

Features

- Frequency: 2~4GHz
- Gain: 29dB
- Noise Figure: 0.4dB typ. 0.55dB max.
- Single Power Supply: +5V/35mA
- Output IP₃: 30dBm@3GHz
- Die Size: 1.11mm×1.24mm×0.1mm

Typical Applications

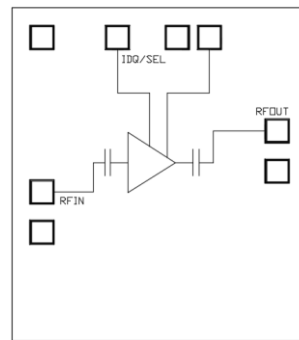
- Wide Band Receiver
- High Density MCM
- EW

General Description

SAC3056B is a GaAs MMIC low noise amplifier die which operates between 2~4GHz. The amplifier can provide 29dB gain, 14dBm Output P₁dB and less than 0.55dB noise figure.

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=35mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	2~4			GHz
Gain	26	29	32	dB
Gain Flatness	—	±0.75	—	dB
Reverse Isolation	—	-45	—	dB
Input VSWR/ Output VSWR	—	1.3	1.75	: 1
Noise Figure	—	0.4	0.55	dB
Output P ₁ dB	13	14	—	dBm
Output IP ₃	—	30*	—	dBm
Supply Current(I _b)	—	35	43	mA
Supply Voltage(V _d)	5	—	6	V

Pout/Tone=0dBm Fc=3GHz, Δf=1MHz

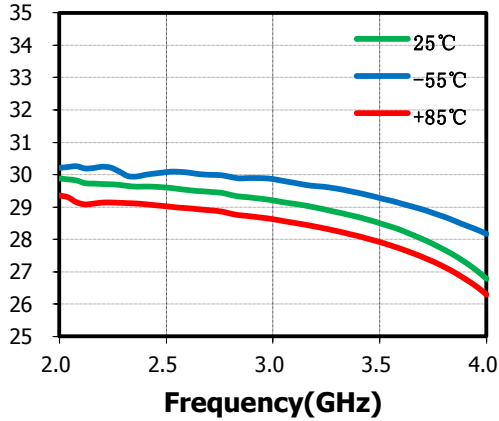
Absolute Maximum Ratings

Maximum Input Power	+13dBm, CW 1min	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Supply Voltage	7V		

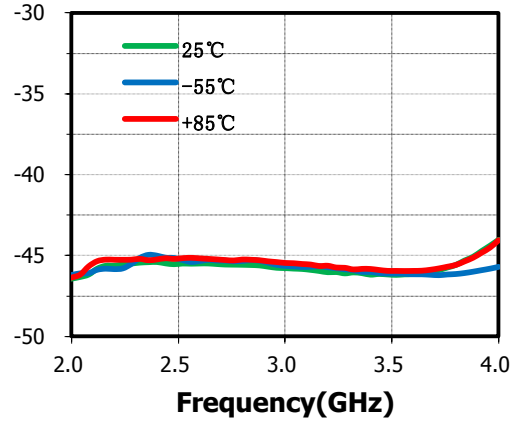
Typical Performance Curve

$V_D=+5V$, $I_{DQ}=35mA$

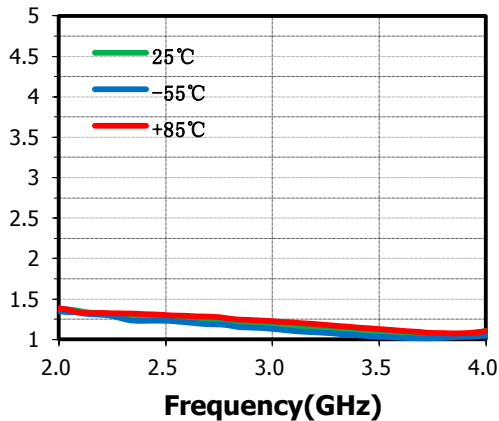
Small Signal Gain(dB) vs.Temperature



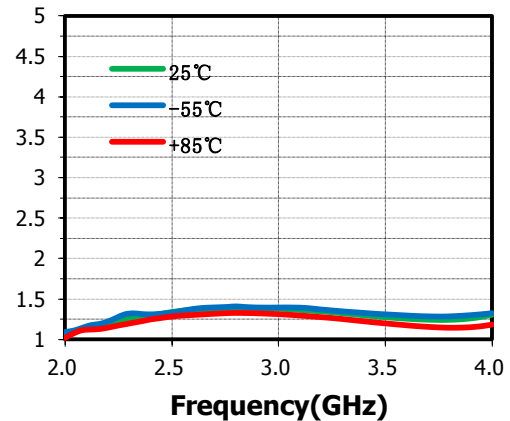
Reverse Isolation(dB) vs.Temperature



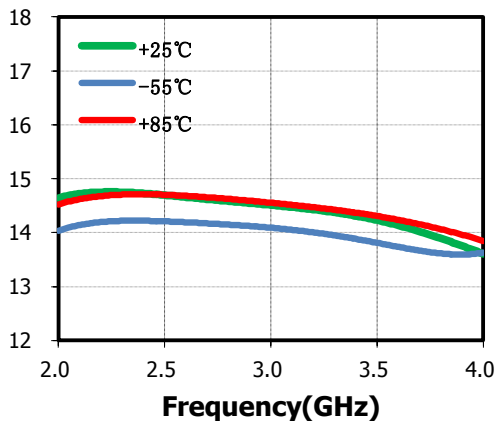
Input VSWR(:1) vs.Temperature



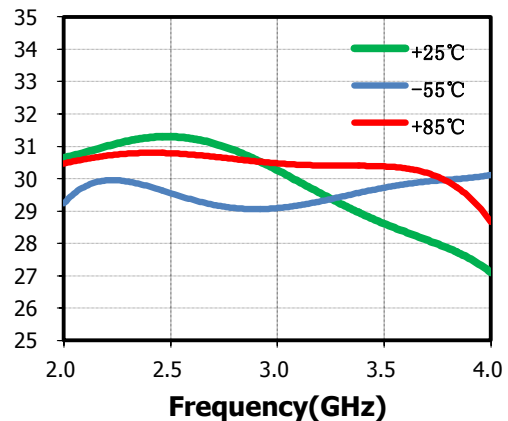
Output VSWR(:1) vs.Temperature



Output P-1dB(dBm) vs.Temperature



Output IP₃(dBm) vs.Temperature

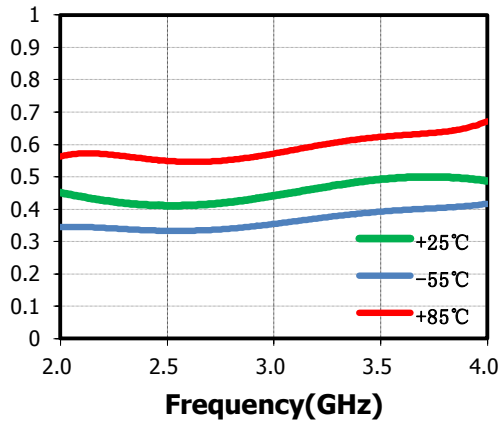


SAC3056B

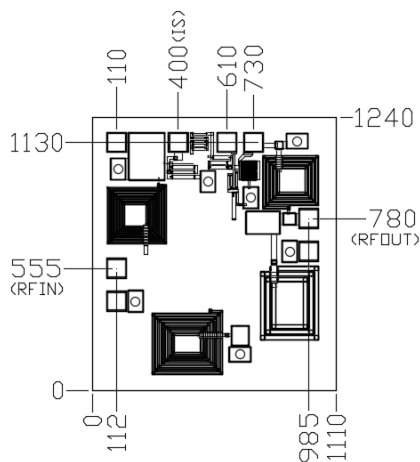
GaAs MMIC Low Noise Amplifier
2~4GHz

Rev 1.0

Noise Figure(dB) vs. Temperature



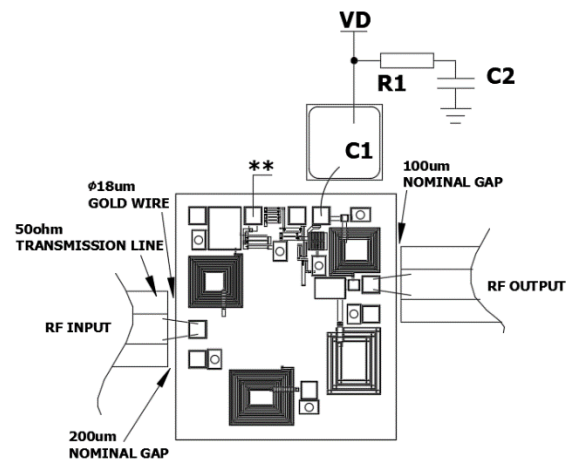
Outline
(all dimensions in μm)



Pads Size: 90*90 μm

** Connected to ground $I_{DQ} = 25\text{mA}$, Floating $I_{DQ} = 35\text{mA}$

Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	100pF	SLC	ANY	—
C2	2.2uF	—	ANY	0603
R1	2.2R	—	ANY	0603

Attention:

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

SuperApex Corporation

Address: 1580 S. Milwaukee, Ave. Suite 405, Libertyville, IL 60048, USA

Tel: 1-847-573-9866, 1-847-505-8319

E-mail: sales@superapexco.com

Website: www.superapexco.com