



9800

Hi-Reliability VHF Oscillators

KEY FEATURES

- Output Frequency: 60 MHz - 100 MHz
- Fast Warm-Up: 5 Minutes From -30° C
- Low Power Consumption: 1.7W @ 25° C (Vacuum)
- Compact Sizes
 - Typical: 1.33" x 1.33" x 1.31"
 - Optional: 1.7" x 1.5" x 1.0"
- Frequency Aging @ 100 MHz: 2.0E-6/Year
- Temperature Coefficient: $\pm 5.0E-7$
- Low Acceleration Sensitivity: $< 8E-10/g$ Typical
- Temperature Range: -30° C to +70° C
- Component Quality: B-Level Military Standard

MAJOR APPLICATIONS

- Radio Navigation
- Radar Warning Receiver
- Satellite Transmission
- Satellite Tracking and Guidance

Symmetricom's 9800 is an ultra-miniature ovenized crystal oscillator that provides a high stability RF sine wave output. The use of hybrid circuitry allows for the greatest reduction in size possible without compromising performance or reliability.

Assembly is performed by skilled operators certified to NASA approved workmanship standards. Hybrid circuits are produced at facilities qualified to MIL-PRF-38534C. All discrete components are manufactured and tested to B-level standards.

The environmentally rugged 9800 features an SC-cut quartz resonator and sustaining electronics that are controlled at a precise temperature to achieve temperature insensitive performance, excellent phase noise and aging characteristics.

The 9800 is the obvious choice where a combination of excellent spectral purity and long term stability is essential. It contributes to simplification of system design because of low frequency aging which extends the period of time needed between synchronization.

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



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9800 Specifications

ELECTRICAL SPECIFICATIONS

• Output level/load:	7.0dBm, min./50 Ω
• Frequency aging:	2.0E-6 per year
• Phase noise @ 100 MHz	
Offset frequency	L(f)
1 Hz	-60dBC/Hz
10 Hz	-90dBC/Hz
100 Hz	-120dBC/Hz
1 KHz	-150dBC/Hz
10 KHz	-160dBC/Hz
100 KHz	-166dBC/Hz
• Frequency vs temp:	$\pm 5.0E-7$
• Harmonic distortion:	-30dBc
• Non-harmonic distortion:	-90dBc
• Frequency retrace:	$\pm 1.0E-8$ (After up to 24 hrs. off & 1 hour's use at @25°C)
• Input voltage	
Range:	15 to 18 V dc
Sensitivity:	1.0E-7, $\pm 5\%$
• Power, steady state:	1.7 Watts @25° C vacuum
• Warm-up power:	5 Watts
• Load change sensitivity:	$\pm 5.0E-8$, $\pm 5\%$
• Warm-up time from -40° C:	5 minutes to 2.0E-8*
• Elec. freq. cont. range (EFC):	± 10 ppm
• EFC voltage input:	-10 TO +10Vdc, (-) sensing

Physical	Typical	Optional
Size:	1.33" x 1.33" x 1.31" (3.37 cm x 3.37 cm x 3.32 cm)	1.9" x 1.5" x 1.0" (4.82 cm x 3.81 cm x 2.54 cm)
Weight:	3.5 ounces (0.09 Kg)	6.5 ounces (0.18 Kg)
Volume:	2.95 cu inches (48.38 cubic cm)	2.25 cu inches (36.9 cubic cm)
• Operating temp. range:		-30° C to +70° C
• Storage temp. (non-op):		-55° C to +100° C
• Acceleration sensitivity (typical):		8.0E-10 per g
• Random vibration:		20 Grms
• Radiation:		100K Rad
• EMI/EMC specification:		For performance levels contact the factory
• Reliability specification:		MIL-HDBK-217E
• MTBF:		>6 million hours

*Fast warm-up option available



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