



Trusted RF Solutions™

Preliminary
NuPower™ C10Q02
C-Band Power Amplifier

10 Watt CW

5250 MHz - 5850 MHz

P/N: NW-PA-C-10-Q02

(includes NW-PA-ACC-CB09MH interface cable)



The NuWaves' NuPower™ C10Q01 is a highly efficient, miniature solid state power amplifier that delivers over 10 watts of RF power across the frequency range of 5250 to 5850 MHz.

Based on the latest gallium nitride (GaN) technology, the NuPower C10Q01's 10 - 30% power efficiency and compact 24 in³ form factor make it ideal for size, weight, and power-constrained RF telemetry and tactical communication systems. The NuPower C10Q01'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
- 5250 to 5850 MHz
- Small Form Factor (2.96" x 8.09" x 1.0")
- High-Efficiency GaN Technology
- Transmit/Standby Mode
- Single Power Supply
- Over-Voltage Protection
- Reverse-Voltage Protection
- Logic On/Off Control

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

NuPower™ C10Q02 Power Amplifier

Specifications

Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	32	V
Max Device Current	2.0	A
Max RF Input Power, $Z_L = 50 \Omega$	12	dBm
Max Operating Temperature (ambient)	60	°C
Max Operating Temperature (baseplate)	85	°C
Max Storage Temperature	85	°C

Export Classification
EAR99

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

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	5250		5850	MHz	
RF Output Power	P_{SAT}	10			W	Pin = 0 dBm
Small Signal Gain	G		30		dB	
Small Signal Gain Flatness	ΔG				dB	Pin = -30 dBm
Power Gain Flatness					dB	Pin = +10 dBm
Input VSWR	VSWR			2:1		
Nominal Input Drive Level	P_{IN}		+10		dBm	
Operating Voltage	VDC	22	28	32	V	
Quiescent (no RF) Current	I_{DQ}			200	mA	@ 28 Volts
Operating Current	I_{DD}		4.0		A	Pin = +10 dBm
Module Efficiency			28		%	
Switching Speed	$TX_{ON/OFF}$				μS	10% to 90%
Third Order Intercept Point (Two tone test at 1 MHz spacing, $P_{out} = 20 \text{ dBm} / \text{tone}$)	OIP3				dBm	
Harmonics	2nd				dBc	
	3rd					
Output Mismatch (No Damage)				10:1		All phase angles

NuPower™ C10Q02 Power Amplifier

Specifications (cont.)

Mechanical Specifications

Parameter	Value	Unit	Limits
Dimensions	2.96 x 8.09 x 1.00	in	Max
Weight	32	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)					

Power Spectral Density, g²/Hz

Frequency, Hz

0.04 g²/Hz

+3 dB/octave

-3 dB/octave

20 80 350 2000

Accessory Part Numbers

Part Number	Description
NW-PA-ACC-CB09MH	Standard Interface Cable Assembly - Flying Leads (included with module)
NW-PA-ACC-CT09MH	Upgraded Interface Cable Assembly - Banana Plug Termination

Contact NuWaves



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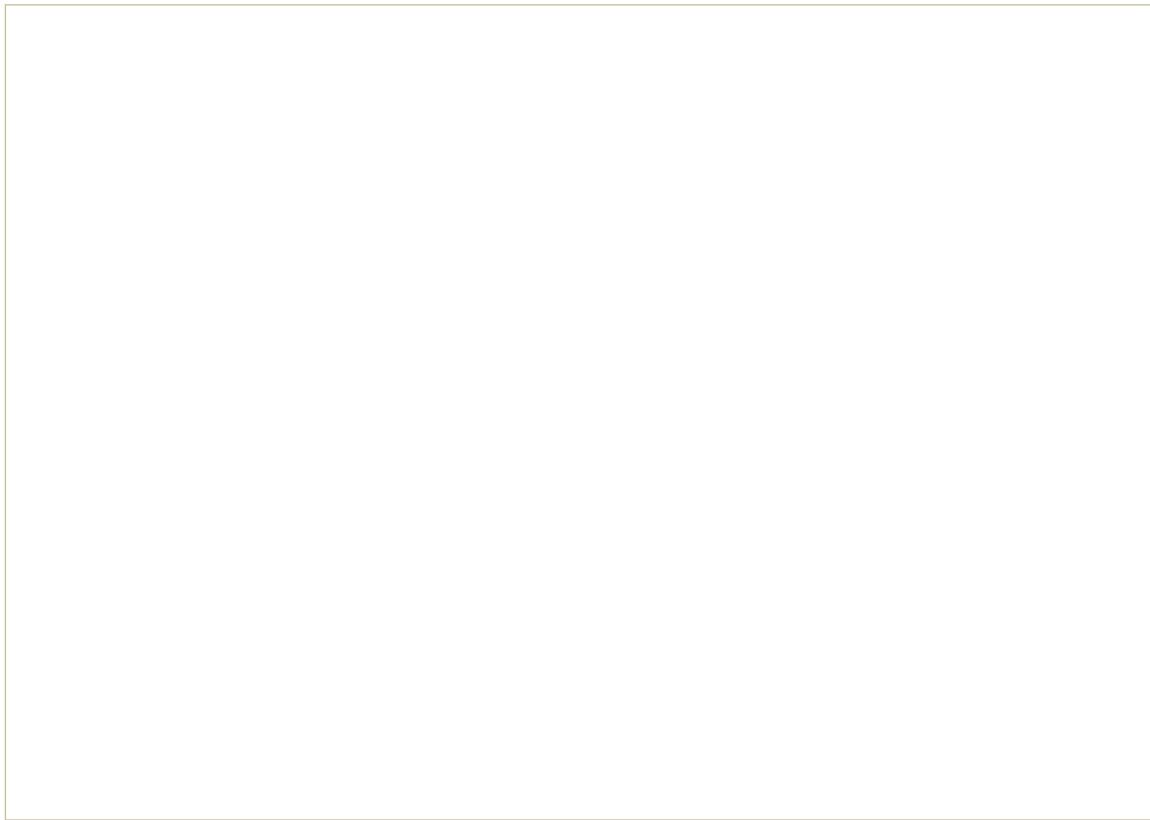
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 **NuWaves**
engineering

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NuPower™ C10Q02 Power Amplifier

Mechanical Outline



Accessory Part Numbers

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

Pinout

Function	I/O	Pin
Ground	I	
DC Power (+11 to +32 VDC)	I	
RF Enable 0V or GND = RF ON +5V or NC = RF OFF	I	
No Connect	-	
Over Temperature Flag 0V = temperature fault +5V = no fault	0	

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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