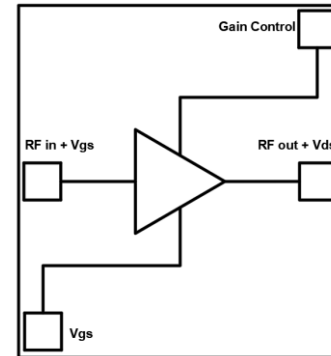


DESCRIPTION

AMCOM's AM00010037WN-00-R is a broadband GaN MMIC power amplifier. It has 13dB gain, and 37 dBm output power over the DC to 10GHz band. The AM00010037WN-00-R is in Bare Die form. 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 transmission equipment
- Fixed microwave backhaul

TYPICAL PERFORMANCE * (Recommended bias condition)

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

Parameters	Minimum	Typical **	Maximum
Frequency	0.1 – 10 GHz	DC – 10 GHz	
Small Signal Gain	10dB	13dB	
Gain Ripple		$\pm 1.5dB$	$\pm 3.0dB$
P1dB	-	31dBm	
P5dB	35dBm	37dBm	
P5dB PAE		23%	
P5dB Drain Efficiency		26%	
NF (1-9 GHz)		5dB	
Input Return Loss		9dB	
Output Return Loss		7dB	
Thermal Resistance		TBD	

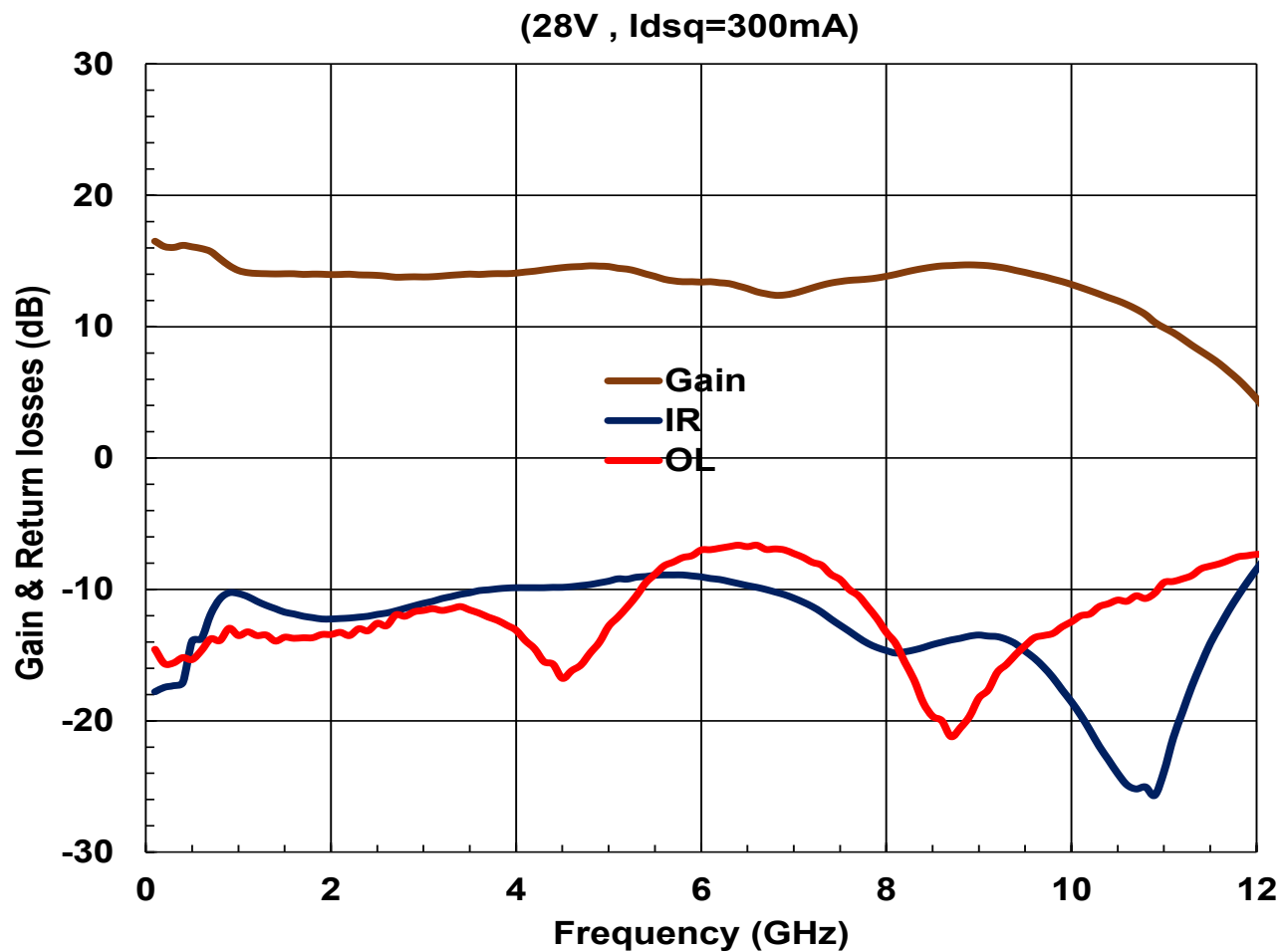
* Specifications subject to change without notice

ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Drain voltage	V_{ds1}	30V
Gate voltage	V_{gs}	-6V
Drain source current	I_{dsq}	0.4A
Continuous dissipation at 25°C	P_t	20W
Channel temperature	T_{ch}	200°C
Operating temperature	T_{op}	-55°C to +85°C
Storage temperature	T_{sto}	-55°C to +135°C

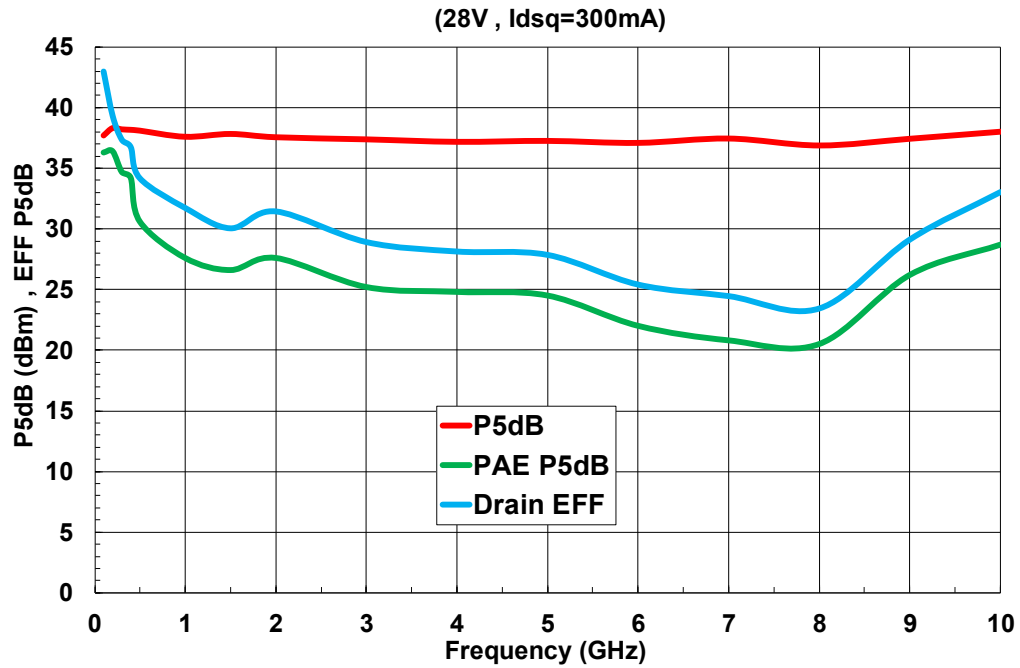
SMALL SIGNAL DATA*

A) Small Signal Gain Measurements

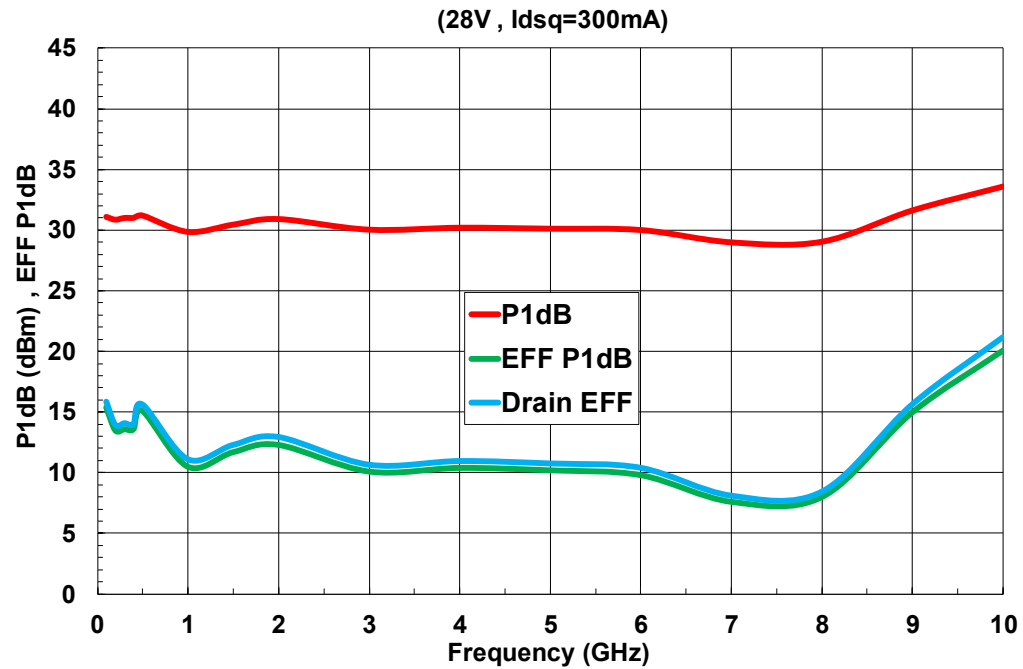


POWER DATA

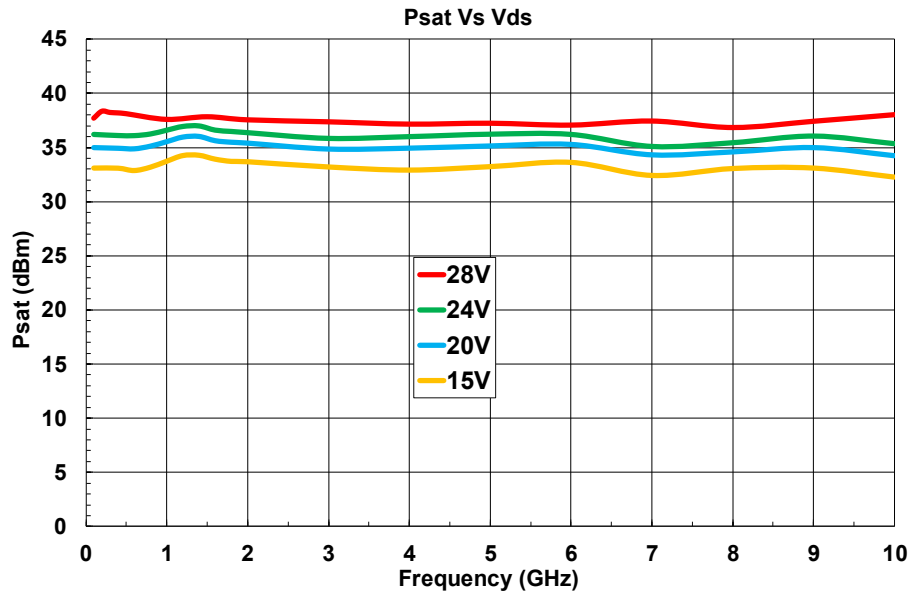
Psat (5dB compression) vs Frequency



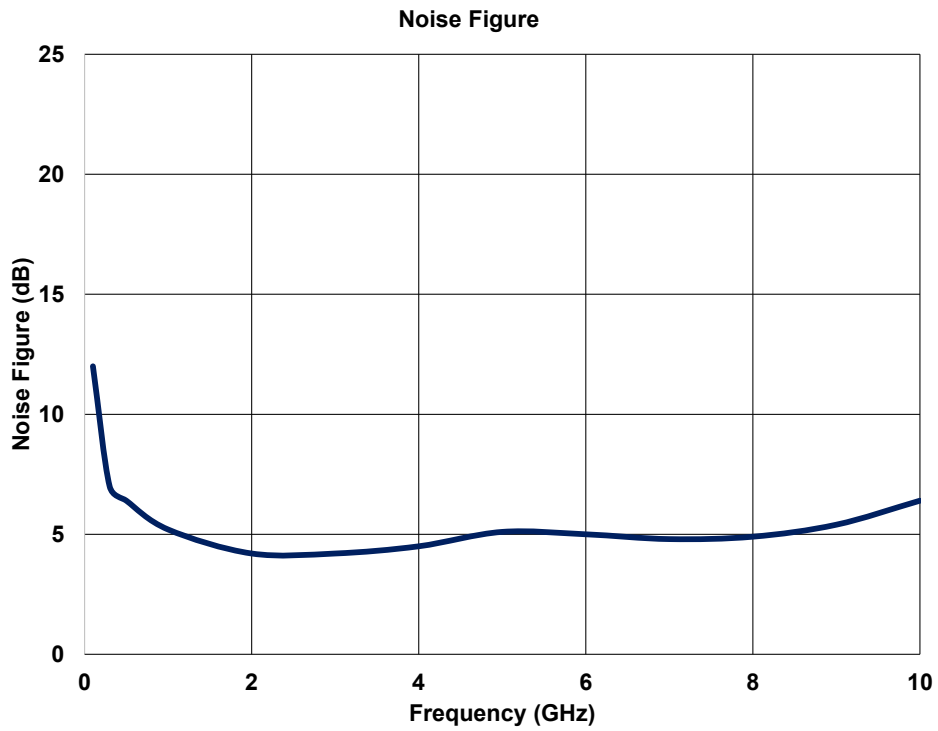
P1dB vs Frequency



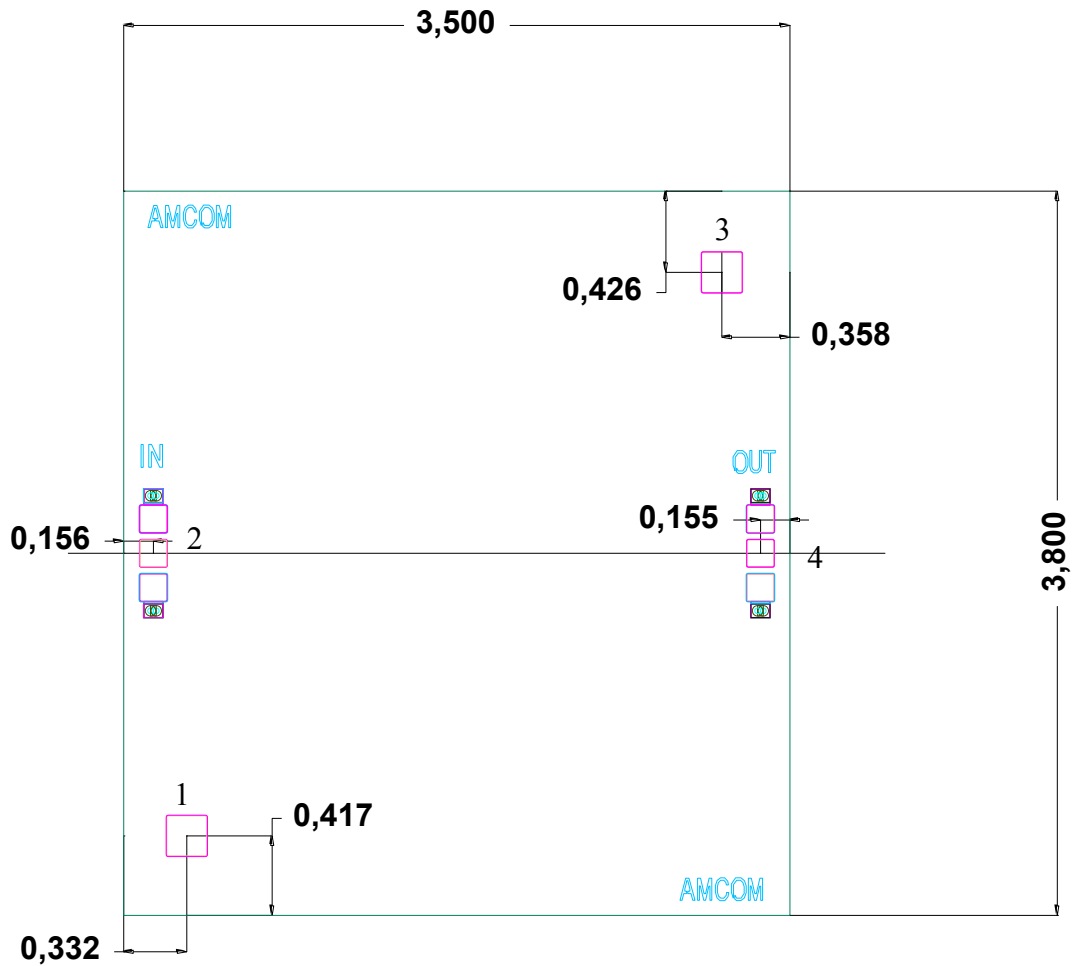
POWER VS VOLTAGE



NOISE FIGURE



CHIP OUTLINE



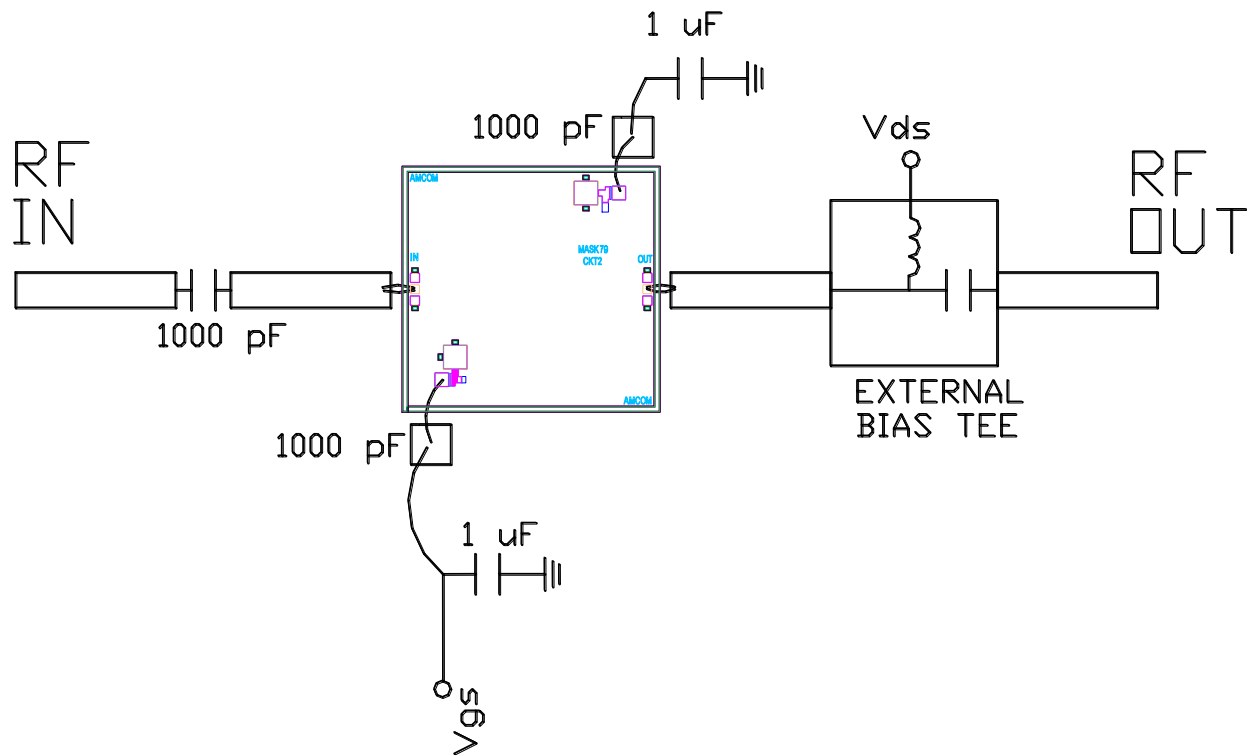
Bond Pad #	Symbol	Description
1	V_{gs}	Gate Voltage (Typ -2V)
2	RF in + V_{gs}	Input RF + Gate Voltage
3	AGC	Gain control at low frequency
4	RF out + V_{ds}	Output RF + Drain Voltage (Typ 28V)

Notes:

- 1- Dimensions in milimeters
- 2- RF in & RF out pads are 150x150 microns
- 3- V_{gs} & Gain control pads are 200x200 microns

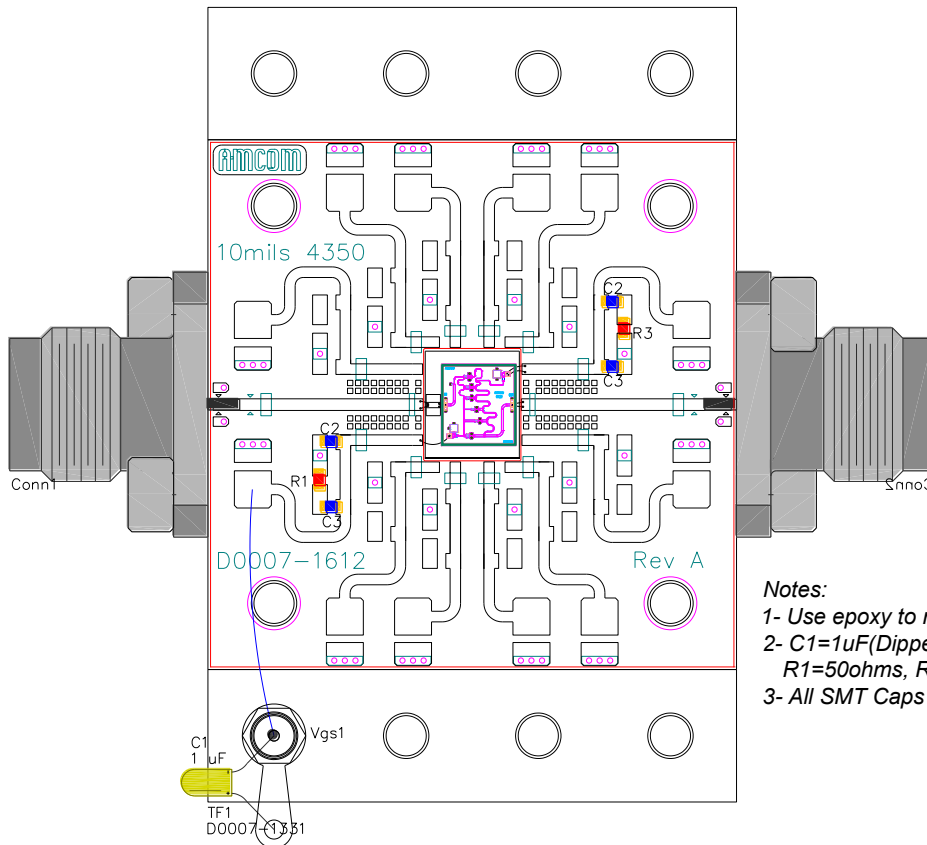
AMCOM Communications, Inc.

APPLICATION CIRCUIT (AM00010037WN-00 CHIP)

**Notes:**

- 1- Do not apply V_{ds} without proper negative voltage on V_{gs}.
- 2- Gate bias could be supplied either from the RF in pad (using a bias tee) or from the V_{gs} pad, however if biased only from V_{gs} pad an external DC blocking capacitor should be added at the RF input port.
- 3- V_{dd} bias should be supplied from RF out pad only.
- 4- Use eutectic soldering to mount the chip

TEST FIXTURE



Notes:

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

- 1- Do not apply V_{ds} without proper negative voltage on V_{gs}.
- 2- Gate bias could be supplied either from the RF in pad (using a bias tee) or from the V_{gs} pad, however if biased only from V_{gs} pad an external DC blocking capacitor should be added at the RF input port.
- 3- V_{dd} bias should be supplied from RF out pad only.
- 4- AutoCAD DXF file available