

TM5021

2 - 20 GHz Low Noise Amplifier



Product Features

Low Noise Figure: 2.0 dB down to 2GHz
Self-biased Low DC Supply: +5 V @ 65 mA
No external bias-T required
Gain: 15dB
P1dB: 14.5 dBm
50 Ohm Matched Input/Output
Die size: 3.0 x 1.6 x 0.1 mm

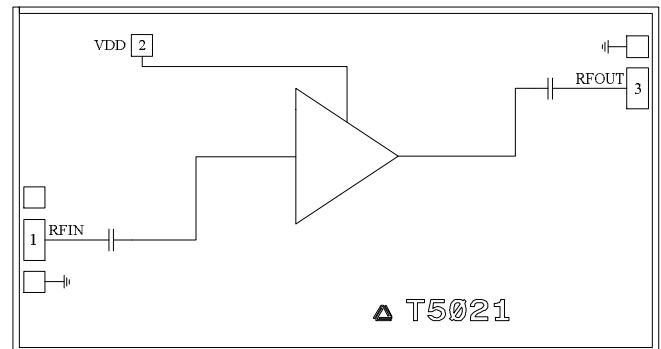
Applications

- Test Instrumentation
- Microwave Radio
- Driver Amplifier
- Fiber Optics
- Compatible with Both Epoxy and Eutectic Die Attachment

General Description

The TM5021 is a GaAs MMIC low noise distributed amplifier which operates from 2 to 20 GHz. It is self-biased and only requires a single supply voltage for VDD. The TM5021 is a 50 ohm matched design with integrated RF choke, which eliminates the need for RF port matching and external bias-T. The die is 4 mil thick and the backside is plated for simultaneous RF and DC ground.

Functional Diagram



Electrical Specifications, VDD = 5.0 V, IDD = 65 mA, TA = 25 °C

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		2 - 10			10 - 20		GHz
Gain		15			14.5		dB
Input Return Loss		-15			-15		dB
Output Return Loss		-15			-15		dB
Output P1dB		15			14		dBm
Saturated Output Power		17.5			16		dBm
Output Third Order Intercept (OIP 3)		27			25		dBm
Noise Figure (NF)		2.5			2.5		dB
Supply Current		65			65		mA

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Absolute Maximum Ratings

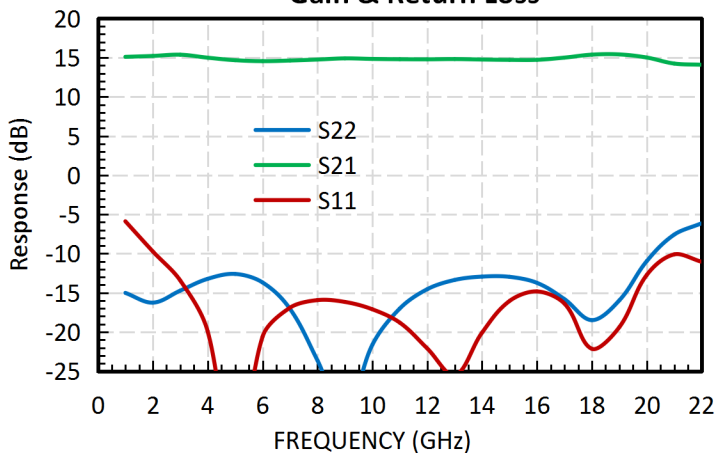
Parameter	Rating
Storage Temperature	-65 to 150 °C
Operating Temperature	-55 to 85 °C
Drain Voltage	+9 V
Channel Temperature	175 °C
Thermal Resistance (Channel to die bottom)	40 °C/W

Recommended Operating Conditions

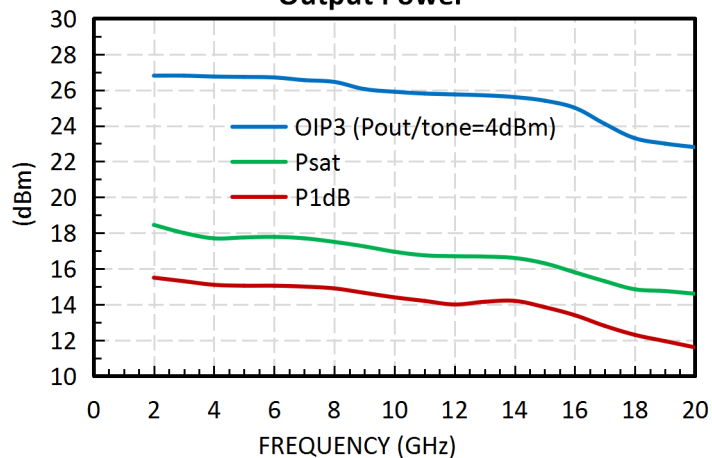
Parameter	Min	Typ	Max	Units
VDD		5		V
IDD		65		mA



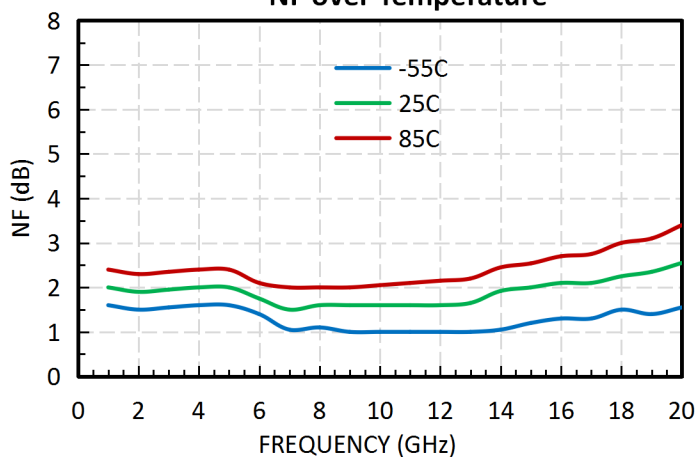
Gain & Return Loss



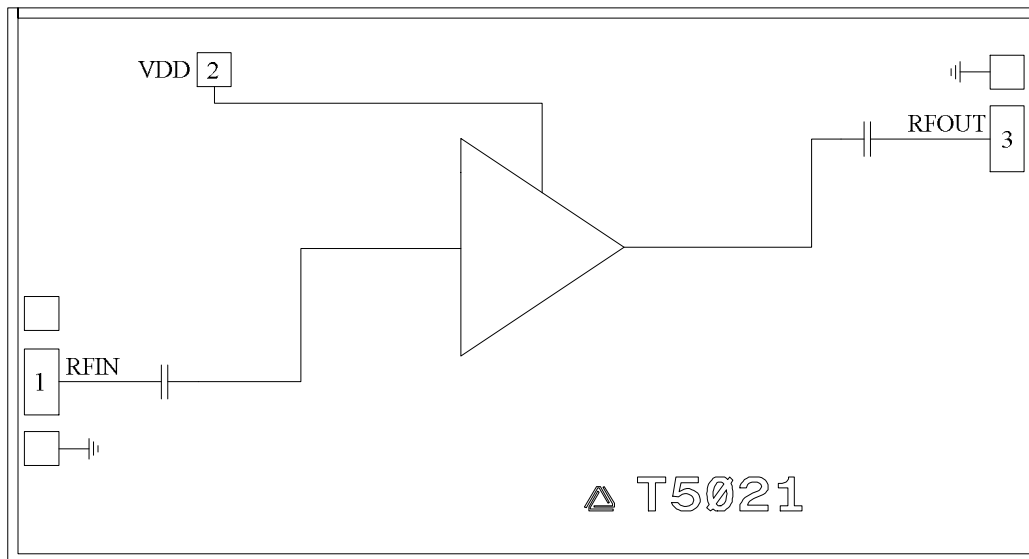
Output Power

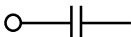
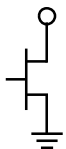
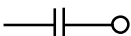


NF over Temperature

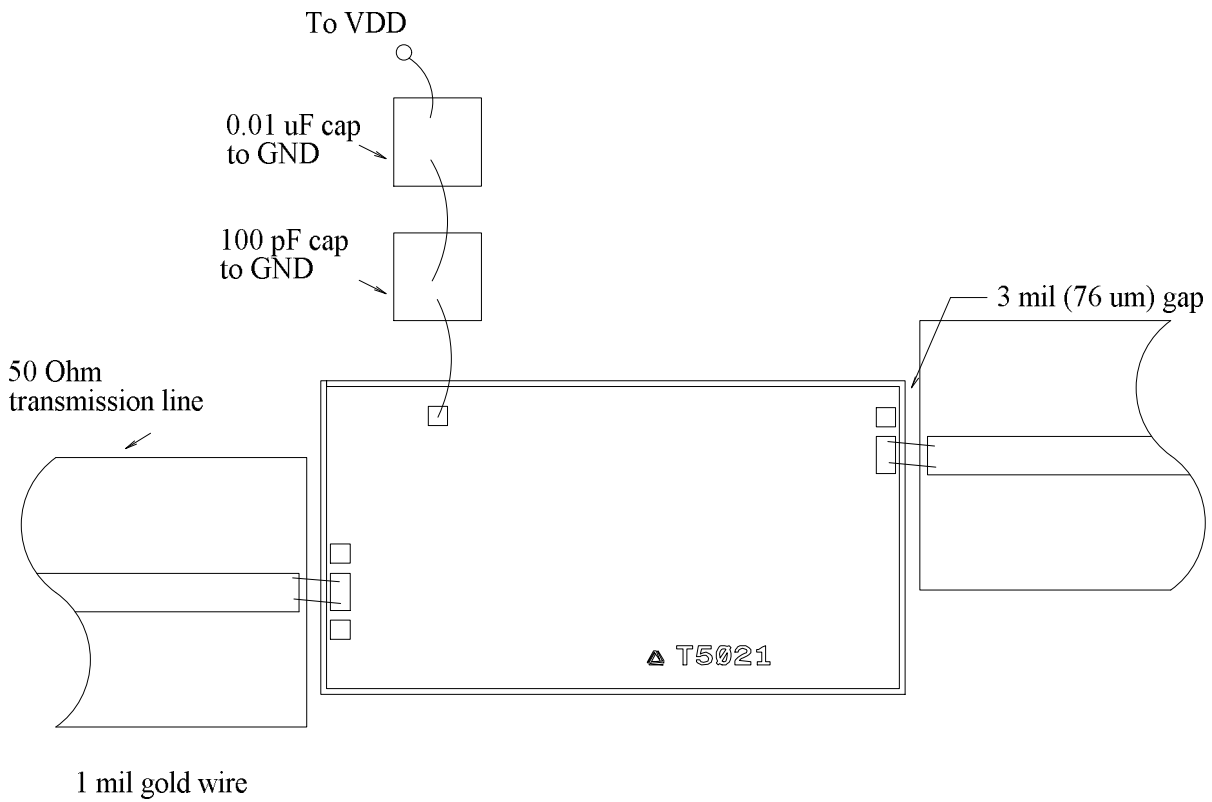


Pin Description



Pad	Function	Description	Interface Schematic
1	RFIN	50 Ohm matched and DC blocked input	
2	VDD	Power supply voltage for the amplifier. External bypass capacitors are required	
3	RFOUT	50 Ohm matched and DC blocked output	

Assembly Diagram



Application Circuit

