

LVPECL HF VCXO SH-X36JXXX-X Series

Rev. G

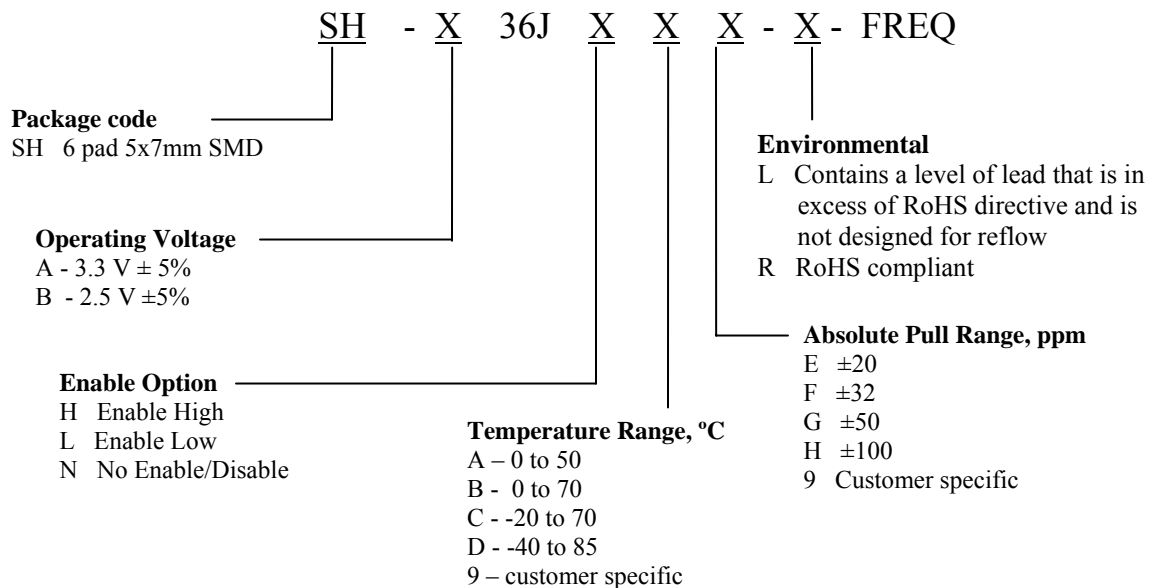
Description

The **SH-X36JXXX Series** of voltage controlled crystal oscillators (VCXO) provides LVPECL complementary outputs. The outputs can be Tri-stated for test automation or combining multiple clocks. The device is based on fundamental crystal designs, minimizing phase jitter, and packaged in a miniature, low profile leadless ceramic SMD package with 6 gold plated pads.

Applications and Features

- Wide frequency range – 10.0MHz to 170.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise and Jitter
- High Shock Resistance, to 1000g
- High Frequency
- Absolute Pull Range (APR) to ± 100 ppm
- Grounded lid and internal by-pass capacitor reduce EMI
- COTS/Dual use

Creating a Part Number



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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 4.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

Electrical Parameters (2)

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit
Nominal Frequency	Fo		10		170	MHz
Supply Voltage	Vcc	Code A	3.135	3.3	3.465	V
		Code B	2.375	2.5	2.625	
Supply current	Icc			60	80	mA
Output Logic Type				LVPECL		
Load		Output to Vcc-2V, or Thevenin equivalent		50		Ohm
Output Levels	Voh	Overall	Vcc-1.025		Vcc-1.620	mV
	Vol					
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			Ps
		Accumul., pk-to-pk		30	ps	
Phase Noise (1)	f(Δf)	77.76MHz	@ 10 Hz		-70	dBc/Hz
			@100 Hz		-95	
			@1 KHz		-125	
			@10KHz		-140	
			@100KHz		-153	
			@>1MHz		-153	
Frequency Stability	ΔF/F	Overall, including temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; If -40 to 85°C is selected		30	50	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	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	CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
Enable Low Option	Pin 2 Disabled	CMOS logic 1 or N/C	0.7 Vcc		Vcc	V

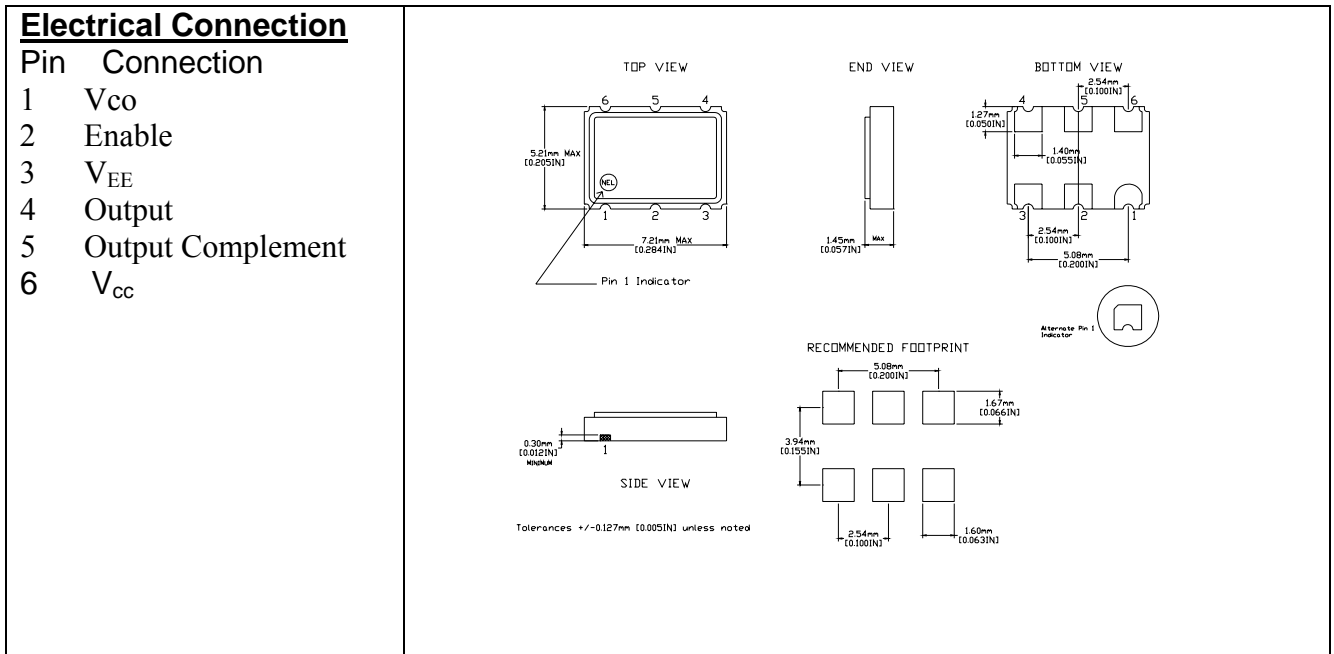
Footnotes: 1) If phase noise data is needed at a particular frequency, contact factory.

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



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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

