

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

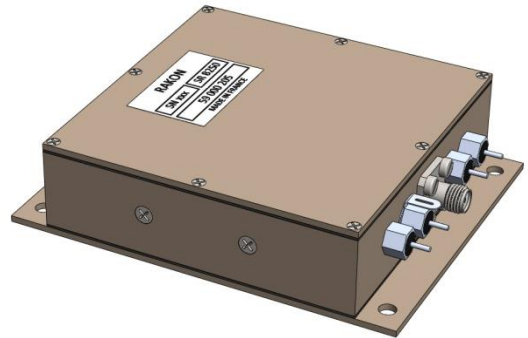
#### Product Description

LNO 480 B1 is a low noise and low power OCVCSO (Oven Controlled, Voltage controlled, SAW Oscillator) at 480 MHz.

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

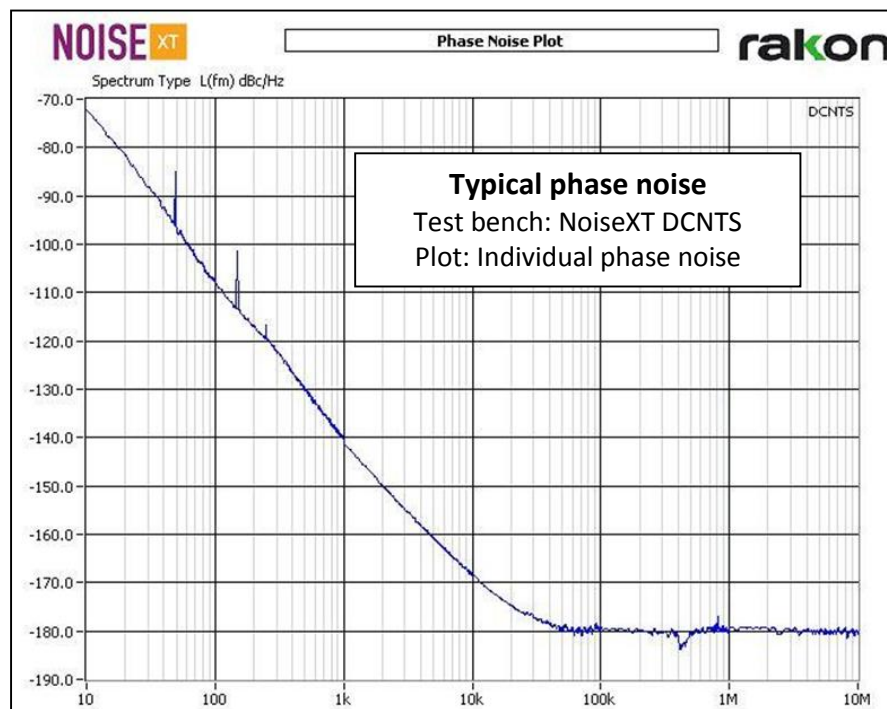
It also provides an optional internal frequency doubler, allowing an output frequency at 960 MHz

LNO 480 B1 is available in a 95.25mm x 76.2mm x 23.27mm package.



#### Features

- Excellent phase noise performance (typical values) :
  - - 142 dBc/Hz @ 1 kHz offset
  - - 168 dBc/Hz @ 10 kHz offset
  - - 180dBc/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 +7		V
2.4	Input impedance	Pin 4	-	> 10	kΩ

#### 3.0 Performances

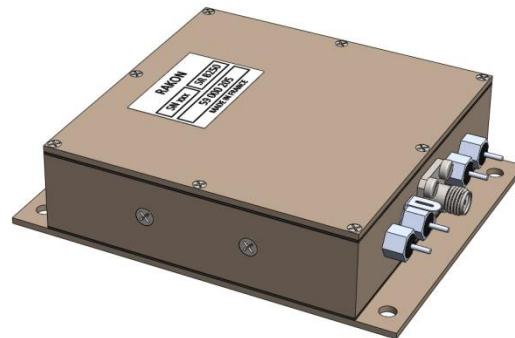
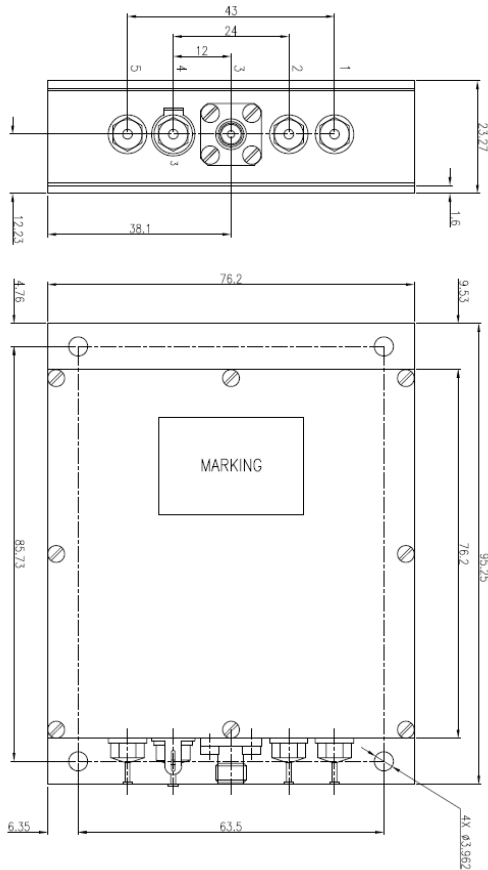
Line	Parameter	Test Condition	Typ. Value	Guaranteed	Unit
3.1	Nominal frequency	Definition	480		MHz
3.2	Frequency calibration	Initial calibration @ 25°C	±0.2	< ±0.5	ppm
3.3	Frequency stability	On full temperature range	-	< ±1	ppm
3.4	Long term stability	After 30 days of continuous operation	-	< ±1	ppm
		1 <sup>st</sup> year	-	< ±6	ppm
3.5	Power consumption	Warm-up	-	< 8.5	W
3.6	Power consumption	25 °C (calm air)	-	< 3.6	W
3.7	Warm-up time	±1 ppm with reference to frequency reached after 1 hour of continuous operation at 25 °C	-	< 5	minutes
3.8	Frequency tuning	Monotone	±4	> ±3	ppm
3.9	Slope	Positive slope	2	1 to 3	ppm/V
3.10	Output power	Sine wave into 50 Ω load	-	+12.5 ±1	dBm
3.11	Output impedance	At 480 ± 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)	-142	< -138	dBc/Hz
4.2	PN power density @ 10 kHz offset		-168	< -165	dBc/Hz
4.3	PN power density @ 1 MHz offset		-180	< -176	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	50	< 100	fs
4.7	Broadband	From 10 kHz to 100 MHz	-	< 3	fs

### 5.0 Mechanical features

Outline in mm



### 6.0 Pin description

Line	Pin number	Name	Description
6.1	1	-	Not to be connected
6.2	2	Supply voltage	Input supply (+)
6.3	3	Frequency output	RF output signal
6.4	4	Control voltage	Input voltage control
6.5	Ground lug	Ground	Mechanical ground and (-) supply
6.6	5	-	Not to be connected