

Features

- Frequency: 2GHz ~ 4GHz
- Gain: 29dB
- Noise Figure: 0.5dB
- OutputP_{-1dB}:9dBm
- Power Supply: +5V@30mA
- Die Size : 1.08mmx1.21mmx0.1mm

Typical Applications

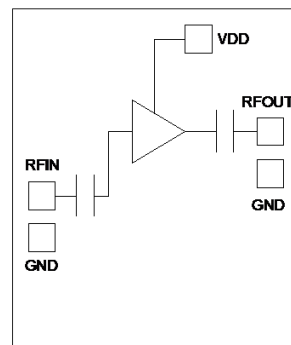
- Microwave radio
- Telecommunication
- Test instrumentation

General Description

SAC3056 is a GaAs MMIC Low Noise Amplifier which operates between 2GHz ~ 4GHz. The amplifier can provide 29dB gain, 9dBm OutputP_{-1dB}, 0.5dB noise figure from a +5V supply voltage.

The chip offers full passivation for increased reliability and moisture protection.

Functional Diagram



Electrical Performance (T_A=25°C, V_D=+5V, I_D=30mA, Z₀=50Ω)

| Parameter | Min | Typ. | Max | Units |
|---|-------|------|-----|-------|
| Frequency Range | 2 ~ 4 | | | GHz |
| Gain | 26 | 29 | — | dB |
| Gain Flatness | — | ±0.5 | — | dB |
| Reverse Isolation | -35 | -41 | — | dB |
| Input VSWR | — | 1.4 | 1.6 | :1 |
| Output VSWR | — | 1.4 | 1.6 | :1 |
| Noise Figure | — | 0.5 | 0.6 | dB |
| Output Power for 1 dB Compression (OP _{-1dB}) | 7 | 9 | — | dBm |
| Output IP ₃ * | — | 20 | — | dBm |
| Supply Voltage (V _D) | 4.85 | 5 | 5.5 | V |
| Supply Current(I _D) | — | 30 | — | mA |

Absolute Maximum Ratings

| | | | |
|------------------------|--------|-----------------------|----------------|
| Maximum Input Power | +12dBm | Operating Temperature | -40°C ~ +85°C |
| Channel Temperature | 150°C | Storage Temperature | -65°C ~ +150°C |
| Maximum V _D | +5.7V | | |

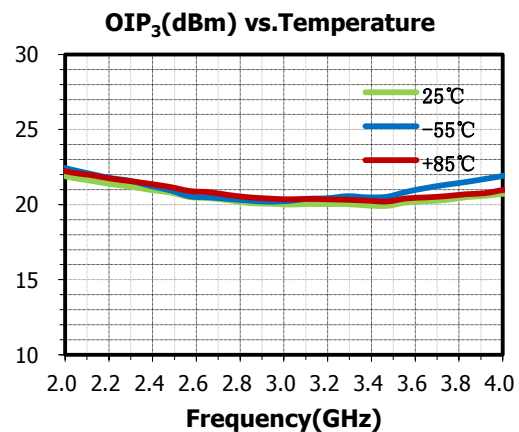
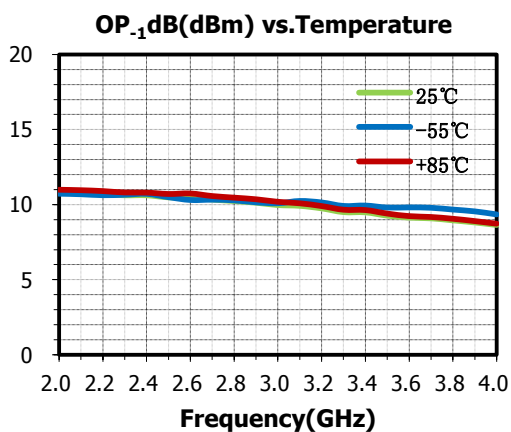
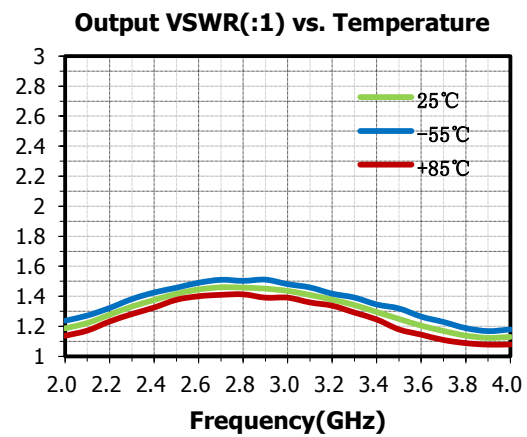
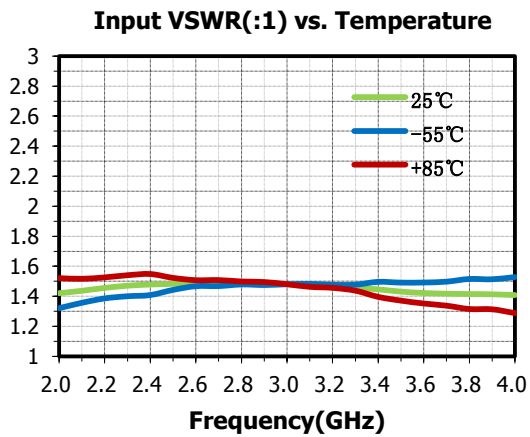
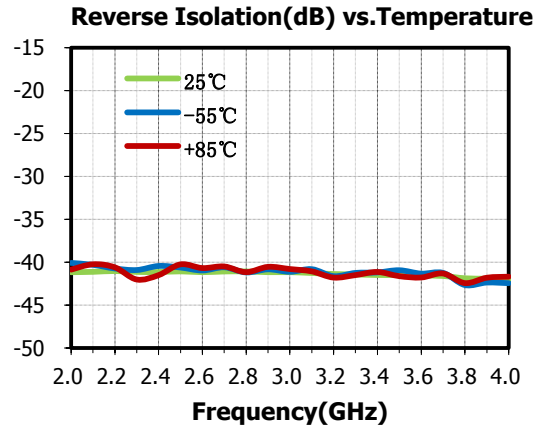
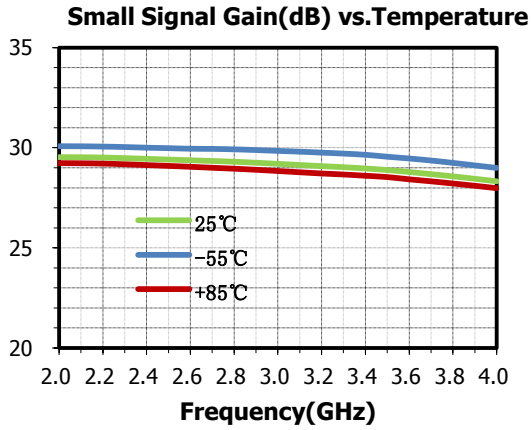
SAC3056



GaAs MMIC Low Noise Amplifier
2GHz~4GHz NF 0.5dB

Rev 1.2

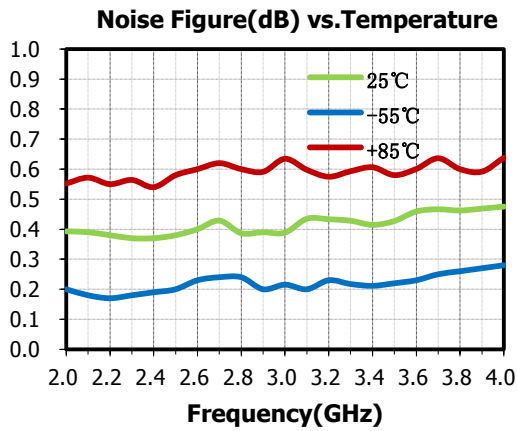
Typical Performance Curve



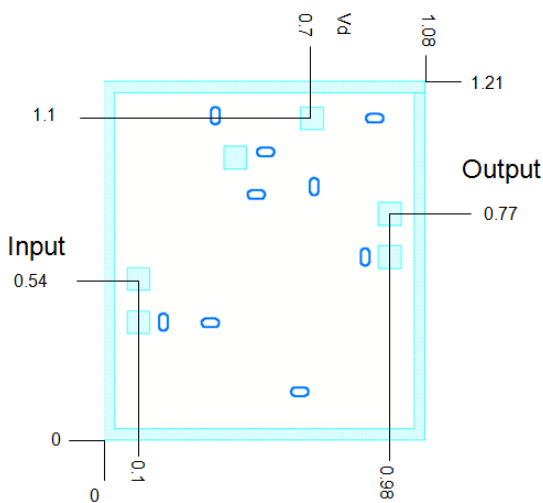
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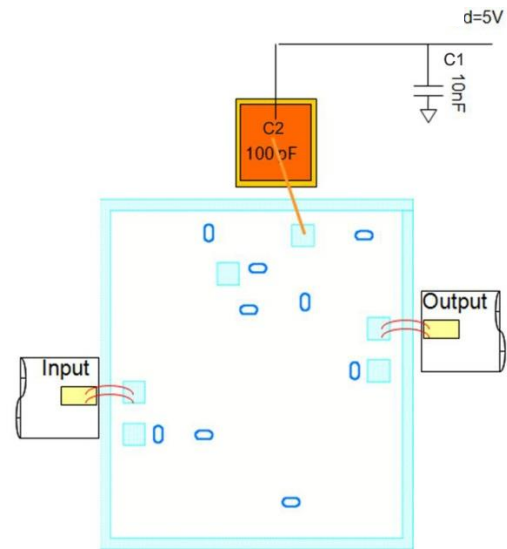
Rev 1.2



Die Outline
(All dimensions in mm)



Assembly Diagram



Component list

| Reference Des. | Value | Part Number | Manuf. | Size |
|----------------|-------|-------------|--------|----------------|
| C1 | 10nF | | Murata | 0402 |
| C2 | 100pF | | | Chip capacitor |

Attention:

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