



NuWaves engineering

Trusted RF Solutions™

NuPower™ 12A01A Linear L- & S-Band Solid State Power Amplifier



4 Watts Linear
1.0 - 2.5 GHz

P/N: NW-PA-12A01A

(Includes NW-PA-ACC-CB09MA interface cable)

The NuPower™ 12A01A is a small, highly efficient solid state power amplifier that provides 4 watts of linear RF power to boost performance of data links and transmitters.

Based on the latest gallium nitride (GaN) technology, NuPower's greater than 20% power efficiency and 3.9 in³ form factor make it ideal for size, weight, and power-constrained broadband RF telemetry, tactical communication, and electronic warfare systems.

The NuPower 12A01A Power Amplifier accepts a nominal 0 dBm (1 mW) RF input and provides 36 dB of gain from 1.0 GHz to 2.5 GHz. This module handles both constant envelope and complex waveforms such as OFDM, QAM, DVB-T, etc.

NuPower PAs feature over-voltage protection and can operate over a wide temperature range of -40 °C to +85 °C (baseplate).

Extend your operational communication range with NuPower™ amplifiers from NuWaves Engineering.

Features

- 4 Watts RF Output Power
- 1.0 GHz to 2.5 GHz
- Small Form Factor (3.00" x 2.00" x 0.65")
- High-Efficiency GaN Technology
- 0 dBm Nominal RF Input
- Over-Voltage Protection
- Reverse Voltage Protection
- Logic On/Off Control

Benefits

- Extended Range
- Improved Link Margin
- Reduced load on DC power budget due to high efficiency operation
- Requires less volume on space-constrained platforms

Applications

- Unmanned Aircraft Systems (UAS), Group 2 & 3
- Unmanned Ground Vehicles (UGV)
- Broadband RF Telemetry
- RF Communication Systems
- Software Defined Radios

NuPower™ 12A01A Power Amplifier

Specifications

Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	32	V
Max Device Current	2.4	A
Max RF Input Power, $Z_L = 50 \Omega$	10	dBm
Max Operating Temperature	60	°C
Max Storage Temperature	85	°C

Export Classification
EAR99

Electrical Specifications @ 28 VDC, 25 °C, $Z_S=Z_L=50 \Omega$

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	1000		2500	MHz	
RF Output Power	P_{SAT}	4			W	0 dBm input
Output Power @ 1dB Compression	P_{1dB}				dBm	
Small Signal Gain	G		36		dB	
Small Signal Gain Flatness	ΔG				dB	
Input VSWR	VSWR					
Nominal Input Drive Level	P_{IN}		0		dBm	
Operating Voltage	VDC	+26	28	+30	V	
Quiescent Current	I_{DQ}				A	
Operating Current	I_{DD}		0.7		A	@ 28 VDC (typ), $P_{in} = 0$ dBm
Module Efficiency					%	
Third Order Order Intercept Point	OIP3				dBm	Two tone test @ 1 MHz spacing, $P_{out} = 20$ dBm / tone)
Harmonics	2nd				dBc	
	3rd					
Output Mismatch (No Damage)				10:1		

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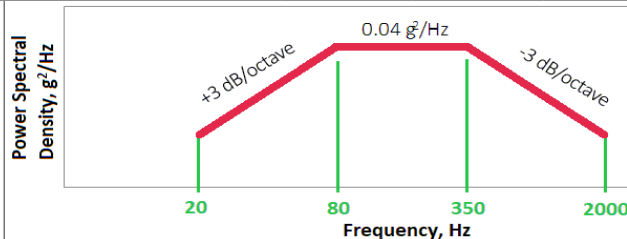
Specifications (cont.)

Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions	3.00 x 2.00 x 0.65	in	Max
Weight	3	oz	Max
RF Connectors, Input/Output	SMA Female		
Interface Connector	Micro-D, 9-pin Socket		
Cooling	Adequate Heatsink Required		

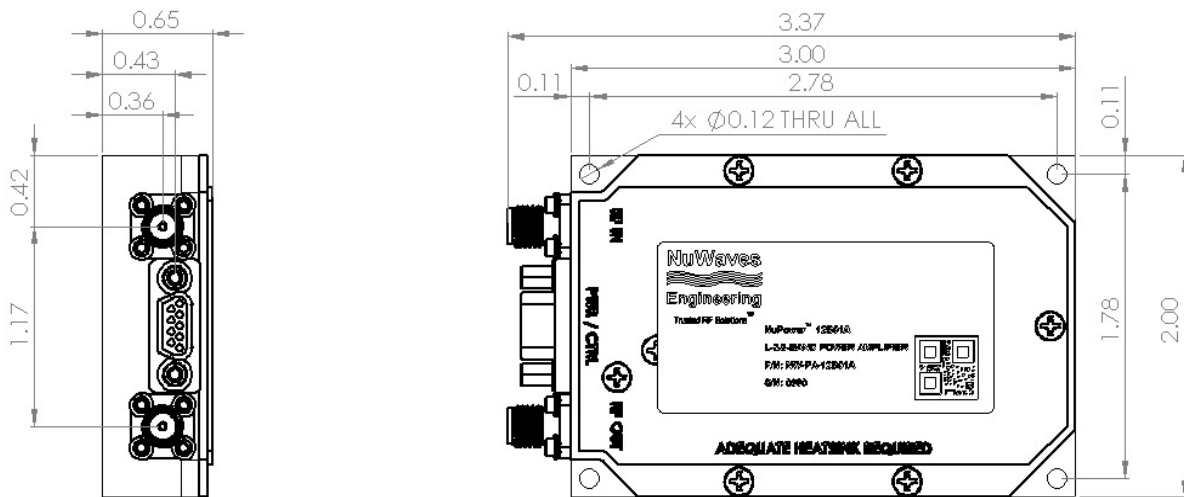
Environmental Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (ambient)	T_A	-40		+60	°C
Operating Temperature (baseplate)	T_C	-40		+85	°C
Storage Temperature	T_{STG}	-55		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude MIL-STD-810F - Method 500.4	ALT			30,000	ft
Vibration / Shock Profile (Random profile in x,y, z axis, as per Figure for 15 minute duration in each axis)					



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Mechanical Outline



Accessory Part Numbers

Part Number	Description
NW-PA-ACC-CB09MA	Standard Interface Cable Assembly - Flying Leads (included with module)
NW-PA-ACC-CT09MA	Upgraded Interface Cable Assembly - Banana Plug Termination
NW-PA-ACC-KT01	Accessory Kit, which includes Fan-Cooled Heatsink and Upgraded Interface Cable
NW-PA-ACC-HS02	Heatsink with Integrated Fan

Pinout

Function	Pin
28 Volts	1, 2
Ground	3, 4
RF Enable (GND to enable)	5
Over Temperature Flag (Low = temperature fault)	8
No Connect	6, 7, 9

For information on product disposal (end-of-life), please refer to this document: <https://nuwaves.com/wp-content/uploads/Product-Disposal-End-of-Life.pdf>

Contact NuWaves



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