

## Features

- Frequency: 10MHz ~ 2000MHz
- Gain: 22dB
- Noise Figure: 0.8dB
- OutputP<sub>-1dB</sub>:20dBm
- Power Supply: +5V@100mA
- Die Size : 1.15mm×0.8mm×0.1mm

## General Description

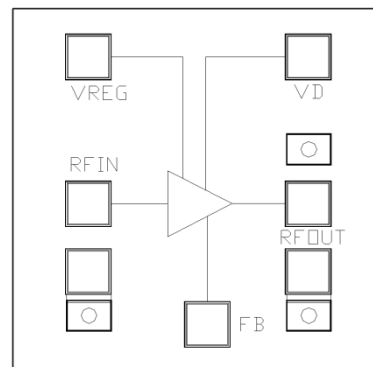
SAC3055 is a GaAs MMIC Low Noise Amplifier die which operates between 10MHz ~ 2000MHz. The amplifier can provide 22dB gain, 20dBm OutputP<sub>-1dB</sub>, 0.8dB noise figure from a +5V supply Voltage.

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

## Typical Applications

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

## Functional Diagram



## Electrical Performance ( T<sub>A</sub>=25°C, V<sub>D</sub>=+5V, I<sub>D</sub>=100mA, Z<sub>0</sub>=50Ω )

Parameter	Min	Typ.	Max	Units
Frequency Range	10 ~ 2000			MHz
Small Signal Gain	18	22	—	dB
Gain Flatness	—	±1.5	—	dB
Reverse Isolation	—	-25	—	dB
Input VSWR	—	1.4	2.0	:1
Output VSWR	—	1.4	2.0	:1
Noise Figure	—	0.8	1.1	dB
Output Power for 1 dB Compression (OP <sub>-1dB</sub> )	15	20	—	dBm
Output IP <sub>3</sub>	—	35	—	dBm
Supply Voltage(V <sub>D</sub> )	4**	5	5.5	V
Supply Current(I <sub>D</sub> )	—	100	130	mA

Test conditions: P<sub>out</sub> / Tone = 0dBm, f<sub>c</sub>= 1GHz, Δf=5MHz  
low current

## Absolute Maximum Ratings

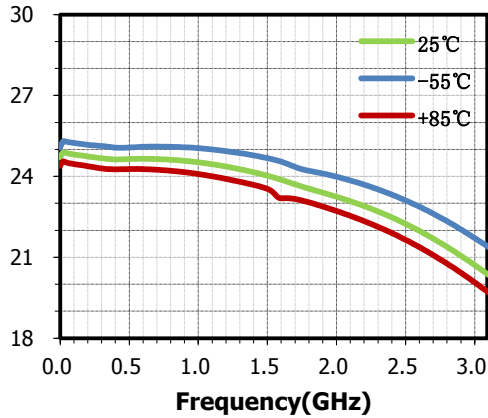
Maximum Input Power	+13dBm	Operating Temperature	-40°C ~ +70°C
Channel Temperature	150°C	Storage Temperature	-65°C ~ +150°C
Maximum V <sub>D</sub>	+5.7V		

## SuperApex, LLC

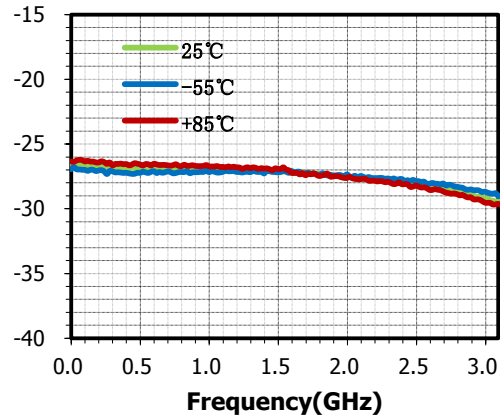
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA  
Tel: 1-847-505-8319, 1-847-573-9866  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

## Typical Performance Curve

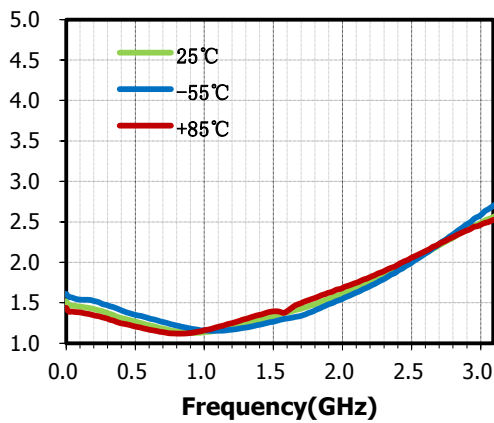
Small Signal Gain(dB) vs.Temperature



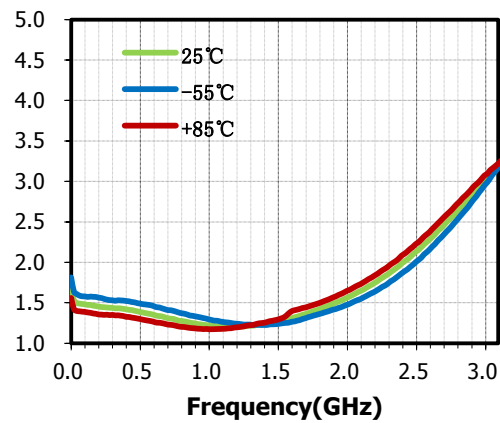
Reverse Isolation(dB) vs.Temperature



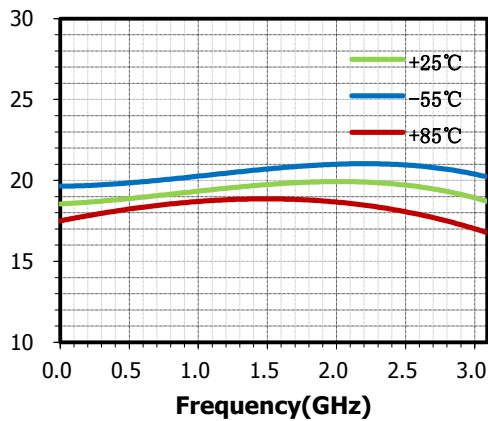
Input VSWR(:1) vs.Temperature



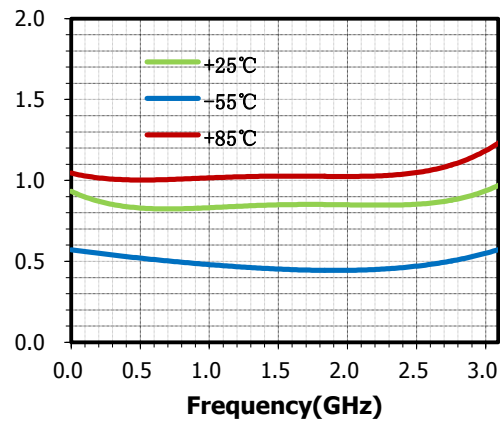
Output VSWR(:1) vs.Temperature



OP<sub>1</sub>dB(dBm) vs.Temperature



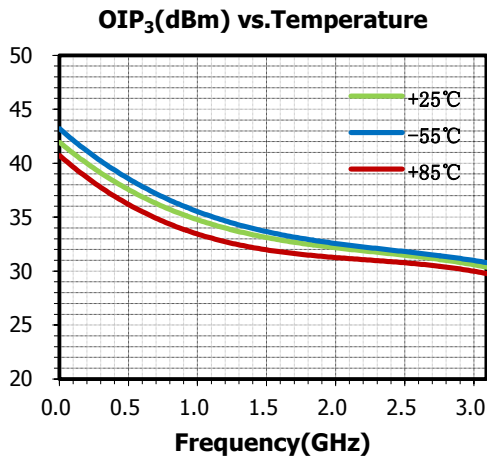
Noise Figure(dB) vs.Temperature



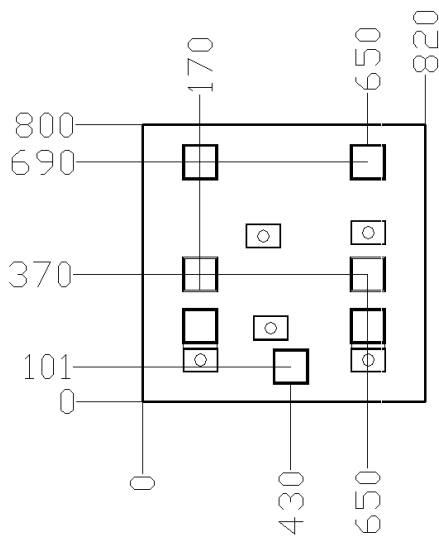
# SAC3055

GaAs MMIC Low Noise Amplifier  
10MHz~2000MHz

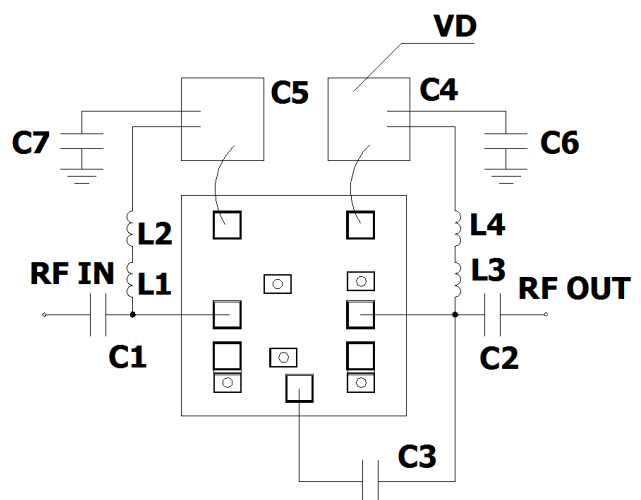
Rev 1.2



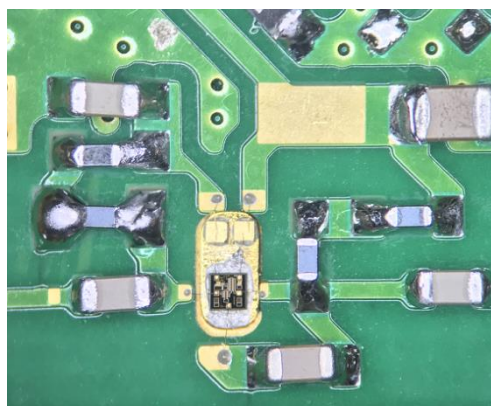
**Die Outline**  
(All dimensions in  $\mu\text{m}$ )



**Assembly Diagram**



**Assembly Diagram Image**



## Component list

Reference Des.	Value	Part Number	Manuf.	Size
C1、 C2、 C6	0.01uF	GRM15R71H103K	MURATA	0402
C7	2.2uF	GRM155R61A225K	MURATA	0402
C4、 C5	300pF	—	—	SLC
L1~L4*	—	—	—	—
C3	4700pF	GRM1555C1H472J	MURATA	0402

L1~L4\* is free with chip.

### Attention:

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