



3.2 x 2.5 mm Precision TCXO Model D32G

CONNOR WINFIELD



2111 Comprehensive Drive

Aurora, Illinois 60505

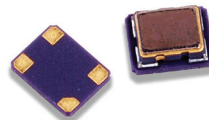
Phone: 630-851-4722

Fax: 630-851-5040

www.conwin.com

Description:

The Connor-Winfield D32G is a 3.2 x 2.5 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
- 3.2 x 2.5 mm SMT Package
- Tape and Reel Packaging
- RoHS Compliant / Lead Free

Absolute Maximum Ratings

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|----------------------|---------|---------|---------|--------------------|-------|
| Storage Temperature | -55 | - | 85 | $^{\circ}\text{C}$ | |
| Supply Voltage (Vcc) | -0.5 | - | 6.0 | Vdc | |

Operating Specifications

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|----------------------------------------------|------------------------------|---------|---------|--------------------|-------------|
| Center Frequency: (Fo) | 16.368, 19.2, 26.0 or 32.736 | | | MHz | |
| Frequency Calibration @ 25°C | -1.0 | - | 1.0 | ppm | 1 |
| Frequency Stability | | | | | |
| Vs. Temperature: | -0.50 | - | 0.50 | ppm | 2 |
| VS. Supply Voltage: | -0.025 | - | 0.025 | ppm | $\pm 5\%$ |
| VS. Load: | -0.025 | - | 0.025 | ppm | $\pm 5\%$ |
| 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 | $^{\circ}\text{C}$ | |
| Supply Voltage (Vcc) $\pm 5\%$ | 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 (High) | 1.0 | - | - | V pk to pk | 7 |

Package Characteristics

Package Hermetically sealed ceramic package and metal cover

Ordering Information

D32G-016.368M, D32G-019.2M, D32G-026.0M or D32G-032.736M

Notes:

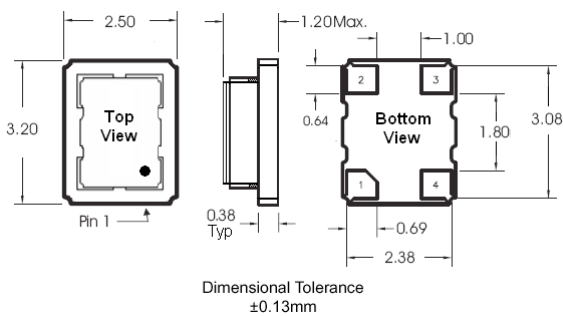
1. Initial calibration @ 25°C . Specifications at time of shipment after 48 hours of operation.
2. Frequency stability vs. change in temperature. $[\pm(F_{\text{max}} - F_{\text{min}})/2.F_0]$.
3. Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before 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.



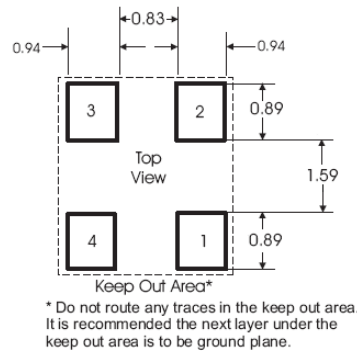
Environmental Characteristics

| | |
|--------------------|-------------------------------------------------------------------|
| 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 3. |

Package Layout



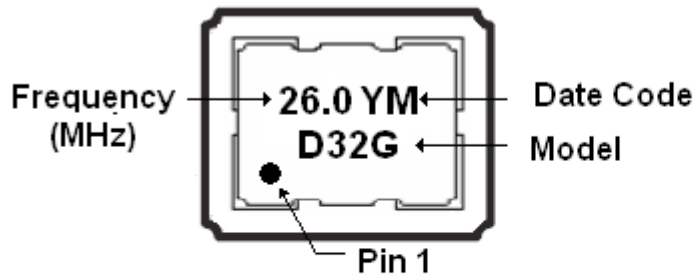
Suggested Pad Layout



Pad Connections

- 1: N/C
- 2: Ground
- 3: Output
- 4: Supply Voltage (Vcc)

Marking Information

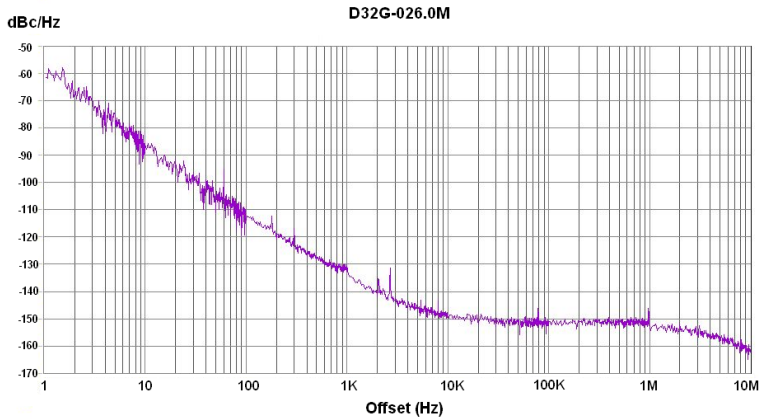


2 CHARACTER DATE CODE

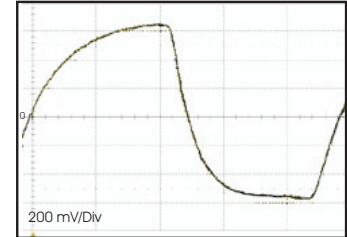
| Y = Year | M = Month |
|----------|---------------|
| 8 = 2018 | A = January |
| 9 = 2019 | B = February |
| 0 = 2020 | C = March |
| 1 = 2021 | D = April |
| | E = May |
| | F = June |
| | G = July |
| | H = August |
| | J = September |
| | K = October |
| | M = November |
| | N = December |



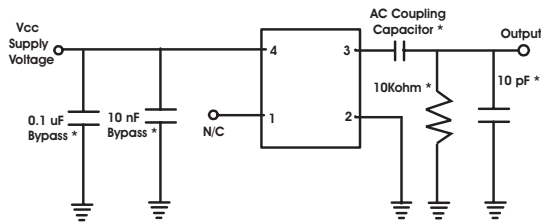
Typical Phase Noise Plot



Output Waveform

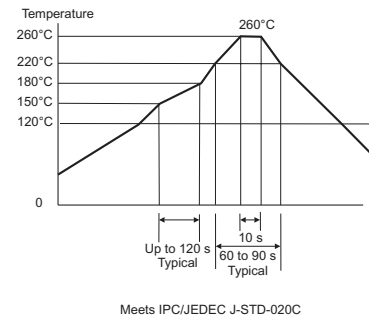


Test Circuit

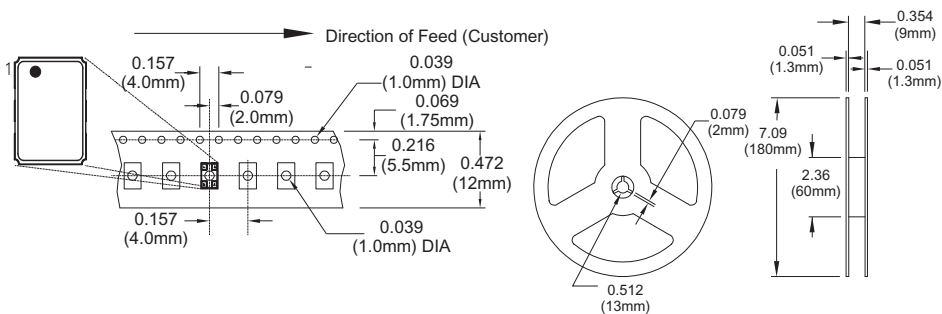


* Required components to insure proper operation.

Solder Profile



Tape and Reel Information



Revision History

| Revision | Date | Note |
|----------|----------|------------------------------------------------------------------------|
| 02 | 02/20/09 | Data sheet released |
| 03 | 12/17/09 | Updated pad size on package drawing and updated suggested pad layout. |
| 04 | 11/03/11 | Changed ordering information. Updated to new data sheet format |
| 05 | 12/19/11 | Changed note 6, added load capacitor and resistor information. |
| 06 | 10/09/12 | Added new frequency |
| 07 | 09/13/18 | Added marking image, and updated package drawing and phase noise plot. |

| | |
|----------|---------------------|
| Bulletin | TX240 |
| Page | 3 of 3 |
| Revision | 07 |
| Date | 13 Sept 2018 |