

# NuWaves

## RF Solutions

### HILNA LS

#### Low Noise Amplifier

1000 - 3000 MHz  
50 dB Gain

P/N: HILNA-LS



**NuWaves' HILNA LS™ is a broadband low noise amplifier covering L- & S-bands, and designed to achieve extremely high gain while maintaining low noise and a high third-order intercept point.**

This high-performance module delivers 50 dB of gain over the broad range of 1 GHz to 3 GHz with a noise figure of less than 2 dB and OIP3 of +33 dBm. The HILNA LS is also usable from 500 MHz to 3.75 GHz with 40 dB of gain (typical).

The HILNA LS's small form factor (3.3 in<sup>3</sup>) makes it ideal for small communication system installations, co-located to the antenna. The HILNA LS also offers a factory configurable Bias-T option, eliminating the need for a separate power cable run.

HILNA LS's robust power supply also operates over a very broad range, easily allowing the unit to be integrated into systems without regard to power supply precision.

*For powering the HILNA-LS via Bias-T, please inquire about our HILNA™ LS-BT (NW-HILNA-LS-BT).*

### Features

- Broadband Operation
- Small Form Factor
- Low Noise and Extremely High Gain
- High Intercept Point
- Rugged Chassis
- Over-Voltage Protection
- Reverse-Voltage Protection
- Wide Input Voltage Range
- Internal Regulator/Active Bias Devices for Stability
- Optional Bias-T Compatibility

### Benefits

- Low Level Signal Amplification
- Improved Link Margin
- Ruggedized Chassis for Harsh Environments

### Applications

- Wideband RF Front Ends
- High Performance Receivers
- Broadband High Gain Block
- Low Noise Transmit Driver
- RF Preamplifier
- RF Repeater
- Base Station LNA

# HILNA LS Low Noise Amplifier

## Specifications

### Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	15	V
Max Device Current	300	mA
Max RF Input Power, $Z_L = 50 \Omega$	+20	dBm
Max Operating Temperature	60	°C
Max Storage Temperature	85	°C

Export Classification
5A991.B

### Electrical Specifications @ 12VDC, 25 °C, $Z_S=Z_L=50 \Omega$

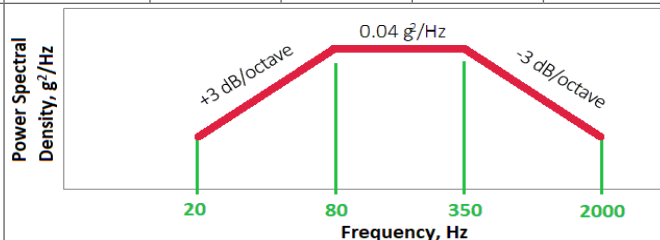
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	1000		3000	MHz	
RF Gain	G		50		dB	
Reverse Isolation			53		dB	
VSWR	VSWR		1.4:1			Input
			1.5:1			Output
Noise Figure	NF		1.7		dB	
Third Order Intercept Point	OIP3		33		dBm	
Output Power @ 1dB Compression	P1dB		17		dBm	
Operating Voltage	VDC	+5	+12	+15	V	
Operating Current	$I_{DD}$		300		mA	@ 12VDC (typ)

### Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions	2.50 x 1.75 x 0.75	in	Max
Weight	3.0	oz	Max
RF Bulkhead Connector	SMA Female		
RF Input and Output Mating Connector	SMA Male		
Interface Connector	Mini-USB, 4-pin		

### Environmental Specifications

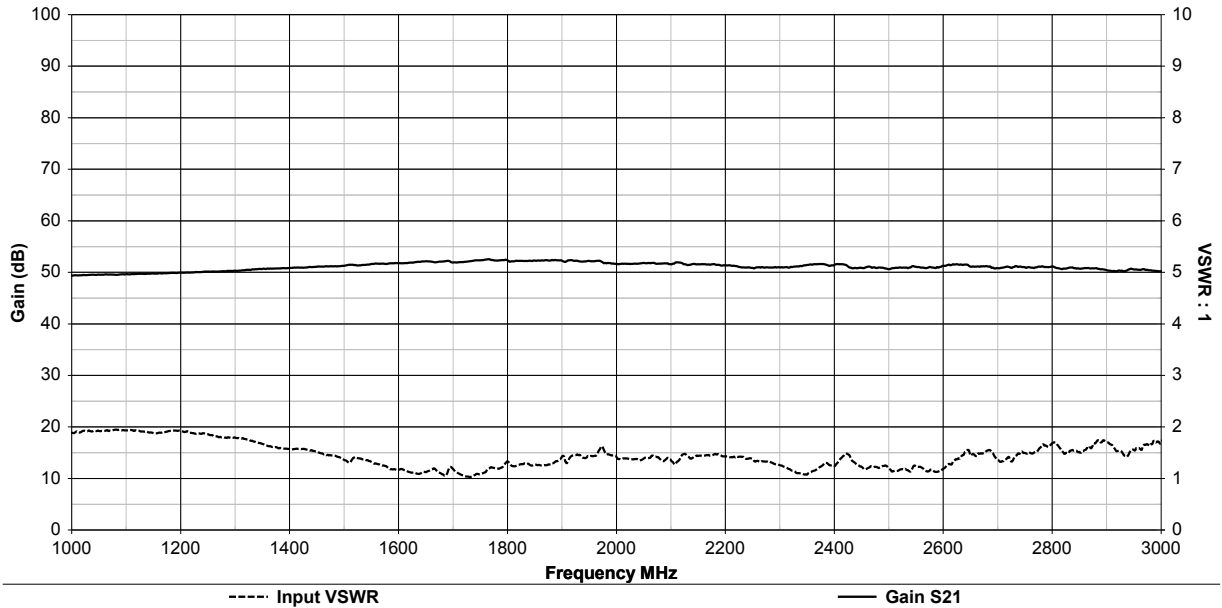
Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	$T_C$	-20		+60	°C
Storage Temperature	$T_{STG}$	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F - Method 500.4	ALT			30,000	ft
Vibration / Shock Profile (Random profile in x,y, z axis, as per Figure for 15 minute duration in each axis)					



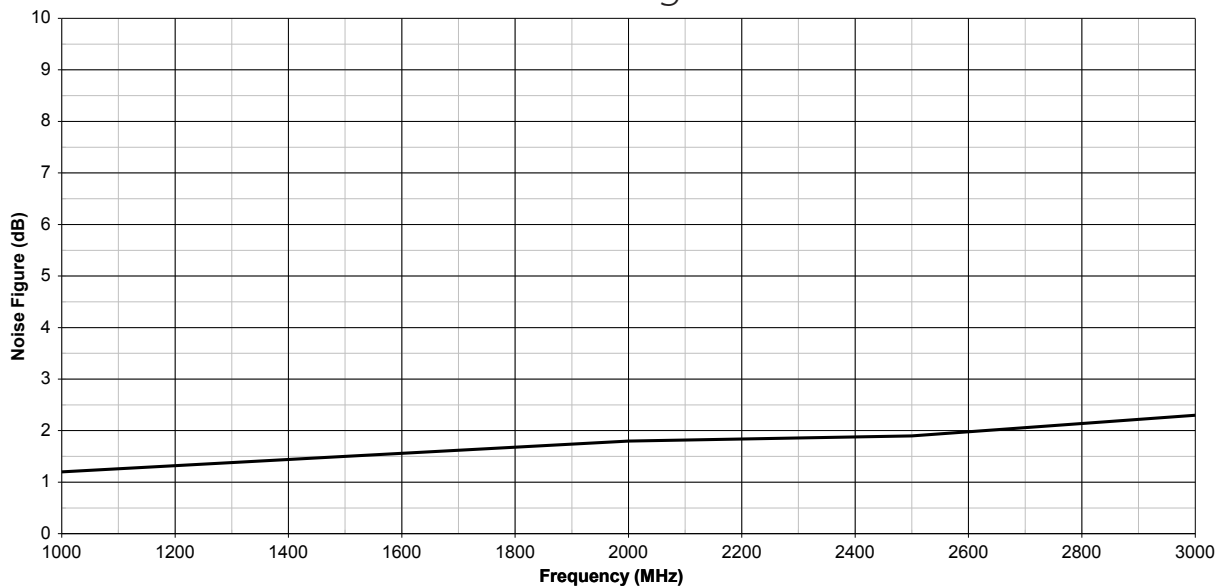
# HILNA LS Low Noise Amplifier

## Performance Plots

### Gain & Input VSWR



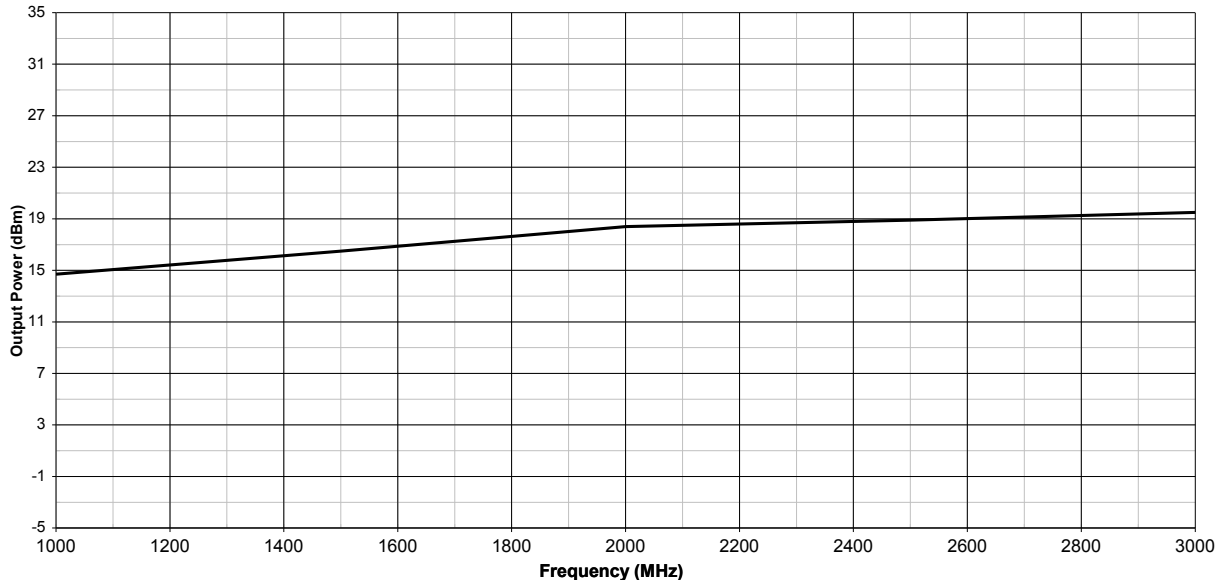
### Noise Figure



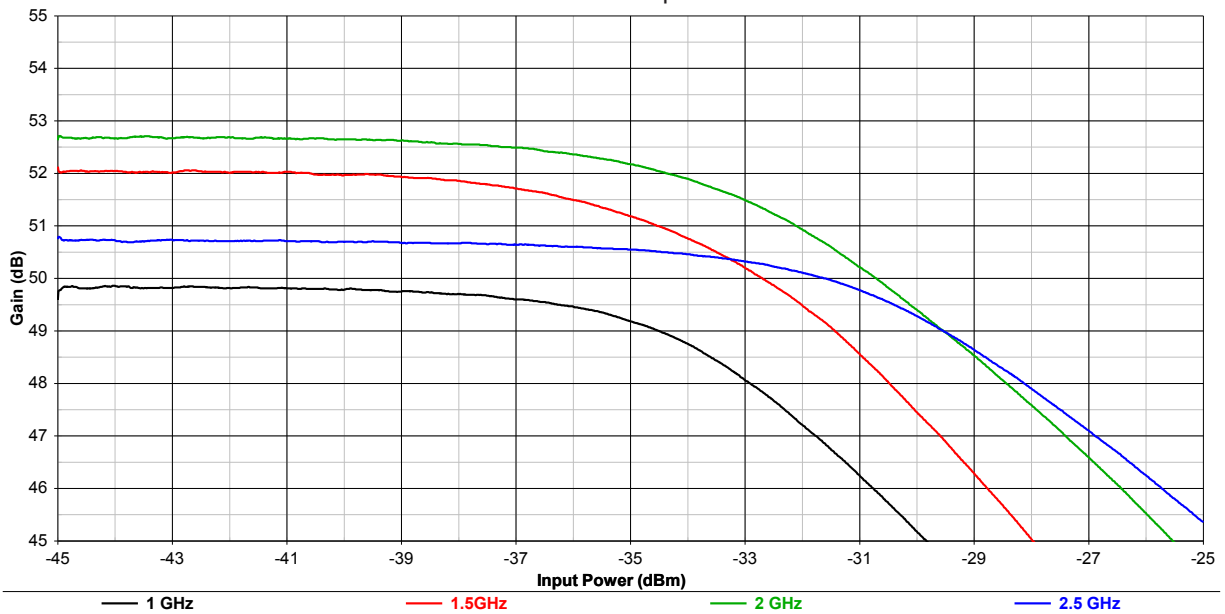
# HILNA LS Low Noise Amplifier

## Performance Plots (cont.)

### Output Power @ 1dB Compression Point



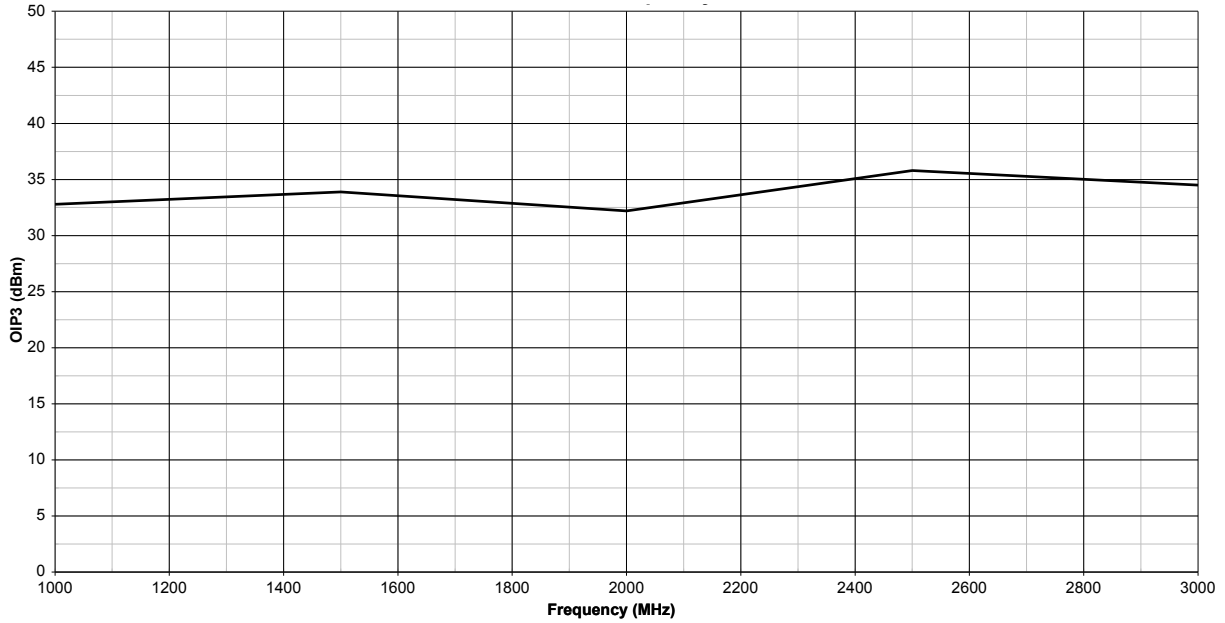
### Power Compression



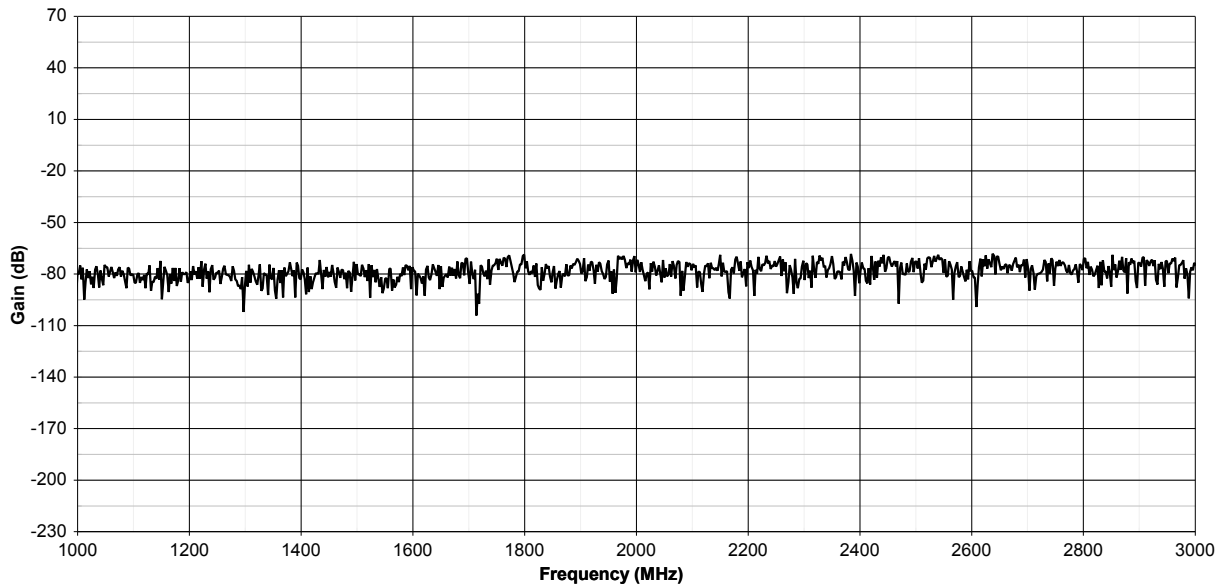
# HILNA LS Low Noise Amplifier

## Performance Plots (cont.)

### OIP3 vs Frequency



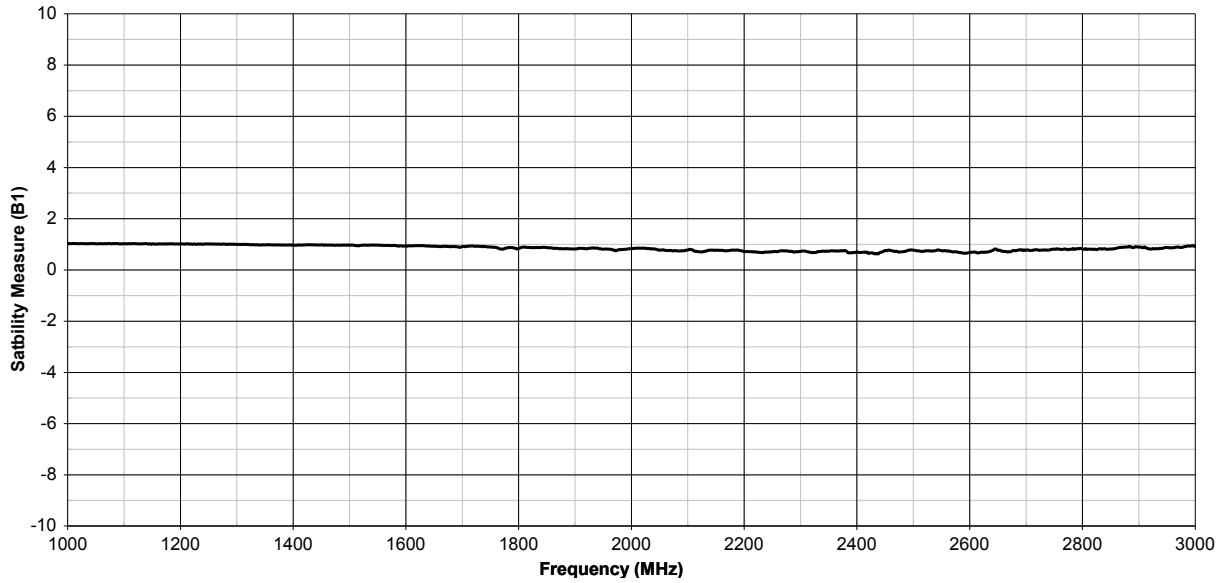
### Reverse Isolation



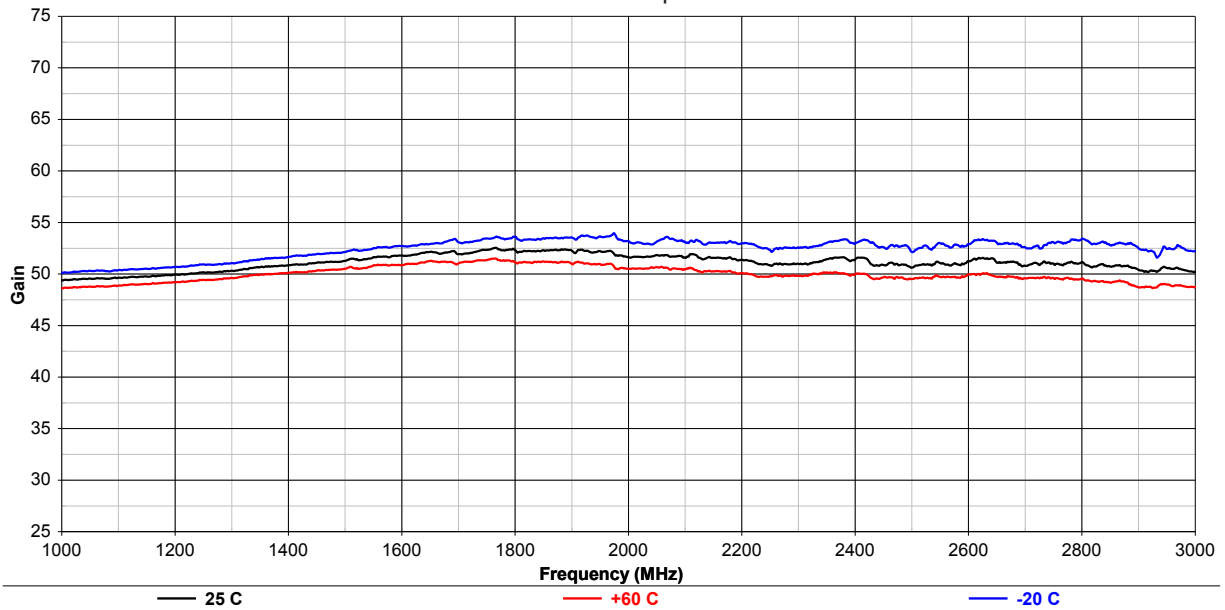
# HILNA LS Low Noise Amplifier

## Performance Plots (cont.)

### Stability Measure

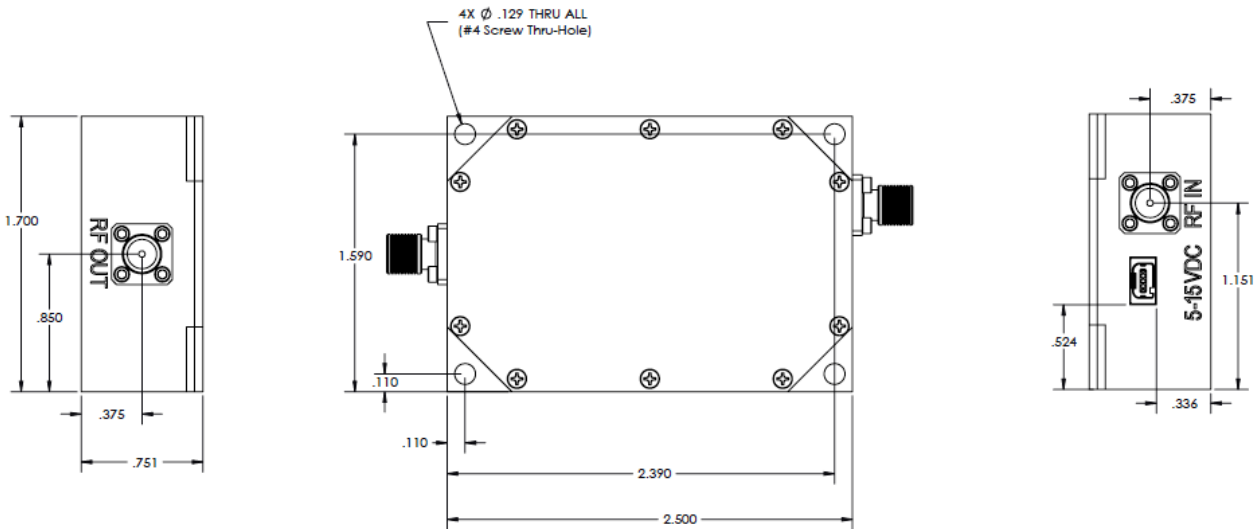


### Gain vs Temperature



# HILNA LS Low Noise Amplifier

## Mechanical Outline

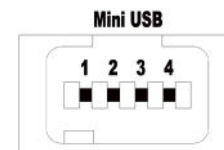


## Accessory Part Numbers - Sold Separately

Part Number	Description
NW-LN-ACC-CB4MUA	Standard Interface Cable Assembly - Flying Leads
NW-LM-ACC-CB4MUA	Upgraded Interface Cable Assembly - Banana Plug Termination

## Pinout

Function	Pin
DC Input	1
Ground	4
No Connect	2, 3



For information on product disposal (end-of-life), please refer to this document: <https://nuwaves.com/wp-content/uploads/Product-Disposal-End-of-Life.pdf>

## Contact NuWaves



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