



9920 & 9940

Hybrid Space Qualified Crystal Oscillators

STANDARD FEATURES

- 10 MHz to 1.2 GHz Output Frequency
- Mil-prf-38534 Class H or K Certified
- Fixed Frequency and Voltage Controlled
- Sine Wave, PECL Outputs
- Low Aging and Phase Noise
- Optimized Phase Noise
- Radiation Hardened
- Environmentally Robust
- Custom Applications

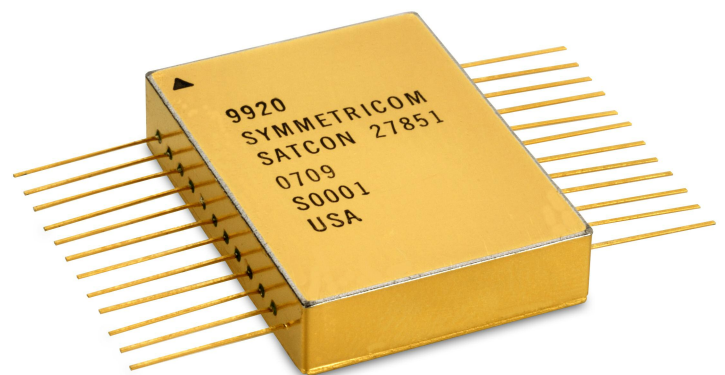
Symmetricom's thirty-five years of legacy of high reliability and performance quartz oscillators are now available in hybrid construction for applications that require minimal size, weight and power. The model 9920 and 9940 are crystal oscillators (XO) and voltage controlled crystal oscillators (VCXO) based on hybrid manufacturing technology.

The 9920 and 9940 series of oscillators utilize 3rd or 5th overtone AT cut crystals in a Colpitts configuration with optional multiplication circuitry and output amplifier or driver stages. The precision crystals are contained within hermetic or vacuum sealed packages housed within the hybrid circuit package resulting in the lowest end of life frequency drift possible.

Output type and package are available in industry standard configurations to meet standard and custom applications.

These hybrid oscillators are based on heritage designs and manufacturing techniques proven for reliability in numerous space applications. The hybrids are manufactured in a mil-prf-38534 class K facility in a class 100,000 clean room that provides for the maximum reliability.

The 9920 and 9940 have demonstrated excellent performance after exposure to high levels of shock, vibration and radiation consistent with the rigorous requirements of space applications.

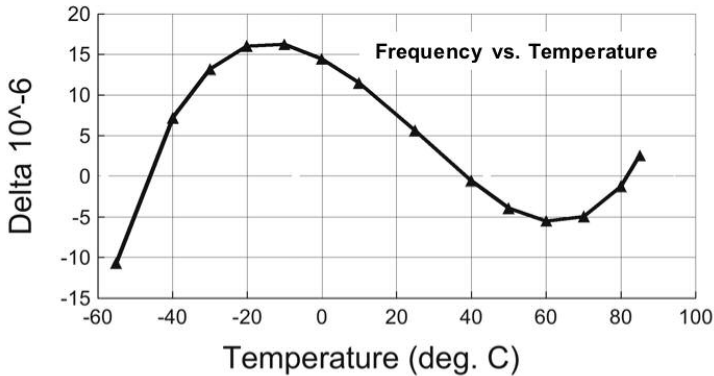


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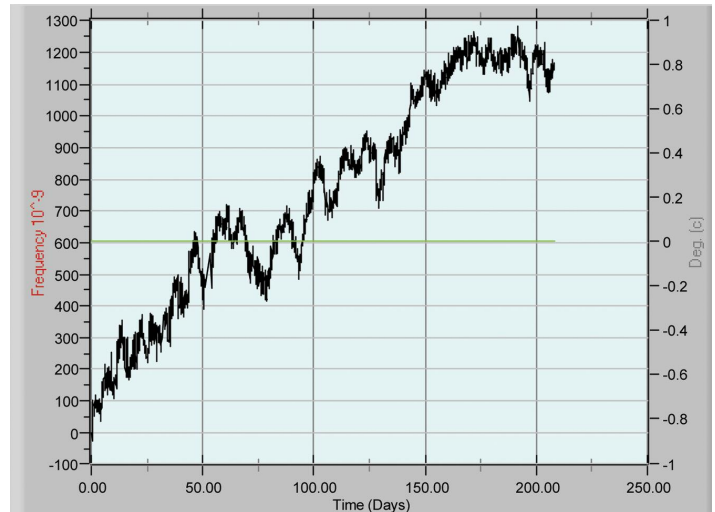
9920 & 9940 Specifications

ELECTRICAL SPECIFICATIONS

	9920	9940	9922/9942
• Frequency:	50 MHz	150 MHz	600 MHz
• Package:	24 pin ddip or flatpack 0.510" high	16 or 24 pin ddip or flatpack 0.300" high	24 pin ddip or flatpack 0.300" high
• Aging			
ppm first year:	1.0	2	1
ppm over 10 years:	5	15	10
• Output:	7 dBm	PECL or 7 dBm	PECL
• Tuning range:	N/A	±100 ppm 0-5 VDC Rin >50K	N/A
• Settability:	<0.5 ppm	±10 ppm	<1 ppm
• Phase noise:			
@ 1Hz dbc/Hz	-50	-38	-38
@ 10Hz dbc/Hz	-80	-68	-68
@ 100Hz dbc/Hz	-110	-98	-100
@ 1kHz dbc/Hz	-140	-128	-118
@ 10 kHz dbc/Hz	-155	-138	
• Temperature stability			
-40°C to 85°C:	±30 ppm	±40 ppm	±30 ppm
-20°C to 70°C:	±20 ppm	±30 ppm	±20 ppm
0°C to 50°C:	±5 ppm	±15 ppm	±10 ppm
• Power supply:	12 VDC, 15 mA	PECL -5 VDC, 65 mA RF -12 VDC, 20 mA	PECL -5 VDC, 75 mA
• Acceleration sensitivity:	3e-9/g	3e-9/g	3e-9/g
• Vibration:	20 grms for 20 minutes	20 grms for 20 minutes	20 grms for 20 minutes
• Acceleration	3000 g's	3000 g's	3000 g's
• Shock	500 g's 1 ms	500 g's 1 ms	500 g's 1 ms
• Radiation (total dose)	100 krads(Si)	100 krads(Si)	100 krads(Si)



Temperature Coefficient



Mil-0-55310 Projection 3ppm for 15 Years



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