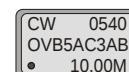
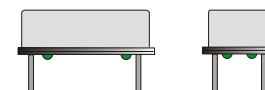


# CRYSTAL CONTROLLED OSCILLATORS

## 14 PIN DIP 5.0V HCMOS OCVCXO


**ABSOLUTE MAXIMUM RATINGS**
**TABLE 1.0**

| PARAMETER           | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature |       | -40     | -       | 85      | °C    |      |
| Supply Voltage      | (Vcc) | -0.5    | -       | 7.0     | Vdc   |      |
| Control Voltage     | (Vcc) | -0.5    | -       | 7.0     | Vdc   |      |

**OPERATING SPECIFICATIONS**
**TABLE 2.0**

| PARAMETER                              |       | MINIMUM | NOMINAL  | MAXIMUM | UNITS   | NOTE |
|----------------------------------------|-------|---------|----------|---------|---------|------|
| Center Frequency                       | (Fo)  | 9.00    | -        | 20.00   | MHz     |      |
| Frequency Calibration                  |       | -0.30   | -        | 0.30    | ppm     | 1    |
| Frequency vs. Change in Temperature    |       | -0.21   | -        | 0.21    | ppm     | 2    |
| Frequency vs. Change in Supply Voltage |       | -0.05   | -        | 0.05    | ppm     | 3    |
| Frequency vs. Change in Load           |       | -0.02   | -        | 0.02    | ppm     | 4    |
| Frequency Aging Daily                  |       | -       | -        | 8       | ppb/day |      |
| Frequency Aging per year               |       | -0.5    | -        | 0.5     | ppm     |      |
| Total Frequency Tolerance              |       | -1.5    | -        | 1.5     | ppm     | 5    |
| Operating Temperature Range            |       | -20     | -        | 70      | °C      |      |
| Supply Voltage                         | (Vcc) | 4.75    | 5.00     | 5.25    | Vdc     |      |
| Supply Current                         | (Icc) | -       | -        | 300     | mA      |      |
| Supply Current Steady State @25°C      | (Icc) | -       | 75       | -       | mA      |      |
| Allan Variance (1 second)              |       | -       | 5.00E-10 | -       |         |      |
| Jitter (10Hz to 10 MHz)                |       | -       | -        | 1       | ps RMS  |      |
| SSB Phase Noise at 1Hz offset          |       | -       | -70      | -       | dBc/Hz  |      |
| SSB Phase Noise at 10Hz offset         |       | -       | -100     | -       | dBc/Hz  |      |
| SSB Phase Noise at 100Hz offset        |       | -       | -125     | -       | dBc/Hz  |      |
| SSB Phase Noise at 1KHz offset         |       | -       | -140     | -       | dBc/Hz  |      |
| SSB Phase Noise at 10KHz offset        |       | -       | -150     | -       | dBc/Hz  |      |
| Start Up Time: Oscillator              |       | -       | -        | 10      | mS      |      |
| Warm Up Time                           |       | -       | -        | 5       | Minutes | 6    |
| Retrace                                |       | -0.3    | -        | 0.3     | ppm     | 7    |
| TDEV @ 1.0 Sec.                        |       | -       | -        | 1       | nS      |      |
| TDEV @ 4.0 Sec.                        |       | -       | -        | 2       | nS      |      |

**INPUT CHARACTERISTICS**
**TABLE 3.0**

| PARAMETER                 |      | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------------|------|---------|---------|---------|-------|------|
| Control Voltage Range     | (Vc) | 0.5     | 2.5     | 4.5     | Vdc   |      |
| Frequency at Vc=0.5 Vdc   |      | -       | -7      | -5      | ppm   | 8    |
| Frequency at Vc=4.5 Vdc   |      | 5       | 7       | -       | ppm   | 8    |
| Slope of Frequency Adjust |      | 2.5     | -       | -       | ppm/V |      |
| Input Impedance           |      | 100k    | -       | -       | Ohm   |      |

**HCMOS OUTPUT CHARACTERISTICS**
**TABLE 4.0**

| PARAMETER                   |       | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD                        |       | 12      | 15      | 18      | pf    |      |
| Voltage (High)              | (Voh) | 4.75    | -       | -       | Vdc   | 9    |
| (Low)                       | (Vol) | -       | -       | 0.4     | Vdc   | 9    |
| 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    |      |

**PACKAGE CHARACTERISTICS**
**TABLE 5.0**

|         |                                                                |
|---------|----------------------------------------------------------------|
| Package | 14 pin DIP, hermetically sealed, grounded case, welded package |
|---------|----------------------------------------------------------------|

## OVB5AC3AB

**DESCRIPTION**

The Connor-Winfield OVB5AC3AB is a hermetically sealed 14 Pin DIP, 5.0V Oven Controlled Voltage Controlled Crystal Oscillator (OCVCXO) with an HCMOS / TTL compatible output. The OVB5AC3AB is designed for higher stability applications requiring low jitter and tight calibration.

**FEATURES**

5.0V OPERATION

LOW JITTER <1ps RMS

FREQUENCY STABILITY: ±0.21ppm

TEMPERATURE RANGE: -20 to 70°C

OVERALL FREQUENCY TOLERANCE :  
±1.5ppm over Twenty Years.

**ORDERING INFORMATION**

OVB5AC3AB - 10.00MHz

OCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

# CRYSTAL CONTROLLED OSCILLATORS

## Notes:

- 1) Initial calibration @ 25°C, Vc = 2.50V at time of shipment.
- 2) Frequency vs. temperature stability, -20 to 70°C absolute.
- 3) Frequency stability per 5% change in supply voltage.
- 4) Frequency stability per 5% change in load
- 5) Inclusive of calibration, operating temperature range, supply voltage change, load change, shock and vibration and aging over 20 years.
- 6) Measured @ 25°C, within 5 minutes, the unit will be within +/-0.5ppm of nominal.
- 7) 24 hours off then 60 minutes on at a constant temperature and voltage.
- 8) Referenced to Fo @ 25°C, Positive Transfer Characteristic.
- 9) Supply voltage at 5.00 Vdc.

## ENVIRONMENTAL CHARACTERISTICS

Temperature Cycle: Per MIL-STD-883, Method 1010, Condition B. -55°C to 125°C, 20 cycles, 10 minute dwell, 1 minute 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 200. 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.

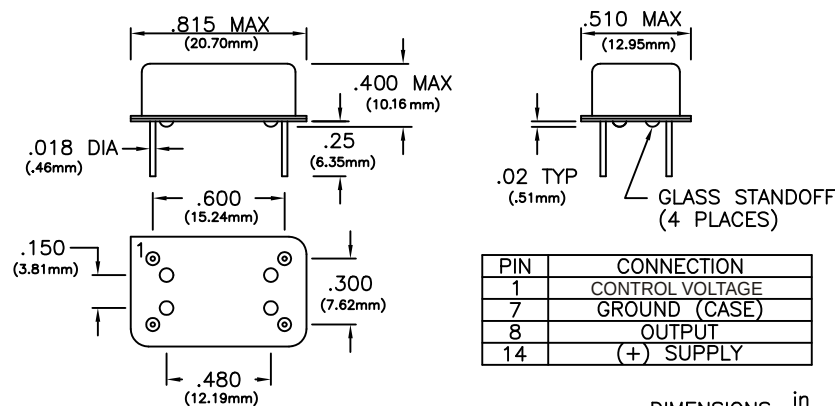
## MECHANICAL CHARACTERISTICS

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

Shock: Per MIL-STD-202, Method 213, Condition D. 500G's, 1ms, half sine, 3 shocks per direction.

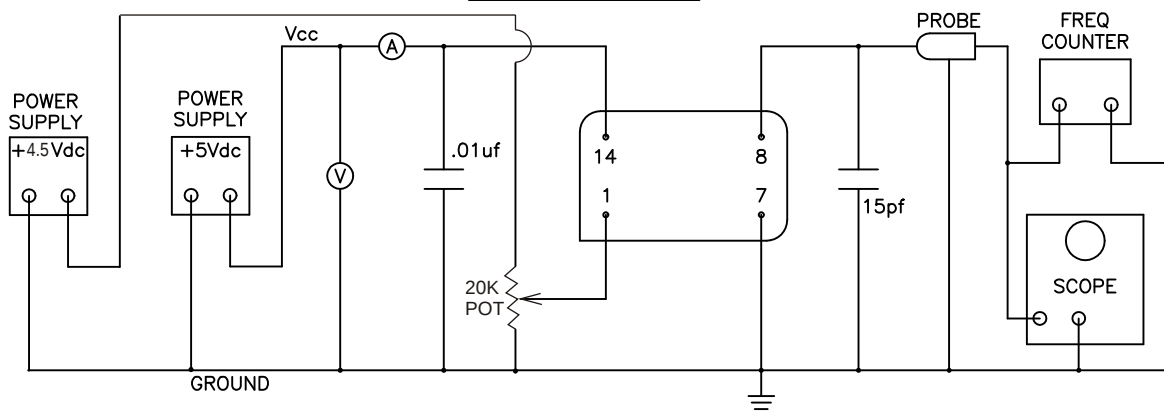
Moisture Resistance: Per MIL-STD-202, Method 106. 95% RH @ 65°C, 10 cycles 10°C to 65°C.

## PACKAGE OUTLINE



DIMENSIONS:  $\frac{\text{in}}{\text{mm}}$

## TEST DIAGRAM



Specifications subject to change without notice.