



MtronPTI 100MHz Sinewave Electronically Vibration Compensated OCXO

MtronPTI P/N: XO5503-100MHz

In high reliability communications and radar applications, maintaining performance comes first. The communication link must stay up; the picture must be clear even when conditions are less than ideal. Radars and satellite tuners use high performance crystal oscillators to keep frequencies quiet for clear pictures and exact for good channel lock but it's often a difficult tradeoff: size, weight and power constraints versus ultimate noise performance when looking for small slow moving targets from shaking platforms. The MtronPTI XO5503 Series incorporates a SC-cut quartz resonator and electronic vibration compensation resulting in 0.02 ppb/g g-sensitivity. The XO5503 Series OCXO replaces bulkier references, raising system performance while lowering size and weight.



Key Features: Small Size 2.0"x1.5"x0.8", no mechanical degradation during the dynamic phase i.e no moving parts, No effects of temperature

Applications: Airborne and shipboard radar, Airborne Satellite communications

Electrical Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency	F_o		100.000000		MHz	
Frequency Stability						
Over Temperature Range		-100		+100	ppb	Over operating temp(-40C to +85C)
vs Supply Voltage Change				+15	ppb	±5% change in V_s
vs Load Change				+15	ppb	±5% change in Load
Aging				±250	ppb	1 st year
[After 30 days of operation]				±200	ppb	Per year after 1 st year
RF Output						
Output Type		Sinewave				
Output Level		+5.0	+7.0	+9.0	dBm	Into a nominal 50Ω load
Output Load		50			Ω	±5%
Harmonics				-30	dBc	
Frequency Adjustment						
Adjustment Method		External Voltage				
Tuning Voltage	V_{TUNE}	0		+5.0	V_{DC}	
Tuning Range			±2.5		ppm	
Input Impedance		50			KΩ	
Tuning Slope		Positive				
Phase Noise						
SSB Phase Noise – Static				-97	dBc/Hz	@ 10Hz Offset
				-127		@ 100Hz Offset
				-150		@ 1kHz Offset
				-162		@ 10kHz Offset;
				-165		@ 100kHz Offset;

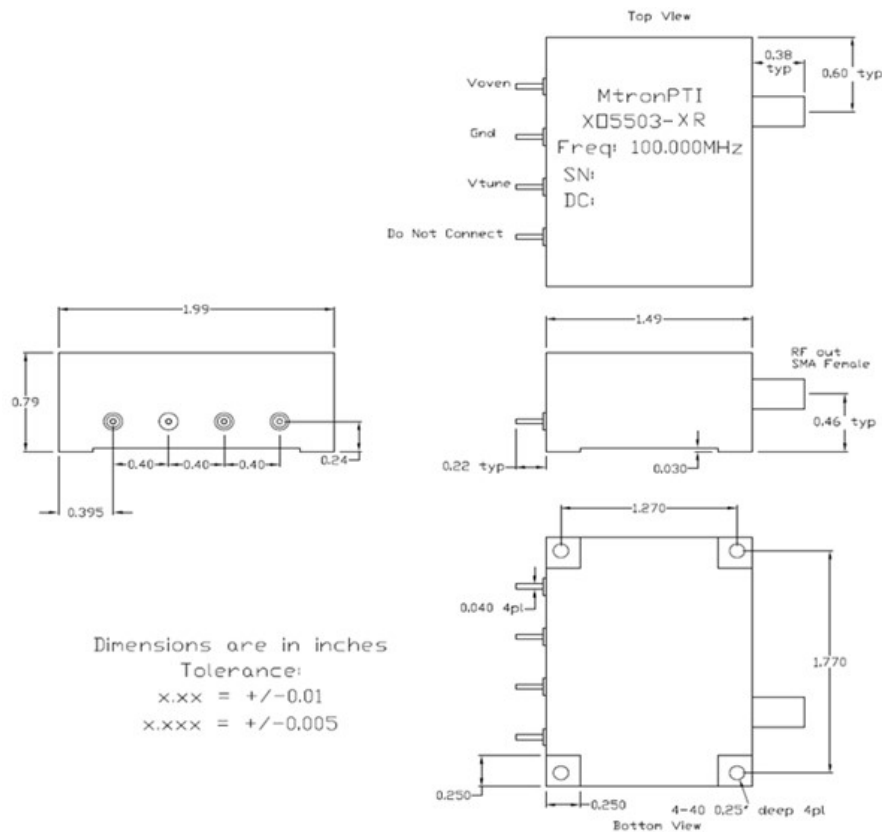


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SSB Phase Noise – With Random Vibration (operational) (any axis)				-97	dBc/Hz	@ 10Hz Offset
				-127		@ 100Hz Offset
				-150		@ 1kHz Offset
				-153		@ 2kHz Offset
				-162		@ 10kHz Offset
				-165		@ 100kHz Offset
Random Vibration (operational)						
Power Spectral Density			0.012		g ² /Hz	@ 10Hz
			0.012			@ 40Hz
			0.020			@ 52Hz
			0.020			@ 500Hz
			0.00126			@ 2000Hz
Additional Parameters						
Supply Voltage	V _S	11.4	12.0	12.6	V _{DC}	
Power Consumption				5	Watts	@ Start-up
				2	Watts	@ +25°C Steady State
Operating Temperature		-40		+85	°C	

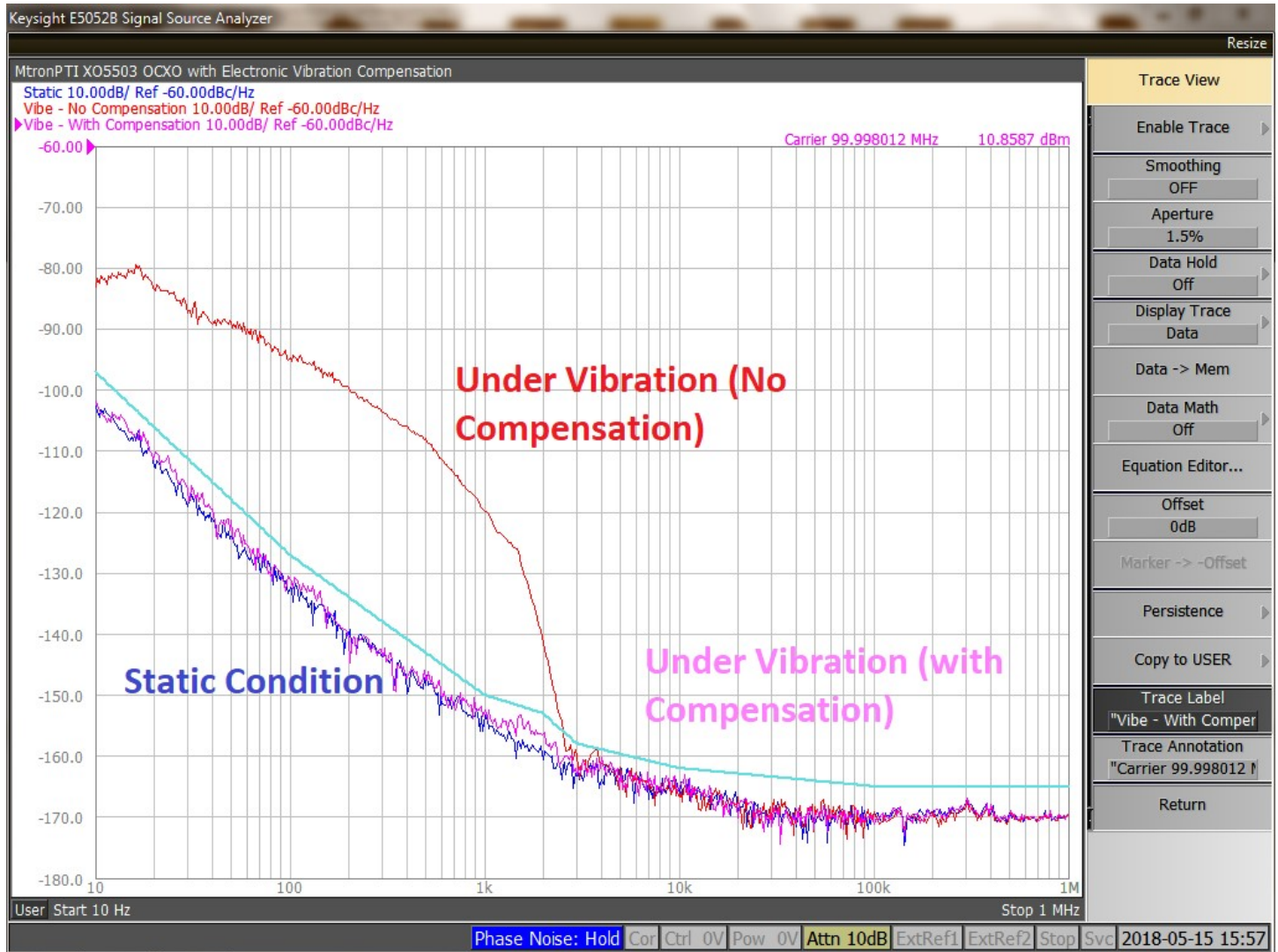
Mechanical and Pin out:





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Representative Phase Noise Performance (worst case axis):



Data Sheet Revision Table:

Date	Rev.	Author	Details of Revision
05-16-18	A	MWM/DPD	Preliminary release