SAC3004

GaAs MMIC Low Noise Amplifier
0.2~2.6GHz

Rev 2.2

Features

- Frequency: 0.2GHz ~ 2.6GHz
- Gain: 21dB
- Output P_{-1}dB: 20.5dBm
- Supply Voltage: +5V@90mA
- Die Size: 1.3mm×1.25mm×0.1mm

Typical Applications

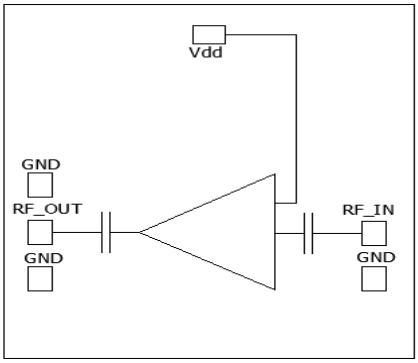
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3004 is a GaAs MMIC Low Noise Amplifier die which operates from 0.2GHz to 2.6GHz. The amplifier can provide 21dB gain, 20.5dBm Output P_{-1}dB, less than 3dB noise figure from a 90mA supply current.

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℃, V_D=+5V, I_D=90mA, Z_O=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range		0.2 ~ 2.6		GHz
Gain	—	21	—	dB
Gain Flatness	—	5.5	—	dB
Reverse Isolation	—	-25	—	dB
Input/Output VSWR	—	1.8	—	:1
Noise Figure	—	1.3	—	dB
Output Power for 1 dB Compression (OP_{-1}dB)	—	20.5	—	dBm
Output Third Order Intercept (OIP_3)	—	31	—	dBm
Supply Current (I_D)	—	90	—	mA

Absolute Maximum Ratings

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

RoHS

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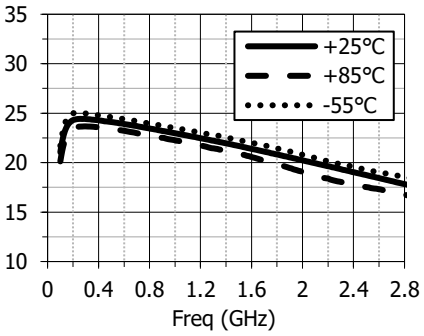
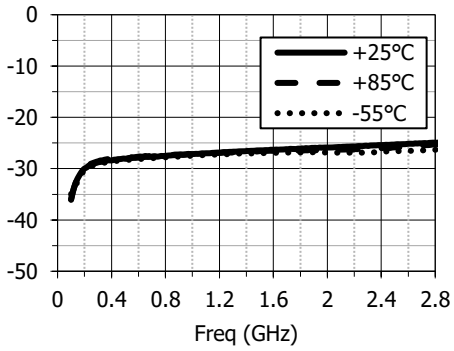
Typical Performance Curve

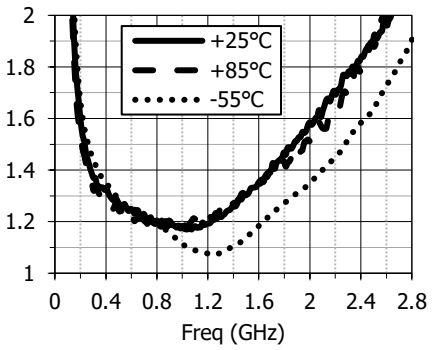
Gain (dB) vs. Temperature (°C)



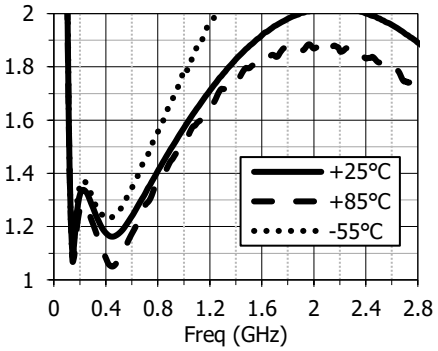
Reverse Isolation (dB) vs. Temperature (°C)



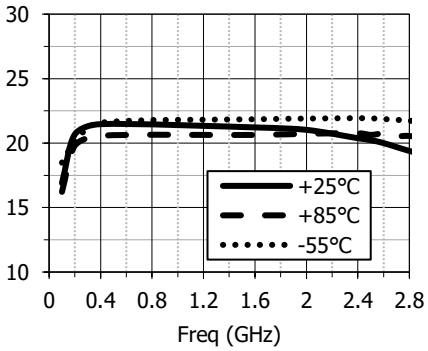
Input VSWR (:1) vs. Temperature (°C)



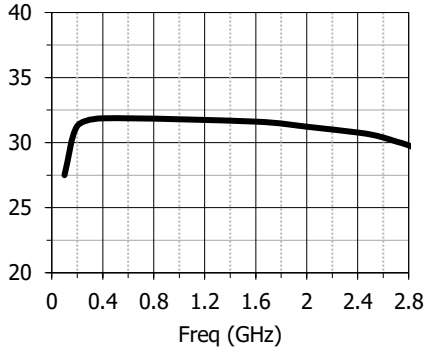
Output VSWR (:1) vs. Temperature (°C)



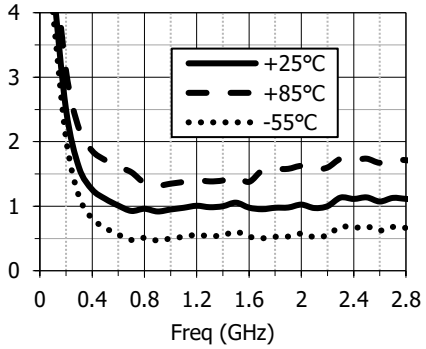
Output P_{-1}dB (dBm) vs. Temperature (°C)



Output IP_3 (dBm)

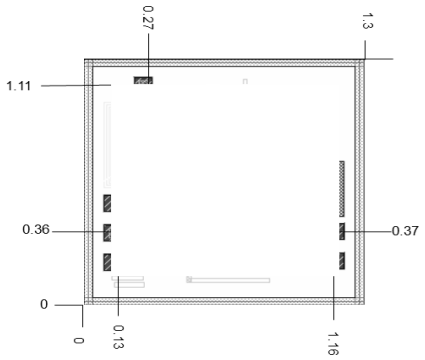


Noise Figure (dB) vs. Temperature (°C)

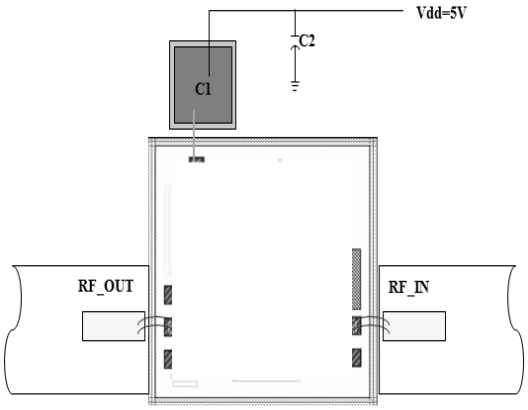


Die Outline

(All dimensions in mm)



Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	300pF	—	RADVISTA	Chip
C2	10nF	GRM155R71H103KA88D	MURATA	0402

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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