



Your dedicated source for crystal oscillators and filters.

Features

- High Stability vs. Temperature: up to $\pm 5 \times 10^{-11}$
- Very Low Aging upto $\pm 5 \times 10^{-9}$ /year
- Low Sensitivity to Rapid Temperature Changes
- Sinewave Output
- +12V

Applications

- GPS
- Test equipment
- Network clock
- Base station

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$< \pm 3 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-10 to +60° C	$< \pm 3 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-20 to +70° C	$< \pm 3 \times 10^{-10}$	$< \pm 1 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-11}$
-40 to +70° C	$< \pm 3 \times 10^{-10}$	$< \pm 2 \times 10^{-10}$	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
	High	Higher	
4.096 MHz	$< \pm 3 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$
5.0 MHz	$< \pm 3 \times 10^{-8}$	$< \pm 5 \times 10^{-9}$	
8.192 MHz	$< \pm 3 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$
10.0 MHz	$< \pm 3 \times 10^{-8}$	$< \pm 5 \times 10^{-9}$	

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

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

Specifications-Continued

Phase Noise, (dBc/Hz)
5 MHz

Offset Frequency

1 Hz	-105
10 Hz	-130
100 Hz	-145
1 kHz	-150
10 kHz	-155

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

Output Parameters

Output	Sinewave
Level	7±2 dBm
Load	50 Ohm ±5%
Rise/Fall Time	-
Harmonics	>-30 dBc
Sub-Harmonics (For 8.192 & 10.0 MHz)	>-40 dBc

*Contact factory for Rise/Fall time.

Power Supply & Voltage Control Parameters

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

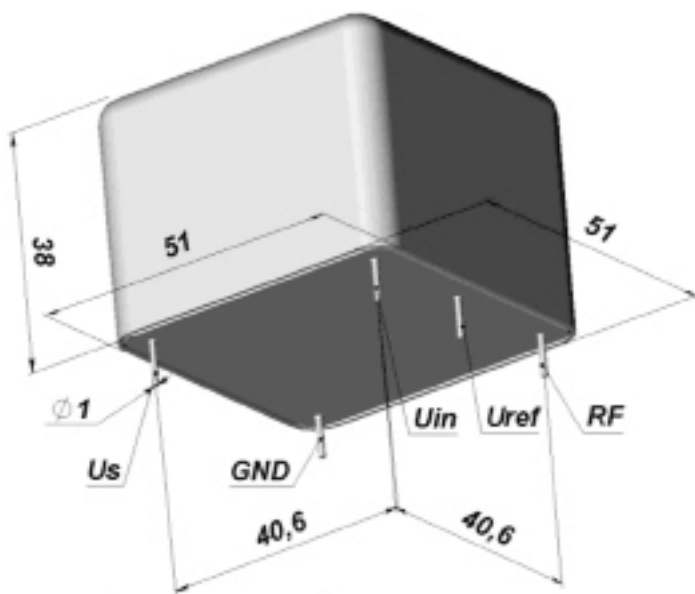
See ordering designations at the end of this data sheet.

Environmental Parameters

Specification	Conditions
Vibration Frequency	1-200 Hz
Vibration Acceleration	5 g
Shock Acceleration	150 g
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

MV180 - B 02 E - 10.0 MHz

Availability of certain stability vs. operating temperature range.		$\pm 3 \times 10^{-10}$	$\pm 2 \times 10^{-10}$	$\pm 1 \times 10^{-10}$	$\pm 5 \times 10^{-11}$
		03	02	01	005
A	0 to +55° C	A	A	A	C
B	-10 to +60° C	A	A	A	C
C	-20 to +70° C	A	A	A	C
D	-40 to +70° C	A	A	C	N

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

Availability of certain aging values for certain frequencies.		Standard Frequencies			
		4.096 MHz	5.0 MHz	8.192 MHz	10.0 MHz
E	$\pm 3 \times 10^{-8}$ /year	A	A	A	A
D	$\pm 2 \times 10^{-8}$ /year	A	A	A	A
C	$\pm 1 \times 10^{-8}$ /year	C	A	C	A
B	$\pm 5 \times 10^{-9}$ /year	C	A	C	A

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

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.