

## OSC Series Ultra Miniature TCXO s



### Features

- Low Cost
- 3.0 or 5.0 Vdc Option
- Reflow Solderable
- <2.2 mm Height
- Voltage Tune Option

### Applications

- Wireless handsets, PCS, GSM, Cellular
- PCMCIA Applications
- GPS

### Description

Vectron International has introduced a series of low-profile, low cost, *surface mount, Temperature Compensated Crystal Oscillators (TCXOs)* available in frequencies from 10 MHz to 25 MHz.

The OSC series low-profile (0.09 inch maximum height), surface mount TCXOs can be mounted using the standard convection reflow process. The units feature a  $\pm 1.5$  PPM frequency vs. temperature characteristic over a  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  operating range and operate from a 3.0V or 5V supply. Current drain  $< 2.0$  mA. Aging  $< 1$ ppm/year and phase noise is  $-125$  dBc/Hz at 100 Hz and  $-150$  dbc/Hz at 100 kHz.

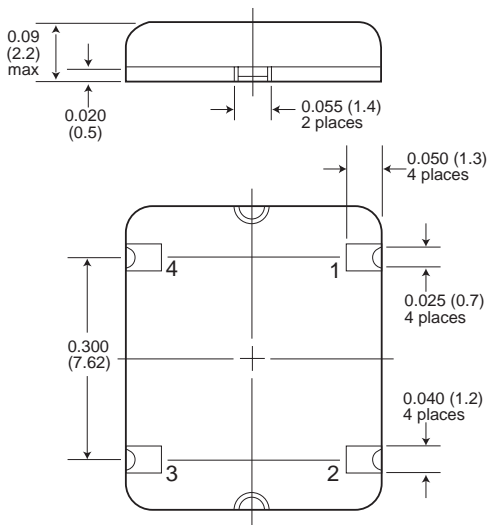
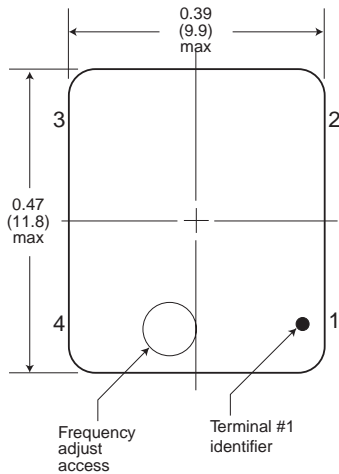
The OSC series of TCXOs and TCVCXOs has been designed for pick-and-place mounting and reflow soldering. Units are available on tape-and-reel at no additional charge. The reel size is 2000 pcs. and is compatible with EIAJ-1009B standards. The low-cost, miniature units are ideal for wireless handsets, PCMCIA applications, and GPS receivers.

# OSC Series Ultra Miniature TCXO s

## Performance Characteristics

| Parameter  | Characteristics   |                             |
|--|---|-----------------------------|
|  | Option A = +5 Vdc   | Option B= +3 Vdc            |
| <b>Frequency range:</b>                                    | 10 MHz to 25 MHz  |                             |
| <b>Stability Options:</b><br>(relative to +25°C)           | 1 = ±1.5 ppm -20 to +70°C<br>2 = ±2.0 ppm -30 to +70°C<br>3 = ±2.5 ppm -30 to +75°C<br>4 = ±5.0 ppm -40 to +85°C  |                             |
| <b>Stability vs. Supply Aging</b> (typical):               | <±0.3 ppm vs B+ of ±5%<br>< 1.0 ppm/year at +40°C   |                             |
| <b>Input Voltage:</b>                                      | +5.0 Vdc ±5%  | +3.0 Vdc ±5%                |
| <b>Current:</b>  | <1.5 mA (10.0 to 16.8 MHz).<br><2.0 mA (16.8 to 20.0 MHz).  |                             |
| <b>Output:</b><br>Clipped Sinewave                         | +5.0 Vdc = 1.0 VP-P minimum   | +3.0 Vdc = 0.7 VP-P minimum |
| <b>Load:</b>   | 10 KΩ/10pf  |                             |
| <b>Mechanical trim:</b>                                    | ±3.0 PPM min.   |                             |
| <b>Trim options:</b>                                       | 0 = Mechanical trim, no VCO<br>1 = ±5.0 ppm VC & mechanical<br>2 = Voltage trim only ±8.0 ppm min.  |                             |
| <b>Voltage Control Input Impedance:</b>                    | 100KΩ minimum   |                             |
| <b>Supply Voltage:</b>                                     | +5.0 Vdc  | +3.0 Vdc                    |
| <b>Control Voltage Range:</b>                              | +0.5Vdc to +4.5Vdc  | +0.5Vdc to +2.5Vdc          |
| <b>Frequency Tolerance at 25°C:</b>                        | ±2.0 ppm at +2.5 Vdc  | ±2.0 ppm at +1.5 Vdc        |
| <b>Start-up time:</b>                                      | <10 mS (typical) to within ±1.0 PPM   |                             |
| <b>Harmonics:</b><br>2nd harmonic<br>3rd harmonic<br>Other | > 3 dBc down<br>> 6 dBc down<br>> 10 dBc down   |                             |
| <b>Phase Noise (typical):<br/>at 10 MHz</b>                | -80 dBc/Hz max. at 10 Hz offset<br>-125 dBc/Hz max. at 100 Hz offset<br>-145 dBc/Hz max. at 1 KHz offset<br>-148 dBc/Hz max. at 10 KHz offset<br>-150 dBc/Hz max. at 100 KHz offset |                             |

# OSC Series Ultra Miniature TCXO s

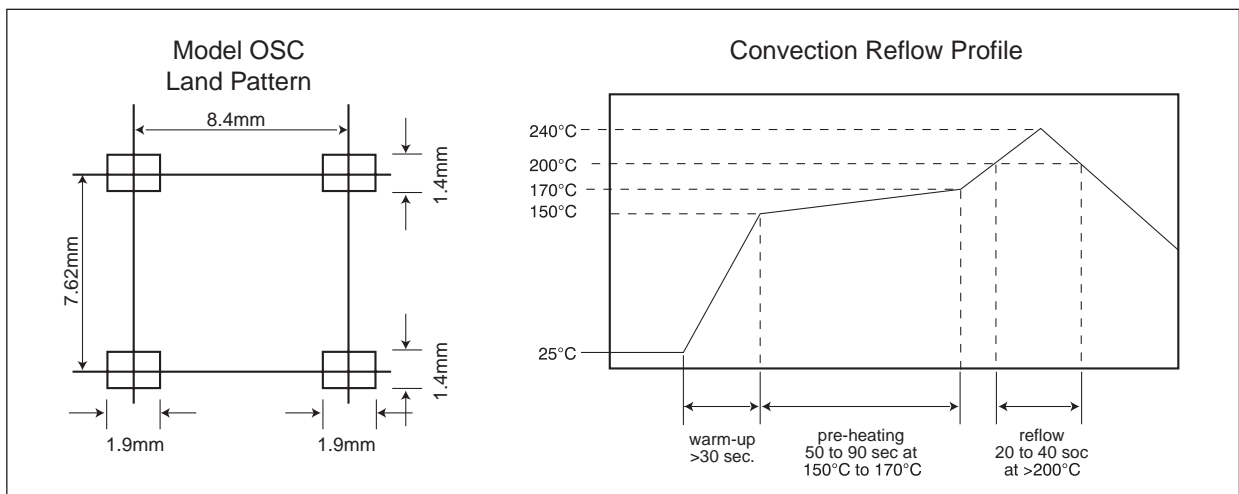


The OSC series of TCXO s and VCTCXO s has been designed for pick and place and reflow soldering. Units are available on **Tape and Reel** at no additional charge when ordering a complete reel. The reel size is 2000 pcs and is compatible with EIAJ-1009B standards. The suggested reflow profile is shown below. The TCXO may be reflowed two times. Frequency shift as a result of reflow will be <math><1.0\text{PPM}</math>. Units should not be adjusted to center frequencies until at least 2 hours after reflow to allow the crystals to stabilize.

The OSC footprint is compatible with many of the previous generation 6 pin leaded TCXO s. Our **OSE** model is the same size as the OSC except it provides the two additional pads to match pad connections of 6 pin leaded TCXO s and VCTCXO s.

TCXO s are precision subsystems with tolerances measured to  $\pm 0.1\text{PPM}$  ( $\pm 0.00001\%$ ). Non-hermetically sealed TCXO s should not be subjected to a wash process that will immerse the TCXO in solvents. **No clean** is the recommended procedure.

- PIN 1 = VC or N/C
- PIN 2 = GROUND
- PIN 3 = OUTPUT
- PIN 4 = B+



# OSC Series Ultra Miniature TCXO s

## Order Information

| Standard Frequencies* (MHz) |      |       |      |       |
|-----------------------------|------|-------|------|-------|
| 10.0                        | 12.8 | 13.0  | 14.4 | 15.56 |
| 16.0                        | 19.2 | 19.98 | 20.0 | 25.0  |

## How To Order

OSC-    at

**Stability Code** (from page 2) ————

**Input Voltage** ————

**Trim Option** ————

**Frequency** ————

**Input Voltage**

A = +5.0 Vdc ±5% <2.0 mA MAX.  
 B = +3.0 Vdc ±5%  
 <1.5 mA (10.0 to 16.8 MHz)  
 <2.0 mA (16.8 to 20.0 MHz)

**Trim Option**

0 = Mechanical trim, no VCO  
 1 = ±5.0 ppm VC & mechanical  
 2 = Voltage trim only ±8.0 ppm min.

**Example of typical P/N**

OSC-3B2 19.2 MHz  
 3 = ±2.5 ppm  
 B = +3.0 Vdc  
 2 = Voltage Tune  
 no mechanical trimmer

**Visit Our Website at  
www.vectron.com**

**For additional information please contact:**



USA: 267 Lowell Road, Hudson, NH 03051 ..... Tel: 1-888-VECTRON-1, FAX: 1-888-FAX-VECTRON  
 EUROPE: ..... Tel: 49 (0) 3328 4784 17 Fax: 49 (0) 3328 4784  
 30ASIA: ..... Tel: +86 21 28909740 / 41 /42 Fax: +86 21 28909240 / 2890999

**www.vectron.com**

Vectron International reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.