

CMOS VCXO SH-X32CXXX-X Series

Rev. K

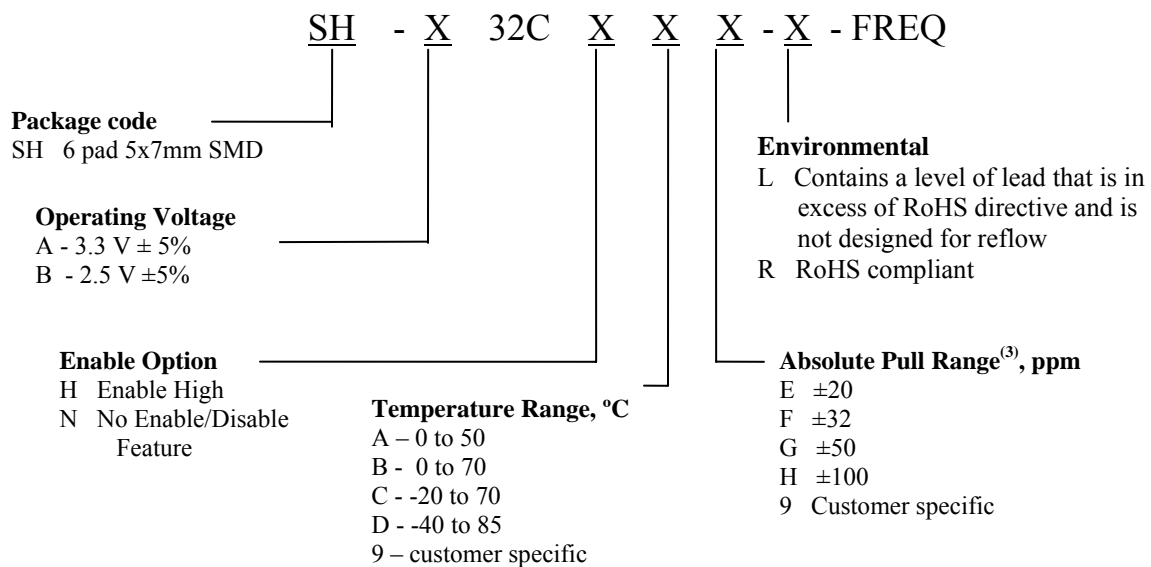
Description

The **SH-X32CXXX Series** of voltage controlled crystal oscillators (VCXO) provides CMOS output. The outputs can be Tri-stated for test automation or combining multiple clocks.

Applications and Features

- Wide frequency range – 1.0MHz to 200.000MHz
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise and Jitter
- High Shock Resistance, to 1000g
- Grounded lid and internal by-pass capacitor reduce EMI
- COTS/Dual use

Creating a Part Number



SH-X32CXXX-X Series CMOS VCXO

Rev. K

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
Control Voltage	Vc	-0.5 to Vcc+0.5	V

Electrical Parameters (2)

Parameter		Symb	Conditions, Note	MIN	TYP	MAX	Unit
Nominal Frequency		Fo		1		200	MHz
Supply Voltage		Vcc	Code A	3.135	3.3	3.465	V
			Code B	2.375	2.5	2.625	
Supply current		Icc	No load 1 to 36MHz		5	6	mA
			36+ to 77MHz		10	12	
			77+ to 200MHz		15	25	
Output Logic Type					CMOS		
Load					15		pf
Output Levels		Voh	Overall	Vcc-0.4		0.4	V
		Vol					
Duty Cycle			@ Vcc/2	45/55	50/50	55/45	%
Rise/Fall Time		Tr/Tf	10 to 90, 90 to 10 %		3.7	5.0	ns
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz . RMS		0.3		Ps
	Wavecrest		Random period,		2.5		ps
			Accumul., pk-to-pk Deterministic		30 0		ps ps
Subharmonics					None		
Phase Noise (1)		£(Δf)	@100 Hz		-80		dBc/Hz
			@1 KHz		-110		
			@10KHz		-130		
			@100KHz		-138		
			@>1MHz		-145		
Frequency Stability		ΔF/F	Overall, including temperature, aging 10 years, shock and vibration @ Vc=Vcc/2		30		ppm
Control Voltage Range		Vc		0V		Vcc	V
Setability		Vcs	Vc to set F at Fo; T, Vcc, load - nominal, as shipped	0.4 Vcc	0.5 Vcc	0.6 Vcc	V
Absolute Pull Range ⁽³⁾		APR	Over all conditions, see part # creation	20,32, 50,100			ppm
Input Impedance		Zin	@ Fmod < 100 KHz	10			KOhm
Modulation Bandwidth			At Vc = Vcc/2, -3dB	10			KHz
Enable High Option Pin 2 Enabled Pin 2 Disabled			CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
			CMOS logic 0	0		0.3 Vcc	

Footnote:

- 1) If phase noise data at a particular frequency is needed, contact factory.
- 2) All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.
- 3) Not all combinations are possible, please consult factory.

SH-X32CXXX-X Series CMOS VCXO

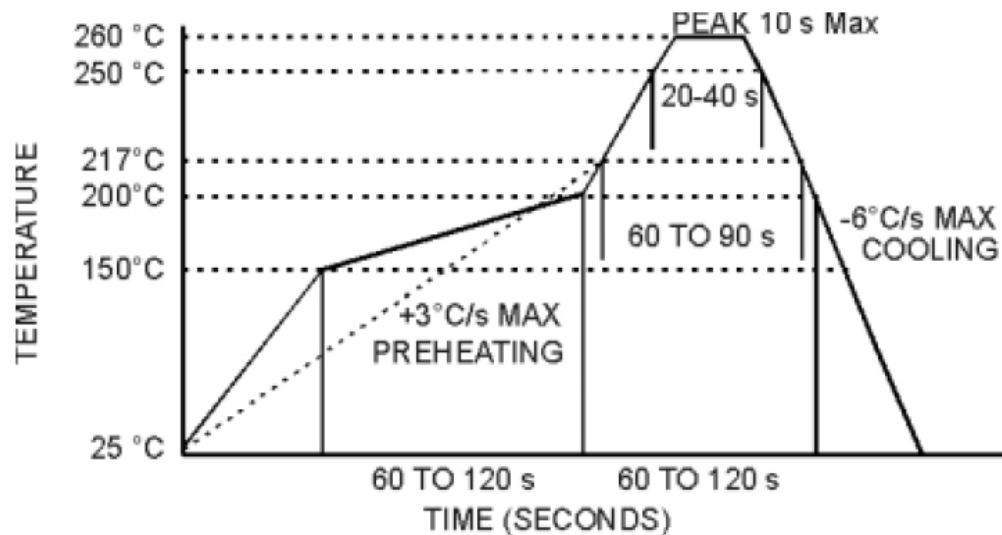
Rev. K

Electrical Connection	
Pin	Connection
1	V _{co}
2	Tri-state Enable
3	Gnd
4	Output
5	N.C.
6	V _{CC}

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 1×10^{-8} atm.cc/s of helium
Soldering conditions	See MAX reflow profile below

MAX Reflow Profile



**FREQUENCY
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: nelsales@nelfc.com www.nelfc.com