5x7mm Surface Mount High 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 Oscillators (TCXO) with a clipped sinewave output. Through the use of Analog Temperature Compensation, the D75AS is capable of holding sub 0.25-ppm stabilities over the 0 to 70°C temperature range.

Features

Model D75AS

TCXO
3.3V Operation
Clipped Sinwave Output
Frequency Stability: ±0.25ppm
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 / Lead Free

Specifications

Absolute Maximum Ratings

Parameter		Minimum	Nominal	Maximum	Units	Note
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	Note
Center Frequency	(Fo)		20.0		MHz	
Frequency Calibration @ 25°C		-1.00	-	1.00	ppm	1
Frequency Stability [±(Fmax – Fmin)/2.Fo]		-0.25	-	0.25	ppm	2
Supply Voltage Variation (Vcc ±5%)		-0.025	-	0.025	ppm	
Load Coefficient (±5%)		-0.025	-	0.025	ppm	
Static Temperature Hysteresis		-	-	0.40	ppm	Absolute, 3
Frequency shift after reflow soldering		-1.00	-	1.00	ppm	4
Aging 1st year		-1.00	-	1.00	ppm	
Total Frequency Tolerance		-4.60	-	4.60	ppm	5
Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	10	mA	
Period Jitter		-	3	5	ps rms	
Phase Jitter (BW=12kHz to 20MHz)		-	0.5	1	ps rms	
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	

Input Characteristics For Enable / Disable Function (Pin 8)

Parameter		Minimum	Nominal	Maximum	Units	Note
Enable Voltage (High) or open circuit	(Vih)	70%Vcc	-	-	Vdc	6
Disable Voltage (Low) Output Disabled	(Vil)	-	-	30%Vcc	Vdc	

Clipped Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Note
Output Voltage	1.00	-	-	V pk-pk	7
Output Load Resistance	-	10K	-	Ohms	
Output Load Capacitance	-	10	-	pF	8

Note:

1) Initial calibration @ 25°C. Specifications at time of shipment after 48 hours of operation
2) Frequency stability vs. change in temperature.
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) 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).
7) Output is AC coupled.
8) For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 10pF.

RoHS COMPLIANT

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Package Characteristics

Package	Ceramic Surface Mount 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:	SMD product suitable for Convection Reflow soldering. Peak temperature 260°C. Maximum time above 220°C, 60 seconds.
Solderability	Solderability per Mil Std 883E Method 2003

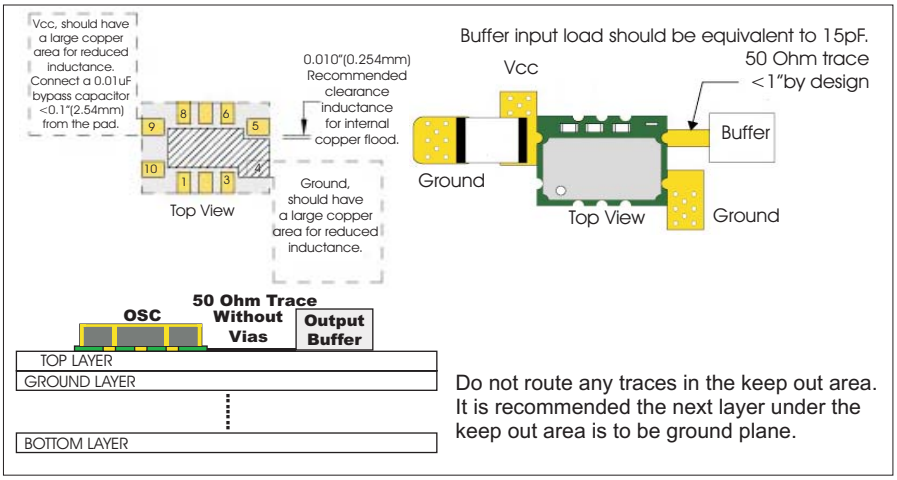
Ordering Information

D75AS - 020.0MHZ *

TCXO SERIES — CENTER FREQUENCY

* For the tape and reel option, add -T to the end of the part number.
Example: D75AS-020.0 MHZ -T

Design Recommendations

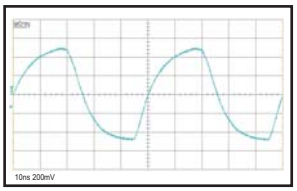


Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

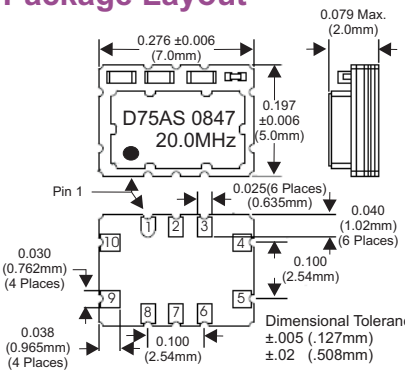
Pad Connections

Pad	Connection
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	Enable / Disable
9	Supply, Vcc
10	Do not connect

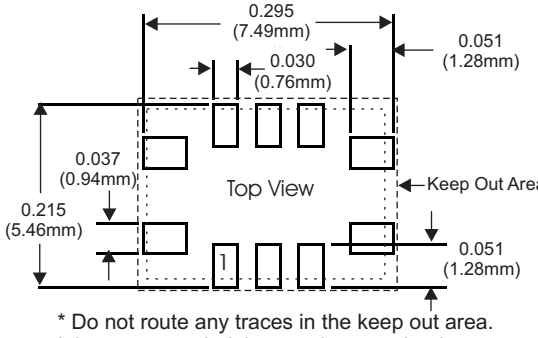
Output Waveform



Package Layout



Suggested Pad Layout



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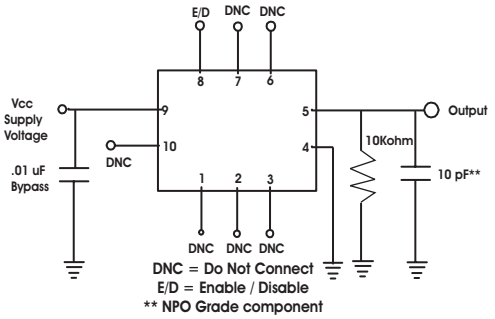
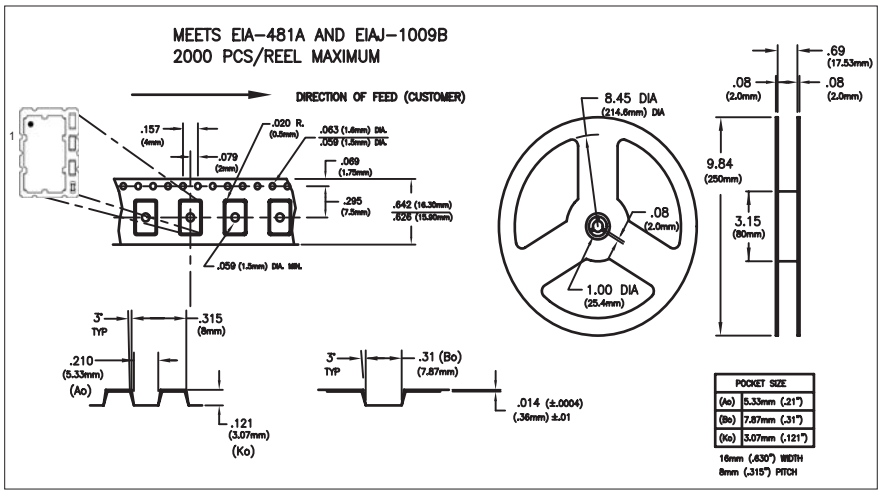
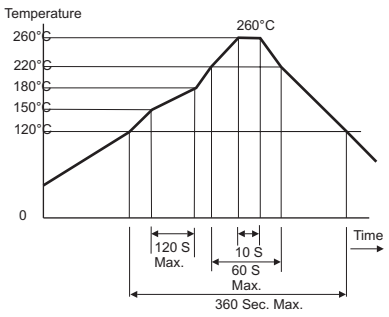
Test Circuit



Tape and Reel Information



Solder Profile



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