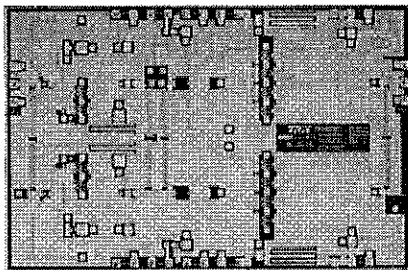


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Features

- ▼ RF Frequency: 24.5 to 26.5 GHz
- ▼ Linear gain: 13 dB, typical
- ▼ P1dB: 28 dBm, typical
- ▼ IP3: 37 dBm, typical
- ▼ Unconditionally Stable
- ▼ Excellent input and output VSWR
- ▼ DC Power: 5.0 Vdc at 1080 mA



Description and Application

The APH328C monolithic HEMT amplifier, a broadband, two-stage power device, is designed for use in commercial digital radios and wireless LANs. The 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.

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
Frequency	24.5		26.5	GHz
Linear Gain	11	13		dB
P1dB	26.5	28		dBm
IP3		37		dBm
Input Return Loss	12	15		dB
Output Return Loss	12	15		dB
Vd1, Vd1A		5		V
Vd2, Vd2A				
Vg1, Vg1A		-0.4		V
Vg2, Vg2A				
Id1		180		mA
Id1A		180		mA
Id2		360		mA
Id2A		360		mA

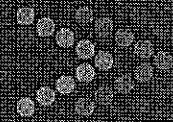
Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Vd1, Vd1A		6	V
Vd2, Vd2A			
Id1		270	mA
Id1A		270	mA
Id2		540	mA
Id2A		540	mA
Vg1, Vg1A	-1	+0.3	V
Vg2, Vg2A			
Input drive level		18	dBm
Assy. Temperature (60 seconds)		300	deg. C

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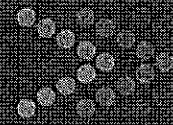


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**Measured Performance Characteristics (Typical Performance at 25°C)
Vd = 5 V, Id = 1080 mA**

Freq GHz	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
23.5	0.14	144.36	4.74	88.71	0.01	45.64	0.05	-140.39
23.8	0.14	138.17	4.95	74.58	0.00	19.47	0.05	-143.81
24.0	0.15	133.46	5.09	60.01	0.00	3.01	0.08	-151.55
24.3	0.15	127.28	5.21	44.40	0.00	9.90	0.08	-157.41
24.5	0.15	122.08	5.20	28.14	0.00	-16.65	0.11	-160.54
24.8	0.15	117.43	5.26	13.06	0.01	-15.31	0.12	-167.85
25.0	0.15	114.21	5.42	-2.46	0.00	-31.15	0.13	-175.70
25.3	0.15	109.44	5.44	-18.44	0.01	-50.99	0.14	-171.45
25.5	0.15	107.29	5.34	-34.83	0.00	-56.50	0.15	-162.53
25.8	0.15	103.26	5.11	-50.94	0.00	-69.23	0.14	-151.72
26.0	0.14	100.45	5.09	-66.61	0.00	-86.41	0.14	-143.77
26.3	0.14	96.72	5.00	-81.97	0.00	-86.12	0.13	-138.08
26.5	0.13	94.23	4.86	-97.41	0.00	-128.03	0.13	-126.35

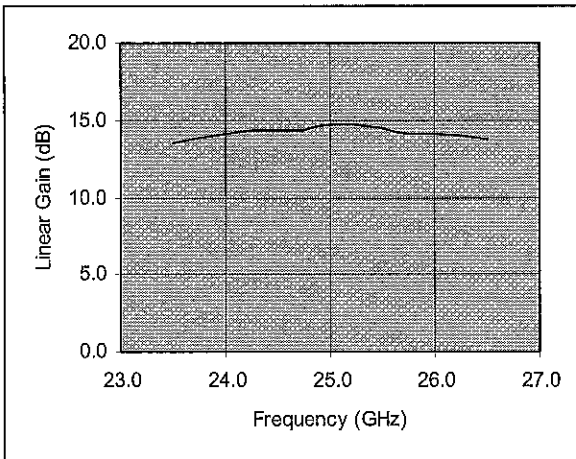
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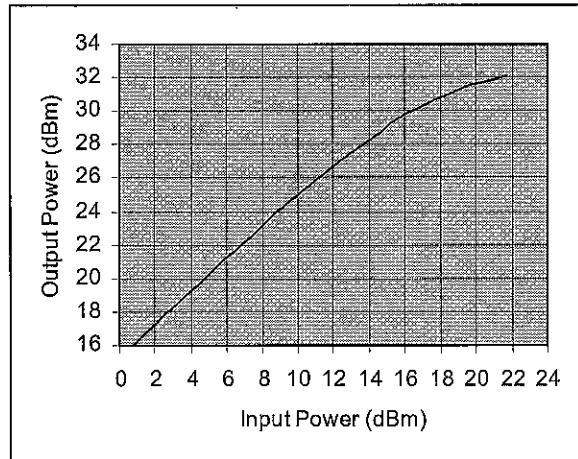
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Measured Performance Characteristics (Typical Performance at 25°C)
Vd = 5 V, Id = 1000 mA

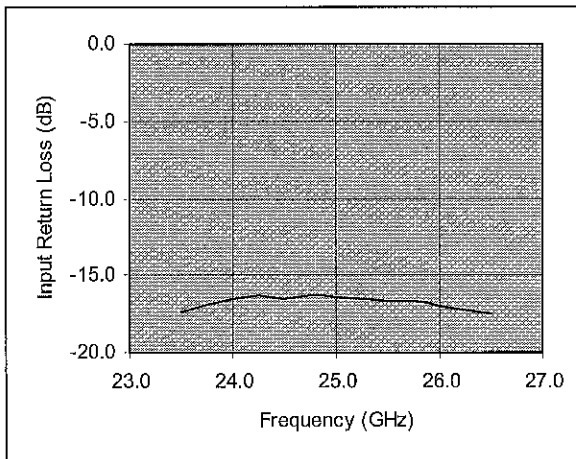
Pulsed Gain Versus Frequency



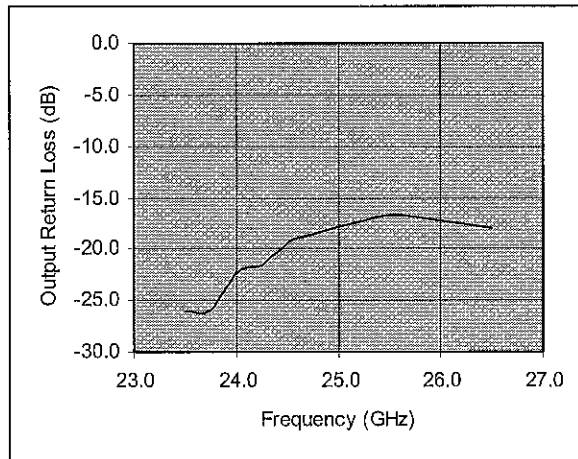
Pin vs Pout at 24.75 GHz



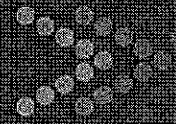
Input Return Loss Versus Frequency



Output Return Loss Versus Frequency

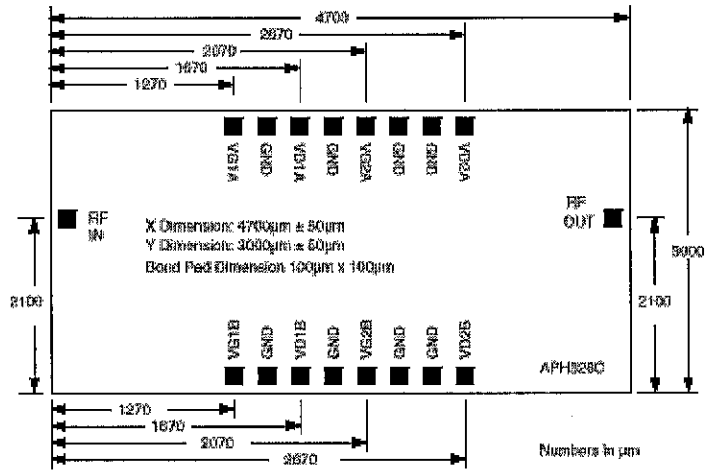


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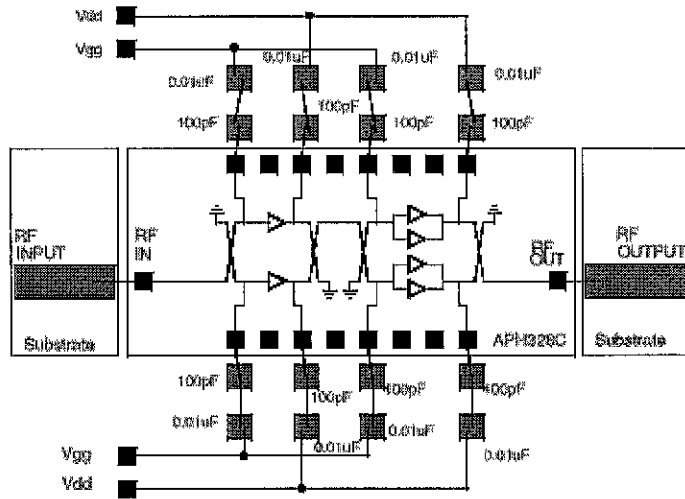


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Die Size and Bond Pad Locations



Suggested Bonding Arrangement



Recommended Assembly Notes

1. Bypass caps should be 100 pF ceramic (single-layer) placed no further 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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