

Specific request can be addressed to RAKON [hirel@rakon.com](mailto:hirel@rakon.com)

#### Product Description

LNO 1200 B2 is a low noise and low power OCVCSO (Oven Controlled, Voltage controlled, SAW Oscillator) at 1.2GHz.

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

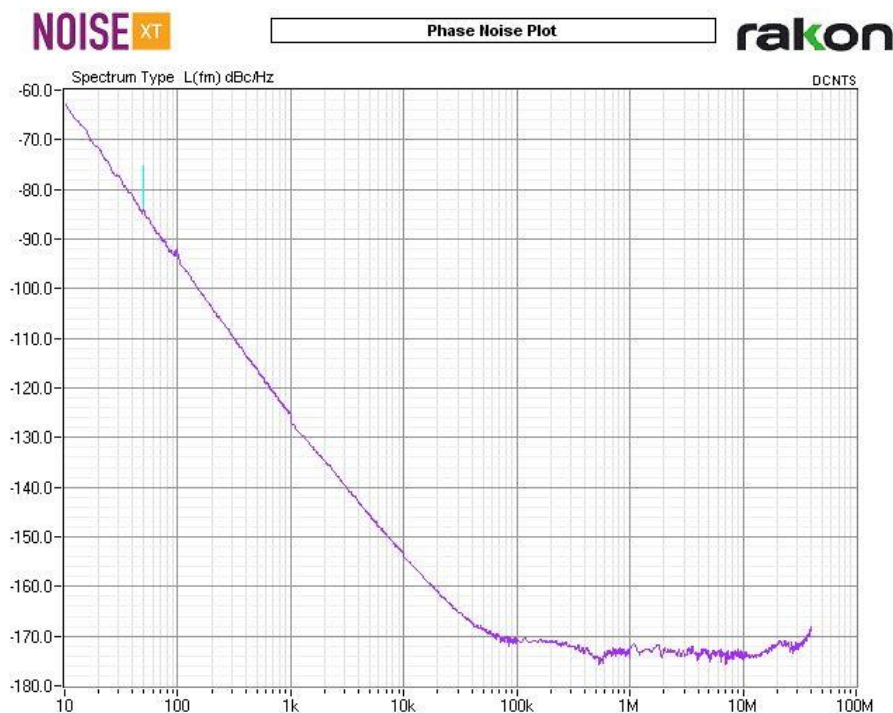
The 1.2GHz signal is generated from a 600MHz fundamental frequency multiplied by 2.

LNO 1200 B2 is available in a 47.5 x 59.5 x 12.7 mm (typical values, excluding connectors) machined low profile package, including connectors and mounting pads.



#### Features

- Excellent phase noise performance (typical values) :
  - - 128 dBc/Hz @ 1 kHz offset
  - - 154 dBc/Hz @ 10 kHz offset
  - - 172 dBc/Hz noise floor



- Broadband jitter < 10 fs (offset frequencies from 10 kHz to 100 MHz)

#### Applications

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

### Specifications

#### 1.0 Environmental conditions

Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
1.1	Operating temperature range	Standard	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	+10 ± 0.2		V
2.2	Load impedance	Pin 1, 50Ω all phases	-	< 1.3:1	VSWR
2.3	Control Input	Pin 4	+2 to +7		V
2.4	Input impedance	Pin 4	-	> 10	kΩ

#### 3.0 Performances

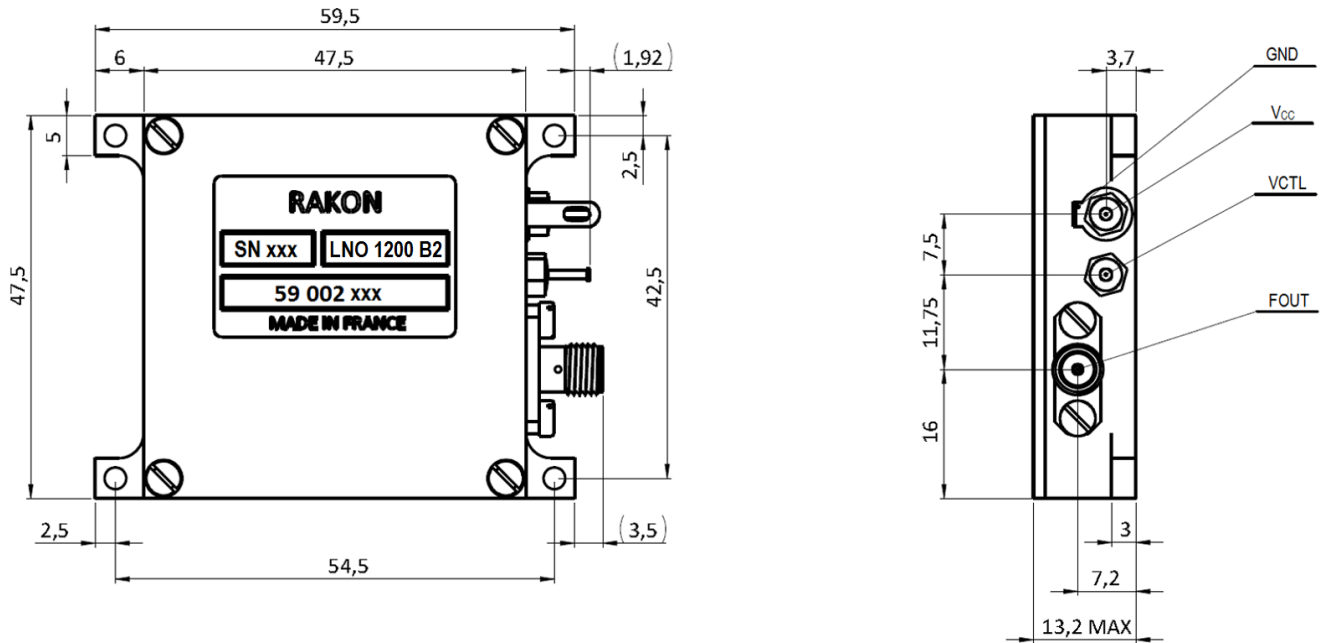
Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
3.1	Nominal frequency	Definition	1200		MHz
3.2	Frequency calibration	Initial calibration @ 25°C	±0.2	< ±0.5	ppm
3.3	Frequency stability	On full temperature range	±1	< ±2	ppm
3.4	Long term stability	After 30 days of continuous operation	-	< ±1	ppm
		1 <sup>st</sup> year	-	< ±6	ppm
3.5	Power consumption	Warm-up	6.0	< 6.5	W
3.6	Power consumption	25 °C (calm air)	2.0	< 2.8	W
3.7	Warm-up time	±1 ppm with reference to frequency reached after 1 hour of continuous operation at 25 °C	-	< 2	minutes
3.8	Frequency tuning	Monotone	±5	> ±4	ppm
3.9	Slope	Positive slope	-	1.5 to 3	ppm/V
3.10	Output power	Sine wave into 50 Ω load @25°C	-	+10 ±1	dBm
3.11	Output power variation	On full temperature range	-	±1	dB
3.12	Output impedance	At 1.2GHz ± 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)	-128	< -126	dBc/Hz
4.2	PN power density @ 10 kHz offset		-154	< -152	dBc/Hz
4.3	PN power density @ 1 MHz offset		-172	< -170	dBc/Hz
4.4	Harmonic distortion	All sub-harmonics, 2 <sup>nd</sup> and 3 <sup>rd</sup> harmonics	-40	< -30	dBc
4.5	Spurious	Non-harmonics	-	< -80	dBc
4.6	Full offset range	From 10 Hz to 100 MHz	350	< 400	fs
4.7	Broadband	From 10 kHz to 100 MHz	5	< 10	fs

### 5.0 Mechanical features

Outline in mm (typical dimensions).



### 6.0 Pin description

Line	Name	Type	Description
6.1	RF OUT	SMA jack	RF output signal
6.2	VCC	Feed-thru	Input supply (+)
6.3	GND	Lug	Mechanical and electrical ground (-)
6.4	VCTL	Feed-thru	Input control voltage