SAC3908

GaAs MMIC Driver Amplifier
100~4000MHz

Rev 3.1

Features

- Frequency：100~4000MHz
- Gain：14dB
- Output P_{-1}dB：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_{-1}dB.

SAC3908 offers full passivation for increased reliability and moisture protection.

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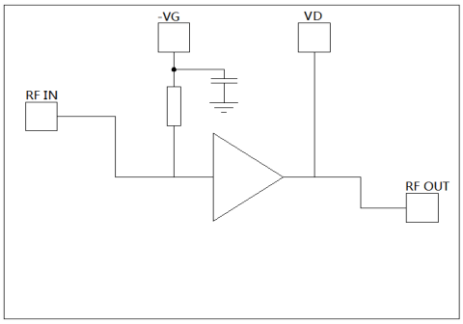
Functional Diagram



Electrical Performance (T_A=25℃, V_D=+8V, I_D=150mA, Z_0=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_{-1}dB)	24	26	—	dBm
Output Third Order Intercept(OIP_3)	—	37	—	dBm
Supply Current(I_D)	—	150	180	mA

***V_G= -0.4~-0.8V**

Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-40℃~+85℃
Channel Temperature	+150℃	Storage Temperature	-65℃~+150℃
Maximum V_D	9V	Maximum V_G	-1.8V

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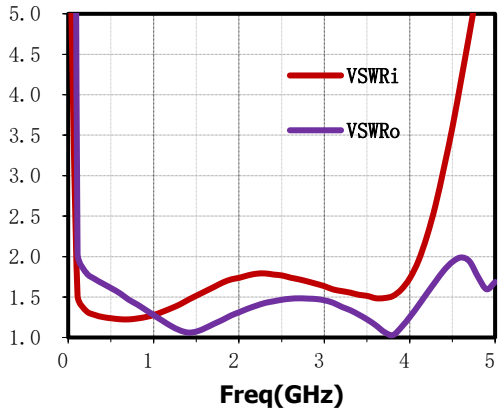
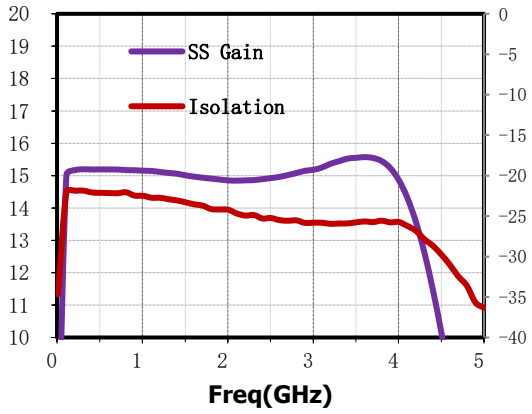
Typical Performance Curve

V_D=5V I_D=100mA

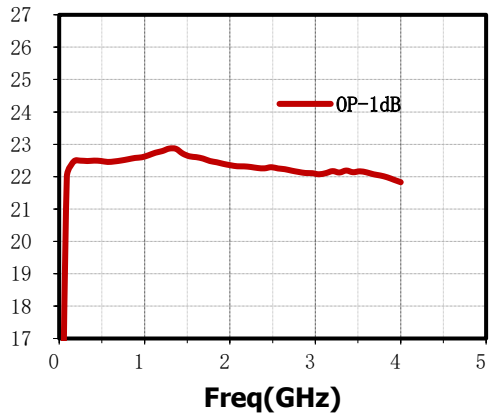
Input/Output VSWR(:1)vs.Freq



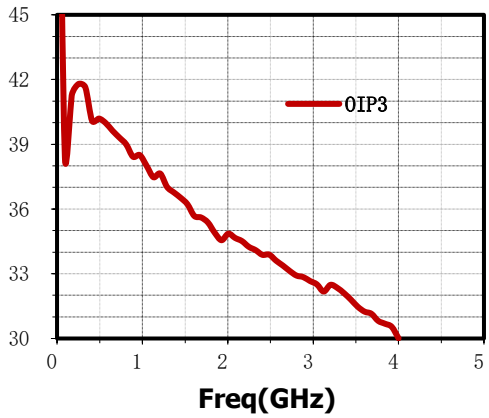
Gain/Isolation (dB)vs. Freq



OP$_{-1}$dB(dBm)vs.Freq

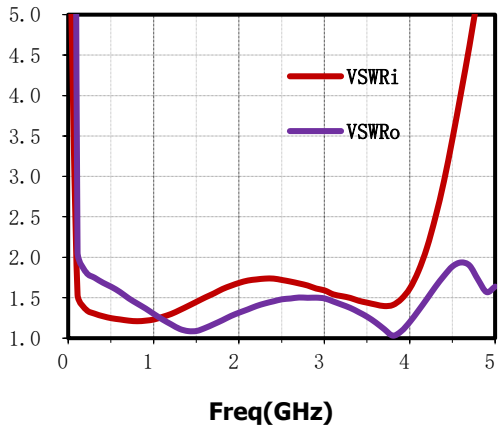


OIP$_3$(dBm)vs. Freq

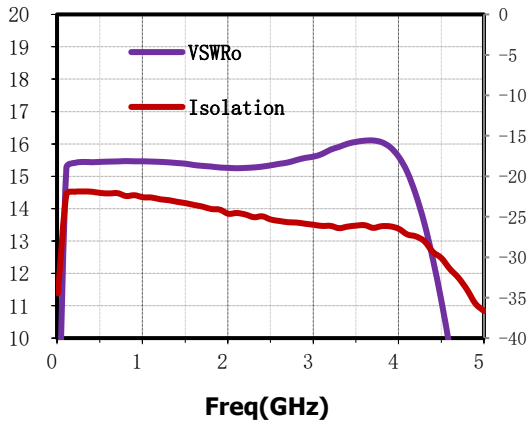


V_D=5V I_D=140mA

Input/Output VSWR(:1)vs.Freq



Gain/Isolation (dB)vs. Freq



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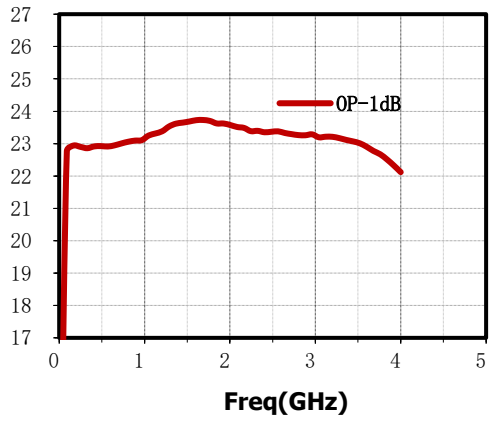
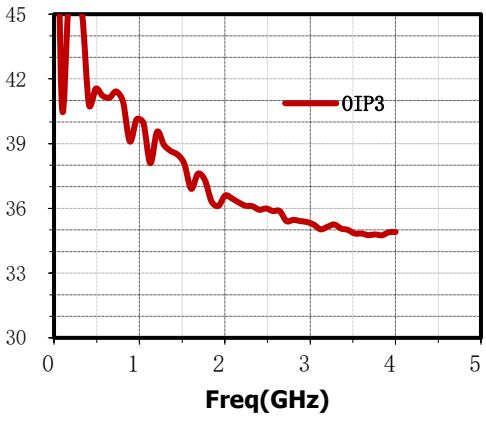
OP$_{-1}$dB(dBm)vs.Freq

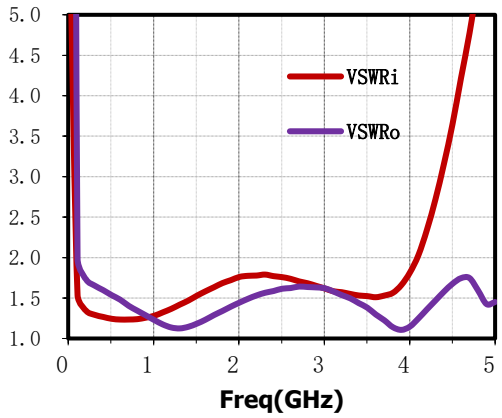


OIP$_3$(dBm)vs. Freq

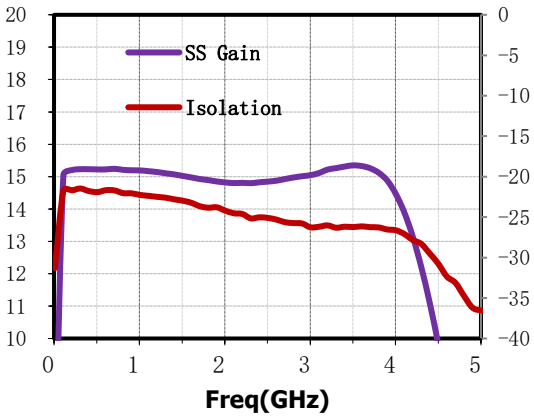


V_D=8V I_D=150mA

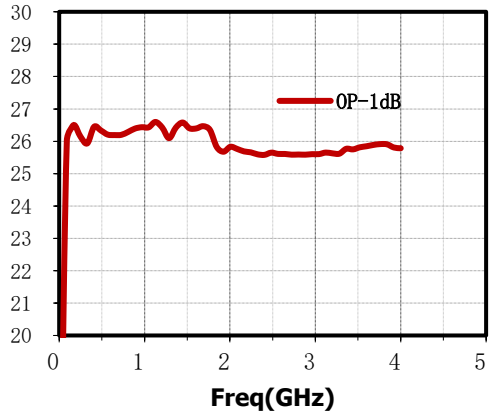
Input/Output VSWR(:1)vs.Freq



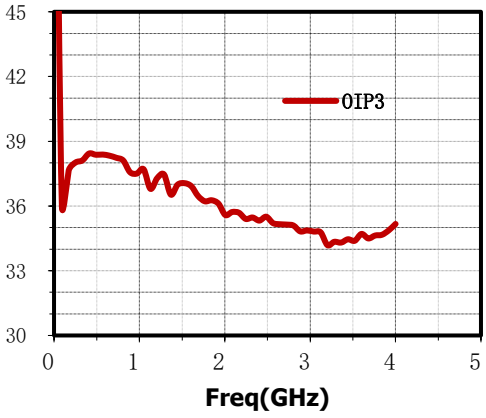
Gain/Isolation (dB)vs. Freq



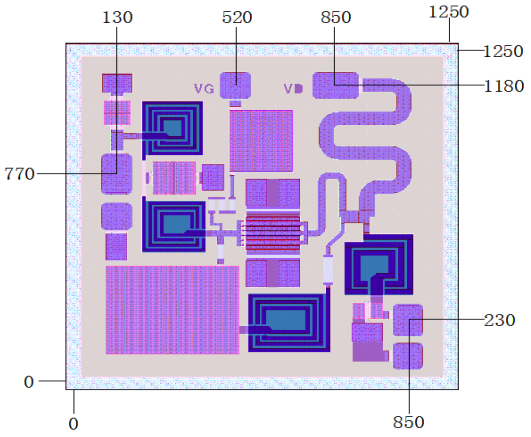
OP$_{-1}$dB(dBm)vs.Freq



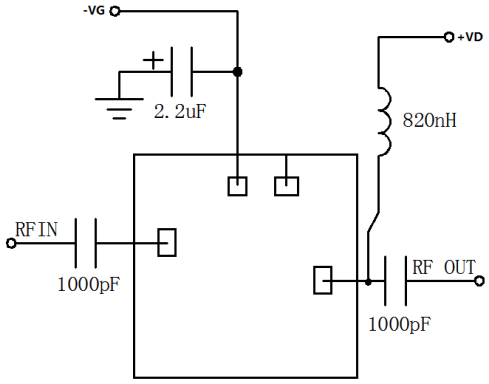
OIP$_3$(dBm)vs. Freq



Die Outline
(All dimensions in μm)



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.

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