800–4000 MHz GaAs MMIC Low-Noise Amplifier Die

LCI-LNA-800-4000-NF0p4T — 800–4000 MHz GaAs MMIC Low-Noise Amplifier Die.

Noise figure: 0.4 dB (typical); Small-signal gain: 32 dB (typical) (Vd = +5 V); Output 1 dB compression power: 15 dBm (typical) (Vd = +5 V). Die dimensions: 1.8 × 1.7 × 0.1 mm.



RF characteristics

TA = +25 °C; Vd = +5 V

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Operating frequency	-	800	-	4000	-	MHz
Output 1 dB compression power	-	-	15	-	Vd = +5 V	dBm
Small-signal gain	-	-	32	-	Vd = +5 V	dB
Small-signal gain flatness	-	-	±1.5	-	-	dB
Noise figure	-	-	0.4	-	-	dB
Input VSWR	-	-	1.1	1.6	-	-
Output VSWR	-	-	1.3	1.6	-	-

RF characteristics

TA = +25 °C; Vd = +3.3 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Output 1 dB compression power	-	-	9	-	dBm
Small-signal gain	-	-	31	-	dB
Small-signal gain flatness	-	-	±1.5	-	dB
Noise figure	-	-	0.4	-	dB
Input VSWR	-	-	1.3	1.6	-
Output VSWR	-	-	1.2	1.4	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating voltage	-	-	5 / 3.3	-	V
Quiescent current (Vd = +5 V) [1]	-	-	0.05	-	A
Quiescent current [2]	-	-	0.025	-	A

[1] Vd = +5 V

[2] Vd = +3.3 V

Absolute limits

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum operating voltage	-	-	-	6	V
Maximum input power	-	-	-	18	dBm
Maximum channel temperature	-	-	-	175	°C

Environmental specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage temperature	-	-65	-	150	°C

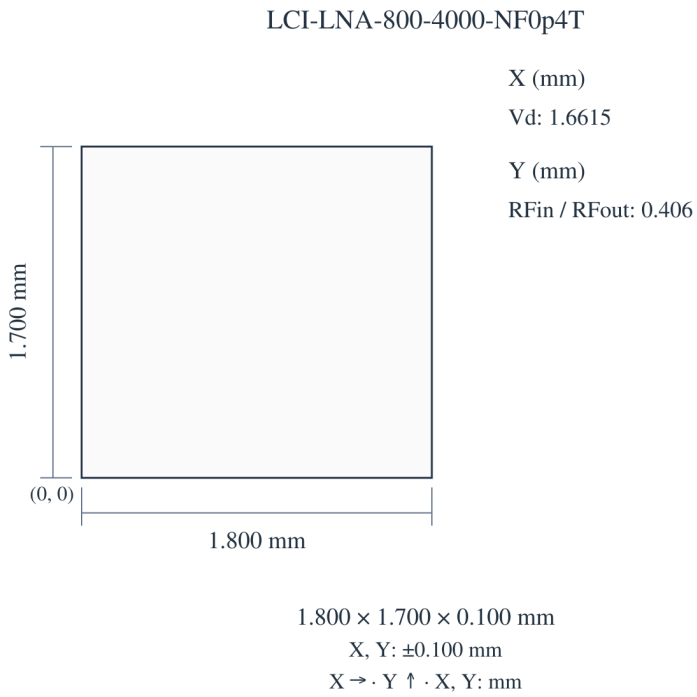
Bond-pad assignments

Pins	Symbol	mm
2	RFin	0.100 × 0.150
4	Vd	0.150 × 0.100
6	RFout	0.100 × 0.150
1, 3, 5, 7	GND	0.100 × 0.170

Die dimensions

Parameter	Value	Unit
Die dimensions	1.8 × 1.7 × 0.1	mm

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



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Die integration and bias sequencing

Input and output DC-blocking capacitors are integrated.

Pad connection notes

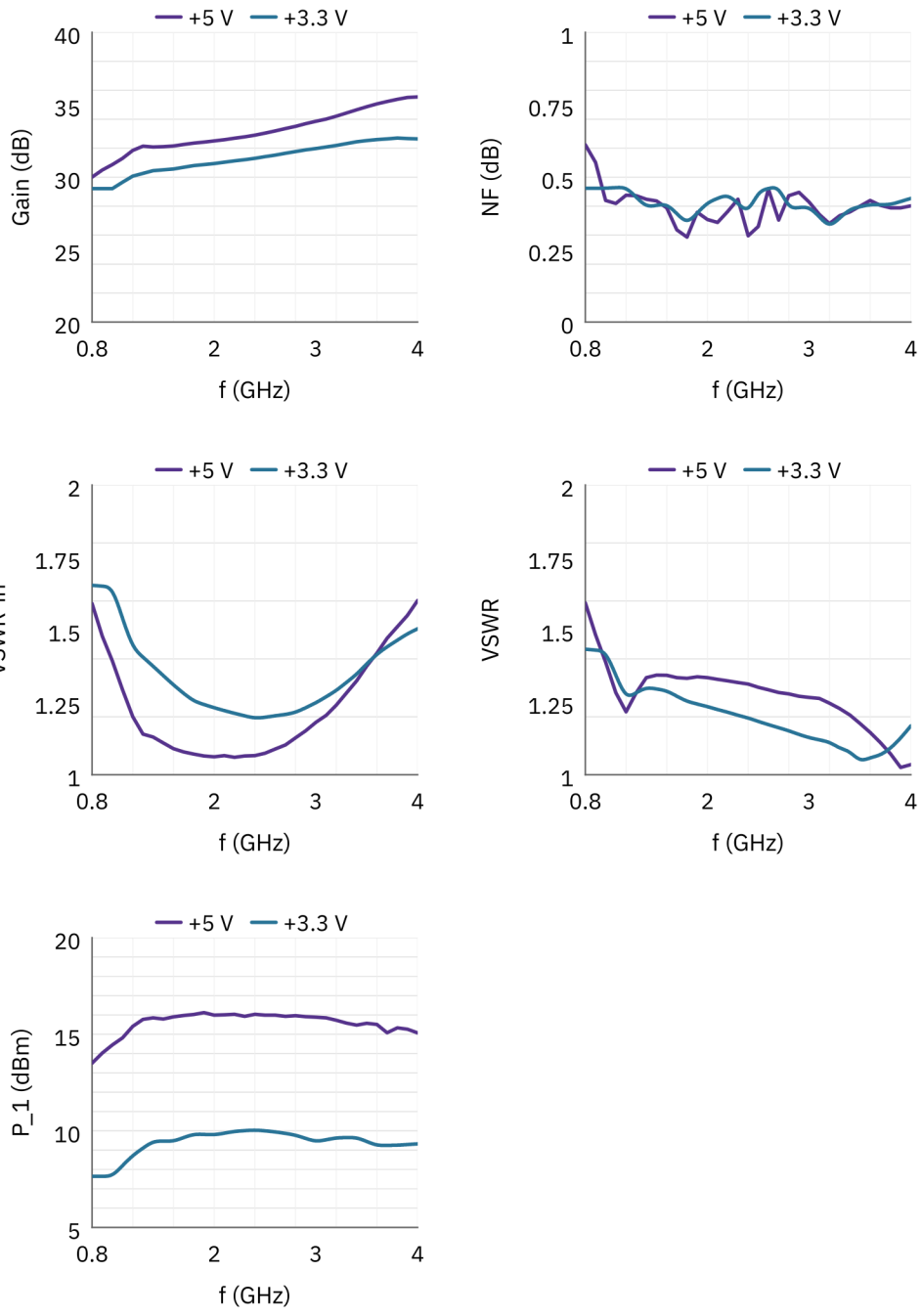
The listed GND pads are test ground pads.

Performance curves

Each performance plot applies to its stated operating conditions.

Series reference curves — P_1; Small-signal gain; Input matching; VSWR; Noise figure.

Figure notes: Vd=+5V; Pin=-40dBm. Readings are approximate. P_1 values are not specified as 1 dB compression points. Use the second VSWR plot for qualitative reference only. It does not identify a specific port. Read each trace with the conditions shown in its plot.



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.