

X=2820 μm Y=1260 μm

Product Features

- ◆ RF Frequency: 34 to 36 GHz
- ◆ Linear Gain: 14 dB Typ.
- ◆ Psat: 30 dBm typ.
- ◆ IP3: 35 dBm typ.
- ◆ Die Size: 3.6 sq. mm.
- ◆ DC Power: 5 VDC @ 810 mA

Applications

- ◆ EW Radar

Product Description

The APH502 monolithic HEMT amplifier is a broadband, two-stage power device designed for use in either linear or saturated power applications . To ensure rugged and reliable operation, HEMT devices are fully passivated. All RF ports are DC blocked. 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	34		36	GHz
Linear Gain	12	14		dB
Psat		30		dBm
IP3		35		dBm
Input Return Loss	9	11		dB
Output Return Loss	3	5		dB
Vd1, Vd2		5		V
Vg1, Vg2		-0.5		V
Id1		270		mA
Id2		540		mA

Absolute Maximum Ratings (Ta = 25°C)

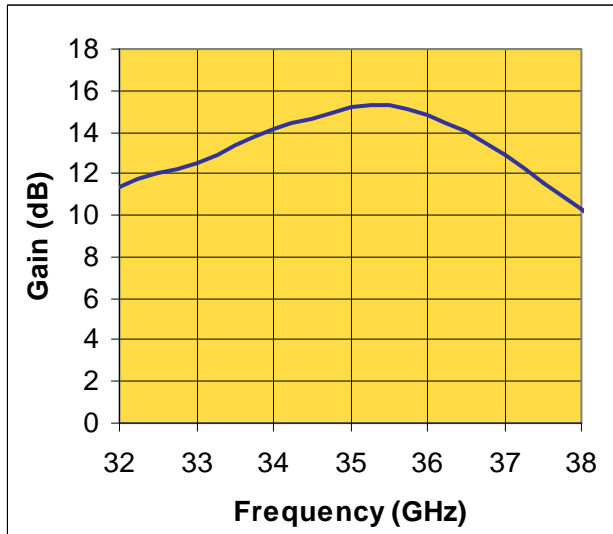
Parameter	Min	Max	Unit
Vd1, Vd2		5.5	V
Id1		300	mA
Id2		600	mA
Vg1, Vg2	-1	+0.3	V
Input drive level		19	dBm
Assy. Temperature (60 seconds)		300	deg. C

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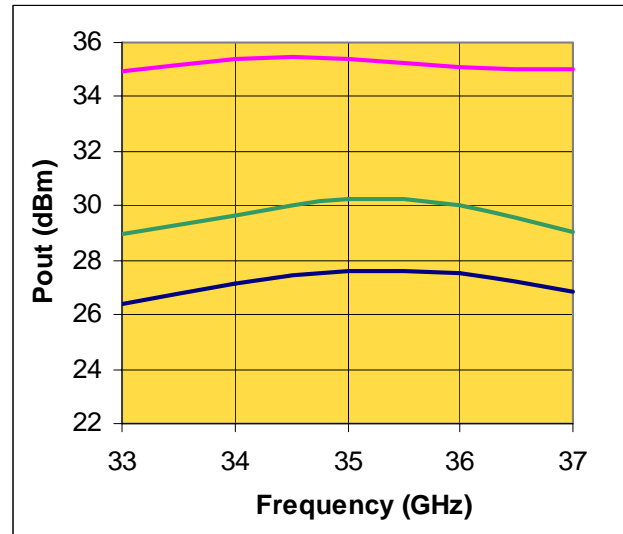


Measured Performance Characteristics (Typical Performance at 25°C)
 Vd1 = Vd2 = 5V, Id1 = 270 mA, Id2 = 540 mA

Linear Gain Versus Frequency

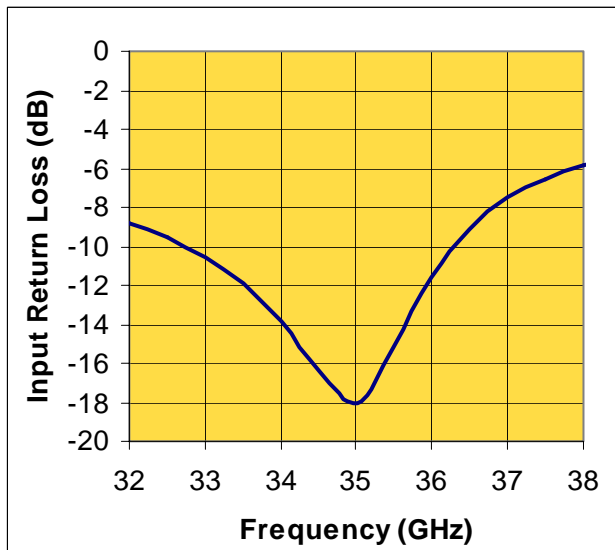


Fixtured Pout Versus Frequency

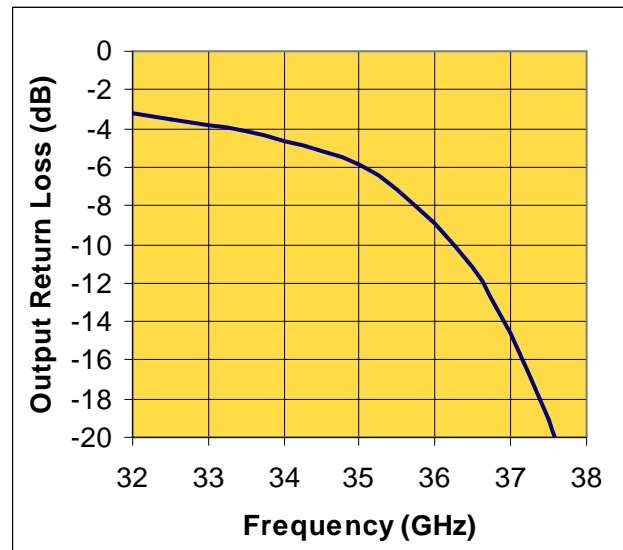


— P1dB — P3dB — IP3@18dBm/Tone

Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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Product Datasheet

Revision: May 2007

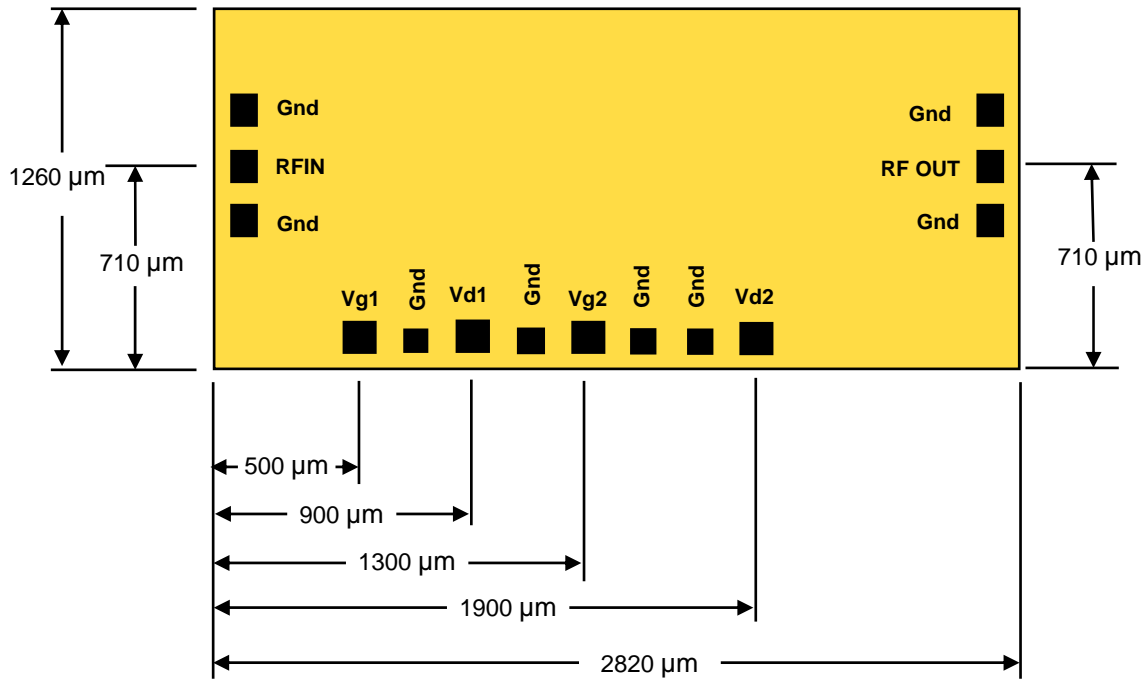
Measured Performance Characteristics (Typical Performance at 25°C)
 $V_{d1} = V_{d2} = 5V$, $I_{d1} = 270 \text{ mA}$, $I_{d2} = 540 \text{ mA}$

Freq GHz	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
32.0	0.381	-135.685	3.279	-145.511	0.004	87.467	0.706	104.516
32.5	0.347	-140.763	3.470	-158.995	0.004	76.930	0.670	100.176
33.0	0.324	-146.294	3.595	-172.813	0.003	103.700	0.641	96.883
33.5	0.293	-153.793	3.959	-171.634	0.005	117.929	0.616	92.761
34.0	0.268	-162.459	4.273	-157.830	0.006	111.275	0.592	88.088
34.5	0.242	-176.111	4.594	-140.731	0.007	99.832	0.551	81.576
35.0	0.222	165.295	5.099	121.903	0.008	94.860	0.504	76.939
35.5	0.208	138.593	5.544	103.422	0.010	94.195	0.491	69.166
36.0	0.225	106.651	5.893	80.810	0.013	83.050	0.426	56.569
36.5	0.287	73.474	6.132	56.403	0.015	65.702	0.357	48.745
37.0	0.366	44.801	5.964	32.382	0.015	44.475	0.316	32.575
37.5	0.439	21.251	5.443	7.063	0.015	25.503	0.207	3.504
38.0	0.502	2.395	4.760	-15.087	0.014	19.685	0.078	-17.395

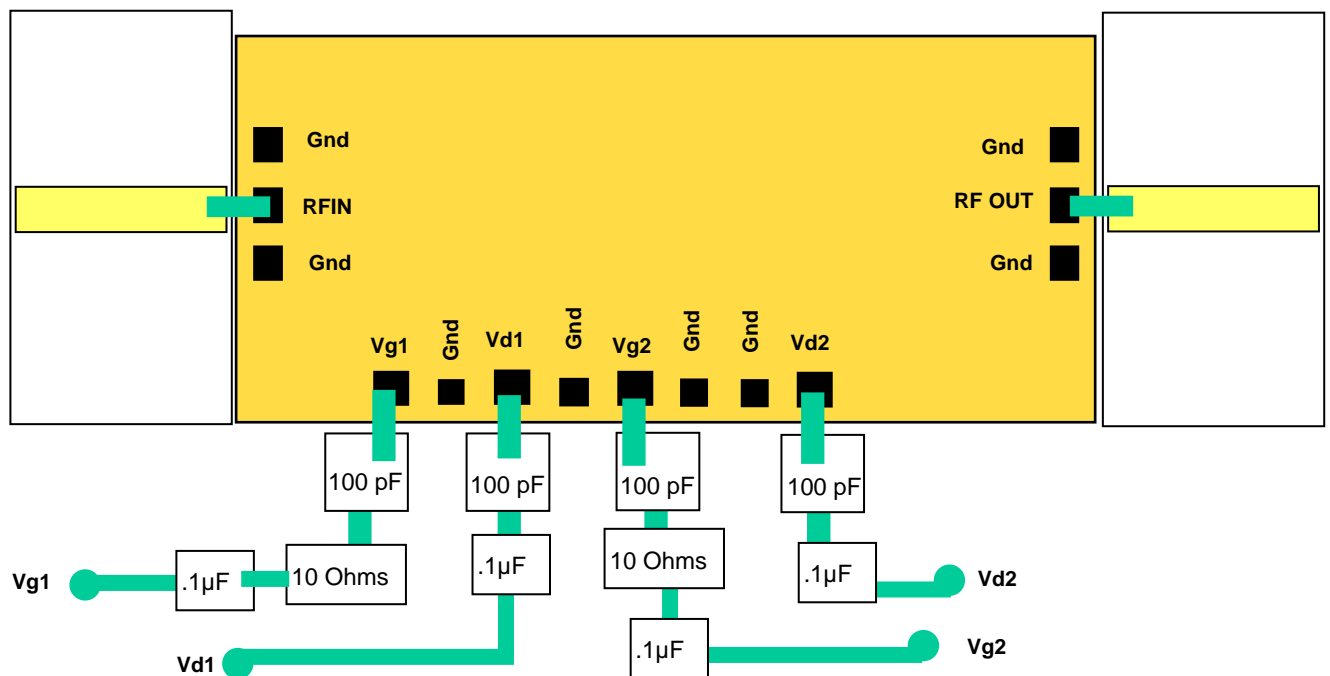
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Die Size and Bond Pad Locations



Suggested Bonding



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