

# SAC3908

GaAs MMIC Driver Amplifier  
100~4000MHz

Rev 3.1

## Features

- Frequency: 100~4000MHz
- Gain: 14dB
- Output P<sub>-1dB</sub>: 26dBm@1GHz
- Supply Voltage: +5~+8V
- Die Size: 1.25mmx1.25mmx0.1mm

## Typical Applications

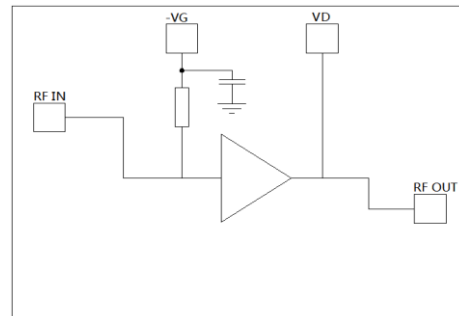
- LO Driver
- Driver Amplifier
- HDR Amplifier
- Test and Measurement

## General Description

SAC3908 is a wideband GaAs MMIC driver amplifier which operates between 100MHz~4000MHz. The amplifier provides 14dB of gain, 26dBm Output P<sub>-1dB</sub>.

SAC3908 offers full passivation for increased reliability and moisture protection.

## Functional Diagram



## Electrical Performance (T<sub>A</sub>=25°C, V<sub>D</sub>=+8V, I<sub>D</sub>=150mA, Z<sub>0</sub>=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	100~4000			MHz
Small Signal Gain	12	14	—	dB
Small Signal Gain Flatness	—	±1	±1.5	dB
Reverse Isolation	—	-22	—	dB
Input/Output VSWR	—	1.5	2.5	: 1
Noise Figure	—	4	—	dB
Output Power for 1 dB Compression (OP <sub>-1dB</sub> )	24	26	—	dBm
Output Third Order Intercept(OIP <sub>3</sub> )	—	37	—	dBm
Supply Current(I <sub>D</sub> )	—	150	180	mA

\*V<sub>G</sub>= -0.4~-0.8V

## Absolute Maximum Ratings

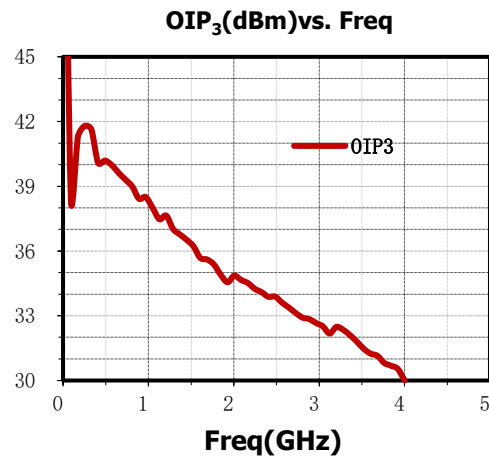
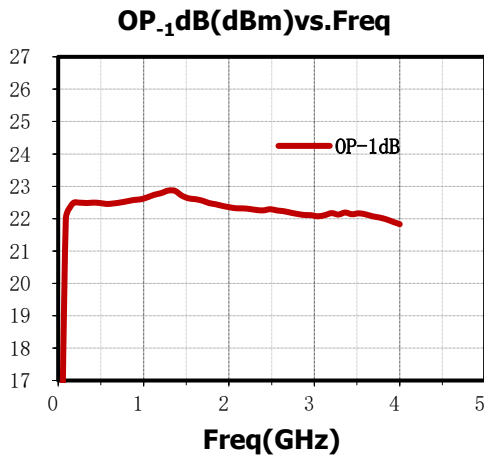
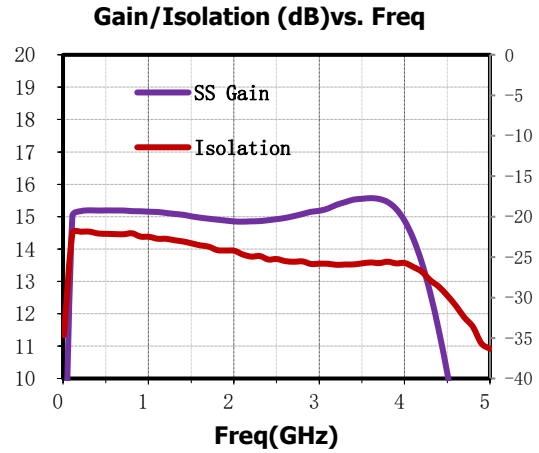
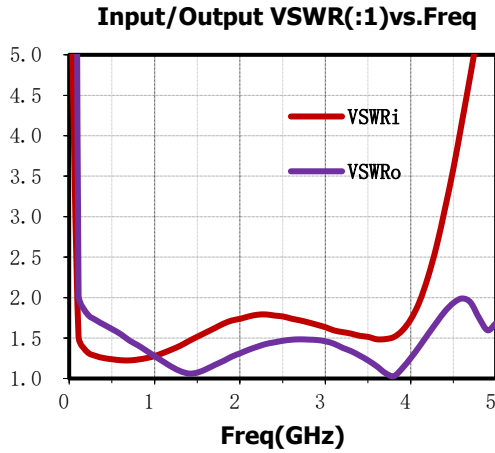
Maximum Input Power	+18dBm	Operating Temperature	-40°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V <sub>D</sub>	9V	Maximum V <sub>G</sub>	-1.8V

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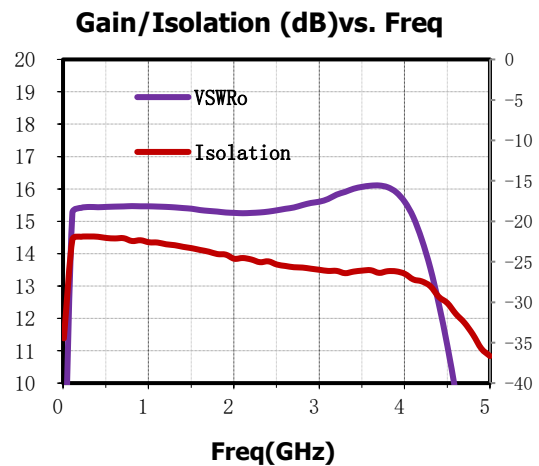
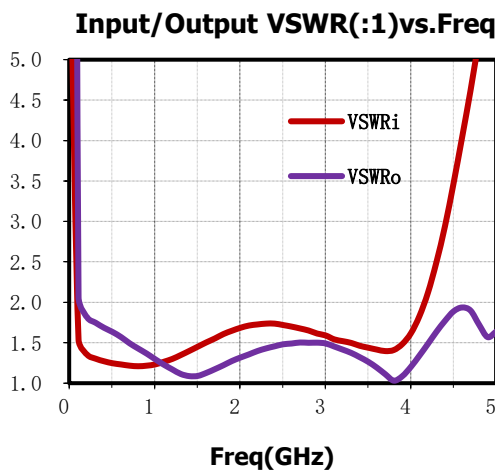
1580 S. Milwaukee, Ave. Suite 405, Libertyville, IL 60048, USA  
Tel: 1-847-505-8319, 1-847-573-9866  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

## Typical Performance Curve

$V_D=5V$   $I_D=100mA$



$V_D=5V$   $I_D=140mA$



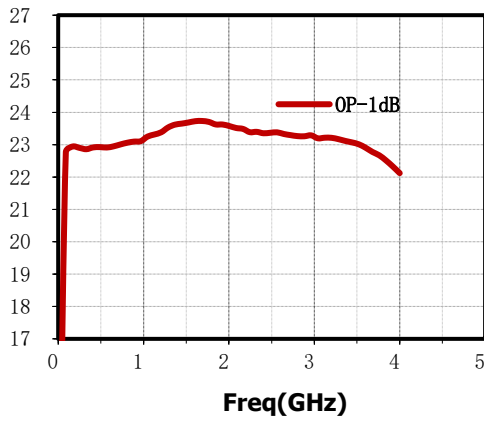
# SAC3908



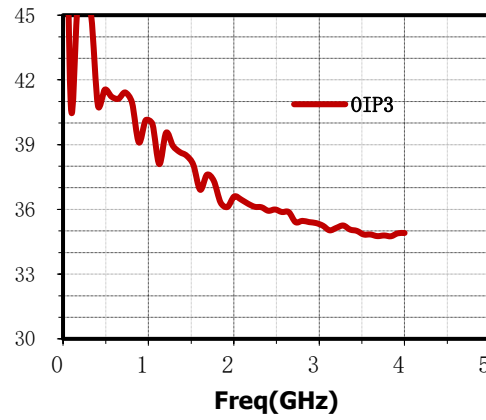
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**OP<sub>-1</sub>dB(dBm)vs.Freq**

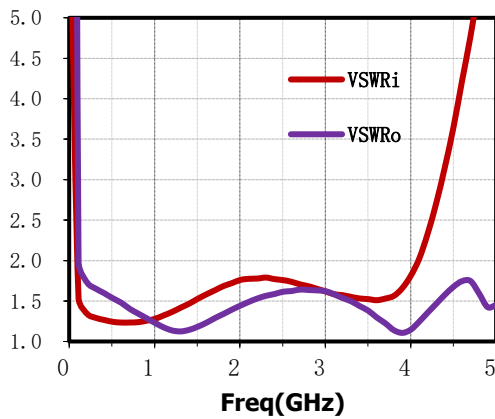


**OIP<sub>3</sub>(dBm)vs. Freq**

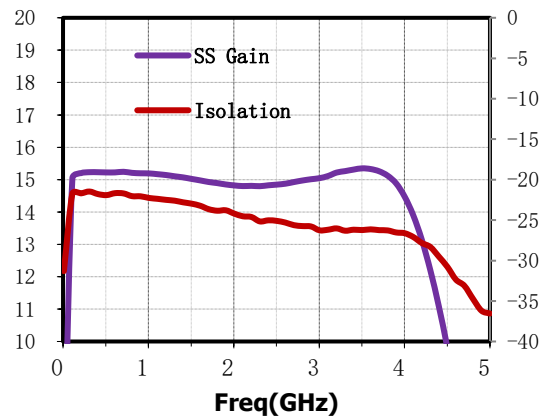


$V_D=8V$   $I_D=150mA$

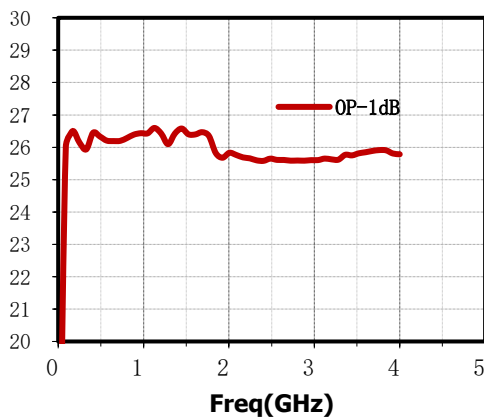
**Input/Output VSWR(:1)vs.Freq**



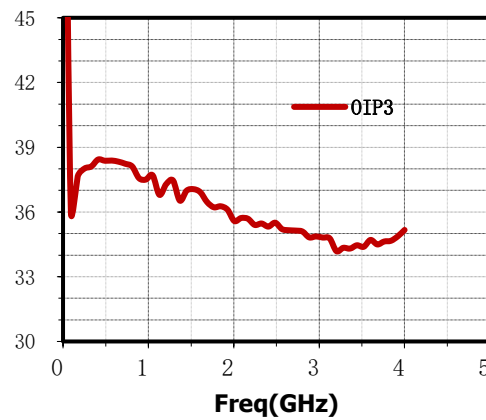
**Gain/Isolation (dB)vs. Freq**



**OP<sub>-1</sub>dB(dBm)vs.Freq**



**OIP<sub>3</sub>(dBm)vs. Freq**



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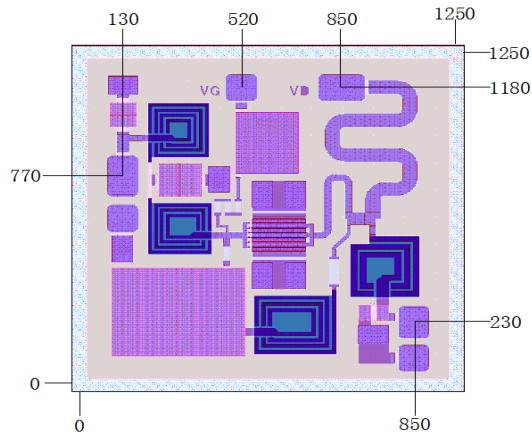
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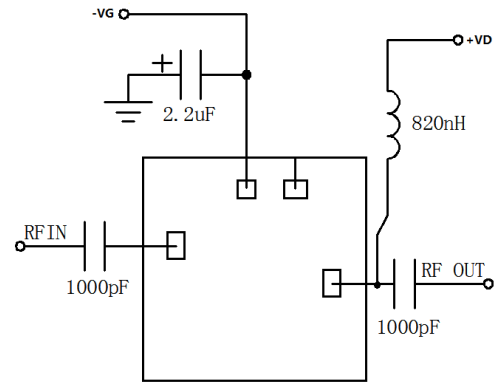
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## Die Outline (All dimensions in $\mu\text{m}$ )



## Assembly Diagram



## Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1、C2	0.01uF	GRM155R61A103KED	Murata	0402
C3	10uF	TCJA106M010R0200-	AVX	1206
L1	100nH	0805CS-101	Coilcraft	0805

### Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.