

## Features:

- Excellent Stability as Low as +/- 1.0 ppb
- Frequencies from 5 to 13 MHz
- Standard frequency at 10 MHz
- Low power consumption < 2 watts steady state
- HCMOS and Sine Wave Output
- 5 or 12 Volt Supply
- RoHS-6 / Lead-free Compliant
- Storage Temperature Range of -55°C to 125°C
- Manufactured in Erie Pa, USA



## Description:

The N47B/NV47B Ovenized Crystal Oscillator Series provides a low power option for an ultra-stable frequency reference in conjunction with excellent phase noise. This unit is ideally suited for applications including base stations, test equipment, synthesizers, digital switching applications and test and measurement equipment.

## Electrical Specifications

### 1. Output Characteristics

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
1.1	Frequency Range	5		13	MHz.	
1.2	Initial Accuracy		±0.1		ppm	15 ±1 min after turn on @+25°C±1°C VCO Input voltage 2.0 ±.001Vdc if selected
1.3	Output Type	Sinusoidal				
	Output Level		8		dBm	
	Harmonics			-30	dBc	
	Spurious Response			-75	dBc	

## 2. Frequency Stability

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
2.1	Frequency vs. Temperature					
	0 to +50°C	±1		±10	ppb	See Table 1 For Ordering Options
	-20 to +70°C	±1		±10	ppb	See Table 1 For Ordering Options
	-40 to +85°C		±10		ppb	See Table 1 For Ordering Options
2.2	Aging					
	1 <sup>st</sup> Year**			±50	ppb	Typical at 10MHz after 30 days of continuous operation
2.3	Short Term		5		x10 <sup>-11</sup>	
2.4	Frequency vs. Voltage		5		ppb	
2.5	Frequency vs. Load		1		ppb	
2.6	Warm-up			0.1	ppm	After 3 minutes
2.7	Static Phase Noise	See Table 1 For Ordering Options				
	$\mathcal{L}(f)$ @1Hz		-90		dBc/Hz	Tested @ +25°C±1°C Static Environment @10MHz
	$\mathcal{L}(f)$ @10Hz		-120		dBc/Hz	
	$\mathcal{L}(f)$ @100Hz		-150		dBc/Hz	
	$\mathcal{L}(f)$ @1KHz		-155		dBc/Hz	
	$\mathcal{L}(f)$ @10KHz		-158		dBc/Hz	
	$\mathcal{L}(f)$ @100KHz		-160		dBc/Hz	

## 3. Input Characteristics

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
3.1	Supply Voltage	12±5%			Vdc	See Table 1 For Ordering Options
3.2	Power Dissipation					
	Warm-up			4	Watts	Tested @ +25°C±1°C, Static Environment, @10MHz

	Steady State			1.5	Watts	Tested @ +25°C±1°C, Static Environment, @10MHz
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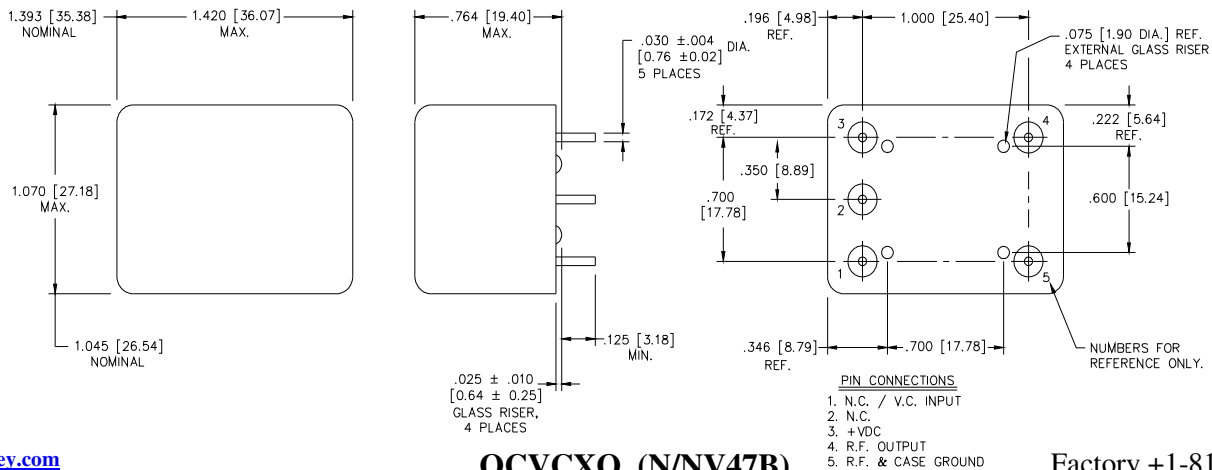
### 3. Input Characteristics (continued)

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
3.3	Electronic Frequency Control	See Table 1 for Ordering Options				
	Voltage Range	0		4	Vdc	
	Center Voltage		2		Vdc	
	Frequency Range	0.5			PPM	
3.4	Slope		Positive			
3.5	Input Impedance	100K			Ω	
3.6	Linearity			10	%	

### 4. Environmental, Reliability and Mechanical Specifications

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
4.1	Operational Temperature	-40		+85	°C	
4.2	Storage Temperature	-55		+125	°C	
4.3	Shock	Mil-Std 202G Method 213 Condition C				
4.5	Sinusoidal Vibration	Mil-Std 202G Method 204 Condition A				
4.6	MTTF	200K			Hours	Calculated using MIL-HDBK-217

**Figure2. Mechanical Dimensions and Pin Functions**



**Table1. Ordering Information**

N47(TBD) NG47(TBD)	PHASE NOISE (dBc/Hz) 10MHz Performance		Temp Range	Stability	Output	Supply	Frequency
	Offset	sinewave					
		A	A	A	A	A	5M To 13M
	1Hz	-90	-90	0 to +50°C	±1.0ppb	12Vdc	
	10Hz	-120	-120	B -20 to +70°C	B ±2.0ppb		
	100Hz	-150	-140	C -40 to +85°C	C ±3.0ppb		
NV47(TBD) NVG47(TBD)				D stability only	D ±10.0ppb		
	1KHz	-155	-145				
	10KHz	-160	-155				
	100KHz	-160	-155				

