# SAC3047

## GaAs MMIC Low Noise Amplifier
0.2GHz～2.2GHz

**Rev 2.0**

### Features

- Frequency: 0.2GHz ~ 2.2GHz
- Gain: 27dB
- Output $P_{-1}$dB: 13dBm
- Noise Figure: 1dB
- Supply Voltage: +5V@62mA
- Die Size: 1.32mmx1.21mmx0.1mm

### Typical Applications

- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

### General Description

SAC3047 is a GaAs MMIC Low Noise Amplifier die which operates from 0.2GHz to 2.2GHz. The amplifier can provide 27dB gain, 13dBm Output $P_{-1}$dB, 1dB noise figure from a 62mA supply current.

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

### Electrical Performance ($T_A$=25℃, $V_D$=+5V, $I_D$=62mA, $Z_0$=50Ω)

| Parameter | Min | Typ. | Max | Units |
|---|---|---|---|---|
| Frequency Range | | 0.2 ~ 2.2 | | GHz |
| Gain | 24.5 | 27 | 29 | dB |
| Gain Flatness | — | ±1 | ±1.5 | dB |
| Reverse Isolation | 33 | 45 | — | dB |
| Input/Output VSWR | — | 1.4 | 1.6 | : 1 |
| Noise Figure | — | 1 | 1.4 | dB |
| Output Power for 1 dB Compression ($OP_{-1}$dB) | 12 | 13 | — | dBm |
| Output $IP_3$ | — | 23 | — | dBm |
| Supply Current ($I_D$) | — | 62 | — | mA |

### Absolute Maximum Ratings

| | | | |
|---|---|---|---|
| Maximum Input Power | +15dBm | Operating Temperature | -55°C ~ +85°C |
| Maximum $V_D$ | +5.5V | Storage Temperature | -65°C ~ +150°C |

RoHS

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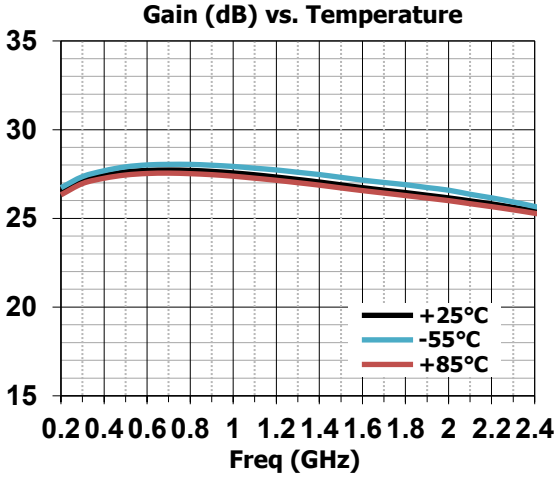
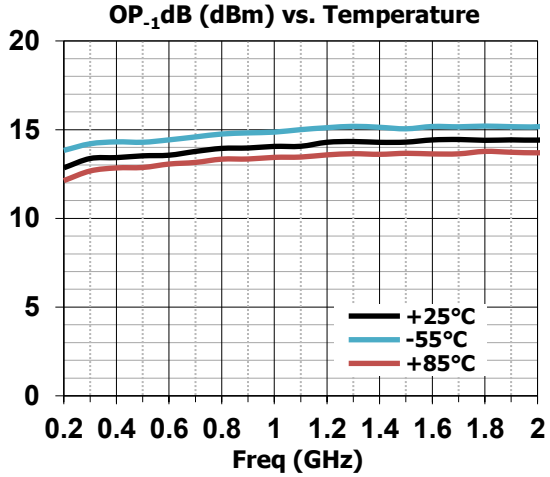
## Typical Performance Curve

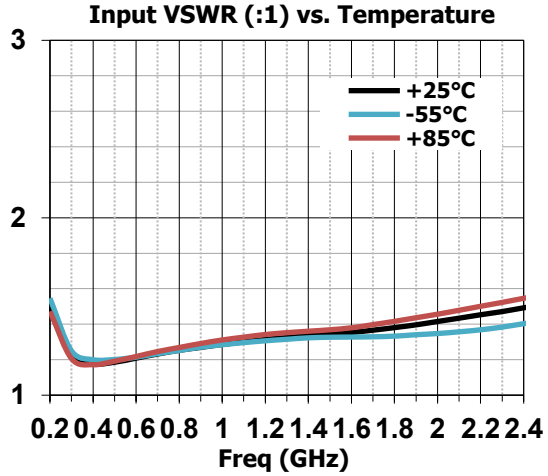
Gain (dB) vs. Temperature



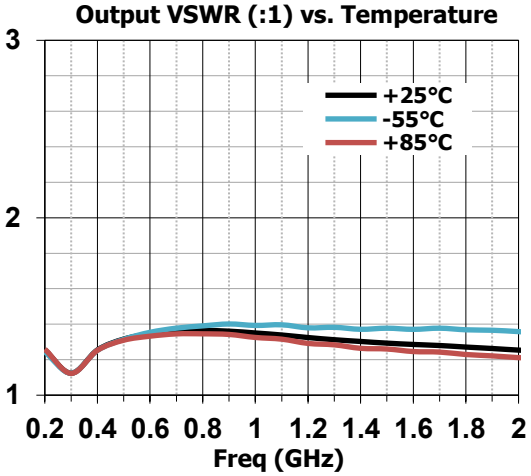

OP$_{-1}$dB (dBm) vs. Temperature



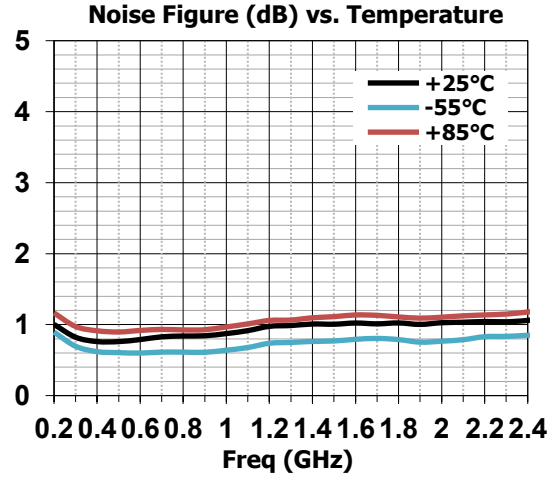

Input VSWR (:1) vs. Temperature




Output VSWR (:1) vs. Temperature

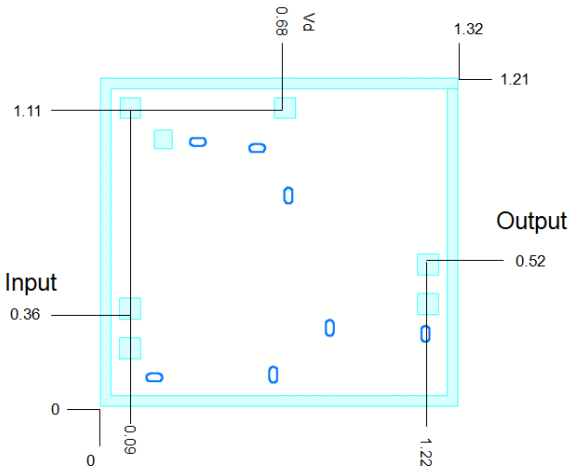



Noise Figure (dB) vs. Temperature

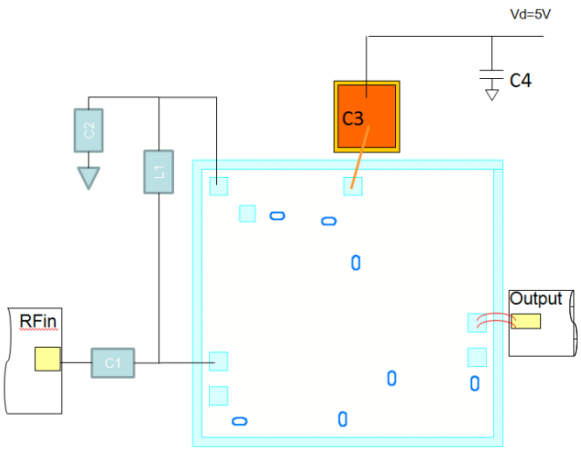


## Die Outline

**(All dimensions in mm)**




## Assembly Diagram




## Component list

| Reference Des. | Value | Part Number | Manuf. | Size |
|---|---|---|---|---|
| C1, C2 | 100pF | GRM1555C1H101JA01D | MURATA | 0402 |
| C3 | 100pF | CHIP CAPACITOR | RADVISTA | Chip |
| C4 | 10nF | GRM155R71H103KA88D | MURATA | 0402 |
| L1 | 82nH | 0402CS-82NXGE | COILCRAFT | 0402 |

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