7 x 5mm SMD HCMOS

- **Miniature 7.0 x 5.0 x 1.4mm hermetically-sealed package**
- **Frequency Range 500kHz to 125MHz**
- **Tristate (Enable/Disable) function as standard**
- **Supply voltage range 1.8, 2.5, 3.3 or 5.0 Volts**



DESCRIPTION

XO91miniature oscillators consist of a TTL/CMOS-compatible hybrid circuit together with a miniature quartz crystal packaged in a low-profile, industry-standard ceramic package. The high quality design and materials employed provide a highly reliable clock oscillator in a miniature package while mass production methods ensure that the XO91 provides a cost-effective oscillator solution.

SPECIFICATION

Frequency Range:	500kHz to 125.0MHz
Supply Voltage:	1.8, 2.5, 3.3 or 5.0 Volts ±10%
Output Logic:	HCMOS/LSTTL
Frequency Stability*	
Temperature Range	Stability
0° to +50°C:	from ±10ppm
-20° to +70°C:	from ±15ppm
-40 to +85°C:	from ±25ppm
-55° to +105°C:	from ±100ppm
Rise/Fall Time:	*see table*
Output Voltage:	
HIGH '1':	90%Vdd minimum
LOW '0':	10%Vdd maximum
Output Load	
CMOS:	15pF (50pF available)
TTL:	10 LSTTL loads
Duty Cycle:	50%±5% typical
Supply Current:	*See table*
Operating Temperature	
	0~50°C (Light Commercial) 0~70°C (Commercial) -40~+85 (Industrial) -55~+105°C (Military)
Storage Temperature:	-55~+105°C
Startup Time	
500kHz to 32MHz:	5ms max.
32MHz+ to 125MHz:	10ms max. (to reach 90% amplitude at 25±2°C)
Ageing:	±5ppm max. In first year
Phase Jitter RMS:	<1ps typical
Enable Time:	100ms max.
Disable Time:	100ns max.
Tristate Function (Pad 1):	
	Output (Pad 3) is active if Pad 1 is not connected or a voltage to Pad 1 is 'HIGH'. Output is high impedance when 'LOW' or GROUND is applied to Pad 1.

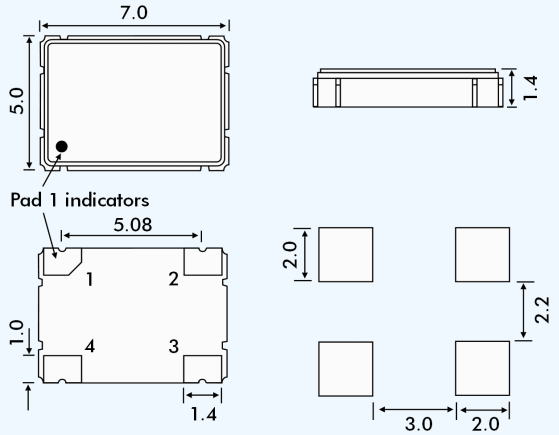
* Frequency stability is inclusive of calibration tolerance at 25°C, frequency change due to shock & vibration, ±10 supply voltage variation and stability over temperature range.

Note: Parameters are measured at ambient temperature of 25°C, supply voltage as stated and a load of 15pF

CURRENT CONSUMPTION & RISE/FALL TIME

Frequency Range	Supply Voltage (±10%)				Rise/Fall Time
	+1.8V	+2.5V	+3.3V	+5.0V	
500kHz to 32MHz	8mA	10mA	15mA	25mA	4ns max.
32MHz+ to 50MHz	10mA	14mA	16.5mA	35mA	3ns max.
40MHz+ to 125MHz	25mA	30mA	35mA	40mA	2ns max.

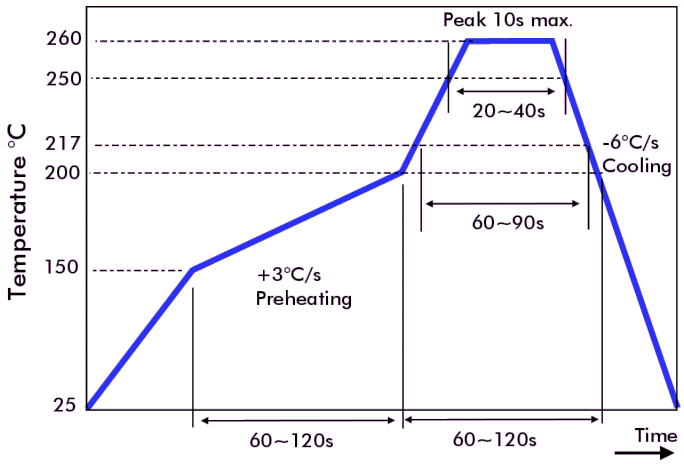
OUTLINE & DIMENSIONS



Pad Connections

1 Enable/Disable
2 Ground
3 Output
4 Supply Voltage

SOLDER TEMPERATURE PROFILE



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ENVIRONMENTAL PERFORMANCE SPECIFICATION

RoHS Status:	Compliant
Storage Temperature Range:	-50° to +100°C
Humidity:	85% RH, 85°C for 48 hours
Hermetic Seal:	Leak rate $2x10^{-8}$ ATM $-cm^3/s$ max.
Solderability:	MIL-STD-202F Method 208E
Reflow:	260°C for 10 sec (see diagram)
Vibration:	MIL-STD-202F Method 204, 35g, 50 to 2000Hz
Shock:	MIL-STD-202F Method 213B, test Condition E, 1000g ½ sinewave

PART NUMBERING

Example: 16.000MHz XO91050UCTA

Frequency
Series Designation XO91
Stability*
- 100 = ±100ppm
- 50 = ±50ppm
- 25 = ±25ppm

Output Universal
Operating Temp. Range
- C = 0+70°C
- D = -20~+70°C
- I = -40~+85°C
- M = -55~+105°C

Tristate Function
Supply Voltage
Blank = 5.0 Volts
- A = 3.3 Volts
- B = 2.5 Volts
- C = 1.8 Volts

** For other stability requirements enter figure required.*