

Features

- Frequency: 1.0~7.0GHz
- Gain: 11dB@5V, 10.5dB@8V
- Output P_{1dB}: 15.8dBm@5V,17.5dBm@8V
- Supply Voltage: +5V@65mA,+8V@67mA
- Die Size: 1.5mm×1.25mm×0.1mm

Typical Applications

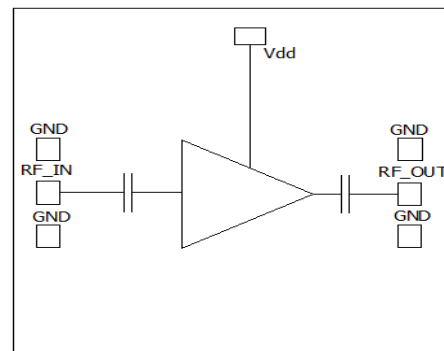
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics & Broad Telecom

General Description

SAC3038 is a GaAs MMIC low noise amplifier die which operates between 1.0 to 7.0GHz. The working voltage could varies from +5V to +8V. The amplifier can provide 10.5dB gain, 17.5dBm Output P_{1dB} and 3.4dB noise figure from a 67mA supply current and +8V Voltage.

The chip uses on-chip metallization process to ensure a good grounding. The chip is carried out on the back metallization process which is suitable for eutectic sintering or conductive adhesive joint technology.

Functional Diagram



Electrical Performance (T_A=25°C, V_D= +5V, I_D=65mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	1.0~7.0			GHz
Gain	—	11	—	dB
Gain Flatness	—	1.2	—	dB
Input VSWR/ Output VSWR	—	—	1.5	:1
Noise Figure	—	—	3.1	dB
Output Power for 1 dB Compression (OP _{1dB})	15.8	—	—	dBm
Supply Current(I _D)	—	65	—	mA

Electrical Performance (T_A=25°C, V_D= +8V, I_D=67mA, Z₀=50Ω)

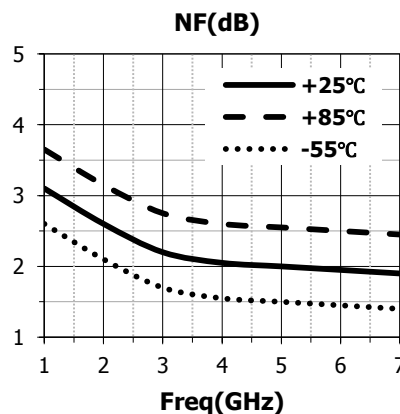
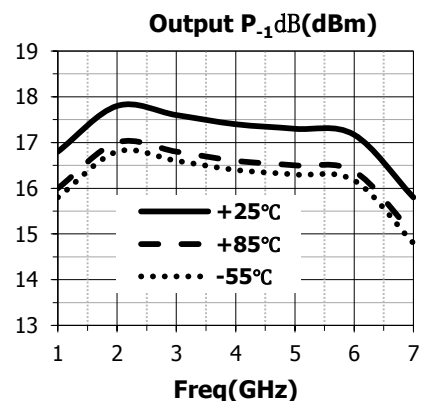
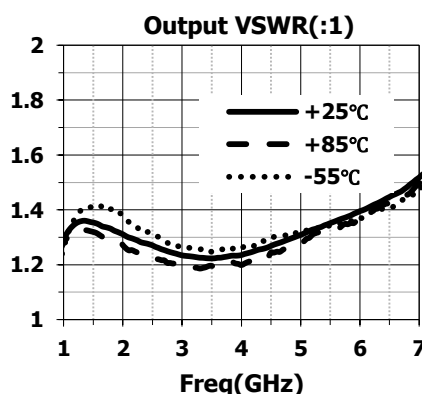
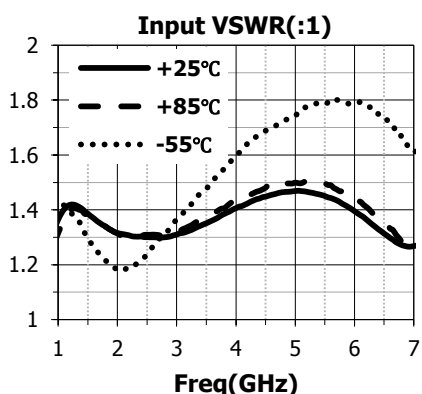
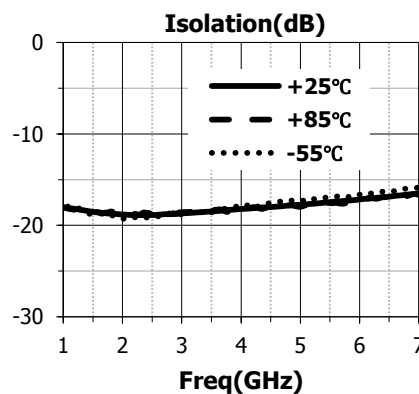
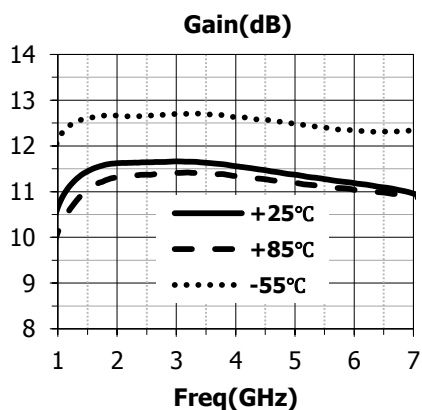
Parameter	Min.	Typ.	Max.	Units
Frequency Range	1.0~7.0			GHz
Gain	—	10.5	—	dB
Gain Flatness	—	1.2	—	dB
Input VSWR/ Output VSWR	—	—	1.5	:1
Noise Figure	—	—	3.4	dB
Output Power for 1 dB Compression (OP _{1dB})	17.5	—	—	dBm
Supply Current(I _D)	—	67	—	mA

Absolute Maximum Ratings

Maximum input power	+15dBm	Operating Temperature	-55°C~+85°C
Channel temperature	150°C	Storage Temperature	-65°C~+150°C

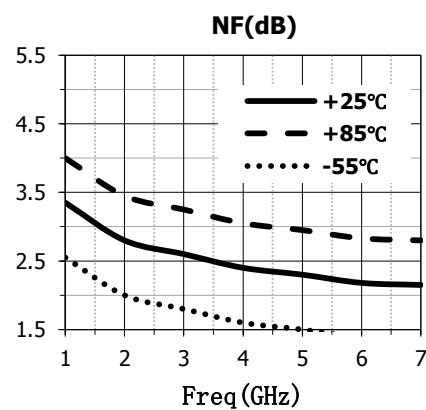
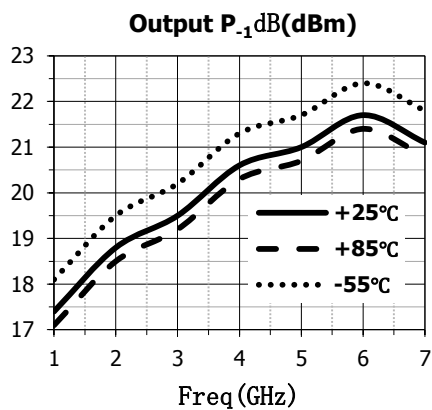
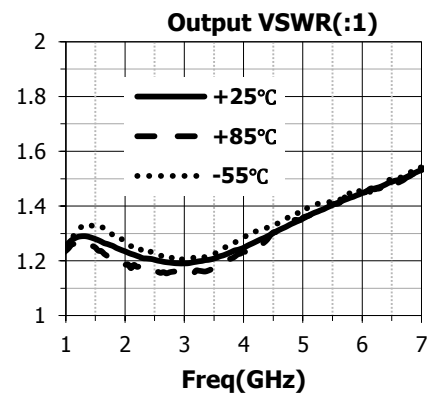
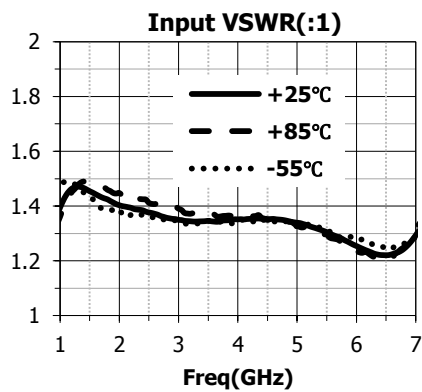
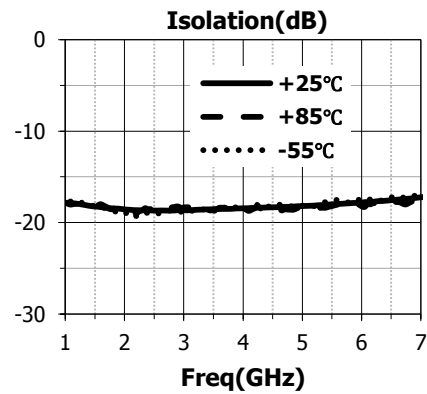
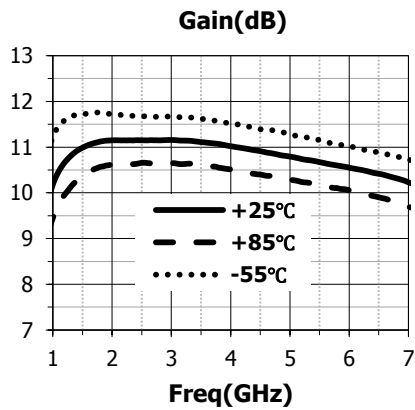
Typical Performance Curve

(V_D=+5V Bare Die Testing)



Typical Performance Curve

($V_D=+8V$ Bare Die Testing)

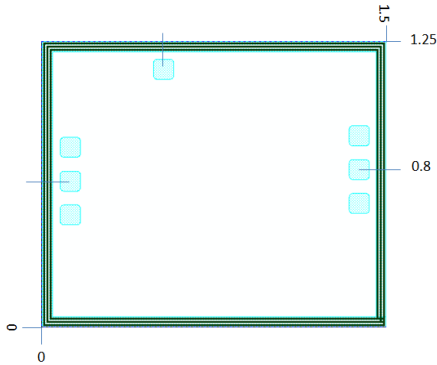


SAC3038

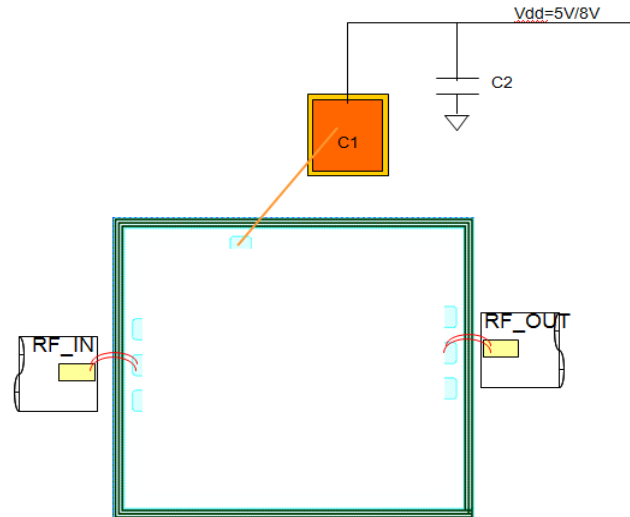
GaAs MMIC Low Noise Amplifier
1.0~7.0GHz

Rev 2.1

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.