

# High Precision TCXO / VCTCXO



## Description:

The Connor-Winfield 9x14mm Temperature Compensated Crystal Controlled Oscillators (TCXO series) and Voltage Controlled Temperature Compensated Crystal Controlled Oscillators (VCTCXO series) are designed for use in Telecom applications requiring tight frequency stability. Through the use of Analog Temperature Compensation, this device is capable of holding sub 1-ppm stabilities over the commercial or the industrial temperature ranges.

## Features:

TCXO or VCTCXO  
3.3 Vdc or 5.0 Vdc Operation  
LVCMOS or HCMOS Output Logic  
9x14mm Surface Mount Package  
Frequency Stabilities Available:  
±0.25 ppm, ±0.28 ppm ±0.5 ppm, ±1.0 ppm

Temperature Ranges Available:  
0 to 70°C or -40 to 85°C  
Low Jitter <1 ps RMS  
Tri-State Enable/Disable Function  
Tape and Reel Packaging  
RoHS Compliant / Lead Free

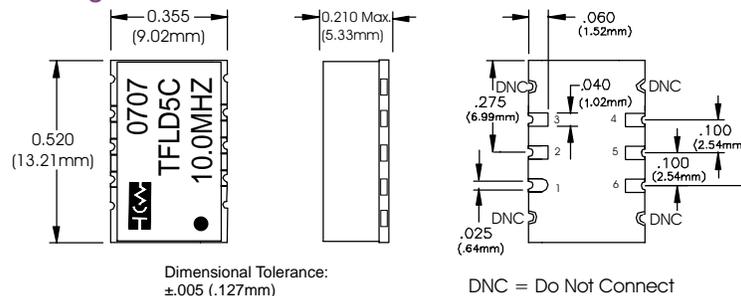
## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequency Range: (Fo) (See ordering information below.)					
Stability Code C	6.4	-	32	MHz	
Stability Code D	6.4	-	40	MHz	
Stability Code E and F	6.4	-	52	MHz	
Frequency Stability vs. Temperature: $\{\pm(F_{max} - F_{min})/2.F_o\}$ (See ordering information below.)					
Stability Code C	-0.25	-	0.25	ppm	
<b>Stability Code D</b>	<b>-0.28</b>	-	<b>0.28</b>	<b>ppm</b>	<b>1</b>
<b>Including Holdover</b>	<b>-0.32</b>	-	<b>0.32</b>	<b>ppm</b>	<b>1</b>
Stability Code E	-0.50	-	0.50	ppm	
Stability Code F	-1.00	-	1.00	ppm	
Frequency Calibration (@25 °C)	-1.00	-	1.00	ppm	2
Frequency Stability vs. Voltage	-0.20	-	0.20	ppm	±5%
Frequency Stability vs. Load	-0.20	-	0.20	ppm	±5%
Static Temperature Hysteresis	-0.40	-	0.40	ppm	3
Aging: First Year	-1.0	-	1.0	ppm	
Total Frequency Tolerance	-4.6	-	4.6	ppm	4
Operating Temperature Range: (See ordering information below.)					
Temperature Code 5	0	-	70	°C	
Temperature Code 6	-40	-	85	°C	
Supply Voltage: (Vcc) (See ordering information below.)					
Voltage Code L	3.135	3.30	3.465	Vdc	±5%
Voltage Code H	4.75	5.00	5.25	Vdc	±5%
Supply Current	-	6	15	mA	
Start-up Time	-	-	10	ms	

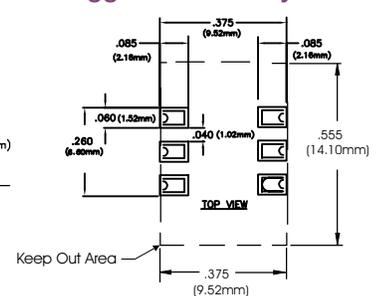
## Notes:

- Holdover includes frequency stability (±0.28 ppm), supply voltage change(±5%) and aging for 24 hours.
- TCXO: Initial calibration @ 25°C. Specification at time of shipment after 48 hours of operation.
- Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C.
- Inclusive of calibration @ 25°C, frequency vs. change in temperature, change in supply voltage (±5%), load change (±5%), reflow soldering process and 10 years aging

## Package Outline



## Suggested Pad Layout



## Ordering Information

TF	L	D	5	C	- 010.0M
Type TF = TCXO TV = VCTCXO CMOS Output	Supply Voltage L = 3.3 Vdc H = 5.0 Vdc	Package Size D = 9 x 14 mm Surface Mount Package	Temperature Range 5 = 0 to 70°C 6 = -40 to 85°C	Frequency Stability C = ±0.25ppm D = ±0.28ppm E = ±0.50ppm F = ±1.00ppm	Output Frequency Frequency Format * -xxx.xM Min. -xxx.xxxxxxM Max. *Amount of numbers after the decimal point. M = MHz

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