

## 2.5V/3.3V LVDS XO

# NX323



3.2 x 2.5mm Ceramic SMD

### Product Features

- Very low phase jitter - < 1.0ps RMS max.
- Wide frequency range - 5 ~ 1000MHz
- Thicker crystal for improved reliability
- Low supply current - 70mA max.
- Industrial Temperature Range
- Pb-free & RoHS compliant

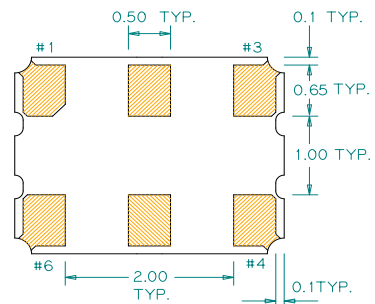
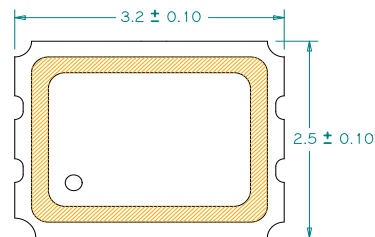
### Product Description

The NX323 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.

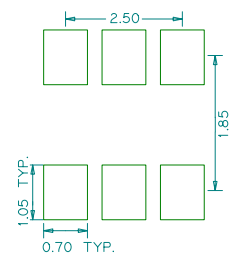
### Applications

- 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:



### Pin Functions:

| Pin | Function        |
|-----|-----------------|
| 1   | OE Function     |
| 2   | N/C             |
| 3   | Ground          |
| 4   | Q               |
| 5   | $\overline{Q}$  |
| 6   | V <sub>CC</sub> |

\*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.

### Part Ordering Information:

**NX 323 V 1 FFFF.FFFFFFFF**

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

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:  
FFFF.FFFFFFFF  
MHz, "4 digits/decimal/6 digits" format



### Electrical Performance

| Parameter                             | Min.                           | Typ. | Max.  | Units | Notes                          |
|---------------------------------------|--------------------------------|------|-------|-------|--------------------------------|
| Output Frequency                      | 5                              |      | 1000  | 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 only  |                                |      | 40    | mA    |                                |
| Frequency Stability                   |                                |      | ±50   | ppm   | See ordering options           |
| Operating Temperature Range           | -40                            |      | +85   | °C    | See ordering options           |
| Output Logic 0, $V_{OL}$              | 0.9                            | 1.1  |       | V     |                                |
| Output Logic 1, $V_{OH}$              |                                | 1.43 | 1.6   | V     |                                |
| Output Load                           | 100Ω connected between outputs |      |       |       | Output requires termination    |
| Differential Output Voltage, $V_{OD}$ | 0.247                          |      | 0.454 | V     |                                |
| Duty Cycle                            | 45                             |      | 55    | %     | Measured 50% $V_{CC}$          |
| Rise and Fall Time                    |                                |      | 400   | ps    | Measured 20/80% of waveform    |
| Jitter, Accumulated, RMS (1-σ)        |                                |      | 6     | ps    | 20,000 adjacent periods        |
| Jitter, Phase, RMS                    | < 40MHz                        | 0.4  | 1     | ps    | 12kHz to 5 MHz frequency band  |
|                                       | 40 to 1000MHz                  | 0.4  | 1     | ps    | 12kHz to 20 MHz frequency band |
|                                       | 125MHz, 156.25MHz              | 0.4  | 0.6   | ps    | 12kHz to 20 MHz frequency band |
| Jitter, pk-pk                         |                                |      | 40    | 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. Phase jitter typical value is depending on output frequencies.
3. 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 |
| Output Disable Delay                                      |              |      | 100          | ns    |                |
| Output Enable Delay                                       |              |      | 100          | ns    |                |
| Start up Time                                             |              |      | 10           | ms    |                |

### Absolute Maximum Ratings

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

For the latest product information visit: <http://www.pericom.com/products/crystals-and-crystal-oscillators/hiflex-xo/?part=NX323>

For test circuit go to: [http://www.pericom.com/pdf/sre/tc\\_lvds.pdf](http://www.pericom.com/pdf/sre/tc_lvds.pdf)

For soldering reflow profile and reliability test ratings go to: <http://www.pericom.com/pdf/sre/reflow.pdf>

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