



MV216

Double Oven Controlled Crystal Oscillator
5 & 10 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features

- **Overall Stability** upto $\pm 3 \times 10^{-8}$ / 10 Years
- Low Sensitivity to Rapid Changes in Ambient Temperature
- Ultra Low Aging upto $\pm 5 \times 10^{-9}$ /year
- Ultra High Stability vs. Temperature: up to $\pm 5 \times 10^{-11}$
- Short Term Stability: up to $\pm 2 \times 10^{-12}$ /Sec
- Sinwave Output
- +12V

Applications

- 3G Communication Systems
- Test & Measurement
- Telecom Synchronization Modules
- GPS Timing
- Navigation Equipment
- Rubidium Replacement

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$< \pm 2 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-10 to +60° C	$< \pm 2 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-20 to +70° C	$< \pm 2 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-40 to +70° C	$< \pm 2 \times 10^{-10}$	C	Contact factory for $< \pm 1 \times 10^{-10}$

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
	10 Years	1 Year	
D Option	$< \pm 1 \times 10^{-7}$	$< \pm 1.5 \times 10^{-8}$	
C Option	$< \pm 5 \times 10^{-8}$	$< \pm 1 \times 10^{-8}$	
B Option	$< \pm 3 \times 10^{-8}$	$< \pm 5 \times 10^{-9}$	

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

Specification	Short Term, Pulling & Pushing Stability		Comments
	Standard		
Short term stability per 1 sec.	$< \pm 2 \times 10^{-12}$		Allan deviation
Stability vs. Load ($\pm 5\%$)	$< \pm 5 \times 10^{-11}$		
Stability vs. power supply ($\pm 5\%$)	$< \pm 5 \times 10^{-11}$		
Warm-up time to w/ in $< \pm 5 \times 10^{-8}$	<15minutes		@25° C

Specifications-Continued

Phase Noise, 5 MHz, 12V, Sinewave (dBc/Hz)

Frequency Offset	Standard	Comments
1 Hz	< -105	Contact factory for lower phase noise
10 Hz	< -130	
100 Hz	< -145	
1 kHz	< -150	
10 kHz	< -155	

See ordering designations at the end of this data sheet.

Output Parameters

Output	Sinewave
Level	+7±2 dBm
Load	50 Ohms ± 5%
Rise/Fall Time	-
Harmonics	> -30 dBc
Subharmonics (for 10 MHz)	> -40 dBc

Contact factory for improved harmonics

Power Supply & Voltage Control Parameters

Specification	12V ±5%
Steady state current @ 25° C	< 350 mA
Peak warm-up current @ 25° C	< 1500 mA
Option for -10° C	< 1000 mA
Frequency Adjust range	>±2.5x10 ⁻⁷
Frequency Adjust Voltage (Uin)	0 to +5V
Reference Voltage (Uref)	+5V

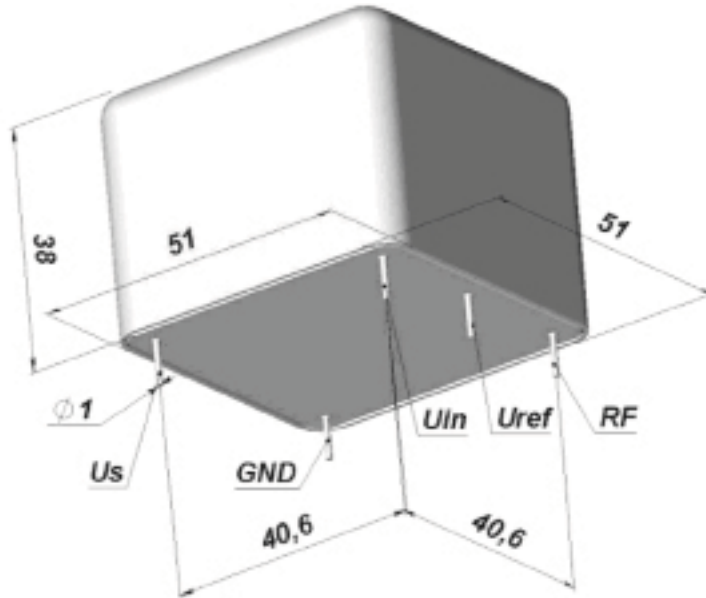
Contact factory for warm-up option. See ordering designations at the end of this data sheet.

Environmental Parameters

Specification	Conditions
Vibration Frequency	10-200 Hz
Vibration Acceleration	5 gs
Shock Acceleration	150 gs
Shock Duration	3±1 mS
Humidity	-
Storage Temperature	-55 to +80° C
RoHs	Option

Contact factory for extended environmental conditions.

Outline Drawing



Pin	Value
Uref	Reference Voltage
Us	Power Supply
RF	RF Out
GND	Ground
Uin	Frequency Adjustment Voltage

Ordering Guide

MV216 - B 01 E - 10.0 MHz

Availability of certain stability vs. operating temperature range.		$\pm 2 \times 10^{-10}$	$\pm 1 \times 10^{-10}$	$\pm 5 \times 10^{-11}$
		02	01	005
A	0 to +55° C	A	A	C
B	-10 to +60° C	A	A	C
C	-20 to +70° C	A	A	C
D	-40 to +70° C	A	C	C

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

Availability of certain long term stability	Overall Stability for 10 Years	Overall Stability for 1 Year
Option		
D	$\pm 1 \times 10^{-7}$	$\pm 1.5 \times 10^{-8}$
C	$\pm 5 \times 10^{-8}$	$\pm 1 \times 10^{-8}$
B	$\pm 3 \times 10^{-8}$	$\pm 5 \times 10^{-8}$

Additional Notes:

- 1) Contact factory for daily aging values. General rule: $x10^{-x}$ /year = $x10^{-(x+2)}$ /day.
- 2) Advise RoHs requirement at Order.
- 3) Contact factory for non-standard temperature ranges.