

TM5029

2 - 20 GHz Power Amplifier



Product Features

High output power 1/2 W
 Gain: 16dB
 Low NF even at band edges
 DC Supply: +8 V @ 300 mA
 50 Ohm Matched Input/Output
 Die size: 2.97 x 1.56 x 0.1 mm

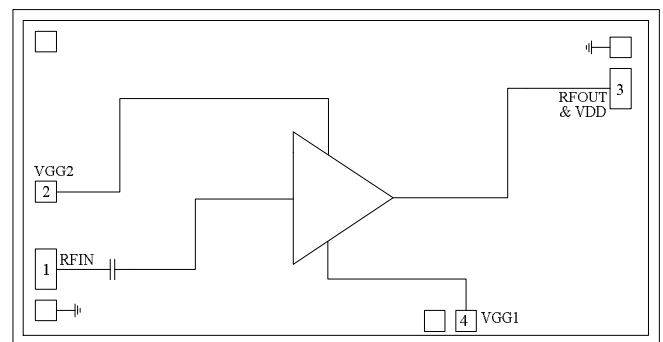
Applications

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

General Description

The TM5029 is a GaAs MMIC distributed power amplifier which operates from 2 to 20 GHz. The saturated output power is about 1/2 W. The TM5029 is a 50 ohm matched design which eliminates the need for RF port matching. The die is 4 mil thick and the backside is plated for simultaneous RF and DC ground.

Functional Diagram



Electrical Specifications, VDD = 8.0 V, VGG2 = 3 V, T_A = 25 °C

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		2 - 10			10 - 20		GHz
Gain		16			15		dB
Input Return Loss		-15			-15		dB
Output Return Loss		-15			-12		dB
Output P1dB		26.5			25		dBm
Saturated Output Power		28			26.5		dBm
Output Third Order Intercept (OIP 3)		32			27		dBm
Noise Figure (NF)		3.5			4.5		dB
Supply Current		300			300		mA

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Absolute Maximum Ratings

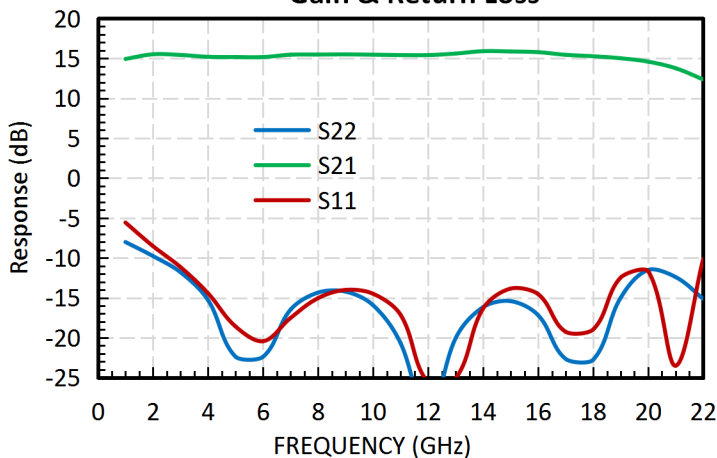
Parameter	Rating
Storage Temperature	-65 to 150 °C
Operating Temperature	-55 to 85 °C
Drain Voltage	+9 V
Gate Voltage VGG1	-2 to 0 V
Gate Voltage VGG2	(VDD-8) to VDD
Channel Temperature	175 °C
Thermal Resistance (Channel to die bottom)	23 °C/W

Recommended Operating Conditions

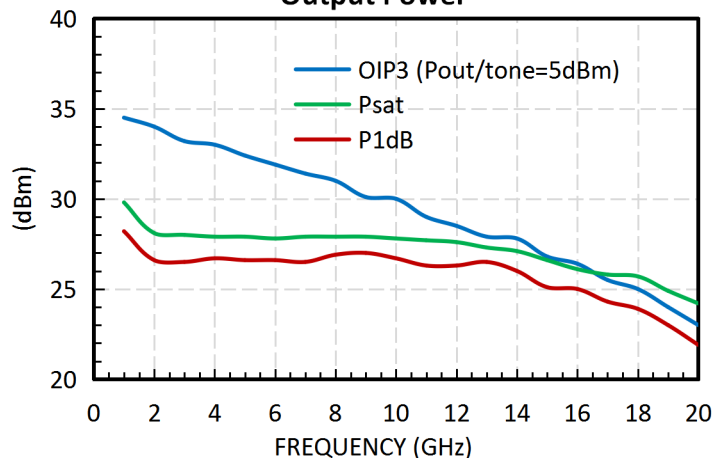
Parameter	Min	Typ	Max	Units
VDD		8		V
IDD		300		mA



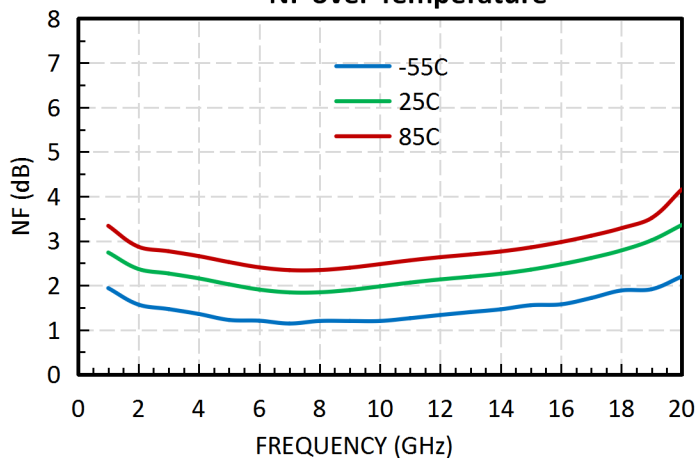
Gain & Return Loss



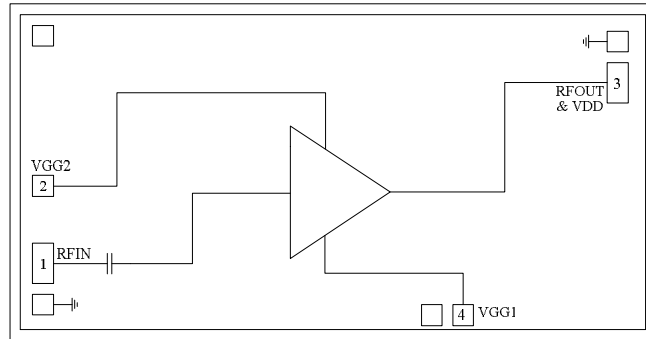
Output Power

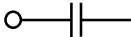
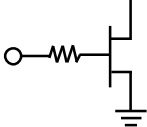
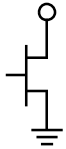
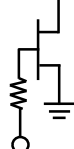


NF over Temperature

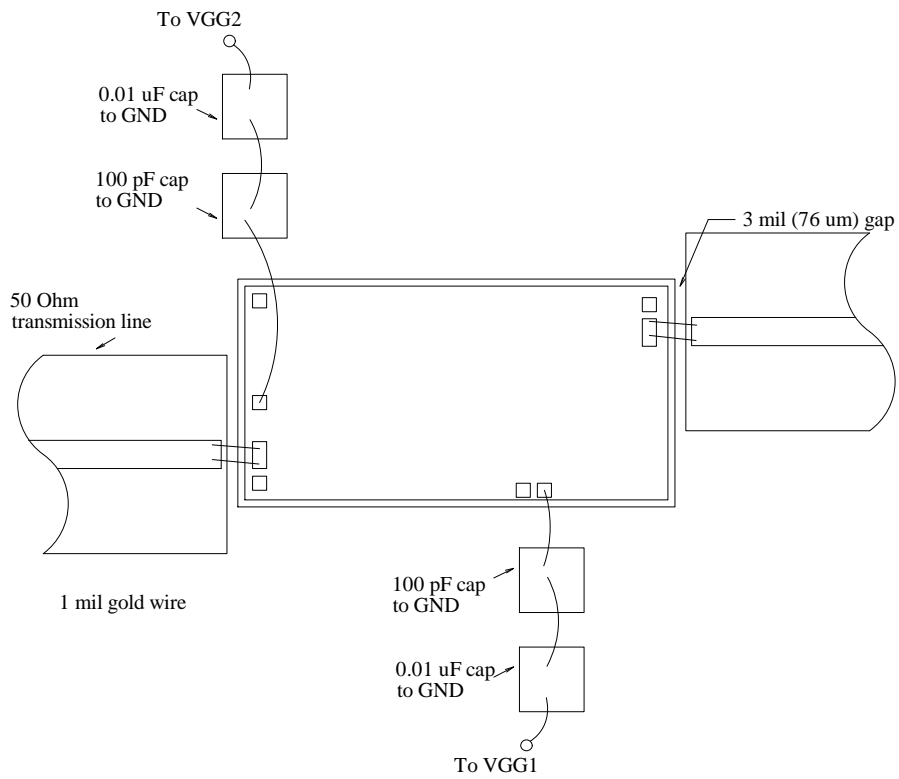


Pin Description



Pad	Function	Description	Interface Schematic
1	RFIN	50 Ohm matched and DC blocked input	
2	VGG2	Gate control 2 for amplifier. Recommended voltage is 3V	
3	RFOUT & VDD	50 Ohm matched output. External bias-T required per application circuit	
4	VGG1	Gate control 1 for amplifier. Adjust this voltage for the desired IDD.	

Assembly Diagram



Application Circuit

