HMC-ALH376

GaAs HEMT MMIC LOW NOISE AMPLIFIER, 35 - 45 GHz

Typical Applications

This HMC-ALH376 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios
- Test Equipment & Sensors
- Military & Space

Features

Noise Figure: 2 dB

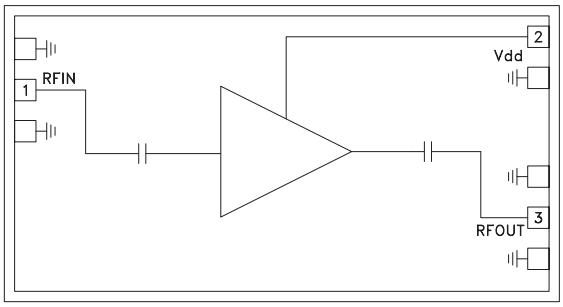
Gain: 16 dB @ 40 GHz

P1dB Output Power: +6 dBm

Supply Voltage: +4V @ 87 mA

Die Size: 2.7 x 1.44 x 0.1 mm

Functional Diagram



General Description

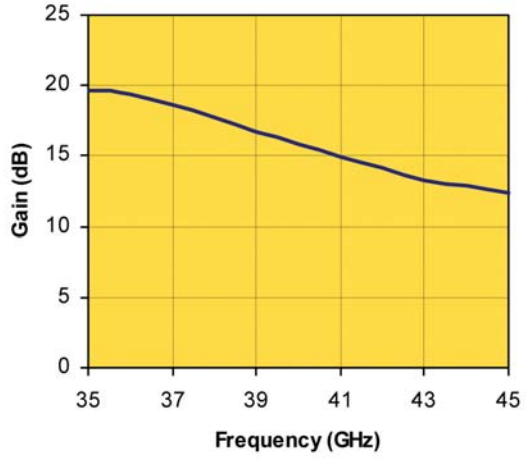
The HMC-ALH376 is a GaAs MMIC HEMT three stages, self-biased Low Noise Amplifier die which operates between 35 and 45 GHz. The amplifier provides 16 dB of gain, a 2 dB noise figure and +6 dBm of output power at 1 dB gain compression while requiring only 87 mA from a single +4V supply. This self-biased LNA is ideal for integration into hybrid assemblies or Multi-Chip-Modules (MCMs) due to its small size (3.9 mm²).

Electrical Specifications*, T_A = +25° C, Vdd= +4V

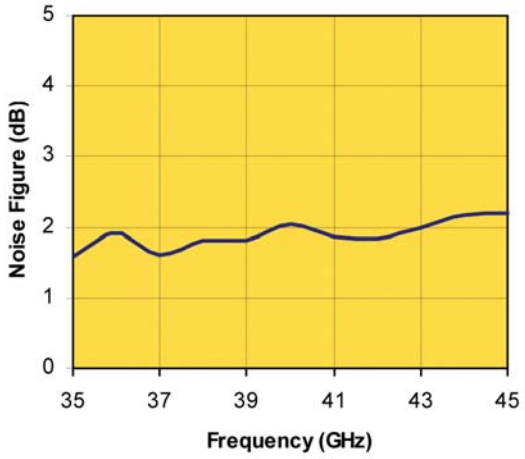
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		35 - 40			40 - 45		GHz
Gain	15	16		10	12		dB
Noise Figure		2	3		2.2	3	dB
Input Return Loss		10			17		dB
Output Return Loss		16			18		dB
Output Power for 1 dB Compression		6			6		dBm
Supply Current (Idd) (Vdd= +4V)		87			87		mA

*Unless otherwise indicated, all measurements are from probed die

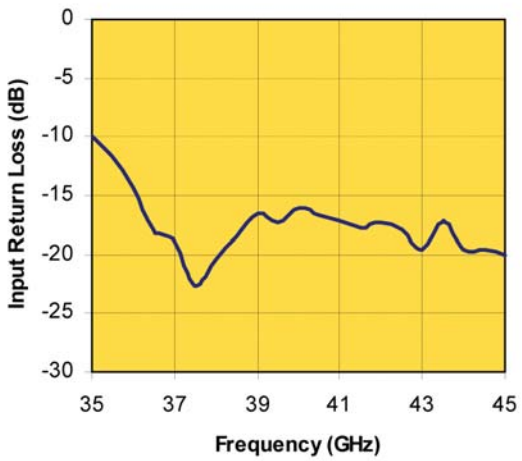
Linear Gain vs. Frequency



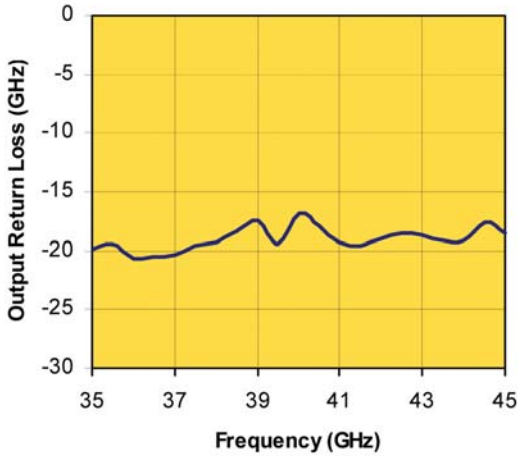
Noise Figure vs. Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



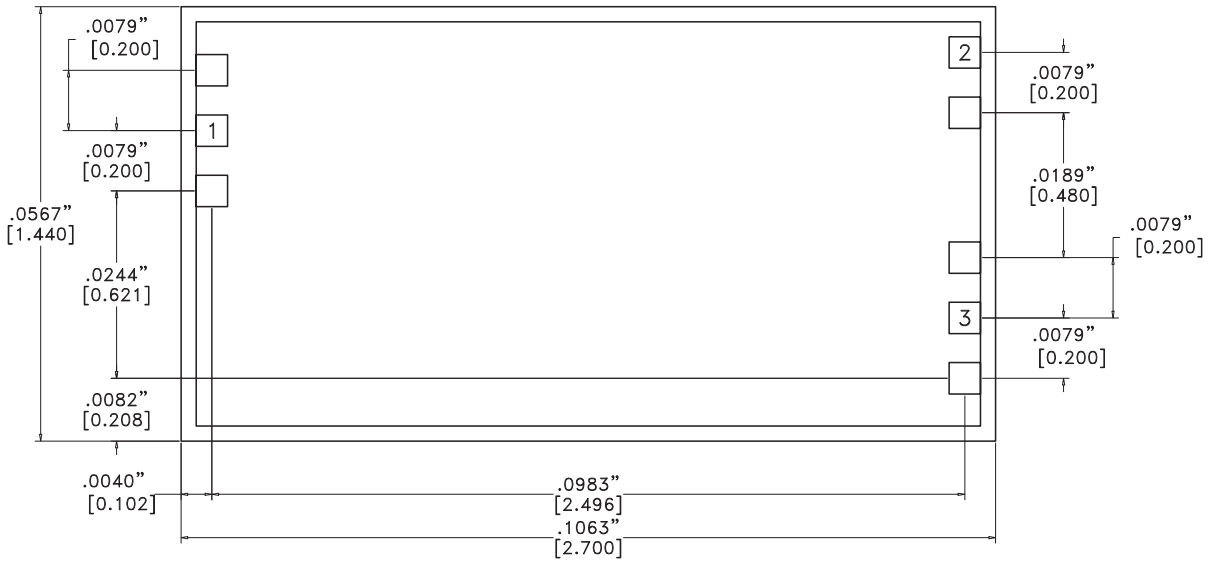
Note: Measured Performance Characteristics (Typical Performance at 25°C) Vd= 4V, Id = 87 mA

Absolute Maximum Ratings

Drain Bias Voltage	+5.5 Vdc
RF Input Power (35 - 40 GHz)	-5 dBm
RF Input Power (40 - 45 GHz)	-1 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"