SAC3023

GaAs MMIC Low Noise Amplifier
1.4GHz~3GHz

Rev 2.1

Features

- Frequency: 1.4GHz ~ 3GHz
- Gain: 36dB
- Noise Figure: 0.8dB
- Supply Voltage: +5V@100mA
- Die Size: 1.57mm×1.25mm×0.1mm

Typical Applications

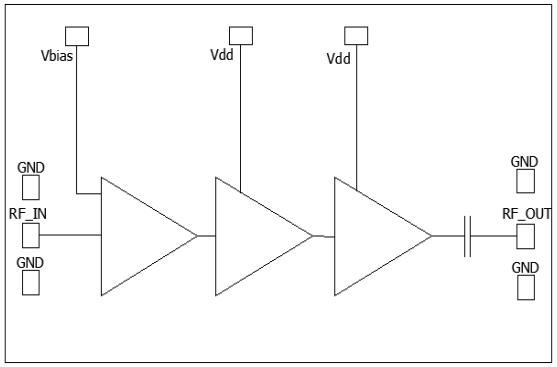
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3023 is a GaAs MMIC low noise amplifier die which operates from 1.4GHz to 3GHz. The amplifier can provide 36dB gain, 18dBm Output P_{-1}dB and 0.8dB noise figure from a 100mA supply current.

The chip offers full passivation for increased reliability and moisture protection. This amplifier is the perfect alternative to higher cost hybrid amplifiers.

Functional Diagram



Electrical Performance (T_A=25℃, V_D=+5V, I_D=100mA, Z_0=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range		1.4 ~ 3		GHz
Gain	—	36	—	dB
Gain Flatness	—	1	—	dB
Reverse Isolation	—	-55	—	dB
Input/Output VSWR	—	1.4	—	:1
Noise Figure	—	0.8	—	dB
Output Power for 1 dB Compression (OP_{-1}dB)	—	18	—	dBm
Output Third Order Intercept (OIP_3)	—	28	—	dBm
Supply Current (I_D)	—	100	—	mA

Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55°C ~ +85°C
Channel Temperature	+150°C	Storage Temperature	-65°C ~ +150°C

RoHS

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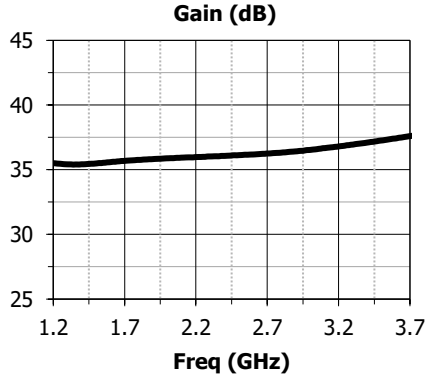
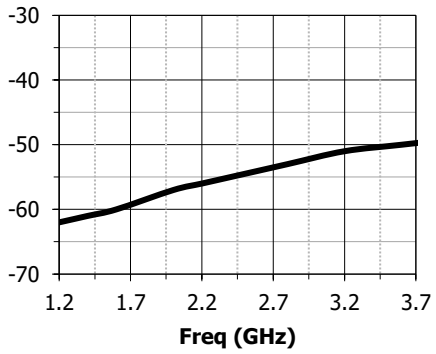
Typical Performance Curve

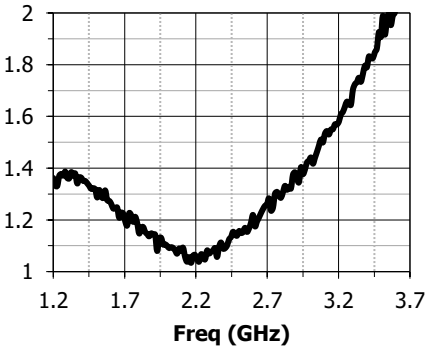
Gain (dB)



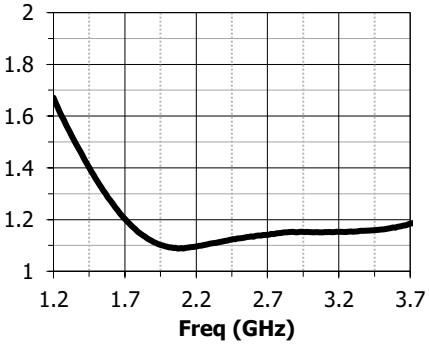
Reverse Isolation (dB)



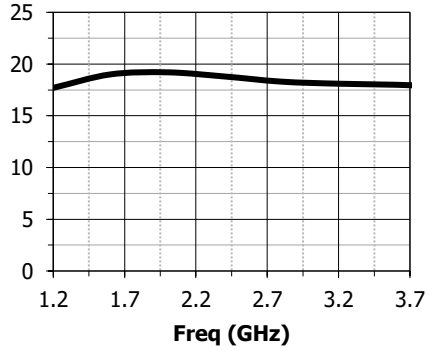
Input VSWR (:1)



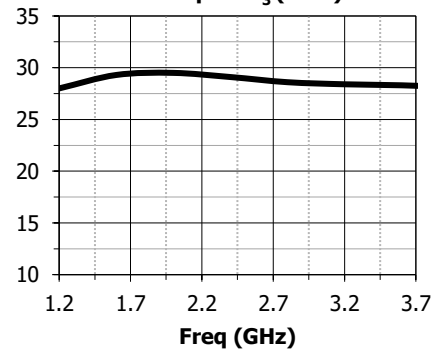
Output VSWR (:1)



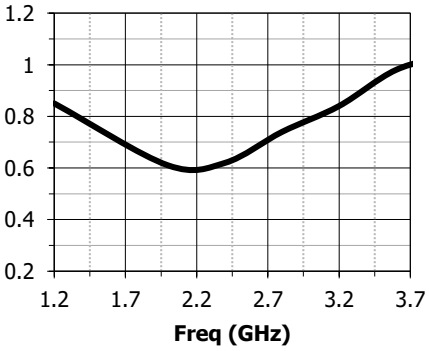
Output P_{-1}dB (dBm)



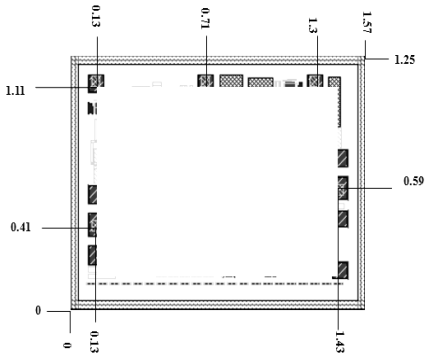
Output IP_3 (dBm)



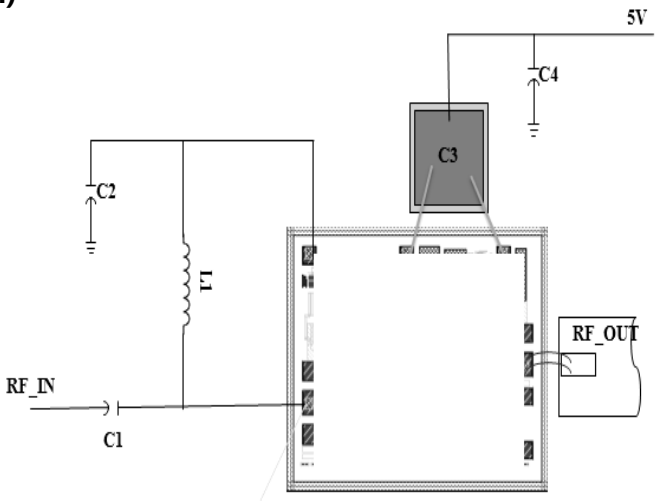
Noise Figure (dB)



Die Outline
(All dimensions in mm)



Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	47pF	GRM1555C1H470JZ01D	MURATA	0402
C2	47pF	GRM1555C1H470JZ01D	MURATA	0402
C3	100pF	—	RADVISTA	Chip
C4	10nF	GRM155R71H103KA88D	MURATA	0402
L1	6.8nH	BKW402UC6N8KGT	COILCRAFT	0402

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

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