

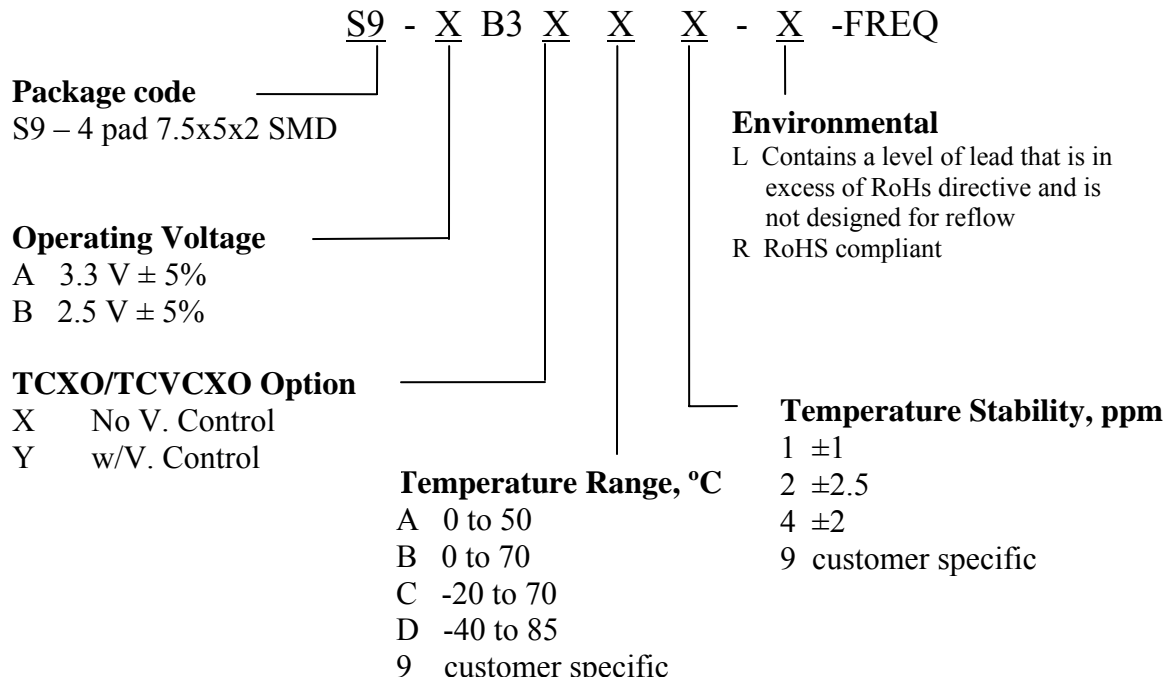
# HCMOS TCXO/TCVCXO

## S9-XB3XXX-X Series

### Description

The **S9-XB3XXX Series** of quartz crystal oscillators provide excellent temperature stability with HCMOS output and very low phase noise. The device is packaged in a miniature, low profile leadless FR4 based package with gold plated pads, which enhances compatibility with PCB material. COTS/Dual use.

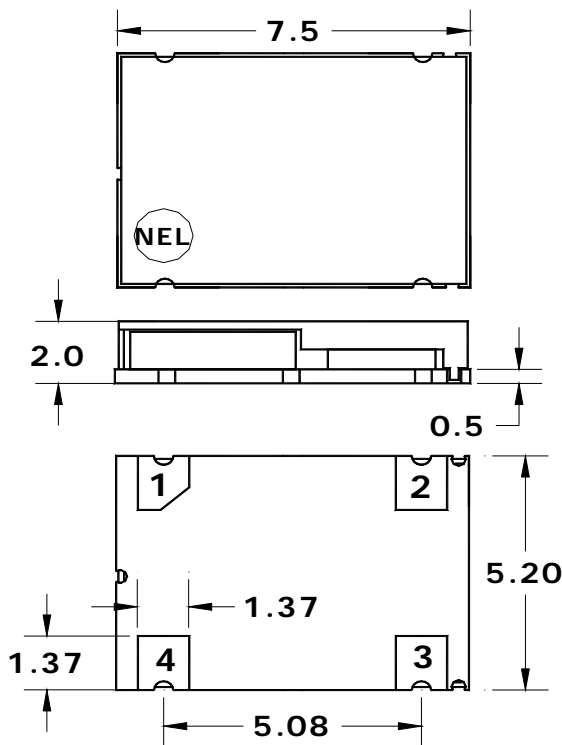
### Creating a Part Number



Rev. H

## HCMOS TCXO/TCVCXO S9-XB3XXX-X Series

### Drawing Specification



#### Pin Connections:

- 1 – N/C or Vc
- 2 – GND
- 3 – OUT
- 4 – Vcc

Dimensions are typical in mm

### 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
Voltage Control	Vc	0 to Vcc	V

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**Electrical Parameters (2)**

Parameter		Symb	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			10.0		120	MHz
Supply Voltage		Vcc	Code A Code B		3.135 2.375	3.3 2.5	3.465 2.625	V
Supply current		Icc	Frequency and Vcc dependent, values for 50 MHz			20	25	mA
Output Logic Type						CMOS		
Load						15 pF/10 KOhm		Ohm
Output Levels		Voh Vol	overall		0.9Vcc		0.1 Vcc	V
Duty Cycle (Symmetry)			At 50% Vcc		45/55	50/50	55/45	%
Rise/Fall Time		Tr/Tf	0.2Vcc to 0.8 Vcc; F< 70 MHz 70 MHz<F< 120 MHz			3 2	5 3	ns
<b>Jitter</b>	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS			0.2		ps
	Wavecrest characterized		Random period,	At 50 MHz		2.5 0.00012		ps UI
			Total, pk-to-pk	At 50 MHz		50 0.0025		ps UI
			Deterministic	F>40MHz At 50 MHz		15 0.0075		ps UI
Sub-harmonics				<40 M >40 M		-50 -45		dBc
Phase Noise <sup>(1)</sup>		£(Δf)	50 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-75 -105 -125 -138 -138 -140	-135	dBc/Hz
Frequency stability		ΔF/F	Over Temp -30 to 80 C See chart Aging, 1 <sup>st</sup> year Aging 10 years Load Vcc Reflow Calibration as shipped			2.5	1 3.5 0.1 0.1/V 2 1	ppm
Pullability (Vc option)			0.3V to 3.0V		5			ppm

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

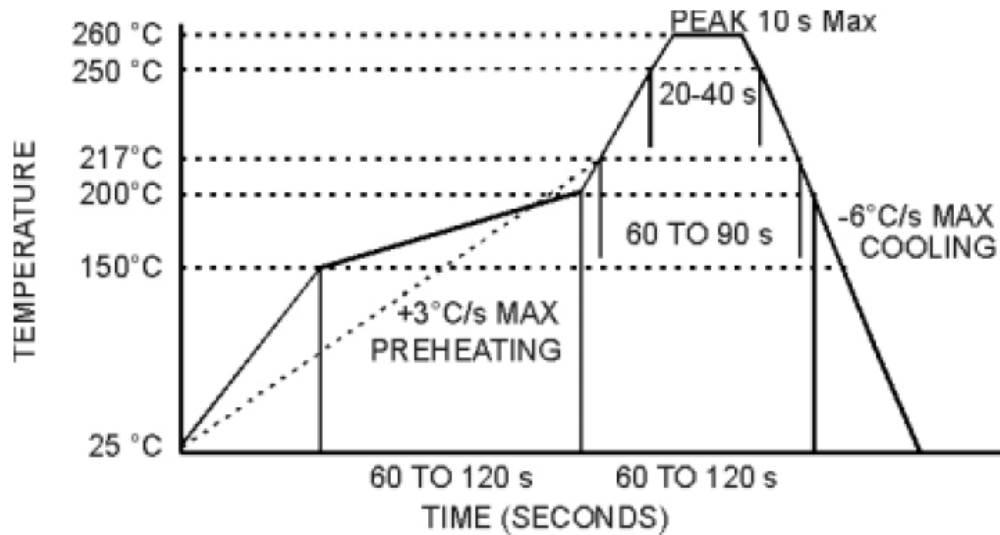
2) All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

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**Environmental and Mechanical Characteristics**

<b>Operating temp. range</b>	see part # table
<b>Mechanical Shock</b>	Per MIL-STD-202, Method 213, Cond. A
<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 (Crystal only)
<b>Soldering conditions</b>	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.

**MAX Reflow Profile**



The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.