

Specific request can be addressed to RAKON hirel@rakon.com

Product Description

LNO 640 B1 is a low noise and low power OCVCSO (Oven Controlled, Voltage controlled, SAW Oscillator) at 640 MHz.

It is designed for lab environment (test equipment, shelter, ground based military equipment, etc.).

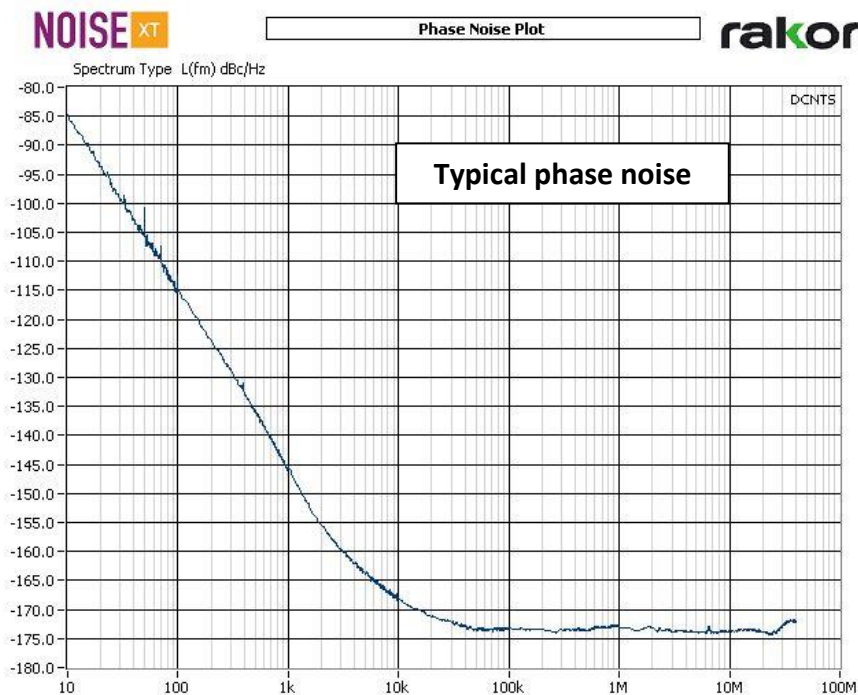
The 640MHz signal is generated from a 320MHz fundamental frequency multiplied by 2.

LNO 640 B1 is available in a 95mm x 76mm x 23mm package.



Features

- Excellent phase noise performance (typical values) :
 - -146 dBc/Hz @ 1 kHz offset
 - -168 dBc/Hz @ 10 kHz offset
 - -174dBc/Hz noise floor



Applications

- Instrumentation (test equipment, simulator)
- Ground based military equipment as per MIL-PRF-28800F, Class 3

Specifications

1.0 Environmental conditions

Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
1.1	Operating temperature range		0 to +50		°C
1.2	Storage temperature range		-40 to +85		°C
1.3	Shock	As per MIL-PRF-28800F, Class 3, test equipment			
1.4	Random vibration	As per MIL-PRF-28800F, Class 3, test equipment			

2.0 Electrical interface

Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
2.1	Supply voltage	Pin 2	+12 ± 0.2		V
2.2	Load impedance	Pin 3, 50Ω all phases	-	< 1.3:1	VSWR
2.3	Control Input	Pin 4	+2 to +10		V
2.4	Input impedance	Pin 4	-	> 10	kΩ

3.0 Performances

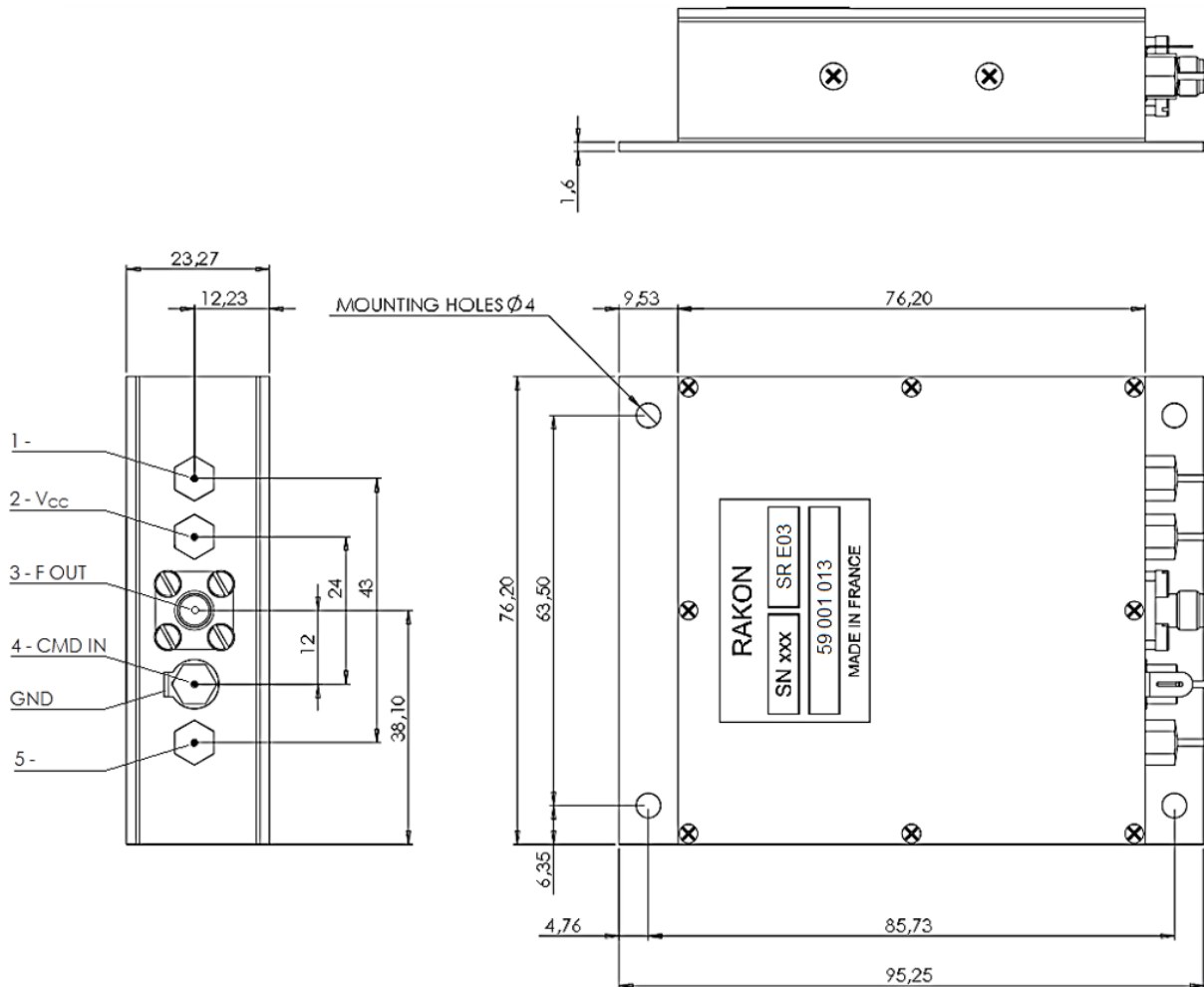
Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
3.1	Nominal frequency	Definition	640		MHz
3.2	Frequency calibration	Initial calibration @ 25°C	±0.2	< ±0.5	ppm
3.3	Frequency stability	On full temperature range	-	< ±1	ppm
3.4	Long term stability	After 30 days of continuous operation	-	< ±1	ppm
		1 st year	-	< ±6	ppm
3.5	Power consumption	Warm-up	-	< 9	W
3.6	Power consumption	25 °C (calm air)	-	< 4.2	W
3.7	Warm-up time	±1 ppm with reference to frequency reached after 1 hour of continuous operation	-	< 5	minutes
3.8	Frequency tuning	Monotone	±8	> ±6	ppm
3.9	Slope	Positive slope	-	1.5 to 3	ppm/V
3.10	Output power	Sine wave into 50 Ω load	-	+9 ±1	dBm
3.11	Output impedance	At 640 ± 1MHz	-	< 2.0:1	VSWR

4.0 Single side band phase noise (PN) and time jitter

Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
4.1	PN power density @ 1 kHz offset	Static conditions, at 25°C (guaranteed values on full temperature range)	-146	< -140	dBc/Hz
4.2	PN power density @ 10 kHz offset		-168	< -162	dBc/Hz
4.3	PN power density @ 1 MHz offset		-174	< -170	dBc/Hz
4.4	Harmonic distortion	All sub-harmonics, 2 nd and 3 rd harmonics	-	< -30	dBc
4.5	Spurious	Non-harmonics	-	< -80	dBc
4.6	Full offset range	From 10 Hz to 100 MHz	100	< 150	fs
4.7	Broadband	From 10 kHz to 40 MHz	-	< 6	fs

5.0 Mechanical features

Outline in mm, nominal values (general tolerances : $\pm 0.15\text{mm}$).



6.0 Pin description

Line	Pin number	Name	Description
6.1	1	-	Do not connect
6.2	2	V _{CC}	Input supply voltage (+)
6.3	3	F OUT	RF output signal
6.4	4	CMD IN	Input control voltage
6.5	Lug (4)	GND	Mechanical and electrical ground (-)
6.6	5	-	Do not connect