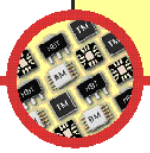
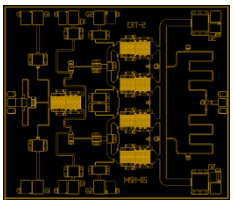
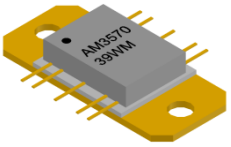
AM357039WM-00-R
AM357039WM-SN-R
December 2012
Rev0

GaAs MMIC Power Amplifier



DESCRIPTION





AMCOM's AM357039WM is a broadband GaAs MMIC Power Amplifier. It has a nominal CW performance of 21dB small signal gain, and 38.5dBm (7W) saturated output power over the 3.5 to 7GHz band. The MMIC is offered in both chip (-00-R) and package (-SN-R) forms. The AM357039WM-SN-R is in a ceramic package with a flange and straight RF and DC leads for drop-in assembly. Because of high DC power dissipation, good heat sinking is required, and the chip MMIC has to be mounted using eutectic soldering directly on a metal ridge. Both chip and package are RoHS compliant.

FEATURES

- Wide bandwidth from 3.5 to 7GHz
- 38.5dBm of saturated CW output power
- High gain, 21dB
- Input /Output matched to 50 Ohms

APPLICATIONS

- Commercial telecom transmission equipment
- Fixed microwave backhaul
- Commercial 2-way radio

TYPICAL PERFORMANCE * ($V_{ds1,2}$ = 14V, I_{dsq1} = 0.3A, I_{dsq2} = 1.2A)

Parameters	Minimum	Typical **	Maximum
Frequency	4 – 6.5GHz	3.5 – 7GHz	
Small Signal Gain		21dB	26dB
Gain Ripple		± 3dB	± 5dB
P_{1dB}	35dBm	37dBm	
P_{3dB}	36.5dBm	38.5dBm	
Efficiency @ P_{3dB}		24%	
Noise Figure		-	10dB
IP3 @ 5GHz		TBD	
Input Return Loss		15dB	
Output Return Loss		5dB	
Thermal Resistance		5.2 °C/W	

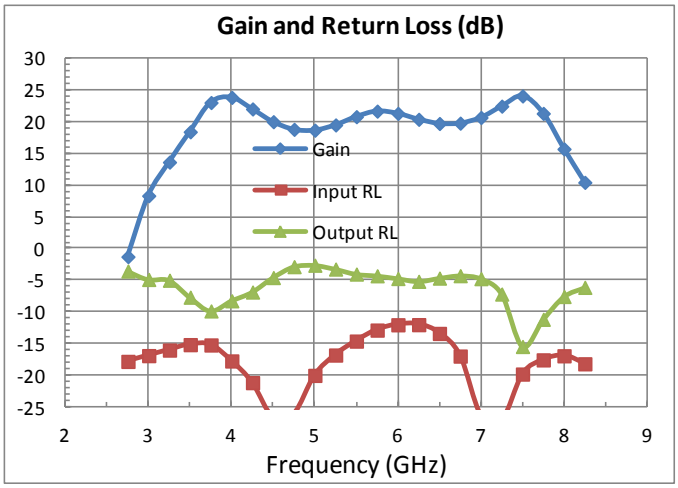
*Notes:
1- Specifications are subject to change without notice.
2- $V_{gs1,2}$ should be adjusted to -0.85V approximately to get the specified currents, and will vary slightly from one unit to another.
3- Measurements are done in CW mode.

Email: info@amcomusa.com
Website: www.amcomusa.com
Tel. (301) 353-8400 Fax. (301) 353-8401
401 Professional Drive, Gaithersburg, MD 20879

ABSOLUTE MAXIMUM RATING

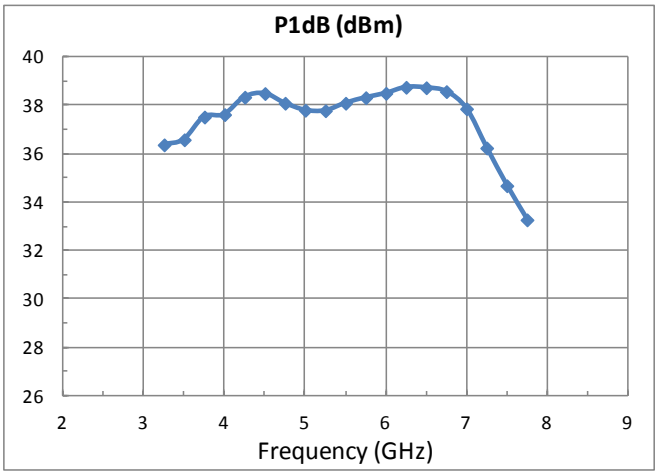
Parameters	Symbol	Rating
Drain source voltage	$V_{ds1,2}$	16V
Gate source voltage	$V_{gs1,2}$	-3V
Drain source current	I_{dsq1}	0.375A
Drain source current	I_{dsq2}	1.5A
Continuous dissipation at 25ºC	P_t	38 W
Channel temperature	T_{ch}	175°C
Operating temperature	T_{op}	-55°C to +85°C
Storage temperature	T_{sto}	-55°C to +135°C

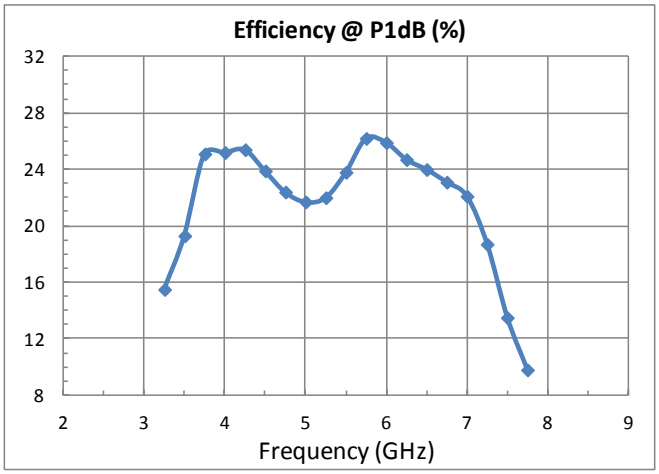
SMALL SIGNAL DATA*

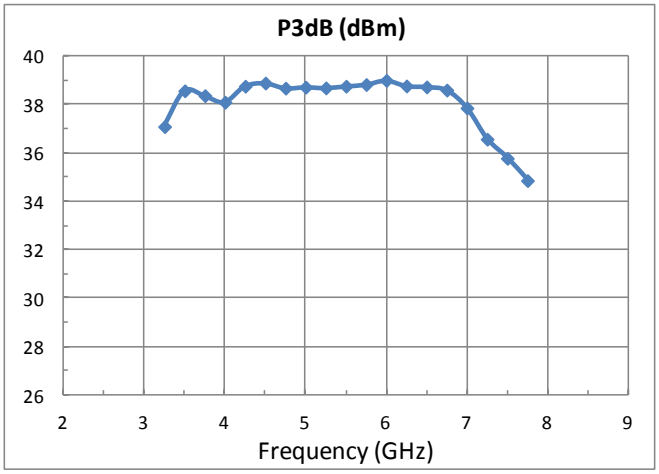


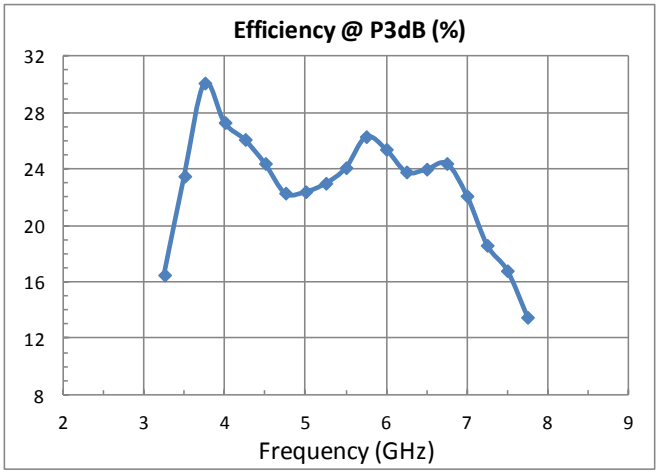
* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{ds1,2}$ = 14V, I_{dsq1} = 0.3A, I_{dsq2} = 1.2A.

POWER DATA*





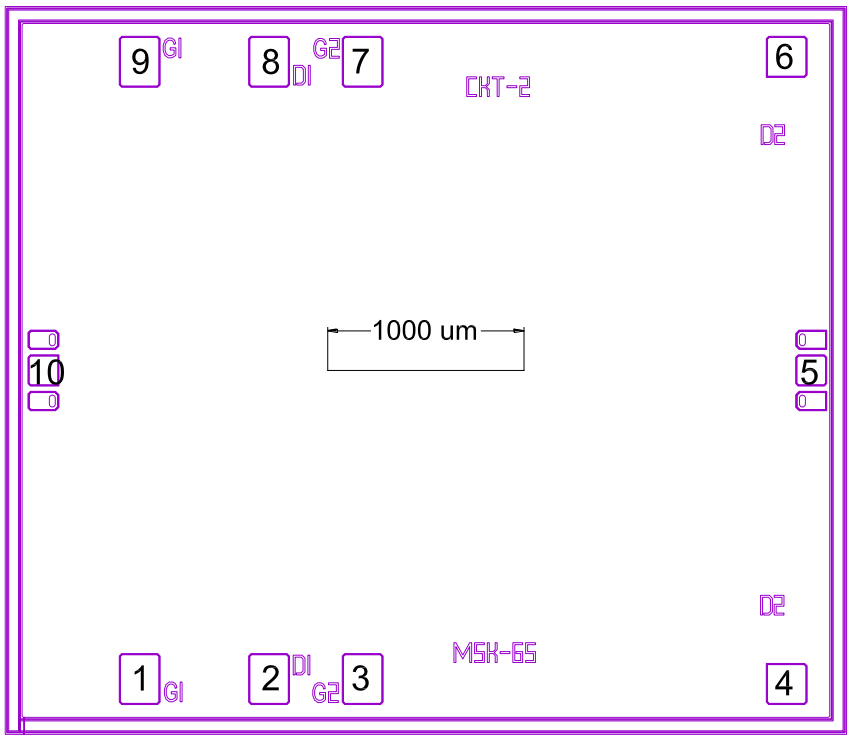




* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{ds1,2}$ = 14V, I_{dsq1} = 0.3A, I_{dsq2} = 1.2A and measured in CW mode.

CHIP OUTLINE

Dim X*Y: 4200X3600 um^2



Pin No.	Function	Bias
1	V_{gs1}	-0.85V
2	V_{ds1}	+14V
3	V_{gs2}	-0.85V
4	V_{ds2}	+14V
5	RF out	NA
6	V_{ds2}	+14V
7	V_{gs2}	-0.85V
8	V_{ds1}	+14V
9	V_{gs1}	-0.85V
10	RF in	NA

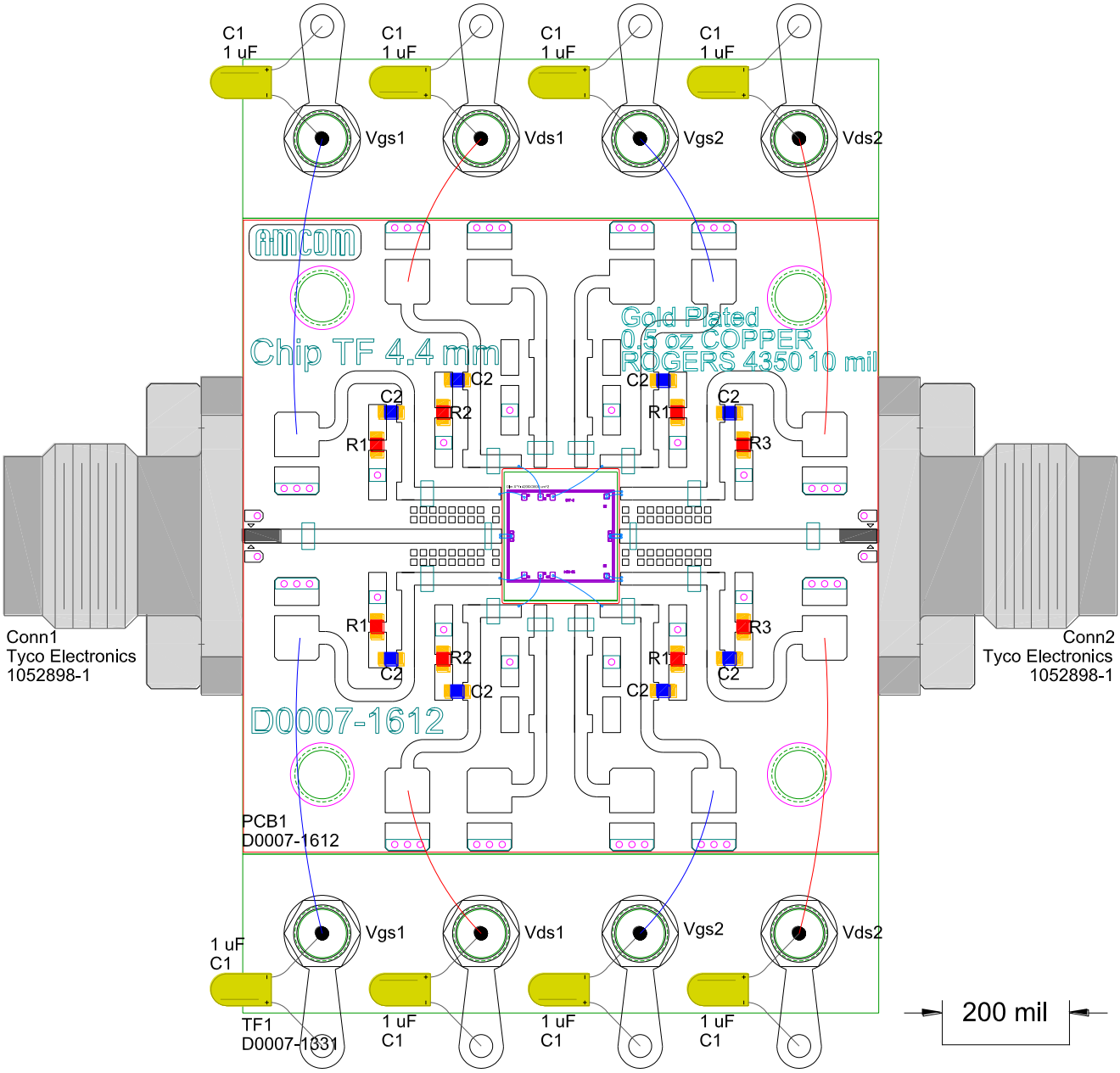
*Notes:

1- It is necessary to connect drain biases $V_{ds1,2}$ to both the upper and lower bonding pads.

2- $V_{gs1,2}$ bias values are for reference only and will vary slightly from one unit to another.

3- When both first and second stages are pinched off ($V_{gs1,2}$ < -2V), there will still be a small current flowing in internal biasing circuitry.

CHIP TEST FIXTURE



Notes:

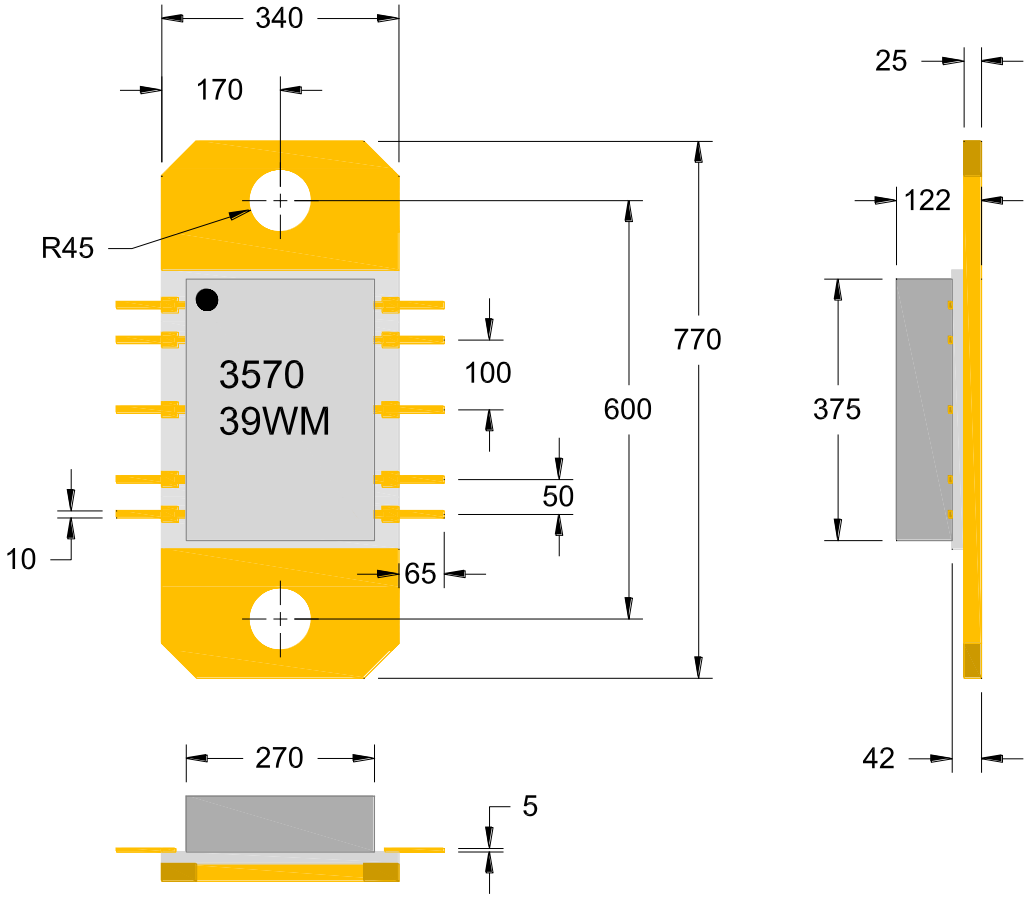
1- Use epoxy to mount PCB, and eutectic soldering to mount chip.

2- C1=1uF, C2=1000pF, R1=50ohms, R2=10ohms, R3=5ohms.

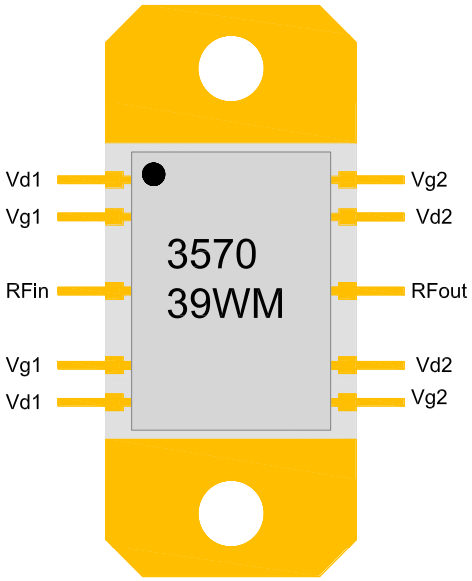
3- All SMT Caps & Resistors are 0402 size.

4- Don't apply drain biases $V_{ds1,2}$ without proper negative voltages on corresponding gates.

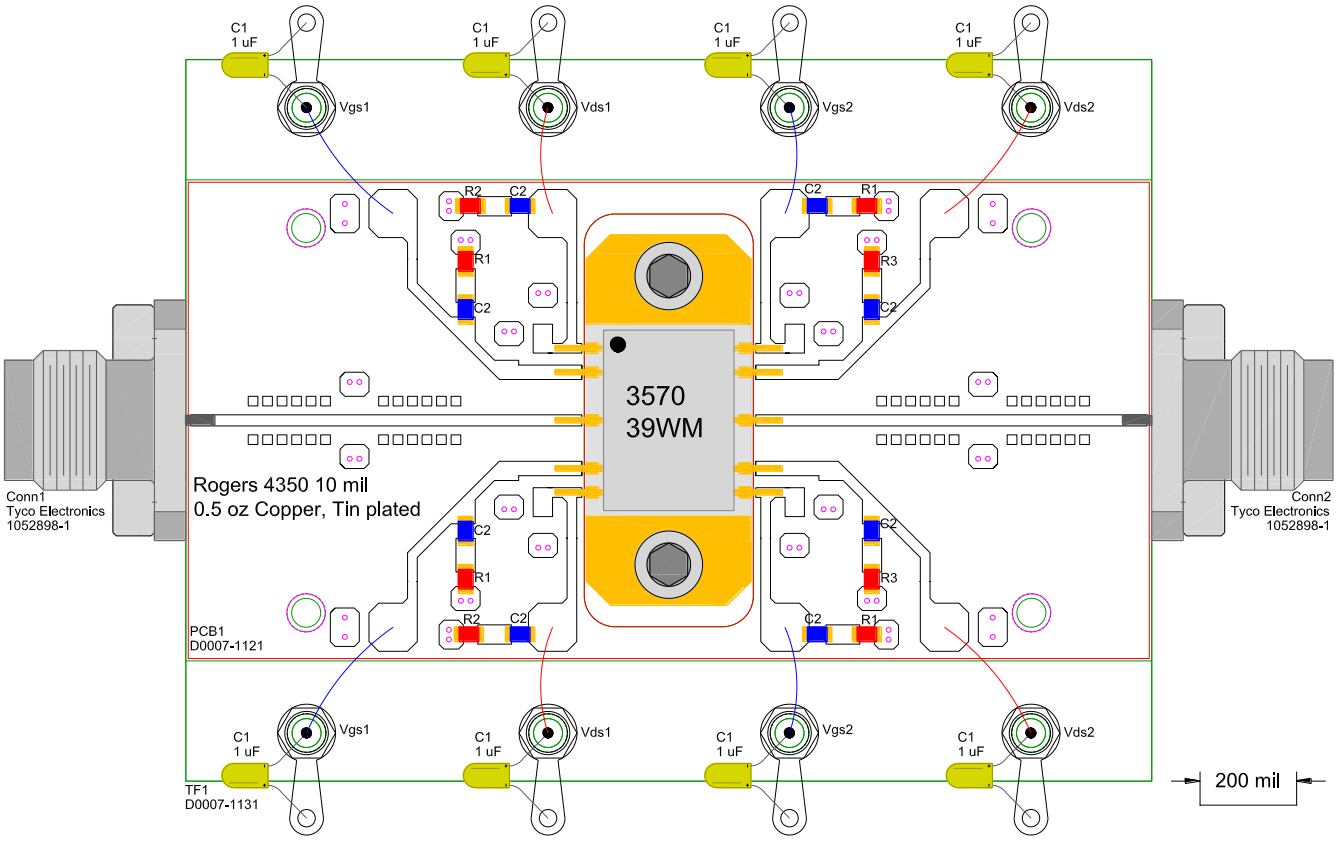
SN PACKAGE OUTLINE (Dimensions in mils)



Pin Layout



SN Package Test Fixture



Notes:

1- Use epoxy to mount PCB.

2- C1=1uF, C2=1000pF, R1=50ohms, R2=10ohms, R3=5ohms.

3- All SMT Caps & Resistors are 0603 size.

4- Don't apply drain biases $V_{ds1,2}$ without proper negative voltages on corresponding gates.