

**2.5/3.3V LVPECL XO**

**UX52/UX502**



5.0 x 3.2mm Ceramic SMD

**Product Features**

- Ultra low phase jitter for 40G/100G systems
  - 0.1ps RMS max. (12kHz to 20MHz), Category 1
  - 0.2ps RMS max. (12kHz to 20MHz), Category 1
  - 0.3ps RMS max. (12kHz to 20MHz), Category 2
- Industrial Temperature Range
- Pb-free & RoHS compliant

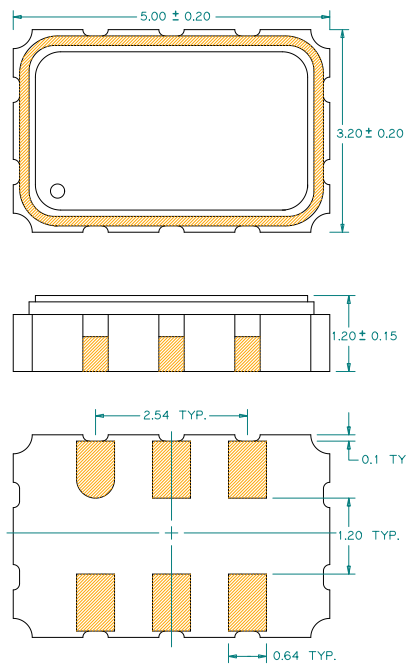
**Product Description**

The UX52/UX502 XO series is a high performance LVPECL crystal oscillator family with ultra low jitter performance. It supports various options including wider frequency range, 2.5/3.3 voltage, various stabilities, and different package sizes. It is designed to meet the clock source specifications for communication systems, and other high performance equipment.

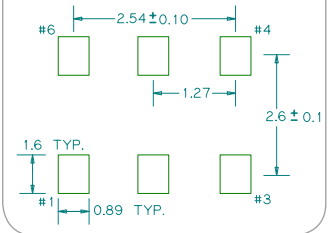
**Applications**

- Networking Systems
- Servers and Storage Systems
- Profession Video Equipments
- Test and Measurement
- FPGA/ASIC Clock Generation

**Package: (Scale: none; dimensions are in mm)**



**Recommended Land Pattern:**

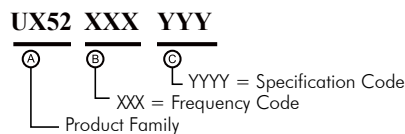


\*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

**Pin Functions:**

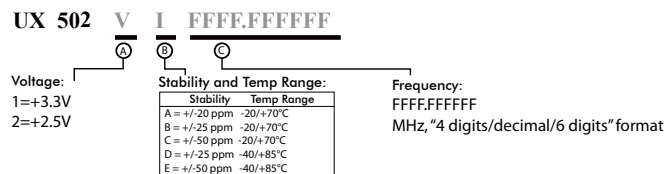
Pin	Function
1	OE Function
2	N/C
3	Ground
4	Q
5	$\bar{Q}$
6	VCC

**Part Ordering Information Category 1:**



\*Not for all frequencies in the frequency range. Please contact sales for details.

**Part Ordering Information Category 2:**



## Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	25		212.5	MHz	
Supply Voltage	3.135	3.3	3.465	V	See ordering options
	2.375	2.5	2.625		
Supply Current, Output Enabled			70	mA	
Supply Current, Output Disabled			25	mA	
Frequency Stability			±50	ppm	See ordering options
Operating Temperature Range	-40		+85	°C	See ordering options
Output Logic 0, $V_{OL}$			$V_{CC}-1.55$	V	
Output Logic 1, $V_{OH}$	$V_{CC}-1.2$			V	
Output Load	50Ω to $V_{CC}-2V$ output termination				
Duty Cycle	45		55	%	Measured 50% $V_{CC}$
Rise and Fall Time			600	ps	Measured 20/80% of waveform
Jitter, Phase RMS (1-σ), Category 1			0.1	ps	12kHz to 20 MHz frequency band, See ordering information category 1
			0.2	ps	
Jitter, Phase RMS (1-σ), Category 2			0.3	ps	12kHz to 20 MHz frequency band, See ordering information category 2
Jitter, pk-pk			30	ps	100,000 random periods

### Notes:

- Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.
- For specifications other than those listed, please contact sales.

## Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7 $V_{CC}$			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3 $V_{CC}$	V	Output is Hi-Z
Internal Pullup Resistance		100		kΩ	
Output Disable Delay			80	ns	
Output Enable Delay			80	ns	
Start up Time			3	ms	

## Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

For the latest product information visit: <https://www.diodes.com/products/connectivity-and-timing/crystal-and-crystal-oscillator/>

For test circuit go to: [https://www.diodes.com/assets/sre/tc\\_pecl.pdf](https://www.diodes.com/assets/sre/tc_pecl.pdf)

For soldering reflow profile and reliability test ratings go to: <https://www.diodes.com/assets/sre/reflow.pdf>

For tape and reel information go to: [https://www.diodes.com/assets/sre/tr\\_5032\\_xo.pdf](https://www.diodes.com/assets/sre/tr_5032_xo.pdf)