



# MV137

Oven Controlled Crystal Oscillator  
100 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

## Features

- Low Phase Noise-Floor:  $<-165$  dBc/Hz
- High Stability vs. Temperature up to  $\pm 1 \times 10^{-9}$
- Excellent Aging upto  $\pm 3 \times 10^{-8}$  /year
- +12V

## Applications

- Frequency synthesizer
- PLL
- VSAT

## Specifications

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

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
	Option G	Option F	
Option G	$<\pm 1 \times 10^{-7}$		
Option F	$<\pm 5 \times 10^{-8}$		
Option E	$<\pm 3 \times 10^{-8}$		

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
	Stability vs. Load	Stability vs. power supply ( $\pm 10\%$ )	
Stability vs. Load	$<\pm 1 \times 10^{-10}$		
Stability vs. power supply ( $\pm 10\%$ )	$<\pm 1 \times 10^{-9}$		
Warm-up time to w/ in $<\pm 1 \times 10^{-8}$	$<10$ minutes		@25° C
Short term stability per 1 day.	-		Allan deviation

## Specifications-Continued

Phase Noise, 100 MHz, 12V (dBc/Hz)  
Sinewave

Frequency Offset	Option 1	Option 2	Option 3	Option 4
10 Hz	-95	-100	-105	-105
100 Hz	-110	-115	-120	-125
10 kHz	-140	-145	-150	-150
10 kHz	-160	-162	-165	-165

See ordering designations at the end of this data sheet.

## Output Parameters

Supply Voltage	12V $\pm$ 10%
Output	Sinewave
Level	> 400V
Load	50 Ohms $\pm$ 10%
Harmonics	<-30 dB
Spurious & Subharmonics	<-60 dB (>-100 dB Optional)

Contact factory for improve spurious.

## Power Supply &amp; Voltage Control Parameters

Specification	12V $\pm$ 10%
Steady state current @ 25 <sup>o</sup> C	< 300 mA
Peak warm-up current	< 800 mA
Frequency Adjust range (10 MHz)	$\geq \pm 5 \times 10^{-7}$
Frequency Adjust Voltage (Uin)	0 to +5V
Reference Voltage (Uref)	+5V

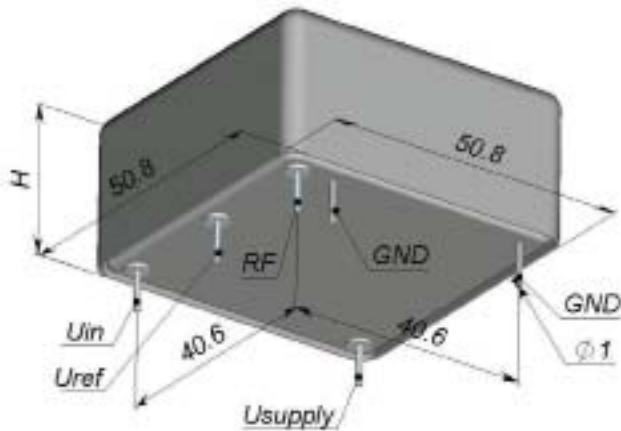
See ordering designations at the end of this data sheet.

## Environmental Parameters

Specification	Conditions
Vibration Frequency	10-300 Hz
Vibration Acceleration	5 g
Shock Acceleration	-
Shock Duration	-
Humidity	-
Storage Temperature	-55 to +85 <sup>o</sup> C
RoHs	Option

Contact factory for extended environmental conditions.

## Outline Drawing



H=16 mm for F16 package;  
H=19 mm for F19 package.

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

Package	
F16	51x51x16 mm
F19	51x51x19 mm

**MV137 - B 3 - F - 1 - F16 - 100 MHz**

Availability of certain stability vs. operating temperature range.		$\pm 5 \times 10^{-9}$	$\pm 3 \times 10^{-9}$	$\pm 2 \times 10^{-9}$	$\pm 1 \times 10^{-9}$
		5	3	2	1
A	0 to +55° C	A	A	A	A
B	-10 to +60° C	A	A	A	A
C	-20 to +70° C	A	A	C	N
D	-40 to +70° C	A	A	C	N
E	-55 to +70° C	A	A	C	N

A=Available, N=Not available  
C=Contact factory (for Height=19 mm)

Phase Noise, 100 MHz, 12V (dBc/Hz)				
Offset	1	2	3	4
10 Hz	-95	-100	-105	-105
100 Hz	-110	-115	-120	-125
10 kHz	-140	-145	-150	-150
10 kHz	-160	-162	-165	-165

Aging	
G	$\pm 1 \times 10^{-7}$ /year
F	$\pm 5 \times 10^{-8}$ /year
E	$\pm 3 \times 10^{-8}$ /year

### 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.