

Features

- Frequency: 18~40GHz
- Gain: 20dB
- Output P_{-1dB}: 13dBm@28GHz
- Supply Voltage: +5V@87mA
- Die Size: 1.0mm×1.4mm×0.1mm

Typical Applications

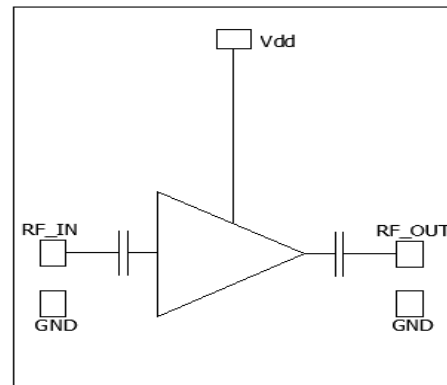
- Microwave radio including point to point communication
- Telecommunication
- Test instrumentation
- SatCom

General Description

SAC3093 is a GaAs MMIC Low Noise Amplifier die which operates between 18GHz~40GHz. The amplifier can provide 20dB gain, 14dBm OutputP_{-1dB}, 2.0dB noise figure from 87mA 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=87mA, Z₀=50Ω)

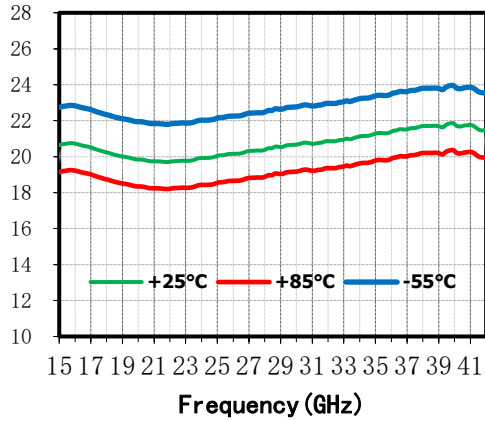
Parameter	Min.	Typ.	Max.	Units
Frequency Range	18~40			GHz
Gain	18	20	23	dB
Gain Flatness	—	±1	±2	dB
Reverse Isolation	—	50	—	dB
Input VSWR	—	1.8	2.7	:1
Output VSWR	—	1.6	2.1	:1
Noise Figure	—	2.0	2.5	dB
Output Power for 1 dB Compression (OP _{-1dB})	12	14	—	dBm
Supply Current (I _b)	—	87	—	mA
Thermal Resistance		42		°C/W

Absolute Maximum Ratings

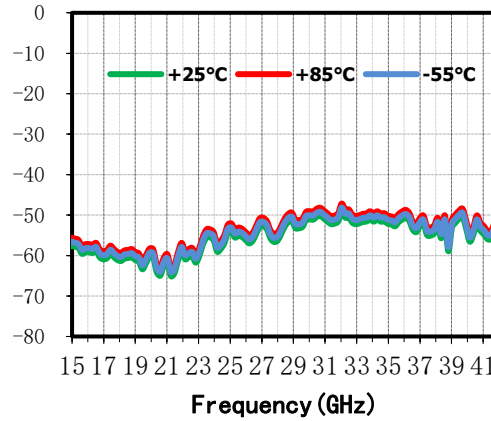
Maximum Input Power	+15dBm	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C

Typical Performance Curve

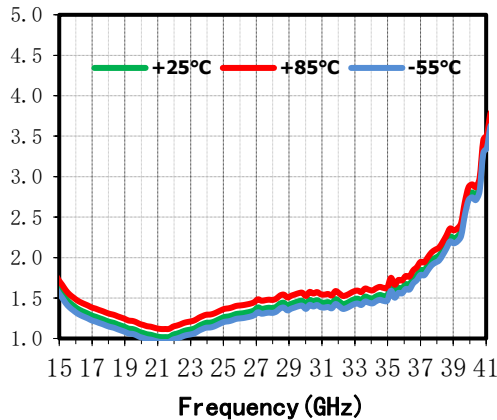
Small Sigal Gain(dB) vs.Temperature



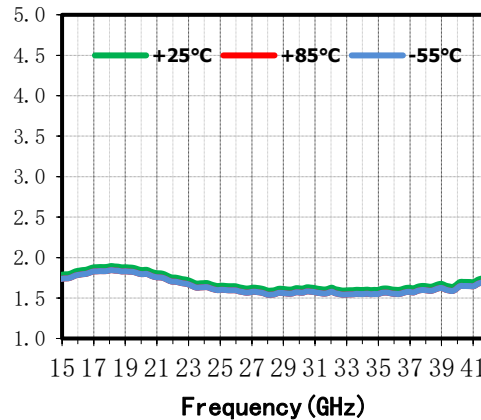
Isolation(dB) vs.Temperature



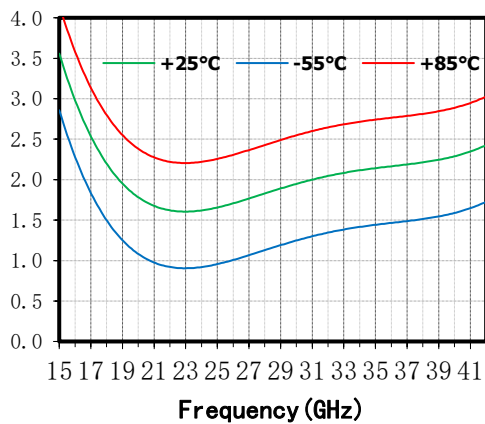
Input VSWR(:1) vs.Temperature



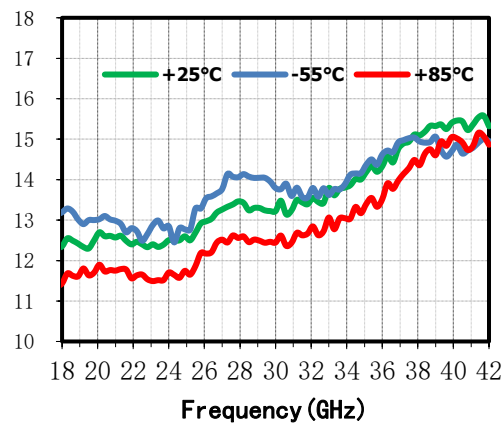
Output VSWR(:1) vs.Temperature



Noise Figure(dB) vs.Frequency



OP-1dB (dBm) vs. Temperature

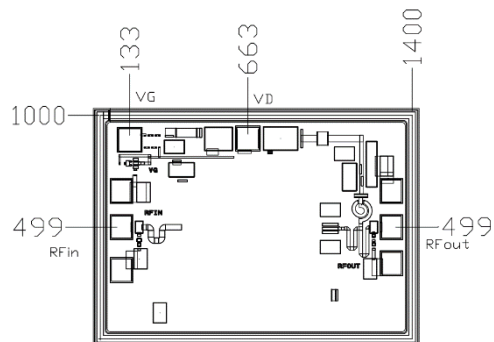


SAC3093

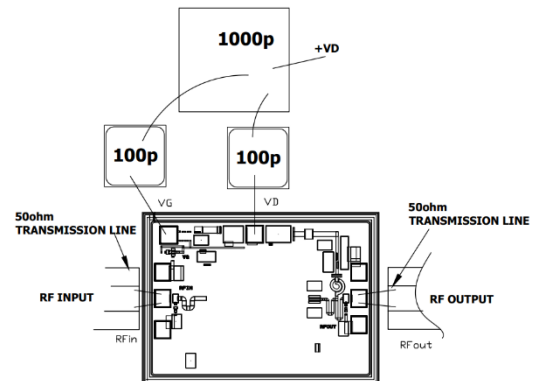
GaAs MMIC Low Noise Amplifier
18~40GHz

Rev 1.2

Die Outline
(All dimensions in μm)



Assembly Diagram



Attention:

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

1. ESD is level 0 (<250V) at HBM;