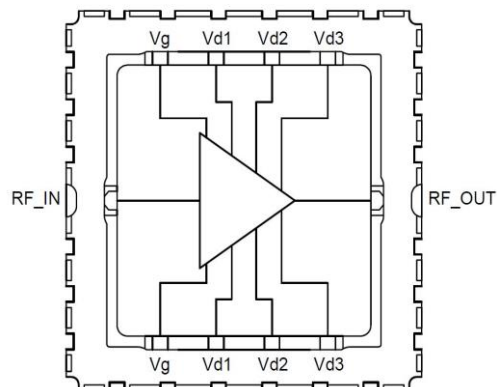


8-12GHz 10Watt GaAs Power Amplifier

Features

- ◆ Frequency Range: 8 – 12GHz
- ◆ Small Signal Gain: 24dB
- ◆ Output P1dB: 39dBm
- ◆ Psat: 40.0dBm
- ◆ DC decoupled input and output
- ◆ Dual bias operation
- ◆ 7x7mm 10 Lead Ceramic Mount Package

Functional Diagram



Typical Applications

- ◆ Radar
- ◆ Military & Space
- ◆ Instrumentation

Description

The ASL40448C7 is an X-band Power Amplifier which covers frequency range from 8-12GHz. It features 24dB 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 40.0dBm over the bandwidth.

Absolute Maximum Ratings¹

Parameter	Absolute Maximum	Units
Drain supply voltage	+9	volts
Drain current (I_{dq}) at $V_d=8.5v$	5.5	A
RF input power	23	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

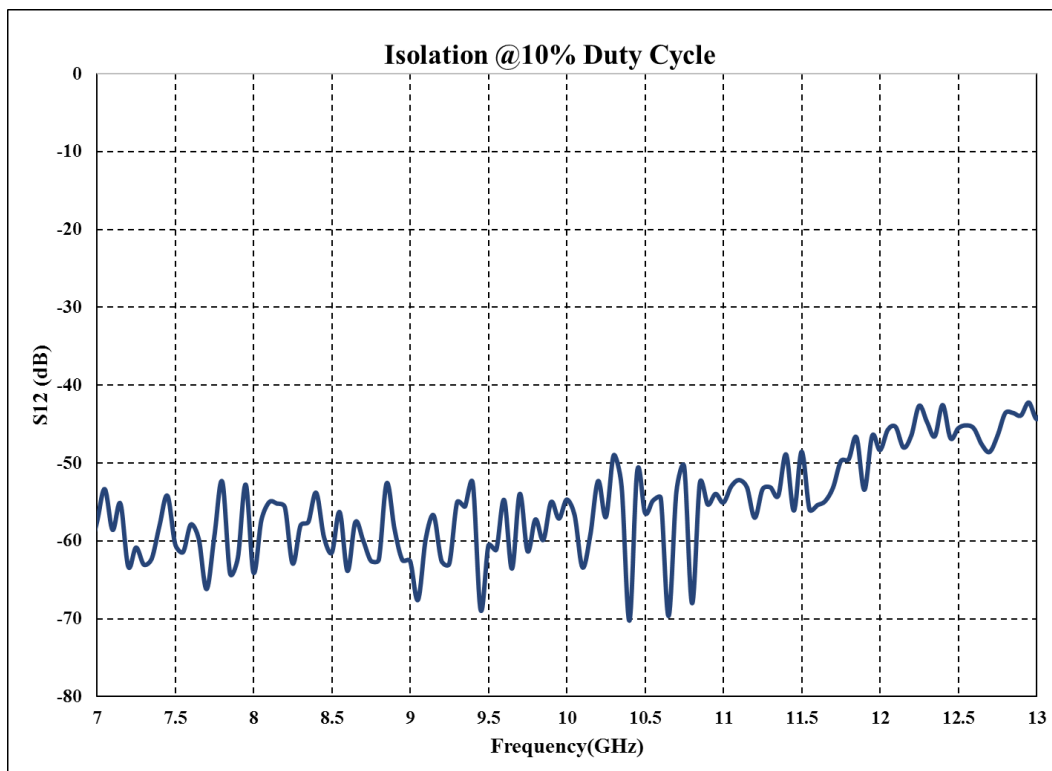
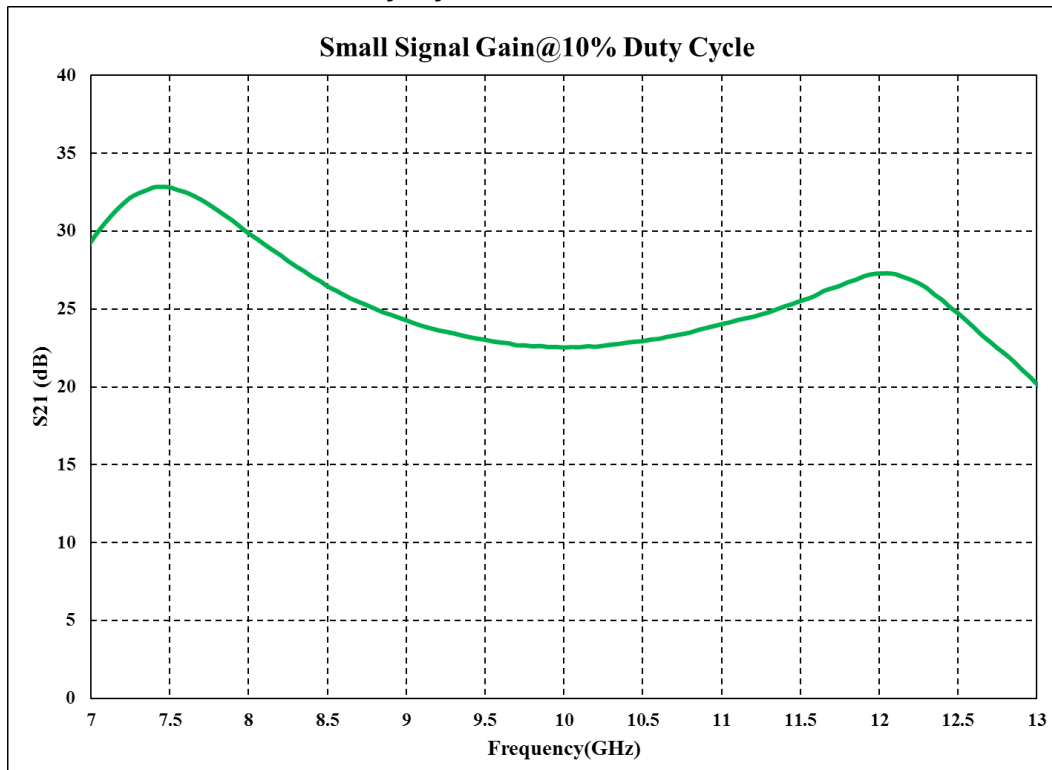
Electrical Specifications @ $T_A = 25\text{ }^{\circ}\text{C}$, $Z_o = 50\Omega$, Pulse Duty Cycle=10%

Parameter	Typical Values	Units
Frequency Range	8 – 12	GHz
Small Signal Gain	24	dB
P _{gain}	21	dB
P _{1dB}	39	dBm
P _{sat}	40	dBm
Input Return Loss	10	dB
Output Return Loss	10	dB
Voltage	8.5	V
Current(I _{dq})	3500	mA

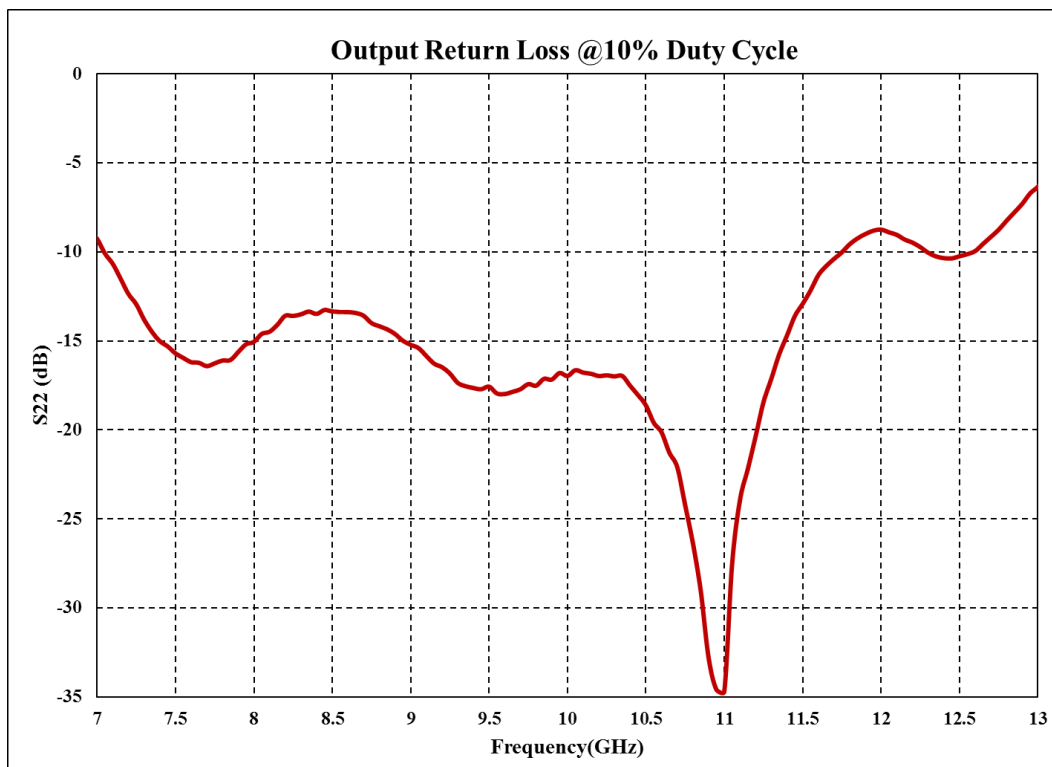
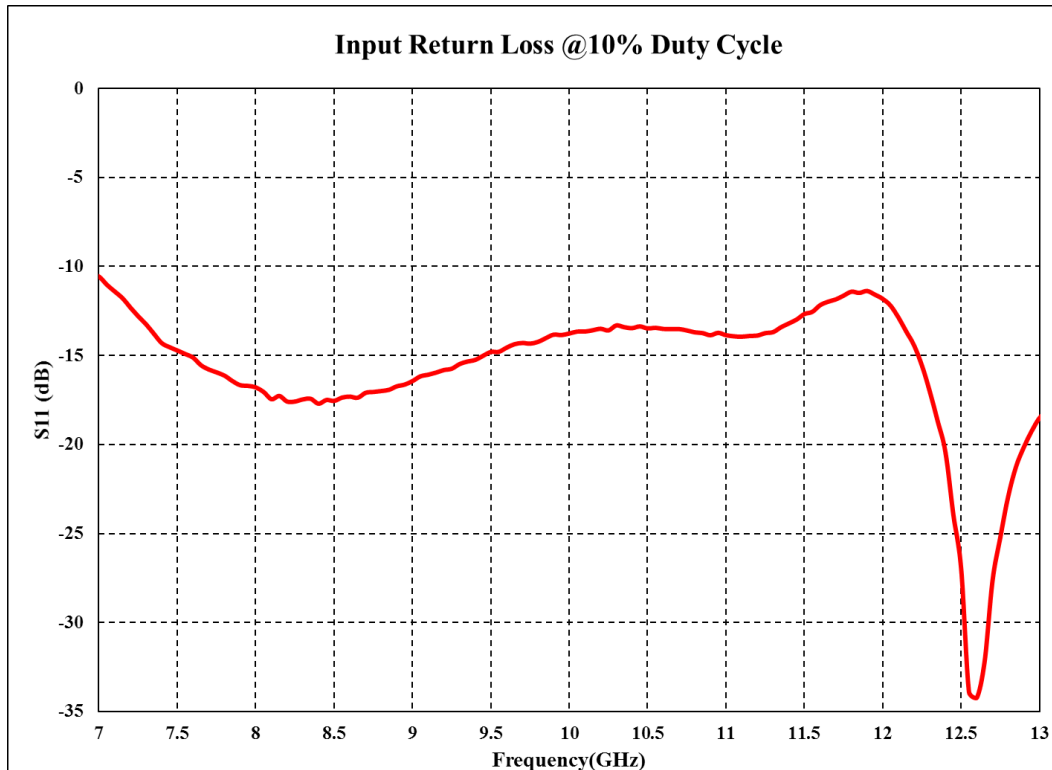
Note:

1. The above parameters specified are measured in 50-Ohm test fixture.
2. Adjust V_g between -4V to 0V to achieve I_{dq} = 3500mA (Typical)

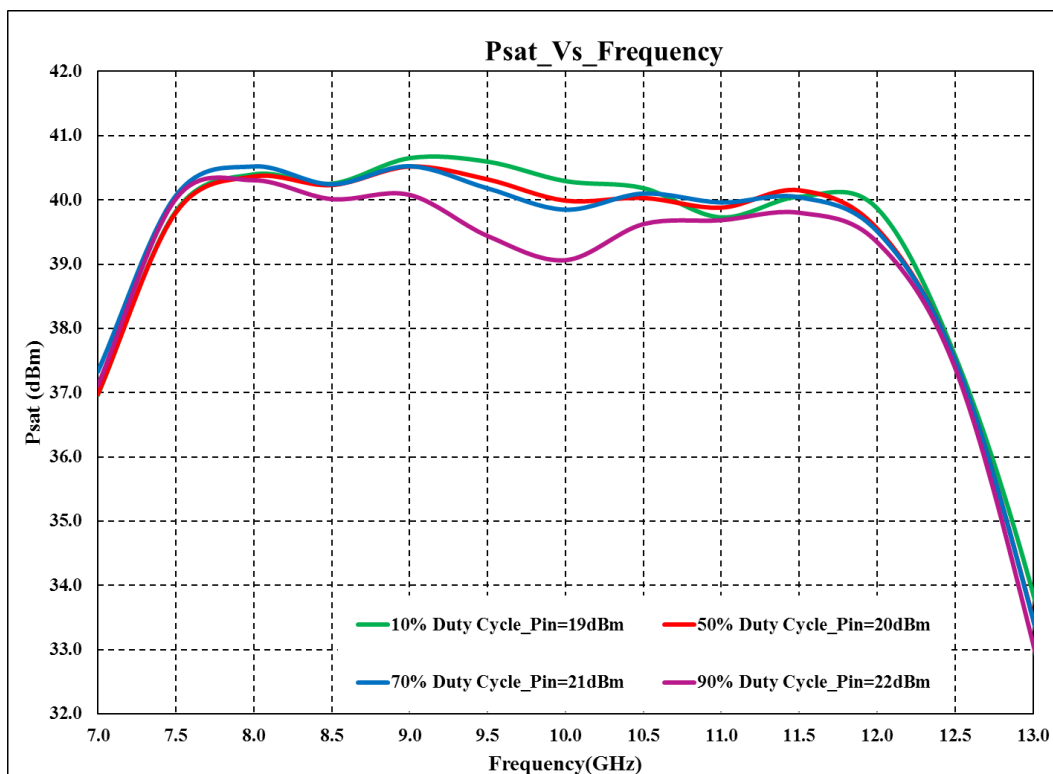
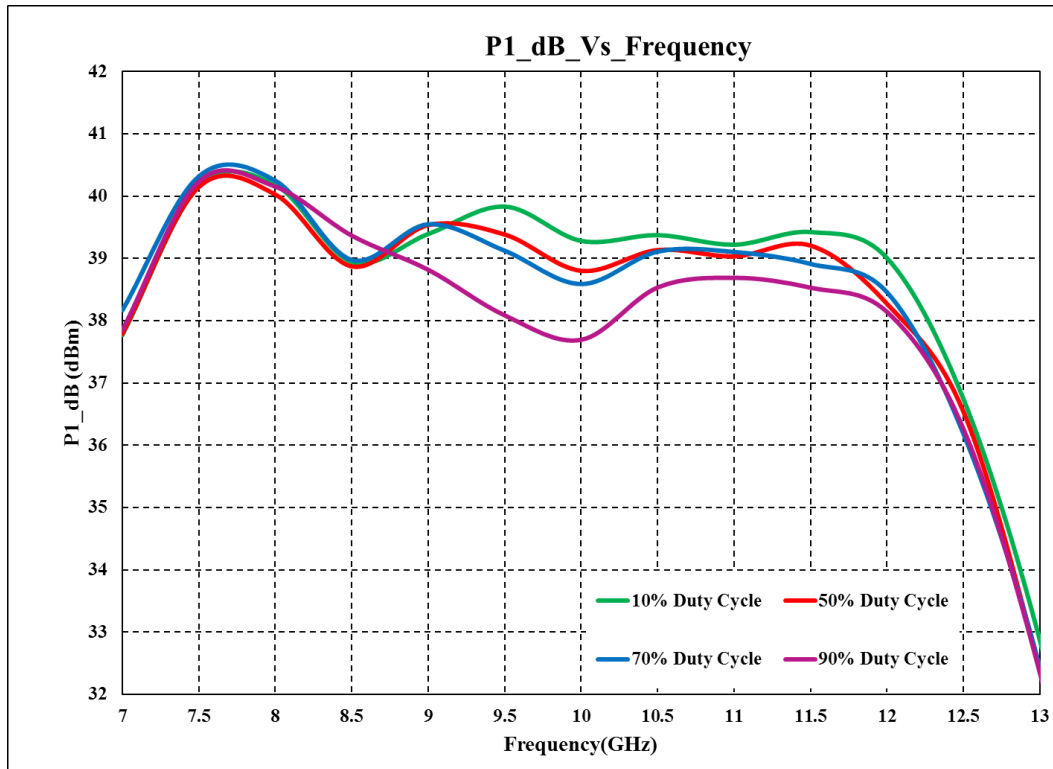
Test Fixture Data for $V_d=8.5V$, $I_{dq}=3500mA$,
 $T_A = 25^\circ C$, $Z_o=50\ \Omega$, *Pulse Duty Cycle=10%*



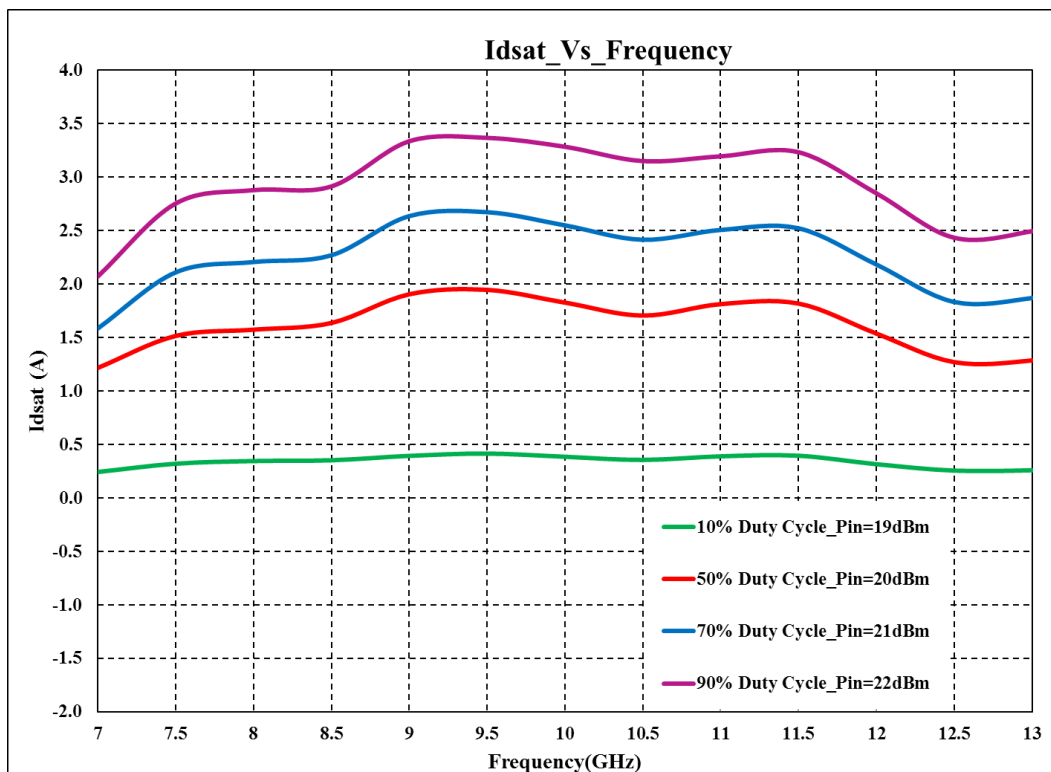
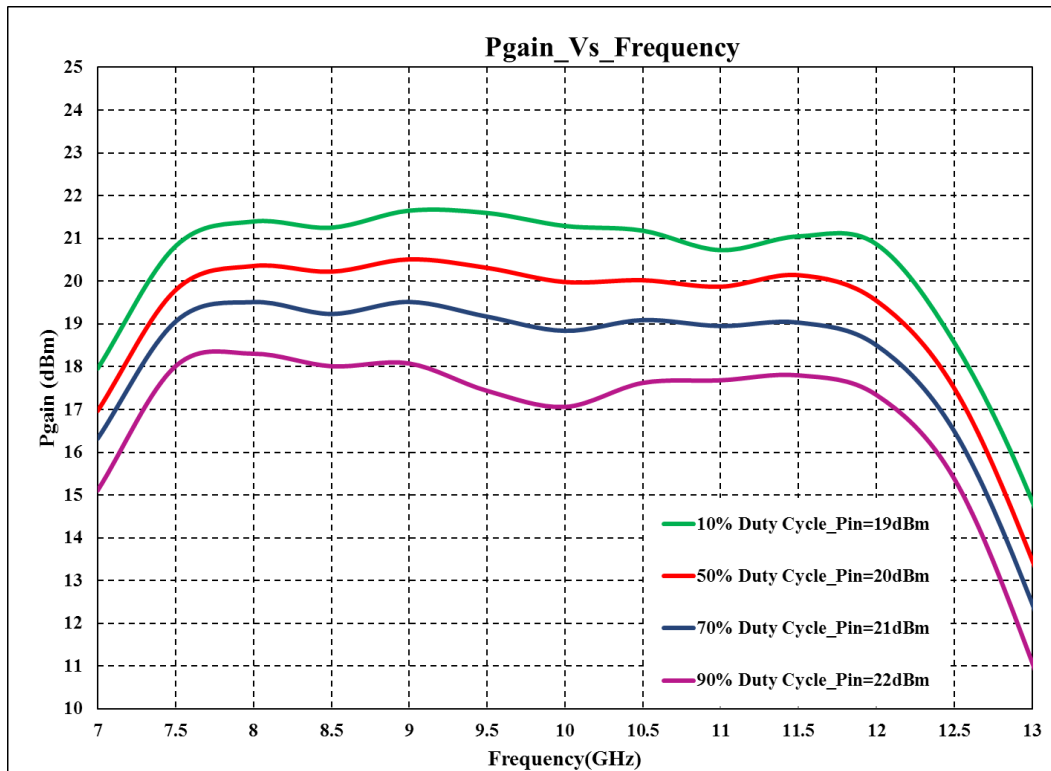
Test Fixture Data for $V_d=8.5V$, $I_{dq}=3500mA$,
 $T_A = 25^\circ C$, $Z_o=50\ \Omega$, Pulse Duty Cycle=10%



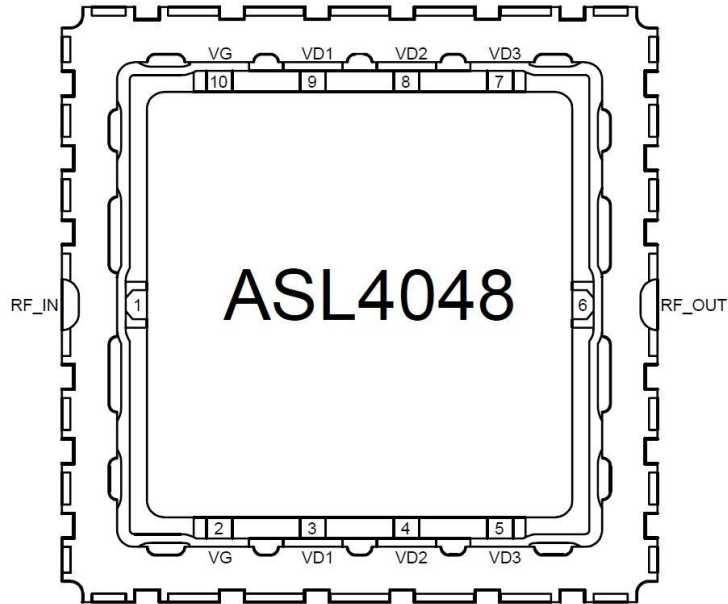
Test Fixture Data for $V_d=8.5V$, $I_{dq}=3500mA$,
 $T_A = 25^\circ C$, $Z_o=50\ \Omega$ at different Pulse Duty Cycle of 10%, 50%, 70% & 90%



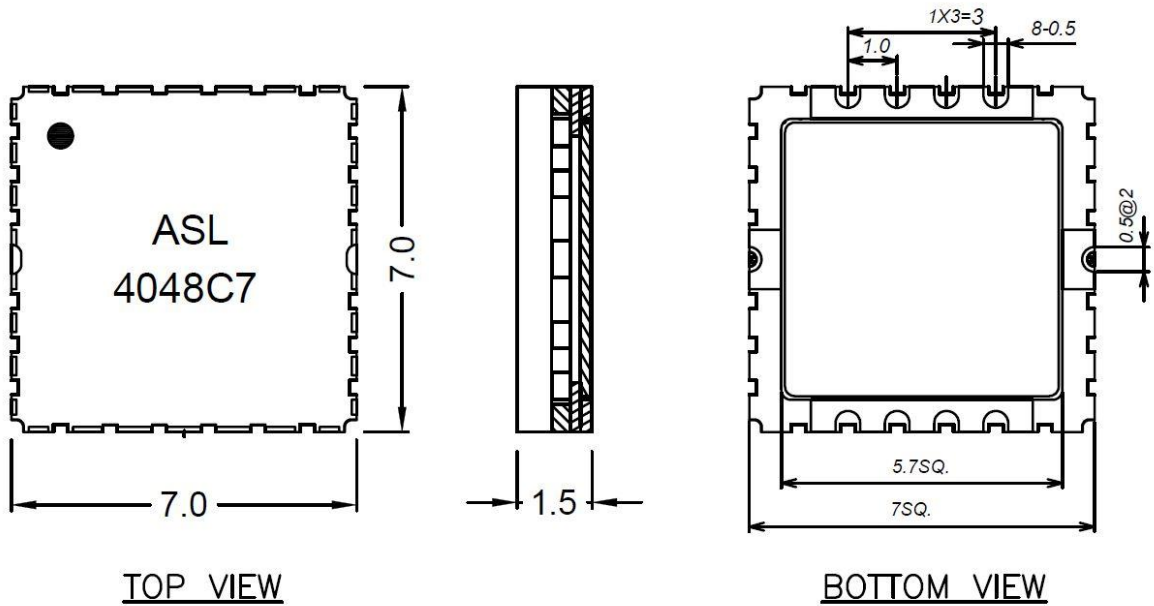
Test Fixture Data for $V_d=8.5V$, $I_{dq}=3500mA$,
 $T_A = 25^\circ C$, $Z_o=50\ \Omega$ at different Pulse Duty Cycle of 10%, 50%, 70% & 90%



Pin Configuration Details

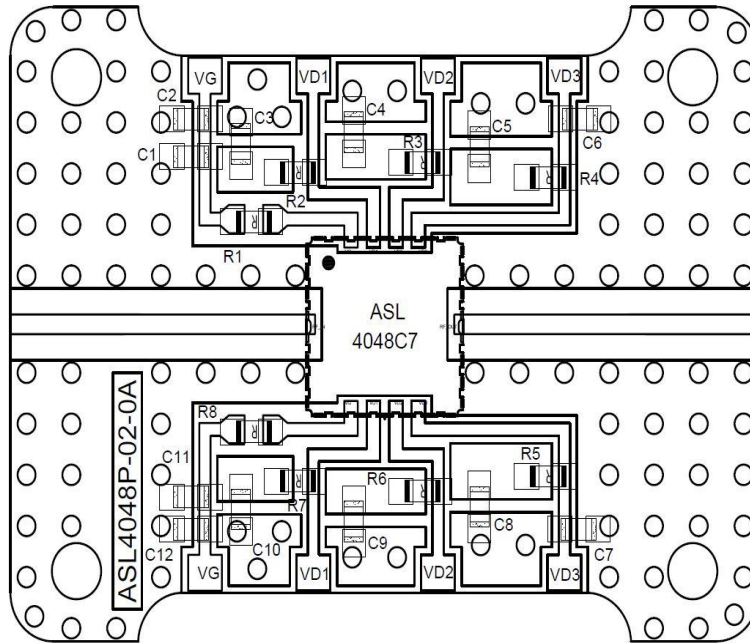
**Note:**

1. Pin no. 1 : RF IN
2. Pin no. 6 : RF OUT
3. Pin no. 2 & 10 : Vg
4. Pin no. 3 & 9 : Vd1
5. Pin no. 4 & 8 : Vd2
6. Pin no. 5 & 7 : Vd3

Package Outline Drawing

Note: All Dimensions are in mm.

Recommended Assembly Diagram



Component ID	Value	Description
C1, C11, C6, C7	10KpF	MLC Bypass capacitor
C2, C12	1uF	MLC Bypass capacitor
C3-C5, C8-C10	220KpF	MLC Bypass capacitor
R1, R8	0 Ω	Resistor
R2-R7	10 Ω	Resistor

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.
3. External Tantalum 22uF/50V capacitor required in both VD3 paths.



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 website.