NuWaves engineering

Trusted RF Solutions™

Preliminary

NuPower™ L-10-C01-S01

L-Band Power Amplifier

5 Watt CW

1700 MHz - 1850 MHz

P/N: NW-PA-L-10-C01-S01

The NuWaves' NuPower™ L-10-C01-S01 is a smart, miniature solid state power amplifier that delivers over 10 watts of RF power across the frequency range of 1700 to 1850 MHz, and features automatic gain with RF output power level adjustment.

The NuPower L-10-C01-S01 offers digital control through a simple RS-232 interface. Utilizing the onboard automatic gain control, the NuPower L-10-C01-S01 offers 17 discrete, user-programmable, output settings in 1 dB steps from the maximum RF output power level.

Based on the latest gallium nitride (GaN) technology, the NuPower L-10-C01-S01's 20 - 40% power efficiency and small 8.5 in^3 form factor make it ideal for size, weight, and power-constrained RF telemetry and tactical communication systems. The NuPower L-10-C01-S01's rugged chassis allows the system integrator to easily incorporate the unit into a platform operating in harsh environments with limited space.

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

Features

- 10 Watts RF Output Power
- 1700 to 1850 MHz
- Small form Factor (2.125" x 5" x 0.8")
- High-Efficiency GaN Technology
- Single Power Supply
- Over-Voltage Protection
- Reverse-Voltage Protection

Benefits

- Extended Range
- Improved Link Margin
- Lessened load on DC power budget due to high efficiency operation
- Consumes 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
- Test Labs

132 Edison Drive, Middletown, OH 45044 | 513.360.0800 | sales@nuwaves.com | www.nuwaves.com

NuPower™ L-10-C01-S01 Power Amplifier

Specifications

Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	32	V
Max Device Current	TBD	A
Max RF Input Power, $Z_L = 50\ \Omega$	12	dBm
Max Operating Temperature (ambient)	60	℃
Max Operating Temperature (baseplate)	85	℃
Max Storage Temperature	85	℃

Export Classification
EAR99

Electrical Specifications @ 28 VDC, 25 ℃, Z_S=Z_L=50 Ω

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	1700		1850	MHz	
RF Output Power	P_{SAT}	10			W	Pin = 0
Small Signal Gain	G		TBD		dB	
Small Signal Gain Flatness	ΔG				dB	Pin = -30 dBm
Power Gain Flatness					dB	Pin = 0
Input VSWR	VSWR		TBD			
Nominal Input Drive Level	P_{IN}		0		dBm	
Operating Voltage	VDC	22	28	32	V	
Quiescent (no RF) Current	I_{DQ}		0.40		A	@ 28 Volts
Operating Current	I_{DD}		TBD		A	Pin = 0
Module Efficiency			>23		%	
Third Order Order Intercept Point (Two tone test at 1 MHz spacing, Pout = 20 dBm / tone)	OIP3				dBm	
Harmonics	2nd				dBc	
	3rd					
Output Mismatch (No Damage)				10:1		All phase angles

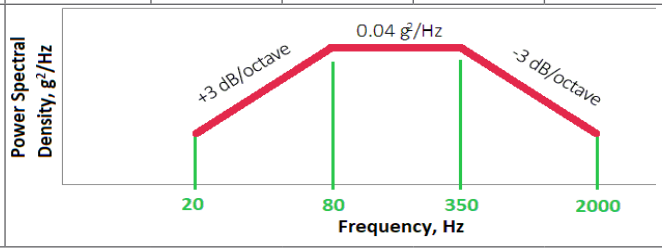
NuPower™ L-10-C01-S01 Power Amplifier

Specifications (cont.)

Mechanical Specifications

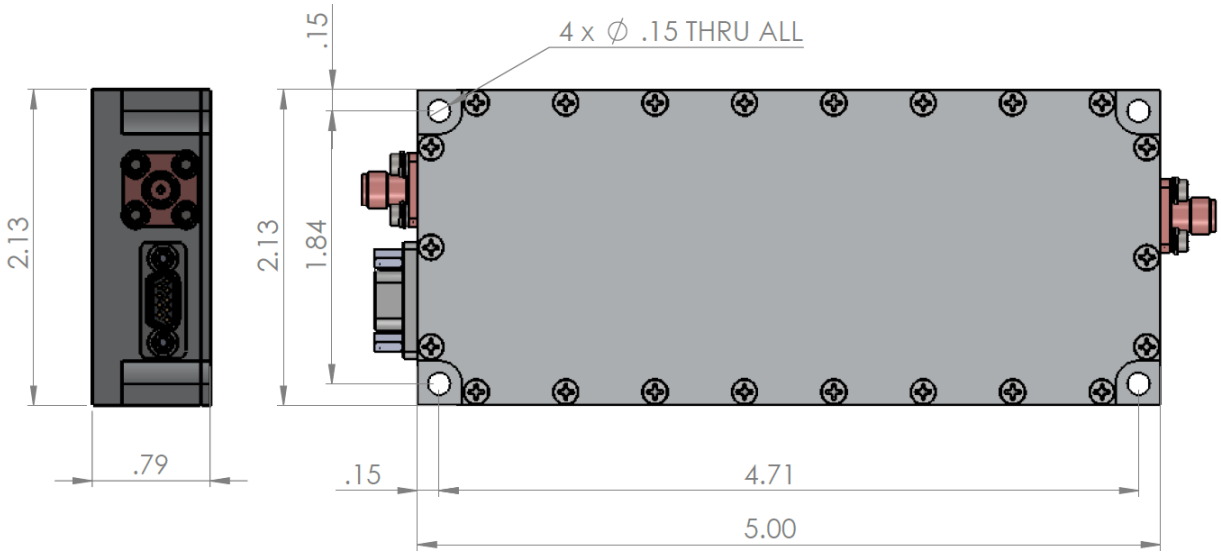
Parameter	Value	Unit	Limits
Dimensions	2.125 x 5.000 x 0.800	in	Max
Weight	10	oz	Max
RF Connectors, Input/Output	SMA Female		
Interface Connector	Micro-D, 9-Pin Socket		
Cooling	Adequate Heatsink Required		

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)					

NuPower™ L-10-C01-S01 Power Amplifier

Mechanical Outline



Accessory Part Numbers

Part Number	Description
NW-FL-05BPCV-1775-SFSF-M01	Harmonic Filter Module
NW-PA-ACC-CB09MJ	Standard Interface Cable Assembly - Flying Leads (included with module)
NW-PA-ACC-CT09MJ	Upgraded Interface Cable Assembly - Banana Plug Termination
NW-PA-ACC-KT06	Accessory Kit, which includes Fan-Cooled Heatsink and Upgraded Interface Cable
NW-PA-ACC-HS08	Heatsink with Integrated Fan

Pinout

Function	I/O	Pin
Ground	I	1, 2, 6
DC Power (+22 to +32 VDC)	I	3, 4, 5
RF Enable 0 V or GND = RF ON +5V or NC = RF OFF	I	9
Rx Data	O	7
Tx Data	I	8

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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