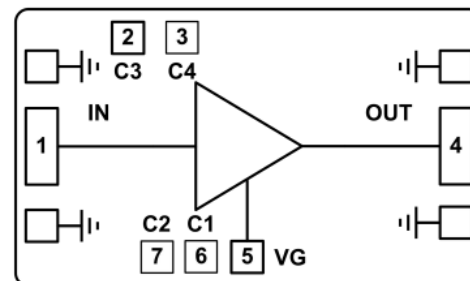


Features

- Frequency: DC-20GHz
The minimum operating frequency can be up to 1KHz
- Gain: 19dB
- P1dB: +30 dBm @ VDD=12V
- Psat: +31 dBm @ VDD=12V
- Power Supply: +8/+10/+12 V @ 350 mA
- Input/Output: 50Ω
- Die Size: 2.5 × 1 × 0.1mm

Typical Applications

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

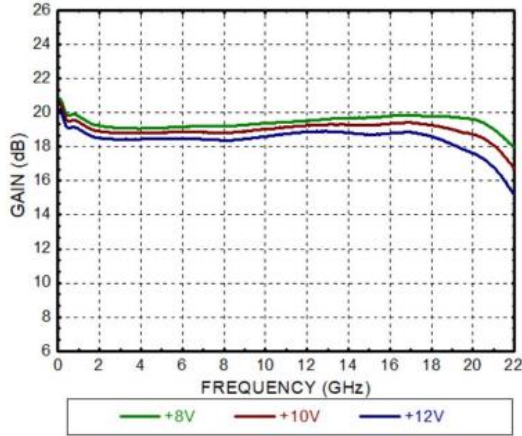
Functional Block Diagram

Electrical Specifications

TA = +25°C, VG = -0.4V*, IDD = 350mA*

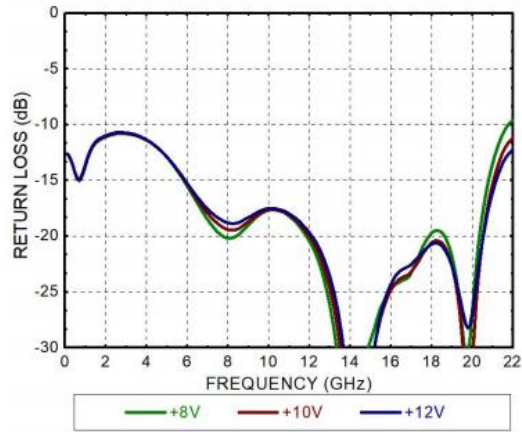
Parameters	VDD=+8V			VDD=+10V			VDD=+12V			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency	DC-20			DC-20			DC-20			GHz
Gain		19			18.5			18		dB
Noise Figure		4			4			4		dB
Gain Flatness		±0.5			±0.5			±0.5		dB
P1dB		27			29			30		dBm
Psat		28			30			31		dBm
Input Return Loss		15			15			15		dB
Output Return Loss		15			15			15		dB
Operating Current		330			340			350		mA

By adjusting the VG voltage, the quiescent operating current is controlled around the nominal value, and the VG regulation range: -1V ~ -0.1V.

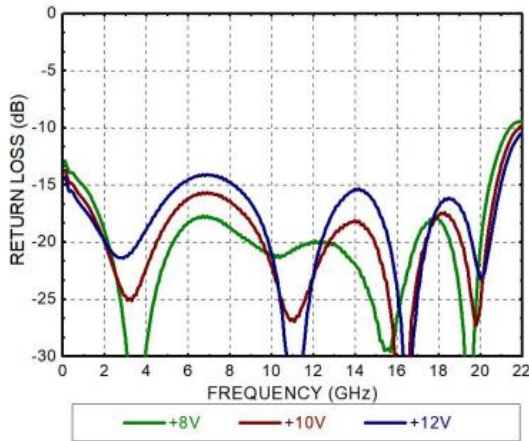
Gain



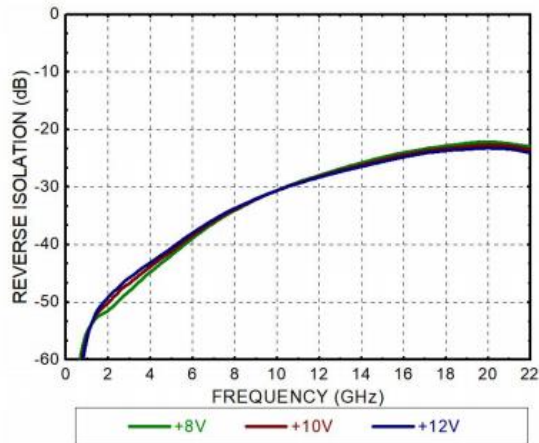
Input Return Loss



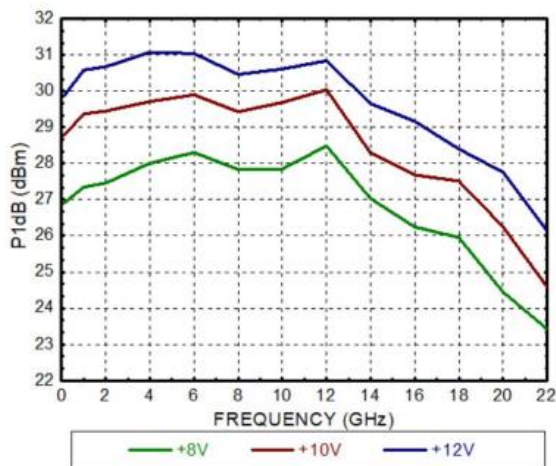
Output Return Loss



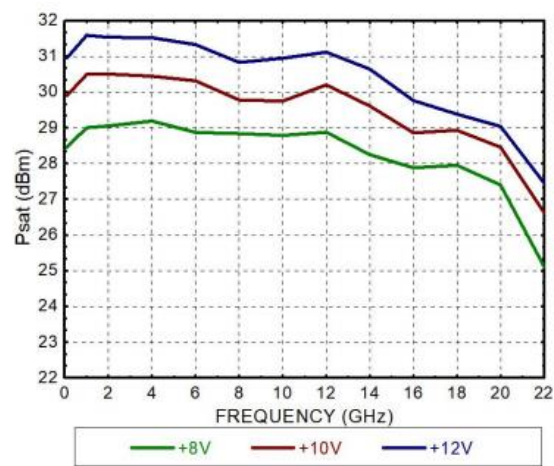
Isolation



P1dB

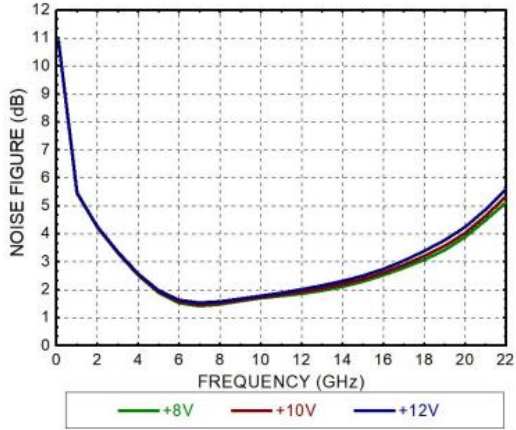


Psat

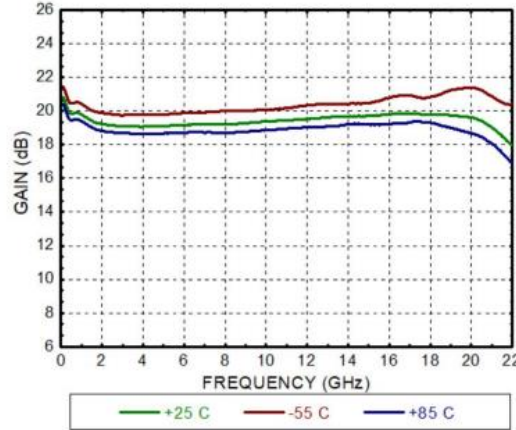




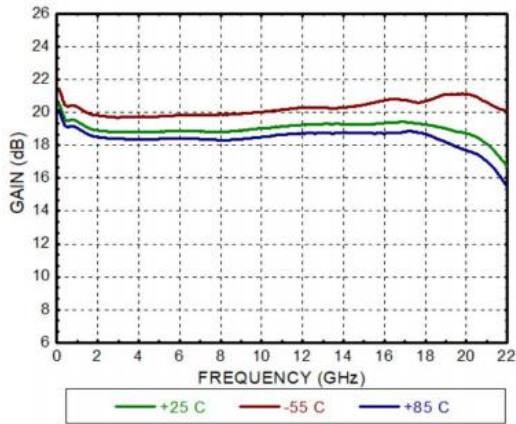
Noise Figure



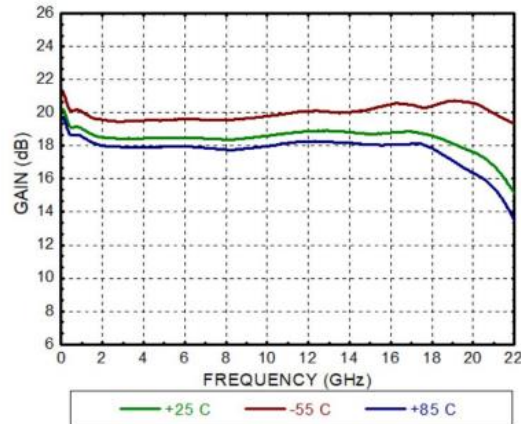
Gain vs. Temperature @ VDD+8V



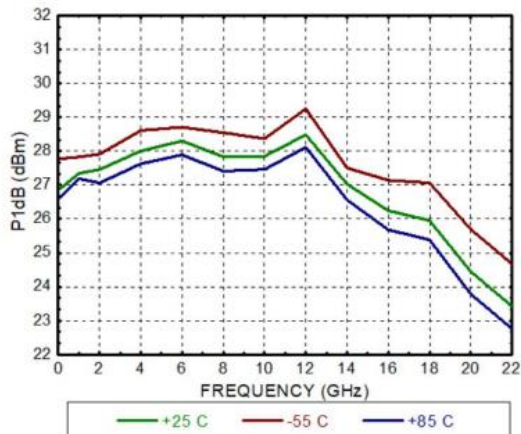
Gain vs. Temperature @ VDD+10V



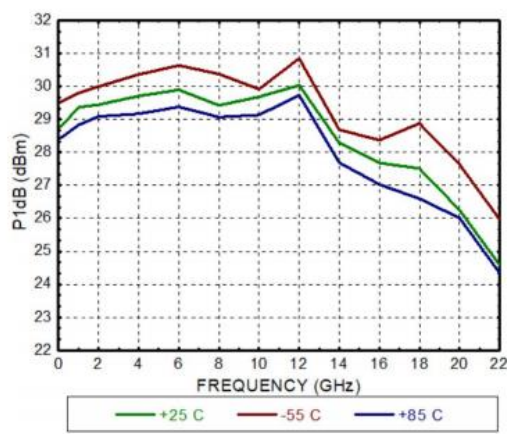
Gain vs. Temperature @ VDD+12V



P1dB vs. Temperature @ VDD+8V

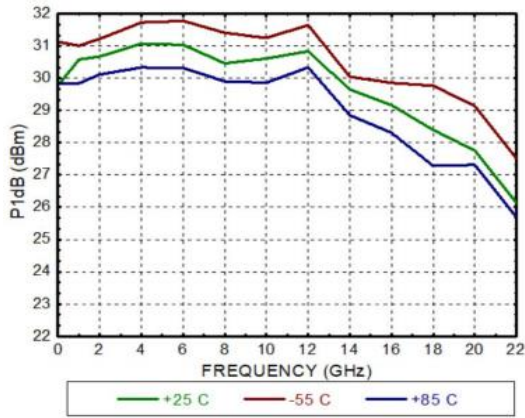


P1dB vs. Temperature @ VDD+10V

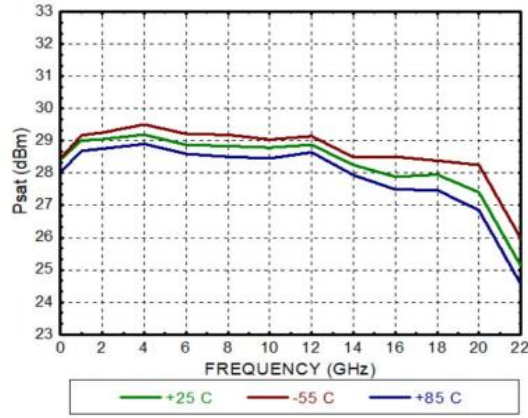




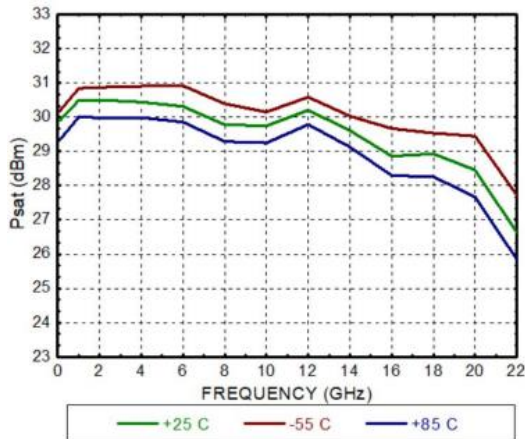
P1dB @ VDD+12V



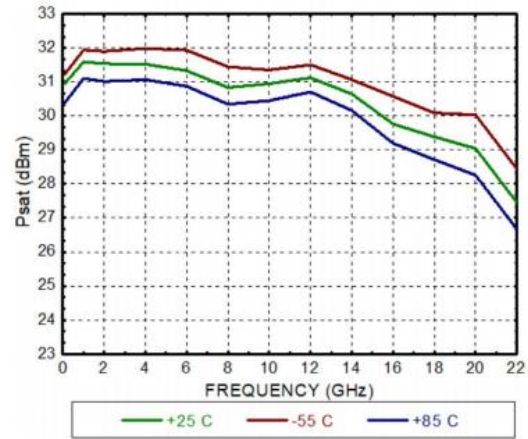
Psat vs. Temperature @ VDD+8V



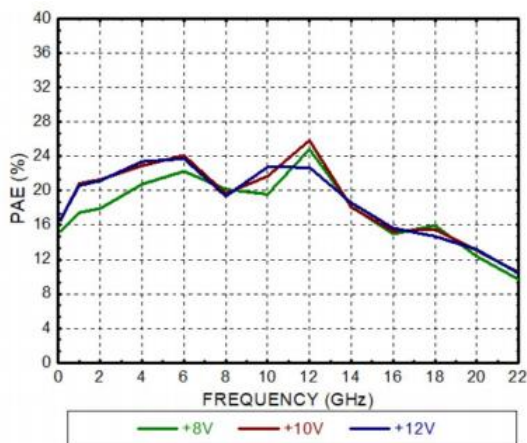
Psat vs. Temperature @ VDD+8V



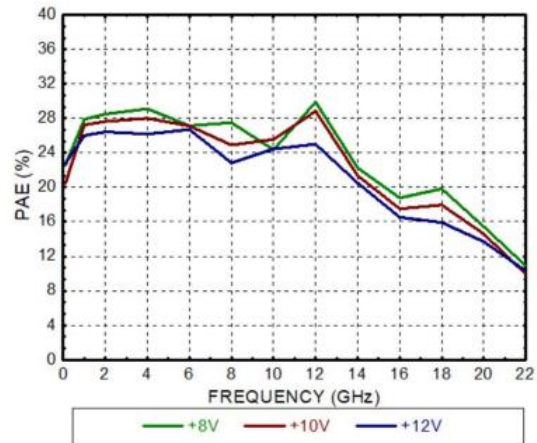
Psat vs. Temperature @ VDD+12V



PAE @ P1dB



PAE @ Psat





Outline Drawing:

All Dimensions in um

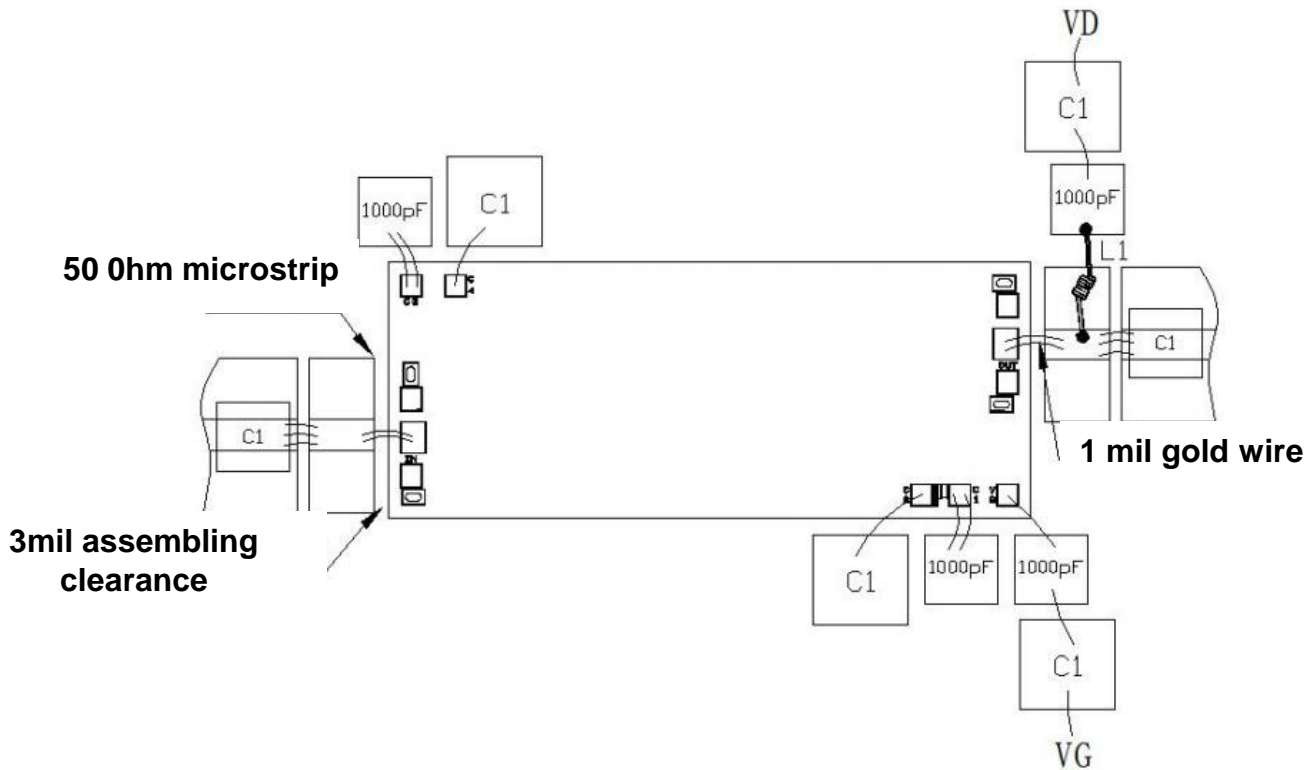


Pad Description

PAD	Function	Description
1	IN	This pad is DC coupling, 50 ohm matched, blocking capacitor required
2	C3	This pad is a low-frequency signal filter that requires an external 1000pF bypass capacitor
3	C4	This pad is a low-frequency signal filter terminal, which needs to be externally bypassed according to the minimum operating frequency of the chip
4	OUT	This pad is DC coupling, 50 ohm matched, broadband tapered inductors and DC-blocking capacitors required
5	VG	The pad provides the gate control voltage for the amplifier and requires external 1000pF and 4.7uF bypass capacitors
6	C1	This pad is a low-frequency signal filter terminal, which needs to be externally bypassed according to the minimum operating frequency of the chip
7	C2	This pad is a low-frequency signal filter terminal, which needs to be externally bypassed according to the minimum operating frequency of the chip
Die Bottom	GND	Die bottom must be connected to RF/DC ground



Assembly Drawing



Capacitor C1, inductor L1 are selected according to the actual minimum operating frequency, and the recommended values are as follows:

	100MHz	10MHz	1MHz	100KHz	10KHz	1KHz
C1	200pF	2000pF	20nF	200nF	2uF	20uF
L1	270nH	2.7uH	27uH	270uH	2.7mH	27mH

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. Power supply voltage: +13V
2. RF input power: +18dBm
3. Operating temperature: -55°C to +85°C
4. Storage temperature: -65°C to +150°C