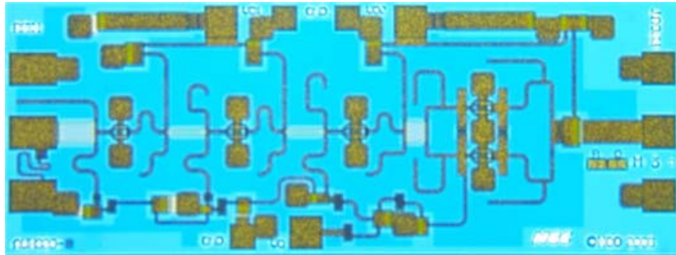
AUH320

71 – 86 GHz Buffer Amplifier

Preliminary Datasheet

Revision: May 2007



X=2200 µm Y=870 µm

Applications

- ♦ New FCC E-Band Communication Systems @ 71-76, 81-86 GHz Frequency Band
- ♦ Short-Haul / High Capacity Links
- ♦ Enterprise Wireless LAN
- ♦ Wireless Fiber Replacement
- ♦ Automotive Radar

Product Features

- ♦ RF frequency: 71 to 86 GHz
- ♦ Linear gain: >12 dB
- ♦ P1dB: >12 dBm
- ♦ DC Power: 4 Vdc at 130 mA
- ♦ Die Size: < 2 sq. mm

Product Description

The AUH320 monolithic HEMT is a broadband, four-stage, buffer amplifier. 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	71		86	GHz
Linear Gain	10	15		dB
Input Return Loss		4		dB
Output Return Loss		6		dB
Psat		16		dBm
P1dB		15		dBm
VD1, VD2		4		V
VG1		-0.1		V
Id1		40		mA
Id2		90		mA

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Vd1, Vd2		4.5	V
Id1		50	mA
Id2		100	mA
Vg1	-0.8	0.3	V
Input drive level			dBm
Assy. Temperature (60 seconds)		300	deg. C

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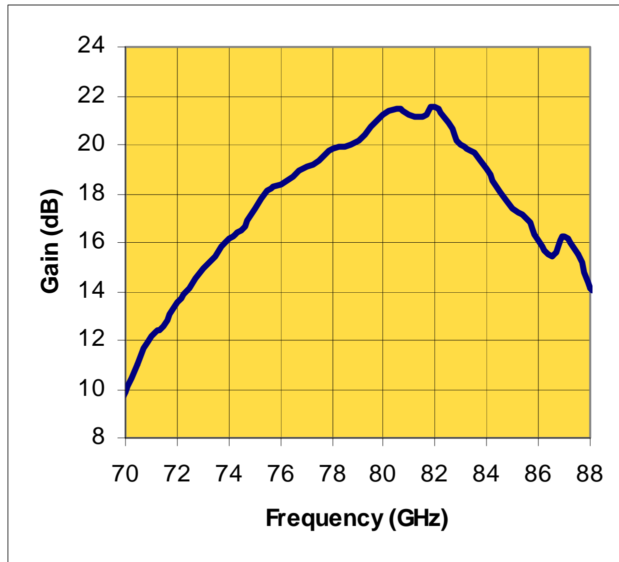
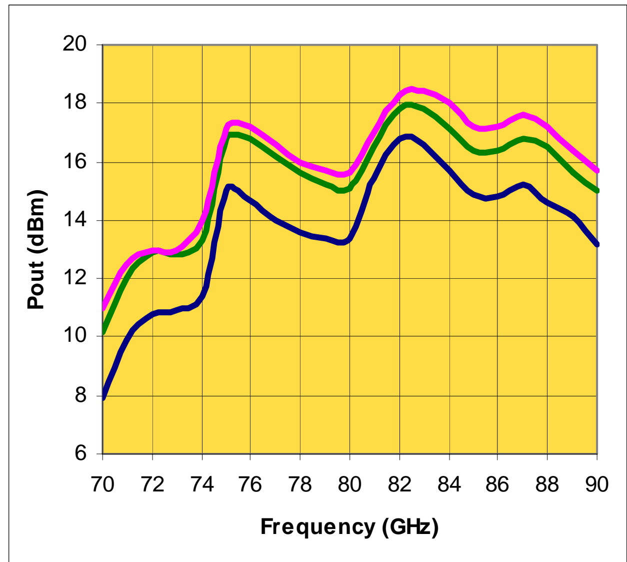
Measured Performance Characteristics (Typical Performance at 25°C)
Vd1 = Vd2 = 4V and Id1 = 40mA, Id2 = 90mA

Linear Gain Versus Frequency

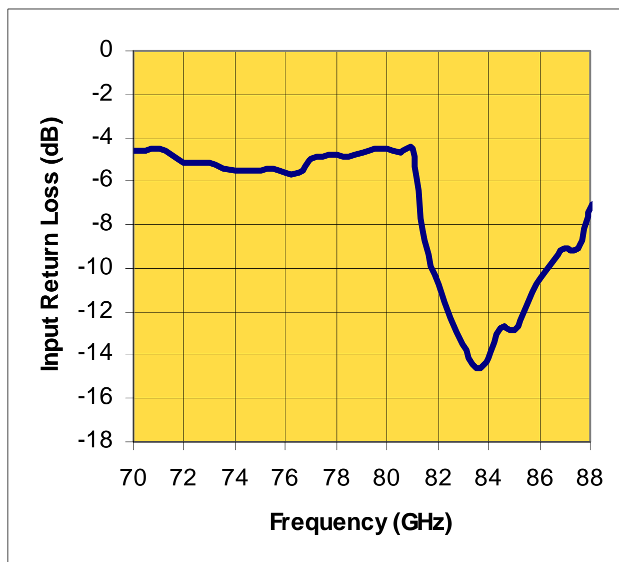


Fixtured Pout Versus Frequency

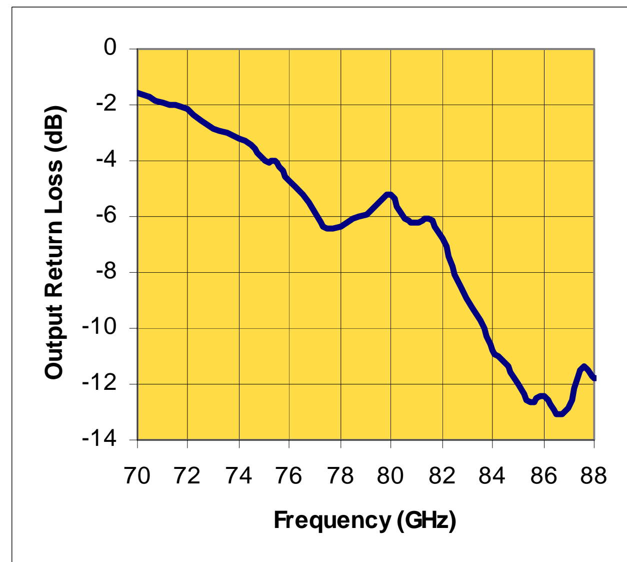


P1dB P3dB PSat

Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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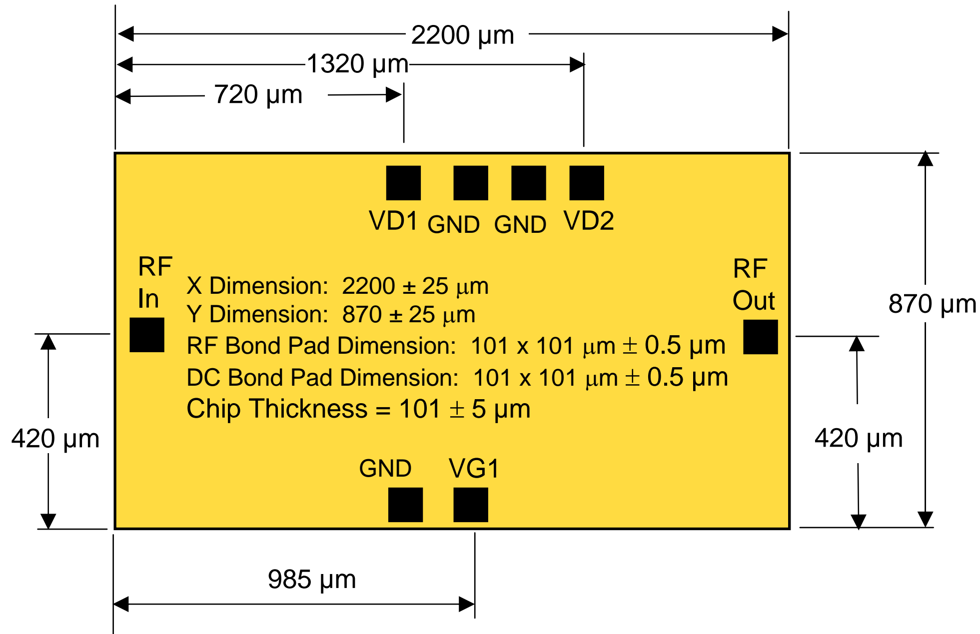
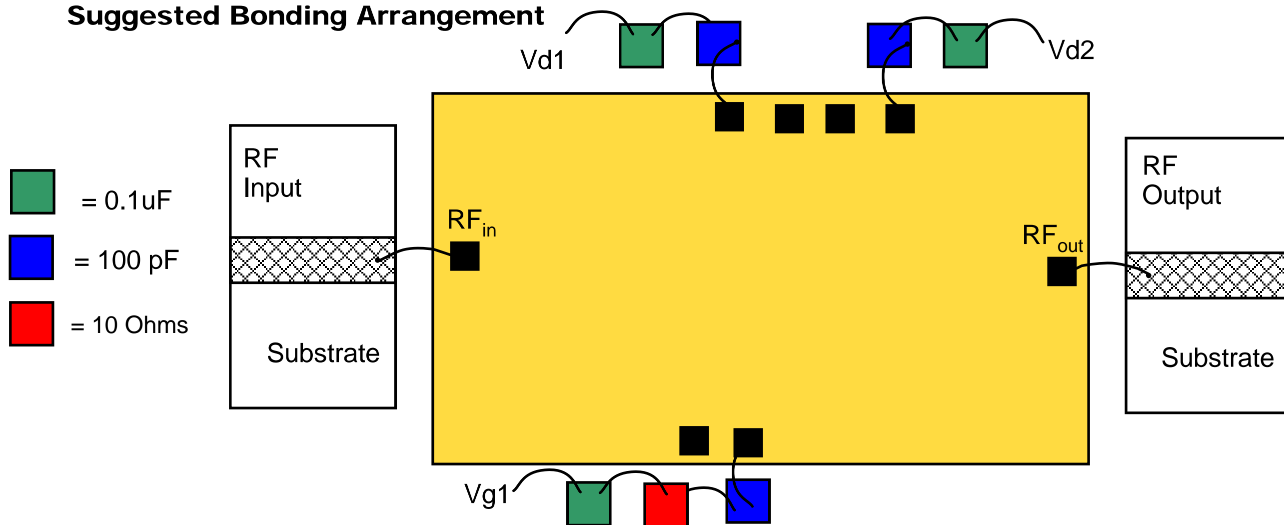
Die Size and Bond Pad Locations



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.

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