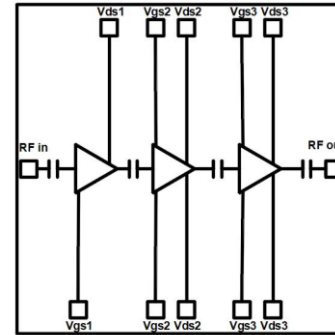


## DESCRIPTION

AMCOM's AM07512041WN-00 Chip is a broadband GaN MMIC power amplifier. It has 28dB gain, and 42 dBm output power over the 8.25 to 11.75 GHz band. This MMIC is matched to 50 Ohms.



## FEATURES

- Broadband from 7.75 to 12.25GHz
- Saturated output power Psat is 42dBm
- High gain, 28dB
- Input & output matched to 50 Ohms

## APPLICATIONS

- Instrumentation
- Commercial telecom transmission equipment
- Fixed microwave backhaul

## TYPICAL PERFORMANCE \*

### AM07512041WN-00-R (Bare Die)

Parameters	Minimum	Typical **	Maximum
Frequency	8.25 – 11.75 GHz	7.75 – 12.25GHz	
Small Signal Gain	23dB	28dB	
Gain Ripple		± 2	± 4.0dB
P1dB	35dBm	38 dBm	
Psat	39 dBm	42 dBm	
Psat Efficiency		27%	
Noise Figure		TBD	
IP3 dBm		47	
Input Return Loss		15dB	
Output Return Loss		7dB	
Thermal Resistance		TBD	

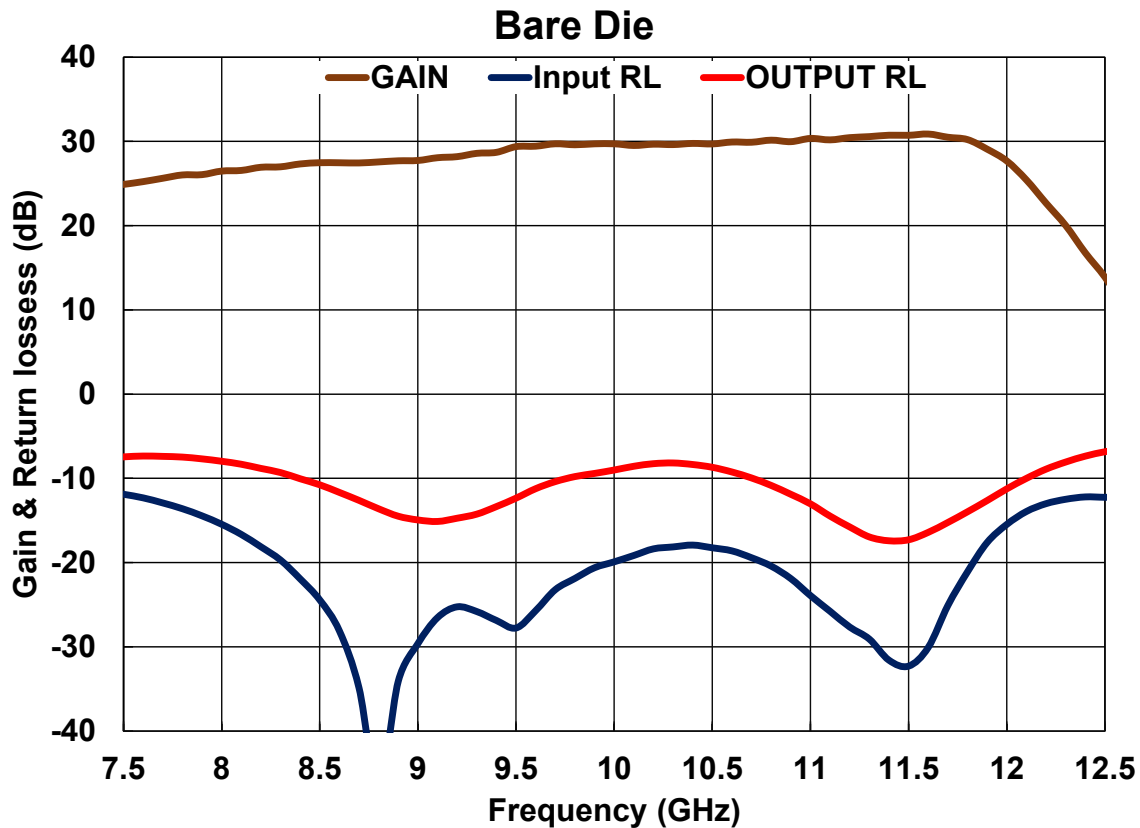
\* Specifications subject to change without notice.

\*\* Bias Conditions\*\*:  $V_{ds1,2,3} = +28V$ ,  $I_{dsq1,2} = 0.65A$ ,  $I_{dsq3} = 0.90A$ ,  $V_{gs1} = V_{gs2} = V_{gs3} = -1.8V$ .

**ABSOLUTE MAXIMUM RATING**

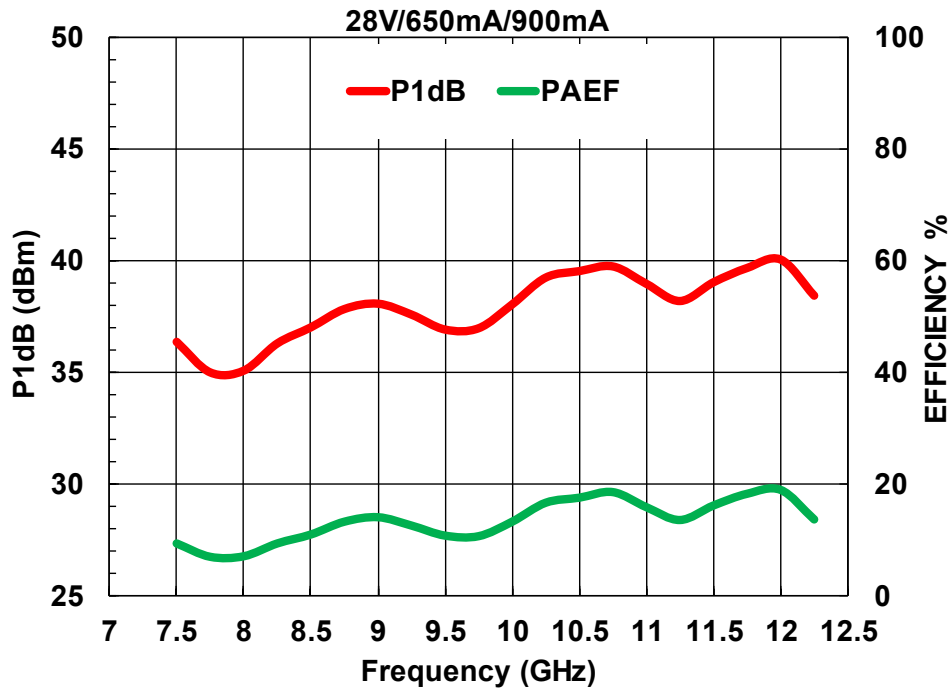
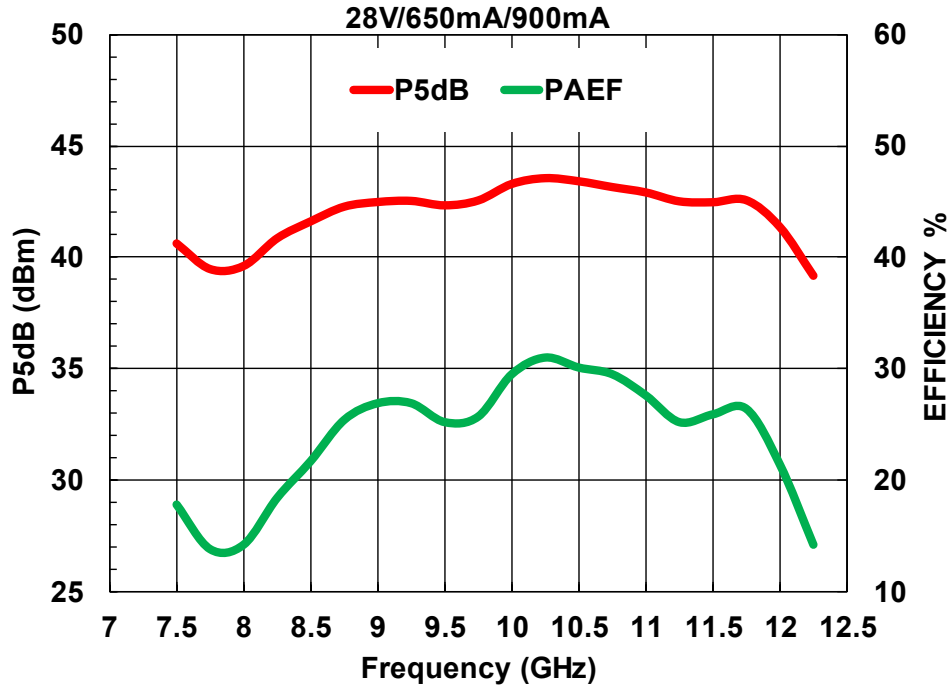
Parameters	Symbol	Rating
First & second stage drain voltages	$V_{ds1}, V_{ds2}$	32V
Third stage drain voltage	$V_{ds3}$	32V
Gate source voltage	$V_{gs1}, V_{gs2}, V_{gs3}$	-6V
Drain source current	$I_{dsq1} + I_{dsq2}$	1A
Drain source current	$I_{dsq3}$	1.5A
Continuous dissipation at 25°C	$P_t$	80W
Channel 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\***

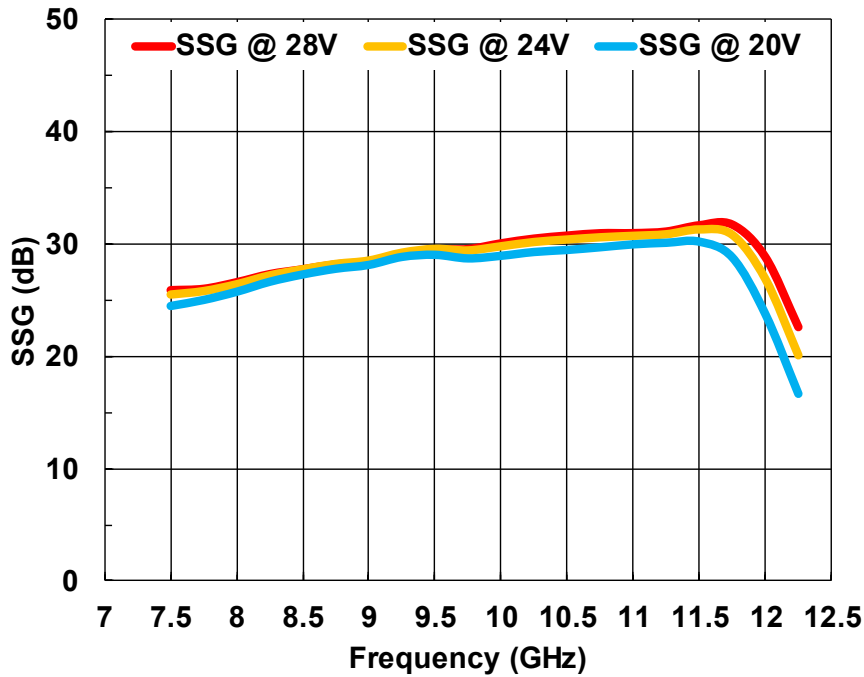
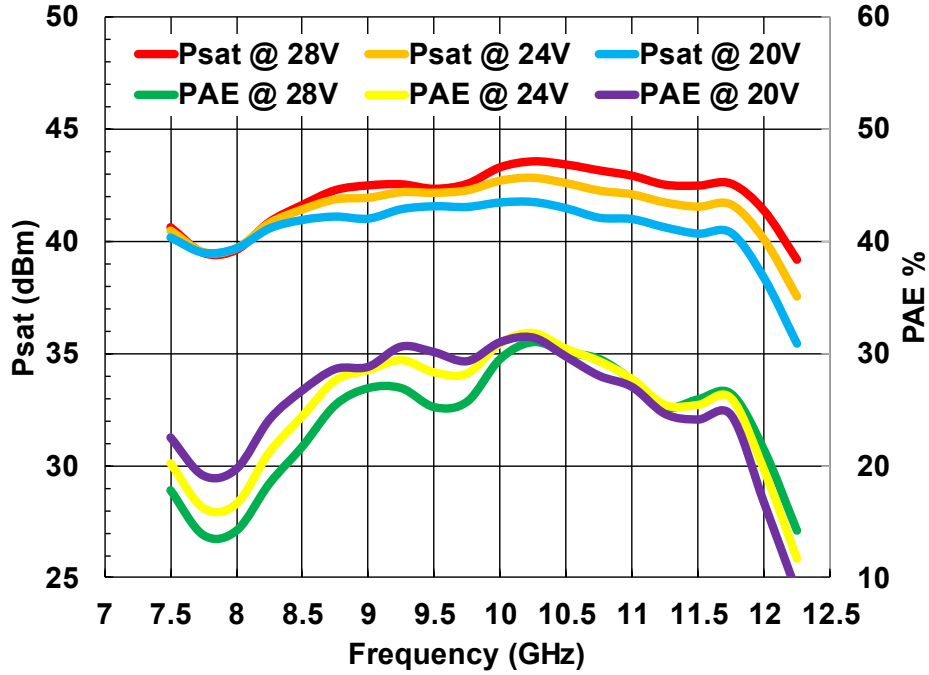


\* S-Parameters measured using test fixture. Bias Conditions\*\*:  $V_{ds1,2,3} = +28V$ ,  $I_{dsq1+2} = 0.65A$ ,  $I_{dsq3} = 0.90A$ ,  $V_{gs1} = V_{gs2} = V_{gs3} = -1.8V$ .

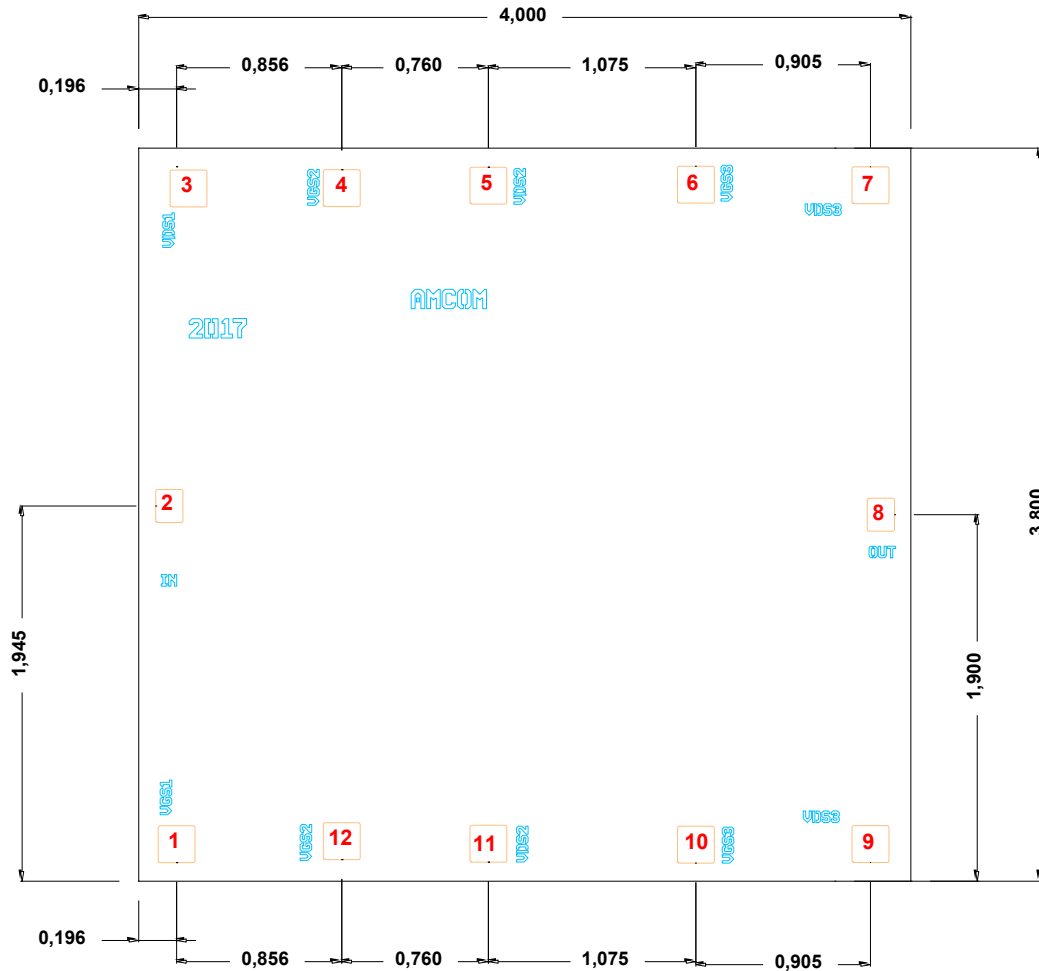
POWER DATA (Recommended bias conditions)



POWER DATA vs  $V_{dd}$



BARE DIE OUTLINE

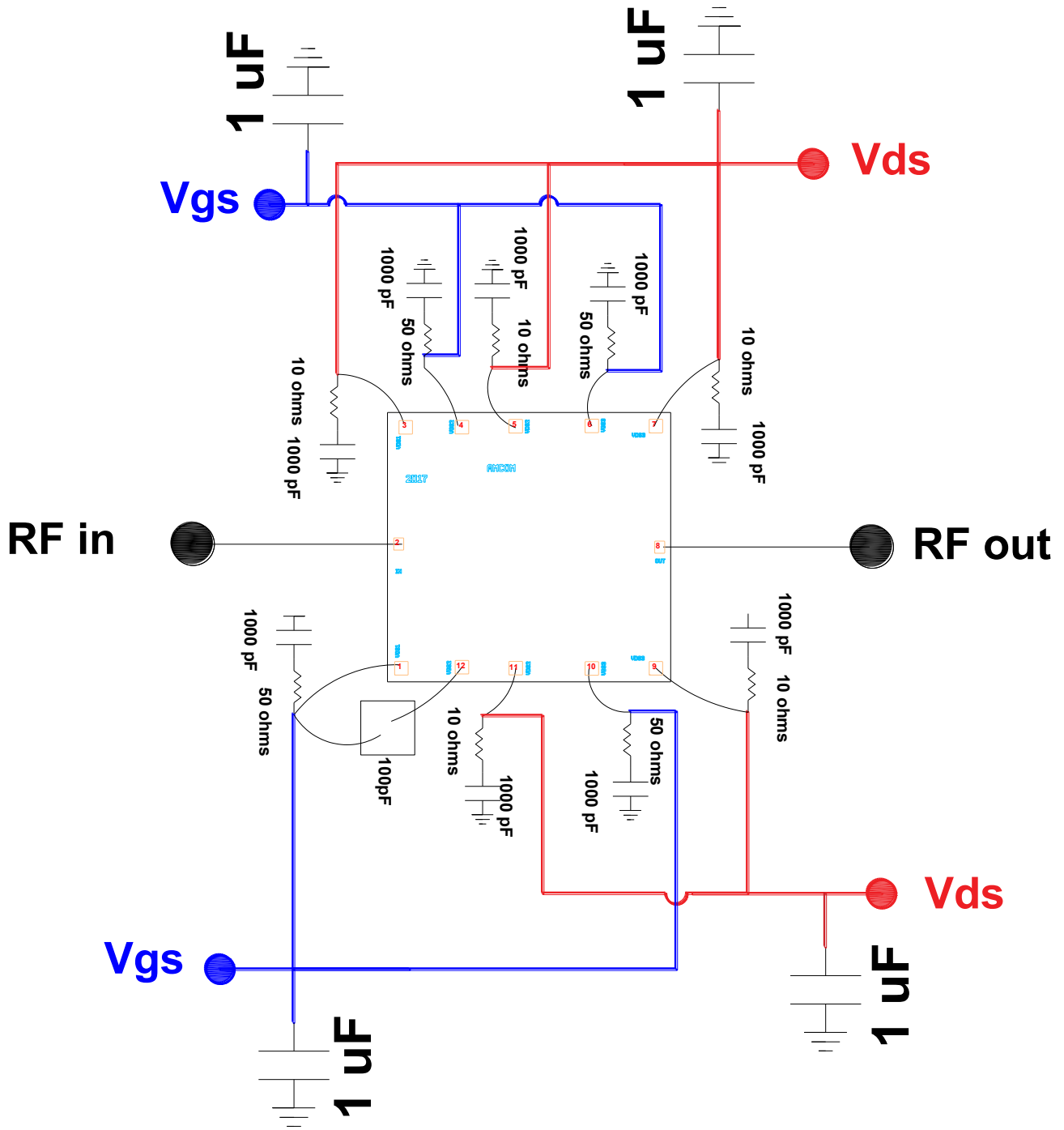


Notes:

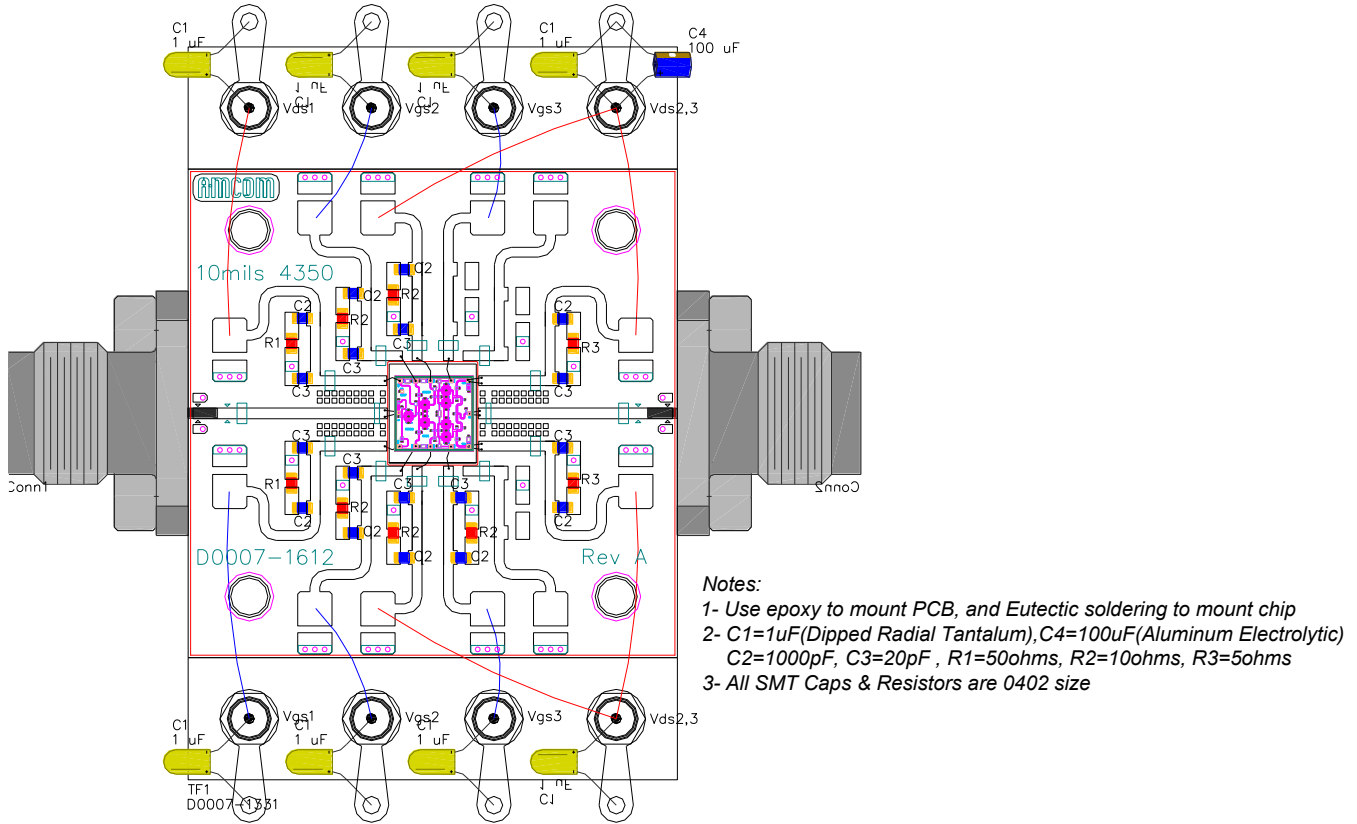
- 1) Dimensions in millimeter
- 2) Chip is 4x3.8 mm
- 3) RF bond pads are 140X180 microns, 50 ohms matched, and DC blocked.
- 4) Drains and Gates pads are all 200x200 microns
- 5) Use eutectic perform for ship assembly

Bond Pad #	Symbol	Voltage
1	Vgs1	-1.8V
2	RF in	-
3	Vds1	+28V
4	Vgs2	-1.8V
5	Vds2	+28V
6	Vgs3	-1.8V
7	Vds3	+28V
8	RF out	-
9	Vds3	+28V
10	Vgs3	-1.8V
11	Vds2	+28V
12	Vgs2	-1.8V

CIRCUIT SCHEMATIC



TEST CIRCUIT



**Important Notes:**

- 1- Recommended current biases are 220mA for first, 430mA for second stage and 900mA for the third stage. Gate biases of 1.8V 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