

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 output load version (50pF) available

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

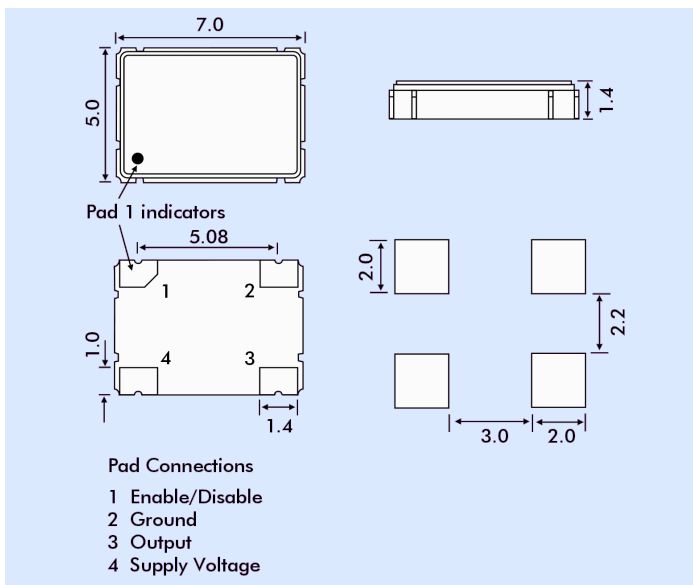
Frequency Range:	312.5kHz to 125.0MHz
Supply Voltage:	1.0, 1.2, 1.8, 2.5, 3.3 Volts $\pm 5\%$ or 5.0 Volts $\pm 10\%$
Output Logic:	HCMOS/LSTTL
Frequency Stability*	
0° to +50°C:	from ± 10 ppm
-20° to +70°C:	from ± 15 ppm
-40 to +85°C:	from ± 25 ppm
-55° to +105°C:	from ± 100 ppm
Rise/Fall Time:	see 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% $\pm 5\%$ 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 $25 \pm 2^\circ\text{C}$)
Ageing:	± 5 ppm 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, $\pm 10\%$ supply voltage variation and stability over temperature range.

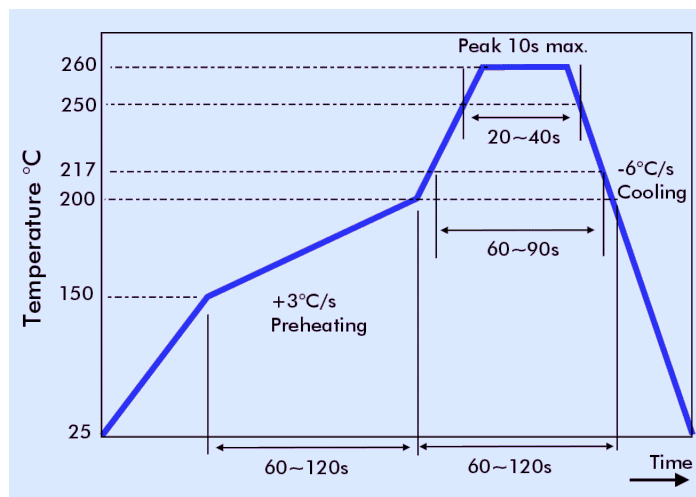
Note: Parameters are measured at ambient temperature of 25°C, supply voltage as stated and a load of 15pF



OUTLINE & DIMENSIONS



SOLDER TEMPERATURE PROFILE



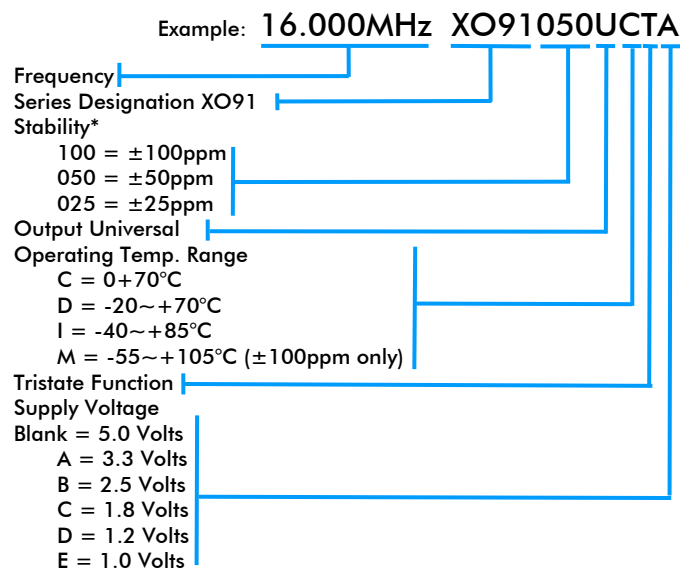
SUPPLY VOLTAGE/CURRENT CONSUMPTION/RISE AND FALL TIME

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.
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



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