

SAC3002AQP3



GaAs MMIC Low Noise Amplifier
0.03~0.5GHz

Rev 1.0

Features

- Frequency: 0.03~0.5GHz
- Gain: 29dB
- Noise Figure: 0.4dB Typ. 0.55dB Max.
- OP₁dB: 20dBm
- Supply Voltage: +5V@80mA
- Die Size: 0.74mm×1.24mm×0.1mm

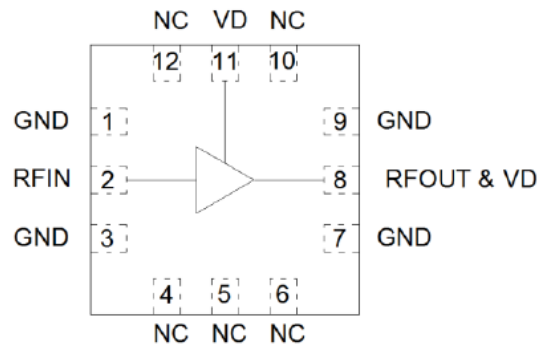
Typical Applications

- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement

General Description

SAC3002AQP3 is a GaAs MMIC Low Noise Amplifier in QFN surface mount package, which operates between 0.03 to 0.5GHz. The amplifier can provide 29dB gain, 20dBm OutputP₁dB, less than 0.55dB noise figure from an 80mA supply current

Functional Diagram



Electrical Performance (T_A=25°C, V_D= +5V, I_D=80mA, Z₀=50Ω)

Parameter	Min	Typ.	Max	Units
Frequency Range	0.03~0.5			GHz
Gain	28	29	33	dB
Gain Flatness	—	±1	±1.5	dB
Input/Output VSWR	—	1.5	2.2	:1
Noise Figure	—	0.4	0.55	dB
Reserve Isolation	—	-30	—	dB
Output Power for 1 dB Compression (OP ₁ dB)	18.5	20	—	dBm
Output Third Order Intercept (OIP ₃)	—	33	—	dBm
Supply Current(I _D)	—	80	110	mA

Absolute Maximum Ratings

Maximum Input Power	+18dBm,CW 30s	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Supply Voltage	+6V		

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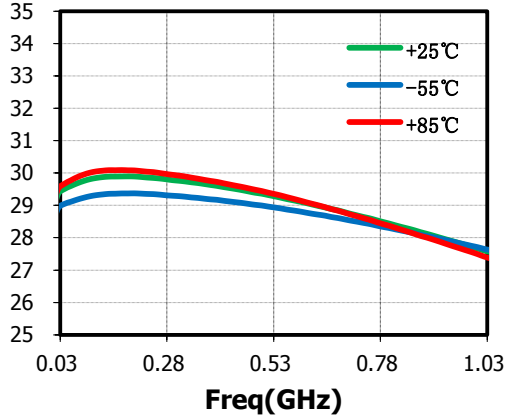
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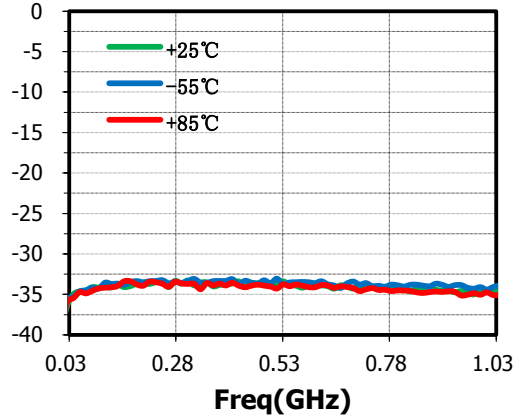
Typical Performance Curve

$V_D=+5V$, $I_{DQ}=80mA$

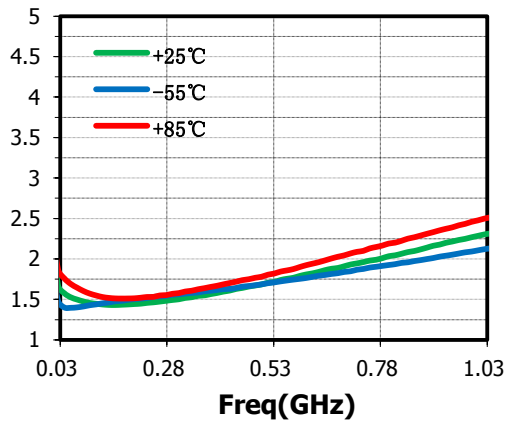
Small Signal Gain(dB) vs.Temperature



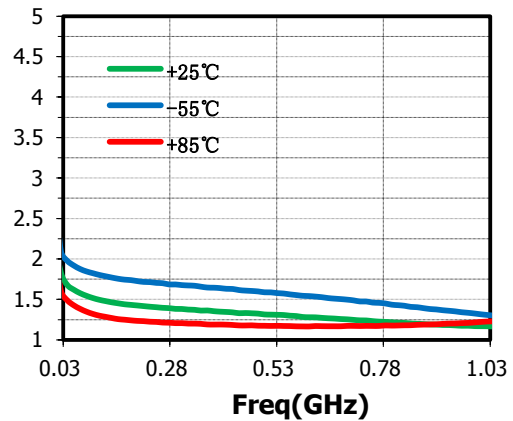
Reverse Isolation(dB) vs.Temperature



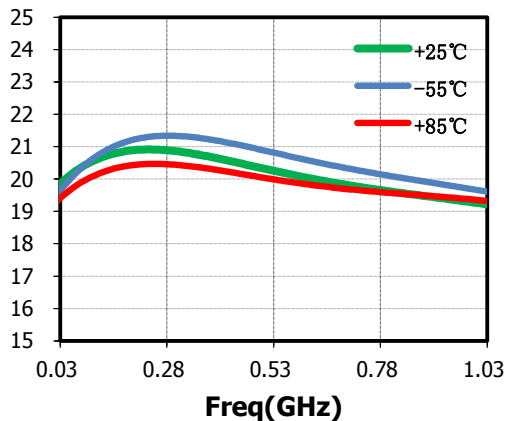
Input VSWR(:1) vs.Temperature



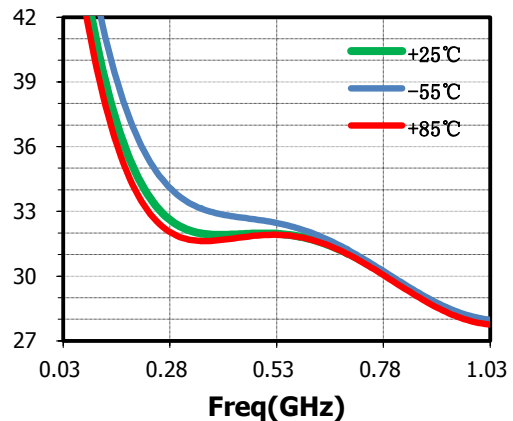
Output VSWR(:1) vs.Temperature



Output P-1dB(dBm) vs. Temperature



Output IP₃(dBm) vs. Temperature



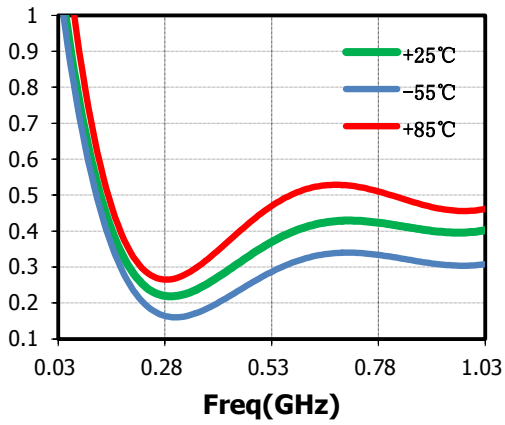
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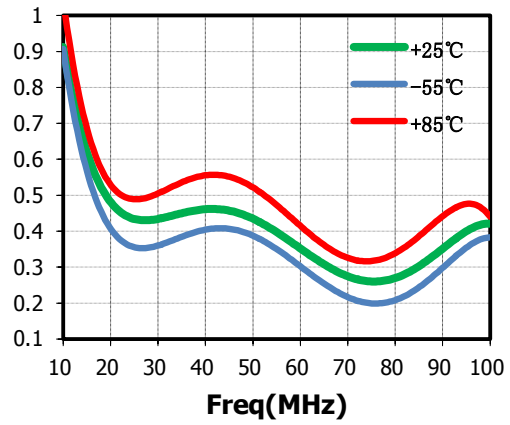
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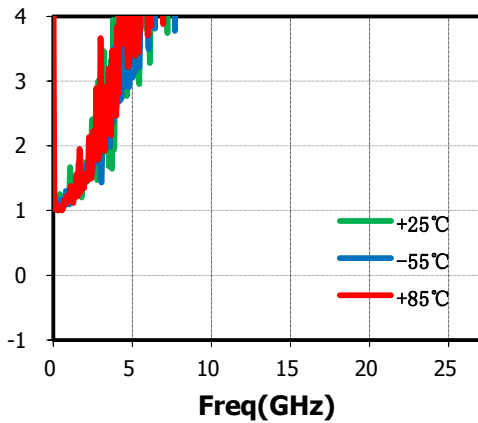
Noise Figure(dB) vs.Temperature



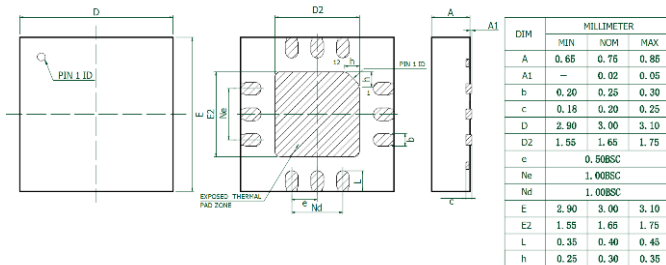
Noise Figure(dB) vs.Temperature



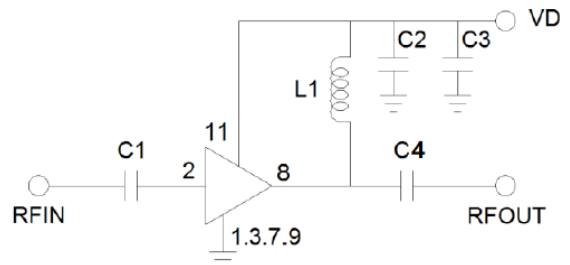
K factor vs.Temperature



Outline Drawing
(All dimensions in mm)



Assembly Diagram



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Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1,C2,C4	0.1 μ F	-	-	0603
C3	0.47 μ F	-	-	0603
L1	—	MMZ1608S202ATD25	TDK	0603

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. If a device is suspected of being inoperative due to a bad solder joint, it is first suggested that the circuit board and device be reflowed without removing the device. If a solder reflow does not fix the problem, then we recommend replacing the device, this can be done manually on a hot plate.

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