

**Applications**

- ▼ Point-to-point Digital Radios
- ▼ Point-to-Multipoint Digital Radios

**Product Features**

- ▼ RF frequency: 35 to 45 GHz
- ▼ Noise figure: 3.5 dB, typical
- ▼ Linear gain: 12 dB, typical
- ▼ P1dB: 10 dBm, typical
- ▼ Unconditionally stable
- ▼ Self-bias design
- ▼ Biasable from either side
- ▼ DC Power: 5.0 Vdc at 55 mA

**Product Description**

The ALH208C is a broadband, two-stage, self-biased, low-noise monolithic HEMT amplifier for commercial digital microwave radios and wireless LANs. The balanced topology provides unconditional stability as well as excellent input and output VSWR. To ensure rugged and reliable operation, HEMT devices are fully passivated. Both bond pad and backside metallization are Ti/Au, which is compatible with conventional die attach, thermocompression and thermosonic wire bonding assembly techniques.

**Performance Characteristics (Ta = 25°C)**

Specification	Min	Typ	Max	Unit
Frequency	35		45	GHz
Linear Gain	9	12		dB
Noise Figure		3.5		dB
Input Return Loss		12		dB
Output Return Loss		17		dB
P1dB		10		dBm
Vd		5		V
Id		55		V

**Absolute Maximum Ratings (Ta = 25°C)**

Parameter	Min	Max	Unit
Drain Voltage (Vds)		5.5	V
Drain current		70	mA
Input drive level		1	dBm
Assy. Temperature (60 seconds)		300	deg. C

Note: The data contained in this document is for information only. Northrop Grumman reserves the right to change without notice the specifications, designs, prices or conditions of sale, as they apply to this product. The product represented by this datasheet is subject to U.S. Export Law as contained in ITAR or the EAR regulations.



Product Datasheet **Discontinued 12/12/2003**

Revision: December 12, 2003

**Measured Performance Characteristics (Typical Performance at 25°C)**  
**Vd = 5.0 V, Id = 55 mA**

Freq (GHz)	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
30.0	0.45	149.80	13.40	15.41	0.03	-94.70	0.08	33.76
31.0	0.42	113.94	14.58	-18.84	0.03	-126.59	0.03	-165.29
32.0	0.31	87.32	14.28	-54.37	0.04	-161.08	0.12	149.34
33.0	0.21	72.84	12.59	-85.52	0.03	172.22	0.16	117.07
34.0	0.13	70.45	11.10	-112.69	0.03	146.29	0.14	94.54
35.0	0.10	81.77	9.78	-137.24	0.03	127.12	0.12	85.94
36.0	0.09	98.37	8.85	-159.65	0.03	111.23	0.10	77.58
37.0	0.09	118.08	8.09	177.87	0.03	86.14	0.08	87.91
38.0	0.11	124.37	7.54	156.29	0.03	70.72	0.08	90.94
39.0	0.13	126.36	7.11	134.30	0.03	56.29	0.09	88.53
40.0	0.16	126.13	6.71	111.40	0.03	34.78	0.10	88.13
41.0	0.18	123.51	6.35	87.02	0.03	14.76	0.12	78.18
42.0	0.20	121.06	5.88	62.43	0.03	-6.52	0.12	57.77
43.0	0.23	117.26	5.38	36.31	0.03	-34.93	0.09	38.76
44.0	0.27	108.28	4.71	9.56	0.02	-49.33	0.07	7.90
45.0	0.29	98.98	3.91	-17.05	0.02	-71.84	0.04	-27.34

Note: The data contained in this document is for information only. Northrop Grumman reserves the right to change without notice the specifications, designs, prices or conditions of sale, as they apply to this product. The product represented by this datasheet is subject to U.S. Export Law as contained in ITAR or the EAR regulations.

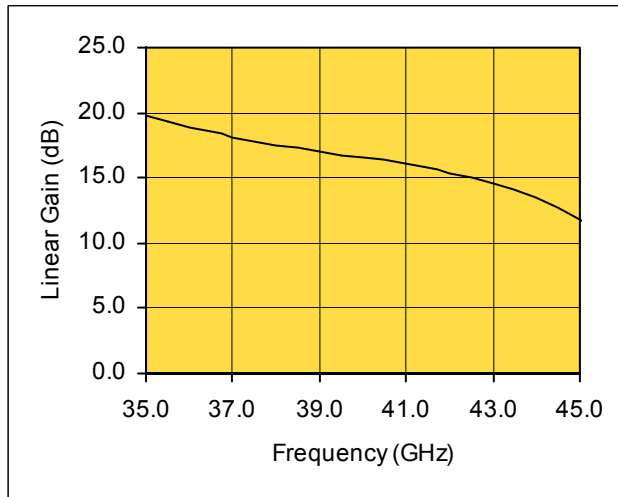


Product Datasheet **Discontinued 12/12/2003**

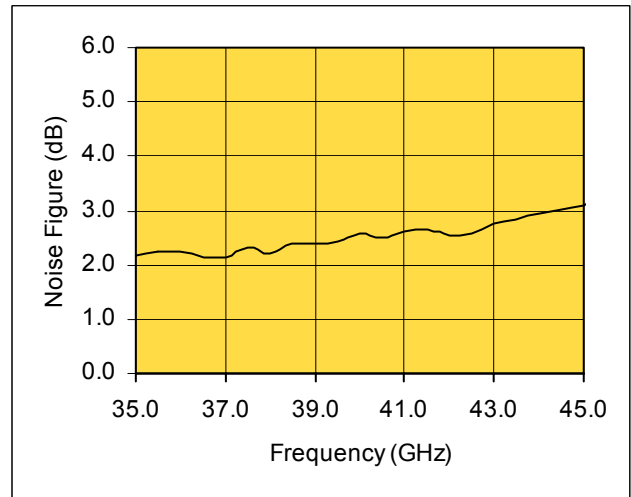
Revision: December 12, 2003

**Measured Performance Characteristics (Typical Performance at 25°C)**  
**Vd = 5.0 V, Id = 55 mA**

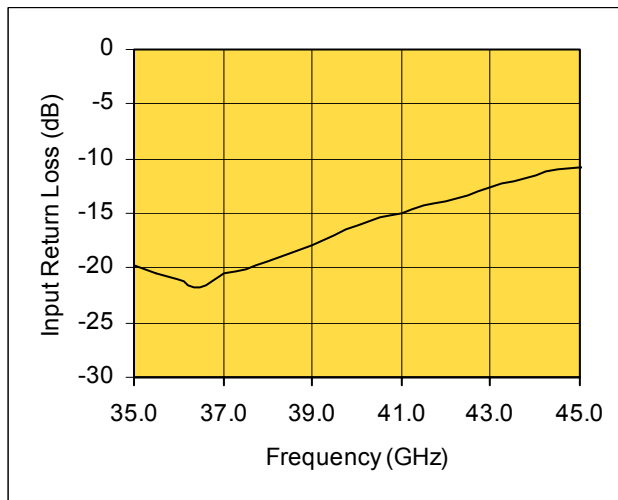
**Linear Gain Versus Frequency**



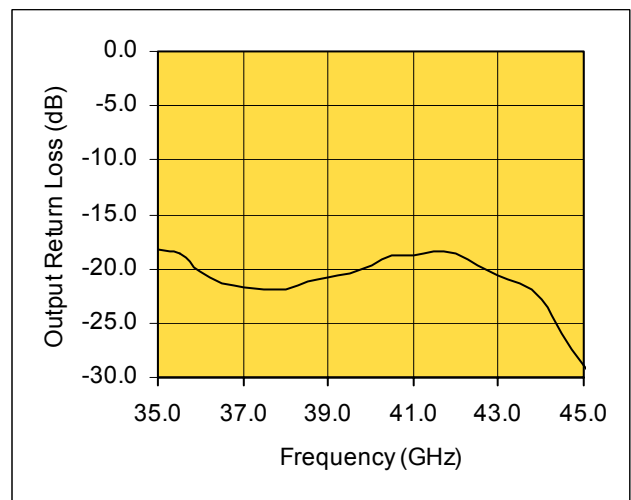
**Noise Figure Versus Frequency**



**Input Return Loss Versus Frequency**



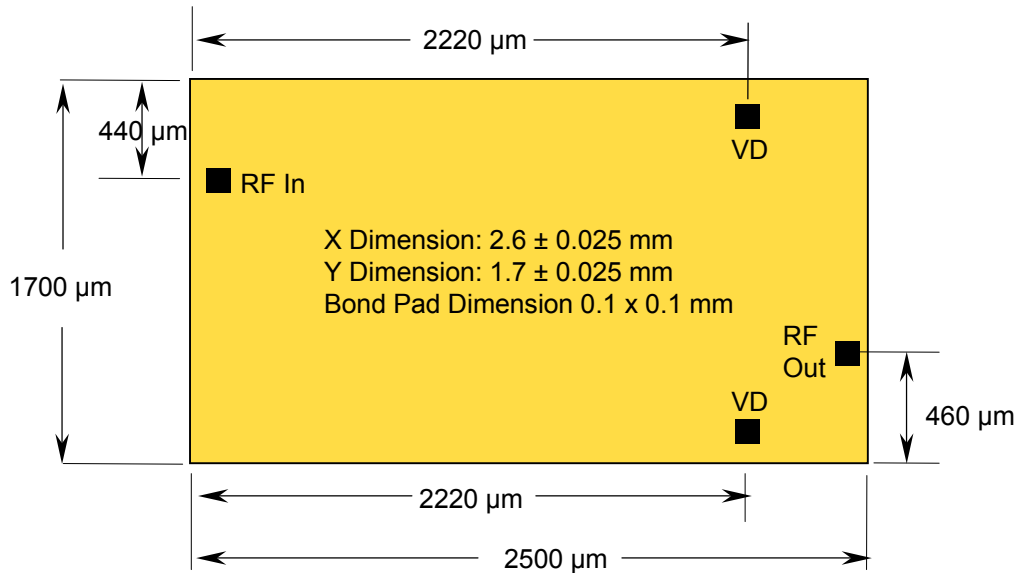
**Output Return Loss Versus Frequency**



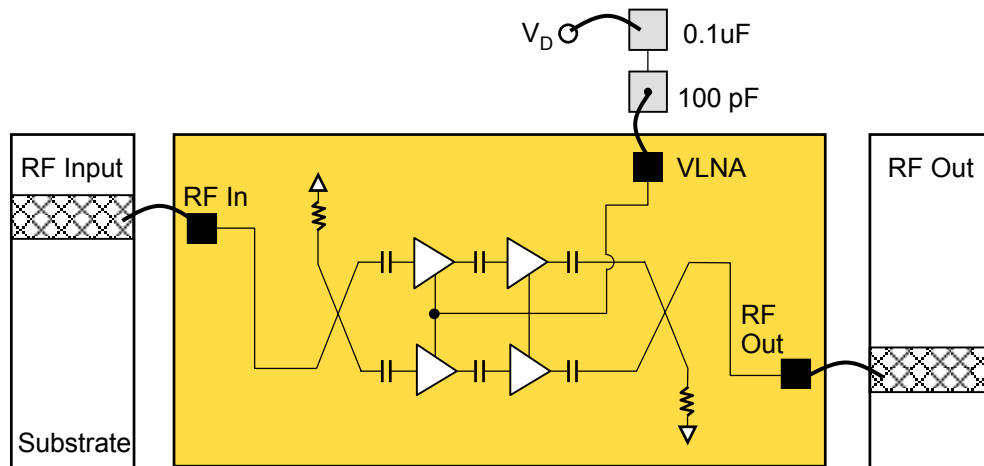
Note: The data contained in this document is for information only. Northrop Grumman reserves the right to change without notice the specifications, designs, prices or conditions of sale, as they apply to this product. The product represented by this datasheet is subject to U.S. Export Law as contained in ITAR or the EAR regulations.



**Die Size and Bond Pad Locations**



**Suggested Bonding Arrangement**



00S02951-1009-NT

**Recommended Assembly Notes**

1. Bypass caps should be 100 pF (approximately) ceramic (single-layer) placed no farther than 30 mils from the amplifier.
2. Best performance obtained from use of <10 mil (long) by 3 by 0.5 mil ribbons on input and output.

Note: The data contained in this document is for information only. Northrop Grumman reserves the right to change without notice the specifications, designs, prices or conditions of sale, as they apply to this product. The product represented by this datasheet is subject to U.S. Export Law as contained in ITAR or the EAR regulations.