

# CERAMIC BASE SMD QUARTZ CRYSTAL

ABM11-0022-T3




2.0 x 1.6 x 0.55 mm  
RoHS/RoHS II Compliant  
MSL Level = N/A

## Key Standard Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency	39.000			MHz	
Operation Mode	Fundamental				
Operating Temperature	-40		+95	°C	
Storage Temperature	-40		+95	°C	
Frequency Tolerance @+25°C	-8		+8	ppm	
Frequency Stability over the Operating Temperature (ref. to 25°C)	-13		+13	ppm	
Equivalent series resistance (R1)			35	Ω	
Shunt capacitance (C0)			3.0	pF	
Load capacitance (CL)		10		pF	
Drive Level		10	100	μW	
Aging	-2		+2	ppm	@25°C±3°C First year
Insulation Resistance	500			M Ω	@ 100Vdc ± 15V

## Options and Part Identification

ABM11-0022-

Packaging
Blank: Bulk
T3: 3000pcs/reel

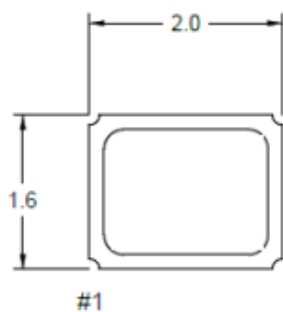
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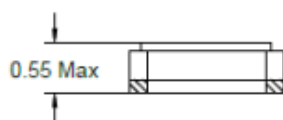
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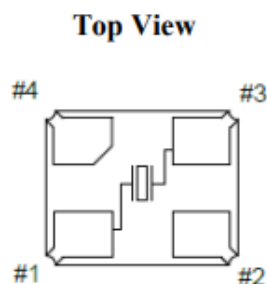
## Mechanical Dimensions



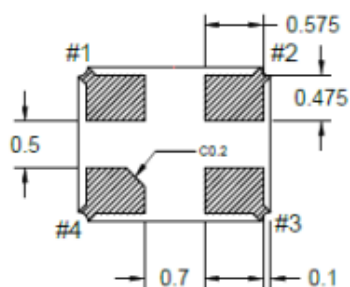
Top View



Side View

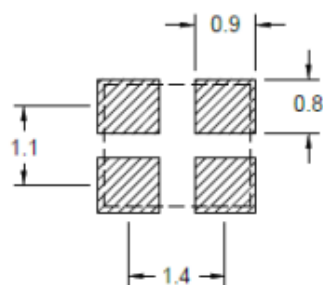


Top View



Bottom View

## Recommended Land Pattern



Dimensions: mm

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## Reflow Profile [JEDEC J-STD-020]

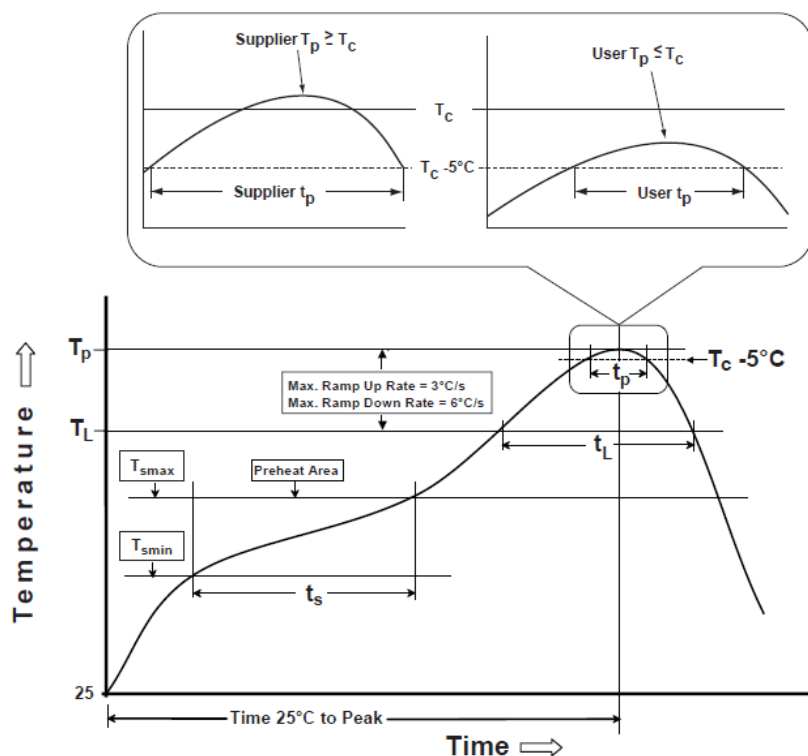


Table 1

### 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 ( $T_{smin}$ 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.

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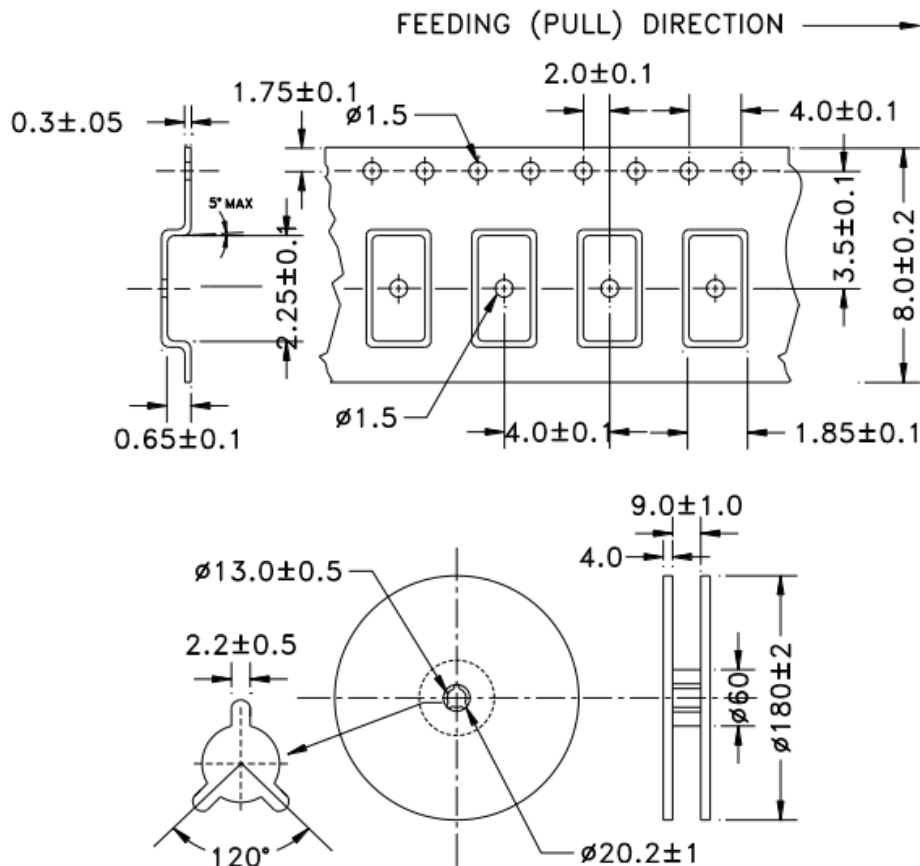
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## Packaging

T3: Tape and reel (3,000pcs/reel)



Dimensions: mm

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