

NuWaves Engineering

Trusted RF Solutions.™

NuPower™ RF Power Amplifiers

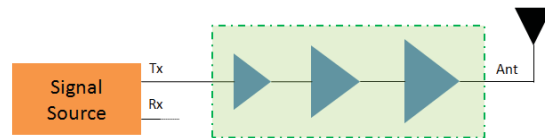


Photo courtesy of Northrop Grumman

The NuPower™ series of **broadband** solid state power amplifier modules is ideal for extending your communication range. Leveraging the latest Gallium Nitride (GaN) technology and market-leading design miniaturization techniques, NuPower PAs are designed to meet the demanding needs of aerospace, defense and industrial markets. NuPower's combination of **power efficiency** and **miniature, ruggedized** packaging makes them ideal for size, weight, and power-constrained broadband telemetry, ISR, and tactical communication systems applications.

NuWaves' Quality Management System (QMS) is certified to the **ISO 9001:2008** and **AS9100:2009 Rev C** standards for the research & development, design, and manufacturing of RF systems and subsystems. NuWaves' quality management systems facilitates delivery of field-proven, highly reliable RF products that will meet or exceed customer expectations.

NuPower™ Radio Frequency Power Amplifiers

Features

- High-Efficiency Gallium Nitride (GaN) Technology
- Broadband Frequency Operation
- 0 dBm Nominal RF Input
+30 dBm Option on Select Models
- Compact and Rugged Nickel-Plated Aluminum Enclosures
- Reverse-Voltage & Over-Voltage Protection ^[1]
- Over-Current Protection ^[1]
- Thermal Protection ^[1]

Benefits

- Low power consumption supports unmanned vehicle power budgets
- Broadband operation provides maximum frequency assignment flexibility
- 0 dBm nominal input drive level facilitates the use of a wide variety of data links
- Small form factor eases mechanical integration
- Protection circuitry mitigates hardware damage from out-of-spec conditions

[1] Available on select models

NuPower™ Multi-Octave PA
P/N: NW-PA-11C01A



- 225 to 2400 MHz
- 15 W (typ) RF Output Power
- Class AB
- 25% - 45% Efficiency
- 0 dBm RF Input
- 40 dB RF Gain
- +11 to +32 VDC
- 3.00" x 2.00" x 0.65"
- Export Classification: EAR99

NuPower™ Mini Multi-Octave PA
P/N: NW-PA-11B02A



- 225 to 2600 MHz
- 7 W (typ) RF Output Power
- Class AB
- 20% - 35% Efficiency
- 0 dBm RF Input
- 38.5 dB RF Gain
- +11 to +32 VDC
- 2.34" x 1.960" x 0.620"
- Export Classification: EAR99

NuPower™ 13G05A PA
P/N: NW-PA-13G05A



- 800 to 2000 MHz
- 35 W (min) RF Output Power
- Class AB
- 42% Efficiency (typ)
- 0 dBm RF Input
- 45 dB RF Gain
- +27 to +30 VDC
- 4.50" x 3.50" x 0.61"
- Export Classification: EAR99

Options

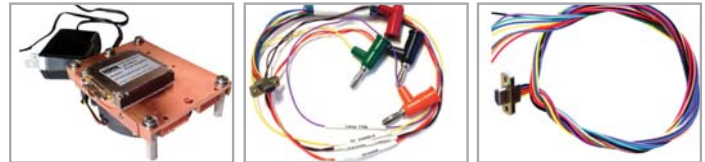
- Frequency bands from 225 MHz to 2.6 GHz
- RF output power from 5 W to 35 W
- +30 dBm (1W) input level on select models
- Four miniature form factors ranging in size from 1.3 to 9.6 in.³
- Alternate frequency bands
- Alternate output power levels
- Custom integrated output filtering
- Bidirectional operation available (see NuPower Xtender™ series)

Applications

- Unmanned Aircraft Systems (UAS)
- Unmanned Surface Vehicles (USV)
- RF Communication Systems
- Unmanned Ground Vehicles (UGV)
- Broadband RF Telemetry
- Software Defined Radios

Accessories

1. External fan-cooled heat sink with North American AC/DC wall adapter (pictured, below left)
2. Labeled 9 pin Micro-D interface connector with banana plugs (below middle)
3. Standard interface connector with labeled flying leads (below right)

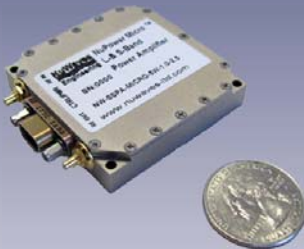


NuPower™ 12B01A PA
P/N: NW-PA-12B01A



- 1.0 to 2.5 GHz
- 10 W RF Output Power
- Class AB
- 20% - 40% Efficiency
- 0 dBm or +30 dBm RF Input
- 40 dB RF Gain
- +26 to +30 VDC
- 3.00" x 2.00" x 0.65"
- Export Classification: EAR99

NuPower™ Micro L- & S-Band PA
P/N: NW-PA-12A03A



- 1.0 to 2.5 GHz
- 5 W RF Output Power
- Class AB
- 20% - 30% Efficiency
- 0 dBm or +30 dBm RF Input
- 37 dB RF Gain
- +26 to +30 VDC
- 1.80" x 1.80" x 0.40"
- Export Classification: EAR99

NuPower™ 12A01A PA
P/N: NW-PA-12A01A



- 1.0 to 2.5 GHz
- 4 W (avg) RF Output Power
- For Linear Operation
- 20% - 40% Efficiency
- 0 dBm RF Input
- 36 dB RF Gain
- +26 to +30 VDC
- 3.00" x 2.00" x 0.65"
- Export Classification: EAR99

NuPower™ RF Power Amplifier & Xtender™ Bidirectional Amplifier Selection Guide

	Frequency Range	RF Output Power (min / typ)	Drive Level	Gain (typ)	Supply Voltage	Consumption (@ +28 VDC)	Current Size (L x W x H)	Weight	Operating Temperature (Baseplate)
NuPower 11C01A Multi-Octave PA P/N: NW-PA-11C01A	225 - 2400 MHz	10 W / 15 W	0 dBm	40 dB	+11 to +32 VDC	1.50 A (typ) 2.75 A (max)	3.00" x 2.00" x 0.65"	3.0 oz	-30 to +60 °C
NuPower 11B02A Mini Multi-Octave PA P/N: NW-PA-11B02A	225 - 2550 MHz	7 W / 10 W	0 dBm	38.5 dB	+11 to +32 VDC	1.40 A (typ) 1.80 A (max)	2.340" x 1.960" x 0.620"	2.0 oz	-30 to +60 °C
NuPower 13G05A L-Band PA P/N: NW-PA-13G05A	800 - 2000 MHz	35 W (min)	0 dBm	45 dB	+27 to +30 VDC	3.00 A (typ)	4.50" x 3.50" x 0.61"	9.0 oz	-40 to +85 °C
NuPower 12B01A L- & S-Band PA P/N: NW-PA-12B01A	1.0 - 2.5 GHz	10 W / 13 W	0 dBm	40 dB	+11 to +32 VDC	1.50 A (typ) 2.40 A (max)	3.00" x 2.00" x 0.65"	3.0 oz	-30 to +60 °C
NuPower 12B01A, 1 Watt Input P/N: NW-PA-12B01A-D30	1.0 - 2.5 GHz	10 W / 13 W	+30 dBm	10 dB	+26 to +30 VDC	1.50 A (typ) 2.40 A (max)	3.00" x 2.00" x 0.65"	3.0 oz	-30 to +60 °C
NuPower 12A01A Linear L- & S-Band PA P/N: NW-PA-12A01A	1.0 - 2.5 GHz	4 W (linear)	0 dBm	36 dB	+26 to +30 VDC	0.7 A (typ)	3.00" x 2.00" x 0.65"	3.0 oz	-30 to +60 °C
NuPower 12A03A Micro L- & S-Band PA P/N: NW-PA-12A03A	1.0 - 2.5 GHz	5 W (min)	0 dBm	37 dB	+26 to +30 VDC	0.85 A (typ) 1.25 A (max)	1.80" x 1.80" x 0.40"	1.3 oz	-30 to +60 °C
NuPower 12A03A, 1 Watt Input P/N: NW-PA-12A03A-D30	1.0 - 2.5 GHz	5 W (min)	+30 dBm	7 dB	+26 to +30 VDC	0.85 A (max)	1.80" x 1.80" x 0.40"	1.3 oz	-30 to +60 °C
NuPower 05E05A S-Band PA P/N: NW-PA-05E05A	2000 - 2600 MHz	20 W / 30 W	0 dBm	45 dB	+27 to +30 VDC	2.70 A (typ)	4.50" x 3.50" x 0.61"	9.0 oz	-40 to +85 °C
Xtender Bidirectional L- & S-Band PA P/N: NW-BA-12B04A	1.0 - 2.5 GHz	7 W / 10 W	+5 dBm	35 dB	+11 to +32 VDC	1.75 A (typ)	3.00" x 2.00" x 1.16"	5.8 oz	-30 to +60 °C
Xtender Bidirectional L- & S-Band PA P/N: NW-BA-12C04A	2.2 - 2.5 GHz	12 W / 15 W	+5 to +16 dBm	35 dB	+11 to +32 VDC	1.50 A (avg)	3.00" x 2.00" x 1.16"	5.8 oz	-30 to +60 °C

Accessory Part Numbers

Amplifier Model Number	Standard Interface Cable Assembly - Flying Leads (included with module)	Upgraded Interface Cable Assembly - Banana Plug Termination	Accessory Kit, which includes Fan-Cooled Heatsink and Upgraded Interface Cable	Heatsink with Integrated Fan
NW-PA-11C01A	NW-PA-ACC-CB09MA	NW-PA-ACC-CT09MA	NW-PA-ACC-KT01	NW-PA-ACC-HS02
NW-PA-11B02A	NW-PA-ACC-CB09MB	NW-PA-ACC-CT09MB	NW-PA-ACC-KT02	NW-PA-ACC-HS03
NW-PA-13G05A	NW-PA-ACC-CB09MC	NW-PA-ACC-CT09MC	NW-PA-ACC-KT03	NW-PA-ACC-HS05
NW-PA-05E05A				
NW-PA-12B01A	NW-PA-ACC-CB09MA	NW-PA-ACC-CT09MA	NW-PA-ACC-KT01	NW-PA-ACC-HS02
NW-PA-12B01A-D30				
NW-PA-12A01A				
NW-PA-12A03A				
NW-PA-12A03A-D30				
NW-BA-12B04A	NW-BA-ACC-CB09MA	NW-BA-ACC-CT09MA	NW-BA-ACC-KT01	NW-BA-ACC-HS02
NW-BA-12C04A				

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