

## Features

- Frequency: 0.8GHz ~ 1.6GHz
- Gain: 30dB
- Noise Figure: 0.4dB
- OutputP<sub>-1dB</sub>:12dBm
- Power Supply: +5V@50mA
- Package Size : QFN3x3 mm

## Typical Applications

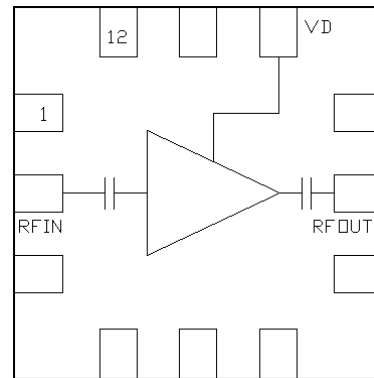
- Microwave radio
- Telecommunication
- Test instrumentation

## 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<sub>-1dB</sub>, 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<sub>A</sub>=25°C, V<sub>D</sub>= +5V, I<sub>D</sub>=50mA, Z<sub>0</sub>=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 <sub>-1dB</sub> )	11	12	—	dBm
Output IP <sub>3</sub> *	—	24	—	dBm
Supply Voltage ( V <sub>D</sub> )	4.85	5	5.3	V
Supply Current(I <sub>D</sub> )	—	50	—	mA

\*Pout / Tone = 0dBm, f<sub>c</sub>= 1GHz, Δf=5MHz

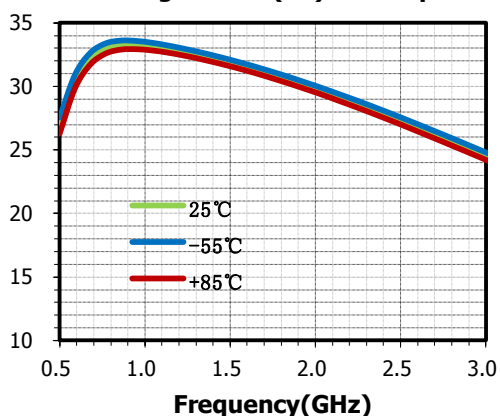
## Absolute Maximum Ratings

Maximum Input Power	+12dBm	Operating Temperature	-40°C ~ +70°C
Channel Temperature	150°C	Storage Temperature	-65°C ~ +150°C
Maximum V <sub>D</sub>	+5.5V		

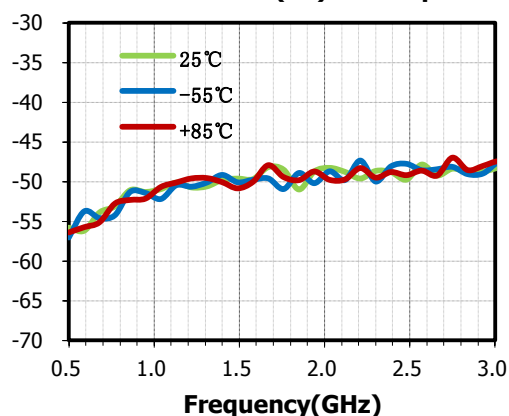
## Typical Performance Curve

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

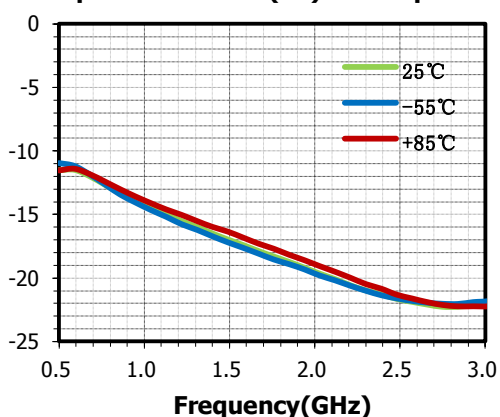
**Small Signal Gain(dB) vs.Temperature**



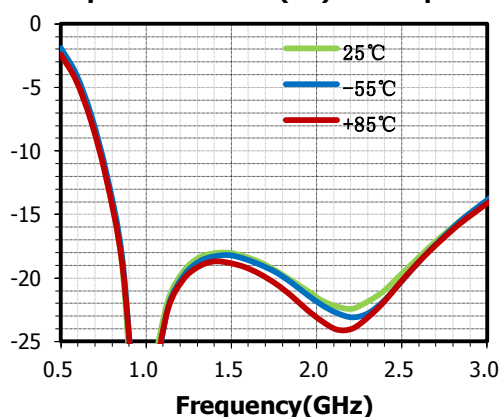
**Reverse Isolation(dB) vs.Temperature**



**Input Return Loss(dB) vs.Temperature**



**Output Return Loss(dB) vs.Temperature**

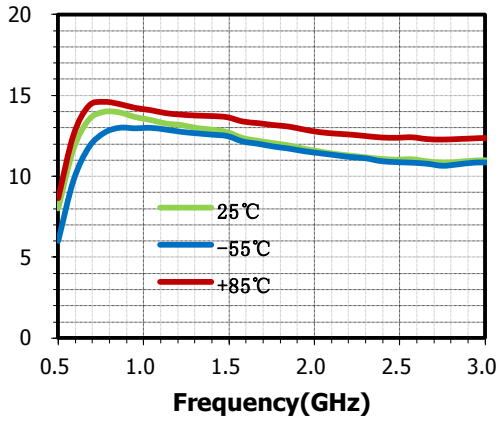


# SAC3063Q3

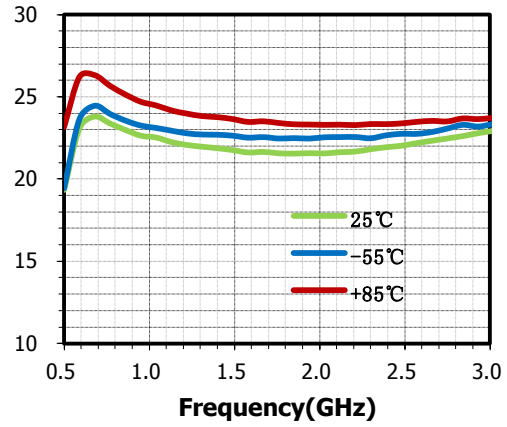
GaAs MMIC Low Noise Amplifier  
0.8GHz~1.6GHz NF 0.4dB

Rev 1.4

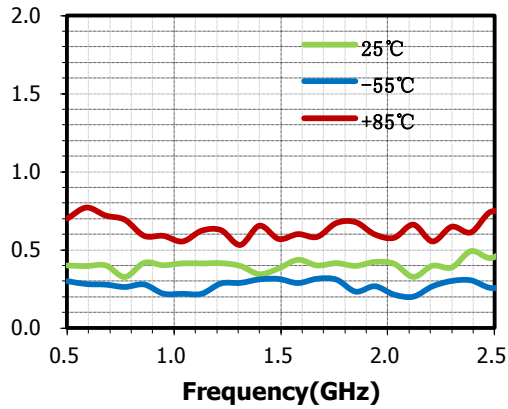
**OP<sub>1</sub>(dBm) vs. Temperature**



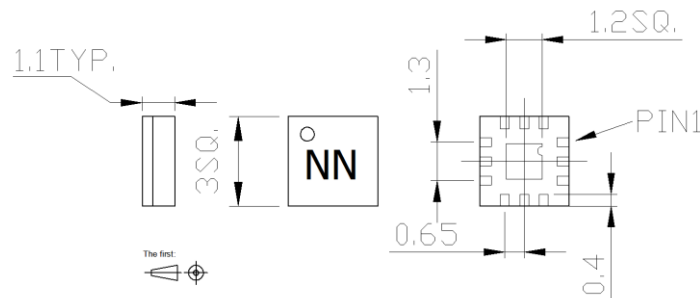
**OIP<sub>3</sub>(dBm) vs. Temperature**



**Noise Figure(dB) vs. Temperature**



## Outline Drawing (all dimensions in mm)



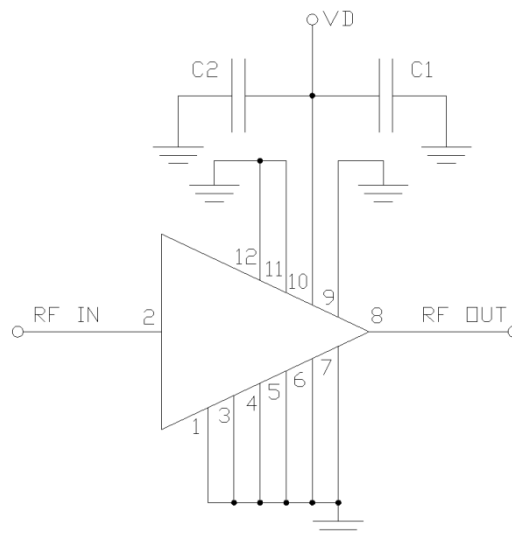
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## Pin Function

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



## 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  $\leq 30^{\circ}$  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.