QUARTZ PRODUCTS

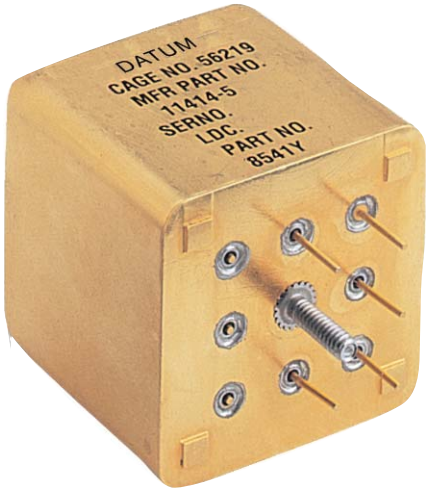
Commercial & Military Oscillators and Instruments

Features

Output Frequency:		4 MHz - 60 MHz
Fast warm up:		5 Minutes from -55°C
Low power consumption:		1.3W @ 25°C (In Vacuum)
Compact sizes -Typical:		1.33" x 1.33" x 1.33"
Frequency Aging	-@ 5 MHz:	5E-11/day, 1.5E-8/year
	-@10 MHz:	3E-10/day, 4E-8/year
Temperature Coefficient:		± 1E-9 (-20° C to 60° C)

Fast Warm-up Option Available

9600 Series Tactical Military Oscillators



Overview

Description

The Datum 9600 is an ultra-miniature ovenized crystal oscillator designed to provide high stability RF sine wave output.

The use of hybrid circuity produced allows for the greatest reduction in size possible without compromise of the performance or reliability.

Assembly is performed by skilled operators certified to NASA approved workmanship standards. Hybrid circuits produced at facilities qualified to MIL-PRF-38534C. All discrete components are manufactured and tested to grade 2 requirements per Mil-Std-975.

The environmentally rugged Datum 9600 features a SC-cut quartz resonators and sustaining electronics which are controlled at precise temperature to achieve temperature insensitive performance, excellent short term stability, phase noise and aging characteristics.

Backed by an extensive oscillator legacy the Datum 9600 series meets the challenges of a military specification for time and frequency, even under the most adverse environmental conditions.

The Datum 9600 oscillator series delivers high end crystal oscillator precision required for both time and frequency in a wide variety of applications such as:

- Radio navigation
- Radar Warning Receiver
- Satellite transmission
- Satellite tracking and guidance

This rugged, compact crystal oscillator is especially advantageous when utilized in mobile transportable and portable applications where fast warmup, low power consumption and small size is required.

Specifications

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ELECTRICAL SPECIFICATIONS

Output Level (TTL Option)	7.0 dBm.

Short/Long-Term Stability	@5 MHz	@10 MHz
1 second (Allan Deviation)	2E-12	5E-12
10 second (Allan Deviation)	1E-12	5E-12

Frequency Aging	@5 MHz	@10 MHz
Per Day	5E-11	3E-10
Per Year	1.5E-8	4E-8

Phase Noise (dBc/-Hz)	@5 MHz	@10 MHz
1	-116	-100
10	-140	-125
100	-145	-145
1,000	-157	-150
10,000	-160	-155
100,000	-160	-155

Frequency vs. Temperature	±4E-9
Harmonic Distortion	-30 dBc
Non-Harmonic Distortion	-90 dBc
Frequency Retrace	±1E-8
(After up to 24 hrs. off & 1 hour's use at 25°C)	
Input Voltage	
Range	12 to 24 Vdc
Sensitivity	5E-10, ±5%
Power, Steady State	1.3 Watts @25°C (In Vacuum)
Warm-Up Power	4-8 Watts
Load Change Sensitivity	±1E-9, ±5%
Warm-Up Time From -55°C	≤ 5 minutes to 2E-8
Electrical Frequency Control (EFC) Range	±4E-7 minimum
EFC Voltage Input	0 to +5Vdc, (+) Sensing

ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

Operating Temp. Range	-54°C to +76°C
Storage Temperature	-55°C to +100°C
Acceleration Sensitivity	
Typical	4E-9 per g
Option 1	≤ 2E-9 per g (worst case axis)
Random Vibration	20 grms
Pyrotechnic Shock	3000 gs
Radiation Rated:	100 krad (Si)
EMI/EMC Specification	For performance levels contact the factory
Reliability Specification	MIL-HDBK-217E
Mean Time Between Failure	>4 million hrs. @55°C

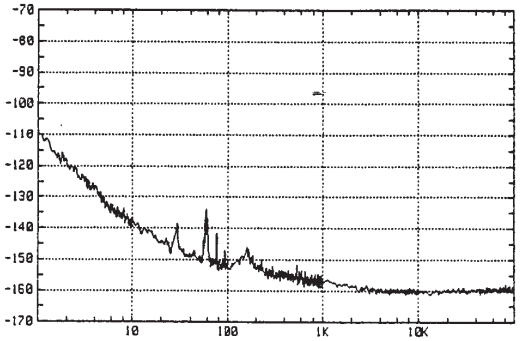
Dimensions

	Option 1	Option 2
Height	1.33"	1.9"
Width	1.33"	1.5"
Depth	1.33"	1.5"
Weight	3.5 ounces	5.5 ounces
Volume	2.35 cu inches	2.55 cu inches

Options

- Crystal Filter
- Space Qualified

Typical Test Results for the 10MHz Oscillator



Specifications subject to change without notice.

Datum-TT&M • 34 Tozer Road • Beverly, MA 01915-5510 • Tel: +1-978-927-8220 • Fax; +1-978-927-4099
USA Toll Free: 1-800-544-0233 • Web: www.datum.com • E-mail: ttmsales@datum.com