ULTRA PRECISION ULTRA SHORT-TERM STABILITY AND LOW PHASE NOISE DOCXO MV336

Features:

- *Standard frequencies: 5.0 MHz and 10.0 MHz*
- *Ultra low phase noise level close to the carrier*
- *Stability vs. temperature: up to $\pm 2x10^{-11}$*
- *High long-term stability: up to $\pm 1x10^{-8}$/year*
- *Short term stability (Allan deviation): up to $8x10^{-14}$ per 1 sec*
- *Power supply: 12 V*
- *Available as RoHS*
- *Analog, digital or no frequency control*
- *Warranty period – 2 years from the date of shipment*
- *Should be stored in a temperature controlled room in original packaging only*

ORDERING GUIDE: MV336–B 003 D–10.0MHz–1–A–1S/1.2E-13–10S/2E-13–100S/3E-13

Availability of certain stability vs. operating temperature range		±5x10⁻¹¹	±3x10⁻¹¹	±2x10⁻¹¹
		005	003	002
B	-10…+60 °C	A	A	A
C	-20…+70 °C	A	C	C

A – available, C – consult factory
For other temperature ranges see designation at the end of Data Sheet

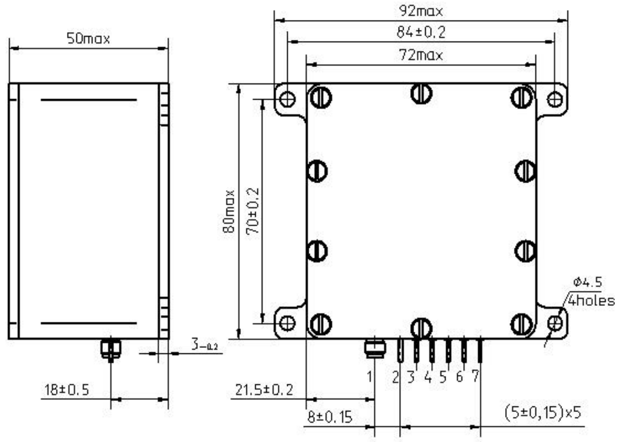
Availability of certain aging values	
E	$\pm 3x10^{-8}$/year
D	$\pm 2x10^{-8}$/year
C	$\pm 1x10^{-8}$/year

Frequency adjustment type	
A	analog
D	digital
R	no frequency control, untuned
-	no frequency control

Phase noise, dBc/Hz:	Standard frequency			
	10 MHz		5 MHz	
	1	2	1	2*
0.1 Hz	< -90	< -94	< -96	< -100
1 Hz	< -120	< -124	≤ -126	< -130
10 Hz	< -145	≤ -147	≤ -146	< -150
100 Hz	< -157	< -157	< -154	< -158
1000 Hz	< -163	< -163	< -162	< -165
10000 Hz	< -164	< -164	< -163	< -166

* preliminary information

Short term stability (Allan deviation)		
Per 1 sec	Per 10 sec (option)	Per 100 sec* (option)
< $1.2x10^{-13}$(1.2E-13) < $1x10^{-13}$(1E-13) < $9x10^{-14}$(9E-14) < $8x10^{-14}$(8E-14)	< $2x10^{-13}$(2E-13) < $1.3x10^{-13}$(1.3E-13)	< $3x10^{-13}$(3E-13) < $1.5x10^{-13}$(1.5E-13)



Pin	Function		
	Analog frequency adjustment	Digital frequency adjustment	No frequency adjustment
1	Output signal SMA	Output signal SMA	Output signal SMA
2	Ground (case)	Ground (case)	Ground (case)
3	Control voltage input	$\overline{LDAC}$*	NC
4	Ground for control voltage input	SCLK	NC
5	NC	DIN	NC
6	Reference voltage output	$\overline{CS}$*	NC
7	Power supply	Power supply	Power supply

* Pins pulled up to 5 V through 10 kOhm

Vibrations:	
Frequency range	10-200 Hz
Acceleration	5 g
Shock:	75 g/3±1 ms
Humidity @ 25ºC	98%

Parameter		Value
Initial tuning accuracy with different types of frequency control	R	$\pm 300x10^{-6}$
	-	$\pm 5x10^{-7}$
	A / D	$\pm 5x10^{-8}$
Frequency stability vs. load changes (±5%)		< $\pm 2x10^{-11}$
Frequency stability vs. power supply changes (±1%)		< $\pm 2x10^{-11}$
Warm-up time within accuracy of <$\pm 5x10^{-8}$ @ 25°C		< 14 min
Power supply (U_s)		12 V ± 1%
Steady state current consumption @ +25°C ("still air")		< 650 mA
Peak current consumption during warm-up for lower operating temperature <0 ºC		< 1600 mA
Peak current consumption during warm-up for lower operating temperature ≥0 ºC		< 1100 mA

Output waveform	SIN
Level	≥ +4 dBm
Load	30 Ohm ± 5%
Harmonics	≤ -30 dBc
Frequency pulling range (for A and D options)	≥ $\pm 3x10^{-7}$*
Analog frequency control with external control voltage	0…5 V
Analog frequency control with reference voltage	+5 V
Digital frequency control by SPI protocol	
DAC type	MAX5719 (20 bit)

* sufficient to compensate aging during 10 years

Additional notes:

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), ºC:

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

MORION, Inc.
13a, KIMa Ave., St.Petersburg, 199155, RUSSIA. http://www.morion.com.ru
Tel.:+7-812-350-9243; 332-5032. Fax:+7-812-350-7290. e-mail: sale@morion.com.ru

Revision 19. March 2024