

# CMOS SMD CRYSTAL OSCILLATOR

ASA-0001-T



2.0 x 1.6 x 0.80mm  
RoHS/RoHS II Compliant  
MSL Level = N/A

## Features

- 1.8V Vdd operation
- Optimized for low current consumption
- Output Enable/Start & Disable/Stop function
- Output waveform CMOS
- Hermetically seam-sealed ceramic package

## Applications

- Portable & wearable electronics
- Internet of Things (IoT)
- Consumer electronics
- Industrial control & automation
- Mobile communication

## Electrical Specifications

Parameters	Min.	Typ.	Max.	Units	Notes
Frequency Range		27.000		MHz	
Operating Temperature Range	-40		+85	°C	
Storage Temperature Range	-55		+125	°C	
Overall Frequency Stability <sup>[Note 1]</sup>	-25		+25	ppm	
Supply Voltage (Vdd)	1.71	1.8	1.89	V	
Tri-state function	"1" (VIH≥0.7*Vdd) or Open: Oscillation; "0" (VIL<0.3*Vdd): No Oscillation/Hi Z			V	
Output Load			15	pF	CMOS
Output Voltage	VOH	0.8*Vdd		V	
	VOL		0.2*Vdd		
Aging 1 year @25°C± 3°C	-3.0		+3.0	ppm	
Symmetry @ ½ Vdd	45	50	55	%	
Start-up Time			5.0	ms	
Rise and Fall Time (Tr/Tf) @10%Vdd-90%Vdd, 15pF load			6.0	ns	
RMS Phase Jitter @25°C± 3°C (12kHz to 5MHz)			0.5	ps	
Supply Current (Idd) into 15pF Load @25°C± 3°C			7.0	mA	
Disable Current			10.0	µA	

\*Note 1: Overall frequency stability includes initial frequency tolerance @25°C± 3°C and stability over the operating temperature range.



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## Part Identification

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ASA-0001-

Packaging
Blank: Bulk
T: 1k pcs / reel
T3: 3k pcs / reel

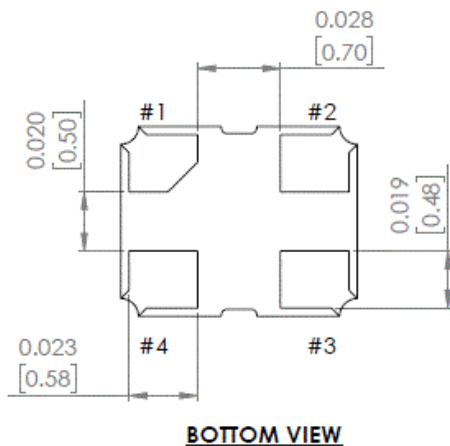
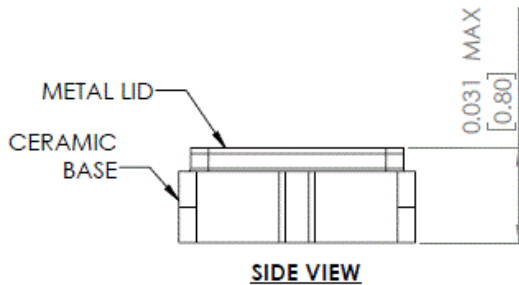
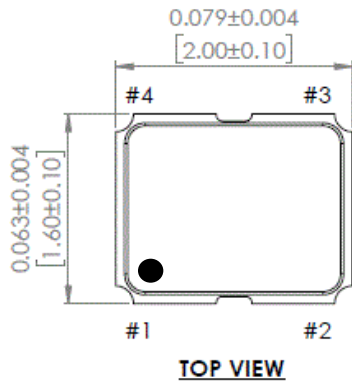
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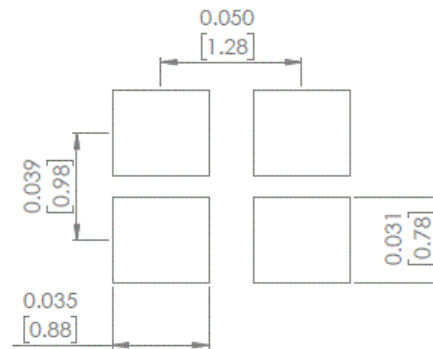


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 MSL Level = N/A

## Mechanical Dimensions



## Recommended Land Pattern



Pin #	Function
1	Tri-State
2	GND
3	Output
4	Vdd

Note: Recommended to use approximately 0.01µF bypass capacitor between PIN 2 and PIN 4

Dimensions: inches (mm)



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

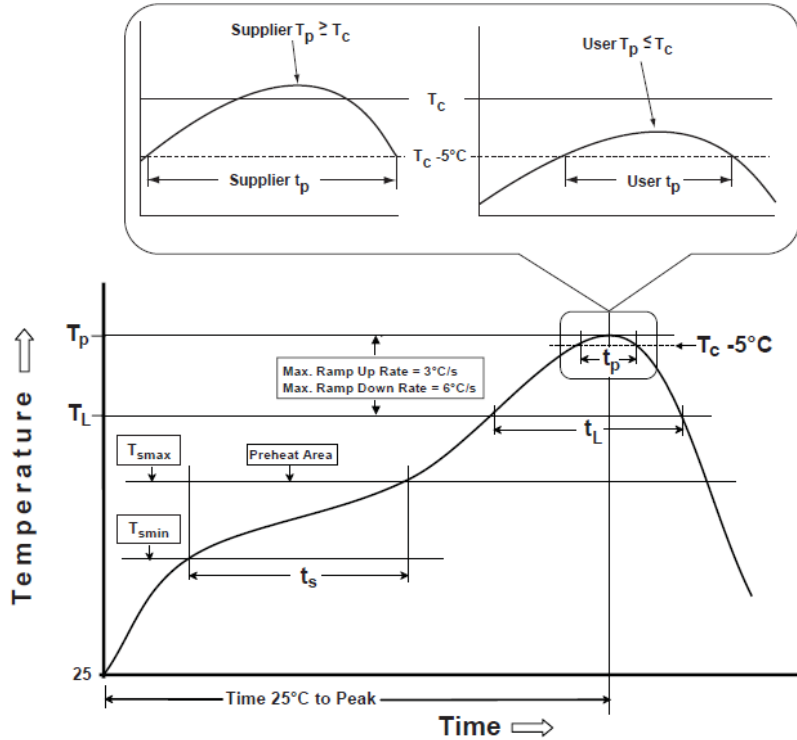


Table 1

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 ( $T_{smax}$ 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.



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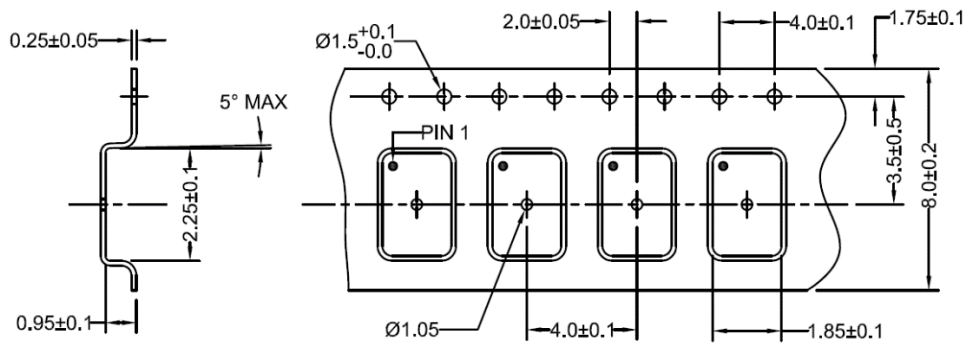
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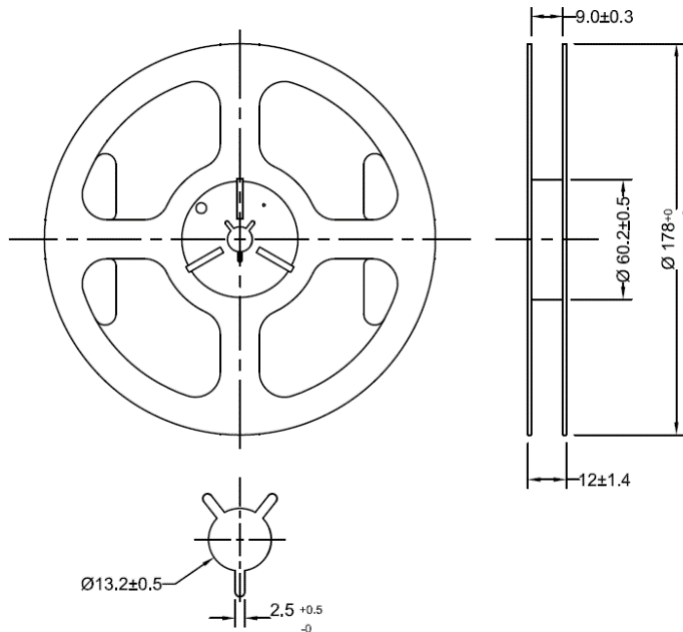
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## Packaging

T: 1,000pcs/reel  
T3: 3,000pcs/reel



FEEDING (PULL) DIRECTION →



Dimensions: inches (mm)

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