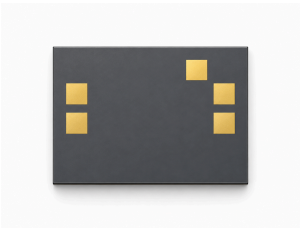
200–600 MHz GaAs MMIC Low-Noise Amplifier Die — NF 0.4 dB (typical)

LCI-LNA-200-600-NF0p4T · 200–600 MHz · GaAs MMIC Low-Noise Amplifier Die.



The RF table specifies: NF 0.4 dB (typical); Small-signal gain 28 dB (typical); P1dB 21 dBm (typical). RF test conditions: TA = +25 °C; Vd = +5 V.

Single-supply operation.

Input and output DC-blocking capacitors are integrated.

The RF pads do not require external DC-blocking capacitors; add the specified supply filtering at VDD.

L1 = 330 nH

Die dimensions: 0.9 × 0.65 × 0.1 mm.

RF characteristics

TA = +25 °C; Vd = +5 V

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Operating frequency	f	200	-	600	-	MHz
Output 1 dB compression power	P1dB	-	21	-	-	dBm
Saturated output power	Psat	-	-	-	22.5	dBm
Small-signal gain	Gain	-	28	-	-	dB
Small-signal gain flatness	ΔGain	-	±0.3	-	-	dB
Noise figure	NF	-	0.4	-	-	dB
Input VSWR	VSWR-in	-	1.4	-	-	-
Output VSWR	VSWR-out	-	1.3	-	-	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating voltage	Vd	-	5	-	V
Quiescent current	Id	-	0.07	-	A

Absolute limits

Absolute limits; these are not normal operating targets.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum operating voltage	-	-	-	6	V
Maximum input power	-	-	-	3	dBm
Storage temperature	-	-65	-	150	°C
Maximum channel temperature	-	-	-	175	°C

Die dimensions

Parameter	Value	Unit
Die dimensions	0.9 × 0.65 × 0.1	mm
Plan-view outline tolerance	±50	µm

Bond-pad assignments

Pins	Symbol	mm
1	RFin	0.100 × 0.100
2	RFout	0.100 × 0.100
3	VDD	0.100 × 0.100
4, 5	GND	0.100 × 0.100

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Integration notes

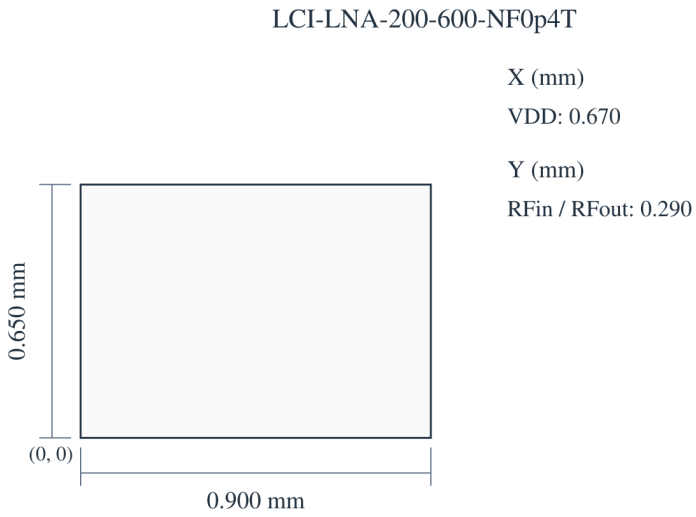
Single-supply operation. Input and output DC-blocking capacitors are integrated. The RF pads do not require external DC-blocking capacitors; add the specified supply filtering at VDD. L1 = 330 nH

Pad connection notes

The listed GND pads are test ground pads.

Mechanical Outline

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



0.900 × 0.650 × 0.100 mm
X, Y: ±0.050 mm
X → · Y ↑ · X, Y: mm

Performance curves

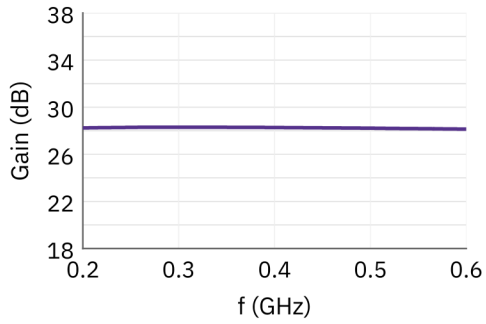
Each performance plot applies to its stated operating conditions.

Output 1 dB compression power; Small-signal gain; Input matching; Output matching; Noise figure; Saturated output power.

Figure notes: Vd=+5V; Pin=-30dBm. Readings are approximate.

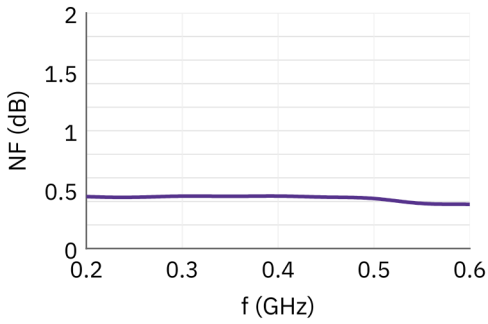
Gain

Vd = +5 V



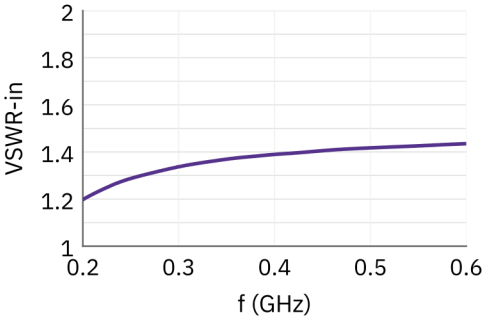
NF

Vd = +5 V



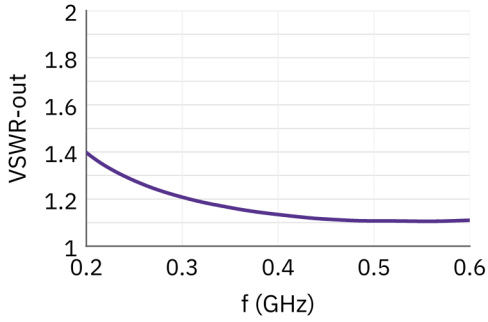
VSWR-in

Vd = +5 V



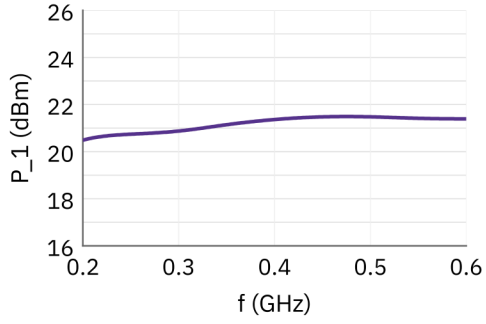
VSWR-out

Vd = +5 V



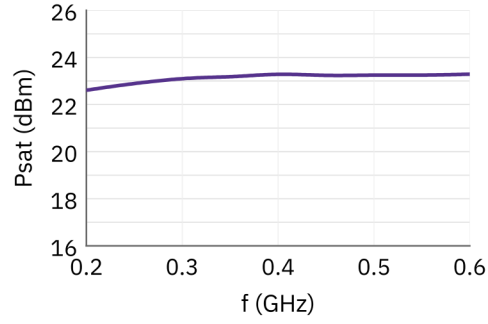
P_1,out

Vd = +5 V



Psat

Vd = +5 V



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.