

# PRECISION LOW PHASE NOISE OCXO MV412

## Features:

- **Short-term stability (Allan deviation): up to  $2 \times 10^{-13}$**
- **Low phase noise options: up to  $-120$  dBc/Hz at 1 Hz offset**
- **Power supply: 5V**
- **Long term stability: up to  $\pm 2 \times 10^{-8}$ /year**
- **RoHS compliant**
- **Standard frequency: 10.0 MHz**
- **Package size: 37x28x15 mm**

## ORDERING GUIDE: MV412 – B 5 F – 10.0MHz – ULN – 2E-13

Availability of certain stability vs. operating temperature range		10	5
		$\pm 10 \times 10^{-9}$	$\pm 5 \times 10^{-9}$
A	0...+55°C	A	A
B	-10...+60°C	A	A
C	-20...+70°C	A	A
D	-40...+70°C	A	C
EW	-40...+80°C	A	NA

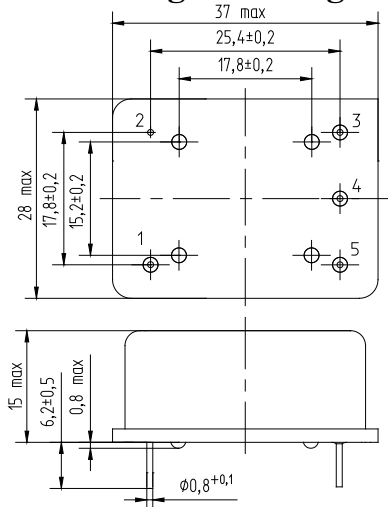
A – available, C – consult factory, NA- not available

For other temperature ranges see designation at the end of Data Sheet.

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

Phase noise, dBc/Hz, for 10MHz, SIN	-	LN	ULN
0.1 Hz	-	-	$\leq -87$
1 Hz	$< -110$	$< -115$	$< -119..-120$
10 Hz	$< -140$	$< -143$	$\leq -145$
100 Hz	$< -155$	$< -158$	$< -160$
1000 Hz	$< -160$	$< -163$	$< -165$
10000 Hz	$< -165$	$< -165$	$< -165$

## Package drawing:



Pin	Destination
1	RF
2	Ground (case)
3	Ucontrol
4	Uref
5	Us

Short term stability (Allan deviation) per 1 sec, for 10 MHz, Optional for phase noise options LN and ULN Optional for phase noise option ULN only	$< 1 \times 10^{-12}$ (1E-12) $< 5 \times 10^{-13}$ (5E-13) $< 2 \times 10^{-13}$ (2E-13)
Frequency stability vs. load changes ( $\pm 5\%$ )	$< \pm 5 \times 10^{-10}$
Frequency stability vs. power supply changes ( $\pm 5\%$ )	$< \pm 1 \times 10^{-9}$
Warm-up time within accuracy of $\pm 2 \times 10^{-8}$ @ 25 °C	$< 5$ min
Power supply (Us)	5V $\pm 5\%$
Steady state current consumption @ 25°C	$< 400$ mA
Peak current consumption during warm-up	$< 1.2$ A
Frequency pulling range*	$> \pm 3.0 \times 10^{-7}$
Control voltage range (Uin)	0...4.1 V
Reference voltage (Uref)	+4.1 V
Output	SIN
Level	$> 500$ mV
Load	50 Ohm $\pm 5\%$
Harmonics	$> 30$ dBc

\*sufficient to compensate aging for 15 years

<b>Vibrations:</b>	
Frequency range	10-500 Hz
Acceleration	5 g
<b>Shock:</b>	
Acceleration	75 g
Duration	3 $\pm 1$ ms
Humidity @ 25 °C	98%
Storage temperature range	-55...+85°C

## Additional notes:

- Please consult factory for daily aging values. Normally typical correspondence of daily to aging per year is as following:  $\pm 5 \times 10^{-8}$ /year –  $\pm 5 \times 10^{-10}$ /day;  $\pm 3 \times 10^{-8}$ /year –  $\pm 3 \times 10^{-10}$ /day;  $\pm 2 \times 10^{-8}$ /year –  $\pm 2 \times 10^{-10}$ /day
- For non standard operating temperature ranges please use the following two letters designations (first letter for the lower limit, second letter for the upper limit), °C:

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	W	X
-60	-55	-50	-45	-40	-30	-20	-10	0	+10	+30	+40	+45	+50	+55	+60	+65	+70	+75	+80	+85

