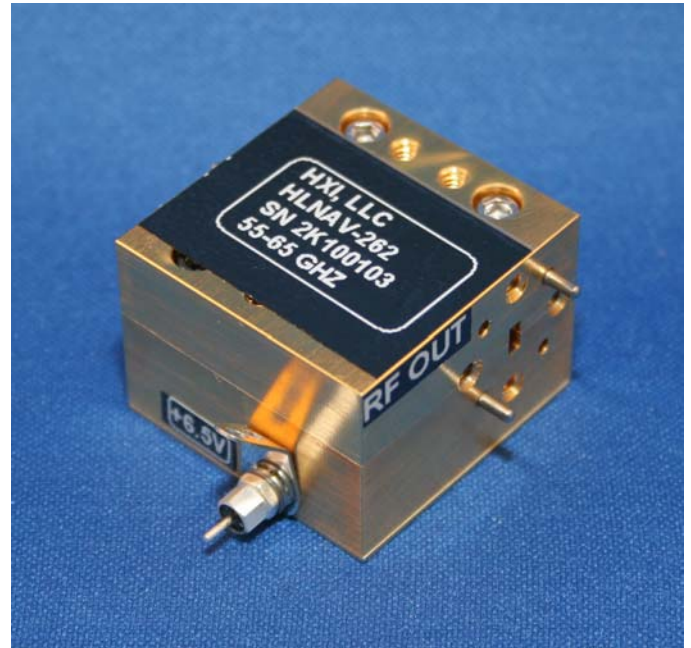


DESCRIPTION

The HLNA Series of Low Noise Amplifiers covers the frequency ranges from 18 to 110 GHz. A wide variety of gain and bandwidth combinations are available to provide the designer with a solution for most applications. Custom designs are available and in many cases NRE is not required. MMIC technology is employed for high reliability and repeatability.

The amplifiers can be used to lower system noise figure in communication and radar systems and also as gain blocks in LO chains and test equipment. Low noise amplifier stages can be combined with power amplifier stages for higher P1dB levels. LNAs can also be packaged with other components for custom configurations.

Each LNA contains a voltage regulator and bias sequencing circuitry allowing the use of a single bias to power the amplifier.



Applications

Radar Front Ends
Communications Equipment
Test Equipment

Features

Low Noise Figure
Multiple Gain / P1dB options
High Bandwidth models
Single Bias / Internal Regulation
Internal Bias Sequencing

Low Noise Amplifier Specifications - 14 to 70 GHz

This is just a sample listing of available low noise amplifiers.
Please choose from these models or contact factory with your requirements.
Please identify your required frequency range with any inquiry.

Model Number	Frequency Range (GHz)	Input/Output	Noise Figure (dB) typical	Gain (dB) typical	P _{1dB} (dBm) typical
HLNAKK- 091	14.0 - 27.0	2.9 mm, Female	3.5	16	+13
HLNAKK- 070	18.0 - 26.5	2.9 mm, Female	3.0	17	+7
HLNAAK- 102	18.0 - 40.0	2.9 mm, Female	5.3	23	+11
HLNAKK- 087	22.0 - 26.5	2.9 mm, Female	2.3	28	+13
HLNAAK- 076	24.0 - 31.0	2.9 mm, Female	3.2	30	+8
HLNAA-088	26.5 - 40.0	WR-28 / UG- 599/U	3.5	34	+7
HLNAAK- 092	30.0 - 42.0	2.9 mm, Female	4.0	19	+12
HLNAA-266	32.0 - 34.0	WR-28 / UG-599/U	3.0	40	+20
HLNAA-372	33.0 - 36.0	WR-28 / UG-599/U	3.2	35	+10
HLNAAK- 097	34.0 - 36.0	2.9 mm, Female	2.8	15	+10
HLNAAK-104	34.0 - 36.0	2.9 mm, Female	3.1	25	+15
HLNAAK- 066	35.0 - 40.0	2.9 mm, Female	4.0	24	+14
HLNAB - 282	40.0 - 50.0	WR-22 / UG-599/U-M	5.5	16	+10
HLNAV - 283	50.0 - 60.0	WR-15 / UG-385/U	5.0	16	+10
HLNAVC- 289	50.0 - 65.0	1.85 mm, Female	5.2	33	+10
HLNAVC- 290	50.0 - 65.0	1.85 mm, Female	5.2	24	+10
HLNAV - 364	50.0 - 65.0	WR-15 / UG-385/U	5.2	25	+10
HLNAV- 383	50.0 - 67.0	WR-15 / UG-385/U	5.2	30	+10
HLNAV- 262	55.0 - 65.0	WR-15 / UG- 385/U	4.5	16	+10
HLNAVC- 265	55.0 - 65.0	1.85 mm, Female	4.5	16	+10
HLNAV - 361	57.0 - 66.0	WR-15 / UG-385/U	5.0	28	+14

See next page for LNAs above 70 GHz.

Specifications @ 35°C T_{CASE}, Specifications subject to change w/o notice.

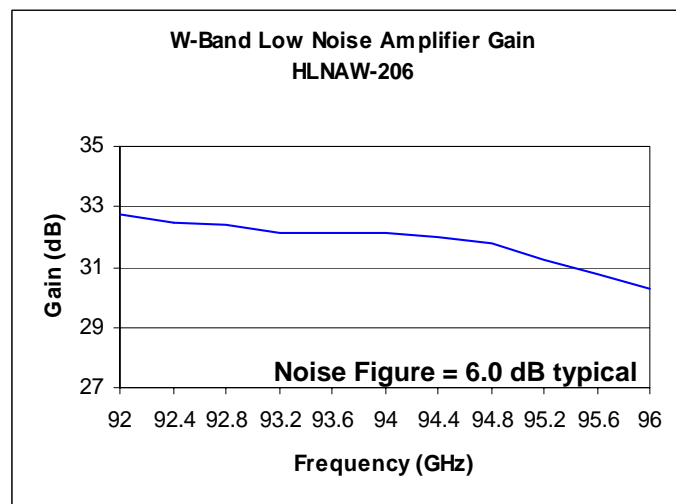
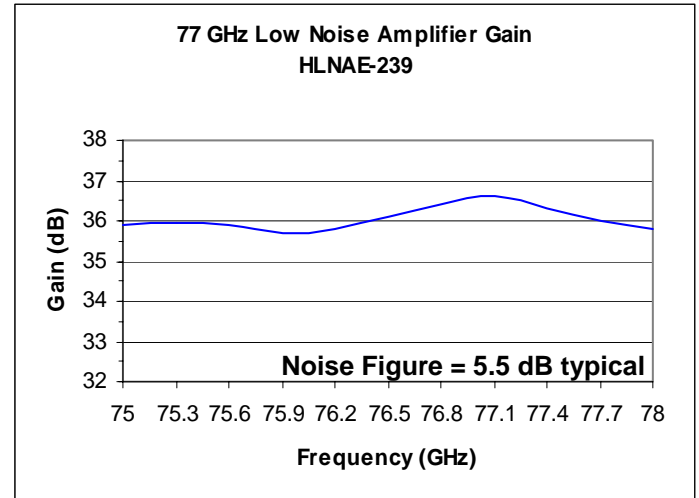
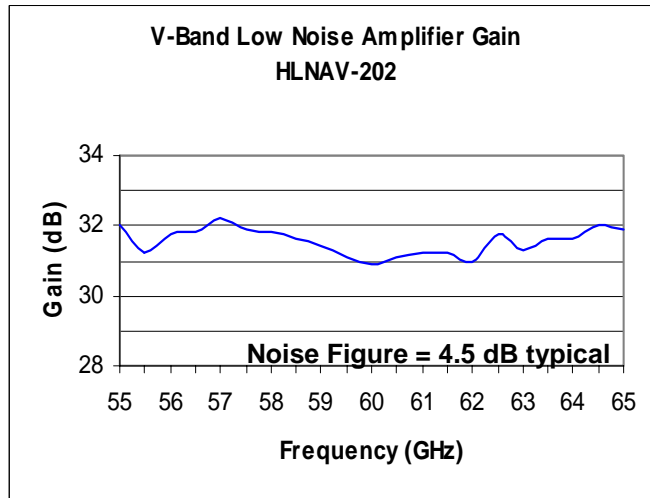
Low Noise Amplifier Specifications - 70 to 100+ GHz

This is just a sample listing of available low noise amplifiers.
Please choose from these models or contact factory with your requirements.
Please identify your required frequency range with any inquiry.

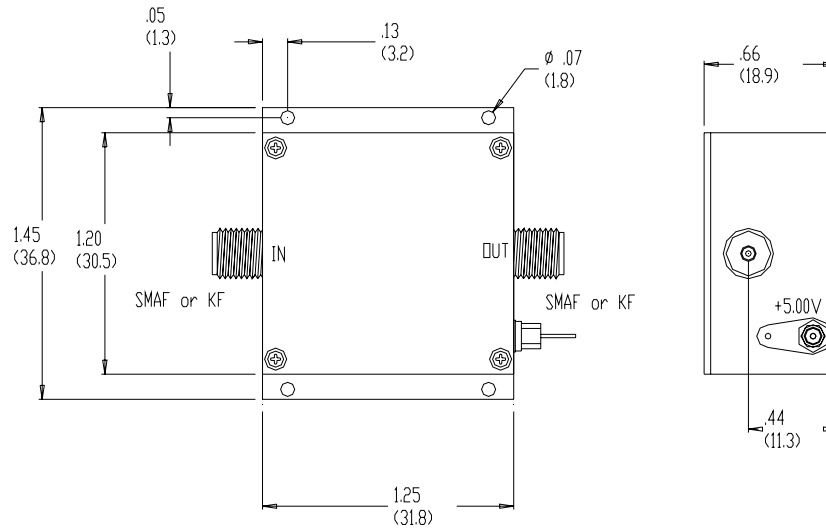
Model Number	Frequency Range (GHz)	Input/Output	Noise Figure (dB) typical	Gain (dB) typical	P _{1dB} (dBm) typical
HLNAE - 285	70.0 - 80.0	WR-12 / UG-387/U	5.5	16	+10
HLNAE - 240	71.0 - 76.0	WR-12 / UG-387/U	5.2	28	+5
HLNAE - 356	72.0 - 78.0	WR-12 / UG-387/U	6.0	20	+5
HLNAE - 084	76.0 - 77.0	WR-12 / UG-387/U	5.5	20	+5
HLNAE - 276	77.0 - 81.0	WR-12 / UG-387/U	5.5	20	+5
HLNAE - 286	80.0 - 90.0	WR-12 / UG-387/U	5.5	22	+5
HLNAE -139	81.0 - 86.0	WR-12 / UG-387/U	5.8	20	+5
HLNAW - 345	89.0 - 95.0	WR-10 / UG-387/U-M	5.5	35	+15
HLNAW - 241	90.0 - 98.0	WR-10 / UG-387/U-M	6.0	32	+8
HLNAW - 277	90.0 - 101.0	WR-10 / UG-387/U-M	5.5	22	+5
HLNAW -127	92.0 - 96.0	WR-10 / UG-387/U-M	6.0	16	+2
HLNAW - 347	98.0 - 105.0	WR-10 / UG-387/U-M	4.5	18	0
HLNAW - 264	99.0 - 101.0	WR-10 / UG-387/U-M	5.8	23	0

Specifications @ 35°C T_{CASE}, Specifications subject to change w/o notice.

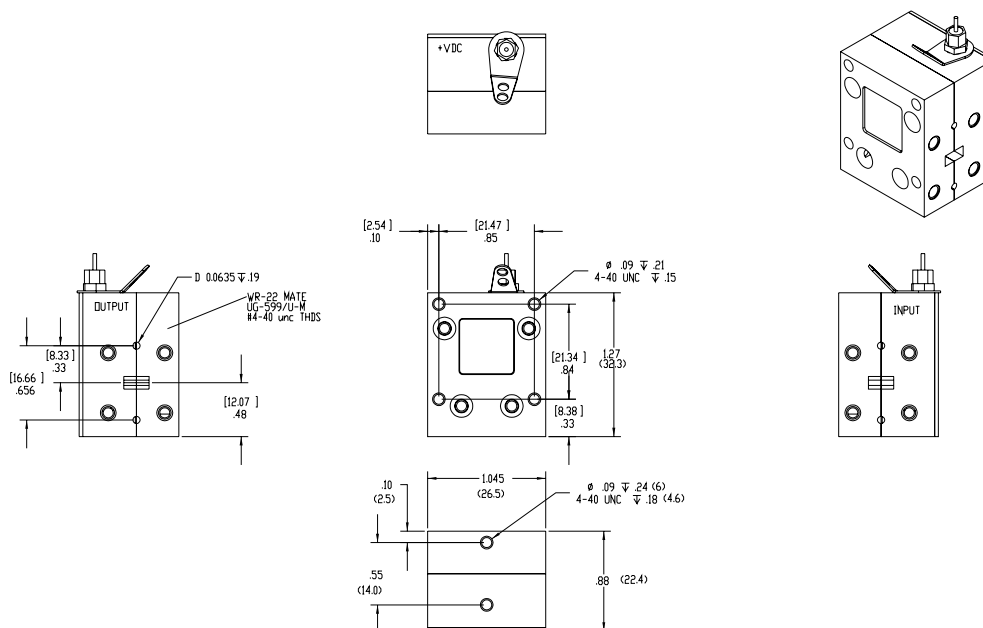
Typical Gain Data for HLNA Low Noise Amplifiers



Low Noise Amplifier Outlines

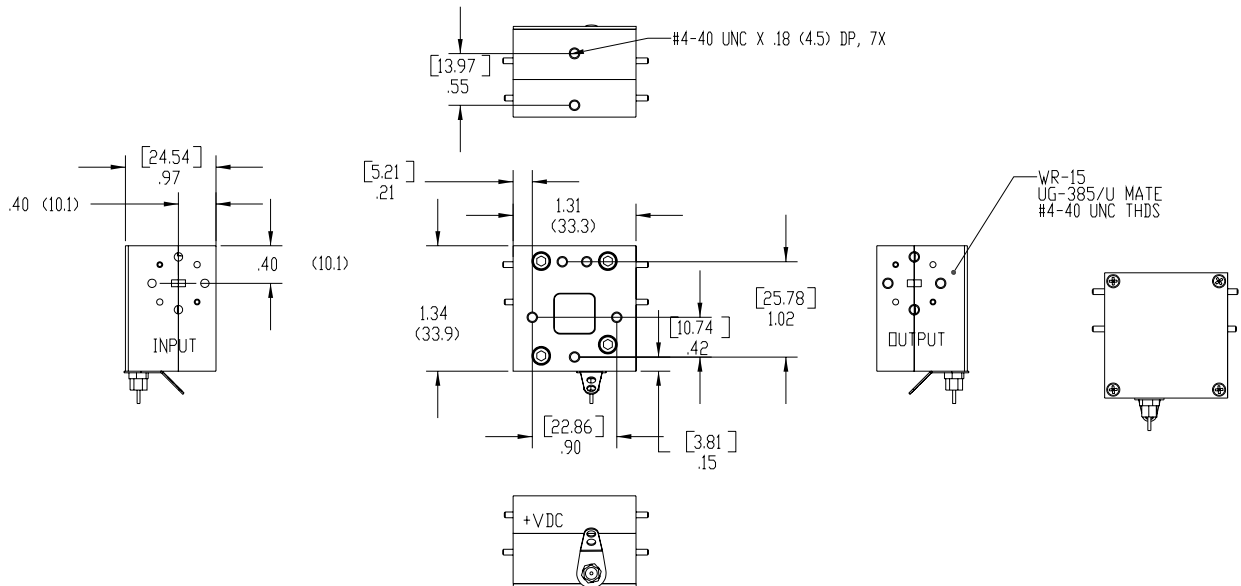


Coaxial Low Noise Amplifier

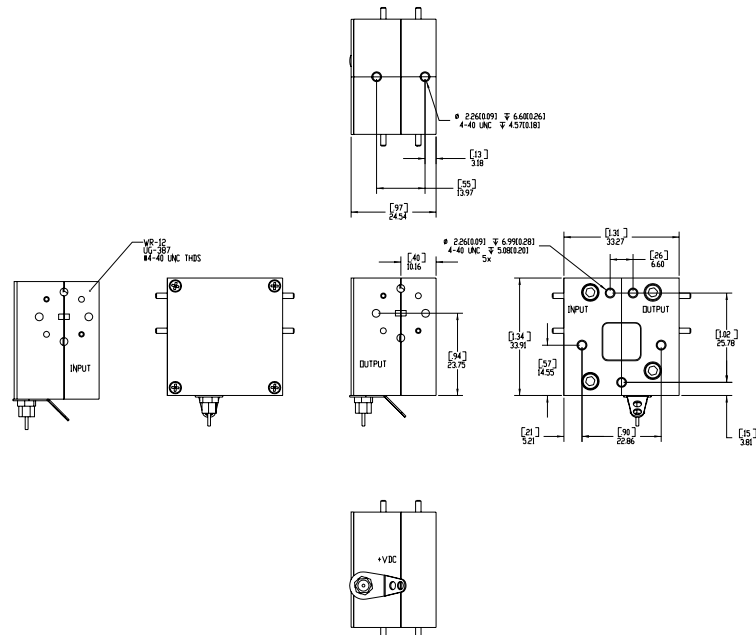


Q-Band (B-Band, WR-22) Low Noise Power Amplifier (Outline is also valid for Ka-Band, WR-28.)

Low Noise Amplifier Outlines

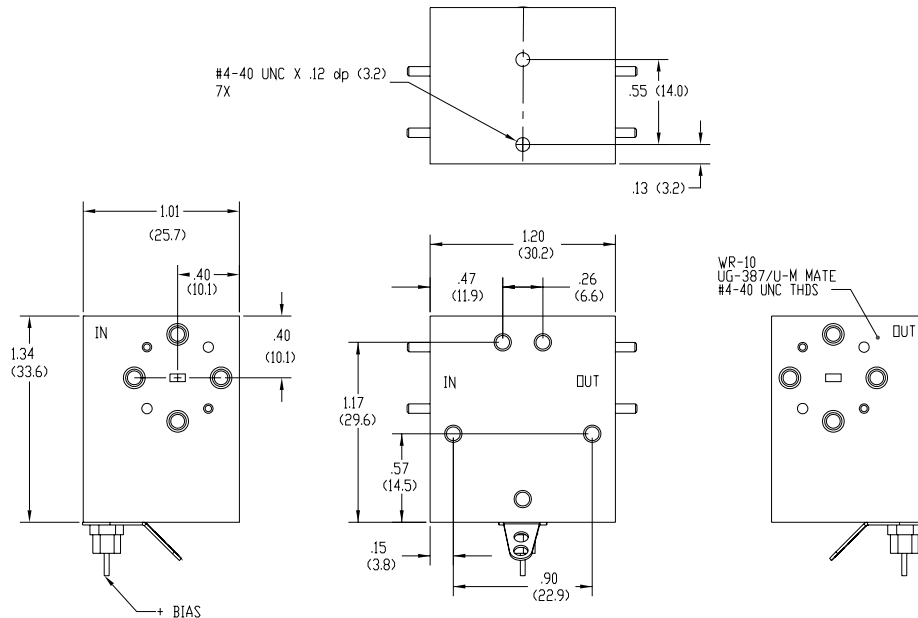


V-Band (WR-15) Low Noise Amplifier



E-Band (WR-12) Low Noise Amplifier

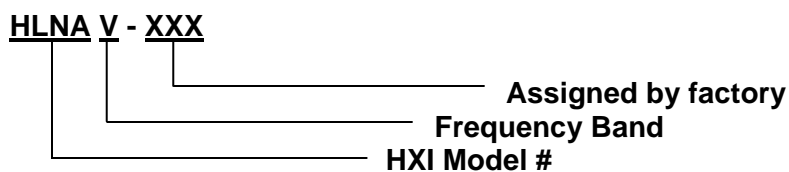
Low Noise Amplifier Outlines



W-Band (WR-10) Low Noise Amplifier

Requesting Quotes

When requesting a quote for HLNA Low Noise Amplifiers, please specify required frequency range and any other required specifications. HLNA amplifiers are built to order and will be optimized for the bandwidth specified by the customer. The part number guide below can also be used as a reference for requesting quotes.



Interface Options

**SMA female connectors available to 20 GHz.
2.9 mm connectors also available through 40 GHz.
V-Connectors available through 65 GHz.**