

# SAC3076Q3

GaAs MMIC Low Noise Amplifier  
4.5~6GHz

Rev 1.1

## Features

- Frequency: 4.5~6GHz
- Gain: 24dB
- Noise Figure: 0.8dB typ. 1.1dB max.
- Single Power Supply: +4~5V/40~60mA
- OutputP<sub>-1dB</sub>: 11dBm@5.5GHz
- Package Size: 3mm×3mm×1.2mm

## Typical Applications

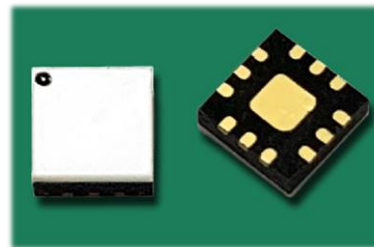
- Radar and ECM
- C band Low Noise Amplifier

## General Description

SAC3076Q3 is a GaAs MMIC Low Noise Amplifier die, which was packaged in Quad Flat No-lead.

The device can provide 24dB gain, 11dBm OutputP<sub>-1dB</sub>, 0.8dB noise figure, while requiring 60 mA from a +5V supply.

## Picture



## Electrical Performance ( T<sub>A</sub>=25°C, V<sub>D</sub>= +5V, I<sub>D</sub>=60mA, Z<sub>0</sub>=50Ω )

Parameter	Min	Typ.	Max	Units
Frequency Range	4.5~6			GHz
Gain	22	24	28	dB
Gain Flatness	—	±1	—	dB
Reverse Isolation	—	-30	—	dB
Input/Output VSWR	—	1.5	2.5	:1
Noise Figure	—	0.8	1.1	dB
Output Power for 1 dB Compression (OP <sub>-1dB</sub> )	10	11	—	dBm
Output Third Order Intercept (OIP <sub>3</sub> )	—	20*	—	dBm
Supply Current(ID)	—	60	70	mA
Supply Voltage(VD)	4	—	5	V

- Pout/Tone=0dBm Fc=5.5GHz,Δf=1MHz

## Absolute Maximum Ratings

Maximum Input Power	+13dBm , CW 1min	Operating Temperature	-55°C ~ +85°C
Channel Temperature	150°C	Storage Temperature	-65°C ~ +150°C
Maximum V <sub>D</sub>	+6V		

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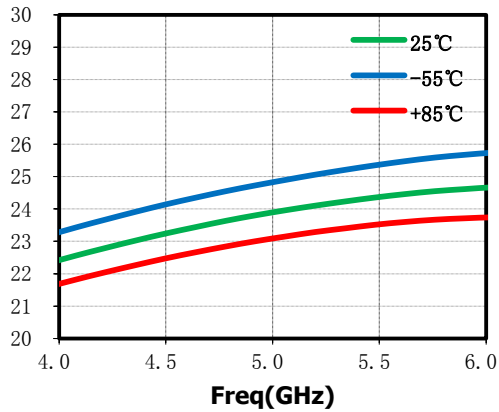


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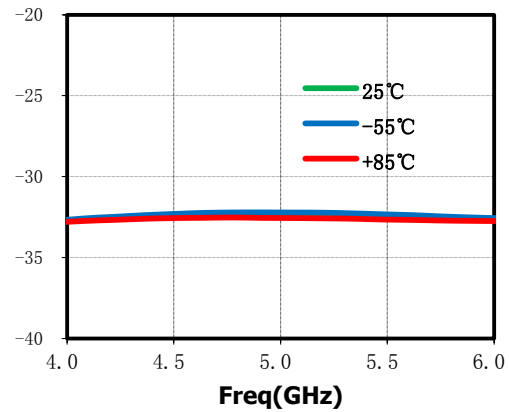
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## Typical Performance Curve VD=+4V, IDQ=40mA

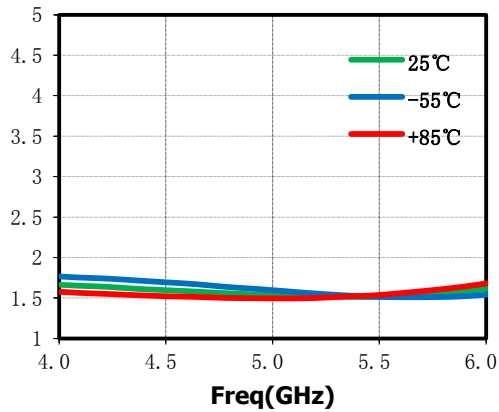
### Small Signal Gain(dB) vs. Temperature



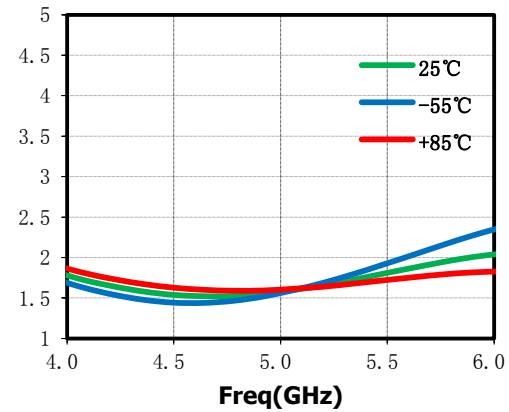
### Reverse Isolation(dB) vs. Temperature



### Input VSWR(:1) vs. Temperature



### Output VSWR(:1) vs. Temperature

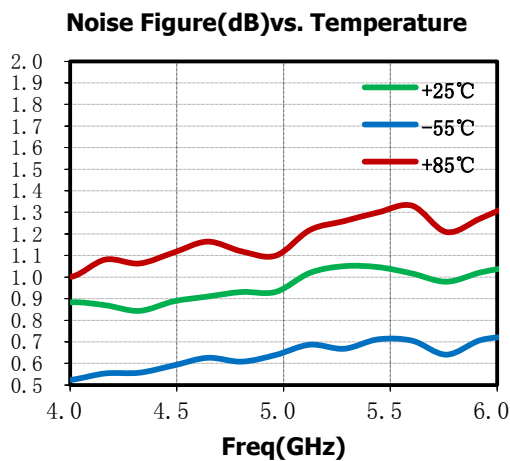
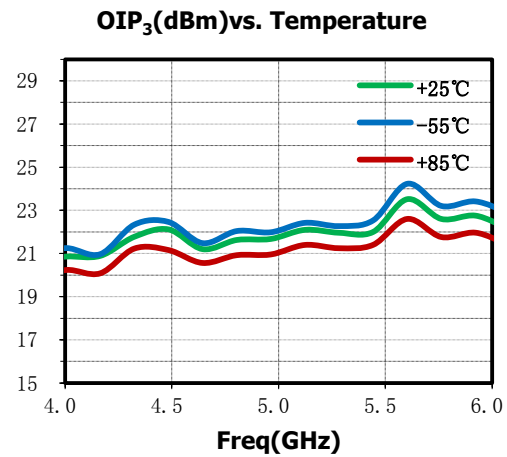
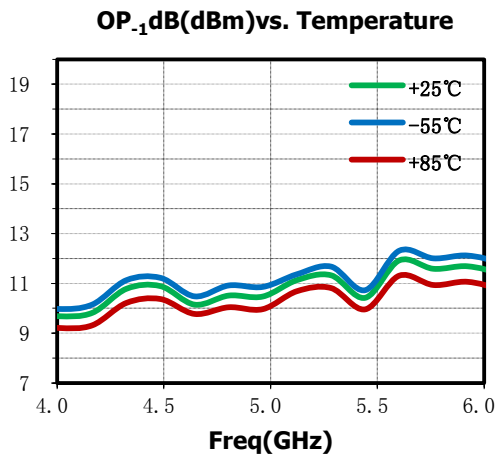


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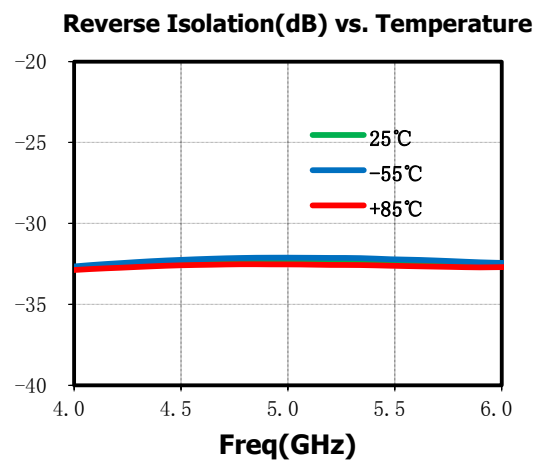
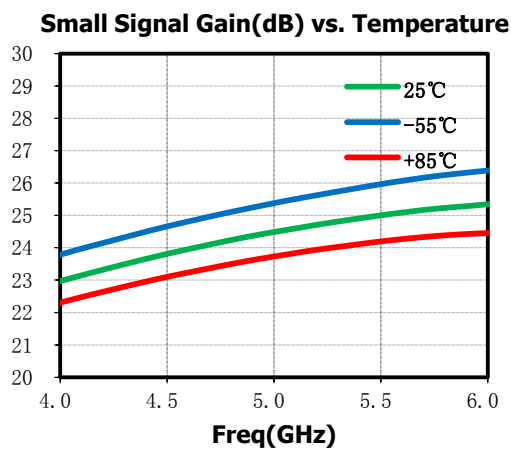


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VD=+5V, IDQ=60mA



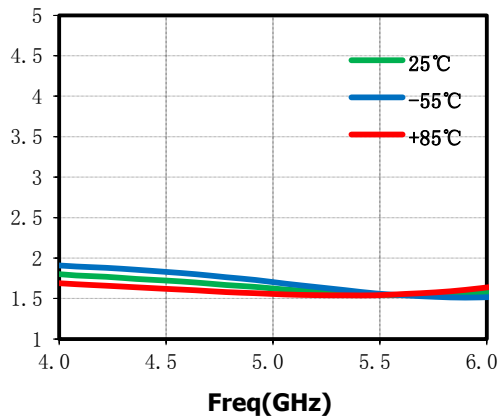
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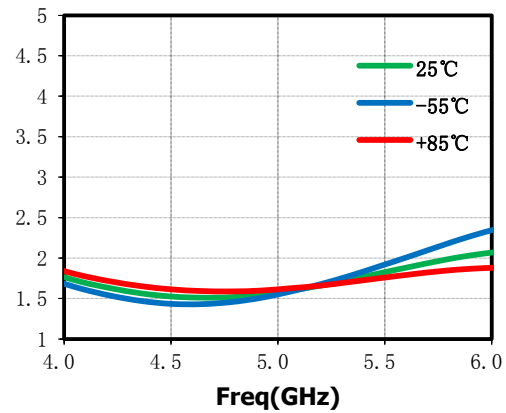
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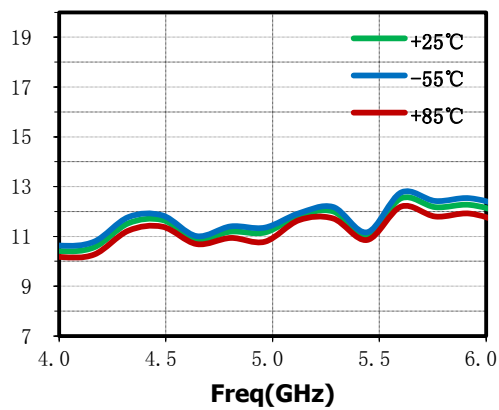
**Input VSWR(:1) vs. Temperature**



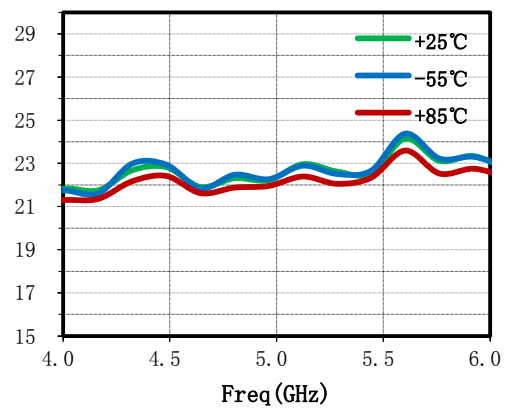
**Output VSWR(:1) vs. Temperature**



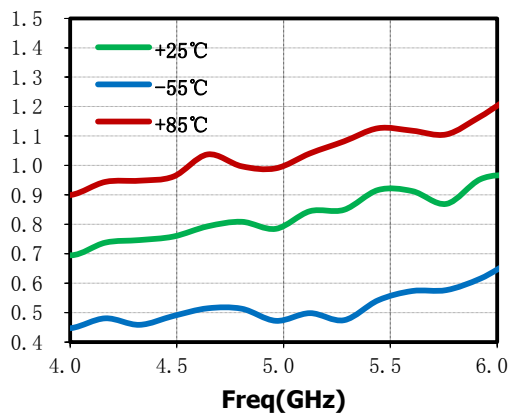
**OP<sub>1</sub>(dBm) vs. Temperature**



**OIP<sub>3</sub>(dBm) vs. Temperature**



**Noise Figure(dB) vs. Temperature**



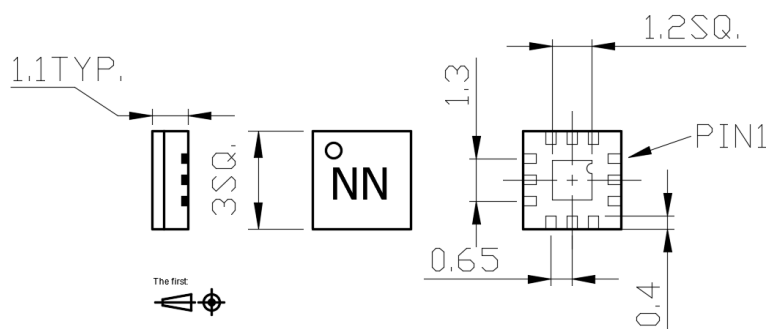
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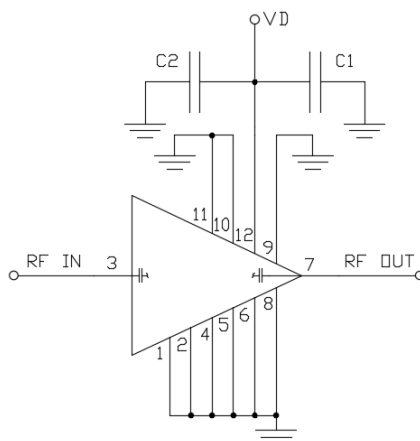
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## Outline Drawing

(All dimensions in mm)



## Assembly Diagram



## Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1	0.01 $\mu$ F	—	ANY	0402
C2	2.2 $\mu$ F	—	ANY	0402

### Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^{\circ}$  C/60% RH, The surrounding workshop Life is 4 weeks.
2. After un-packing, It is necessary to bake the parts for 6 hours in 125+/-5 degree environment before soldering.
3. NO Hot-Air Gun.
4. GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.
5. Unintegrated DC-isolation capacitors at input and output ports of radio frequency.