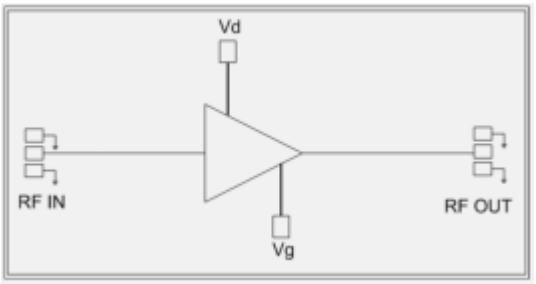
GaAs MMIC
Wide-band Amplifier
DC-40GHz

Features

- Frequency: DC-40GHz
- Small Signal Gain: 12dB
- Noise Figure: 5dB
- Psat: 22dBm
- Power supply: +7V/160mA
- Input/Output: 50Ω
- Die Size: 2.5 x 1.2 x 0.1 mm

Functional Block Diagram



Typical Applications

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

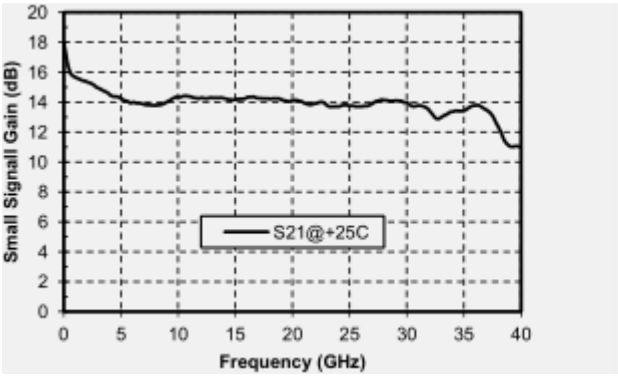
Electrical Specifications

TA = +25°C, Vd = +7V

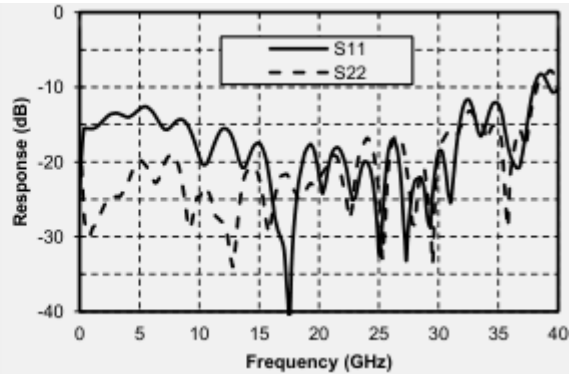
Parameters	Min.	Typ.	Max.	Units
Frequency		DC-40		GHz
Small Signal Gain		12		dB
Noise Figure		5		dB
P1dB* (Negative Bias)		20		dBm
Psat* (Negative Bias)		22		dBm
Input Return Loss		15		dB
Output Return Loss		15		dB
Static Current		160		mA

*** Adjust VG (-2V-0V) to obtain device current of 160mA (Approximately -0.25V). VG end can be suspended and at suspension state, the current is 185mA.**

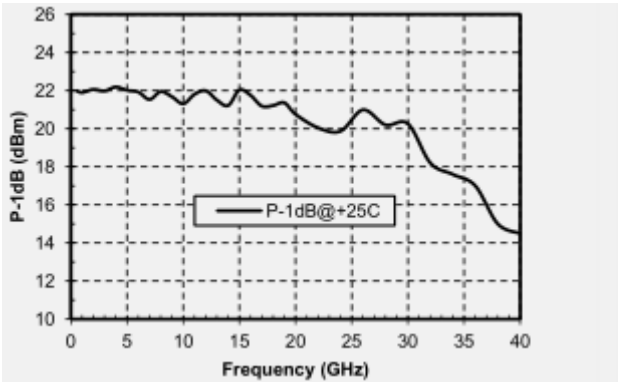
Gain vs. Frequency



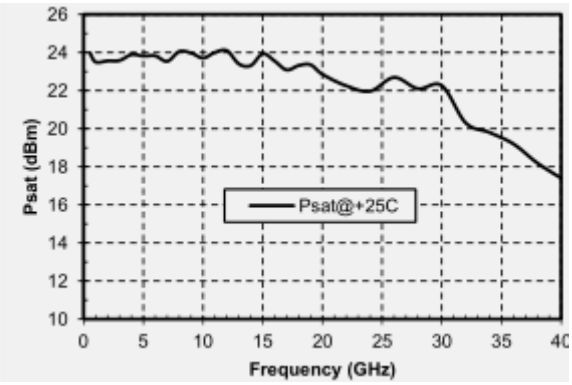
Input/Output Return Loss



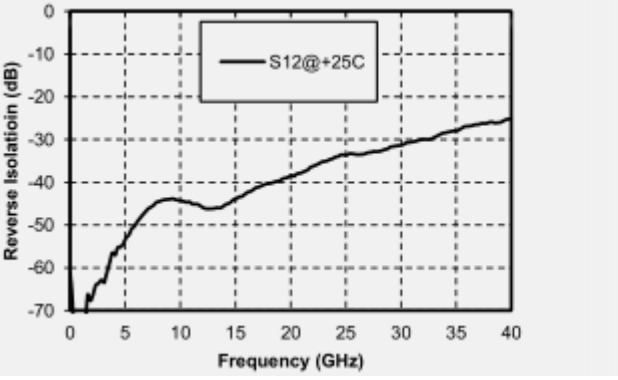
P1dB vs. Frequency



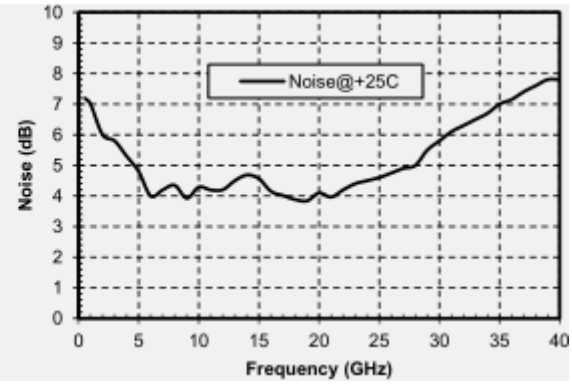
Psat vs. Frequency



Reverse Isolation vs. Frequency

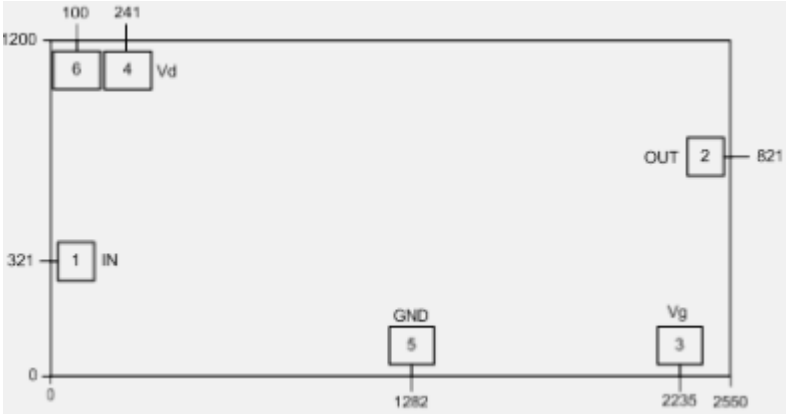


Noise Figure vs. Frequency

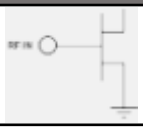
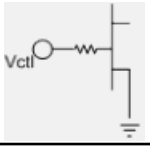


Outline Drawing:

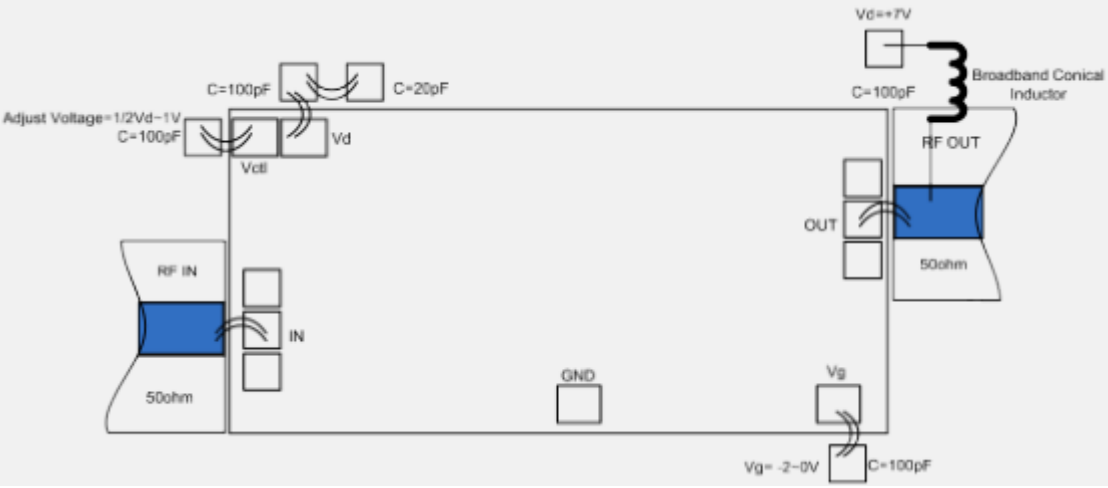
All Dimensions in µm



Pad Description

Pad	Function	Description	Equivalent Circuit
1	RF IN	RF signal input terminal; blocking capacitor required.	
2	RF OUT	RF signal output terminal; blocking capacitor required.	
3	Vg	Amplifier gate bias; connected to external 100pF bypass capacitor.	
4	Vd	Amplifier drain bias, connected to external 100pF bypass capacitor.	
5	GND	Ground point used for probe test.	
6	Vctl	Amplifier gain control terminal, connected to external 100pF bypass capacitor.	
Die bottom	GND	Die bottom must be connected to RF/DC ground.	

Assembly Drawing



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. Maximum drain voltage: +9V
2. Maximum gate bias: -2V
3. Maximum input power: +18dBm
4. Operating temperature: -55℃ to +85℃
5. Storage temperature: -65℃ to +150℃