

Features

- Frequency: 0.03~3GHz
- Gain: 24dB
- Noise Figure: 0.9dB Typ. 1.4dB Max.
- Output P_{-1dB}: 19dBm
- Output IP₃: 36dBm@1GHz
- Power Supply: +5V@80mA
- Die Size: 1.25mmx0.9mmx0.1mm

Typical Applications

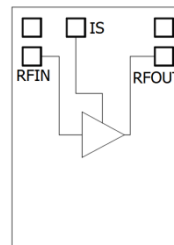
- Radar and ECM
- RF/ Microwave Radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3087 is a GaAs MMIC low noise amplifier die which operates between in 0.03~3GHz. The amplifier can provide 24dB gain, 19dBm Output P_{-1dB} and 0.9dB noise figure from an 80mA supply current.

The chip offers full passivation for increased reliability and moisture protection.

Functional Diagram



Electrical Performance (T_A=25°C, V_D=+5V, I_D=80mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.03~3			GHz
Gain	20	24	26	dB
Gain Flatness	—	±1	±1.5	dB
Input VSWR/Output VSWR	—	1.5	2.5	:1
Noise Figure	—	0.9	1.4	dB
Reverse Isolation	—	-28	—	dB
Output P _{-1dB}	17	19	—	dBm
Output IP ₃	—	36*	—	dBm
Supply Current (I _b)	—	80	100	mA

* Pin/Tone=-15dBm fc=1GHz, Δf=4MHz

Absolute Maximum Ratings

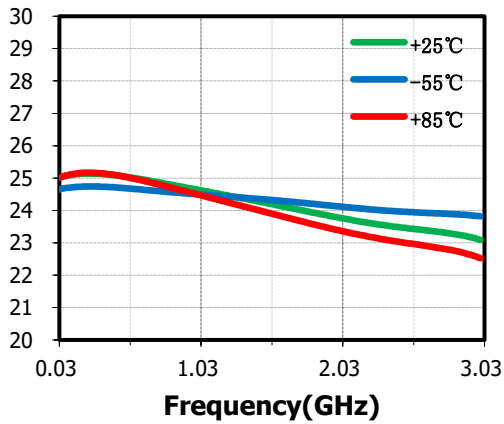
Maximum Input Power	+15dBm, CW 30s	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Supply Voltage	+8V		

Typical Performance Curve

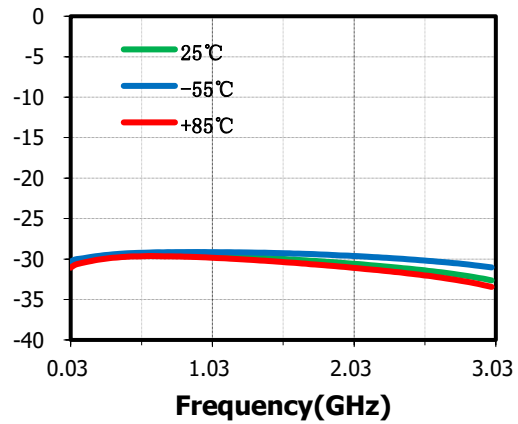
$V_D=+4V$, $I_{DQ}=65mA$, $I_{D}/SEL= Floating$

$V_D=+5V$, $I_{DQ}=80mA$

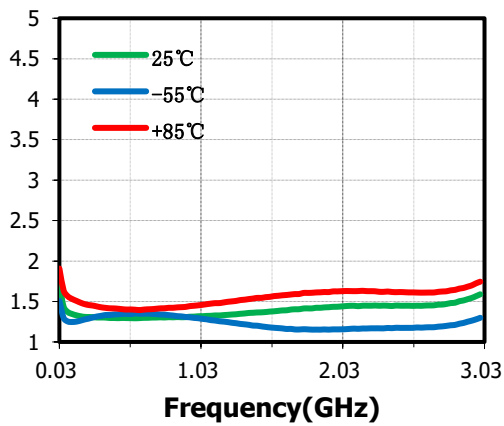
Small Signal Gain(dB) vs.Temperature



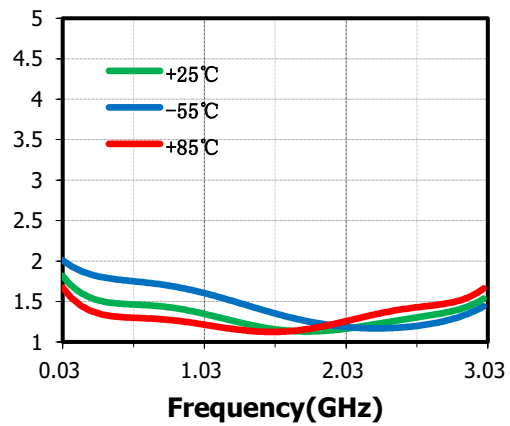
Reverse Isolation(dB) vs.Temperature



Input VSWR(:1) vs.Temperature



Output VSWR(:1) vs.Temperature

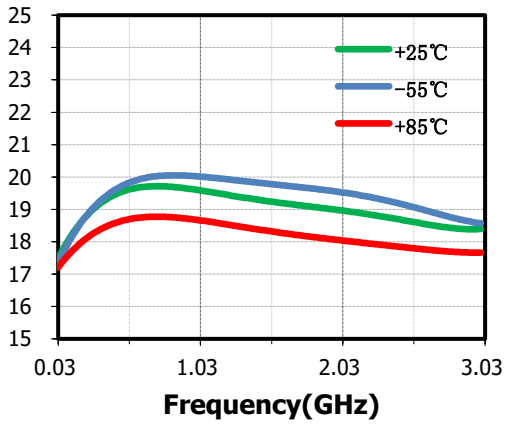


SAC3087

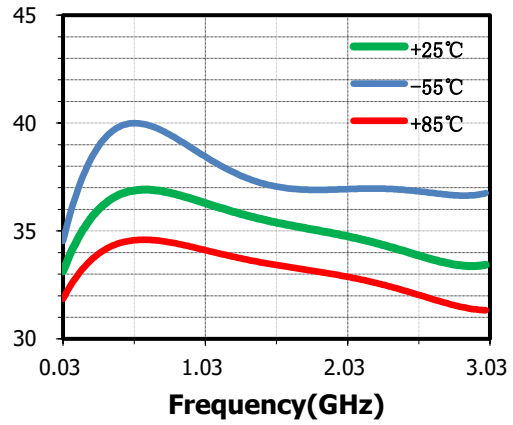
GaAs MMIC Low Noise Amplifier
0.03~3GHz

Rev 1.1

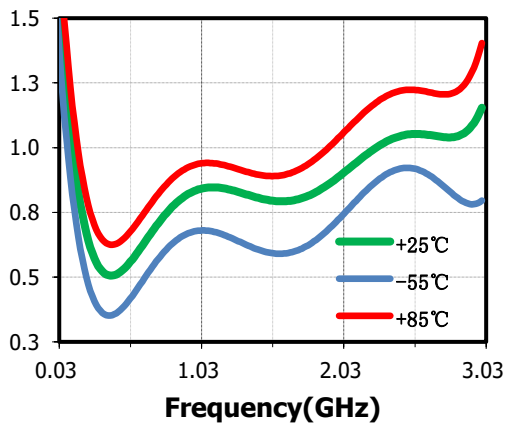
Output P-1dB(dBm) vs.Temperature



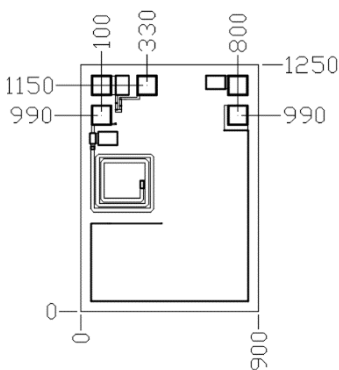
Output IP₃(dBm) vs.Temperature



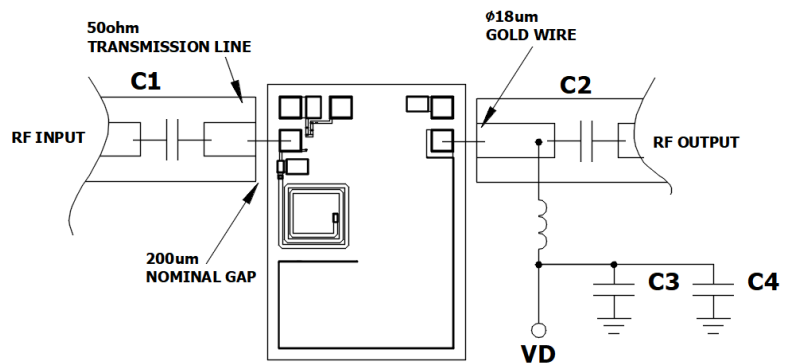
Noise Figure(dB) vs.Temperature



Outline
(All dimensions in μm)



Assembly Diagram



Pads size: 90x90 μm

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Components List

Reference Des.	Value	Part Number	Manuf.
C1、 C2、 C3	300pF	GRM1555C1H301JA	Murata
C4	1μF	GRM0336R61A105KE	Murata
L1	-	BLM15HG102SN	Murata

Attention:

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.

Revision History

Revision	Date	Comment
1.0	Oct. 19, 2019	First Release
1.1	Mar. 11, 2024	Revise "Electrical Performance"," Components List"