

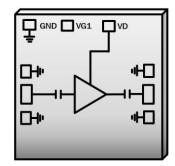
GaAs pHEMT MMIC 2.0 – 4.0GHz Low Noise Amplifier

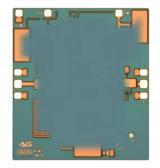
### **Typical Applications**

- Test Instrumentation
- S-band Radios
- Telecom Infrastructure
- 5G Base Stations

#### Features

- Frequency Range: 2.0 4.0 GHz
- Noise Figure: 0.8dB
- Gain: 26.5dB
- P1dB: + 11dBm
- Self-Biased: +5V @ 25mA Single Supply
- 50Ω Matched Input/Output DC blocked
- Chip Size: 1.8 x 2.0 x 0.1 mm





### Electrical Specifications (TA = +25°C, VD = +5V, IDD = 25mA)

Parameter	Units	Minimum	Typical	Maximum
Frequency	GHz	1.8		4.7
Gain	dB		26.5	
Gain Flatness	dB		± 0.2	
Noise Figure	dB		0.8	
Input Return Loss	dB		15	
Output Return Loss	dB		15	
P1dB	dBm		11	
Psat	dBm		12	
Supply Voltage (Vdq)	V		+5	
Supply Current	mA		25	
DC Dissipated Power	mW		125	
Package Type			Die	

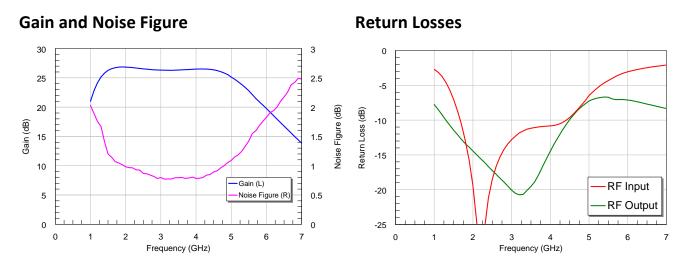
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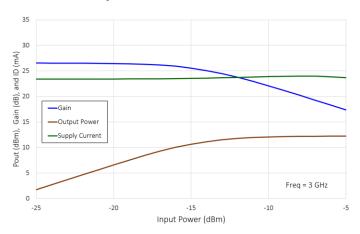


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#### **Performance Graphs**



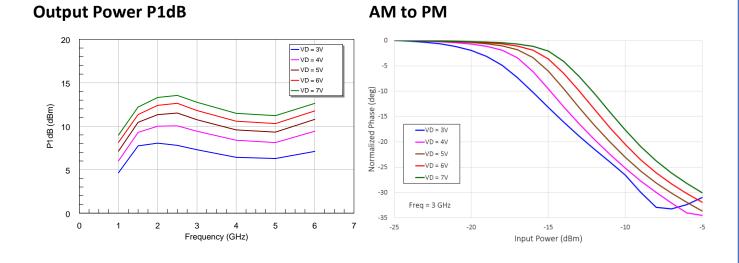
#### **Power Sweep**



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	Information on this datasheet is believed to be accurate and	For price, delivery, and place to order contact: AmpliTech Sales	
	reliable. Specifications are subject to change without notice	155 Plant Avenue, Hauppauge, NY 11788 USA Tel. +1 631.521.7831	Pg.2
Datasheet		Order online at www.AmpliTechInc.com	_
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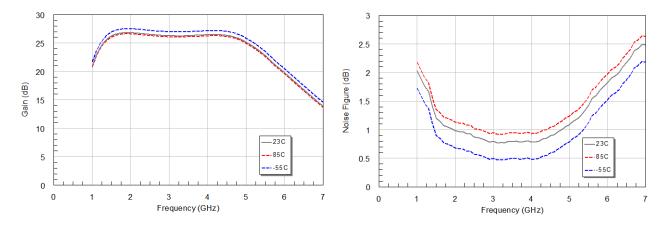


### GaAs pHEMT MMIC 2.0 – 4.0GHz Low Noise Amplifier



**Gain vs Temperature** 

Noise Figure vs Temperature



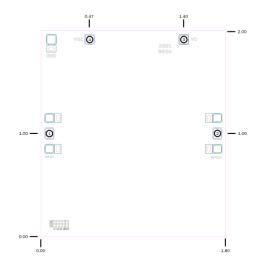
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### GaAs pHEMT MMIC

2.0 – 4.0GHz Low Noise Amplifier

### **Outline Drawing (dimensions in mm)**



#### **Pad Descriptions**

Pad	Function	Pad Size	Description
1	RFIN	75x100µm	AC coupled 50Ω Matched
2	RFOUT	75x100μm	AC coupled 50Ω Matched
3	VD	85x85µm	Drain Power Supply voltage, bypass capacitors needed*
4	VG1	85x85µm	No connect needed – if AGC function needed vary 0-5V
Die Bottom	GND	Backside	Epoxy/Solder to Baseplate

\*See Assembly Diagram

#### **Absolute Maximum Ratings**

Parameter	Rating
Drain Bias Voltage (VDD)	+9V DC
RF Input Power (RFIN)	+20dBm*
Channel Temperature	150°C
Storage Temperature	-65 to 150°C
Operating Temperature	-55 to 85°C
**	

\*To be tested

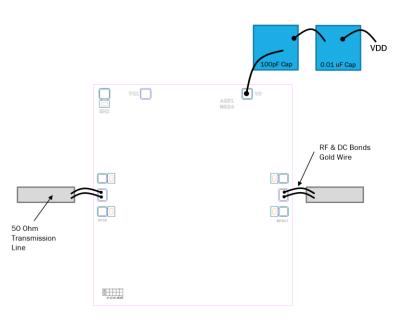
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#### GaAs pHEMT MMIC 2.0 – 4.0GHz Low Noise Amplifier

### **Assembly Diagram**



#### **Assembly Notes:**

- 1. Die Thickness is  $100 \mu m$
- 2. Backside and Bondpad metallization:  $4\mu m$  gold
- 3. Silver Epoxy or AuSn Eutectic attach MMIC

#### **Die Packaging Information**

• GP-4 (Gel-Pak)

#### **Biasing and Operation**

The AGLNA0204 is biased with a positive drain supply. The preferred biasing procedure is as follows:

#### Turn ON procedure:

- 1. Set VD to Vdq.
- 2. Apply RF signal.

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#### Turn OFF procedure:

- 1. Turn off RF signal.
- 2. Turn off VD.

CAUTION