

SAC3014

GaAs MMIC Low Noise Amplifier
1.0GHz~3.5GHz

Rev 2.0

Features

- Frequency: 1.0GHz~3.5GHz
- Gain: 24.5dB
- Noise Figure: 1.7dB
- Supply Voltage: +5V@55mA
- Die Size: 1.4mm×1.25mm×0.1mm

Typical Applications

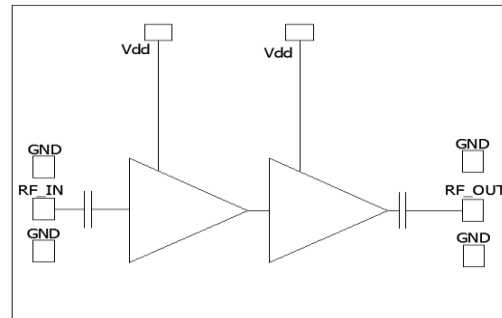
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3014 is a GaAs MMIC low noise amplifier die which operates between 1.0 GHz ~ 3.5GHz. The amplifier can provide 24.5dB gain, 14dBm Output P_{1dB} and 1.7dB noise figure from 55mA 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°C, V_D = +5V, I_D=55mA, Z₀=50Ω)

| Parameter | Min. | Typ. | Max. | Units |
|--|---------|------|------|-------|
| Frequency Range | 1.0~3.5 | | | GHz |
| Gain | — | 24.5 | — | dB |
| Gain Flatness | — | 2 | — | dB |
| Reverse Isolation | — | -38 | — | dB |
| Input/Output VSWR | — | 1.6 | — | :1 |
| Noise Figure | — | 1.7 | — | dB |
| Output Power for 1 dB Compression (OP _{1dB}) | — | 14 | — | dBm |
| Output Third Order Intercept (OIP ₃) | — | 25 | — | dBm |
| Supply Current(I _D) | — | 55 | — | mA |

Absolute Maximum Ratings

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

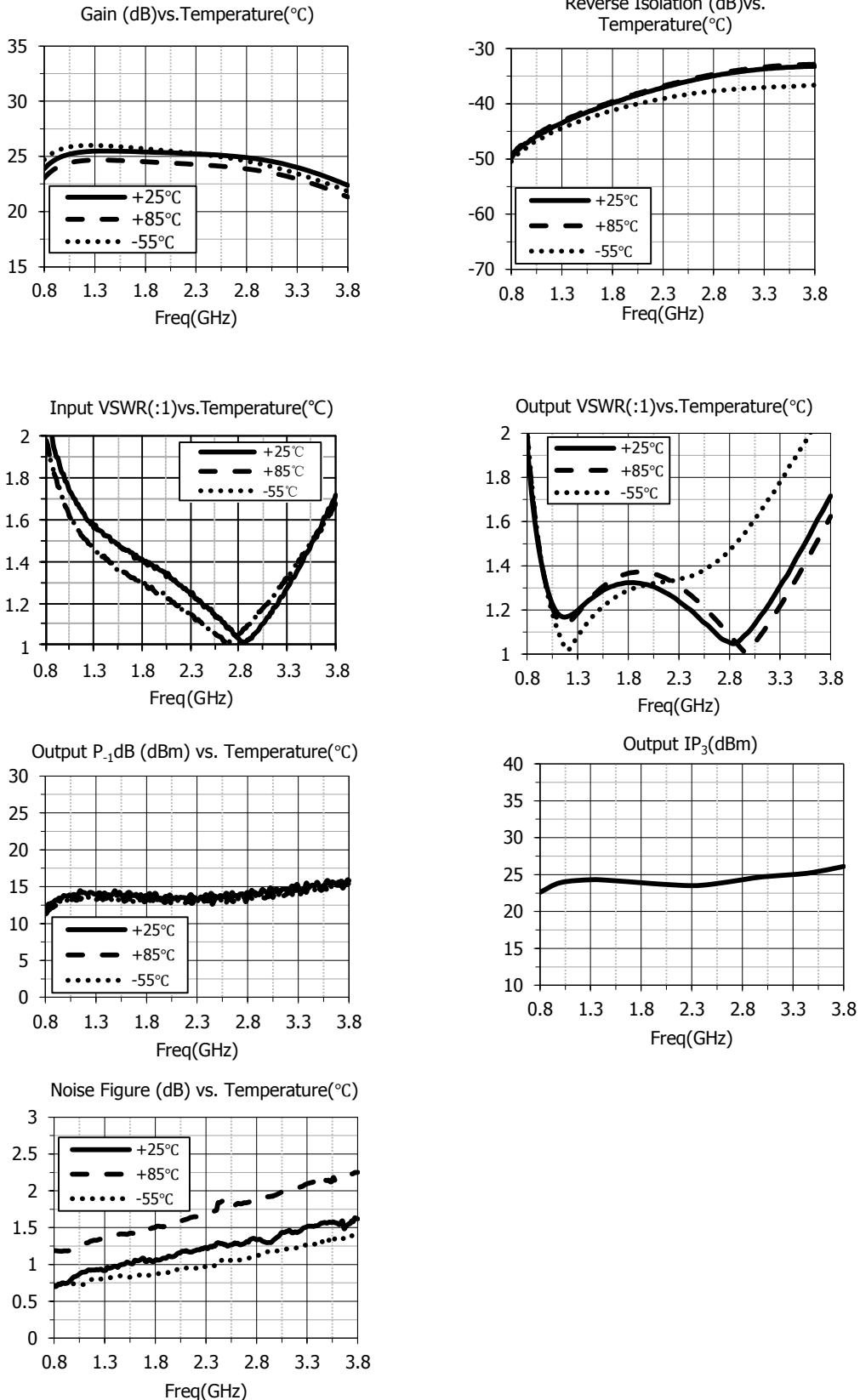
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Typical Performance Curve

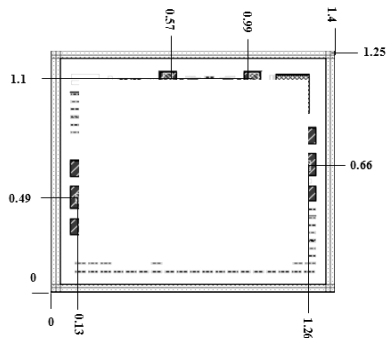


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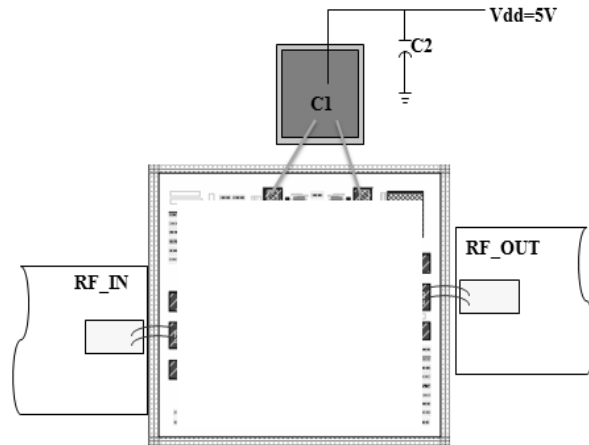
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Die Outline
(All dimensions in mm)



Assembly Diagram



Components List

| Reference Des. | Value | Part Number | Manuf. | Size |
|----------------|-------|--------------------|----------|------|
| C1 | 100pF | CHIP CAPACITOR | RADVISTA | — |
| 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.