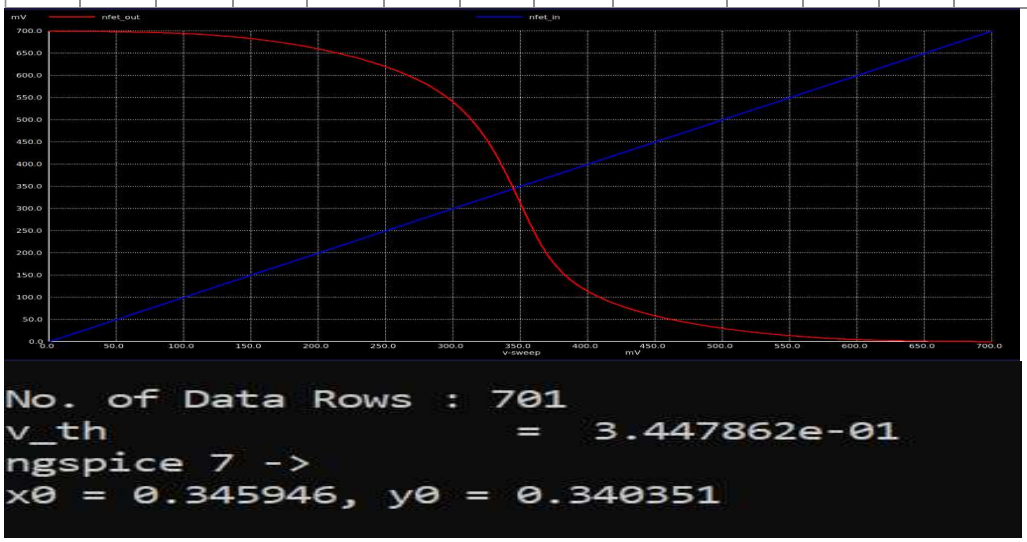
Sunday, January 04, 2026 3:21 AM

Sr. No	W (Width nm) pmos	L (Length) pmos nm	(W/L Ratio) pmos	W (Width) nmos nm	L (Length) nmos nm	(W/L Ratio) nmos	Switching Threshold Voltage (VTC) -mV	Drain Current (Id) (µA)	Power Consumption (P)	Propagation Delay (t_pd) (ps)	Gain (Av)	Noise Margin (NM)	Transconductance (gm) X10^-3	Frequency (f) (GHz)	Output Resistance (Ro)
1	14	7	2	14	7	2	345	226.07 at 0.361v	29.736 65 µW	26.050 92 ps	**6.43**		**36.18**	**22.46**	**38.18k**



2. Id current

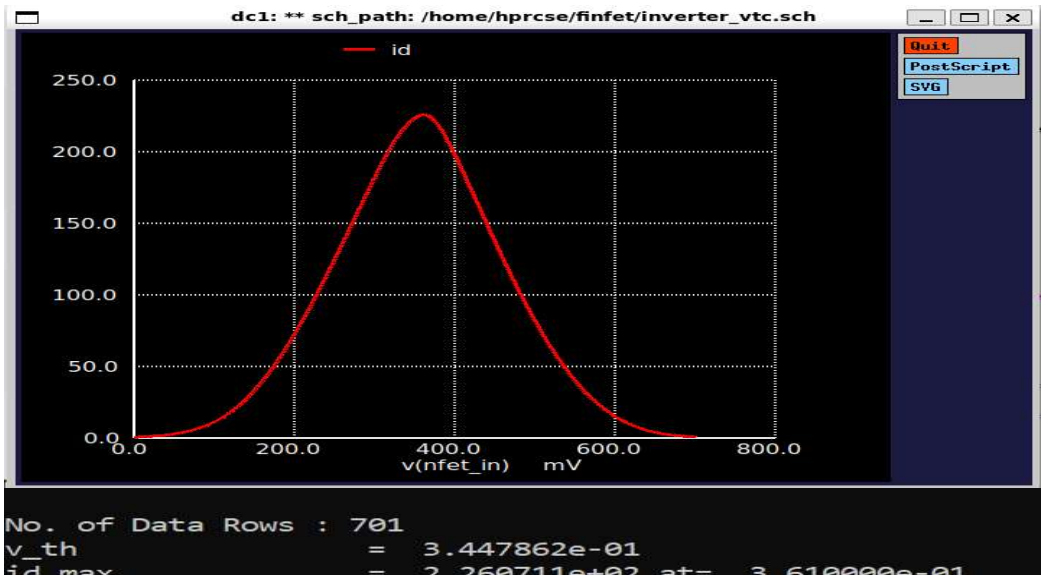
let id=abs(v2#branch)*1e6

plot id vs v(nfet_in)

* from measure get max dc value

* 1_meas 2_dc(type of simulation) 3_variable 4_operation 5_experssion to be evalted

meas dc Id_max MAX id



3. Power cons

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nitial Transient Solution
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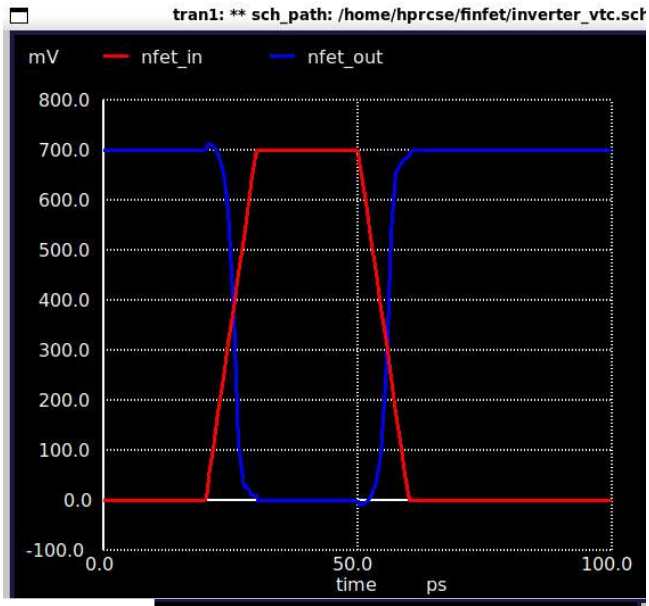
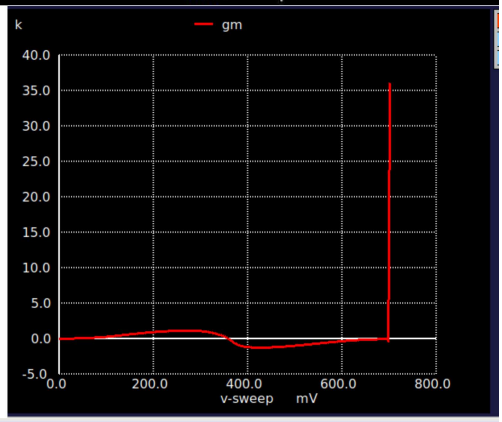
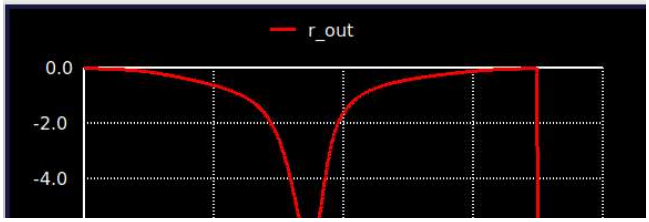
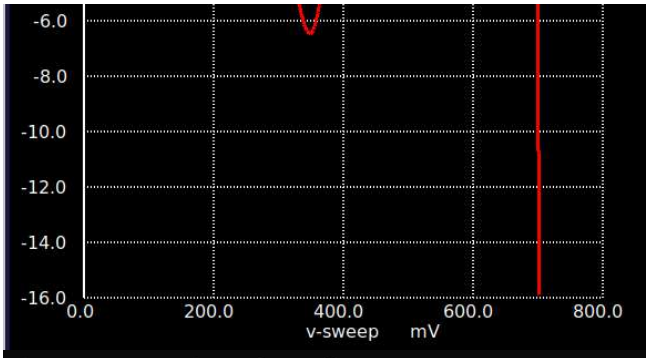
ode                                        Voltage
---                                        -------
fet_out                                   0.699647
fet_in                                           0
dd                                             0.7
2#branch                                -8.07134e-07
1#branch                                 7.22294e-12

Reference value :  9.05000e-11
o. of Data Rows : 120
d_pwr                =  -1.69924e-15 from=  2.00000e-11 to=  6.0
               ** sch_path: /home/hprcse/finfet/inverter_vtc.sc
               Transient Analysis   Sun Jan  4 04:09:39  2026
-------------------------------------------------------------------
ndex    time                power
-------------------------------------------------------------------
       0.000000e+00     2.973665e-05
       1.000000e-14     2.973665e-05
       2.000000e-14     2.973665e-05
       4.000000e-14     2.973665e-05
       8.000000e-14     2.973665e-05
       1.600000e-13     2.973665e-05
       3.200000e-13     2.973665e-05
       6.400000e-13     2.973665e-05
       1.280000e-12     2.973665e-05
       2.280000e-12     2.973665e-05
```







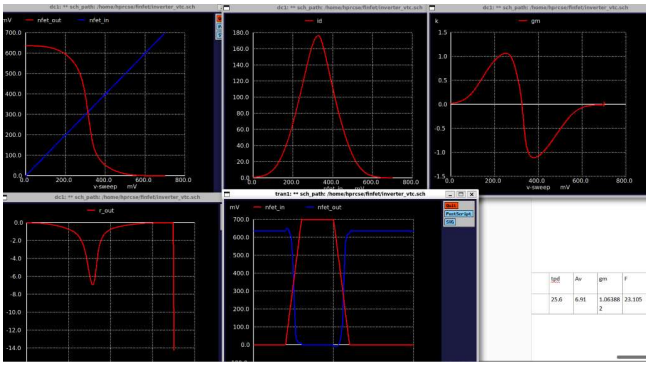



```
Using SPARSE 1.3 as Direct Linear Solver
 Reference value :  0.00000e+00
No. of Data Rows : 701
v_th                =  3.447862e-01
id_max              =  2.260711e+02 at=  3.610000e-01
max_gain            =  6.428450e+00 at=  3.500000e-01
max_gain = 6.428450e+00
gain_target = 6.422022e+00
vil                 =  3.488155e-01
voh                 =  3.190770e-01
vih                 =  3.510961e-01
vol                 =  3.044187e-01
vil = 3.488155e-01
voh = 3.190770e-01
vih = 3.510961e-01
vol = 3.044187e-01
nmh = -3.20191e-02
nml = 4.439680e-02
gm_max              =  3.618305e+04 at=  7.000000e-01
gm_max = 3.618305e+04
Doing analysis at TEMP = 27.000000 and TNOM = 27.000000

Using SPARSE 1.3 as Direct Linear Solver
```

ASSIGNMENT---

Naveen—asic-0.637V so V2 set max to 0.637



Sr no	W pmos	L pmos	W/L (pmos)	W nmos	L nmos	W/l	Vth	Id	Power	tpd	Av	gm	F	R
1	14	7	2	14	7	2	312	176.5491	18.8	25.6	6.91	1.063882	23.105	38.2
2	12	7	1.7	8	7	1.14	335.48 mv	120.419	12.9886	25.7	6.913	0.66539	22.896	6.8
3	20	7	2.857	14	7	2	332.67	206.5815	22.25	25.77	6.908	1.153153	22.92712	7.2