

X=2650 μm Y=1600 μm

Product Features

- ◆ RF Frequency: 81 to 86 GHz
- ◆ Linear Gain: 22 dB typ.
- ◆ Psat: 19.5 dBm typ.
- ◆ P1dB: 17.5 dBm typ.
- ◆ Die Size: 3.7 sq. mm.
- ◆ 2 mil substrate
- ◆ DC Power: 4 VDC @ 160 mA

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
Frequency	81		86	GHz
Linear Gain	19	22		dB
Input Return Loss		9		dB
Output Return Loss		5		dB
Psat		19.5		dBm
P1dB		17.5		dBm
VD1, VD2		4		V
VG1		-0.1		V
VG2		-0.1		V
Id1		80		mA
Id2		80		mA

Applications

- ◆ New FCC E-band Communication Systems @ 81-86 GHz Frequency Band
- ◆ Short Haul / High Capacity Links
- ◆ Enterprise Wireless LAN
- ◆ Wireless Fiber Replacement

Product Description

The AUH317 monolithic HEMT amplifier is a broadband, three-stage power device, designed for use in commercial digital radios and wireless LANs. 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)

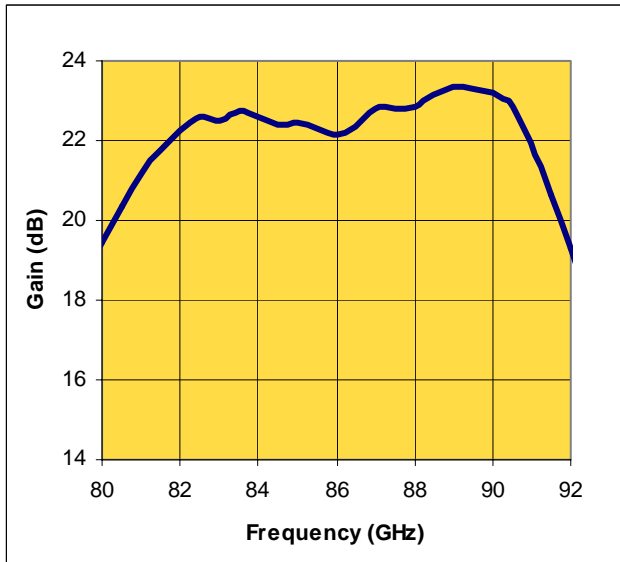
Parameter	Min	Max	Unit
VD1, VD2		4.5	V
Id1		100	mA
Id2		100	mA
Vg12, Vg34	-0.8	0.3	V
Input drive level		3	dBm
Assy. Temperature (60 seconds)		300	deg. C

Preliminary Information: The data contained in this document describes new products in the sampling or preproduction phase of development and is for information only. Northrop Grumman reserves the right to change without notice the characteristic data and other specifications 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.

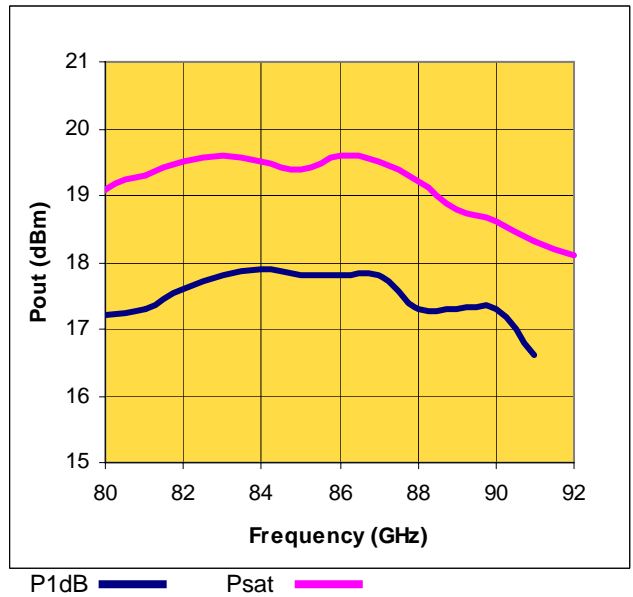


Measured Performance Characteristics (Typical Performance at 25°C)
VD1 = VD2 = 4.0 V, Id1 = 80 mA, Id2 = 80 mA

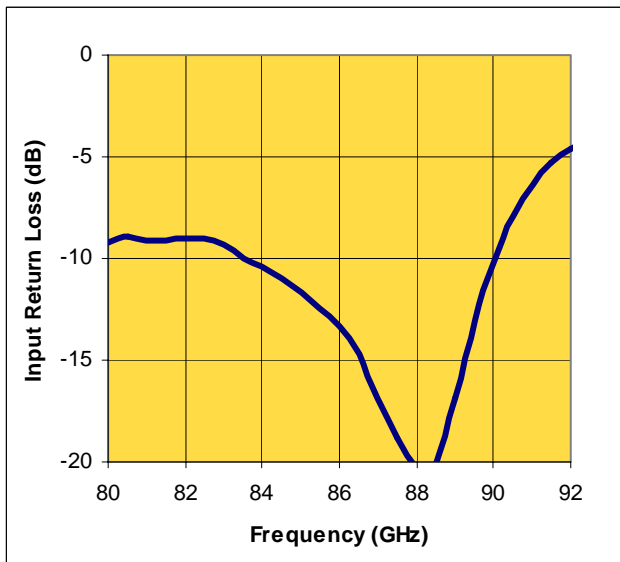
Linear Gain Versus Frequency



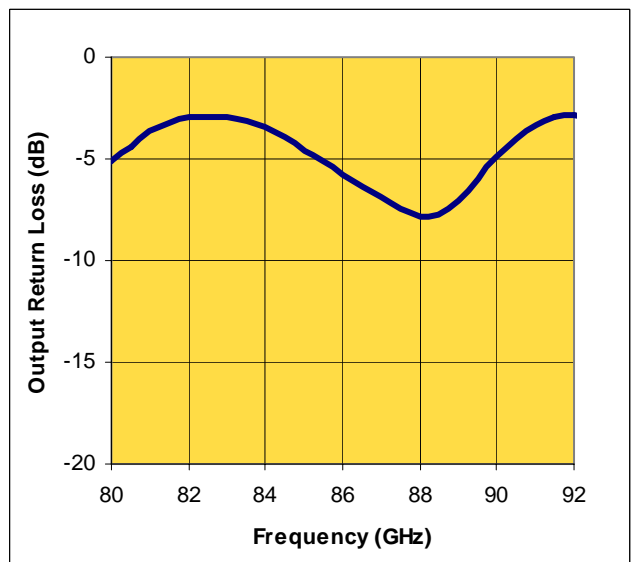
Fixture Output Power Versus Frequency



Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



Preliminary Information: The data contained in this document describes new products in the sampling or preproduction phase of development and is for information only. Northrop Grumman reserves the right to change without notice the characteristic data and other specifications 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.



Preliminary Datasheet

Revision: May 2007

Measured Performance Characteristics (Typical Performance at 25°C)

Vd3 = 2V, Id3 = 25 mA

Freq. (GHz)	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
79.0	0.362	147.343	6.521	57.364	0.002	-99.718	0.505	-121.538
79.5	0.362	145.212	7.307	46.997	0.000	-140.938	0.553	-129.879
80.0	0.362	143.467	8.180	34.461	0.002	-64.057	0.593	-138.204
80.5	0.372	141.255	9.154	22.011	0.002	-70.709	0.638	-146.766
81.0	0.363	137.412	10.232	5.897	0.002	-107.958	0.690	-154.811
81.5	0.369	136.679	11.178	-9.608	0.002	58.862	0.725	-163.998
82.0	0.370	133.157	12.150	-26.665	0.003	34.219	0.746	-172.165
82.5	0.373	128.980	13.018	-42.328	0.001	17.766	0.758	179.534
83.0	0.363	123.575	13.130	-59.473	0.002	-7.836	0.757	172.250
83.5	0.336	120.398	13.765	-78.285	0.002	-11.782	0.745	164.589
84.0	0.317	117.227	13.544	-93.725	0.003	-47.787	0.724	157.824
84.5	0.296	115.066	13.299	-109.226	0.004	-45.019	0.686	151.473
85.0	0.272	111.816	13.456	-124.980	0.003	-158.913	0.643	145.928
85.5	0.250	110.104	13.187	-139.516	0.002	-149.792	0.607	142.315
86.0	0.220	107.842	12.965	-153.462	0.001	-156.764	0.561	139.429
86.5	0.177	104.175	13.196	-166.576	0.001	-8.077	0.527	137.630
87.0	0.131	105.442	13.912	177.423	0.005	-105.698	0.490	135.764
87.5	0.095	111.726	13.874	161.804	0.001	166.881	0.454	137.310
88.0	0.059	147.351	13.792	147.153	0.006	-170.675	0.428	140.567
88.5	0.084	-160.268	14.114	129.624	0.005	162.058	0.428	144.695
89.0	0.160	-147.167	14.161	112.102	0.008	110.885	0.466	148.102
89.5	0.241	-148.327	13.854	94.781	0.007	136.757	0.504	149.910
90.0	0.331	-153.130	13.460	76.235	0.009	116.444	0.571	147.611
90.5	0.422	-160.777	12.886	55.153	0.010	93.452	0.629	142.062
91.0	0.501	-168.857	11.661	34.843	0.007	77.912	0.674	136.280
91.5	0.559	-177.410	10.125	14.814	0.007	76.475	0.708	129.139
92.0	0.604	175.434	8.711	-1.850	0.007	32.030	0.715	121.534

Preliminary Information: The data contained in this document describes new products in the sampling or preproduction phase of development and is for information only. Northrop Grumman reserves the right to change without notice the characteristic data and other specifications 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.

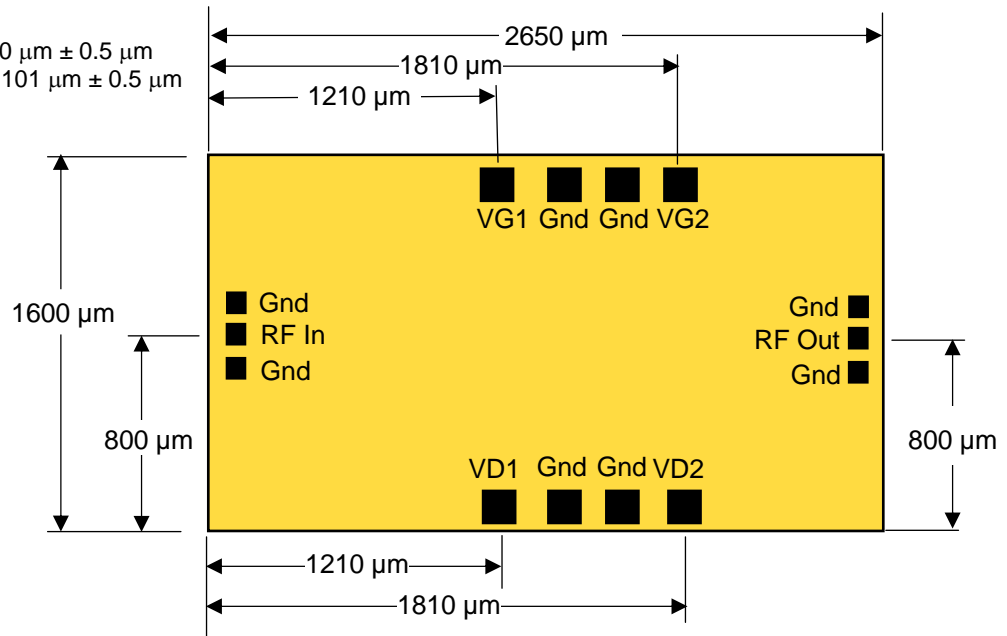


Preliminary Datasheet

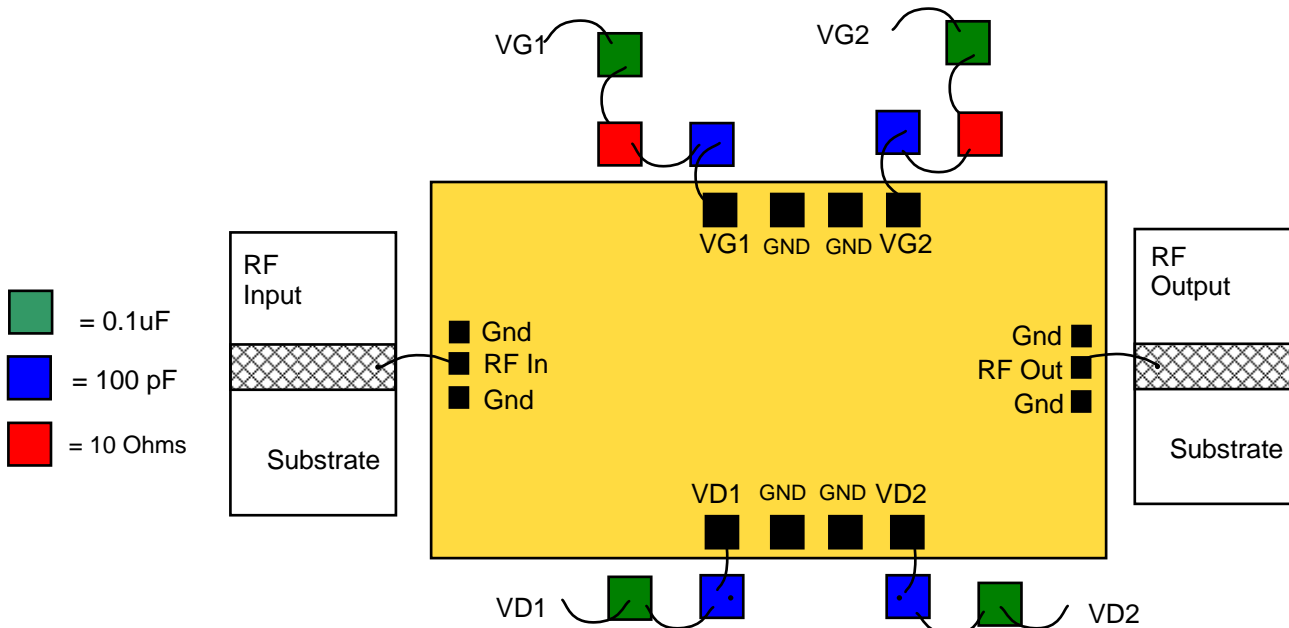
Revision: May 2007

Die Size and Bond Pad Locations

X Dimension: $2650 \pm 25 \mu\text{m}$
 Y Dimension: $1600 \pm 25 \mu\text{m}$
 RF Bond Pad Dimension: $50 \times 50 \mu\text{m} \pm 0.5 \mu\text{m}$
 DC Bond Pad Dimension: $101 \times 101 \mu\text{m} \pm 0.5 \mu\text{m}$
 Chip Thickness = $50 \pm 5 \mu\text{m}$



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 < 6 mil (long) by 1.5 by 0.5 mil ribbons on input and output.

Preliminary Information: The data contained in this document describes new products in the sampling or preproduction phase of development and is for information only. Northrop Grumman reserves the right to change without notice the characteristic data and other specifications 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.