SAC3047

GaAs MMIC Low Noise Amplifier
0.2GHz～2.2GHz

Rev 2.0

Features

- Frequency: 0.2GHz ~ 2.2GHz
- Gain: 27dB
- OutputP_{-1}dB:13dBm
- Noise Figure:1dB
- Supply Voltage: +5V@62mA
- Die Size：1.32mmx1.21mmx0.1mm

Typical Applications

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

General Description

SAC3047 is a GaAs MMIC Low Noise Amplifier die which operates between 0.2GHz ~ 2.2GHz. The amplifier can provide 27dB gain, 13dBm OutputP_{-1}dB, 1dB noise figure from a 62mA supply current.

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

Electrical Performance (T_A=25℃, V_D=+5V, I_D=62mA, Z_0=50Ω)

Parameter	Min	Typ.	Max	Units
Frequency Range		0.2 ~ 2.2		GHz
Gain	24.5	27	29	dB
Gain Flatness	—	±1	±1.5	dB
Reverse Isolation	33	45	—	dB
Input/Output VSWR	—	1.4	1.6	：1
Noise Figure	—	1	1.4	dB
Output Power for 1 dB Compression (OP_{-1}dB)	12	13	—	dBm
Output IP_3	—	23	—	dBm
Supply Current(I_D)	—	62	—	mA

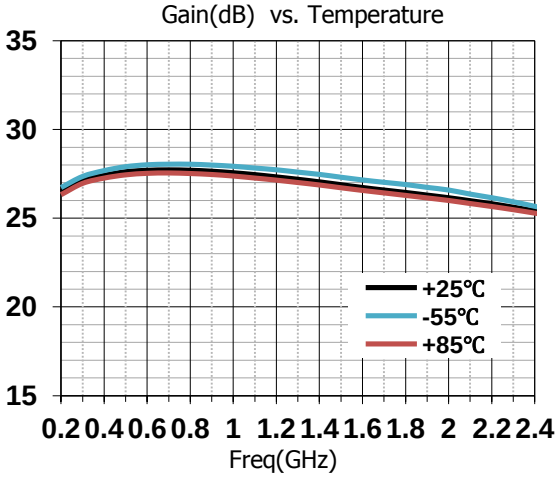
Absolute Maximum Ratings

Maximum Input Power	+15dBm	Operating Temperature	-55℃ ~ +85℃
Maximum V_D	+5.5V	Storage Temperature	-65℃ ~ +150℃

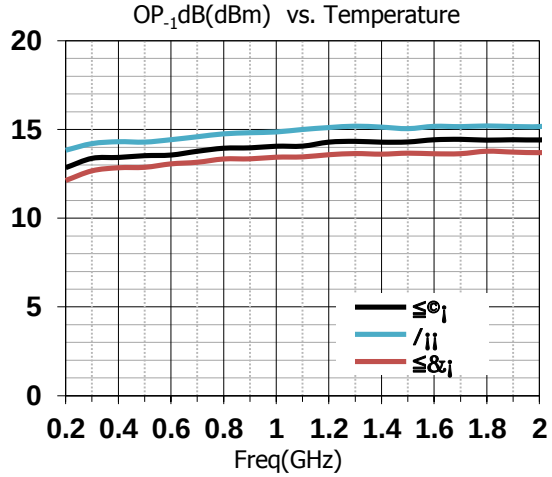
SuperApex, LLC
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

Typical Performance Curve

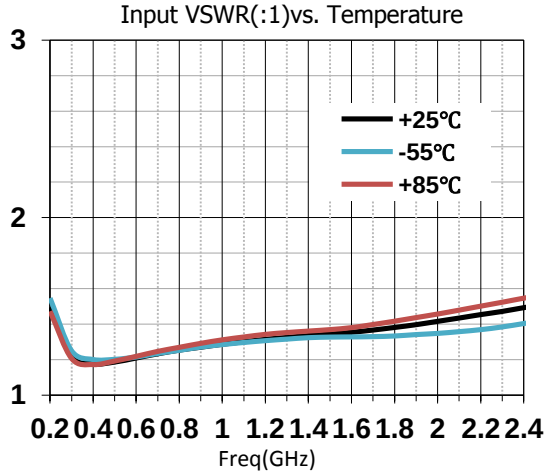
Gain(dB) vs. Temperature



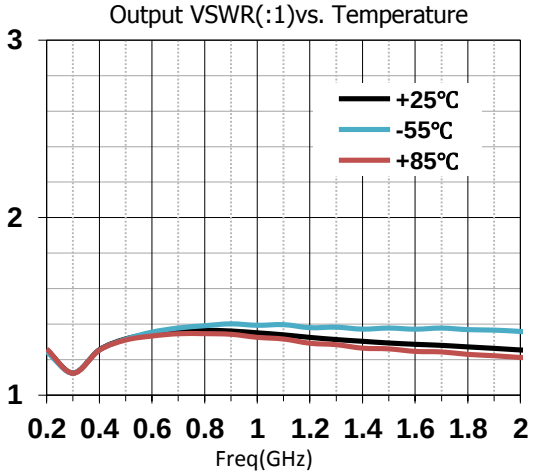
OP-1dB(dBm) vs. Temperature



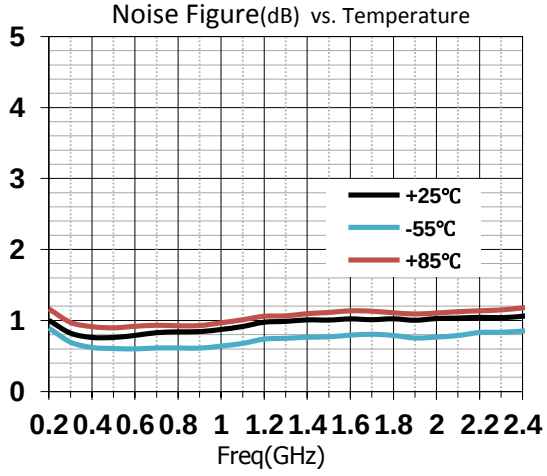
Input VSWR(:1)vs. Temperature



Output VSWR(:1)vs. Temperature

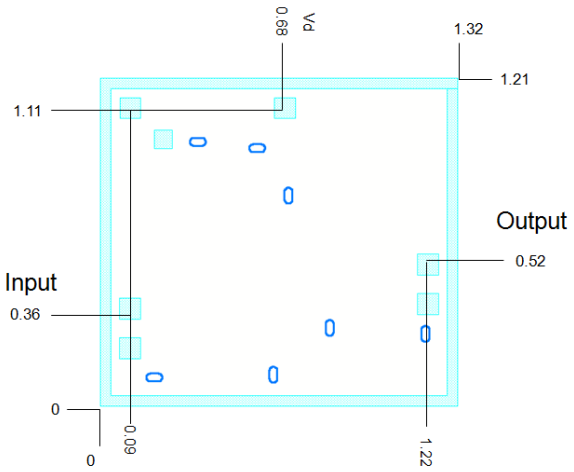


Noise Figure(dB) vs. Temperature

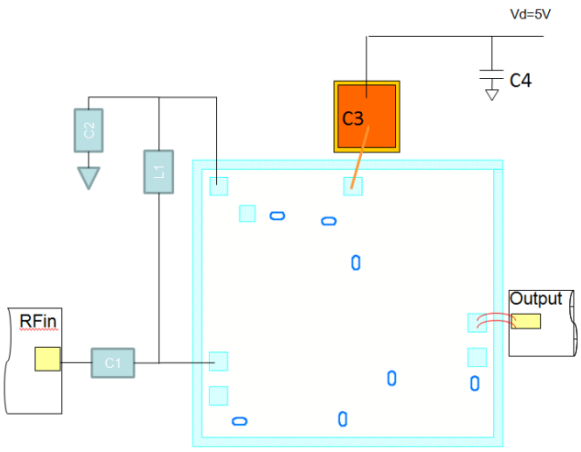


Die Outline

(All dimensions in mm)



Assembly Diagram



Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1,C2	100pF	GRM1555C1H101JA01D	MURATA	0402
C3	100pF	CHIP CAPACITOR	RADVISTA	Chip
C4	10nF	GRM155R71H103KA88D	MURATA	0402
L1	82nH	0402CS-82NXGE	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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