

XO7013 Series

9x14mm, SMD, VCXO

Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency		50		262	MHz	

Frequency Stabilities

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Absolute Pull Range (APR)		±20			ppm	APR = (Pull range) - (degradations due to temperature + aging + power supply + load + initial tolerance + shock + vibration)
Aging		-3		+3	ppm	1 st Year
		-1		+1	ppm	Per year (after 1 st year)

RF Output

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Output Type		CMOS				
Output Load			15		pF	CMOS
Symmetry (Duty Cycle)		45	50	55	%	50% V _{DD}
Rise/Fall time			3		ns	@ 20% to 80% V _{DD}
Logic Level "LOW"				10% V _{DD}	V	
Logic Level "HIGH"		90% V _{DD}			V	

Frequency Adjustment

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Adjustment Method		External Voltage				
Adjustment Voltage	V _{TUNE}	0	1.65	3.3	V _{DC}	
Tuning Sensitivity			25		ppm/V	
Linearity				5	%	
Modulation Bandwidth		10			kHz	
Input Impedance			50		kΩ	
Adjustment Slope		Positive				

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Additional Parameters

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
SSB Phase Noise (under static conditions)			-140		dBc/Hz	1 kHz Offset
			-155		dBc/Hz	10 kHz Offset
			-164		dBc/Hz	100 kHz Offset
			-166		dBc/Hz	1 MHz Offset
Integrated Jitter			40		fs	12 kHz to 20 MHz
Sub-harmonics		None				

Operating Voltage and Current

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Supply Voltage	V _{DD}	3.0	3.3	3.6	V _{DC}	
Supply Current				35	mA	

Temperature

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Temperature	OTR	-40		+85	°C	
Storage Temperature	STR	-55		+125	°C	

Environmental Condition

Seal	Non-Hermetic and Washable unit. Recommend a vacuum bake at 125 °C for 1 hour after wash. Components inside the VCXO will withstand a Parylene coating 0.25-0.75 mil thickness.
RoHS	Full RoHS Compliance
Shock	MIL-STD-883, Method 2002, Condition B
Solderability	MIL-STD-883, Method 2003
Vibration	MIL-STD-883, Method 2007, Condition A
Solvent Resistance	MIL-STD-202, Method 215
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition I or J
Thermal Shock	MIL-STD-883, Method 1011, Condition A
Moisture Resistance	MIL-STD-883, Method 1004

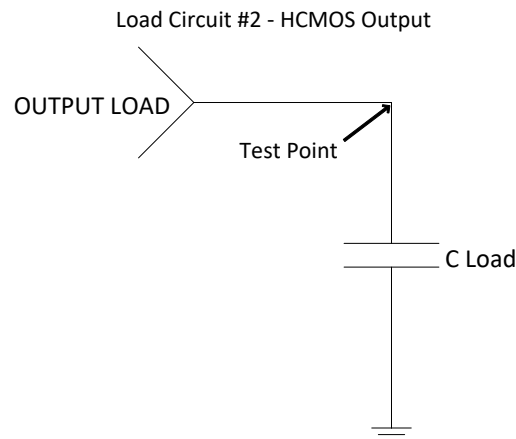
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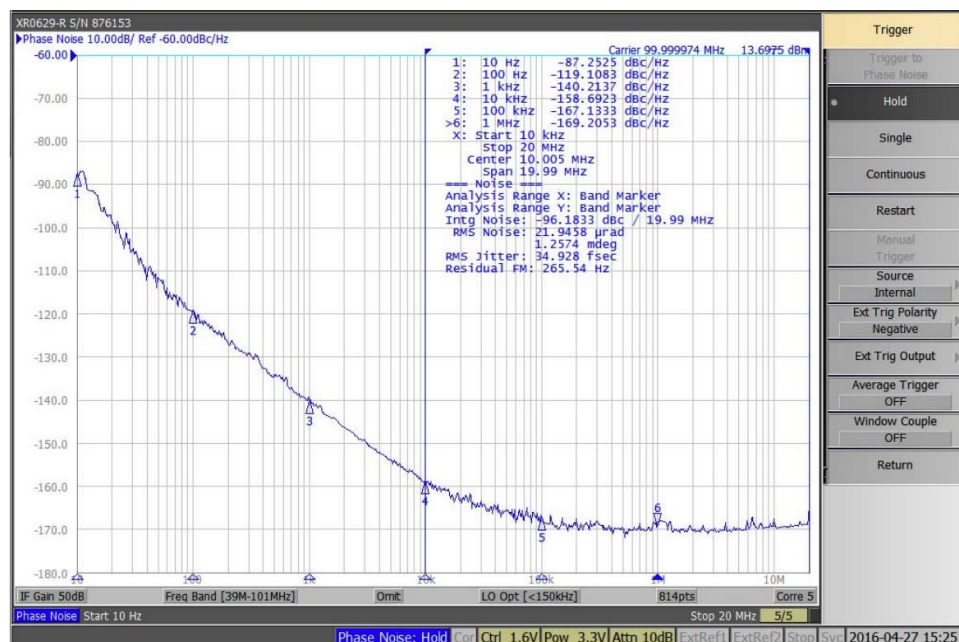
Notes

Features	Applications
Surface Mount 9x14mm Package	Instrumentation
Ultra-Low phase Noise , Low Jitter	Avionics
CMOS Output, 3.3V	Satcom
Industrial Temperature	Datacom

Load Circuit Diagrams



Representative Phase Noise Performance



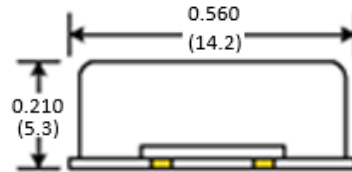
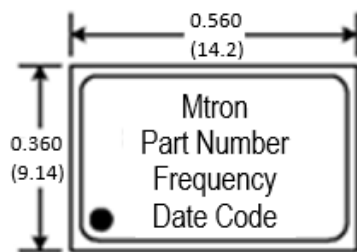
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Mechanical and pin out information

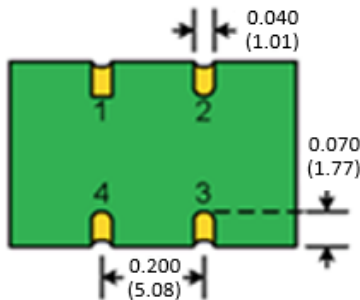
Pad	Function
1	Voltage Control
2	Ground
3	Output
4	+V _{DD}

Part Marking	
Line 1	Mtron
Line 2	Part Number
Line 3	Frequency
Line 4	Date Code

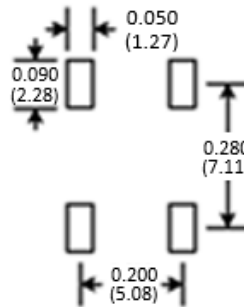
Graphs/Package Dimensions/etc.



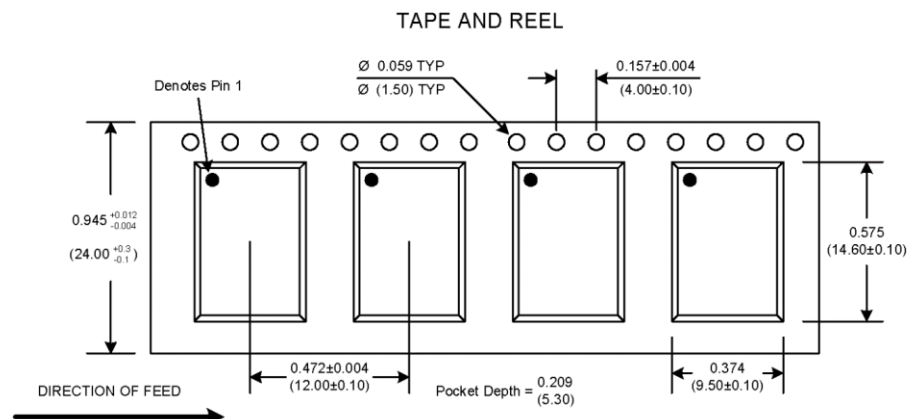
Tolerance	
3 decimals	± 15 mil
2 decimals	± 10 mil



SUGGESTED PAD LAYOUT

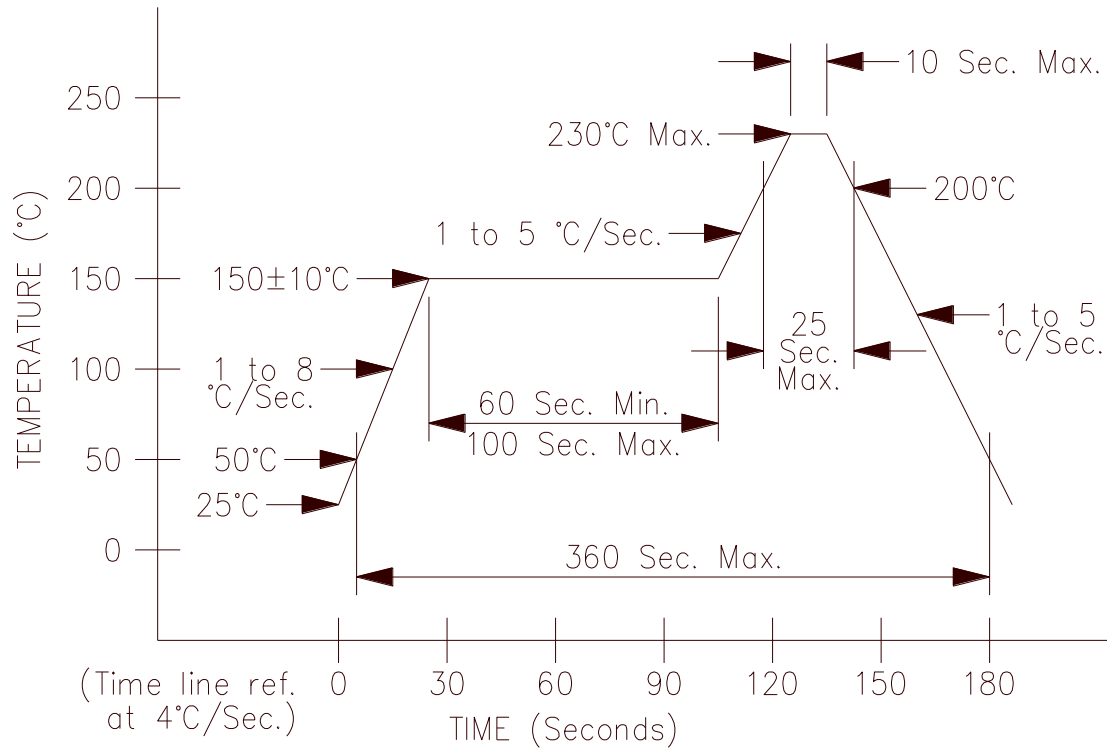


Tape and Reel



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Recommended Reflow Profile



Revision History

4/24/2025 – Revision B: Datasheet format update

5/04/2016 – Revision A: Initial Version