MILLER MMIC

MML015

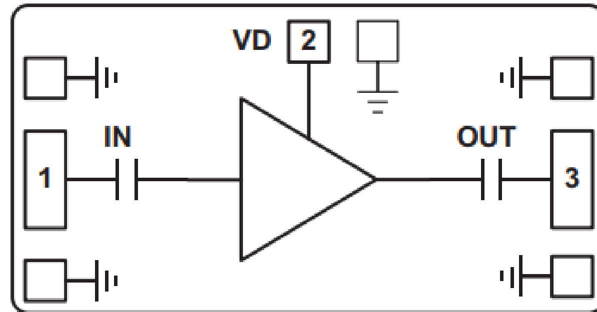
V1.0.0

GaAs pHEMT MMIC
Low Noise Amplifier
16-22GHz

Features

- Noise Figure: 2.5dB
- Gain: 19dB, 3dB Positive Slope
- P1dB: +8.5dBm
- Biasing: +5V @ 11mA
- Impedance: 50Ω
- Die Size: 1.5 x 1.1 x 0.1 mm

Functional Block Diagram



Typical Applications

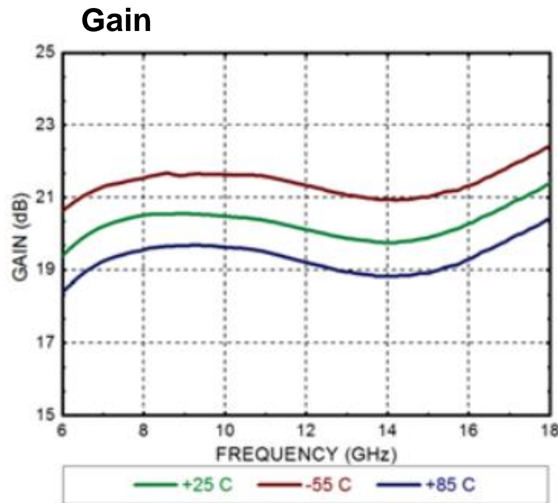
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

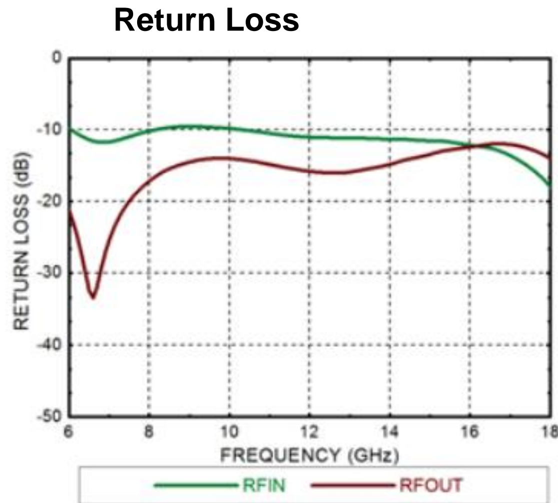
TA = +25°C, Vdd = +5V Idd = 11mA

Parameters	Min.	Typ.	Max.	Units
Frequency		16 - 22		GHz
Gain		19		dB
Gain Flatness		±1.8		dB
Input Return Loss		8		dB
Output Return Loss		10		dB
Output 1dB Compression (P1dB)		8.5		dBm
Saturated Output Power (Psat)		10		dBm
Output Third Order Intercept (IP3)		17		dBm
Noise Figure		2.5		dB
Current	5	11	31	mA

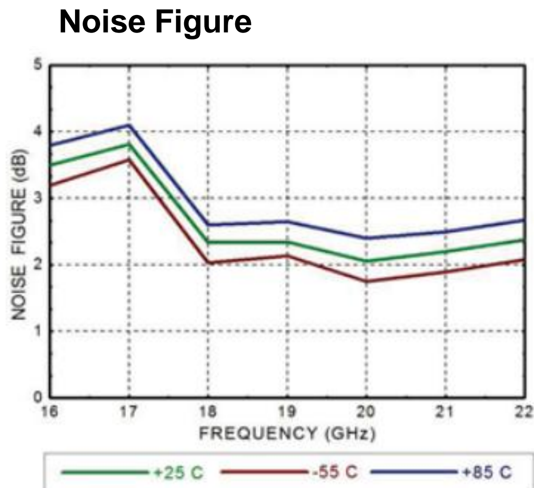
Gain



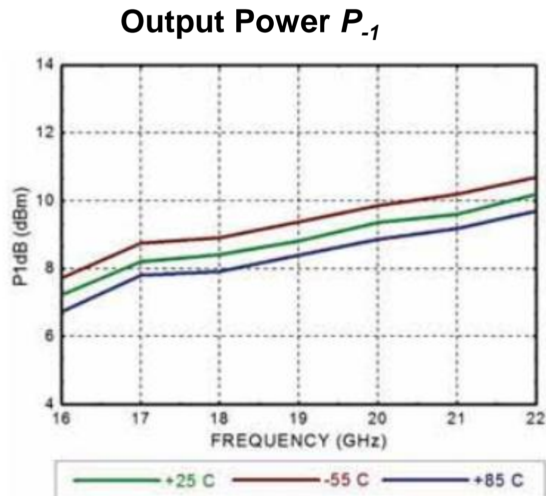
Return Loss



Noise Figure

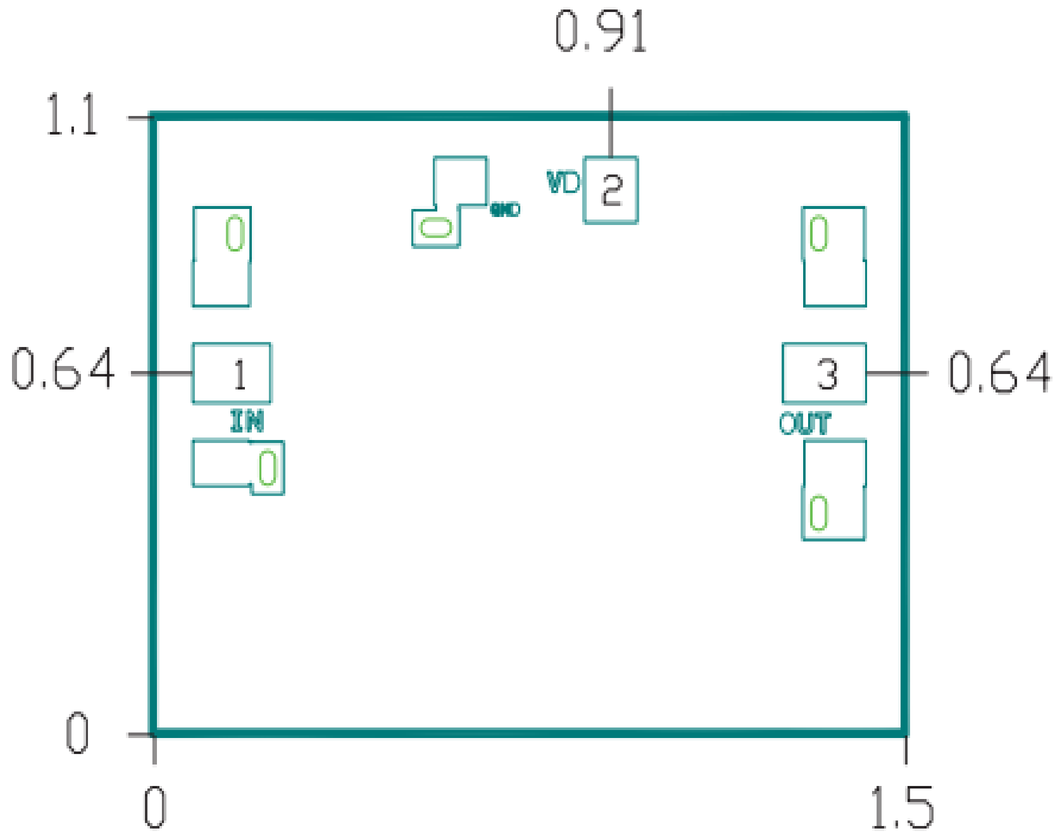


Output Power P_{-1}



Outline Drawing:

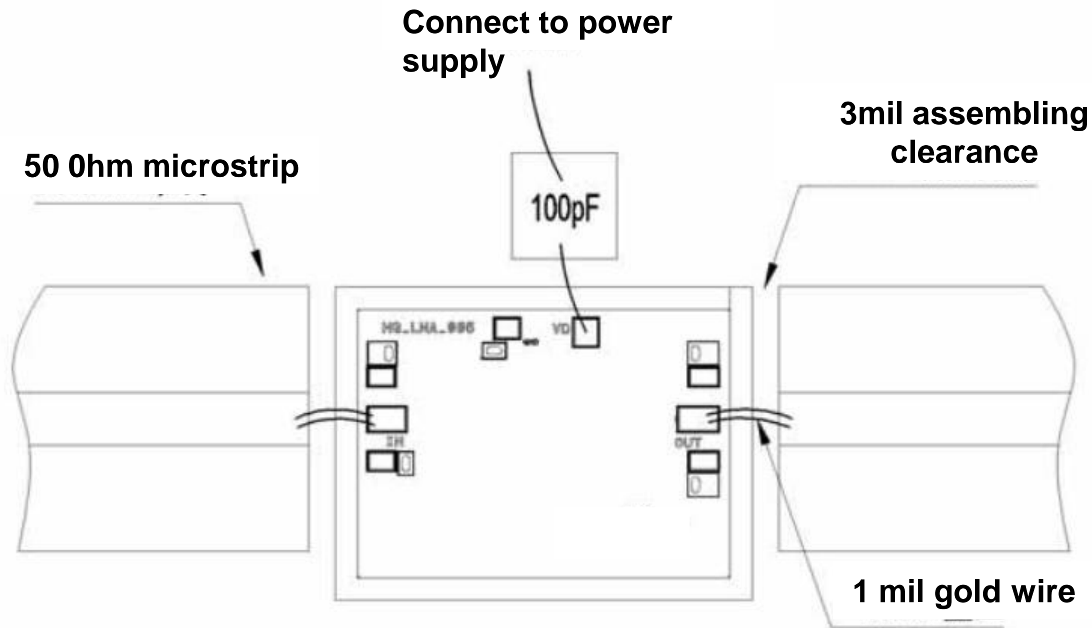
All Dimensions in mm



Pad Description

PAD	Function	Description
1	IN	Input AC coupling 50Ω Impedance.
2	VD	The pad provides the power supply voltage of the amplifier and needs to be externally connected with the 100pF bypass capacitor.
3	OUT	Output AC coupling 50Ω Impedance.
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. Power supply voltage: +6V
2. RF input power: +18dBm
3. Storage temperature: -65℃ to +175℃
4. Operating temperature: -55℃ to +85℃