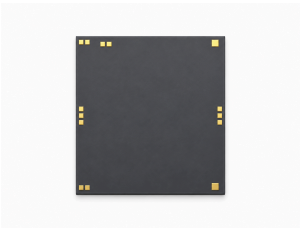
1950–4050 MHz GaN MMIC Power Amplifier Die

LCI-PA-1950-4050-PS46p5T is a GaN MMIC power amplifier supplied as bare die for 1950–4050 MHz. It supports CW and pulsed operation.



The RF table specifies: Saturated output power: 46.5 dBm (typical); Power gain: 24.5 dB (typical); Power-added efficiency: 52 % (typical). RF test conditions: TA = +25 °C; Vd = +28 V; Vg = -2.6 V; Pin = 22 dBm; τ = 100 µs; D = 10%. Die dimensions: 3.56 × 3.78 mm.

RF characteristics

TA = +25 °C; Vd = +28 V; Vg = -2.6 V; Pin = 22 dBm; τ = 100 µs; D = 10%

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	1950	-	4050	MHz
Saturated output power	Psat	46	46.5	-	dBm
Power gain	Gp	24	24.5	-	dB
Power-gain flatness	ΔGp	-	-	±0.5	dB
Power-added efficiency	PAE	47	52	-	%
Small-signal gain	S21	32	33.5	35	dB
Small-signal gain flatness	ΔS21	-	-	±1.5	dB
Input VSWR	VSWR(in)	-	1.8	2	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Drain voltage	Vd	-	28	32	V
Gate voltage	Vg	-3	-2.6	-2.6	V
Quiescent drain current	Id	-	1	1.3	A
Dynamic drain current	Idd	-	3	3.6	A
Dynamic gate current	Igg	-	0.1	5	mA

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum drain-source voltage	Vd	-	-	32	V
Maximum input power	Pin	-	-	24	dBm
Maximum channel temperature	Top	-	-	200	°C
Maximum gate bias	Vg	-	-	-2.6	V
Storage temperature	TSTG	-65	-	150	°C

Die dimensions

Parameter	Value	Unit
Plan-view die dimensions	3.56 × 3.78 (Thickness is not specified.)	mm
Plan-view outline tolerance	±50 (Plan-view outline only; the source does not specify thickness tolerance.)	µm

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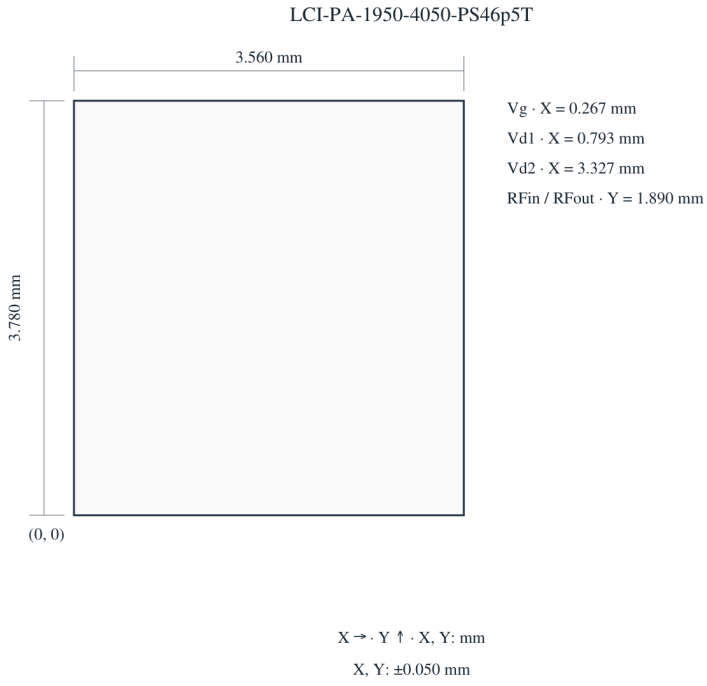
Die integration and bias sequencing

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

Bond-pad dimensions

RFin: 100 × 100 µm; Vg: 100 × 100 µm; Vd1: 120 × 100 µm; Vd2: 150 × 150 µm; RFout: 120 × 130 µm.

Mechanical Outline

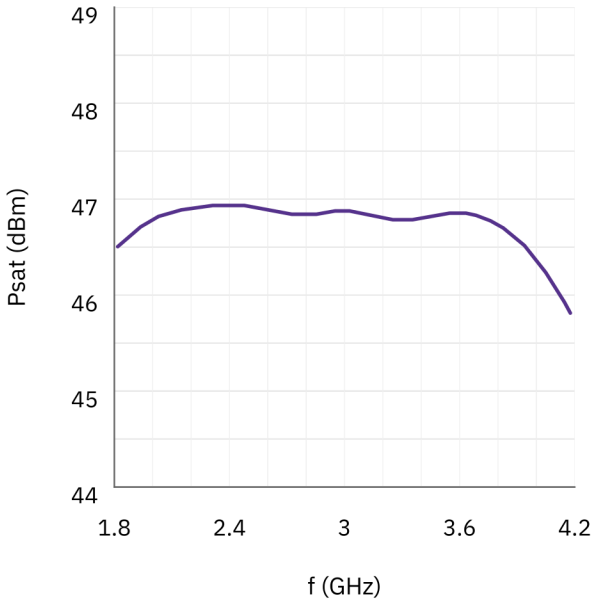


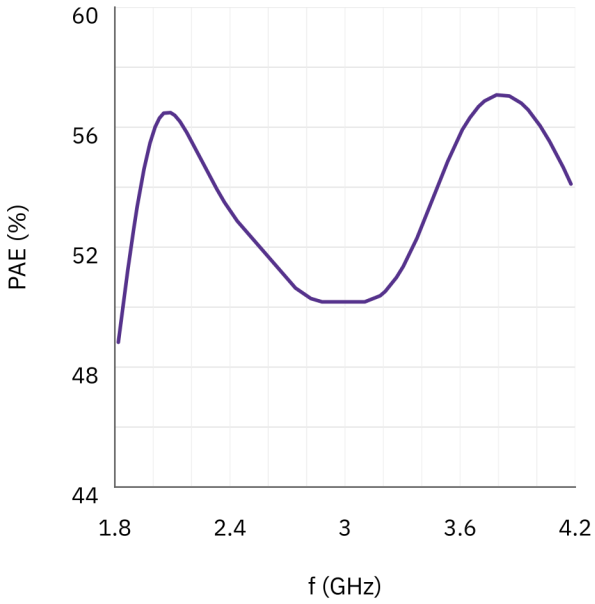
Performance curves

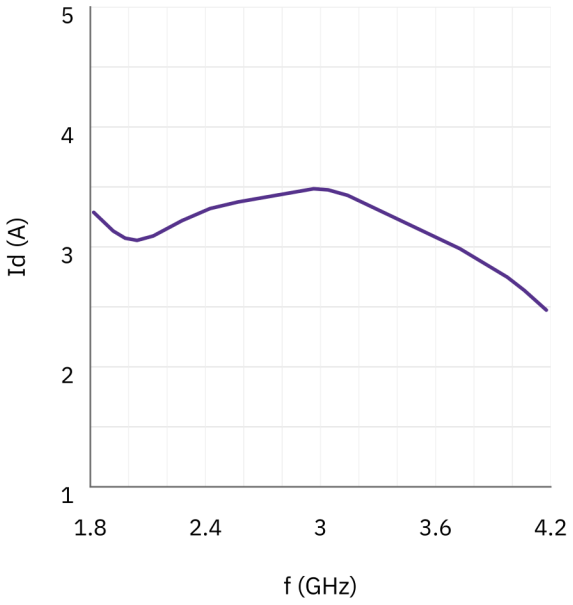
Read each figure with its stated operating conditions.

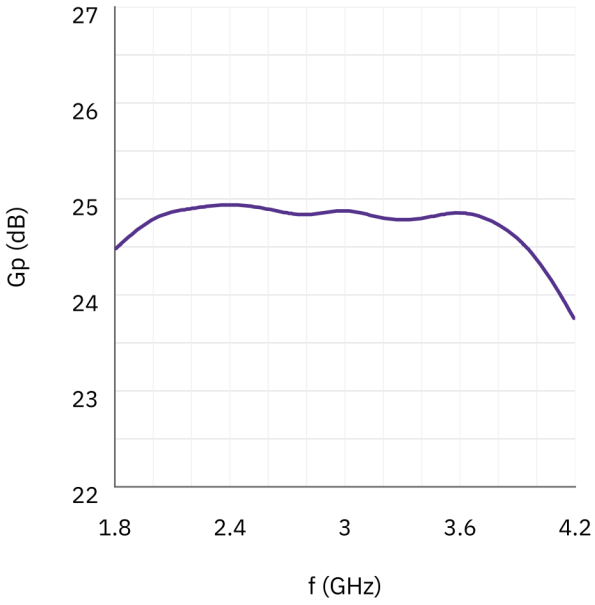
Pulsed — Saturated output power; Dynamic drain current; Power gain; Power-added efficiency.

Figure notes: TA=+25°C; Vd=+28V; Vg=-2.6V; Pin=22dBm. Readings are approximate. Pulse width = 100 µs; duty cycle = 10%.



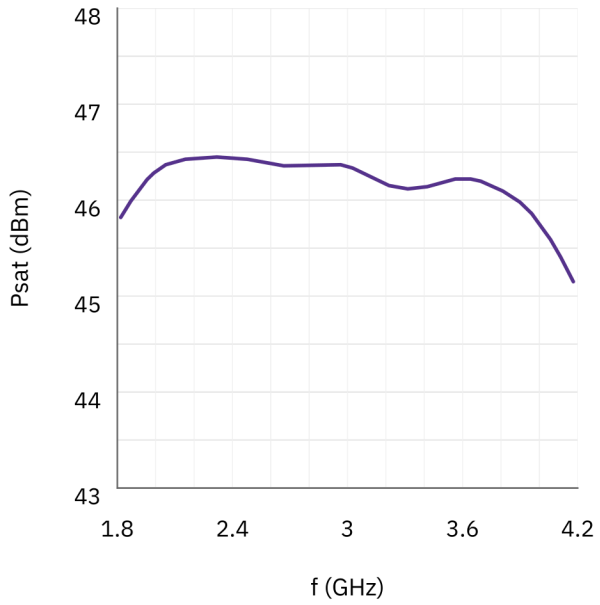


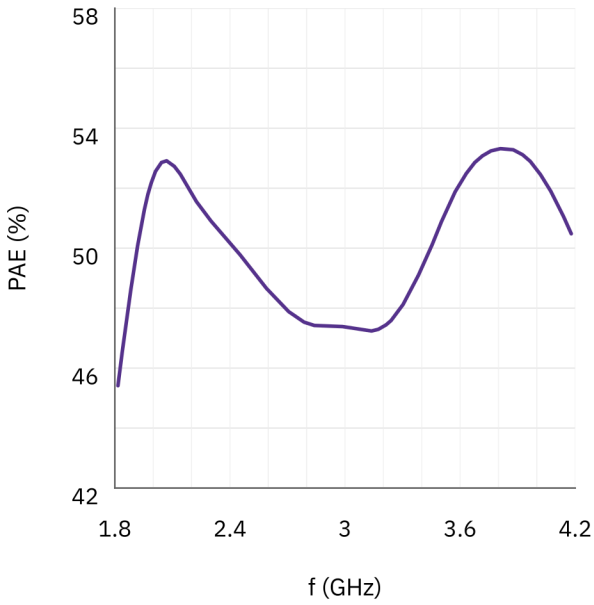


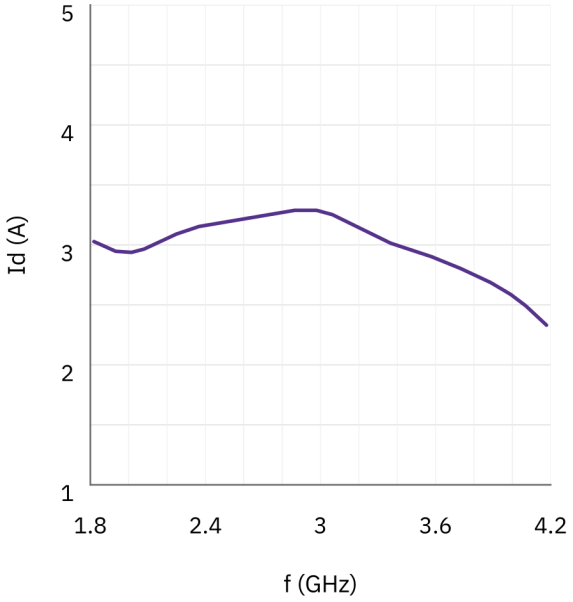


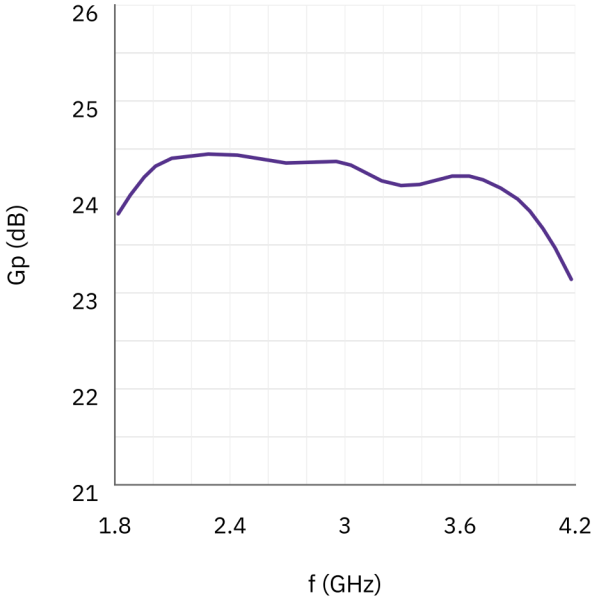
Continuous wave (CW) — Saturated output power; Dynamic drain current; Power gain; Power-added efficiency.

Figure notes: TA=+25°C; Vd=+28V; Vg=-2.6V; Pin=22dBm. Readings are approximate.









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.