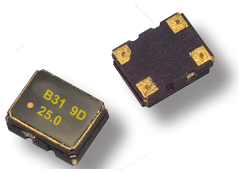
2.5 x 2.0 mm Precision TCXO Model B31

CONNOR WINFIELD

2111 Comprehensive Drive
Aurora, Illinois 60505
Phone: 630-851-4722
Fax: 630-851-5040
www.conwin.com

Description:

The Connor-Winfield B31 is a 2.5 x 2.0 mm, 3.3 V Clipped Sinewave, Surface Mount, Temperature Compensated Crystal Oscillator (TCXO), designed for applications requiring tight frequency stability in a very small package. The RoHS compliant surface mount package is designed for high-density mounting and is optimum for mass production.



Features:

- 3.3 Vdc Operation
- Clipped Sinewave Output
- Frequency Stability: ±0.50 ppm
- Temperature Range: -30 to 85°C
- Low Jitter: < 1 ps RMS
- 2.5 x 2.0 mm SMT Package
- Tape and Reel Packaging
- RoHS Compliant / Lead Free ✓RoHS

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	6.0	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency: (Fo)	10.0	-	50.0	MHz	
Frequency Calibration @ 25 °C	-1.0	-	1.0	ppm	1
Frequency Stability					
Vs. Temperature:	-0.50	-	0.50	ppm	2
VS. Supply Voltage:	-0.2	-	0.2	ppm	±5%
VS. Load:	-0.2	-	0.2	ppm	±5%
Static Temperature Hysteresis:	-	-	0.40	ppm	Absolute, 3
Aging per Year	-1.0	-	1.0	ppm	
Freq. Shift Due to Solder Reflow:	-1.0	-	1.0	ppm	4
Operating Temperature Range:	-30	-	85	°C	
Supply Voltage (Vcc) ±5%	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	-	2.0	mA	
Period Jitter	-	3	5	ps rms	
Integrated Phase Jitter	-	0.5	1.0	ps rms	5
SSB Phase Noise at 10Hz offset	-	-80	-	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-110	-	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-130	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-145	-	dBc/Hz	
SSB Phase Noise at 100KHz offset	-	-145	-	dBc/Hz	
Start-up Time	-	-	5	ms	

Clipped Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load (CL) -		10 pF // 10 KOhm			6
Output Voltage	0.8	-	-	V pk to pk	7

Package Characteristics

Package	Hermetically sealed ceramic package and metal cover

Ordering Information

B31-020.0M, B31-025.0M, B31-040.0M

Environmental Characteristics

Vibration:	Vibration per Mil Std 883E Method 2007.3 Test Condition A
Shock:	Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.
Soldering Process:	RoHS compliant lead free. See soldering profile on page 2.

Notes:

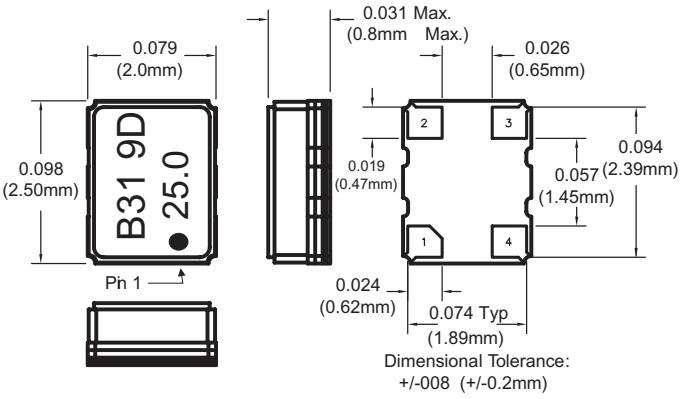
1. *Initial calibration @ 25°C. Specifications at time of shipment after 48 hours of operation.*
2. *Frequency stability vs. change in temperature. [±(Fmax - Fmin)/2.Fo].*
3. *Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C.*
4. *Within two hours after reflow*
5. *BW = 12 KHz to 20 MHz.*
6. *Output is DC coupled. Load capacitor, load resistor, coupling capacitor and by pass capacitors are required components to insure proper operation of this TCXO.*
7. *For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 10pF.*

RoHS COMPLIANT

CONNOR WINFIELD

2111 Comprehensive Drive
Aurora, Illinois 60505
Phone: 630-851-4722
Fax: 630-851-5040
www.conwin.com

Package Layout



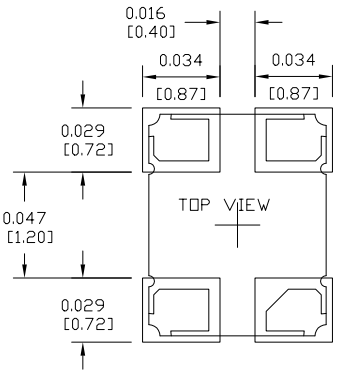
Pad Connections

1: No Connection
2: Ground
3: Output
4: Supply Voltage (Vcc)

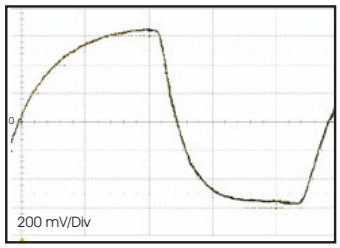
2 CHARACTER DATE CODE

Y = Year	M = Month
9 = 2019	A = January
0 = 2020	B = February
1 = 2021	C = March
2 = 2022	D = April
	E = May
	F = June
	G = July
	H = August
	J = September
	K = October
	M = November
	N = December

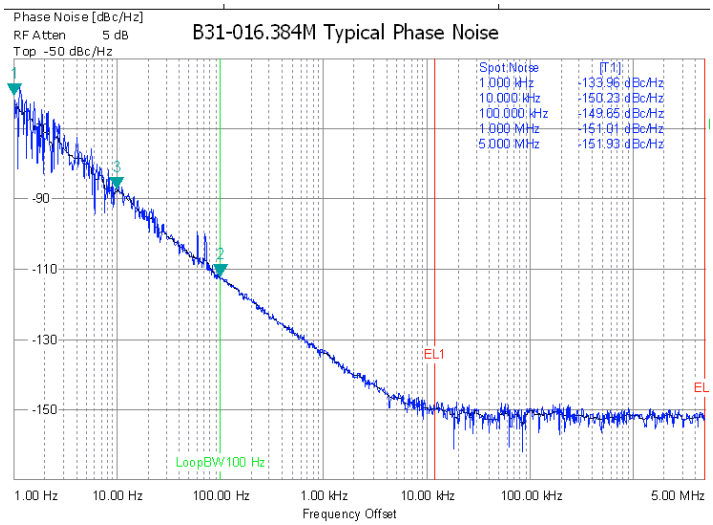
Suggested Pad Layout



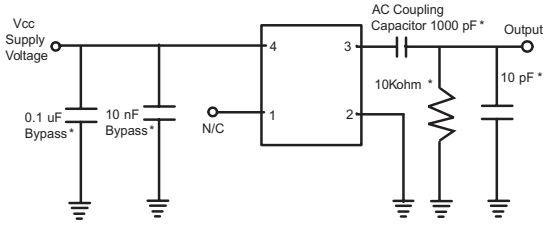
Output Waveform



Typical Phase Noise Plot

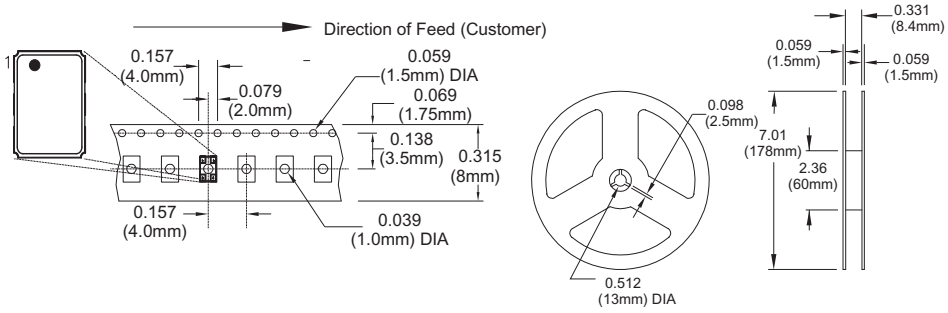


Test Circuit

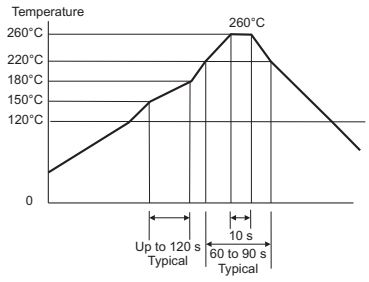


** Required components to insure proper operation.*

Tape and Reel Information



Solder Profile



Meets IPC/JEDEC J-STD-020C

Bulletin	**TX415**
Page	**2 of 2**
Revision	**03**
Date	**31 Dec 2019**