

# AA-X29RXXX-X Series LVPECL XO

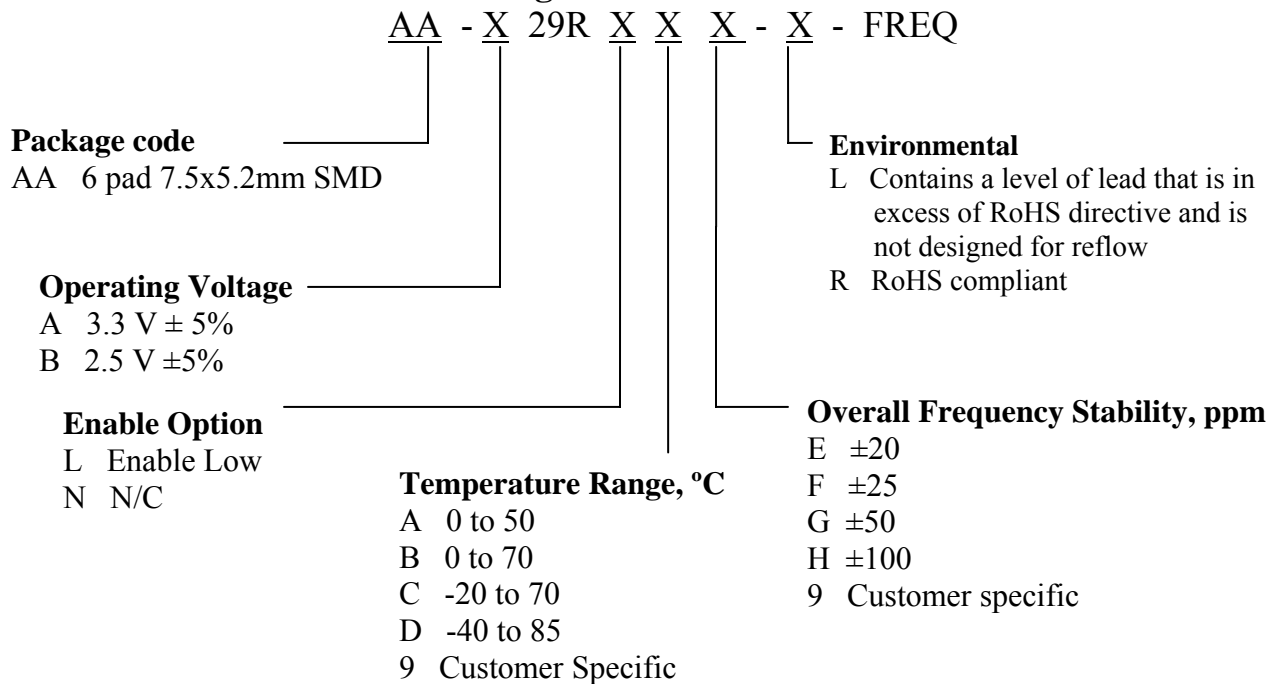
## Description

The AA-X29RXXX Series of crystal oscillators (XO) provides ultra low phase noise floor LVPECL complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device 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 Low Phase Noise (-160dBc/Hz)
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Fast Rise and Fall times
- Tight frequency stability -  $\pm 20$  ppm overall available
- Low cost
- COTS/Dual use

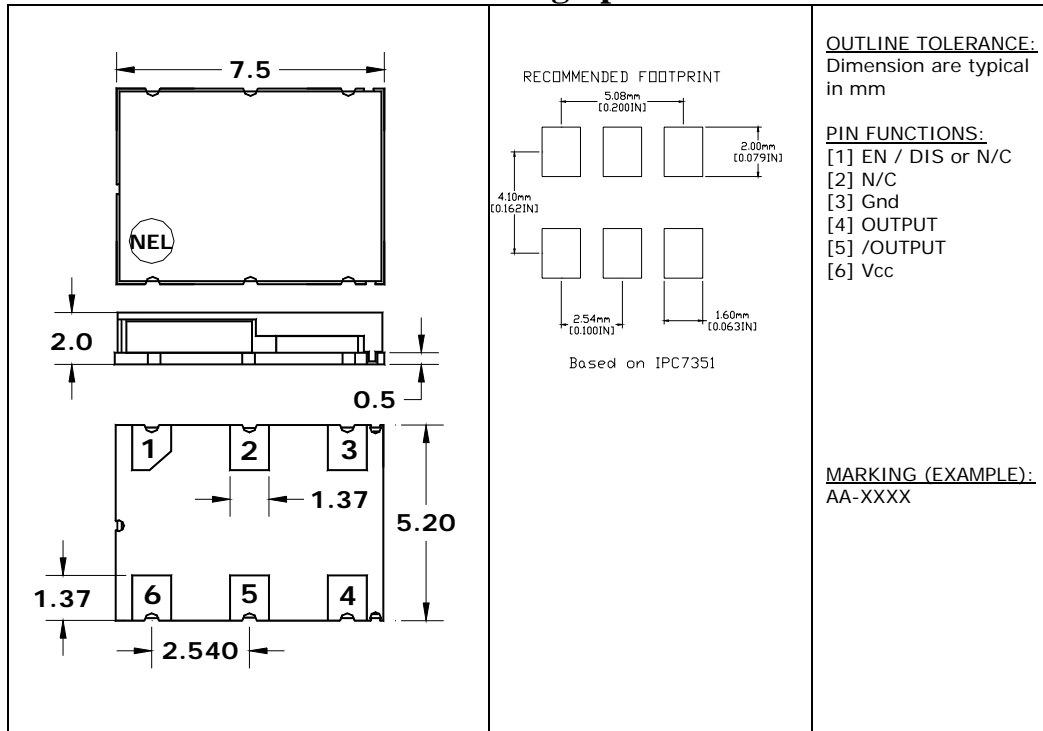
### Creating a Part Number



**AA-X29RXXX-X Series**

Rev. G

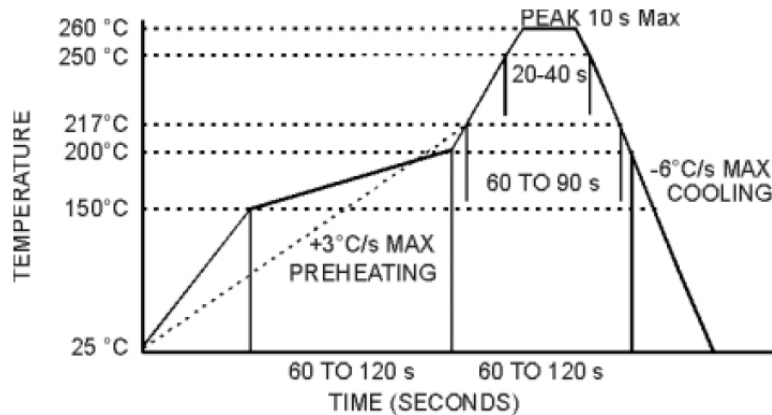
**Drawing Specification**



**Environmental and Mechanical Characteristics**

<b>Operating temp. range</b>	see part # table
<b>Mechanical Shock</b>	Per MIL-STD-202, Method 213, Cond. A
<b>Thermal Shock</b>	Per MIL-STD-883, Method 1011, Cond. A
<b>Vibration</b>	Per MIL-STD-883, Method 2007, Cond. A
<b>Hermetic Seal</b>	Leak rate less than $1 \times 10^{-8}$ atm.cc/s of helium , crystal only.
<b>Soldering conditions</b>	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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### 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 5.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

### Electrical Parameters (1)

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo		10		125	MHz	
Supply Voltage	Vcc	Code 0 Code A	3.135 2.375	3.3 2.5	3.465 2.625	V	
Supply current	Icc			50	60	mA	
Output Logic Type				LVPECL			
Load		Output to Vcc-2V, or Thevenin Equivalent		50		Ohm	
Output Levels	Voh Vol	overall	Vcc-1.025		Vcc-1.620	V	
Duty Cycle (Symmetry)		At 50% of output voltage swing	45/55	50/50	55/45	%	
Rise/Fall Time	Tr/Tf	20 to 80, 80 to 20 %		0.5	0.7	ns	
<b>Jitter</b>	Integrated	J Integrated from Phase Noise, 12 KHz to 20 MHz , RMS		0.1		ps	
	Wavecrest characterized		Random period,		2.5		ps
			Accumul., pk-to-pk		25		ps
			Determin.		0		ps
Phase Noise	£(Δf)	106.250MHz @ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-75 -105 -135 -150 -160 -160		dBc/Hz	
Frequency Stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration	See "Creating a Part Number" Not all combinations available, consult factory			ppm	
Enable Low Option Disabled Enabled		PECL Logic "1" PECL Logic "0" or floating	Vcc-1 0		Vcc Vcc-1.6	V	

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