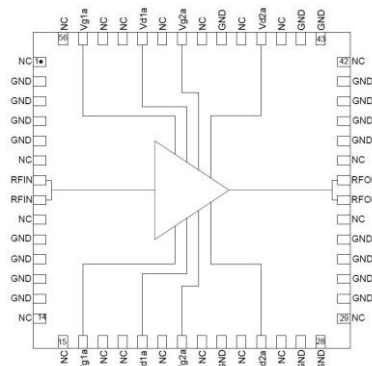


4.4 – 6.6 GHz 10W GaAs High Power Amplifier

Features

- ◆ Frequency Range : 4.4 – 6.6GHz
- ◆ Small signal Gain : 20dB
- ◆ Power Gain : 16dB
- ◆ Psat : 40dBm (typ)
- ◆ Efficiency : 30%
- ◆ Drain Voltage : 8V
- ◆ Drain Bias Current : 290 mA (average @10%DC)
- ◆ Package Size : 8mm x 8mm x 1.2mm

Functional Diagram



Typical Applications

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

Description

The ASL4006P8 is a packaged MMIC two-stage 10-Watt Power Amplifier with operating frequency range of 4.4 to 6.6 GHz. Input and output of the amplifier are matched to 50Ω impedance. The Power Amplifier exhibits 16dB of power Gain, 40dBm of saturated output power with 30% of Power Efficiency in Pulse mode. The MMIC is developed using highly reliable InGaAs pHEMT process.

Absolute Maximum Ratings¹

Parameter	Absolute Maximum	Units
Drain supply voltage	+9	volts
Gate bias voltage (Vgs)	-5 to -2.5	volts
RF input power at Vd=8v	33	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

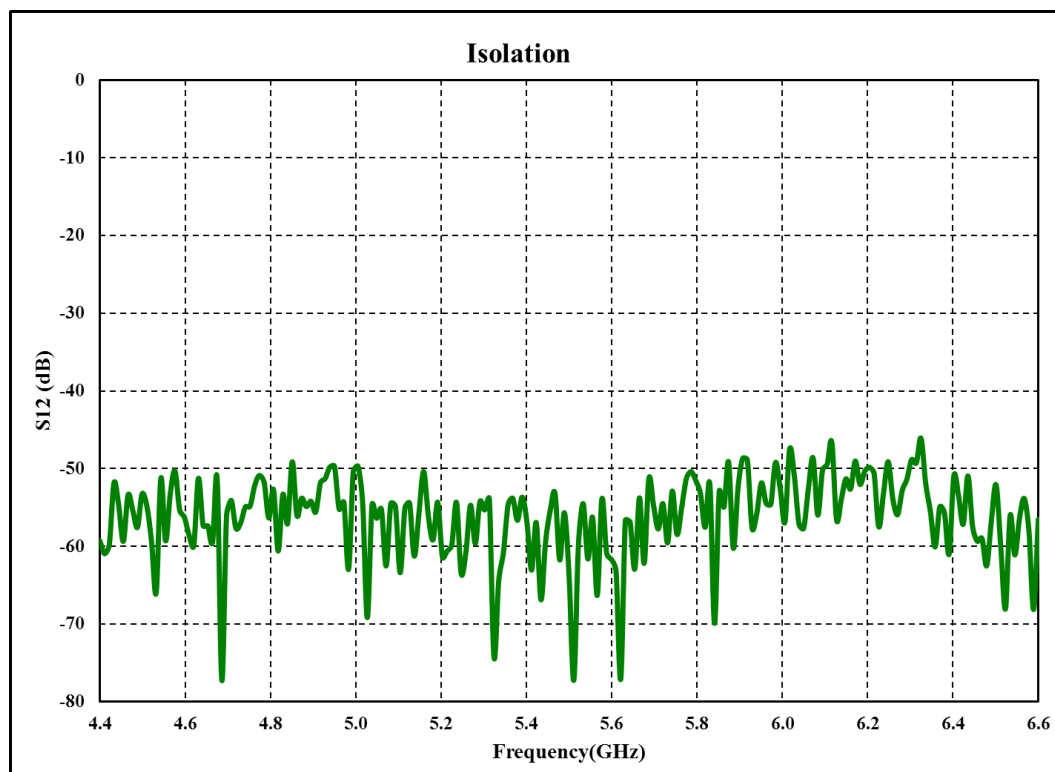
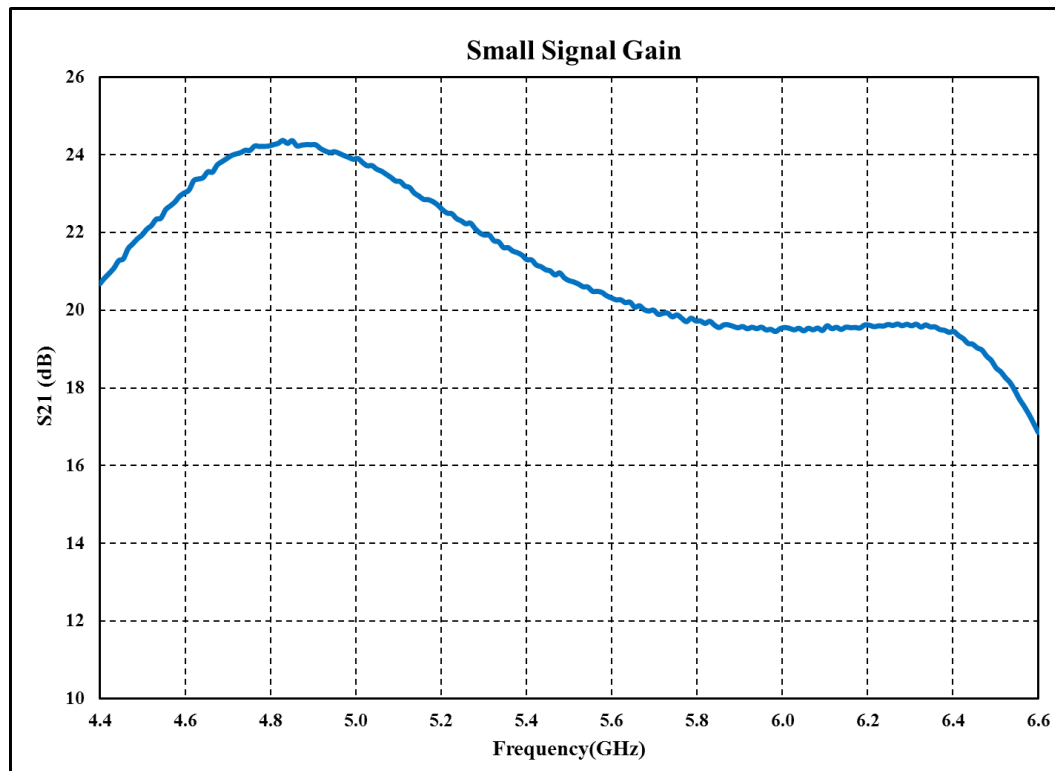
Electrical Specifications: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25\text{ }^{\circ}C$, $Z_o = 50\text{ }\Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%

S.No	Parameter	Typical Value	Units
1	Frequency	4.4 – 6.6	GHz
2	Small Signal Gain	20	dB
3	Input Return Loss	12	dB
4	Output Return Loss	7	dB
5	Saturated Output Power	40	dBm
6	Power Gain	16	dB
7	PAE	30	%
8	Drain Voltage (V_d)	8	V
9	Quiescent Current (I_{dq} , avg)	290	mA

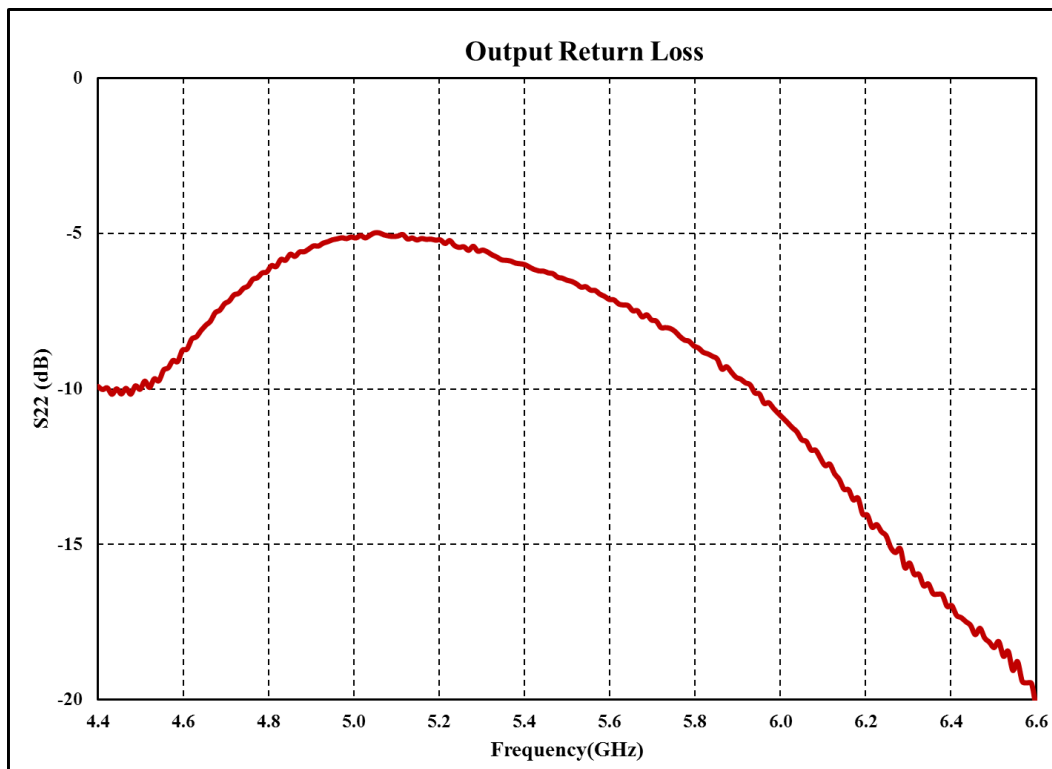
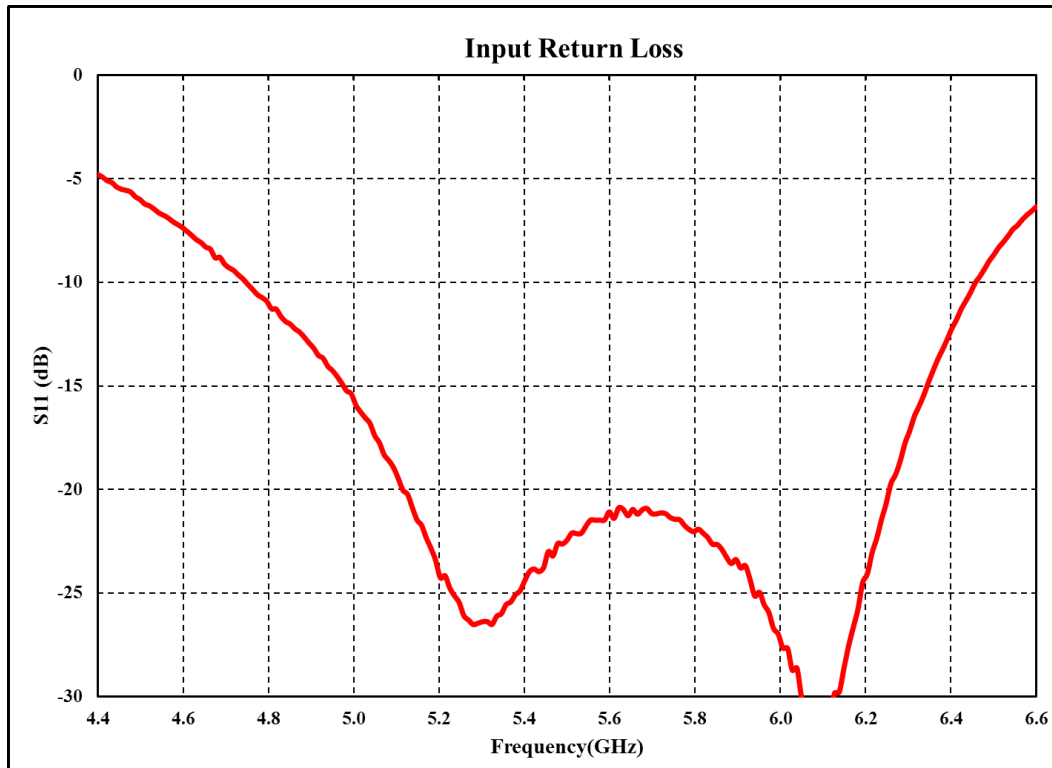
Note:

1. The above parameters specified are measured in 50-Ohm test fixture.
2. Adjust V_g between -1.2 to -0.7V to achieve required I_{dq} .

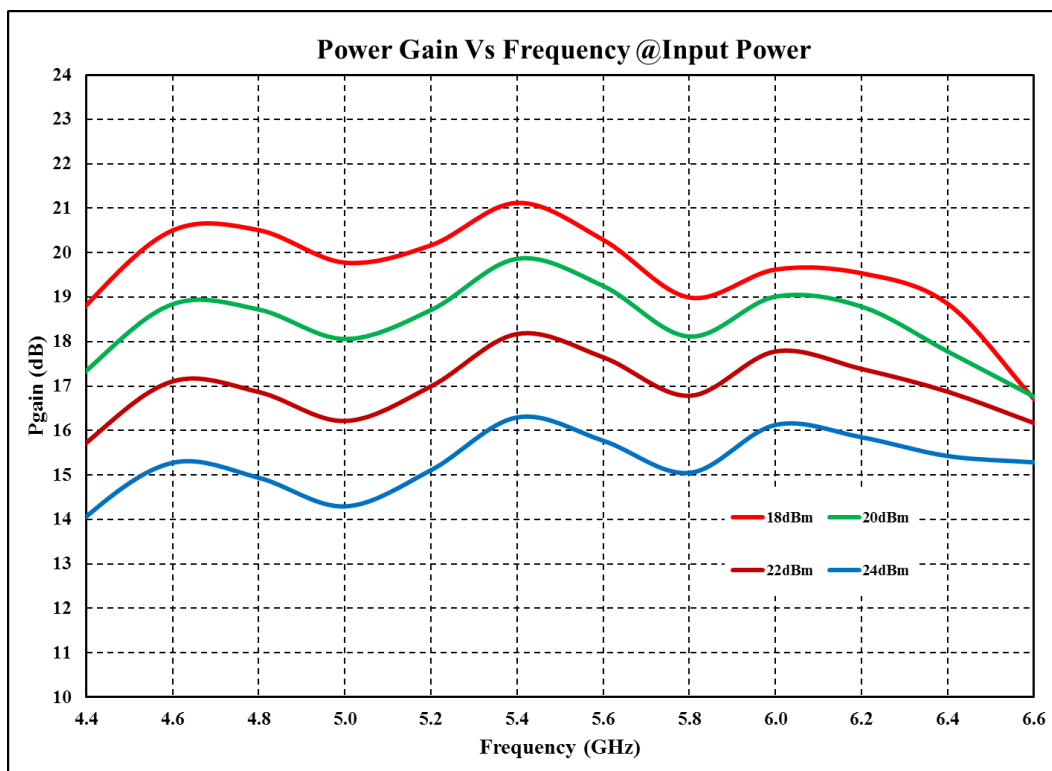
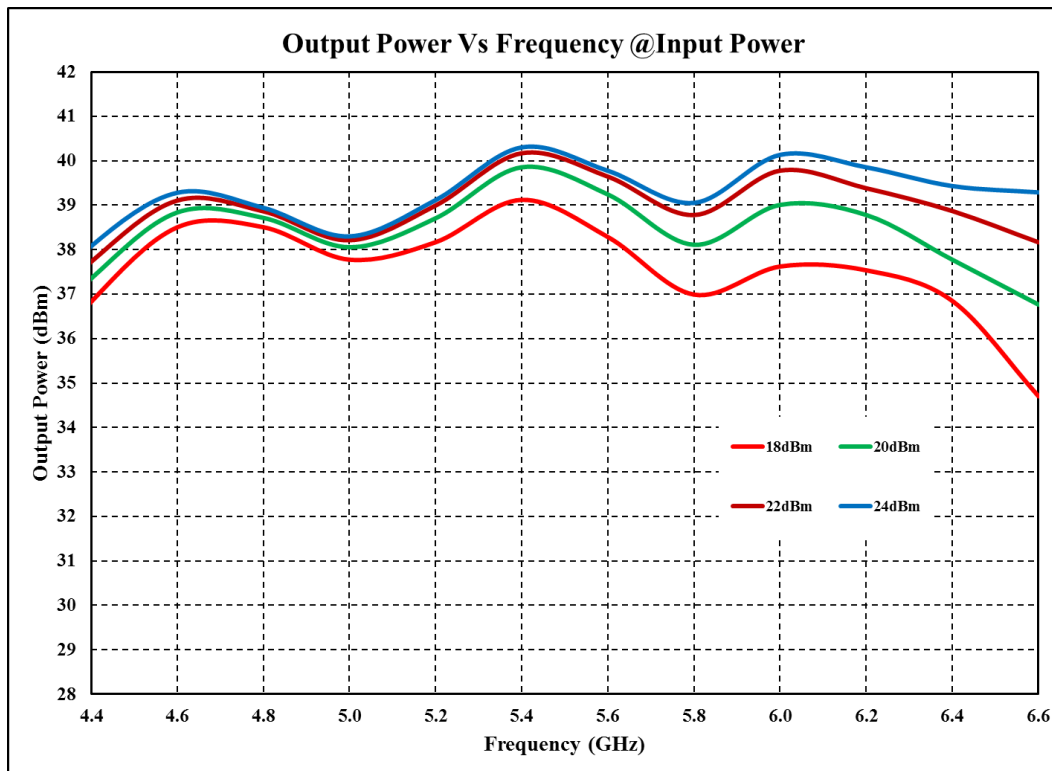
Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%



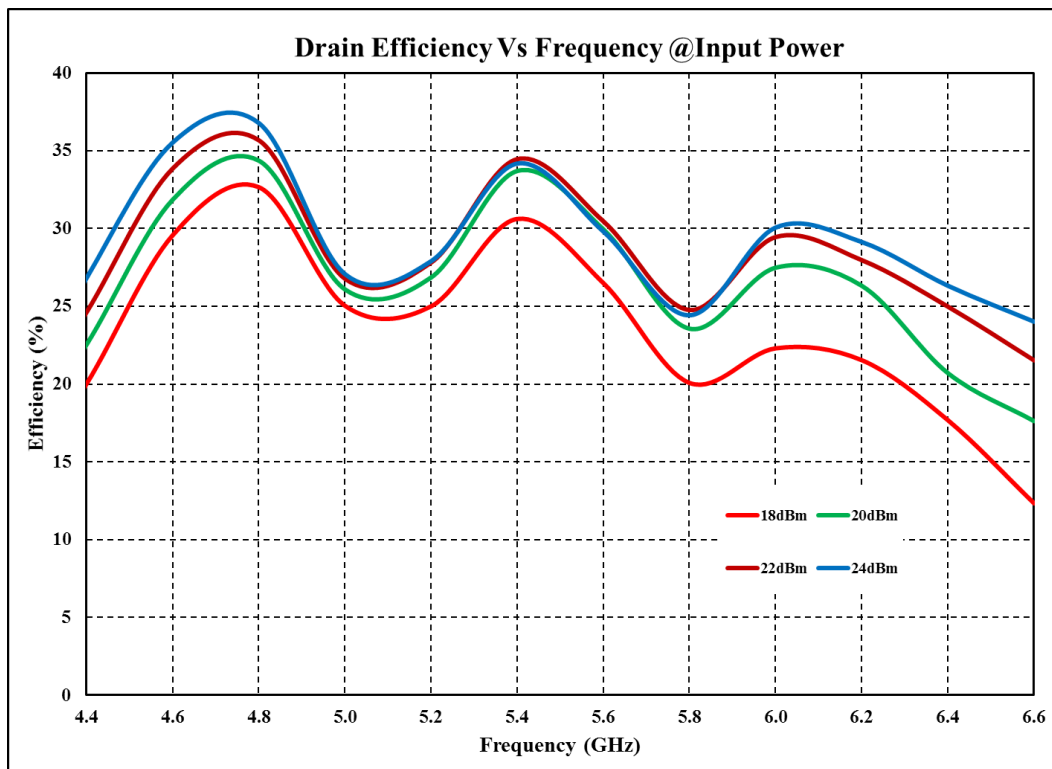
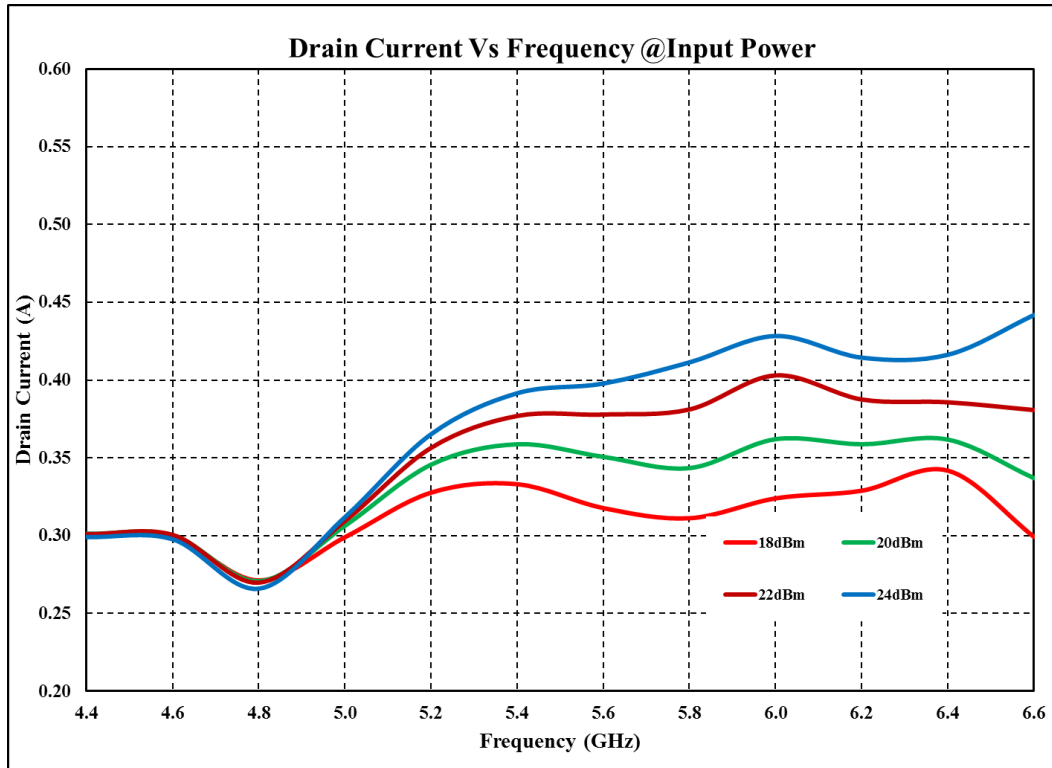
Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%



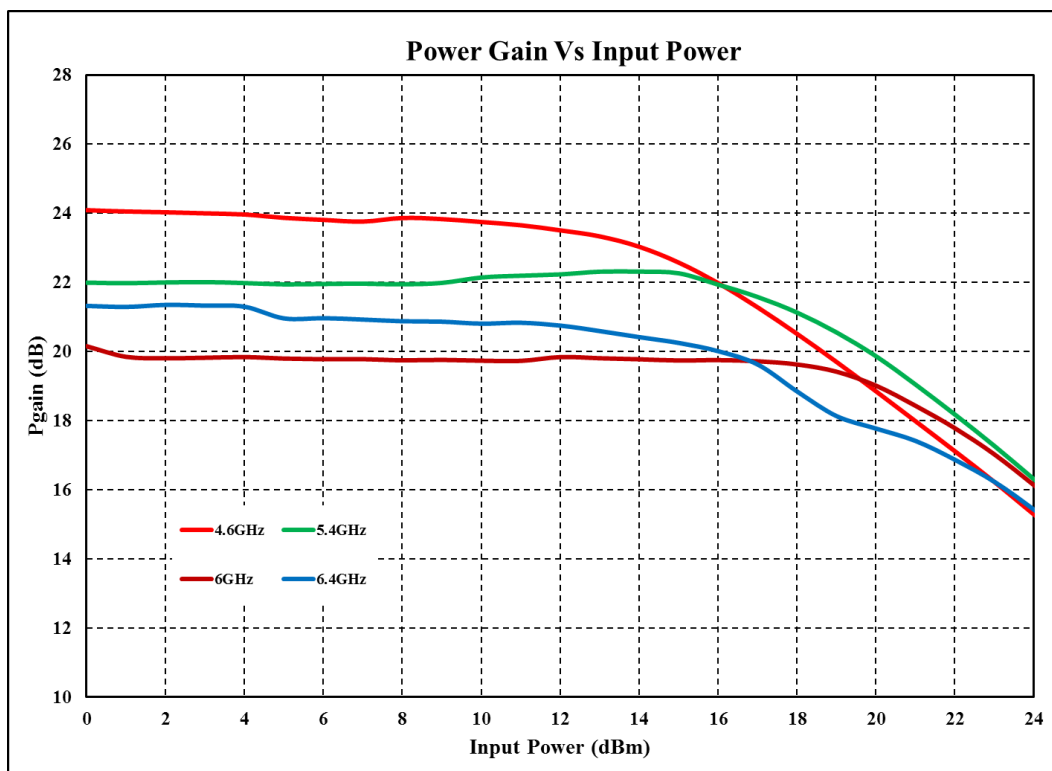
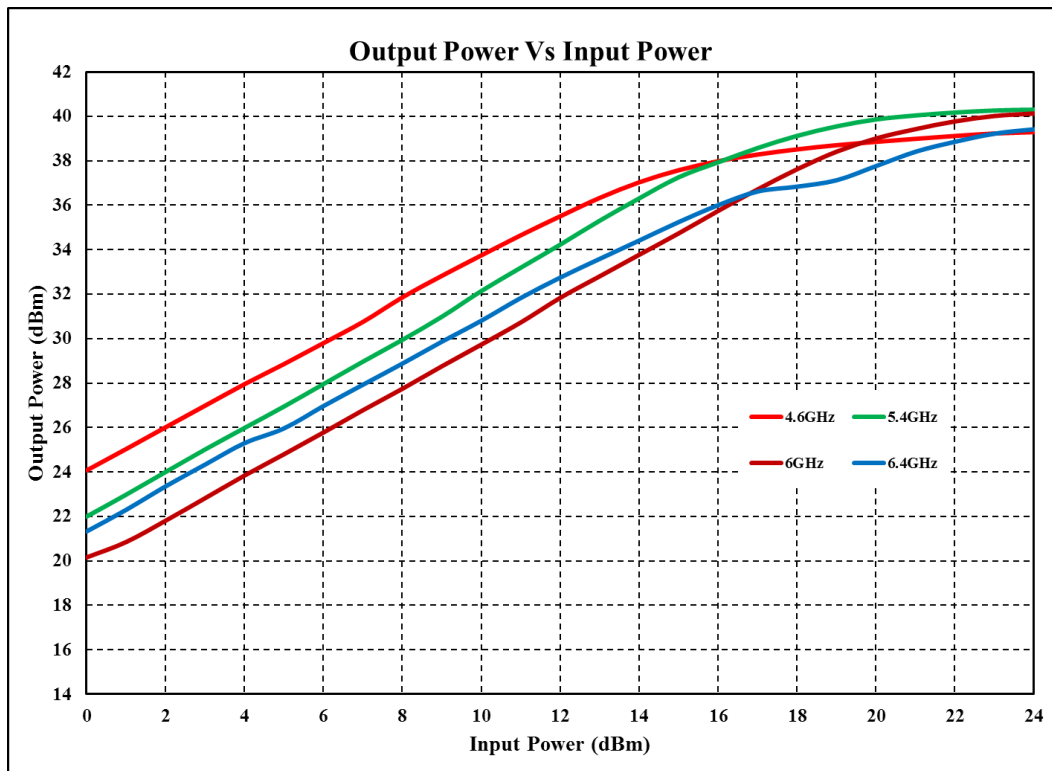
Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%



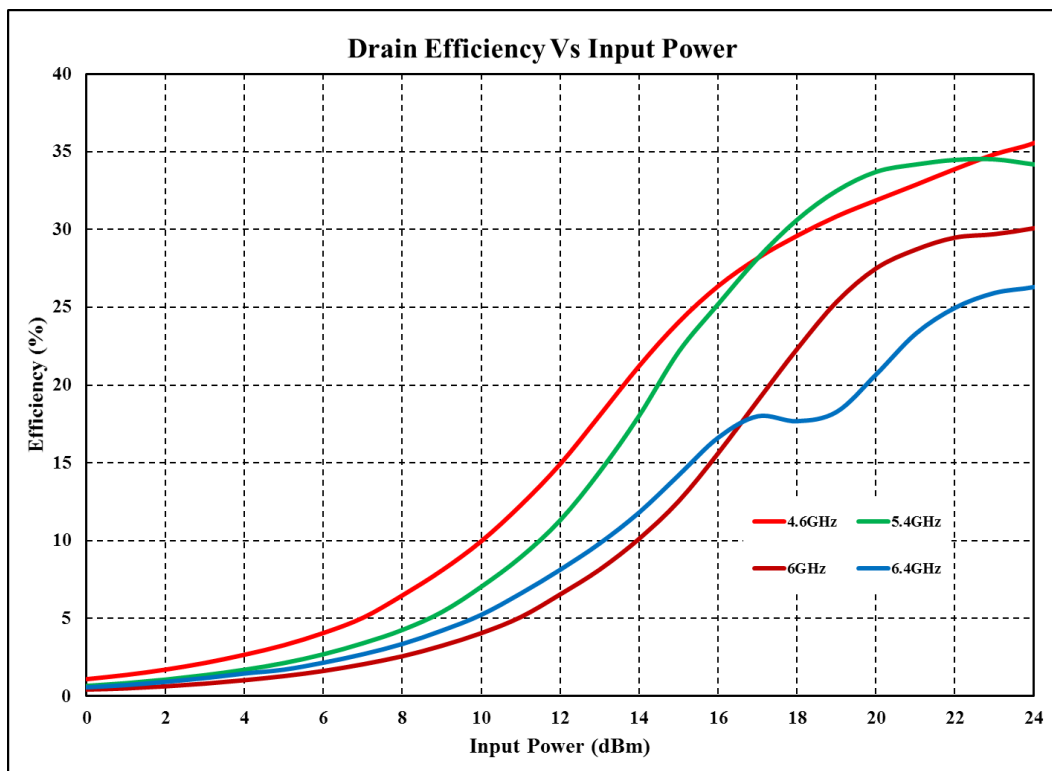
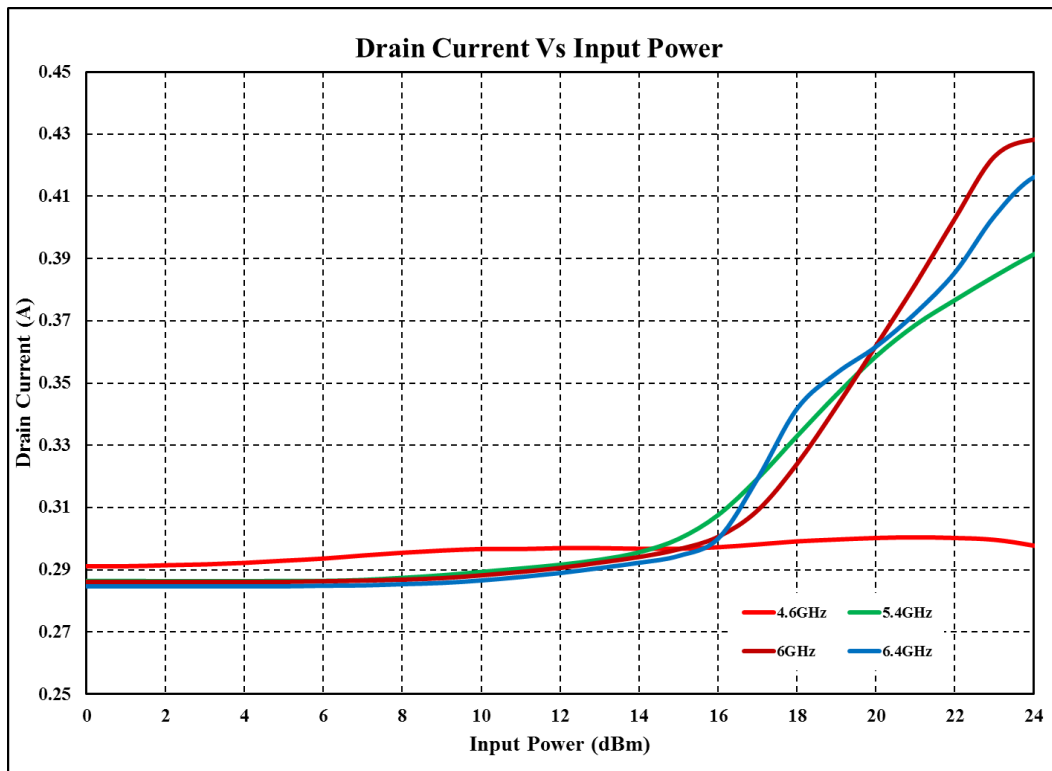
Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%



Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%

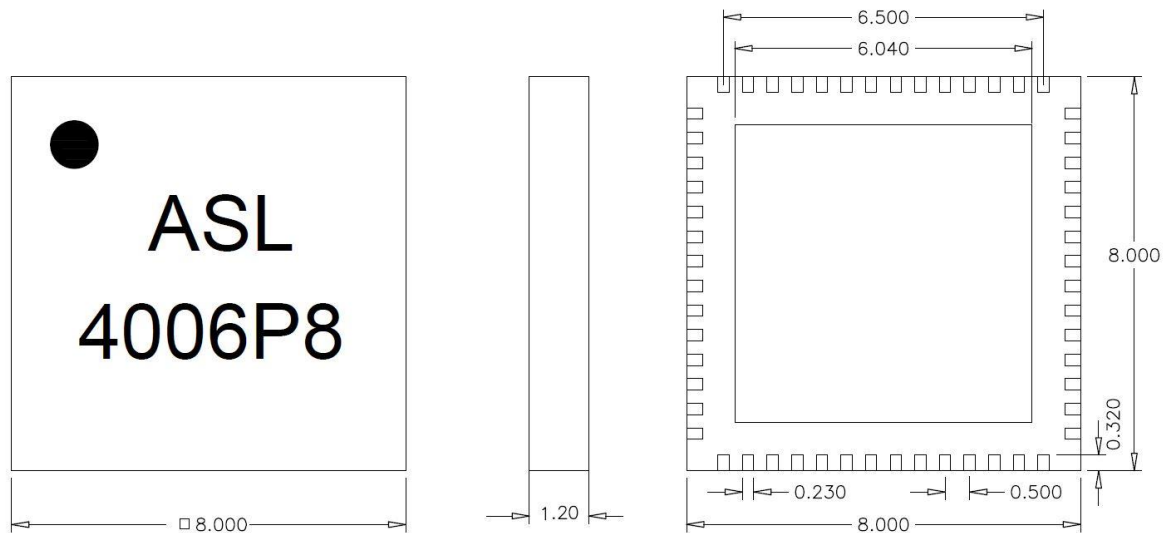


Test Fixture Data: $V_d = 8V$, $I_{dq} \text{ (avg)} = 290mA$,
 $T_A = 25^\circ C$, $Z_o = 50\ \Omega$, Pulse Repetition Period = 1ms, Duty Cycle = 10%



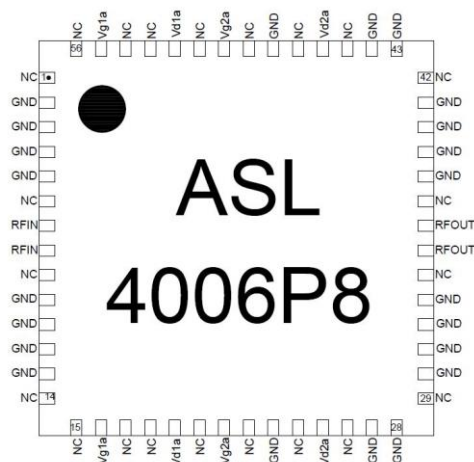
Package Dimension and Pin Configuration

Package over View:

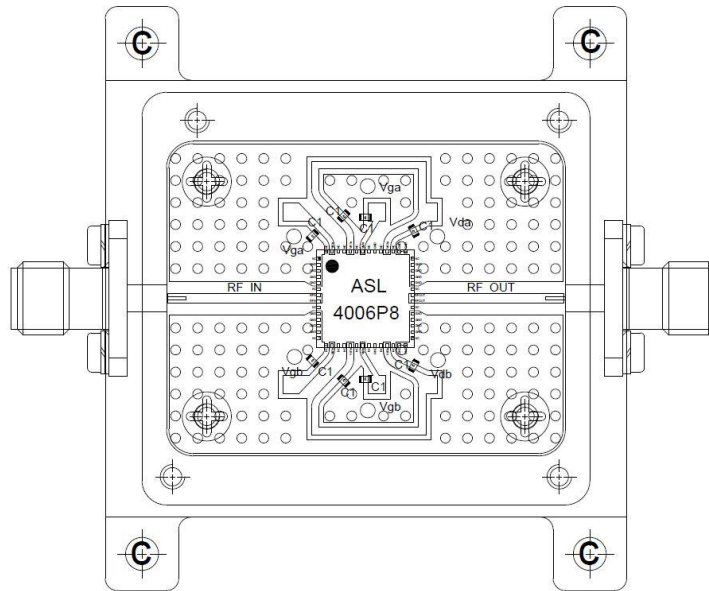


- Note:**
1. All units are in millimeters.
 2. Package dimensions at the opposite ends are identical.

Pin Configuration:



Assembly Diagram:



S.No	Component	Value	Description
1	C1	1uF	Cap, 0402 or 0603 X7R, 16V

Note:

1. Input and output 50 ohm lines are preferably on 5mil or 10mil RT Duroid substrate.
2. Use high electrically and thermally conductive material for the attachment of package to heat sink mounting for long-term reliability.
3. The RF input & output ports are DC decoupled on-chip.



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. Before using the product, please download and refer to latest datasheet from the website.