8500–10500 MHz GaN MMIC Power Amplifier Die

LCI-PA-8500-10500-PS47p8T is a GaN MMIC power amplifier supplied as bare die for 8500–10500 MHz. It supports CW and pulsed operation.

The RF table specifies: Saturated output power: 47.8 dBm (typical); Power gain: 21.8 dB (typical); Power-added efficiency: 47 % (typical). RF test conditions: TA = +25 °C; Vd = +28 V; Vg = -2.6 V. Die dimensions: 4 × 5.1 × 0.08 mm.



RF characteristics

TA = +25 °C; Vd = +28 V; Vg = -2.6 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	8500	-	10500	MHz
Saturated output power	Psat	47	47.8	-	dBm
Power gain	Gp	21	21.8	-	dB
Power-gain flatness	ΔGp	-	-	±0.5	dB
Power-added efficiency	PAE	40	47	-	%
Small-signal gain	S21	28	32	36	dB
Small-signal gain flatness	ΔS21	-	-	±1.5	dB
Input VSWR	VSWR(in)	-	1.5	2	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Drain voltage	Vd	-	28	-	V
Gate voltage	Vg	-3	-2.6	-1.8	V
Quiescent drain current	Id	-	2	-	A
Dynamic drain current	Idd	-	5	6	A
Dynamic gate current	Igg	-	5	20	mA

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Maximum drain-source voltage	Vd	-	-	32	-	V
Maximum input power	Pin	-	-	32	-	dBm
Maximum channel temperature	Top	-	-	150	-	°C
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	-	-	-	-	10:1	-

Die dimensions

Parameter	Value	Unit
Die dimensions	4 × 5.1 × 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

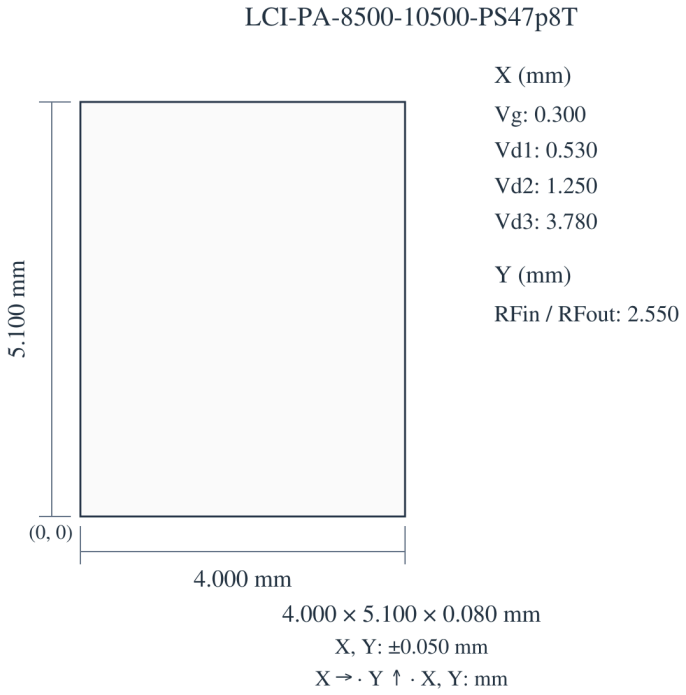
Apply gate bias before drain bias at power-up. At power-down, remove drain bias before gate bias. Use clean handling, ESD protection and a carrier with thermal expansion compatible with the SiC die.

Bond-pad dimensions

Symbol: 1 RFin; Dimensions (µm): 100 × 130. Symbol: 2,10 Vg; Dimensions (µm): 170 × 110. Symbol: 3,9 Vd1; Dimensions (µm): 170 × 110. Symbol: 4,8 Vd2; Dimensions (µm): 130 × 170. Symbol: 5,7 Vd3; Dimensions (µm): 300 × 150. Symbol: 6 RFout; Dimensions (µm): 90 × 130.

Mechanical Outline

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

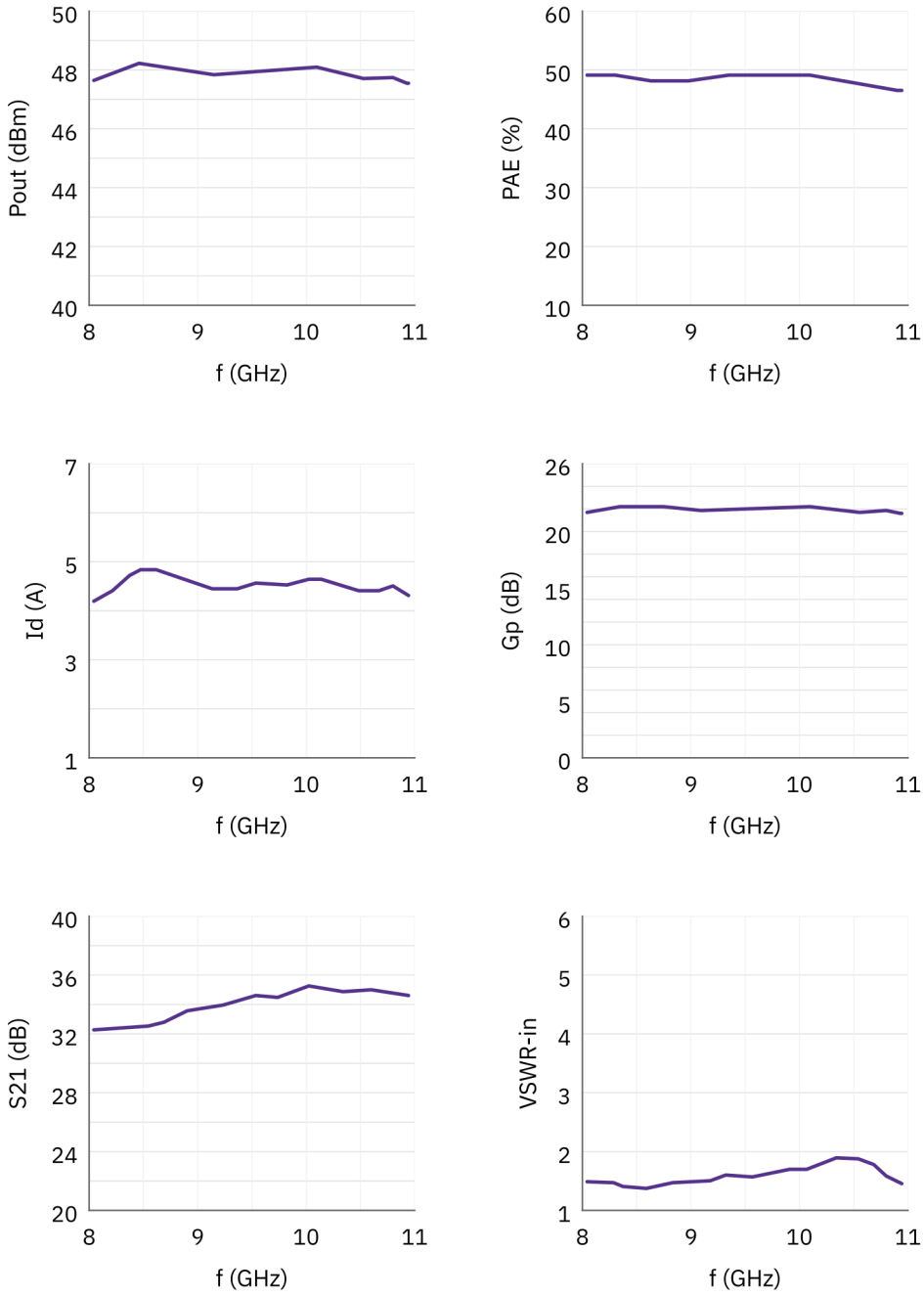


Performance curves

Each performance plot applies to its stated operating conditions.

Saturated output power; Power-added efficiency; Power gain; Dynamic drain current; Small-signal gain; Input matching.

Figure notes: Vd=+28V; Vg=-2.6V. Readings are approximate. Pout / PAE / Gp / Id: Pin = 26 dBm; S21 / VSWR-in: Pin = −10 dBm.



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.