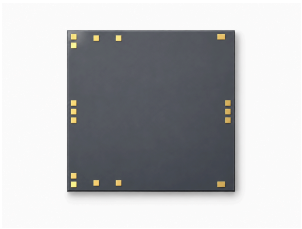
8000–12000 MHz GaN MMIC Power Amplifier Die

LCI-PA-8000-12000-PS47T-B is a GaN MMIC power amplifier supplied as bare die for 8000–12000 MHz. It supports CW and pulsed operation.

The RF table specifies: Saturated output power: 47 dBm (typical); Power gain: 25 dB (typical); Power-added efficiency: 45 % (typical). RF test conditions: TA = +25 °C; Vd = +28 V; Vg = -1.8 V. Die dimensions: 3.5 × 3.6 × 0.1 mm.



RF characteristics

TA = +25 °C; Vd = +28 V; Vg = -1.8 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	8000	-	12000	MHz
Saturated output power	Psat	46.5	47	-	dBm
Power gain	Gp	24.5	25	-	dB
Power-gain flatness	ΔGp	-	-	±0.5	dB
Power-added efficiency	PAE	-	45	-	%
Small-signal gain	S21	-	32	34	dB
Small-signal gain flatness	ΔS21	-	-	±1.5	dB
Input VSWR	VSWR(in)	-	1.6	2	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Drain voltage	Vd	-	28	32	V
Gate voltage	Vg	-3	-1.8	-1.6	V
Quiescent drain current	Id	-	2	-	A
Dynamic drain current	Idd	-	4	4.2	A
Dynamic gate current	Igg	-	3	10	mA

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum drain-source voltage	Vd	-	-	32	V
Minimum gate bias	Vg	-5	-	-	V
Maximum input power	Pin	-	-	27	dBm
Maximum channel temperature	Top	-	-	225	°C
Storage temperature	TSTG	-65	-	150	°C

Die dimensions

Parameter	Value	Unit
Die dimensions	3.5 × 3.6 × 0.1	mm
Plan-view outline tolerance	±100 (Plan-view outline only; the source does not specify thickness tolerance.)	µm

Current publication record · 1.9 · 2026-11-12. Product description or editorial content updated. Replaces revision 1.8.

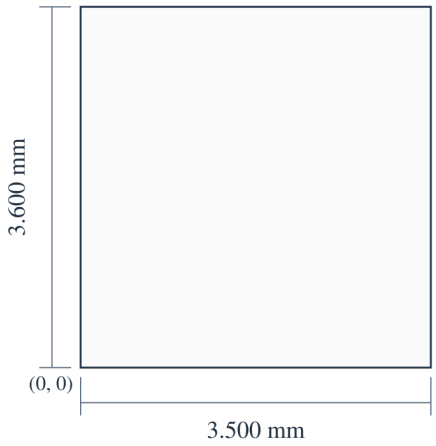
Die integration and bias sequencing

Apply gate bias before drain bias at power-up. At power-down, remove drain bias before gate bias. Use clean handling, ESD protection and a carrier with thermal expansion compatible with the SiC die.

Mechanical Outline

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

LCI-PA-8000-12000-PS47T-B



X, Y (mm)
RFin: (0.110, 1.800)
RFout: (3.390, 1.800)

X (mm)
Vg: 0.120
Vd1: 0.560
Vd2: 1.010
Vd3: 3.200

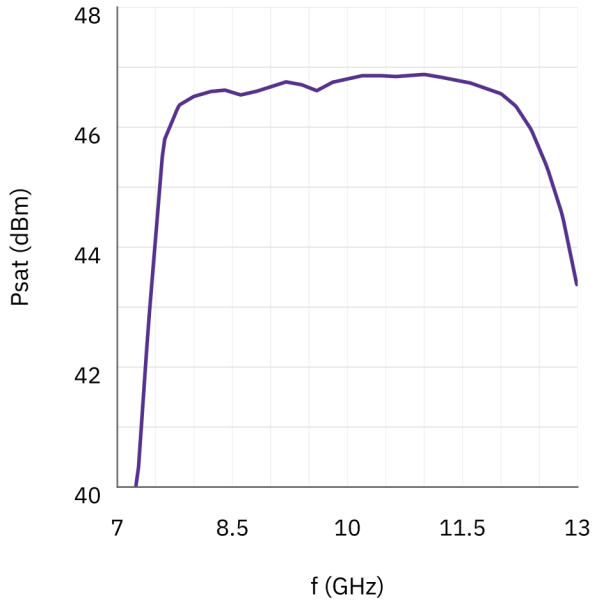
3.500 × 3.600 × 0.100 mm
X, Y: ±0.100 mm
X → · Y ↑ · X, Y: mm

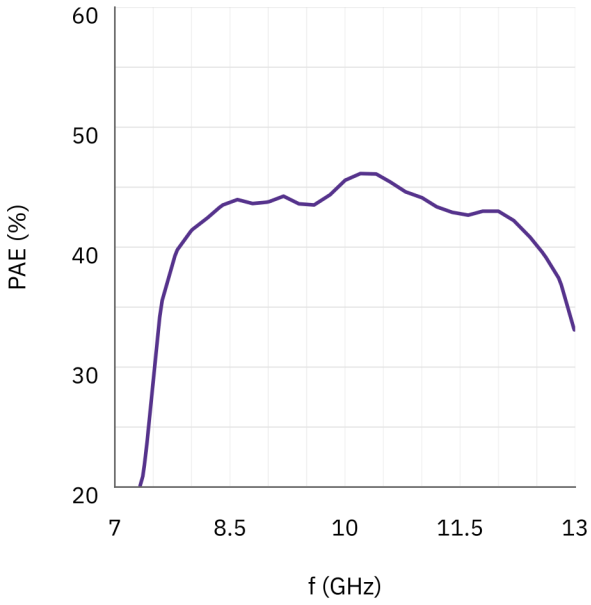
Performance curves

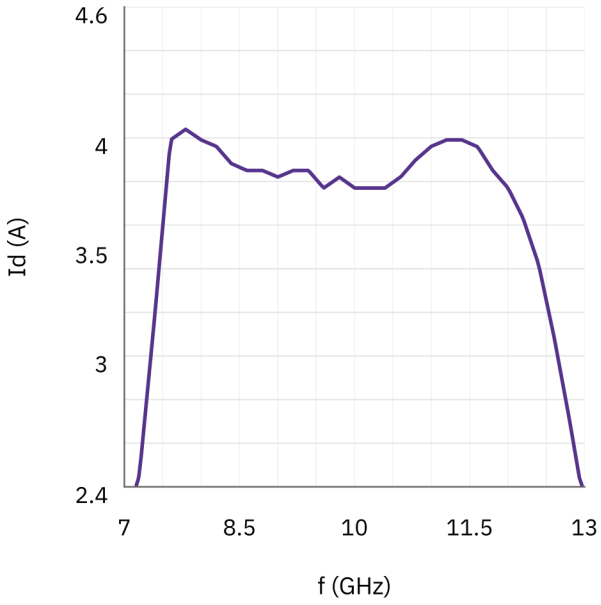
Each performance plot applies to its stated operating conditions.

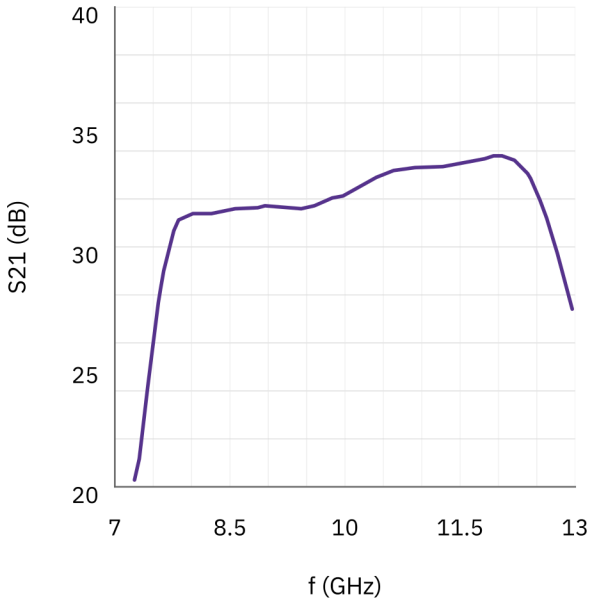
Pulsed — Saturated output power; Power-added efficiency; Dynamic drain current; Gain.

Figure notes: Vd=+28V; Vg=-1.8V. Readings are approximate. Pout / PAE / Id: Pin = 22 dBm; S21: Pin = −10 dBm. Pulse width = 100 µs; duty cycle = 10%.



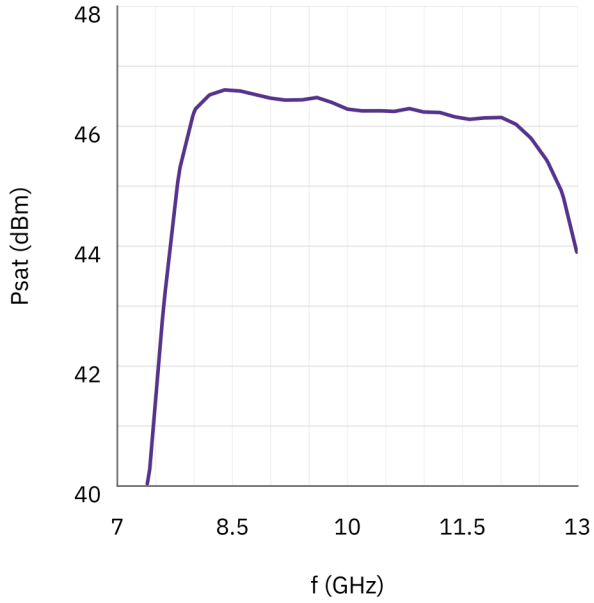


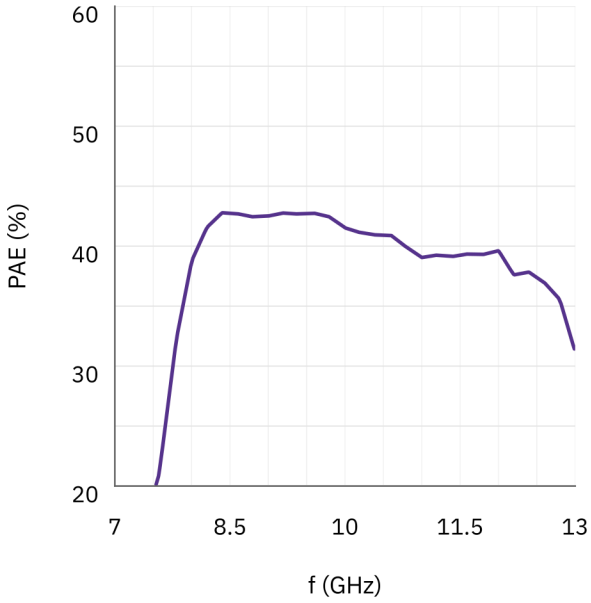


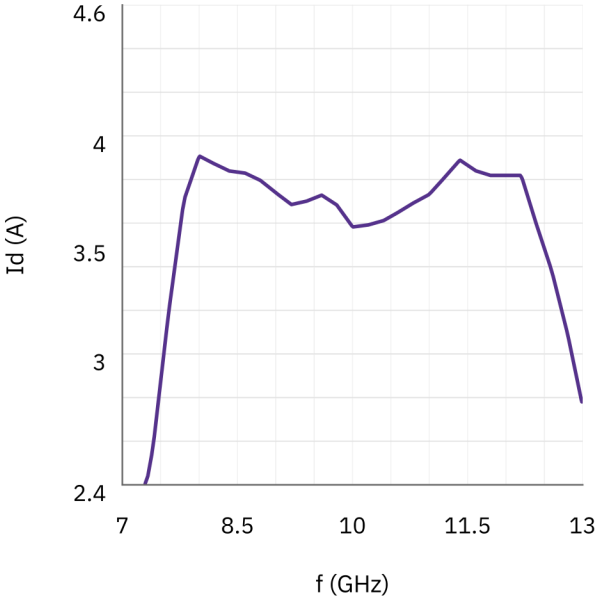


Continuous wave (CW) — Saturated output power; Power-added efficiency; Dynamic drain current.

Figure notes: Vd=+28V; Vg=-1.8V. Readings are approximate. Pin = 24 dBm.

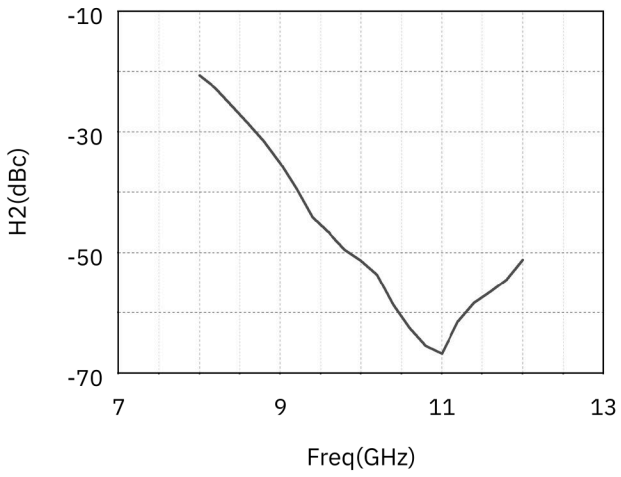


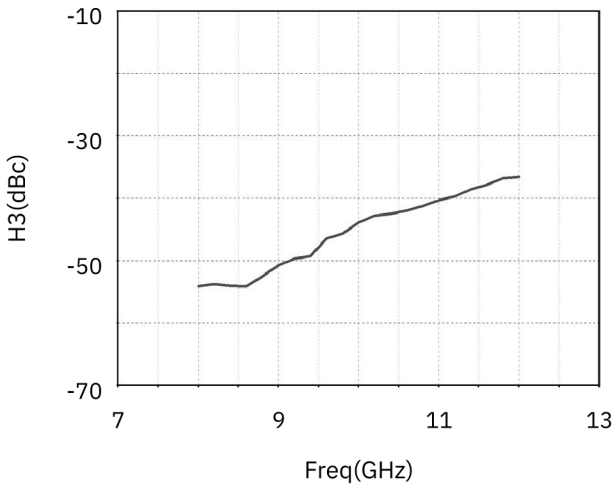




Pulsed — Harmonic rejection.

Figure notes: Vd=+28V; Vg=-1.8V. PW = 220 μs; D = 20%; Pin = 22 dBm. The frequency axis spans 7–13 GHz. The curves cover 8–12 GHz.





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.