

CONTINUOUS VOLTAGE SMD TCXO

ATX-H12

Request Samples



Check Inventory



ESD Sensitive



2.5 x 2.0 x 1.0 mm
RoHS/RoHS II Compliant
MSL Level = 1

Features

- Both continuous & fixed Vdd options available
- Output waveform CMOS
- Hermetically seam-sealed ceramic package
- Low current consumption

Applications

- Cellular and cordless phones
- Standard oscillator for exact equipment
- Consumer electronics
- Industrial control & automation
- Mobile communication

Electrical Specifications [Note 1]

Parameters	Min.	Typ.	Max.	Units	Notes
Frequency Range	9.6		60	MHz	
Operating Temperature	-40		+85	°C	See Options (Table 1)
Storage Temperature	-55		+125	°C	
Frequency Stability $\Delta f/f_0$ vs:					
Tolerance	-1.0		+1.0	ppm	Reference to f_0 , at 25°C±2°C, Pre-reflow
Tolerance	-2.0		+2.0		Reference to f_0 , at 25°C ±2°C, 24 hours after reflow, two times
Temperature	-2.5		+2.5		See Options (Table 1)
Supply Voltage Change	-0.2		+0.2		Reference to f_0 , at 25°C ±2°C
Load Change	-0.2		+0.2		Vdd ± 5%
Aging	-1.0		+1.0		First year @+25°C±2°C
Supply Voltage (Vdd)	+3.135	+3.3	+3.465	V	Option E
	+2.85	+3.0	+3.15		Option A
	+2.66	+2.8	+2.94		Option B
	+2.375	+2.5	+2.625		Option C
	+1.71	+1.8	+1.89		Option D
	+1.68		+3.63		Option F
Supply Current (Idd)			4.8	mA	9.60MHz to 20.00MHz
			5.5		20.01MHz to 30.00MHz
			6.0		30.01MHz to 40.00MHz
			7.0		40.01MHz to 50.00MHz
			8.0		50.01MHz to 60.00MHz
Start-up Time			10	ms	
Rise and Fall Time (Tr/Tf) @10%Vdd-90%Vdd, 15pF load			5	ns	
Symmetry @ ½ Vdd	45	50	55	%	
Output Voltage	V _{OH}	90%Vdd		V	
	V _{OL}		10%Vdd		
Output Load			15	pF	CMOS
Output Waveform	CMOS				
Tri-state function [Note 2]	“1” (VIH≥0.7*Vdd) or Open: Oscillation; “0” (VIL<0.3*Vdd): No Oscillation/Hi Z			V	

Note 1: All measurements made at 25°C ±2°C, nominal Vdd, unless otherwise specified

Note 2: Do not leave pin 1 (INH) floating. If pin 1 (INH) is not utilized for toggling, it must be tied to Vdd (logic 1).

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Electrical Specifications continued

Parameters	Min.	Typ.	Max.	Units	Notes
Phase Noise (@ 10 MHz Carrier, @ 25°C ±2°C)					
@10Hz offset		-98	-94	dBc/Hz	Applicable to all standard available frequencies with Vdd = +1.8V, +2.5, +2.8, +3.0V, +3.3V
@100Hz offset		-122	-118		
@1kHz offset		-145	-141		
@10kHz offset		-152	-149		
@100kHz offset		-154	-151		
@1MHz offset		-154	-151		
@5MHz offset		-155	-152		
Phase Noise (@ 52 MHz Carrier, @ 25°C ±2°C)					
@10Hz offset		-83	-79	dBc/Hz	Applicable to all standard available frequencies with Vdd = +1.8V, +2.5, +2.8, +3.0V, +3.3V
@100Hz offset		-106	-102		
@1kHz offset		-127	-123		
@10kHz offset		-147	-144		
@100kHz offset		-154	-151		
@1MHz offset		-155	-152		
@10MHz offset		-155	-152		
@20MHz offset		-155	-152		

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Part Identification

ATX-H12-- MHz--

Vdd (V)
A: 3.0V±5%
B: 2.8V±5%
C: 2.5V±5%
D: 1.8V±5%
E: 3.3V±5%
F: +1.68V ~ +3.63V

Frequency in MHz
Please specify the frequency in MHz. e.g. 26.000MHz

Packaging
Blank: Bulk
T: 1000pcs/reel
T3: 3000pcs/reel

Table 1: Frequency Stability vs Operating Temperature

	±2.5ppm	±3.0ppm	±4.0ppm	±5.0ppm
0°C ~ +70°C	A25	A30	A40	A50
-10°C ~ +60°C	B25	B30	B40	B50
-20°C ~ +70°C	C25	C30	C40	C50
-30°C ~ +75°C	D25	D30	D40	D50
-30°C ~ +85°C	E25	E30	E40	E50
-40°C ~ +85°C	F25	F30	F40	F50

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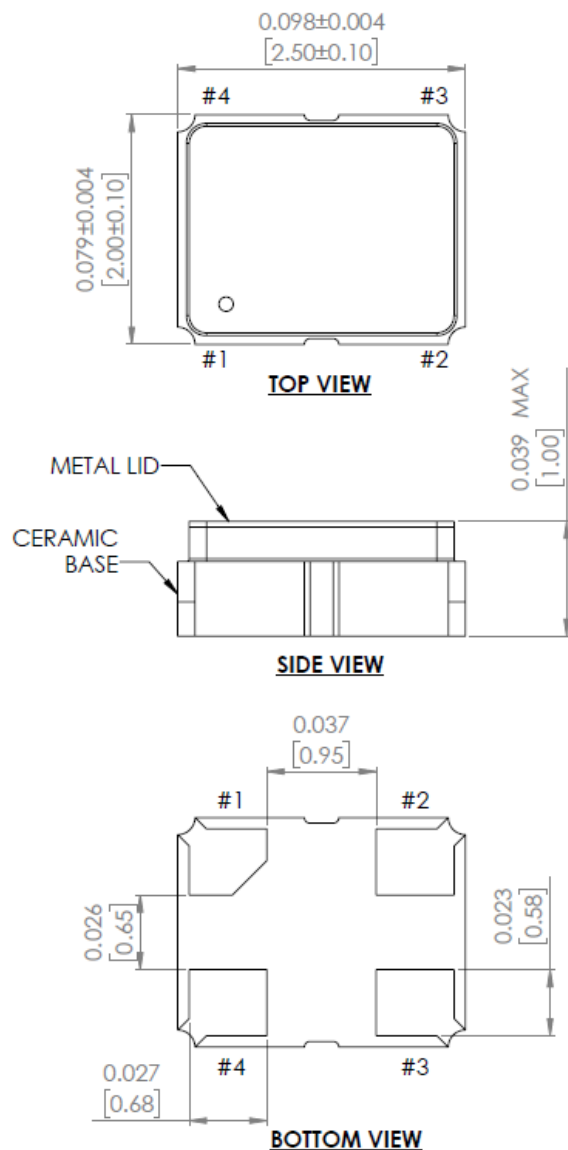


ESD Sensitive

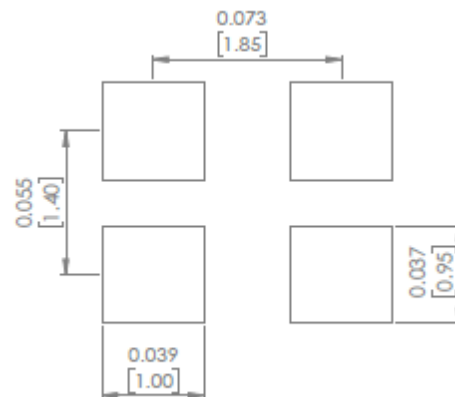


2.5 x 2.0 x 1.0 mm
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Mechanical Dimensions



Recommended Land Pattern



Pin #	Function
1	INH
2	GND
3	Output
4	Vdd

INH Function	
#1	#3 (Output)
Open	Active
"H" Level	Active
"L" Level	High Z (No Oscillation)

Note 3:

-Do not leave Pin 1 (INH) floating
-If Pin 1 (INH) is not utilized for toggling, it must be tied to Vdd (logic 1)

Note 4:

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

Dimensions: inches (mm)



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Reflow Profile [JDEC J-STD-020]

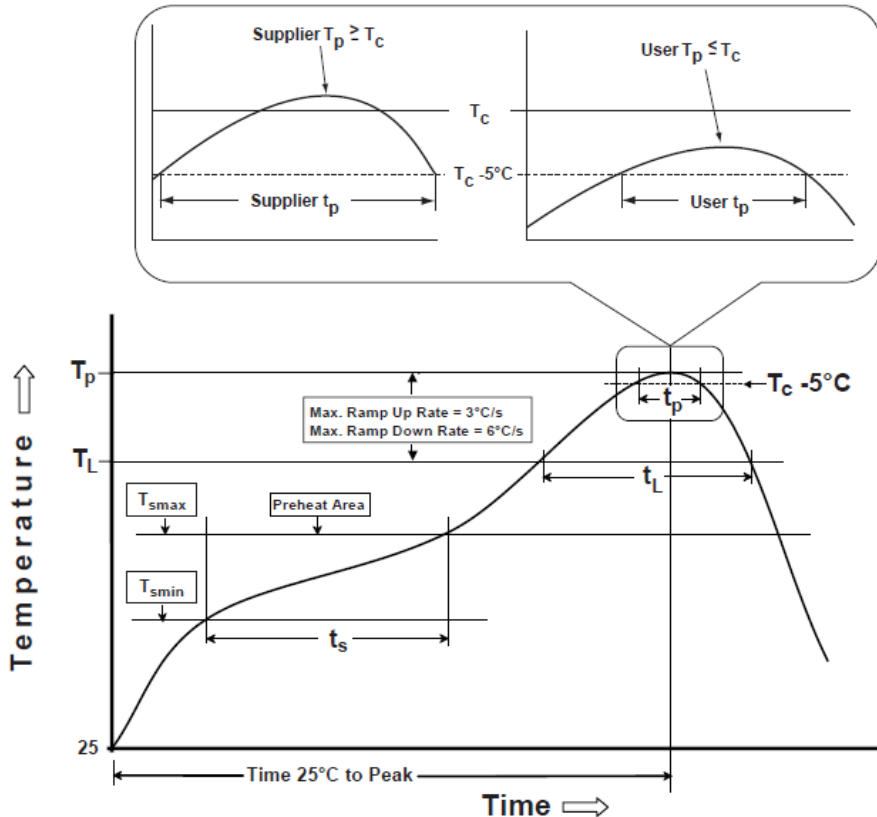


Table 1

SnPb Eutectic Process Classification Temperatures (T _c)		
Package Thickness	Volume mm ³ <350	Volume mm ³ ≥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 ³ <350	Volume mm ³ 350-2000	Volume mm ³ >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

*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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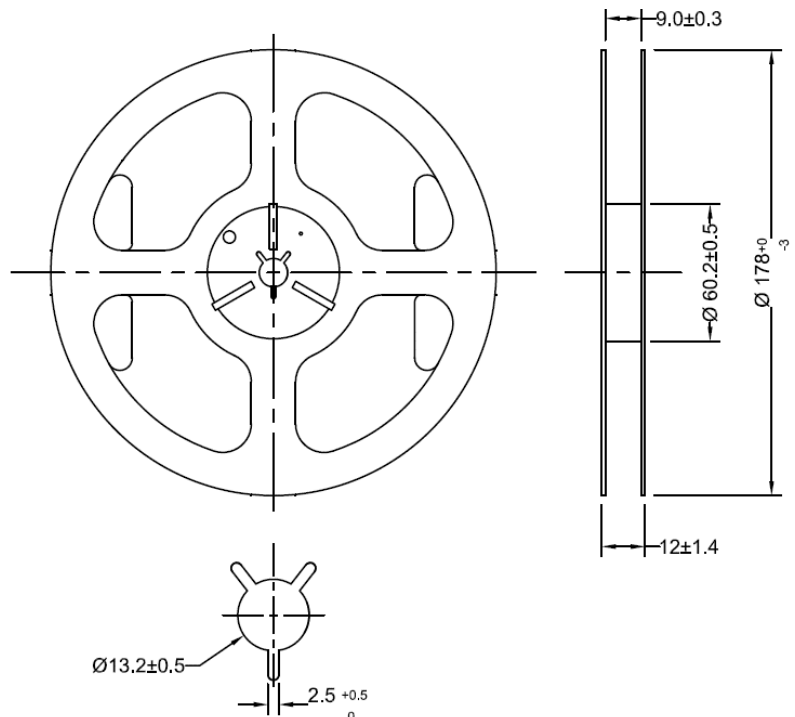
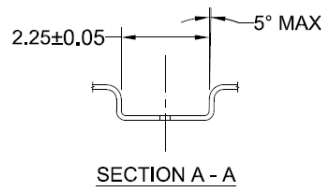
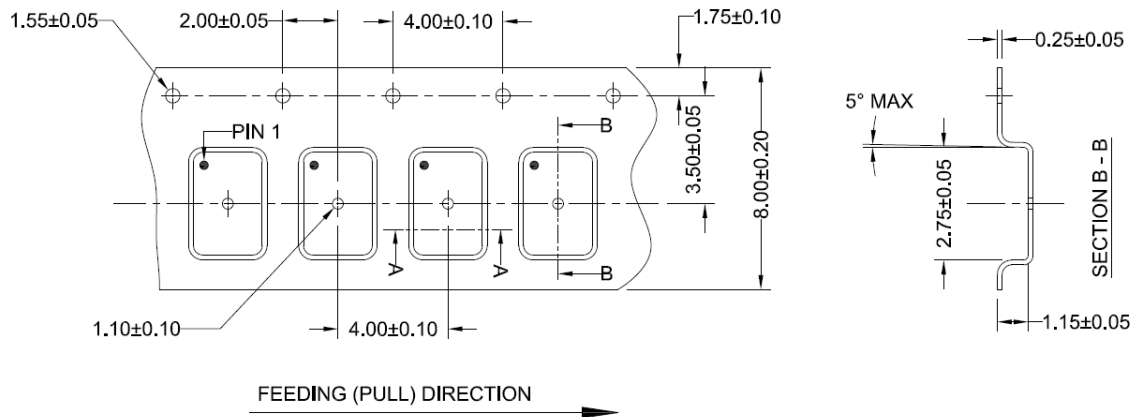


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Packaging

T: 1,000pcs/reel

T3: 3,000pcs/reel



Dimensions: mm

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