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5x7mm Precision TCXO Model D75AS

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:

- 3.3 Vdc Operation
- Clipped Sinewave Output
- Frequency Stability: ± 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	±5%
Frequency vs. Voltage Stability	-0.25	-	0.25	ppm	±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	±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 (Fo = 20 MHz)					
@ 10Hz offset	-	-80	-	dBc/Hz	
@ 100Hz offset	-	-110	-	dBc/Hz	
@ 1KHz offset	-	-135	-	dBc/Hz	
@ 10KHz offset	-	-150	-	dBc/Hz	
@ 100KHz offset	-	-150	-	dBc/Hz	
Start-up Time	-	-	10	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

Notes:

1. *Initial calibration @ 25°C. Specifications at time of shipment after 48 hours of operation.*
2. *Frequency stability vs. change in temperature. [±(Fmax - Fmin)/(2*Fo)].*
3. *Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C*
4. *Within two hours after reflow*
5. *Inclusive of calibration @ 25 C, frequency vs. change in temperature, change in supply voltage (±5%), load change (±5%), reflow soldering process and 20 years aging, referenced to Fo.*
6. *BW = 12 KHz to 20 MHz.*
7. *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).*
8. *Output is AC coupled.*
9. *For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 10pF.*

RoHS COMPLIANT

CONNOR WINFIELD

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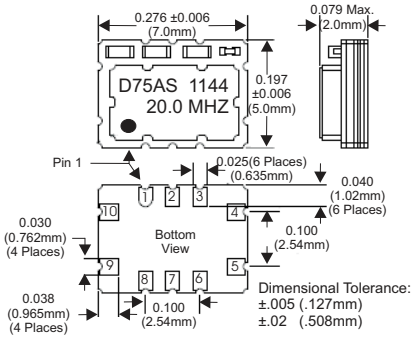
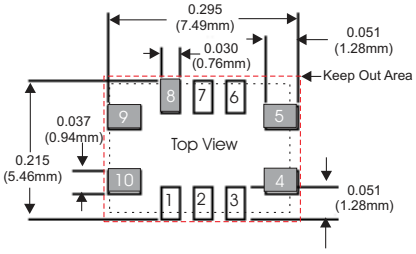
Package Layout



Suggested Pad Layout

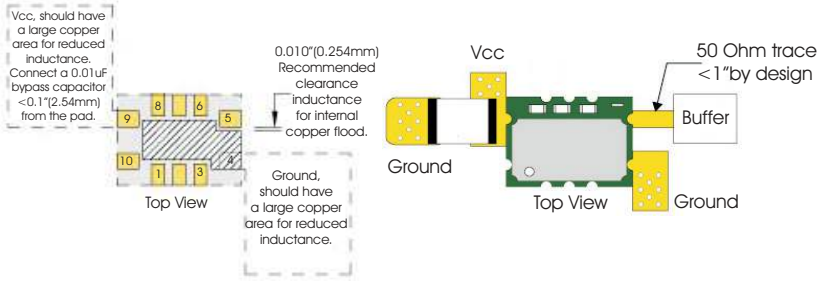


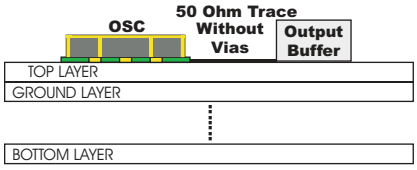
* Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

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

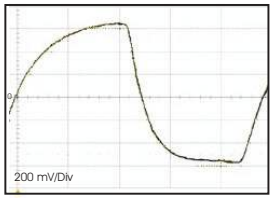
Design Recommendations



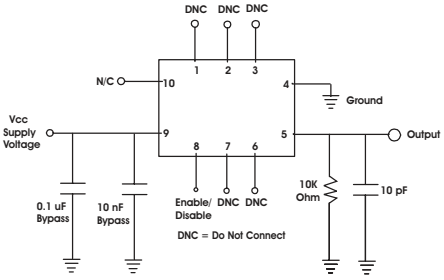


Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this TCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal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

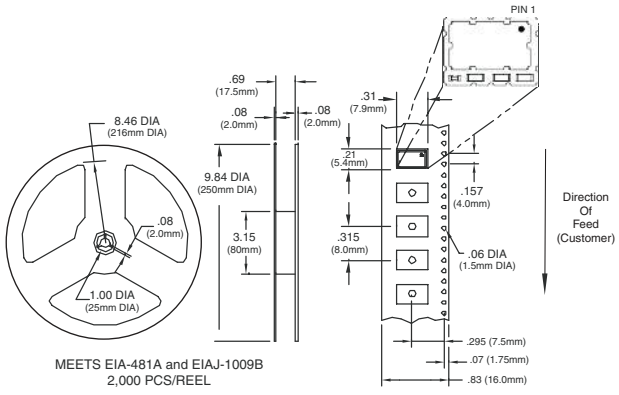
Output Waveform



Test Circuit

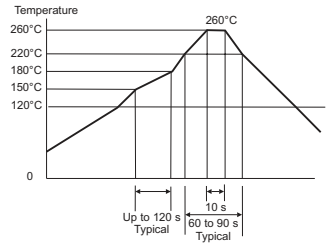


Tape and Reel Dimensions



MEETS EIA-481A and EIAJ-1009B
2,000 PCS/REEL

Solder Profile



Bulletin	**Tx243**
Page	**2 of 2**
Revision	**04**
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