HMC-ALH311

GaAs HEMT MMIC LOW NOISE DRIVER AMPLIFIER, 22.0 - 26.5 GHz

Typical Applications

This HMC-ALH311 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Digital Radios
- Military & Space
- Test Instrumentation

Features

P1dB Output Power: +12 dBm

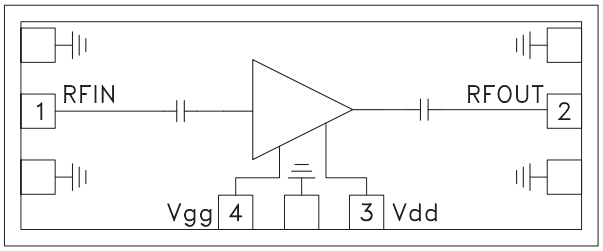
Gain: 25 dB

Noise Figure: 3 dB @ 25 GHz

Supply Voltage: +2.5V @ 52 mA

Die Size: 1.80 x 0.73 x 0.1 mm

Functional Diagram



General Description

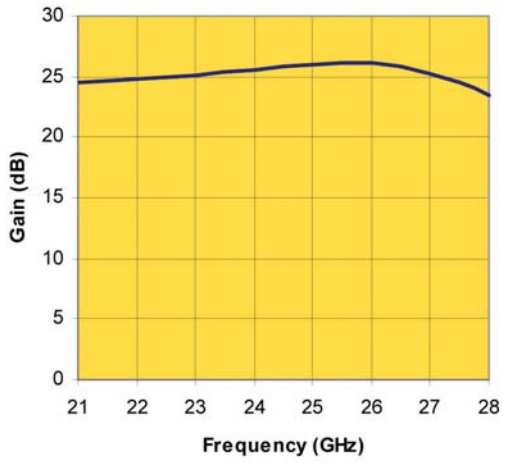
The HMC-ALH311 is a GaAs MMIC HEMT Low Noise Driver Amplifier die which operates between 22 and 26.5 GHz. The amplifier provides 25 dB of gain, a typical noise figure of 3 dB at 25 GHz, and +12 dBm of output power at 1 dB gain compression while requiring only 52 mA from a +2.5V supply voltage. The HMC-ALH311 is ideal for microwave radio driver amplifier applications between 22 to 26.5 GHz. Due to its small size, the HMC-ALH311 die is ideal for integration into Multi-Chip-Modules (MCMs).

Electrical Specifications*, T_A = +25° C, Vdd = 2.5V

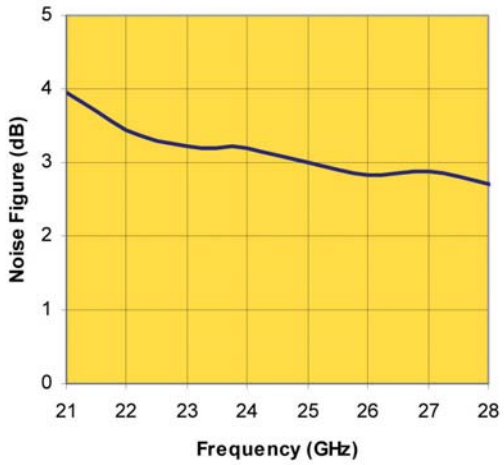
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		22 - 24			24 - 26.5		GHz
Gain	22	25					dB
Gain Variation over Temperature		0.03					dB / °C
Noise Figure		3.5	4.5		3	3.5	dB
Input Return Loss		10			15		dB
Output Return Loss		12			15		dB
Output Power for 1 dB Compression		12			12		dBm
Supply Current (Vdd = 2.5V, Vgg1 = -0.3V Typ.)		52					mA

*Unless otherwise indicated, all measurements are from probed die

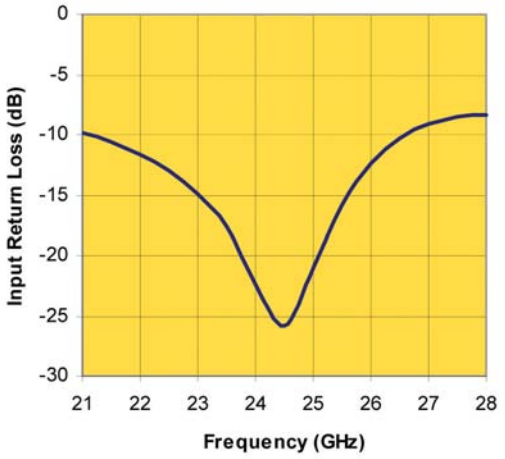
Linear Gain vs. Frequency



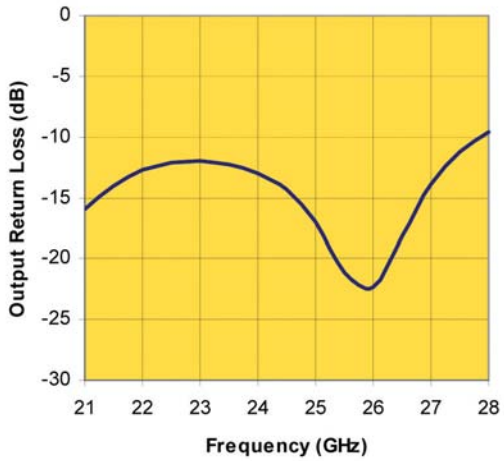
Noise Figure vs. Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



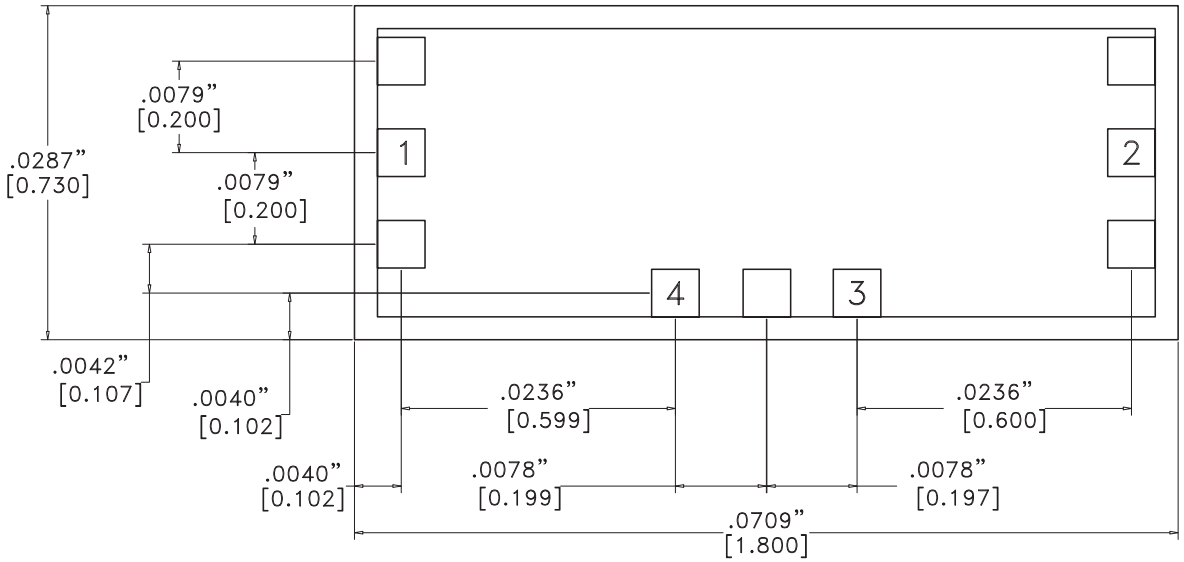
Note: Measured Performance Characteristics (Typical Performance at 25°C) Vd= 2.5V, Id = 52 mA

Absolute Maximum Ratings

Drain Bias Voltage	+5 Vdc
Gate Bias Voltage	-1 to +0.3 Vdc
RF Input Power	-7 dBm
Channel Temperature	180 °C
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. ALL DIMENSIONS ARE IN INCHES [MM].
2. TYPICAL BOND PAD IS .004" SQUARE.
3. BACKSIDE METALLIZATION: GOLD.
4. BACKSIDE METAL IS GROUND.
5. BOND PAD METALLIZATION: GOLD.
6. CONNECTION NOT REQUIRED FOR UNLABELED BOND PADS.
7. OVERALL DIE SIZE ±.002"