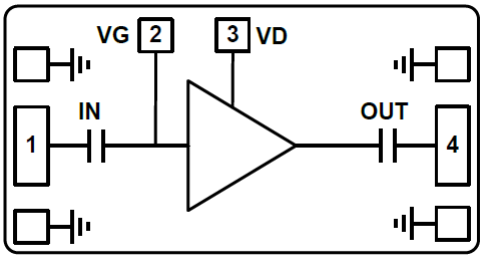
GaAs MMIC
Low Noise Amplifier
2-18GHz

Features

Two operating mode: high power consumption and low power consumption

- Frequency: 2-18GHz
- Noise Figure: 1.0dB
- Gain: 25dB@37mA, 23dB@24mA
- P1dB: 13dBm@37mA, 9.5dBm@24mA
- Power Supply: +5V@37mA, VG is floating
- +5V@24mA, VG connected to GND
- Input/Output: 50Ω
- Die Size: 1.5 x 1.0 x 0.1 mm

Functional Block Diagram

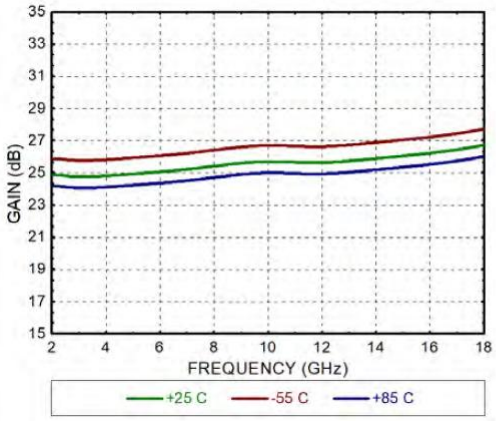


Electrical Specifications

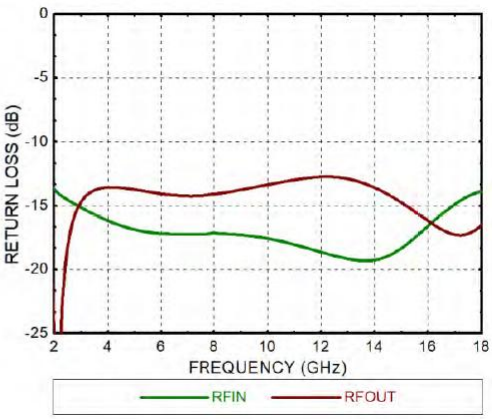
TA = +25ºC, VDD=+5V

Parameters	VG is floating			VG connected to GND			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency		2-18			2-18		GHz
Gain		25			23		dB
Gain Flatness		±0.8			±0.5		dB
Input Return Loss		15			13		dB
Output Return Loss		14			15		dB
Output 1dB Compression (P1dB)		13			9.5		dBm
Psat		15			11.5		dBm
Output IP3		22			18.5		dBm
Noise Figure		1.0			1.0		dB
Operating current	25	37	50	16	24	35	mA

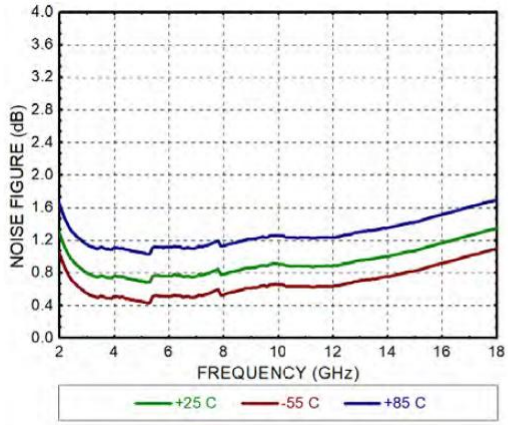
Gain (VG is floating)



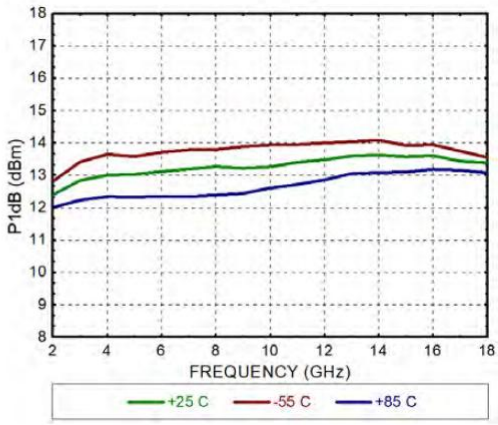
Return Loss (VG is floating)



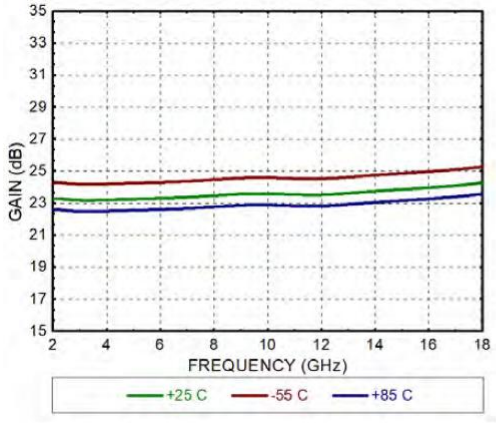
Noise Figure(VG is floating)



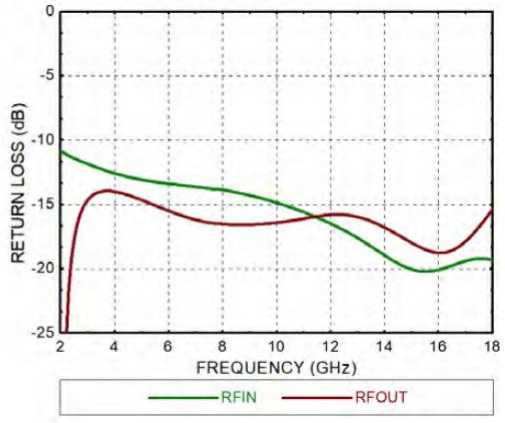
P1dB(VG is floating)



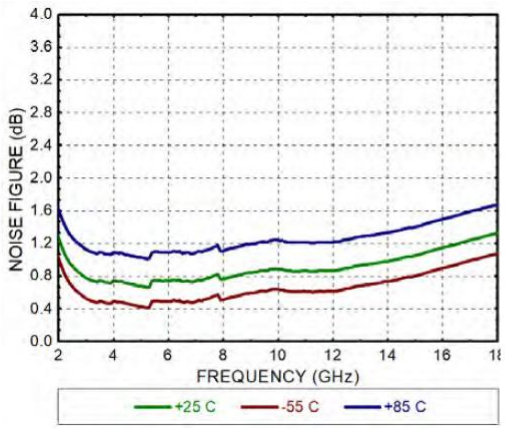
Gain (VG connected to GND)



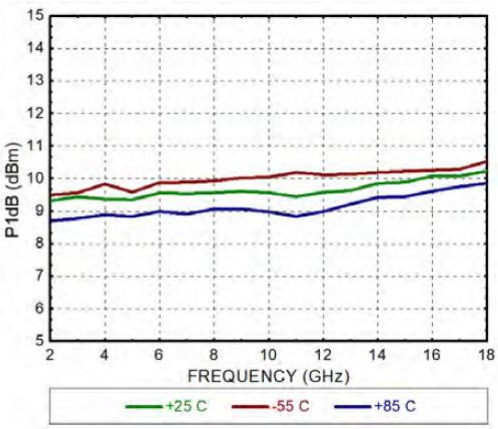
Return Loss (VG connected to GND)



Noise Figure (VG connected to GND)

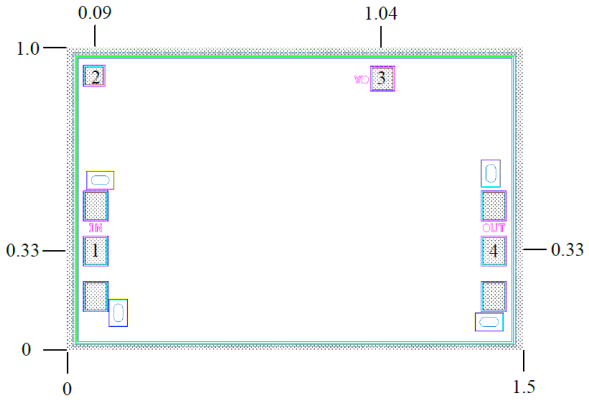


P1dB(VG connected to GND)



Outline Drawing:

All Dimensions in mm

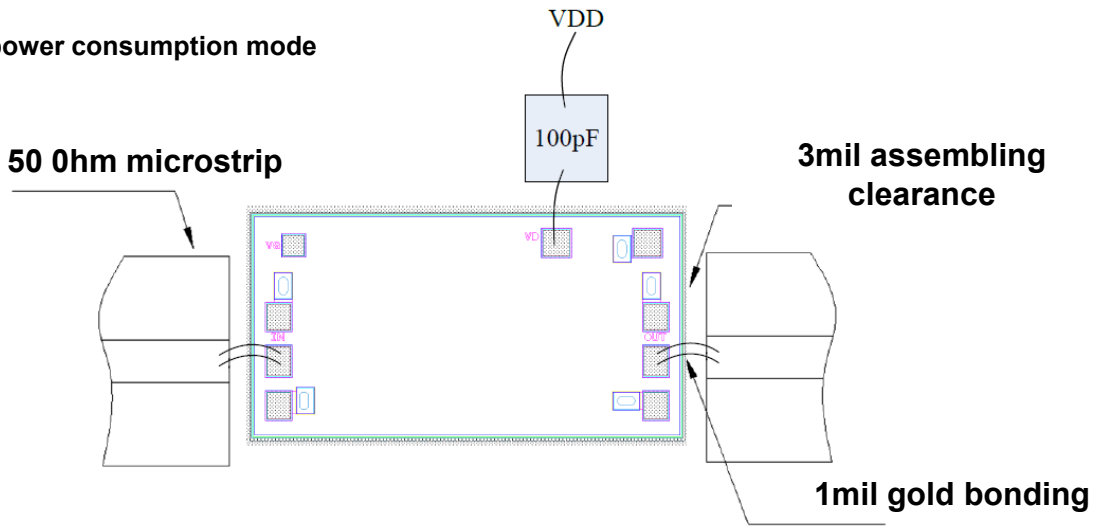


Pad Description

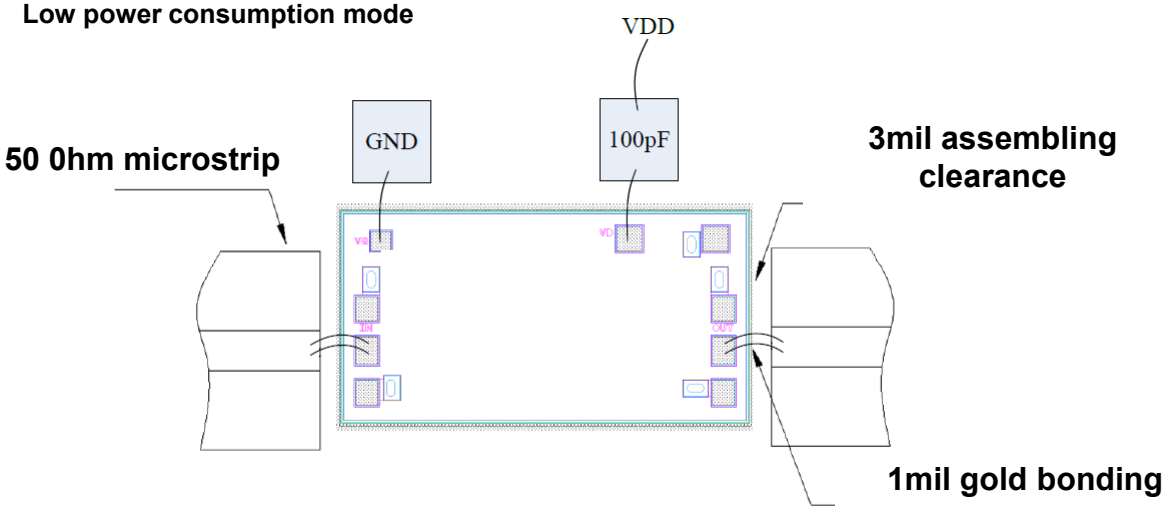
Pad	Function	Description
1	IN	This pad is AC coupling, 50 ohm matched.
2	VG	This pad determines the die's operating mode. When floating, it's high power consumption mode. When connected to RF/DC GND, it's low power consumption mode.
3	VD	This pad provides power supply for the amplifier. It should be connected to extra 100pF 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 mode



Low power consumption mode



Notes:

1. Die thickness: 100um
2. Typical bond pad is 100*80 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: +6V
2. Maximum input power: +15dBm
3. Operating temperature: -55℃ to +85℃
4. Storage temperature: -65℃ to +150℃