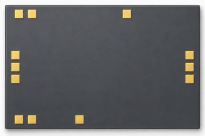
6000–18000 MHz GaAs MMIC Bidirectional Amplifier Die — Rx / Tx P1dB 21 dBm (typical)

LCI-BDA-6000-18000-RXP1DB21T · 6000–18000 MHz · GaAs MMIC Bidirectional Amplifier Die.



The RF table specifies: Rx / Tx: Rx / Tx P1dB 21 dBm (typical); Small-signal gain 19 dB (typical). RF test conditions: TA = +25 °C; Vd = +5 V.

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.

Die dimensions: 2.6 × 1.7 × 0.1 mm.

Rx: VdRx = 5 V; VdTx = 0 V; Vc1 = -5 V; Vc2 = 0 V

Tx: VdRx = 0 V; VdTx = 5 V; Vc1 = 0 V; Vc2 = -5 V

RF characteristics

TA = +25 °C; Vd = +5 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	f	6000	-	18000	MHz
Output 1 dB compression power (Rx)	-	-	21	-	dBm
Saturated output power (Rx)	-	-	22	-	dBm
Small-signal gain (Rx)	-	-	19	-	dB
Small-signal gain flatness (Rx)	-	-	±1	-	dB
Noise figure (Rx)	-	-	8	-	dB
Input VSWR (Rx)	-	-	1.4	-	-
Output VSWR (Rx)	-	-	1.4	-	-
Output 1 dB compression power (Tx)	-	-	21	-	dBm
Saturated output power (Tx)	-	-	22	-	dBm
Small-signal gain (Tx)	-	-	19	-	dB
Small-signal gain flatness (Tx)	-	-	±1	-	dB
Noise figure (Tx)	-	-	8	-	dB
Input VSWR (Tx)	-	-	1.4	-	-
Output VSWR (Tx)	-	-	1.4	-	-

DC bias and current

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating voltage	-	-	5	-	V
Quiescent current (Rx)	-	-	0.15	-	A
Quiescent current (Tx)	-	-	0.15	-	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	-	-	-	10	dBm
Storage temperature	-	-65	-	150	°C
Maximum channel temperature	-	-	-	175	°C

Die dimensions

Parameter	Value	Unit
Die dimensions	2.6 × 1.7 × 0.1	mm
Plan-view outline tolerance	±50	µm

Bond-pad assignments

Pins	Symbol	mm
1	RFin	0.100 × 0.140
2	RFout	0.100 × 0.140
3	VdTx	0.100 × 0.100
4	VdRx	0.100 × 0.100
5, 7	Vc1	0.100 × 0.100
6, 8	Vc2	0.100 × 0.100
9–12	GND	0.100 × 0.100

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Integration notes

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. Rx: VdRx = 5 V; VdTx = 0 V; Vc1 = -5 V; Vc2 = 0 V Tx: VdRx = 0 V; VdTx = 5 V; Vc1 = 0 V; Vc2 = -5 V

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.

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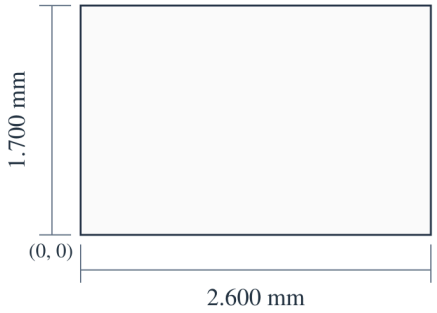


X (mm)
Vc1 (5, 7): 0.180
Vc2 (6, 8): 0.356
VdTx: 1.635
VdRx: 0.990

Y (mm)
RFin / RFout: 0.850

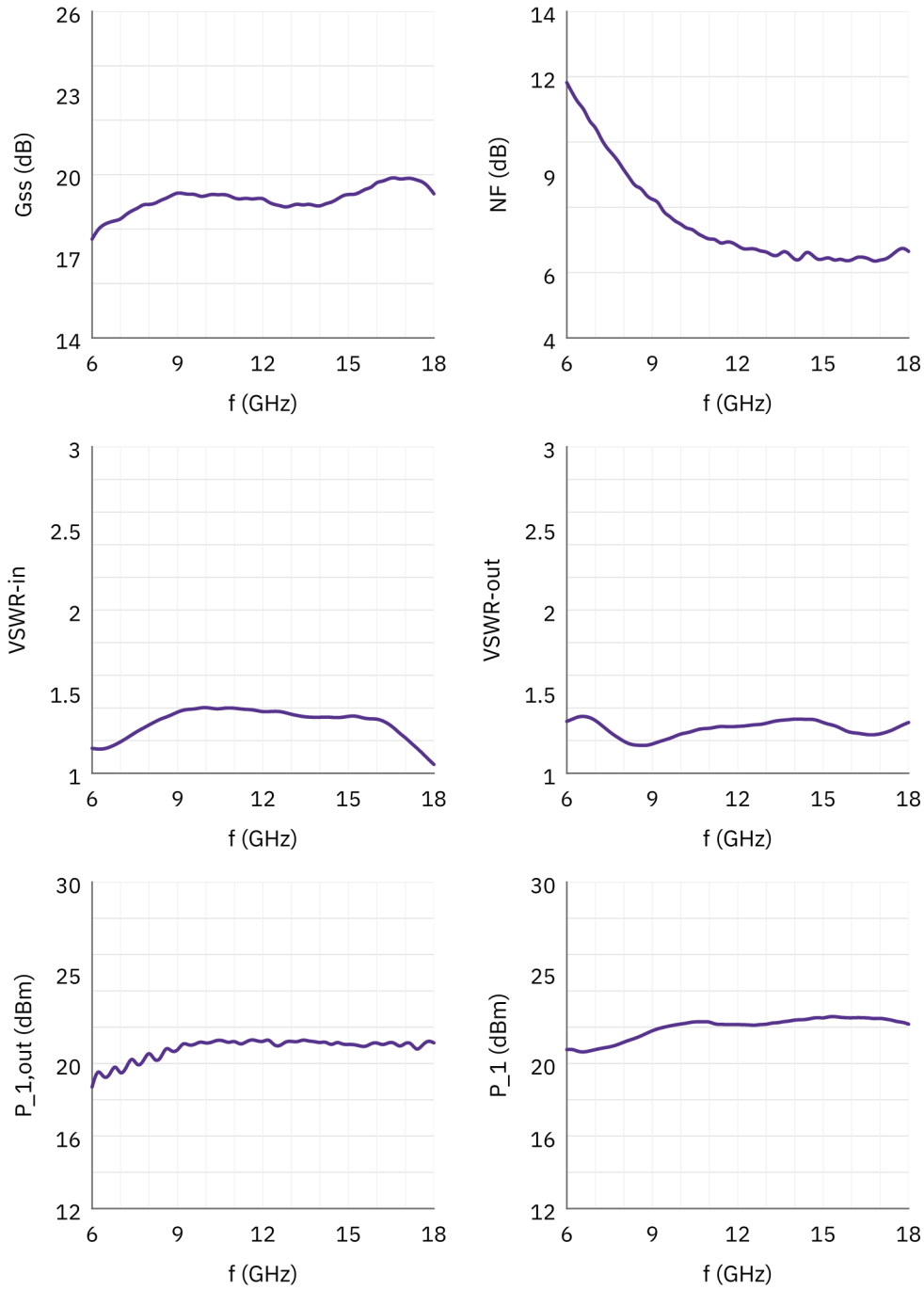
2.600 × 1.700 × 0.100 mm
X, Y: ±0.050 mm
X → · Y ↑ · X, Y: mm

Performance curves

Each performance plot applies to its stated operating conditions.

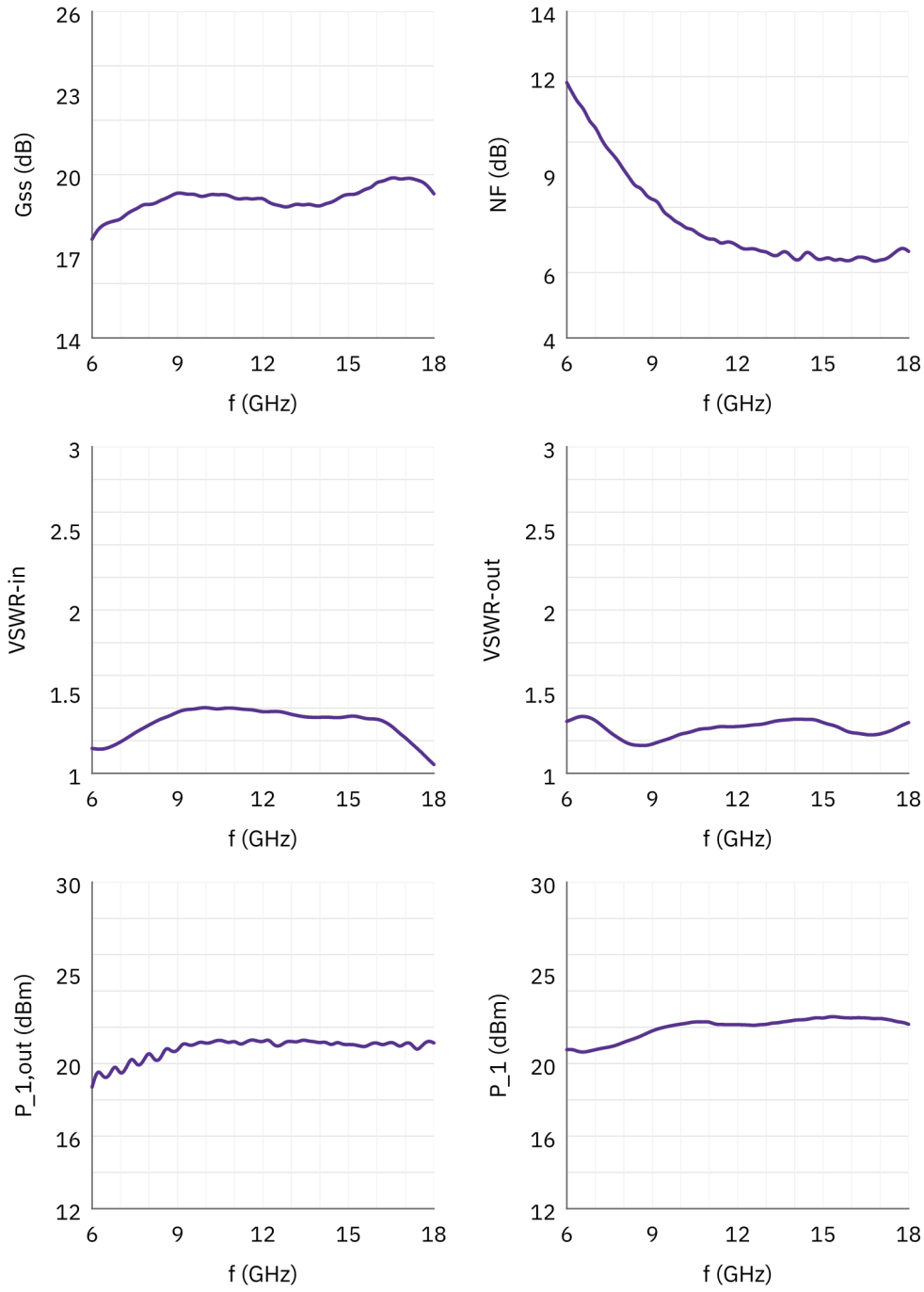
Rx — P_1,out; Small-signal gain; Input matching; Output matching; Noise figure; P_1.

Figure notes: Vd=+5V; Pin=-30dBm. Readings are approximate. The final plot shows P_1. The values are not specified as saturated output power or 1 dB compression points.



Tx — P_1,out; Small-signal gain; Input matching; Output matching; Noise figure; P_1.

Figure notes: Vd=+5V; Pin=-30dBm. Readings are approximate. The final plot shows P_1. The values are not specified as saturated output power or 1 dB compression points.



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.