

SAC3070QP3



GaAs pHEMT MMIC Low Noise Amplifier
1GHz~18GHz

Rev 1.0

Features

- Frequency: 1GHz~18GHz
- Gain: 17dB
- Output P_{-1dB}: 10dBm
- Supply Voltage: +5V
- Package Size: 3mm×3mm×1.2mm

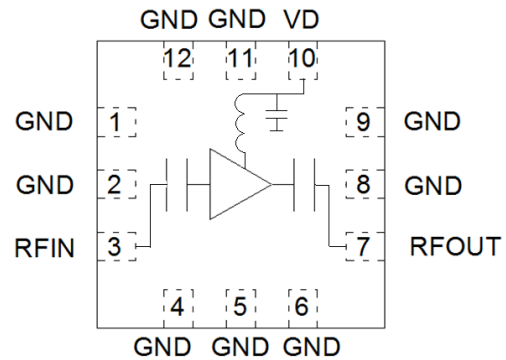
Typical Applications

- Test and Measurement
- Radar

General Description

SAC3070QP3 is a wideband GaAs MMIC amplifier which operates between 1GHz~18GHz. The amplifier provides 17dB of gain, 10dBm OP_{-1dB} power from a +5V supply voltage.

Functional Diagram



Electrical Performance

T_A=25°C, V_D=+5V, Z₀=50Ω

Parameter	Min.	Typ.	Max.	Units
Frequency Range	1~18			GHz
Small Signal Gain	—	17	—	dB
Small Signal Gain Flatness	—	±1	—	dB
Reverse Isolation	—	-30	—	dB
Input VSWR	—	1.6	2.5	:1
Output VSWR	—	1.6	2.5	:1
Output Power for 1 dB Compression (OP _{-1dB})	—	10	—	dBm
Drain Voltage (V _D)	—	5	—	V
Supply Current (I _D)	—	50	—	mA

Absolute Maximum Ratings

Maximum Input Power	+20dBm CW 1min	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V _D	+6V		

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

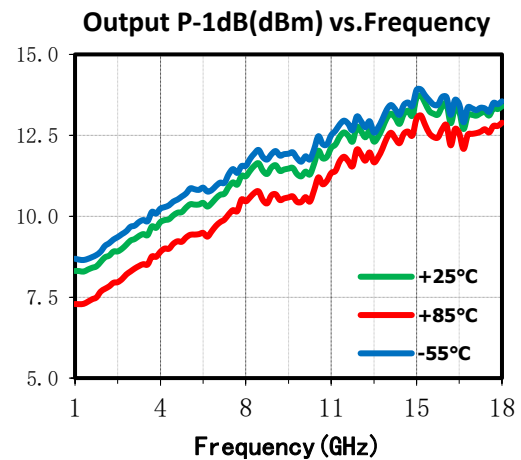
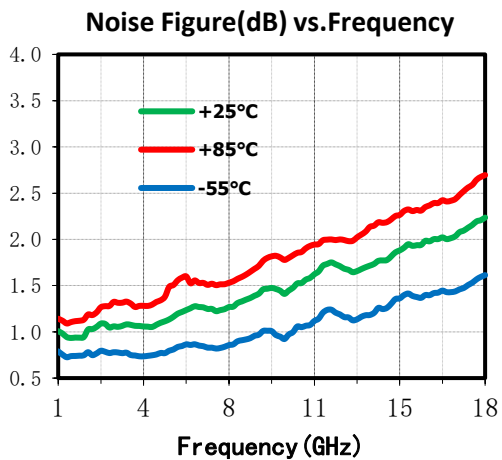
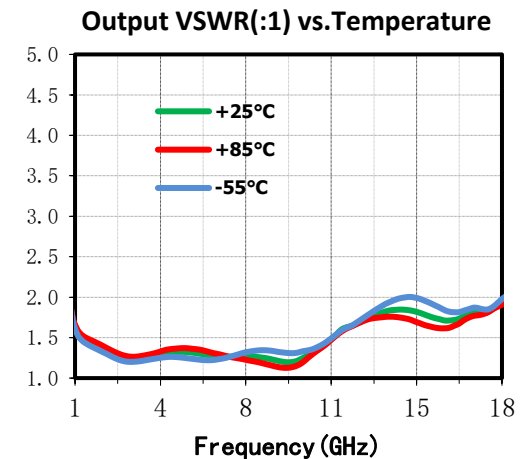
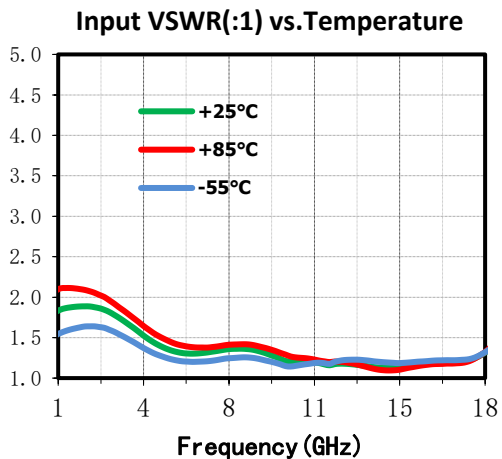
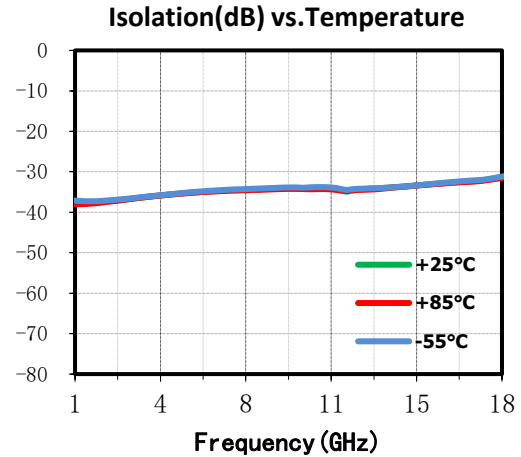
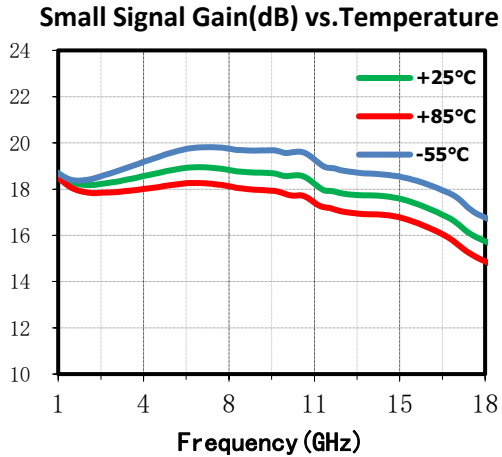
SAC3070QP3



GaAs pHEMT MMIC Low Noise Amplifier
1GHz~18GHz

Rev 1.0

Typical Performance Curve



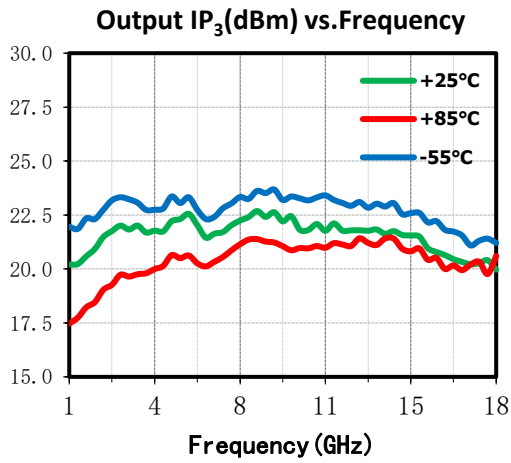
SuperApex, LLC

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

SAC3070QP3

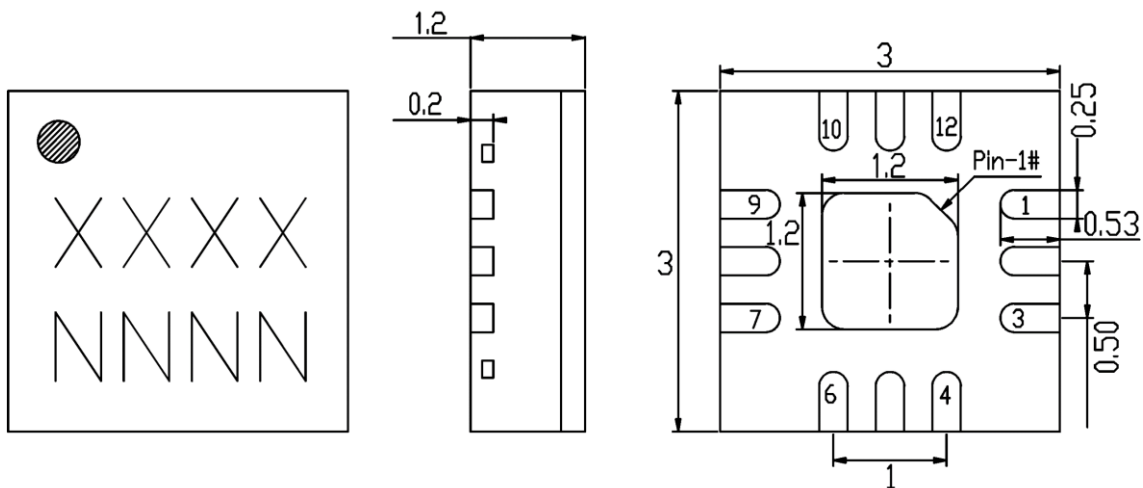
GaAs pHEMT MMIC Low Noise Amplifier
1GHz~18GHz

Rev 1.0



Outline Drawing

(All dimensions in mm)



Pin Descriptions

Pin No.	function	Pin No.	function
1	Connect to GND	7	RFOUT, AC Coupled
2	Connect to GND	8	Connect to GND
3	RFIN, AC Coupled	9	Connect to GND
4	Connect to GND	10	VD Supply
5	Connect to GND	11	Connect to GND
6	Connect to GND	12	Connect to GND

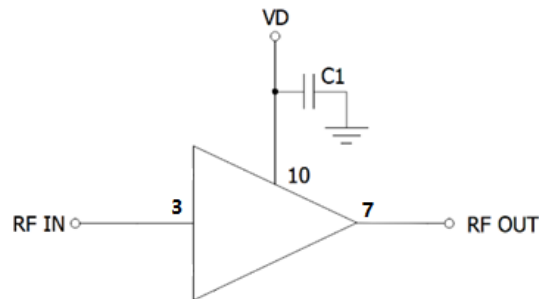
SAC3070QP3



GaAs pHEMT MMIC Low Noise Amplifier
1GHz~18GHz

Rev 1.0

Application Circuit



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	0.01 μ F	—	ANY	0402

Attention:

1. The moisture resistant grade of SAC3070QP3 is 2a, the storage environment $\leq 30^{\circ}\text{C}/60\% \text{RH}$, the surrounding workshop life is 4 weeks;
2. After un-packing, it is necessary to bake the parts for 6 hours in $125\pm 5^{\circ}\text{C}$ environment before soldering;
3. GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test;
4. The RF input and RF output ports withstand voltage is 12V;
5. Ultrasonic cleaning is prohibited.

Revision History

Revision	Date	Comment
1.0	Dec 31, 2023	First Release

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