LNR ULTRA LOW PHASE NOISE REFERENCE

Product Features

- Fixed Frequency (Option up to 10 GHz)
- Ultra Low Phase Noise
- Low Harmonics
- High Output Power
- Good Temperature Stability
- Easily Customized to Specific Frequency

WavesLine LNR (Low Noise Reference) series module offers industry-lead free-running ultra-low noise signal source highly integrated with low noise multiplier stages to create a high-performance frequency reference between 100 MHz and 10 GHz. The package varies depending on the number of multiplier stages needed to create the desired frequency. The base oscillator frequency and multiple outputs are available as options. A unique internal voltage regulator is provided for excellent power supply line rejection. Please contact the factory if you need any specifications to be modified to better suit your applications.

Order Information

Module Number	Frequency * (MHz)	Typ. Phase Noise (dBc/Hz)					Output Power* (dBm)	Supply Voltage* (VDC)
		10Hz	100 Hz	1K	10K	100K		
LNR102	1000	-82	-118	-138	-149	-152	10	15/24
LNR801	800	-84	-120	-140	-151	-154	10	15/24
LNR501	500	-88	-124	-144	-155	-158	10	15/24
LNR401	400	-90	-126	-146	-157	-160	10	15/24
LNR201	200	-96	-132	-152	-163	-165	10	15/24

**Customer design is available on these specifications.*

Typical Applications

- ATE & Lab Testing
- Clock Reference
- Test Equipment
- Military Applications
- Radar Systems
- Instruments

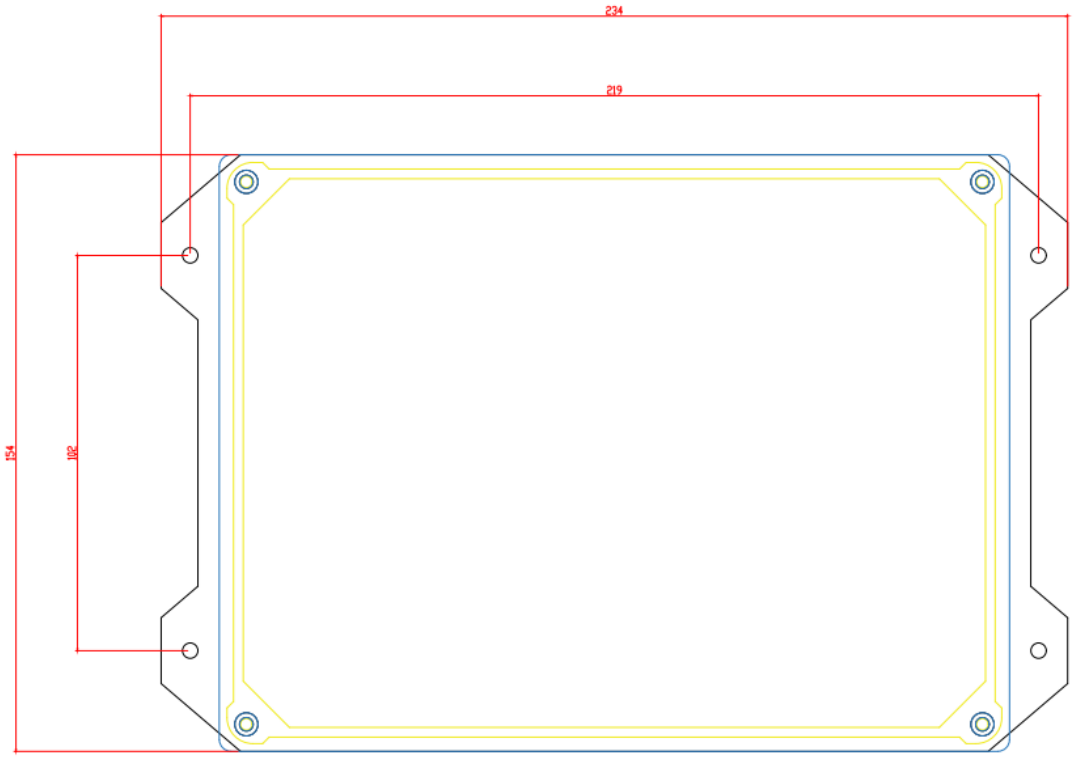
Specifications

Parameter	Specification				Condition
	Min.	Typ.	Max.	Unit	
RF Specifications					
Frequency (Model LNR102 at 1GHz)		1.0		GHz	
Phase Noise① (Model LNR102 at 1GHz)		-82		dBc/Hz	10 Hz Offset
		-118			100 Hz Offset
		-138			1k Hz Offset
		-149			10k Hz Offset
		-152			100k Hz Offset
Aging		±5		ppb	Daily
		±500		ppb	Yearly
		±2		ppm	10 Years
		<0.05		ppb	Short Term
		±50		ppb	Warm Up
Initial Accuracy		±0.5		ppm	
G-Sensitivity (each axis)	-50		+50	ppb	In 5 Minutes/ 25 ℃/Refer to 1 Hour
Output RF Power (Model LNR102 at 1GHz 10dBm Option)		>10		dBm	
Harmonics (Model LNR102 at 1GHz)		-75		dBc	1/2 Harmonics
		-80		dBc	$2^{nd}/3^{rd}$ Harmonics
Spurious (Model LNR102 at 1GHz)		-80		dBc	
Frequency Stability		±50		ppb	-40 ~ +60 ℃ refer to 25 ℃
Supply DC (Model LNR102 at 1GHz 24V Option)		24	28	V	
		500		mA	Warm Up
		300		mA	Normal Operation
Outline	224x154x68mm				
Mounting Holes	4mm x 4 places				
RF Output Connector	SMA Female				
DC Input	2mm Banana				

①Phase Noise is Limited by Equipment of Agilent E5052A.

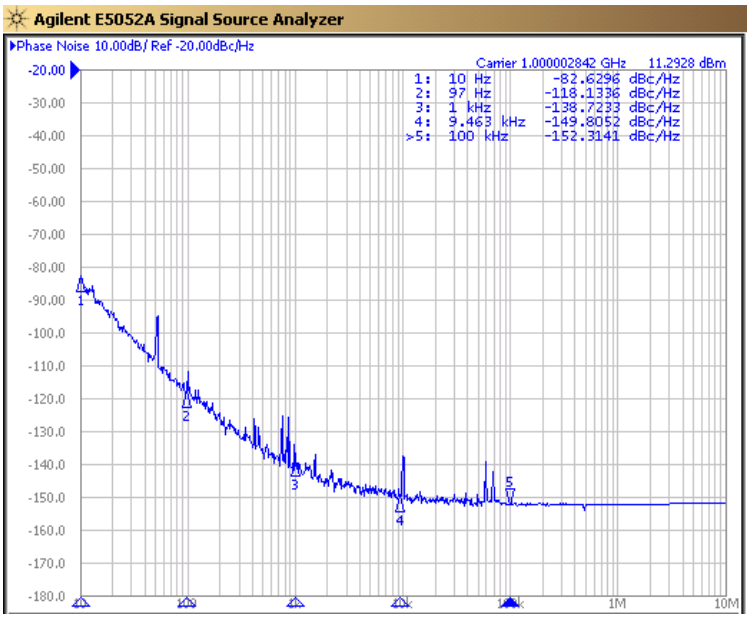
Front Panel

Outline



Unit: mm

Typical Output Phase Noise (Model LNR102 at 1GHz)



(Measured Phase Noise Performance Limited by Equipment)

Typical Output Spectrum