# OH020-61003CV-010.0M
# 20x20mm VCOXCO

**VCOCXO**

CONNOR WINFIELD

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## Description:

The Connor-Winfield OH020-61003CV-010.0M is a 20x20mm through-hole VCOCXO in a 5-pin metal package.

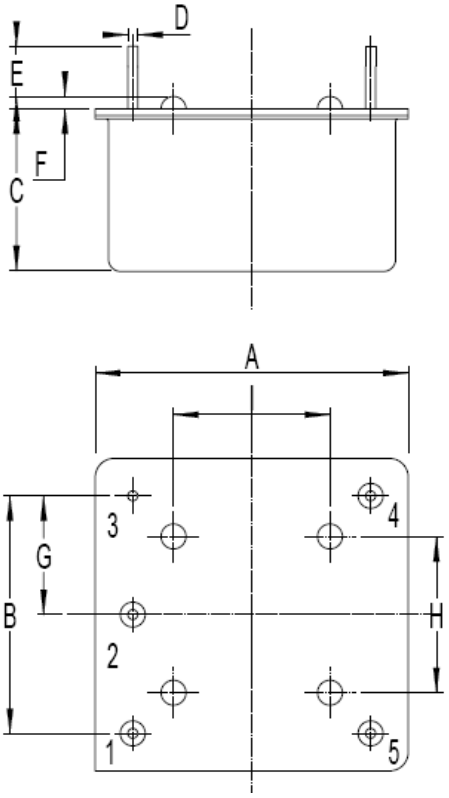
## Features:

- VCOCXO
- 3.3Vdc Operation
- 20 x 20mm Metal Package
- Frequency Stability ±10 ppb
- Temperature Range -40°C to 85°C
- LVCMOS Output
- RoHS Compliant / Lead Free

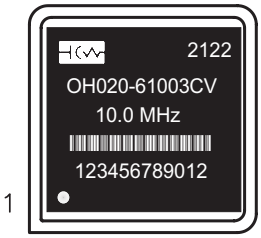
## Package Dimensions

| | Dimensions (mm) | |
|---|---|---|
| Symbol | Min | Max |
| A | | 20.6 |
| B | 14.74 | 15.74 |
| C | | 12 |
| D | 0.4 | 0.6 |
| E | 4.0 | 5.0 |
| F | 0.5 | 0.7 |
| G | 7.52 | 7.72 |
| H | 10.1 nominal | |
| I | 10.1 nominal | |

## Package Outline




## Marking Configuration




Date Code (YYWW)
Model Number
Output Frequency
Serial # Barcode
Serial Number

## Pin Connections

1: Supply Voltage (Vdd)
2: Output
3: Ground
4: Voltage Control
5: N/C

## Ordering Information

OH020-61003CV-010.0M

RoHS COMPLIANT

| | |
|---|---|
| Bulletin | Cx317 |
| Page | 1 of 4 |
| Revision | 00 |
| Date | 19 Nov 2021 |

*Attention: System Designers please review Application Note AN2093: System Design Information and Printed Circuit Board Layout Guidelines for OCXO Oscillators. @ www.conwin.com/technologies.html*

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## Absolute Maximum Ratings

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| Storage Temperature | -40 | - | 105 | °C | |
| Supply Voltage (Vdd) | -0.5 | - | 6.0 | Vdc | |
| Control Voltage (Vc) | -0.5 | - | 6.0 | Vdc | |

## Operating Specifications

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| Center Frequency: (Fo) | - | 10 | - | MHz | |
| Frequency Calibration | -100 | - | 100 | ppb | 1 |
| Frequency Stability vs Temperature | -10 | - | 10 | ppb | 2 |
| vs. Supply Voltage Change | -0.5 | - | 0.5 | ppb | Vcc ±5% |
| vs. Load Change | -0.5 | - | 0.5 | ppb | Load ±5% |
| vs. Aging per day | -0.5 | - | 0.5 | ppb | 3 |
| vs. Aging 1st Year | -50 | - | 50 | ppb | |
| vs Aging 10 Years | -2.0 | - | 2.0 | ppm | |
| Operating Temperature Range | -40 | - | 85 | °C | 4 |
| Warm-up Time at 25°C | - | - | 5 | Minutes | 5 |
| Short Term Stability (ADEV at 1s) | - | - | 1.0E-11 | | 6 |

## Phase Noise

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| @ 1Hz offset | - | - | -95 | dBc/Hz | |
| @ 10Hz offset | - | - | -120 | dBc/Hz | |
| @ 100Hz offset | - | - | -140 | dBc/Hz | |
| @ 1KHz offset | - | - | -150 | dBc/Hz | |
| @ 10KHz offset | - | - | -155 | dBc/Hz | |
| @ 100KHz offset | - | - | -150 | dBc/Hz | |

## Supply Voltage (Vdd)

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| Supply Voltage: | 3.13 | 3.30 | 3.47 | Vdc | |
| Power Consumption | | | | | |
| Turn On | - | - | 4.0 | W | |
| Steady State at 25°C | - | | 1.5 | W | |

## Input Characteristics - Voltage Control (Vc)

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| Tuning Range | ±0.5 | - | ±1.0 | ppm | |
| Linearity | - | - | 10 | % | |
| Control Voltage Range | 0.0 | 1.65 | 3.3 | Vdc | |
| Tuning Slope | | Positive | | | |
| Linearity | - | - | 10 | % | |
| Input Impedance | 100K | - | - | Ohms | |

## CMOS Output Characteristics

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---|---|---|---|---|
| Load | - | 15 | - | pF | |
| Output Voltage: High (Voh) | 3.0 | - | - | V | |
| Low (Vol) | - | - | 0.4 | V | |
| Output Current: High (Ioh) | -4 | - | - | mA | |
| Low (Iol) | - | - | 4 | mA | |
| Duty Cycle at 50% of Vcc | 45 | 50 | 55 | % | |
| Rise / Fall Time: 10% to 90% | - | - | 6 | ns | |

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## Package Characteristics

| | |
|---|---|
| OH020-Series Package | Hermetically sealed, resistive welded package with grounded case. |

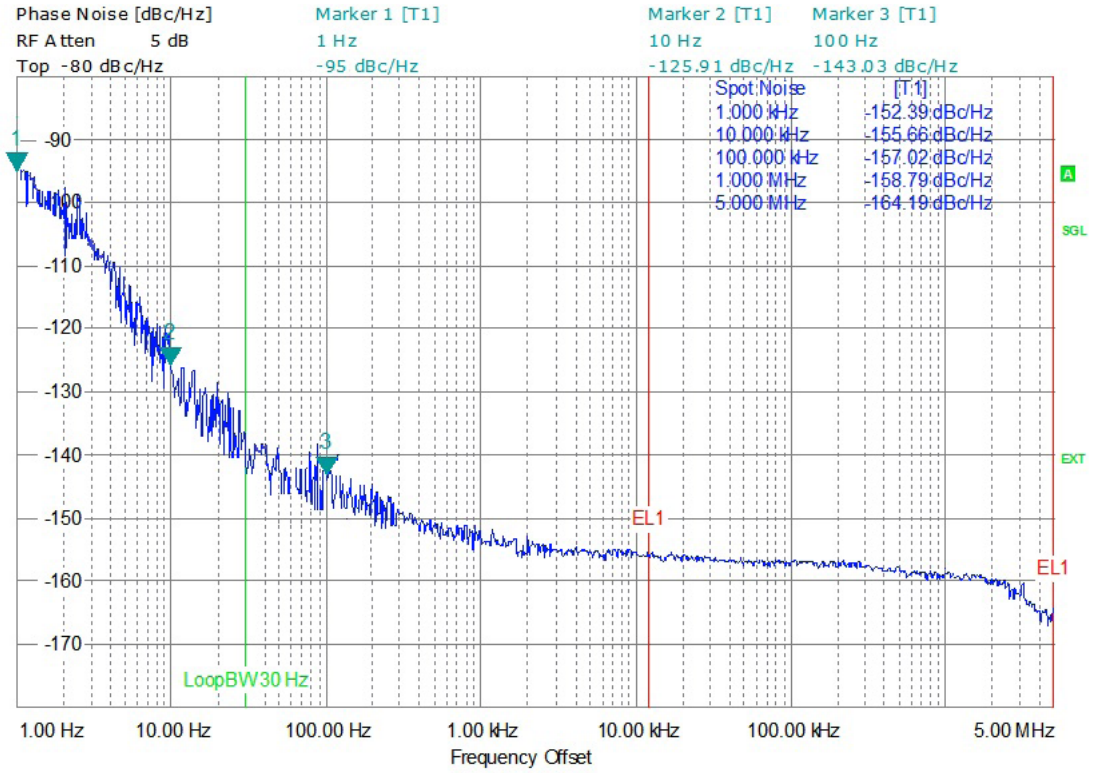
## Environmental Characteristics

| | |
|---|---|
| Shock | 500 G's 1ms, Halfsine, 3 shocks per direction, per MIL-STD 202F, Method 213B Test Condition D. |
| Sinusoidal Vibration | 0.06" D.A. or 10G's Peak, 10 to 500 Hz, per MIL-STD-202F, Method 204D, Test Condition A. |
| Random Vibration | 5.35 G's rms. 20 to 2000 Hz per MIL-STD-202F, Method 214,Test Condition 1A, 15 minutes each axis. |
| Moisture | 10 cycles, 95% RH, Per MIL-STD-202F, Method 112. |
| Marking Permanency | Per MIL-STD-202F, Method 215J. |
| Attachment Method PCB | Through Hole Mounted |
| Resistance to Solder Heat | Per MIL-STD-202F, Method 210, Condition E. |
| Solder Process | RoHS compliant, lead free. See solder profile. |

*Notes:*

1. *At time of shipment after 60 minutes of operation @ 25°C with nominal control voltage and supply voltage values.*
2. *Frequency stability vs. change in temperature [±(Fmax-Fmin)/(2*Fo)].*
3. *At time of shipment after 48 hours of operation.*
4. *Other temperature ranges available upon request.*
5. *Measured at 25°C, the frequency observed after 5min will be within ±100ppb of the frequency observed after 60 minutes.*
6. *The part is shielded from airflow during this measurement.*

## Typical Phase Noise



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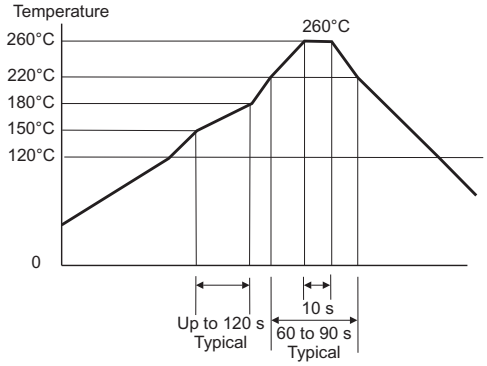
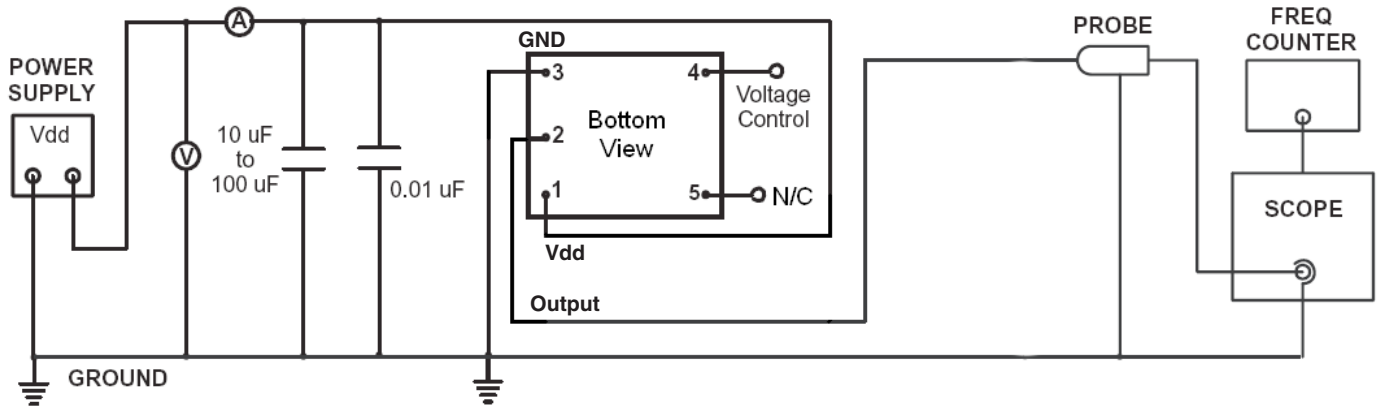
## Solder Profile




Meets IPC/JEDEC J-STD-020C

## Test Circuit




## Revision History

| Revision | Date | Description |
|---|---|---|
| 00 | 11/19/21 | New issue |