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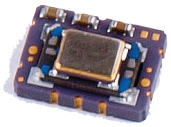
PURE SPECTRUM

5x7mm Precision TCXO Model D75J

CONNOR WINFIELD

Description:

The Connor-Winfield's D75J 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 D75J 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: ± 1.0 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)	-	38.88, 40.0 or 50.0	-	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	-0.2	-	0.2	ppm	±5%
Frequency vs. Voltage Stability	-0.2	-	0.2	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 = 38.88 MHz)					
@ 10Hz offset	-	-70	-	dBc/Hz	
@ 100Hz offset	-	-100	-	dBc/Hz	
@ 1KHz offset	-	-120	-	dBc/Hz	
@ 10KHz offset	-	-140	-	dBc/Hz	
@ 100KHz offset	-	-145	-	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	
Current (High)	(Ioh)	-4	-	-	mA	
(Low)	(Iol)	-	-	4	mA	
Duty Cycle at 50% of Vcc		45	50	55	%	
Rise / Fall Time 10% to 90%		-	-	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

D75J-038.88M, D75J-040.0M or D75J-050.0M

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. *Output is enabled with no connection to Pad 8. Leave Pad 8 open if disable function is not required. When disabled, the output is off but the oscillator and compensation circuits are still powered (current consumption < 1.3 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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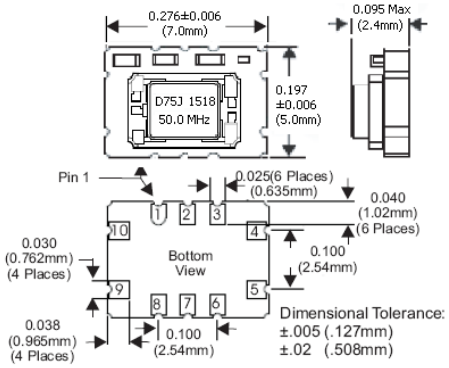
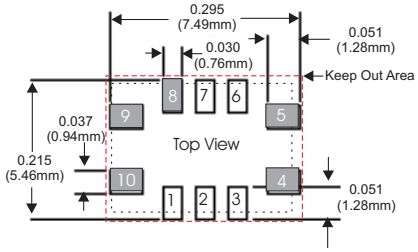
Package Layout



Suggested Pad Layout

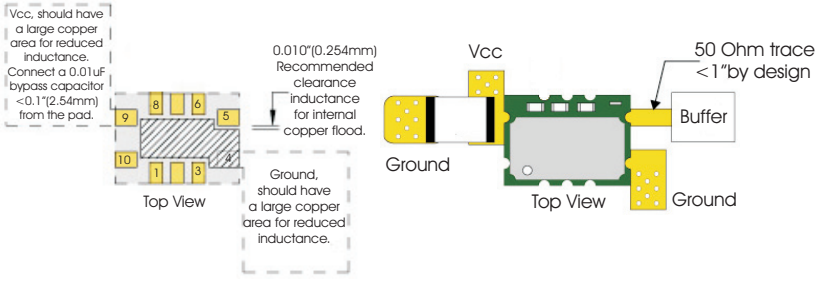


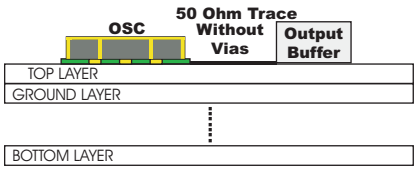
* Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

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

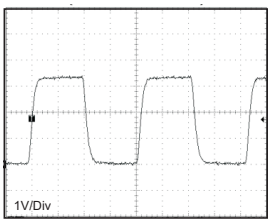
Design Recommendations



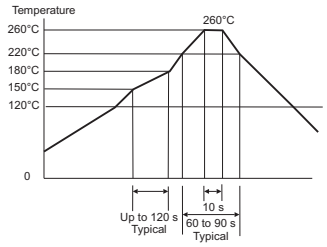


Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this TCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal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

Output Waveform

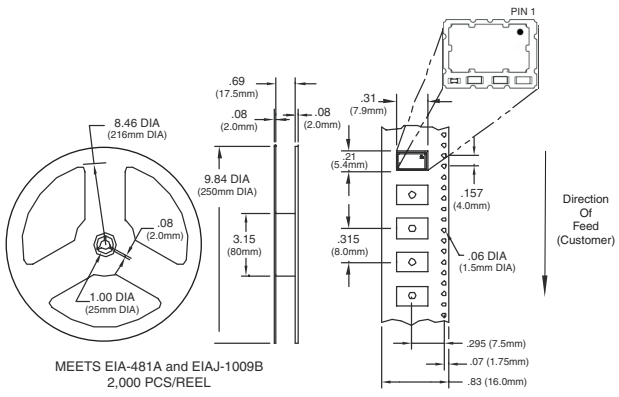


Solder Profile



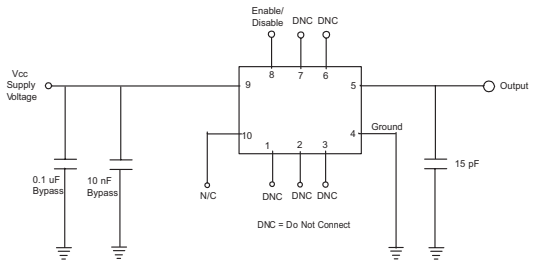
Meets IPC/JEDEC J-STD-020C

Tape and Reel Dimensions



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

Test Circuit



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