

Extended Temperature/COTS XO, 3.3V 20KHz to 100MHz



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
- Tristate feature optional
- Equivalent 5V parts are available in series T1254



RoHS Status



Description

Owing to their small size, light weight, and rugged characteristics, these 3.3V 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 six 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.

Applications

- Any electronic circuit requiring 3.3V HCMOS clocking that is exposed to very high or very low temperatures such as oil drilling or weather observation equipment

Electrical Specifications

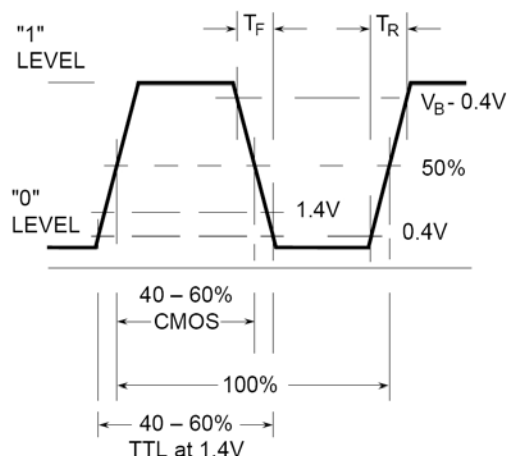
Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		0.02		100	MHz	
Frequency Stability	$\Delta F/F$	Overall condition including calibration, temperature voltage and load variation	± 25		± 500	ppm	See Chart
Operating Temperature	T		-55°		+200°	°C	See Chart
Aging		First Year After First Year		3 1		ppm ppm/yr	
Supply Voltage	V _{cc}		3.0	3.3	3.6	V	
Supply Current					20	mA	
Output		All units, full range Loads 3 TLL loads, or 10 LSTTL loads, or 15pF CMOS					
Symmetry		TTL and LSTTL @ 1.4V CMOS, @ 50% V _{DD}		40/60 40/60		%	
Rise and Fall Times		TTL and LSTTL from 0.4 to 2.4V CMOS, 15 pF, from 0.4 to (V _{DD} -0.4) V CMOS, 30 pF, from 0.4 to (V _{DD} -0.4) V			8 8 10	ns	



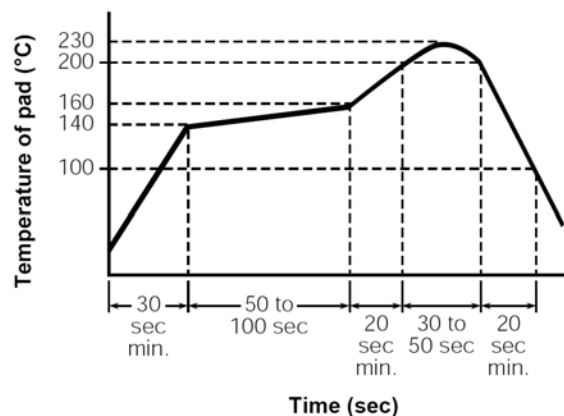
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FIXED OUTPUT	TRISTATE		
Model	Model	Frequency Stability	Operating Temperature
T7250	T9250	±75ppm	-40° to +85°C
T7254	T9254	±100 ppm	0° to +175°C
T7256	T9256	±75 ppm	-55° to +85°C
T7258	T9258	±100 ppm	-40° to +85°C
T7001	T9301	±500 ppm	-55° to +200°C
T7002	T9302	±500 ppm	0° to +200°C
T7003	T9303	±250 ppm	-55° to +200°C
T7004	T9304	±250 ppm	0° to +200°C
T7005	T9305	±250 ppm	-55° to +175°C
T7006	T9306	±250 ppm	0° to +175°C
T7007	T9307	±150 ppm	-55° to +175°C
T7008	T9308	±150 ppm	0° to +175°C
T7009	T9309	±100 ppm	-55° to +125°C
T7010	T9310	±50 ppm	-55° to +85°C
T7011	T9311	±25 ppm	-55° to +85°C
T7012	T9312	±75 ppm	-55° to +125°C
T7013	T9313	±50 ppm	-55° to +125°C



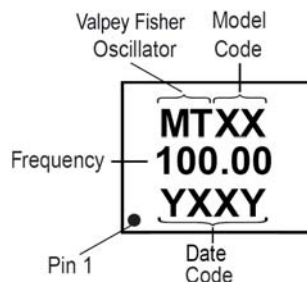
Waveforms



Recommended Reflow Soldering Profile

Marking Specifications

The format for the marking is:



Environmental and Mechanical Conditions

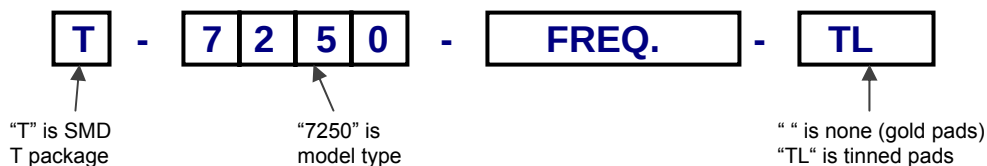
Parameter	Specification
Shock	1000 Gs, 0.35 ms, ½ sine wave, 3 shocks in each plane
Vibration	10-2000 Hz of 0.06" d.a. or 20 Gs, whichever is less
Humidity	Resistant to 85° R.H. at 85°C
Gross Leak	Each unit checked in 125°C fluorocarbon
Fine Leak	Mass spectrometer leak rate less than 2×10^{-8} atm, cc/sec of helium
Case	Ceramic with glass hermetic seal
Pads	40 microinch of gold over nickel or tinned (solder coated)
Marking	Epoxy ink or laser engraved
Resistance to Solvents	MIL STD 202, Method 215



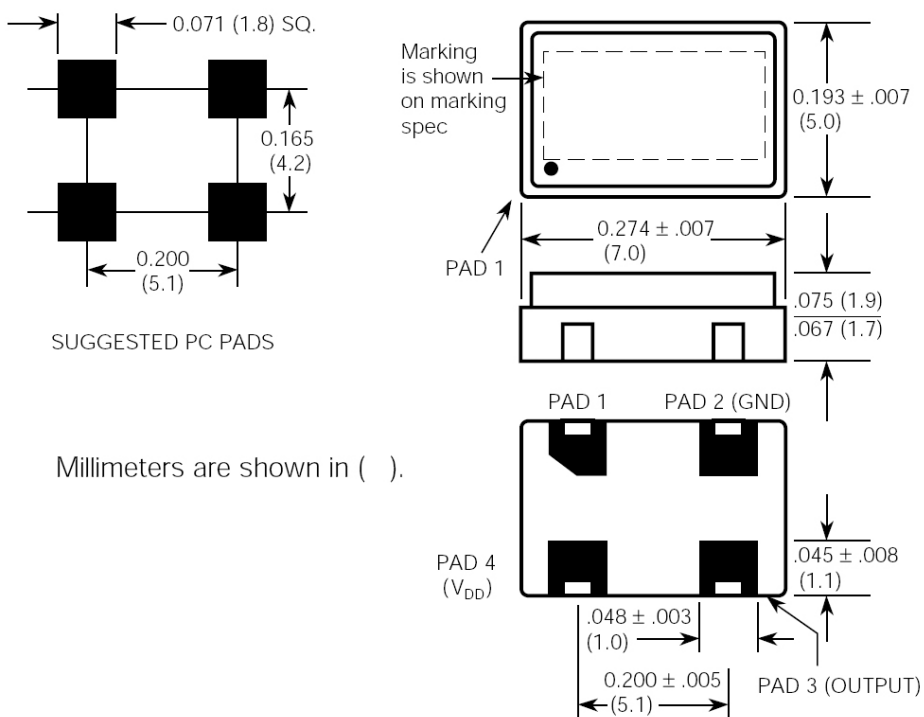
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HOW TO ORDER



Package Outline



Pin	Non-Tristate Models	Tristate Models
1	NOT USED	Floating or 1 : Oscillator runs Ground or 0 : Disable or Tristate
2	Ground and Case	
3	Output	
4	+3.3V, V _{DD}	

