

X=2250 μm Y=1580 μm

Product Features

- ◆ RF frequency: 14 to 27 GHz
- ◆ Noise figure: 3 dB, typical
- ◆ Linear gain: 17 dB, typical
- ◆ P1dB: 14 dBm, typical
- ◆ Unconditionally stable
- ◆ Biasable from either side
- ◆ DC Power: 4 Vdc at 90 mA

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
Frequency	14		18	GHz
Linear Gain	14	17		dB
Noise Figure		3.5	4.5	dB
Input Return Loss		15		dB
Output Return Loss		13		dB
Frequency	18		27	GHz
Linear Gain	14	17		dB
Noise Figure		2.7	3.5	dB
Input Return Loss		17		dB
Output Return Loss		17		dB
P1dB		14		dBm
Vd		4		V
Vg		-0.5		V
Id		90		mA

Applications

- ◆ Point-to-Point Digital Radios
- ◆ Point-to-Multipoint Digital Radios

Product Description

The ALH216 monolithic HEMT is a broadband, two-stage, low noise device, designed for use in commercial digital microwave radios and wireless LANs. The LNAs balanced design 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.

Absolute Maximum Ratings (Ta = 25°C)

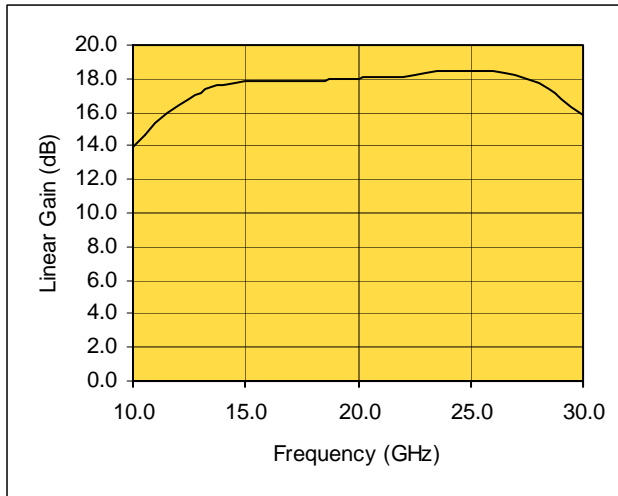
Parameter	Min	Max	Unit
Vd		5.5	V
Vg	-1	+0.3	V
Id		180	mA
Input drive level		6	dBm
Assy. Temperature (60 seconds)		300	deg. C

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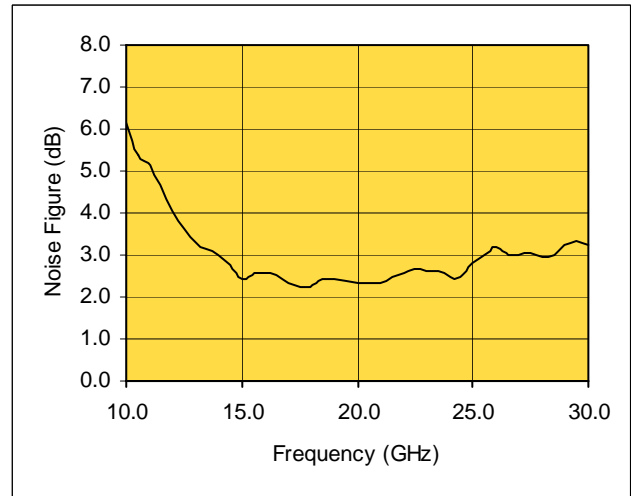


Measured Performance Characteristics (Typical Performance at 25°C)
 Vd = 4.0 V, Id = 90 mA

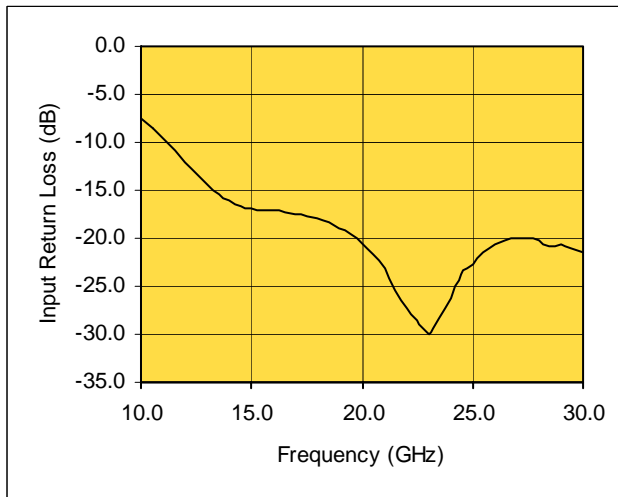
Linear Gain Versus Frequency



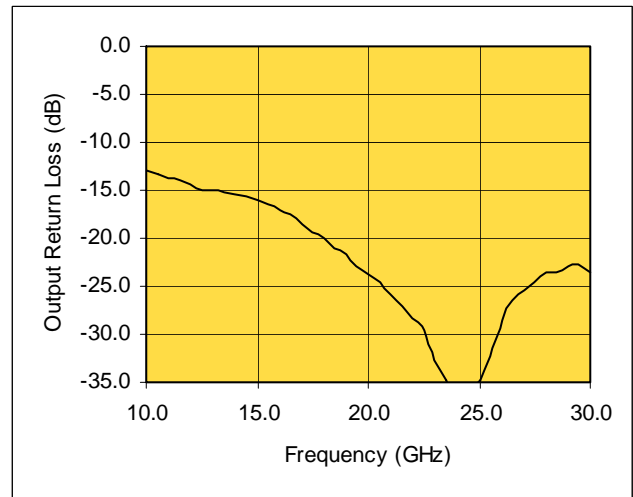
Noise Figure Versus Frequency



Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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Product Datasheet

Revision: May 2007

Measured Performance Characteristics (Typical Performance at 25°C)
 Vd = 4.0 V, Id = 90 mA

Freq GHz	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
10.0	0.43	45.84	4.96	-17.69	0.00	-173.35	0.23	-134.30
11.0	0.33	15.61	5.87	-50.55	0.00	170.06	0.21	-145.20
12.0	0.25	-15.88	6.64	-81.90	0.00	145.92	0.19	-154.74
13.0	0.19	-49.19	7.24	-112.09	0.00	117.71	0.18	-162.53
14.0	0.16	-84.67	7.60	-141.29	0.01	89.84	0.17	-174.96
15.0	0.14	-119.75	7.79	-168.67	0.01	68.03	0.16	171.44
16.0	0.14	-154.22	7.84	165.20	0.01	43.66	0.14	156.45
17.0	0.13	175.30	7.81	140.85	0.01	20.75	0.12	137.17
18.0	0.13	147.34	7.84	117.19	0.01	-2.64	0.10	121.17
19.0	0.11	119.10	7.88	94.30	0.01	-28.79	0.08	100.67
20.0	0.09	90.28	7.95	71.54	0.01	-50.03	0.07	73.83
21.0	0.07	58.21	8.01	48.64	0.01	-74.33	0.05	45.82
22.0	0.04	20.43	8.07	26.13	0.01	-101.73	0.04	8.36
23.0	0.03	-62.50	8.24	3.06	0.01	-128.84	0.02	-36.36
24.0	0.05	-129.01	8.34	-21.13	0.01	-145.56	0.02	-82.91
25.0	0.07	-170.40	8.37	-46.18	0.02	-170.00	0.02	157.22
26.0	0.09	160.55	8.34	-71.30	0.02	164.64	0.04	107.35
27.0	0.10	135.17	8.15	-97.93	0.02	142.13	0.05	69.78
28.0	0.10	113.25	7.68	-125.81	0.02	119.09	0.07	40.57
29.0	0.09	100.12	6.94	-153.21	0.02	95.17	0.07	26.00
30.0	0.09	90.26	6.17	-179.55	0.02	70.86	0.07	9.84

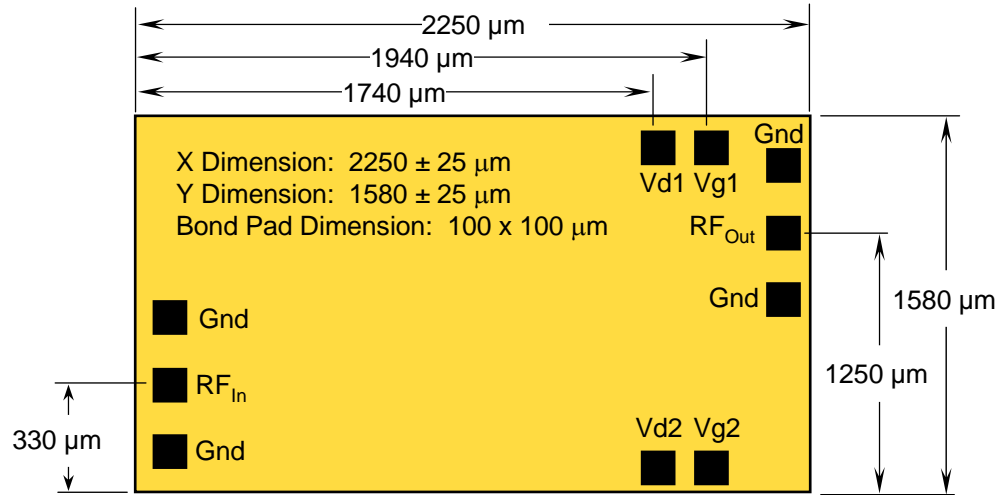
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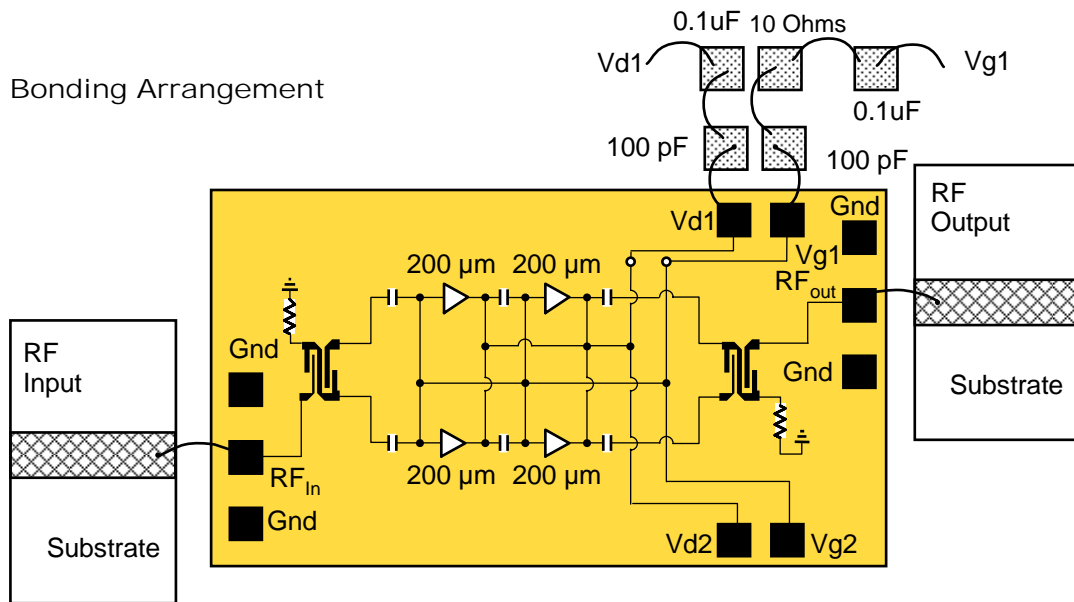
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Die Size and Bond Pad Locations



Suggested Bonding Arrangement



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.
3. Part can be biased from either side.

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