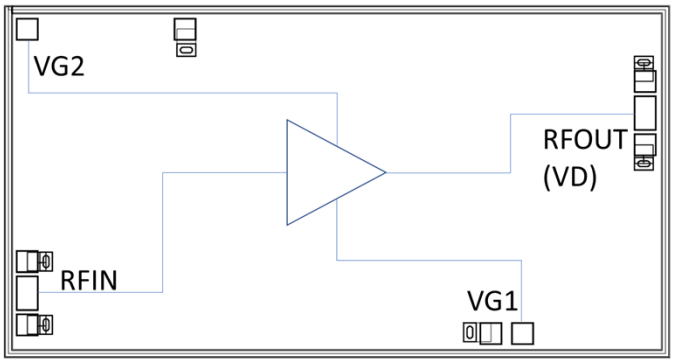
V1.0.0

GaAs MMIC
Wide-band Amplifier
2-20GHz

Features

- Frequency: 2-20GHz
- Small Signal Gain: 19dB
- Gain Flatness: ≤±0.2dB@2-20GHz
- Noise Figure: ≤ 4.1 dB, 1.5dB@10GHz
- P1dB: >23dBm, 26dBm at 10GHz
- Psat: >25.5dBm, 28dBm at 10GHz
- Power Supply: +8V/280mA
- Input/Output: 50Ω
- Die Size: 3.12 x 1.63 x 0.1 mm

Functional Block Diagram



Typical Applications

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

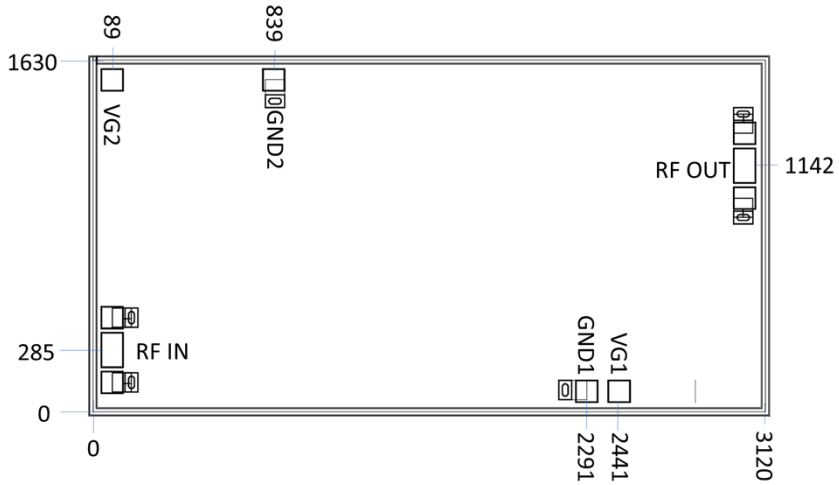
TA = +25°C, VD = +8V, VG1 = -0.4V, VG2 = 3.6V, ID = 280mA

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency		2 – 6			6 – 12			12 – 20		GHz
Small Signal Gain		18.0			17.8			18.5		dB
Gain Flatness		±0.2			±0.2			±0.2		dB
Noise Figure		2.7			1.5			1.9		dB
Output 1dB Compression (P1dB)		22			23			21.5		dBm
Saturated Output Power (Psat)		23.5			24.5			23		dBm
Input Return Loss		15			16			14		dB
Output Return Loss		16			16			11.5		dB

* Adjust VG1, VG2 slightly to obtain device current of 280mA.

Outline Drawing:

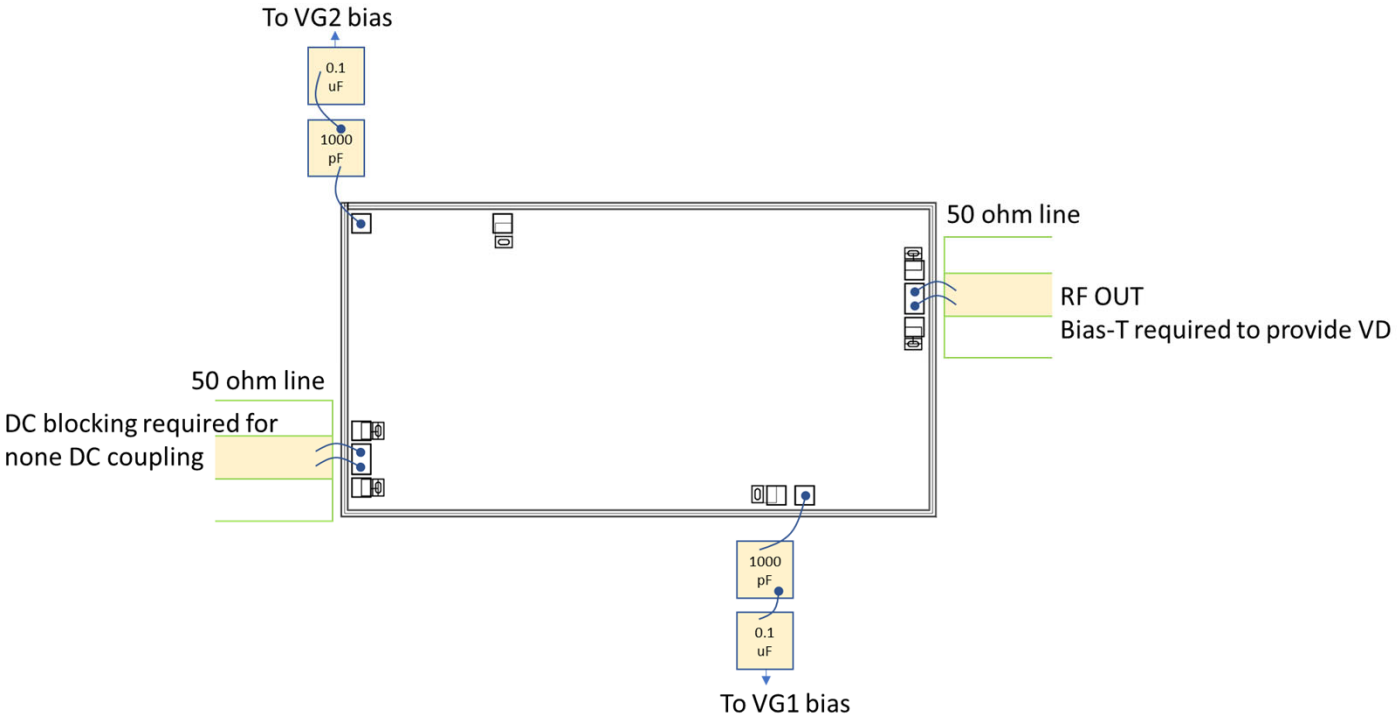
All Dimensions in μm



Pad Description

No	Function	Description
1	RF IN	Signal input terminal, connected to 50Ω circuit, DC blocking included on chip.
2	RF OUT	Signal output terminal, connected to 50Ω circuit; blocking capacitor required; external DC biasing network required; drain current provided.
3	VG1	Amplifier 1st gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
4	VG2	Amplifier 2nd gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
5	GND1	Ground pad.
6	GND2	Ground pad.

Assembly Drawing



Notes:

1. Die thickness: 100um
2. DC bond pad is 100 x 100 μm^2
3. RF IN/OUT bond pad is 100 x 160 μm^2
4. Bond pad metalization: Gold
5. Backside metalization: Gold
6. Backside of the die (GND)

Maximum Ratings:

1. Maximum drain voltage: +10V
2. Maximum gate bias: -3V
3. Maximum input power: +20dBm
4. Operating temperature: -55℃ to +85℃
5. Storage temperature: -65℃ to +150℃