

SAC3039Q3



GaAs MMIC Low Noise Amplifier
7GHz~13GHz

Rev 3.1

Features

- Frequency: 7GHz~13GHz
- Gain: 20dB
- Noise Figure: 1.4dB
- OutputP_{-1dB}: 14dBm
- Package Size: QFN 3x3mm

Typical Applications

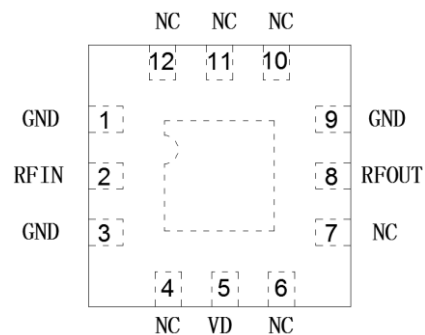
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3039Q3 is a GaAs MMIC Low Noise Amplifier in leadless 3x3mm surface mount package, which operates between 7GHz ~ 13GHz. The amplifier can provide 20dB gain, 14dBm OutputP_{-1dB}, 1.4dB noise figure from a +5V supply voltage.

The amplifier I/O's are internally matched to 50 Ohms.

Functional Diagram



Electrical Performance (T_A=25°C, V_D= +5V, I_D=30mA, Z₀=50Ω)

Parameter	Min	Typ.	Max	Units
Frequency Range	7 ~ 13			GHz
Gain	18	20	—	dB
Gain Flatness	—	±1.5	—	dB
Reverse Isolation	-30	-33	—	dB
Input/Output VSWR	1.1	1.3	—	dB
Noise Figure	—	1.4	1.7	dB
Output Power for 1 dB Compression (OP _{-1dB})	12	14	—	dBm
Output IP ₃ *	—	22	—	dBm
Supply Voltage (V _D)	4.85	5	5.5	V
Supply Current(I _D)	—	30	40	mA

*Pout / Tone = 0dBm, fc= 10GHz,Δf=5MHz

Absolute Maximum Ratings

Maximum Input Power	+10dBm	Operating Temperature	-55°C ~ +85°C
Channel Temperature	150°C	Storage Temperature	-65°C ~ +150°C
Maximum V _D	+6V		

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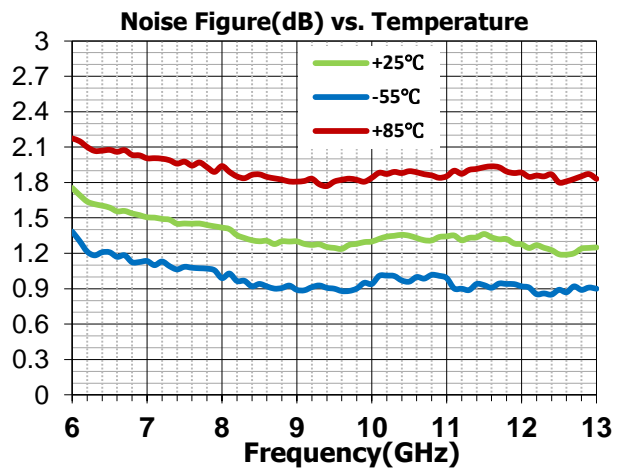
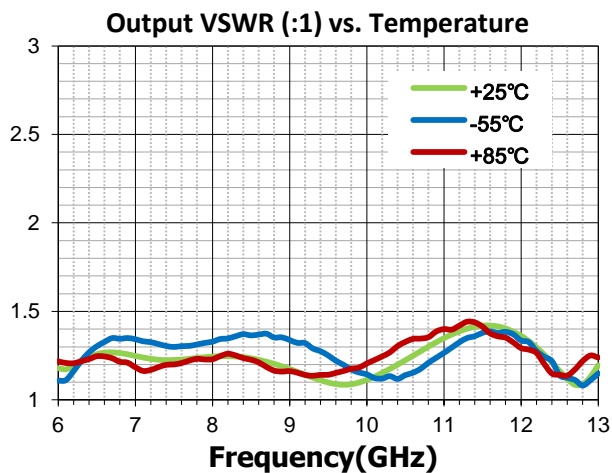
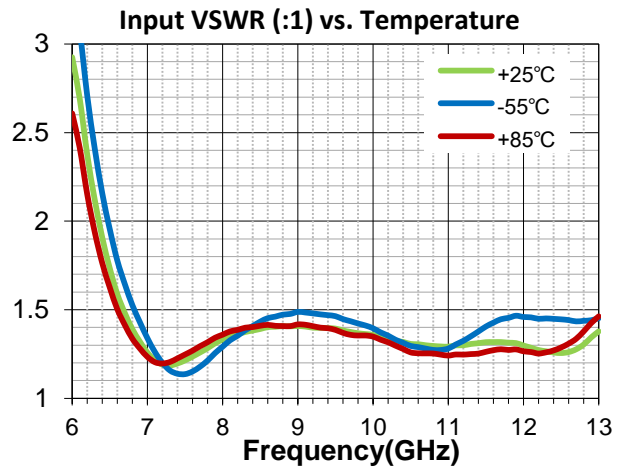
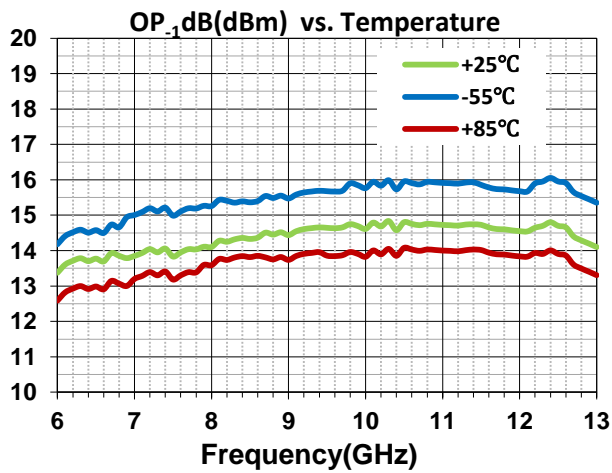
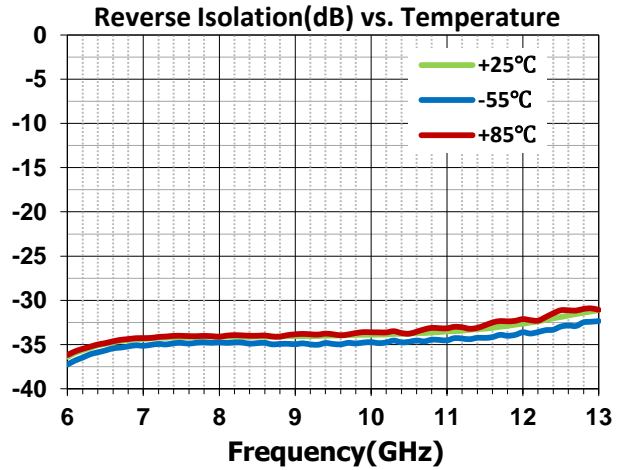
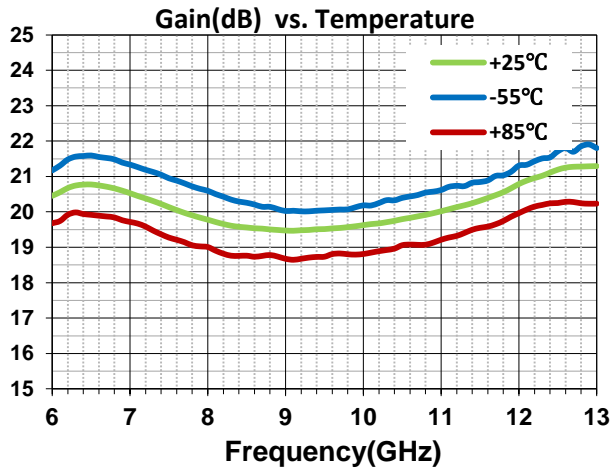
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Typical Performance Curve



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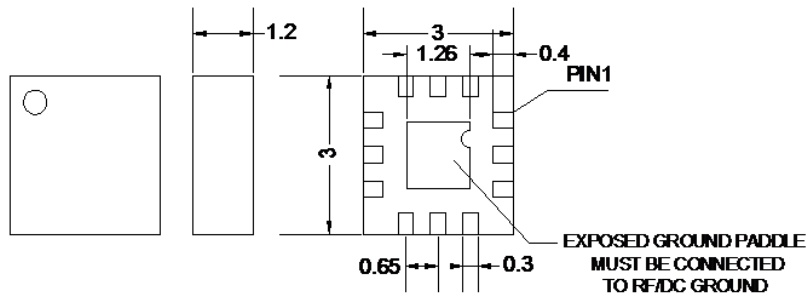
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Outline Drawing

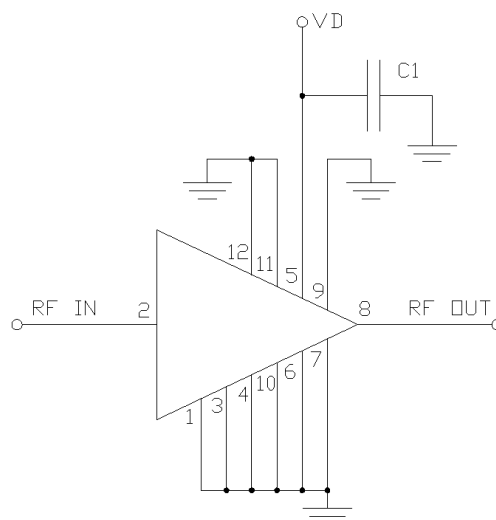
(All dimensions in mm)



Pin Function

Pin No.	Func.	Pin No.	Func.	Pin No.	Func.
1	Connect to GND	10	NC		
2	RF IN	11	NC		
3	Connect to GND	12	NC		
4	NC				
5	VD Supply				
6	NC				
7	Connect to GND				
8	RF OUT				
9	Connect to GND				

Assembly Diagram



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Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1	0.01 μ F	GRM15R71H103K	MURATA	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.