

# SAC3055QP3

## GaAs MMIC Low Noise Amplifier 10MHz~2000MHz NF 0.8dB

Rev 1.0

### Features

- Frequency: 10MHz~2000MHz
- Gain: 22dB
- Noise Figure: 0.8dB
- OutputP<sub>-1dB</sub>:20dBm
- Power Supply: +5V@100mA
- Package Size: QFN3×3mm

### General Description

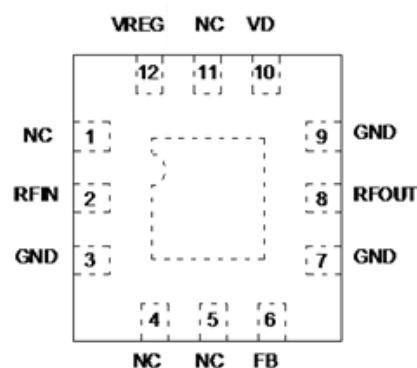
SAC3055QP3 is a GaAs MMIC Low Noise Amplifier which operates between 10MHz~2000MHz. The amplifier can provide 22dB gain, 20dBm OutputP<sub>-1dB</sub>, 0.8dB noise figure from a +5V supply Voltage.

SAC3055QP3 is assembled in a 3mm x 3mm plastic QFN package.

### Typical Applications

- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

### Functional Diagram



### Electrical Performance ( T<sub>A</sub>=25°C, V<sub>D</sub>=+5V, I<sub>D</sub>=0.1A, Z<sub>0</sub>=50Ω )

Parameter	Min	Typ.	Max	Units
Frequency Range	10~2000			MHz
Small Signal Gain	18	22	—	dB
Gain Flatness	—	±1.5	—	dB
Reverse Isolation	—	-25	—	dB
Input VSWR	—	1.5	—	:1
Output VSWR	—	1.5	—	:1
Noise Figure	—	0.8	1.1	dB
Output Power for 1 dB Compression (OP <sub>-1dB</sub> )	15	20	—	dBm
Output IP <sub>3</sub>	—	35	—	dBm
Supply Voltage(V <sub>D</sub> )	4**	5	5.5	V
Supply Current(I <sub>D</sub> )	—	0.1	0.13	A

Test conditions: P<sub>out</sub> / Tone = 0dBm, f<sub>c</sub>= 1GHz, Δf=5MHz Mode: Low current

### Absolute Maximum Ratings

Maximum Input Power	+13dBm	Operating Temperature	-40°C~+70°C
Channel Temperature	150°C	Storage Temperature	-65°C~+150°C
Maximum V <sub>D</sub>	+5.7V		

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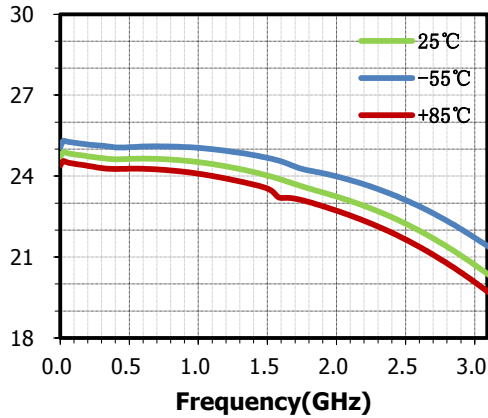
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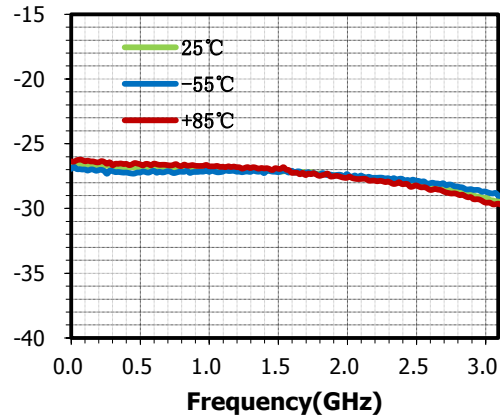
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## Typical Performance Curve

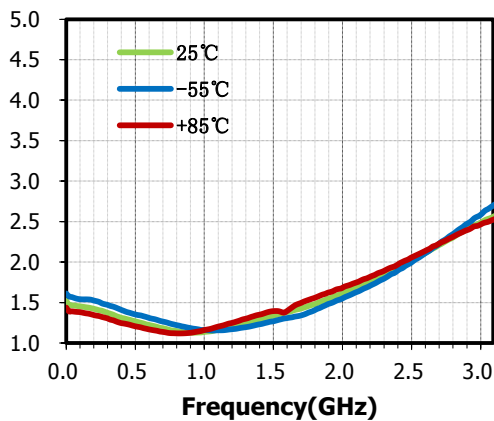
**Small Signal Gain(dB) vs.Temperature**



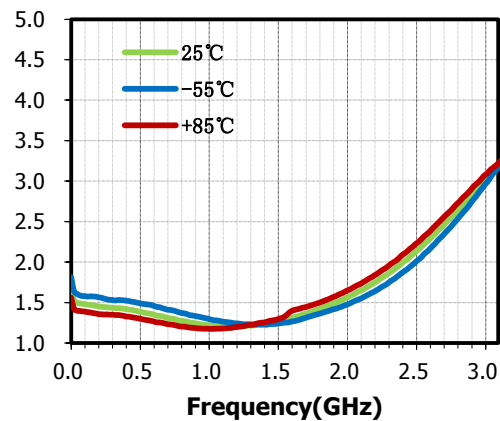
**Reverse Isolation(dB) vs.Temperature**



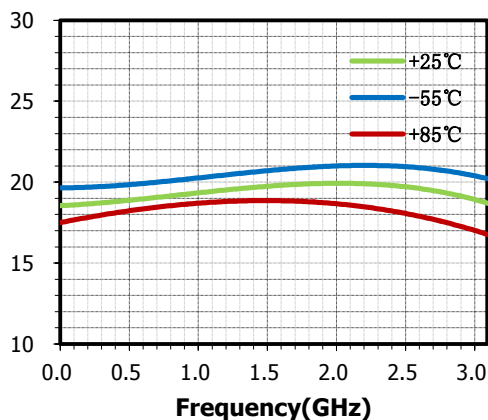
**Input VSWR(:1) vs.Temperature**



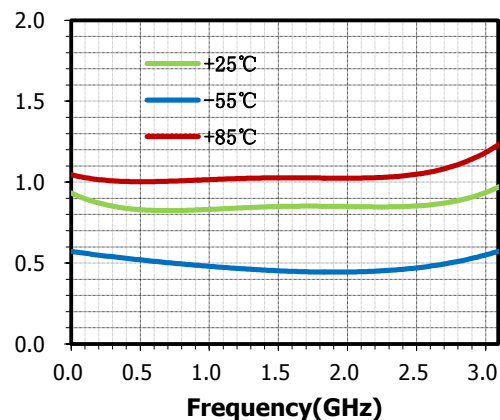
**Output VSWR(:1) vs.Temperature**



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



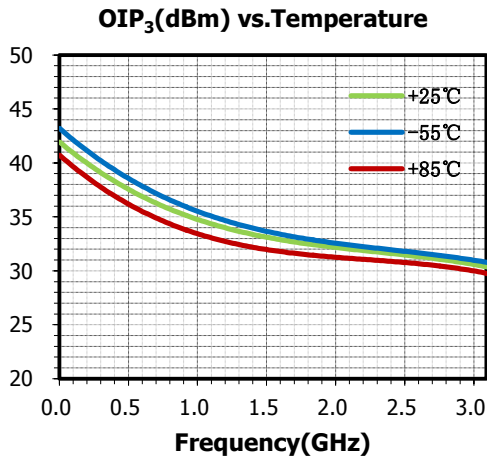
**Noise Figure(dB) vs.Temperature**



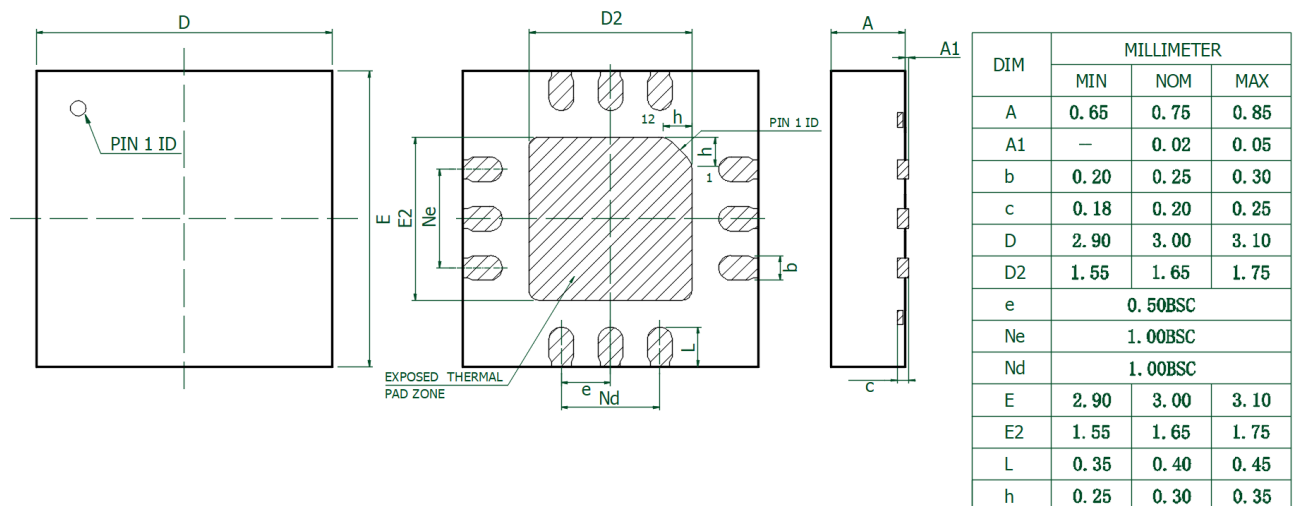
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## Outline Drawing (all dimensions in mm)



## Pin Definition

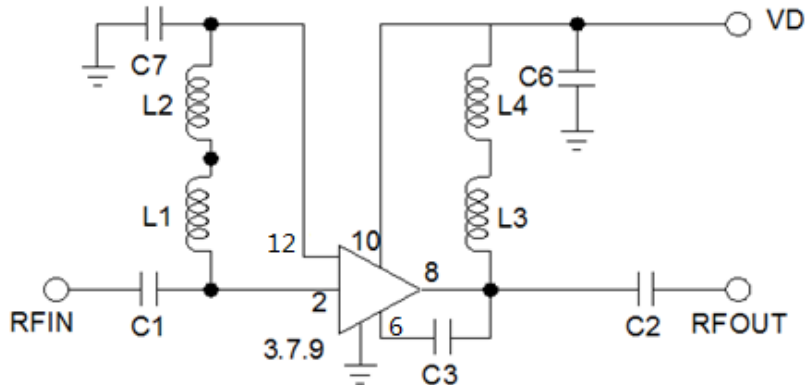
Num.	Function	Num.	Function
1	NC	9	GND
2	RFIN (DC Coupled)	10	VD
3	GND	11	NC
4	NC	12	VREG
5	NC		
6	FB		
7	GND		
8	RFOUT (DC Coupled)		

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## Assembly Diagram



## Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1、C2、C6	0.01 $\mu$ F	GRM15R71H103K	MURATA	0402
C7	2.2 $\mu$ F	GRM155R61A225K	MURATA	0402
L1~L4*	—	—	—	—
C3	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.