SAC3902

GaAs MMIC Driver Amplifier
0.9~1.3GHz

Rev 2.1

Features

- Frequency：0.9~1.3GHz
- Gain：20.2dB
- Output P_{-1}dB：26dBm
- Supply Voltage：+8V@142mA
- Die Size：1.1mm×1.25mm×0.1mm

Typical Applications

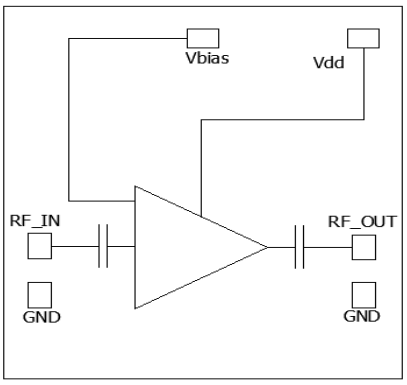
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

SAC3902 is a GaAs MMIC driver amplifier which operates between 0.9GHz~1.3GHz. The amplifier provides 20.2dB of gain, 26dBm OutputP_{-1}dB power and 3.4dB noise figure while requiring 142mA from a +8V supply voltage.

The chip offers full passivation for increased reliability and moisture protection. This amplifier is the perfect alternative to higher cost hybrid amplifiers.

Functional Diagram



Electrical Performance (T_A=25℃, VD=+8V, ID=142mA, Z_0=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range		0.9~1.3		GHz
Small Signal Gain	—	20.2	—	dB
Small Signal Gain Flatness	—	0.4	—	dB
Reverse Isolation	—	-27	—	dB
Input/Output VSWR	—	1.4	—	:1
Noise Figure	—	3.4	—	dB
Output Power for 1 dB Compression (OP_{-1}dB)	—	26	—	dBm
Output Third Order Intercept (IP_3)	—	36	—	dBm
Supply Current (I_D)	—	142	—	mA

Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55℃~+85℃
Channel temperature	150℃	Storage Temperature	-65℃~+150℃

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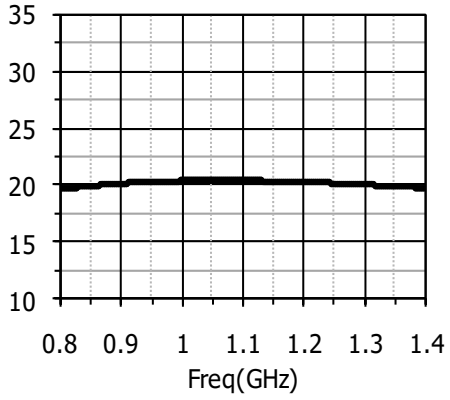
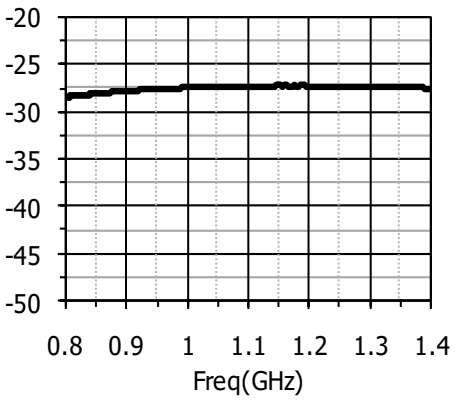
Typical Performance Curve

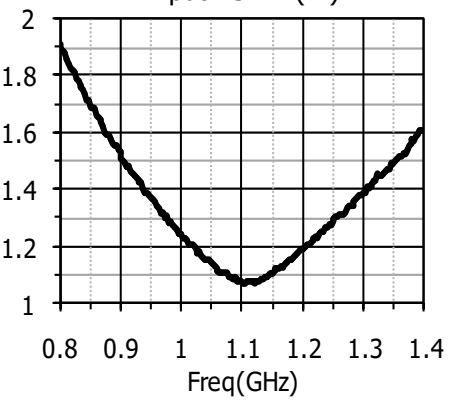
Gain(dB)



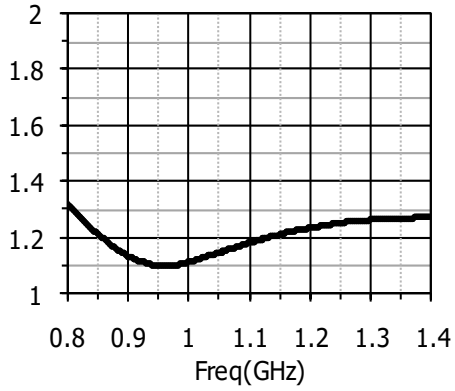
Reverse Isolation(dB)



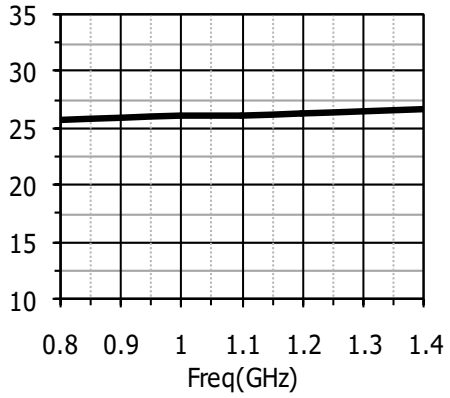
Input VSWR (:1)



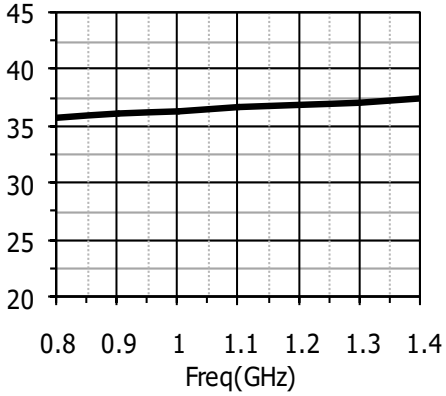
Output VSWR (:1)



Output P_{-1}dB(dBm)



Output IP_3(dBm)



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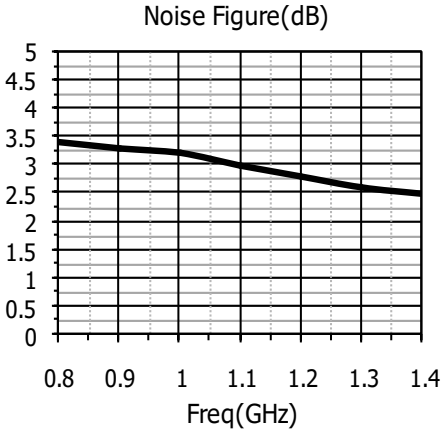
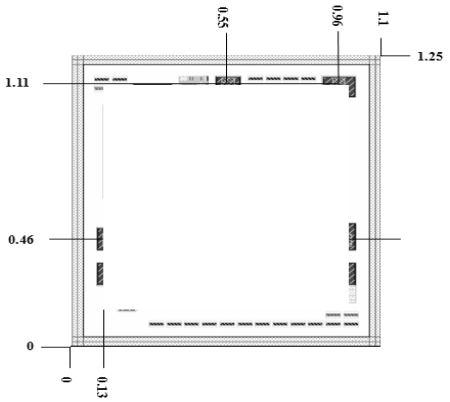
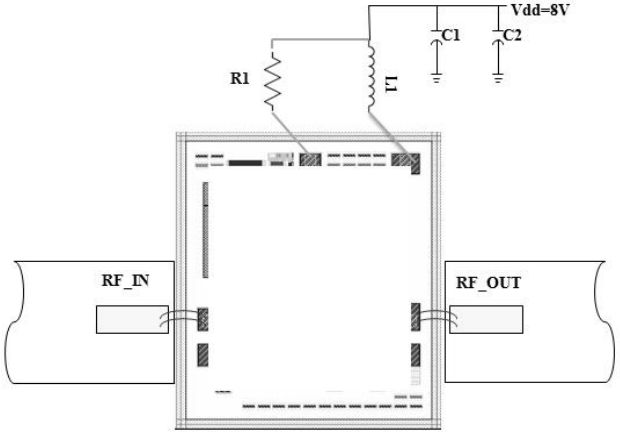


Die Outline
(All dimensions in mm)



Assembly Diagram



Component list

Reference Des.	Value	Part Number	Manuf.	Size
R1	300Ω	—	—	0603
C1	330pF	GRM1885C1H331JA01	MURATA	0603
C2	10nF	GRM1857U1A103JA44	MURATA	0603
L1	10nH	0603LS10NXJLC	COILCRAFT	0603

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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