

**LVPECL UHF CLOCK (XO)**  
**SD-A29JXXX Series (3.3 Volt)**  
**SD-B29JXXX Series (2.5 Volt)**

### Description

The **SD-X29JXXX Series** of quartz crystal oscillators provides ultra high frequency with LVPECL complementary outputs. The outputs can be Tri-stated for test automation or combining multiple clocks. The device is based on advanced PLL multiplication for higher frequencies, and packaged in a miniature, low profile leadless ceramic SMD package with 6 gold plated pads.

### Applications and Features

- Wide frequency range – 38.0MHz to 640.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise, Low Jitter
- High shock resistance, to 1000g
- Ultra High Frequency
- Tight frequency stability -  $\pm 20$  ppm overall available
- Grounded lid and internal by-pass capacitor reduce EMI
- RoHS Compliant, Lead Free Construction

Creating a Part Number	
<b>SD - X 29J X X X - FREQ</b>	
<b>Package Code</b>	<b>Overall Frequency Stability, ppm</b>
SD 6 pad 5x7mm SMD	E $\pm 20$
	F $\pm 25$
	G $\pm 50$
	H $\pm 100$
	9 Customer specific
<b>Input Voltage</b>	
A 3.3V $\pm 5\%$	
B 2.5V $\pm 5\%$	
<b>Enable Option</b>	<b>Temperature Range, °C</b>
H Enable High	A 0 to 50
L Enable Low	B 0 to 70
	C -20 to 70
	D -40 to 85
	9 Customer specific



SD-X29JXXX Series Continued  
LVPECL UHF CLOCK (XO)

### 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

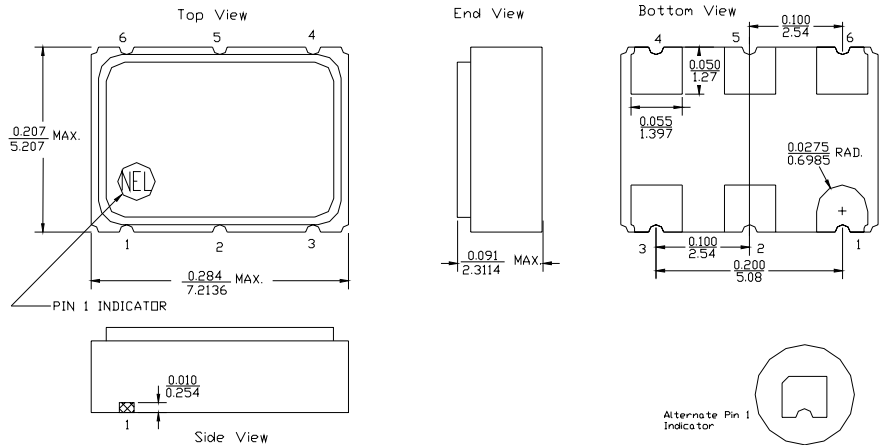
Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit
Nominal Frequency	Fo		38		640	MHz
Supply Voltage	Vcc	Code A Code B	3.135 2.375	3.3 2.5	3.465 2.625	V
Supply current	Icc			80	100	mA
Output Logic Type				LVPECL		
Load		Output to Vcc-2V, or Thevenin Equivalent		50		Ohm
Output Levels	Voh Vol	overall	Vcc-1.025 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
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz, RMS		0.4	ps
	Wavecrest characterized	Random period,	155 MHz 622 MHz	3.5 6		ps
		Accumul., pk-to-pk	155 MHz 622 MHz	20 40		ps
Phase Noise	£(Δf)	155 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @1MHz @>10M	-60 -90 -120 -130 -128 -144 -150		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 High Option Pin 2 Enabled Pin 2 Disabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc	V
Enable Low Option Pin 2 Disabled Pin 2 Enabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc	V



### SD-X29JXXX Series Continued LVPECL UHF CLOCK (XO)

#### Electrical Connection

Pin	Connection
1	Enable/Disable
2	N.C.
3	$V_{EE}$ /Ground
4	Output
5	/Output
6	$V_{CC}$

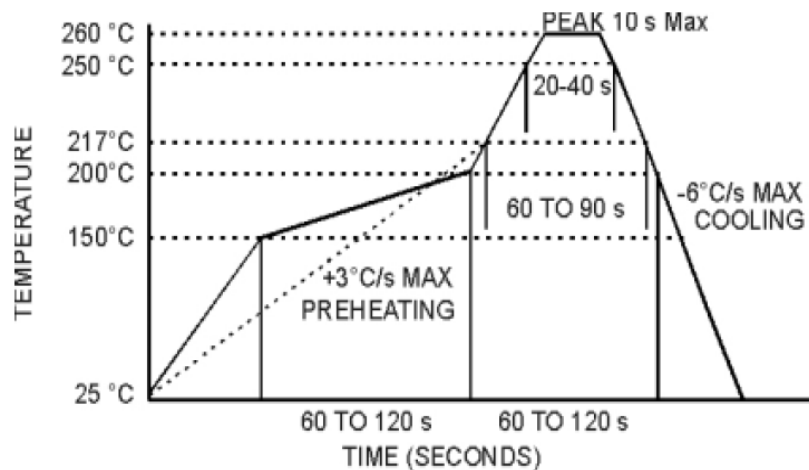


ALL DIMENSIONS:  $\frac{IN}{mm}$   
All tolerances are  $\pm 0.005$  inches ( $\pm 0.127$  mm) unless otherwise specified.

## Environmental and Mechanical Characteristics

<b>Operating temp. range</b>	see part # table
<b>Mechanical Shock</b>	Per MIL-STD-202, Method 213, Cond. E
<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
<b>Soldering conditions</b>	See MAX reflow profile below

#### Maximum Reflow Profile



**FREQUENCY  
CONTROLS, INC.**