

CONTINUOUS VOLTAGE SMD TCXO

ATX-13

Request Samples



Check Inventory



ESD Sensitive



2.0 x 1.6 x 0.8 mm
RoHS/RoHS II Compliant
MSL Level = 1

Features

- Both continuous & fixed Vdd options available
- Output waveform clipped sinewave
- 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	10		52	MHz		
Standard Frequencies	26, 38.4, 50, 52			MHz		
Operating Temperature	-40		+85	°C	See Options (Table 1)	
Storage Temperature	-40		+85	°C		
Frequency Stability $\Delta f/f_o$ vs:						
Tolerance	Tolerance	-1.0		+1.0	ppm	Reference to f_o , at 25°C±2°C, Pre-reflow
	Tolerance	-2.0		+2.0		Reference to f_o , 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_o , at 25°C ±2°C
	Load Change	-0.2		+0.2		Vdd ± 5%
Aging	-1.0		+1.0		CL ± 1kΩ/±1pF	
Supply Voltage (Vdd)		+3.135	+3.3	+3.465	V	First year @+25°C±2°C
		+2.85	+3.0	+3.15		Option E
		+2.66	+2.8	+2.94		Option A
		+2.375	+2.5	+2.625		Option B
		+1.71	+1.8	+1.89		Option C
		+1.68		+3.63		Option D
Supply Current (Idd)			2.0	mA	10.00MHz to 26.00 MHz	
			2.5		26.01MHz to 52.00MHz	
Start-up Time			2.0	ms		
Output Voltage	0.8			Vp-p		
Output Load	9	10	11	kΩ		
	9	10	11	pF		
Output Waveform	Clipped Sine Wave, External DC-Cut Capacitor Required				1000 pF recommended	
Phase Noise (@ 10 MHz Carrier, @ 25°C ±2°C)						
@10Hz offset		-100	-96	dBc/Hz	Applicable to all standard available frequencies with Vdd = +1.8V, +2.5, +2.8, +3.0V, +3.3V	
@100Hz offset		-125	-121			
@1kHz offset		-138	-134			
@10kHz offset		-149	-146			
@100kHz offset		-158	-155			
@1MHz offset		-159	-156			
@5MHz offset		-159	-156			
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		-110	-106			
@1kHz offset		-132	-128			
@10kHz offset		-149	-146			
@100kHz offset		-156	-153			
@1MHz offset		-157	-154			
@10MHz offset		-157	-154			
@20MHz offset		-158	-155			

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



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Part Identification

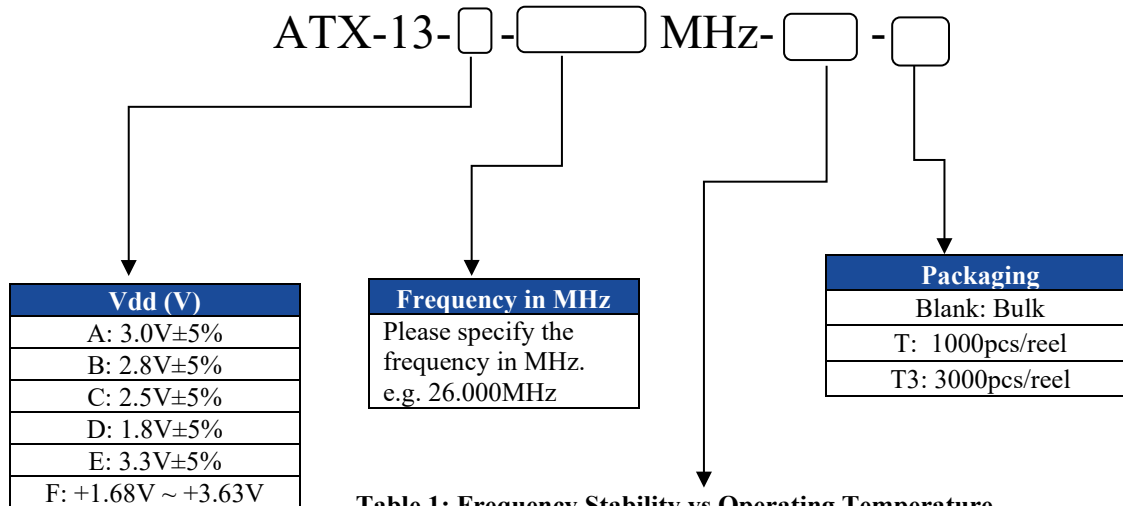
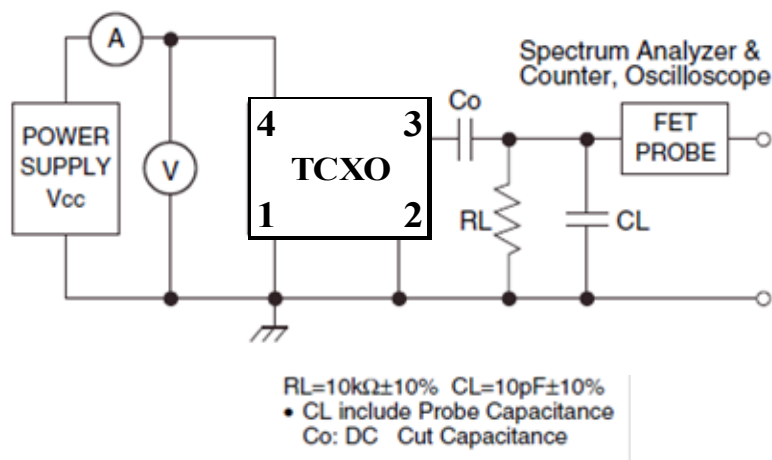


Table 1: Frequency Stability vs Operating Temperature

	±0.5ppm	±1.0ppm	±1.5ppm	±2.0ppm	±2.5ppm
0°C ~ +70°C	A05	A10	A15	A20	A25
-10°C ~ +60°C	B05	B10	B15	B20	B25
-20°C ~ +70°C	C05	C10	C15	C20	C25
-30°C ~ +75°C	D05	D10	D15	D20	D25
-30°C ~ +85°C	E05	E10	E15	E20	E25
-40°C ~ +85°C	F05	F10	F15	F20	F25

Recommended Test Circuit



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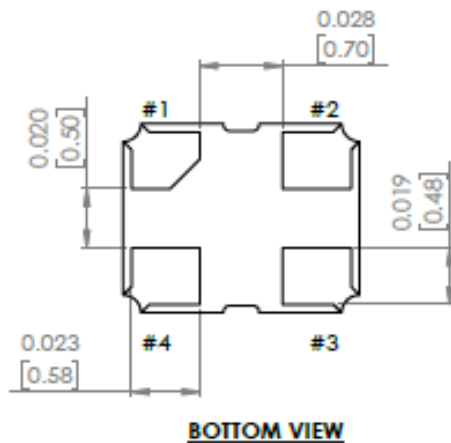
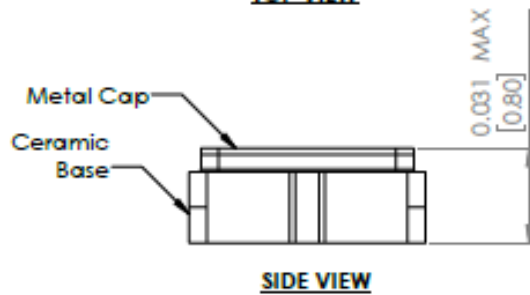
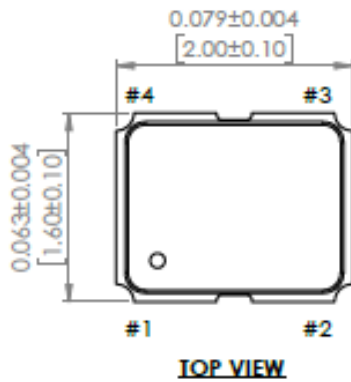


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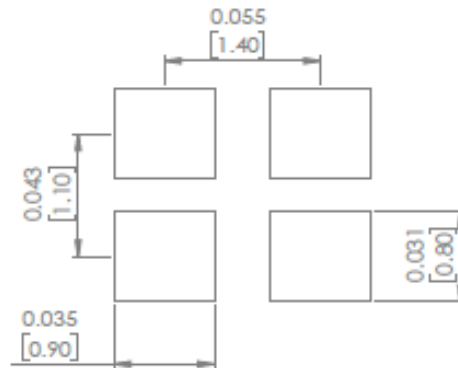


2.0 x 1.6 x 0.8 mm
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Mechanical Dimensions



Recommended Land Pattern



Pin #	Function
1	GND
2	GND
3	Output
4	Vdd

Dimensions: inches (mm)

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Reflow Profile [JDEC J-STD-020]

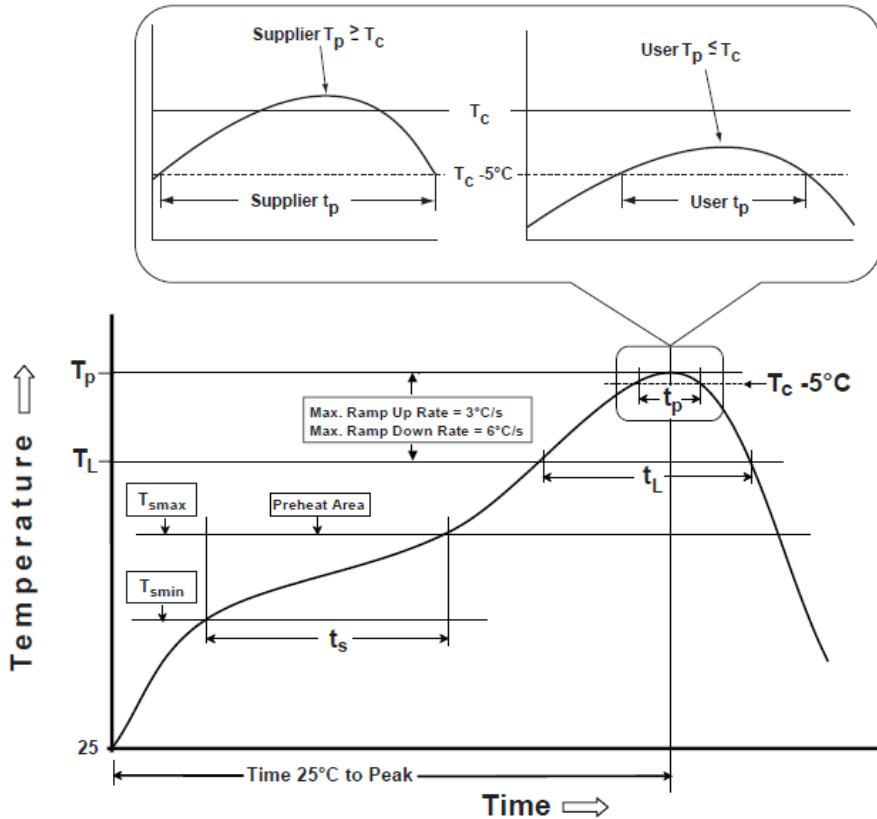


Table 1

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)*	<i>see Table 1</i>	<i>see Table 2</i>
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 a supplier minimum and a user maximum.

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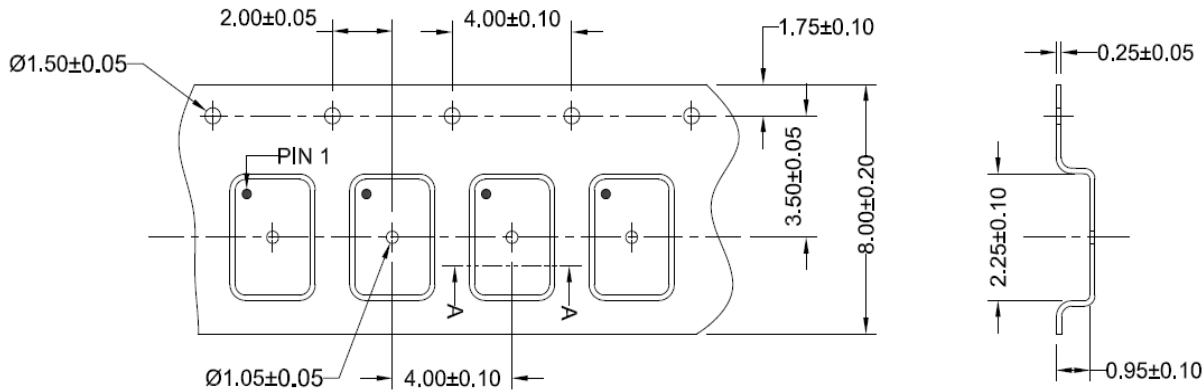


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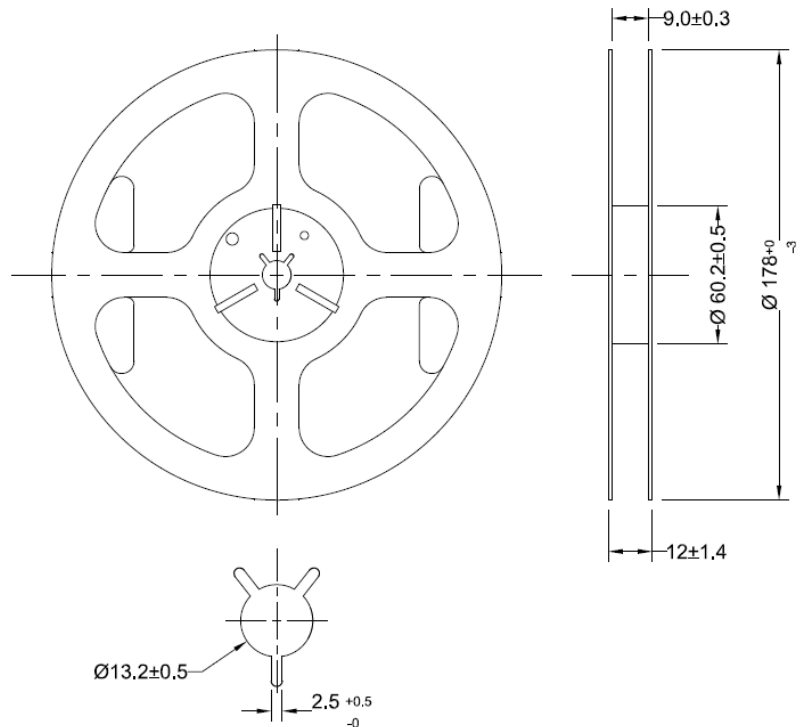
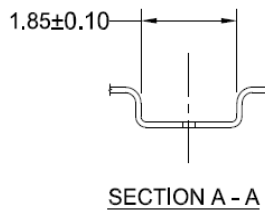
Packaging

T: 1,000pcs/reel

T3: 3,000pcs/reel



FEEDING (PULL) DIRECTION



Dimensions: mm

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