

# ANALOG IC DESIGN TUTORIAL 9

ANURAG MANOJ EE22B003

## COMPONENT VALUES

-For all mosfets,  $W=1\mu$ ,  $L=300n$

m3,m5,m7	15,47,9.4
mop	32
M0	15
M00	2
M01	2.13
Cc	250fF
m11,m12	39,26
vdd	1.8
mc0,mc1,mc2	16,6,3
vcm	0.9
Rcm	100 kOhms
m1	50
Vb56	560mV
Vb78	870mV
I00	16uA
Ccm, Ccmx	600fF, 16fF

## SPECIFICATION TABLE

Closed loop dc gain	4330
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Closed loop 3dB bandwidth	17.5 MHz
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Unity loop gain frequency	46 MHz
Ri	13 kOhms
k	9
Phase margin	48.5 degrees
Output swing limits	(1.5V, -1.5V)
CL	8 pF
RL	2.26 kOhms
Unity loop gain frequency of second CMFB loop	28 MHz
Phase margin of second CMFB loop	45.1 degrees
HD3	

## NOISE

Component	Percentage of noise contributed
2.2	~0
Ri	73.65
Rf	4.3
First stage	22
Second stage	0.05

# LOOP GAIN PLOT



# CLOSED LOOP PLOT

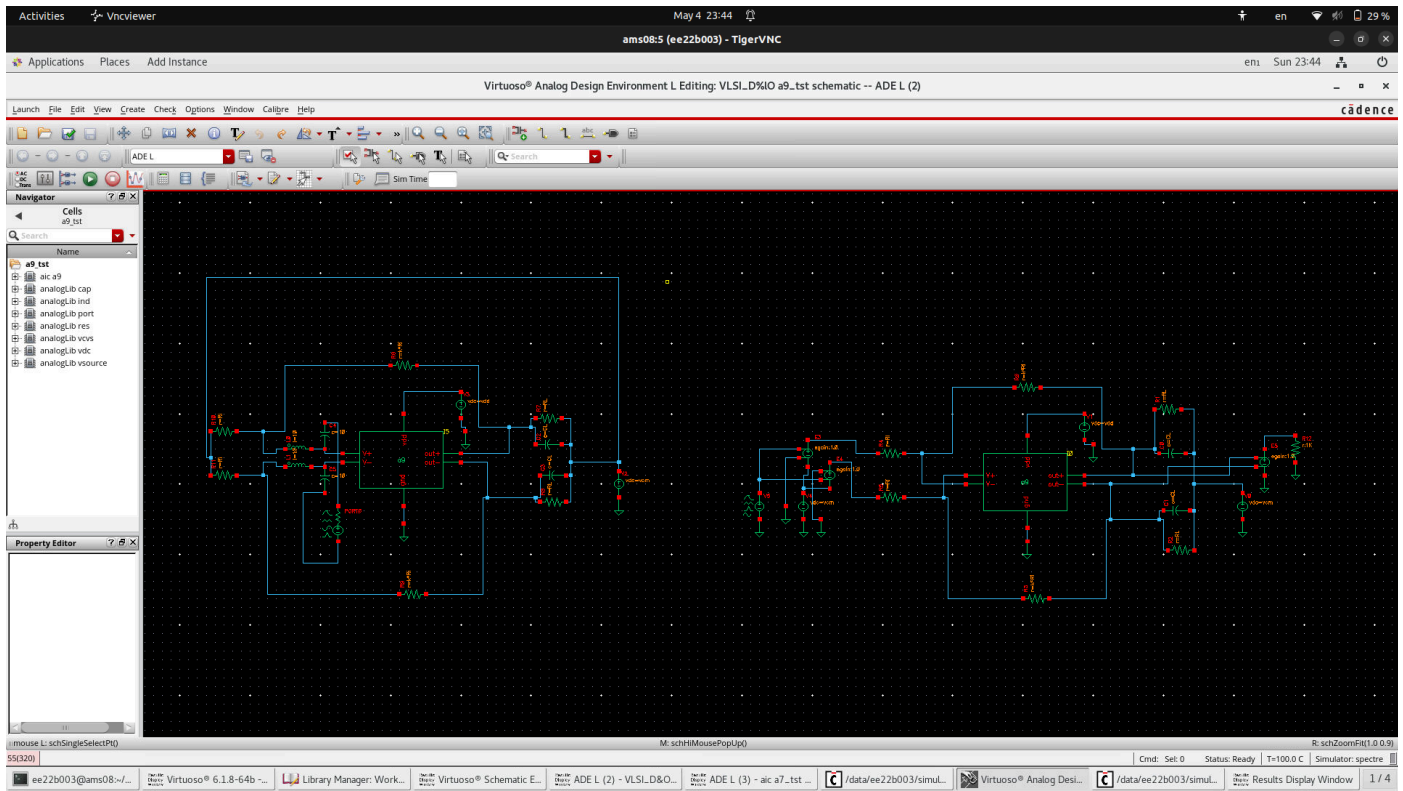


# DC TRANSFER CURVE



## Test Bench



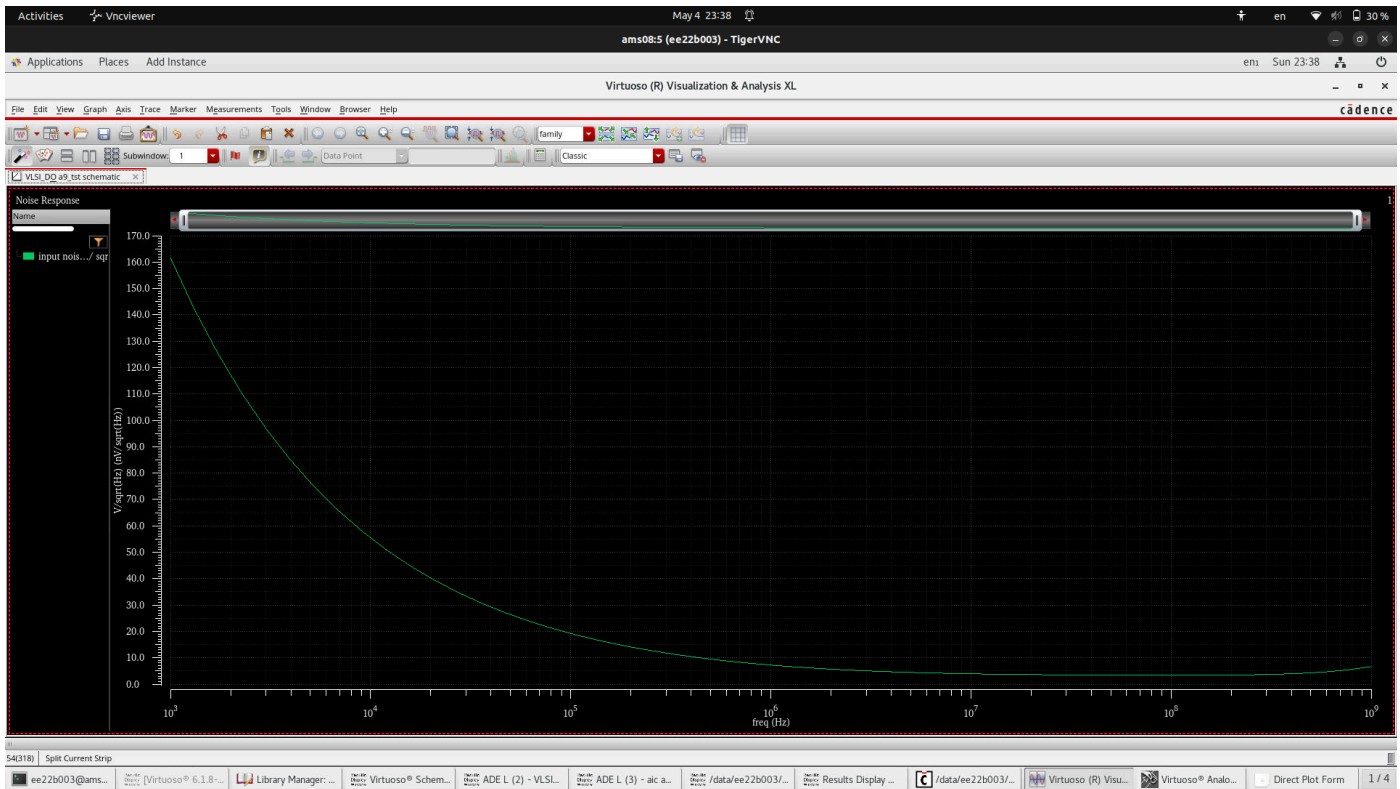


# OUTPUT NOISE PSD OF CLOSED LOOP AMPLIFIER





# INPUT REFERRED NOISE PSD OF CLOSED LOOP AMPLIFIER



# COMMON-MODE FEEDBACK LOOP GAIN

