

OCXO ULN HF B

Ultra Low Noise Oven Controlled Crystal Oscillator,
General Specification (rev2)

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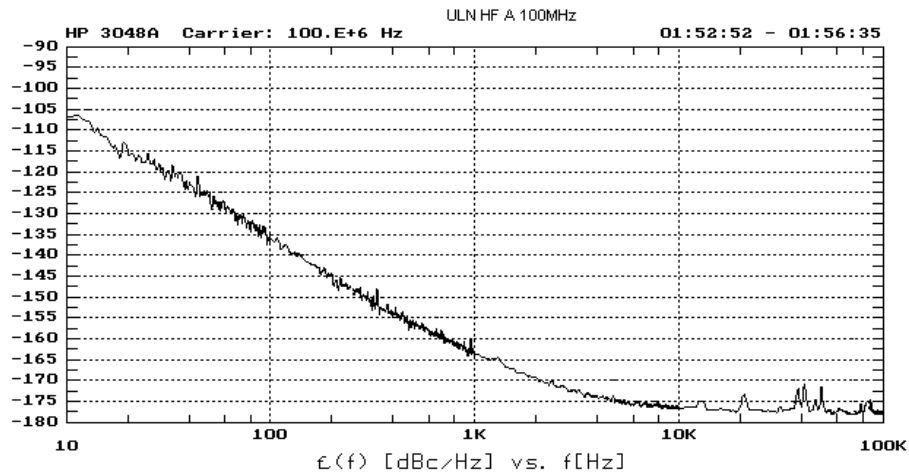
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December 5th, 2007

Features

- Ultra Low Noise (ULN), Oven Controlled, Crystal Oscillator (OCVCXO)
- Frequency range : 80 to 125 MHz
- Ultra low phase noise @ 100 MHz : - 158 dBc/Hz @ 1 kHz offset
- 174 dBc/Hz @ 10 kHz offset (noise floor)
- Operating temperature range : [-40 – +85 °C]
- Ground and naval environment
- G-sensitivity : $5.10^{-10}/g$
- 4-pin machined package + SMA connector for the frequency output
- Typical phase noise @ 100 MHz (static conditions):



Applications

Ground based or naval military equipment
Radar & Telecom simulator

Environmental conditions

Parameters	Unit	Minimum	Typical	Maximum
Operating temperature range 1	°C	- 20		+ 70
Operating temperature range 2	°C	- 40		+ 85
Storage temperature range	°C	- 55		+ 125
Relative humidity	-	Up to 100% at Ta = 0°C to 85°C without condensing		
Vibration	-	As per MIL-STD-167, Issue 1A		
Shock (half sine)				15g, 11ms

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▣ Mechanical characteristics

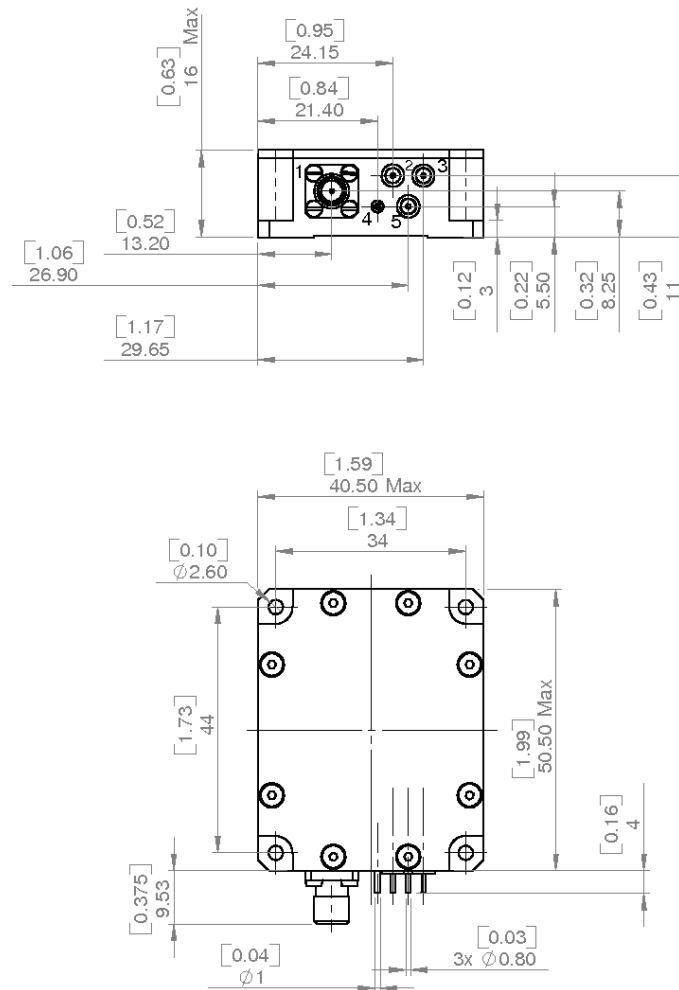


Figure 1 : Oscillator outline

Pin number	Name	Function
1	Fout	Frequency output
2	Vc	Electrical & mechanical ground
3	Vcc	Supply voltage
4	Ground	Electrical & mechanical ground
5	Vref	Reference voltage

Table 1: Pin description

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▣ Performance characteristics

Electrical Parameters	Unit	Minimum	Typical	Maximum
Frequency output (SMA Connector)				
Nominal frequency range	MHz	80	100	125
Output level (50 Ω load)	dBm	11	13	15
Output VSWR (Fo ± 1.5 MHz)	-			2:1
Harmonics level	dBc			- 30
Spurious (offset > 50 Hz)	dBc			- 70
Phase noise in static conditions @ 100 MHz				
@ 10 Hz offset	dBc/Hz		-105	- 100
@ 100 Hz offset	dBc/Hz		-135	- 130
@ 1 kHz offset	dBc/Hz		-163	- 158
@ 10 kHz offset or greater	dBc/Hz		-176	- 174
Phase noise in static conditions @ 120 MHz				
@ 10 Hz offset	dBc/Hz			- 93
@ 100 Hz offset	dBc/Hz			- 123
@ 1 kHz offset	dBc/Hz			- 155
@ 10 kHz offset or greater	dBc/Hz			- 172
g-sensitivity	/g			5.10 ⁻¹⁰
Free running mode (Vctrl pin NC)				
Initial setting	ppm		± 0.15	± 0.25
Stability vs. temperature (op temp range 1)	ppm		± 0.02	± 0.05
Stability vs. temperature (op temp range 2)	ppm		± 0.1	± 0.5
Stability vs. 5 % supply voltage variation	ppm			± 0.01
Stability vs. 10 % load variation	ppm			± 0.01
Aging over first year	ppm			± 0.5
Aging over 10 year	ppm			± 2
Retrace	ppm			± 0.1
Electrical tuning (Vctrl pin)				
Relative pulling frequency range	ppm			± 2
Input impedance	Ω	10 k		
Voltage range Option A	V _{DC}	- 5		5
Voltage range Option B	V _{DC}	0		10
Reference voltage (Vref pin)				
Nominal value	V _{DC}	9.5	10	10.5
Relative variation vs. temperature	%			± 1
Relative variation over 10 years	%			± 1
Supply voltage (Vcc pin)				
Voltage range	V _{DC}	14.5	15	15.5
Supply current @ 25 °C	mA		130	150
Supply current @ warm up	mA		470	530
Warm up time	mn			5

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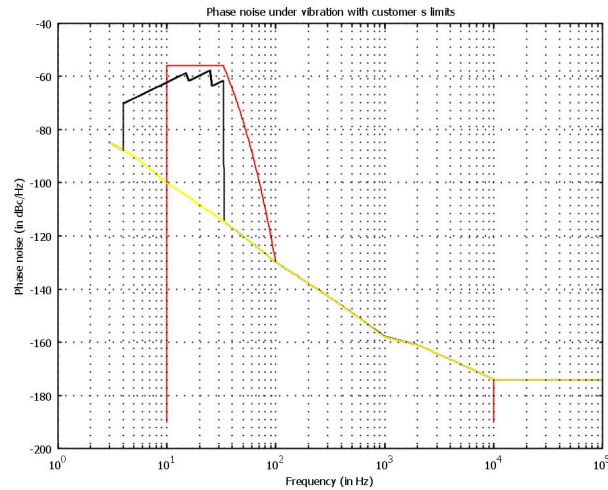


Figure 2 : Phase noise curves @ 100 MHz

Above is represented in yellow, the theoretical curve of the phase noise in static conditions and in black the phase noise in dynamic conditions.