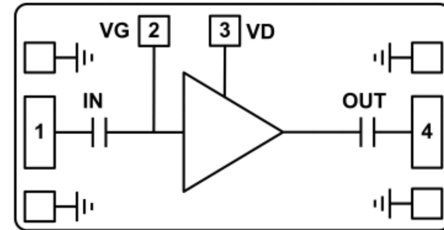
GaAs pHEMT MMIC
Driver Amplifier
1-10GHz

Features

Two operating modes (high power consumption, low power consumption)

- Frequency: 1-10GHz
- Gain: 20 dB @ 65 mA；19 dB @ 45 mA
- Noise Figure: 1.2 dB @ 65 mA；1.2 dB @ 45mA
- P1dB:：+20.5 dBm @ 65mA；+19.5 dBm @ 45mA
- Self Biasing: +5V@65mA VG suspended;
  +5V@45mA VG grounded
- Input/Output: 50Ω
- Die Size: 1 × 1 × 0.1mm

Functional Block Diagram



Typical Applications

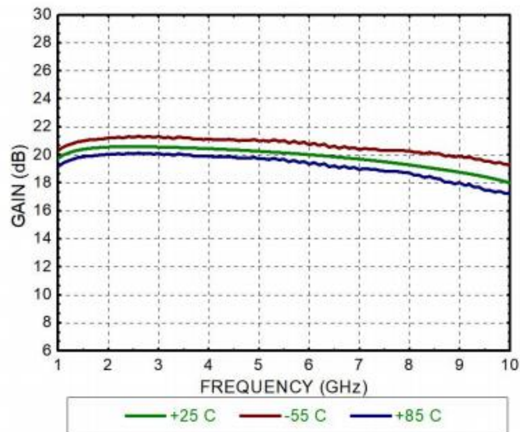
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

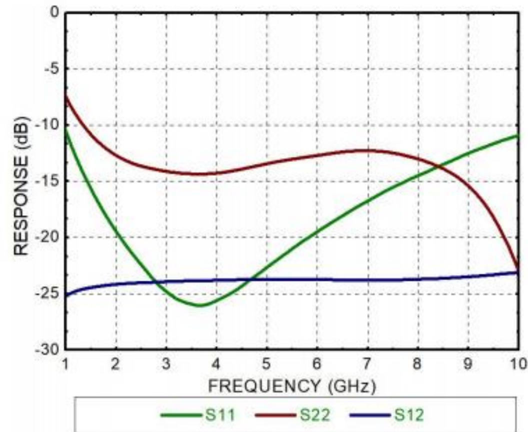
TA = +25ºC, VDD = +5V

Parameters	VG Suspended			VG Grounded			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency	1-10			1-10			GHz
Gain		20			19		dB
Noise Figure		1.2			1.2		dB
Gain Flatness		±1			±1		dB
P1dB		20.5			19.5		dBm
Psat		21.5			20.5		dBm
OIP3		30			29		dBm
Input Return Loss		13			12		dB
Output Return Loss		13			12		dB
Operating Current	40	65	90	25	45	70	mA

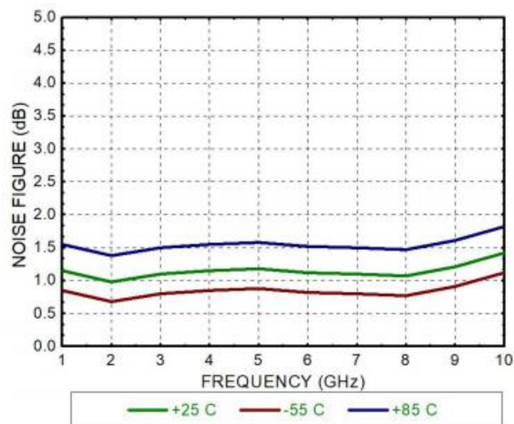
Gain @ VG Suspended



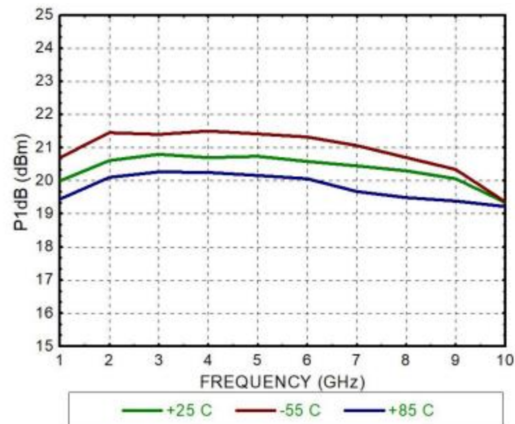
Return Loss & Reverse Isolation @ VG Suspended



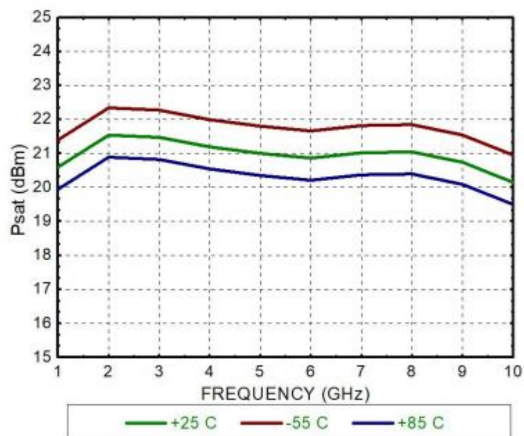
Noise @ VG Suspended



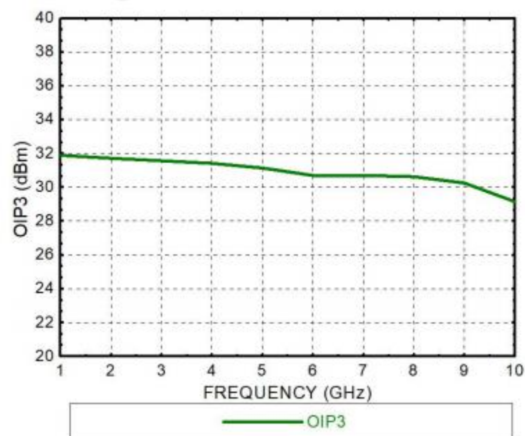
P1dB @ VG Suspended



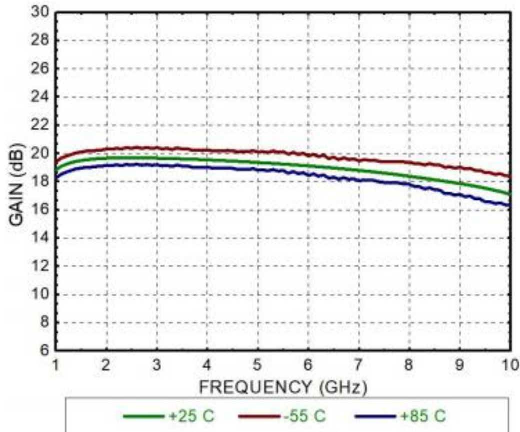
Psat @ VG Suspended



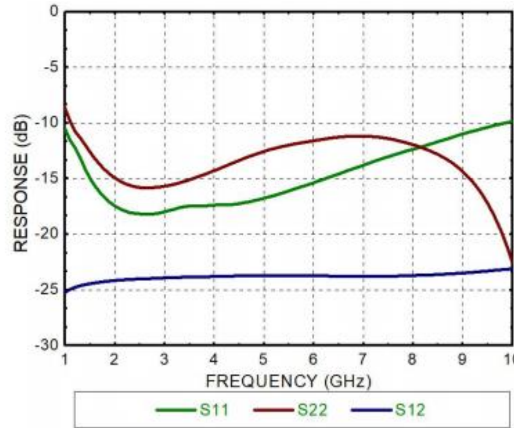
OIP3 @ Suspended



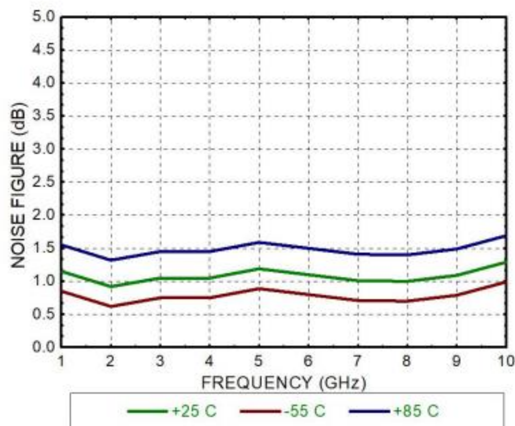
Gain @ VG Grounded



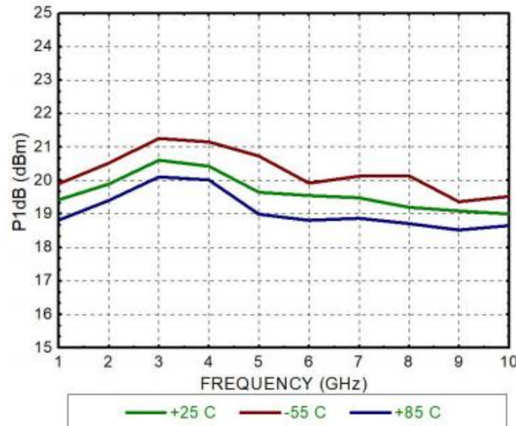
Return Loss & Reverse Isolation @ VG Grounded



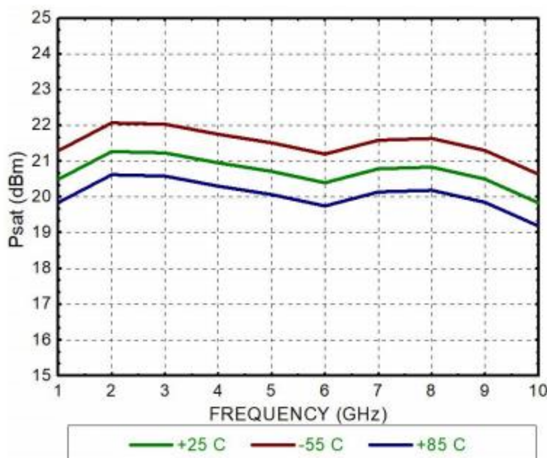
Noise Figure @ VG Grounded



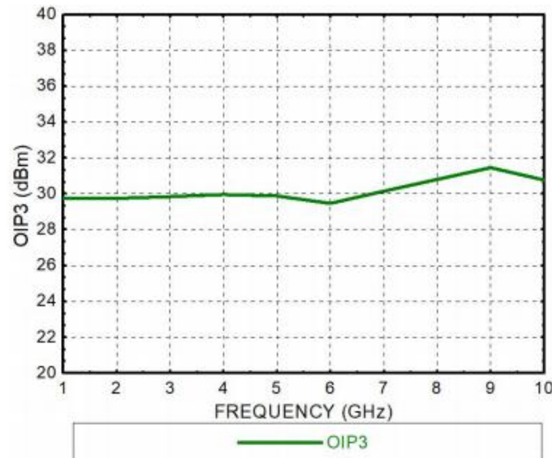
P1dB @ VG Grounded



Psat@VG Grounded

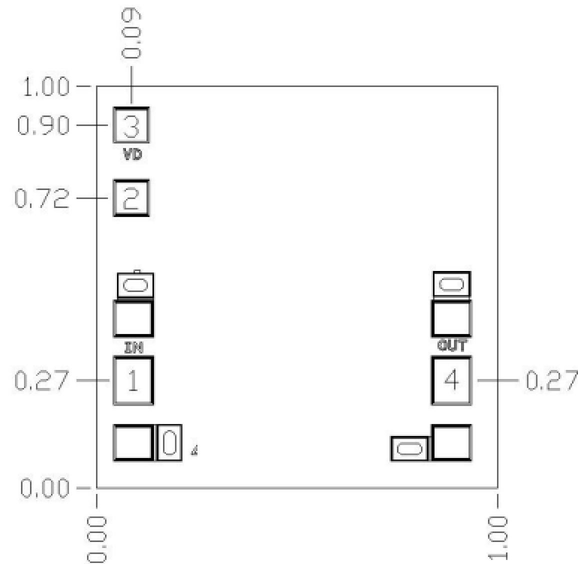


OIP3@VG Grounded



Outline Drawing:

All Dimensions in um

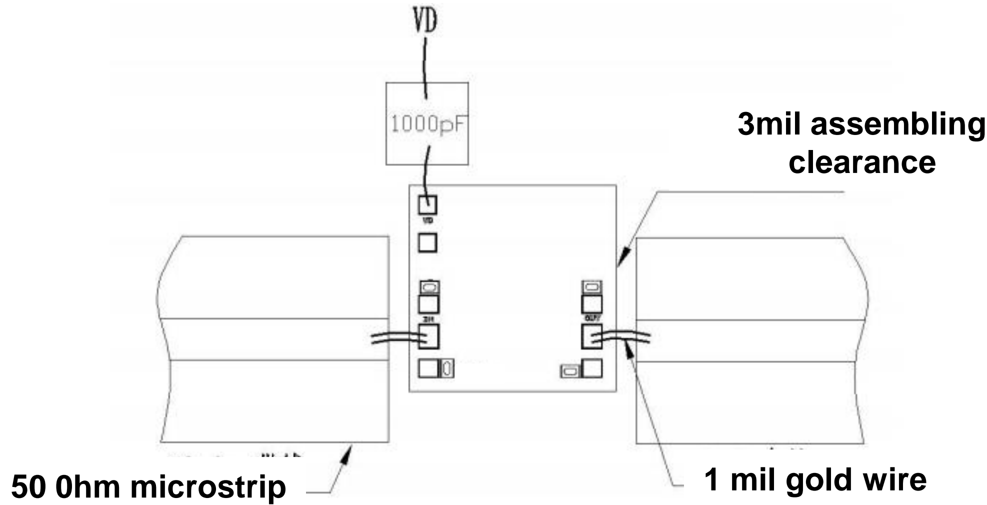


Pad Description

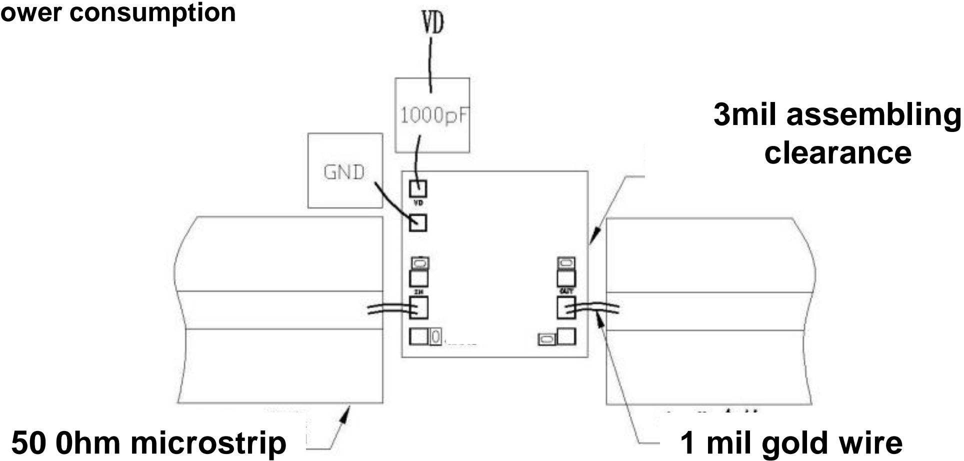
PAD	Function	Description
1	IN	This pad is AC coupling, 50 ohm matched
2	VG	The pad adjusts the amplifier operating state with the amplifier operating in a high power mode when floating and in a low power mode when connected to RF/DC groundRF signal output terminal, no blocking capacitor required
3	VD	This pad provides the power supply voltage of the amplifier and needs to be externally connected with the 1000pF bypass capacitor.
4	OUT	This pad is AC coupling, 50 ohm matched
Die Bottom	GND	Die bottom must be connected to RF/DC ground

Assembly Drawing

High power consumption



Low power consumption



Notes:

1. Die thickness: 100um
2. Typical bond pad is 100*100 μm^2
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

Maximum Ratings:

1. Power supply voltage: +6V
2. RF input power: +18dBm
3. Operating temperature: -55℃ to +85℃
4. Storage temperature: -65℃ to +150℃