

SAC3003Q3



GaAs MMIC Low Noise Amplifier
0.2GHz~0.6GHz

Rev 1.1

Features

- Frequency: 0.2GHz~0.6GHz
- Gain: 38dB
- Noise Figure: 0.8dB
- Supply Voltage: +5V@75mA
- Size: 3mm×3mm×1.2mm

Typical Applications

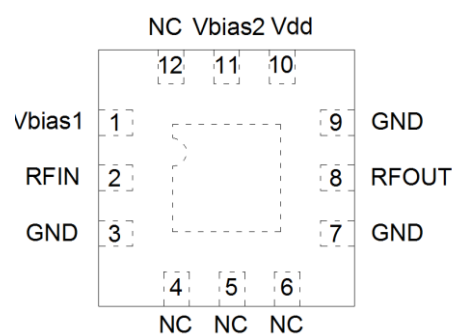
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3003Q3 is a GaAs MMIC Low Noise Amplifier in QFN surface mount package, which operates between 0.2GHz ~ 0.6GHz. The amplifier can provide 38dB gain, 17dBm Output P_{1dB}, 0.8dB noise figure from a 75mA supply current.

SAC3003Q3 is assembled in a 3mm x 3mm QFN plastic package.

Functional Diagram



Electrical Performance (T_A=25°C, V_D=+5V, I_D=75mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.2~0.6			GHz
Gain	—	38	—	dB
Gain Flatness	—	±0.3	—	dB
Reverse Isolation	—	-55	—	dB
Input/Output VSWR	—	1.6	—	:1
Noise Figure	—	0.8	—	dB
Output Power for 1 dB Compression (OP _{1dB})	—	17	—	dBm
Output Third Order Intercept (OIP ₃)	—	28	—	dBm
Supply Current(I _D)	—	75	—	mA

* Fine-tuning R1 to make IDQ equal to 75 mA.

Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C

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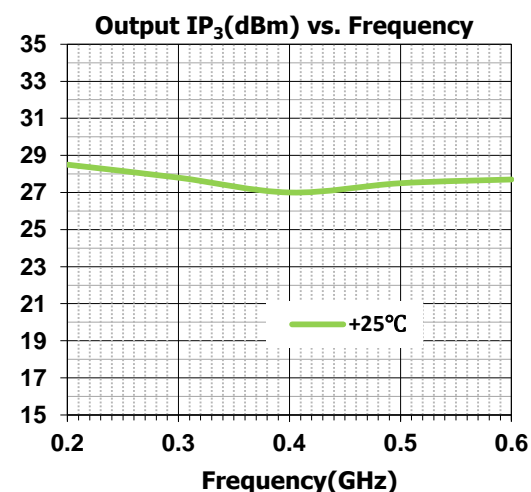
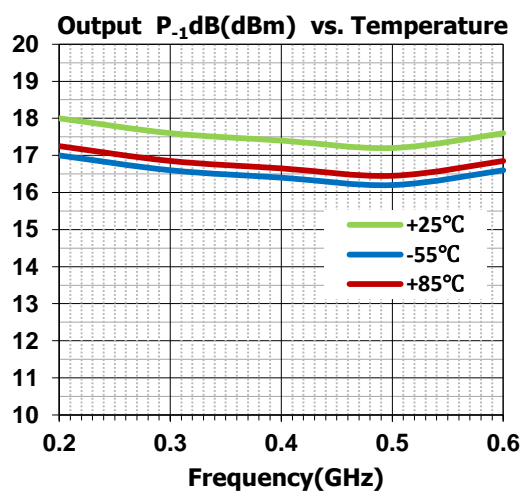
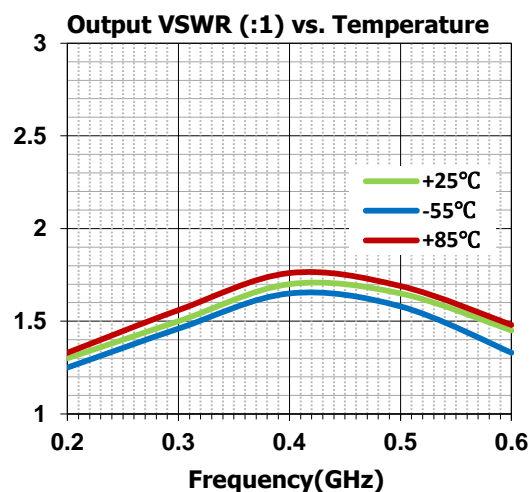
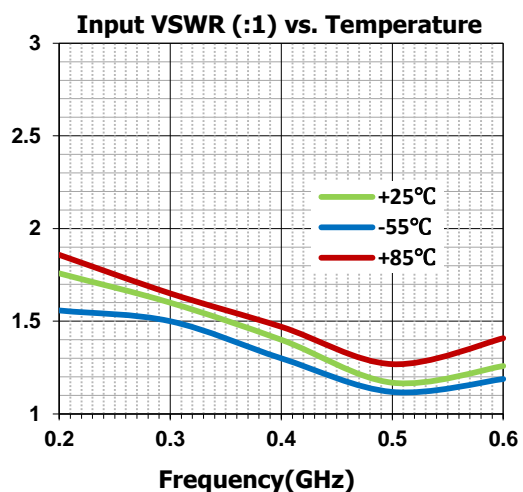
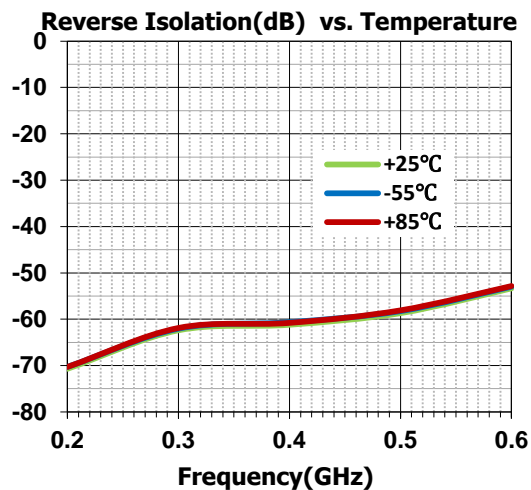
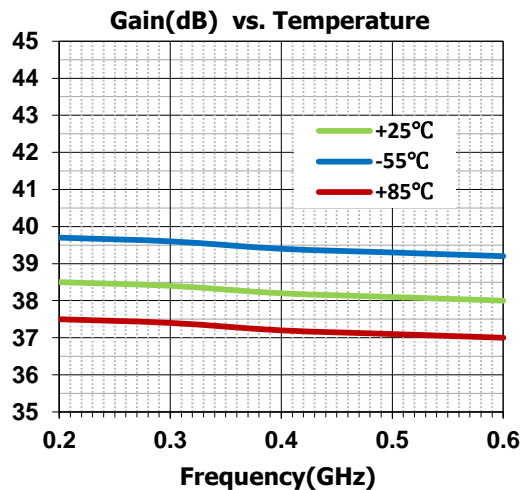
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Typical Performance Curve



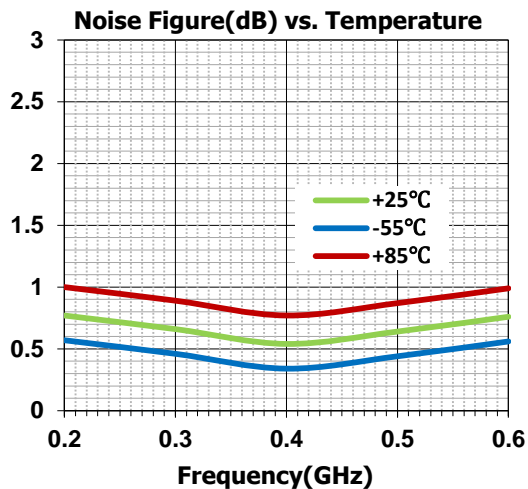
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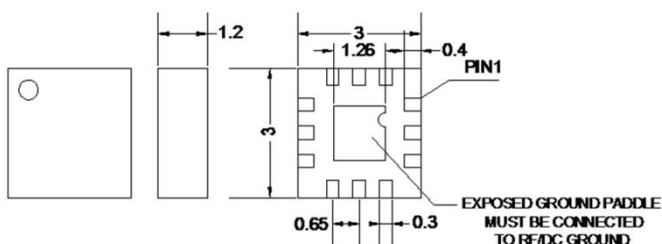
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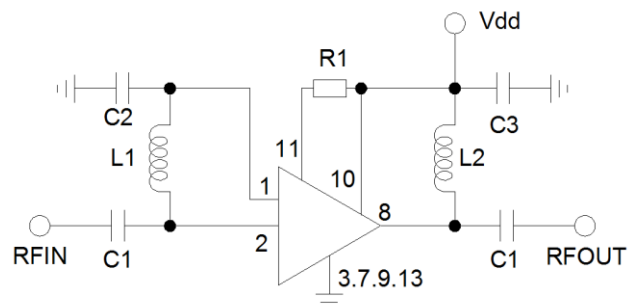
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Outline Drawing (All dimensions in mm)



Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	51pF	GRM1555C1H510JZ01D	MURATA	0402
C2	300pF	GRM1555C1H301JA01D	MURATA	0402
C3	10nF	GRM155R71H103KA88D	MURATA	0402
C4	15pF	GRM1555C1H150JZ01D	MURATA	0402
L1	68nH	0402CS-68NXGE	COILCRAFT	0402
L2	68nH	0402CS-68NXGE	COILCRAFT	0402
R1	TBD	—	—	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.