

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 - 8 to 50 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
HHPAXS- 029	8.0-12.0	SMA, Female	+27	29
HHPAXK- 013	10.0-18.0	2.9 mm, Female	+30	20
HMPAKK	18.0-26.5	2.9 mm, Female	+17	20
HHPAKK- 035	18.0-26.5	2.9 mm, Female	+28	11
HHPAAK- 089	18.0-31.8	2.9 mm, Female	+21.5	30
HHPAAK- 097	18.0-40.0	2.9 mm, Female	+20	30
HHPAKK- 088	23.0-29.0	2.9 mm, Female	+28	32
HMPAA-1F	26.5-40.0	WR-28, UG-599/U	+17	20
HHPAA-300	28.0-32.0	WR-28, UG-599/U	+25	17
HHPAA -174	28.0-32.0	WR-28, UG- 599/U	+29	30
HHPAA- 016	31.0-37.0	WR-28, UG- 599/U	+29	20
HHPAA-301	32.0-36.0	WR-28, UG- 599/U	+25	20
HHPAA-106	33.0-36.0	WR-28, UG- 599/U	+30	18
HHPAA- 022	34.5-35.5	WR-28, UG- 599/U	+31	16
HHPAAK- 054	36.0-40.0	2.9 mm, Female	+30	20
HHPAB-268	39.0-45.0	WR-22, UG-599/U-M	+21	30
HHPAB- 099	41.0-46.0	WR-22, UG- 599/U-M	+29	30

See next 2 pages for Power Amplifiers above 50 GHz.

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

Power Amplifier Specifications - 50 to 70 GHz

This is just a sample listing of available power amplifiers.
Please choose from these models or contact factory with your requirements.
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Model Number	Frequency Range (GHz)	Input/Output	P _{1dB} (dBm) typical	Gain (dB) typical
HMPAU-1B	50.0-60.0	WR-19, UG-383/U	+10	12
HMPAU-2B	50.0-60.0	WR-19, UG-383/U	+14	21
HMPAV-1A	50.0-60.0	WR-15, UG- 385/U	+10	12
HMPAV-2A	50.0-60.0	WR-15, UG- 385/U	+14	21
HHPAVC-250	50.0-66.0	1.85 mm Female	+16	35
HHPAV-261	53.0-60.0	WR-15, UG- 385/U	+14	15
HMPAV-1B	55.0-65.0	WR-15, UG- 385/U	+10	12
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	+17.5	28
HHPAV- 082	57.0-59.0	WR-15, UG- 385/U	+18	28
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-254	57.5-66.0	WR-15, UG- 385/U	+17	25
HHPAV- 070	59.0-61.0	WR-15, UG- 385/U	+16	20
HHPAV- 023	59.0-61.0	WR-15, UG- 385/U	+18	25
HHPAV-186	59.5-63.5	WR-15, UG- 385/U	+18	30
HHPAV-356	60.0-62.0	WR-15, UG- 385/U	+18	30
HHPAV- 050	62.0-64.0	WR-15, UG- 385/U	+16	30

See next page for Power Amplifiers above 70 GHz.

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

Power Amplifier Specifications - 70 to 100 GHz

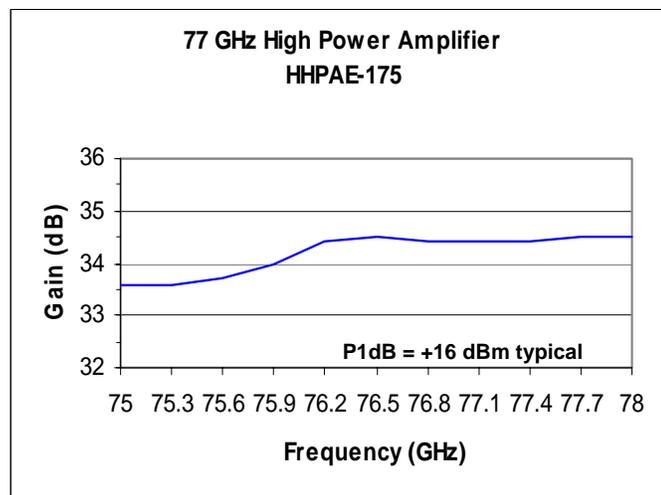
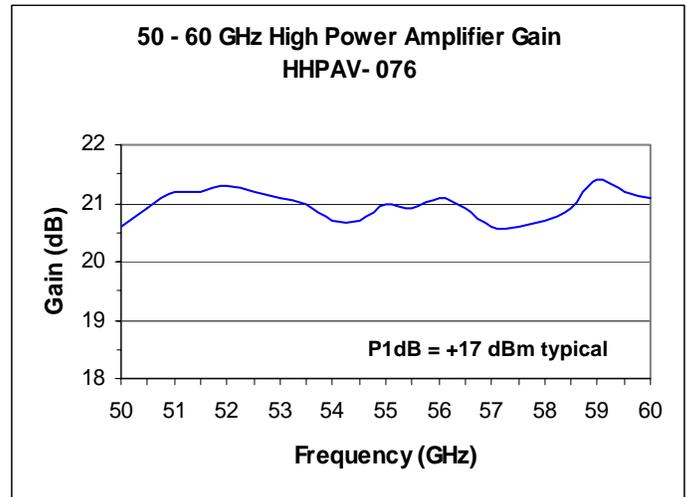
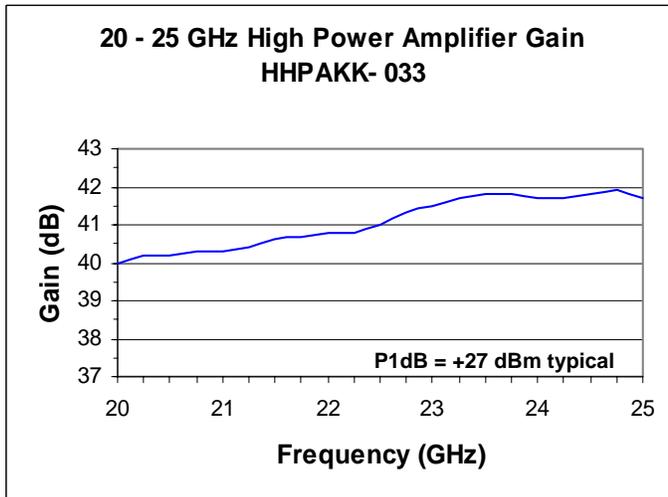
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Model Number	Frequency Range (GHz)	Input/Output	P _{1dB} (dBm) typical	Gain (dB) typical
HHPAE- 074	71.0-76.0	WR-12, UG- 387/U	+15	26
HHPAW-158	75.0-78.0	WR-10, UG-387/U-M	+18	17
HHPAW-352	76.0-77.0	WR-10, UG-387/U-M	+15	18
HHPAE- 069	76.0-77.0	WR-12, UG- 387/U	+15	26
HHPAW-226	77.0-82.0	WR-10, UG-387/U-M	+12	24
HHPAE- 077	81.0-86.0	WR-12, UG- 387/U	+12	26
HHPAE- 078	81.0-86.0	WR-12, UG- 387/U	+15	19
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
HHPAW-333*	91.0-97.0	WR-10, UG-387/U-M	+20 (P _{SAT})	30
HHPAW- 098*	92.0-96.0	WR-10, UG-387/U-M	+17	22
HHPAW- 262*	93.5-95.5	WR-10, UG-387/U-M	+24 (P _{SAT})	30
HHPAW-278*	94.0-95.0	WR-10, UG-387/U-M	+27 (P _{SAT})	25

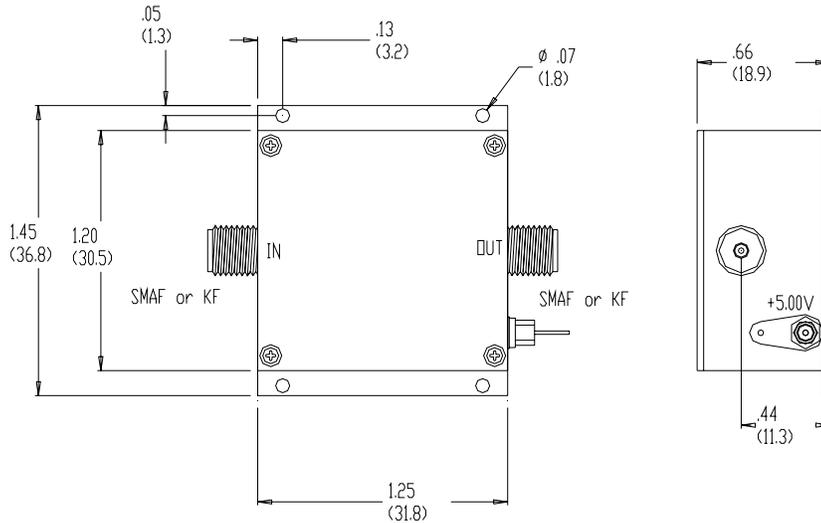
Specifications @ 35°C T_{CASE}, Specifications subject to change w/o notice.

* This model is not available outside the USA.

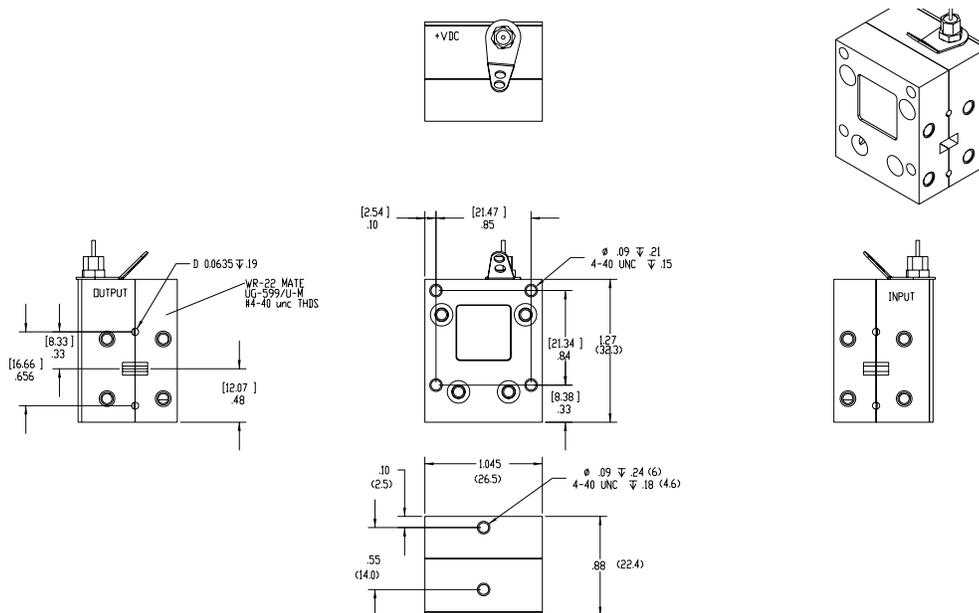
Typical Gain Data for HHPA Power Amplifiers



Power Amplifier Outlines

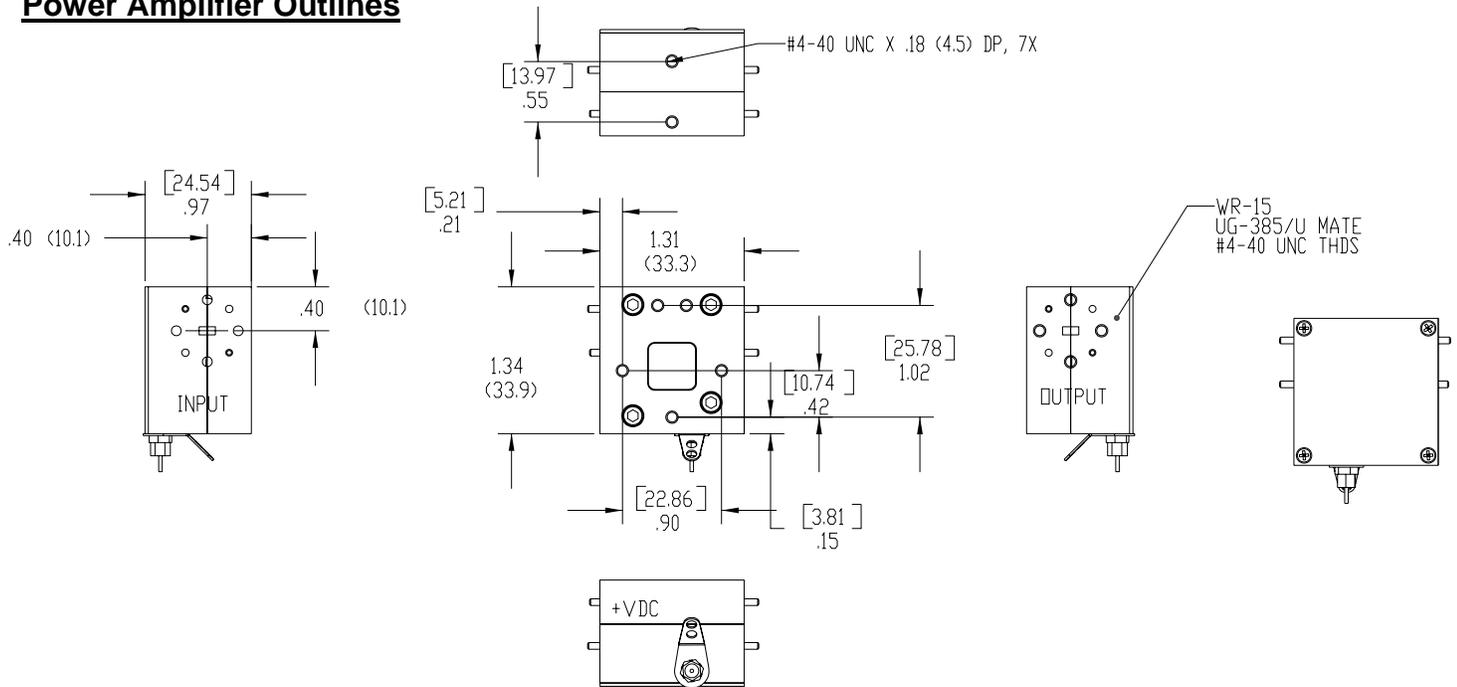


Coaxial Power Amplifier

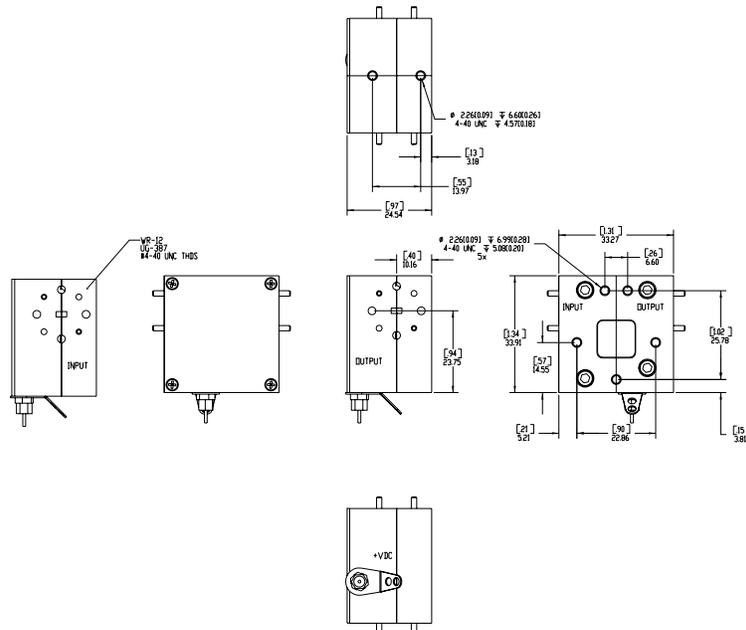


**Q-Band (B-Band, WR-22) Power Amplifier
(Outline is also valid for Ka-Band.)**

Power Amplifier Outlines

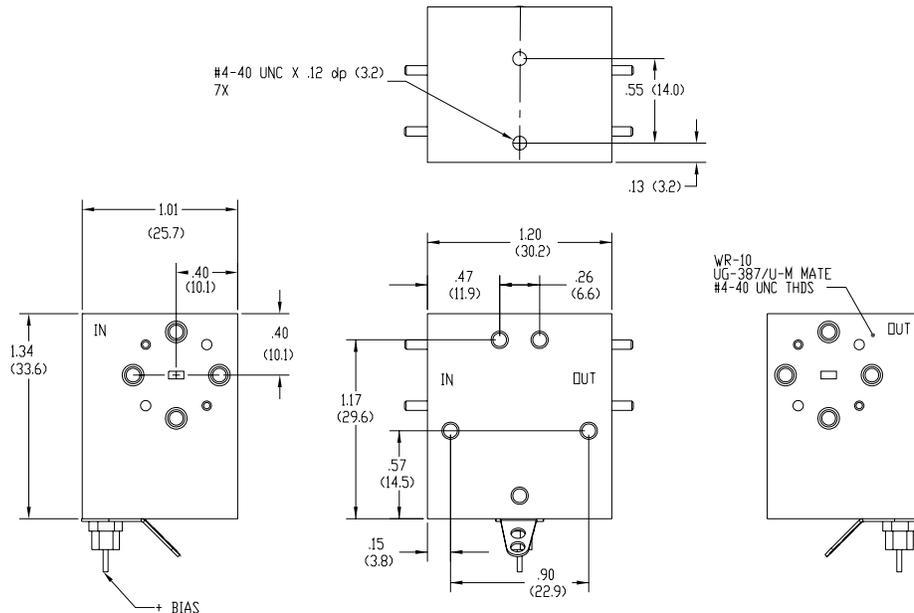


V-Band (WR-15) Power Amplifier



E-Band (WR-12) Power Amplifier

Power Amplifier Outlines



W-Band (WR-10) Power Amplifier

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.