

SAC3080Q3

GaAs MMIC Low Noise Amplifier
1~7GHz

Rev 1.1

Features

- Frequency: 1~7GHz
- Gain: 12dB
- Noise Figure: 2.5dB typ.
- Single Power Supply: +4~5V/50~60mA
- OutputP_{-1dB}: 15dBm@5GHz
- Package Size: 3mm×3mm×1.1mm

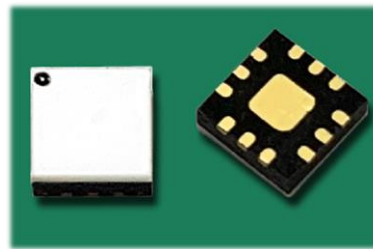
Typical Applications

- Radar and ECM
- C band Low Noise Amplifier

General Description

SAC3080Q3 bare die was packaged in shell of QFN. The side of a shell is 3mm. The device operates between 1~7GHz. The amplifier can provide 12dB gain, 14dBm OutputP_{-1dB}, 2.5dB noise figure, while requiring 60 mA from a +5V supply.

Picture



Electrical Performance (T_A=25°C, V_D= +5V, I_D=60mA, Z₀=50Ω)

Parameter	Min	Typ.	Max	Units
Frequency Range		1~7		GHz
Gain	10	12	15	dB
Gain Flatness	—	±1	±1.5	dB
Reverse Isolation	—	-18	—	dB
Input/Output VSWR	—	1.5	2.2	:1
Noise Figure	—	2.5	3.5	dB
Output Power for 1 dB Compression (OP _{-1dB})	14	15	—	dBm
Output Third Order Intercept (OIP ₃)	—	28*	—	dBm
Supply Current(I _D)	—	60	75	mA
Supply Voltage(V _D)	4	—	5	V

*Pout/Tone=0dBm Fc=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 _D	+6V		

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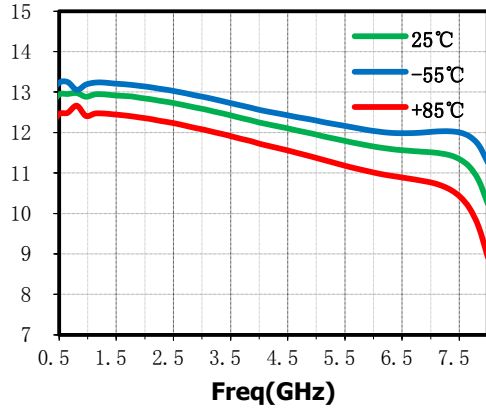


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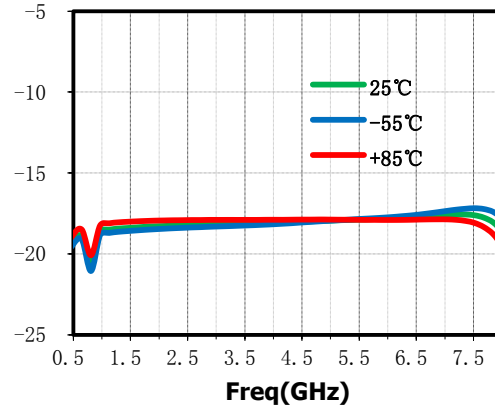
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Typical Performance Curve VD=+4V, IDQ=50mA

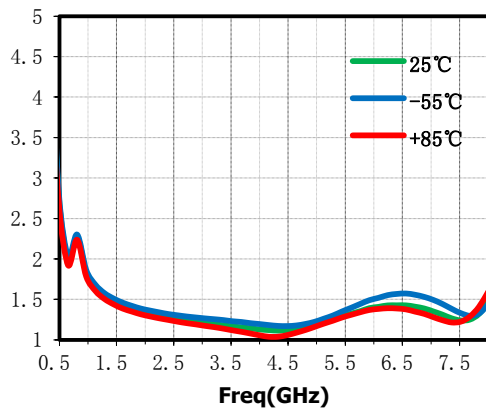
Small Signal Gain(dB) vs. Temperature



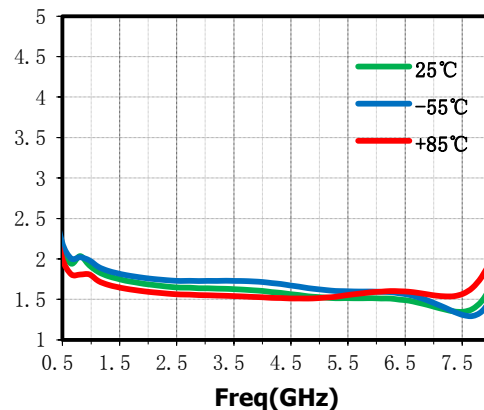
Reverse Isolation(dB) vs. Temperature



Input VSWR(:1) vs. Temperature



Output VSWR(:1) vs. Temperature



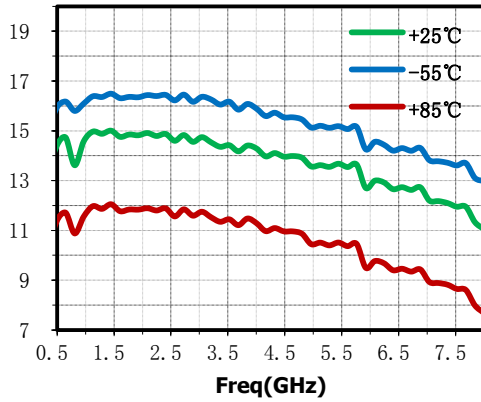
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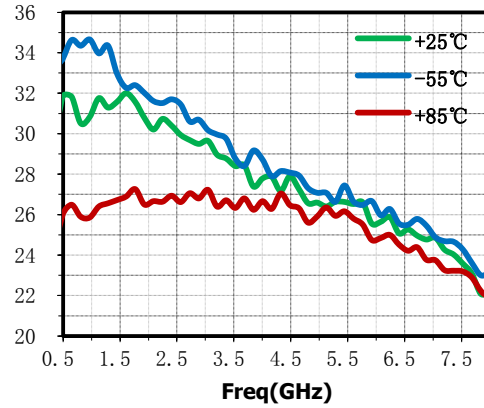
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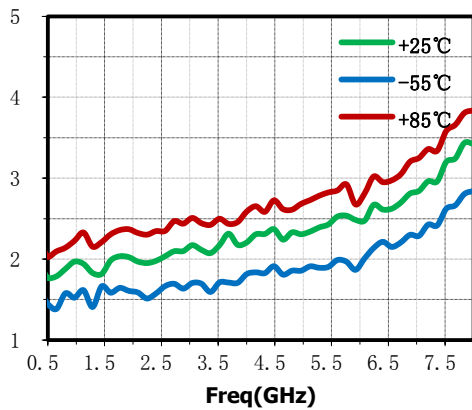
OP₁(dBm) vs. Temperature



OIP₃(dBm) vs. Temperature

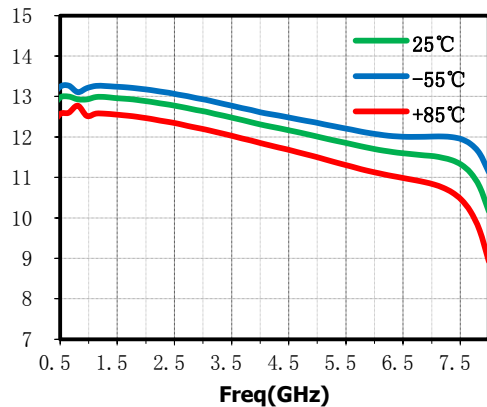


Noise Figure(dB) vs. Temperature

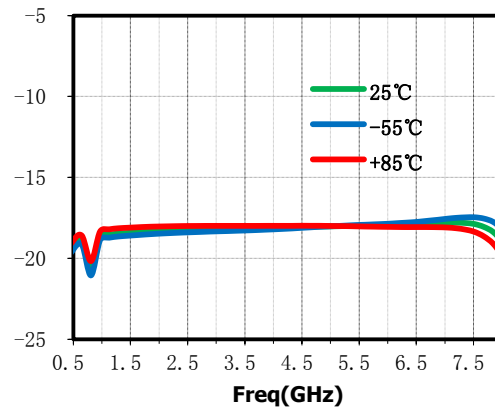


VD=+5V, IDQ=60mA

Small Signal Gain(dB) vs. Temperature



Reverse Isolation(dB) vs. Temperature

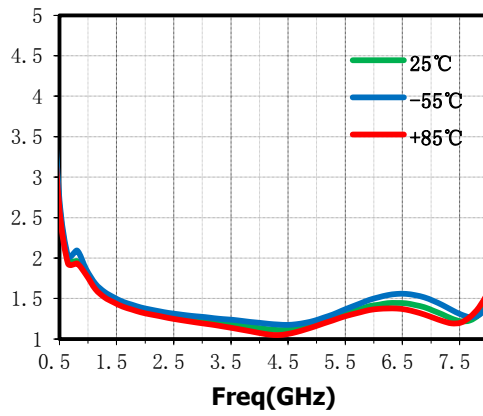


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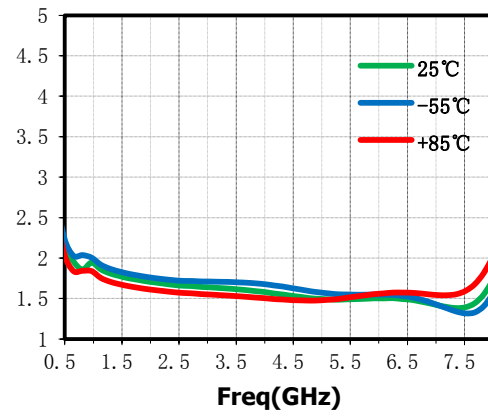
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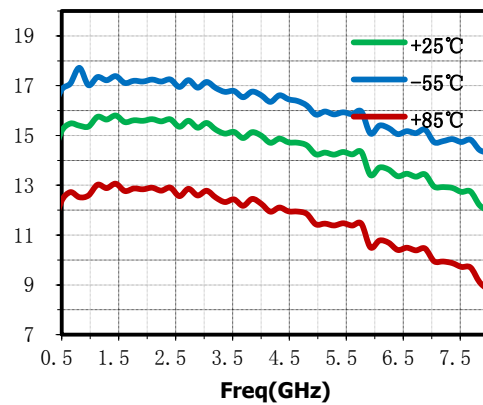
Input VSWR(:1) vs. Temperature



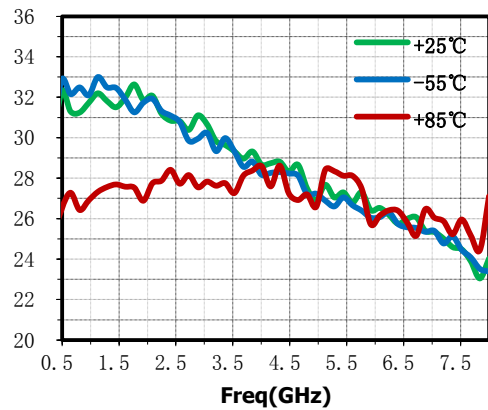
Output VSWR(:1) vs. Temperature



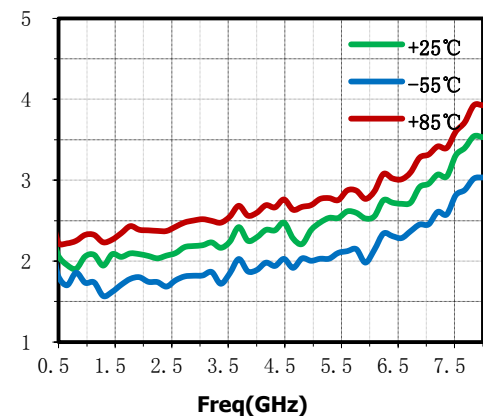
OP₁(dBm) vs. Temperature



OIP₃(dBm) vs. Temperature



Noise Figure(dB) vs. Temperature



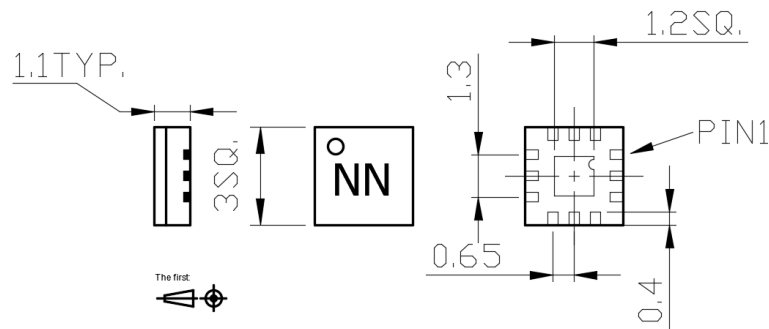
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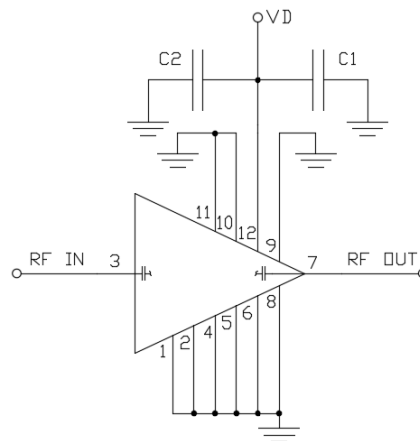
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Outline Drawing

(All dimensions in mm)



Assembly Diagram



Component list

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