2–6 GHz 100 W GaN Broadband RF Power Amplifier Module



The LCPAM-2000-6000-100-485 is a solid-state RF power amplifier module using GaN technology. It connects to 50 Ω RF chains through an SMA female input and N female output. A hybrid 7-pin male D-Sub carries power, ground, enable and RS-485 communication.

The module monitors voltage, current, output power, reflected power and temperature, with protective shutdown under the specified conditions. It can be evaluated as a broadband power stage in RF test setups and integrated RF chains.

Electrical Specifications

+28.0 VDC, 25 °C, 50 Ω system unless otherwise stated

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	BW	2000	-	6000	MHz
Saturated RF output power	Pout	-	100	-	W
Power gain	Gp	-	50	-	dB
Operating voltage	VDC	24	28	32	VDC
Power gain flatness	Gp	-	±2	-	dB
VSWR	S11	-	1.5:1	-	-
Harmonics at 100 W	H	-	-10	-	dBc
Spurious signals	Spur	-	-60	-	dBc
Input/output impedance	Z_0	-	50	-	Ω
Power-added efficiency	PAE	-	20	-	%
Current consumption at Pout = 100 W	IDD	-	15	-	A

Monitoring and Protection

Parameter	Specification
Monitoring	Voltage, current, output power, reflected power, and temperature
Output VSWR protection	Amplifier shutdown at output VSWR between 3:1 and 3.5:1
Over-temperature protection	Amplifier shutdown above 85 °C
Supply protection	Shutdown above 32 V, below 24 V, or with accidental reverse wiring
Over-current protection	Amplifier shutdown above 20 A

Absolute Maximum Ratings

Exceeding these ratings may damage the module

Parameter	Rating
RF input drive without damage	+10 dBm
Load VSWR at Pout = 100 W	3:1 at all load phases, continuous
Thermal overload	85 °C shutdown

Environmental Specifications

The environmental figures are design targets. Confirm the applicable values for your project.

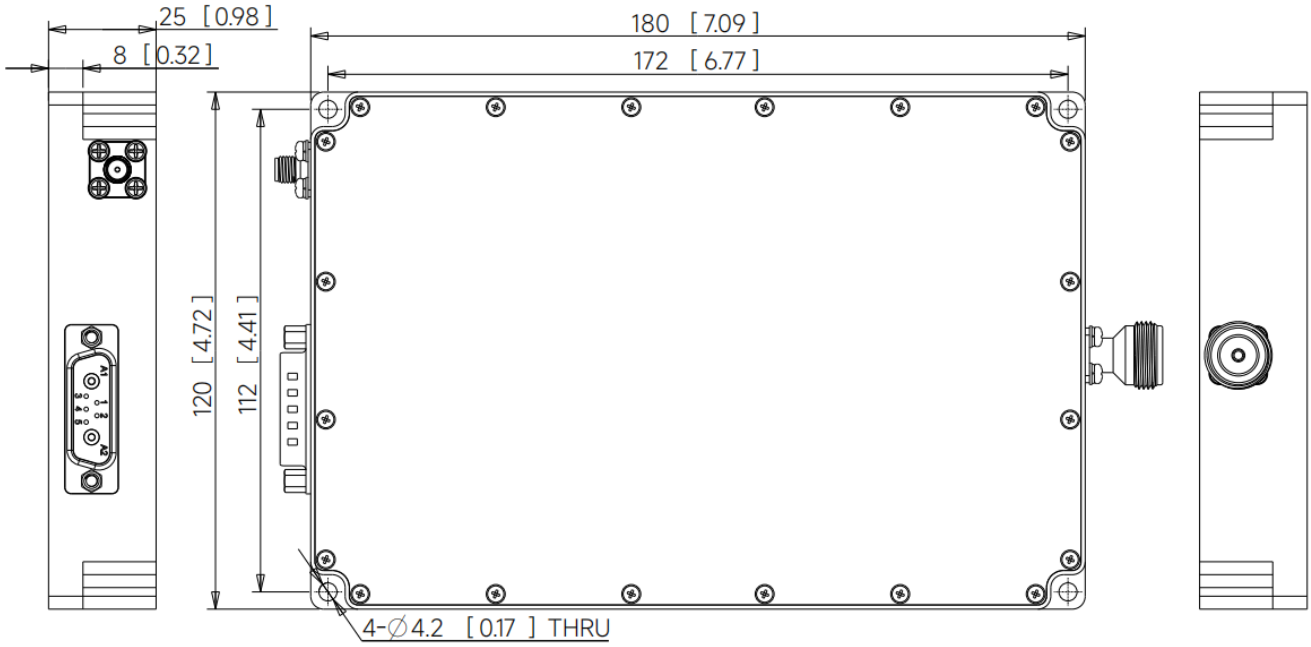
Parameter	Minimum	Typical	Maximum	Unit
Operating temperature	-20	-	50	°C
Storage temperature	-25	-	65	°C
Relative humidity (non-condensing)	-	-	95	% RH

DC and Control Interface

Pin #	Description	Specification
A1	GND	Ground
A2	VDD	+28 VDC
1	ENABLE	TTL logic high (3.3 V); internally pulled high
2	GND	Ground
3	485A	RS-485 serial communication
4	485B	RS-485 serial communication
5	NC	Not connected

Mechanical Specifications

Parameter	Value	Unit
Dimensions	180 × 120 × 25 [7.09 × 4.72 × 0.98] (Maximum)	mm [in]
Weight	2 [4.4] (Maximum)	kg [lb]
RF input connector	SMA female	-
RF output connector	N female	-
DC/control interface	Hybrid D-Sub 7-pin male	-



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Installation and Control

ENABLE is internally pulled high; the TTL high level is 3.3 V. Pins 3 and 4 carry 485A and 485B. Use the mechanical outline to plan mounting and connector clearance; establish the thermal path for the intended installation.

Performance Conditions

100 W is typical saturated output, not a guaranteed linear rating or a P1dB specification. Performance with a specific modulated waveform requires confirmation. PAE and supply current are typical values; confirm their respective operating points and thermal conditions. The stated temperature and non-condensing humidity ranges are design targets requiring project confirmation. Absolute maximum ratings do not define normal operating conditions.

Revision Note

Revision 1.4 clarifies the confirmed GaN technology and product description. RF specifications and interface configuration are unchanged. Revision 1.3 updates the model designation. RF specifications and interface configuration are unchanged.

Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.