



MV201

Oven Controlled Crystal Oscillator
10-40 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features

- High Stability vs. Temperature: up to $\pm 5 \times 10^{-10}$
- Low Package Height: 19 mm to 12.7 mm
- Replacement of MV62 OCXO
- +5V & +12V

Applications

- SatCom
- Test equipment
- Network clock
- Base station

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$< \pm 5 \times 10^{-9}$	$< \pm 5 \times 10^{-10}$	
-10 to +60° C	$< \pm 5 \times 10^{-9}$	$< \pm 5 \times 10^{-10}$	
-20 to +70° C	$< \pm 5 \times 10^{-9}$	$< \pm 5 \times 10^{-10}$	
-40 to +70° C	$< \pm 5 \times 10^{-9}$	$< \pm 7.5 \times 10^{-10}$	Contact factory for $< \pm 5 \times 10^{-10}$
-40 to +85° C	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	Contact factory for $< \pm 7.5 \times 10^{-10}$

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

Standard Frequencies	Long Term Stability (Yearly Aging) Availability		Comments
	High	Higher	
5.0 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 2 \times 10^{-8}$	
8.192 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 2 \times 10^{-8}$	
10.0 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 2 \times 10^{-8}$	
12.8 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 3 \times 10^{-8}$	Contact factory for $< \pm 2 \times 10^{-8}$
13.0 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 5 \times 10^{-8}$	Contact factory for $< \pm 3 \times 10^{-8}$
16.384 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 1 \times 10^{-7}$	Contact factory for $< \pm 5 \times 10^{-8}$
20.0 MHz	$< \pm 2 \times 10^{-7}$	C	Contact factory for $< \pm 1 \times 10^{-7}$

Contact factory for non-standard long term stability performance and see ordering designations at the end of this data sheet.

Specification	Short Term, Pulling & Pushing Stability		Comments
	Standard	Option	
Short term stability per 1 sec.	$< \pm 5 \times 10^{-12}$	$< \pm 2 \times 10^{-12}$	Allan deviation, For 10 MHz
Stability vs. Load ($\pm 5\%$)	$< \pm 5 \times 10^{-10}$	$< \pm 2 \times 10^{-10}$	
Stability vs. power supply ($\pm 5\%$)	$< \pm 5 \times 10^{-10}$	$< \pm 2 \times 10^{-10}$	
Warm-up time to w/ in $< \pm 2 \times 10^{-8}$	<3 minutes		@25° C

Specifications-Continued

Phase Noise, 10 MHz, 12V, Sinewave (dBc/Hz)			
Frequency Offset	STD	LN	Comments
1 Hz	< -95	< -100	Contact factory for lower phase noise
10 Hz	< -125	< -130	
100 Hz	< -145	< -153	
1 kHz	< -150	< -158	
10 kHz	< -155	< -160	

Contact factory for low phase noise performance and see ordering designations at the end of this data sheet.

Output	Output Parameters		Sinewave
	HCMOS		
Level	"0"	< 0.5V	> 300 mV
	"1"	> 4.0V	+9±1 dBm Optional w/ 12V
Load	10K Ohms, 30 pF		50 Ohms ± 5%
Rise/Fall Time	< 6 nS (3 nS Optional)		-
Harmonics	-		> -30 dBc (-50 dBc Optional)

See ordering designations at the end of this data sheet.

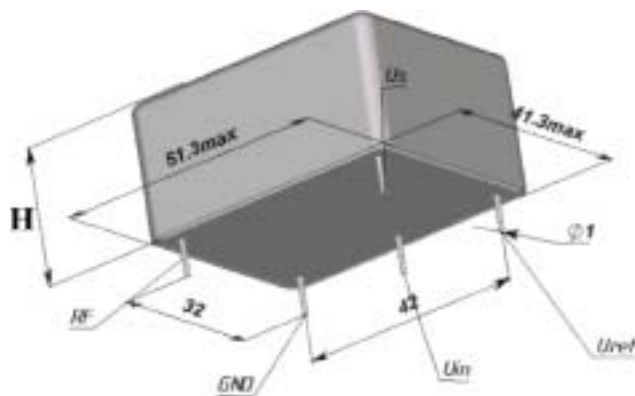
Power Supply & Voltage Control Parameters			
Specification		12V ±5%	5V ±5%
Steady state current @ 25° C		< 200 mA	< 500 mA
Peak warm-up current @ -40° C		< 500 mA	< 1200 mA
Frequency Adjust range (10 MHz)		>±4x10 ⁻⁷	>±4x10 ⁻⁷
Frequency Adjust Voltage (Uin)		0 to +5V	0 to +4.5V
or with Potentiometer		20 kOhm	20 kOhm
Reference Voltage (Uref)		+5V	+4.5V

See ordering designations at the end of this data sheet.

Environmental Parameters	
Specification	Conditions
Vibration Frequency	50-500 Hz
Vibration Acceleration	5 gs
Shock Acceleration	75 gs
Shock Duration	3±1 mS
Humidity	-
Storage Temperature	-55 to +85° 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

H=19 mm for Y19; H=16 mm for Y16;
H=12.7 mm for Y12.7.

Ordering Guide

Power Supply
12V
5V

Output
Sinewave
HCMOS

Package	Size
Y19	51x41x19 mm
Y16	51x41x16 mm
Y12.7	51x41x12.7 mm

MV201- B 1 F -12V - SIN - Y16 - 10.0 MHz - LN

Availability of certain stability vs. operating temperature range.

		$\pm 5 \times 10^{-9}$	$\pm 3 \times 10^{-9}$	$\pm 2 \times 10^{-9}$	$\pm 1 \times 10^{-9}$	$\pm 7.5 \times 10^{-10}$	$\pm 5 \times 10^{-10}$
		5	3	2	1	07	05
A	0 to +55 ^o C	A	A	A	A	A	A
B	-10 to +60 ^o C	A	A	A	A	A	A
C	-20 to +70 ^o C	A	A	A	A	A	A
D	-40 to +70 ^o C	A	A	A	A	A	C
EX	-40 to +85 ^o C	A	A	A	A	C	N

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

Availability of certain aging values for certain frequencies.

		Standard Frequencies						
		5.0 MHz	8.192 MHz	10.0 MHz	12.8 MHz	13.0 MHz	16.384 MHz	20.0 MHz
H	$\pm 2 \times 10^{-7}$ /year	A	A	A	A	A	A	A
G	$\pm 1 \times 10^{-7}$ /year	A	A	A	A	A	A	C
F	$\pm 5 \times 10^{-8}$ /year	A	A	A	A	A	C	N
E	$\pm 3 \times 10^{-8}$ /year	A	A	A	A	C	N	N
D	$\pm 2 \times 10^{-8}$ /year	A	A	A	C	N	N	N

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

Additional Notes:

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

Phase Noise (dBc/Hz)	10 MHz, Sinewave, 12V	-	LN
At Offset frequency	1 Hz	<-95	<-100
	10 Hz	<-125	<-130
	100 Hz	<-145	<-153
	1 kHz	<-150	<-158
	10 kHz	<-155	<-160