

X=2800 μm Y=920 μm

Features

- ◆ RF Frequency: 24.5 to 27 GHz
- ◆ Linear Gain: 18 dB typ.
- ◆ P1dB: 26 dBm typ.
- ◆ IP3: 35 dBm typ.
- ◆ Die Size: 2.6 sq. mm.
- ◆ DC Power: 5 VDC @ 0.32 A

Applications

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

Product Description

The APH519 monolithic HEMT amplifier is a broadband, two-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.

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
Frequency	24.5		27	GHz
Linear Gain	17	18		dB
P1dB	25	26		dBm
IP3	34	35		dBm
Input Return Loss	6	10		dB
Output Return Loss	3	6		dB
Vd1, Vd2		5		V
Vg1, Vg2		-0.5		V
Id1		75		mA
Id2		240		mA
Thermal Resistance				

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Vd1, Vd2		5.5	V
Id1		90	mA
Id2		295	mA
Vg1, Vg2	-1	0.3	V
Input drive level		13	dBm
Assy. Temperature (60 seconds)		300	deg. C

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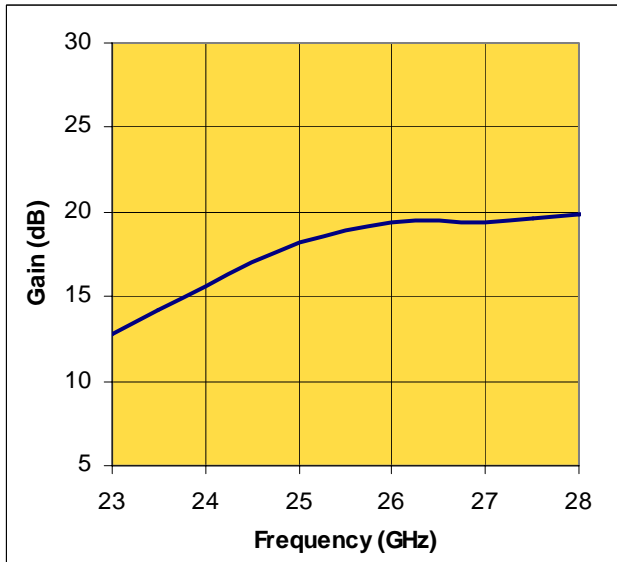


Preliminary Datasheet

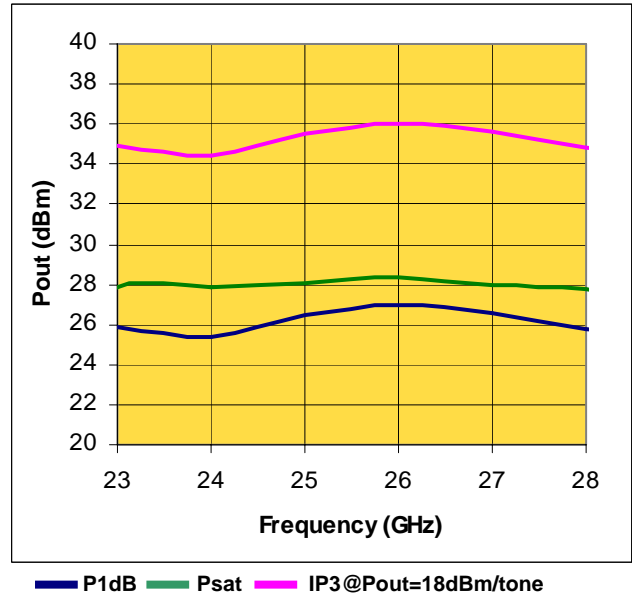
Revision: May 2007

Measured Performance Characteristics (Typical Performance at 25°C)
Vd1 = Vd2 = 5V, Id1 = 75mA, Id2 = 240mA

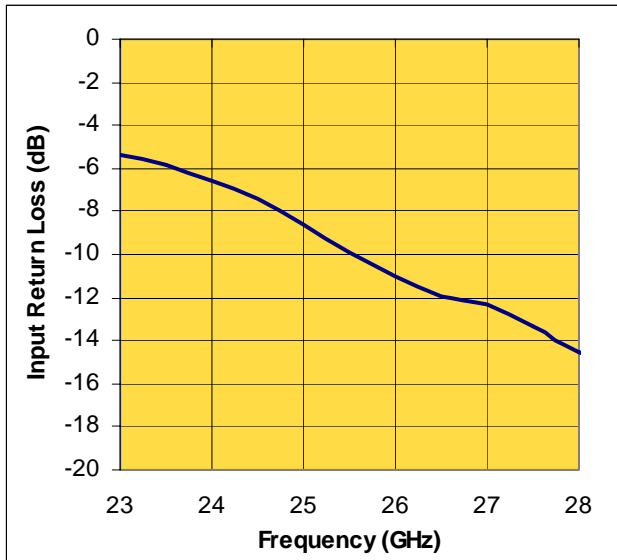
Linear Gain Versus Frequency



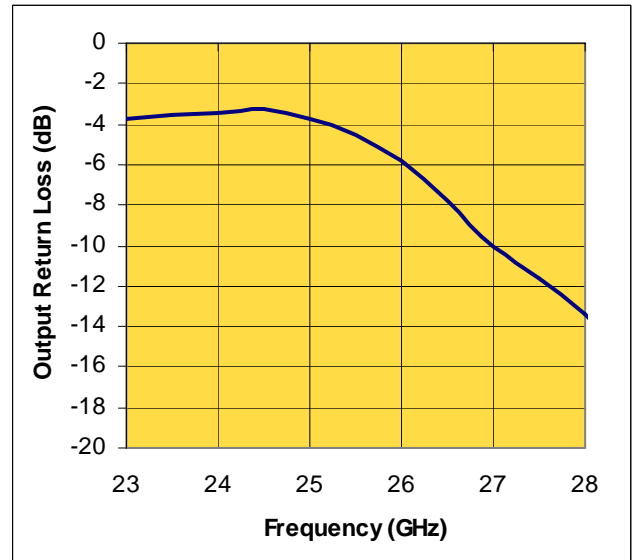
Fixtured Pout Versus Frequency



Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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Preliminary Datasheet

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Measured Performance Characteristics (Typical Performance at 25°C)

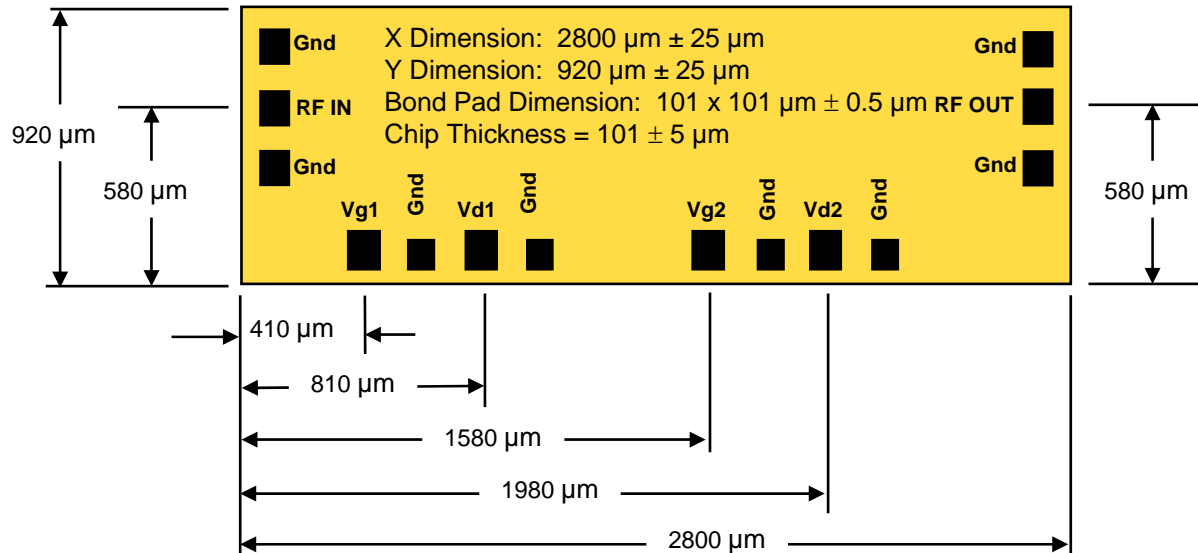
Vd1 = Vd2 = 5V, Id1 = 75mA, Id2 = 240mA

Freq GHz	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
22	0.57	-94.078	3.948	44.511	0.001	-125.054	0.561	175.145
22.5	0.553	-97.979	4.584	31.662	0.001	-106.475	0.587	172.661
23	0.521	-101.585	5.391	16.999	0.001	16.01	0.608	167.876
23.5	0.478	-105.348	6.318	-0.207	0.001	-77.814	0.62	161.217
24	0.426	-107.135	7.378	-19.309	0.001	-98.125	0.621	152.219
24.5	0.366	-109.755	8.317	-40.995	0.003	-116.161	0.598	141.892
25	0.304	-105.347	8.864	-64.65	0.004	-150.084	0.552	131.221
25.5	0.272	-100.461	9.298	-86.89	0.004	-172.754	0.48	119.241
26	0.253	-94.071	9.334	-109.817	0.005	165.285	0.386	107.237
26.5	0.23	-83.093	9.143	-131.156	0.005	148.994	0.29	94.312
27	0.225	-72.135	9.126	-150.693	0.005	135.081	0.203	81.974
27.5	0.23	-59.788	9.361	-172.723	0.006	107.099	0.147	71.093
28	0.239	-43.617	9.48	163.695	0.006	107.283	0.129	56.576

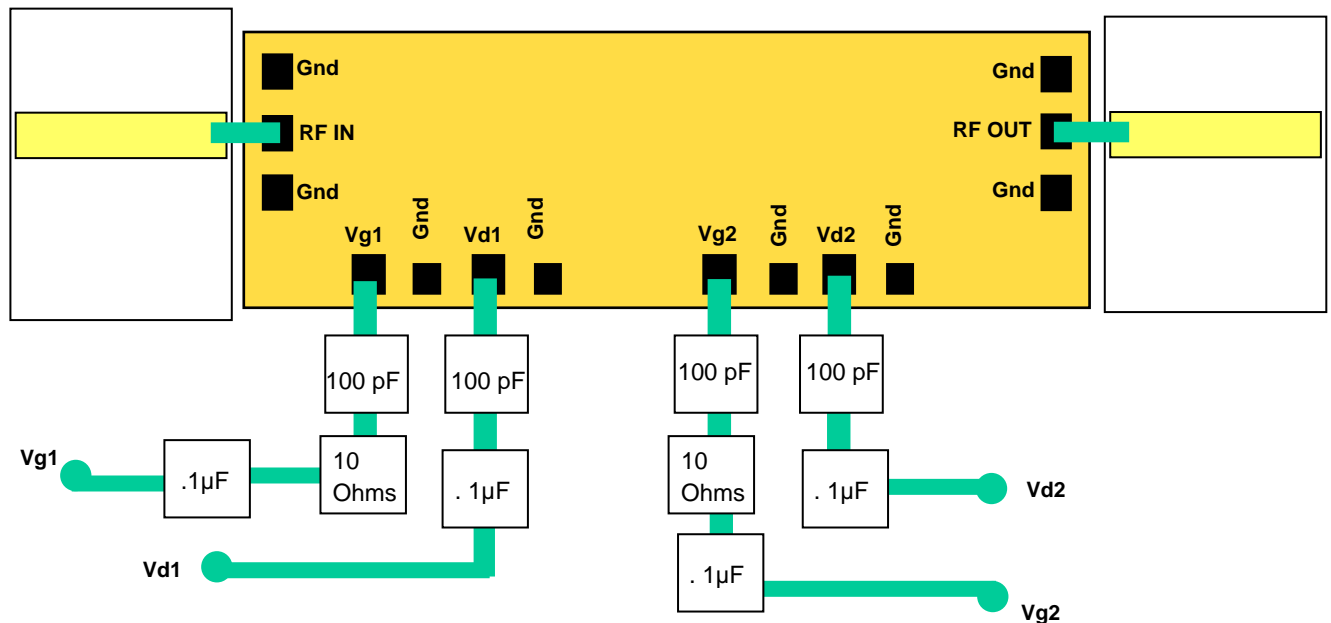
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Die Size and Bond Pad Locations



Suggested Bonding



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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