



High Reliability Surface Mount LVC MOS Clock Oscillator Series

CONNOR WINFIELD



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Description

The Connor-Winfield's XH7xx, XH8xx and XH9xx, High Reliability Series are 5x7mm Surface Mount, Fixed Frequency Crystal Controlled Oscillators (XO). Designed for applications requiring tight frequency stability over a wide temperature range, operating at 2.5V or 3.3V supply voltage, the XH7xx, XH8xx and XH9xx series provides a LVC MOS Output with enable / disable function.



Features:

Model XH7xx - XH8xx - XH9xx Series Pure Spectrum™ Technology

5.0 x 7.0mm Surface Mount Package

Supply Voltages: 2.5V or 3.3V

LVC MOS Output Logic

Frequency Stabilities: +/-50ppm / +/-100ppm

Temperature Ranges:

-40 to 85°C / -55 to 125°C / -55 to 85°C

Low Jitter <1pS RMS

Sub-harmonics / Spurious: -70 dBc

Minimal Frequency Perturbations: 3ppm Max.

Guaranteed Proper Frequency Startup.

Gold Plated Terminations

RoHS Compliant / Lead Free.

Model Specifications

Absolute Maximum Ratings

Parameter	Units	Minimum	Nominal	Maximum	UNITS	Note
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	5.0	Vdc	

Operating Specifications

Parameter		Minimum	Nominal	Maximum	UNITS	Note
Frequency Range	(Fo)	10	-	200	MHz	
Total Frequency Tolerance						
Models XH72x, XH8xx, XH92x		-50	-	50	ppm	1
Models XH73x, XH83x, XH93x		-100	-	100	ppm	1
Operating Temperature Range						
Models XH7xx, XH7xx		-55	-	125	°C	
Models XH8xx, XH8xx		-40	-	85	°C	
Models XH9xx, XH9xx		-55	-	85	°C	
Supply Voltage (Vcc)						
Models XH7x2, XH8x2, XH9x2		2.375	2.500	2.625	Vdc	
Models XH7x3, XH8x3, XH9x3		3.135	3.300	3.465	Vdc	
Supply Current (Icc)						
10 to 39.999 MHz		-	-	10	mA	
40 to 79.999 MHz		-	-	20	mA	
80 to 89.999 MHz		-	-	30	mA	
90 to 124.999 MHz		-	-	40	mA	
125 to 164.999 MHz		-	-	50	mA	
165 to 225 MHz		-	-	65	mA	

Input Characteristics

Parameter		Minimum	Nominal	Maximum	Units	Note
Enable Voltage	(High) (Vih)	0.7Vcc	-	-	Vdc	2
Disable Voltage	(Low) (Vil)	-	-	0.3Vcc	Vdc	2
Enable Time		-	-	2	ms	
Disable Time		-	-	200	ns	
Output Disable Current (Standby Current)	(Icc)	-	-	10	uA	

LVC MOS Output Characteristics

Parameter		Minimum	Nominal	Maximum	Units	Note
LOAD		-	-	15	pF	
Voltage	(High) (Voh)	Vcc-0.4	-	-	Vdc	
	(Low) (Vol)	-	-	0.4	Vdc	
Current	(High) (Ioh)	-8	-	-	mA	
	(Low) (Iol)	-	-	8	mA	
Duty Cycle at 50% of Vcc		45	50	55	%	
Rise / Fall Time 10% to 90%		-	1	2	ns	
Start-Up Time		-	-	2	ms	3
Period Jitter		-	3	5	ps RMS	
Phase Jitter (BW=12kHz to 20MHz)		-	0.5	1	ps RMS	
SSB Phase Noise at 10Hz offset		-	-60	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-125	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-140	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-145	-	dBc/Hz	
Sub-harmonics		-	-	-70	dBc	
Spurious		-	-	-70	dBc	
Frequency Perturbations over Temperature		-	-	3	ppm	4

Package Characteristics

Package	Hermetically sealed ceramic package and metal cover.
Package Terminations	Solder pads are Au plated, thickness 0.30 to 1.00 Micron.



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Date **25 Nov 2009**

- 1) Inclusive of calibration @ 25°C, frequency vs. temperature stability, supply voltage change, load change, shock and vibration, 10 years aging.
- 2) When the oscillator is disabled, the outputs are at high impedance. Output is enabled with no connection on pad 1.
- 3) Oscillator is guaranteed to start at the specified frequency (F_o) under all conditions.
- 4) This part will not exhibit frequency jumps of more than 3ppm when tested every 2°C within the operating temperature range, specified supply voltage and load.

XH	7	2	3	-	150.0M
Type: High Reliability Clock LVCMOS Series 5x7mm	Temperature Range: 7 = -55 to 125° C 8 = -40 to 85° C 9 = -55 to 85° C	Frequency Stability: 2 = +/-50 ppm 3 = +/-100 ppm	Supply Voltage: 2 = 2.5Vdc. 3 = 3.3Vdc.		Output Frequency: Frequency Format -xxx.xM Min.* -xxx.xxxxxxM Max.* *Amount of numbers after the decimal point M = MHz

Environmental Characteristics

Vibration:	Vibration per Mil Std 883E Method 2007.3 Test Condition A
Shock:	Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.
Soldering:	RoHS compliant, lead free. See solder profile.
Solderability	Solderability per Mil Std 883E Method 2003

Pad	Connection	Enable / Disable Function (Pad 1)	Output
1	Enable/Disable	High or Open	Enable
2	Ground	Low	Disable (High Impedance)
3	Output		
4	Vcc		

Frequency Tolerance ±50ppm	Frequency Tolerance ±100ppm	Supply Voltage	Temperature Range
XH722	XH732	2.5Vdc	-55 to 125°C
XH723	XH733	3.3Vdc	-55 to 125°C
XH822	XH832	2.5Vdc	-40 to 85°C
XH823	XH833	3.3Vdc	-40 to 85°C
XH922	XH932	2.5Vdc	-55 to 85°C
XH923	XH933	3.3Vdc	-55 to 85°C

MEETS EIA-481A AND EIAJ-1009B
2000 PCS/REEL MAXIMUM

DIRECTION OF FEED (CUSTOMER)

Top View Dimensions:

- Overall Width: .157 (4mm)
- Carrier Width: .079 (2mm)
- Carrier Thickness: .020 RL (0.5mm)
- Carrier Thickness: .063 (1.6mm) DIA. / .059 (1.5mm) DIA.
- Carrier Thickness: .099 (2.5mm)
- Carrier Thickness: .295 (7.2mm)
- Carrier Thickness: .542 (14.3mm) / .528 (13.5mm)
- Carrier Thickness: .059 (1.5mm) DIA. MIN.

Side View Dimensions:

- Overall Height: .315 (8mm)
- Carrier Height: .210 (5.3mm) (Ao)
- Carrier Height: .121 (3.07mm) (Ko)

Detail View Dimensions:

- Carrier Width: .31 (Bo) (7.87mm)
- Carrier Width: .014 (±.0004) (±.01)

Top View Dimensions (Right):

- Overall Width: .69 (17.53mm)
- Carrier Width: .08 (2.0mm)
- Carrier Width: .08 (2.0mm)
- Carrier Width: 9.84 (250mm)
- Carrier Width: 3.15 (80mm)

Top View Dimensions (Bottom):

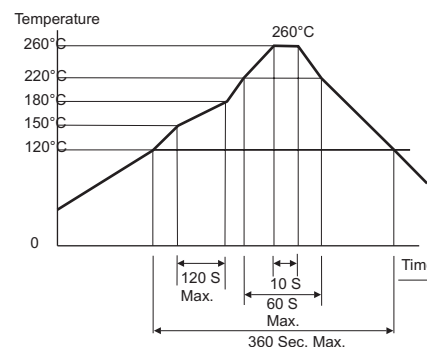
- Carrier Width: 8.45 DIA (214.6mm) DIA
- Carrier Width: 1.00 DIA (25.4mm)
- Carrier Width: .08 (2.0mm)

POCKET SIZE

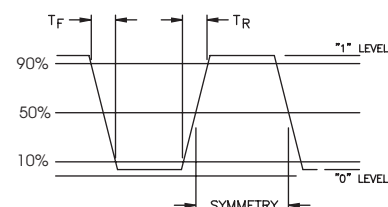
	POCKET SIZE
(Ao)	5.33mm (.21")
(Bo)	7.87mm (.31")
(Ko)	3.07mm (.121")

16mm (.630") WIDTH
8mm (.315") PITCH

Solder Profile



LVC MOS Output Waveform



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