

# MINIATURE PRECISION OCXO MV197

## Features:

- Package height from 16 mm, down to 10 mm
- High stability vs. temperature: up to  $\pm 3 \times 10^{-10}$
- Long term stability up to  $\pm 2 \times 10^{-8}$ /year
- Low phase noise options
- Fast warm-up time up to 1 min
- Available as RoHS
- Available SPI interface manufacturing on factory request
- Frequency range: 8.192 – 20.0 MHz

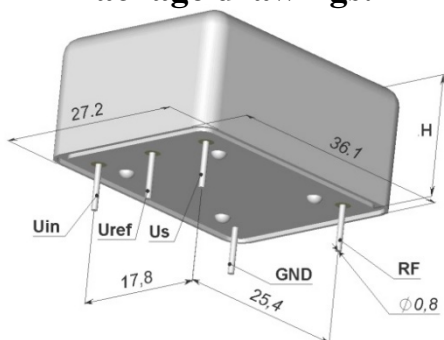
Power supply	Output	Package type	
	SIN	36x27x16 mm	B16
	HCMOS	36x27x12.7 mm	B12.7
5 V	LVC MOS	36x27x10 mm	B10

## ORDERING GUIDE: MV197-C 1 F-12V-SIN-B12.7-LN-10.0 MHz-5E-13

Availability of certain stability vs. operating temperature range (for 10 MHz)		Standard frequencies, MHz						
		$\pm 5 \times 10^{-9}$	$\pm 3 \times 10^{-9}$	$\pm 2 \times 10^{-9}$	$\pm 1 \times 10^{-9}$	$\pm 7.5 \times 10^{-10}$	$\pm 5 \times 10^{-10}$	$\pm 3 \times 10^{-10}$
		5	3	2	1	075*	05*	03*
A	0...+55°C	A	A	A	A	A	A	A
B	-10...+60°C	A	A	A	A	A	A	C
C	-20...+70°C	A	A	A	A	A	A	NA
D*	-40...+70°C	A	A	A	A	A	A	NA
EX*	-40...+85°C	A	A	A	A	A	A	NA

\*- for oscillators with package  $\geq 12,7$  mm and standard, LN and ULNF phase noise options  
 A – available, NA – not available, C – consult factory  
 For other temperature ranges see designation at the end of Data Sheet.

## Package drawings:



For “H” definition please see package type

Vibrations:	
Frequency range	10-500 Hz
Acceleration	10 g
Shock:	
Acceleration	100 g
Duration	3±1 ms
Humidity @ 25 °C	98%
Storage temperature range	-55...+85 °C

## Additional notes:

- Start-up time < 100 mSec – optional.
- Option with digital frequency control will be available soon.
- Please consult factory for daily aging values. Normally typical correspondence of daily to aging per year is as following:  $\pm 1 \times 10^{-7}$ /year –  $\pm 1 \times 10^{-9}$ /day;  $\pm 5 \times 10^{-8}$ /year –  $\pm 5 \times 10^{-10}$ /day;  $\pm 3 \times 10^{-8}$ /year –  $\pm 3 \times 10^{-10}$ /day
- Please mention RoHS requirement (if any) while requesting for quote or while placing PO.
- 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

Availability of certain aging values for certain frequencies		Standard frequencies, MHz				
		10.0	12.8	13.0	16.384	20.0
H	$\pm 2 \times 10^{-7}$ /year	A	A	A	A	A
G	$\pm 1 \times 10^{-7}$ /year	A	A	A	A	A
F	$\pm 5 \times 10^{-8}$ /year	A	A	A	C	A
E	$\pm 3 \times 10^{-8}$ /year	A	A	C	NA	NA
D	$\pm 2 \times 10^{-8}$ /year	A	C	C	NA	NA

Phase noise, dBc/Hz, for 10MHz, SIN		LN	ULNF	ULN	IULN	EULN
			For 12V only			
1 Hz	<-95	<-100	<-100	<-103	<-110	-117
10 Hz	<-125	<-130	<-130	<-133	<-138	-140
100 Hz	<-145	<-153	<-155	<-155	<-155	-155
1000 Hz	<-150	<-158	<-160	<-160	<-160	-160
10000 Hz	<-155	<-160	<-165	<-161	<-161	-161

Short term stability (Allan deviation) per 1 sec, for 10 MHz, 5 V or 12 V	< $5 \times 10^{-12}$	5E-12
Short term stability (Allan deviation) per 1 sec, for 10 MHz, 12 V	< $1 \times 10^{-12}$	1E-12
Short term stability (Allan deviation) per 1 sec, for 10 MHz, 12 V	< $5 \times 10^{-13}$	5E-13
Short term stability (Allan deviation) per 1 sec, for 10 MHz, 12 V	< $3 \times 10^{-13}$	3E-13
Frequency stability vs. load changes ( $\pm 5\%$ )	< $\pm 5 \times 10^{-10}$	
Frequency stability vs. power supply changes ( $\pm 5\%$ )	< $\pm 5 \times 10^{-10}$	
Warm-up time	-within accuracy of $\leq \pm 2 \times 10^{-8}$ @ 25 °C -within accuracy of $\leq \pm 1 \times 10^{-7}$ @ 25 °C	<3 min <1 min (option)

Power supply (Us)	12V $\pm 5\%$	5V $\pm 5\%$
Steady state current consumption @ +25 °C	<150 mA	<400 mA
Peak current consumption during warm-up (with $t < -20^\circ\text{C}$ “Still air”)	<400 mA	<1000 mA
Frequency pulling range (for 10 MHz)	> $\pm 4.0 \times 10^{-7}$	
Control voltage range (Uin)	0...5 V	0...4.5 V
Reference voltage (Uref)	+5 V	+4.5 V

Output	HCMOS		SIN
	“0”	<0.5V	>300 mV RMS (to 9±1 dBm - optional for 12V power supply)
Level	“1”	>4.0V	
Load	10kOhm/30pF		50 Ohm $\pm 5\%$
Rise/Fall time	<6 ns (<3 ns option)		-
Harmonics	-		>30 dBc