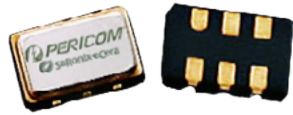


2.5V/3.3V CMOS FS XO

**NX31SB**



3.2 x 2.5mm Ceramic SMD

**Product Features**

- 4 selectable output frequencies
- Very low phase jitter - < 1.0ps RMS max.
- Wide frequency range - 5 ~ 250MHz
- Thicker crystal for improved reliability
- Low supply current - 60mA max.
- Industrial Temperature Range
- Pb-free & RoHS compliant
- Fast lead time

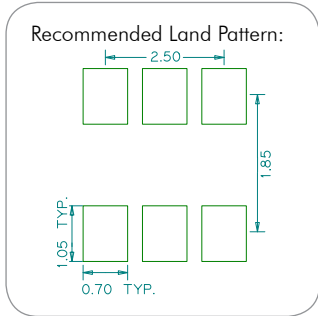
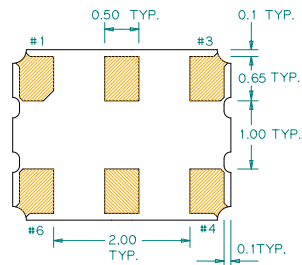
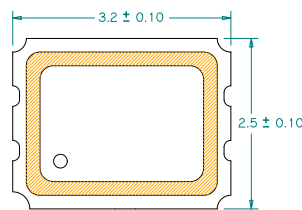
**Product Description**

The NX31SB XO series is a high performance LVC MOS crystal oscillator family with very low jitter performance. Depending on customers' needs, this family devices can support 4 different frequencies using the FS select pins. It supports various options including wider frequency range, 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)



**Pin Functions:**

Pin	Function
1	FS1
2	FS0
3	Ground
4	Output
5	NC
6	V <sub>DD</sub>

**Frequency Select Table:**

FS0	FS1	Output
0	0	Freq. 1*
0	1	Freq. 2*
1	0	Freq. 3*
1	1	Freq. 4*

\*Freq. 1, Freq. 2, Freq. 3, Freq. 4 can be any frequencies within the output frequency range.

\*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 31 SB XXXX**



### Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	5		250	MHz	
Supply Voltage	3.135	3.3	3.465	V	
	2.375	2.5	2.625		
Supply Current			60	mA	
Frequency Stability	±20		±50	ppm	±20ppm is for -20°C to 70°C only
Operating Temperature Range	-40		+85	°C	
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			3	ns	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 250MHz	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:

- 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.
- Phase jitter typical value is depending on output frequencies.
- For specifications other than those listed, please contact sales.

### Frequency Select Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1 & pin2), FS1 & FS0	0.7 V <sub>CC</sub>			V	
Input Voltage (pin 1 & pin 2), FS1 & FS0			0.3 V <sub>CC</sub>	V	
Settling Time after FS Change			10	ms	
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=NX31SB>

For test circuit go to: <http://www.pericom.com/pdf/sre/tc-6pcmos-sb.pdf>

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

For tape and reel information go to: [http://www.pericom.com/pdf/sre/tr\\_3225\\_xo.pdf](http://www.pericom.com/pdf/sre/tr_3225_xo.pdf)