

AS9100 / ISO9001 Certified

Hi-Rel

MTI-Milliren Technologies, Inc. offers a high reliability Oven Controlled Crystal Oscillator (OCXO) to defense and aerospace OEM's with the 220 Series now available with integrated pyro-shock isolation in a 1/3 cubic inch hermetically sealed package. Designed to withstand the most demanding flight environments, the 220 Series has been tested and has survived multiple 1000g shocks as well as random acceleration of 24g rms up to 2kHz without degradation in performance (Post Launch).

The 220 Series is available nuclear hardened to tactical levels for Prompt Dose Gamma, Neutron and space flight levels for Total Dose Gamma exposures as well as Heavy Ion with no latch-up behavior. The 220 Series maintains a lengthy heritage from MTI's proven space flight technology and is available in a frequency range of 5MHz to 200MHz with thermal stability performance of $\pm 1.0E-08$ from -54°C to $+85^{\circ}\text{C}$ at 10MHz. This rugged precision OCXO is ideal for Space and Airborne environments.

Key Features

Output Frequency: 10.000MHz

Thermal Stability: $\pm 1.0E-08$

Temperature Range: -54°C to $+85^{\circ}\text{C}$

Frequency Tolerance: $\pm 1.0E-07$ @ $+25^{\circ}\text{C}$

Daily Aging: $1.0E-09$ /day after 24 Hours Continuous Operation

Mechanical Tuning: $\pm 1.2E-06$

Warm Up: $1.0E-08$ after 3 Minutes referenced to 30 Minutes @ -40°C

Oven Supply Voltage and Power: 20VDC $\pm 5\%$; 7.5W Warm-up, 1.8W continuous at -40°C

Oscillator Supply Voltage and Power: 10 to 16VDC; 0.2W Max.

Output Power: +1dBm $\pm 2\text{dB}$

Short Term Stability: $5.0E-12$ at 1 Second



Spurious: -80dBc

Harmonics: -25dBc

Phase Noise:

| Offset | Level |
|---------|------------|
| 10Hz | -125dBc/Hz |
| 100Hz | -145dBc/Hz |
| 1000Hz | -150dBc/Hz |
| 10000Hz | -155dBc/Hz |

Environmental

Shock: MIL-STD-202 Method 213 Test Condition I (1000g, 3 Milliseconds, 1/2 Sine).

Vibration: MIL-STD-202, Method 204, Test Condition G, Sine, (0.06 Inch Double Amplitude From 10-100Hz, 30g from 100-2000Hz.) MIL-STD-202 Method 214, Random, 10 – 2000Hz up to 24g rms any axis 120min/axis.

Salt Spray: MIL-STD-202, Method 101, Test Condition B.

Hermetic Seal: MIL-STD-202 Method 112, Test Condition D (Fine Leak)

Altitude: Space environment, $< 1E-6$ Torr, Airborne to 80kft

Radiation Hardened: Gamma, X-Ray, Neutron, Prompt and Total Dose (Consult Sales, TD (STD)=50KRadSi)

Package: Dimensions 0.975" (24.8mm)X 0.800" (20.3mm)X 0.500" (12.7mm) Max

Weight: 13gm Max.

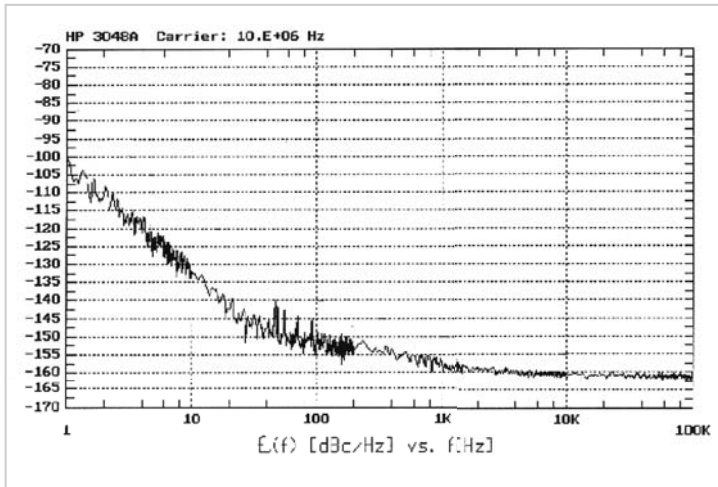
Case Material: Passivated Stainless Steel Cover, Electroless Nickel Plated CRS Steel Base , Glass Seals, Kovar Pins, Electroless Nickel Plated Base

Screening Level: MIL-PRF-55310 Class B, Class S, Per Customer SCD, as required.

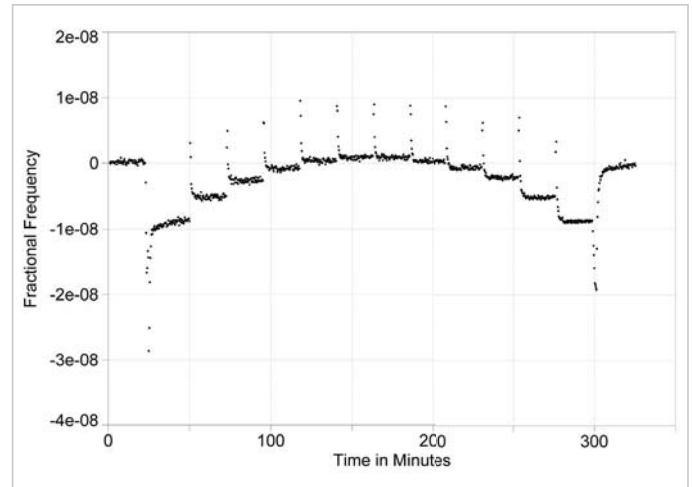
*RoHS compliant available

*Parameters can be modified to meet specific requirements

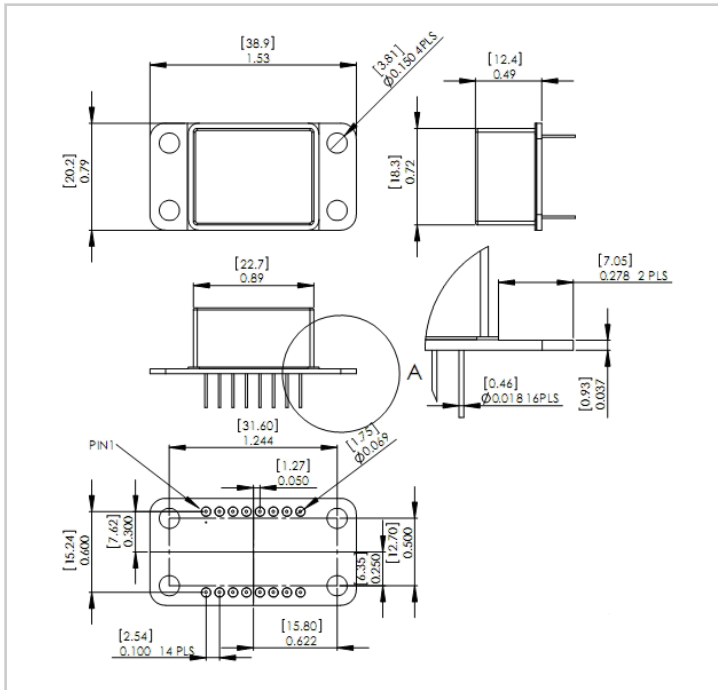
Phase Noise



Frequency vs. Temperature (-40 ° C to 80 ° C)



220 Series Flange Mount Interface Drawing



220 Series PCB Pin Mount Interface Drawing

