

LVPECL UHF CLOCK (XO)
SD-A29KXXX-X Series (3.3 Volt)
SD-B29KXXX-X Series (2.5 Volt)

Description

The **SD-X29KXXX 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 low noise analog harmonic 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 350.000MHz
- 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 - ± 20 ppm overall available
- Grounded lid and internal by-pass capacitor reduce EMI
- COTS/Dual use

Creating a Part Number		
SD - X 29K X X X - X - FREQ		
Package Code SD 6 pad 5x7mm SMD		Environmental L Contains a level of lead that is in excess of RoHS directive and is not designed for reflow R RoHS compliant
Input Voltage A 3.3V \pm 5% B 2.5V \pm 5%		Overall Frequency Stability, ppm E \pm 20 F \pm 25 G \pm 50 H \pm 100 9 Customer specific
Enable Option H Enable High, Pin 1 \leq 320MHz L Enable Low, Pin 1 \leq 320MHz A Enable High, Pin 2 $>$ 320MHz B Enable Low, Pin 2 $>$ 320MHz	Temperature Range, °C A 0 to 50 B 0 to 70 C -20 to 70 D -40 to 85 9 Customer specific	



SD-X29KXXX-X Series Continued
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Rev. J

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		350	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		0.3		ps
	Wavecrest characterized	Random period,	<320 M >320 M		2.5 2.5		ps
		Accumul., pk-to-pk	<320 M >320 M		30 43		ps
		Deterministic	<320 M >320 M		6 18		ps
Sub-harmonics			<320 M >320 M		-50 -35		dBc
Phase Noise	f(Δf)	212.5 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-65 -95 -125 -140 -145 -148		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 Enabled Disabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc		V
Enable Low Option Disabled Enabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc		V



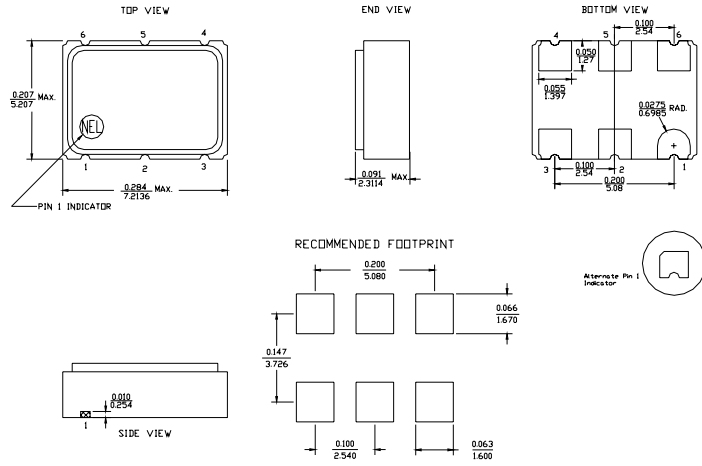
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Electrical Connection

Pin	Connection	Connection
	$\leq 320\text{MHz}$	$> 320\text{MHz}$
1*	Enable/Disable	N.C.
2*	N.C.	Enable/Disable
3	V_{EE} /Groun	V_{EE} /Ground
4	Output	Output
5	/Output	/Output
6	V_{CC}	V_{CC}

* Consult factory for alternate enable pin connection

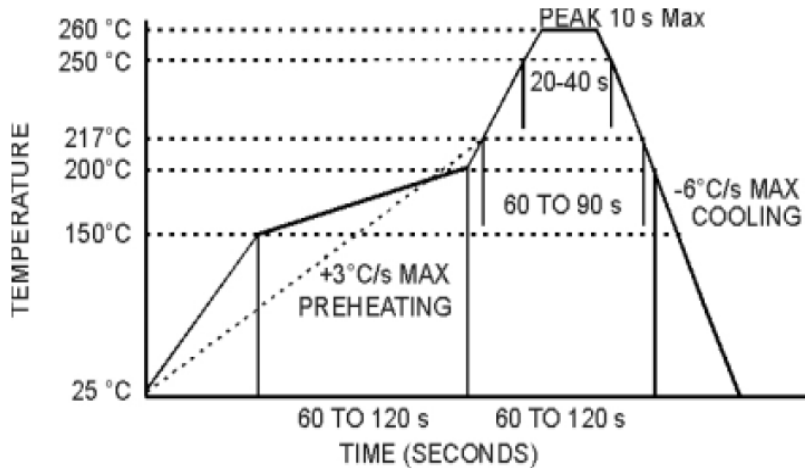


ALL DIMENSIONS: $\frac{IN}{MM}$
All tolerances are ± 0.005 inches (± 0.127 mm) unless otherwise specified.

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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