SAC3002AQ3

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.
- $OP_{-1}dB$: 20dBm
- Supply Voltage：+5V@80mA
- Die Size：0.74mm×1.24mm×0.1mm

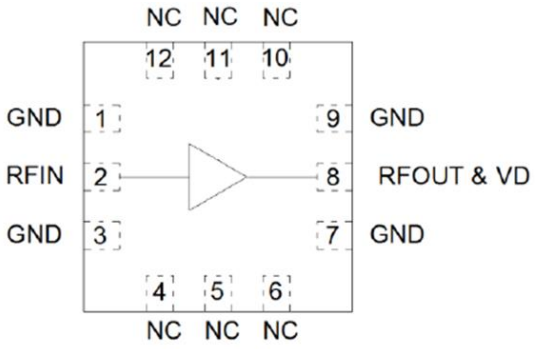
Typical Applications

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

General Description

SAC3002AQ3 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 Output$P_{-1}dB$, less than 0.55dB noise figure from a 80mA supply current

Functional Diagram



Electrical Performance (T_A=25℃, V_D=+5V, I_D=80mA, Z_0=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

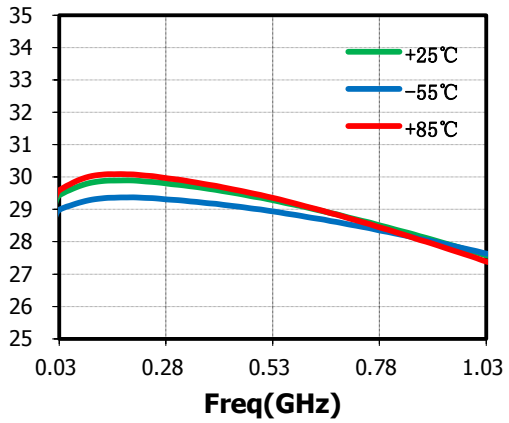
Maximum Input Power	+18dBm,CW 30s	Operating Temperature	-55℃~+85℃
Channel Temperature	+150℃	Storage Temperature	-65℃~+150℃
Supply Voltage	+6V		

SuperApex, LLC
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

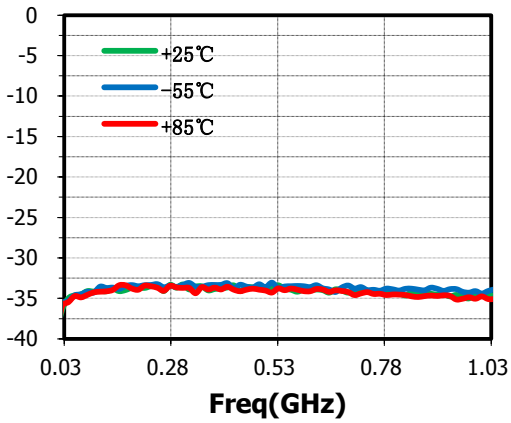
Typical Performance Curve

V_D=+5V，I_{DQ}=80mA

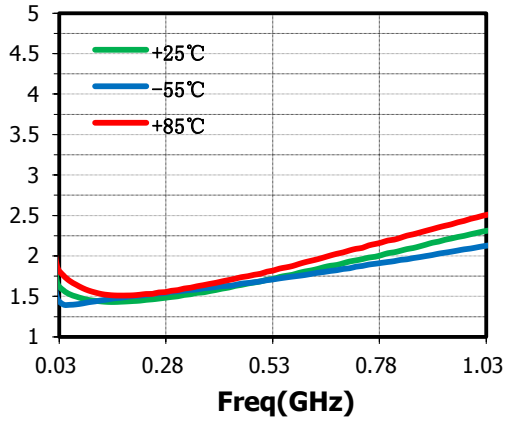
Small Signal Gain(dB) vs.Temperature



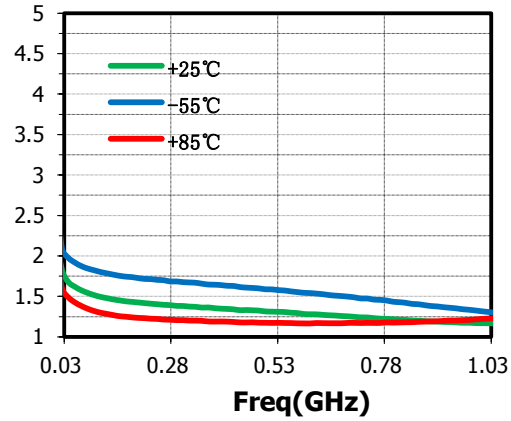
Reverse Isolation(dB) vs.Temperature



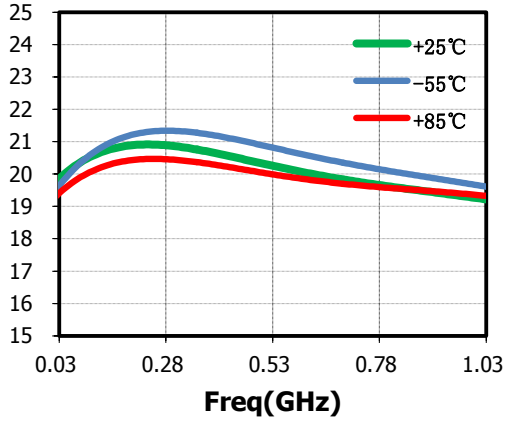
Input VSWR(:1) vs.Temperature



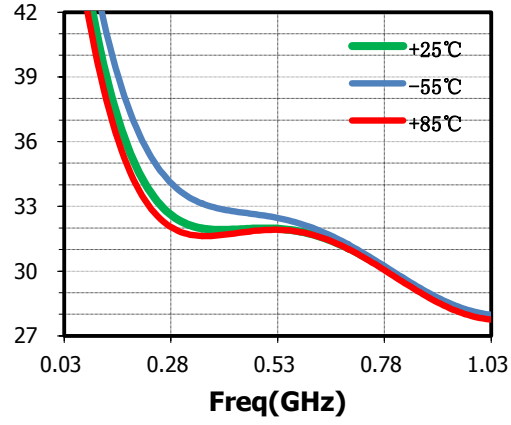
Output VSWR(:1) vs.Temperature



Output P-1dB(dBm) vs. Temperature

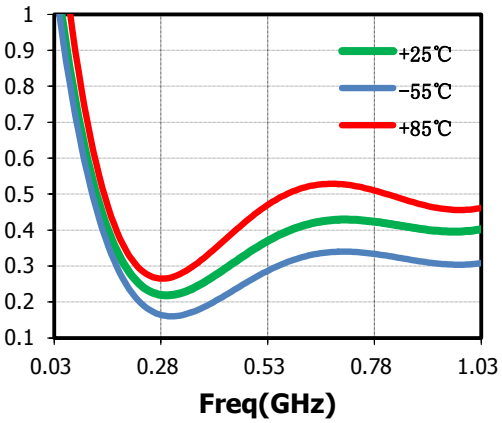


Output IP3(dBm) vs. Temperature

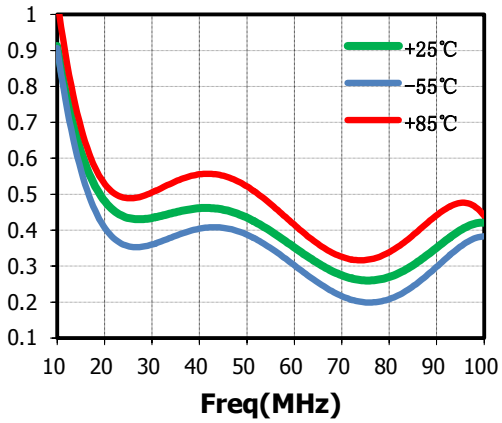


SuperApex, LLC
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

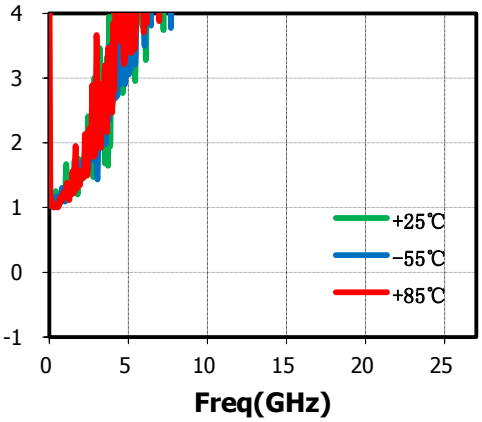
Noise Figure(dB) vs.Temperature



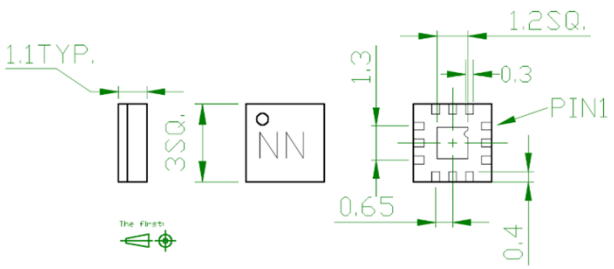
Noise Figure(dB) vs.Temperature



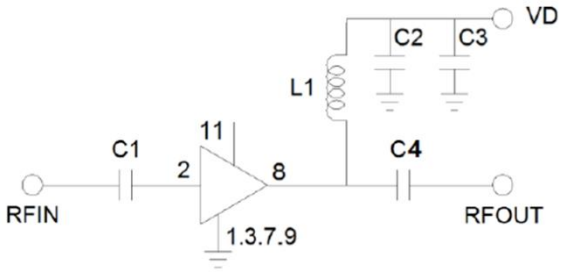
K factor vs.Temperature



Outline Drawing
(All dimensions in mm)



Assembly Diagram



SuperApex, LLC
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

Component list

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

Attention:

1. The moisture resistant grade of products is 2a, the storage environment ≤30° 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.

SuperApex, LLC
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com