7 x 5mm SMD Clock Oscillator

312.5kHz to 160MHz

FEATURES

- **Miniature 7.0 x 5.0 x 1.4mm, hermetically-sealed package**
- **Frequency Range 312.5kHz to 160MHz**
- **Tristate (Enable/Disable) function as standard**
- **Supply voltage range: 1.0, 1.2, 1.8, 2.5, 3.3 or 5.0 Volts**
- **High ouput load version (50pF) available**

RoHS

DESCRIPTION

XO91 oscillators consist of a TTL/CMOS-compatible hybrid circuit together with a miniature quartz crystal packaged in a low-profile, industry-standard 7 x 5mm ceramic package. The high quality design and build quality of the XO91 provides a stable and reliable clock oscillator. XO91 supply voltage range is from 1.0 to 5.0 Volts.

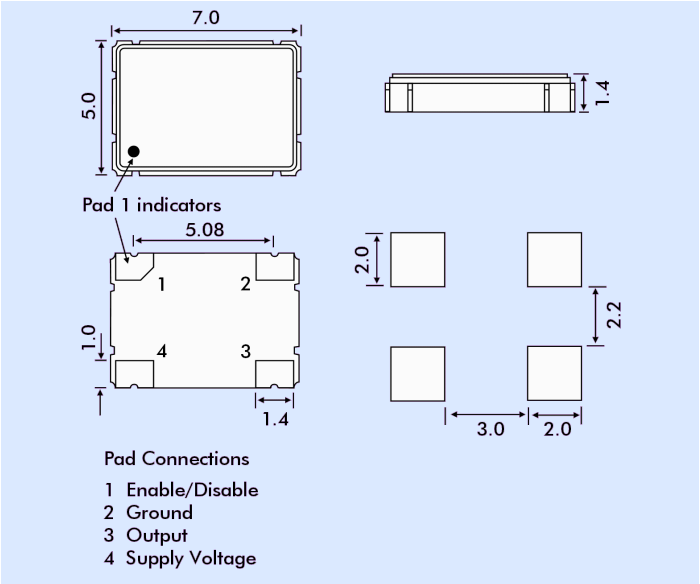
SPECIFICATION

Frequency Range:	312.5kHz to 125.0MHz
Supply Voltage:	1.0, 1.2, 1.8, 2.5, 3.3 Volts±5% or 5.0 Volts ±10%
Output Logic:	HCMOS/LSTTL
Frequency 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:	15pF (30pF and 50pF available for supply voltages 3.3 and 5.0 Volts)
Duty Cycle:	50%±5% typical
Supply Current:	*See table*
Rise/Fall Times:	*See table*
Operating Temperature	
	0~70°C (Commercial) -40~+85°C (Industrial) -55~+105°C (Military)
Startup Time	
312.5kHz to 32MHz:	5ms max.
32MHz+ to 160MHz:	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.

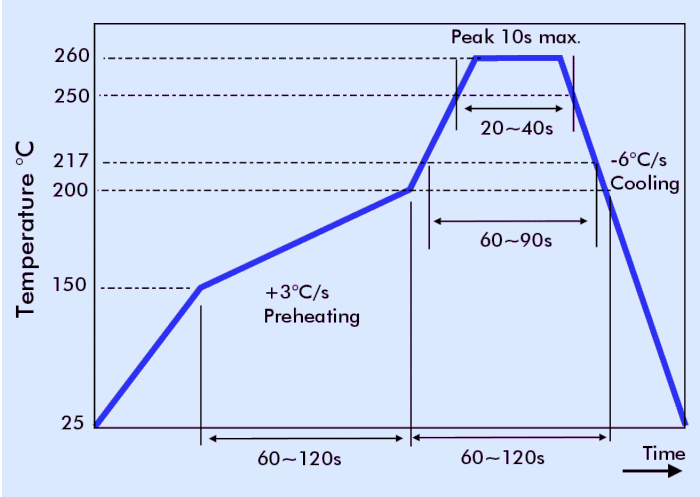
* Frequency stability is inclusive of calibration tolerance at 25°C, frequency change due to shock & vibration, ±10% supply voltage variation and stability over temperature range.

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

OUTLINE & DIMENSIONS



SOLDER TEMPERATURE PROFILE



VTM UK LTD Irvin House Icknield Way Letchworth Garden City Hertfordshire SG6 1EF
Tel: +44 (0)1462 473820 Fax: +44 (0)1462 473821 sales@vtm.co.uk www.vtm.co.uk

SUPPLY VOLTAGE/CURRENT CONSUMPTION/RISE ANDFALL TIME

Supply Voltage	+1.0VDC±5% Code = 'E'	+1.2VDC±5% Code = 'D'	+1.8VDC±5% Code = 'C'	+2.5VDC±5% Code = 'B'	+3.3VDC±5% Code = 'A'	+5.0VDC±10% Code = '_'
Available Frequency Range	0.5~40MHz	0.5~50MHz	1.0~160MHz	0.3~160MHz	0.3~160MHz	0.5~125.0MHz
Logic HIGH '1' (90%Vdd min.)	0.9V min.	0.9V.min	1.62V min.	2.25V min.	2.97V min.	4.5V min.
Logic LOW '0' (90% Vdd max.)	0.1V max	0.1V max.	0.18V max.	0.25V max.	0.33V max.	0.5V max.
Current Consumption	[0.5~32MHz] 2.0mA max.	[0.5~32MHz] 2.5mA max.	[1.0~1.5MHz] 5mA max.	[0.3~1.5MHz] 5mA max.	[0.3~1.5MHz] 5mA max.	[0.3~1.5MHz] 5mA max.
			[1.5~20MHz] 8mA max.	[1.5~20MHz] 8mA max.	[1.5~20MHz] 8mA max.	[1.5~20MHz] 10mA max.
	[32.1~40MHz] 3.0mA max.	[32.1~50MHz] 3.5mA max.	[20~50MHz] 15mA max.	[20~50MHz] 15mA max.	[20~50MHz] 15mA max.	[20~50MHz] 15mA max.
			[50.1~125MHz] 22mA max.	[50.1~160MHz] 25mA max.	[50.1~160MHz] 35mA max.	[50.1~160MHz] 40mA max.
Rise Time/Fall Time	6ns max.	6ns max.	7ns max.	7ns max.	10ns max.	10ns max.
	Measured between 10% ~ 90% of wave form (CL = 15pF)					

ENVIRONMENTAL PERFORMANCE SPECIFICATION

RoHS Status:	Compliant
Storage Temperature Range:	-55° to +105°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, 35±5 mins, 50 to 2000Hz
Shock:	MIL-STD-202F Method 213B, test Condition E, 50g 11ms.

PART NUMBERING

Example: 16.000MHz XO91050UCTA

Frequency
Series Designation XO91
Stability*
- 100 = ±100ppm
- 050 = ±50ppm
- 025 = ±25ppm

Output Universal
Operating Temp. Range
- C = 0+70°C
- D = -20~+70°C
- I = -40~+85°C
- M = -55~+105°C (±100ppm only)

Tristate Function
Supply Voltage
- Blank = 5.0 Volts
- A = 3.3 Volts
- B = 2.5 Volts
- C = 1.8 Volts
- D = 1.2 Volts
- E = 1.0 Volts

** For other stability requirements enter figure required. e.g. for ±20ppm enter '020' after 'XO91'.*