

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 ± 1.5 PPM frequency vs. temperature characteristic over a -20°C to $+70^{\circ}\text{C}$ operating range and operate from a 3.0V or 5V supply. Current drain <2.0 mA. Aging <1ppm/year and phase noise is -125 dBc/Hz at 100 Hz and -150 dbc/Hz at 100 kHz.

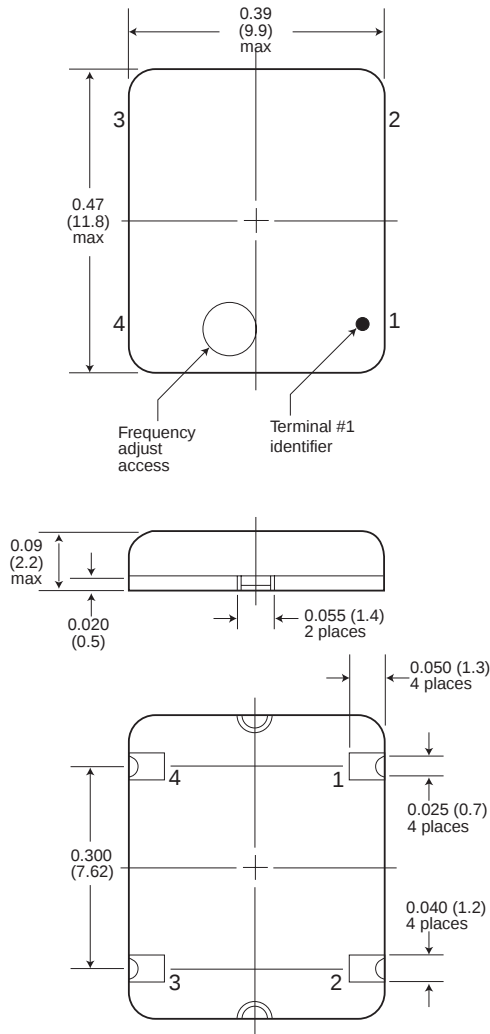
The OSC series of TCXOs and TCVCXOs has been designed for pick-and-place mounting and reflow soldering. Units are available on tape-and-reel at no additional charge. The reel size is 2000 pcs. and is compatible with EIAJ-1009B standards. The low-cost, miniature units are ideal for wireless handsets,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

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Performance Characteristics

Parameter	Characteristics	
	Option A = +5 Vdc	Option B= +3 Vdc
Frequency range:	10 MHz to 50 MHz	
Stability Options: (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	
Stability vs. Supply Aging (typical):	<±0.3 ppm vs B+ of ±5% < 1.0 ppm/year at +40°C	
Input Voltage:	+5.0 Vdc ±5%	+3.0 Vdc ±5%
Current:	<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)
Output: Clipped Sinewave	+5.0 Vdc = 1.0 VP-P minimum	+3.0 Vdc = 0.7 VP-P minimum
Load:	10 KΩ/10pf	
Mechanical trim:	±3.0 PPM min. *Need a trim tool	
Trim options:	0 = Mechanical trim, no VCO 1 = ±5.0 ppm VC & mechanical 2 = Voltage trim only ±8.0 ppm min.	
Voltage Control Input Impedance:	100KΩ minimum	
Supply Voltage:	+5.0 Vdc	+3.0 Vdc
Control Voltage Range:	+0.5Vdc to +4.5Vdc	+0.5Vdc to +2.5Vdc
Frequency Tolerance at 25°C:	±2.0 ppm at +2.5 Vdc	±2.0 ppm at +1.5 Vdc
Start-up time:	<10 mS (typical) to within ±1.0 PPM	
Harmonics: 2nd harmonic 3rd harmonic Other	> 3 dBc down > 6 dBc down > 10 dBc down	
Phase Noise (typical): at 10 MHz	-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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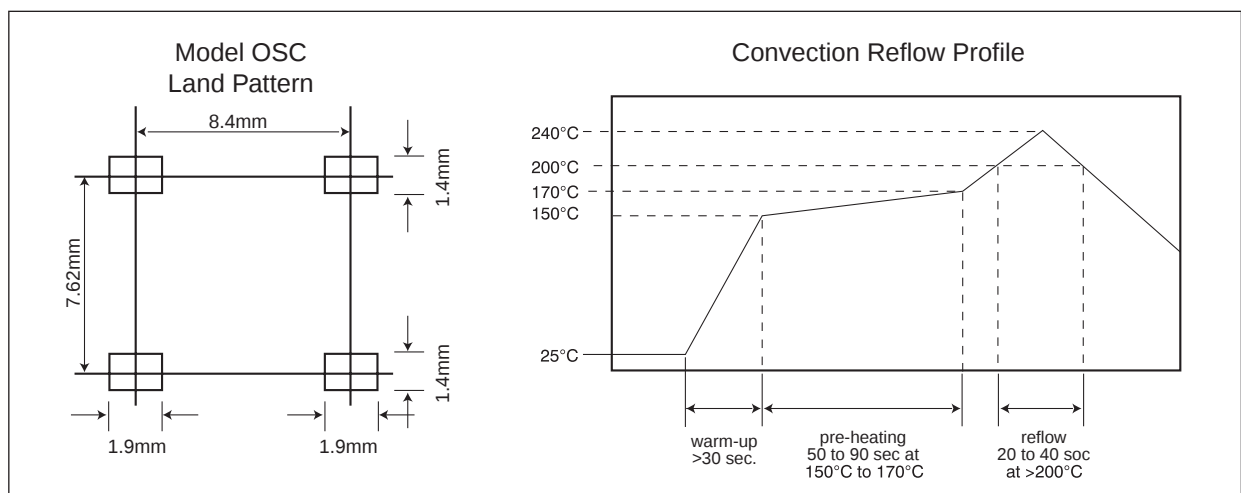


The OSC series of TCXO s and VCTCXO s has been designed for pick and place and reflow soldering. Units are available on **Tape and Reel** at no additional charge when ordering a complete reel. The reel size is 2000 pcs and is compatible with EIAJ-1009B standards. The suggested reflow profile is shown below. The TCXO may be reflowed two times. Frequency shift as a result of reflow will be <1.0PPM. 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 lead 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 lead 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



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

OSC- at

Stability Code (from page 2)

Input Voltage

A = +5.0 Vdc $\pm 5\%$ <2.0 mA MAX.
 B = +3.0 Vdc $\pm 5\%$
 <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



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