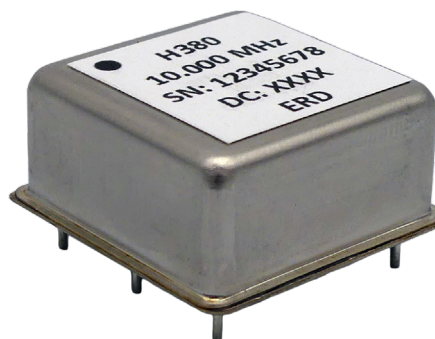


## H380 Series

Low G, Low Phase Noise, 100 MHz OCXO

### Key Features

- Ultra-Low G Sensitivity
- Low Phase Noise
- Tight Frequency Stability
- Fast Warm-up Time
- 10V Reference Voltage Out
- Sine wave output



### Common Applications

- Microwave Communication
- Test and Measurement
- Telecom Systems
- Radar Systems
- Medical (MRT)



### Functional Description

The H380 100MHz OCXO presents a low-G, low-phase-noise solution to a variety of RF applications.

With a floor better than -170 dBc/Hz, the H380 ensures a high-fidelity signal with minimal degradation.

This OCXO platform boasts G-Sensitivity as good as 0.05 ppb/g (per axis), rivaling many best-in-class counterparts. The H380 comes in a 25.8 mm x 25.8 mm x 12.8 mm package, lending itself to applications with tight footprint requirements.

A 10 Volt reference voltage output gives the user a stable, ovenized voltage reference to derive their control voltage (EFC) from. This will result in less skew over temperature than using other contemporary methods of EFC generation.

**Standard Specifications:**

Parameter	Minimum	Typical	Maximum	Units	Notes
Frequency	100.0			MHz	Other frequencies may be available upon request
Operational Temperature Range	-40		+85		
Frequency vs. Temperature <sup>2</sup>	-100		+100	ppb	
Calibration Tolerance <sup>3</sup>	-200		+200	ppb	At time of shipment.
Frequency vs. Supply	-10		+10	ppb	5% Change
Frequency vs Load	-5		+5	ppb	10% Change
Warmup Time			5	Minutes	Within $\pm 100$ ppb of 60-minute frequency at 25°C
Aging <sup>4</sup>					See ordering options.
Supply Voltage (VIN)	11.4	12.00	12.6	Volts	"Typical" column refers to nominal.
Power Consumption					
Steady State at 25°C			2.1	Watts	Measured in still air.
Turn-on Power			4.8	Watts	Measured in still air.
Phase Jitter (RMS)			0.1	pS	12 kHz - 20 MHz

**Output Characteristics:**

Parameter	Minimum	Typical	Maximum	Units	Notes
Sine Output Option					Load = 50 $\Omega$ $\pm 10\%$
Output Power High ("1")	+7			dBm	
Harmonics			-30	dBc	
Spurious			-100	dBc	100Hz - 5MHz from carrier

**Phase Noise Characteristics:**

Parameter	Minimum	Typical	Maximum	Units
10 Hz Offset			-100	dBc/Hz
100 Hz Offset			-130	dBc/Hz
1 KHz Offset			-160	dBc/Hz
10 KHz Offset			-171	dBc/Hz
100 KHz Offset			-172	dBc/Hz
1 MHz Offset			-172	dBc/Hz

**Electrical Frequency Control:**

Parameter	Minimum	Typical	Maximum	Units	Notes
Tuning Range <sup>6</sup>			-2	ppm	EFC @ Min Voltage
	2			ppm	EFC @ Max Voltage
Control Voltage (EFC)	0		10.0	V	
Slope	Positive				
Center Voltage <sup>8</sup>	50 % Maximum Control Voltage (EFC)			V	
Linearity	-10		10	%	
Modulation Bandwidth	1			kHz	3dB cutoff frequency

**Reference Voltage:**

Parameter	Minimum	Typical	Maximum	Units	Notes
Voltage	9.5	10	10.5	V	Over selected temp range.

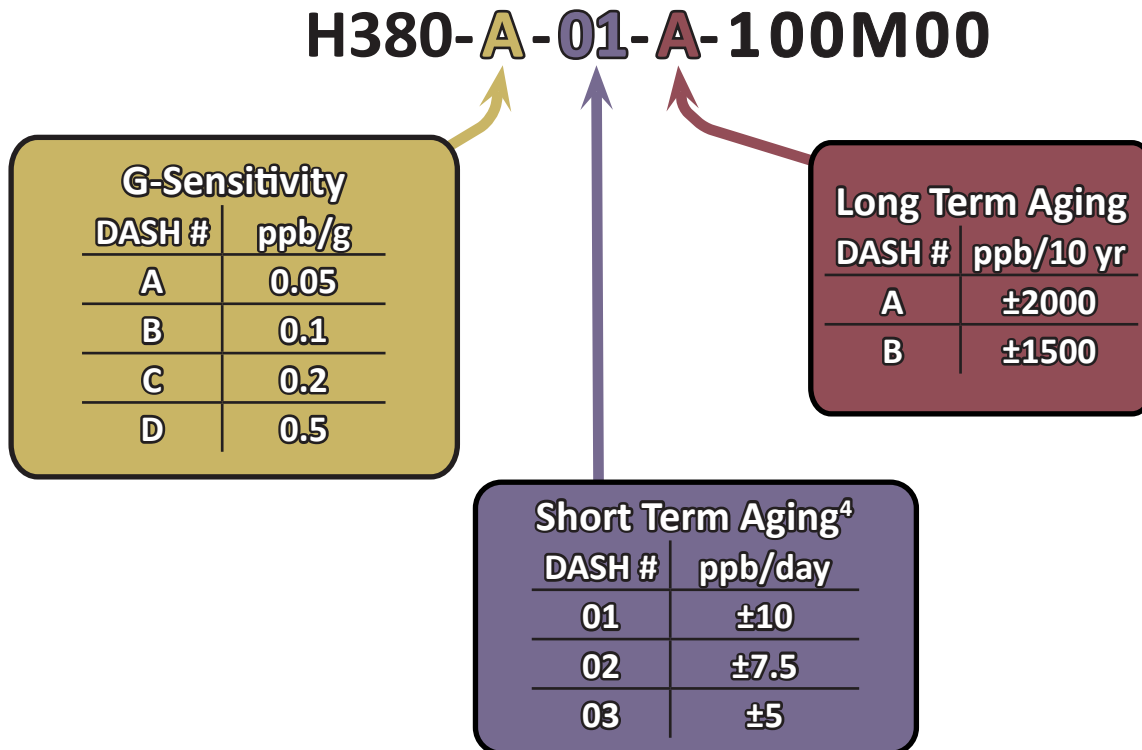
**G-Sensitivity:**

Parameter	A	B	C	D	Units	Notes
G-Sensitivity (each axis)	0.05	0.1	0.2	0.5	ppb/g	See ordering options.

**Environmental Characteristics:**

Environmental Phenomenon	Response
Operating Temperature <sup>5</sup>	-40 °C to +85 °C
Storage Temperature	-55 °C to +105 °C
Vibration (non-operating)	MIL-STD-202, Method 201 0.06" Total p-p, 10 to 55 Hz
Shock (non-operating)	MIL STD 202, Method 213, Test Condition J: 30g, 11ms, half sine
Humidity	MIL-STD-202, Method 103 Test Condition A 95 % RH @ +40 °C, non-condensing, 240 hours

## Ordering Information:<sup>1</sup>

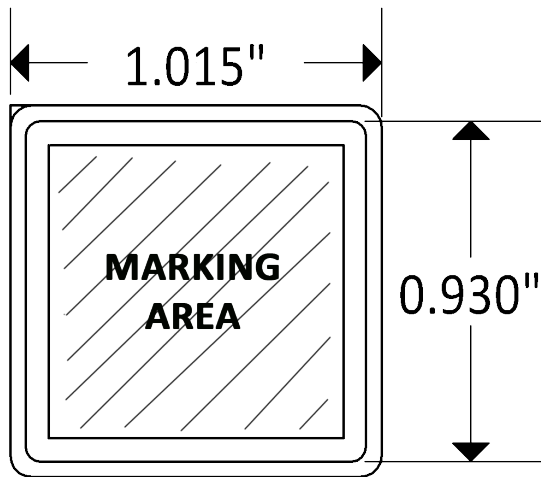


### Notes:

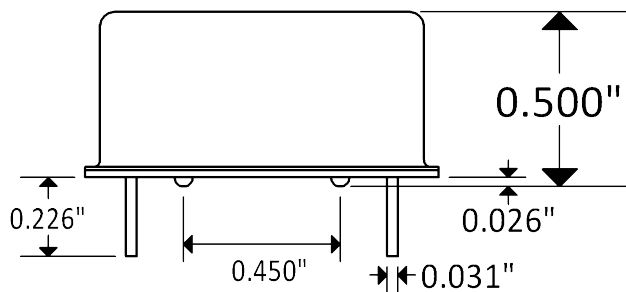
- 1.) Not all combinations of options are available. Consult factory for additional guidance.
- 2.) Temperature stability is referenced to 25°C.
- 3.) At 25±1°C, After 30±1 continuous minutes on power, at center EFC voltage ±1mV.
- 4.) After 30 days of continuous operation.
- 5.) Unit will maintain output over this range. Performance not guaranteed if operating outside range chosen in part number builder.
- 6.) Referenced to frequency at nominal center EFC Voltage
- 7.) The information contained herein is subject to change at any time without notice.

## Mechanical Specifications:

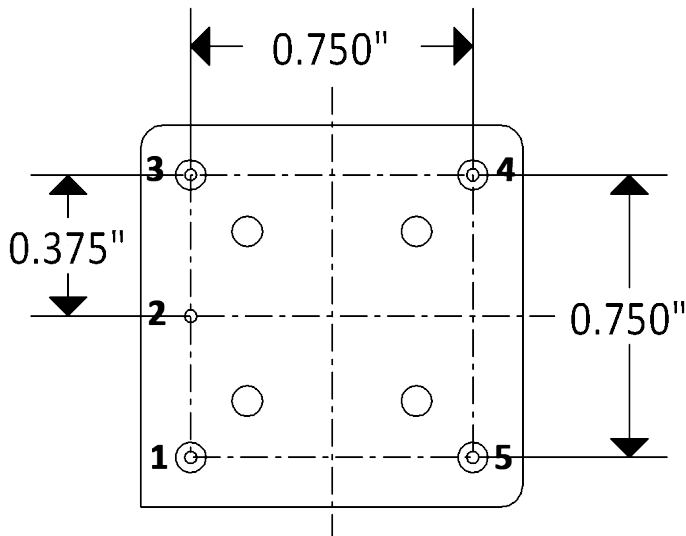
### Top View:



### Side View:



### Bottom View:



### Dimension Notes:

**TOP:** Can inset (930 thou) and (1.015 thou MAX) are square.

**SIDE:** Max seated height (500 thou) includes 4X glass standoffs on bottom of package. They are centered and spaced 450 thou apart.

**TOLERANCES ARE  $\pm 0.010$ "**

### PIN FUNCTIONS

Pin #	Function
1	RF OUT
2	GND
3	EFC / N.C.
4	V <sub>REF</sub> / N.C.
5	Supply Voltage (VIN)

For best signal integrity, do not run traces beneath the part, and ensure the area under the board is ground plane.