

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_{-1dB}:20dBm
- Power Supply: +5V@100mA
- Package Size : QFN3×3mm

Typical Applications

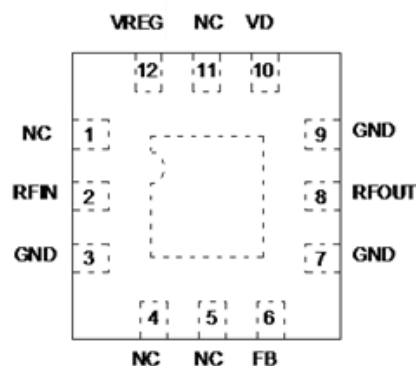
- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

General Description

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

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

Functional Diagram



Electrical Performance (T_A=25°C, V_D=+5V, I_D=0.1A, Z₀=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 _{-1dB})	15	20	—	dBm
Output IP ₃	—	35	—	dBm
Supply Voltage(V _D)	4**	5	5.5	V
Supply Current(I _D)	—	0.1	0.13	A

Test conditions: Pout / Tone = 0dBm, fc= 1GHz Δf=5MHz

Mode: Low current low current

SuperApex, LLC

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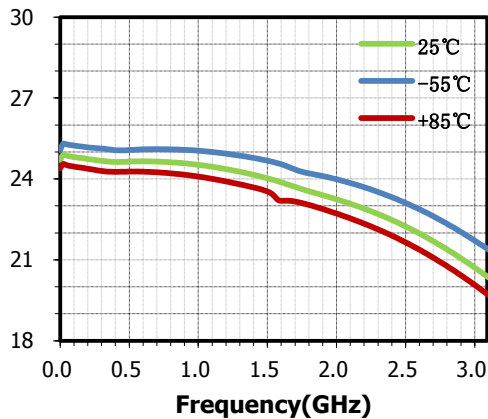
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Absolute Maximum Ratings

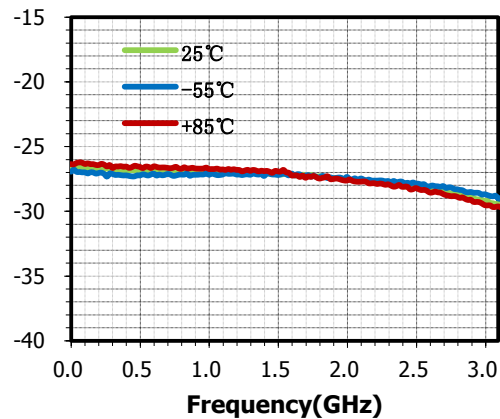
Maximum Input Power	+13dBm	Operating Temperature	-40°C~+70°C
Channel Temperature	150°C	Storage Temperature	-65°C~+150°C
Maximum V_D	+5.7V		

Typical Performance Curve

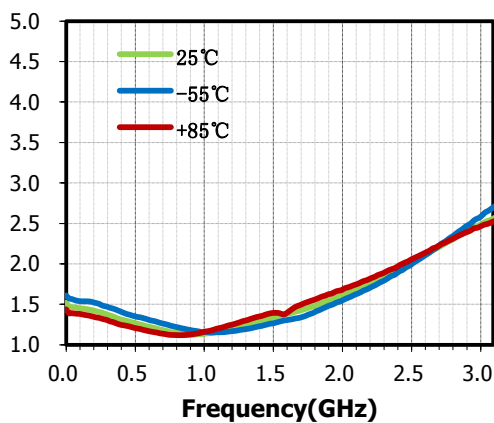
Small Signal Gain(dB) vs.Temperature



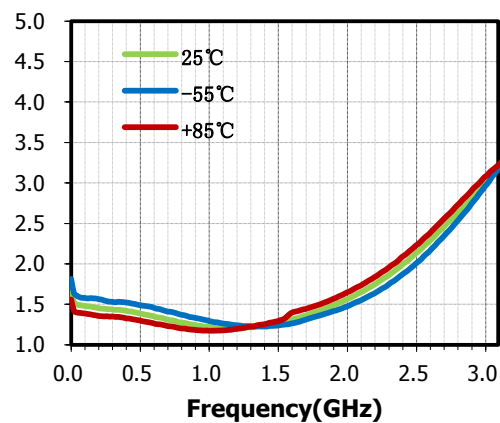
Reverse Isolation(dB) vs.Temperature



Input VSWR(:1) vs.Temperature



Output VSWR(:1) vs.Temperature



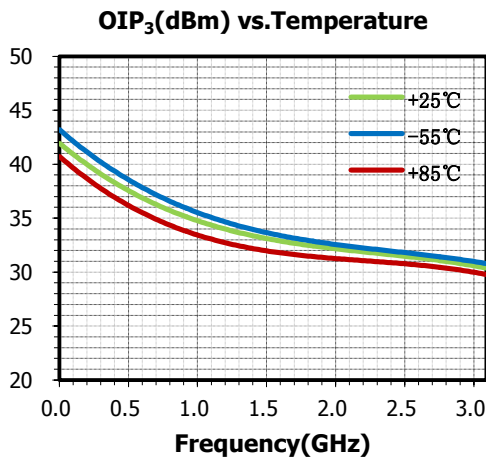
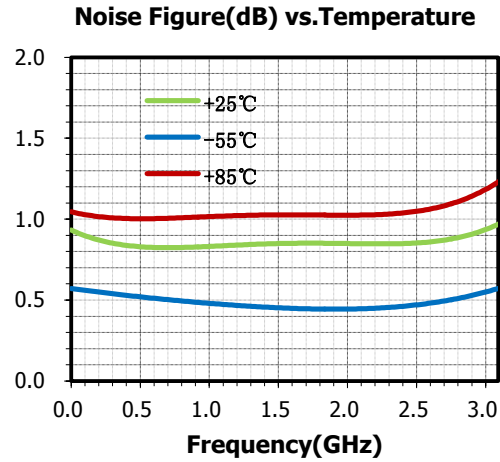
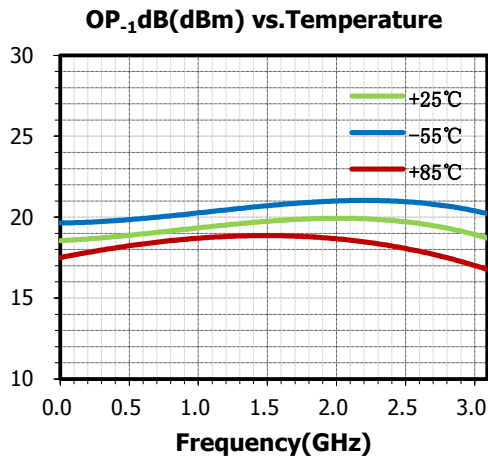
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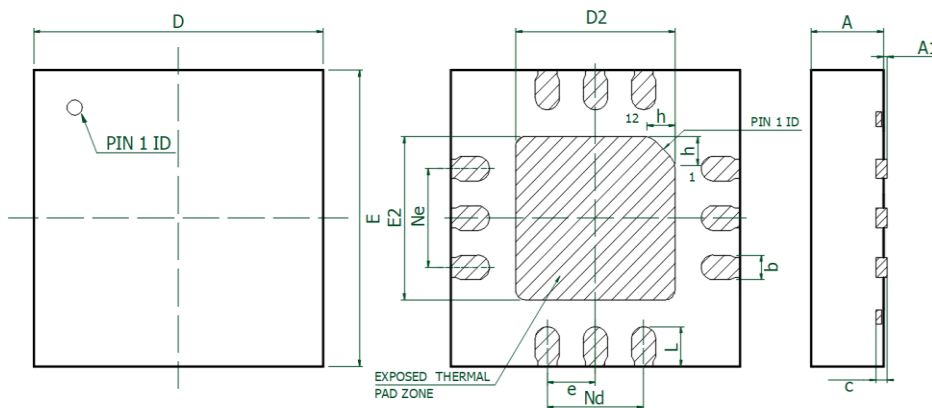
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Outline Drawing (All dimensions in mm)



DIM	MILLIMETER		
	MIN	NOM	MAX
A	0.65	0.75	0.85
A1	—	0.02	0.05
b	0.20	0.25	0.30
c	0.18	0.20	0.25
D	2.90	3.00	3.10
D2	1.55	1.65	1.75
e	0.50BSC		
Ne	1.00BSC		
Nd	1.00BSC		
E	2.90	3.00	3.10
E2	1.55	1.65	1.75
L	0.35	0.40	0.45
h	0.25	0.30	0.35

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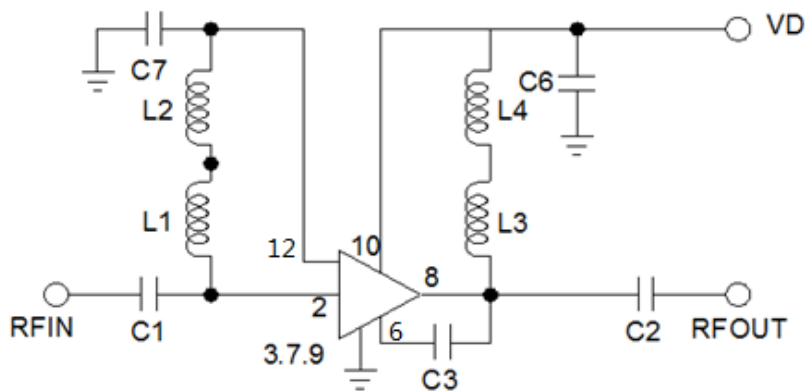
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Pin Definition

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)		

Assembly Diagram



Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1、 C2、 C6	0.01μF	GRM15R71H103K	MURATA	0402
C7	2.2μF	GRM155R61A225K	MURATA	0402
L1~L4*	—	—	—	—
C3	4700pF	GRM1555C1H472J	MURATA	0402

Attention:

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

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