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PURE SPECTRUM

5x7mm Precision TCXO Model DV75D

CONNOR WINFIELD

Description:

The Connor-Winfield's DV75D is a 5x7mm Surface Mount Temperature Compensated Crystal Controlled Oscillator (TCXO) with LVCMOS output. Through the use of Analog Temperature Compensation, the DV75D is capable of holding sub 1-ppm stabilities over the -40 to 85°C temperature range.

Features:

- TCXO
- 3.3 Vdc Operation
- LVCMOS Output
- Frequency Stability: ± 1.0 ppm
- Temperature Range: -40 to 85°C
- Low Jitter <1ps RMS
- 5x7mm Surface Mount Package
- Tape and Reel Packaging
- RoHS Compliant / Pb Free ✓RoHS

Applications:

GR-253-CORE (SMC)
ITU-T-G.813 Option 1 and 2 (SEC)

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	85	°C	
Supply Voltage (Vcc)	-0.6	-	4.6	Vdc	
Input Voltage	-0.5	-	Vcc+0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Nominal Frequency (Fo)	-	10.0, 12.8 or 20.0	-	MHz	
Frequency Calibration @ 25 °C	-1.0	-	1.0	ppm	1
Frequency Stability vs. Temperature	-1.0	-	1.0	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:	-40	-	85	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	±5%
Supply Current (Icc)	-	2.1	6	mA	
Period Jitter	-	3	5	ps rms	
Integrated Phase Jitter	-	0.3	1.0	ps rms	4
Typical Phase Noise Fo = 20.0 MHz					
SSB Phase Noise at 10Hz offset	-	-90	-	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-120	-	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-140	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-150	-	dBc/Hz	
SSB Phase Noise at 100KHz offset	-	-150	-	dBc/Hz	
Start-up Time	-	-	10	ms	

LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	5
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%	-	4	8	ns	

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

DV75D-010.0M, DV75D-012.8M or DV75D-020.0M

RoHS COMPLIANT

Bulletin	Tx356
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Date	21 Nov 2023

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 Fo/2 MHz.*
5. *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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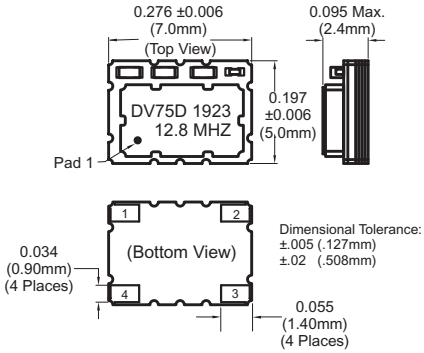
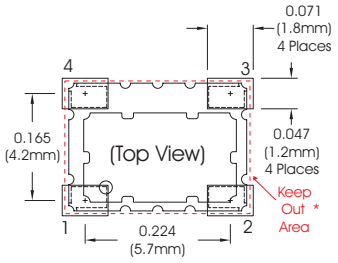
Package Layout



Suggested Pad Layout

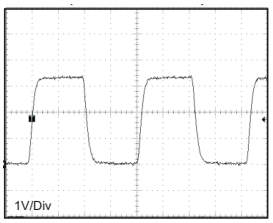


* Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

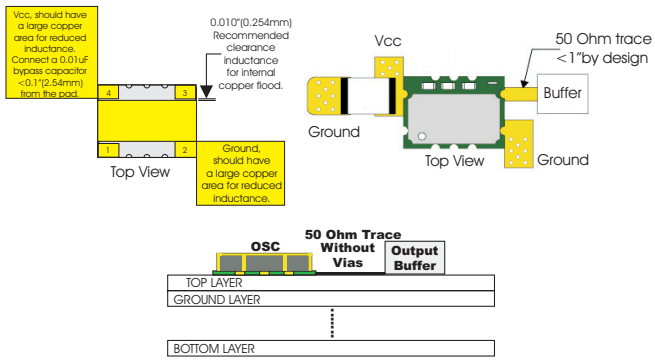
Pad Connections

1:	N/C
2:	Ground
3:	Output (Fo)
4:	Supply Voltage (Vcc)

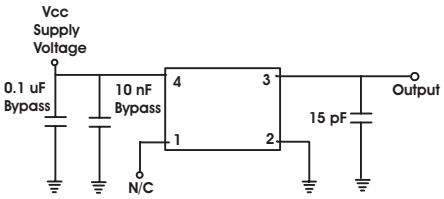
Output Waveform



Design Recommendations

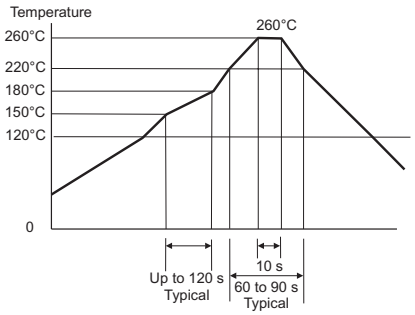


Test Circuit



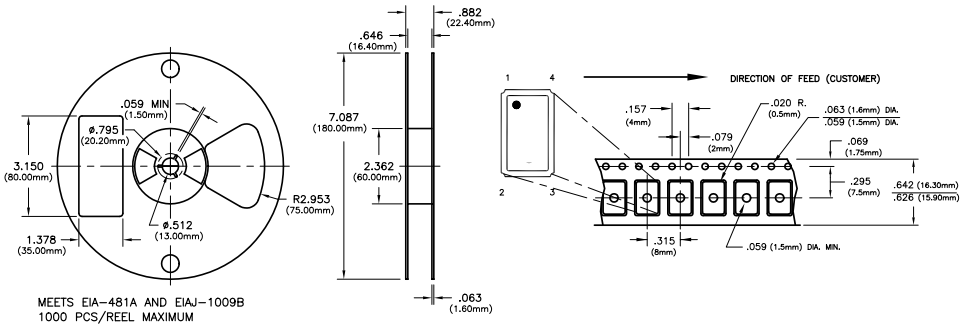
Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this TCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal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

Solder Profile



Meets IPC/JEDEC J-STD-020C

Tape and Reel Dimensions



MEETS EIA-481A AND EIAJ-1009B
1000 PCS/REEL MAXIMUM

Revision History

Revision	Date	Note
00	01/11/12	New issue
01	11/26/12	Removed tri-state information from features and description.
02	04/15/13	Added "Applications.
03	12/03/13	Removed TR from Ordering Information.
04	06/11/19	Updated stability, supply current, phase noise and height specifications.
05	11/21/23	Updated Supply Voltage (Vcc)

Specifications subject to change without notification. See Connor-Winfield's website for latest revision.
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