

Precision Sub-Miniature 5.0x3.2mm TCXO / VCTCXO



The Connor-Winfield 5.0x3.2mm Temperature Compensated Crystal Oscillators and Voltage Controlled Temperature Compensated Crystal Oscillators are designed for use in applications requiring tight frequency stability in a small package. Through the use of Analog Temperature Compensation, this device is capable of holding sub 1-ppm stabilities over wide temperature ranges.

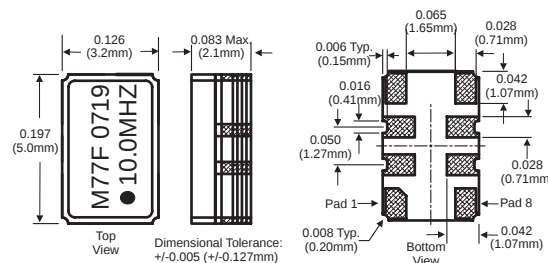
Features:

- 2.5V or 3.3V Operation
- Clipped Sinewave Output
- Sub-Miniature 5.0x3.2mm SMT Package
- Frequency Stabilities Available:
 $\pm 0.50\text{ppm}$, $\pm 1.00\text{ppm}$ or $\pm 2.00\text{ppm}$
- Temperature Ranges Available:
0 to 70°C
-20 to 70°C
-30 to 85°C
- Low Power <2mA
- Low Jitter <1pS RMS
- Tape and Reel Packaging
- RoHS Compliant / Lead Free
- Recommended for new designs

Applications

GPS Receivers
Instrumentation
Femtocells
FTTH, FTTC

Package Layout



Ordering Information

M77F - 010.0M

TCXO SERIES Example Part Number CENTER FREQUENCY

Pin Connections

Pad	Connection
1	Voltage Control or N/C
2	N/C
3	N/C
4	Ground
5	Output
6	Do not connect
7	Do not connect
8	Supply, Vcc

Ordering Information

M	7	7	F	-	010.0M
Type: Precision TCXO VCTCXO 5x3.2mm	Features: 4 = TCXO, Clipped Sinewave, 2.5Vdc. 7 = TCXO, Clipped Sinewave, 3.3Vdc. 8 = VCTCXO, Clipped Sinewave, 2.5Vdc. 9 = VCTCXO, Clipped Sinewave, 3.3Vdc.	Temperature Range: 5 = 0 to 70° C 7 = -20 to 70° C 8 = -30 to 85° C	Frequency Stability: E = ± 0.50 ppm F = ± 1.00 ppm G = ± 2.00 ppm		Output Frequency: Frequency Format -xxx.xM Min.* -xxx.xxxxxM Max.* *Amount of numbers after the decimal point. M = MHz

Example:
M77F-010.0M = 5x3.2mm, TCXO, Clipped Sinewave,
3.3Vdc, -20 to 70C, $\pm 1.00\text{ppm}$, Output Frequency 10.0MHz

To order an M77F with an output frequency of:
6.4 MHz = M77F-006.4M
20 MHz = M77F-020.0M
38.88 MHz = M77F-038.88M

Standard Frequencies Available *

6.4 MHz 9.72 MHz 10.0 MHz 10.24 MHz 12.5 MHz 12.8 MHz
13.5 MHz 19.44 MHz 20.0 MHz 20.48 MHz 25 MHz 27 MHz 38.88 MHz

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18924600166 QQ: 857950243 <http://www.vc-tcxo.com>

ABSOLUTE MAXIMUM RATINGS

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	6.0	Vdc	
Input Voltage	(Vc)	-0.5	-	Vcc+0.5	Vdc	

OPERATING SPECIFICATIONS

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Frequency Range		6.4	-	40	MHz	
Frequency Calibration (TCXO Models)		-1.00	-	1.00	ppm	1
Aging First Year		-1.0	-	1.0	ppm	
Total Aging for 10 years		-4.6	-	4.6	ppm	
Supply Voltage Variation. (Vcc ±5%)		-0.025	-	0.025	ppm	
Load Coefficient, ±5%		-0.025	-	0.025	ppm	
Static Temperature Hysteresis		-0.4	-	0.4	ppm	2
Frequency shift after reflow soldering		-1.00	-	1.00	ppm	3
Supply Voltage	2.5v Models (Vcc)	2.375	2.500	2.625	Vdc	4
	3.3V Models (Vcc)	3.135	3.300	3.465	Vdc	4
Supply Current	(Icc)	-	-	2	mA	
Jitter (BW=10Hz to 20MHz)		-	-	5	ps rms	
Jitter (BW=12kHz to 20MHz)		-	-	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	

INPUT CHARACTERISTICS for VOLTAGE CONTROL (Pad 1)

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	Notes
Control Voltage Range	2.5v Models (Vc)	0.2	1.2	2.2	Vdc	
	3.3v Models (Vc)	0.5	1.5	2.5		
Frequency Tuning		±10	-	-	ppm	
Linearity		±5	-	-	%	
Slope		Positive				

CLIPPED SINEWAVE OUTPUT CHARACTERISTICS (Pad 5)

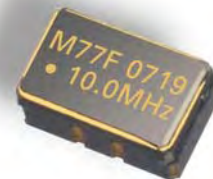
PARAMETER	MINIMUM	NOMINAL	MAXIMUM	UNITS	Notes
Output Voltage	1.00	-	-	V pk-pk	
Load					5
Output Load Resistance	-	10K	-	Ohms	
Output Load Capacitance	-	10	-	pF	

PACKAGE CHARACTERISTICS

Package	Ceramic Surface Mount Package.
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ENVIRONMENTALS

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:	RoHS compliant, lead free. See solder profile page 4.
Solderability	Solderability per Mil Std 883E Method 2003



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Test Circuit

