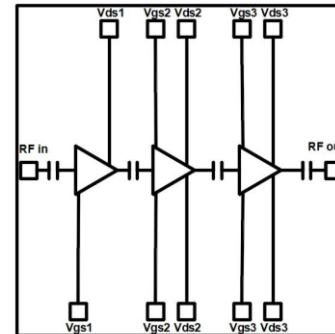




## DESCRIPTION

AMCOM's AM206041WN-00 is a broadband GaN MMIC power amplifier (Bare Die). It has > 30dB gain, and > 41 dBm output power over the 1.75 to 6.5GHz band. MMIC is input & output Matched to 50 Ohms.



## FEATURES

- Broadband from 1.75 to 6.5GHz
- Saturated output power Psat is 43dBm
- High gain, 26dB
- Input & output matched to 50 Ohms

## APPLICATIONS

- Instrumentation
- Commercial telecom transmission equipment
- Fixed microwave backhaul

## TYPICAL PERFORMANCE \*

Chip Data (AM206041WN-00)

Parameters	Minimum	Typical **	Maximum
Frequency	2.0 – 6.0GHz	1.75 – 6.5GHz	
Small Signal Gain	29dB	33dB	36dB
Gain Ripple		± 1dB	± 3.0dB
P1dB	34dBm	38dBm	
Psat	39dBm	42dBm	
Psat Efficiency		27%	
Noise Figure		TBD	
IP3 dBm		47.5	
Input Return Loss	10dB	15dB	
Output Return Loss	4dB	8dB	
Thermal Resistance		TBD	

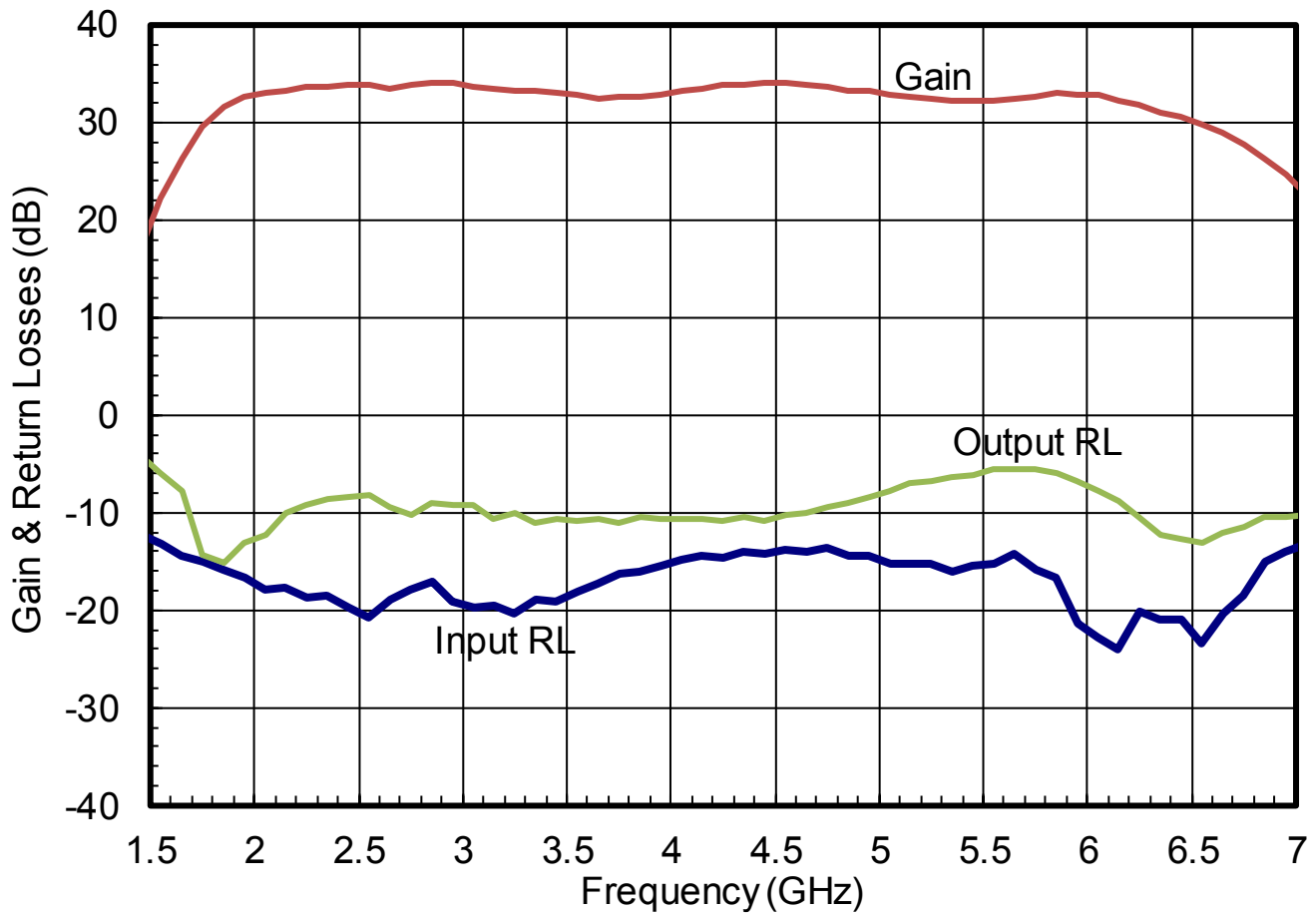
\* Specifications subject to change without notice.

\*\* Bias Conditions:  $V_{ds1} = V_{ds2} = +28V$ ,  $I_{dsq1} + I_{dsq2} = 0.6A$ ,  $V_{gs1}$  &  $V_{gs2} = -2.0V$ ,  $V_{ds3} = +28V$ ,  $I_{dsq3} = 0.9A$ ,  $V_{gs3} = -2.0V$   
Gate biases may change from chip to chip to get the specified currents

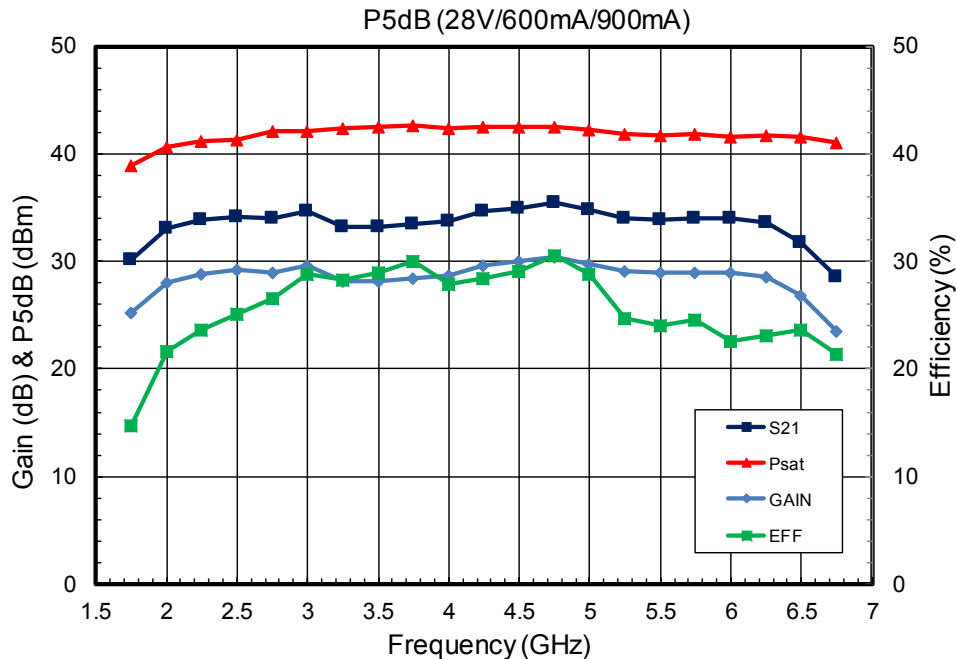
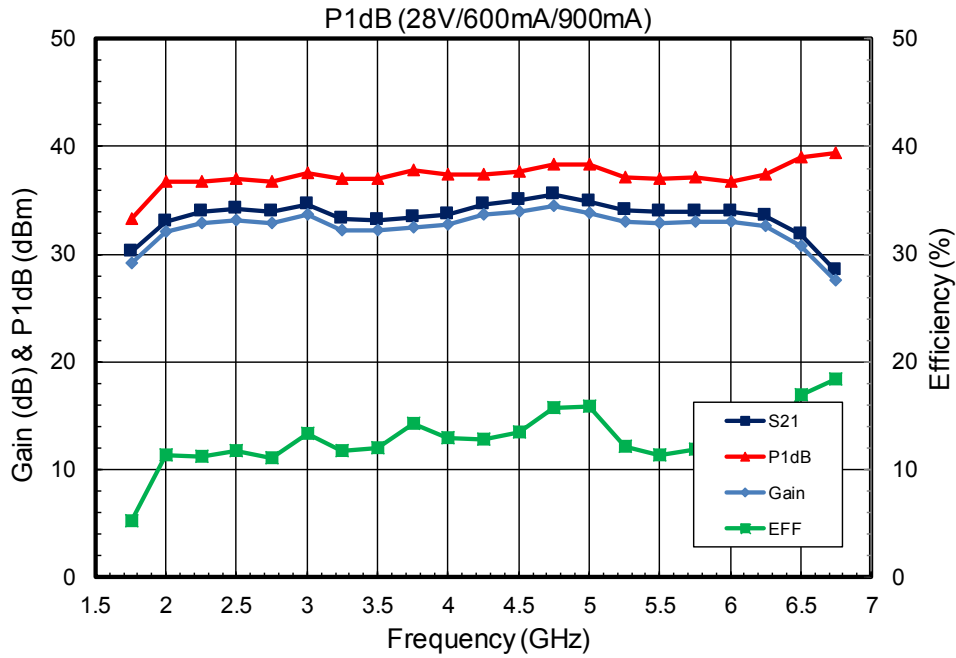
**ABSOLUTE MAXIMUM RATING**

Parameters	Symbol	Rating
First & second stage drain voltages	$V_{ds1}, V_{ds2}$	32V
Second stage drain voltage	$V_{ds3}$	32V
Gate source voltage	$V_{gs1} \& V_{gs2}$	-6V
Drain source current	$I_{dsq1} + I_{dsq2}$	0.75A
Drain source current	$I_{dsq3}$	1.1A
Continuous dissipation at 25°C	$P_t$	80W
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\***

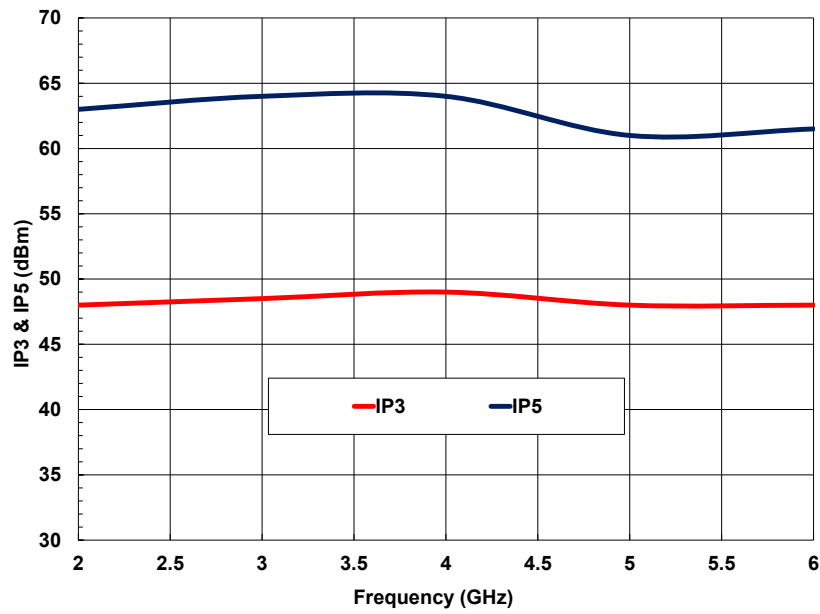


POWER DATA\*\*

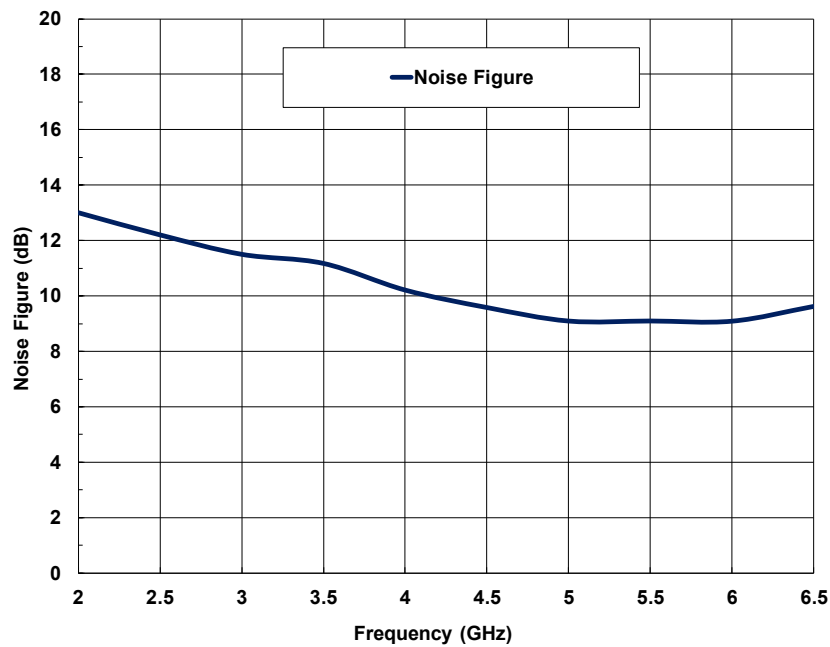


\*\* Power measured using test fixture. Bias is  $V_{ds1} = V_{ds2} = V_{ds3} = +28V$ ,  $I_{ds1} + I_{ds2} = 600mA$ ,  $I_{ds3} = 900mA$ ,  $V_{gs1} = V_{gs2} = V_{gs3} = -2.0V$ . Gain in the two graphs is the compressed gain at 1dB and 5dB compression respectively.

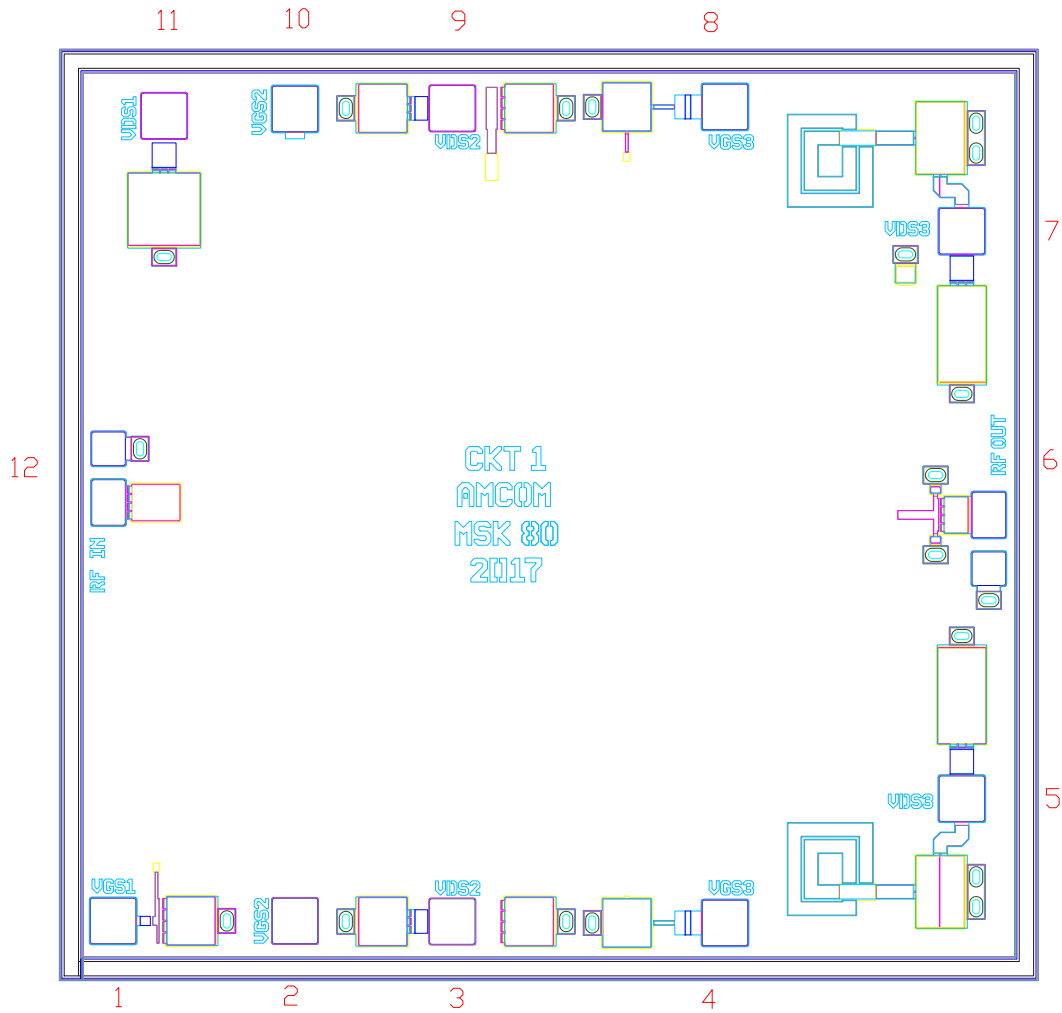
### INTERMODULATION DISTORTION



### NOISE FIGURE



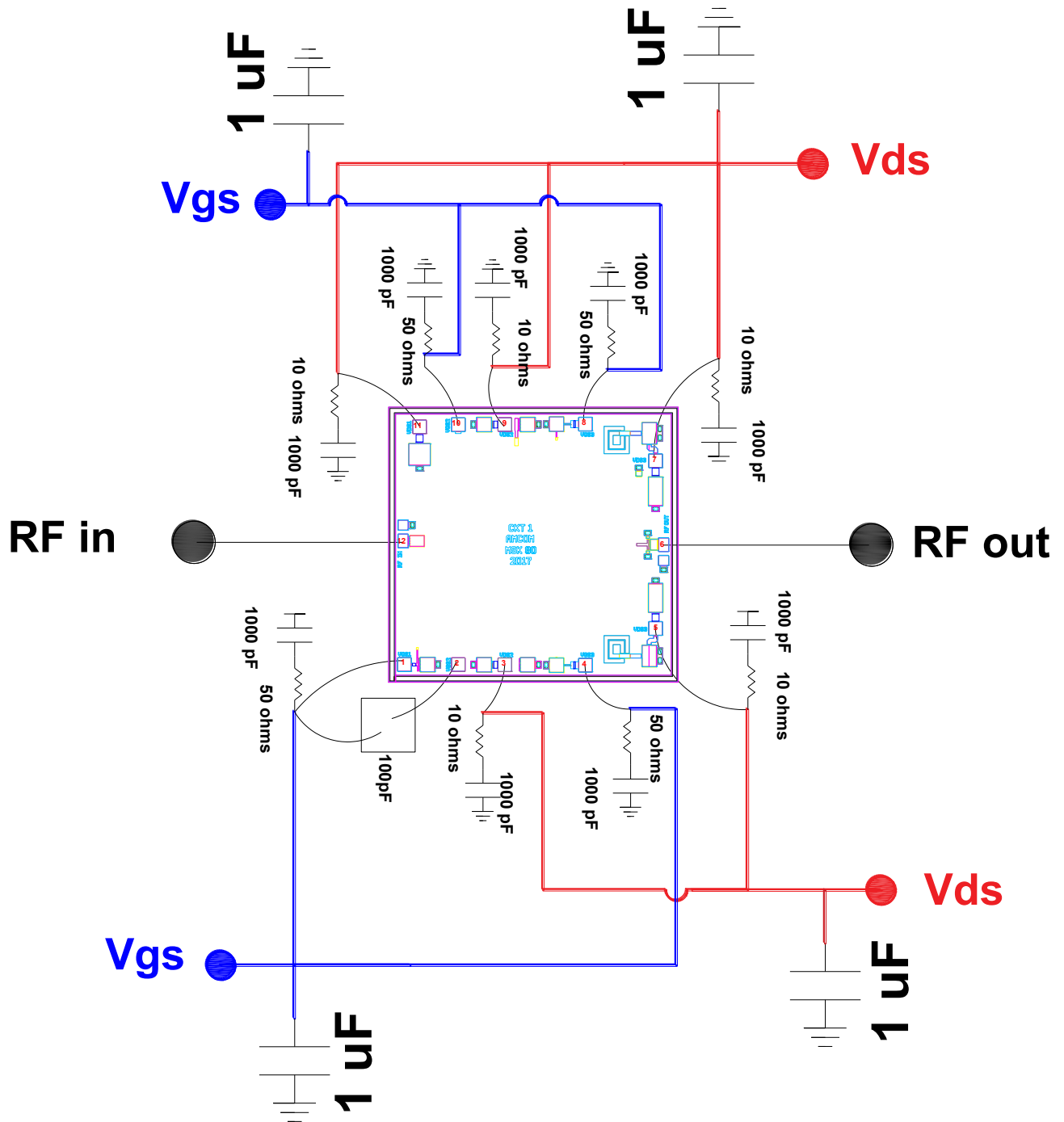
CHIP OUTLINE (AM206041WN-00)



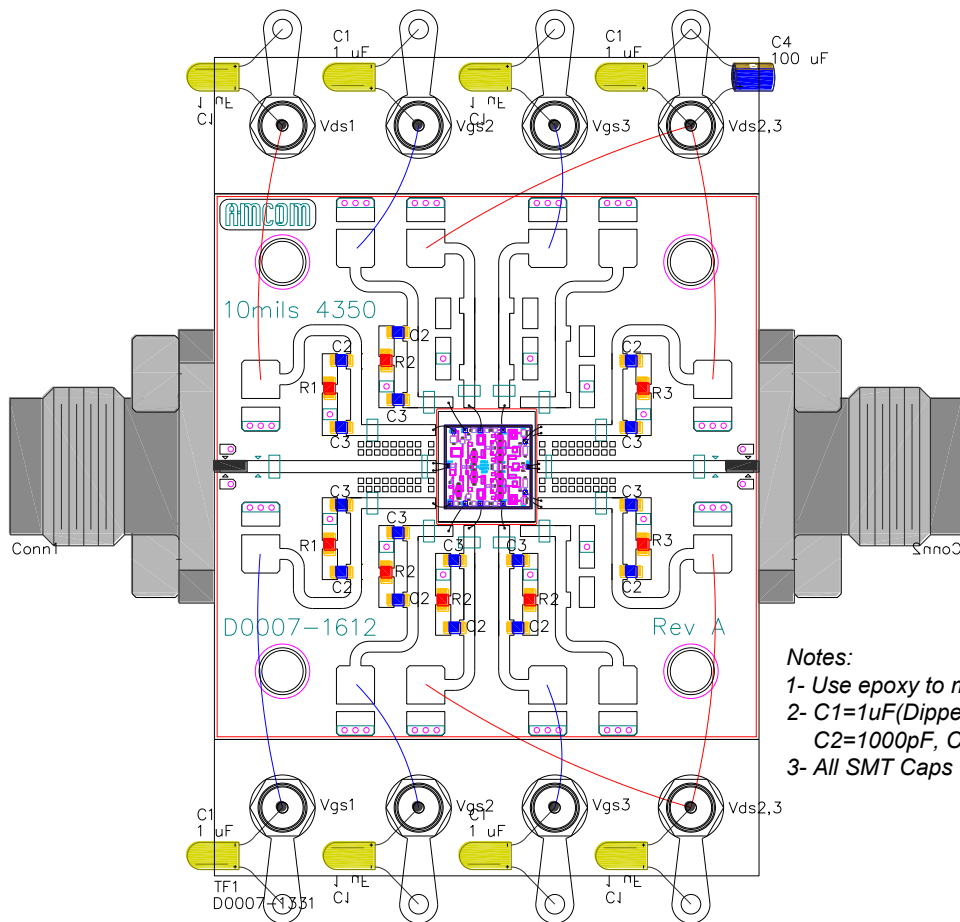
Chip size is 4000um x 3800um

Pin No.	Function	Bias
1	Vgs1	-2.3V
2	Vgs2	-2.3V
3	Vds2	+28V
4	Vgs3	-2.3V
5	Vds3	+28V
6	RF out	-
7	Vds3	+28V
8	Vgs3	-2.3V
9	Vds2	+28V
10	Vgs2	-2.3V
11	Vds1	+28V
12	RF in	-

CIRCUIT SCHEMATIC



TEST CIRCUIT



Notes:

- 1- Use epoxy to mount PCB, and Eutectic soldering to mount chip
- 2- C1=1uF(Dipped Radial Tantalum), C4=100uF(Aluminum Electrolytic)  
C2=1000pF, C3=20pF , R1=50ohms, R2=10ohms, R3=5ohms
- 3- All SMT Caps & Resistors are 0402 size

**Important Notes:**

- 1- Recommended current biases are 200mA for first, 400mA for second stage and 900mA for the third stage. Gate biases of -2V are for reference only. Gate voltages could be adjusted to vary the currents going thru drain pins.
- 2- Do not apply drain voltages without proper negative voltages on gates. Otherwise MMIC would fail due to excess heat.
- 3- Eutectic soldering is recommended for chip mounting
- 4- AutoCAD DXF file is available