



# MV272M

Oven Controlled Crystal Oscillator  
5 & 10 MHz

**New**

Your dedicated source for crystal oscillators and filters.

Revised 11/9/15

## Features

- High Stability vs. Temperature: up to  $\pm 1 \times 10^{-9}$
- Long Term Stability: up to  $\pm 1 \times 10^{-8}$  /year
- Oscillation ON/OFF Function
- Ultra Low Phase Noise
- Low G Sensitivity ( $1 \times 10^{-9}$  - typical)
- SMD Package

## Applications

- SatCom
- Test equipment
- Network clock
- Base station

## Preliminary 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	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	
-20 to +70° C	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	
-40 to +85° C	$< \pm 5 \times 10^{-9}$	$< \pm 2 \times 10^{-9}$	

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

Standard Frequency*	Long Term Stability (Yearly Aging) Availability		Comments
	High	Higher	
5.0 MHz	$< \pm 5 \times 10^{-8}$	$< \pm 1 \times 10^{-8}$	
10 MHz	$< \pm 5 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$

\*Contact factory for 5.115 MHz, 10.230 MHz and other non-standard frequencies. See ordering designations at the end of this data sheet.

Specification	Short Term, Pulling & Pushing Stability			Comments
	Option	Option	Option*	
Short term stability per 1 sec.	$< \pm 1 \times 10^{-12}$	$< \pm 5 \times 10^{-13}$	$< \pm 3 \times 10^{-13}$	Allan deviation, for 10 MHz
Stability vs. Load ( $\pm 5\%$ )	$< \pm 5 \times 10^{-10}$	-	-	
Stability vs. power supply ( $\pm 5\%$ )	$< \pm 5 \times 10^{-10}$	-	-	
Warm-up time to w/ in $< \pm 2 \times 10^{-8}$	<5 minutes	-	-	@25° C

\* Only for UNL. See ordering designations at the end of this data sheet.

## Specifications-Continued

Frequency Offset	Phase Noise, 10 MHz, 12V, Sinewave (dBc/Hz)				Comments
	-	LN	ULN	IULN	
1 Hz	< -105	< -110	< -115	< -120	
10 Hz	< -135	< -140	< -145	< -146	
100 Hz	< -155	< -157	< -157	< -159	
1 kHz	< -160	< -160	< -160	< -165	
10 kHz	< -160	< -160	< -160	< -168	

See ordering designations at the end of this data sheet.

Output Parameters	
Output	Sinewave
Level	> 400 mV
Load	50 Ohms $\pm$ 5%
Rise/Fall Time	-
Harmonics	> -30 dBc

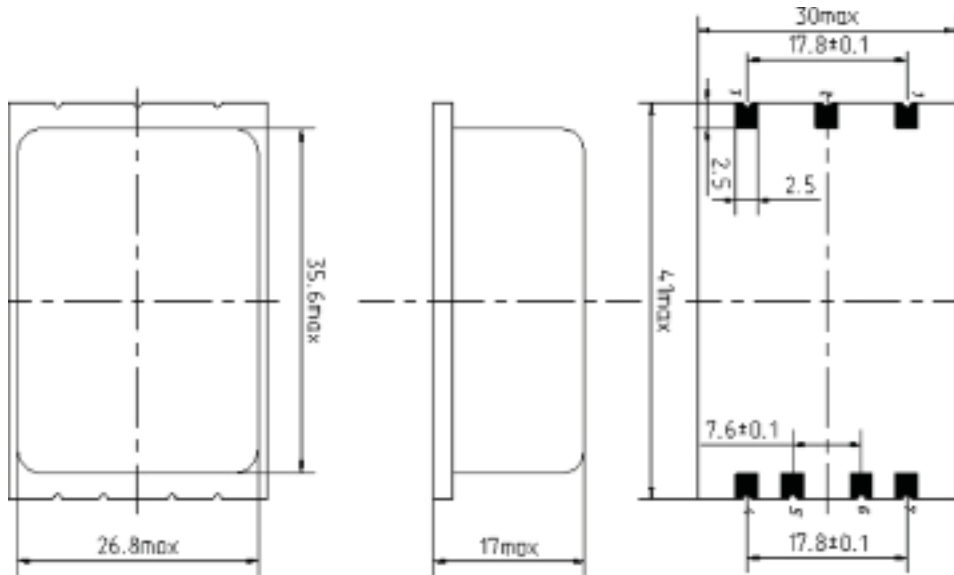
Power Supply & Voltage Control Parameters	
Supply Voltage	12V $\pm$ 5%
Steady state current @ 25 <sup>o</sup> C	< 150 mA
Peak warm-up current @ -20 <sup>o</sup> C	< 400 mA
Frequency Adjust range (10 MHz)	$> \pm 3 \times 10^{-7}$
Frequency Adjust Voltage (Uin)	0 to +5V
Reference Voltage (Uref)	+5V

See ordering designations at the end of this data sheet.

Environmental Parameters	
Specification	Conditions
Vibration Frequency	10-500 Hz
Vibration Acceleration	3 g
Shock Acceleration	75 g
Shock Duration	3 $\pm$ 1 mS
Humidity	98%
Storage Temperature	-55 to +85 <sup>o</sup> C
RoHs	Option

Contact factory for extended environmental conditions.

## Outline Drawing



Pin	Function
1	Ground
2	No Connection
3	RF Out
4	Power Supply
5	ON OFF
6	Control Voltage
7	Reference Voltage

## Ordering Guide

Short Term Stability /1 Sec, 10 MHz Allan deviation		
1E-12	5E-13	4E-13
$<\pm 1 \times 10^{-12}$	$<\pm 5 \times 10^{-13}$	$<\pm 4 \times 10^{-13}$

### MV272M - C 3 D - ULN - 10MHz - 5E-13

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	A	A
EX	-40 to +85° C	A	A	A	N

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

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

\* Contact factory for non-standard frequencies.  
A=Available, C=Contact factory, N=Not available.

#### Additional Notes:

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

Phase Noise (dBc/Hz), 10 MHz, Sinewave				
Offset	-	LN	ULN	IULN
1 Hz	<-105	<-110	<-115	<-120
10 Hz	<-135	<-140	<-145	<-146
100 Hz	<-155	<-157	<-157	<-159
1 kHz	<-160	<-160	<-160	<-165
10 kHz	<-160	<-160	<-160	<-168