

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 $\pm 2 \times 10^{-11}$
- High long-term stability: up to $\pm 1 \times 10^{-8}$ /year
- Short term stability (Allan deviation): up to 8×10^{-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

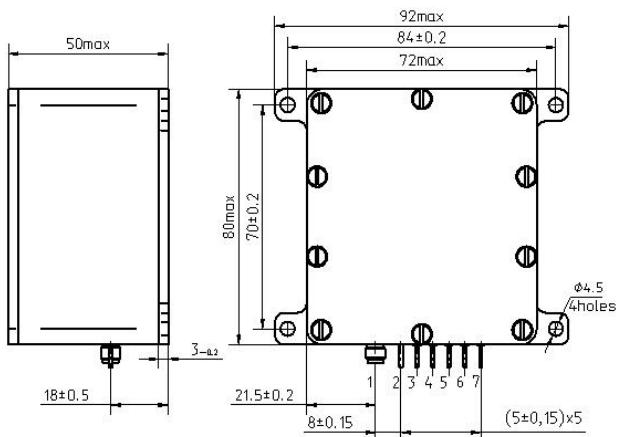
ORDERING GUIDE: MV336-B 003 D-10.0MHz-LN-A-1S/1.2E-13-10S/2E-13-100S/3E-13

Availability of certain stability vs. operating temperature range		$\pm 5 \times 10^{-11}$	$\pm 3 \times 10^{-11}$	$\pm 2 \times 10^{-11}$
		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	$\pm 3 \times 10^{-8}$ /year
D	$\pm 2 \times 10^{-8}$ /year
C	$\pm 1 \times 10^{-8}$ /year



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	LDAC*	NC
4	Ground for control voltage input	SCLK	NC
5	NC	DIN	NC
6	Reference voltage output	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 @ 25°C	98%

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), °C:

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

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

Phase noise, dBc/Hz, at offset	Frequency 10 MHz		
	LN	ULN	IULN
0.1 Hz	-90	-92	-94
1 Hz	-120	-120	-124
10 Hz	-145	-145	-147
100 Hz	-157	-157	-157
1000 Hz	-163	-163	-163
10000 Hz	-164	-164	-164
Frequency 5 MHz			
	LN	ULN	
0.1 Hz	-96	-100	
1 Hz	-126	-130	
10 Hz	-146	-150	
100 Hz	-154	-158	
1000 Hz	-162	-165	
10000 Hz	-163	-166	

Short term stability (Allan deviation)		
Per 1 sec	Per 10 sec (option)	Per 100 sec* (option)
< 1.2×10^{-13} (1.2E-13)	< 2×10^{-13} (2E-13)	< 3×10^{-13} (3E-13)
< 1×10^{-13} (1E-13)	< 1.5×10^{-13} (1.5E-13)	< 2.5×10^{-13} (2.5E-13)
< 9×10^{-14} (9E-14)		
< 8×10^{-14} (8E-14)		

Initial tuning accuracy with different types of frequency control	R	$\pm 300 \times 10^{-6}$
	-	$\pm 5 \times 10^{-7}$
	A / D	$\pm 5 \times 10^{-8}$
Frequency stability vs. load changes ($\pm 5\%$)	< $\pm 2 \times 10^{-11}$	
Frequency stability vs. power supply changes ($\pm 1\%$)	< $\pm 2 \times 10^{-11}$	
Warm-up time within accuracy of $< \pm 5 \times 10^{-8}$ @ 25°C	< 14 min	
Power supply (U.)	12 V $\pm 1\%$	
Steady state current consumption @ +25°C ("still air")	< 650 mA	
Peak current consumption during warm-up for lower operating temperature < 0 °C	< 1600 mA	
Peak current consumption during warm-up for lower operating temperature ≥ 0 °C	< 1100 mA	
Output waveform	SIN	
Level	$\geq +4$ dBm	
Load	50 Ohm $\pm 5\%$	
Harmonics	≤ -30 dBc	
Frequency pulling range (for A and D options)	$\geq \pm 3 \times 10^{-7}$ *	
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