

CRYSTAL CONTROLLED OSCILLATORS

Surface Mount 5.0 V HCMOS VCXO



ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-40	-	85	°C	
Supply Voltage	(Vcc)	-0.5	-	7	Vdc	
Control Voltage	(Vc)	-0.5	-	7	Vdc	

MODEL SPECIFICATIONS

MODEL NUMBER

TABLE 2.0

MODEL NUMBER	PARAMETER	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
VSH51-xxxG	Frequency Stability:	-25	-	25	ppm	1
VSH52-xxxG	Frequency Stability:	-50	-	50	ppm	1
VSH53-xxxG	Frequency Stability:	-100	-	100	ppm	1
VSH54-xxxG	Frequency Stability:	-20	-	20	ppm	1

CONTROL VOLTAGE CODES (x - Add code to Model Number)

TABLE 3.0

CONTROL VOLTAGE CODE	PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
0	Control Voltage	Vc	0.5	-	4.5	Vdc	2
1	Control Voltage	Vc	0.0	-	5.0	Vdc	2

DEVIATION CODES (xx - Add code to Model Number)

TABLE 4.0

DEVIATION CODE	PARAMETER	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
12	Frequency Deviation:	±100	-	-	ppm	3
15	Frequency Deviation:	±150	-	-	ppm	3
16	Frequency Deviation:	±160	-	-	ppm	3
22	Frequency Deviation:	±200	-	-	ppm	3
32	Frequency Deviation:	±300	-	-	ppm	3

OPERATING SPECIFICATIONS

TABLE 4.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Frequency Range	(Fo)	0.125	-	33	MHz	
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	4.75	5.0	5.25	Vdc	
Supply Current	(Icc)	-	-	30	mA	
Jitter (BW=10Hz to 20MHz)		-	-	5	ps rms	
Jitter (BW=12kHz to 20MHz)		-	-	1	ps rms	
SSB Phase Noise at 100Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-100	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-125	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-135	-	dBc/Hz	

INPUT CHARACTERISTICS

TABLE 5.0

PARAMETER	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Monotonic Linearity	-15	-	15	%	
Input Impedance	-	50K	-	Ohm	
Modulation Bandwidth (3dB)	15	-	-	KHz	

HCMOS OUTPUT CHARACTERISTICS

TABLE 6.0

PARAMETER	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD	-	-	15	pF	
Voltage (Voh)	4.5	-	-	Vdc	
(Vol)	-	-	0.5	Vdc	
Current (Ioh)	-4	-	-	mA	
(Iol)	-	-	4	mA	
Rise / Fall Time 10% to 90%	-	-	6	ns	
Duty Cycle measured at 2.5 Vdc (Standard)	45	50	55	%	
Duty Cycle measured at 1.4 Vdc (Optional add T to Model Number)	45	50	55	%	

PACKAGE CHARACTERISTICS

TABLE 7.0

Package	Hermetically sealed, leadless ceramic surface mount package.
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VSH51-xxxG- Series
VSH52-xxxG- Series
VSH53-xxxG- Series
VSH54-xxxG- Series

DESCRIPTION

The Connor Winfield VSH5x-xxxG series are 5.0V Surface Mount HCMOS, Voltage Control Crystal Oscillator (VCXO). Based on a fundamental crystal design the VSH5x-xxxG series are designed for phased lock loop applications requiring low jitter and tight frequency stability.

FEATURES

- 5.0V OPERATION
- FREQUENCY RANGE: 125 KHz to 33 MHz
- TEMPERATURE RANGE: 0 to 70°C
- FREQUENCY STABILITY:
VSH51-xxxG: ±25ppm
VSH52-xxxG: ±50ppm
VSH53-xxxG: ±100ppm
VSH54-xxxG: ±20ppm

- LOW JITTER <1 ps
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

VSH51022G - 27 MHz

VCXO
SERIES

CENTER
FREQUENCY

Specifications subject to change without notice.
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CRYSTAL CONTROLLED OSCILLATORS

Note:

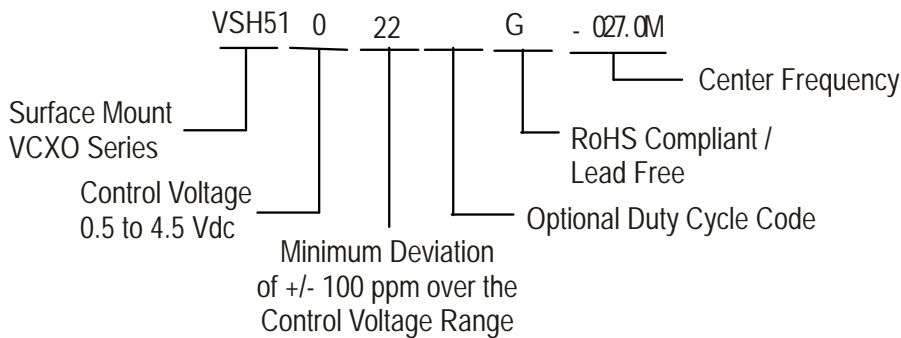
- 1) Frequency stability vs change in temperature, referenced to frequency measured at 25°C with control voltage @ 2.50Vdc.
- 2) Positive Transfer Slope.
- 3) Referenced to Fo @ 25°C

Pin Connections

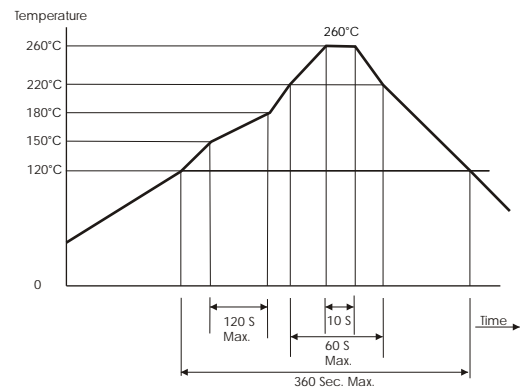
TABLE 8.0

Pad	Connection
1	N/C
2	Control Voltage
3	N/C
4	Ground
5	N/C
6	N/C
7	Output
8	N/C
9	Vcc
10	N/C

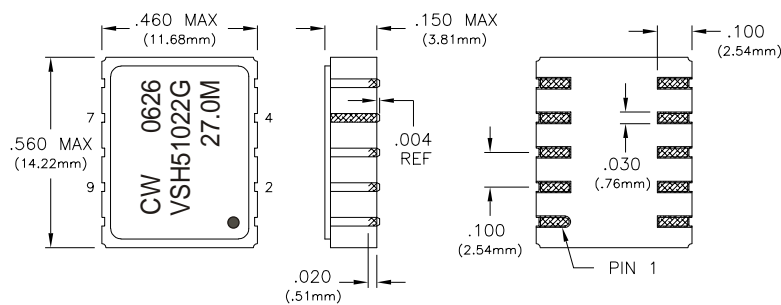
Example Model Number



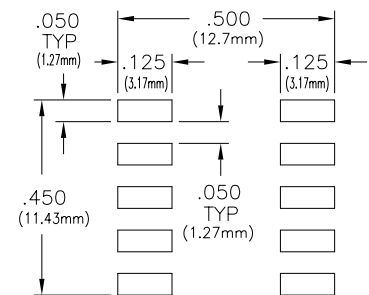
Solder Profile



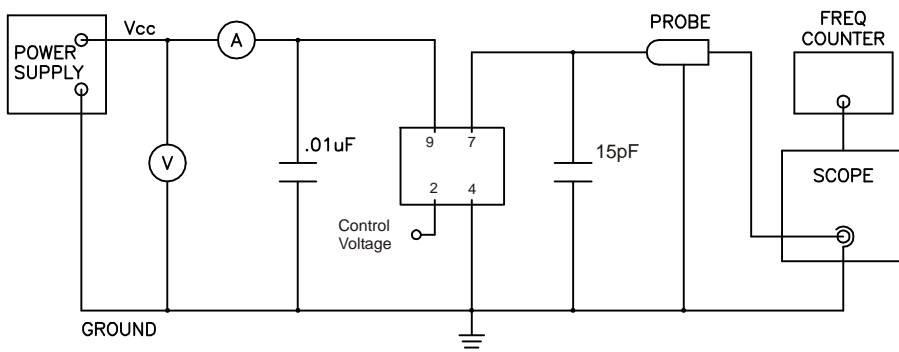
Package Outline and Dimensions



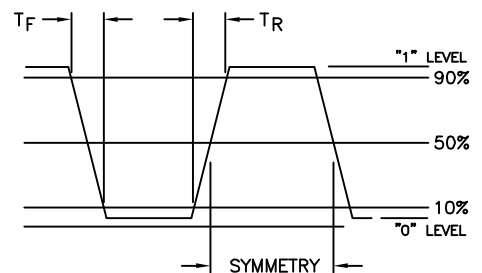
Suggested Pad Layout



Test Circuit



Output Waveform



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