5000–13000 MHz GaN MMIC Power Amplifier Die

LCI-PA-5000-13000-PS42T is a GaN MMIC power amplifier supplied as bare die for 5000–13000 MHz. It supports CW and pulsed operation.

The RF table specifies: Saturated output power: 42 dBm (typical); Power gain: 20 dB (typical); Power-added efficiency: 35 % (typical). RF test conditions: TA = +25 °C; Vd = +28 V; Vg = -2.6 V. Die dimensions: 3.1 × 2.26 × 0.1 mm.



RF characteristics

TA = +25 °C; Vd = +28 V; Vg = -2.6 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	5000	-	13000	MHz
Saturated output power	Psat	-	42	-	dBm
Power gain	Gp	-	20	-	dB
Power-gain flatness	ΔGp	-	-	±0.5	dB
Power-added efficiency	PAE	-	35	-	%
Input VSWR	VSWR(in)	-	-	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	-2.6	-2.2	V
Quiescent drain current	Id	-	0.7	-	A
Dynamic drain current	Idd	-	1.8	2	A
Dynamic gate current	Igg	-	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
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	3.1 × 2.26 × 0.1	mm
Plan-view outline tolerance	±100 (Plan-view outline only; the source does not specify thickness tolerance.)	µm

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Die integration and bias sequencing

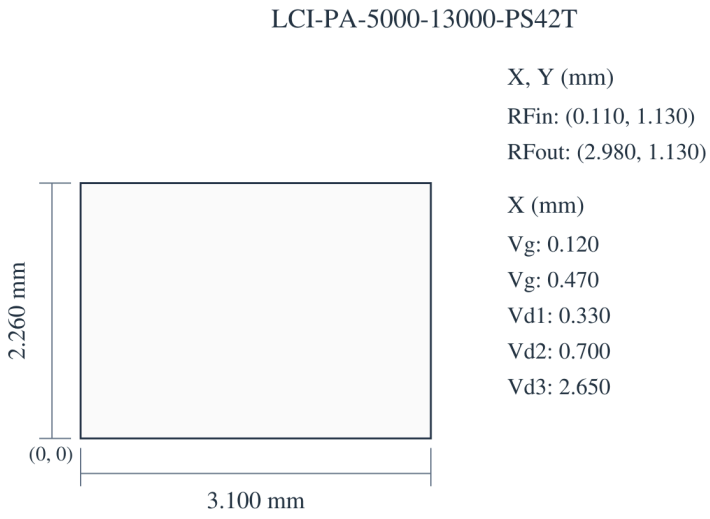
Apply gate bias before drain bias at power-up. At power-down, remove drain bias before gate bias. Use clean handling, ESD protection and a carrier with thermal expansion compatible with the SiC die.

Bond-pad dimensions

Symbol: RFin; Dimensions (µm): 150 × 150. Symbol: Vg; Dimensions (µm): 140 × 140. Symbol: Vd1; Dimensions (µm): 120 × 120. Symbol: Vd2; Dimensions (µm): 120 × 120. Symbol: Vd3; Dimensions (µm): 150 × 150. Symbol: RFout; Dimensions (µm): 150 × 150.

Mechanical Outline

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



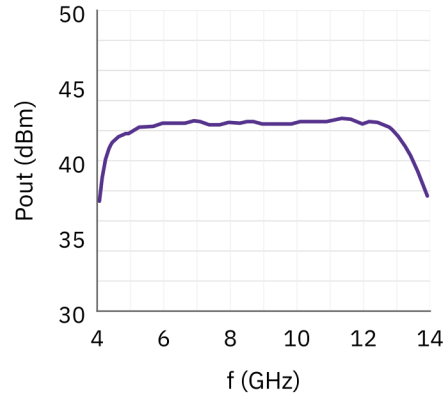
3.100 × 2.260 × 0.100 mm
X, Y: ±0.100 mm
X → · Y ↑ · X, Y: mm

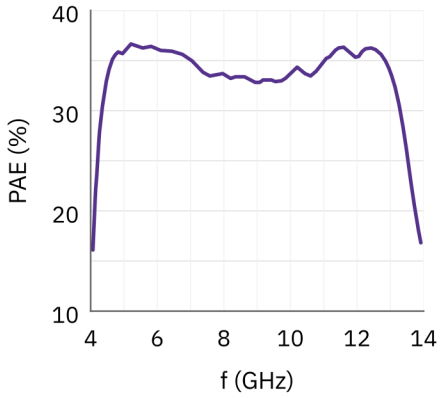
Performance curves

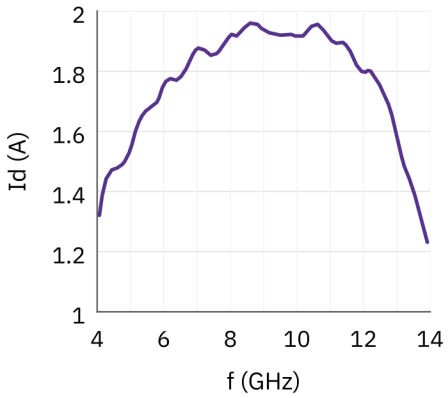
Each performance plot applies to its stated operating conditions.

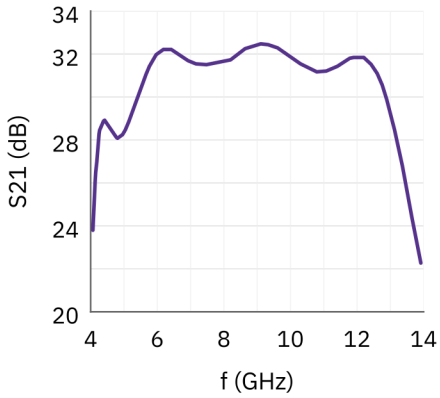
Pulsed — Saturated output power; Power-added efficiency; Dynamic drain current; Gain; Input matching.

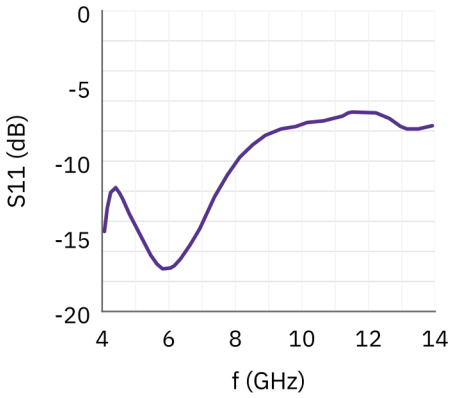
Figure notes: TA = +25°C; Vd=+28V; Vg=-2.6V. Readings are approximate. Pout / PAE / Id: Pin = 22 dBm; S21 / S11: Pin = −10 dBm. Pulse width = 100 µs; duty cycle = 10%.











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.