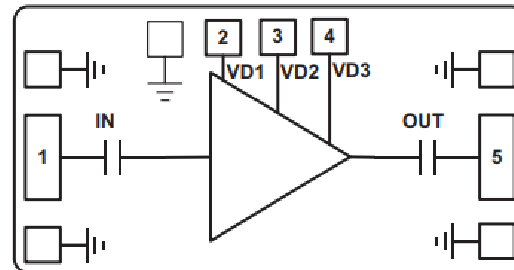
GaAs pHEMT MMIC
Low Noise Amplifier
20-40GHz

Features

- Noise Figure: 3.5dB
- Gain: 20dB
- P1dB: +8dBm
- Biasing +3V @ 38 mA
- Impedance: 50Ω
- Die Size: 2 x 1.3 x 0.1 mm

Functional Block Diagram



Typical Applications

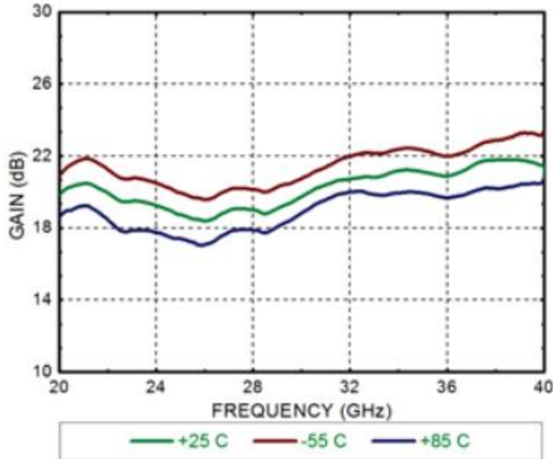
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

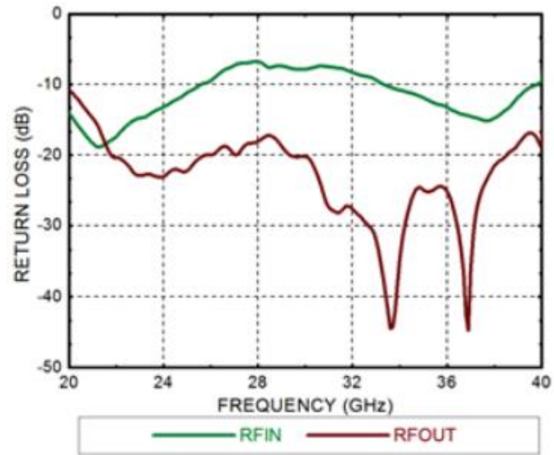
TA = +25ºC, Vdd = +3V Idd = 38mA

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency		20 - 30			30 - 40		GHz
Gain		19			21		dB
Gain Flatness		±1			±1		dB
Input Return Loss		10			10		dB
Output Return Loss		20			20		dB
Output 1dB Compression (P1dB)		8			8		dBm
Saturated Output Power (Psat)		10.5			10.5		dBm
Output Third Order Intercept (IP3)		19			19		dBm
Noise Figure		3.8			3.5		dB
Current	25	38	63	25	38	63	mA

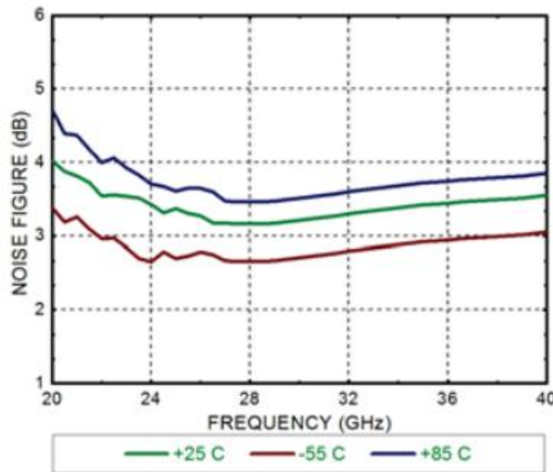
Gain



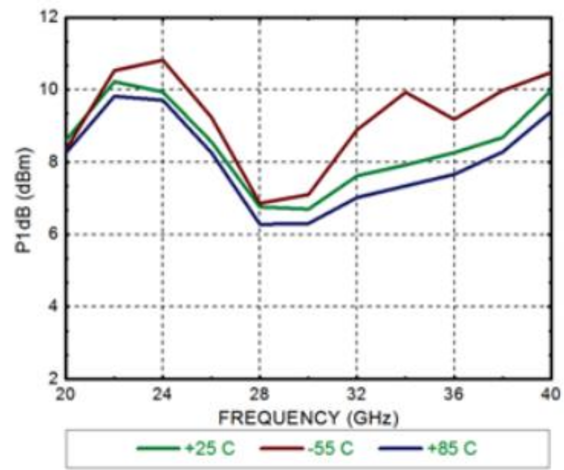
Return Loss



Noise Figure



Output Power P_{-1}



MILLER MMIC

V1.0.0

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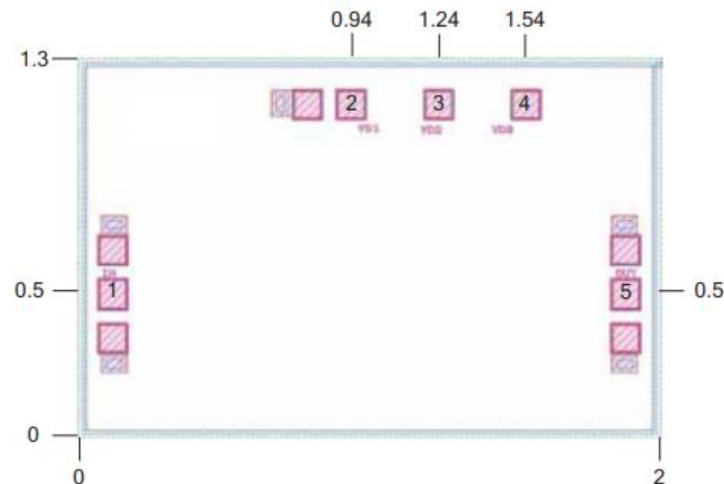
Outline Drawing:

All Dimensions in mm



Pad Description

PAD	Function	Description
1	IN	Input AC coupling 50Ω Impedance
2, 3, 4	VD	This pad provides power supply voltage for the amplifier and requires external 100pF and 0.01uf bypass capacitor.
5	OUT	Output AC coupling 50Ω Impedance
Die Bottom	GND	Die bottom must be connected to RF/DC ground

MILLER MMIC

MML018

V1.0.0

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MML018

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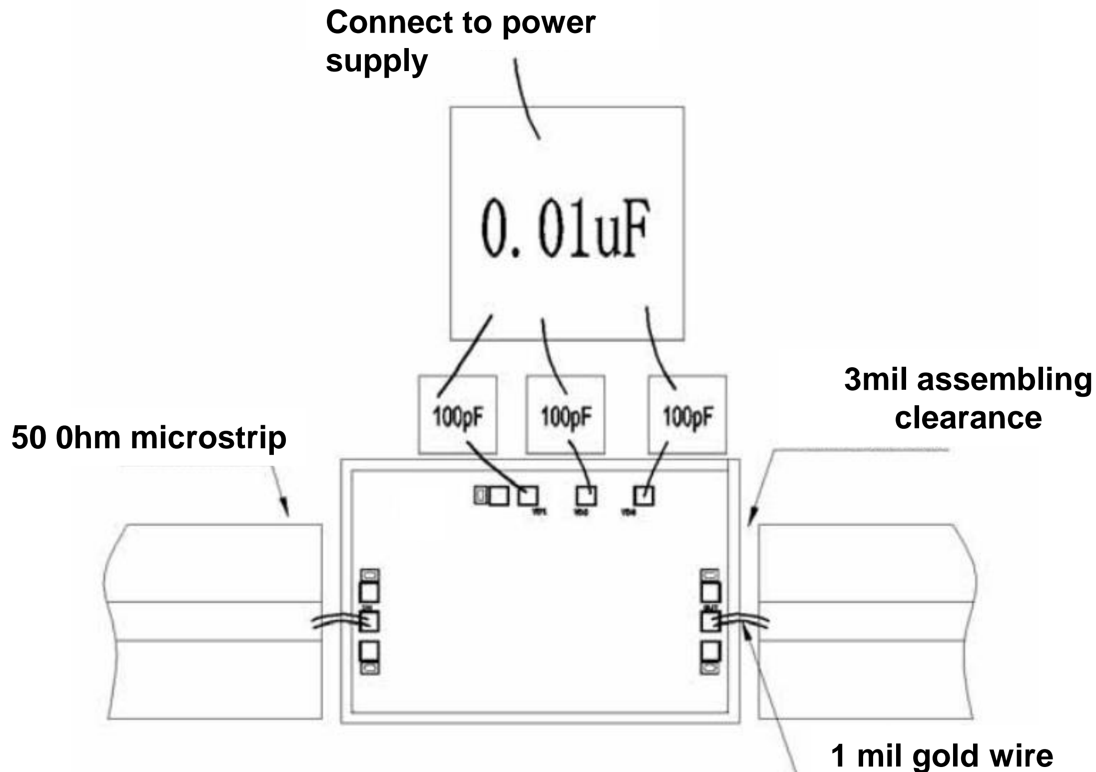
Assembly Drawing



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: +16dBm
3. Storage temperature: -65℃ to +175℃
4. Operating temperature: -55℃ to +85℃