

LVPECL UHF CLOCK (XO)
SD-A29KXXX Series (3.3 Volt)
SD-B29KXXX 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 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 - ± 20 ppm overall available
- Grounded lid and internal by-pass capacitor reduce EMI
- RoHS Compliant, Lead Free Construction

Creating a Part Number	
SD - X 29K X X X - FREQ	
Package Code	Overall Frequency Stability, ppm
SD 6 pad 5x7mm SMD	E ± 20
	F ± 25
	G ± 50
	H ± 100
	9 Customer specific
Input Voltage	
A 3.3V $\pm 5\%$	
B 2.5V $\pm 5\%$	
Enable Option	Temperature Range, °C
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-X29KXXX 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		0.3		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	£(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 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

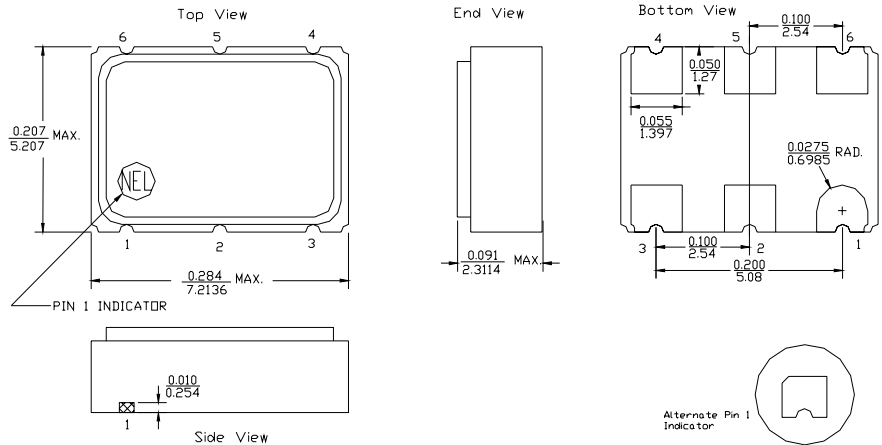


Rev. B

SD-X29KXXX 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}

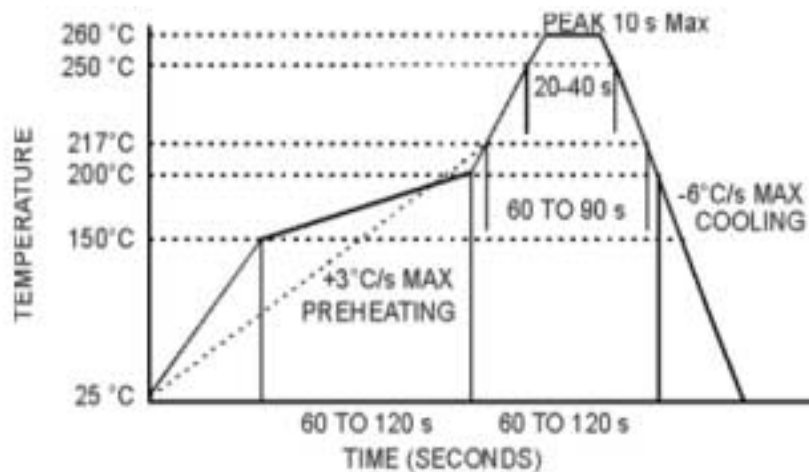


ALL DIMENSIONS: $\frac{IN}{mm}$
All tolerances are ± 0.005 inches (± 0.127 mm) unless otherwise specified.

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
CONTROLS, INC.**