

NuWaves

RF Solutions

HILNA V1

Low Noise Amplifier

50 - 1000 MHz
20 dB Gain

P/N: HILNA-V1
(includes NW-LN-ACC-CB02CA interface cable)



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, $Z_S=Z_L=50 \Omega$

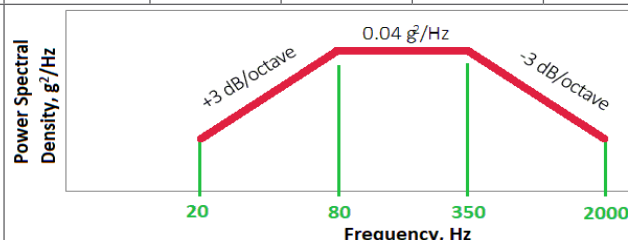
| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|-----------------------------------|----------|-----|-------|------|------|---------------|
| Operating Frequency | BW | 50 | | 1000 | MHz | |
| RF Gain | G | 17 | 20 | | dB | |
| Reverse Isolation | | | 27 | | dB | |
| VSWR | VSWR | | 1.5:1 | | | 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

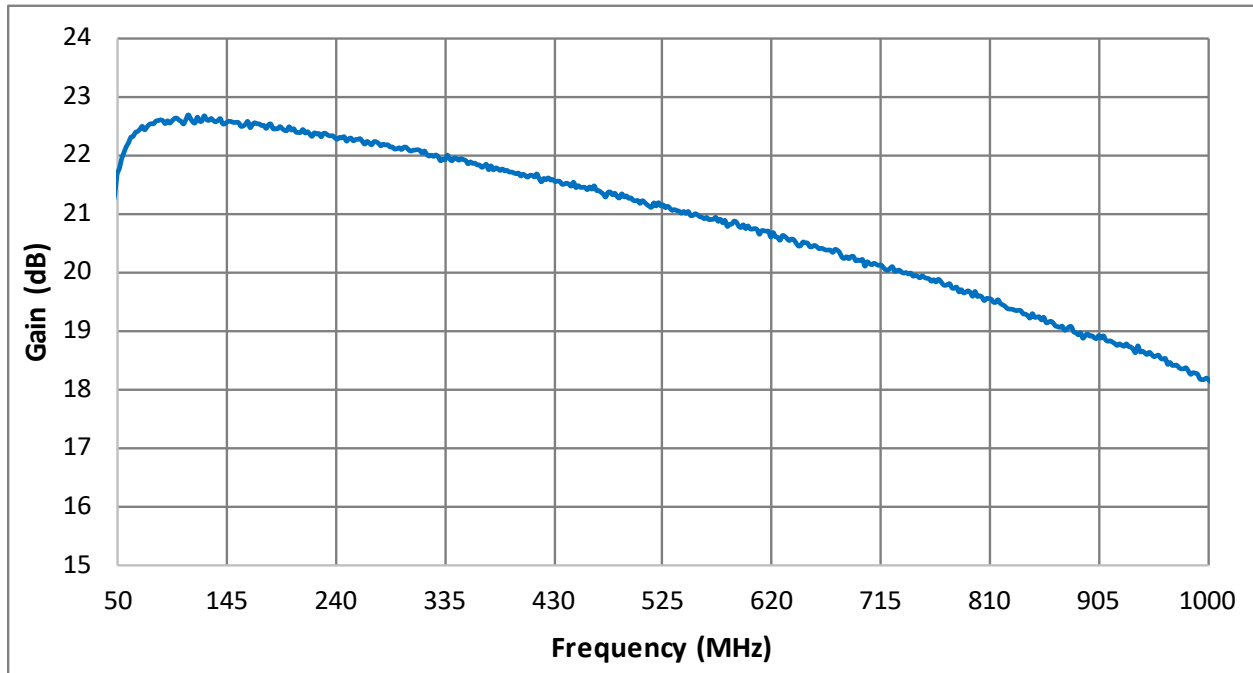
| Parameter | Symbol | Min | Typ | Max | Unit |
|---|-----------|-----|-----|--------|------|
| Operating Temperature | T_C | -30 | | +70 | °C |
| Storage Temperature | T_{STG} | -40 | | +85 | °C |
| Relative Humidity (non-condensing) | RH | | | 95 | % |
| Altitude MIL-STD-810F - Method 500.4 | ALT |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



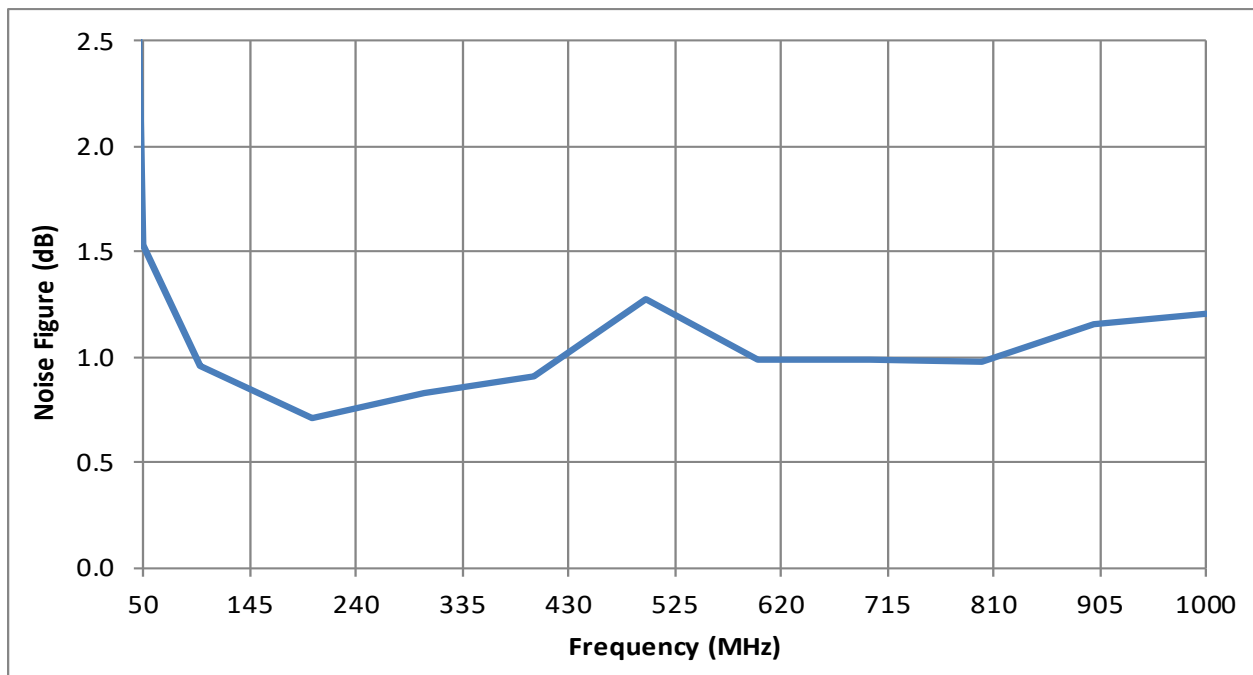
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Performance Plots

Gain (S21)



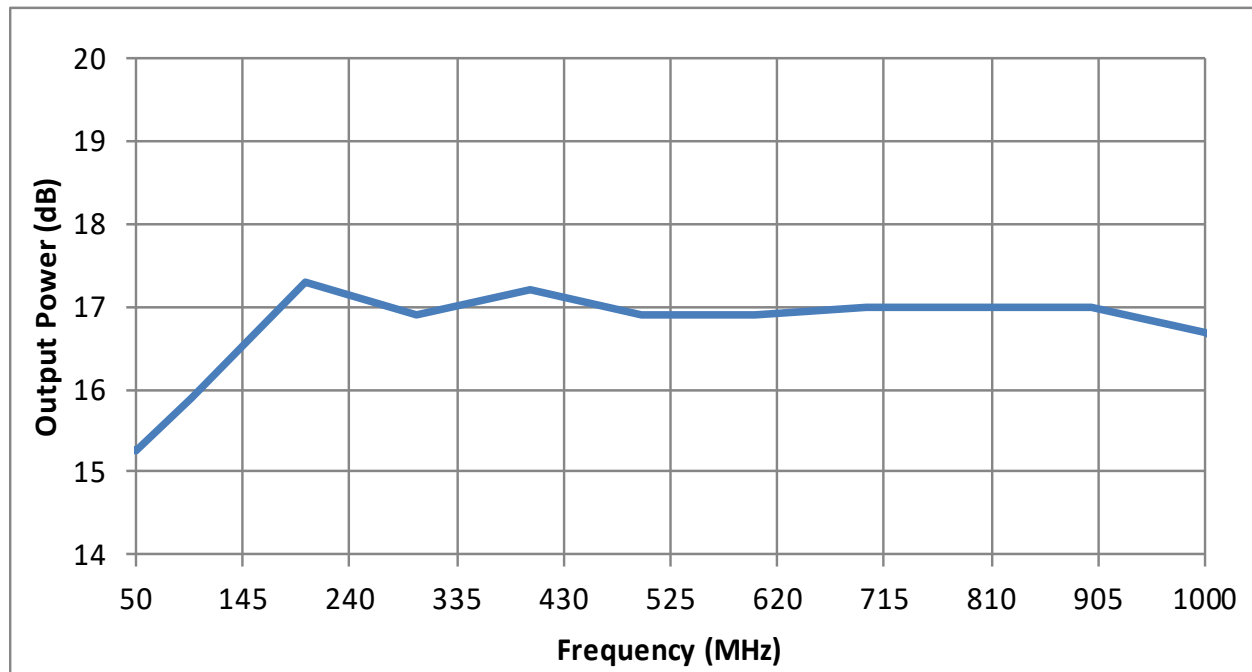
Noise Figure



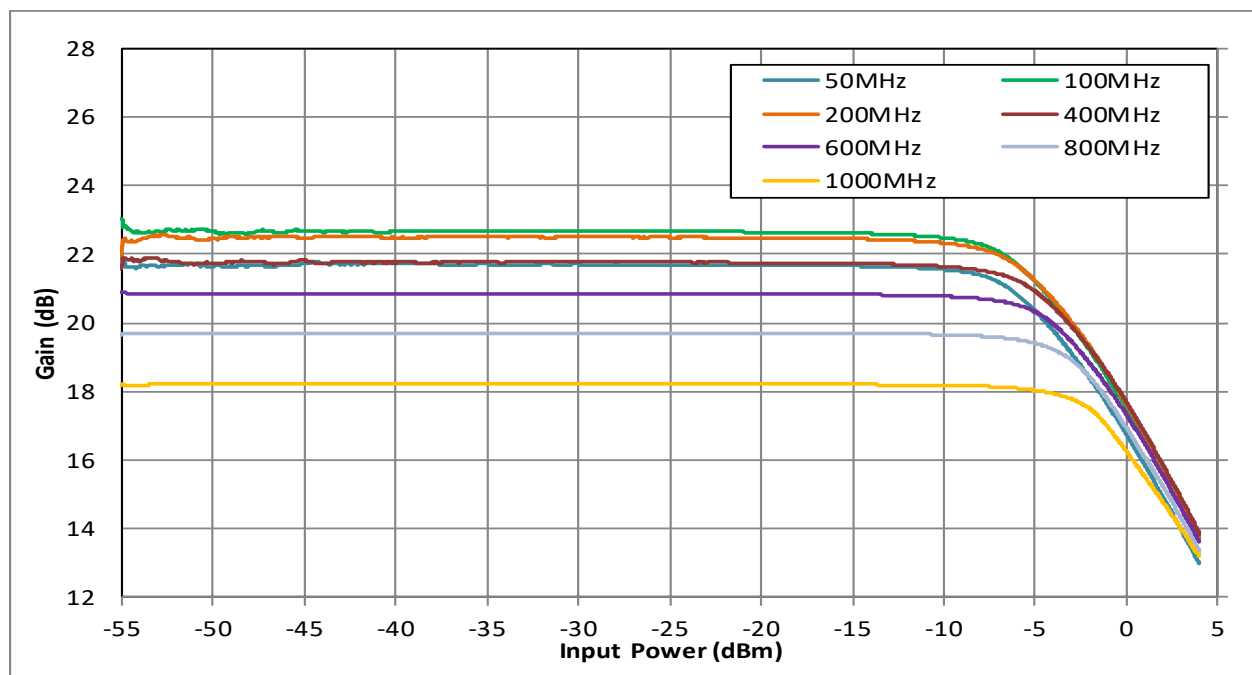
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Performance Plots (cont.)

Output Power @ 1 dB Compression



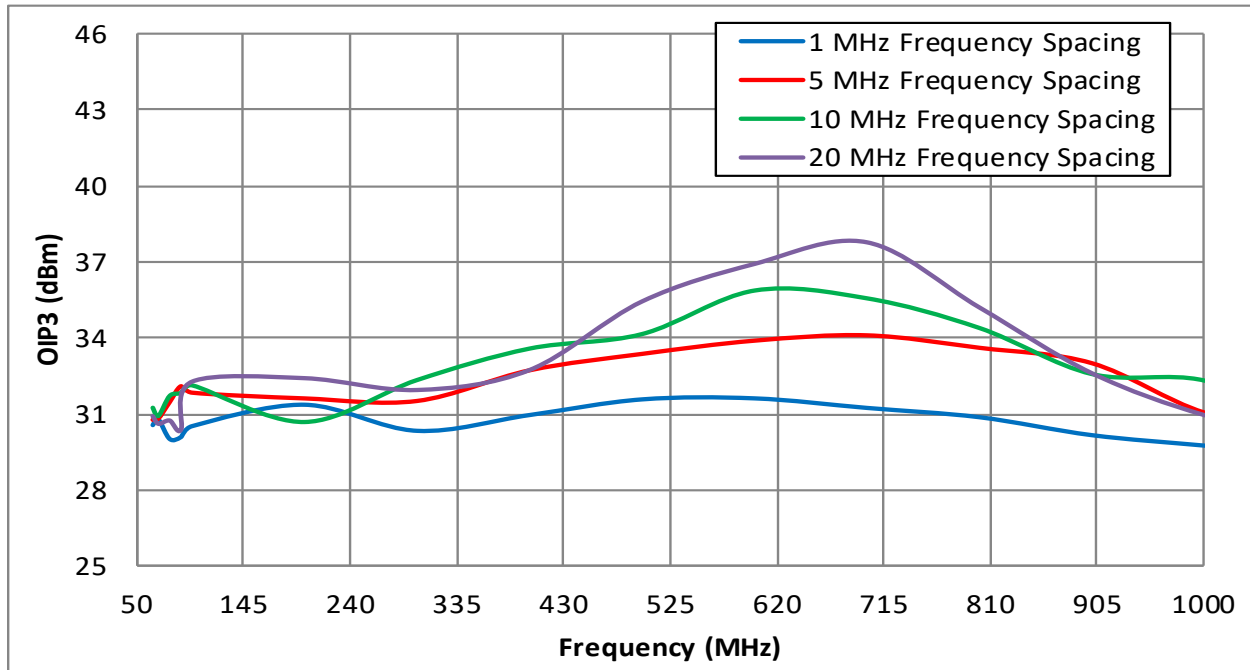
Power Compression



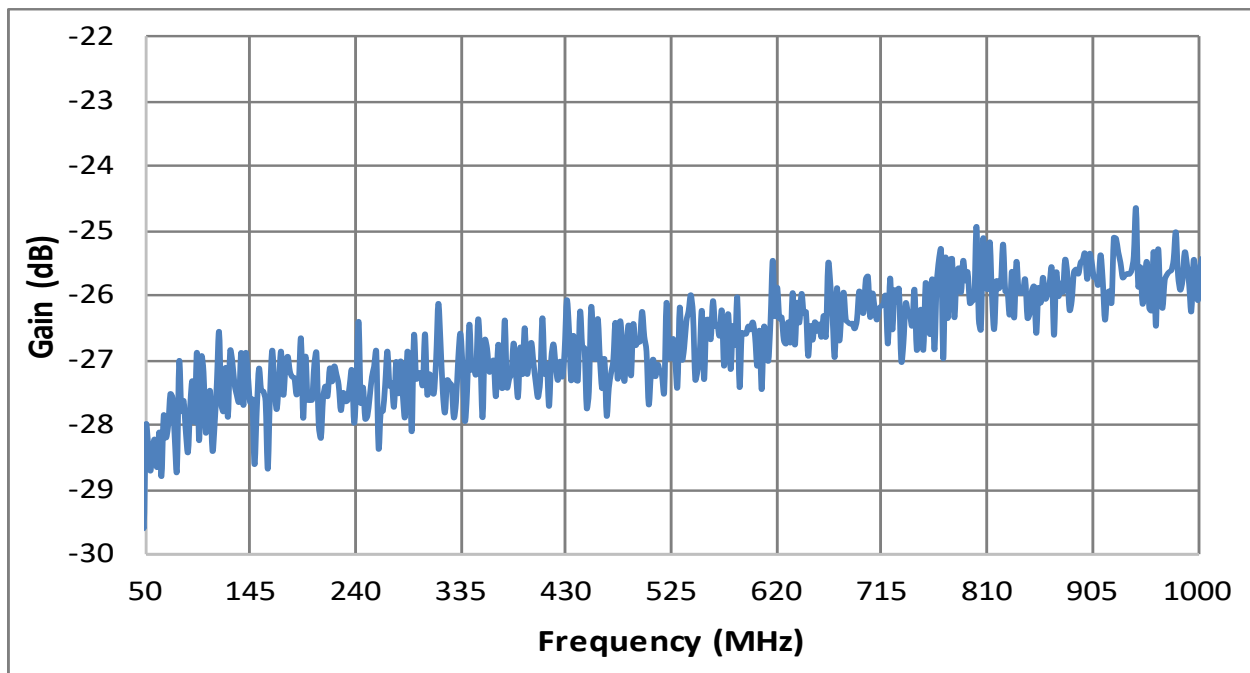
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Performance Plots (cont.)

OIP3 vs. Frequency



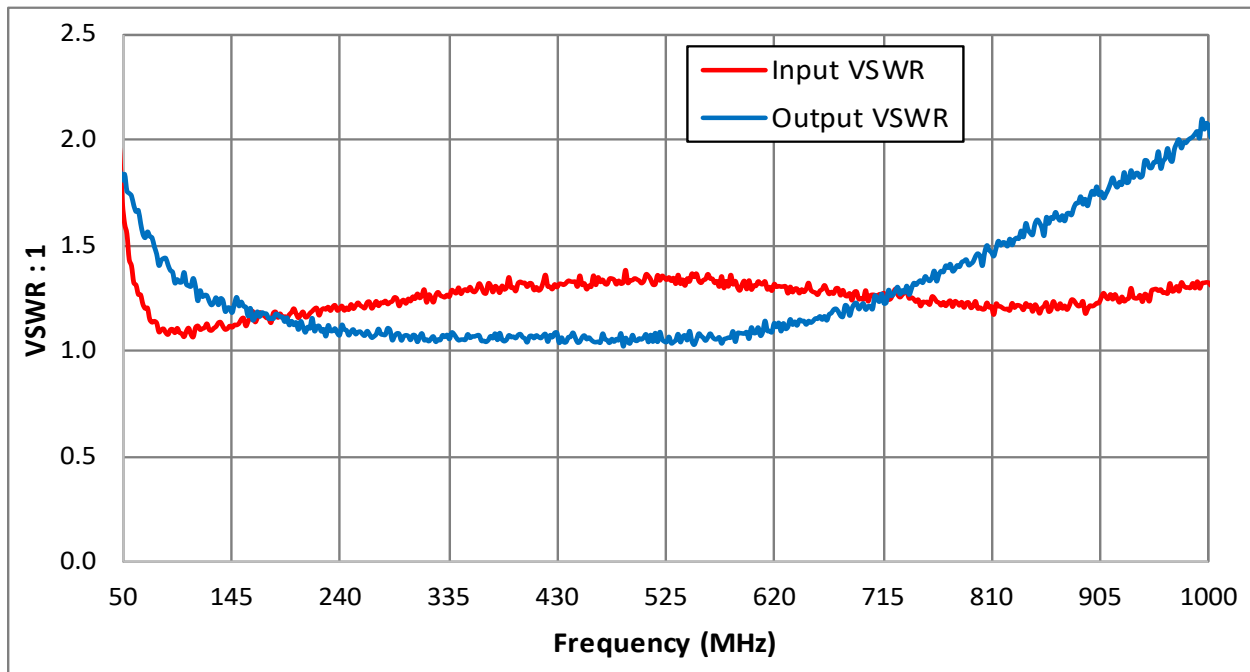
Reverse Isolation



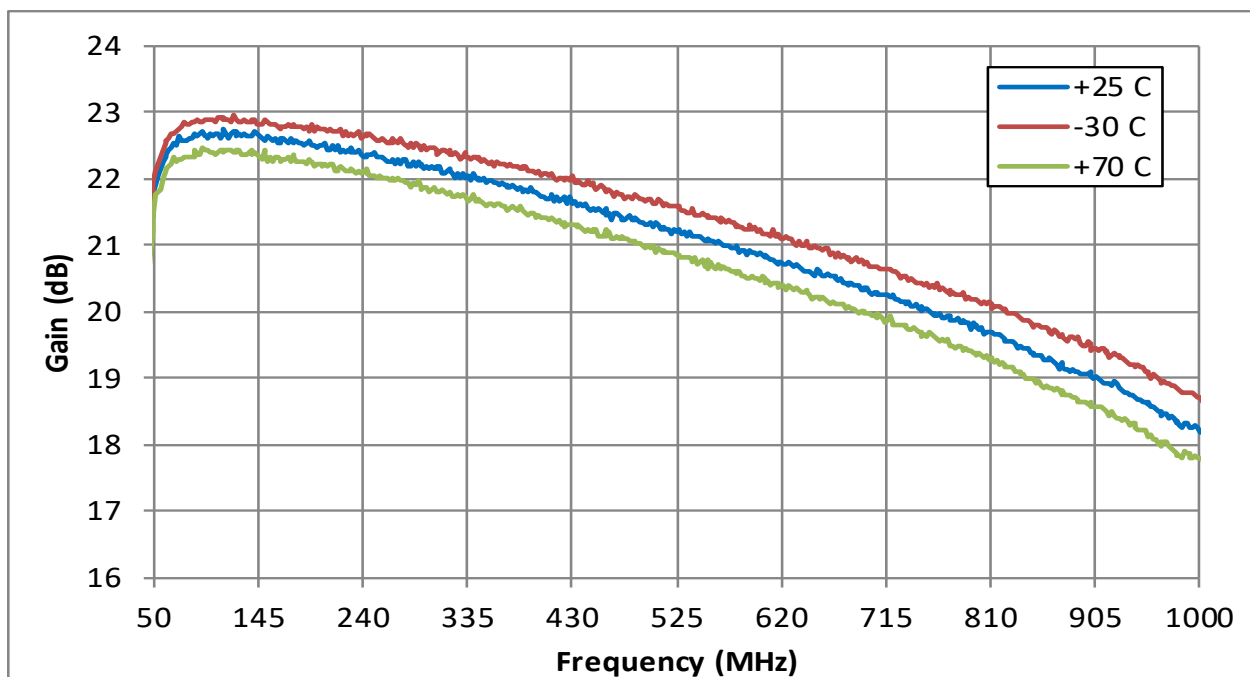
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Performance Plots (cont.)

Input and Output VSWR

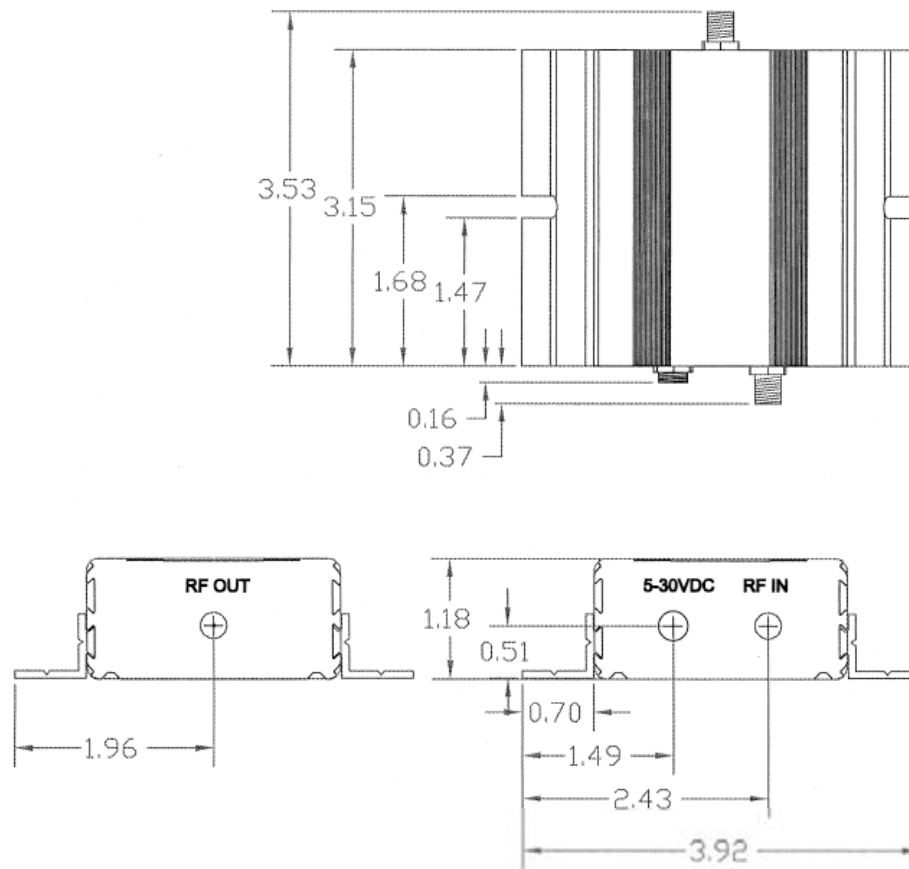


Gain vs Temperature



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Mechanical Outline



Accessory Part Numbers

| Part Number | Description |
|------------------|---|
| NW-LN-ACC-CB02CA | Standard Interface Cable Assembly - Flying Leads (included w/ module) |
| 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



NuWaves Engineering
132 Edison Drive
Middletown, OH 45044

www.nuwaves.com
sales@nuwaves.com
513.360.0800

