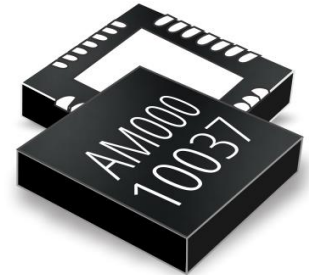


## DESCRIPTION

AMCOM's AM00010037WN is a broadband GaN MMIC power amplifier. It has 13dB gain, and 37 dBm output power over the DC to 10GHz band. The MMIC is packaged in QFN 6 x 6 mm package with coplanar RF, DC, and RG ground for SMT assembly. MMIC ground pad should be placed over multiple vias to provide proper RF ground and good heat sinking. The package is RoHS compliant. This MMIC is matched to 50 Ohms.



## FEATURES

- Ultra-Broadband from DC to 10GHz
- Saturated output power  $P_{sat}$  is 37dBm
- Gain, 13dB
- Input & output matched to 50 Ohms

## APPLICATIONS

- Instrumentation
- Commercial telecom equipment
- Fixed microwave backhubs

## TYPICAL PERFORMANCE \* (Recommended bias condition)

**Bias Conditions\*\*:**  $V_{ds} = 28V$ ,  $I_{ds} = 300mA$ ,  $V_{gs} = -2V$

Parameters	Minimum	Typical **	Maximum
Frequency	0.5 – 10 GHz	DC – 10 GHz	
Small Signal Gain	10dB	13dB	
Gain Ripple		± 1.5dB	± 3.0dB
P1dB	-	30dBm	
P5dB	34dBm	36dBm	
P5dB PAE		22%	
P5dB Drain Efficiency		25%	
NF (1-9 GHz)		5	
Input Return Loss	8 dB	11 dB	
Output Return Loss	5 dB	12 dB	
Thermal Resistance		TBD	

\* Specifications subject to change without notice

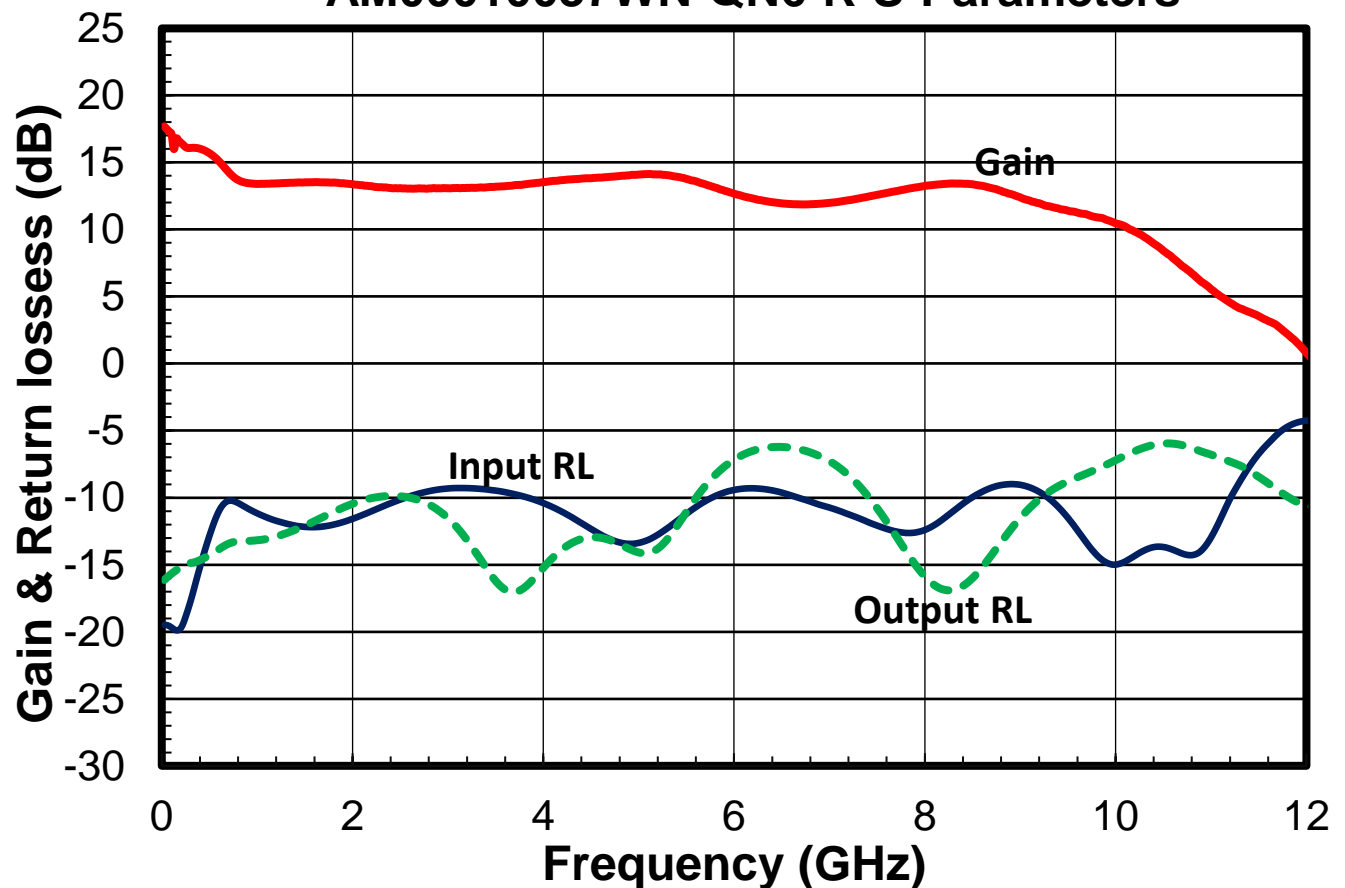
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## ABSOLUTE MAXIMUM RATING

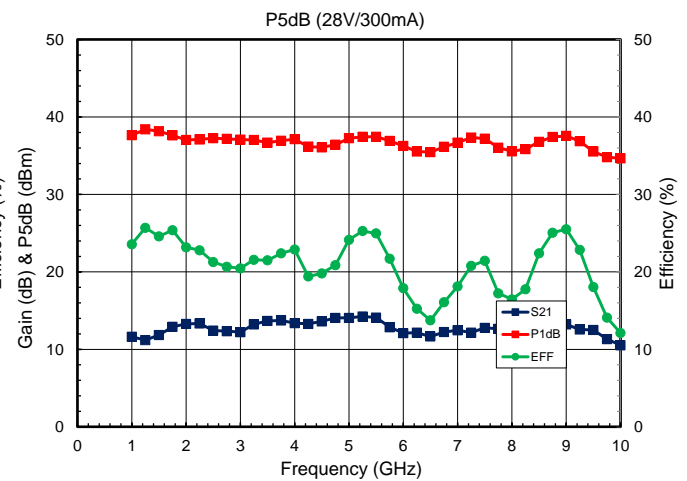
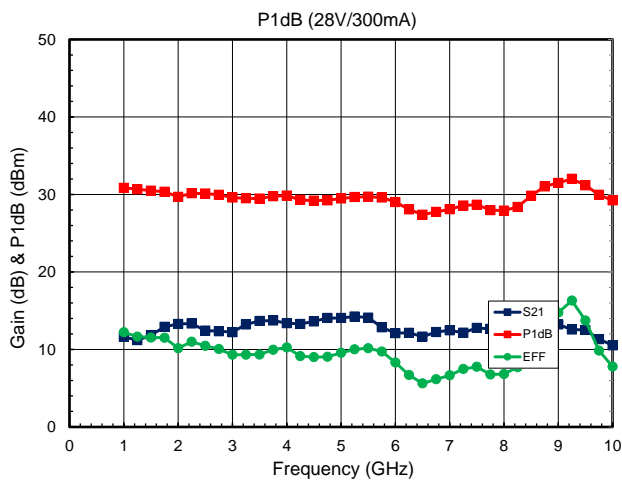
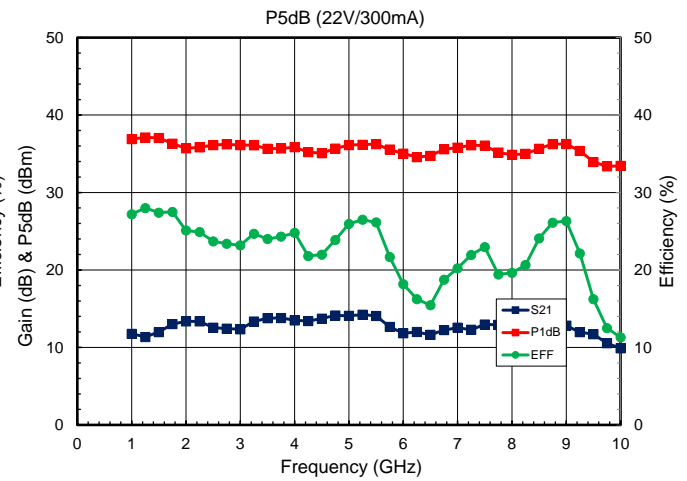
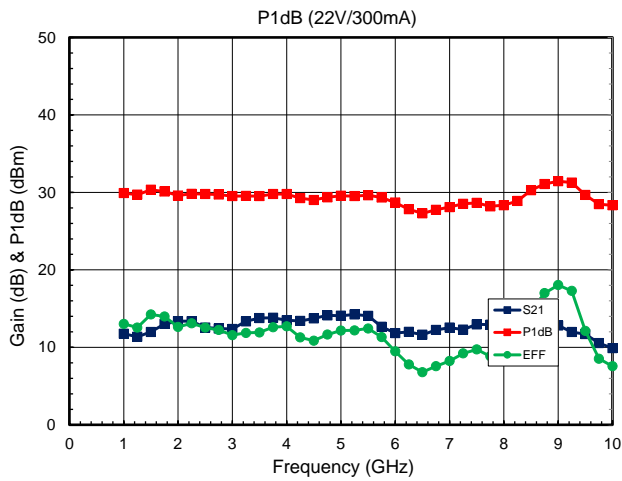
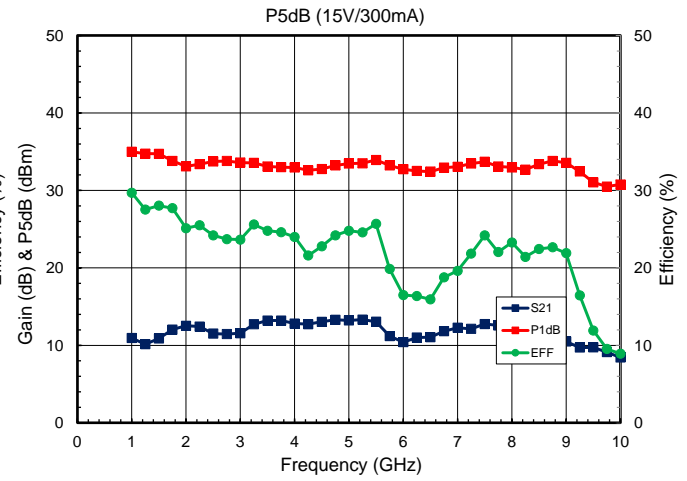
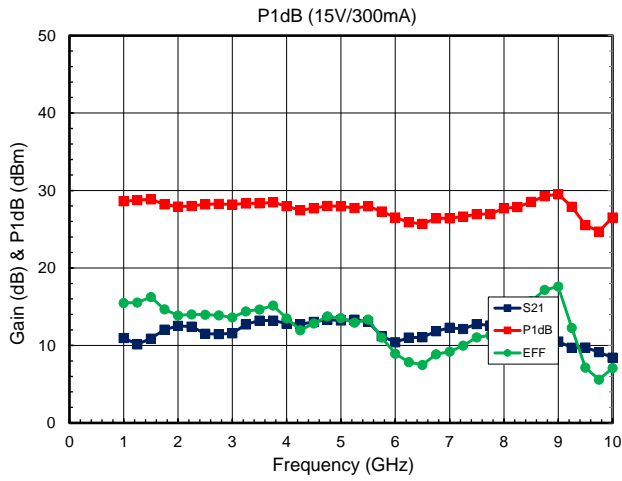
Parameters	Symbol	Rating
Drain voltage	$V_{ds1}$	30V
Gate voltage	$V_{gs}$	-6V
Drain source current	$I_{dsq}$	0.5A
Continuous dissipation at 25°C	$P_t$	15W
Channel temperature	$T_{ch}$	200°C
Operating temperature	$T_{op}$	-55°C to +85°C
Storage temperature	$T_{sto}$	-55°C to +135°C

## SMALL SIGNAL DATA\*

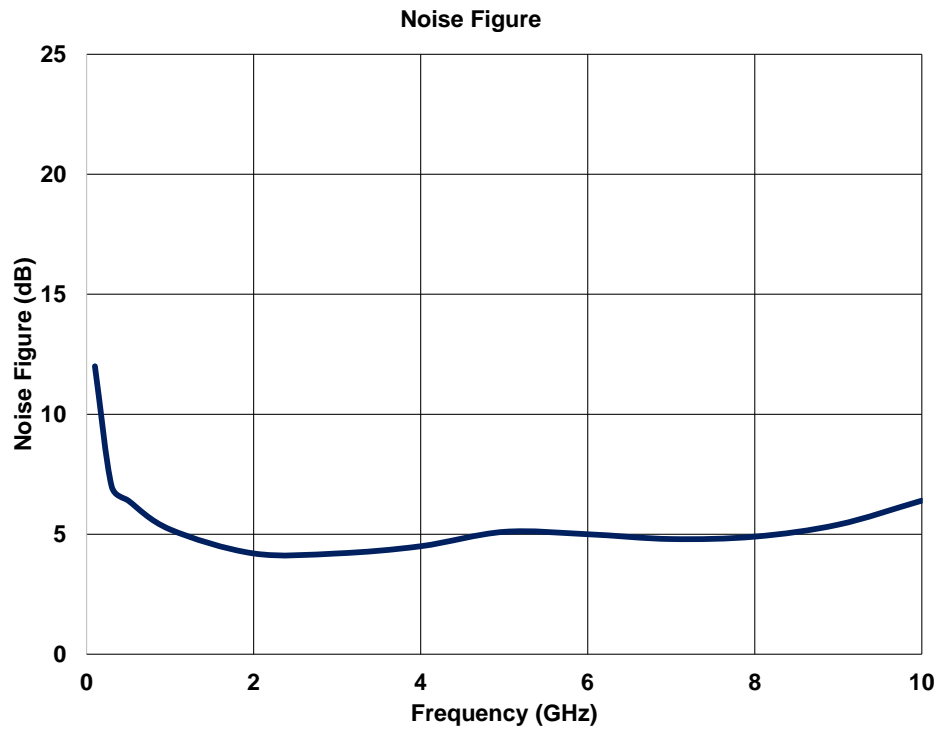
## AM00010037WN-QN6-R S-Parameters



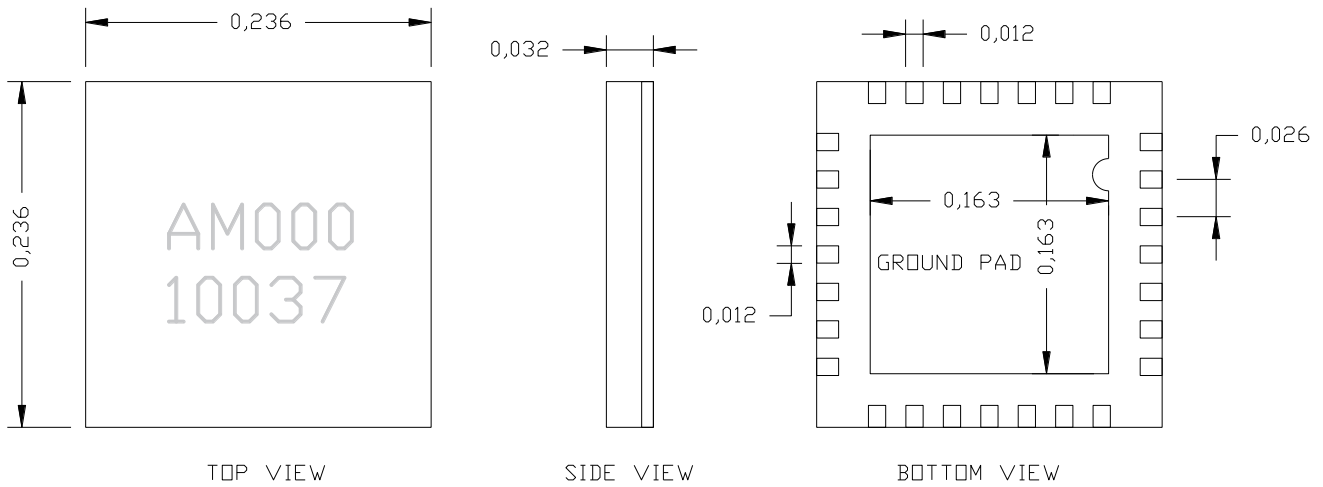
POWER DATA



NOISE FIGURE

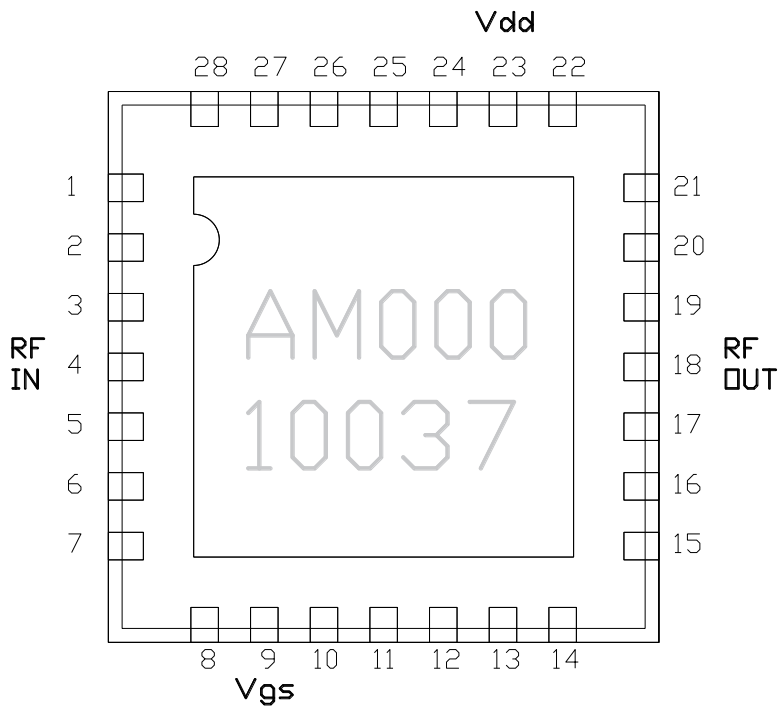


**PACKAGE OUTLINE**



Dimensions in inch

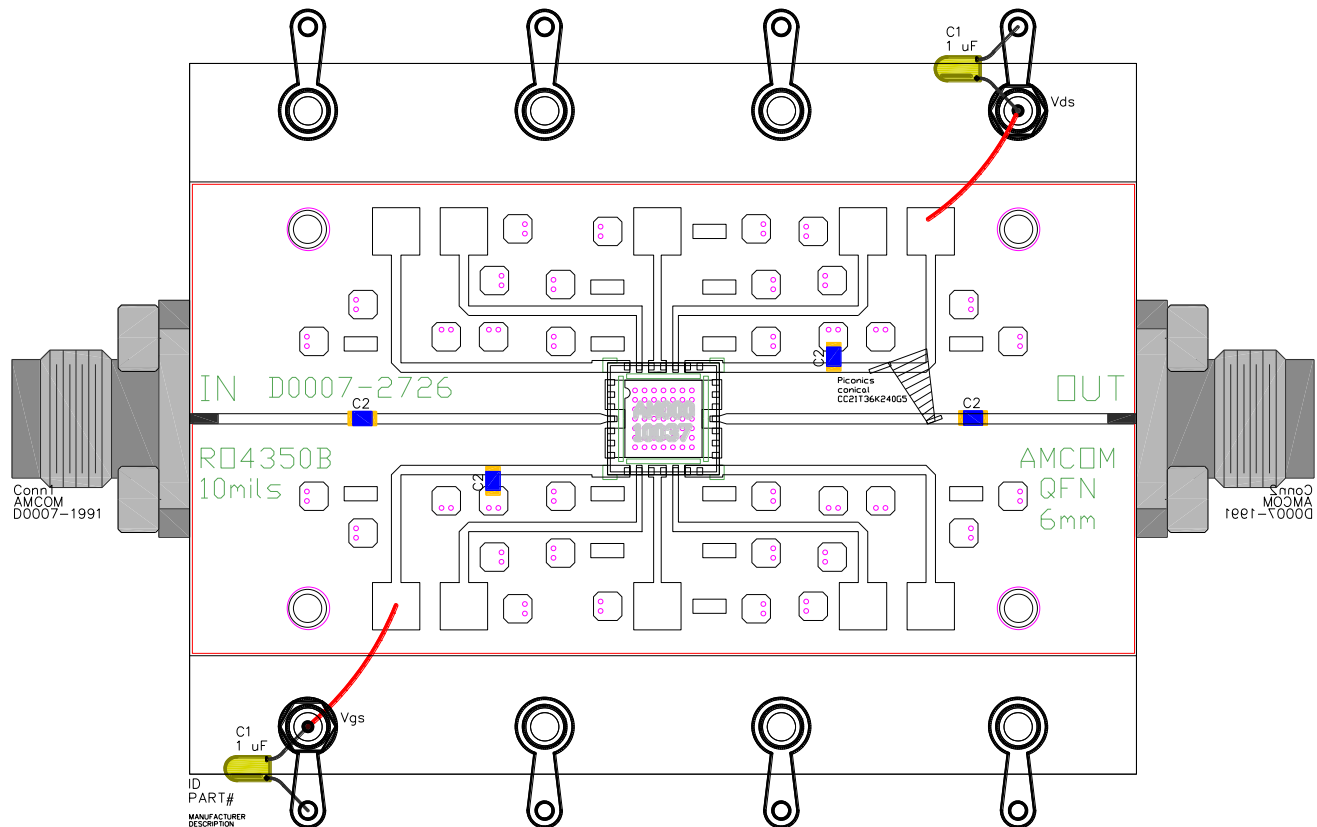
**Pin Layout**



Pin No.	Function	Bias
4	RF in & Vgs	-2.0V
9	Vgs	-2.0V
18	RF out & Vds	+28V
23	Connect Caps	Bias
All other PINs	NC	

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## TEST CIRCUIT

**Notes:**

- 1- Use epoxy to mount PCB
- 2- C1=1uF, C2=1000pF
- 3- All SMT Caps & Resistors are 0603 size
- 4- Use Test Block No. D0007-1131
- 5- Use AMCOM K-Connector P/N D0007-1991
- 6- Use Piconics conical CC21T36K240G5

**Important Notes:**

- 1- For best RF performance we recommend using 4mil indium shim between MMIC package and heatsink
- 2- Recommended current bias is 300mA. Gate biases of -2V is for reference only.  $V_{gs}$  could be adjusted to vary the current going thru the MMIC.
- 3- Do not apply  $V_{dd}$  without proper negative voltages on  $V_{gs}$ . Otherwise MMIC would fail due to excess heat.
- 4-  $V_{ds}$  is applied through the output RF port using bias tee and similarly  $V_{gs}$  is applied using a bias tee on the input RF port. Alternatively,  $V_{gs}$  could be applied on PIN 5 as shown above.
- 5- Need to connect Bias tee to Both Input and Output RF connectors.