# SAC3102

GaAs MMIC Power Amplifier
8~12GHz 30dBm

Rev 1.1

## Features

- Frequency：8~12GHz
- Linear Gain：25dB
- Output$P_{-3}$dB：30dBm
- Power Supply：+8V@250mA(Quiescent Current)
- Die Size：2.4mm×1.45mm×0.1mm

## Typical Applications

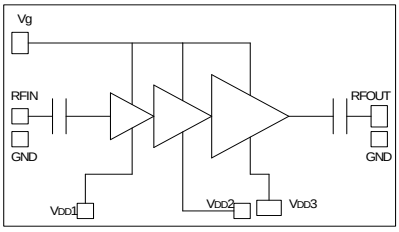
- Point-to-Point Radios
- SATCOM
- Military and Space
- Test and Measurement
- Radar

## General Description

SAC3102 is a wideband GaAs MMIC power amplifier which operates in between 8 and 12GHz. The device provides 25dB of gain, 30 dBm of output power for 3 dB compression.

SAC3102 offers full passivation for increased reliability and moisture protection.

## Functional Diagram




## Electrical Performance ($T_A$=25℃, $Z_0$=50Ω)

| Parameter | Test conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Output Power for 3 dB Compression ($OP_{-3}$dB) | VDS=8V VGS=-0.7V f=8~12GHz Pin＜ -20dBm | 29.5 | 30 | - | dBm |
| Linear Gain | | - | 25 | - | dB |
| Gain Flatness | | - | 2 | - | dB |
| Dynamic Current | | - | 300 | - | mA |
| Power-Added Efficiency | | - | 40 | - | % |
| Input Return Loss | | - | -15 | - | dB |
| Output Return Loss | | - | -10 | - | dB |

## Absolute Maximum Ratings

| | | | |
|---|---|---|---|
| Maximum Input Power | +20dBm | Operating Temperature | -55℃~+85℃ |
| Channel Temperature | +150℃ | Storage Temperature | -65℃~+150℃ |
| Maximum $V_D$ | +10V | Maximum $V_G$ | -2V |

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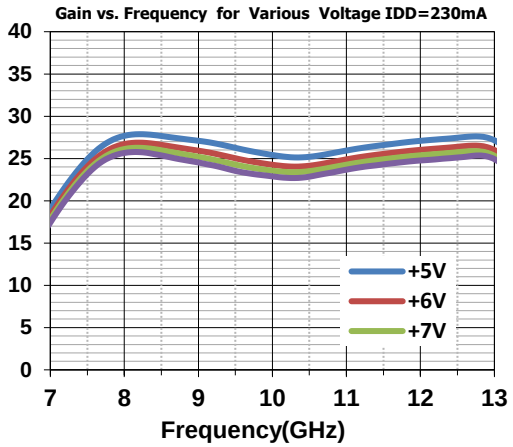
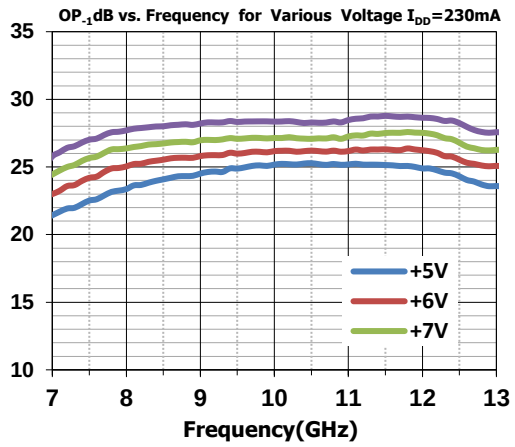
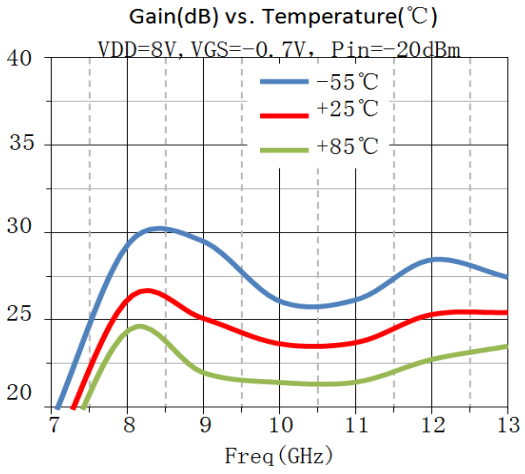
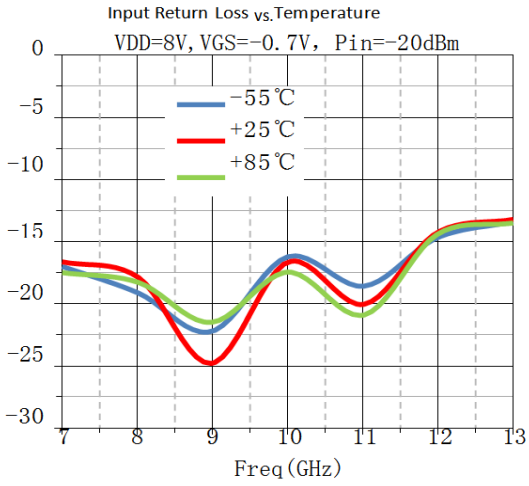
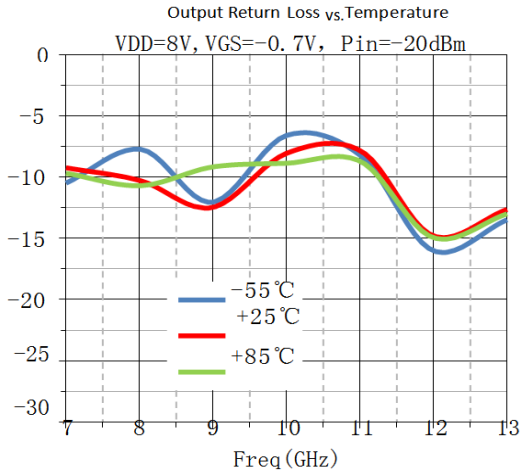
## Typical Performance Curve

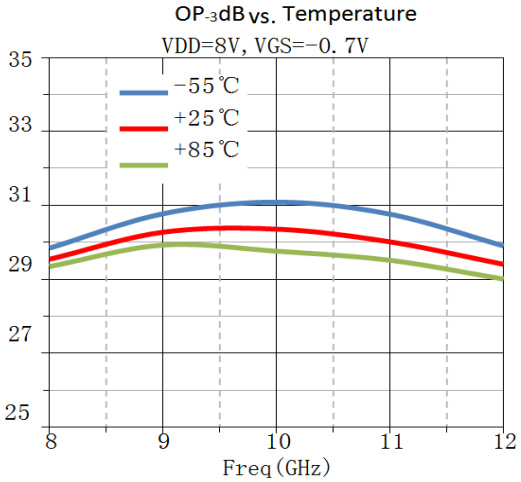


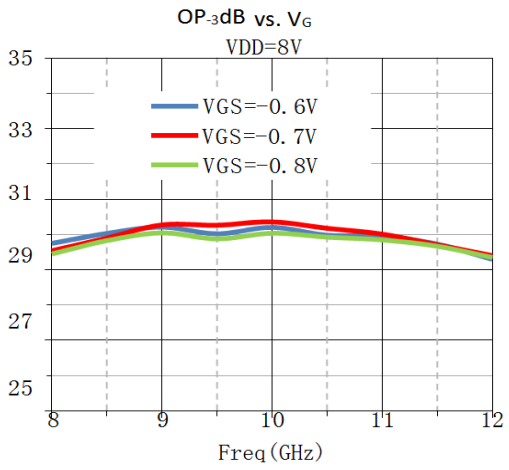



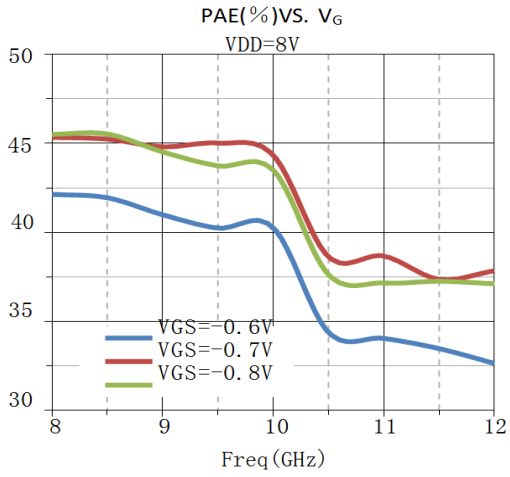



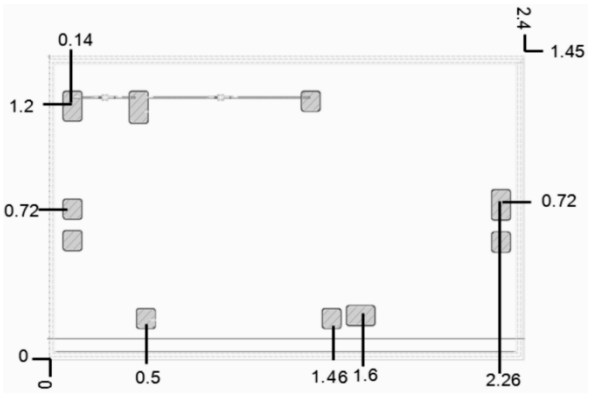





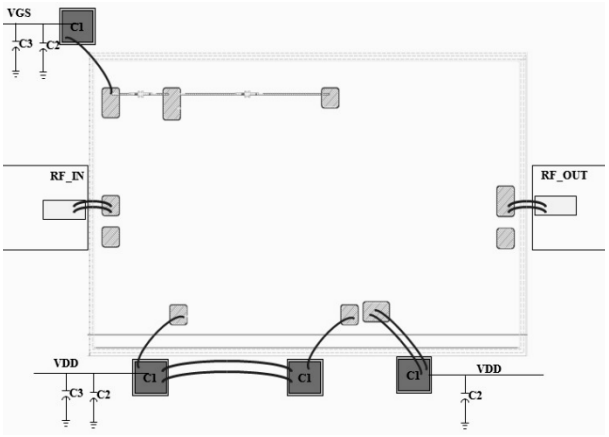




## Die Outline

**(All dimensions in mm)**




## Assembly Diagram




## Components List

| Reference Des. | Value | Part Number | Manuf. | Size |
|---|---|---|---|---|
| C1 | 300pF | CHIP CAPACITOR | | — |
| C2 | 1000pF | CHIP CAPACITOR | | — |
| C3 | 47uF | TPSB476K010R0500 | AVX | — |

**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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