

SAC4020Q4



GaAs MMIC Low Noise Amplifier
18~40GHz

Rev 1.0

Features

- Frequency: 18~40GHz
- Gain: 18dB
- Output P_{-1dB}: 12dBm@28GHz
- Supply Voltage: +5V@85mA
- Package: QFN4x4

Typical Applications

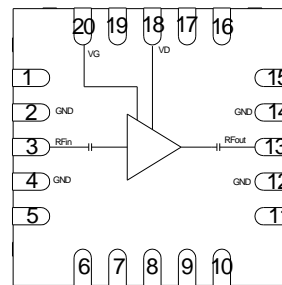
- Microwave radio including point to point communication
- Telecommunication
- Test instrumentation
- SatCom

General Description

SAC4020Q4 is a GaAs MMIC Low Noise Amplifier which operates between 18GHz~40GHz. The amplifier can provide 18dB gain, 12dBm Output P_{-1dB}, 2.5dB noise figure from an 85mA supply current.

The device assembled in a 4x4mm air cavity QFN package.

Functional Diagram



Electrical Performance

T_A=25°C, V_D=+5V, I_D=85mA, Z₀=50Ω

Parameter	Min.	Typ.	Max.	Units
Frequency Range	18~40			GHz
Gain	16	18	24	dB
Gain Flatness	—	±1	±2	dB
Reverse Isolation	—	50	—	dB
Input VSWR	—	2.0	3.5	:1
Output VSWR	—	2.0	3.5	:1
Noise Figure	—	2.5	—	dB
Output Power for 1 dB Compression (OP _{-1dB})	10	12	—	dBm
Supply Voltage (V _D)	—	5	6	V
Supply Current (I _D)	—	85	—	mA

Absolute Maximum Ratings

Maximum Input Power	+15dBm	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C

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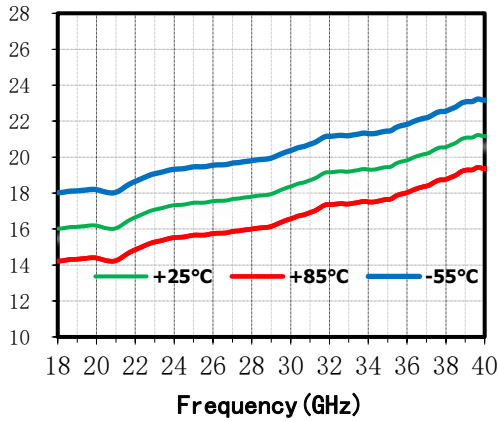


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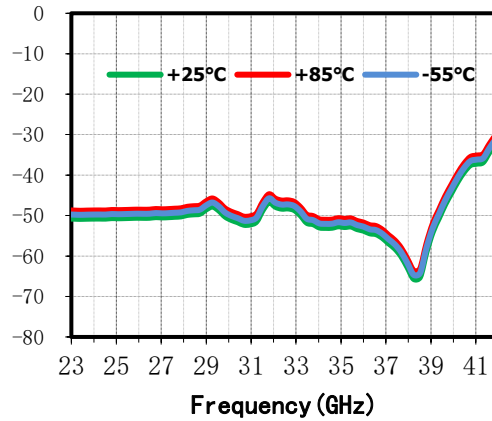
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Typical Performance Curve

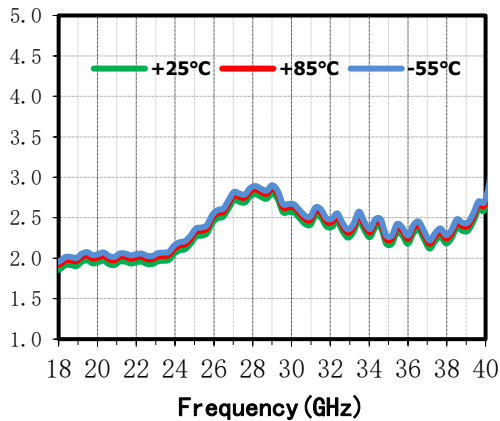
Small Sigal Gain(dB) vs.Temperature



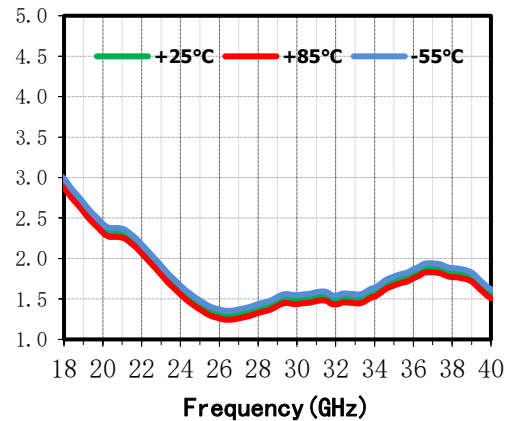
Isolation(dB) vs.Temperature



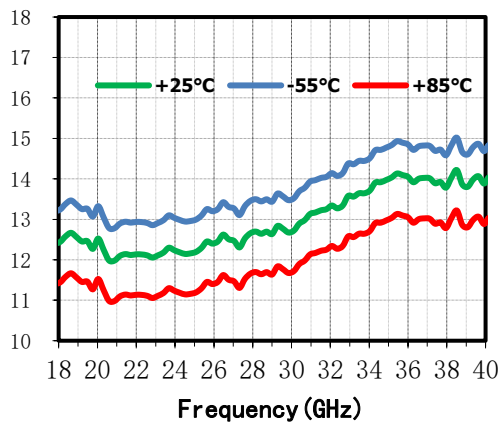
Input VSWR(:1) vs.Temperature



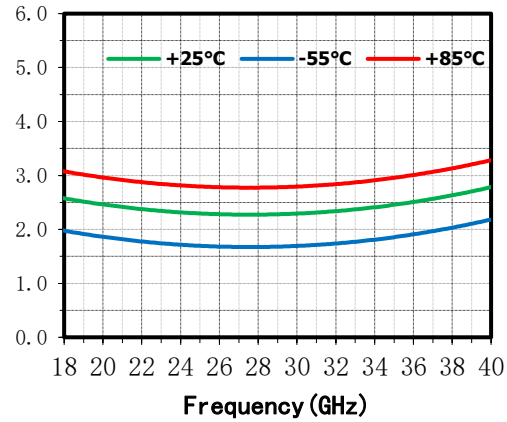
Output VSWR(:1) vs.Temperature



OP-1dB (dBm) vs. Temperature



Noise Figure(dB) vs.Frequency



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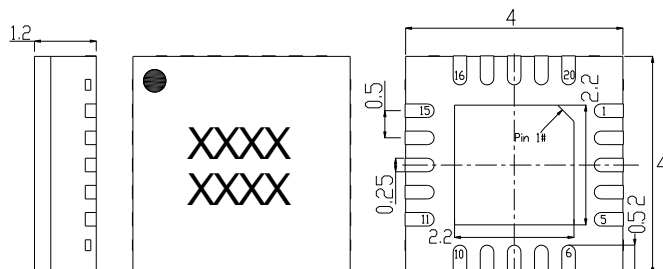


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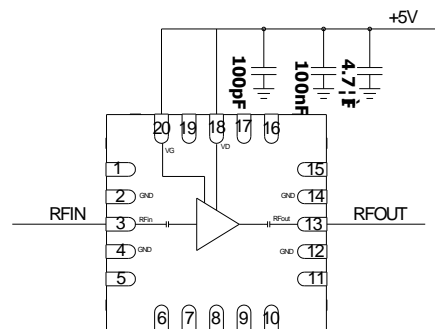
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Outline Drawing

All dimensions in mm



Assembly Diagram



Attention:

1. GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test;
2. The RF input and RF output ports withstand voltage is 12V;
3. The ESD Sensitivity (HBM) of SAC4020Q4 is Class 0.

Revision History

Revision	Date	Comment
1.0	AUG 13, 2024	First Release

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