8000–12000 MHz GaN MMIC Power Amplifier Die

LCI-PA-8000-12000-PS48p5T is a GaN MMIC power amplifier supplied as bare die for 8000–12000 MHz. It supports CW and pulsed operation.

Saturated output power: 48 dBm (minimum) / 48.5 dBm (typical); Power gain: 23 dB (minimum) / 23.5 dB (typical); Power-added efficiency: 44 % (typical). Die dimensions: 4 × 5.8 × 0.1 mm.



RF characteristics

TA = +25 °C; Vd = +28 V; Vg = -2.8 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	-	8000	-	12000	MHz
Saturated output power	-	48	48.5	-	dBm
Power gain	-	23	23.5	-	dB
Power-gain flatness	-	-	-	±0.5	dB
Power-added efficiency	-	-	44	-	%
Small-signal gain	-	-	34	36	dB
Small-signal gain flatness	-	-	-	±1.5	dB
Input VSWR	-	-	1.6	2	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Drain voltage	-	-	28	32	V
Gate voltage	-	-3	-2.8	-2.4	V
Quiescent drain current	-	-	2	-	A
Dynamic drain current	-	-	6	7	A
Dynamic gate current	-	-	1	3	mA

Absolute limits

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum drain-source voltage	-	-	-	32	V
Minimum gate bias	-	-5	-	-	V
Maximum input power	-	-	-	30	dBm
Maximum channel temperature	-	-	-	225	°C

Environmental specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage temperature	-	-65	-	150	°C

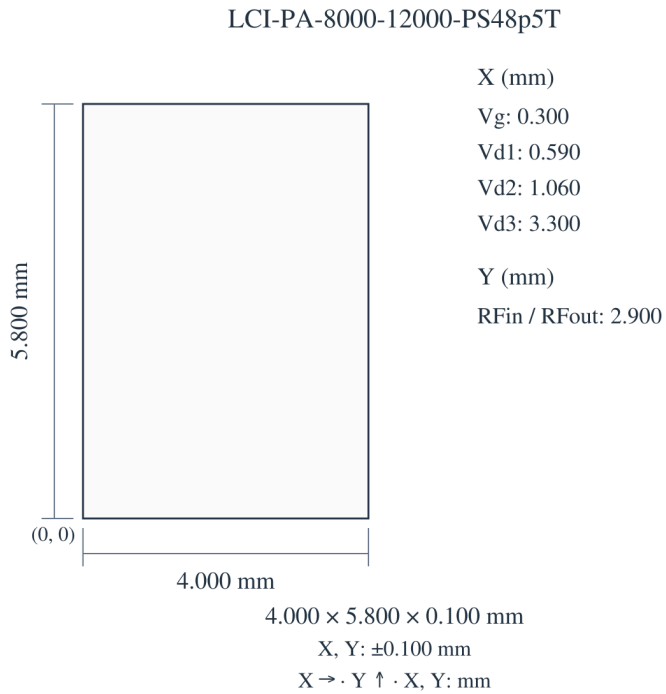
Bond-pad assignments

Pins	Symbol	mm
1	RFin	0.100 × 0.100
2, 10	Vg	0.120 × 0.100
3, 9	Vd1	0.120 × 0.100
4, 8	Vd2	0.120 × 0.100
5, 7	Vd3	0.250 × 0.100
6	RFout	0.100 × 0.120

Die dimensions

Parameter	Value	Unit
Die dimensions	4 × 5.8 × 0.1	mm

Outline and dimensioned coordinates in mm. Use this drawing as a dimensional reference. Fabrication and wire bonding require complete drawings.



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Die integration and bias sequencing

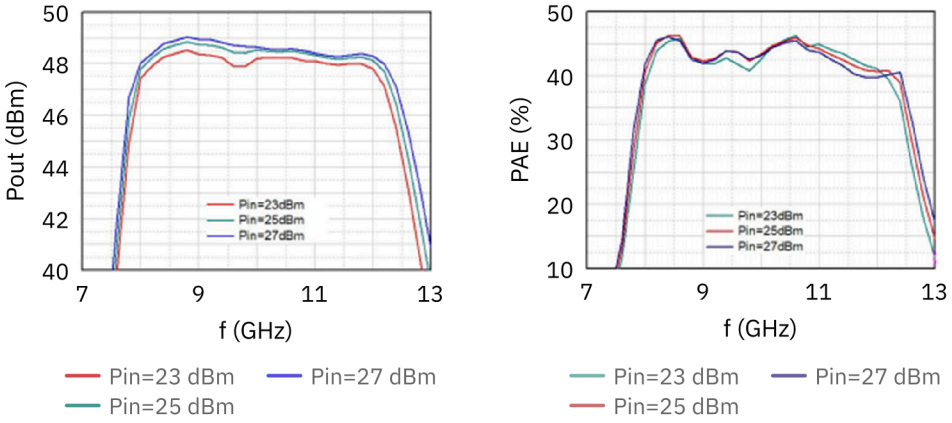
Apply the negative supply before the positive supply; remove the positive supply before the negative supply. Input and output DC-blocking capacitors are integrated. The RF input includes a DC short to ground.

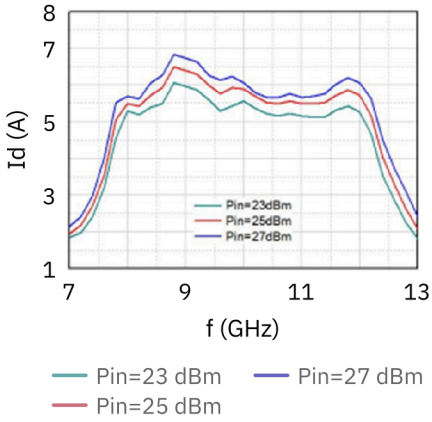
Performance curves

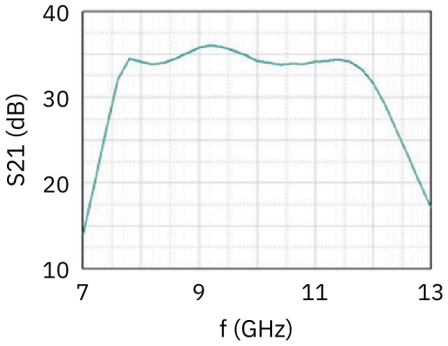
Each performance plot applies to its stated operating conditions.

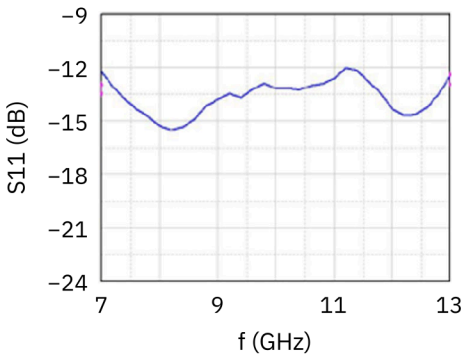
Pulsed — Output power; Power-added efficiency; Drain current; Small-signal gain; Input matching.

Figure notes: Vd=+28V; Vg=-2.8V. D = 10%; (1–3): Pin = 23 / 25 / 27 dBm. Conditions apply to the indicated plots and their own legends.



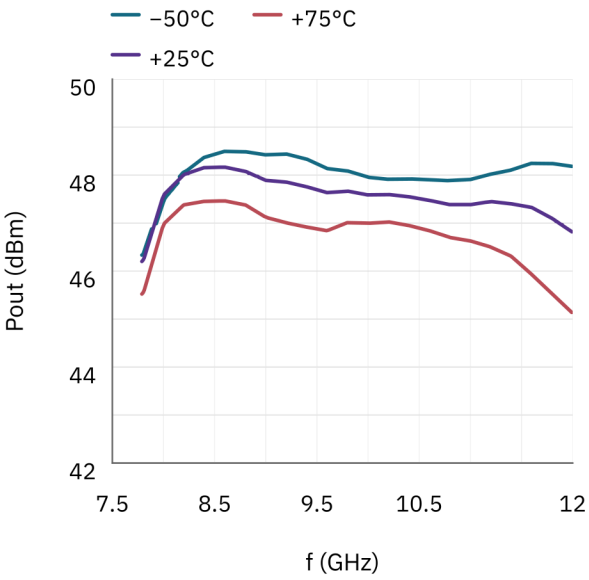


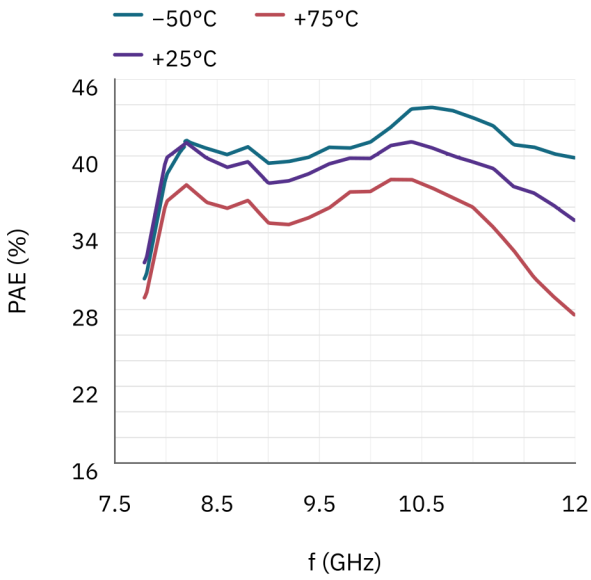


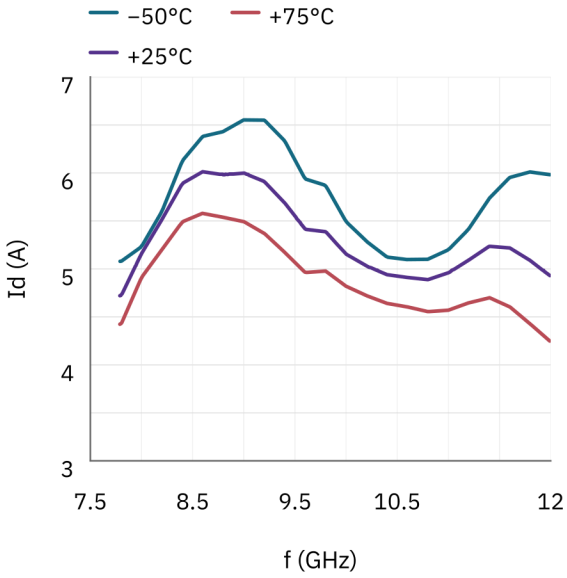


Continuous wave (CW) — Saturated output power; Power-added efficiency; Dynamic drain current.

Figure notes: Vd=+28V; Vg=-2.8V. Readings are approximate. Pin = 27 dBm; T = −50 / +25 / +75 °C. Read each trace with the conditions shown in its plot.







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.