

SMD VCTCXO

AVTX-12

Request Samples



Check Inventory



ESD Sensitive



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

Features

- 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	10, 20, 26, 27, 30, 32, 36, 40, 45.545, 48, 50, 52			MHz	
Operating Temperature	-40		+85	°C	See Options (Table 1)
Storage Temperature	-40		+85	°C	
Frequency Stability $\Delta f/f_o$ vs:					
<i>Tolerance</i>	-1.0		+1.0	ppm	Reference to f_o , at 25°C±2°C, Pre-reflow
<i>Tolerance</i>	-2.0		+2.0		Reference to f_o , at 25°C ±2°C, 24 hours after reflow, two times
<i>Temperature</i>	-2.5		+2.5		See Options (Table 1)
<i>Supply Voltage Change</i>	-0.2		+0.2		Reference to f_o , at 25°C ±2°C
<i>Load Change</i>	-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
Supply Current (Idd)			2.0	mA	Option D
			2.5		10.00MHz to 26.00 MHz
Start-up Time			2.0	ms	26.01MHz to 52.00MHz
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
Voltage Control Function (Vcon)	0.5	1.5	2.5	Vdc	Vdd = 3.3Vdc
	0.5	1.5	2.5	Vdc	Vdd = 3.0Vdc
	0.5	1.5	2.5	Vdc	Vdd = 2.8Vdc
	0.4	1.4	2.4	Vdc	Vdd = 2.5Vdc
	0.3	0.9	1.5	Vdc	Vdd = 1.8Vdc
Frequency Tuning Range			-5.5	ppm	At Vcon(min), VDD=1.8Vdc
	5.5			ppm	At Vcon(max), VDD=1.8Vdc
			-8.0	ppm	At Vcon(min), VDD>1.8Vdc
	8.0			ppm	At Vcon(max), VDD>1.8Vdc
Frequency Tuning Transition	Positive Transfer Characteristics				

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

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Electrical Specifications continued

Parameters	Min.	Typ.	Max.	Units	Notes
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		

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Part Identification

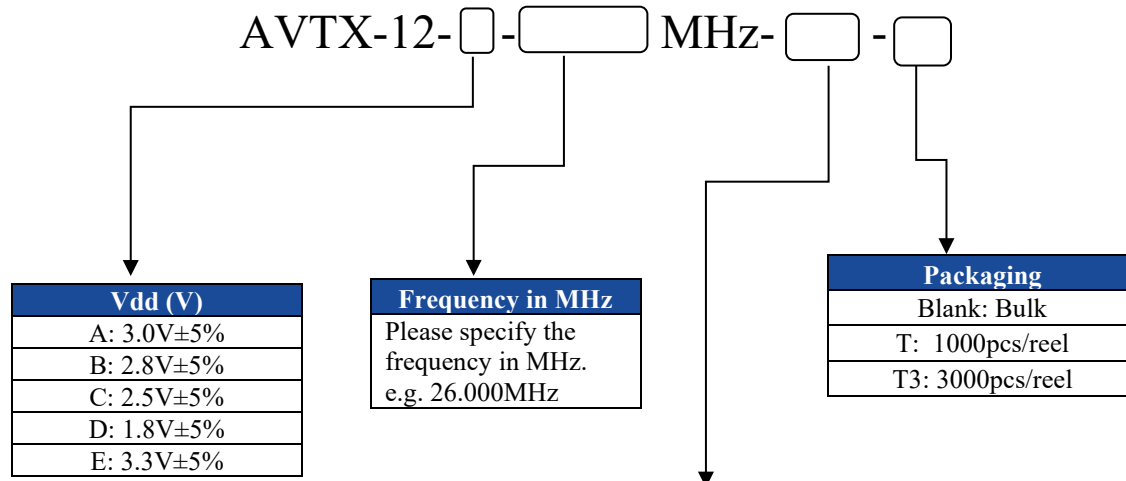
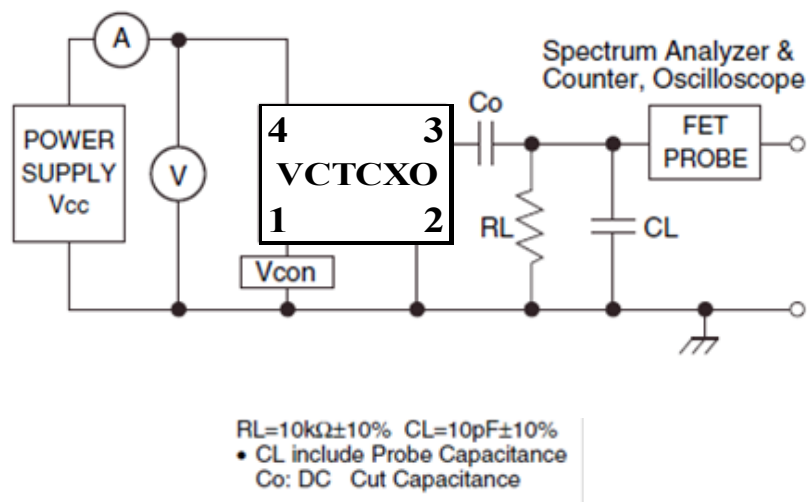


Table 1: Frequency Stability vs Operating Temperature

	±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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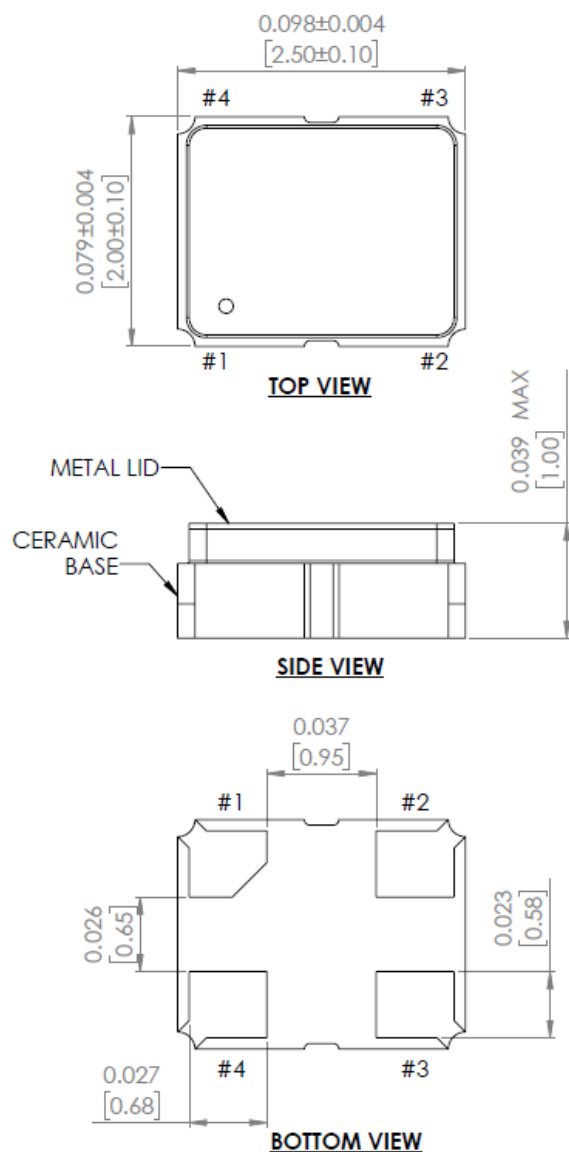


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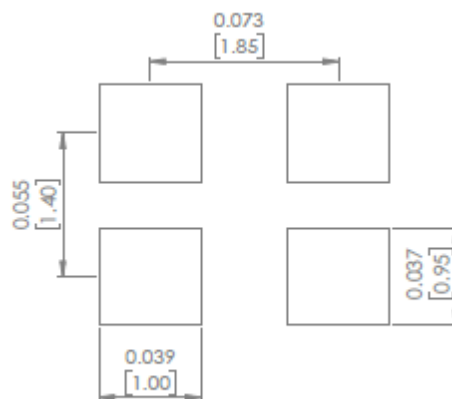


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Mechanical Dimensions



Recommended Land Pattern



Pin #	Function
1	Vcon
2	GND
3	Output
4	Vdd

Dimensions: inches (mm)



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Reflow Profile [JDEC J-STD-020]

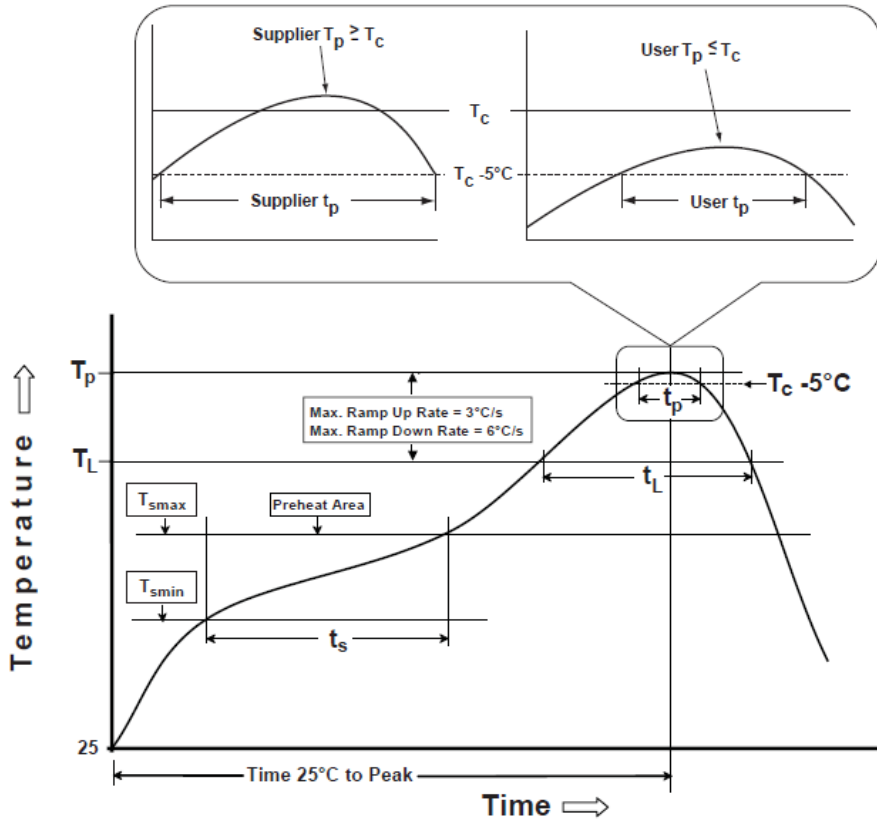


Table 1

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)*	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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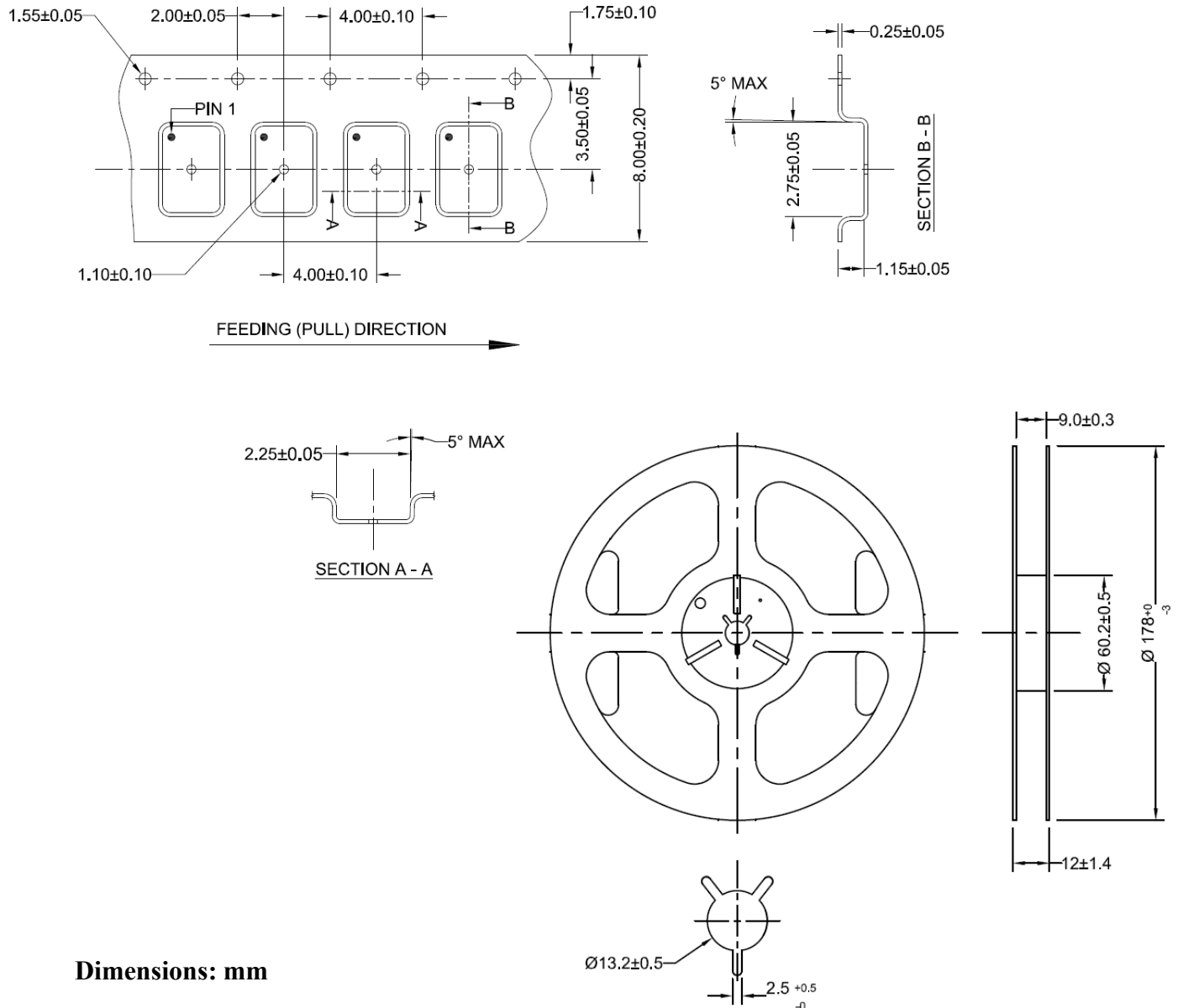


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Packaging

T: 1,000pcs/reel

T3: 3,000pcs/reel



Dimensions: mm

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