V1.0.0

GaAs pHEMT MMIC Power Amplifier 12-20GHz

Features

- **Frequency:12-20GHz**
- **Small Signal Gain: 19dB**
- **Gain Flatness: ±0.8dB**
- **Psat: 25.5dBm**
- **Efficiency: 50%**
- **Power Supply: +5V@150mA**
- **Input/Output: 50Ω**
- **Die Size: 1.85 x 1.2 x 0.1 mm**

Functional Block Diagram

Typical Applications

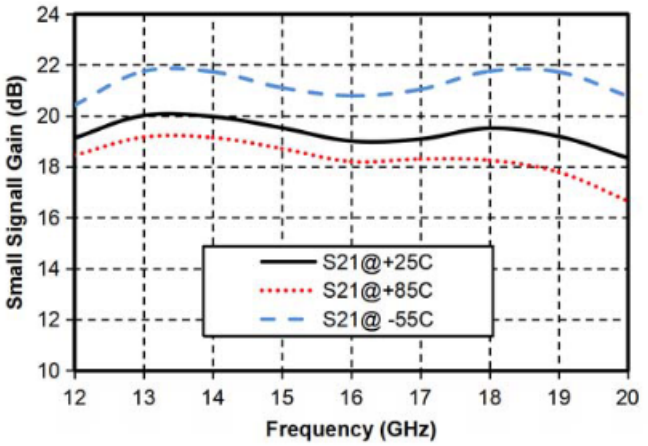
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

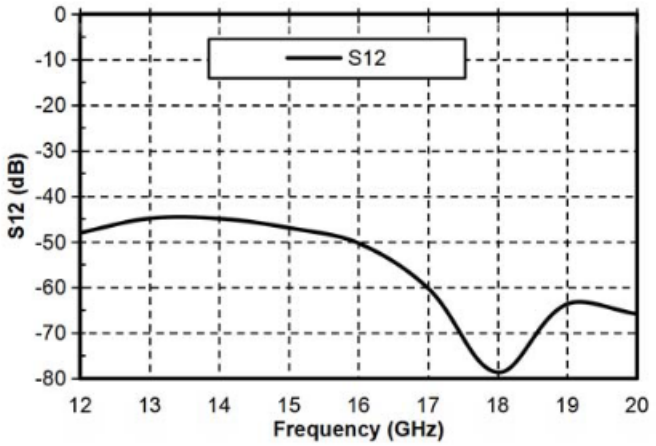
TA = +25ºC, Vd = +5V，Vg=-0.8，Ids=150mA

Parameters	Min.	Typ.	Max.	Units
Frequency		12-20		GHz
Small Signal Gain		19		dB
Gain Flatness		±0.8		dB
P1dB		25		dBm
Psat		25.5		dBm
Efficiency		50		%
Input Return Loss		23		dB
Output Return Loss		16		dB
Quiescent Current		150		mA
By tuning the Vg terminal voltage -2V~0V, the recommended gate voltage is -0.8V.				

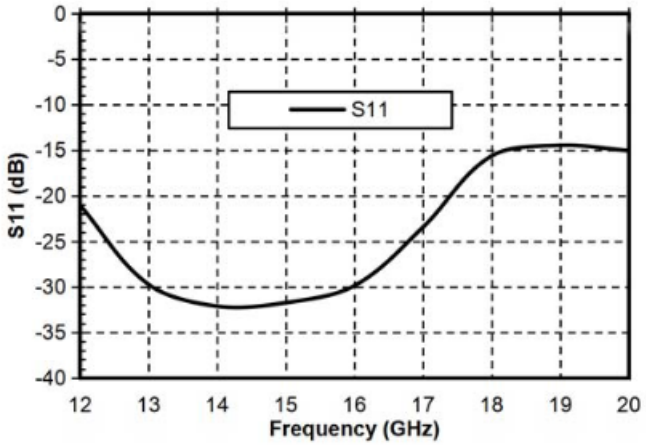
Gain vs. Frequency



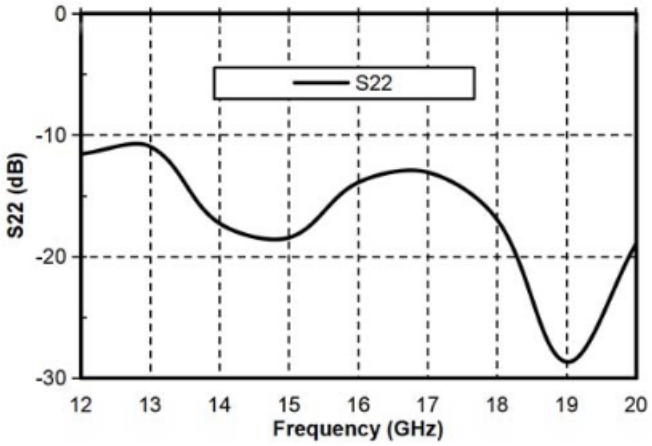
Reverse Isolation vs. Frequency



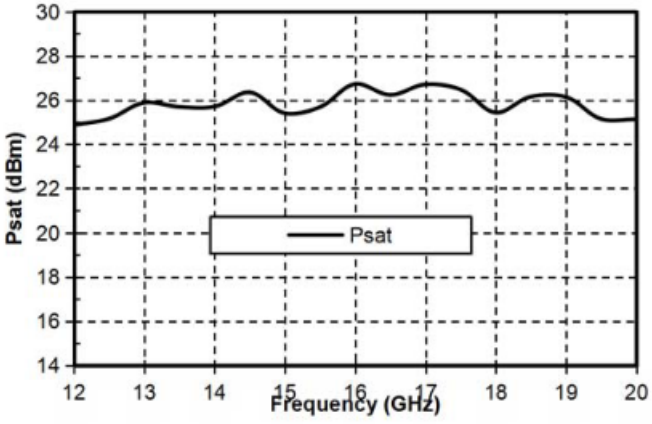
Input Return Loss vs. Frequency



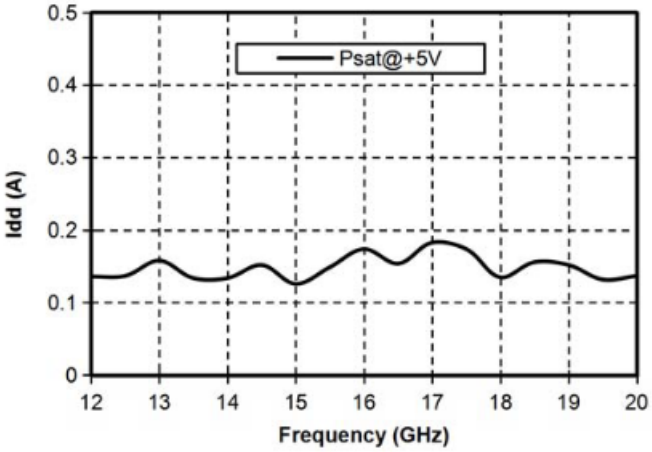
Output Return Loss vs. Frequency



Psat vs. Frequency

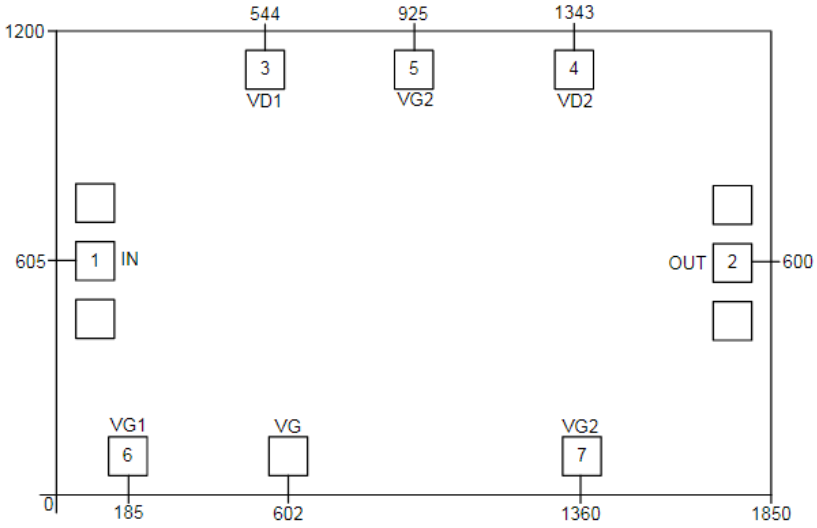


Idd vs. Frequency



Outline Drawing:

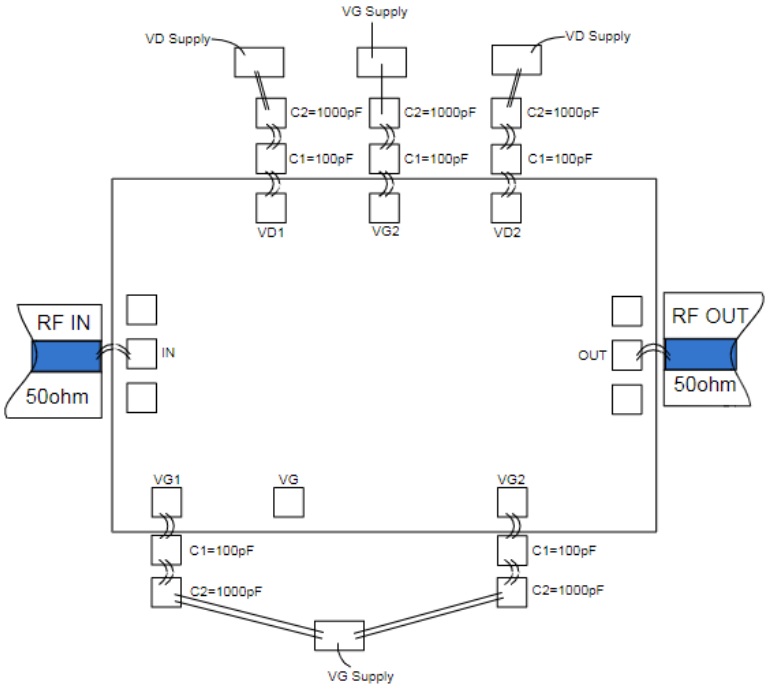
All Dimensions in um



Pad Description

PAD	Function	Description
1	RF IN	RF signal input terminal, no blocking capacitor required
2	RF OUT	RF signal output terminal, no blocking capacitor required
3，4	Vd1,Vd2	Amplifier drain bias, connected to external 100pF 1000pF bypass capacitor.
5,6,7	Vg1-Vg2	Amplifier gate bias, connected to external 100pF 1000pF 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 μm²
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: +7V**
2. **Maximum input power: +20dBm**
3. **Operating temperature: -55℃ to +85℃**
4. **Storage temperature: -65℃ to +150℃**