

SMD VCTCXO

AVTX-11

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x 1.2 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, 13.1072, 14.848, 15.6256, 16, 16.8, 18.432, 25, 25.78718, 26.27, 29.756, 32, 40, 44, 50			MHz	
Operating Temperature	-40		+85	°C	See Options (Table 1)
Storage Temperature	-40		+85	°C	
Frequency Stability $\Delta f/f_o$ vs:					
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
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

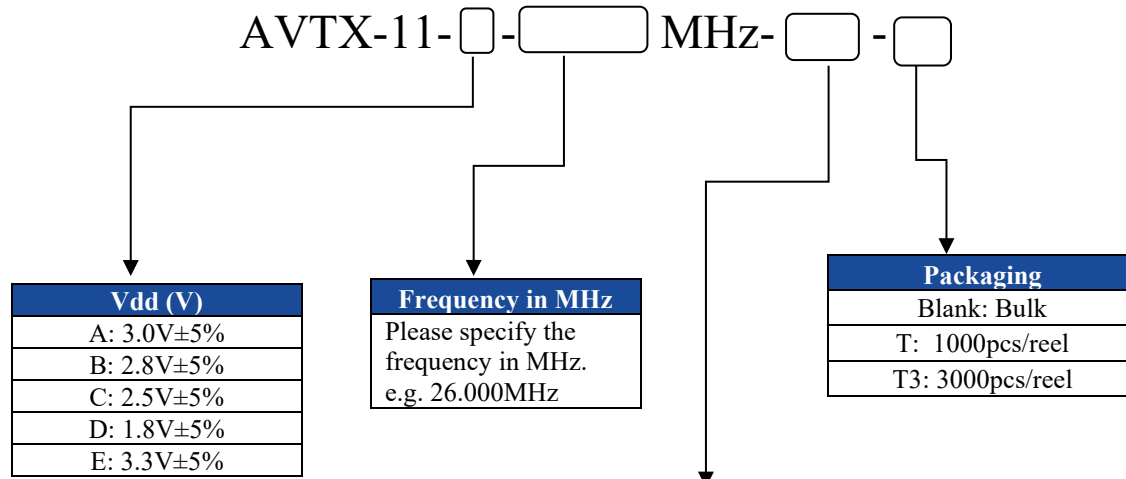
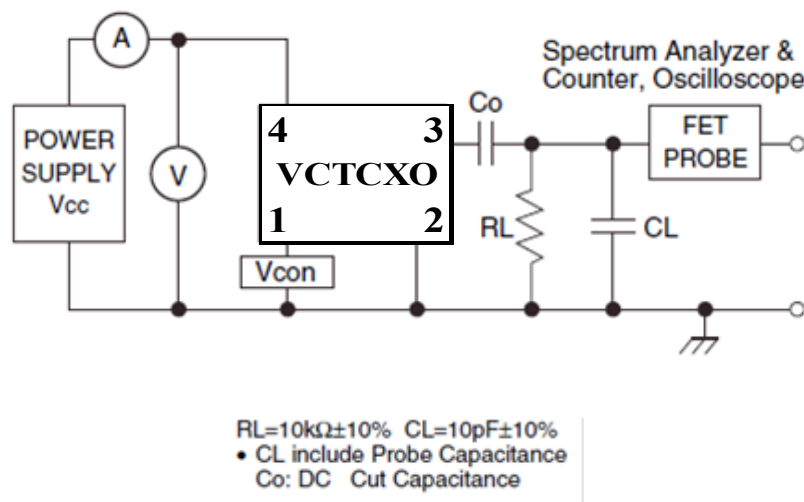


Table 1: Frequency Stability vs Operating Temperature

	±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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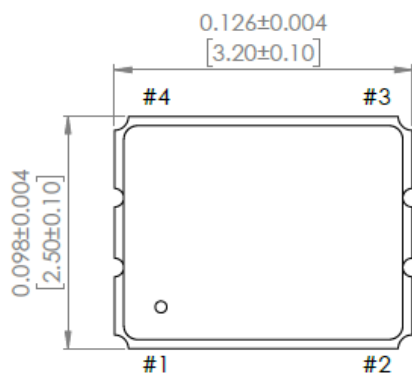


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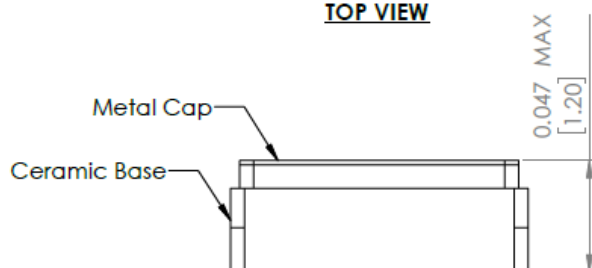


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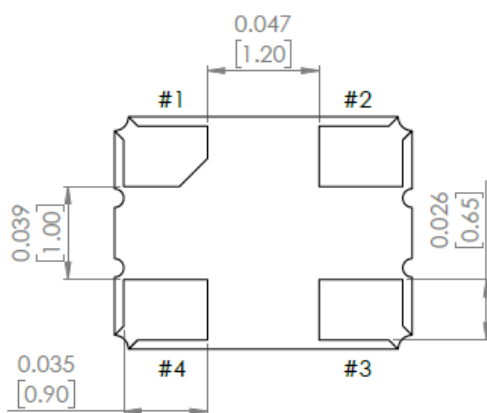
Mechanical Dimensions



TOP VIEW

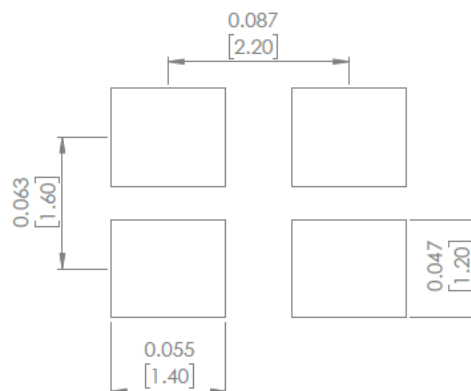


SIDE VIEW



BOTTOM VIEW

Recommended Land Pattern



Pin #	Function
1	Vcon
2	GND
3	Output
4	Vdd

Dimensions: inches (mm)



Reflow Profile [JDEC J-STD-020]

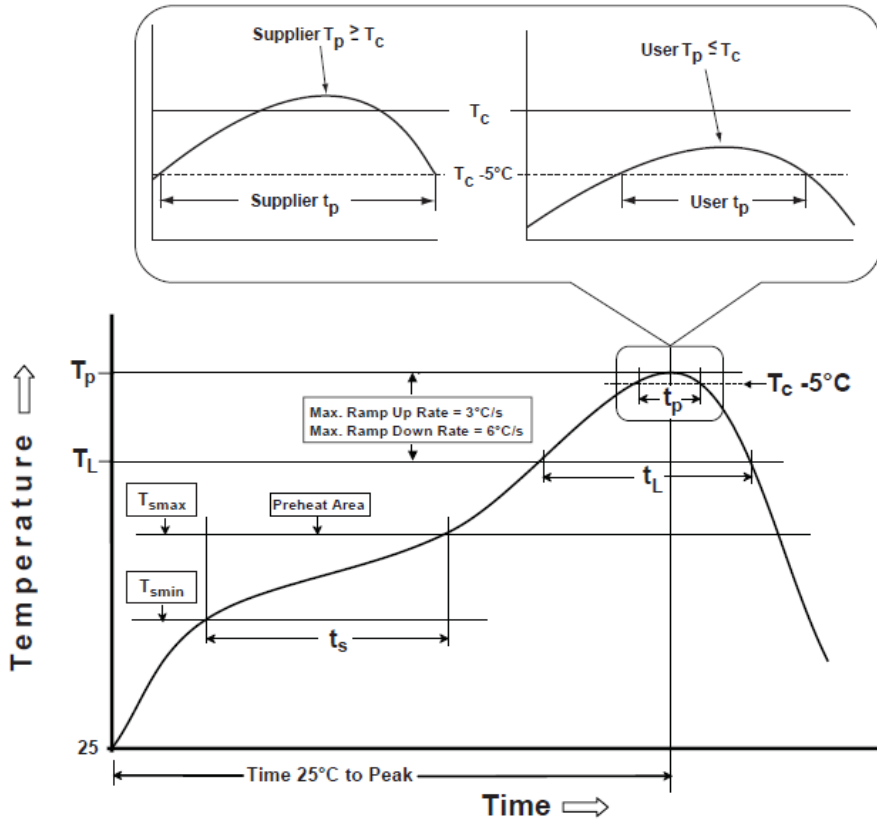


Table 1

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 supplier minimum and a user maximum.

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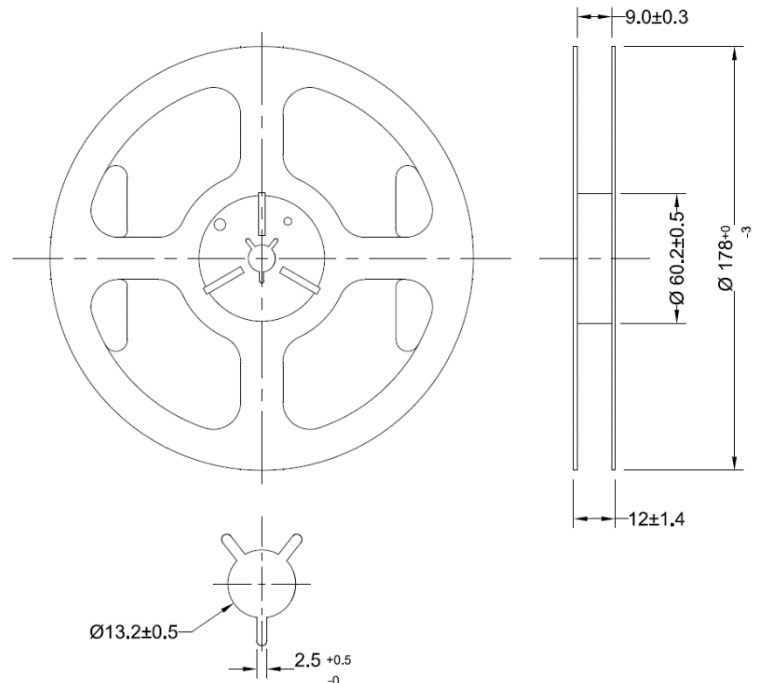
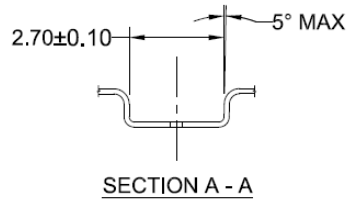
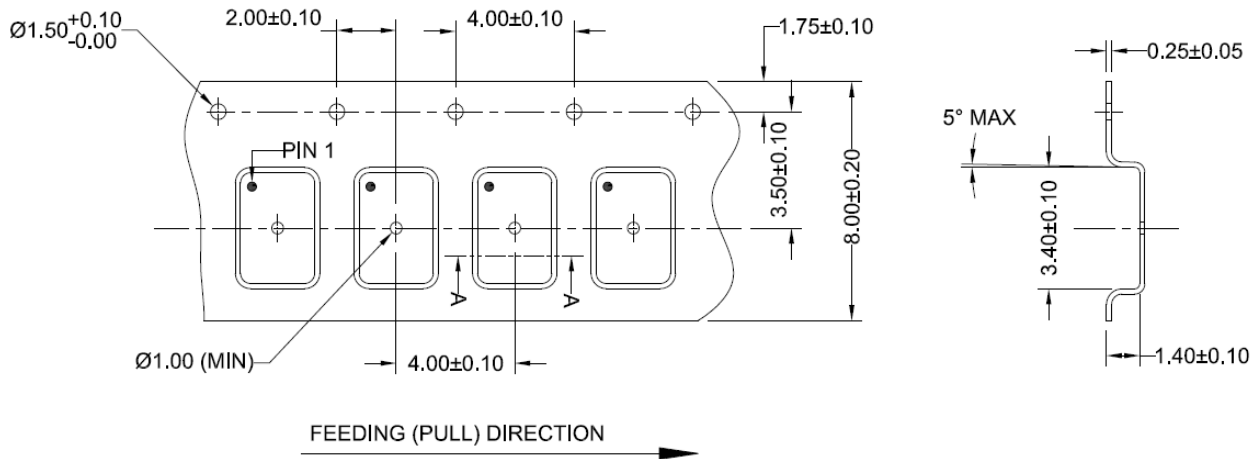


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Packaging

T: 1,000pcs/reel

T3: 3,000pcs/reel



Dimensions: mm

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