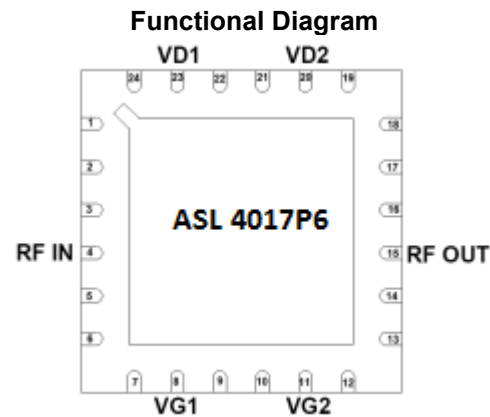


8.5 – 10.5 GHz 1 Watt Power Amplifier

Features

- ◆ Frequency Range : 8.5 – 10.5GHz
- ◆ 29.5 dBm output P1dB
- ◆ 16.5 dB Power gain
- ◆ 30% PAE
- ◆ High IP3
- ◆ Input Return Loss > 8.5 dB
- ◆ Output Return Loss > 12 dB
- ◆ Dual bias operation
- ◆ No external matching required
- ◆ DC decoupled input and output
- ◆ 0.5 μ m InGaAs pHEMT Technology
- ◆ Open cavity QFN Package



Typical Applications

- ◆ RADAR
- ◆ Military & space
- ◆ LMDS, VSAT

Description

The ASL4017P6 is a X-band Power amplifier with 29.5dBm output P1dB. The PA uses two stages of amplification and operates in 8.5 – 10.5 GHz frequency range. The PA features 16.5 dB of gain with input and output return loss 8.5dB and 12 dB respectively. The PA has a high IP3 of 38dBm and 30% PAE. This feature enables it to be used in the applications requiring efficiency along with linearity. The chip operates with dual bias supply voltage. The die is fabricated using a reliable 0.5 μ m InGaAs pHEMT technology.

The package used is a SMD open cavity QFN Package with base metal made up of copper composite.

Absolute Maximum Ratings ⁽¹⁾

Parameter	Absolute Maximum	Units
Drain bias voltage (Vd)	+9.5	volts
Drain current (Id)	0.55	A
RF input power (RF _{in} at Vd=8V)	26	dBm
Operating temperature	-50 to +85	°C
Storage Temperature	-65 to +150	°C

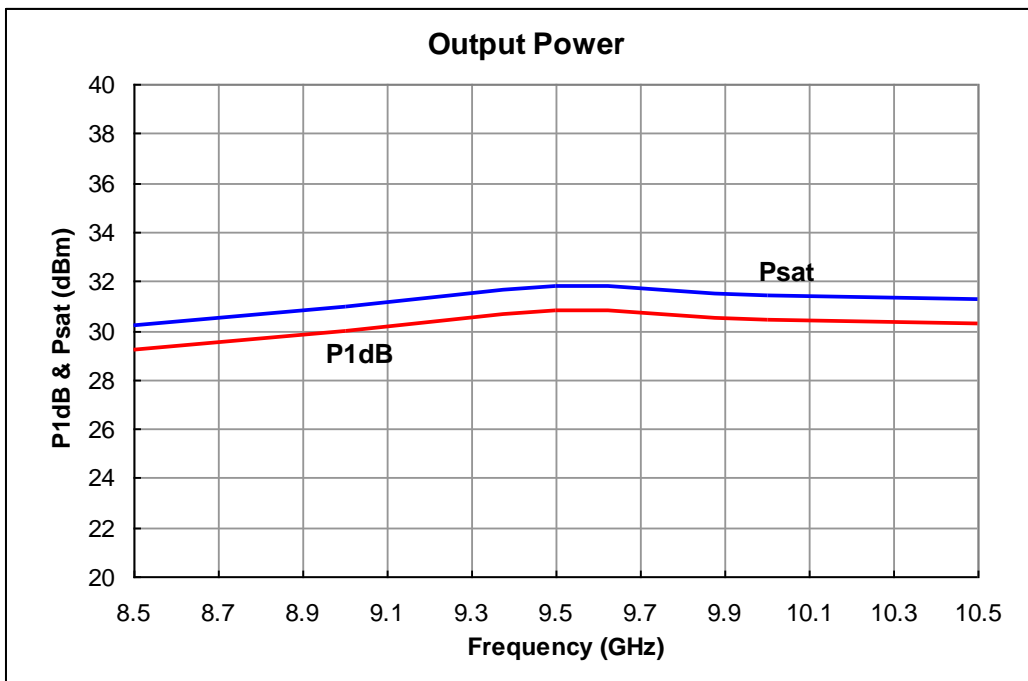
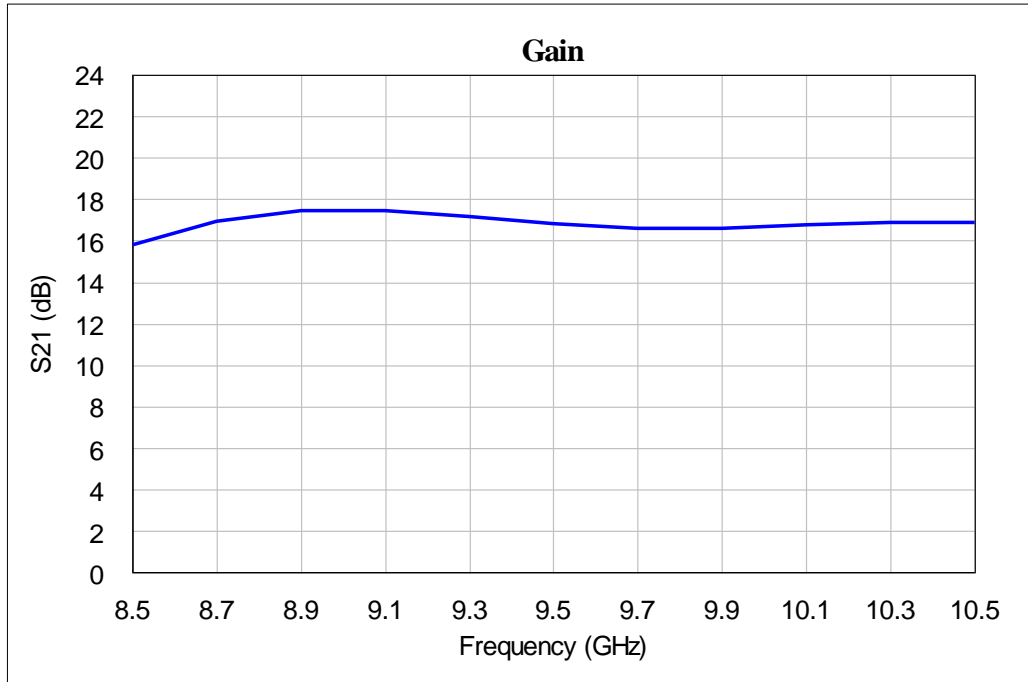
1. Operation beyond these limits may cause permanent damage to the component

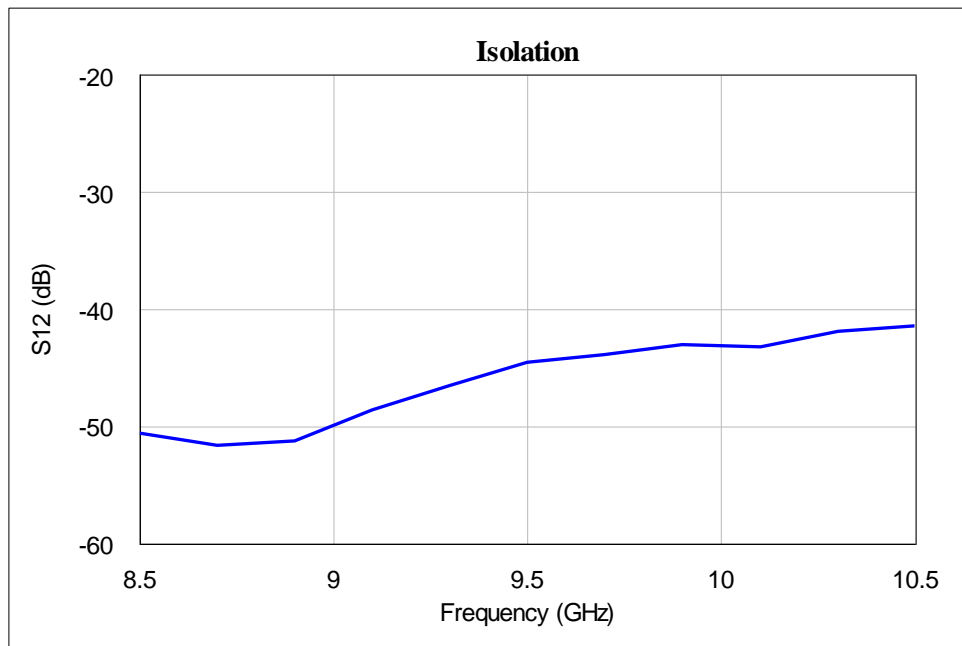
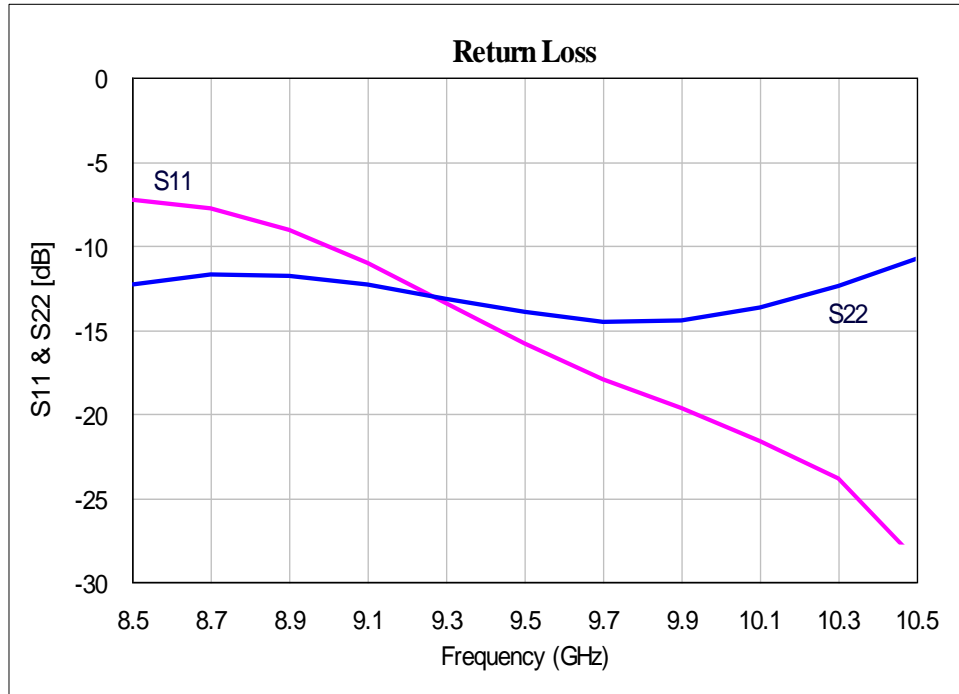
**Electrical Specifications ⁽¹⁾ @ $T_A = 25\text{ }^\circ\text{C}$, $V_{d1}=V_{d2}=V_d=8\text{V}$,
 $V_{g1}=V_{g2}=V_g=-1\text{V}$, $Z_o = 50\text{ }\Omega$**

Parameter	Typ.	Units
Frequency Range	8.5 – 10.5	GHz
Gain	16.5	dB
Gain Flatness	+/-0.5	dB
Output Power (P1 dB)	29.5	dBm
Input Return Loss	8.5	dB
Output Return Loss	12	dB
Saturated output power (Psat)	30.5	dBm
Output Third Order Intercept (IP3)	38	dBm
Power Added Efficiency (PAE)	30%	--
Supply Current (I_{dq})	370	mA
Supply Current (I_{dsat})	520	mA

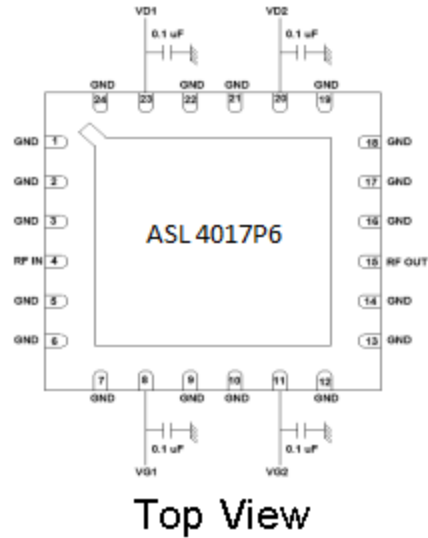
Note:

1. Electrical specifications as measured in test fixture.
2. I_{dsat} is the maximum current under input RF drive condition.

Test fixture data
 $V_d = 8V, V_g = -1V, \text{Total Current} = 370mA, T_A = 25^\circ C$


Test fixture data
 $V_d = 8V, V_g = -1V, \text{Total Current} = 370mA, T_A = 25^\circ C$


Pin details



Note:

1. All RF and DC bond pads are 100µm x 100µm
2. Pad no. 4 : RF IN
3. Pad no. 8,11 : Vg1, Vg2
4. Pad no. 23,20 : Vd1, Vd2
5. Pad no. 15 : RF OUT

Recommended Assembly Diagram

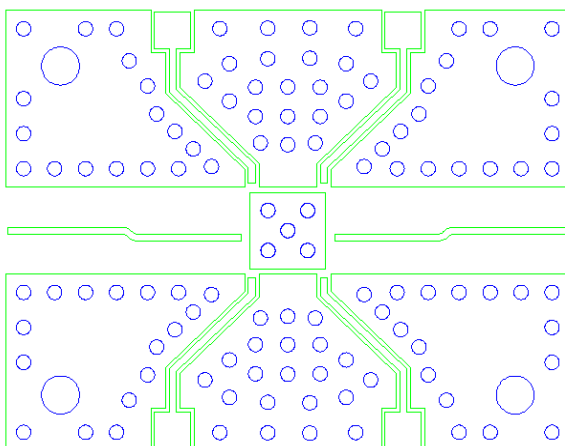


Fig: PCB Drawing

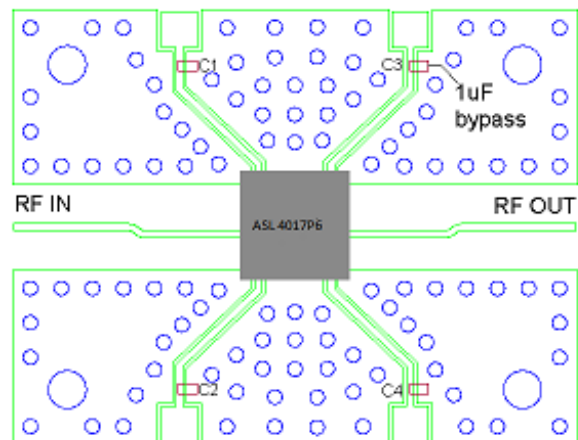
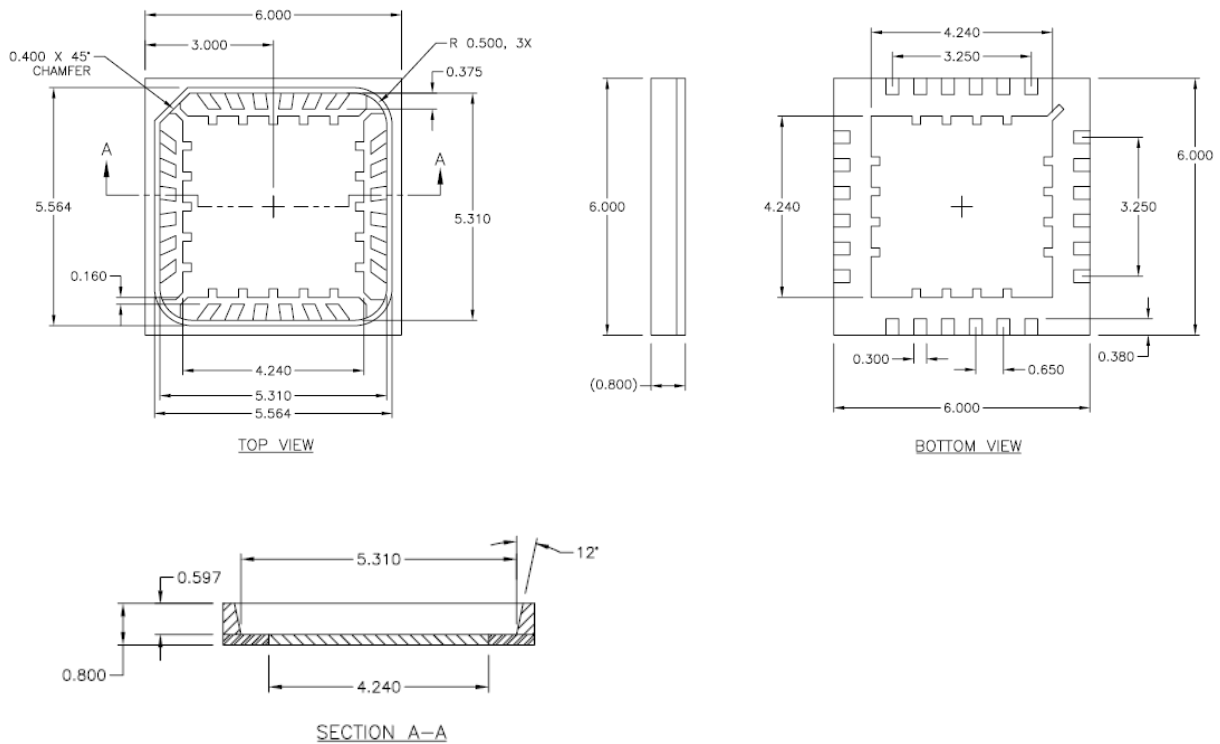


Fig: Package assembled on PCB

Package outline drawing



GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing

All information and Specifications are subject to change without prior notice