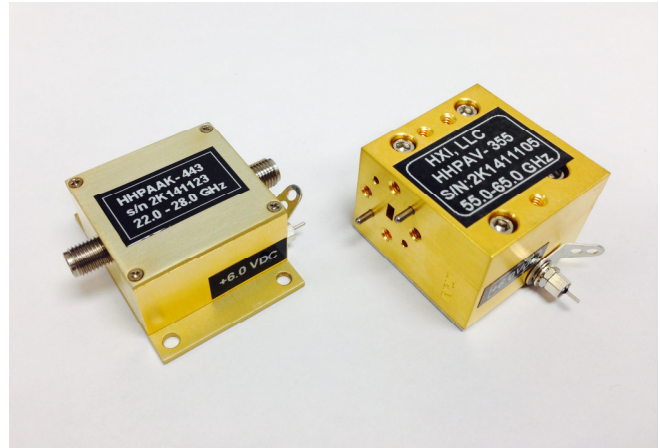


DESCRIPTION

The HMPA and HHPA Series of Power Amplifiers cover the frequency range from 18 – 100 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 most cases, NRE is not required. MMIC technology is employed for high reliability and repeatability.

The amplifiers can be used in transmitters for communication and radar systems and also as gain blocks in LO chains and test equipment. Multiple devices can be combined to increase output power where necessary. For example, several watts of power have been obtained at 35 GHz. The amplifiers can also be packaged with other components for custom configurations.

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



Applications

Communications Equipment
Radar Transmitters
Test Equipment

Features

High P_{1dB} or PSAT
Multiple Gain / P_{1dB} options
Single Bias / Internal Regulation
Internal Bias Sequencing
Custom power combining available

Power Amplifier Specifications - 18 to 70 GHz

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

Coaxial Power Amplifiers

| Model Number | Frequency Range (GHz) | Input/Output | P _{1dB} (dBm) typical | Gain (dB) typical |
|----------------------------------|-----------------------|----------------|--------------------------------|-------------------|
| HMPAAK-133 <i>New!</i> | 17.0 - 31.0 | 2.9 mm, Female | +20 | 30 |
| HHPAKK-371 | 23.5 - 26.5 | 2.9 mm, Female | +19 | 30 |
| HHPAB2.4-511 <i>New!</i> | 40.0 - 47.5 | 2.4 mm, Female | +23 | 15 |
| HHPAVC-250 | 50.0 - 66.0 | 1.85 mm Female | +16 | 35 |

Waveguide Power Amplifiers

| | | | | |
|---------------------------------|--------------------|-------------------------|------------|-----------|
| HHPAA-301 | 32.0 - 36.0 | WR-28, UG-599/U | +25 | 20 |
| HHPAA-022 | 34.5 - 35.5 | WR-28, UG-599/U | +29 | 15 |
| HHPAV-510 <i>New!</i> | 50.0 - 66.0 | WR-15, UG-385/U | +14 | 34 |
| HHPAV-261 | 53.0 - 60.0 | WR-15, UG- 385/U | +14 | 15 |
| HHPAV-297 | 55.0 - 65.0 | WR-15, UG- 385/U | +13 | 30 |
| HHPAV-222 | 55.0 - 65.0 | WR-15, UG- 385/U | +14 | 25 |
| HHPAV-355 | 55.0 - 65.0 | WR-15, UG- 385/U | +17 | 28 |
| HHPAV-461 | 57.0 - 63.0 | WR-15, UG-385/U | +17 | 17 |
| HHPAV-302 | 57.0 - 66.0 | WR-15, UG-385/U | +14 | 16 |
| HHPAV-330 | 57.0 - 66.0 | WR-15, UG- 385/U | +14 | 25 |
| HHPAV-295 | 57.0 - 66.0 | WR-15, UG- 385/U | +15 | 29 |
| HHPAV-548 <i>New!</i> | 57.0 - 66.0 | WR-15, UG- 385/U | +21 | 32 |
| HHPAV-254 | 57.5 - 66.0 | WR-15, UG- 385/U | +16 | 25 |
| HHPAV-285 | 58.0 - 62.0 | WR-15, UG-385/U | +17 | 15 |

See next page for Power Amplifiers above 70 GHz.

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

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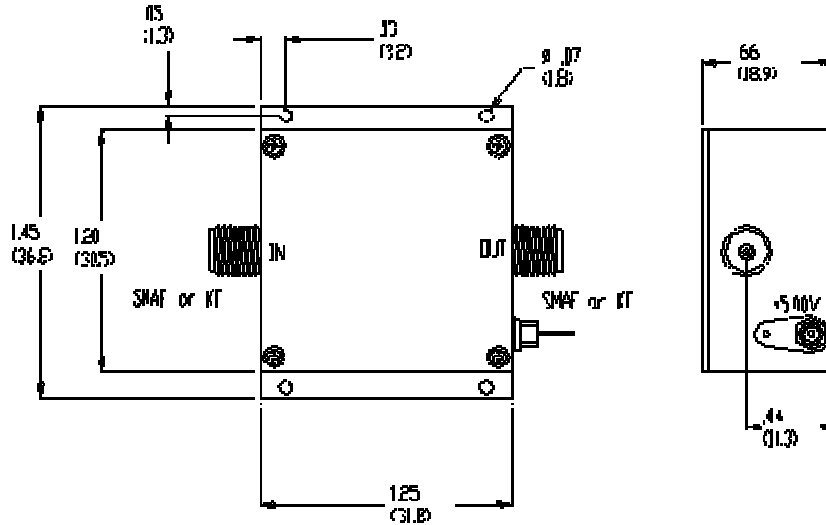
Power Amplifier Specifications - 70 to 100 GHz

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

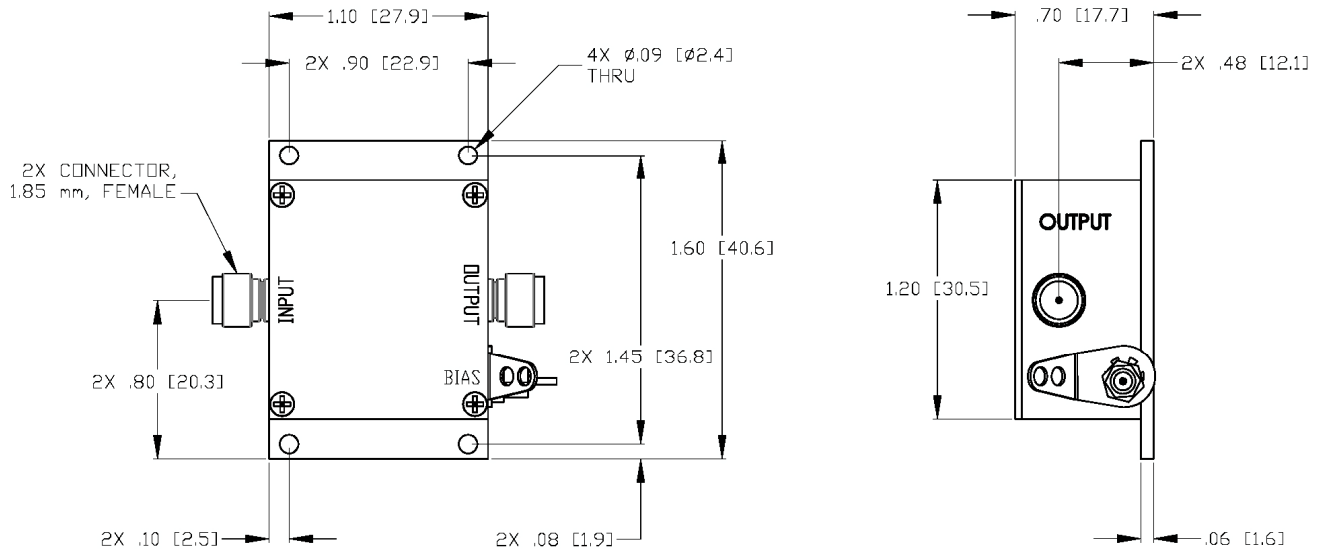
| Model Number | Frequency Range (GHz) | Input/Output | P _{1dB} (dBm) typical | Gain (dB) typical |
|-----------------------|-----------------------|-------------------|--------------------------------|-------------------|
| HHPAE-487 | 71.0 - 76.0 | WR-12, UG-387/U | +15 | 28 |
| HHPAE-496 <i>New!</i> | 71.0 - 76.0 | WR-12, UG-387/U | +23 | 35 |
| HHPAE-231 | 75.5 - 77.5 | WR-12, UG-387/U | +15 | 14 |
| HMPAE-132 <i>New!</i> | 76.0 - 77.0 | WR-12, UG-387/U | +15 | 30 |
| HMPAE-529 <i>New!</i> | 76.0 - 77.0 | WR-12, UG-387/U | +21 | 34 |
| HHPAW-352 | 76.0 - 77.0 | WR-10, UG-387/U-M | +15 | 18 |
| HHPAW-188 | 76.0 - 77.0 | WR-10, UG-387/U-M | +15 | 30 |
| HHPAE-517 <i>New!</i> | 76.0 - 81.0 | WR-12, UG-387/U | +20 | 30 |
| HMPAE-543 <i>New!</i> | 76.0 - 84.0 | WR-12, UG-387/U | +14 | 32 |
| HHPAW-226 | 77.0 - 82.0 | WR-10, UG-387/U-M | +12 | 24 |
| HHPAE-488 | 81.0 - 86.0 | WR-12, UG-387/U | +14 | 26 |
| HHPAE-497 <i>New!</i> | 81.0 - 86.0 | WR-12, UG-387/U | +21 | 28 |
| HHPAW-336 | 85.0 - 91.0 | WR-10, UG-387/U-M | +20 (P _{SAT}) | 30 |
| HMPAW-085 | 86.0 - 88.0 | WR-10, UG-387/U-M | +13 | 13 |
| HMPAW-077 | 90.0 - 98.0 | WR-10, UG-387/U-M | +10 | 18 |
| HMPAW-098 | 92.0 - 96.0 | WR-10, UG-387/U-M | +10 | 18 |
| HHPAW-348 | 92.0 - 96.0 | WR-10, UG-387/U-M | +15 (P _{SAT}) | 18 |
| HHPAW-530 <i>New!</i> | 92.0 - 96.0 | WR-10, UG-387/U-M | +15 | 30 |

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

Power Amplifier Outlines

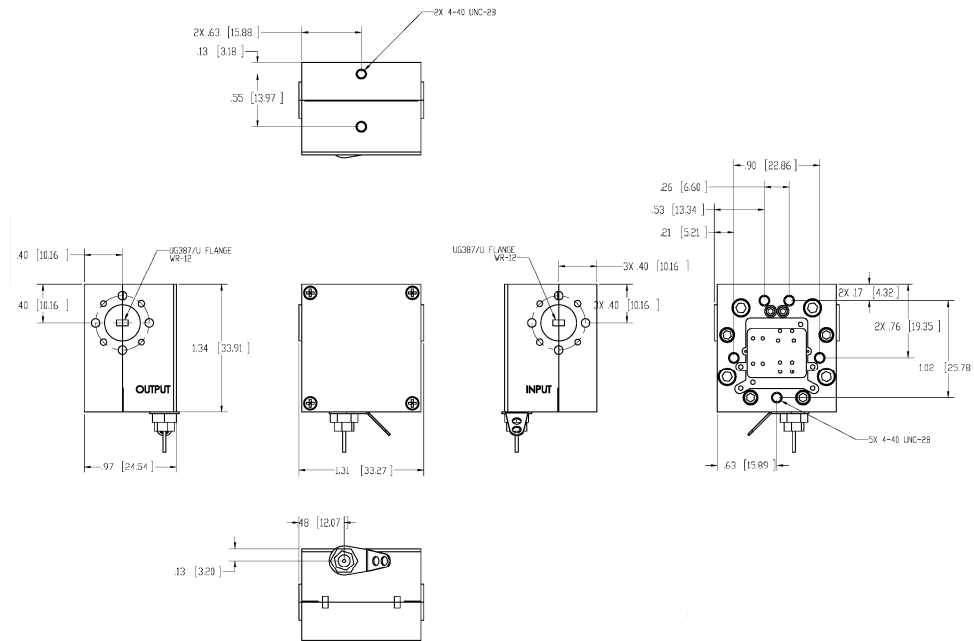


Coaxial Power Amplifier (2.9 and 2.4 mm connectors)
 Applies to models with +23 dBm P1dB or less

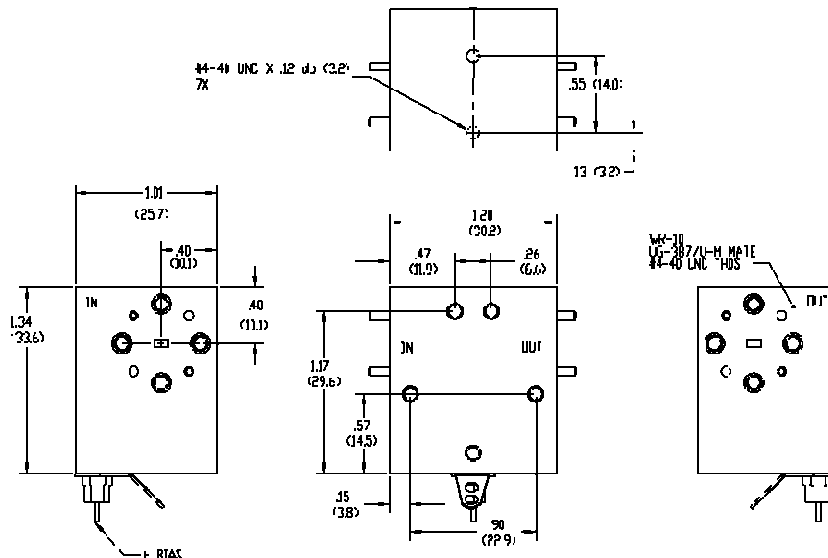


Coaxial Power Amplifier (1.85 mm connectors)

Power Amplifier Outlines



E-Band (WR-12) Power Amplifier Highest power models may have a heat sink (not shown)



W-Band (WR-10) Power Amplifier

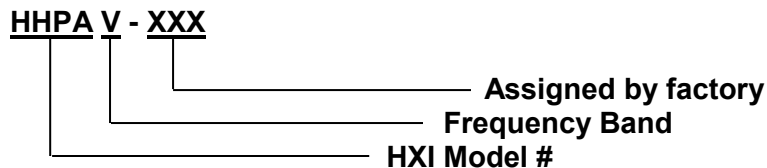


Series HMPA and HHPA Power Amplifiers

Revised February 2018

Requesting quotes

When requesting a quote for HMPA or HHPA High Power Amplifiers, please specify required frequency range and any other required specifications. The 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 available through 40 GHz.
- 2.4 mm connectors available through 50 GHz.
- 1.85 mm connectors available through 65 GHz.