



Double Oven Controlled Crystal Oscillator 5-16.4 MHz

Revised 1/1/15

Your dedicated source for crystal oscillators and filters.

Features

- Low Sensitivity to Rapid Temperature Changes
- Low Profile Package: height of 19 (17) mm
- High Stability vs. Temperature: up to ±1x10⁻¹⁰
- +5V & +12V
- HCMOS & Sinewave Output

Applications

- SatCom
- Test equipment
- Network clock
- Base station

Specifications

Temperature Stability Availability						
Temperature Range High Higher Comments						
0 to +55° C	<±1x10 ⁻⁹	<±1x10 ⁻¹⁰				
-10 to +60° C	<±1x10 ⁻⁹	<±1x10 ⁻¹⁰				
-20 to +70° C	<±1x10 ⁻⁹	<±2x10 ⁻¹⁰	Contact factory for <±1x10 ⁻¹⁰			
-40 to +70° C	<±1x10 ⁻⁹	<±3x10 ⁻¹⁰	Contact factory for <±2x10 ⁻¹⁰			

Temperature ranges from -60° C to +85° 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						
5.0 MHz	<±5x10 ⁻⁸	<±2x10 ⁻⁸	Contact factory for <±1x10 ⁻⁸			
8.192 MHz	<±5x10 ⁻⁸	<±3x10 ⁻⁸	Contact factory for <±2x10 ⁻⁸			
10.0 MHz	<±5x10 ⁻⁸	<±2x10 ⁻⁸	Contact factory for <±1x10 ⁻⁸			
16.384 MHz	<±5x10 ⁻⁸	<±3x10 ⁻⁷	Contact factory for <±2x10 ⁻⁸			

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	Comments				
Short term stability per 1 sec.	<2x10 ⁻¹²	Allan deviation			
Stability vs. Load	<±1x10 ⁻¹⁰				
Stability vs. power supply (±5%)	<±1x10 ⁻¹⁰				
Warm-up time to w/ in <±1x10 ⁻⁸	<5 minutes	@25° C			

Specifications-Continued

Phase Noise, (dBc/Hz) Sinewave						
Standard Frequencies		10 MHz	5 MHz			
@ Offset Frequency	1 Hz	-100	-105			
	10 Hz	-125	-130			
	100 Hz	-140	-145			
	1 kHz	⁻ 145	-150			
	10 kHz	-150	-155			
Harmonics		-	-			

Comtact factory for harmonics, lower phase noise perfomance and see ordering designations at the end of this data sheet.

Output Parameters				
Output		HCMOS	Sinewave	
Level	"0"	< 0.5V	7±2 dBm	
LGVGI	"1"	> 4.5V	I ±Z UDIII	
Load		10K Ohms, 30 pF	50 Ohm ±10%	
Rise/Fall Time		-	-	
Harmonics		-	>-35 dBc	
Comtact factory for Rise/Fall time.				

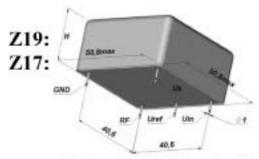
Power Supply & Voltage Control Parameters					
Specification	12V ±5%	5V ±5%			
Steady state current @ 25° C	< 250 mA	< 600 mA			
Peak warm-up current @ +25° C	< 600 mA	< 300 mA			
For "D" Temperature Range (-40° C)	<900 mA	Contact Factory			
Frequency Adjust range	>±3x10 ⁻⁷	>±3x10 ⁻⁷			
Frequency Adjust Voltage (Uin)	0 to +5V	0 to +4V			
Reference Voltage (Uref)	+5.0V	+4.0V			

See ordering designations at the end of this data sheet.

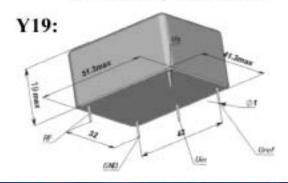
Environmental Pa	rameters
Specification	Conditions
Vibration Frequency	10-200 Hz
Vibration Acceleration	5 gs
Shock Acceleration	150 gs
Shock Duration	3±1 mS
Humidity	-
Storage Temperature	-55 to +80° C
RoHs	Option
Contact factory for extended environmental conditions	

Contact factory for extemded environmental conditions.

Outline Drawing



H=19 mm for Z19; H=17 mm for Z17.



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

Ordering Guide

Output
HCMOS
Sinewave

Package type

Z19 51.3x51.3x19 mm

Z17 51.3x51.3x17 mm

Y19 51.3x41x19 mm

Power Supply
12V
5V

MV180 - B 02 E - 12V - SIN - Z19 - 10.0 MHz

Availability of certain stability vs. operating temperature range.		±1×10 ⁻⁹	±5×10 ⁻¹⁰	±3×10 ⁻¹⁰	±2×10 ⁻¹⁰	±1×10 ⁻¹⁰
		1	05	03	02	01
Α	0 to +55° C	Α	Α	Α	Α	Α
В	-10 to +60° C	Α	Α	Α	Α	Α
С	-20 to +70° C	Α	Α	A	Α	С
D	-40 to +70° C	Α	Α	Α	С	N

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

		Standard Frequencies				
Availability of certain aging values for certain frequencies.		5 MHz	8.192 MHz	10 MHz	16.384 MHz	
F	±5x10⁻8/year	Α	Α	Α	Α	
Е	±3x10 ⁻⁸ /year	Α	Α	Α	Α	
- D	±2x10 ⁻⁸ /year	Α	С	Α	С	
С	±1x10 ⁻⁸ /year	С	N	С	N	

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

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.