

Features

- Frequency: 3GHz~10GHz
- Gain: 18dB
- Output P_{-1dB}: 13dBm
- Supply Voltage: +5V
- Die Size: 1.74mm×1.22mm×0.1mm

Typical Applications

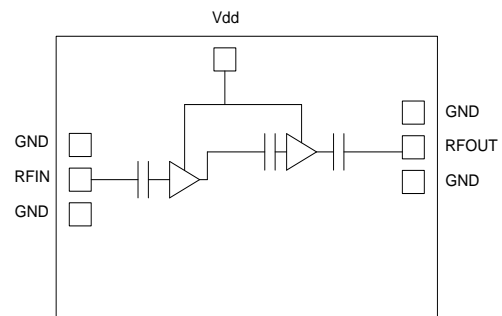
- Point-to-Point Radios
- SATCOM
- Military and Space
- Test and Measurement
- Radar

General Description

SAC3906 is a wideband GaAs MMIC driver amplifier which operates between 3GHz~10GHz. The amplifier provides 18dB of gain and 13dBm Output P_{-1dB} power from a +5V supply voltage.

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_{dd}=+5V, Z₀=50Ω)

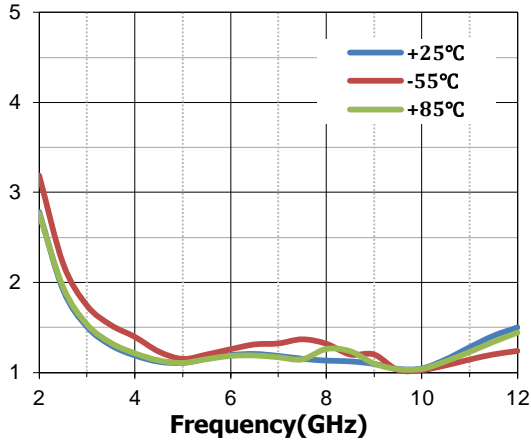
Parameter	Min.	Typ.	Max.	Units
Frequency Range	3~10			GHz
Small Signal Gain	—	18	—	dB
Small Signal Gain Flatness	—	2.0	—	dB
Reverse Isolation	—	-30	—	dB
Input VSWR	—	1.3	—	: 1
Output VSWR	—	1.4	—	: 1
Output Power for 1 dB Compression (OP _{-1dB})	—	13	—	dBm
Drain Voltage(V _{dd})	5	—	8	V
Supply Current(I _{dd})	—	63	—	mA

Absolute Maximum Ratings

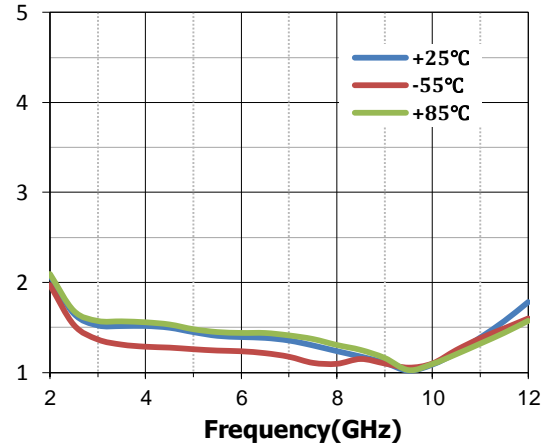
Maximum Input Power	+18dBm	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-65°C~+150°C
Maximum V _D	+9V		

Typical Performance Curve

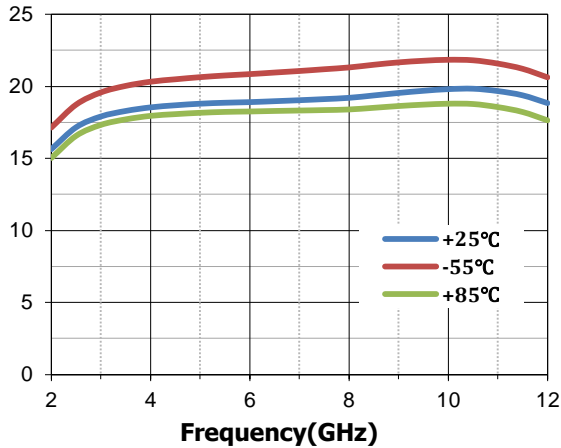
Input VSWR(:1) vs. Temperature



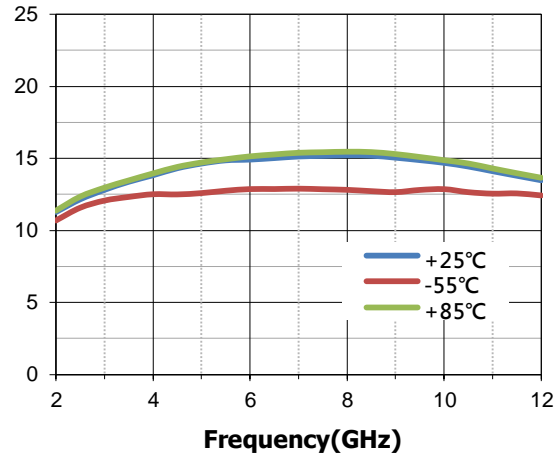
Output VSWR(:1) vs. Temperature



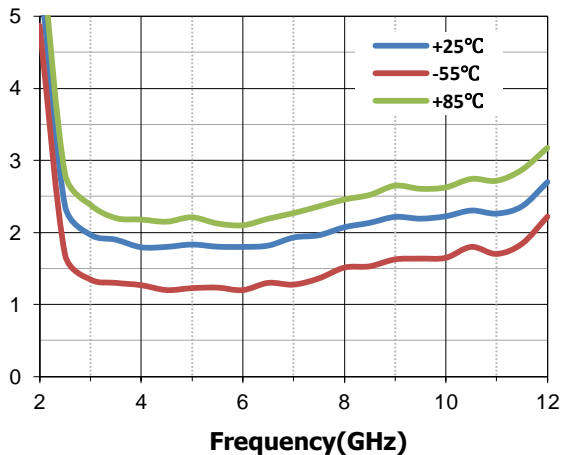
Gain(dB) vs. Temperature



OP₋₁dB (dBm) vs. Temperature



Noise Figure(dB) vs. Temperature

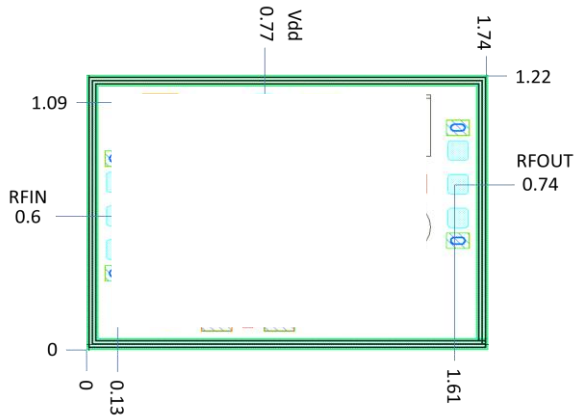


SAC3906

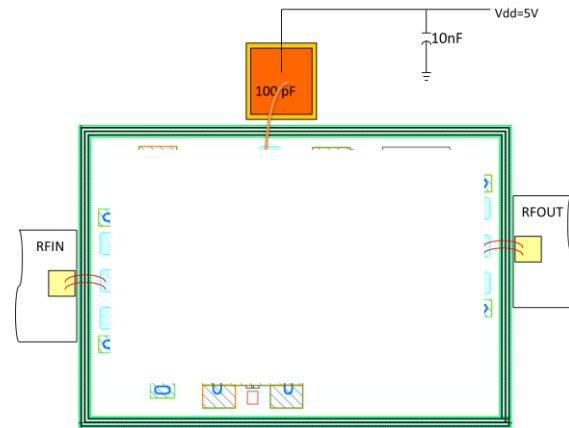
GaAs pHEMT MMIC DRIVER AMPLIFIER
3GHz~10GHz

Rev 2.1

Die Outline
(all dimensions in mm)



Assembly Diagram



Chip size: 1.74mmx1.22mm x0.1mm
Bonding pad size: 100x100um

Notes

1. SAC3906 is biased with a single drain voltage 5V.
2. RF connections should be made as short as possible to reduce the inductive effect of the bond wire.
3. The backside of the SAC3906 is RF grounded. Die attach should be accomplished with electrically and thermally conductive epoxy only.