



MV318

Oven Controlled Crystal Oscillator
48-125 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features

- Low Profile: 12.7 mm Height
- Low Phase Noise <-180 dBc/Hz @ 100 kHz Offset
- High Stability vs. Temperature: up to $\pm 5 \times 10^{-8}$
- Short Warm-up Time
- Sinewave Output
- 12V

Applications

- Frequency synthesizer
- Test equipment
- VSAT
- PLL

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$<\pm 5 \times 10^{-7}$	$<\pm 5 \times 10^{-8}$	
-10 to +60° C	$<\pm 5 \times 10^{-7}$	$<\pm 7.5 \times 10^{-8}$	Contact factory for $<\pm 5 \times 10^{-8}$
-20 to +70° C	$<\pm 5 \times 10^{-7}$	$<\pm 1 \times 10^{-7}$	Contact factory for $<\pm 7.5 \times 10^{-8}$
-40 to +70° C	$<\pm 5 \times 10^{-7}$	$<\pm 1 \times 10^{-7}$	Contact factory for $<\pm 7.5 \times 10^{-8}$
-40 to +85° C	$<\pm 5 \times 10^{-7}$	$<\pm 3 \times 10^{-7}$	Contact factory for $<\pm 1 \times 10^{-7}$

Temperature ranges from -60° C to +85° C available. Contact factory and see ordering designations at the end of this data sheet.

Long Term Stability (Yearly Aging) Availability

Aging Options	Comments
Option J	$<\pm 5 \times 10^{-7}$
Option I	$<\pm 3 \times 10^{-7}$
Option H	$<\pm 2 \times 10^{-7}$
Option G	$<\pm 1 \times 10^{-7}$

See ordering designations at the end of this data sheet.

Short Term, Pulling & Pushing Stability

Specification	Standard	Option	Comments
Short term stability per 1 sec.	-	-	Allan deviation
Stability vs. Load ($\pm 10\%$)	$<\pm 5.0 \times 10^{-8}$	-	
Stability vs. power supply ($\pm 10\%$)	$<\pm 5.0 \times 10^{-8}$	-	
Warm-up time to w/ in $<\pm 2 \times 10^{-7}$	<3 minutes	-	@25° C

Specifications-Continued

Phase Noise, 100 MHz, 12V, Sinewave (dBc/Hz)				
Option	1	2	3	4
10 Hz	< -95	< -97	< -97	< -100
100 Hz	< -127	< -128	< -128	< -133
1 kHz	< -153	< -155	< -156	< -157
10 kHz	< -172	< -173	< -175	< -176
100 kHz	< -176	< -176	< -178	< -180

See ordering designations and noise plots at the end of this data sheet.

Output Parameters	
Output	Sinewave
Level	>600 mV
Load	50 Ohms \pm 10%
Rise/Fall Time	-
Harmonics	-25 dBc

See ordering designations at the end of this data sheet.

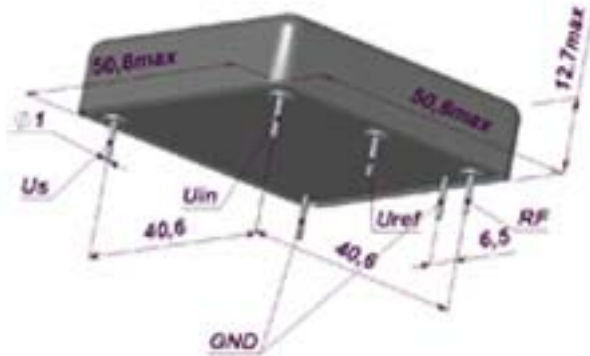
Power Supply & Voltage Control Parameters	
Specification	12V \pm 10%
Steady state current @ 25° C	< 190 mA
Peak warm-up current	< 450 mA
Frequency Adjust range	$>\pm 2.5 \times 10^{-6}$
Frequency Adjust Voltage (Uin)	0 to +8V
Reference Voltage (Uref)	8V

See ordering designations at the end of this data sheet.

Environmental Parameters	
Specification	Conditions
Vibration Frequency	10-500 Hz
Vibration Acceleration	5 gs
Shock Acceleration	-
Shock Duration	-
Humidity	-
Storage Temperature	-55 to +80° C
RoHs	Option

Contact factory for extended environmental conditions.

Outline Drawing



Pin	Value
Uref	Reference Voltage
Us	Power Supply
RF	RF Out
GND	Ground
Uin	Frequency Adjustment Voltage

Ordering Guide

MV318- B 300 J - 3 - 100M

Availability of certain stability vs. operating temperature range.		$\pm 5 \times 10^{-7}$	$\pm 3 \times 10^{-7}$	$\pm 1 \times 10^{-7}$	$\pm 7.5 \times 10^{-8}$	$\pm 5 \times 10^{-8}$
		500	300	100	75	50
A	0 to +55° C	A	A	A	A	A
B	-10 to +60° C	A	A	A	A	C
C	-20 to +70° C	A	A	A	C	N
D	-40 to +70° C	A	A	A	C	N
EX	-40 to +85° C	A	A	C	N	N

A=Available, C=Contact factory, N=Not available

Frequency Range: 48.0 to 125.0 MHz
 Standard Frequency: 48.0; 56.0; 60.0; 80.0; 100.0 MHz

Aging	
J	$\pm 5 \times 10^{-7}$ /year
I	$\pm 3 \times 10^{-7}$ /year
H	$\pm 2 \times 10^{-7}$ /year
G	$\pm 1 \times 10^{-7}$ /year

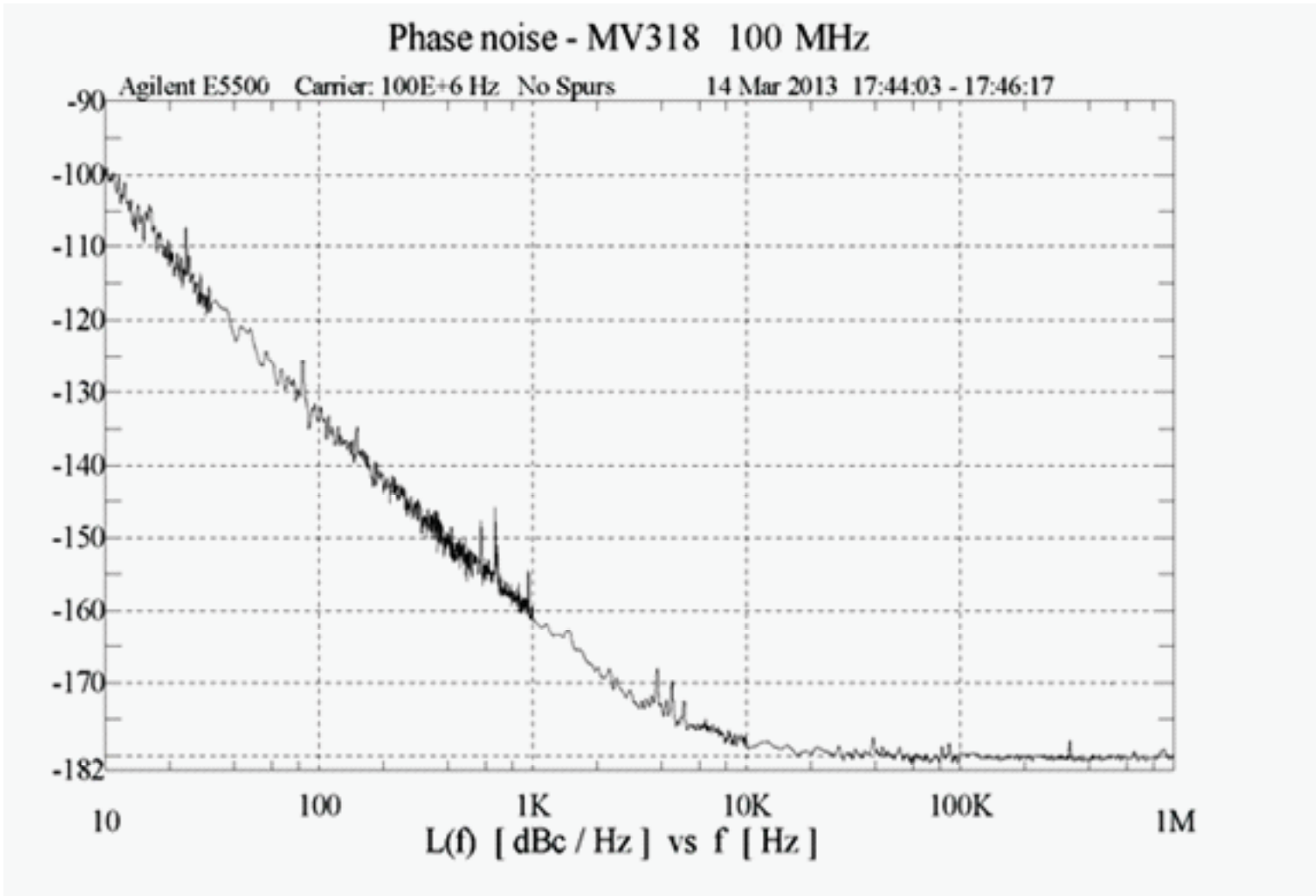
Phase Noise, 10 MHz, 12V, Sinewave (dBc/Hz)

Option	1	2	3	4
10 Hz	< -95	< -97	< -97	< -100
100 Hz	< -127	< -128	< -128	< -133
1 kHz	< -153	< -155	< -156	< -157
10 kHz	< -172	< -173	< -175	< -176
100 kHz	< -176	< -176	< -178	< -180

See noise plot on next page.

Additional Notes:

- 1) Contact factory for daily aging values. General rule: $x10^{-x}$ /year = $x10^{-(x+2)}$ /day.
- 2) Advise RoHs requirement at Order.
- 3) Contact factory for non-standard temperature ranges.



Option 4: Typical Phase Noise (100 MHz)