

**T1250, T1254, T1256, T1258, T4001 thru T4009,  
 T3250, T3254, T3256, T3258, T4301 thru T4309**  
**5X7 mm Surface Mount**  
**Extended Temperature/COTS 20KHz to 100MHz**



## *Extended Temperature COTS Product Specification* **XO**

**Features**

- Tiny 5X7 SMD form factor
- Hermetically sealed for rugged environmental conditions
- Extremely wide operating temperature range accommodates harsh environments
- All crystals are processed in-house with tight angle control to assure best frequency-temperature characteristics
- All units are vacuum baked before sealing at 175°C for 16 hours to eliminate moisture traces and pre-age units for superior stability

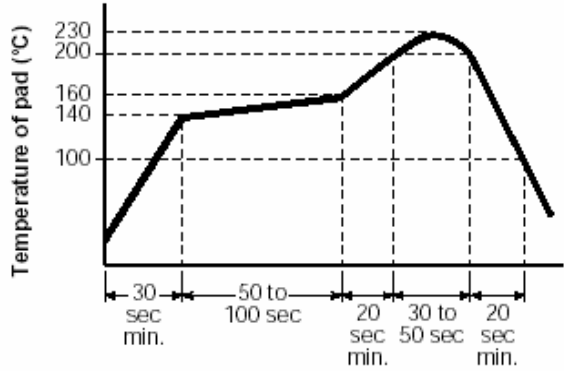
**Typical Applications**

Any electronic circuit requiring 5V HCMOS clocking that is exposed to very high or very low temperatures such as oil drilling or weather observation equipment

**Description**

Owing to their small size, light weight, and rugged characteristics, these 5V HCMOS extended temperature/COTS oscillators fulfill tasks not previously feasible. They are used in applications that take advantage of their extended temperature range and high performance. Twenty four different models (with and without tristate) cover -55°C to +200°C operation and provide frequency selection from 20KHz to 100MHz. They combine excellent long-term reliability, loading characteristics, and superior startup performance.

Non-Tristate Model	Tristate Model	Frequency Stability	Temperature
T1250	T3250	+/-75ppm	-40 to + 85°C
T1254	T3254	+/-75ppm	0 to + 175°C
T1256	T3256	+/-75ppm	-55 to + 85°C
T1258	T3258	+/-100ppm	-40 to + 85°C
T4001	T4301	+/-500ppm	-55 to + 200°C
T4002	T4302	+/-500ppm	0 to 200°C
T4003	T4303	+/-250ppm	-55 to + 200°C
T4004	T4304	+/-250ppm	0 to 200°C
T4005	T4305	+/-250ppm	-55 to 175°C
T4006	T4306	+/-250ppm	0 to 175°C
T4007	T4307	+/-150ppm	-55 to 175°C
T4008	T4308	+/-150ppm	0 to 175°C
T4009	T4309	+/-100ppm	-55 to 125°C



**Recommended Reflow Soldering Profile**

Downloaded from [Elcodis.com](http://Elcodis.com) electronic components distributor

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**ELECTRICAL SPECIFICATIONS**

**Frequency** 20 KHz to 100MHz  
**Frequency Stability** Includes calibration at 25°C, operating temperature, change of input voltage, change of load, shock and vibration.

	MIN	TYP	MAX	UNITS
<b>Input Voltage, V<sub>DD</sub></b>	4.5	5.0	5.5	volts
<b>Input Current</b>			40	mA

**Output**  
 All units, full range  
 Loads 3 TLL loads, or 10LSTTL loads, or 15 pf CMOS

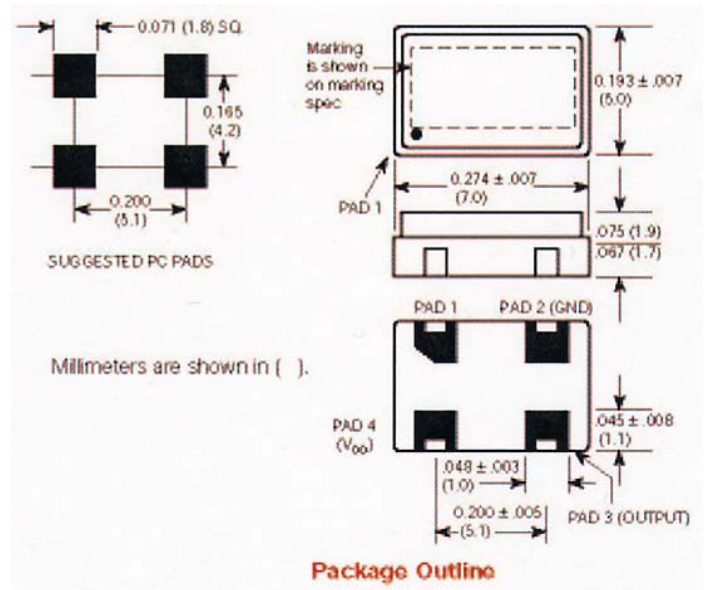
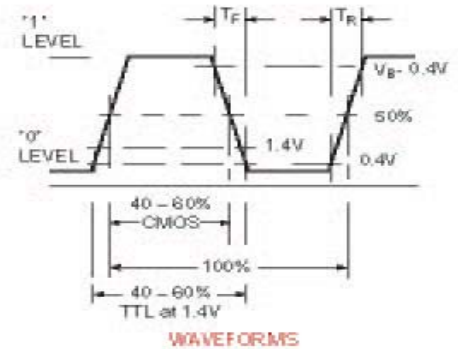
**Rise and Fall Time**  
 TTL and LSTTL from 0.4 to 2.4V 8 ns  
 CMOS, 15pf, from 0.4 to (V<sub>DD</sub>-0.4) V 8 ns  
 CMOS, 30pf, from 0.4 to (V<sub>DD</sub>-0.4) V 10 ns

**Symmetry**  
 TTL and LSTTL @ 1.4V 40/60 percent  
 CMOS @50% V<sub>DD</sub> 40/60 percent

**Aging**  
 First year 3 ppm  
 After first year 1 ppm/yr

**ENVIRONMENTAL SPECIFICATIONS**

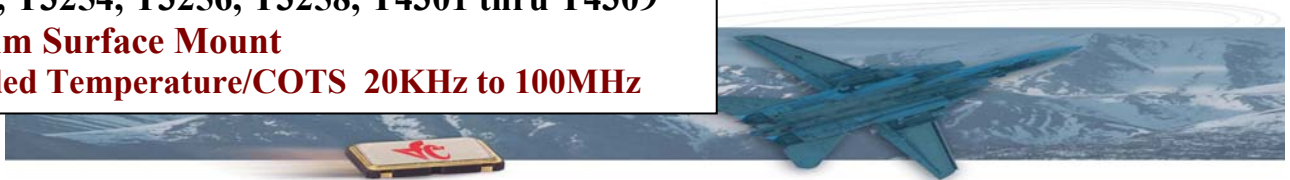
**Shock**-1000 Gs, 0.35 ms, ½ sine wave, 3 shocks in each plane  
**Vibration**-10-2000 Hz of .06" d.a. or 20Gs, whichever is less  
**Humidity**-Resistant to 85° R.H. at 85°C



**Connections**

Pad	Non-Tristate Models	Tristate Models
1.	Not Used	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
2.	Ground and Case	Ground and Case
3.	Output	Output
4.	+5.0V, V <sub>DD</sub>	+5.0V, V <sub>DD</sub>

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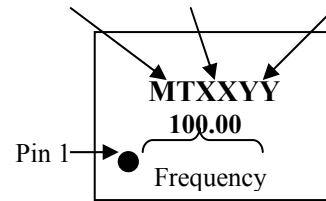


**MECHANICAL SPECIFICATIONS**

- Gross Leak**-Each unit checked in 125°C fluorocarbon
- Fine Leak**-Mass spectrometer leak rate less than 2X10-8 atm, cc/sec of helium
- Case**-Hermetically sealed ceramic package
- Pads**-60 microinch of gold over nickel
- Marking**-Epoxy ink or laser inscribed
- Resistance to Solvents**-MIL STD 202, Method 215

**MARKING SPECIFICATION**

The format for the marking is:  
 Valpey-Fisher    Model Code    Date Code  
 T Oscillator



**HOW TO ORDER**

For Part Number, put package type before model number, and add frequency in MHz, for example:

