

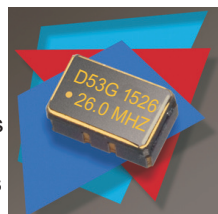
Precision 5.0x 3.2mm TCXO Model D53G

CONNOR WINFIELD



Description:

The Connor-Winfield D53G is a 3.3V Clipped Sinewave, Surface Mount, Temperature Compensated Crystal Oscillator (TCXO) designed for applications requiring tight frequency stability. The RoHS compliant surface mount package is designed for high-density mounting and is optimum for mass production.



Features:

- 3.3 Vdc Operation
- Clipped Sinewave Output
- Frequency Stability: ± 0.50 ppm
- Temperature Range: -30 to 85°C
- Low Jitter < 1 ps RMS
- 5.0x3.2mm SMT Package
- Tape and Reel Packaging
- RoHS Compliant, Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	85	$^{\circ}\text{C}$	
Supply Voltage (Vcc)	-0.5	-	Vcc+0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	-	20.0 or 26.0	-	MHz	
Freq. Stability vs. Cal. @ 25°C	-1.0	-	1.0	ppm	1
Freq. Stability vs. Temp.	-0.50	-	0.50	ppm	2
Freq. Stability vs. Voltage	-0.25	-	0.25	ppm	$\pm 5\%$
Freq. Stability vs. Load	-0.25	-	0.25	ppm	$\pm 5\%$
Static Temperature Hysteresis	-	-	0.40	ppm	3
Freq. shift after reflow soldering	-1.0	-	1.0	ppm	4
Aging	-1.0	-	1.0	ppm/year	
Operating Temperature Range:	-30	-	85	$^{\circ}\text{C}$	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	$\pm 5\%$
Supply Current (Icc)	-	-	2	mA	
Period Jitter	-	3	5	ps rms	
Integrated Phase Jitter	-	0.5	1.0	ps rms	5
SSB Phase Noise Fo =20 MHz					
10Hz offset	-	-80	-	dBc/Hz	
100Hz offset	-	-110	-	dBc/Hz	
1KHz offset	-	-130	-	dBc/Hz	
10KHz offset	-	-145	-	dBc/Hz	
100KHz offset	-	-150	-	dBc/Hz	
Start-up Time	-	-	5	ms	

Clipped Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Output Voltage	1.0	-	-	V pk-pk	6
Load Resistance	-	10K	-	Ohm	
Load Capacitance	-	10	-	pF	7

Package Characteristics

Package	Hermetically sealed ceramic package and metal cover
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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 Process;	RoHS compliant lead free. See soldering profile on page 2.

Ordering Information

D53G-020.0M* or D53G-026.0M*

* For the tape and reel option, add -T to the end of the part number. Example: D53G-020.0M-T

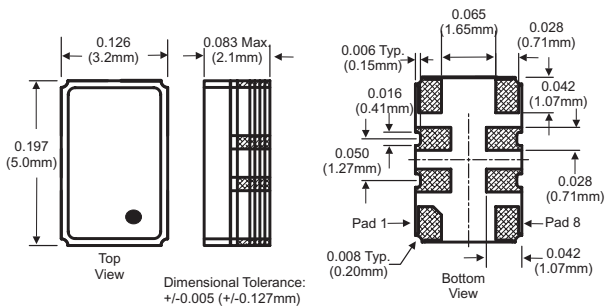
Notes:

1. Frequency Calibration; frequency measured at Vcc = 3.3 Vdc, 25°C , referenced to Fo.
2. Frequency stability vs. change in temperature. [$\pm(F_{\text{max}} - F_{\text{min}})/2.F_0$].
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 soldering
5. BW=12K Hz to 20 MHz.
6. Output is DC coupled

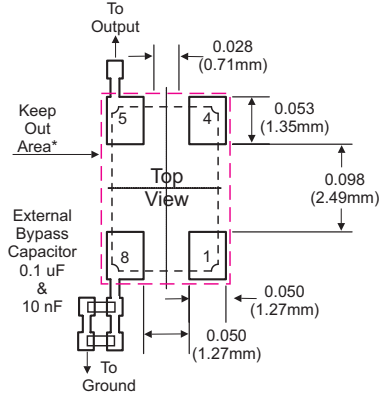




Package Layout



Suggested Pad Layout

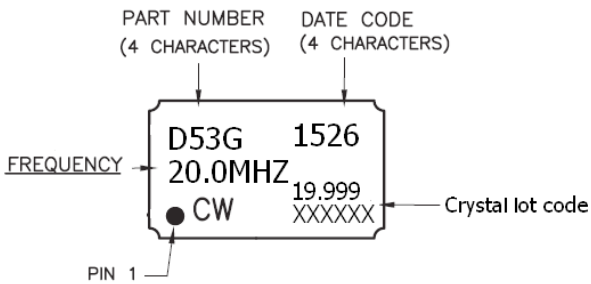


* **Keep Out Area:** Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

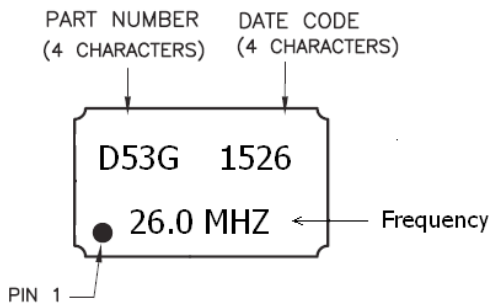
Pad Connections

- 1:N/C
- 2:Do Not Connect
- 3:Do Not Connect
- 4:Ground
- 5:Output
- 6:Do Not Connect
- 7:Do Not Connect
- 8:Supply Voltage (Vcc)

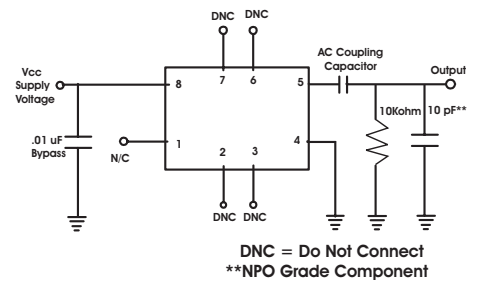
Marking for 20.0MHz



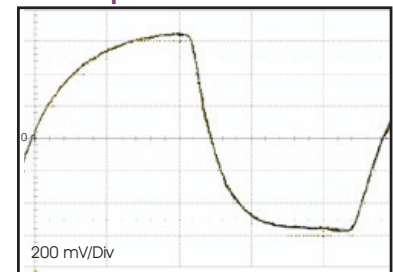
Marking for 26.0MHz



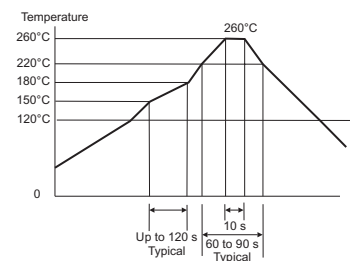
Test Circuit



Output Waveform



Solder Profile

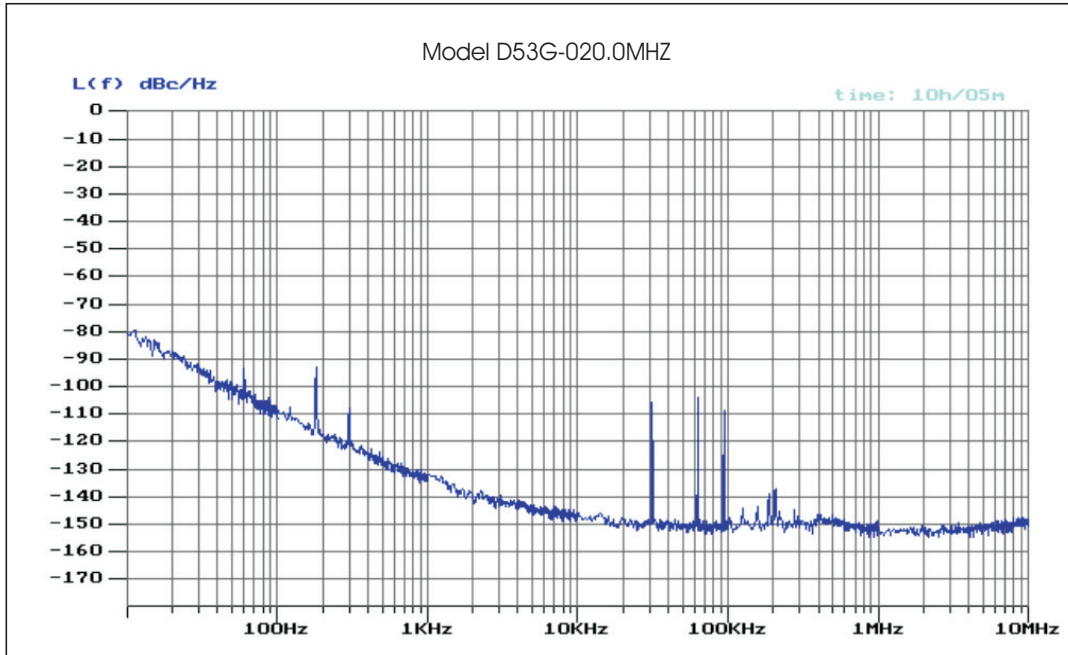


Meets IPC/JEDEC J-STD-020C

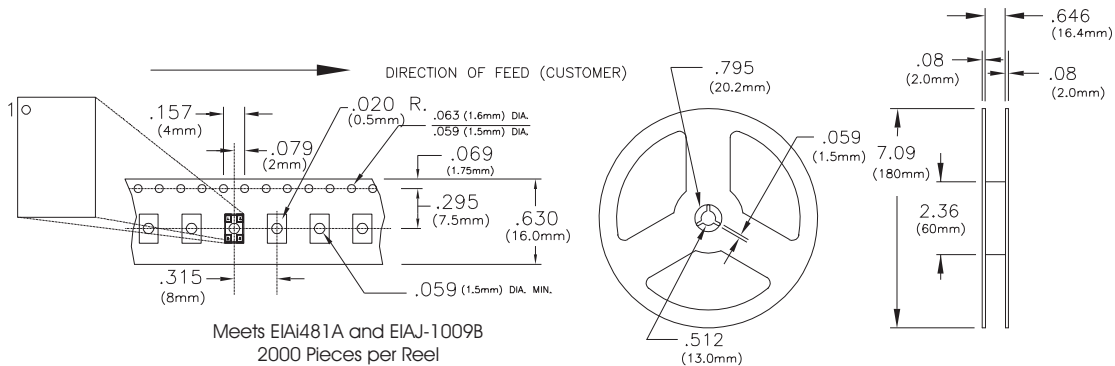
Bulletin **TX239**
 Page **2 of 3**
 Revision **04**
 Date **25 June 2015**



Phase Noise Plot



Tape and Reel Information



Revision History

Revision	Revision Date	Note
01	11/14/08	New release GD 11/14/08
02	01/03/11	Updated to new data sheet format
03	11/16/12	Updated Phase noise information.
04	06/24/15	Added Marking Information

Bulletin	TX239
Page	3 of 3
Revision	04
Date	25 June 2015