LVDS TCXO/TCVCXO
with Enable/Disable Feature
AA-XAEXXX-X Series

Rev. D

Description

The AA-XAEXXX Series of quartz crystal oscillators provide excellent temperature stability with LVDS complementary outputs and very low phase noise. The device is packaged in a miniature, low profile leadless FR4 based package with gold plated pads, which enhances compatibility with PCB material. COTS/Dual use.

Creating a Part Number

AA - X AE X X X - X -FREQ

Package code
AA – 6 pad 7.5x5x2 SMD

Operating Voltage
A 3.3 V ± 5%
B 2.5 V ± 5%

TCXO/TCVCXO Option
X No V. Control
Y w/V. Control

Temperature Range, ºC
A 0 to 50
B 0 to 70
C -20 to 70
D -40 to 85
9 customer specific

Temperature Stability, ppm
1 ±1
2 ±2.5
4 ±2
9 customer specific

Environmental
L Contains a level of lead that is in excess of RoHs directive
R RoHS compliant

NEL FREQUENCY CONTROLS, INC.

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AA-XAEXX-X Series

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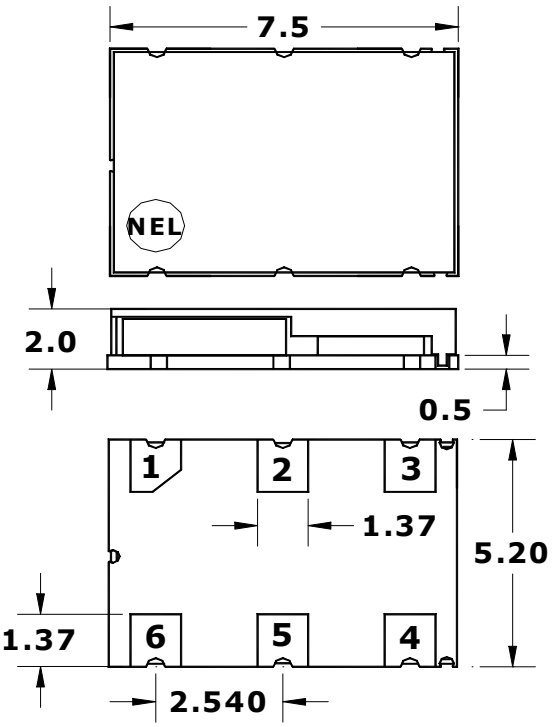
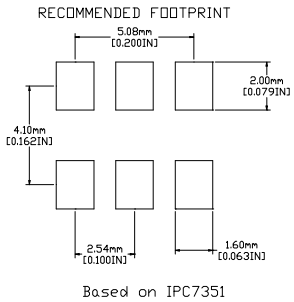
Drawing Specification



Pin Connections:

1 – N/C or Vc
2 – EN/DIS
3 – GND
4 – OUT
5 – Complementary OUT
6 – Vcc

Dimensions are typical in mm



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	ºC
Storage Temperature Range	Tst	-50 to +90	ºC
Supply Voltage	Vcc	-0.5 to 4.5	V
Voltage Control	Vc	0 to Vcc	V

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Electrical Parameters (1)

Parameter		Symb	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			10.0		120	MHz
Supply Voltage		Vcc	Code A Code B		3.135 2.375	3.3 2.5	3.465 2.625	V
Supply current		Icc				40	50	mA
Load			At receiving end between the outputs		90	100	110	Ohm
Output Levels		Vod	Differential amplitude		247	330	454	mV
			Amplitude error				50	mV
		Vof	Offset Voltage		1.125	1.25	1.375	V
			Offset voltage error				50	mV
Duty Cycle (Symmetry)			At outputs crossing, room temperature		45/55	50/50	55/45	%
Rise/Fall Time		Tr/Tf	20 to 80, 80 to 20 %			0.35	0.4	ns
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS			0.2		ps
	Wavecrest characterized		Random period,			2.5 2.5		ps
			Accumul. pk-to-pk			20		ps
			Deterministic	F>40MHz		3	6	ps
Sub-harmonics				<40 M >40 M		-50 -45		dBc
Phase Noise		£(Δf)	20 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-85 -115 -135 -140 -145 -148		dBc/Hz
Frequency stability		ΔF/F	Over Temp -30 to 80 C See chart Aging, 1st year Aging 10 years Load Vcc Reflow Calibration as shipped			2.5	 1 3.5 0.1 0.1/V 2 1	ppm
Pullability (Vc option)			0.3V to 3.0V		5			Ppm
Enable/Disable Enable Disable			PECL Logic “0” or floating PECL Logic “1”		0 Vcc-1		Vcc-1.6 Vcc	V

Note: 1. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

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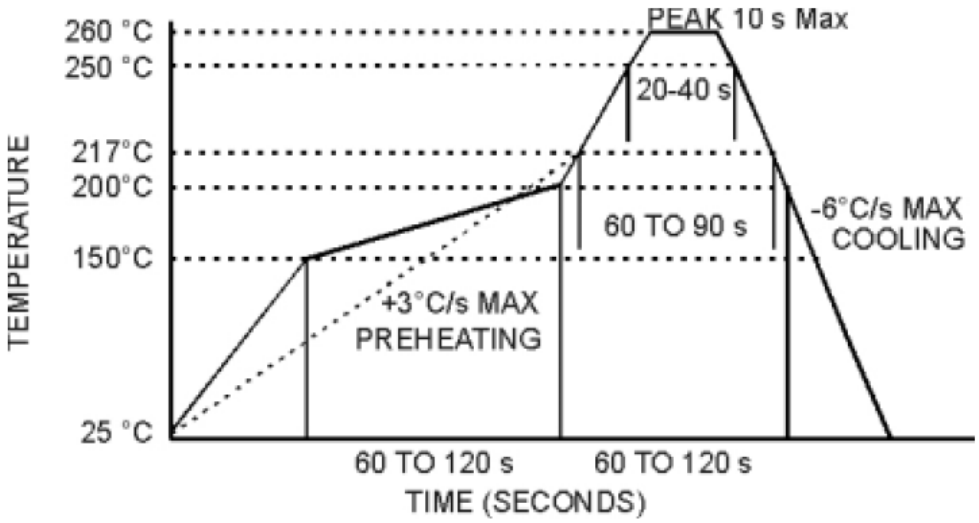
Environmental and Mechanical Characteristics

Operating temp. range	see part # table
Mechanical Shock	Per MIL-STD-202, Method 213, Cond. A
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 $1x10^{-8}$ atm.cc/s of helium
Soldering conditions	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended

MAX Reflow Profile



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