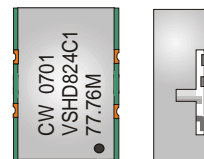


# CRYSTAL CONTROLLED OSCILLATORS

## SURFACE MOUNT 5.0V HCMOS VCXO



### VSHD824C1

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-40	-	85	°C	
Supply Voltage	(Vcc)	-0.5	-	7.0	Vdc	
Control Voltage	(Vc)	-0.5	-	7.0	Vdc	

OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	2	-	100	MHz	
Frequency Calibration		-10	-	10		1
Frequency Stability vs. Temperature		-20	-	20	ppm	2
Frequency Stability vs. change in supply voltage		-10	-	10	ppm	
Frequency Stability vs. load changes		-5	-	5	ppm	
Aging (1st year)		-5	-	5	ppm	
Total Frequency Tolerance		-50	-	50	ppm	3
Operating Temperature Range		-20	-	70	°C	
Supply Voltage	(Vcc)	4.75	5.00	5.25	Vdc	
Supply Current	(Icc)	-	-	60	mA	
Jitter (BW=10Hz to 20MHz)		-	-	5	pS rms	
Jitter (BW=12kHz to 20MHz)		-	-	1	pS rms	
SSB Phase Noise at 10Hz offset		-	-65	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-95	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-130	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-135	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-140	-	dBc/Hz	

FREQUENCY CONTROL

TABLE 3.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Control Voltage Range	(Vc)	0.5	2.5	4.5	Vdc	
Frequency Pullability		±100	-	-	ppm	
Absolute Pull Range		±50	-	-	ppm	4
Monotonic Linearity		-10	-	10	%	
Input Impedance		-	50K	-	Ohm	
Modulation Bandwidth (3dB)		15	-	-	KHz	

HCMOS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	15	pF	
Voltage (High)	(Voh)	4.5	-	-	Vdc	
(Low)	(Vol)	-	-	0.4	Vdc	
Current (High)	(Ioh)	-8	-	-	mA	
(Low)	(Iol)	-	-	8	mA	
Duty Cycle at 50% of Vcc		40	50	60	%	
Rise / Fall Time 10% to 90%		-	-	5	nS	

PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Non-hermetic package consisting of an FR4 substrate with grounded metal cover.
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PROCESS RECOMMENDATIONS

TABLE 6.0

Solder Reflow	The component solder used internal to this device has a melting point of 221°C. The peak temperature inside the device should be less than or equal to 220°C for a maximum of 10 seconds
Wash	Ultrasonic cleaning is not recommended.

Notes

- Nominal frequency tolerance after reflow soldering, Vc=2.5V, @ 25°C.
- Referenced to Fo @ 25°C. Positive Slope.
- Inclusive of calibration, frequency vs. temperature stability, supply voltage change, load change, shock and vibration and aging over 15 years, Vc=2.5 Vdc.
- Absolute pull range (APR) is the minimum guaranteed pull range of the VCXO under all conditions over lifetime operation. The APR is referenced to Fo.

### DESCRIPTION

The Connor-Winfield VSHD824C1 is a surface mount 5.0V Voltage Controlled Crystal Oscillator (VCXO) with an HCMOS output. Based on a fundamental design the VSHD824C1 is designed for phased lock loop applications requiring low jitter and tight stability.

### FEATURES

- 5.0V OPERATION
- FREQUENCY STABILITY ±20ppm
- LOW JITTER <1ps RMS
- TEMPERATURE RANGE: -20 to 70°C
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING

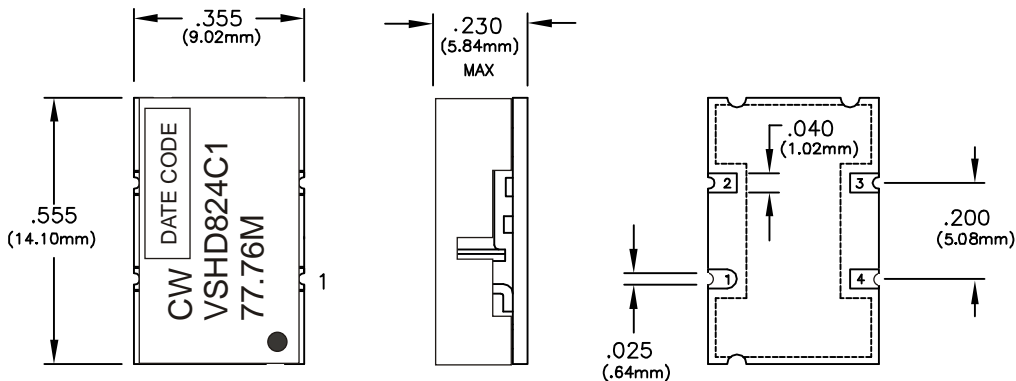
### ORDERING INFORMATION

VSHD824C1 - 77.76MHz



Specifications subject to change without notice.

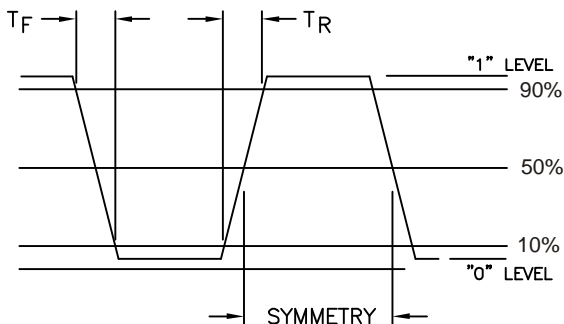
CRYSTAL CONTROLLED OSCILLATORS



PIN	CONNECTION
1	CONTROL VOLTAGE
2	GROUND
3	OUTPUT
4	V <sub>CC</sub>

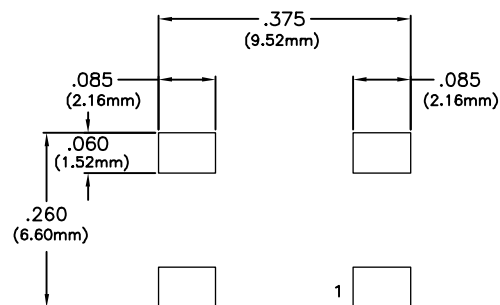
Dimensional Tolerance:  
±.005 (.127mm)

OUTPUT WAVEFORM

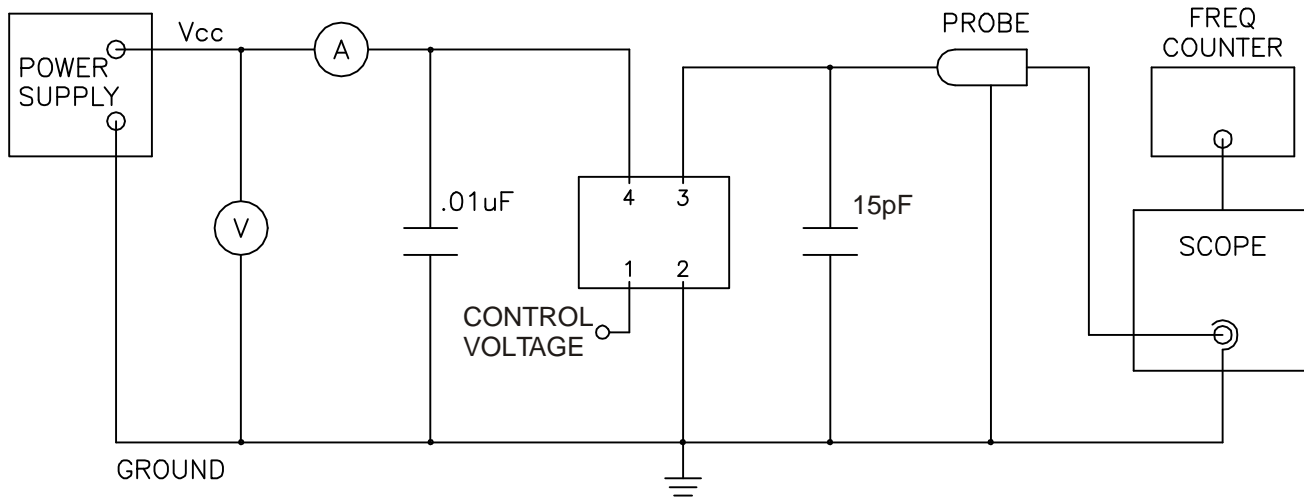


SUGGESTED PAD LAYOUT

(TOP VIEW)



TEST CIRCUIT



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