2.5/3.3V LVDS XO

UX53/UX503

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

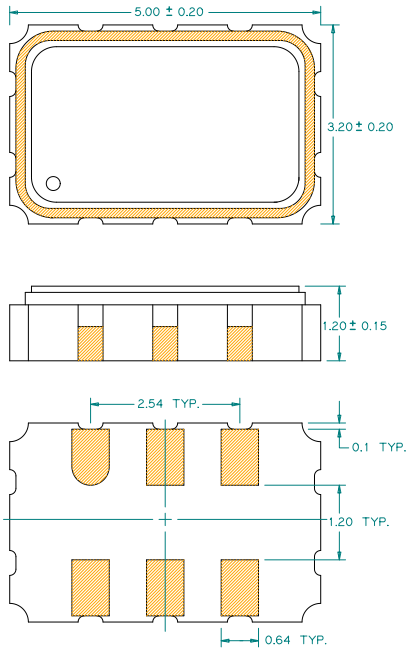
Product Description

The UX53/UX503 XO series is a high performance LVDS crystal oscillator family with very 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.

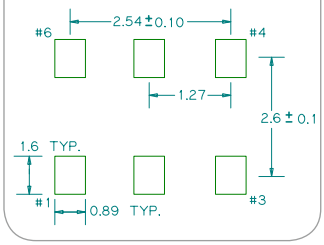
Applications

- 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	$\overline{Q}$
6	V_{CC}

Part Ordering Information Category 1:

UX53 XXX YYY

A: Product Family
B: XXX = Frequency Code
C: YYYY = Specification Code

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

Part Ordering Information Category 2:

UX 503 V I FFFF.FFFFFF

A: Voltage:
1 = +3.3V
2 = +2.5V

B: 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

C: Frequency:
FFFF.FFFFFF
MHz, "4 digits/decimal/6 digits" format

Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	50		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			90	mA	
Supply Current, Output Disabled			70	mA	
Frequency Stability			±50	ppm	See ordering options
Operating Temperature Range	-40		+85	°C	See ordering options
Differential Output Voltage. V_{OD}	0.247	0.350	0.454	V	
Output Common Mode Voltage, V_{OS}	1.125	1.25	1.375	V	
Output Load	100Ω connected between outputs				Output requires termination
Duty Cycle	45		55	%	Measured 50% V_{CC}
Rise and Fall Time			500	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:
1. 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.
2. For specifications othere 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

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