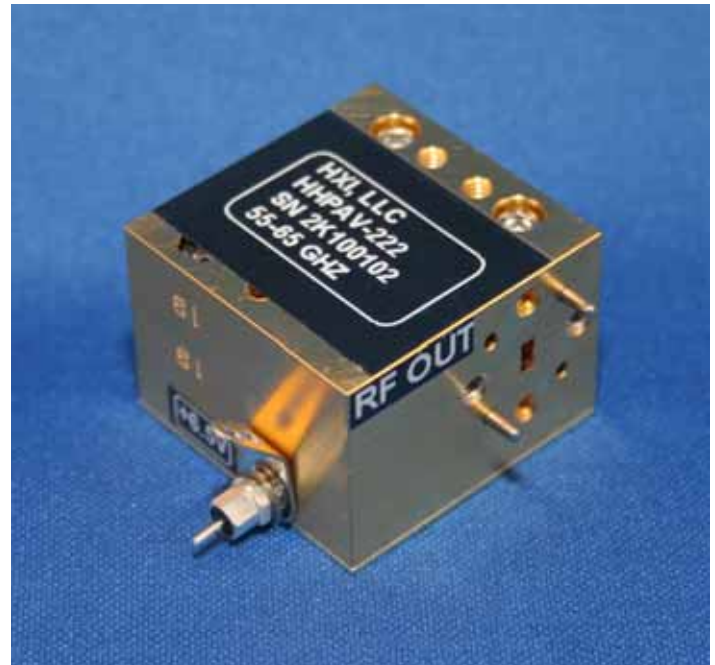


## DESCRIPTION

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<sub>1dB</sub> or PSAT  
Multiple Gain / P<sub>1dB</sub> 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.

Model Number	Frequency Range (GHz)	Input/Output	P <sub>1dB</sub> (dBm) typical	Gain (dB) typical
HMPAAK-096	21.5 - 40.0	2.9 mm, Female	+10	13
HHPAAK-443	22.0 - 28.0	2.9 mm, Female	+27	18
HHPAKK-371	23.5 - 26.5	2.9 mm, Female	+19	30
HHPAKK-088	23.0 - 29.0	2.9 mm, Female	+28	32
HHPAA-300	28.0 - 32.0	WR-28, UG-599/U	+25	17
HMPAAK-058	28.0 - 42.0	2.9 mm, Female	+20	20
HHPAA-301	32.0 - 36.0	WR-28, UG-599/U	+25	20
HHPAA-106	31.0 - 35.0	WR-28, UG-599/U	+30	18
HHPAA-022	34.5 - 35.5	WR-28, UG-599/U	+29	15
HHPAB-268	39.0 - 45.0	WR-22, UG-599/U-M	+21	30
HMPAB-099	41.0 - 45.0	2.4 mm, Female	+19	16
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
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-254	57.5 - 66.0	WR-15, UG- 385/U	+17	25
HHPAV-285	58.0 - 62.0	WR-15, UG-385/U	+17	15

See next 2 pages for Power Amplifiers above 50 GHz.

Specifications @ 35°C T<sub>CASE</sub>, Specifications subject to change w/o notice.

### 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 <sub>1dB</sub> (dBm) typical	Gain (dB) typical
HHPAE-487	71.0 - 76.0	WR-12, UG-387/U	+15	28
HHPAE-489	71.0 - 76.0	WR-12, UG-387/U	+17	27
HHPAE-493	71.0 - 76.0	WR-12, UG-387/U	+21	30
HHPAW-158	75.0 - 78.0	WR-10, UG-387/U-M	+18	17
HHPAE-231	75.5 - 77.5	WR-12, UG-387/U	+17	14
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
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-490	81.0 - 86.0	WR-12, UG-387/U	+16	25
HHPAE-494	81.0 - 86.0	WR-12, UG-387/U	+20	28
HHPAW-336	85.0 - 91.0	WR-10, UG-387/U-M	+20 (P <sub>SAT</sub> )	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 <sub>SAT</sub> )	18
HHPAW-262*	93.5 - 95.5	WR-10, UG-387/U-M	+24 (P <sub>SAT</sub> )	30

Specifications @ 35°C T<sub>CASE</sub>, Specifications subject to change w/o notice.

\* This model is not available outside the USA.







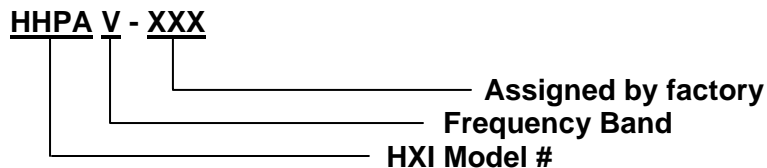


# Series HMPA and HHPA Power Amplifiers

Revised April 2013

## 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.