

# 3.3V CMOS Compatible 3.2 x 2.5mm SMD Crystal Oscillator

ASE Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x 1.2 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Features

- Low height 1.2mm max
- Tri-state function
- Low current consumption
- 30mA max for 200MHz
- Low RMS jitter 5ps max
- Suitable for RoHS reflow
- Available for tight stability option

## Applications

- CCD clock for VTR camera
- Equipment connected to PC or PC cards
- PDA, wireless communication
- Laptop, SSD (Solid State Drive)

## Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Range	0.625		200	MHz	
Operating Temperature	-10		+70	°C	STD (See options)
Storage Temperature	-55		+125	°C	
Overall Frequency Stability	-100		+100	ppm	See options
Supply Voltage (Vdd)	+3.135	3.3	+3.465	V	
Supply Current (Idd)		2.5	7	mA	0.5 ~ 20 MHz
		4.4	13		20.1 ~ 40.0 MHz
		6.5	19		40.01 ~ 60.0 MHz
		12.7	24		60.01 ~ 75.0 MHz
		7.4	20		75.01 ~ 80.0 MHz
		7.4	25		80.01 ~ 133.0MHz
		11.7	30		133.01 ~ 200.0 MHz
Symmetry @ 1/2Vdd	45	50	55	%	0.5 ~ 80.0MHz
	40	50	60		80.01 ~ 200.0MHz
Rise and Fall Time (Tr/Tf)		2.5	4.0	ns	0.5 ~ 20 MHz
		2.4	4.0		20.1 ~ 40.0 MHz
		2.4	4.0		40.01 ~ 60.0 MHz
		2.3	4.0		60.01 ~ 75.0 MHz
		1.5	4.0		75.01 ~ 133.0 MHz
		1.9	4.0		133.01 ~ 200.0 MHz
Output Load			15	pF	CMOS
Output Voltage (VOH)	0.9* Vdd			V	
Output Voltage (VOL)			0.1* Vdd	V	
Start-up Time		1	2.0	ms	0.5 ~ 20 MHz
		1	2.0		20.1 ~ 40.0 MHz
		1	2.0		40.01 ~ 60.0 MHz
		1	2.0		60.01 ~ 75.0 MHz
		1.2	2.0		75.01 ~ 133.0 MHz
		1.5	2.0		133.01 ~ 200.0 MHz



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Parameters	Minimum	Typical	Maximum	Units	Notes
Tri-state function (Stand-by)	"1" ( $V_{IH} \geq 0.7 \cdot V_{DD}$ ) or Open: Oscillation; "0" ( $V_{IL} < 0.3 \cdot V_{DD}$ ): No oscillation/Hi Z				
Peak to Peak Jitter		28		ps	Reference only. Contact ABRACON for the Jitter
RMS Jitter:		3.2	5	ps	0.5 ~ 20 MHz
		3.2	5		20.1 ~ 40.0 MHz
		3.2	5		40.01 ~ 60.0 MHz
		3.2	5		60.01 ~ 75.0 MHz
		2.2	5		75.01 ~ 133.0 MHz
		2.2	5		133.01 ~ 200.0 MHz
Aging at 25°C (first year)	-3		+3	ppm	
Stand-by Current:			10	µA	

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## Options and Part Identification (Left blank if standard)

ASE -  MHz -  -  -

Frequency in MHz
e.g. 0.625MHz
24.576MHz
14.31818MHz
26.000MHz
200.000MHz

Operating Temp.
I: 0°C ~ +50°C
D: -10°C ~ +60°C
E: -20°C ~ +70°C
F: -30°C ~ +70°C
N: -30°C ~ +85°C
L: -40°C ~ +85°C

Contact ABRACON for wider temperature range.

Overall Freq. Stability
J(*): ±20ppm
R: ±25ppm
K: ±30ppm
H: ±35ppm
B: ±40ppm
C: ±50ppm

\*: Temp options I, D, E, and -10°C to +70°C only

Packaging
Blank: Bulk
T: 1000pcs/Reel
T2: 250pcs/Reel
T3: 3000pcs/Reel



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

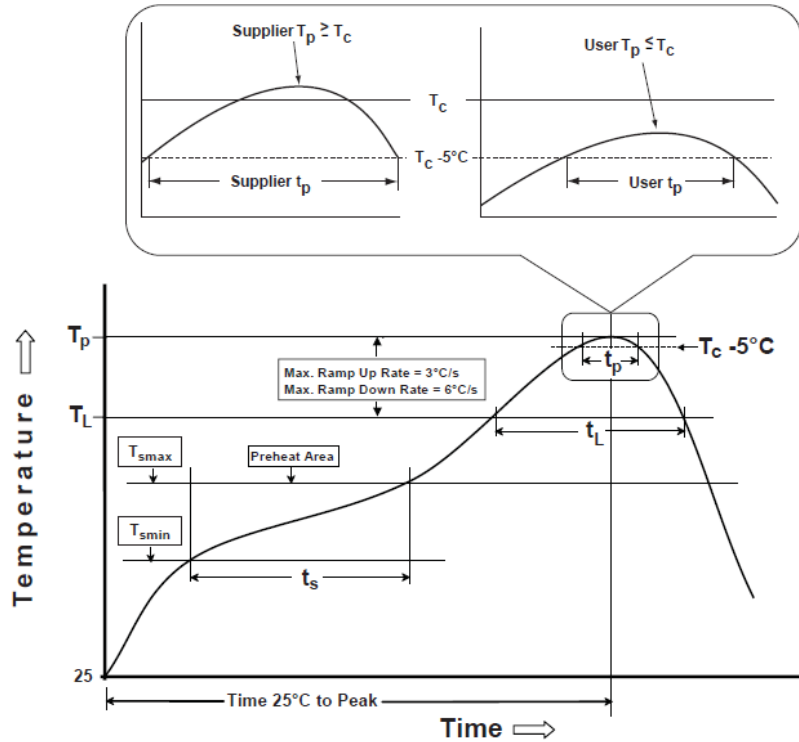


Table 1

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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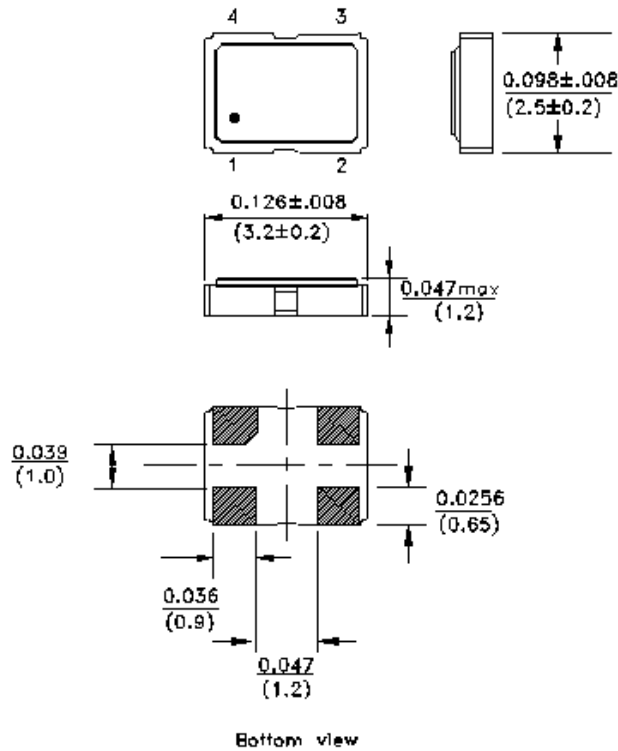


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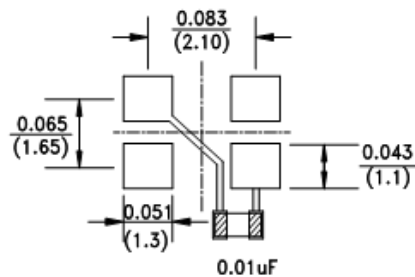


3.2 x 2.5 x 1.2 mm  
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MSL Level = 1

## Mechanical Dimensions



### Recommended land pattern



Pin	Function
1	Tri-State (STBY)
2	GND/Case
3	Output
4	Vdd

Dimensions: inches (mm)

**Note1:** Recommend using an approximately 0.01µF bypass capacitor between PIN 2 and 4.

**Note2:** The outline package configuration varies with frequency range. Electrical properties, pin configuration, and land pattern are the same.

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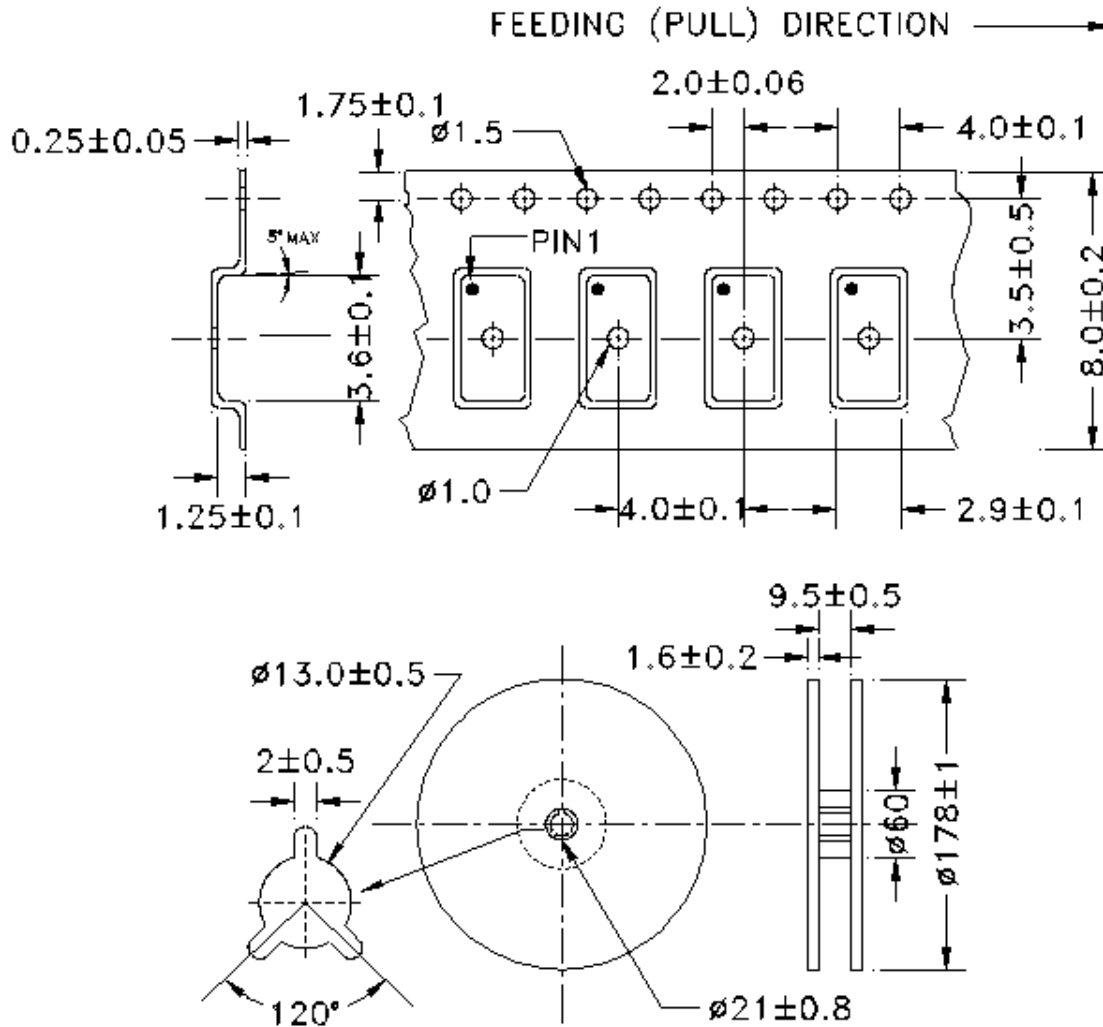
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3.2 x 2.5 x 1.2 mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Packaging

T: 1000pcs/reel  
T2: 250pcs/reel  
T3: 3000pcs/reel



Dimensions: mm

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