

## Mesures sur OCXO MORION MV89A

F6CXO 05/10/2014

En cherchant un OCXO pour le portable sans une grosse artillerie pour l'alimenter, je me suis aperçu que la fréquence de mon MV89A ne variait pratiquement pas sur une large plage de tension d'alimentation.

### Mesures de Fréquence en fonction de la tension d'alimentation.

MV89A 10 MHz S/N ZM 2968 après 30 mn de chauffe.

Réglé à 10.000 000 **00** MHz, les 2 derniers chiffres sont des 100° de Hertz.

Sous 12 V I démarrage : 1.10A puis 0.31 A en régime de croisière.

QTR	U alim	F de sortie au 100° de Hz
14h00	12V	10.000.000.00
14h04	13V	10.000.000.00
14h08	11V	10.000.000.00
14h12	10V	10.000.000.00
14h16	9.5V	09.999.999.99
14h20	9V	09.999.999.98
14h24	8.5V	09.999.999.96
14h28	8V	09.999.999.92
14h32	7.5V	09.999.997.60



On voit donc que F ne varie pas de 10 à 13 V, et on peut encore accepter en descendant à 9V.

L'écart à 9V n'est que de 4 Hz à 1 GHz soit 40 Hz à 10 GHz, donc pas de souci le QSO se fera si il doit se faire. A 7.5V c'est le décrochage.

Mesures effectuées sur Fréquencemètre FLUKE PM6685R bas de temps rubidium.  
Measuring time = 10s.

Donc ce MV89A va devenir ma base de temps pour le portable et sur l'alimentation générale ou sur une petite batterie mais sans aucun dispositif de régulation.

# DOUBLE OVEN ULTRA PRECISION OCXO MV89

## Features:

- High stability vs. temperature - up to  $\pm 5 \times 10^{-11}$
- Low aging
- Low phase noise
- Ideal for GPS, CDMA, 3G applications
- Frequency range 4.0-10.0 MHz

## ORDERING GUIDE: MV89 – B 01 E – 10.0 MHz

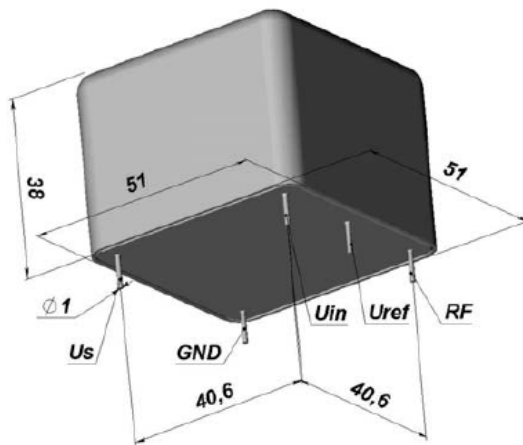
Availability of certain stability vs. operating temperature range		$\pm 3 \times 10^{-10}$	$\pm 2 \times 10^{-10}$	$\pm 1 \times 10^{-10}$	$\pm 5 \times 10^{-11}$
		03	02	01	005
A	0...+55 °C	A	A	A	A
B	- 10...+60 °C	A	A	A	C
C	- 20...+70 °C	A	A	A	NA
D	-40...+70 °C	A	A	C	NA

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

Availability of certain aging values for certain frequencies		Standard frequencies			
		4.096 MHz	5.0 MHz	8.192 MHz	10.0 MHz
F	$\pm 5 \times 10^{-8}$ /year	A	A	A	A
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	C	C	C

A – available NA – not available C – consult factory

## Package drawing:



## Mechanical characteristics:

Vibrations	
Frequency range	1-200 Hz
Acceleration	5g
Shock	
Acceleration	150 g
Duration	3±1 ms
Humidity @ 25 °C	98%
Storage temperature range	-55...+80 °C

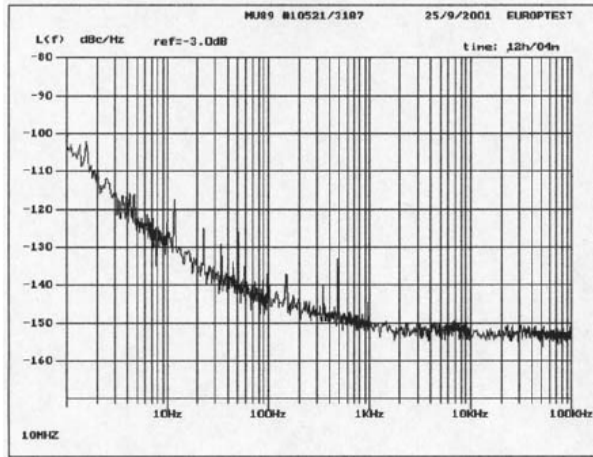
Short term stability per 1 sec, typical	$< 2 \times 10^{-12}$
Frequency stability vs. load changes	$< \pm 1 \times 10^{-10}$
Frequency stability vs. power supply changes	$< \pm 1 \times 10^{-10}$
Warm-up time with accuracy of $< \pm 5 \times 10^{-8}$	$< 15$ min
Power supply	12V±5%
Steady state current consumption @ 25°C (still air)	$< 350$ mA
Peak current consumption during warm-up @ 25°C	$< 1.5$ A
Frequency pulling range	$> \pm 2.5 \times 10^{-7}$
with external control voltage range	0...+5 V
Reference voltage	+5V

Output	SIN
Level	$> 225$ mV (0dBm)
Load	50 Ohm±5%
Subharmonics (for 8.192, 10.0 MHz)	$< -40$ dBc
Harmonic suppression	$> 30$ dBc
Phase noise, typical (for 5 MHz)	
1 Hz	-105 dBc/Hz
10 Hz	-130 dBc/Hz
100 Hz	-145 dBc/Hz
1000 Hz	-150 dBc/Hz
10000 Hz	-155 dBc/Hz

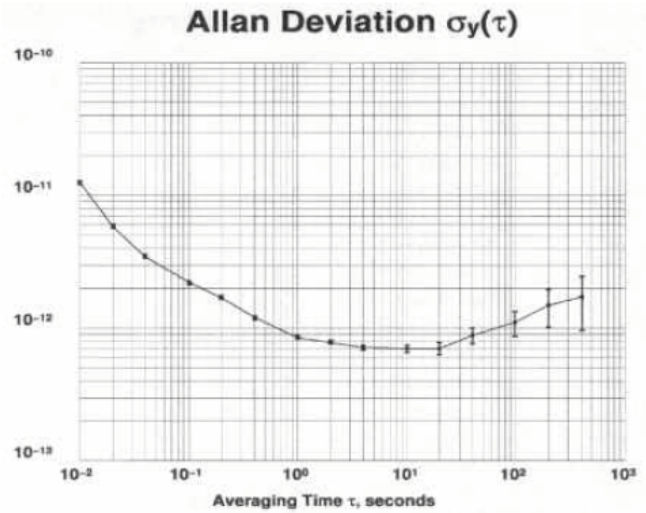
# DOUBLE OVEN ULTRA PRECISION OCXO MV89

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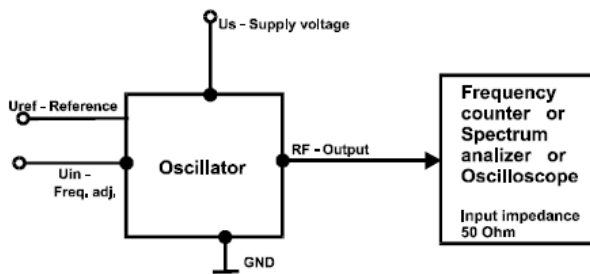
## Typical Phase Noise for 10 MHz:



## Typical Short-Term stability for 10 MHz:



## Test circuit



## ADDITIONAL NOTES:

- Output levels up to +6 dBm are available on request.
- Modifications with 0...+10V external control voltage and frequency adjustment through external trimmer are available on request.
- Showed values of frequency stability vs. temperature usually are tested in Still Air test conditions. Please inform factory about different conditions in operation to provide appropriate tests.
- Please consult factory for daily aging values. Normally typical correspondence of daily aging (after 30 days of operation) to aging per year is as following:
- $\pm 5 \times 10^{-8}/\text{year} - \pm 5 \times 10^{-10}/\text{day}$ ;  $\pm 3 \times 10^{-8}/\text{year} - \pm 3 \times 10^{-10}/\text{day}$ ;  $\pm 2 \times 10^{-8}/\text{year} - \pm 2 \times 10^{-10}/\text{day}$ ;  $\pm 1 \times 10^{-8}/\text{year} - \pm 1 \times 10^{-10}/\text{day}$ .
- 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):

E	F	G	H	J	K	L	M	N	P	Q	R	S	T
-40	-30	-20	-10	0	+10	+25	+40	+45	+50	+55	+60	+65	+70