

SAC3034A

GaAs MMIC Low Noise Amplifier
3.5~6GHz

Rev 1.0

Features

- Frequency: 3.5~6GHz
- Gain: 21dB
- Noise Figure: 1.3dB Typ. 1.8dB Max.
- OP₁dB: 18dBm
- Supply Voltage: +5V@65mA
- Die Size: 1.25mmx1.25mmx0.1mm

Typical Applications

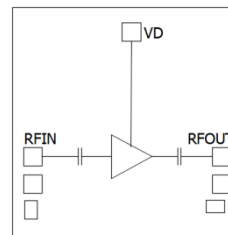
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3034A is a GaAs MMIC low noise amplifier die which operates between 3.5~6GHz. The amplifier can provide 21dB gain, 18dBm Output P₁dB, 1.3dB noise figure from a 65mA 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°C, V_D = +5V, I_D=65mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	3.5~6			GHz
Gain	17	21	25	dB
Gain Flatness	—	±1	±1.5	dB
Input/Output VSWR	—	1.5	2	:1
Noise Figure	—	1.3	1.8	dB
Reverse Isolation	—	-35	—	dB
Output Power for 1 dB Compression (OP ₁ dB)	16.5	18	—	dBm
Output Third Order Intercept (OIP ₃)	—	32*	—	dBm
Supply Current(I _D)	—	65	80	mA

*Pin/Tone=-15dBm, f_c=3GHz, Δf=1MHz

Absolute Maximum Ratings

Maximum Input Power	+17dBm CW 30s	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V _D	+7V		

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

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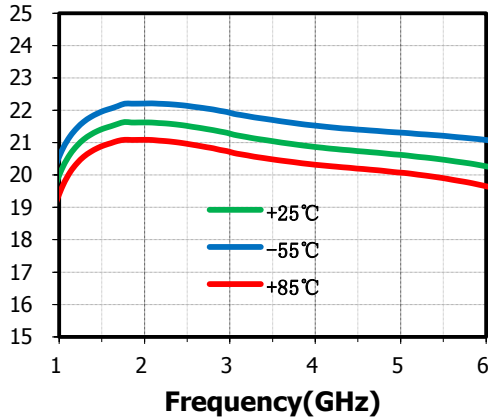
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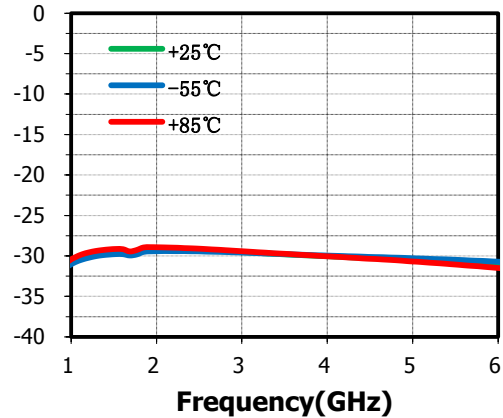
Typical Performance Curve

$V_D=+5V$, $I_{DQ}=65mA$

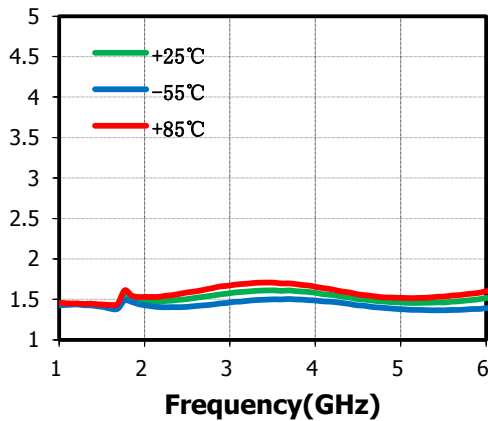
Small Signal Gain(dB) vs.Temperature



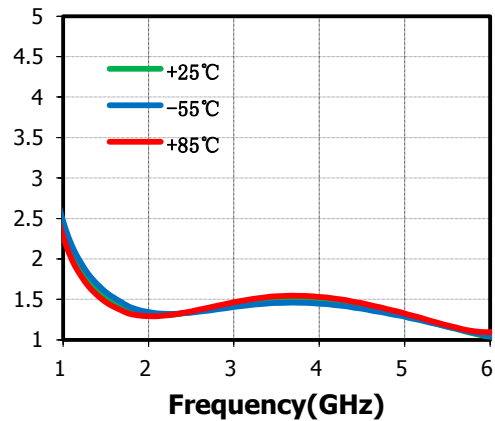
Reverse Isolation(dB) vs.Temperature



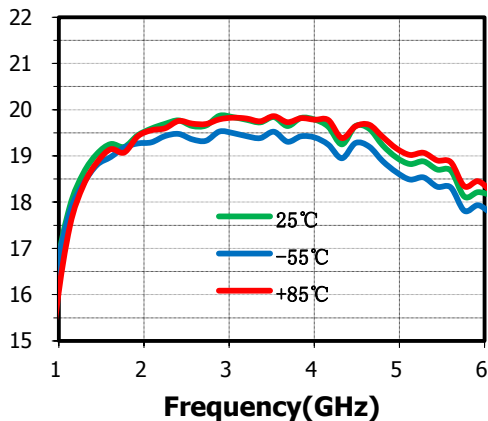
Input VSWR(:1) vs.Temperature



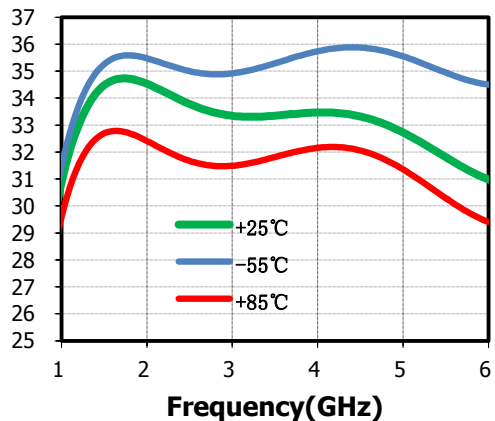
Output VSWR(:1) vs.Temperature



Output P-1dB(dBm) vs.Temperature



Output IP3(dBm) vs.Temperature



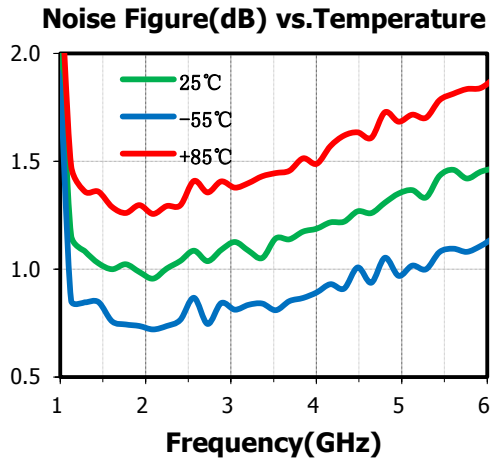
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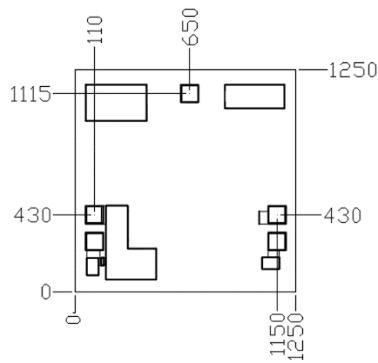
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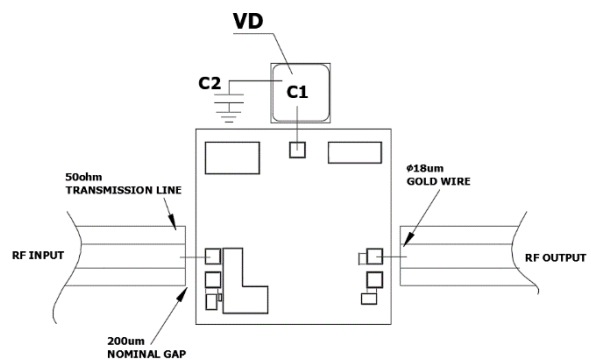


Die Outline
(All dimensions in μm)



Pad size: 90x90 μm

Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	300pF	SLC	-	300pF
C2	1uF	C1005X5RC105KT	TDK	1uF

Attention:

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