



# MV205

Oven Controlled Crystal Oscillator  
16.384-50 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

## Features

- High Stability vs. Temperature: up to  $\pm 1 \times 10^{-9}$
- Long Term Stability up to  $\pm 2 \times 10^{-8}$  /year
- Fast Warm-up Time: 1 minute
- Low Package Height: 10 mm to 16 mm
- +5V & +12V

## Applications

- SatCom
- Test equipment
- Network clock
- Base station

## Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	
-10 to +60° C	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	
-20 to +70° C	$< \pm 5 \times 10^{-9}$	$< \pm 1 \times 10^{-9}$	
-40 to +70° C	$< \pm 5 \times 10^{-9}$	$< \pm 2 \times 10^{-9}$	Contact factory for $< \pm 1 \times 10^{-9}$
-40 to +85° C	$< \pm 5 \times 10^{-9}$	$< \pm 2 \times 10^{-9}$	Contact factory for $< \pm 1 \times 10^{-9}$

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	
16.384 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 2 \times 10^{-8}$	
20.0 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 2 \times 10^{-8}$	
25.6 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 5 \times 10^{-8}$	Contact factory for $< \pm 3 \times 10^{-8}$
26.0 MHz	$< \pm 2 \times 10^{-7}$	$< \pm 1 \times 10^{-7}$	Contact factory for $< \pm 5 \times 10^{-8}$
32.768 MHz	$< \pm 2 \times 10^{-7}$	C	Contact factory for $< \pm 1 \times 10^{-7}$
50.0 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 20 MHz
Stability vs. Load ( $\pm 5\%$ )	$< \pm 5 \times 10^{-10}$	-	
Stability vs. power supply ( $\pm 5\%$ )	$< \pm 5 \times 10^{-10}$	-	
Warm-up time to w/ in $< \pm 2 \times 10^{-8}$	<3 minutes	-	@25° C
Optional to w/ in $< \pm 1 \times 10^{-8}$	-	<1 minute	@25° C

## Specifications-Continued

## Phase Noise, 20 MHz, 12V, Sinewave (dBc/Hz)

Frequency Offset	STD	Comments
1 Hz	< -90	Contact factory for lower phase noise
10 Hz	< -120	
100 Hz	< -135	
1 kHz	< -140	
10 kHz	< -145	

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

## Output Parameters

Output	HCMOS	Sinewave
Level	"0" < 0.5V "1" > 4.0V	> 300 mV
Load	10K Ohms, 30 pF	50 Ohms $\pm$ 5%
Rise/Fall Time	-	-
Harmonics	-	> -30 dBc (-50 dBc Optional)

Contact factory for Rise/Fall time.

## Power Supply &amp; Voltage Control Parameters

Specification	12V $\pm$ 5%	5V $\pm$ 5%
Steady state current @ 25 <sup>o</sup> C	< 150 mA	< 400 mA
Peak warm-up current @ -40 <sup>o</sup> C	< 400 mA	< 1000 mA
Frequency Adjust range	> $\pm$ 4x10 <sup>-7</sup>	> $\pm$ 4x10 <sup>-7</sup>
Frequency Adjust Voltage (Uin)	0 to +5V	0 to +4.5V
Reference Voltage (Uref)	+5V	+4.5V

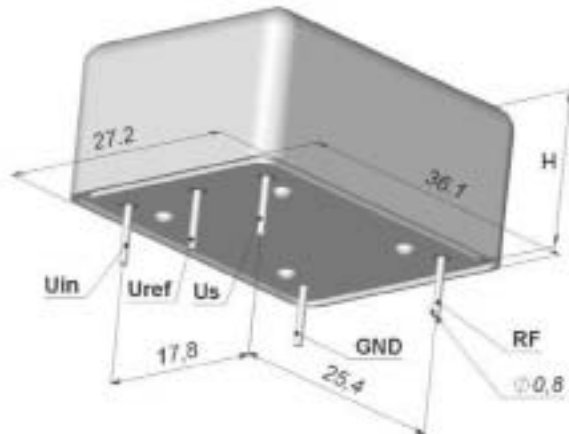
See ordering designations at the end of this data sheet.

## Environmental Parameters

Specification	Conditions
Vibration Frequency	10-200 Hz
Vibration Acceleration	5 gs
Shock Acceleration	75 gs
Shock Duration	3 $\pm$ 1 ms
Humidity	98%
Storage Temperature	-55 to +85 <sup>o</sup> C
RoHs	Option

Contact factory for extended environmental conditions.

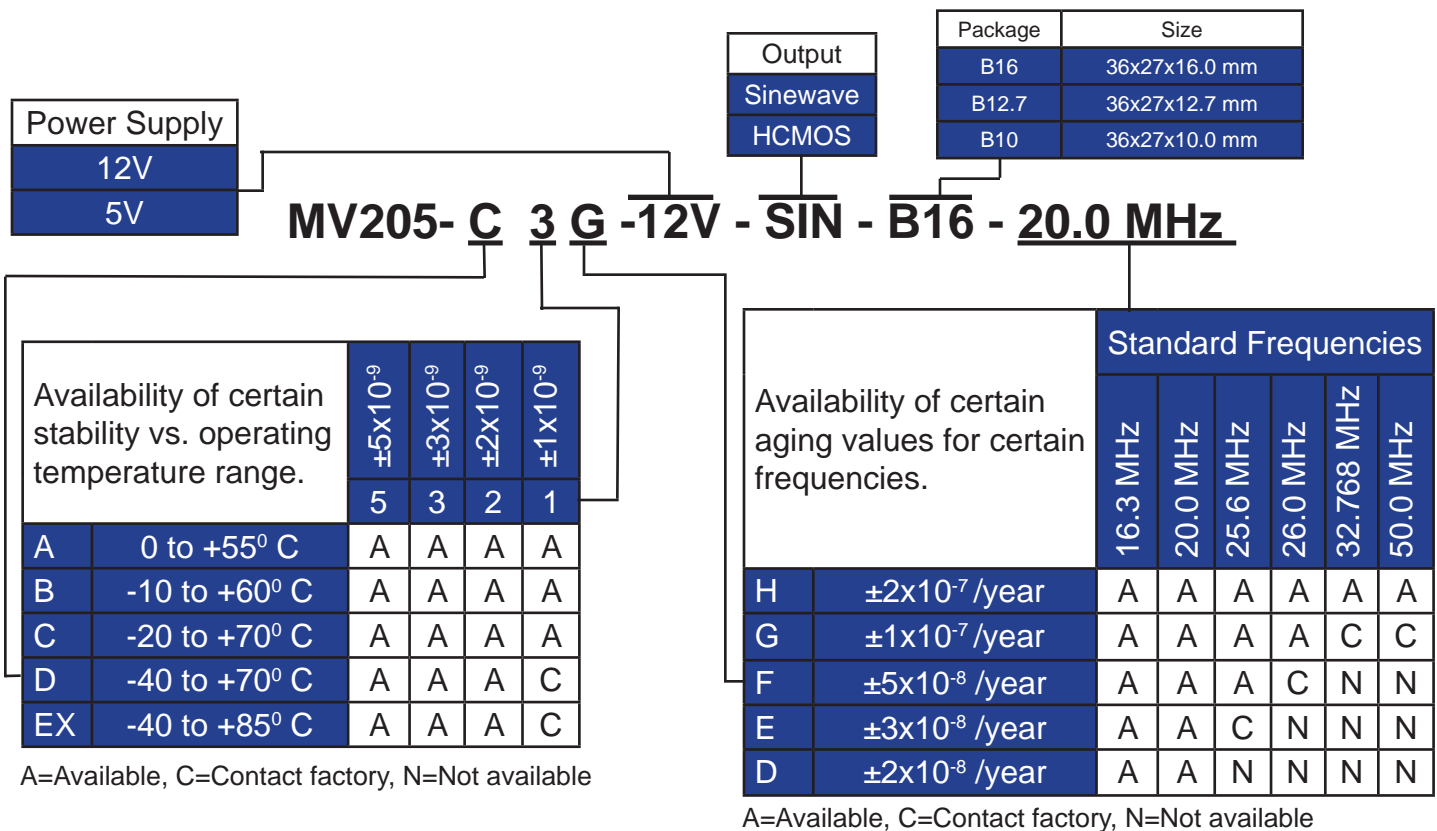
## Outline Drawing



For "H" definition please see package type

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

## Ordering Guide



### 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.