

# NuWaves

## RF Solutions

### HILNA V1

#### Low Noise Amplifier

50 - 1000 MHz  
20 dB Gain

P/N: HILNA-V1-M/F



**NuWaves' HILNA V1™ is the first in its class of broadband low noise amplifiers designed to achieve high gain while maintaining low noise and a high third-order intercept point from VHF to microwave frequencies.**

This high-performance module delivers 20 dB of gain across the frequency range of 50 MHz to 1000 MHz with an OIP3 of +32 dBm and less than 1 dB of noise figure.

HILNA V1'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.

### Features

- 50 to 1000 MHz
- Low Noise and High Gain
- Broadband Operation
- High Intercept Point
- Over-Voltage Protection
- Reverse-Voltage Protection
- Wide Input Voltage Range
- High Linearity
- Internal Regulator/Active Bias Devices for Stability

### 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
- University Research and Instruction
- Multi-Signal Environment Amplifier

# HILNA V1 Low Noise Amplifier

## Specifications

### Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	20	V
Max Device Current	90	mA
Max RF Input Power, $Z_L = 50 \Omega$	15	dBm
Max Operating Temperature	70	°C
Max Storage Temperature	70	°C

Export Classification
EAR99

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

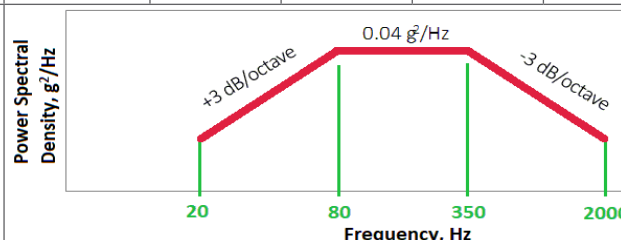
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	50		1000	MHz	
RF Gain	G	17	20		dB	
Reverse Isolation			27		dB	
VSWR	VSWR		1.5:1			Input
			1.5:1			Output
Noise Figure	NF	0.7	0.8		dB	
Third Order Order Intercept Point	OIP3	28	32		dBm	
Output Power @ 1dB Compression	P1dB	15	17		dBm	
Operating Voltage	VDC	+5	+12	+20	V	
Operating Current	$I_{DD}$		70		mA	@ 12VDC (typ)

### Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions	3.15 x 3.92 x 1.18	in	Max
Weight	5.7	oz	Max
RF Connectors, Input/Output	SMA Female		
DC Power Connector	2 mm Circular		

### Environmental Specifications

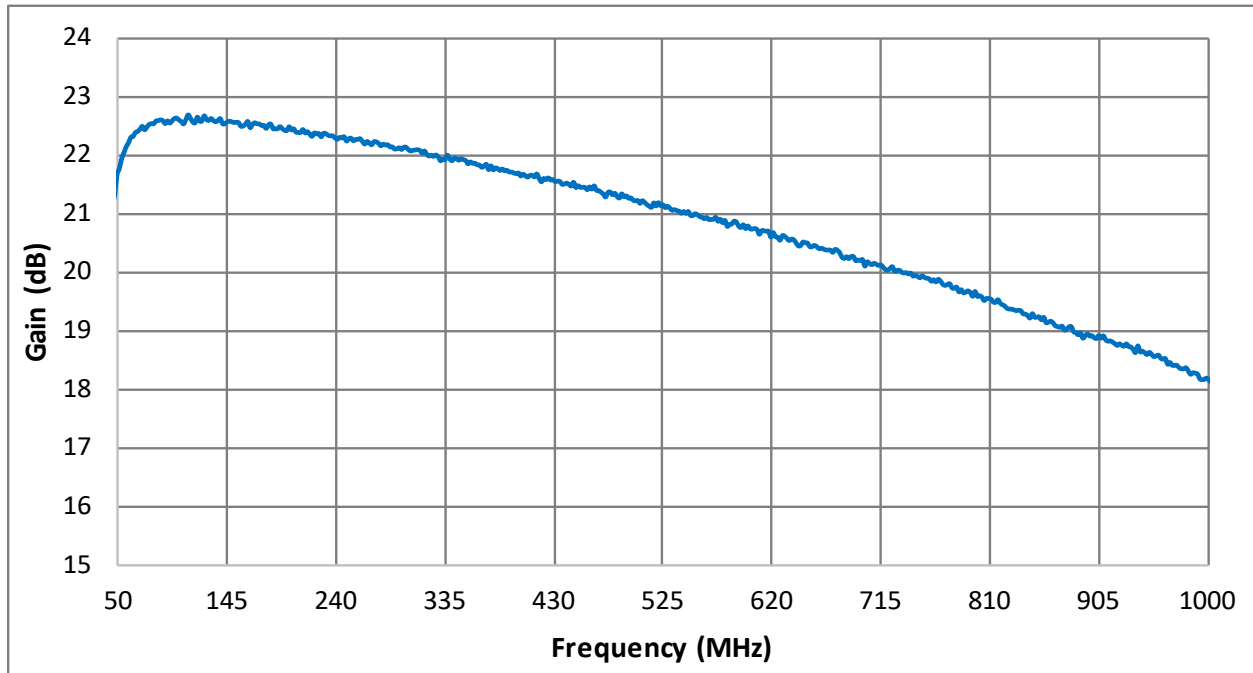
Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	$T_C$	-30		+70	°C
Storage Temperature	$T_{STG}$	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F - Method 500.4	ALT			30,000	ft
Vibration / Shock Profile (Random profile in x,y, z axis, as per Figure for 15 minute duration in each axis)					



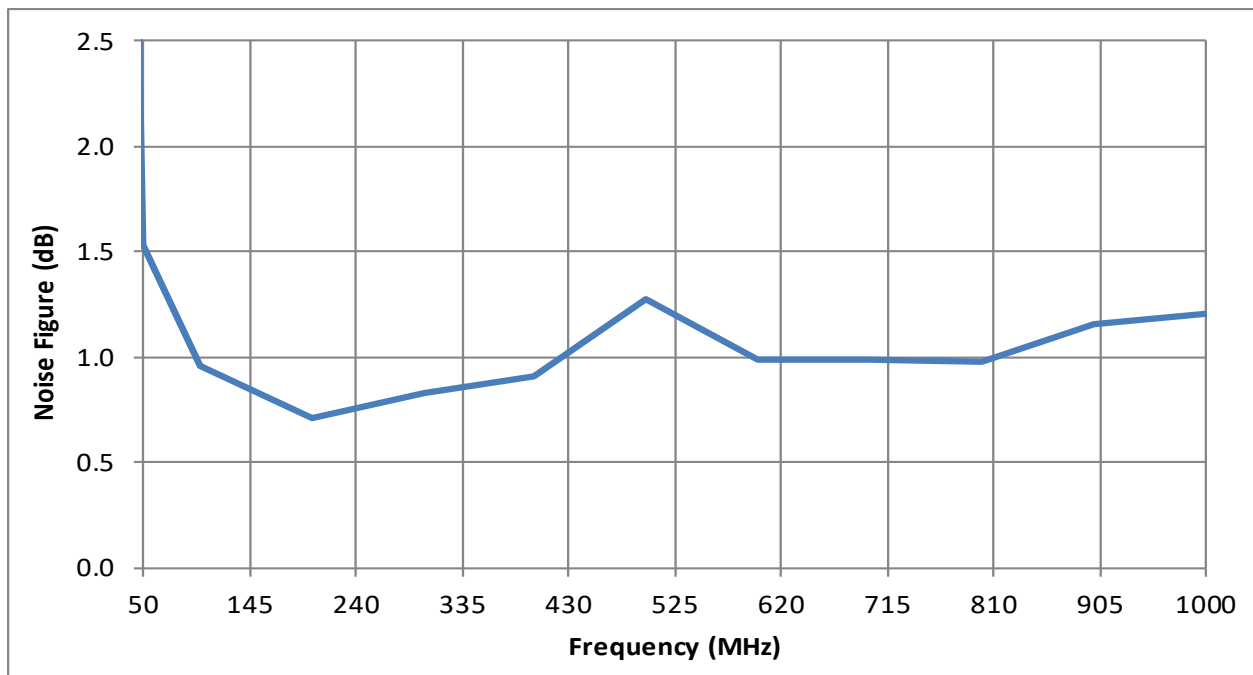
# HILNA V1 Low Noise Amplifier

## Performance Plots

### Gain (S21)



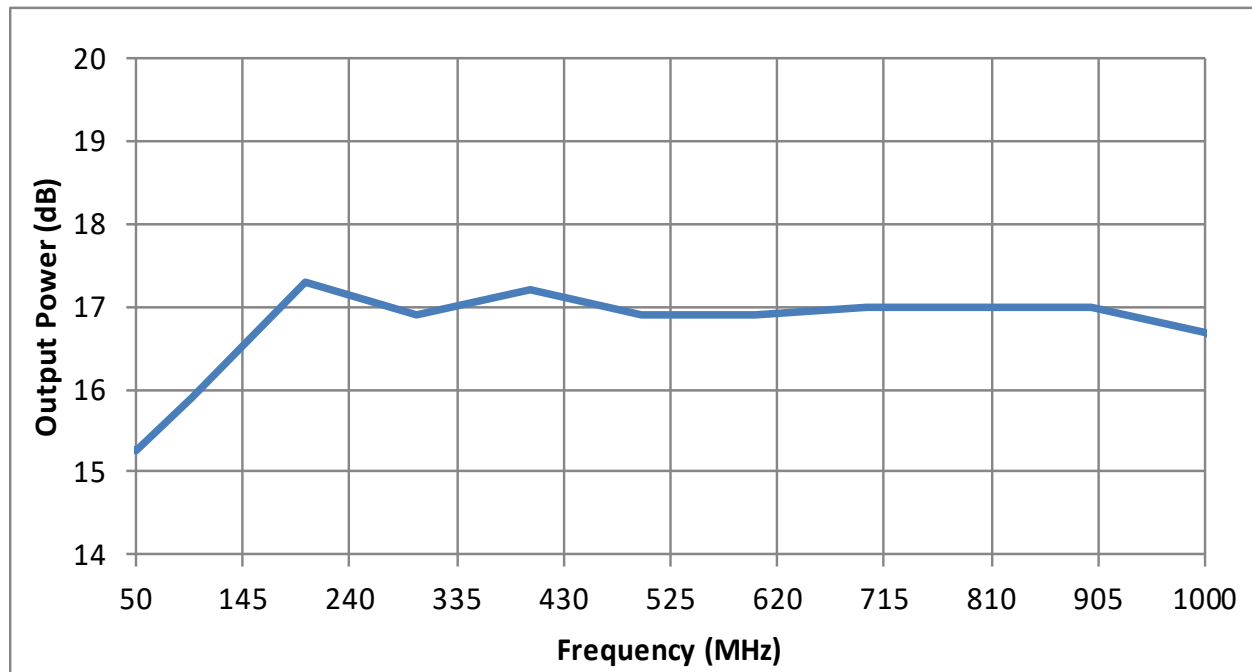
### Noise Figure



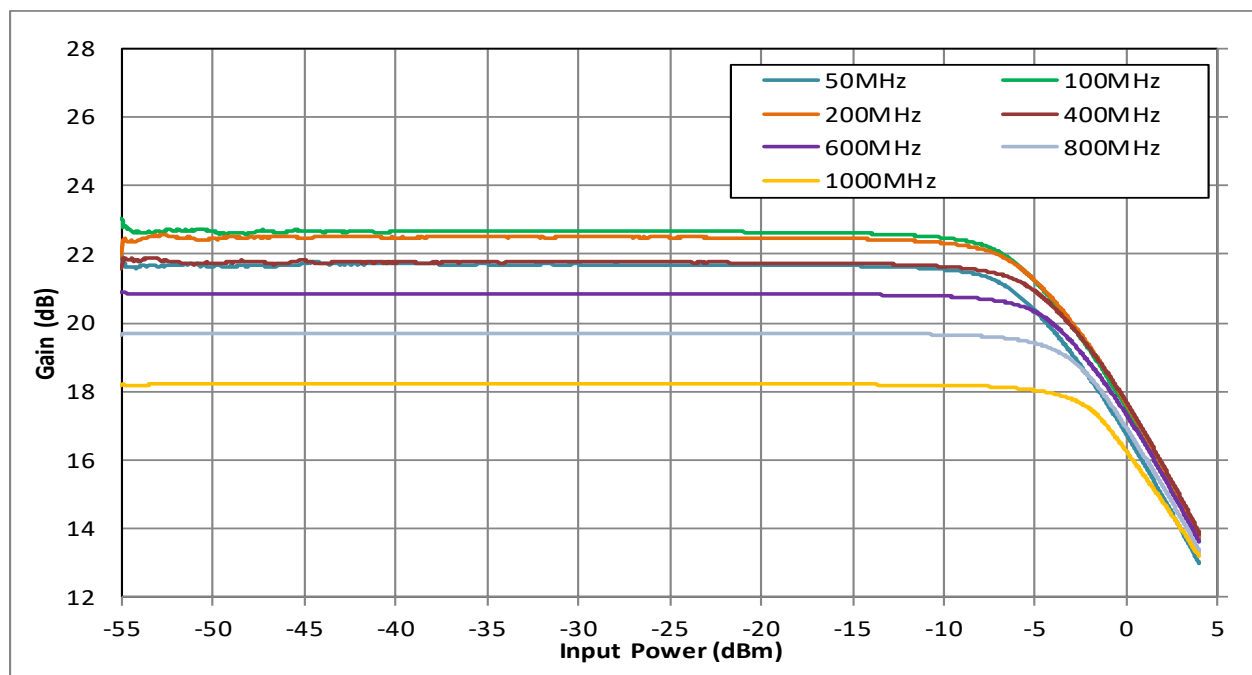
# HILNA V1 Low Noise Amplifier

## Performance Plots (cont.)

### Output Power @ 1 dB Compression



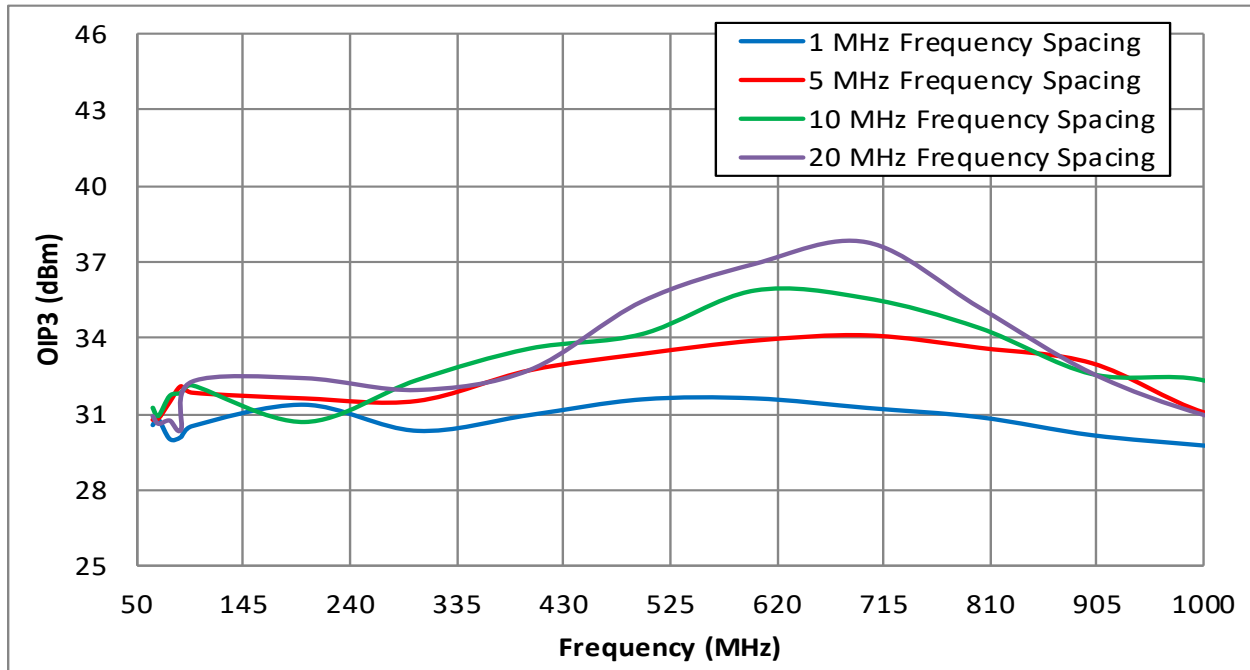
### Power Compression



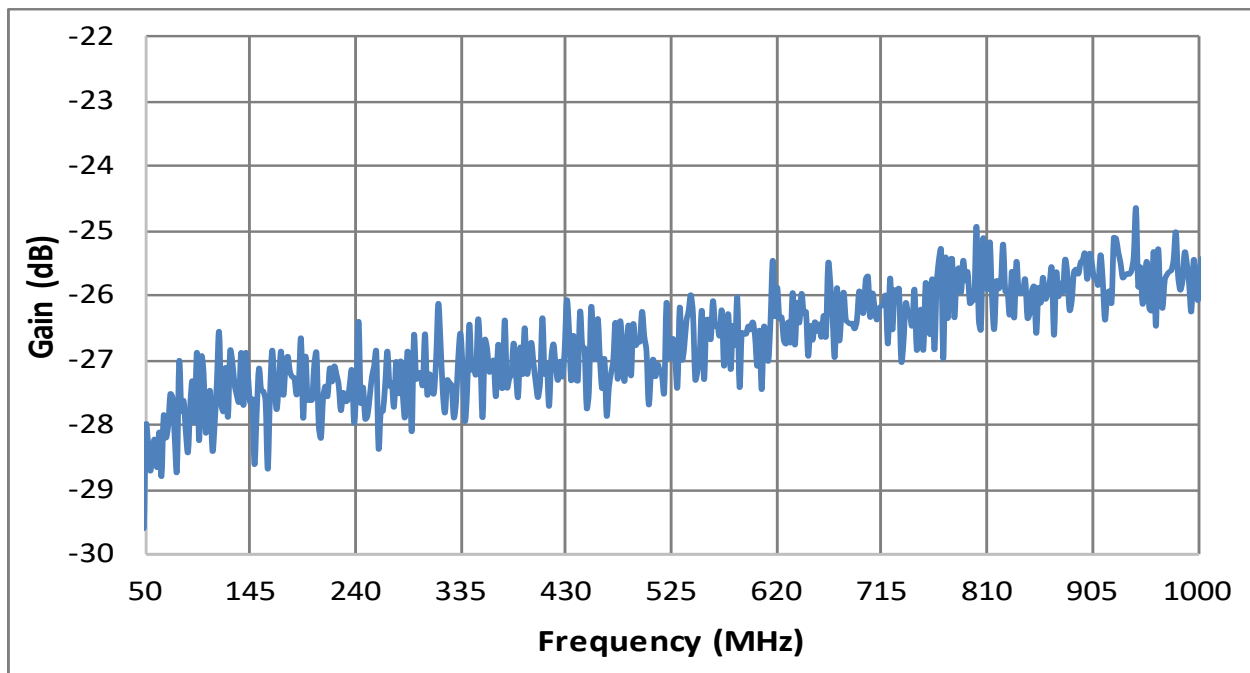
# HILNA V1 Low Noise Amplifier

## Performance Plots (cont.)

### OIP3 vs. Frequency



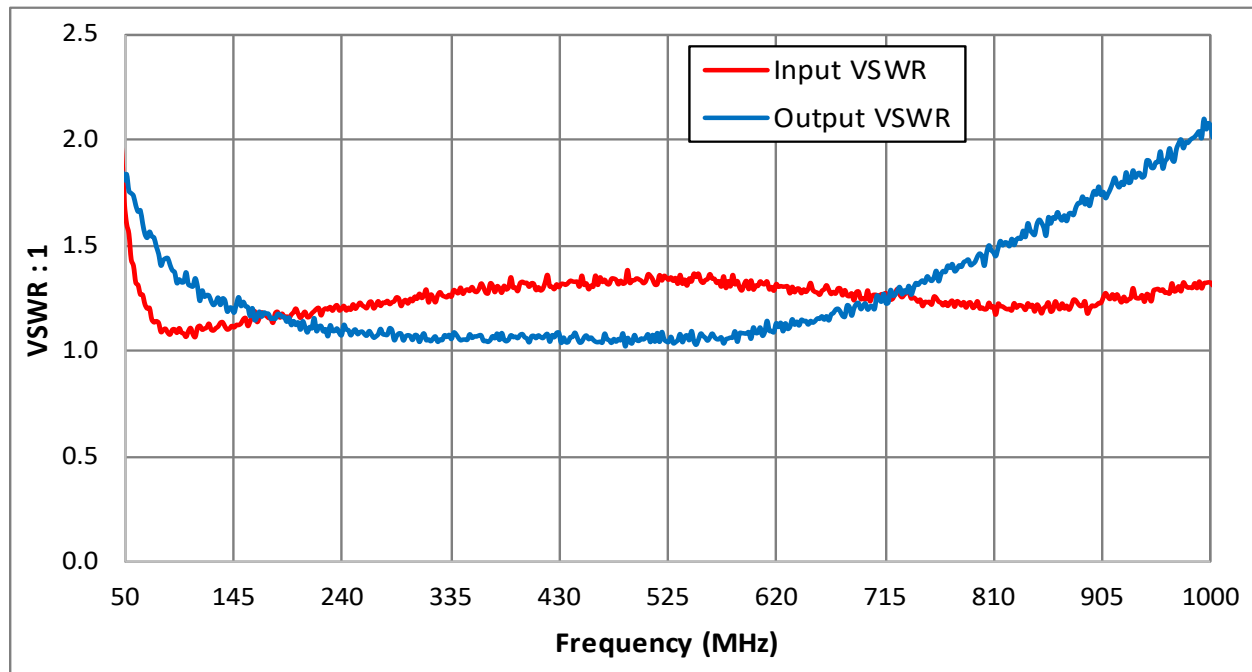
### Reverse Isolation



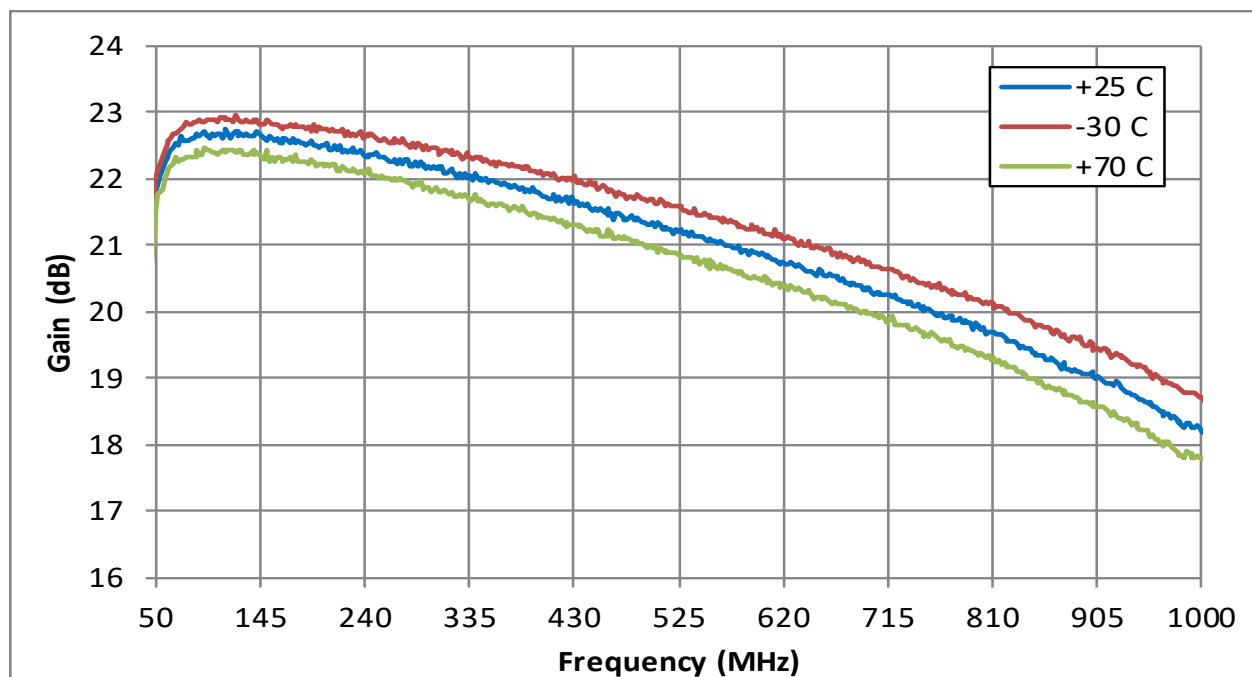
# HILNA V1 Low Noise Amplifier

## Performance Plots (cont.)

### Input and Output VSWR

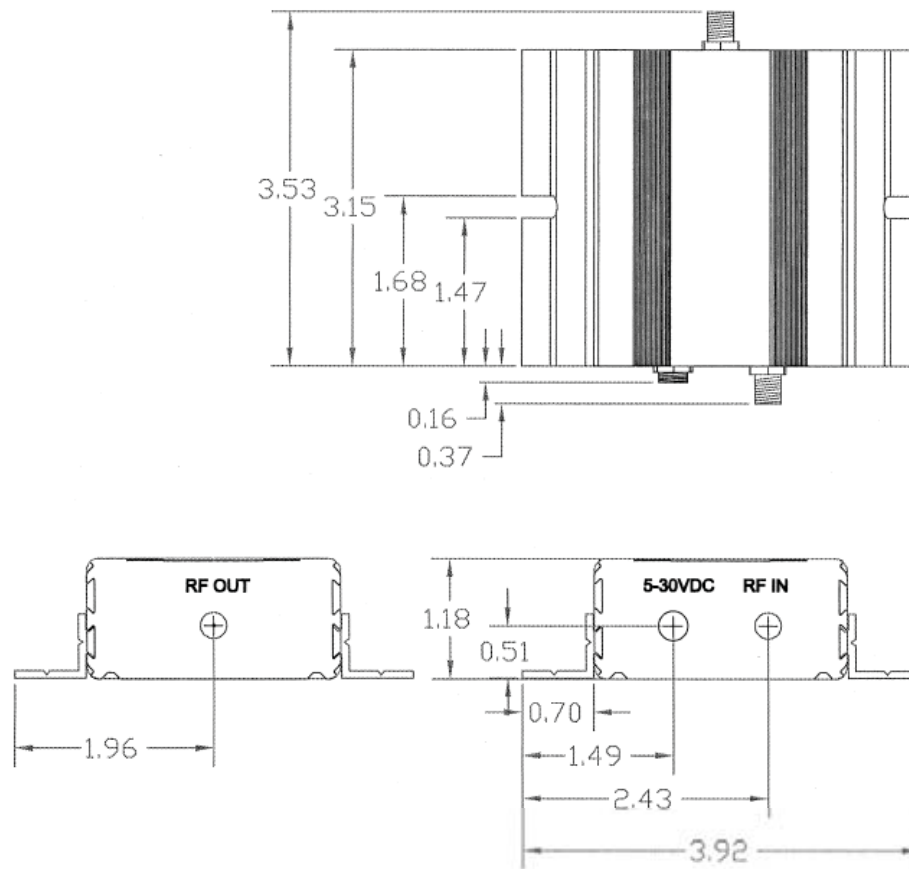


### Gain vs Temperature



# HILNA V1 Low Noise Amplifier

## Mechanical Outline



## Accessory Part Numbers - Sold Separately

Part Number	Description
NW-LN-ACC-CB02CA	Standard Interface Cable Assembly - Flying Leads
NW-LN-ACC-CT02CA	Upgraded Interface Cable Assembly - Banana Plug Termination

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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