10000–13000 MHz GaN MMIC Power Amplifier Die

LCI-PA-10000-13000-PS48T is a GaN MMIC power amplifier supplied as bare die for 10000–13000 MHz. It supports CW and pulsed operation.

The RF table specifies: Saturated output power: 48 dBm (typical); Power gain: 20 dB (typical); Power-added efficiency: 37 % (typical). RF test conditions: TA = +25 °C; Vd = +28 V; Id = 2.2 A. Die dimensions: 3.4 × 5.74 × 0.08 mm.



RF characteristics

TA = +25 °C; Vd = +28 V; Id = 2.2 A

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	10000	-	13000	MHz
Saturated output power	Psat	47	48	-	dBm
Power gain	Gp	19	20	-	dB
Power-gain flatness	ΔGp	-	-	±1	dB
Power-added efficiency	PAE	35	37	-	%
Input VSWR	VSWR(in)	-	2	-	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Drain voltage	Vd	24	28	30	V
Gate voltage	Vg	-5	-2.8	-2.6	V
Quiescent drain current	Id	-	2.2	-	A
Dynamic drain current	Idd	-	7	-	A
Dynamic gate current	Igg	-	0.5	5	mA

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Minimum gate bias	Vg	-5	-	-	-	V
Maximum input power	Pin	-	-	29	-	dBm
Maximum channel temperature	Top	-	-	225	-	°C
Maximum drain-source voltage (CW)	Vd	-	-	28	-	V
Maximum drain-source voltage (Pulsed)	Vd	-	-	30	-	V
Storage temperature	TSTG	-65	-	150	-	°C

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Load mismatch survival	-	-	-	-	3:1	-

Die dimensions

Parameter	Value	Unit
Die dimensions	3.4 × 5.74 × 0.08	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

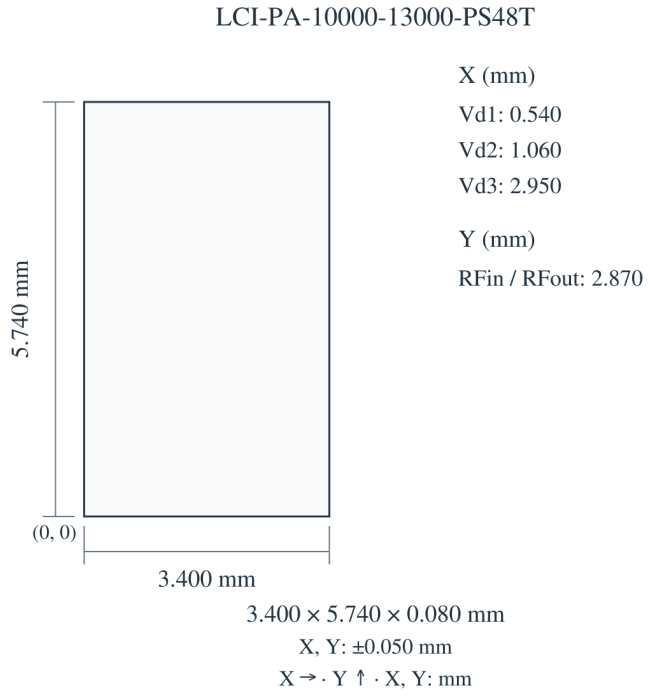
Apply gate bias before drain bias at power-up. At power-down, remove drain bias before gate bias. Use clean handling, ESD protection and a carrier with thermal expansion compatible with the SiC die.

Bond-pad dimensions

Symbol: 1 RFin; Dimensions (µm): 100 × 120. Symbol: 2,10 Vg; Dimensions (µm): 110 × 100. Symbol: 3,9 Vd1; Dimensions (µm): 120 × 100. Symbol: 4,8 Vd2; Dimensions (µm): 120 × 100. Symbol: 5,7 Vd3; Dimensions (µm): 300 × 150. Symbol: 6 RFout; Dimensions (µm): 100 × 120.

Mechanical Outline

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

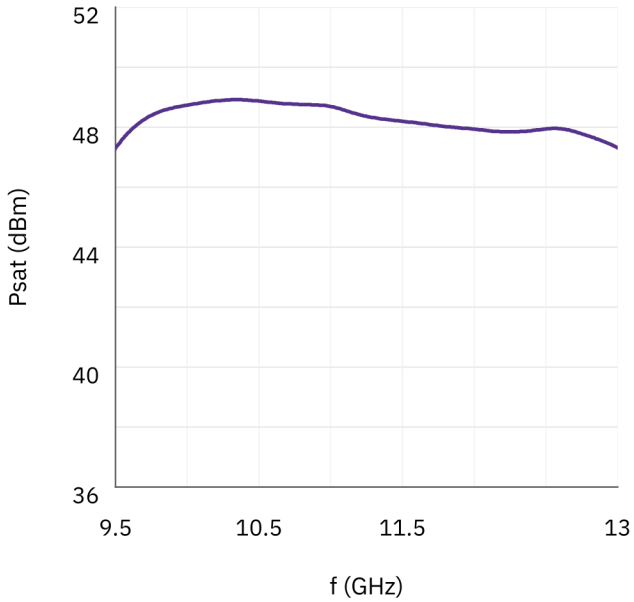


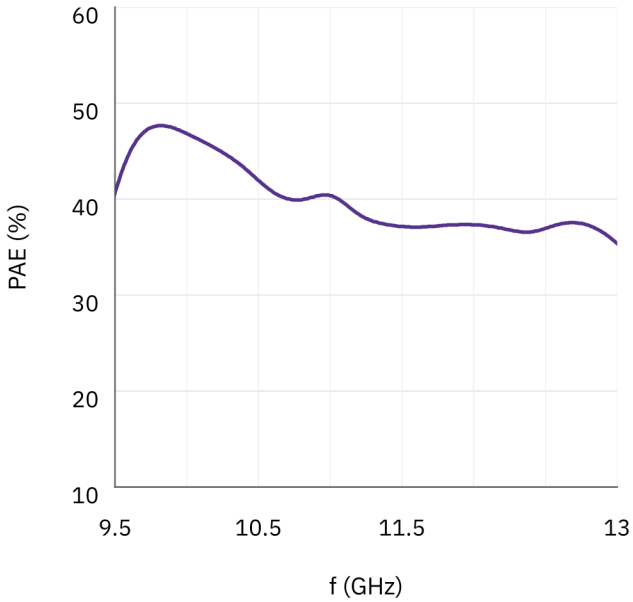
Performance curves

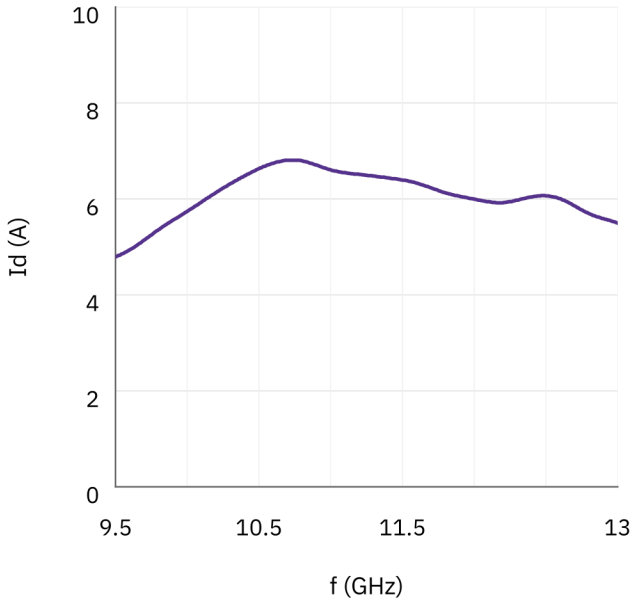
Each performance plot applies to its stated operating conditions.

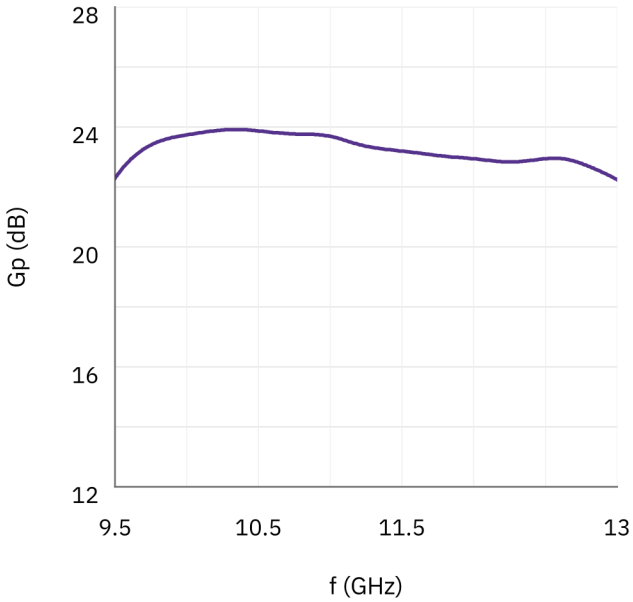
Continuous wave (CW) — Saturated output power; Power-added efficiency; Dynamic drain current; Power gain.

Figure notes: Id = 2.2 A; Vd = +28 V; Pin = 25 dBm. 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.