

# TM5059

## 0.2 - 22 GHz 1 Watt Power Amplifier



### Product Features

High P1dB: +27dBm  
Self-biased. Only need a single DC supply  
DC Supply: +10 V @ 350 mA  
Gain: 13.5 dB  
50 Ohm Matched Input/Output  
Die size: 2.97 x 1.6 x 0.1 mm

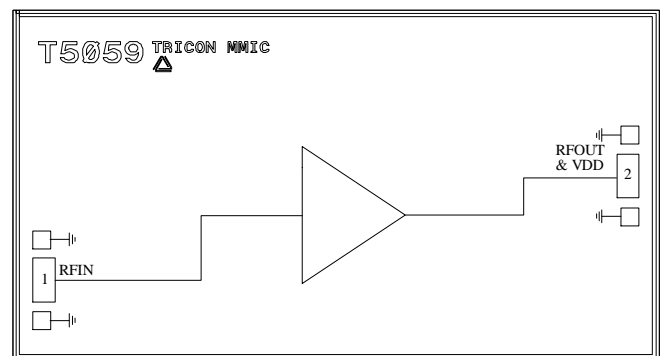
### General Description

The TM5059 is a GaAs MMIC distributed amplifier which operates from 0.2 to 22 GHz. It is self-biased and only requires a single supply voltage for VDD. The TM5059 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.

### Applications

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

### Functional Diagram



### Electrical Specifications, VDD = 10 V, IDD = 350 mA, TA = 25 °C

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.2 - 10			10 - 22		GHz
Gain		13			13.5		dB
Input Return Loss		-15			-10		dB
Output Return Loss		-15			-15		dB
Output P1dB		26			27		dBm
Saturated Output Power		29			30		dBm
Output Third Order Intercept (OIP 3)		38			36		dBm
Noise Figure (NF)		4.5			4.5		dB
Supply Current		350			350		mA

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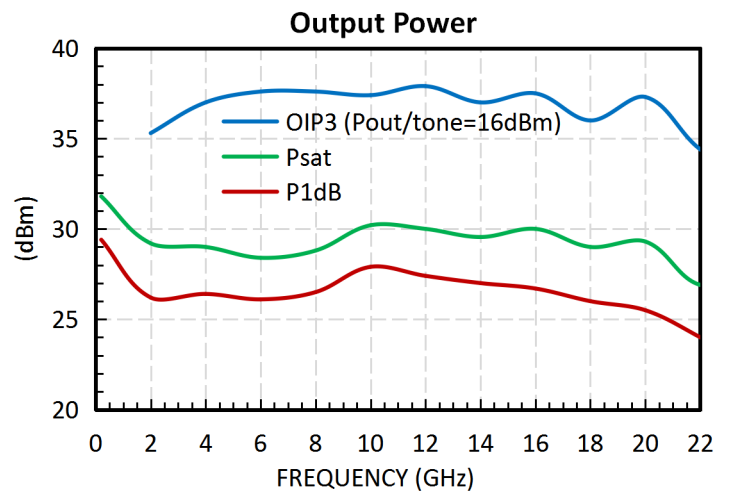
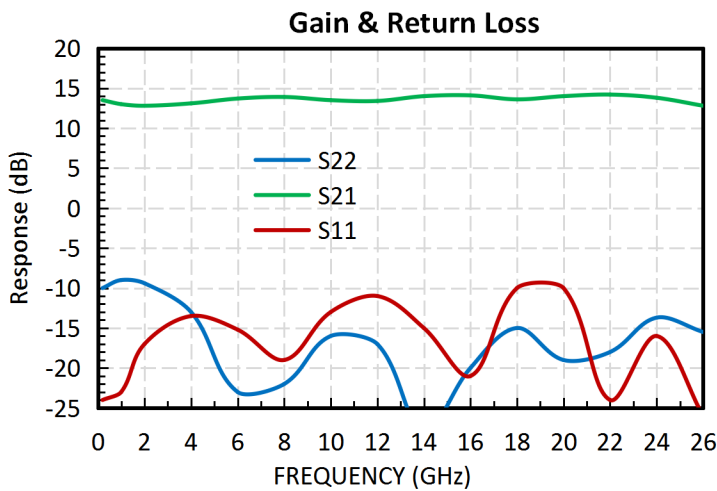


### Absolute Maximum Ratings

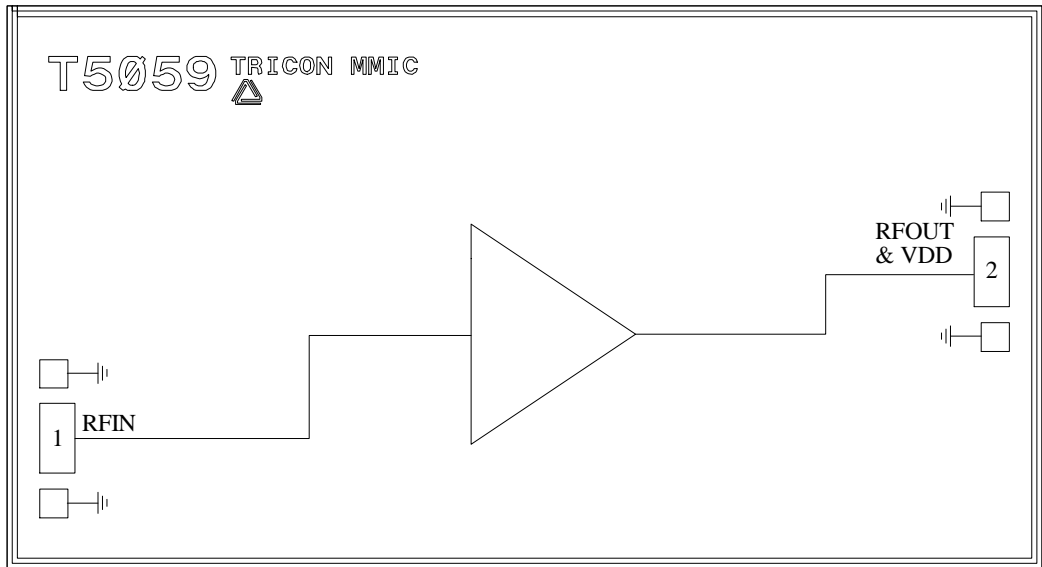
Parameter	Rating
Storage Temperature	-65 to 150 °C
Operating Temperature	-55 to 85 °C
Drain Voltage	+12 V
Channel Temperature	175 °C
Thermal Resistance (Channel to die bottom)	16 °C/W

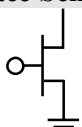
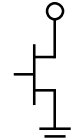
### Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
VDD		10		V
IDD		350		mA



### Pin Description



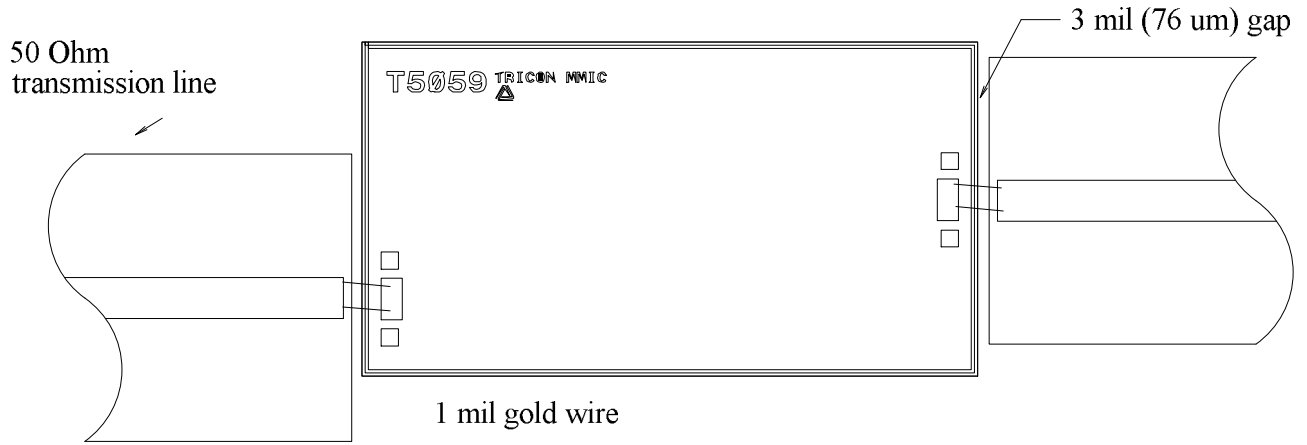
Pad	Function	Description	Interface Schematic
1	RFIN	50 Ohm matched and DC coupled input	
2	RFOUT & VDD	50 Ohm matched output and supply voltage. External bias-T required per application circuit.	

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## Assembly Diagram



## Application Circuit

