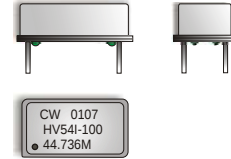


# CRYSTAL CONTROLLED OSCILLATORS

## 14 PIN 5.0V HCMOS VCXO



HV54I-100  
HV54I-150  
HV54I-200

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

| PARAMETER           | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature |       | -40     | -       | 85      | °C    |      |
| Supply Voltage      | (Vcc) | -0.5    | -       | 7       | Vdc   |      |
| Control Voltage     | (Vc)  | -0.5    | -       | 7       | Vdc   |      |

### MODEL SPECIFICATIONS:

#### MODEL HV54I-100

TABLE 2.0

|                       |      |     |   |     |     |   |
|-----------------------|------|-----|---|-----|-----|---|
| Frequency Range       | (Fo) | 20  | - | 100 | MHz |   |
| Frequency Tolerance:  |      | -20 | - | 20  | ppm | 1 |
| Frequency Pullability |      | ±50 | - | -   | ppm | 2 |

#### MODEL HV54I-150

|                       |      |     |   |     |     |   |
|-----------------------|------|-----|---|-----|-----|---|
| Frequency Range       | (Fo) | 20  | - | 100 | MHz |   |
| Frequency Tolerance:  |      | -20 | - | 20  | ppm | 1 |
| Frequency Pullability |      | ±75 | - | -   | ppm | 2 |

#### MODEL HV54I-200

|                       |      |      |   |    |     |   |
|-----------------------|------|------|---|----|-----|---|
| Frequency Range       | (Fo) | 20   | - | 60 | MHz |   |
| Frequency Tolerance:  |      | -20  | - | 20 | ppm | 1 |
| Frequency Pullability |      | ±100 | - | -  | ppm | 2 |

### OPERATING SPECIFICATIONS

TABLE 3.0

| PARAMETER                        |       | MINIMUM | NOMINAL | MAXIMUM | UNITS  | NOTE |
|----------------------------------|-------|---------|---------|---------|--------|------|
| Operating Temperature Range      |       | 0       | -       | 70      | °C     |      |
| Supply Voltage                   | (Vcc) | 4.75    | 5.0     | 5.25    | Vdc    |      |
| Supply Current                   | (Icc) | -       | -       | 35      | mA     |      |
| Jitter (BW=10Hz to 20MHz)        |       | -       | -       | 5       | ps rms |      |
| Jitter (BW=12kHz to 20MHz)       |       | -       | -       | 1       | ps rms |      |
| SSB Phase Noise at 100Hz offset  |       | -       | -90     | -       | dBc/Hz |      |
| SSB Phase Noise at 1KHz offset   |       | -       | -100    | -       | dBc/Hz |      |
| SSB Phase Noise at 10KHz offset  |       | -       | -125    | -       | dBc/Hz |      |
| SSB Phase Noise at 100KHz offset |       | -       | -135    | -       | dBc/Hz |      |

### FREQUENCY CONTROL

TABLE 4.0

| PARAMETER                  |      | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|----------------------------|------|---------|---------|---------|-------|------|
| Control Voltage Range      | (Vc) | 0.5     | 2.5     | 4.5     | Vdc   |      |
| Monotonic Linearity        |      | -10     | -       | 10      | %     |      |
| Input Impedance            |      | -       | 50K     | -       | Ohm   |      |
| Modulation Bandwidth (3dB) |      | 15      | -       | -       | KHz   |      |

### HCMOS OUTPUT CHARACTERISTICS

TABLE 5.0

| PARAMETER                   |       | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD                        |       | -       | -       | 50      | pF    |      |
| Voltage (High)              | (Voh) | 4.5     | -       | -       | Vdc   |      |
| (Low)                       | (Vol) | -       | -       | 0.5     | Vdc   |      |
| Current (High)              | (Ioh) | -16     | -       | -       | mA    |      |
| (Low)                       | (Iol) | -       | -       | 16      | mA    |      |
| Duty Cycle at 50% of Vcc    |       | 40      | 50      | 60      | %     |      |
| Rise / Fall Time 10% to 90% |       | -       | -       | 3       | nS    |      |

### PACKAGE CHARACTERISTICS

TABLE 6.0

|         |                                     |
|---------|-------------------------------------|
| Package | Hermetically sealed, metal package. |
|---------|-------------------------------------|

Note:

- 1) Referenced to (Fo) measured with control voltage @ 2.50 Vdc, Inclusive of calibration, frequency vs. temperature stability, supply voltage change, load change, shock and vibration, 15 years aging.
- 2) Referenced to Fo at T=25°C Positive Slope.

### DESCRIPTION

The Connor-Winfield HV54I-Series is a 5.0V HCMOS, hermetically sealed, Voltage Controlled Crystal Oscillator (VCXO). Based on a fundamental crystal design the HV54I-Series is designed for PLL applications requiring low jitter and tight frequency stability.

### FEATURES

5.0V OPERATION

LOW JITTER <1ps RMS

FREQUENCY STABILITY ±20ppm

TEMPERATURE RANGE: 0 to 70°C

HERMETICALLY SEALED PACKAGE

### ORDERING INFORMATION

HV54I-100 - 44.736 MHz

VCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

# CRYSTAL CONTROLLED OSCILLATORS

## EXAMPLE MODEL NUMBER:

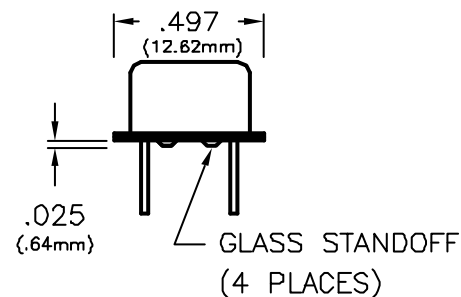
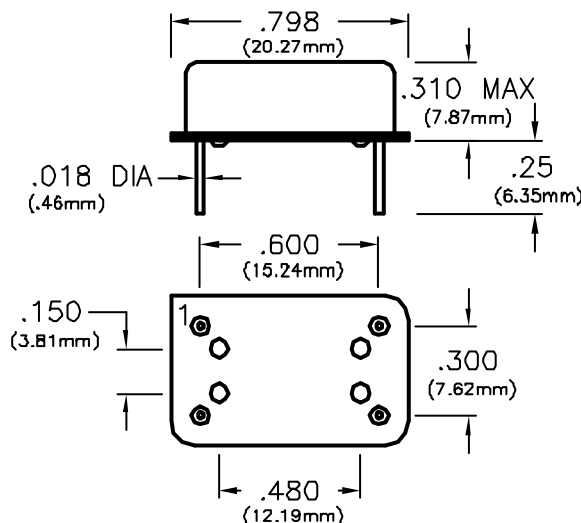
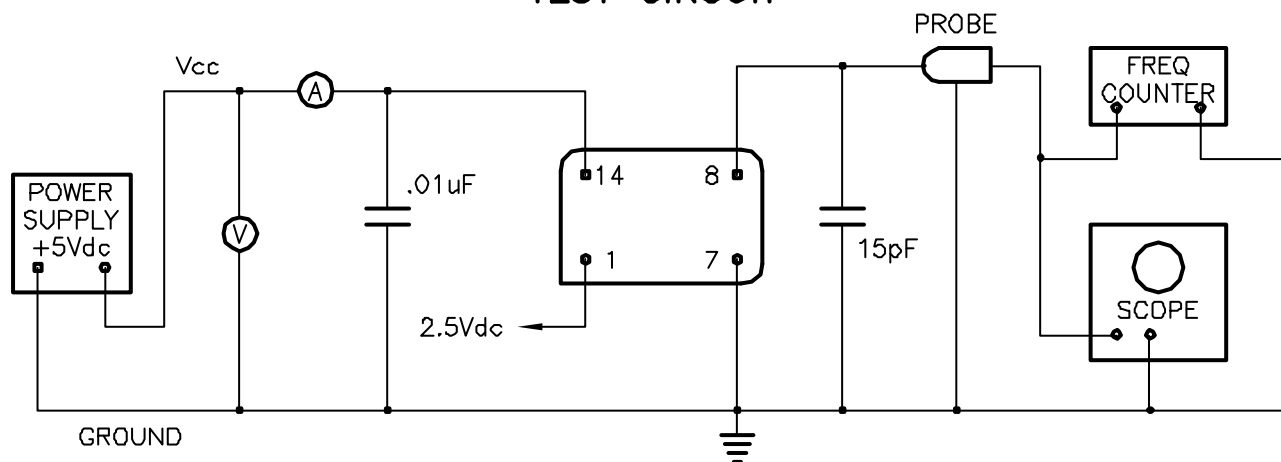
H V 5 4 I - 1 0 0 / 4 4 . 7 3 6 M H z

VCXO SERIES

MINIMUM DEVIATION OF  
 $\pm 50\text{ppm}$  FROM 0.5  
TO 4.5Vdc CONTROL  
VOLTAGE.

CENTER FREQUENCY

## TEST CIRCUIT



| PIN | CONNECTION      |
|-----|-----------------|
| 1   | CONTROL VOLTAGE |
| 7   | GROUND (CASE)   |
| 8   | OUTPUT          |
| 14  | (+) SUPPLY      |

Specifications subject to change without notice.