

Features:

- Frequency Stability as Low as ± 5 ppb
- Low Phase Noise Options*
- Available in frequencies from 5 MHz to 20MHz
- HCMOS and Sine wave output
- 5V, 12V and 15V available
- Storage Temperature Range of -55°C to 125°C
- *Call factory for other phase noise requirements



Description:

The N45/NV45, AA/AB Ovenized Crystal Oscillator Series offers high stability performance in a low profile package (0.460 inches max. or 11.68mm max) for base station, test equipment, synthesizers, digital switching and military applications.

Electrical Specifications

1. Output Characteristics

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
1.1	Frequency Range	5.0		20.0	MHZ	
1.2	Initial Accuracy			± 50	PPB	
1.3	Output Type					
	HCMOS	See Table 1 For Ordering Options (Only available in 5Vdc supply)				
	Level "0"	0		0.4	Vdc	
	Level "1"	4.5		5	Vdc	
	Rise/Fall Time			10	nSec	
	Duty Cycle	45	50	55	%	
	Sinusoidal	See Table 1 For Ordering Options				
	Output Level		8		dBm	
	Load Impedance		50		Ω	
	VSWR		1.5:1			Into $50\Omega \pm 10\%$
	Harmonic Content			-30	dBc	

1. Output Characteristics (Continued)

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
	Spurious Modulation			-75	dBc	
1.4	Acceleration Sensitivity*			1	PPB/g	Typical of 10MHz.
1.5	Reference Voltage		4.0		Vdc	See Table 1 For Ordering Options

*Please consult factory for acceleration sensitivity options regarding other frequencies.

2. Frequency Stability

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	
2.1	Frequency vs. Temperature					Referenced to Frequency @+25°C	
	-20°C to +70°C	±5, ±30, or ±50			PPB	See Table 1 For Ordering Options	
	-40°C to +85°C	±30, or ±50			PPB	See Table 1 For Ordering Options	
2.2	Aging	Typical for 10MHz after 30 days of continuous operation					
	1 st Year**			±100	PPB		
	15 Years**			±500	PPB		
2.3	Frequency vs. Voltage		±5		PPB		
2.4	Frequency vs. Load			±5	PPB		
2.5	Allan Variance			5x10e-11		τ = 1 Second	
2.6	Warm-up		±50		PPB	Within 3 minutes	
2.7	Static Phase Noise	Option A	Option B	Option C	Option D	See Table 1 for Ordering Options	
	$\mathcal{L}(f)$ @1Hz	-80	-90	-95	-100	dBc/Hz	Tested @ +25°C±1°C Static Environment
	$\mathcal{L}(f)$ @10Hz	-115	-120	-125	-130	dBc/Hz	
	$\mathcal{L}(f)$ @100Hz	-145	-148	-152	-152	dBc/Hz	
	$\mathcal{L}(f)$ @1KHz	-150	-155	-160	-160	dBc/Hz	
	$\mathcal{L}(f)$ @10KHz	-155	-160	-165	-165	dBc/Hz	
	$\mathcal{L}(f)$ @100KHz	-155	-160	-165	-165	dBc/Hz	

Values listed above are typical performance of a (10.000) MHz Fo

**Long term aging projection is calculated per MIL-PRF 55310 $f(t) = A(\ln(Bt+1))+F_0$

3. Input Characteristics

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
3.1	Supply Voltage	5 ±5%, 12 ±5%, 15 ±5%			Vdc	See Table 1 for Ordering Options
3.2	Power Dissipation					
	Warm-up			4.8	Watts	
	Steady State		2.0		Watts	@25°C ±1°C ambient
3.3	Electronic Frequency Control	EFC availability is optional on Pin #3 See ordering method				
	Voltage Range	0		+4.0	Vdc	
	Center Voltage		+2.0		Vdc	
	Frequency Range	±0.5			PPM	Consult Factory for Wide Pull Range
	Slope		Positive			
	Input Impedance	100K			Ω	
	Linearity			10	%	

4. Environmental, Reliability and Mechanical Specifications

	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
4.1	Operational Temperature	-40		+85	°C	See Table 1 For Ordering Options
4.2	Storage Temperature	-55		+95	°C	
4.3	Shock	Mil-Std 202G Method 213 Condition C				
4.4	Random Vibration	Mil-Std 810G Method 514 Procedure I				
4.5	Sinusoidal Vibration	Mil-Std 202G Method 204 Condition A				
4.6	MTTF	153,300			Hours	Calculated using MIL-HDBK-217
4.7	Mechanical Package	Hermetically sealed package with glass feed through pins and glass risers (See attached mechanical drawing for dimensions and pin functionality)				

