

# 5x7mm Precision TCXO In Stock at Digi-Key

# CONNOR WINFIELD



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## Description:

The Connor-Winfield's D75AS is a 5x7mm Surface Mount Temperature Compensated Crystal Controlled Oscillator (TCXO) with a Tri-State Clipped Sinewave output. Through the use of Analog Temperature Compensation, the D75AS is capable of holding sub 1-ppm stabilities over the 0 to 70°C temperature range.



## Features:

**Model: D75AS**  
3.3 Vdc Operation  
Clipped Sinewave Output  
Frequency Stability:  $\pm 0.25$  ppm  
Temperature Range: 0 to 70°C  
Low Jitter <1ps RMS  
Tri-State Enable/Disable Function  
5x7mm Surface Mount Package  
Tape and Reel Packaging  
RoHS Compliant / Pb Free

## Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	6.0	Vdc	
Input Voltage	-0.5	-	Vcc+0.5	Vdc	

## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Nominal Frequency (Fo)	-	20.0	-	MHz	
Frequency Calibration @ 25 °C	-1.0	-	1.0	ppm	1
Frequency Stability vs. Temperature	-0.25	-	0.25	ppm	2
Frequency vs. Load Stability	-0.25	-	0.25	ppm	$\pm 5\%$
Frequency vs. Voltage Stability	-0.25	-	0.25	ppm	$\pm 5\%$
Static Temperature Hysteresis	-	-	0.4	ppm	3
Freq. shift after reflow soldering	-1.0	-	1.0	ppm	4
Aging (1st Year)	-1.0	-	1.0	ppm	
Total Frequency Tolerance	-4.6	-	4.6	ppm	5
Operating Temperature Range:	0	-	70	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	$\pm 5\%$
Supply Current (Icc)	-	-	6	mA	
Period Jitter	-	3	5	ps rms	
Integrated Phase Jitter	-	0.5	1.0	ps rms	6
SSB Phase Noise at 10Hz offset	-	-80	-	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-110	-	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-135	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-150	-	dBc/Hz	
SSB Phase Noise at 100KHz offset	-	-150	-	dBc/Hz	
Start-up Time	-	-	5	ms	

## Enable / Disable Input Characteristics (Pad 8)

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable Voltage (High)	70%Vcc	-	-	Vdc	7
Disable Voltage (Low)	-	-	30%Vcc	Vdc	7

## Clipped Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Voltage	1.0	-	-	V pk to pk	8
Load Resistance	-	10K	-	Ohm	
Load	-	10	-	pF	9

## Package Characteristics

Package: Hermetically sealed crystal mounted on a ceramic package

## Environmental Characteristics

Vibration: Vibration per Mil Std 883E Method 2007.3 Test Condition A  
Shock: Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.  
Soldering Process: RoHS compliant lead free. See soldering profile on page 2.

## Ordering Information

D57AS-025.0M\*

\* For the tape and reel option, add -T to the end of the part number. Example: D75AS-25.0M-T

## Notes:

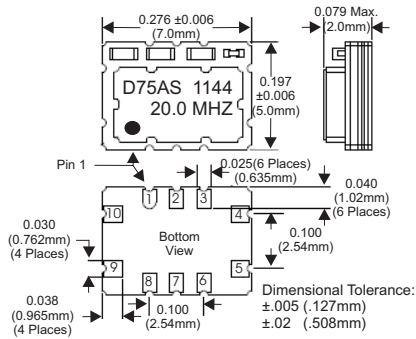
- Initial calibration @ 25°C. Specifications at time of shipment after 48 hours of operation.
- Frequency stability vs. change in temperature.  $\pm(F_{max} - F_{min})/2.F_o$ .
- Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C
- Within two hours after reflow
- Inclusive of calibration @ 25 C, frequency vs. change in temperature, change in supply voltage ( $\pm 5\%$ ), load change ( $\pm 5\%$ ), reflow soldering process and 20 years aging, referenced to Fo.
- BW = 12 KHz to 20 MHz.
- Leave Pad 8 unconnected if enable / disable function is not required. When tri-stated, the output stage is disabled but the oscillator and compensation circuit are still active (current consumption < 1 mA).
- Output is AC coupled.
- For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 10pF.

Specifications subject to change without notice. All dimensions in inches. © Copyright 2011 The Connor-Winfield Corporation

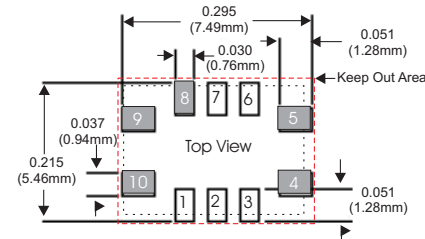


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## Package Layout



## Suggested Pad Layout

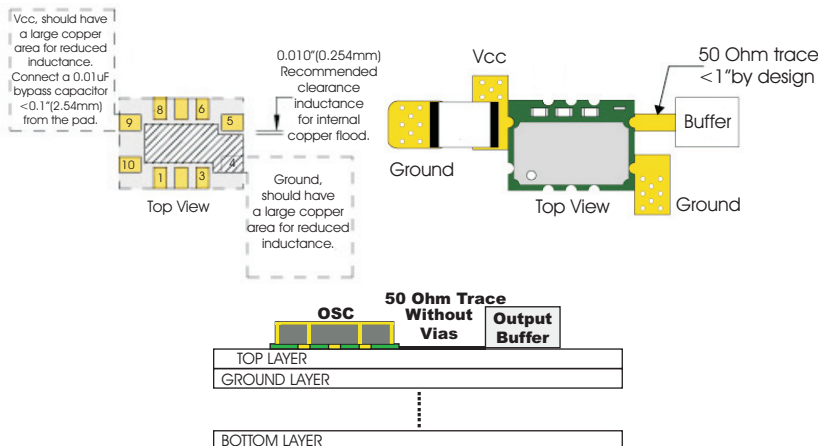


\* Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

## Pad Connections

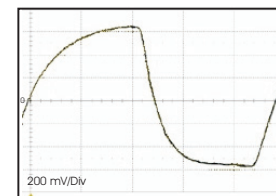
- 1: Do Not Connect
- 2: Do Not Connect
- 3: Do Not Connect
- 4: Ground
- 5: Output
- 6: Do Not Connect
- 7: Do Not Connect
- 8: Tri-State Enable / Disable
- 9: Supply Voltage Vcc
- 10: N/C

## Design Recommendations

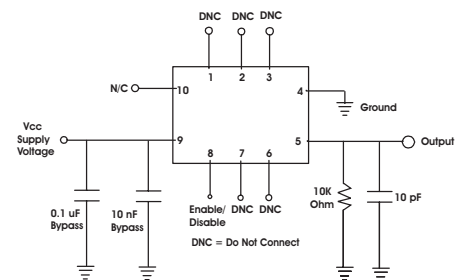


Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this TCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal load capacitance will have a graduated effect on the stability of approximately 20 ppb per pF load difference.

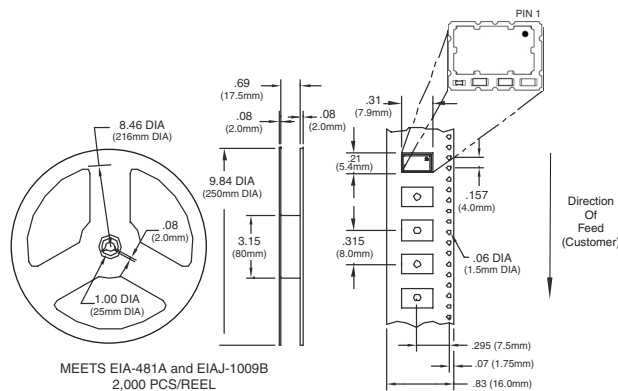
## Output Waveform



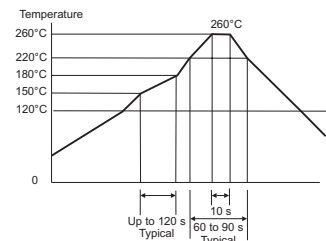
## Test Circuit



## Tape and Reel Dimensions



## Solder Profile



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