



MV176

Temperature Compensated Crystal Oscillator (TCXO)

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features

- **Frequency Range 5.0-52.0 MHz**
- High Stability vs. Temperature upto $<\pm 0.1 \times 10^{-6}$
- SMD Miniture Package
- 2.8V, 3.0V, 3.3V and +5V
- **Ideal for STRATUM III, COMPAS/Starsat**

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +70° C	$<\pm 1 \times 10^{-6}$	$<\pm 0.1 \times 10^{-6}$	
-10 to +60° C	$<\pm 1 \times 10^{-6}$	$<\pm 0.1 \times 10^{-6}$	
-20 to +70° C	$<\pm 1 \times 10^{-6}$	$<\pm 0.14 \times 10^{-6}$	Contact factory for $<\pm 0.1 \times 10^{-6}$
-40 to +85° C	$<\pm 1 \times 10^{-6}$	$<\pm 0.28 \times 10^{-6}$	Contact factory for $<\pm 0.14 \times 10^{-6}$
-55 to +85° C	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 0.28 \times 10^{-6}$

Temperature ranges from -60° C to +85° C available. Contact factory and see ordering designations at the end of this data sheet.

Standard Frequencies	Long Term Stability (Yearly Aging) Availability		Comments
	Year	High	
		C	Contact factory for $<\pm 5 \times 10^{-7}$
10.0 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$
12.688375 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$
12.688656 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$
12.8 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$
19.2 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$
20; 40; 50 MHz	$<\pm 1 \times 10^{-6}$	C	Contact factory for $<\pm 5 \times 10^{-7}$

Contact factory for non-standard long term stability performance and see ordering designations at the end of this data sheet.

Specifications-Continued

Short Term Stability, Power Supply, Pulling & Pushing Parameters

Specification	Supply V ±5%	
Output	Sinewave	HCMOS
Settling Accuracy @ 25° C	<±1x10 ⁻⁶ *	<±1x10 ⁻⁶ *
Current consumption	< 4 mA	< 6 mA
Frequency Adjust range (VCTCXO)**	>±5x10 ⁻⁶	>±5x10 ⁻⁶
Stability vs. Load	<±0.1x10 ⁻⁶	<±0.1x10 ⁻⁶
Stability vs. power supply	<±0.1x10 ⁻⁶	<±0.1x10 ⁻⁶

* Contact factory for <±0.6x10⁻⁶ settling accuracy

** See Ordering Guild for Control Voltages

Phase Noise, 12.8 MHz (dBc/Hz)

12.8 MHz

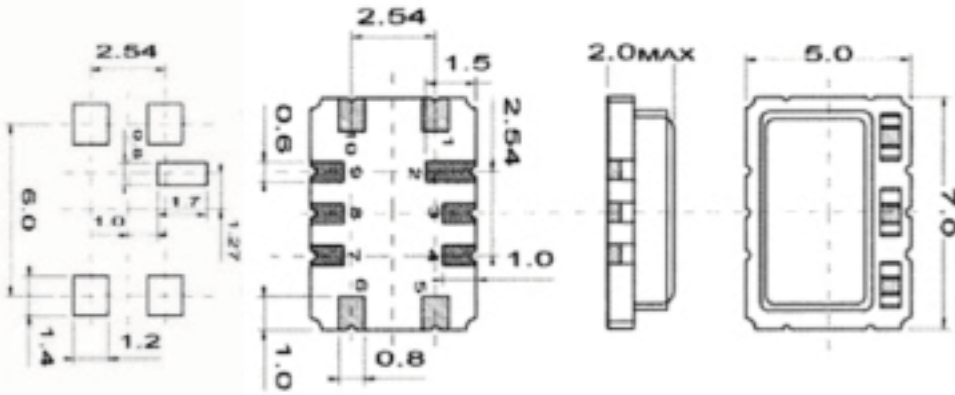
Frequency Offset	
100 Hz	-120
1 kHz	-140
10 kHz	-150

Contact factory for lower phase noise performance and see ordering designations at the end of this data sheet.

Output Parameters

Output	Sinewave	HCMOS
Level, V	0.8 B (clipped Sinewave, p-p)	Un >0.9 Us UL <0.1 Us
Load	<10kOhms, 10 pf	15 pf
Rise/Fall Time	-	
Harmonics	-20 dBc	

Contact factory for improved harmonics.



Contact	TC	VCTCXO
1	GND	Uin
5	GND	
6	RF	
9	Not in use or Tri-state function	
10	Us	

Ordering Guide

MV176 - [VCTCXO] - C500 K - 12.8 MHz - SIN - B1 -75

	VCTCXO	TC
Frequency Adjustment Range	$\leq \pm 5.0 \times 10^{-6}$	-
Settling Accuracy	$\leq \pm 1.0 \times 10^{-6}$ ($\leq \pm 0.5 \times 10^{-6}$ Contact factory)	

Availability of certain stability vs. operating temperature range.		$\pm 1 \times 10^{-6}$	$\pm 0.5 \times 10^{-6}$	$\pm 0.28 \times 10^{-6}$	$\pm 0.14 \times 10^{-6}$	$\pm 0.14 \times 10^{-6}$
		1000	500	280	140	100
JT	0 to +55° C	A	A	A	A	A
B	-10 to +60° C	A	A	A	A	A
C	-20 to +70° C	A	A	A	A	C
EX	-40 to +85° C	A	A	A	C	N
BX	-55 to +85° C	A	C	N	N	N

A=Available, C=Contact factory, N=Not available

Availability of certain aging values for certain frequencies.		Standard Frequencies					
		10.0 MHz	12.688375 MHz	12.688656 MHz	12.8 MHz	19.2 MHz	20, 40, 50 MHz
K	$\pm 1 \times 10^{-6}$ /year	A	A	A	A	A	A
J	$\pm 5 \times 10^{-7}$ /year	C	C	C	C	C	C

A=Available, C=Contact factory, N=Not available

Power Supply	Control Voltage Uin		
	Value for f=fnom	Range	Option
2.8±5%	1.50	0.5-2.5	A1
	1.65	0.65-2.65	A2
3.0±5%	1.50	0.5-2.5	B1
	1.65	0.65-2.65	B2
3.3±5%	1.50	0.5-2.5	C1
	1.65	0.65-2.65	C2
	2.5	1.5-3.5	D3
	2.5	0.5-4.5	D4

Output	Sinewave	HCMOS
Current	< 4 mA	< 6 mA
Level, V	≤ 0.8 B (clipped SIN, p-p)	Un > 0.9 Us UL < 0.1 Us
Load	10 kOhm 10 pf	- 15 pf

Additional Notes:

- 1) Advise RoHs requirement at Order.
- 2) Temperature ranges of -60° C to +85° C available. Contact factory for non-standard temperature ranges.

7.0 x 5.0x 2.0 mm	75	Package
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