-D2Y-T			ABM7	4735		
Abracon	ABM7-8.000MHZ-8-R80-D2Y-T2			ABM7	4735		
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Abracon	ABM7-8.000MHZ-D-2-Q-T			ABM7	4735		
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Abracon	ABM7-8.000MHZ-D4Y			ABM7	4735		
Abracon	ABM7-8.000MHZ-J2Q			ABM7	4735		
Abracon	ABM7-8.000MHZ-J2Q-T			ABM7	4735		
Abracon	ABM7-8.000MHZ-K2Q-T			ABM7	4735		
Abracon	ABM7-8.000MHZ-R40-D2X			ABM7	4735		
Abracon	ABM7-8.000MHZ-S-D2Y			ABM7	4735		
Abracon	ABM7-8.000MHZ-T			ABM7	4735		
Abracon	ABM7-9.216MHZ-20-R80-D4Y			ABM7	4735		
Abracon	ABM7-9.4961MHZ-B			ABM7	4735		
Abracon	ABM7-9.81563MHZ-10-R50-J4Q			ABM7	4735		
Abracon	ABM7-9.8304MHZ-D2Y-T			ABM7	4735		
Abracon	ABM7-9.8304MHZ-D2Y-T2			ABM7	4735		

**Description**

The ABM7 series of quartz crystals offers fundamental oscillation in the frequency range of 8MHz to 48MHz. Tight frequency tolerance and temperature stability options are available, over extended operating temperature ranges up to -40°C to +105°C. The ABM7 Series is offered in an industry standard 6.0mm x 3.5mm x 1.4mm two pad SMD glass-seal package.



**Features**

- Superior heat-resistant glass sealing
- Hermetically seam-sealed ceramic package
- REACH/RoHS II Compliant; Pb in glass, exemption 7(c)
- MSL Level 1

**Typical Applications**

- Computers, Modems, Communication equipment
- Industrial wide temperature applications

**Electrical Specifications**

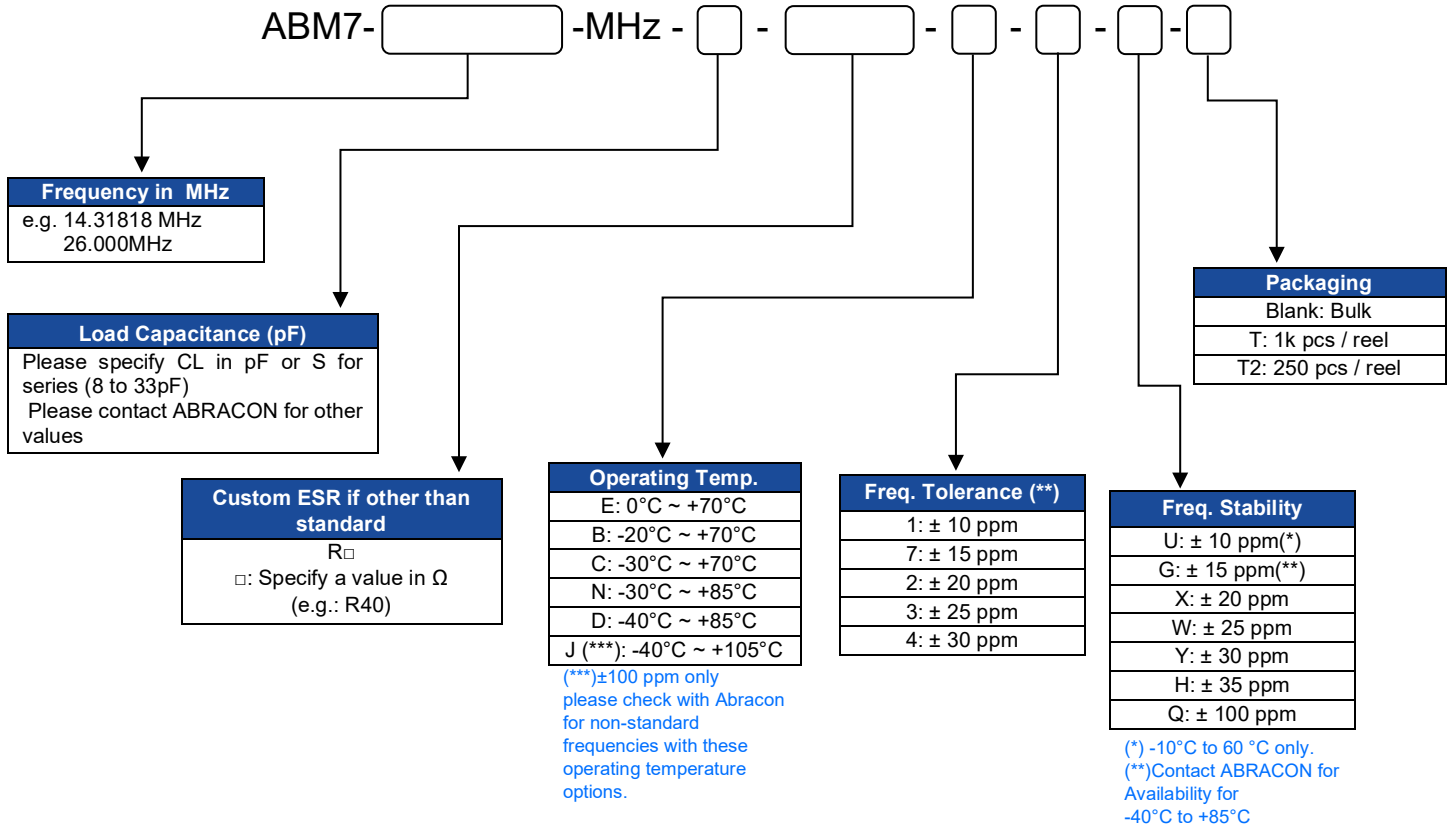
Parameters	Min.	Typ.	Max.	Units	Notes
Frequency Range	8.000		48.000	MHz	Fundamental AT-cut
Operating Temperature Range	-10		+60	°C	See options
Storage Temperature Range	-55		+125	°C	
Frequency Tolerance @ +25°C	-50		+50	ppm	See options
Frequency Stability over the Operating Temperature (ref. to +25°C)	-50		+50	ppm	See options
Equivalent series resistance	See table 1 below			Ω	
Shunt capacitance (C0)			7	pF	
Load capacitance (CL)		18		pF	See options
Drive Level		10	100	μW	
Aging@25°C±3°C			±5	ppm	Frist year
Insulation Resistance	500			MΩ	@ 100Vdc
Sealing Method	Glass Sealing				
Spurious			-3	dB	Fo to Fo+5000 ppm

**Table 1**

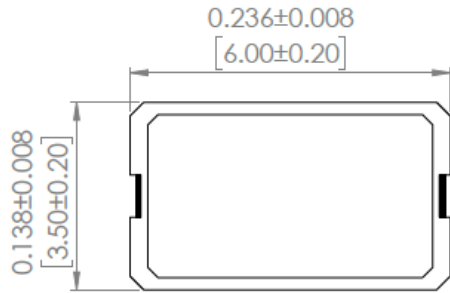
Frequency (MHz)	ESR(Ω) max.
8.000-9.999	100
10.000-11.999	80
12.000-15.999	60
16.000-48.000	50



**Part Identification**



**Mechanical Dimensions**

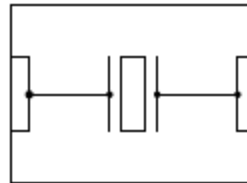


**TOP VIEW**



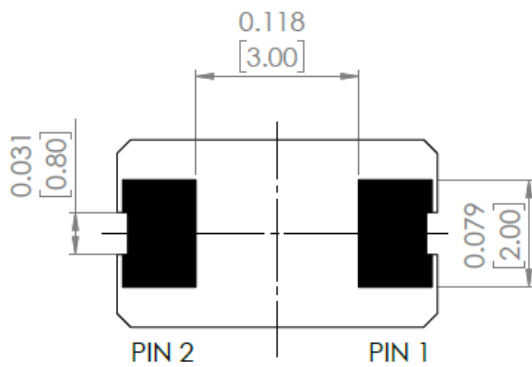
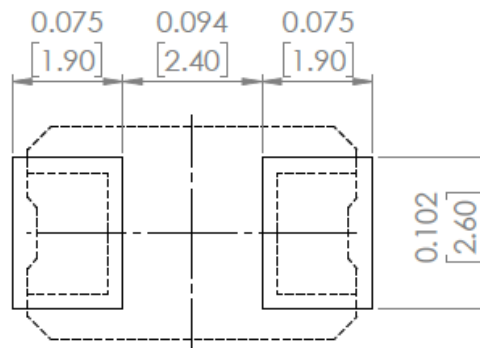
**SIDE VIEW**

**CONNECTION**



**FRONT VIEW**

**RECOMMENDED LAND PATTERN**

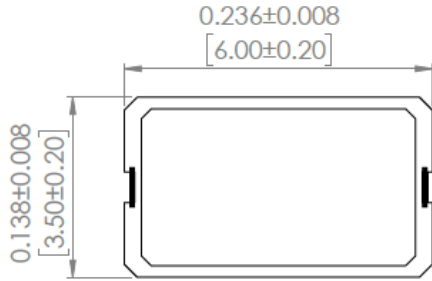


**BOTTOM VIEW**

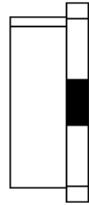
Dimensions: inches (mm)

Note: Due to the availability of raw materials, this part may be manufactured with a chamfer on pin 1. Be advised that this does not affect the electrical characteristics of the crystal in any way.

**Mechanical Dimensions (Alternate)**

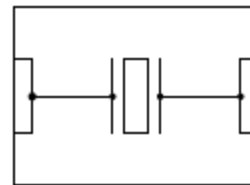


**TOP VIEW**



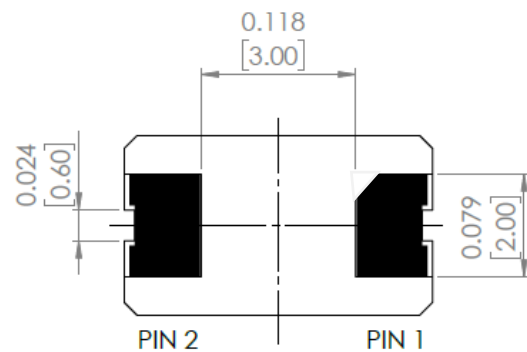
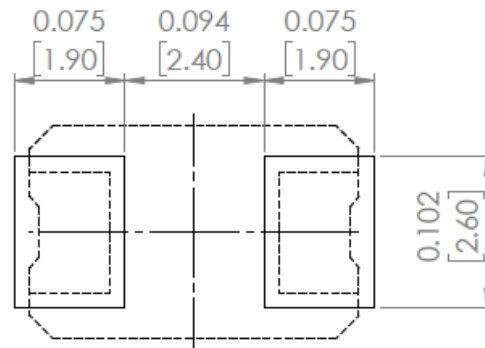
**SIDE VIEW**

**CONNECTION**



**FRONT VIEW**

**RECOMMENDED LAND PATTERN**



**BOTTOM VIEW**

Dimensions: inches (mm)

Note: Due to the availability of raw materials, this part may be manufactured with a chamfer on pin 1. Be advised that this does not affect the electrical characteristics of the crystal in any way.

Reflow Profile [JEDEC J-STD-020]

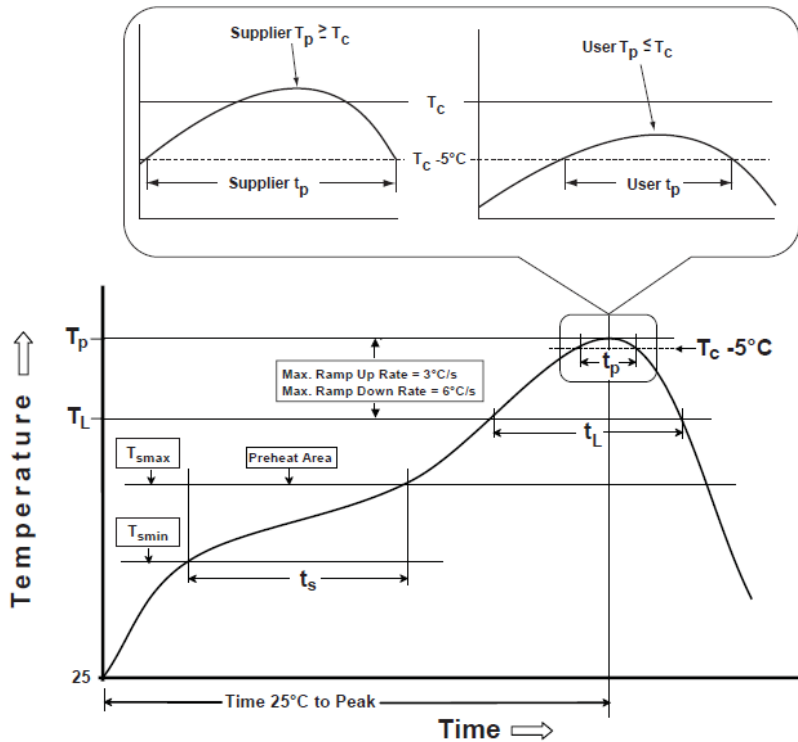


Table 1

SnPb Eutectic Process Classification Temperatures ( $T_c$ )		
Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process Classification Temperatures ( $T_c$ )			
Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	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 - 120 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.	30 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

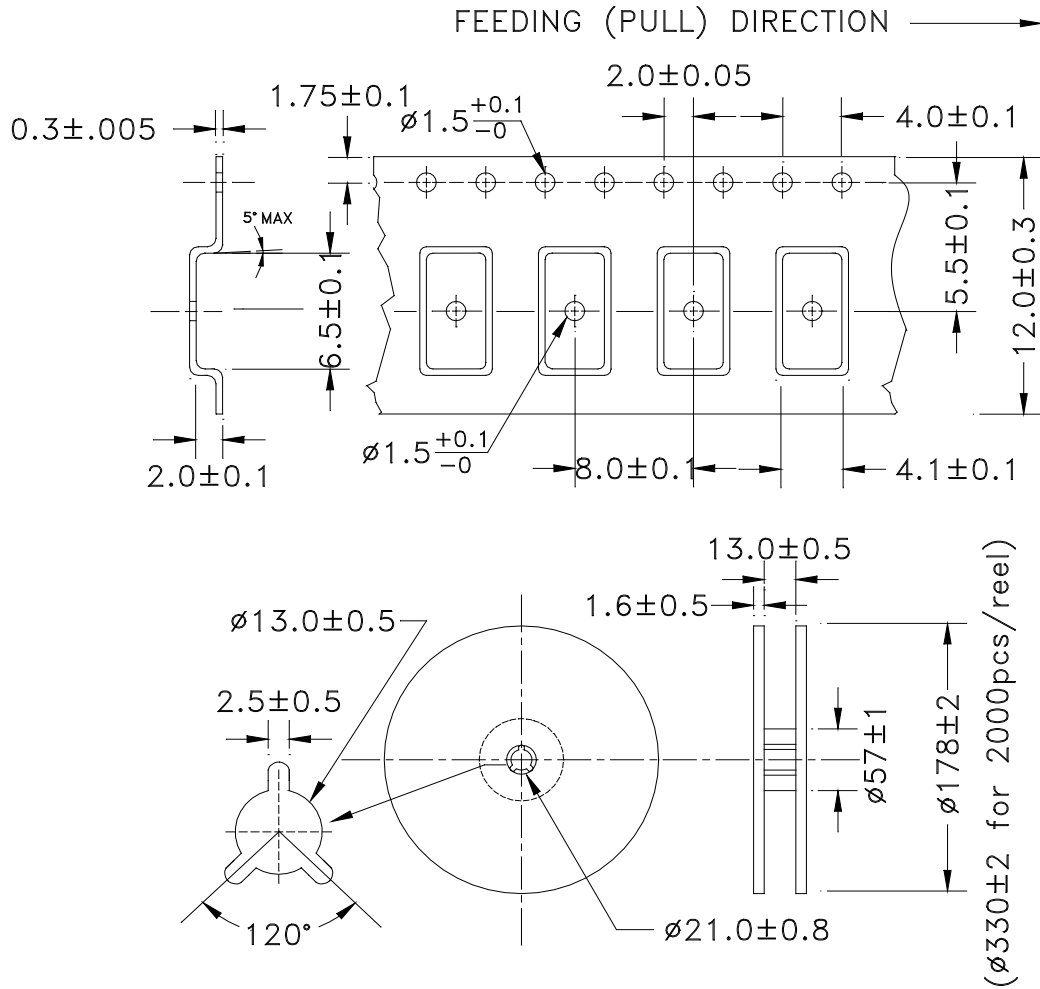
\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as supplier minimum and a user maximum.

**Packaging**

T: 1,000pcs/reel

T2: 250pcs/reel



Dimensions: inches (mm)