



**NuWaves**  
engineering

Trusted RF Solutions™

## NuPower™ L60T01 Solid State Power Amplifier

60 Watts CW,  
960 MHz to 1390 MHz  
2 Watts Linear, 4% EVM @ 33 dBm



P/N: NW-PA-L60T01

(Includes NW-PA-ACC-CB09MC interface cable)

**The NuPower™ L60T01 is a small, highly efficient, connectorized solid state power amplifier that delivers over 50 watts of RF power to extend the operational range of airborne telemetry links and transmitters.**

The NuPower L60T01 accepts a nominal 0 dBm (1 mW) RF input and provides 48 dB of gain from 960 MHz to 1390 MHz for continuous wave (CW) and near-constant envelope waveforms.

Based on the latest gallium nitride (GaN) technology, NuPower L60T01's 42% power efficiency at rated power and <math><10\text{ in}^3</math> form factor make it ideal for size, weight, and power-constrained airborne RF telemetry, tactical communication systems, and electronic warfare systems.

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

- 60 Watts RF Output Power
- 960 MHz to 1390 MHz
- Small Form Factor (4.50" x 3.50" x 0.61")
- High-Efficiency GaN Technology
- 0 dBm Nominal RF Input
- Over-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

- Airborne RF Telemetry
- RF Communication Systems
- Electronic Warfare - Airborne Electronic Attack
- Unmanned Aircraft Systems (UAS)
- Unmanned Ground Vehicles (UGV)
- Software Defined Radios

# NuPower™ L60T01 Power Amplifier

## Specifications

### Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	32	V
Max Device Current	4.75	A
Max RF Input Power, $Z_L = 50 \Omega$	15	dBm
Max Operating Temperature (ambient)	55	°C
Max Operating Temperature (baseplate)	85	°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	960		1390	MHz	
RF Output Power	$P_{SAT}$		60		W	960 MHz - 1390 MHz, 0 dBm input
Output Power @ 1dB Compression	$P_{1dB}$		41		dBm	960 MHz
			43			1175 MHz
			43			1390 MHz
Small Signal Gain	G		61		dB	960 MHz, @ -30 dBm input
			54			1175 MHz, @ -30 dBm input
			49			1390 MHz, @ -30 dBm input
Small Signal Gain Flatness	$\Delta G$		12		dB	Pin = -30 dBm
Input VSWR	VSWR		1.9:1	2.3:1		
Nominal Input Drive Level	$P_{IN}$		0		dBm	
Operating Voltage	VDC	27	28	30	V	
Quiescent Current (RF Enable Off)	$I_{DQ}$		40		mA	
Quiescent Current (RF Enable On)	$I_{DQ}$		0.85		A	no RF applied
Operating Current	$I_{DD}$		3.6		A	Pin = 0 dBm
Module Efficiency			25		%	Pin = 0 dBm, +28 V
Switching Speed	$T_{XON/OFF}$			2	$\mu S$	10% to 90%
Third Order Intercept Point (Two tone test at 1 MHz spacing, $P_{out} = 20 \text{ dBm/ tone}$ )	OIP3		49		dBm	
Harmonics	2nd			-8	dBc	
	3rd			-17		
Output Mismatch (No Damage)				10:1		

# NuPower™ L60T01 Power Amplifier

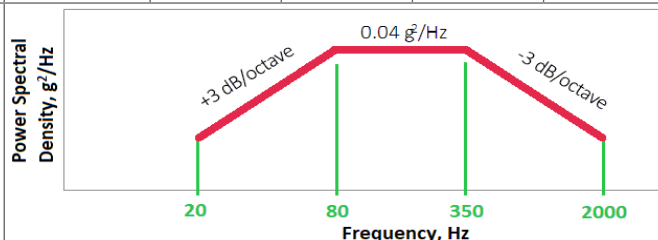
## Specifications (cont.)

### Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions	4.5 x 3.5 x 0.61	in	Max
Weight	9	oz	Max
RF Connectors, Input/Output	SMA Female		
Interface Connector	Micro-D, 9-pin Socket		
Cooling	Adequate Heatsink Required		

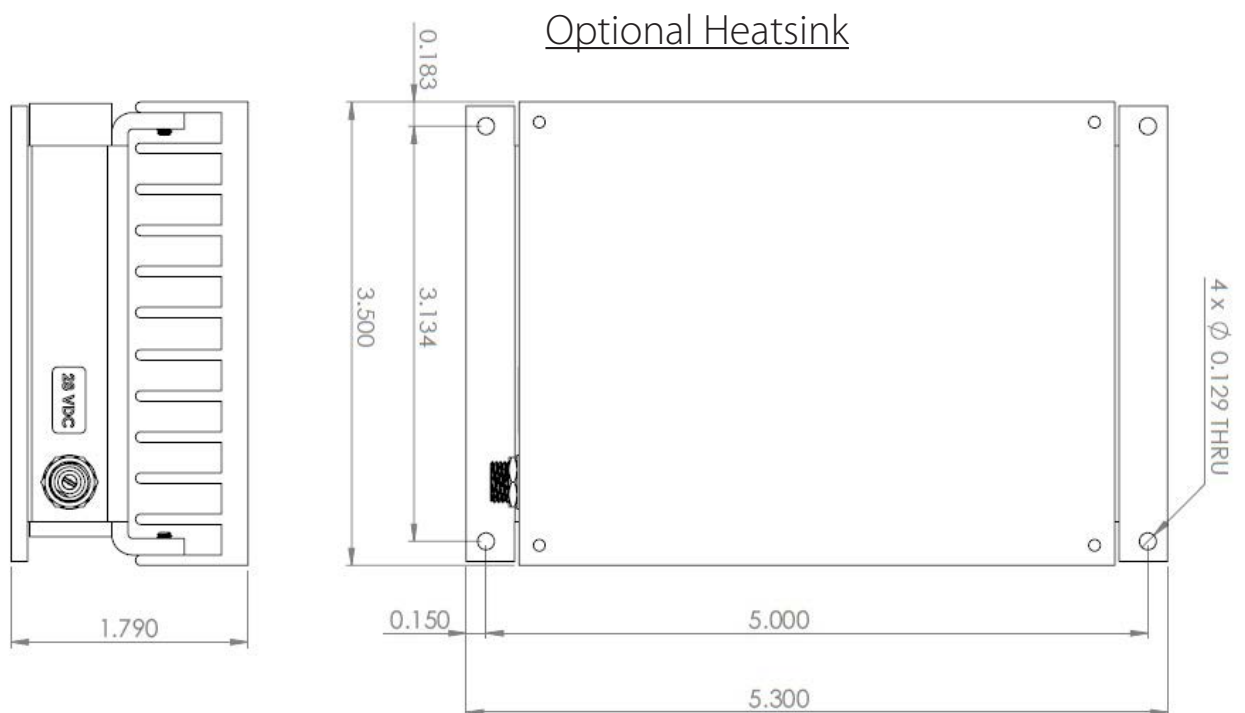
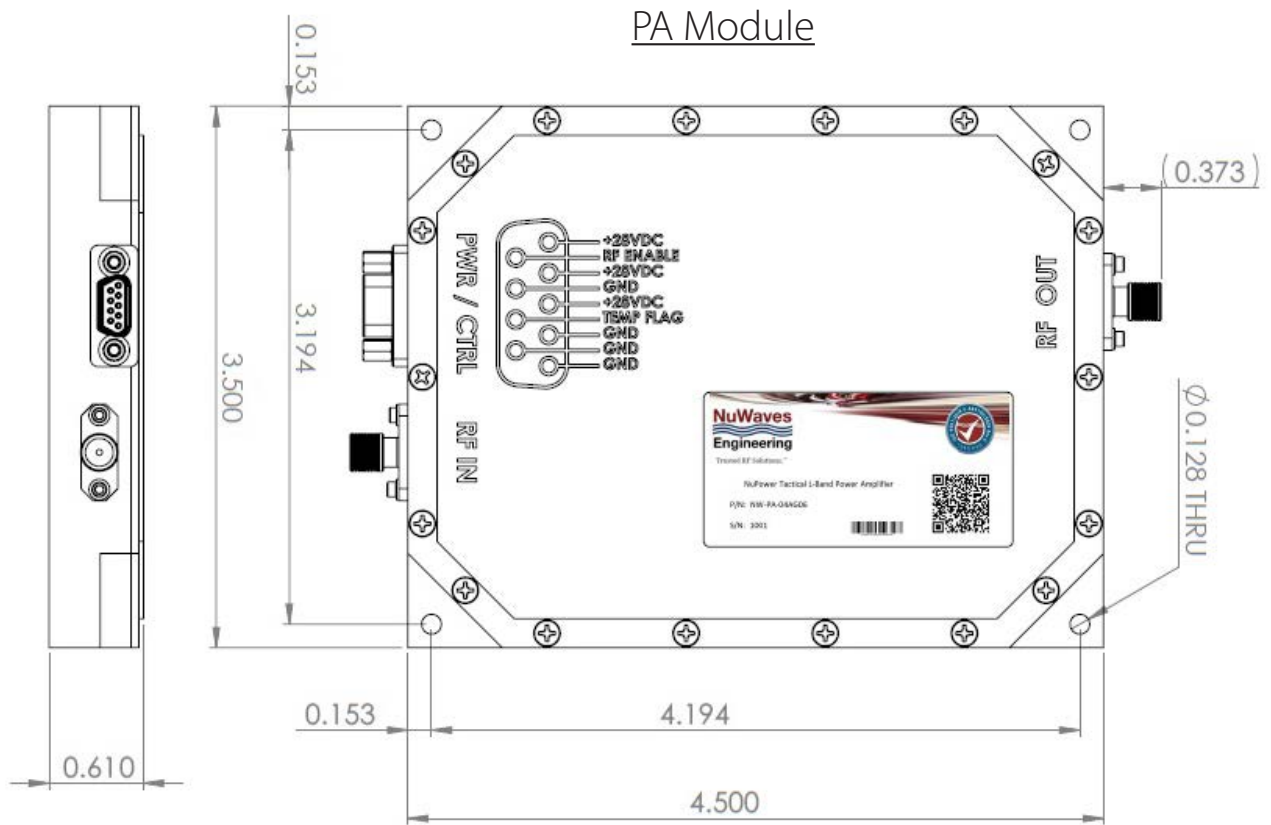
### Environmental Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (ambient)	$T_A$	-40		+55	°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)					



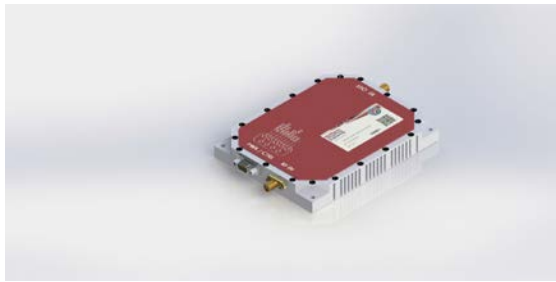
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## Mechanical Outlines

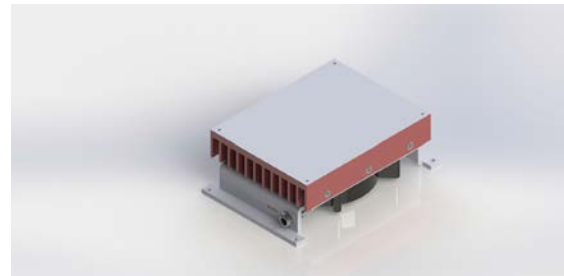


# NuPower™ L60T01 Power Amplifier

## PA Module and Accessory Images



PA Module



Optional Fan-Cooled Heatsink



PA Module w/ Fan-Cooled Heatsink

### Accessory Part Numbers

Part Number	Description
NW-PA-ACC-CB09MC	Standard Interface Cable Assembly - Flying Leads (included with module)
NW-PA-ACC-CT09MC	Upgraded Interface Cable Assembly - Banana Plug Termination
NW-PA-ACC-KT03	Accessory Kit, which includes Fan-Cooled Heatsink and Upgraded Interface Cable
NW-PA-ACC-HS05	Heatsink with Integrated Fan

### Pinout

Function	Pin	Input/Output
DC Power (+28 Volts)	3, 4, 5	Input
Ground	1, 2, 6, 8	Input
Over Temperature Flag (Low = temperature fault)	7*	Output
RF Enable (GND to enable)	9	Input

\*Temperature flag can be used to monitor thermal shutdown

\*Do not connect Temperature Flag to DC Power (+28 volt input)

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>

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