2111 Comprehensive Drive
Aurora, Illinois 60505
Phone: 630-851-4722
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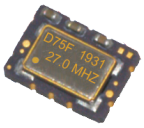
www.conwin.com

5x7mm Precision TCXO Model D75F

Description:

The Connor-Winfield's D75F is a 5x7mm Surface Mount Temperature Compensated Crystal Controlled Oscillator (TCXO) with a Tri-State LVCMOS output. Through the use of Analog Temperature Compensation, the D75F is capable of holding sub 1-ppm stabilities over the 0 to 70°C temperature range.



Features:

- 3.3 Vdc Operation
- LVCMOS Output
- Frequency Stability: ± 0.50 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)	-	13.0, 19.44, 25.0 or 27.0	-	MHz	
Frequency Calibration @ 25 °C	-1.0	-	1.0	ppm	1
Frequency Stability vs. Temperature	-0.5	-	0.5	ppm	2
Frequency vs. Load Stability	-0.05	-	0.05	ppm	±5%
Frequency vs. Voltage Stability	-0.05	-	0.05	ppm	±5%
Static Temperature Hysteresis	-	-	0.4	ppm	3
Aging	-1.0	-	1.0	ppm/year	
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	4
SSB Phase Noise (Fo = 25.0 MHz)					
@ 10Hz offset	-	-90	-	dBc/Hz	
@ 100Hz offset	-	-120	-	dBc/Hz	
@ 1KHz offset	-	-140	-	dBc/Hz	
@ 10KHz offset	-	-151	-	dBc/Hz	
@ 100KHz offset	-	-152	-	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	5
Disable Voltage (Low)	-	-	30%Vcc	Vdc	5

LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	6
Voltage (High) (Voh)	90%Vcc	-	-	Vdc	
(Low) (Vol)	-	-	10%Vcc	Vdc	
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	-	8	ns	

Ordering Information

D75F-013.0M, D75F-019.44M, D75F-025.0M or D75F-027.0M

RoHS COMPLIANT

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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. *BW = 12 KHz to 20 MHz.*
5. *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).*
6. *For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 15pF.*

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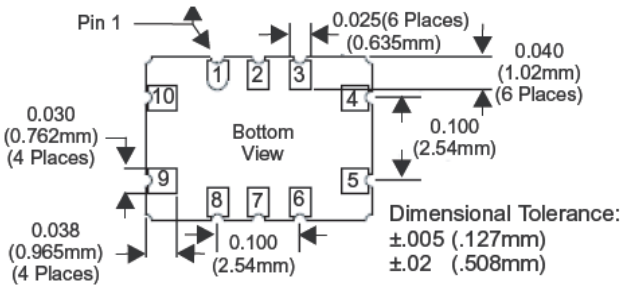
Package Characteristics

Package	Hermetically sealed crystal mounted on a ceramic package. Metal plating on bottom pads: 20 to 40 micro-inches gold over 50 micro-inches minimum nickel.

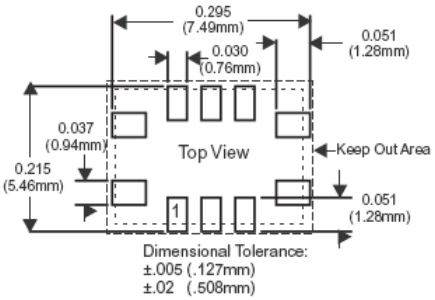
Environmental Characteristics

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 3.

Package Pad Configuration (all models)



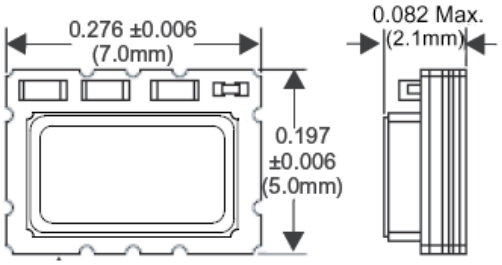
Suggested Pad Layout (all models)



Pad Connections (all models)

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

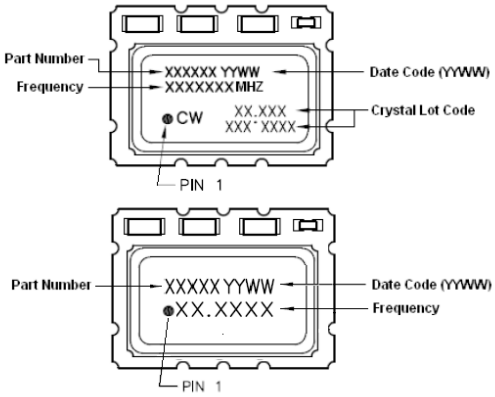
Package Configuration #1



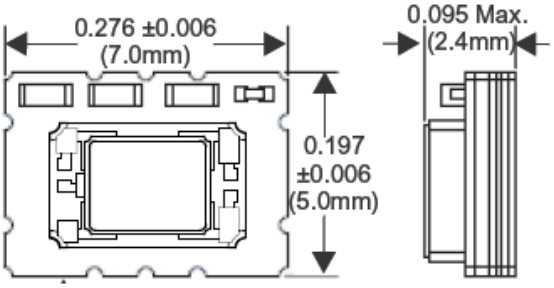
Models

D75F-013.0M
D75F-025.0M
D75F-027.0M

Marking Configurations



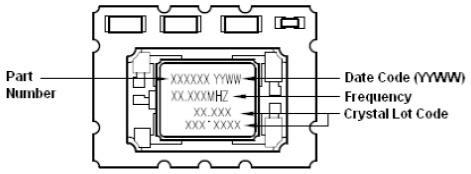
Package Configuration #2



Model

D75F-019.44M

Marking Configurations



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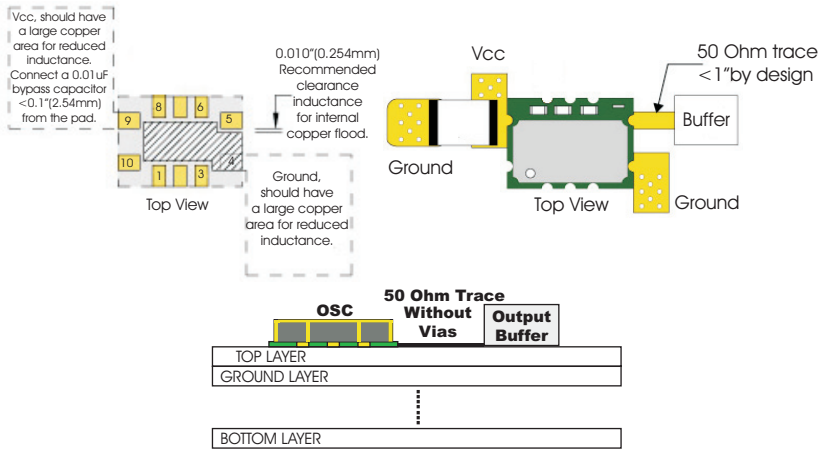
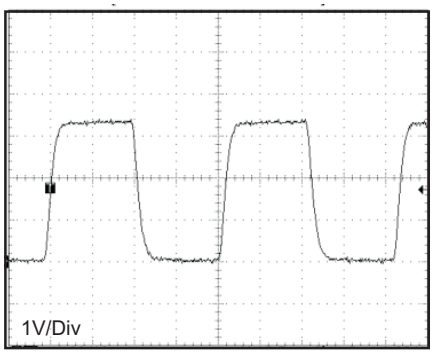
Design Recommendations

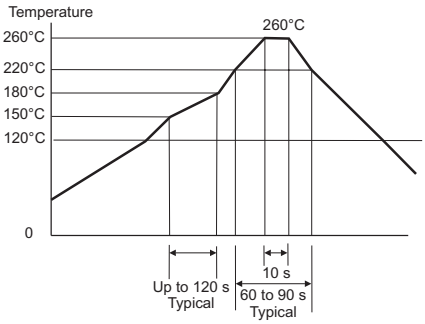


Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this TCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal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

Output Waveform

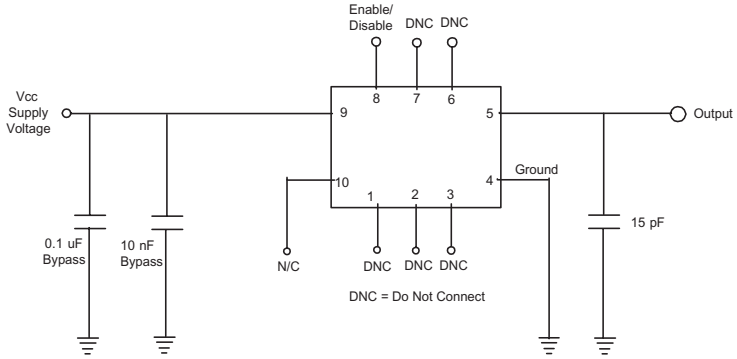


Solder Profile



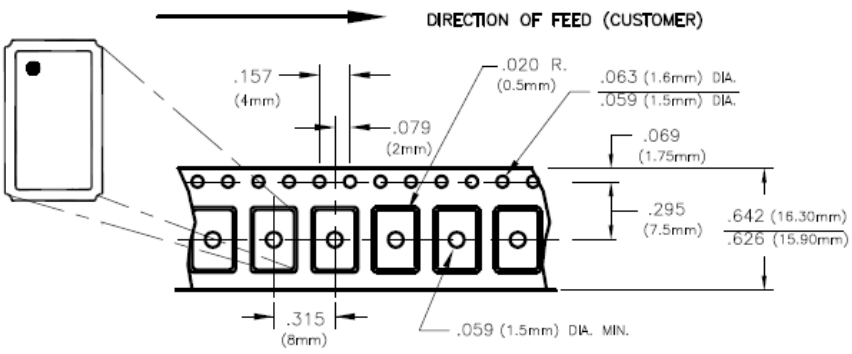
Meets IPC/JEDEC J-STD-020C

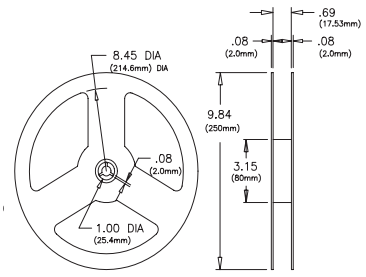
Test Circuit



5x7mm Tape and Reel Information

MEETS EIA-481A AND EIAJ-1009B
700 PCS/REEL MAXIMUM.





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