

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

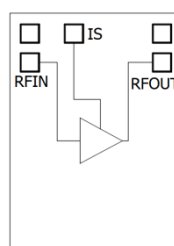
- Radar and ECM
- RF/ Microwave Radio
- Military and Space
- Test and Measurement
- Fiber Optics

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	dB
Noise Figure	—	0.9	1.4	:1
Reverse Isolation	—	-28	—	dB
Output P _{1dB}	17	19	—	dBm
Output IP ₃	—	36*	—	dBm
Supply Current(I _D)	—	80	100	mA

* Pin/Tone=-15dBm f_c=1GHz, Δf=4MHz

Absolute Maximum Ratings

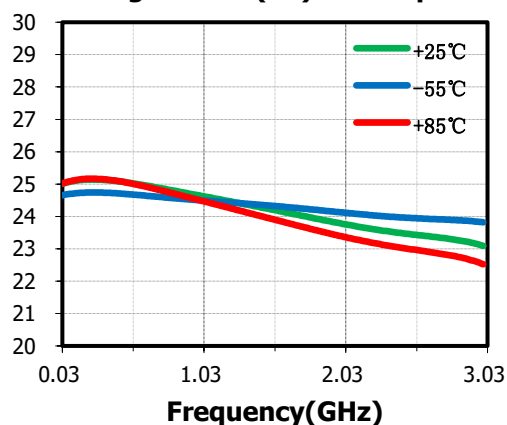
Maximum Input Power	+15dBm,CW 30s	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Supply Voltage	+8V		

Typical Performance Curve

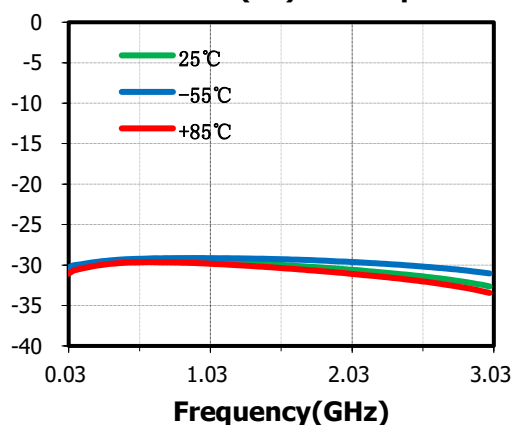
$V_D=+4V$, $I_{DQ}=65mA$, $I_D/SEL=$ Floating

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

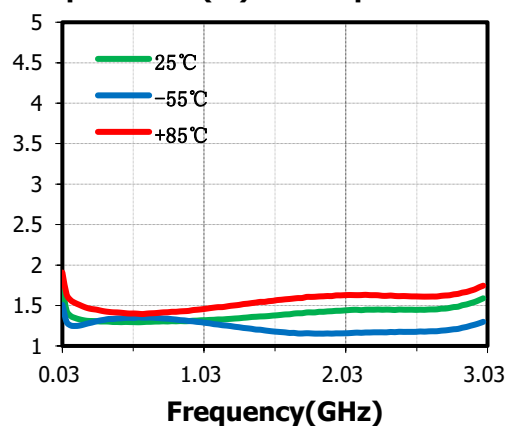
Small Signal Gain(dB) vs.Temperature



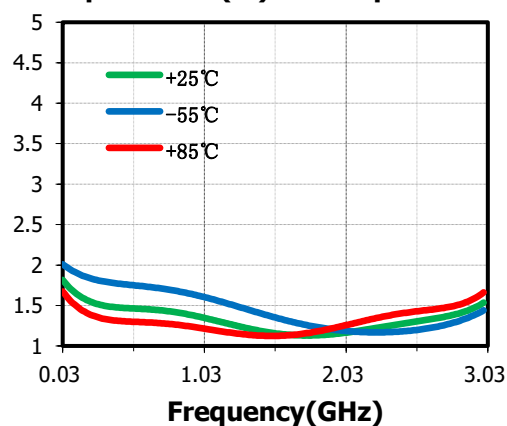
Reverse Isolation(dB) vs.Temperature



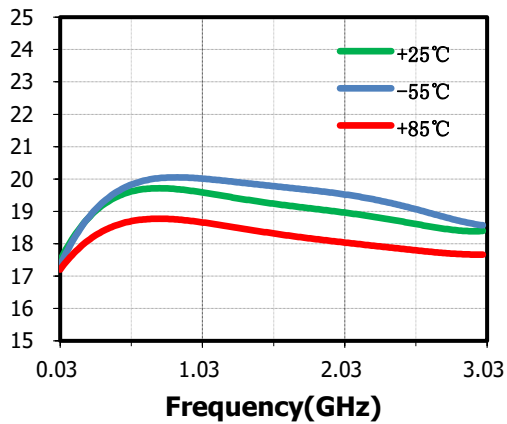
Input VSWR(:1) vs.Temperature



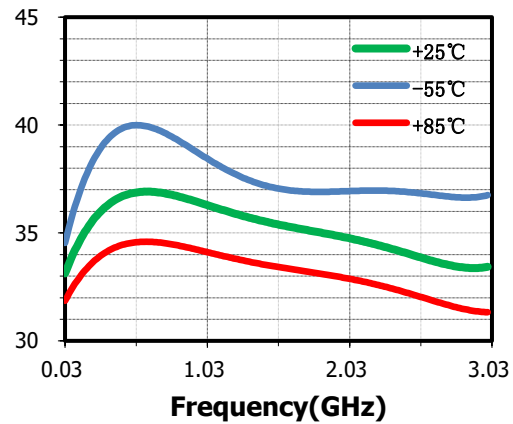
Output VSWR(:1) vs.Temperature



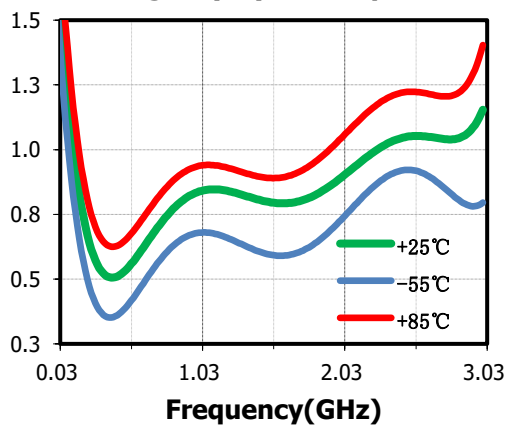
Output P_{1dB}(dBm) vs.Temperature



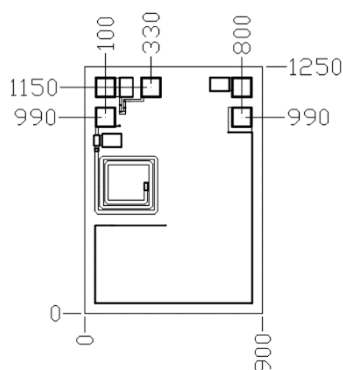
Output IP₃(dBm) vs.Temperature



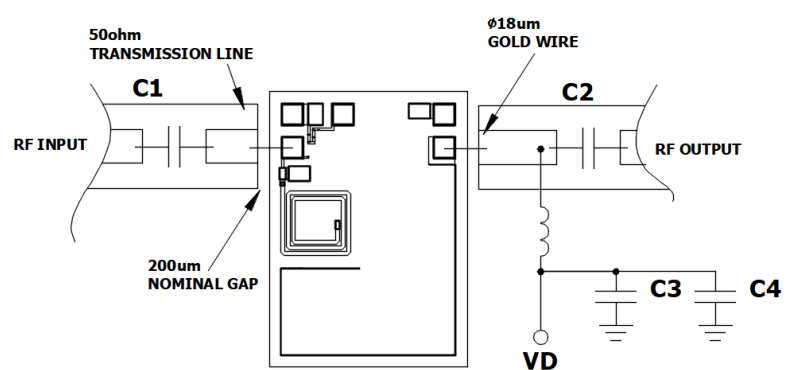
Noise Figure(dB) vs.Temperature



Outline
(All dimensions in μm)



Assembly Diagram



Pads size: 90x90 μm

Components List

Reference Des.	Value	Part Number	Manuf.
C1、C2、C3	300pF	GRM1555C1H301JA	Murata
C4	1uF	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.