

9.0 - 13.5GHz 15Watt GaN Power Amplifier

Features

- ◆ Frequency Range: 9 – 13.5GHz
- ◆ Small Signal Gain: 26dB
- ◆ Output P1dB: 39dBm
- ◆ Psat: 41.8dBm
- ◆ DC decoupled input and output
- ◆ 7mm x 7mm 28 Lead QFN Plastic Package

Typical Applications

- ◆ Radar
- ◆ Military & Space
- ◆ Instrumentation

Description

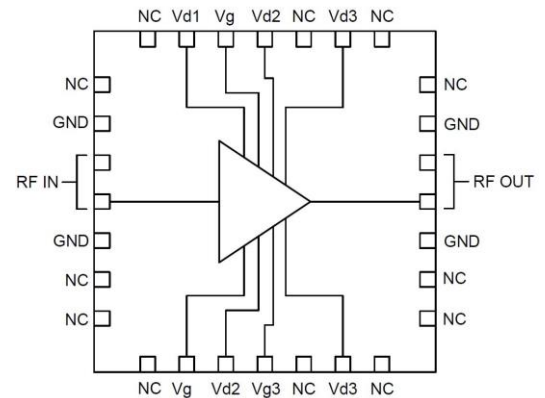
The ASL4047P7 is a broad band Power Amplifier which covers frequency range from 9.0 - 13.5GHz. It features 26dB small signal Gain with input and output return losses better than 10dB (typ) over the operating frequency band. This amplifier features saturated output power of 41.8dBm over the bandwidth. The circuit grounds are provided through on chip vias to the backside metallization.

Absolute Maximum Ratings¹

Parameter	Absolute Maximum	Units
Drain supply voltage	+32	volts
Drain current (I_{dq})	2.8	A
RF input power at $V_d=28v$	37	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

Functional Diagram



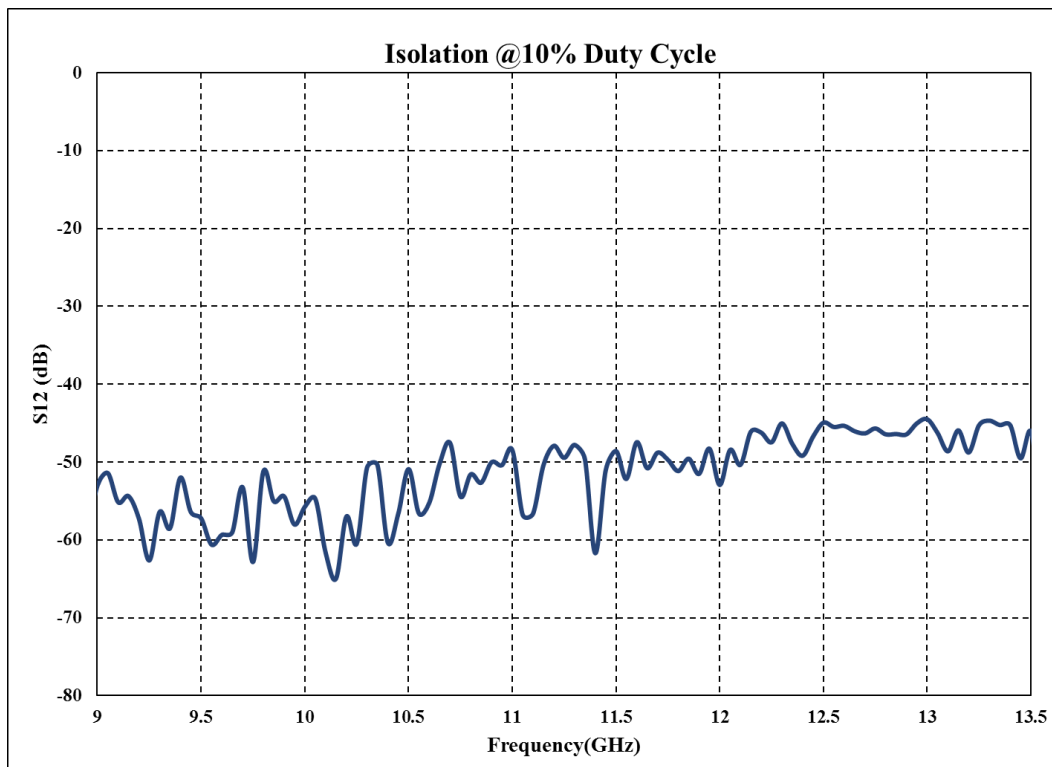
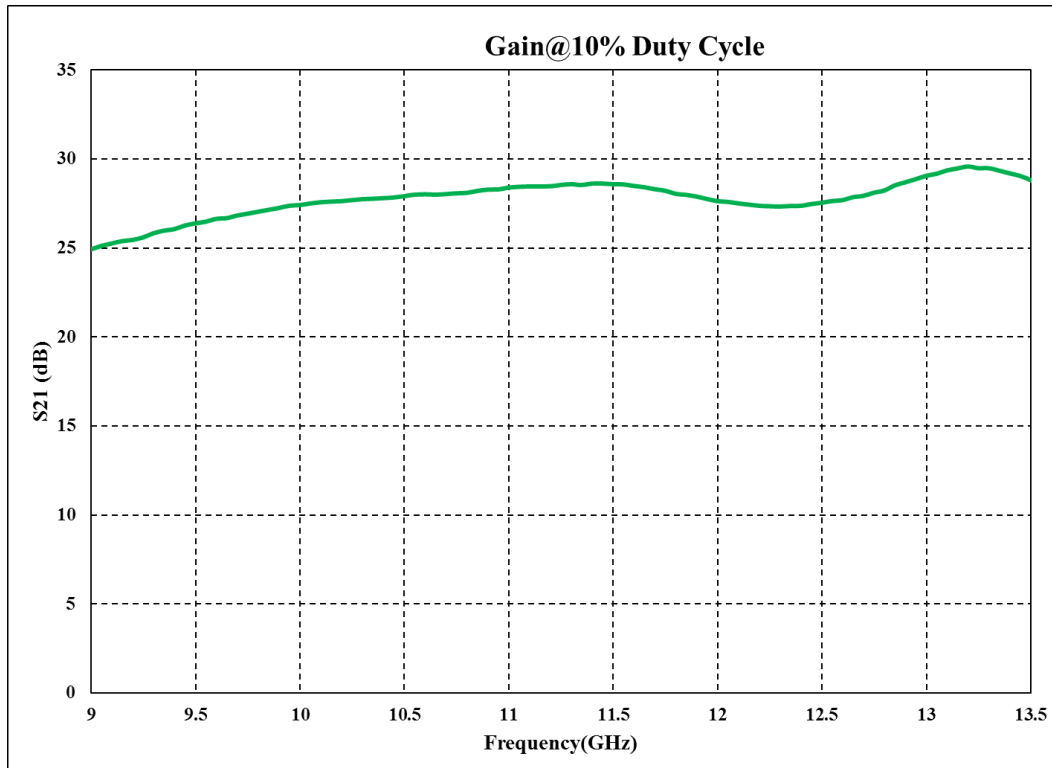
**Electrical Specifications @ $T_A = 25\text{ }^\circ\text{C}$, $Z_o = 50\Omega$
 $V_d = 28$, $I_{dq} = 1400\text{mA}$, *Pulse Duty Cycle = 10%***

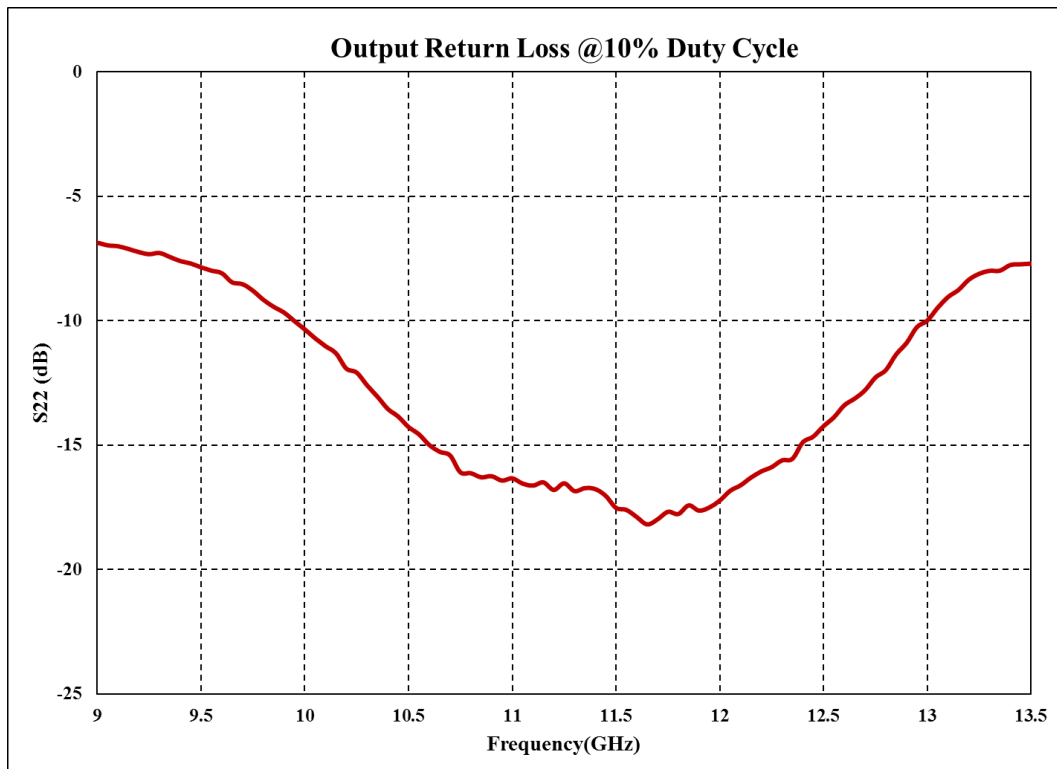
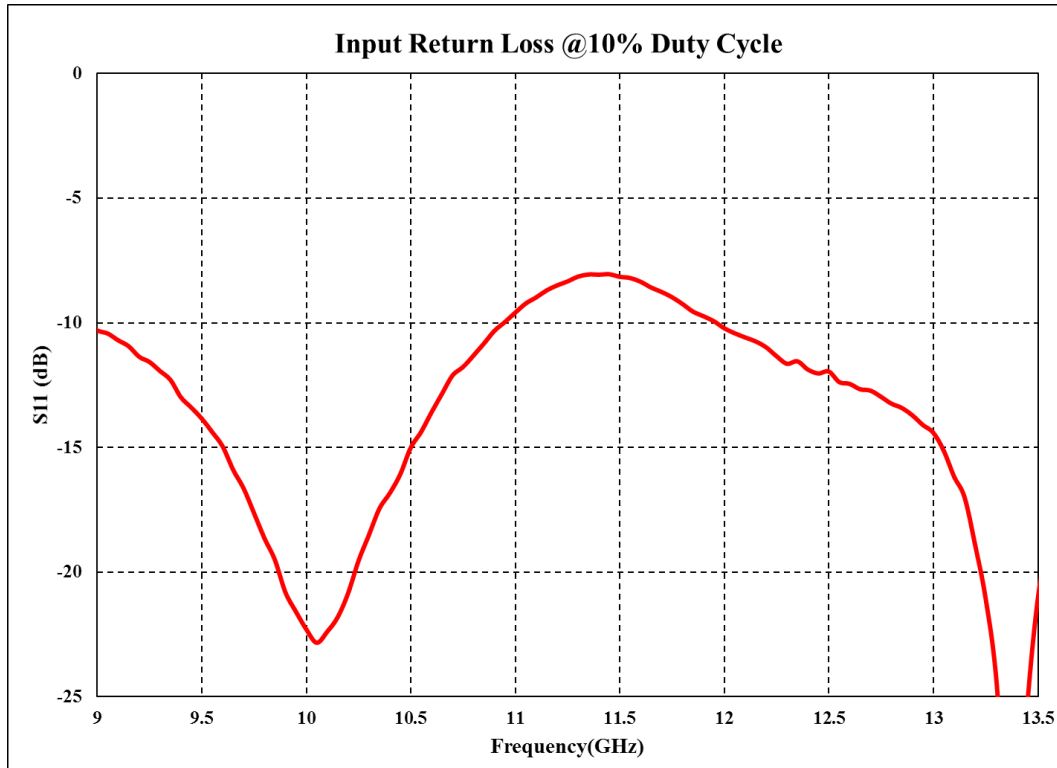
Parameter	Typical Values	Units
Frequency Range	9 – 13.5	GHz
Gain	26	dB
PGain	21	dB
P1dB	39	dBm
P_{sat}	41.8	dBm
Input Return Loss	10	dB
Output Return Loss	10	dB
Voltage	28	V
Current(I_{dq})	1400	mA

Note:

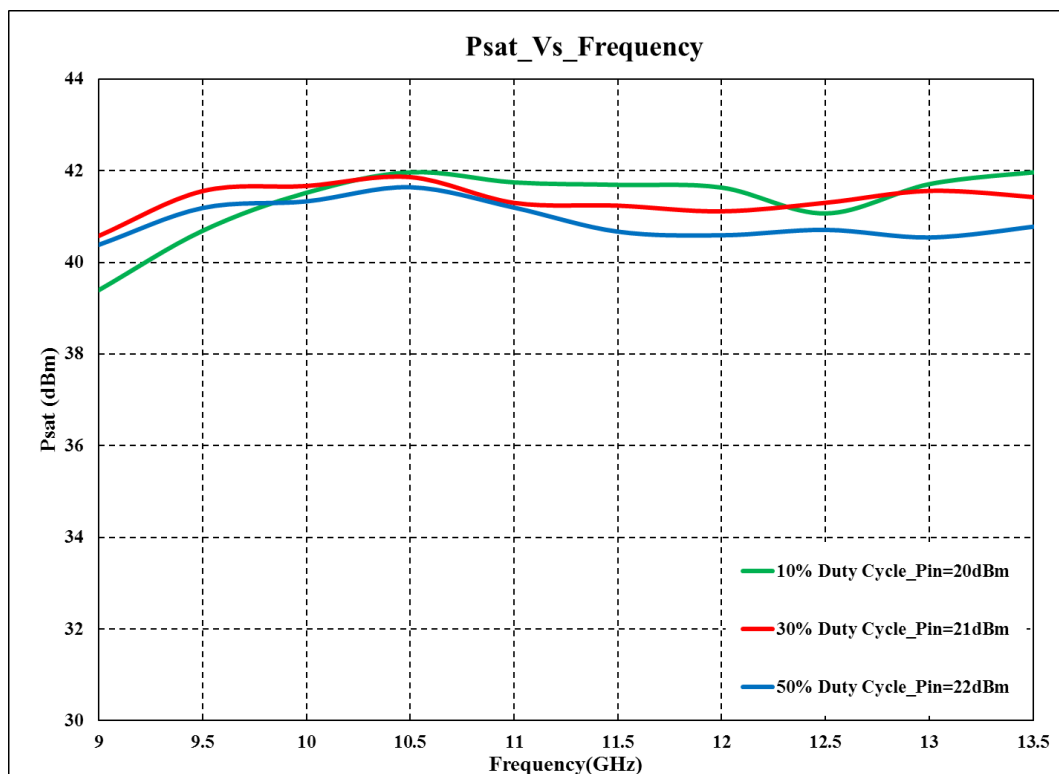
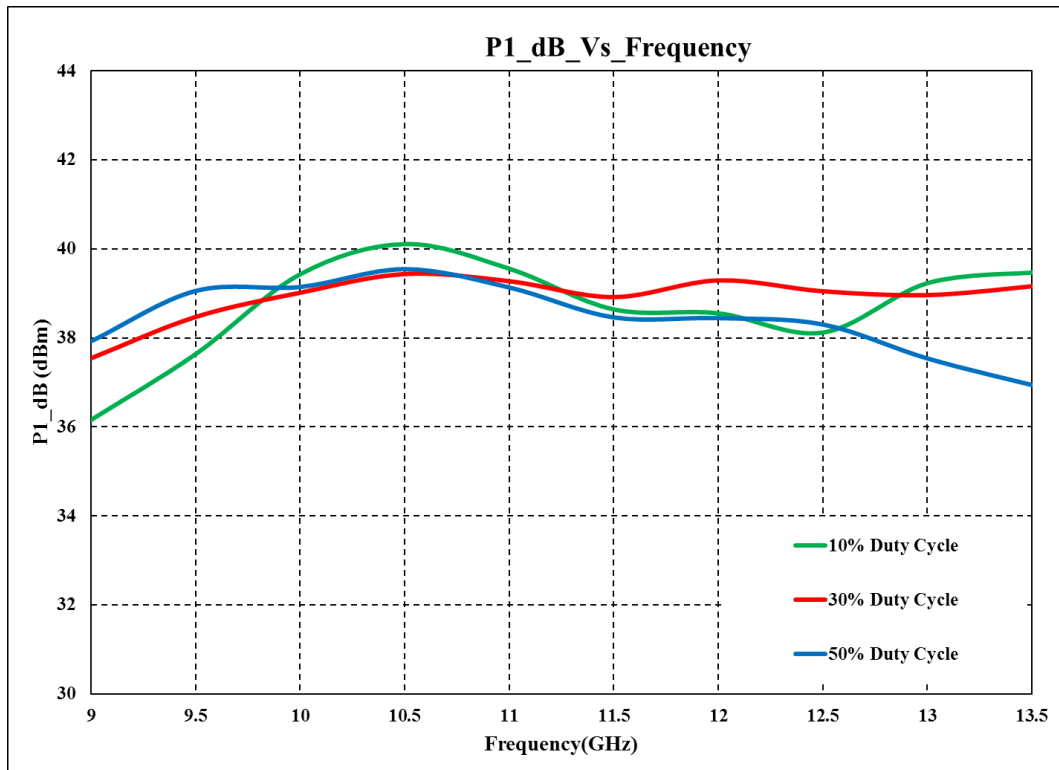
1. The above parameters specified are measured in 50-Ohm test fixture.
2. Adjust V_g between -4V to 0V to achieve $I_{dq} = 1400\text{mA}$ (Typical)

Test Fixture Data for $V_d=28$, $I_{dq}=1400\text{mA}$,
 $T_A = 25^\circ\text{C}$, $Z_o=50\ \Omega$, *Pulse Duty Cycle=10%*

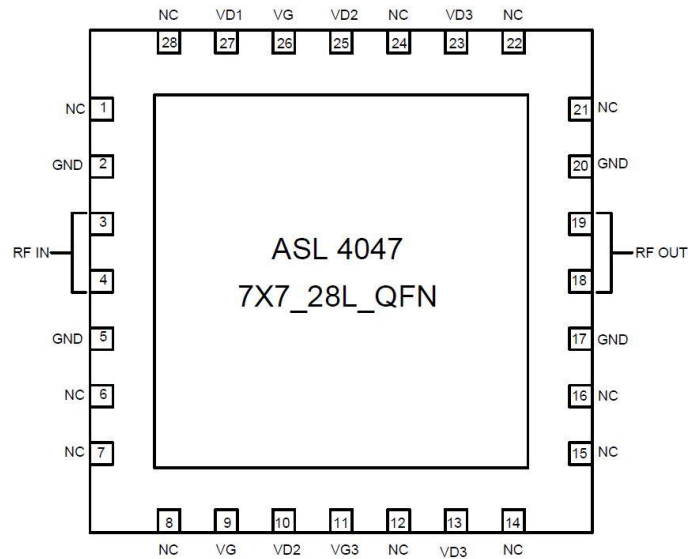


**Test Fixture Data for $V_d=28$, $I_{dq}=1400\text{mA}$,
 $T_A = 25^\circ\text{C}$, $Z_o=50\ \Omega$, Pulse Duty Cycle=10%**

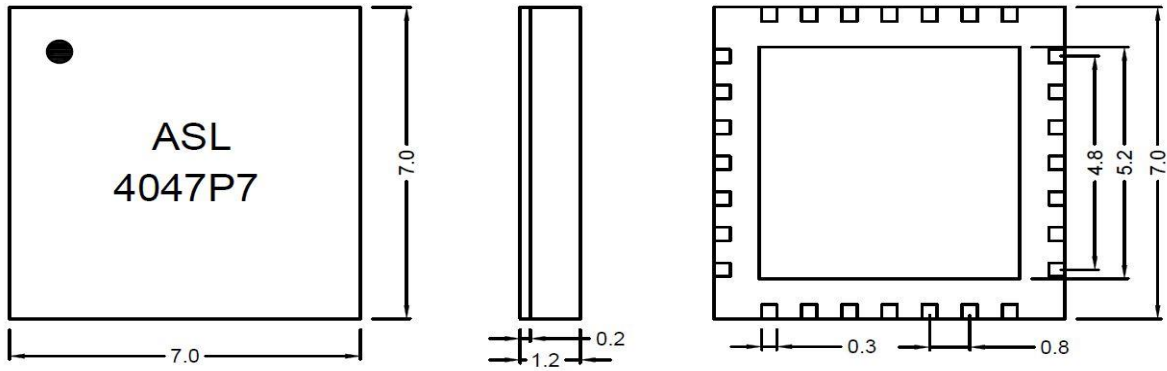
Test Fixture Data for $V_d=28$, $I_{dq}=1400\text{mA}$,
 $T_A = 25^\circ\text{C}$, $Z_o=50\ \Omega$, Pulse Duty Cycle=10%, 30% & 50%



Pin Configuration Details

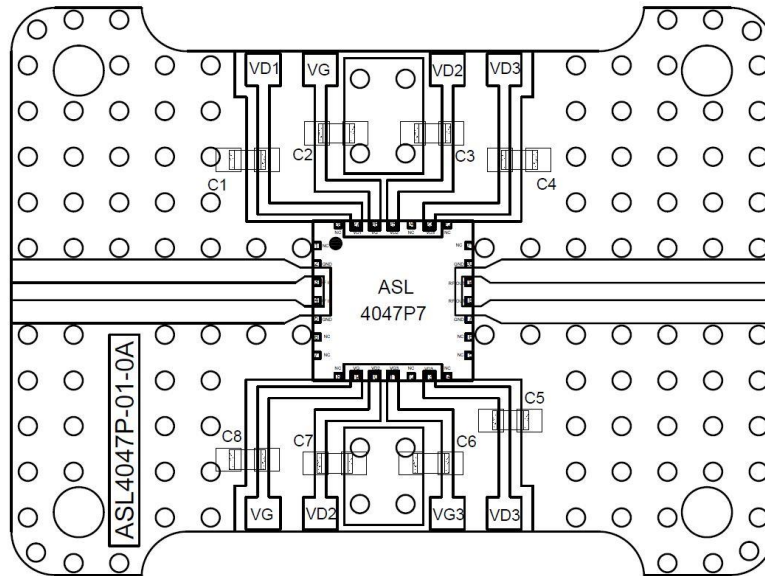

Note:

1. Pin no. 3 & 4 : RF IN
2. Pin no.18 &19 : RF OUT
3. Pin no. 9 &26 : Vg(Vg1,Vg2)
4. Pin no. 11 : Vg3
5. Pin no. 27 : Vd1
6. Pin no. 10 &25 : Vd2
7. Pin no. 13 &23 : Vd3
8. Pin no. 2,5,17&20 : GND
9. Pin no. 1,6,7,8,12,14,15,16,21,22,24,28 : No Connection

Package Outline DrawingTOP VIEWBOTTOM VIEW

Note: All Dimensions are in mm.

Recommended Assembly Diagram



Component ID	Value	Description
C2, C6, C8	10KpF	MLC Bypass capacitor
C1, C3-C5, C7, C8	0.1uF/50V	MLC Bypass capacitor

Note:

1. Input and output 50 ohm lines are preferably on 5mil or 10mil RT Duroid substrate.
2. Use high thermal conductive material for die mounting/die attachment for long-term reliability.



GaN 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 website.