MV115

Oven Controlled Crystal Oscillator
10-40 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features
- **SMD Package** 25x22x14.0 mm
- High Stability vs. Temperature: up to ±5x10^{-9}
- HCMOS or Sinewave
- +5V & +3.3V

Applications
- SatCom
- Test equipment
- Network clock
- Base station

Specifications

Temperature Stability Availability			
Temperature Range*	High	Higher	Comments
0 to +55^0 C	<±5x10^{-8}	<±5x10^{-9}	
-10 to +60^0 C	<±5x10^{-8}	<±1x10^{-8}	Contact factory for <±5x10^{-9}
-20 to +70^0 C	<±5x10^{-8}	<±1x10^{-8}	Contact factory for <±5x10^{-9}
-40 to +70^0 C	<±5x10^{-8}	<±2x10^{-8}	Contact factory for <±1x10^{-8}
-40 to +85^0 C	<±5x10^{-8}	C	Contact factory for <±2x10^{-8}

*Temperature ranges from -60^0 C to +85^0 C available. Comtact factory and see ordering designations at the end of this data sheet.

Long Term Stability (Yearly Aging) Availability			
Standard Frequencies	High	Higher	Comments
10.0 MHz	<±2x10^{-7}	<±3x10^{-8}	
12.8 MHz	<±2x10^{-7}	<±5x10^{-8}	Contact factory for <±3x10^{-8}
13.0 MHz	<±2x10^{-7}	<±5x10^{-8}	Contact factory for <±3x10^{-8}
16.384 MHz	<±2x10^{-7}	<±1x10^{-7}	Contact factory for <±5x10^{-8}
20 MHz	<±2x10^{-7}	C	Contact factory for <±1x10^{-7}
25.6 MHz	<±2x10^{-7}	<±5x10^{-8}	Contact factory for <±3x10^{-8}
26 MHz	<±2x10^{-7}	<±5x10^{-8}	Contact factory for <±3x10^{-8}
32.78 MHz	<±2x10^{-7}	<±1x10^{-7}	Contact factory for <±5x10^{-8}
40 MHz	<±2x10^{-7}	C	Contact factory for <±1x10^{-7}

Comtact factory for non-standard long term stability perfomance and 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.	<±5x10^{-12}	-	Allan deviation, 10 MHz
Stability vs. Load (±5%)	<±3x10^{-9}	-	
Stability vs. power supply (±5%)	<±3x10^{-9}	-	
Warm-up time to w/ in <±1x10^{-7}	<3 minutes	-	@25^0 C

Specifications-Continued

Phase Noise, 10 MHz, Sinewave (dBc/Hz)							
	5V			3.3V			Comments
Frequency Offset	Std	2*	1*	Std	2*	1*	
1 Hz	-	-90	-100	-	-85	-95	Contact factory
10 Hz	-120	-120	-130	-115	-115	-125	
100 Hz	-135	-140	-145	-130	-135	-140	
1 kHz	-145	-150	-150	-140	-145	-145	
10 kHz	-150	-155	-155	-145	-150	-150	

Comtact factory for lower phase noise perfomance (Options 1* & 2*, Sinewave Only) and see ordering designations at the end of this data sheet.

Output Parameters				
Output		HCMOS		Sinewave
		5V Supply	3.3V Supply	12V Supply
Level	"0"	< 0.5V	< 0.3V	> 225 mV (0 dBm)
	"1"	> 4.5V	> 3.0V	
Load		10K Ohms, 15 pF		50 Ohms ± 5%
Rise/Fall Time		-		-
Harmonics		-	-	-

Comtact factory for Rise/Fall time and harmonics.

Power Supply & Voltage Control Parameters		
Specification	5V ±5%	3.3V ±5%
Steady state current @ 25^0 C	< 200 mA	< 300 mA
Peak warm-up current	< 600 mA	< 750 mA
Frequency Adjust range (10 MHz)	$>\pm5x10^{-7}$	$>\pm5x10^{-7}$
Frequency Adjust Voltage (Uin)	0 to +4.5V	0 to +3.0V
or with Potentiometer	20 kOhm	20 Ohm
Adjustmet Slope	Positive	Positive
Reference Voltage (Uref)	+4.5V	+3.0V

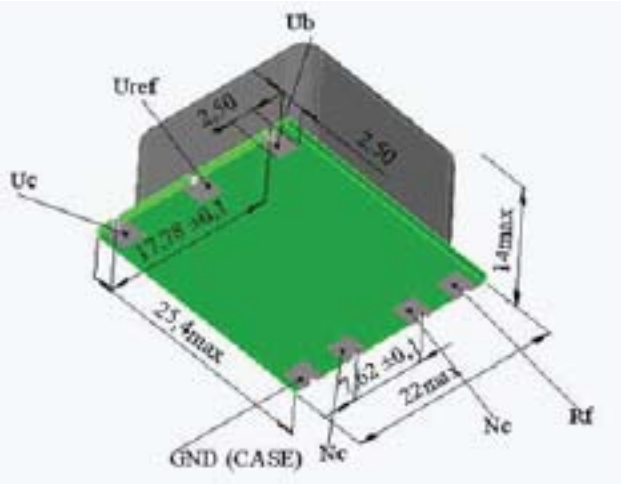
See ordering designations at the end of this data sheet.

Environmental Parameters	
Specification	Conditions
Vibration Frequency	10-500 Hz
Vibration Acceleration	10 gs
Shock Acceleration	100 gs
Shock Duration	3±1 mS
Storage Temperature	-55 to $+85^0$ C
RoHs	Option

Contact factory for extemded environmental conditions.

MV115

Outline Drawing



Pin	Value
Uref	Reference Voltage
Us	Power Supply
RF	RF Out
GND	Ground
Uin	Frequency Adjustment Voltage
Nc (2x)	No Connection

Ordering Guide

Power Supply
5V
3.3V

Output
Sinewave
HCMOS

MV115 - B 20 F - 5V - SIN - 10.0 MHz - 2

Availability of certain stability vs. operating temperature range.		±5x10^{-8}	±2x10^{-8}	±1x10^{-8}	±5x10^{-9}
		50	20	10	5
A	0 to +55^{0} C	A	A	A	A
B	-10 to +60^{0} C	A	A	A	C
C	-20 to +70^{0} C	A	A	A	C
D	-40 to +70^{0} C	A	A	C	N
EX	-40 to +85^{0} C	A	C	N	N

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

Availability of certain aging values for certain frequencies.		Standard Frequencies (MHz)				
		10.0	12.8	13.0	16.384	20.0
		20.0	25.6	26.0	32.768	40.0
H	±2x10^{-7} /year	A	A	A	A	A
G	±1x10^{-7} /year	A	A	A	A	C
F	±5x10^{-8} /year	A	A	A	C	N
E	±3x10^{-8} /year	A	C	C	N	N

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

Phase Noise, 10 MHz, Sinewave (dBc/Hz)						
	5V			3.3V		
Frequency Offset	Std	1*	2*	Std	1*	2*
1 Hz	-	<-90	<-100	-	<-85	<-95
10 Hz	<-120	<-120	<-130	<-115	<-115	<-125
100 Hz	<-135	<-140	<-145	<-130	<-135	<-140
1 kHz	<-145	< -150	<-150	<-140	< -145	<-145
10 kHz	<-150	< -155	<-155	<-145	< -150	<-150

Comtact factory for lower phase noise perfomance (Options 1 & 2*, Sinewave Only) .

Additional Notes:
1) Advise RoHs requirement.
2) Contact factory for daily aging values.
3) Contact factory for non-standard temperature ranges.