

# 5.0V Surface Mount Crystal Clock Oscillator HSM9



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**XO**

The Connor-Winfield HSM91, HSM92, HSM93, and HSM94 models are 7.5mm x 5mm, 5.0V HCMOS, Surface Mount, Fixed Frequency Crystal Oscillators (XO) designed for use in all applications requiring precision clocks. The RoHS compliant surface mount package is designed for high-density mounting and is optimum for mass production.

## Features:

1.0 to 80 MHz  
5.0V Operation  
RoHS Compliant  
Tri-State Enable / Disable  
Overall Frequency Tolerance:  
HSM94  $\pm 20$  ppm, HSM91  $\pm 25$  ppm  
HSM92  $\pm 50$  ppm, HSM93  $\pm 100$  ppm  
Temperature Range: 0 to 70°C  
Ceramic Surface Mount Package  
Tape and Reel Packaging

## Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	

## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequency Range (Fo)		-	80	MHz	
HSM94	1.8				
HSM91	1.0				
HSM92	1.0				
HSM93	1.0				
Frequency Tolerance		-		ppm	1
HSM94	-20		20		
HSM91	-25		25		
HSM92	-50		50		
HSM93	-100		100		
Operating Temp Range	0	-	70	°C	
Supply Voltage (Vdd)	4.5	5.0	5.5	Vdc	
Supply Current (Icc)	-	-		mA	
1.0 to 31.999 MHz			27		
32 to 49.999 MHz			45		
50 to 80.0 MHz			75		

## Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable Voltage - (Vih)	$\geq 70\% V_{dd}$	-	-	Vdc	2
Disable Voltage - (Vil)	-	-	$\leq 30\% V_{dd}$	Vdc	
Enable Time	-	-	100	mS	
Disable Time	-	-	100	nS	

## HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	50	pF	
Voltage High (Voh)	4.5	-	-	Vdc	
Low (Vol)	-	-	0.55	Vdc	
Current High (Ioh)	-16	-	-	mA	
Low (Iol)	-	-	16	mA	
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	-	6	nS	
Start-Up Time	-	-	10	mS	
Jitter	-	-	5	pS RMS	

## Notes:

- Inclusive of calibration @ 25°C, frequency vs temperature stability, supply voltage change, load change, shock and vibration, 10 years aging.
- Oscillator output is enabled with no connection on pad 1



Bulletin **Sm006**  
Page **1 of 2**  
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Specifications subject to change without notice. All dimensions in inches. © Copyright 1998 The Connor-Winfield Corporation