



Your dedicated source for crystal oscillators and filters.

Features

- SPI Digital Control
- High Stability vs. Temperature: up to $\pm 1 \times 10^{-10}$
- Low Aging upto $\pm 1 \times 10^{-8}$ /year
- Low Sensitivity to Rapid Temperature Changes
- Sinewave Output
- +12V

Applications

- SatCom
- Test equipment
- Network clock
- Base station

Specifications

Temperature Range	Temperature Stability Availability		Comments
	High	Higher	
0 to +55° C	$< \pm 1 \times 10^{-9}$	$< \pm 1 \times 10^{-10}$	
-10 to +60° C	$< \pm 1 \times 10^{-9}$	$< \pm 1 \times 10^{-10}$	
-20 to +70° C	$< \pm 1 \times 10^{-9}$	$< \pm 1 \times 10^{-10}$	
-40 to +70° C	$< \pm 1 \times 10^{-9}$	$< \pm 3 \times 10^{-10}$	Contact factory for $< \pm 2 \times 10^{-10}$

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 (and x2)	$< \pm 5 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$
5.115 MHz (and x2)	$< \pm 3 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$
8.192 MHz (and x2)	$< \pm 3 \times 10^{-8}$	$< \pm 2 \times 10^{-8}$	Contact factory for $< \pm 1 \times 10^{-8}$
10.0 MHz (and x2)	$< \pm 3 \times 10^{-8}$	$< \pm 3 \times 10^{-9}$	Contact factory for $< \pm 2 \times 10^{-8}$

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

Short Term, Pulling & Pushing Stability		
Specification		Comments
Short term stability per 1 sec.	$< 2 \times 10^{-12}$	Allan deviation
Stability vs. Load ($\pm 10\%$)	$< \pm 1 \times 10^{-10}$	
Stability vs. power supply ($\pm 5\%$)	$< \pm 1 \times 10^{-10}$	
Warm-up time to w/ in $< \pm 1 \times 10^{-8}$	<15 minutes	@25° C

Specifications-Continued

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

Offset Frequency

1 Hz	-100
10 Hz	-125
100 Hz	-140
1 kHz	-145
10 kHz	-150

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

Output Parameters

Output

Sinewave

Level	>5 dBm
Load	50 Ohm \pm 10%
Rise/Fall Time	-
Harmonics	>-30 dBc

Contact factory for Rise/Fall time.

Power Supply & Voltage Control Parameters

Specification

12V \pm 5%

Steady state current @ 25° C	< 300 mA
Peak warm-up current @ +25° C	< 900 mA
Frequency Adjustment	> \pm 2.5x10 ⁻⁷
Analog Frequency Adjust Voltage (Uin)	0 to +5V
Reference Voltage (Uref)	+5V
Digital Frequency Adjustment	0000 HEX to FFFF HEX
-Step (typical)	<1.3x10 ⁻¹¹ (<1.0x10 ⁻¹¹)
SPI Interface Low / High	<0.8 / >2.0

See ordering designations at the end of this data sheet.

Environmental Parameters

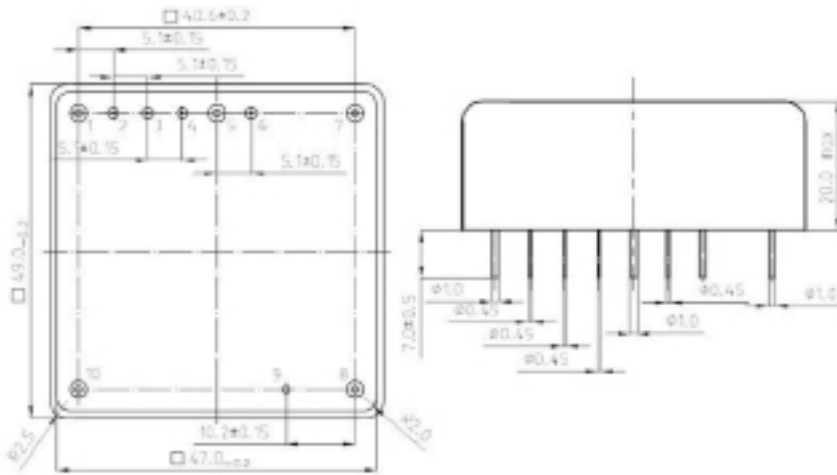
Specification

Conditions

Vibration Frequency	10-500 Hz
Vibration Acceleration	5 g
Shock Acceleration	15 g
Shock Duration	2 \pm 0.5 mS
Humidity	-
Storage Temperature	-55 to +80° C
RoHs	Option

Contact factory for extended environmental conditions.

Outline Drawing



Pin	Digital	Analog
1	Chip select*	Control Voltage
2	NC	NC
3	DIN	NC
4	SCLK	NC
5	NC	Ref Voltage
6	NC	NC
7	RF Out	RF Out
8	GND	GND
9	GND Case	GND Case
10	Supply (+12V)	Supply (+12V)

Ordering Guide

M268 - B 02 E - 10.0 MHz - D

Availability of certain stability vs. operating temperature range.		$\pm 1 \times 10^{-9}$	$\pm 5 \times 10^{-10}$	$\pm 3 \times 10^{-10}$	$\pm 2 \times 10^{-10}$	$\pm 1 \times 10^{-10}$
		1	05	03	02	01
A	0 to +55° C	A	A	A	A	A
B	-10 to +60° C	A	A	A	A	A
C	-20 to +70° C	A	A	A	A	A
D	-40 to +70° C	A	A	A	C	C

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

Availability of certain aging values for certain frequencies.		Standard Frequencies (and doubled, x2)			
		5.0 MHz	5.115 MHz	8.192 MHz	10.0 MHz
F	$\pm 5 \times 10^{-8}$ /year	A	A	A	A
E	$\pm 3 \times 10^{-8}$ /year	A	A	A	A
D	$\pm 2 \times 10^{-8}$ /year	A	A	A	C
C	$\pm 1 \times 10^{-8}$ /year	C	C	C	C

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

Analog Control (A)	
Frequency adjustment range	$> \pm 2.5 \times 10^{-7}$
Control Voltage Range (PIN Uin)	0 to +5V
Reference Voltage (PIN Uref)	+5V
Digital Control (D)	
Frequency adjustment range for HEX code 0000 to FFFF	$> \pm 2.5 \times 10^{-7}$
- Step	$< 1.3 \times 10^{-11}$
- Typical	$< 1.0 \times 10^{-11}$
SPI High / Low	$< 0.8V$ / $> 2.0V$

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.