

**FEATURES**

- **Ultra-miniature 3.2 x 2.5 x 0.95mm package**
- **Frequency Range 0.5MHz to 54.0MHz**
- **Tristate (Enable/Disable) function as standard**
- **Supply voltage 1.0, 1.2, 1.8, 2.5, 3.3 or 5.0 Volts**

**DESCRIPTION**

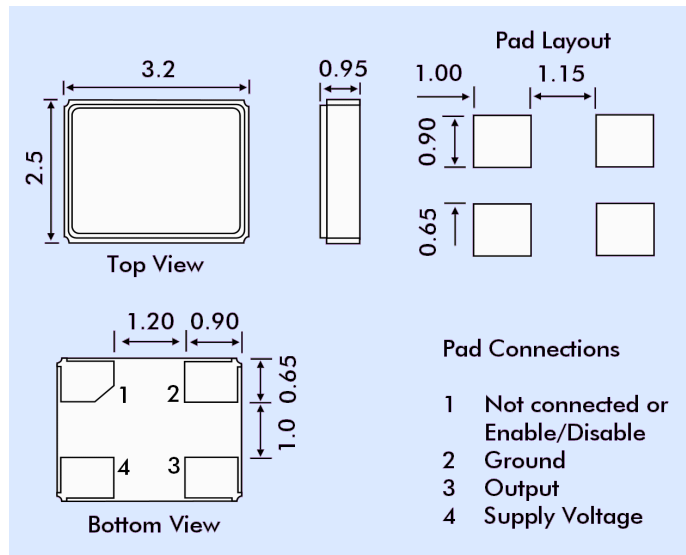
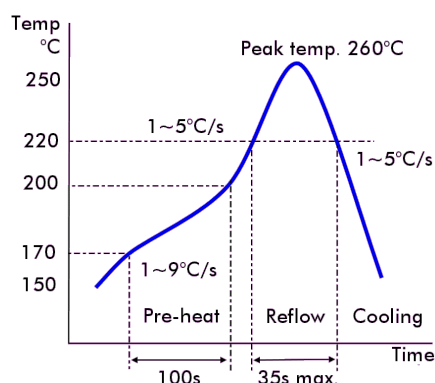
XO32 ultra-miniature oscillators consist of a TTL/CMOS-compatible hybrid circuit and a miniature quartz crystal packaged in a low-profile, industry-standard ceramic package. The package provides a fully specified clock oscillator with a very small footprint.

**SPECIFICATION**

Frequency Range:	0.5MHz to 54.0MHz
Supply Voltage:	1.0, 1.2, 1.8, 2.5, 3.3Volts $\pm$ 5% or 5.0 Volts $\pm$ 10%
Output Logic:	HCMOS/LSTTL
Frequency Stability	
0° to +50°C:	from $\pm$ 10ppm
-20° to +70°C:	from $\pm$ 15ppm
-40 to +85°C:	from $\pm$ 25ppm
-55° to +105°C:	from $\pm$ 100ppm
Rise/Fall Time:	2ns typical. (Frequency dependant)
Output Voltage:	
HIGH '1':	90%Vdd minimum
LOW '0':	10%Vdd maximum
Output Load	15pF (30pF and 50pF available for 3.3V and 5.0V supply)
Duty Cycle:	50% $\pm$ 5% typical
Supply Current:	See table
Operating Temperature	
Commercial:	0° to +70°C
Industrial:	-40° to +85°C
Storage Temperature:	-55 to +105°C
Start-up Time:	10ms max.
Ageing:	$\pm$ 5ppm max. in first year at 25°C
Phase Jitter RMS:	10ps typical
Tristate Function (Pad 1):	Enable/Disable function is standard for XO32. Output (Pad 3) is active if Pad 1 is not connected or Pad 1 is 'HIGH'. Output is high impedance when 'LOW' or GROUND is applied to Pad 1.
Packaging:	8mm tape, 178mm reel, 1k pieces

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


**OUTLINE & DIMENSIONS**

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**SOLDER TEMPERATURE PROFILE**


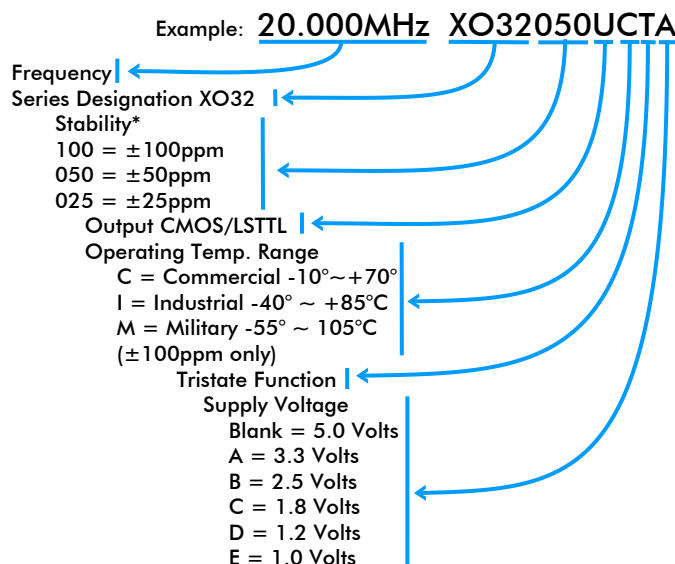
**SUPPLY VOLTAGE/CURRENT CONSUMPTION/RISE AND FALL TIME**

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	0.5~54MHz	1.0~54MHz	0.5~54MHz	0.5~54MHz	0.5~54MHz
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. [1.5~20MHz] 8mA max.	[0.5~1.5MHz] 5mA max. [1.5~20MHz] 8mA max.	[0.5~1.5MHz] 5mA max. [1.5~20MHz] 8mA max.	[0.5~1.5MHz] 5mA max. [1.5~20MHz] 10mA max.
	[32.1~40MHz] 3.0mA max.	[32.1~54MHz] 3.5mA max.	[20~54MHz] 15mA max.	[20~54MHz] 15mA max.	[20~54MHz] 15mA max.	[20~54MHz] 15mA max.
Tristate Function (Pad 1.)	Not available	Not available	Available	Available	Available	Available
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 <sup>-8</sup> ATM -cm <sup>3</sup> /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 add '020' after 'XO32'.