Mtron™
Innovative RF Solutions

XO5503-125MHz
e-Vibe® Compensated OCXO
With Integrated PLL

Features	Applications
Frequency: 125MHz	Radar
Vibration Compensated	Satcom
Low Phase Noise	Electronic Warfare
Low Aging	Munitions

Electrical Specifications at 125MHz

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency	F_0		125		MHz	

Frequency Stabilities

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Stability	ΔF/F	-500		+500	ppb	Over the operating temperature range
vs. Supply Voltage variation		-15		+15	ppb	±5% change in V
vs. Load Change		-100		+100	ppb	
Aging (After 30-days power on)		-250 -200		+250 +200	ppb ppb	1st year Per year after 1st year

RF Output

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Output Type			Sinewave			
Output Level		+5	+7	+10	dBm	Into a nominal 50Ω load
Output Load			50		Ω	±5%
Harmonics				-30	dBc	

Frequency Adjustment

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Adjustment Method		External Voltage				
Adjustment Voltage	V_{TUNE}	0		+5	V	
Adjustment Range			±2.5		ppm	
Input Impedance		25		kΩ		
Adjustment Slope		Positive				

RF External Reference (10MHz)

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
RF Input Level		-3	0	+3	dBm	Customer to choose the signal level between 0 ±3dB
RF Input Lock Range				±1	ppm	10MHz external would need to be within ±1ppm from nominal 10MHz to lock

Note* Phase noise below the loop bandwidth will be dominated by customer provided 10MHz reference.

Phase Noise

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
SSB Phase Noise (Under Static Conditions)				-84	dBc/Hz	10 Hz Offset
				-115	dBc/Hz	100 Hz Offset
				-145	dBc/Hz	1 kHz Offset
				-166	dBc/Hz	10 kHz Offset
				-170	dBc/Hz	100 kHz Offset
SSB Phase Noise – With Random Vibration (operational, any axis)				-81	dBc/Hz	10 Hz Offset
				-113	dBc/Hz	100 Hz Offset
				-142	dBc/Hz	1 kHz Offset
				-162	dBc/Hz	10 kHz Offset
				-169	dBc/Hz	100 kHz Offset

Random Vibration (operational)

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Power Spectral Density			0.01		g^2/Hz	10 Hz – 350 Hz
			0.0018			2000 Hz

Temperature, Supply Voltage & Power Consumption

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Temperature	OTR	-40		+85	°C	Full Specification Compliance
Operating Voltage	V_{CC}	+11.4	+12.0	+12.6	V	
Power Consumption				3	W	Steady state @ 25°C, In Still Air
				6	W	@ Start-up

Marking information

Part Marking
Mtron
XO5503
125.000MHz
Serial Number
Date Code

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e-Vibe® Compensated OCXO
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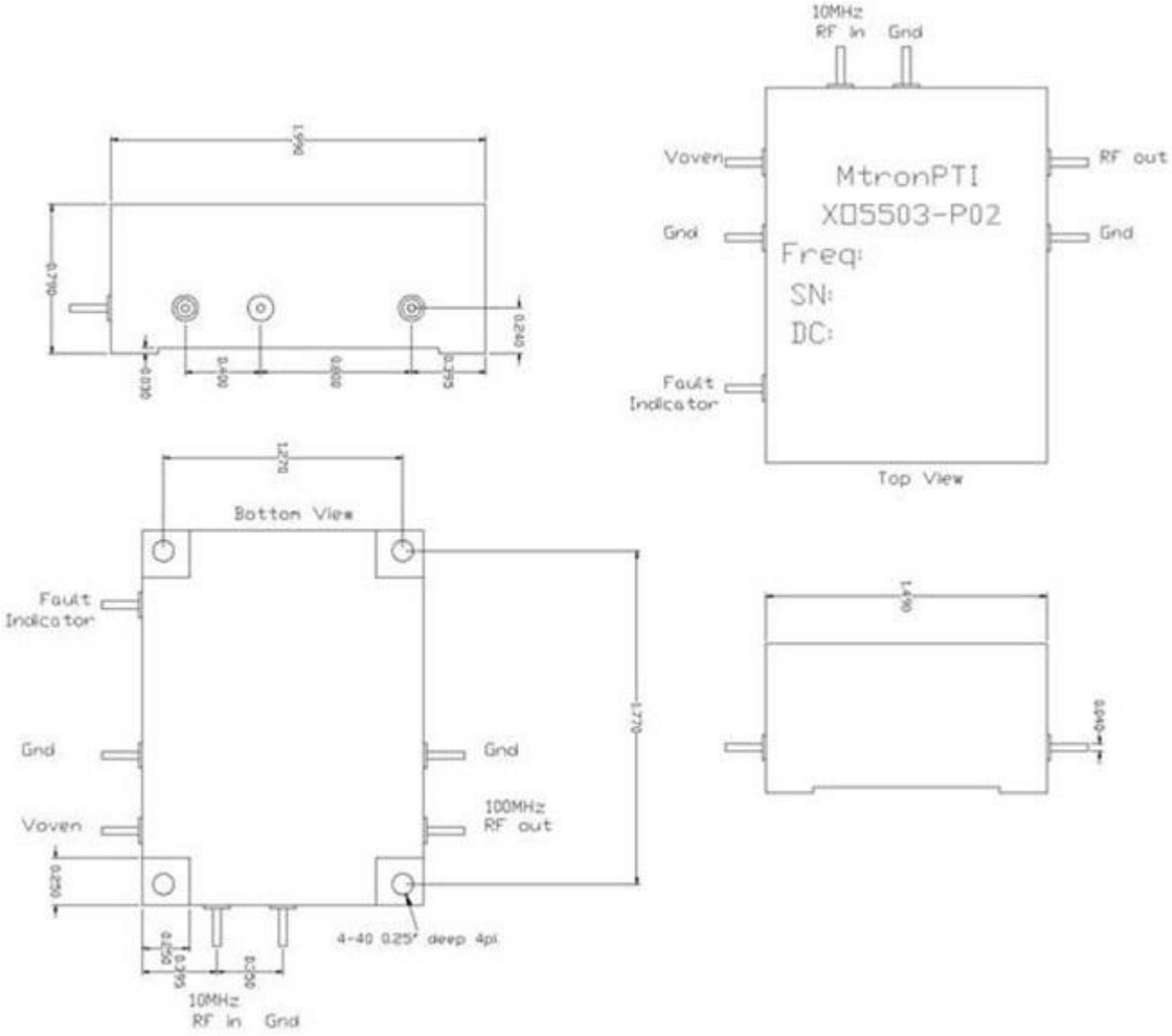
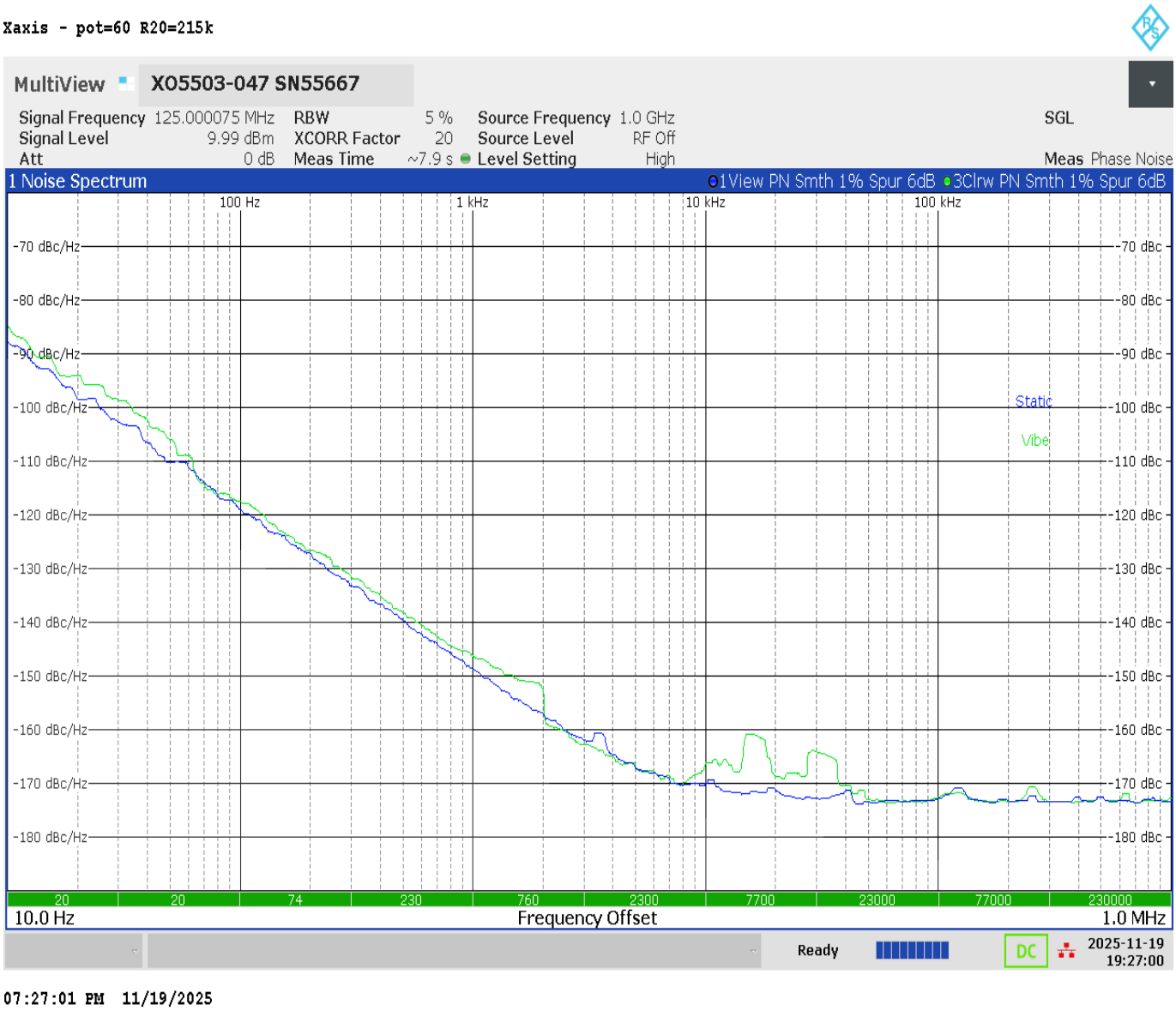
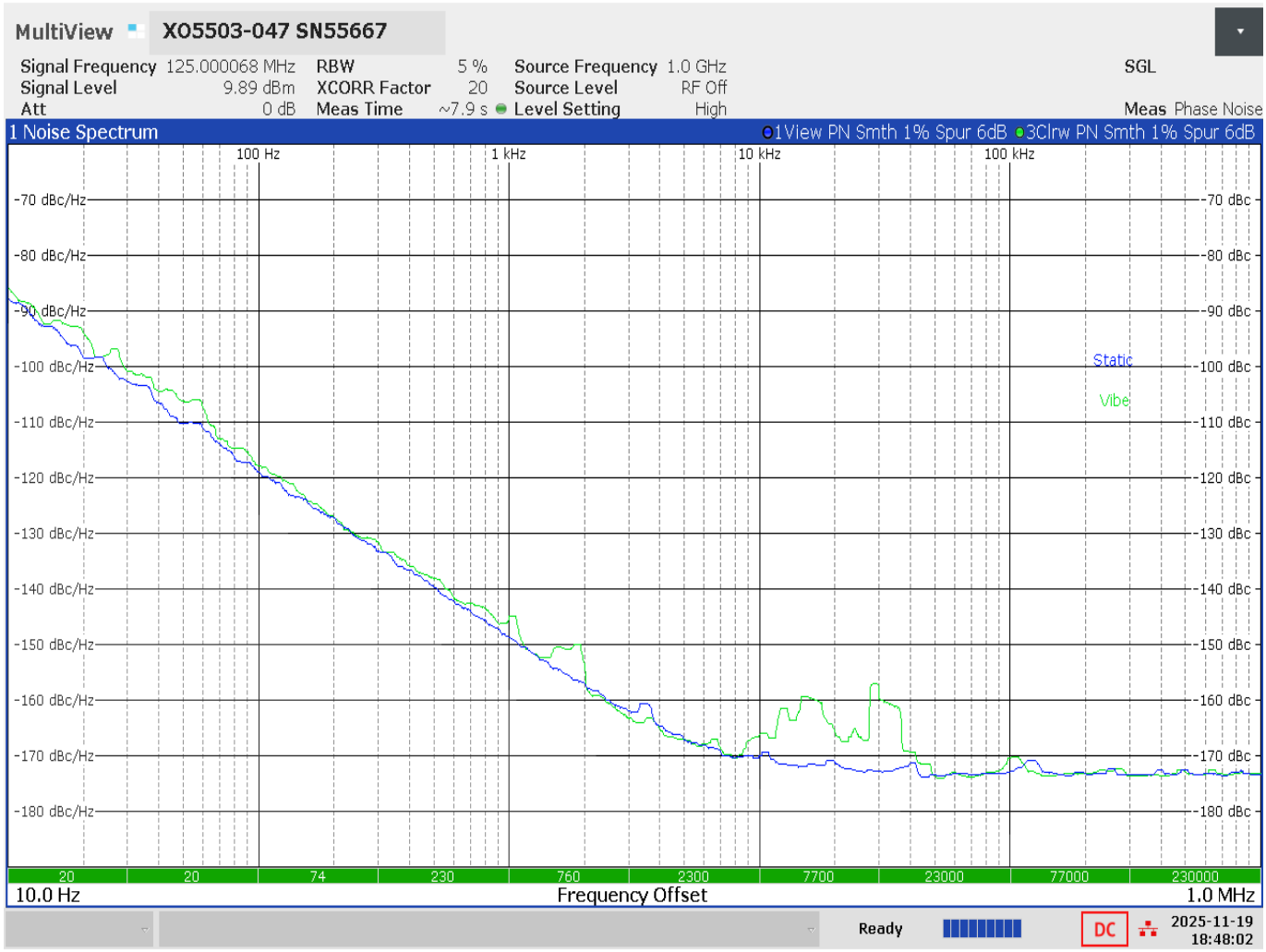
Mechanical Outline



Phase Noise Performance



Yaxis - pot=148 R40=13.3k



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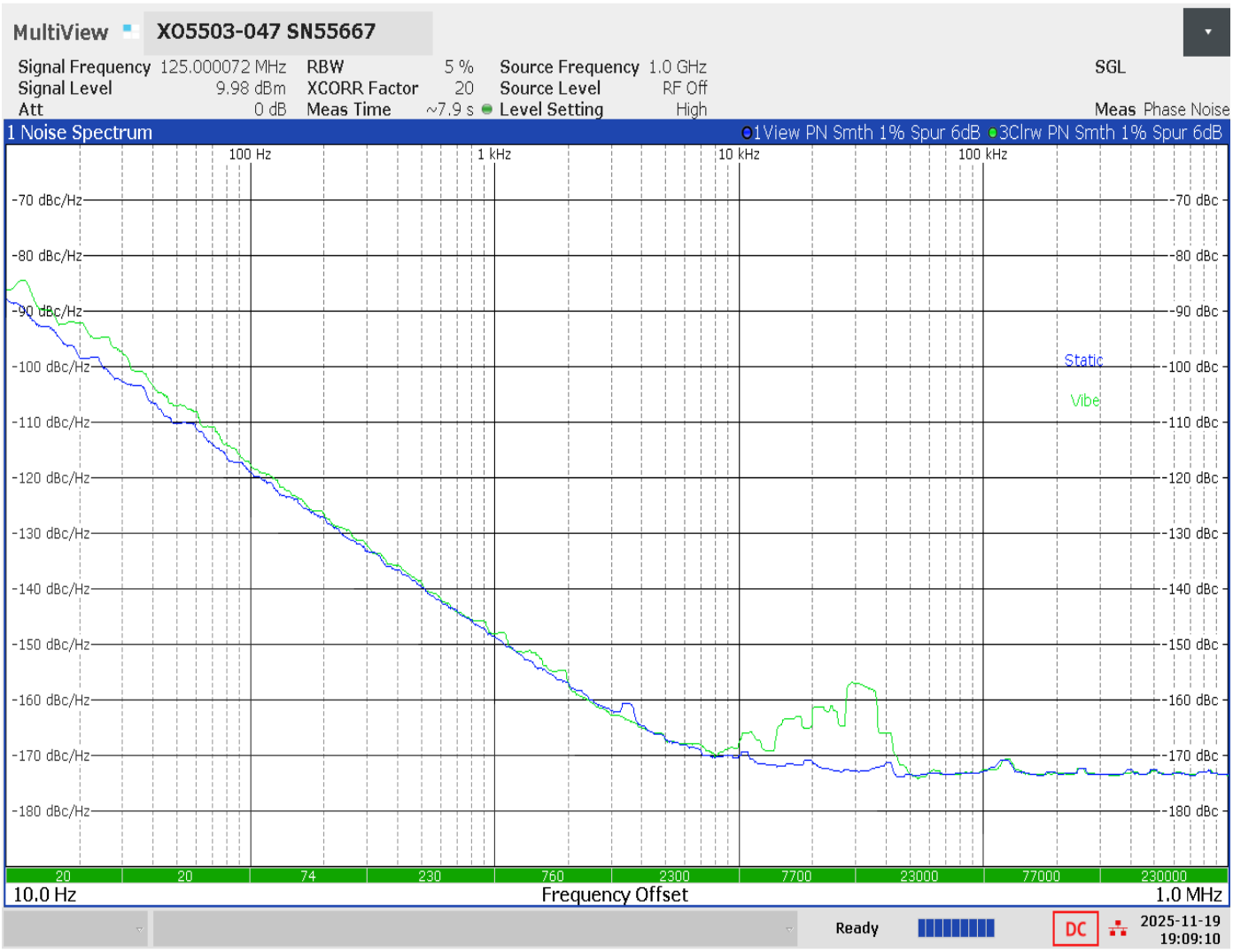
Zaxis - pot=151 R60=35.7k



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