# SAC1149A

## Wide-band Low Noise Amplifier Module
## 2~4GHz NF=0.6dB

Rev 1.0

### Features

- Frequency: 2 ~ 4GHz
- Gain: 30dB
- $OP_{-1}dB$: 10dBm
- Noise Figure: 0.6dBTyp. 0.8dB Max.
- Supply Current: 40mA
- Size: 17.8mm×20mm×8.35mm

### Typical Applications

- Microwave radio
- Telecommunication
- Deep Space Communication
- Test instrumentation
- Military

### General Description

SAC1149A is a low noise amplifier module with a typical small signal gain of 30dB and a nominal $OP_{-1}dB$ of +10dBm across the frequency range of 2 to 4GHz.

### Electrical Performance

**$T_A$=25°C, $I_D$=40mA, $Z_O$=50Ω**

| Parameter | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Frequency Range | | 2 ~ 4 | | GHz |
| Gain | 28 | 30 | 31.5 | dB |
| Gain Flatness | — | ±1 | — | dB |
| Noise Figure | – | 0.6 | 0.8 | dB |
| Output Power for 1 dB Compression ($OP_{-1}dB$) | — | 10 | — | dBm |
| Output $IP_3$ | — | 23 | — | dBm |
| Input VSWR | — | 1.5 | 1.8 | :1 |
| Output VSWR | — | 1.5 | 1.8 | :1 |
| Supply Voltage | 4.5 | 5 | 5.5 | V |
| Supply Current | — | 40 | — | mA |

### Mechanical Specifications

| Parameter | |
|---|---|
| Input/Output | SMA(F) Field-replaceable |
| Bias | Pin/Case ground |
| Case Material | 7050 Aluminum alloy |
| Weight | 25g |

RoHS

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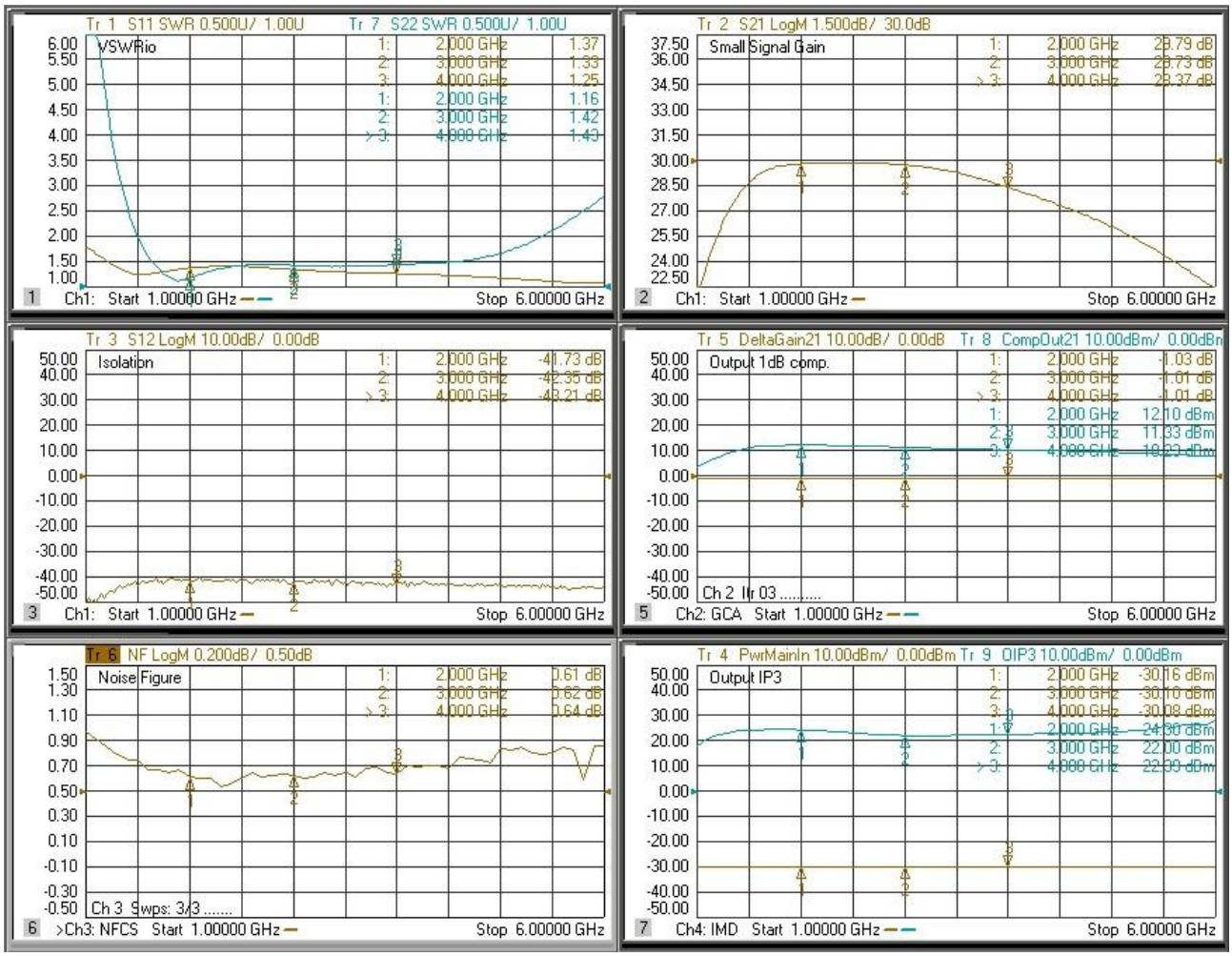
## Absolute Maximum Ratings

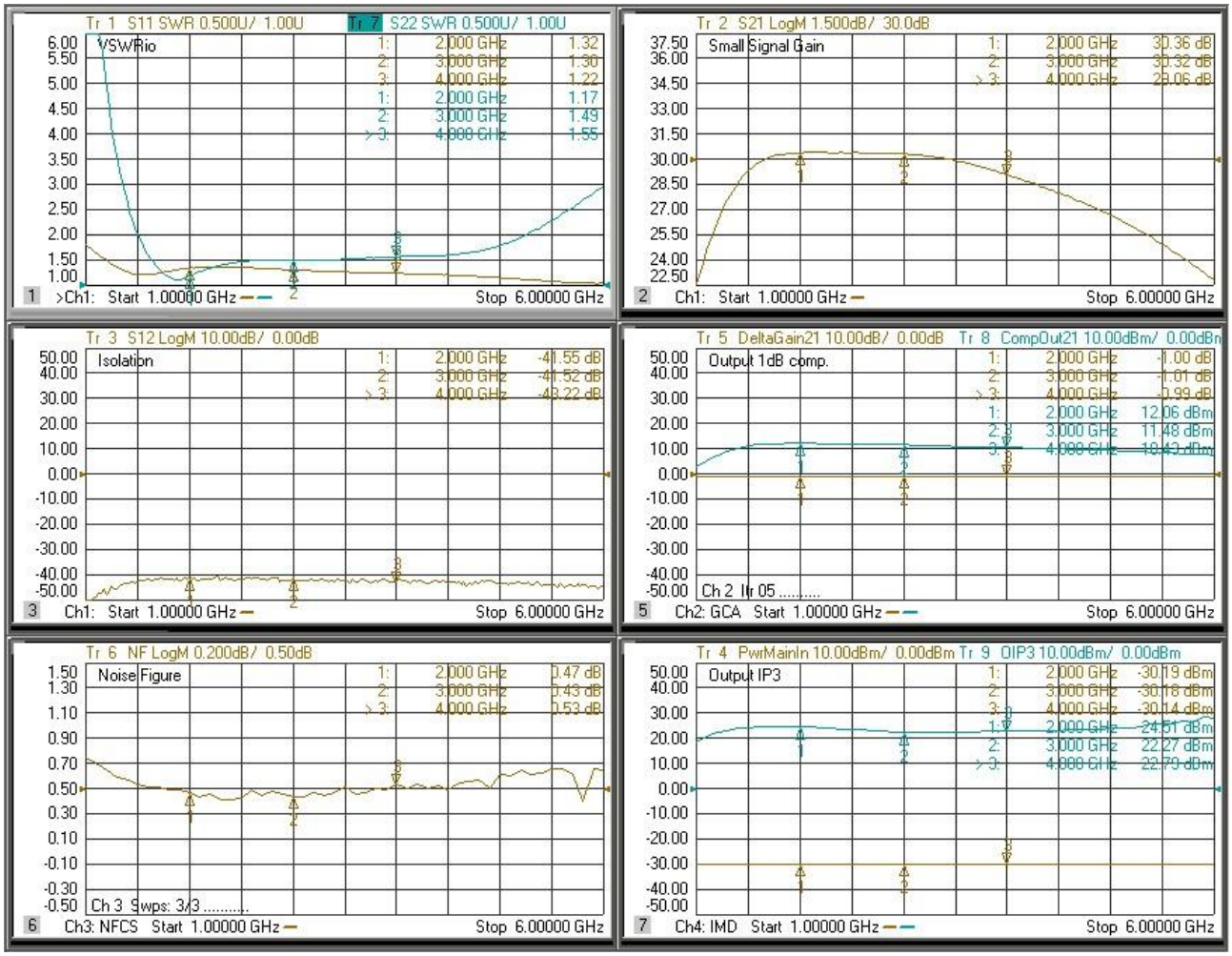
| | | | |
|---|---|---|---|
| Maximum Input Power | +13dBm | Operating Temperature | -55°C ~ +85°C |
| Channel Temperature | +150°C | Storage Temperature | -65°C ~ +150°C |

## Typical Performance Curve

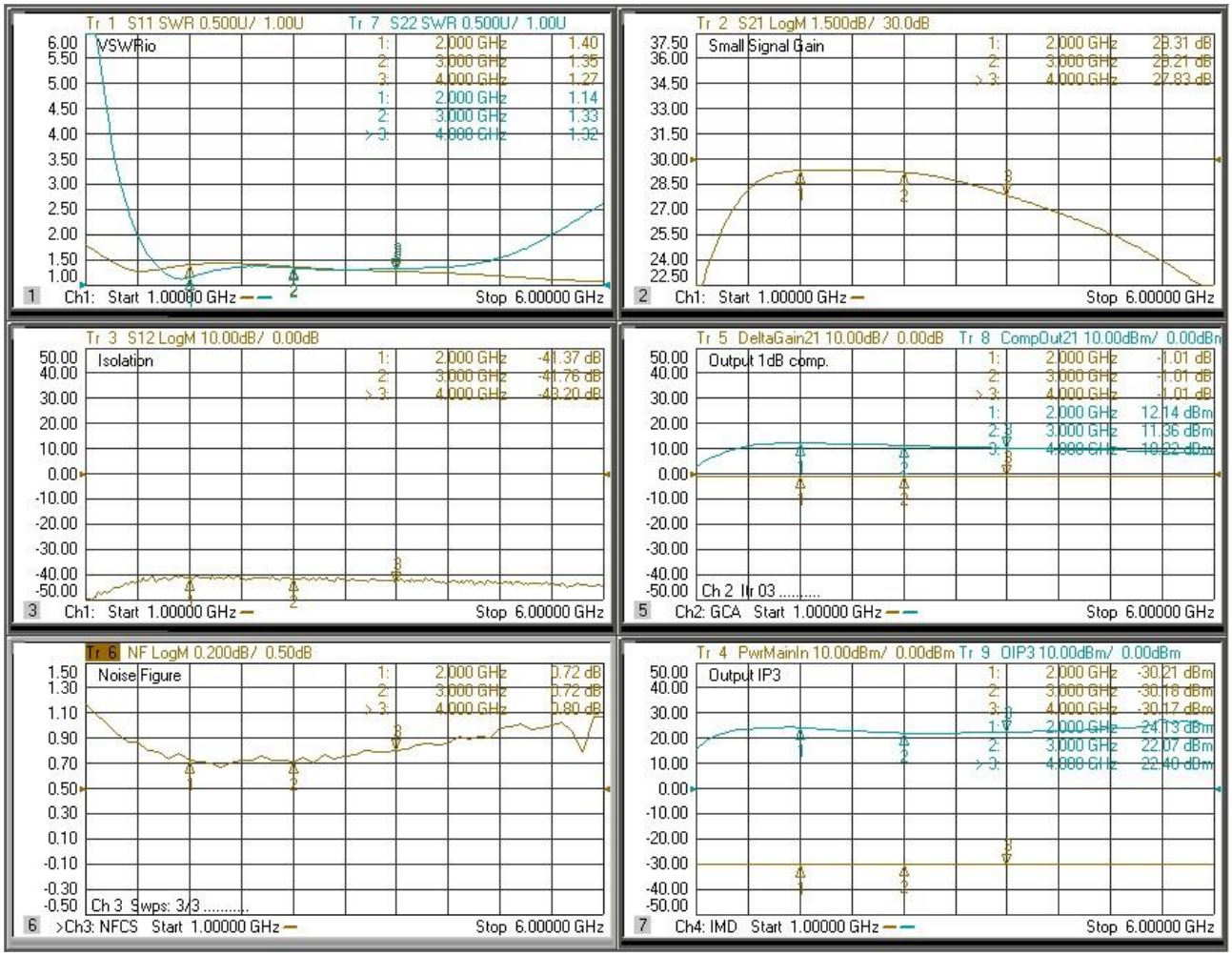
**TA=+25℃**



**$T_A$=-40℃**


Tr 1 S11 SWR 0.500U/ 1.00U
Tr 7 S22 SWR 0.500U/ 1.00U
VSWRio
Tr 2 S21 LogM 1.500dB/ 30.0dB
Small Signal Gain
Tr 3 S12 LogM 10.00dB/ 0.00dB
Isolation
Tr 5 DeltaGain21 10.00dB/ 0.00dB
Tr 8 CompOut21 10.00dBm/ 0.00dBm
Output 1dB comp.
Tr 6 NF LogM 0.200dB/ 0.50dB
Noise Figure
Tr 4 PwrMainIn 10.00dBm/ 0.00dBm
Tr 9 OIP3 10.00dBm/ 0.00dBm
Output IP3
Ch1: Start 1.00000 GHz
Stop 6.00000 GHz
Ch2: GCA Start 1.00000 GHz
Ch3: NFCS Start 1.00000 GHz
Ch4: IMD Start 1.00000 GHz

**TA=70℃**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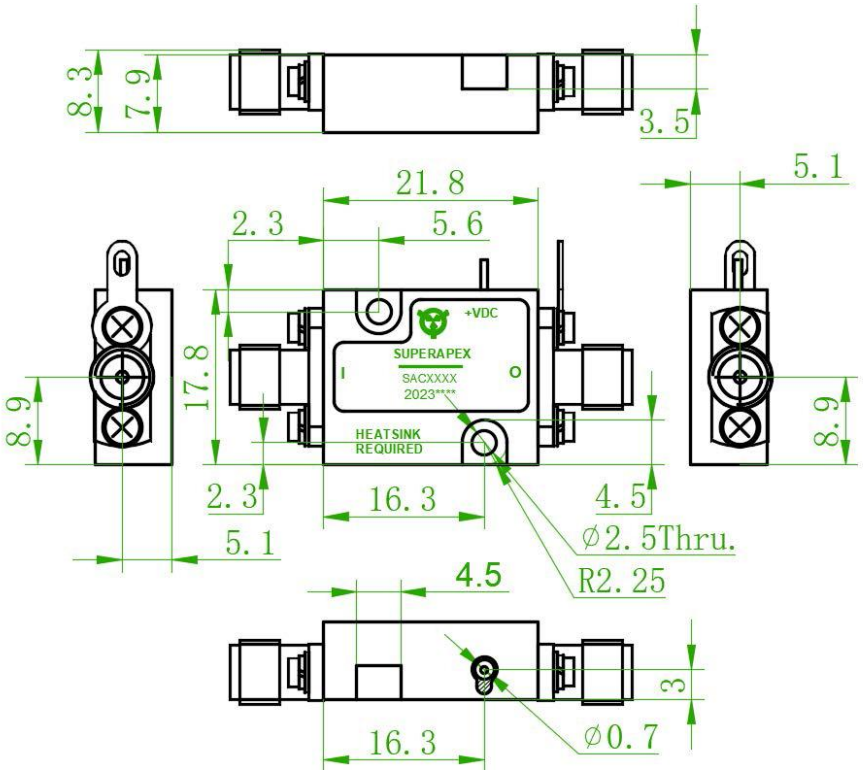
Ch4: IMD Start 1.00000 GHz

## Mechanical Outline

**All dimensions are in millimeters**