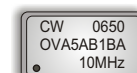
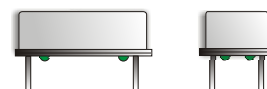


# CRYSTAL CONTROLLED OSCILLATORS

## 14 PIN DIP 5.0V SINEWAVE OCVCXO



### 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   |      |
| Control Voltage     | (Vc)  | -0.5    | -       | 7.0     | Vdc   |      |

### OPERATING SPECIFICATIONS

TABLE 2.0

| PARAMETER                              |       | MINIMUM | NOMINAL | MAXIMUM | UNITS   | NOTE |
|--|-------|---------|---------|---------|---------|------|
| Center Frequency                       | (Fo)  | 6.4     | -       | 25      | MHz     |      |
| Frequency Calibration                  |       | -1.5    | -       | 1.5     | ppm     | 1, 4 |
| Frequency Stability                    |       | -       | -       | 0.25    | ppm     | 2    |
| Frequency vs. Change in Supply Voltage |       | -0.05   | -       | 0.05    | ppm     | 3    |
| Aging (Daily)                          |       | -30     | -       | 30      | ppb     | 4    |
| Aging (20 years)                       |       | -2.5    | -       | 2.5     | ppm     |      |
| Total Frequency Tolerance              |       | -4.6    | -       | 4.6     | ppm     | 5    |
| Operating Temperature Range            |       | 0       | -       | 70      | °C      |      |
| Supply Voltage                         | (Vcc) | 4.75    | 5.00    | 5.25    | Vdc     |      |
| Supply Current                         | (Icc) | -       | -       | 300     | mA      |      |
| Steady State Supply Current @ 25°C     |       | -       | 150     | -       | mA      |      |
| Phase Jitter (BW =10KHz to Fo/2)       |       | -       | -       | 1       | ps RMS  |      |
| Phase Jitter (BW =10Hz to Fo/2)        |       | -       | -       | 3       | ps RMS  |      |
| Period Jitter                          |       | -       | -       | 3       | ps RMS  |      |
| Start-Up Time: Oscillator              |       | -       | -       | 35      | ms      |      |
| Warm Up Time                           |       | -       | -       | 5       | Minutes | 6    |
| TDEV at 1.0 seconds                    |       | -       | -       | 1       | ns      |      |
| TDEV at 4.0 seconds                    |       | -       | -       | 2       | ns      |      |

### INPUT CHARACTERISTICS

TABLE 3.0

| PARAMETER                 |      | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------------|------|---------|---------|---------|-------|------|
| Control Voltage Range     | (Vc) | 0.5     | 2.0     | 4.1     | Vdc   |      |
| Frequency at Vc=0.5 Vdc   |      | -       | -       | -5      | ppm   | 7    |
| Frequency at Vc=4.1 Vdc   |      | 5       | -       | -       | ppm   | 7    |
| Slope of Frequency Adjust |      | 2.8     | -       | -       | ppm/V |      |
| Input Impedance           |      | 100k    | -       | -       | Ohm   |      |

### SINEWAVE OUTPUT CHARACTERISTICS

TABLE 4.0

| PARAMETER                       |  | MINIMUM | NOMINAL | MAXIMUM | UNITS  | NOTE |
|---------------------------------|--|---------|---------|---------|--------|------|
| LOAD                            |  | 45      | 50      | 55      | Ohms   |      |
| Output Power                    |  | 0       | 3       | -       | dBm    |      |
| Spurious Output                 |  |         |         | -80     | dBc    |      |
| SSB Phase Noise at 1Hz offset   |  | -       | -60     | -       | dBc/Hz |      |
| SSB Phase Noise at 10Hz offset  |  | -       | -90     | -       | dBc/Hz |      |
| SSB Phase Noise at 100Hz offset |  | -       | -120    | -       | dBc/Hz |      |
| SSB Phase Noise at 1KHz offset  |  | -       | -140    | -       | dBc/Hz |      |
| SSB Phase Noise at 10KHz offset |  | -       | -150    | -       | dBc/Hz |      |

### PACKAGE CHARACTERISTICS

TABLE 5.0

|         |  |
|---------|--|
| Package | 14 pin DIP, hermetically sealed, welded package. |
|---------|--|

## OVA5AB1BA

### DESCRIPTION

The Connor-Winfield OVA5AB1BA is a hermetically sealed 14 Pin DIP, 5.0V Voltage Controlled Oven Stabilized Crystal Oscillator (OCVCXO) with a Sinewave output. The OVA5AB1BA is designed for applications requiring low jitter and tight frequency stability.

### FEATURES

5.0V OPERATION  
OCVCXO  
SINEWAVE OUTPUT  
LOW JITTER <1ps RMS  
FREQUENCY STABILITY:  
0.25ppm ABSOLUTE  
TOTAL FREQUENCY TOLERANCE:  
±4.6ppm OVER TWENTY YEARS  
TEMPERATURE RANGE:  
0 to 70°C  
HERMETICALLY SEALED  
14 PIN DIP PACKAGE  
RoHS COMPLIANT / LEAD FREE

### ORDERING INFORMATION

OVA5AB1BA - 10MHz

OCXO  
SERIES

CENTER  
FREQUENCY

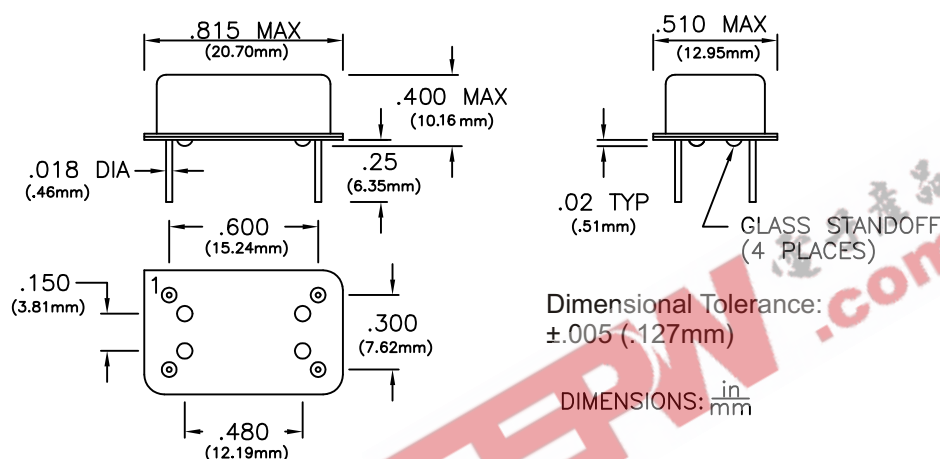
Specifications subject to change without notice.

# CRYSTAL CONTROLLED OSCILLATORS

**Notes:**

- 1) Initial calibration @ 25 C, Vc = 2.0 Vdc.
- 2) Frequency stability, absolute over the temperature range of 0 to 70 C.
- 3) Frequency stability per 5% change in supply voltage.
- 4) At the time of shipment after 48 hours of operation.
- 5) Inclusive of calibration, operating temperature range, supply voltage change, shock and vibration and aging (20 years).
- 6) Measured @ 25 C, within 5 minutes, the unit will be within +/-0.1ppm of its reference frequency, measured after 30 minutes of continuous operation at a stable 25 C.
- 7) Referenced to Fo @ 25°C, Positive Transfer Characteristic.

**Package Layout**

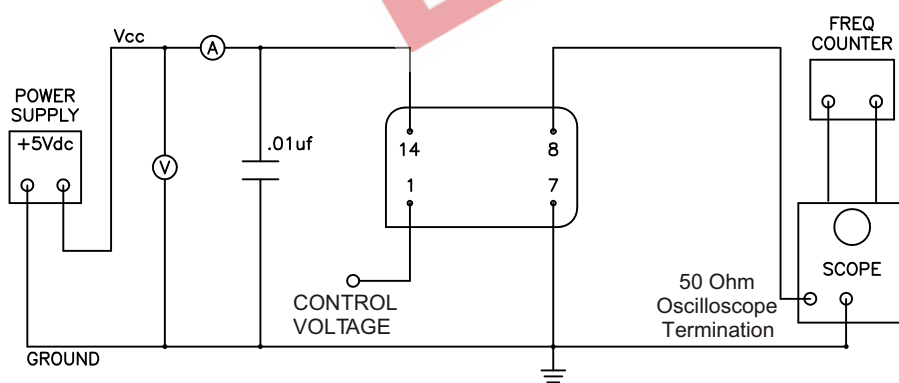


**Pin Connections**

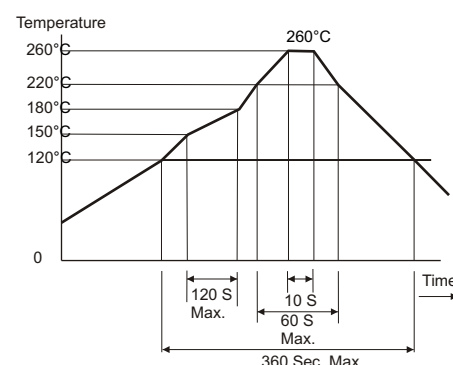
**TABLE 6.0**

| Pin | Function        |
|-----|-----------------|
| 1   | Voltage Control |
| 7   | Ground (Case)   |
| 8   | Output          |
| 14  | Vcc             |

**Test Circuit**



**Solder Profile**



**ENVIRONMENTAL CHARACTERISTICS**

**Temperature Cycle:** Per MIL-STD-883, Method 1010, Condition B. -55°C to 125°C, 300 cycles, 10 minute dwell, 1minute transition.

**Gross Leak Test:** Per MIL-STD-202, Method 112, Condition D. No Bubbles in flourinert (FC-43) at 125°C ±5°C for 20 seconds.

**SOLDERING**

**Pin Solderability:** Per MIL-STD-883, Method 2003. 8 hour steam age prior to 254°C ±5°C Solder pot dip, 95% Coverage.

**Resistance to Solder Heat:** Per MIL-STD-202, Method 210, Condition C. Wave: Topside board-mount product, 260°C ±5°C for 20 seconds.

**MECHANICAL CHARACTERISTICS**

**Vibration:** Per MIL-STD-202, Method 204, Condition A. 10G's peak, 10Hz to 500Hz, 15 minute cycles 12 times each perpendicular axis.

**Shock:** Per MIL-STD-202, Method 213, Condition F. 1500G's, 0.5ms, half sine, 3 shocks per direction.

**Moisture Resistance:** Per MIL-STD-202, Method 106. 95% RH @ 65°C, 10 cycles 10°C to 65°C.

Specifications subject to change without notice.