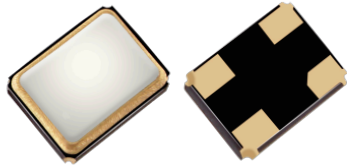


**2.5V/3.3V CMOS XO**

**UX31/UX321**



3.2 x 2.5mm 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

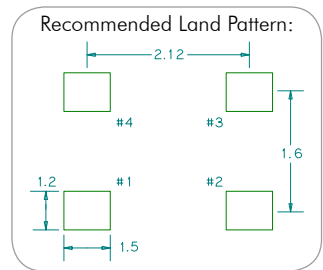
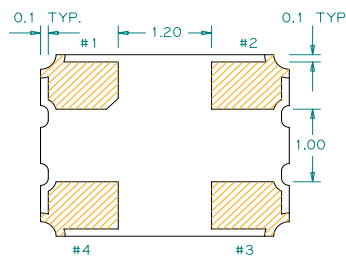
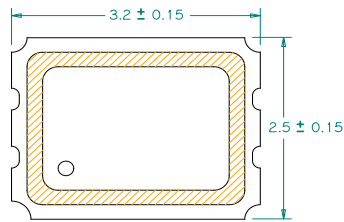
**Product Description**

The UX31/UX321 XO series is a high performance CMOS crystal oscillator family with ultra low jitter performance. It supports various options including wider frequency range, 1.8V/2.5V/3.3V voltage, and various stabilities. 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)**



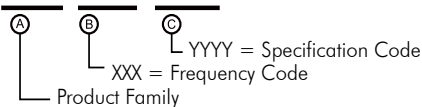
\*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

**Pin Functions:**

Pin	Function
1	OE
2	Ground
3	Output
4	V <sub>DD</sub>

**Part Ordering Information Category 1:**

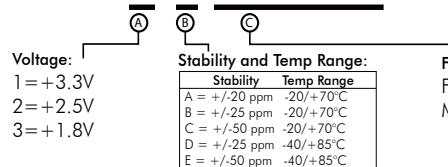
**UX31 XXX YYY**



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

**Part Ordering Information Category 2:**

**UX 321 V I FFFF.FFFFFFFF**



**Voltage:**  
1 = +3.3V  
2 = +2.5V  
3 = +1.8V

**Stability and Temp Range:**

Stability	Temp Range
A = +/-20 ppm	-20/+70°C
B = +/-25 ppm	-20/+70°C
C = +/-50 ppm	-20/+70°C
D = +/-25 ppm	-40/+85°C
E = +/-50 ppm	-40/+85°C

**Frequency:**  
FFFFFFF  
MHz, "4 digits/decimal/6 digits" format

## Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	50		156.25	MHz	
Supply Voltage	3.135	3.3	3.465	V	See ordering options
	2.375	2.5	2.625		
	1.71	1.8	1.89		
Supply Current, Output Enabled			25	mA	
Supply Current, Output Disabled			10	uA	
Frequency Stability			±50	ppm	See ordering options
Operating Temperature Range	-40		+85	°C	See ordering options
Output Logic 0, V <sub>OL</sub>			0.4	V	
Output Logic 1, V <sub>OH</sub>	V <sub>DD</sub> -0.4			V	
Output Load			15	pF	
Duty Cycle	45		55	%	Measured 50% V <sub>DD</sub>
Rise and Fall Time			5	ns	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			40	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 <sub>DD</sub>			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3 V <sub>DD</sub>	V	Output is Hi-Z
Internal Pullup Resistance	30			kΩ	
Output Disable Delay			200	ns	
Output Enable Delay			2	ms	
Start up Time			2	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\\_3225\\_xo.pdf](https://www.diodes.com/assets/sre/tr_3225_xo.pdf)

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