

SAC3059

GaAs MMIC Low Noise Amplifier
0.4GHz~0.6GHz

Rev 1.2

Features

- Frequency: 0.4~0.6GHz
- Gain: 35.5dB
- Noise Figure: 0.5dB
- Power Supply: 5V/80mA
- Die Size: 1.3mm×1.21mm×0.1mm

Typical Applications

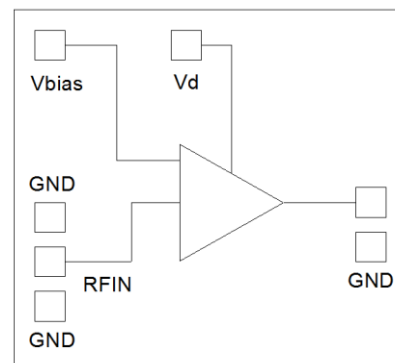
- Wide Band Receiver
- High Density MCM
- EW

General Description

SAC3059 is a GaAs MMIC low noise amplifier die which operates between 0.4~0.6GHz. The amplifier can provide 35.5dB gain, 15dBm Output P_{1dB} and 0.5dB noise figure from a 80mA 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=80mA, Z₀=50Ω)

| Parameter | Min. | Typ. | Max. | Units |
|---------------------------------|-----------|------|------|-------|
| Frequency Range | 0.4 ~ 0.6 | | | GHz |
| Gain | — | 35.5 | — | dB |
| Gain Flatness | — | ±0.5 | — | dB |
| Reverse Isolation | — | -48 | — | dB |
| Input VSWR | — | 1.4 | 1.8 | :1 |
| Output VSWR | — | 1.3 | 1.8 | :1 |
| Noise Figure | — | 0.5 | 0.75 | dB |
| Output P _{1dB} | — | 15 | — | dBm |
| Supply Current(I _b) | — | 80 | 100 | mA |

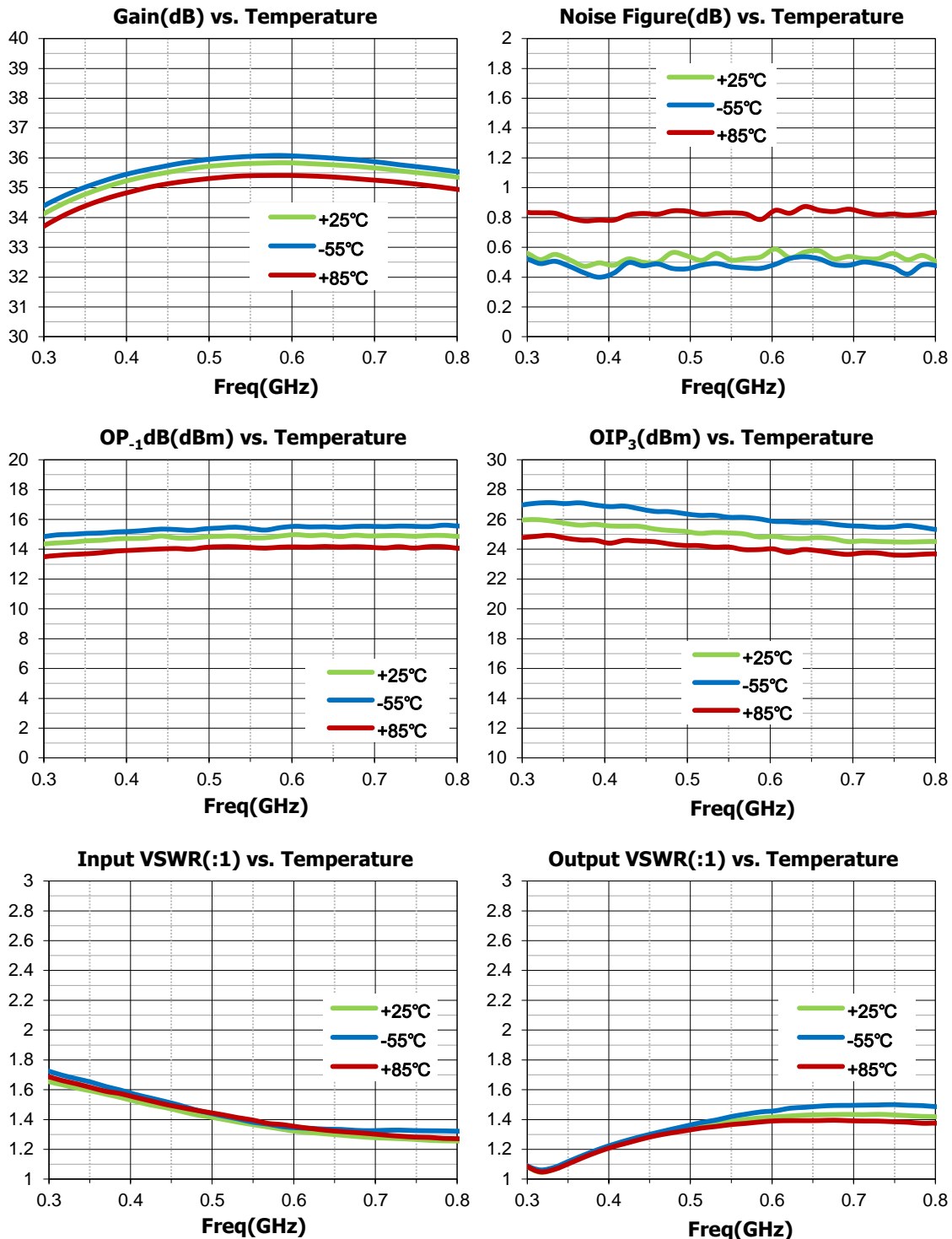
Absolute Maximum Ratings

| | | | |
|---------------------|--------|-----------------------|--------------|
| Maximum Input Power | +15dBm | Operating Temperature | -40°C~+85°C |
| Channel Temperature | +150°C | Storage Temperature | -65°C~+150°C |

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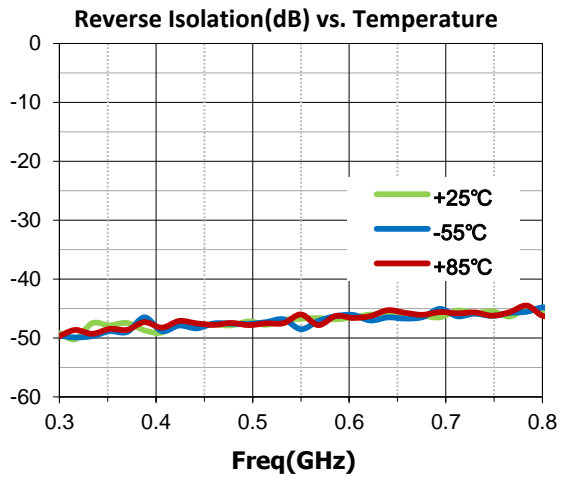
Typical Performance Curve



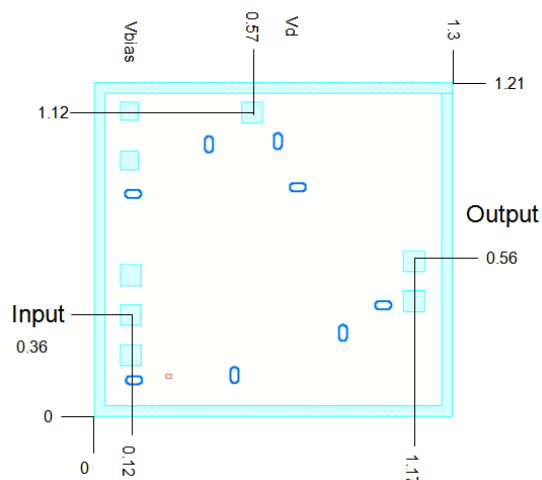
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Outline (All dimensions in mm)

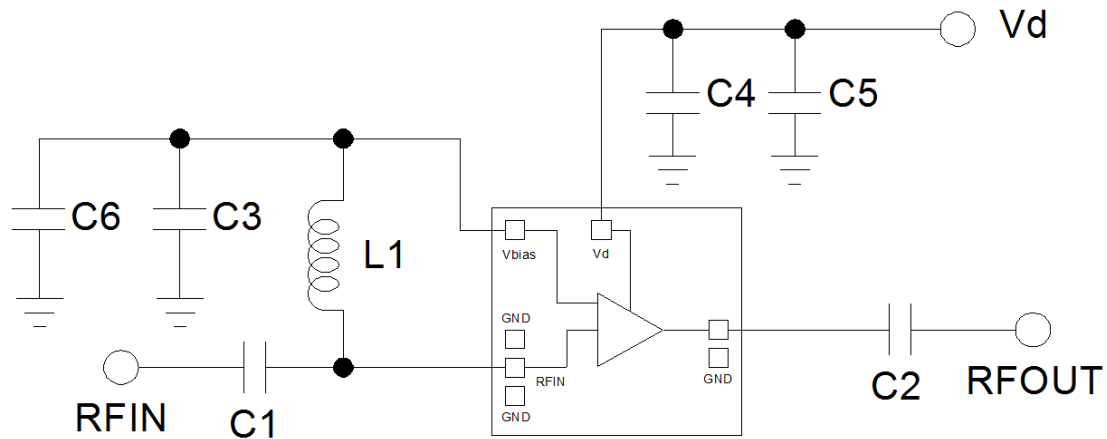


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Assembly Diagram



Components List

| Reference Des. | Value | Part Number | Manuf. |
|----------------|-------|--------------------|-----------|
| C3, C4 | 300pF | SLC | ANY |
| C5,C6 | 10nF | GRM1857U1A103JA44 | MURATA |
| L1 | 47nH | 0603CS-47NXGLW | COILCRAFT |
| C1, C2, | 47 pF | GRM1885C2A470FA01J | MURATA |

Attention:

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.