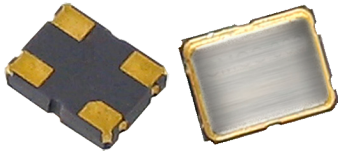


1.8V/2.5V/3.3V CMOS XO

HX321



3.2 x 2.5mm Ceramic SMD

Product Features

- Support high temperature up to 125°C
- Low phase jitter - < 1ps RMS max.
- Wide frequency range - 1.75 ~ 161MHz
- AEC-Q200 (Grade 1) compliant
- Pb-free & RoHS compliant

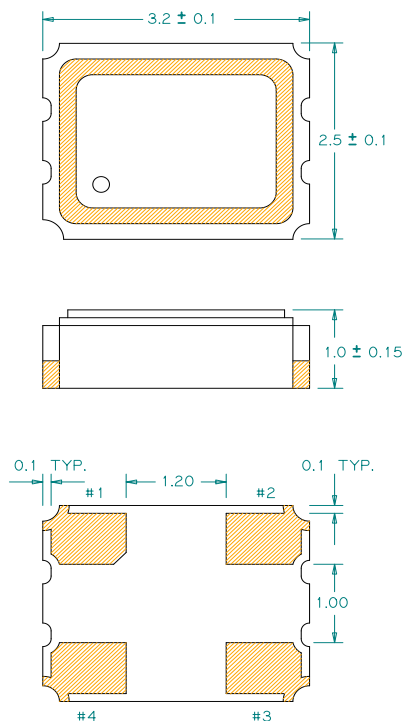
Product Description

The HX321 XO series is a high performance CMOS crystal oscillator family that supports high temperature with very low jitter performance. It supports various options including wider frequency range, 1.8V/2.5V/3.3V voltage, and various stabilities over wide temperature range. It is designed to meet the clock source specifications for communication systems, Industrial applications and other high performance equipment.

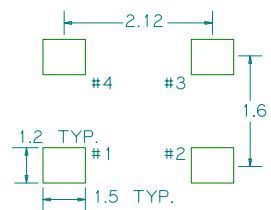
Applications

- Networking and communication systems
- Industrial and outdoor systems
- Storage and server systems
- Automotive devices
- Fanless systems in harsh environment
- Profession video equipments
- Test and measurement equipments

Package: (Scale: none; dimensions are in mm)



Recommended Land Pattern:



Pin Functions:

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

*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:

HX 321 **V** **I** **FFFF.FFFFFFFF**

<p>Voltage:</p> <p>1 = +3.3V 2 = +2.5V 3 = +1.8V</p>	<p>Stability and Temp Range:</p> <table border="1"> <thead> <tr> <th>Stability</th> <th>Temp Range</th> </tr> </thead> <tbody> <tr> <td>A = +/-25 ppm</td> <td>-40/+90°C</td> </tr> <tr> <td>B = +/-30 ppm</td> <td>-40/+100°C</td> </tr> <tr> <td>C = +/-30 ppm</td> <td>-40/+105°C</td> </tr> <tr> <td>D = +/-50 ppm</td> <td>-40/+90°C</td> </tr> <tr> <td>E = +/-50 ppm</td> <td>-40/+100°C</td> </tr> <tr> <td>F = +/-50 ppm</td> <td>-40/+105°C</td> </tr> <tr> <td>G = +/-70 ppm</td> <td>-40/+125°C</td> </tr> <tr> <td>H = +/-100 ppm</td> <td>-40/+125°C</td> </tr> </tbody> </table>	Stability	Temp Range	A = +/-25 ppm	-40/+90°C	B = +/-30 ppm	-40/+100°C	C = +/-30 ppm	-40/+105°C	D = +/-50 ppm	-40/+90°C	E = +/-50 ppm	-40/+100°C	F = +/-50 ppm	-40/+105°C	G = +/-70 ppm	-40/+125°C	H = +/-100 ppm	-40/+125°C	<p>Frequency:</p> <p>FFFF.FFFFFFFF MHz, "4 digits/decimal/6 digits" format</p>
Stability	Temp Range																			
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H = +/-100 ppm	-40/+125°C																			

Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	1.75		161	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			20	mA	1.75MHz to 60MHz > 60MHz
			40		
Supply Current, Output Disabled only			100	uA	
Frequency Stability			±50	ppm	See ordering options
Operating Temperature Range	-40		+125	°C	See ordering options
Output Logic 0, V _{OL}			0.1 V _{DD}	V	
Output Logic 1, V _{OH}	0.9 V _{DD}			V	
Output Load			15	pF	
Duty Cycle	45		55	%	Measured 50% V _{DD}
Rise and Fall Time, Measured 20/80% of waveform			8	ns	1.75MHz to 60MHz > 60MHz
			4		
Jitter, Accumulated, RMS (1-σ)			4	ps	20,000 adjacent periods
Jitter, Phase, RMS	< 40MHz		1	ps	12kHz to 5 MHz frequency band 12kHz to 20 MHz frequency band
	>=40MHz		1		
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
Output Disable Delay			200	ns	
Output Enable Delay			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/cxo/?part=HX321>

For test circuit go to: http://www.pericom.com/pdf/sre/tc_cmos2.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