

HCSL COMPATIBLE HF/UHF CLOCK (XO) AA-XEXX Series

Description

The **AA-XEXX Series** of quartz crystal oscillators provide ultra high frequency with HCSL compatible complementary outputs. The device is based on low noise analog harmonic multiplication, and packaged in a miniature, low profile leadless FR-4 based package with gold plated pads, which enhances compatibility with PCB material.

Applications and Features

- Ultra High Frequency – up to 240.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise, Low Jitter
- Fast Rise and Fall times
- Tight frequency stability - ± 20 ppm overall available
- RoHS Compliant, Lead Free Construction
- Low cost

Creating a Part Number	
AA - X E X X - FREQ	
Package Code	Overall Frequency Stability, ppm
AA 6 pad 7.5x5.2 SMD	E ± 20
	F ± 25
	G ± 50
	H ± 100
	9 Customer specific
Input Voltage	Temperature Range, °C
A 3.3V $\pm 5\%$	A 0 to 50
B 2.5V $\pm 5\%$	B 0 to 70
	C -20 to 70
	D -40 to 85
	9 Customer specific



AA-XEXX Series Continued
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Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	°C
Storage Temperature Range	Tst	-50 to +90	°C
Supply Voltage	Vcc	-0.5 to 4.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

Electrical Parameters

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo				240	MHz	
Supply Voltage	Vcc	Code A Code B	3.135 2.375	3.3 2.5	3.465 2.625	V	
Supply current	Icc			80	100	mA	
Logic Type			HCSL Compatible				
Load		At receiving end each output, Rs=0 Ohm		50		Ohm	
Output Levels	Voh	Output High 1,2	660	700	850	mV	
	Vol	Output Low 1,2		0		V	
	Vcr	Crossing Point	250	350	550	mV	
Duty Cycle (Symmetry)		At outputs crossing, room temperature	45/55	50/50	55/45	%	
Rise/Fall Time	Tr/Tf	From 0.175 to 0.525V		0.35	0.5	ns	
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz, RMS			0.2	ps
		Wavecrest characterized	Random period,		2.5		ps
	Accumul., pk-to-pk			25		ps	
	Deterministic		3	6		ps	
Sub-harmonics				-45	-35	dBc	
Phase Noise	£(Δf)			@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-65 -95 -125 -140 -145 -148	dBc/Hz	
Frequency Stability, usually not specified - unless necessary, APR is specified to incorporate stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; APR 50ppm, or less	See "Creating a Part Number" Not all combinations available, consult factory			ppm	



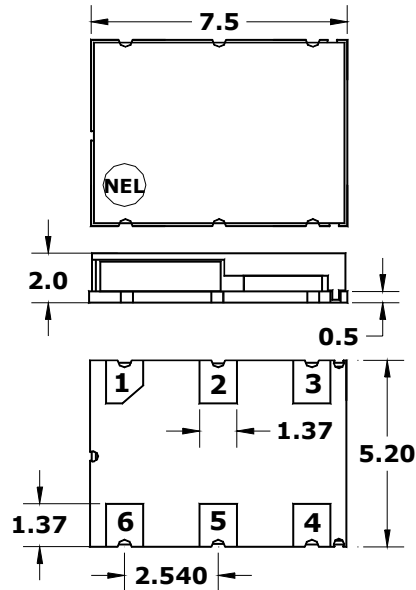
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Rev. A

Electrical Connection

Pin	Connection
1	Enable/Disable or No Connect
2	N/C
3	Gnd
4	Output
5	/Output
6	V _{CC}

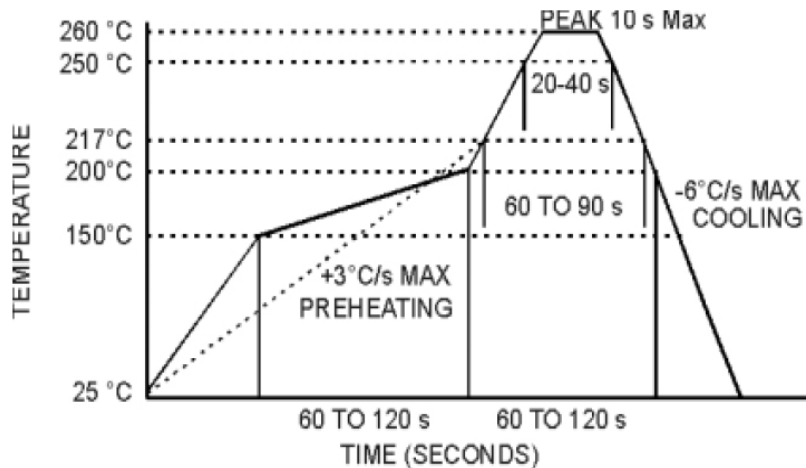
Dimensions are typical in mm



Environmental and Mechanical Characteristics

Operating temp. range	see part # table
Mechanical Shock	Per MIL-STD-202, Method 213, Cond. E
Thermal Shock	Per MIL-STD-883, Method 1011, Cond. A
Vibration	Per MIL-STD-883, Method 2007, Cond. A
Hermetic Seal	Leak rate less than 1×10^{-8} atm.cc/s of helium
Soldering conditions	See MAX reflow profile below

Maximum Reflow Profile



**FREQUENCY
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