

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

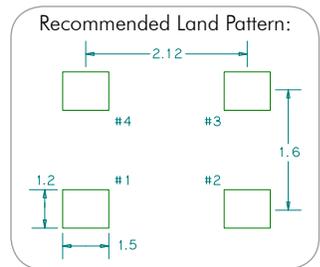
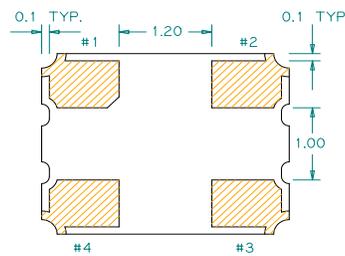
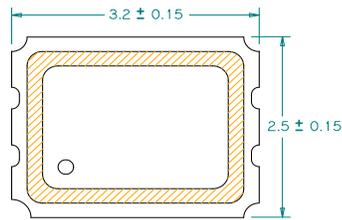
Product Description

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)



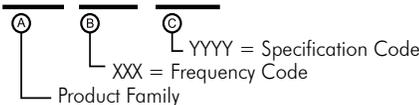
*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

Pin Functions:

Pin	Function
1	OE
2	Ground
3	Output
4	V _{DD}

Part Ordering Information Category 1:

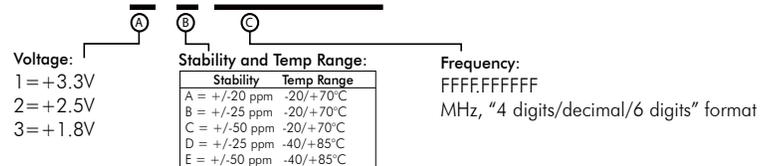
UX31 XXX YYY



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

Part Ordering Information Category 2:

UX 321 V I FFFF.FFFFFFFF



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 _{OL}			0.4	V	
Output Logic 1, V _{OH}	V _{DD} -0.4			V	
Output Load			15	pF	
Duty Cycle	45		55	%	Measured 50% V _{DD}
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 _{DD}			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3 V _{DD}	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

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