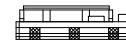


# CRYSTAL CONTROLLED OSCILLATORS

## 3.3V SURFACE MOUNT 5.0 x 7.5mm LVPECL CLOCK OSCILLATOR



X403

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	7.0	Vdc	
Input Voltage	(Vcc)	-0.5	-	Vcc+0.5	Vdc	

### OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	250	-	700	MHz	
Total Frequency Tolerance		-20	-	20	ppm	1
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	60	100	mA	
Jitter (BW=10Hz to 20MHz)		-	-	10	pS RMS	
Jitter (BW=12kHz to 20MHz)		-	-	2	pS RMS	
SSB Phase Noise at 10Hz offset		-	-75	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-95	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-110	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-125	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-120	-	dBc/Hz	

### INPUT CHARACTERISTICS

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Disable Input Voltage (Low)	(Vil)	-	-	1.68	Vdc	2
Enable Input Voltage (High)	(Vih)	2.275	-	-	Vdc	2

### PECL OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	50	Ohms	3
Voltage (High)	(Voh)	2.275	-	-	Vdc	
(Low)	(Vol)	-	-	1.68	Vdc	
Duty Cycle		45	50	55	%	4
Rise / Fall Time 20% to 80%		-	0.5	1.0	nS	

### PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Hermetically sealed ceramic package and metal cover.
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#### Notes

- Includes calibration @ 25°C, frequency stability vs. temperature, supply and load variations, shock, vibration and 20 years aging.
- When the oscillator is disabled, the outputs are at High Impedance. Output is enabled with no connection on pad 1.
- Output must be terminated into 50 ohms to Vcc - 2V or Thevenin equivalent.
- Duty Cycle measured at 50% of output swing.

### Enable / Disable Function

TABLE 6.0

Enable / Disable Function (Pad 1)	Output
High or Open	Enable
Low	Disable (High Impedance)

### DESCRIPTION

The Connor Winfield X403 is a fixed frequency, surface mount Crystal Controlled Oscillator (XO) designed for applications requiring low jitter and a +/-20ppm 0 to 70°C overall stability, LVPECL Differential Outputs and Tri-state Enable / Disable function. The X403 is designed using a 2X or 4X PLL multiplication to achieve the high frequency output.

### FEATURES

- 3.3V OPERATION
- DIFFERENTIAL LVPECL OUTPUTS
- LOW JITTER <2pS RMS
- TOTAL FREQUENCY TOLERANCE: ±20ppm
- TEMPERATURE RANGE: 0 to 70°C
- ENABLE / DISABLE FUNCTION
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

### ORDERING INFORMATION

X403 - 622.08M

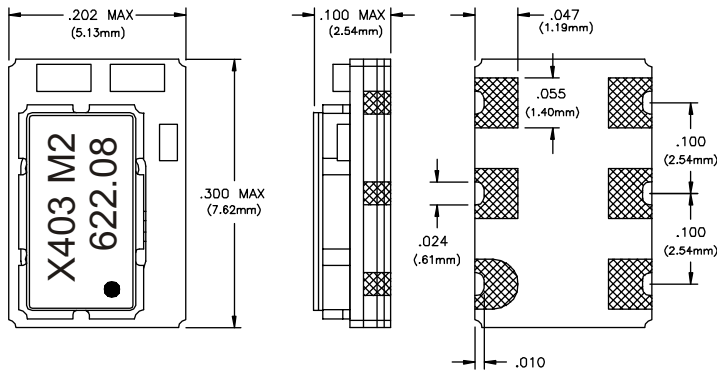
LVPECL  
CLOCK  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

# CRYSTAL CONTROLLED OSCILLATORS

## Package Outline and Dimensions



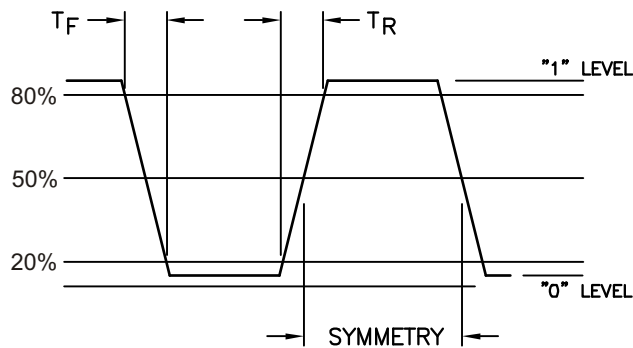
## Pin Connections

TABLE 7.0

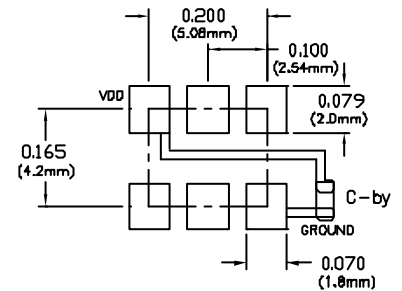
Pin	Connection
1	N/C
2	Enable / Disable
3	Ground
4	Q Output
5	Q Output
6	Vcc

Dimensional Tolerance:  
±.005 (.127mm)

## Output Waveform

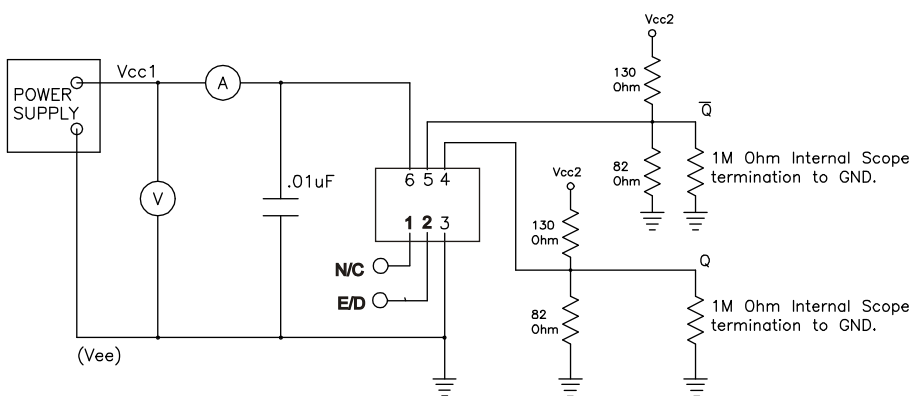


## Suggested Pad Layout

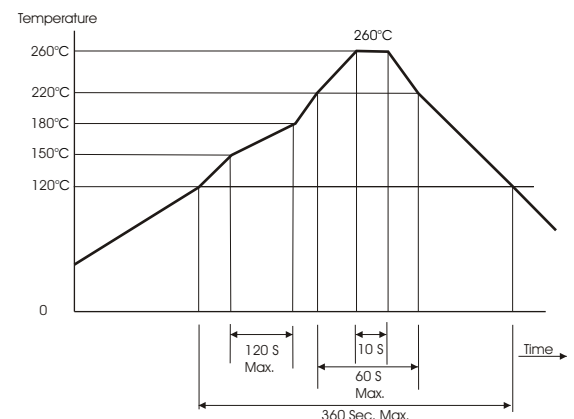


Bypass capacitor, C-by, should be ceramic capacitor  $\geq .01\mu\text{f}$ .

## Test Circuit



## Solder Profile



Specifications subject to change without notice.