

# Sub-Miniature Precision 3.2x2.5mm Clipped Sinewave TCXO In Stock at Digi-Key



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## Description

The Connor-Winfield's D32G series are 3.2x2.5mm Surface Mount Temperature Compensated Crystal Oscillator (TCXO). Through the use of Analog Temperature Compensation, the D32G series are capable of holding sub 1-ppm stabilities over the -30 to 85°C temperature range.



## Features

### Model D32G

TCXO  
3.3Vdc Operation  
Clipped Sinewave Output Logic  
Frequency Stability:  $\pm 0.50$ ppm  
Temperature Range: -30 to 85°C  
Low Jitter < 1ps RMS  
3.2x2.5mm Surface Mount Package  
Tape and Reel Packaging  
RoHS Compliant / Lead Free 

## Specification

### 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
Frequencies Available (Fo)		16.368, 19.2, 26.0		MHz	
Frequency Calibration @ 25°C	-1.00	-	1.00	ppm	1
Frequency Stability [ $\pm(F_{max} - F_{min})/2.F_o$ ]	-0.50	-	0.50	ppm	2
Supply Voltage Variation (Vcc $\pm 5\%$ )	-0.025	-	0.025	ppm	
Load Coefficient ( $\pm 5\%$ )	-0.025	-	0.025	ppm	
Static Temperature Hysteresis	-	-	0.4	ppm	Absolute 3
Frequency shift after reflow soldering	-1.00	-	1.00	ppm	4
Aging	-1.0	-	1.0	ppm/year	
Temperature Range	-30	-	85	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	-	2	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	-	-130		dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-145		dBc/Hz	

### Clipped Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Note
Output Voltage	1.00	-	-	V pk-pk	5
Output Load Resistance	-	10K	-	Ohms	
Output Load Capacitance	-	10	-	pF	6

### 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) Output is DC coupled.
- 6) For best performance it is recommended that the circuit connected to this output should have an equivalent input capacitance of 10pF.



Bulletin Tx240

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Revision 03

Date 17 Dec 2009

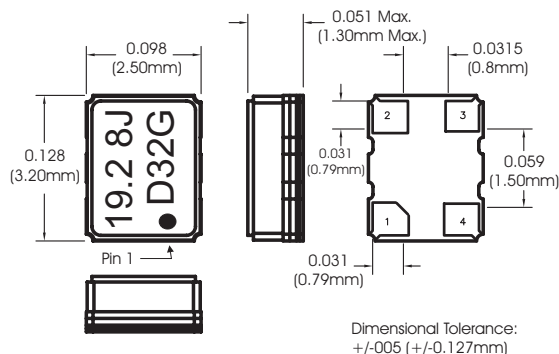
## Package Characteristics

Package	Ceramic Surface Mount Package.
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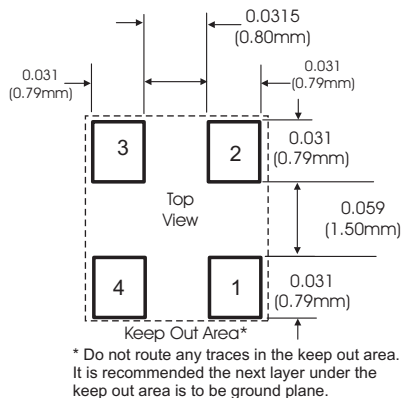
## Environmental Characteristics

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

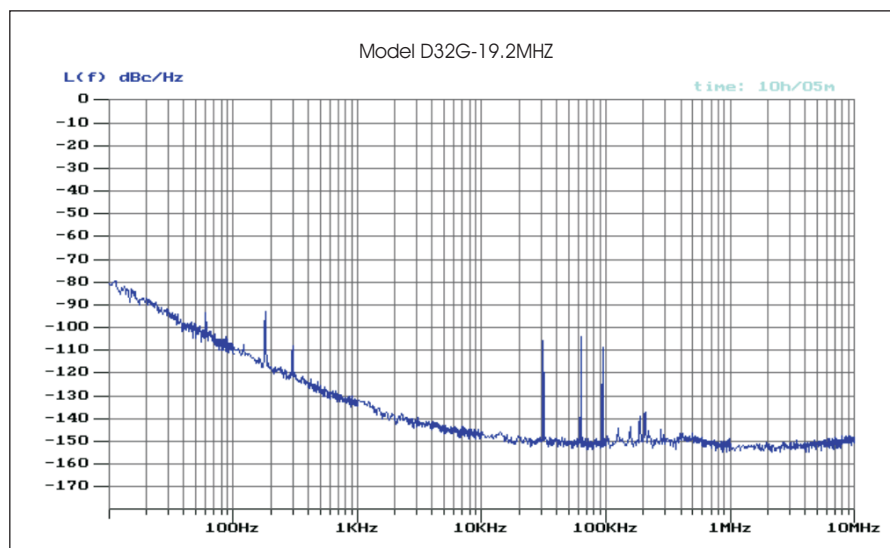
## Package Layout



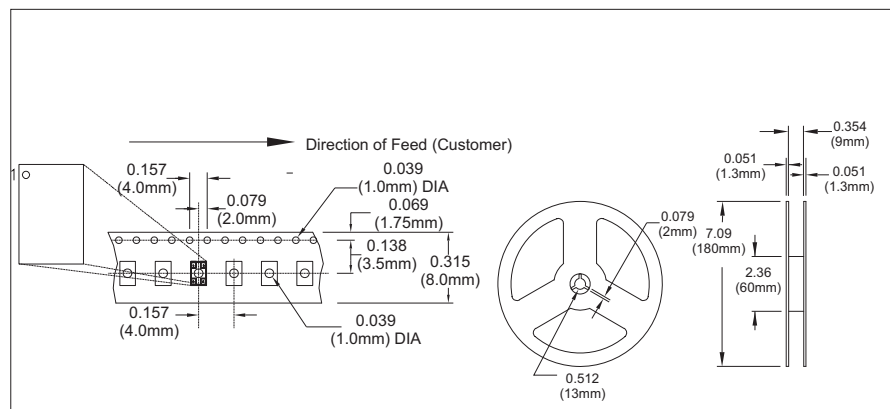
## Suggested Pad Layout



## Typical Phase Noise



## Tape and Reel Information



## Ordering Information

D32G - 016.368 MHZ \*

D32G - 019.2 MHZ \*

D32G - 026.0 MHZ \*

TCXO  
SERIES

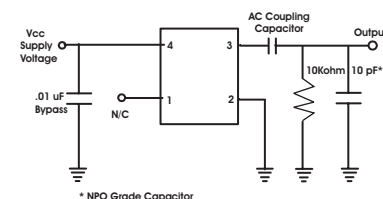
CENTER  
FREQUENCY

\* For the tape and reel option, add -T to the end of the part number.  
Example: D32G-016.368 MHZ -T

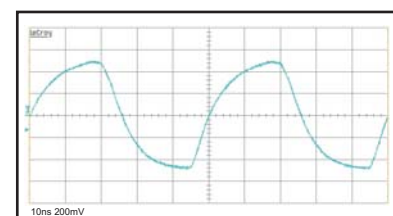
## Pin Connections

Pad	Connection
1	N/C
2	Ground
3	Output
4	Supply, Vcc

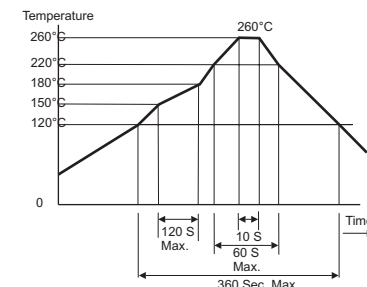
## Test Circuit



## Output Waveform



## Solder Profile


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