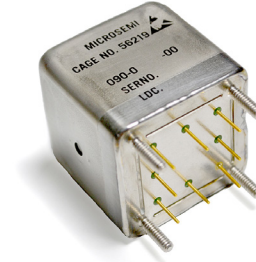


# 9800B

## Ultra-miniature Space VHF OCXO Series



### Key Features

- Output frequency: 40 MHz to 125 MHz
- Component quality:
  - Grade 2 (Space) Standard
  - Grade 1 (Space) Optionally Available
- Warm-up time: <10 minutes from 25°C
- Fast warm-up option available
- Low power consumption:
  - <1.3W @ 25°C (Vacuum)
- Compact sizes:
  - Typical: 1.33" x 1.33" x 1.33"
- Frequency aging @ 100 MHz:
  - <-1.0E-6 in the first year
- Frequency change vs. temperature:
  - 2.5E-8 (-20°C to +70°C)
- Low acceleration sensitivity:
  - ≤8.0E-10 per g

### OPTIONS

Available options for this product include:

- Output frequency (40 MHz to 125 MHz)
- Panel-mount or PCB-mount package style
- Component screening to Grade 1 or Grade 2 requirements
- Fast warm-up time: ≤10 minutes to within 2.0E-8 of final frequency from -40°C (+25°C is standard). Warm-up power increases to approx. 14W
- Crystal radiation preconditioning

Contact Microsemi to configure a 9800B-series oscillator that will meet your specific needs.

Microsemi's 9800B is an ultra-miniature ovenized crystal oscillator that provides a high stability VHF sinewave output. The use of hybrid circuitry allows for the greatest possible reduction in size without compromises in 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-38534. All discrete components are manufactured and tested to S-level (space-qualified) standards.

The rugged 9800B features an SC-cut quartz resonator and sustaining electronics that are controlled at a precise temperature to achieve temperature-insensitive performance, and excellent phase noise and aging characteristics. This allows it to meet the challenges of military or space specifications for time and frequency standards, even under the most adverse environmental conditions.

The 9800B 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 its low frequency aging extends the period of time needed between synchronization.

In addition to a choice between Grade 1 and Grade 2 component quality, the 9800B series can be customized in output frequency, warm-up time, and other characteristics, making it useful for all space applications.

The 9800B is available as a fixed frequency OCXO with an initial accuracy of  $\pm 2E-9$  at time of delivery or as an electronically tuned OC/VCXO with a tune range of  $\pm 3$  PPM for time frequency set or for phase locking.

# 9800B Specifications

## ELECTRICAL SPECIFICATIONS

• Output Frequency Range	40 MHz – 125 MHz
• Initial Accuracy	±2.0E-7
• Format	Sine wave
• Amplitude	7.0 dBm ±1 dB
• Harmonic distortion	<-30 dBc
• Non-harmonic distortion	<-90 dBc
• Load impedance	50 Ω
• VSWR	1.5:1
• Ovensense Thermistor	100 KΩ

## PERFORMANCE PARAMETERS (50 MHz variant in vacuum)

• SSB phase noise (static)	
10 Hz	<-100 dBc/Hz
100 Hz	<-132 dBc/Hz
1 kHz	<-152 dBc/Hz
10 kHz	<-160 dBc/Hz
100 kHz	<-160 dBc/Hz
1 MHz	<-160 dBc/Hz
• Aging	
Per day:	<8E-10
Per year:	<1.0E-6, first year, after 30 days operation <3.0E-6
10 years:	
• Short Term Stability:	
@ 1 second	<5E-12
@ 10 seconds	<1E-11
@ 100 seconds	<5E-11
• Frequency Retrace (after up to 24 hrs. off and 1 hour on at 25° C):	±1.0E-8
• Acceleration sensitivity Per g, total gamma:	<8.0E-10
• Frequency change vs. Temperature -20° C to +70° C:	±2.5E-8
• Warm-up time from +25° C:	≤10 minutes to within 2.0E-8 of final frequency
• Input Voltage	
Range:	+12 Vdc standard; +15 Vac optional
Sensitivity:	<1.0E-8 for ±2% voltage change
• Steady-state power consumption at 25° C:	<1.3 W in vacuum
• Warm-up power consumption:	8 W
• (Optional) Electronic Frequency Control (EFC) Range:	± 3 ppm minimum
EFC Input	+1 to +11 Vdc, Negative Transfer Function
EFC Linearity	10% typical
• Load change sensitivity:	±1.0E-8 for ±5% load change

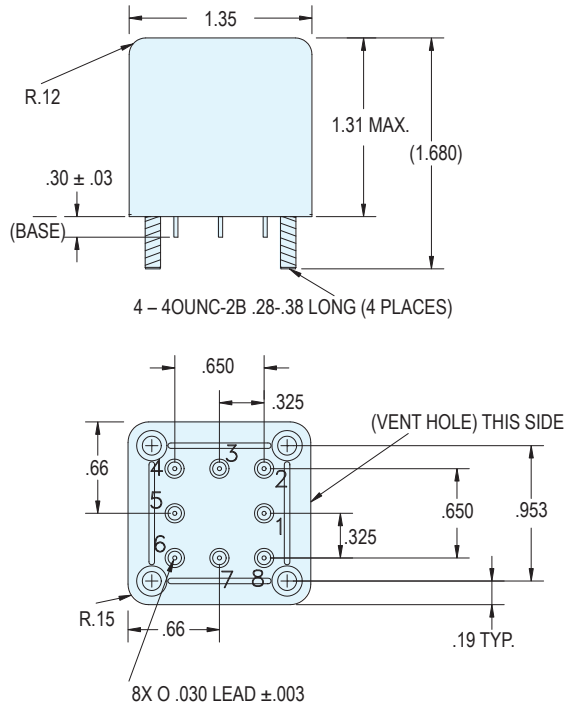
## ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

• Operating Temperature:	-20° C to +70° C
• Storage temperature:	-55° C to +100° C
• Random vibration Operating (endurance):	25 g rms
• Pyrotechnic shock:	1500 g
• Radiation Performance:	
Total Dose:	100 kRad (Si)
ELDRS:	Compliant
SEL:	Compliant
Neutron Fluence:	Contact Factory
Prompt Dose Rate:	Contact Factory
• EMI/EMC Performance:	Contact Factory
• EEE Parts Screening Level:	Grade 2 or Grade 1
• MTBF:	>12,000,000 hours
• Reliability specification:	MIL-HDBK-217F
• Weight:	0.10 kg

Contact Microsemi with your specific requirements for Supply voltage and Warm-up power options.

## 9800B OUTLINE DRAWING

### PCB-MOUNT PACKAGE STYLE



## CONNECTION DESCRIPTIONS

### PCB-MOUNT PACKAGE STYLE

PIN NO.	FUNCTION
1	RF OUPUT
2	N/C
3	OVENSENSE +
4	GROUND/CHASSIS GROUND
5	+12 VDC
6	EFC TUNING VOLTAGE INPUT
7	OVENSENSE -
8	+12 VDC



**Microsemi**

Microsemi Corporate Headquarters  
 One Enterprise, Aliso Viejo, CA 92656 USA  
 Within the USA: +1 (949) 380-6100  
 Sales: +1 (949) 380-6136  
 Fax: +1 (949) 215-4996

Microsemi Corporation [Nasdaq: MSCC] offers a comprehensive portfolio of semiconductor solutions for aerospace, defense and security; enterprise and communications; and industrial and alternative energy markets. Products include high-performance, high-reliability analog and RF devices, mixed signals and RF integrated circuits, customizable SoCs, FPGAs, and complete subsystems. Microsemi is headquartered in Aliso Viejo, Calif. Learn more at [www.microsemi.com](http://www.microsemi.com)

©2014 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.