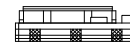
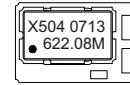


CRYSTAL CONTROLLED OSCILLATORS

3.3V SURFACE MOUNT 5.0 x 7.5mm LVDS CLOCK OSCILLATOR



X504

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	4.6	Vdc	
Input Voltage		-0.5	-	Vcc+0.5	Vdc	

OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	200	-	800	MHz	
Total Frequency Tolerance		-20	-	20	ppm	1
Operating Temperature Range		-40	-	85	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	100	mA	
Jitter (BW=10Hz to 20MHz)		-	-	10	ps rms	
Jitter (BW=12kHz to 80MHz)		-	-	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
Enable Input Voltage (Low)	(Vil)	-	-	0.3Vcc	Vdc	2
Disable Input Voltage (High)	(Vih)	0.7Vcc	-	-	Vdc	2

LVDS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	100	Ohms	3
Output Differential Voltage	(Vod)	250	-	450	mV	
Duty Cycle at 50% Level		45	50	55	%	
Rise / Fall Time		-	0.6	1.0	nS	

PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Hermetically sealed crystal on a ceramic package
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PROCESS RECOMMENDATIONS

TABLE 6.0

Solder Reflow	See solder profile on page 2.
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Notes

- Includes initial tolerance, deviation over temperature, supply and load variations, shock, vibration and 10 years aging.
- When oscillator is disabled both output are in a high impedance state (Tri-State)
- Vod measured with 100 ohm resistor between the true output and the complementary output.

DESCRIPTION

The Connor-Winfield X504 is a 3.3V Crystal Controlled Oscillator (XO) with LVDS differential outputs. The X504 is designed for use with PLL systems requiring tight frequency stability vs. change in temperature and high frequency output over the industrial temperature range. The X504 is designed using a 2x or 4x PLL multiplication to achieve the high frequency output.

FEATURES

- 3.3V OPERATION
- LOW JITTER <2ps RMS
- TOTAL FREQUENCY TOLERANCE: ±20ppm
- TEMPERATURE RANGE: -40 to 85°C
- DIFFERENTIAL LVDS OUTPUTS
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

X504 - 622.08M

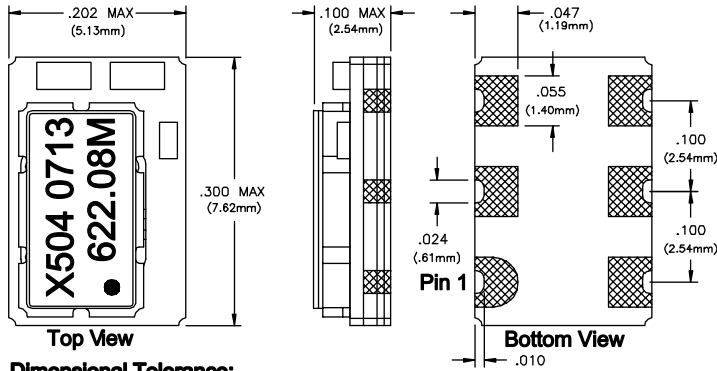
LVDS
CLOCK
SERIES

CENTER
FREQUENCY

Specifications subject to change without notice.

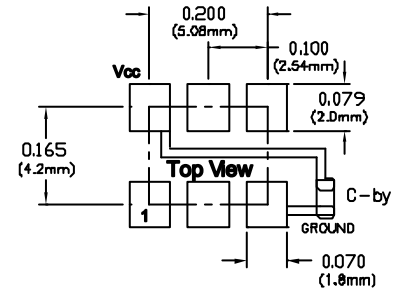
CRYSTAL CONTROLLED OSCILLATORS

Package Layout



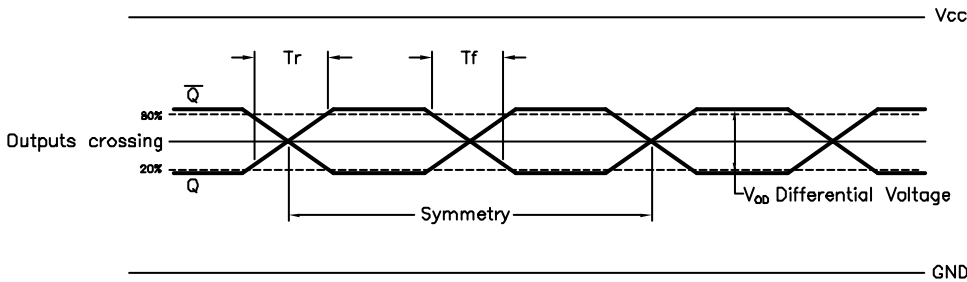
Dimensional Tolerance:
 $\pm .005$ (.127mm)

Suggested Pad Layout



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

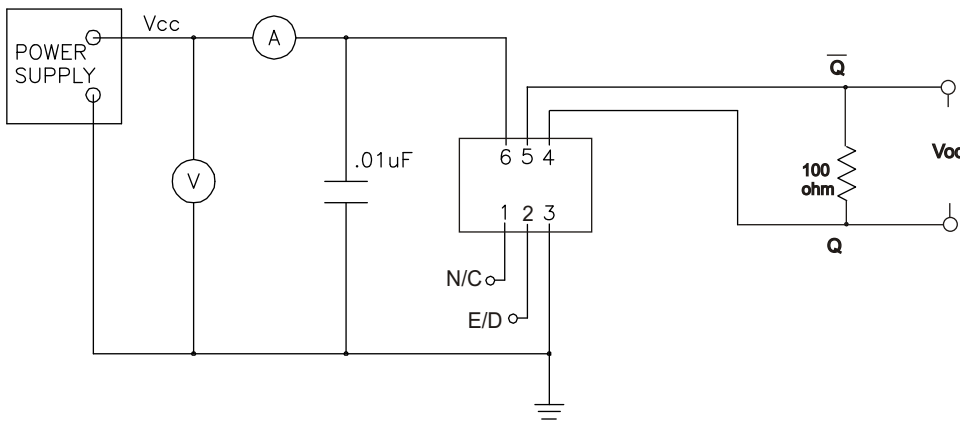
Output Waveforms



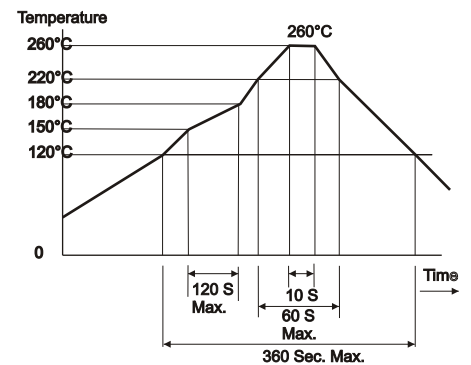
Pin Connections

Pin	Function
1	N/C
2	Enable / Disable
3	Ground (Case)
4	Output Q
5	Comp Output Q
6	Vcc

Test Circuit



Solder Profile



Specifications subject to change without notice.