5–6 GHz ≥100 W GaN RF Power Amplifier Module



LCPAM-5000-6000-100 is a GaN power amplifier module for RF test systems, EMC testing and measurement over 5–6 GHz. Saturated output is 100 W minimum and gain at PSAT is 50 dB minimum under the electrical test conditions of 28 VDC, 25 °C and 50 Ω.

At 100 W output, typical DC current is 12.5 A and typical power-added efficiency is 30%. RS485 telemetry reports temperature, current, output power and SWR, with temperature, current and output-mismatch protection. The RF input uses an SMA female connector and the output an N-K female connector.

Electrical Specifications

28 VDC; 25 °C; 50 Ω

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	BW	5000	-	6000	MHz
Saturated RF output power	PSAT	100	-	-	W
Power gain (PSAT)	Gp	50	-	-	dB
Power gain flatness (PSAT)	ΔGp	-	±1	-	dB
Input reflection (S11)	S11	-	-15	-	dB
Harmonics at 100 W	H	-	-20	-	dBc
Spurious signals (PSAT)	Spur	-	-60	-	dBc
Input/output impedance	-	-	50	-	Ω
Operating voltage	VDC	-	28	-	V
Power-added efficiency (100 W)	Eff	-	30	-	%
Current consumption at Pout = 100 W	IDD	-	12.5	-	A

Monitoring and Protection

Parameter	Specification
Monitoring	Temperature, current, output power and SWR via RS485
Over-temperature protection	Automatic shutdown above 85 °C; automatic restart below 60 °C
Over-current protection	Automatic shutdown above 16 A; restart after current returns to the normal range
Output VSWR protection	Shutdown above SWR 5; recheck every 3 s. If SWR remains above 5 after five checks, inspect external connections and restart the supply.

Absolute Maximum Ratings

Parameter	Rating
RF input drive without damage	+10 dBm
Load VSWR at Pout = 100 W	5:1 — All load phases and amplitudes; continuous at 100 W output
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

DC and Control Interface

Pin #	Description	Specification
1	Enable	TTL logic high (3.3 V); internally pulled low
2	RS485+	RS485 serial communication
3	RS485-	RS485 serial communication

Integration guidance

Parameter	Specification
Before integration	Confirm the supply-pin assignments and pin 4/5 functions before planning the mounting or connecting power.

Mechanical Specifications

Parameter	Value	Unit
Weight	2.5 (Maximum)	kg
Body dimensions	160 × 120 × 25 (Housing dimensions exclude protruding RF connectors and DC/control pins. Use the outline drawing to check installation clearances.)	mm
RF input connector	SMA — Female	-
RF output connector	N-K — Female	-
DC/control interface	Hybrid D-Sub 7-pin male	-

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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.