

Features

- Frequency: 0.8GHz ~ 1.6GHz
- Gain: 30dB
- Noise Figure: 0.4dB
- OutputP_{-1dB}:12dBm
- Power Supply: +5V@50mA
- Package Size : QFN3x3 mm

Typical Applications

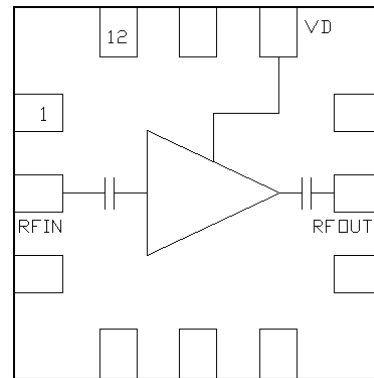
- Microwave radio
- Telecommunication
- Test instrumentation

General Description

SAC3063Q3 is a GaAs MMIC Low Noise Amplifier in leadless 3x3mm surface mount package, which operates between 0.8GHz ~ 1.6GHz. The amplifier can provide 30dB gain, 12dBm OutputP_{-1dB}, 0.4dB 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=50mA, Z₀=50Ω)

Parameter	Min	Typ.	Max	Units
Frequency Range	0.8 ~ 1.6			GHz
Gain	25	30	—	dB
Gain Flatness	—	±1.5	—	dB
Reverse Isolation	-35	-45	—	dB
Input/Output Return Loss	-10	-13	—	dB
Noise Figure	—	0.4	0.65	dB
Output Power for 1 dB Compression (OP _{-1dB})	11	12	—	dBm
Output IP ₃ *	—	24	—	dBm
Supply Voltage (V _D)	4.85	5	5.3	V
Supply Current(I _D)	—	50	—	mA

*Pout / Tone = 0dBm, fc= 1GHz,Δf=5MHz

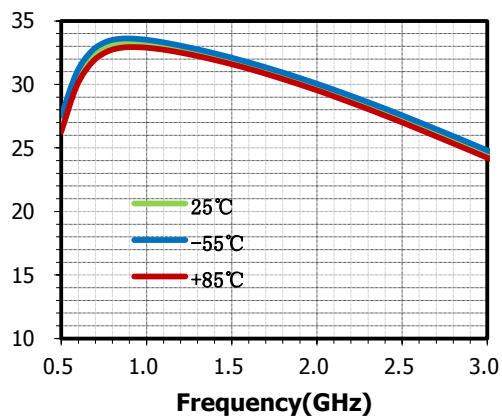
Absolute Maximum Ratings

Maximum Input Power	+12dBm	Operating Temperature	-40°C ~ +70°C
Channel Temperature	150°C	Storage Temperature	-65°C ~ +150°C
Maximum V _D	+5.5V		

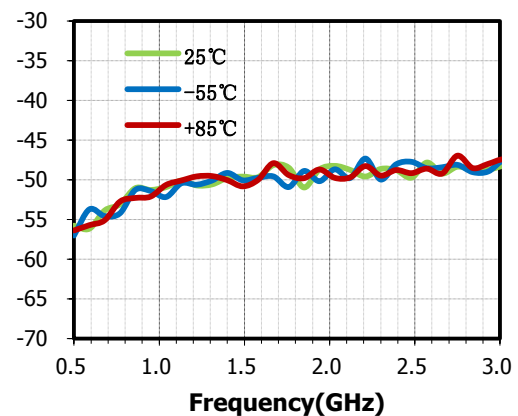
Typical Performance Curve

The results captured in the test-jig environment within connector plan, then de-embedded the housing and come back in the package plan

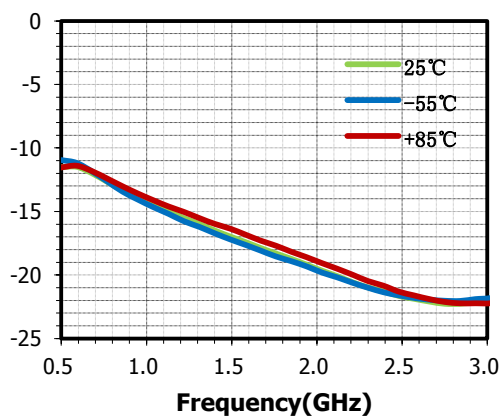
Small Signal Gain(dB) vs.Temperature



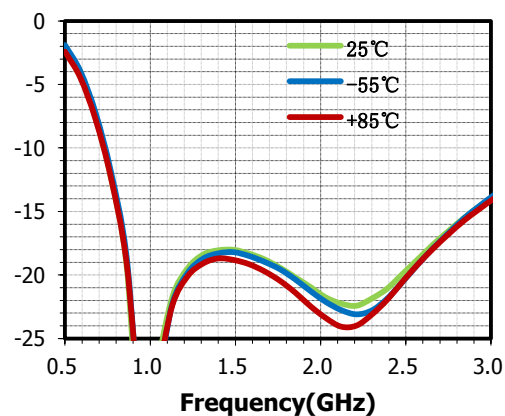
Reverse Isolation(dB) vs.Temperature



Input Return Loss(dB) vs.Temperature



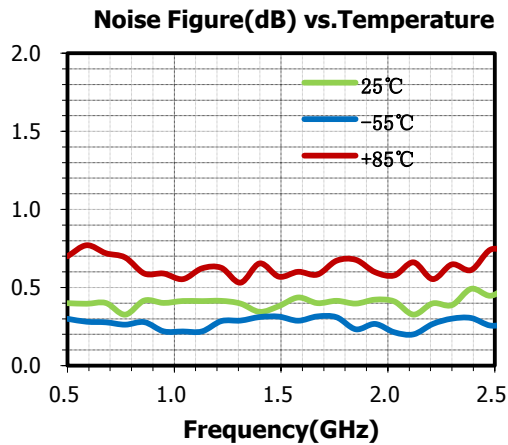
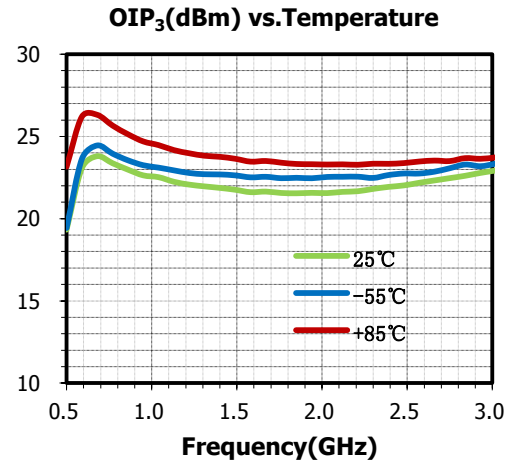
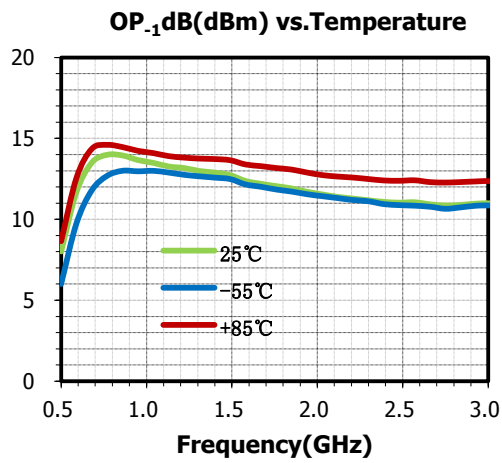
Output Return Loss(dB) vs.Temperature



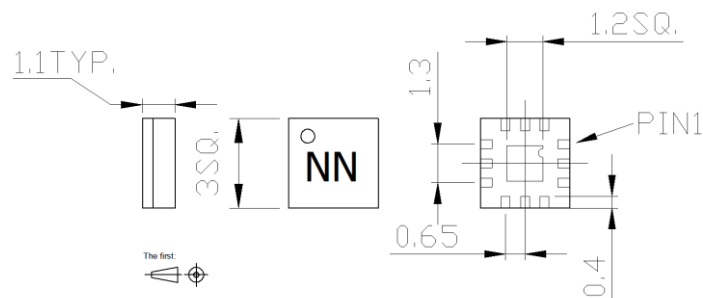
SAC3063Q3

GaAs MMIC Low Noise Amplifier
0.8GHz~1.6GHz NF 0.4dB

Rev 1.4



Outline Drawing (All dimensions in mm)



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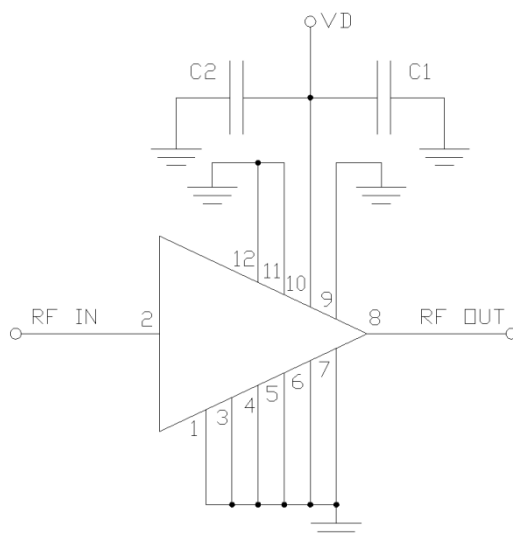
GaAs MMIC Low Noise Amplifier
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Pin Function

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

Application Circuit



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Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1	0.01uF	GRM15R71H103K	MURATA	0402
C2	4700pF	GRM1555C1H472J	MURATA	0402

Attention:

1. The moisture resistant grade of products is 2A, the storage environment $\leq 30^{\circ}\text{C}/60\%\text{RH}$, 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.