

VCXO ULN HF B

Ultra Low Noise Voltage Controlled Crystal Oscillator,
General Specification (rev1)

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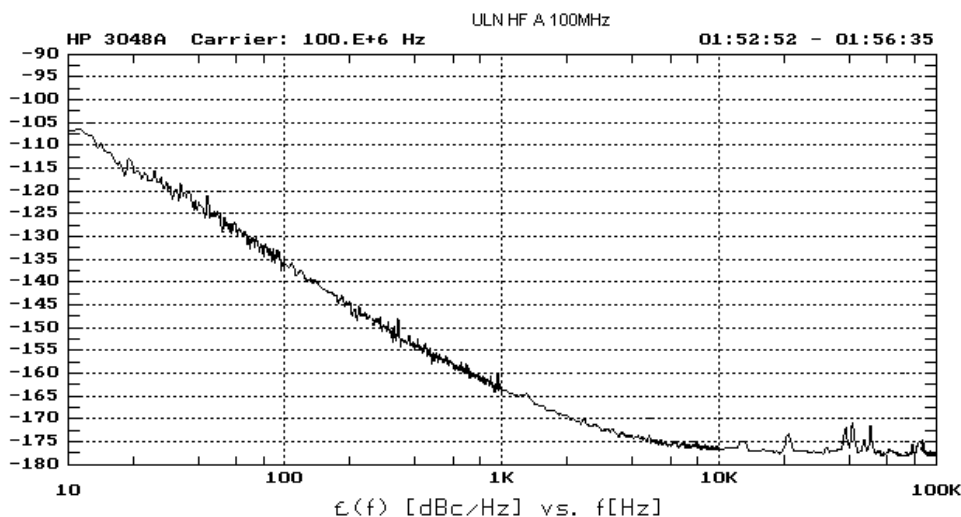
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December 5th, 2007

■ Features

- Ultra Low Noise (ULN), Voltage Controlled, Crystal Oscillator (VC)XO
- 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 : $5 \cdot 10^{-10}/g$
- 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	°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

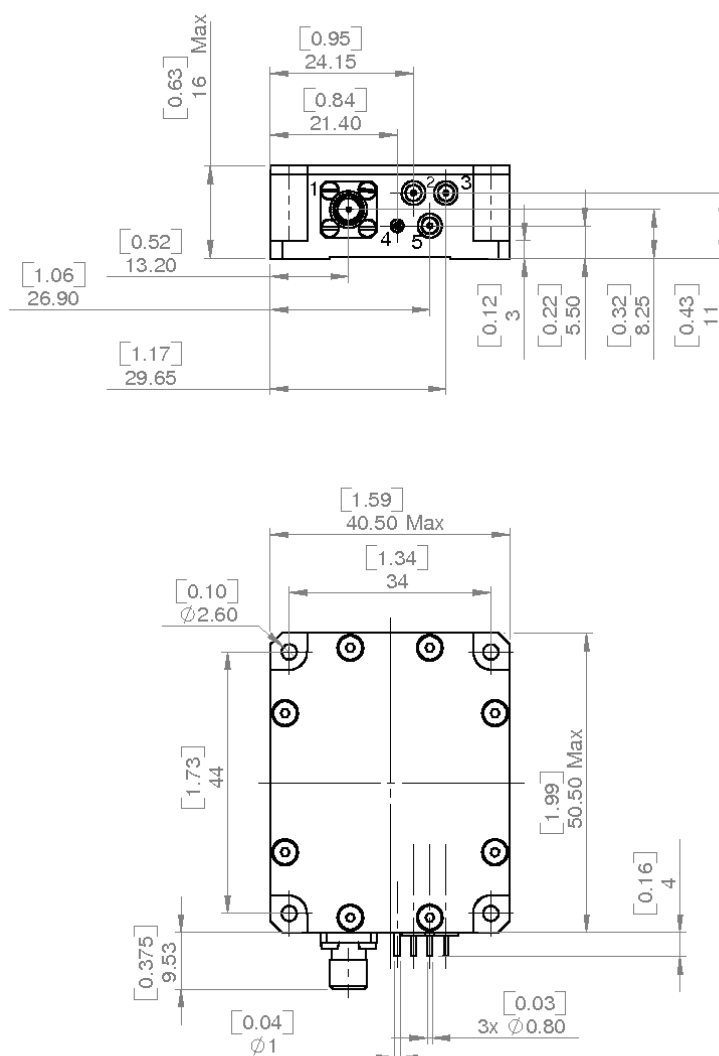


Figure 1 : Oscillator outline

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 ($F_o \pm 1.5$ 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			$5 \cdot 10^{-10}$
Free running mode (Vctrl pin NC)				
Initial setting	ppm			± 3
Stability vs. temperature	ppm			± 30
Stability vs. 5 % supply voltage variation	ppm			± 0.1
Stability vs. 10 % load variation	ppm			± 0.1
Aging over first year	ppm			± 2
Aging over 10 year	ppm			± 5
Supply voltage (Vcc pin)				
Voltage range	V _{DC}	14.5	15	15.5
Supply current @ 25 °C	mA			50

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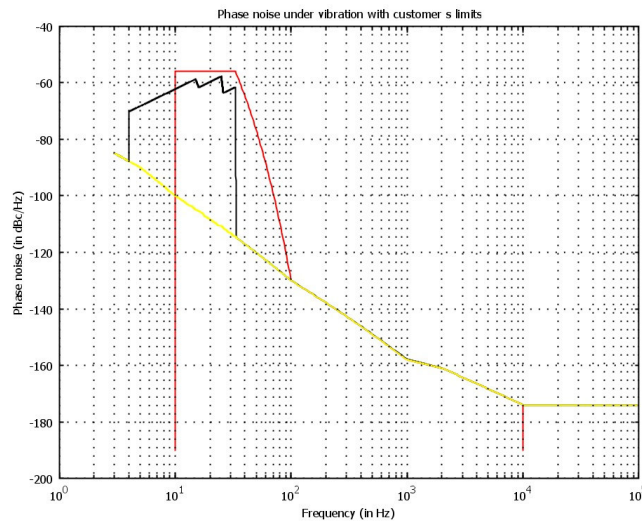


Figure 2 : Phase noise curves @ 100 MHz

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