

## 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 50 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.

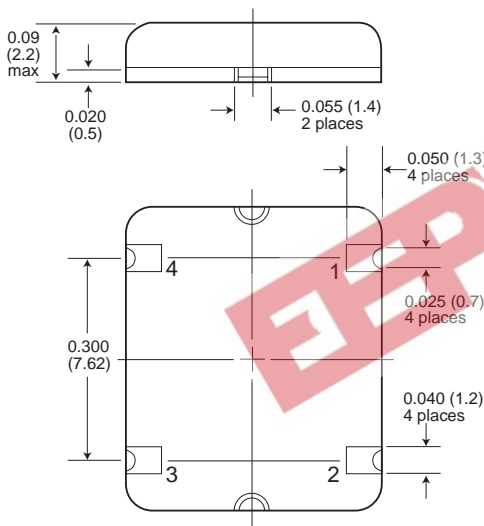
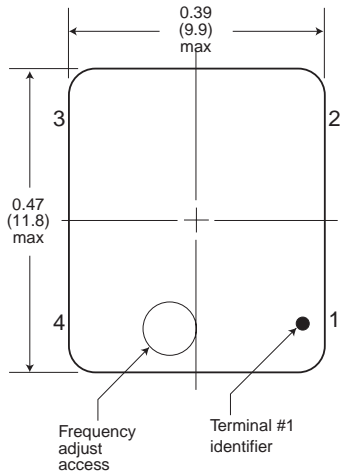
The OSC series of TCXOs and TCVCXOs has been designed for pick-and-place mounting and reflow soldering. Units are available on tape-and-reel at no additional charge. The reel size is 2000 pcs. and is compatible with EIAJ-1009B standards. The low-cost, miniature units are ideal for wireless handsets,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

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## Performance Characteristics

Parameter	Characteristics	
	Option A = +5 Vdc	Option B= +3 Vdc
<b>Frequency range:</b>	10 MHz to 50 MHz	
<b>Stability Options:</b> (relative to +25°C)	1 = ±1.5 ppm -20 to +70°C 2 = ±2.0 ppm -30 to +70°C 3 = ±2.5 ppm -30 to +75°C 4 = ±5.0 ppm -40 to +85°C	
<b>Stability vs. Supply Aging</b> (typical):	<±0.3 ppm vs B+ of ±5% < 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) <3.0 mA (20.1 to 35.0 MHz)	<2.0 mA (16.8 to 20.0 MHz) <4.0 mA (35.1 to 50.0 MHz)
<b>Output:</b> 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 1 = ±5.0 ppm VC & mechanical 2 = Voltage trim only ±8.0 ppm min.	
<b>Voltage Control Input Impedence:</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> 2nd harmonic 3rd harmonic Other	> 3 dBc down > 6 dBc down > 10 dBc down	
<b>Phase Noise (typical): at 10 MHz</b>	-80 dBc/Hz max. at 10 Hz offset -125 dBc/Hz max. at 100 Hz offset -145 dBc/Hz max. at 1 KHz offset -148 dBc/Hz max. at 10 KHz offset -150 dBc/Hz max. at 100 KHz offset	

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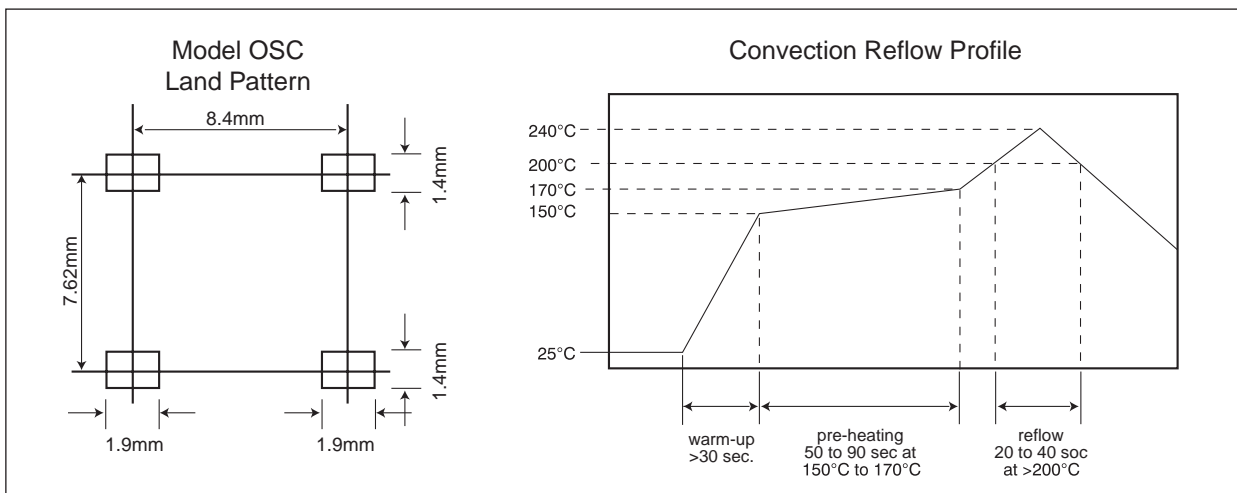


The OSC series of TCXO s and VCTCXO s has been designed for pick and place and reflow soldering. Units are available on **Tape and Reel** at no additional charge when ordering a complete reel. The reel size is 2000 pcs and is compatible with EIAJ-1009B standards. The suggested reflow profile is shown 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 = Supply



# 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-

**Stability Code**  
(from page 2)

**Trim Option**

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

at

**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)

**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:**



[www.vectron.com](http://www.vectron.com)

**USA:** Vectron International • 166 Glover Avenue, Norwalk, CT 06856 . . . . . **Tel: 1-88-VECTRON-1 • Fax: 1-888-FAX-VECTRON**  
**EUROPE:** In Denmark, Finland, Ireland, Israel, Norway, Spain, UK. . . . . **Tel: 44 (0) 1703 766 288 • Fax: 44 (0) 1703 766 822**  
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