

OPA Design

B11107019 張鈺林

B11107043 彭成任

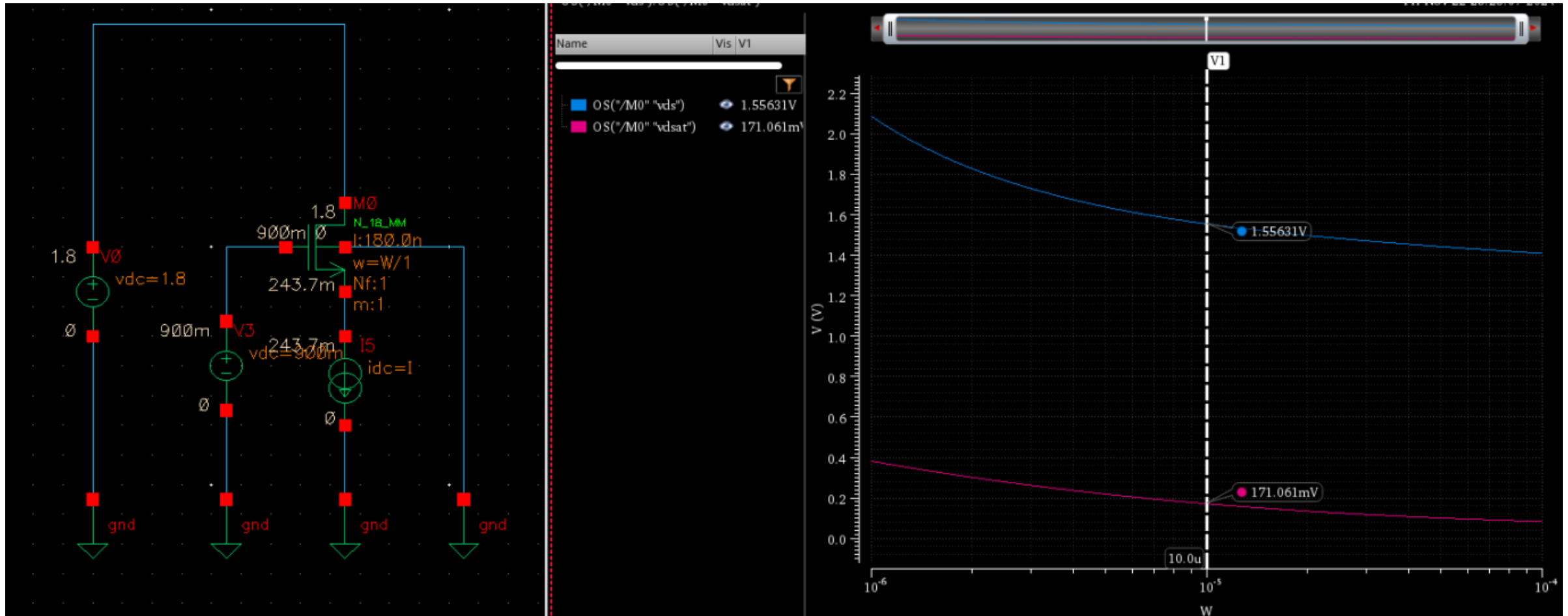
B11107048 李勁磊

Outline

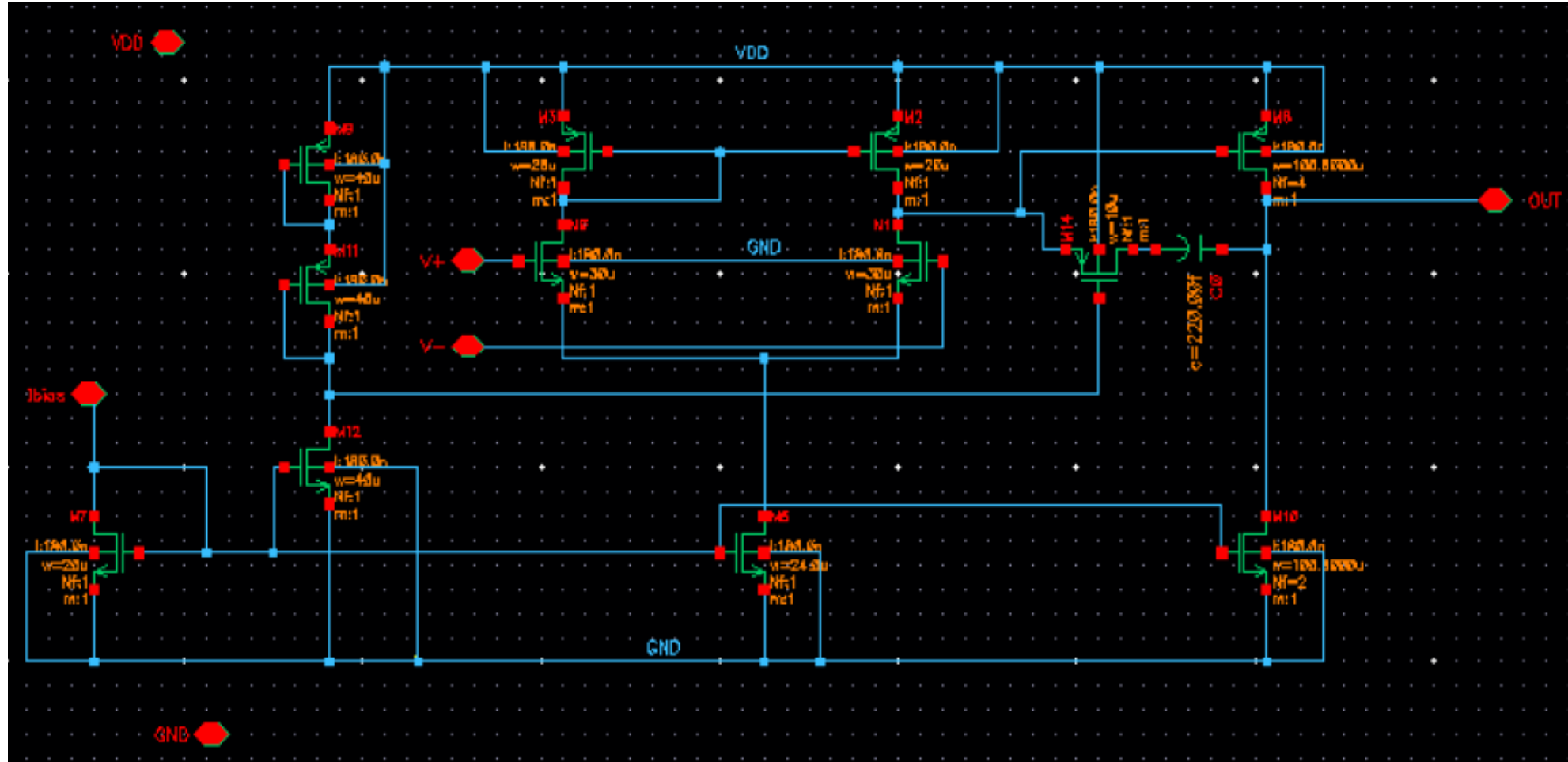
1. How to test the MOSFET DC operation point
2. 5TOTA with nulling resistance
3. Folded cascode
4. Folded cascode with rail to rail
5. Folded cascode with rail to rail and constant gm

How to test the MOSFET DC operation point(e.x 5T-OTA Differential pair)

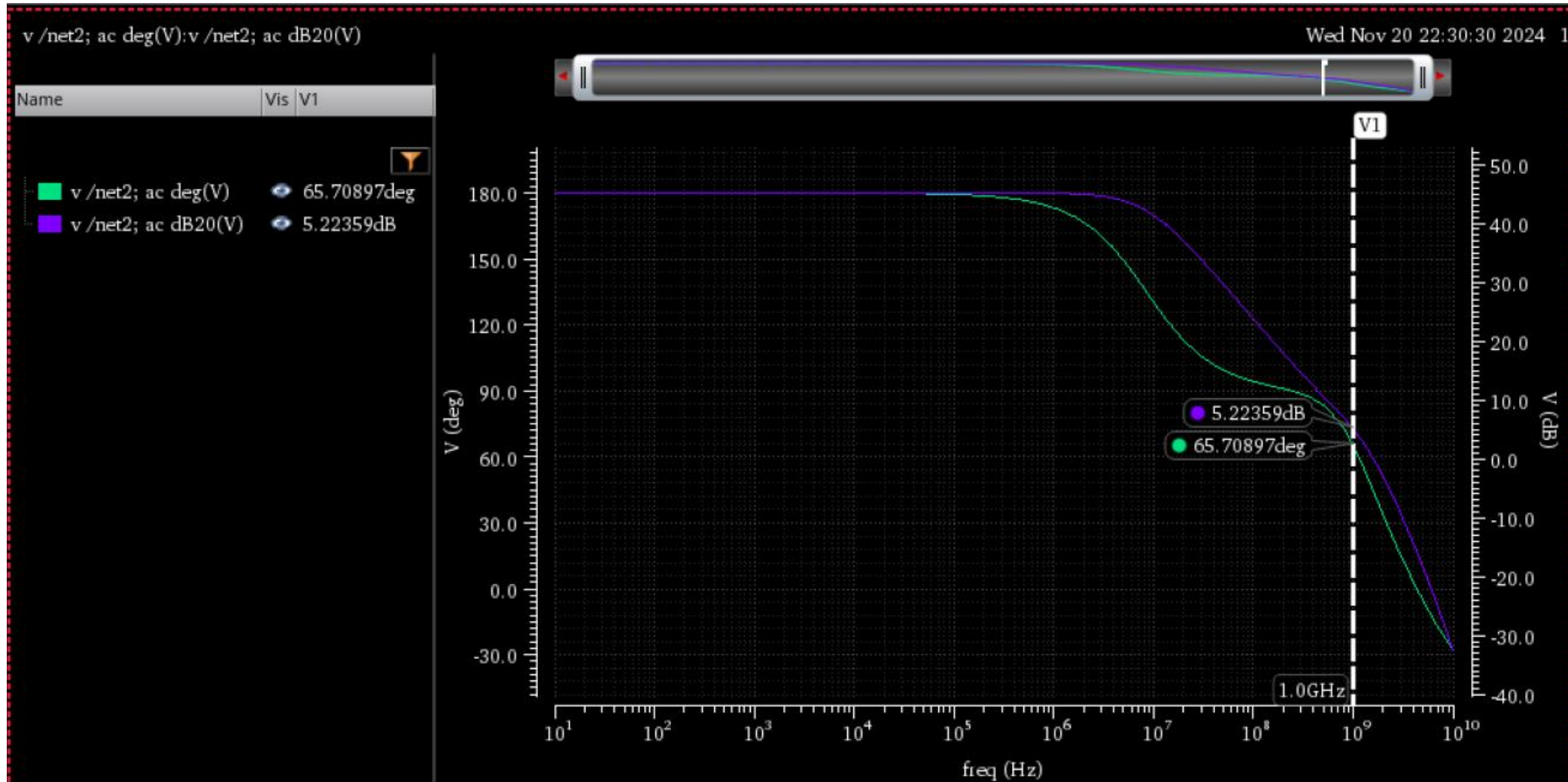
Sweep W to find the best point



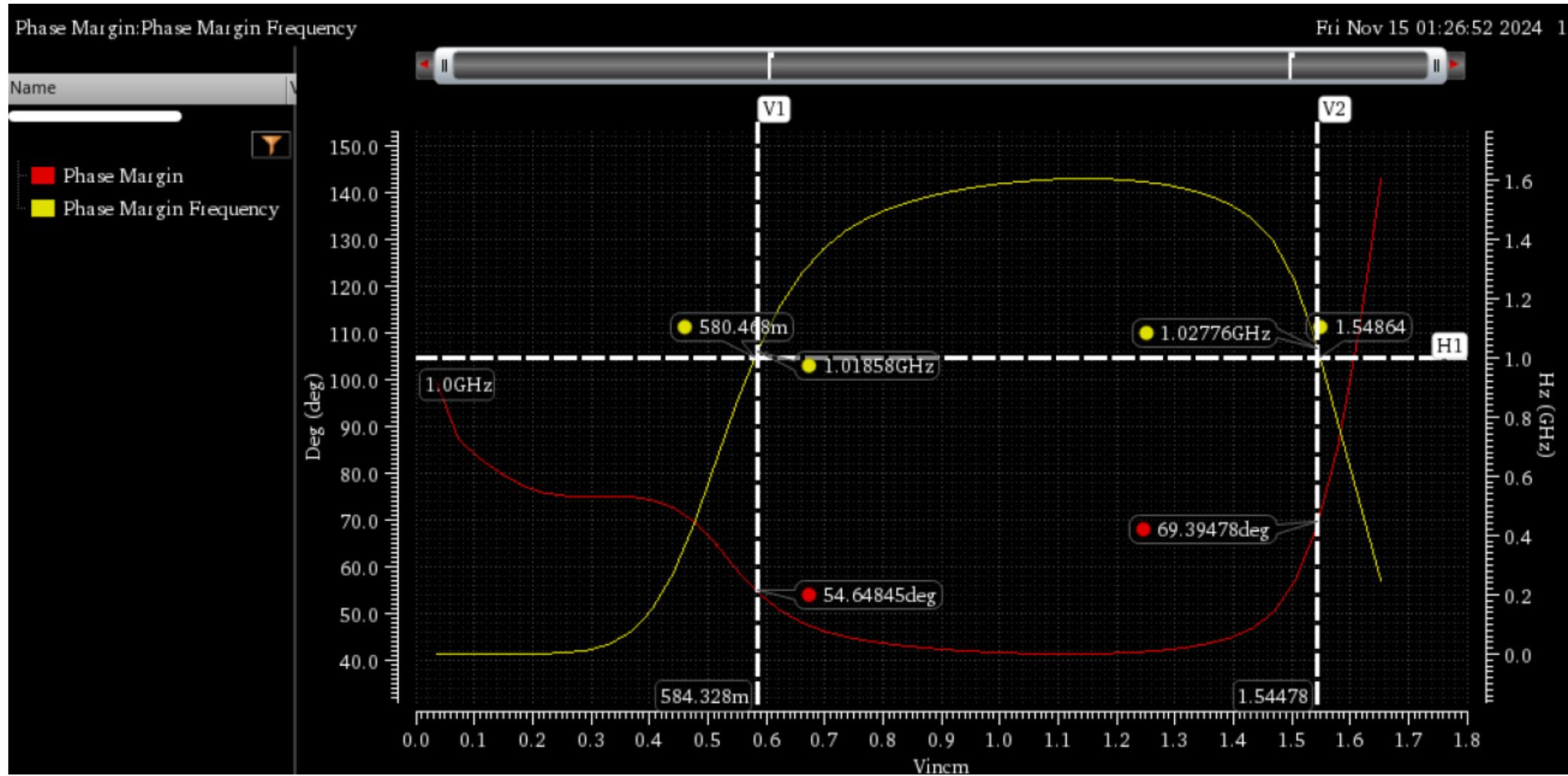
5TOTA



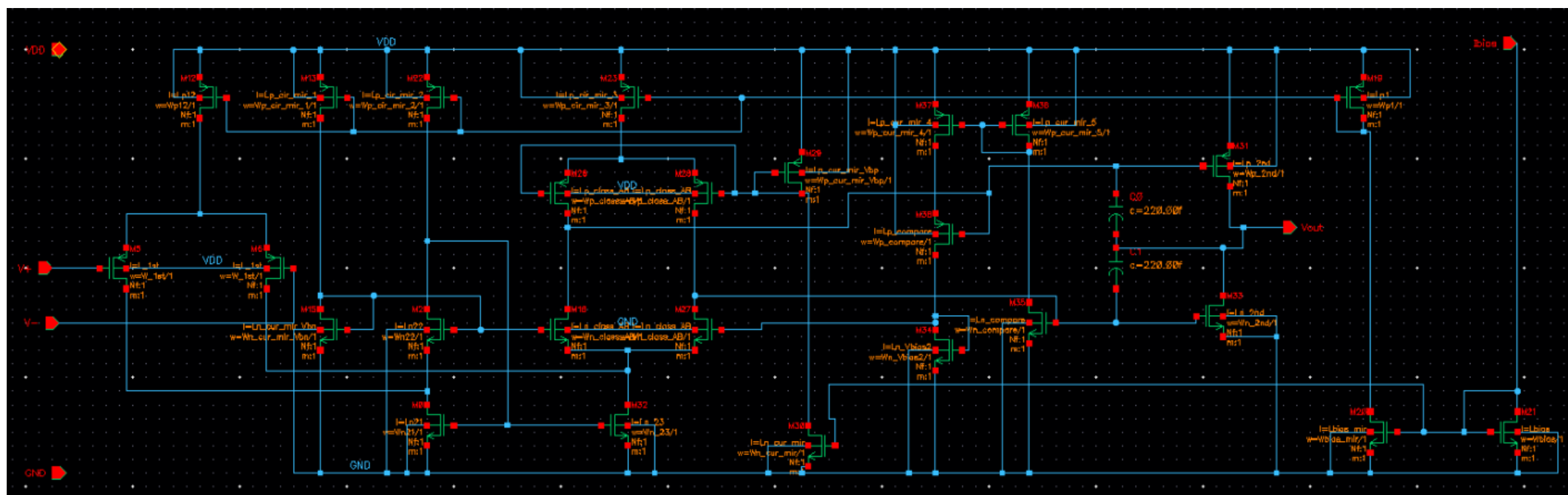
5TOTA Gain and Phase margin



5TOTA Input Common Range

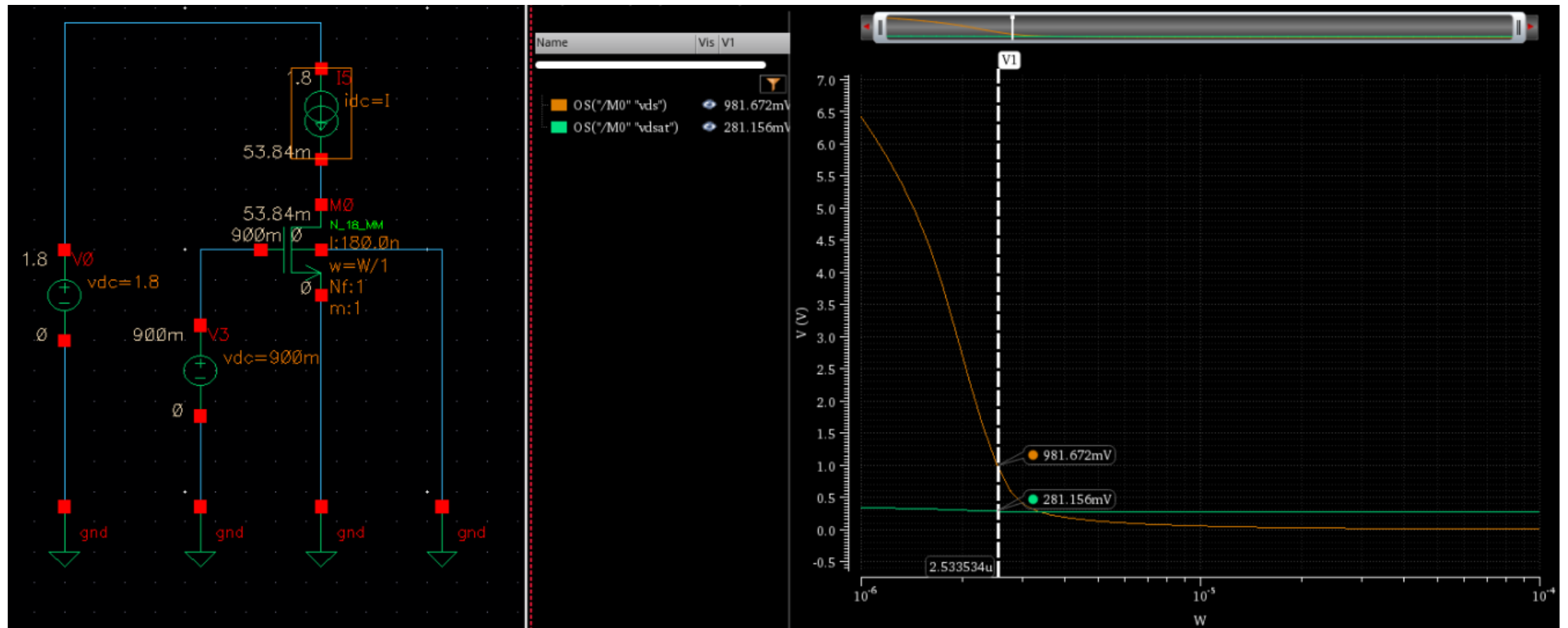


Folded Cascode

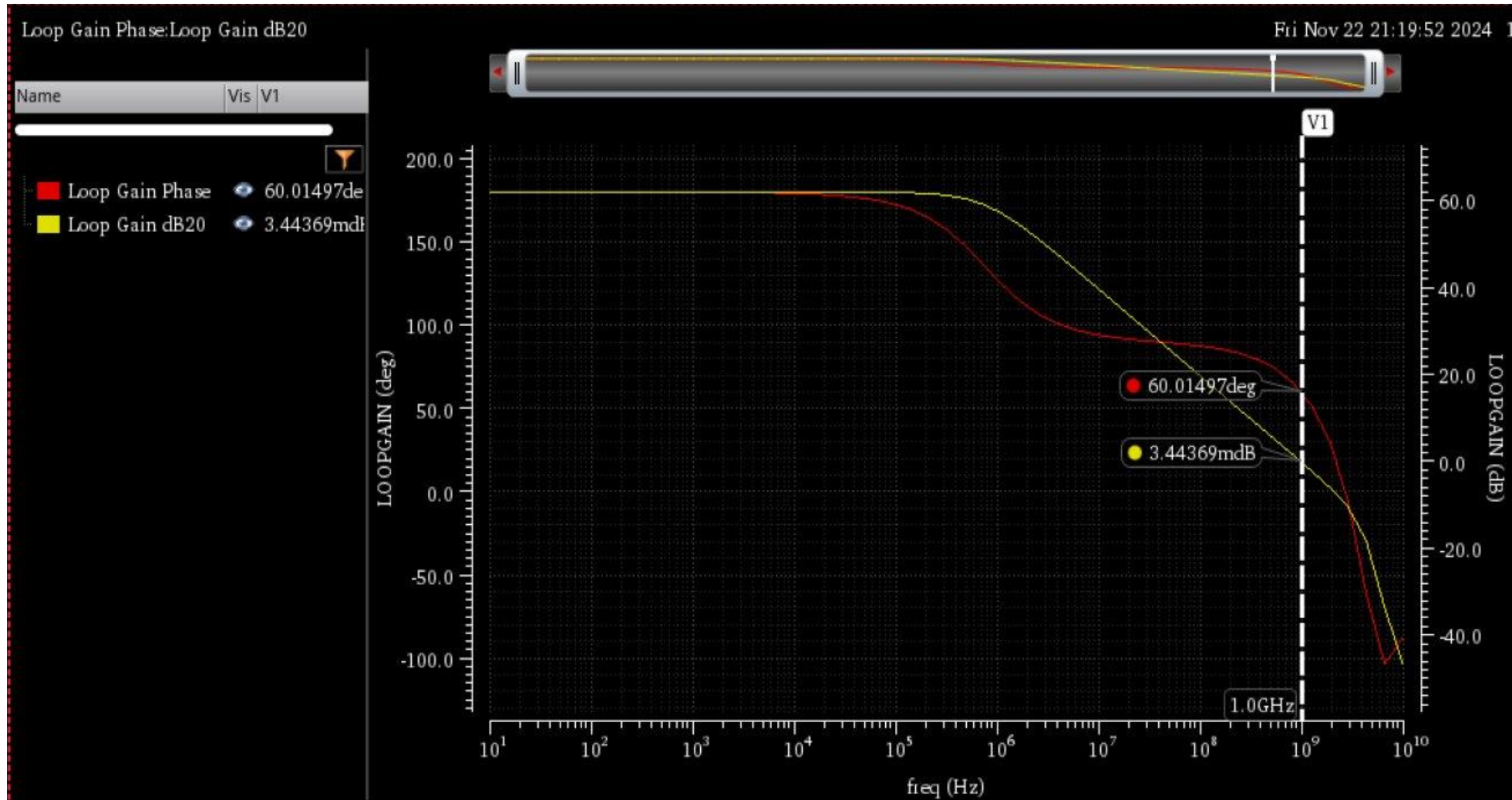


How to test the MOSFET DC operation point (Class AB & Current Mirror)

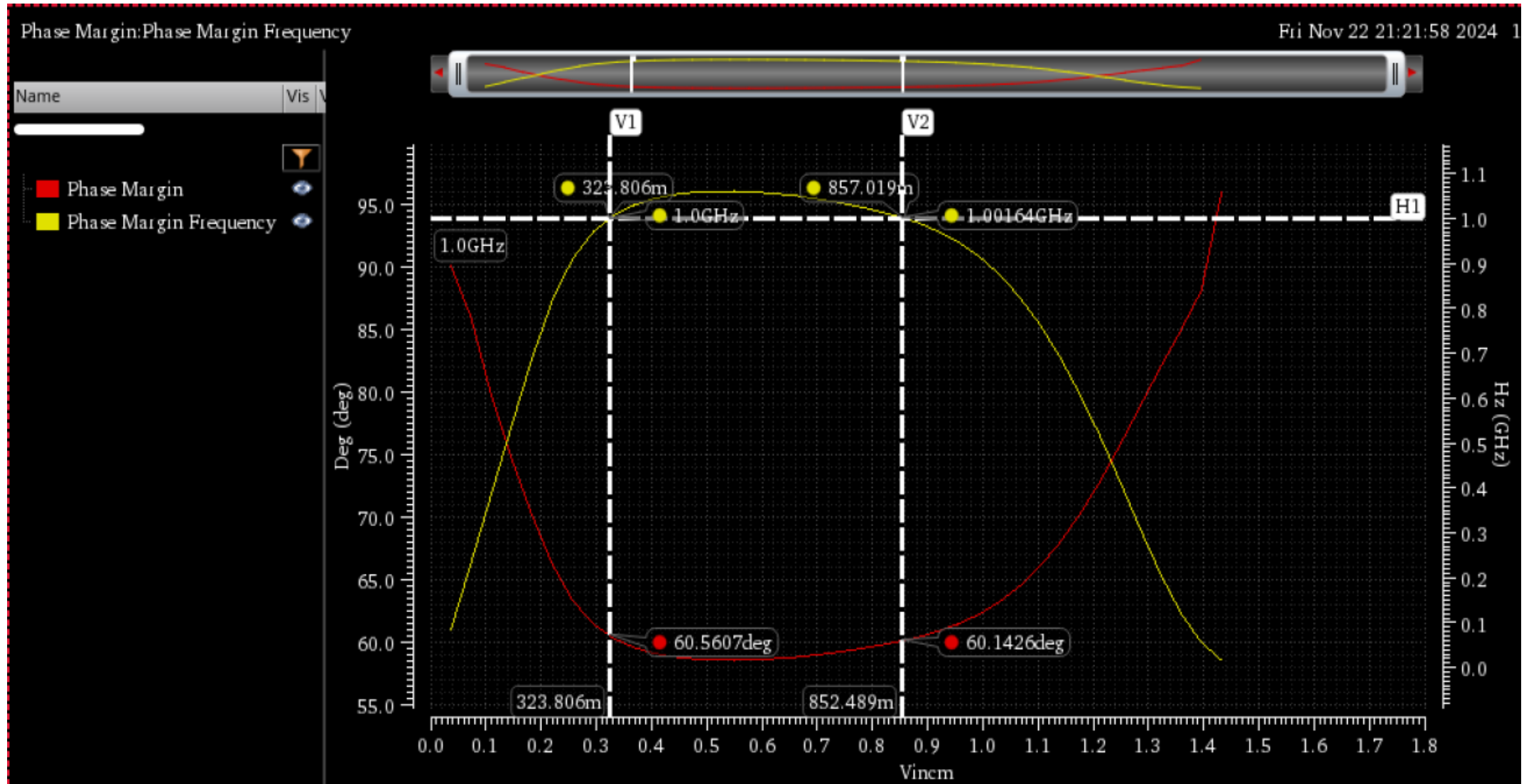
Sweep W to find the best point that v_{ds} slightly bigger than v_{dsat} .



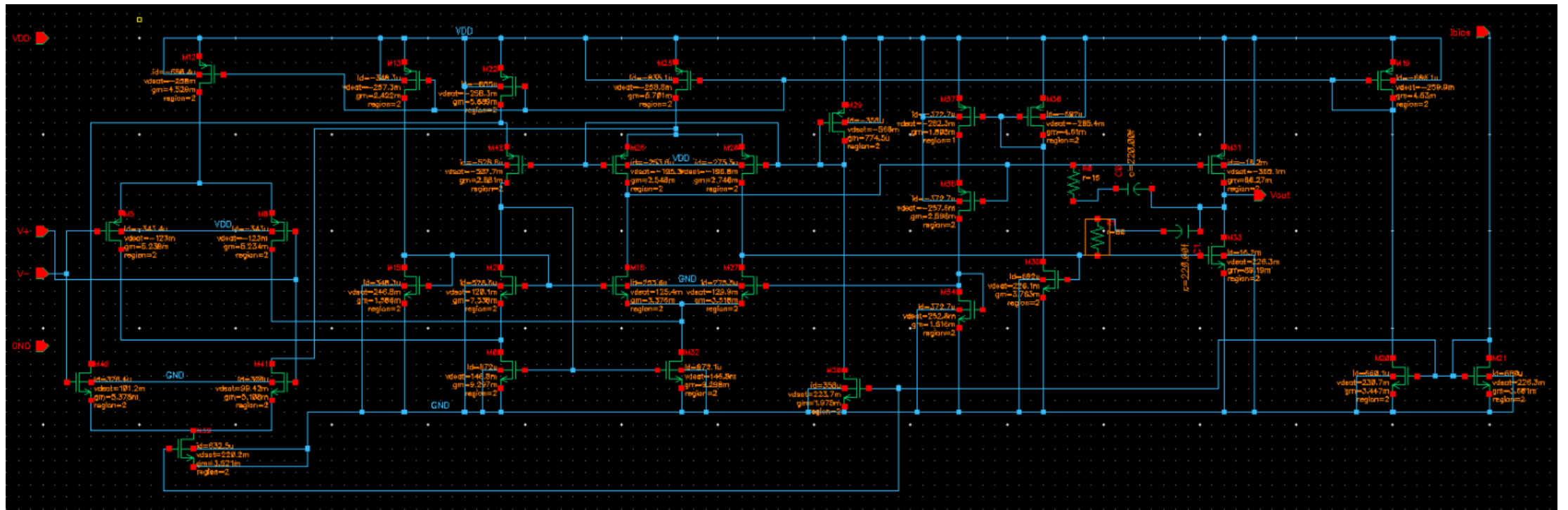
Folded Cascode Gain and Phase margin



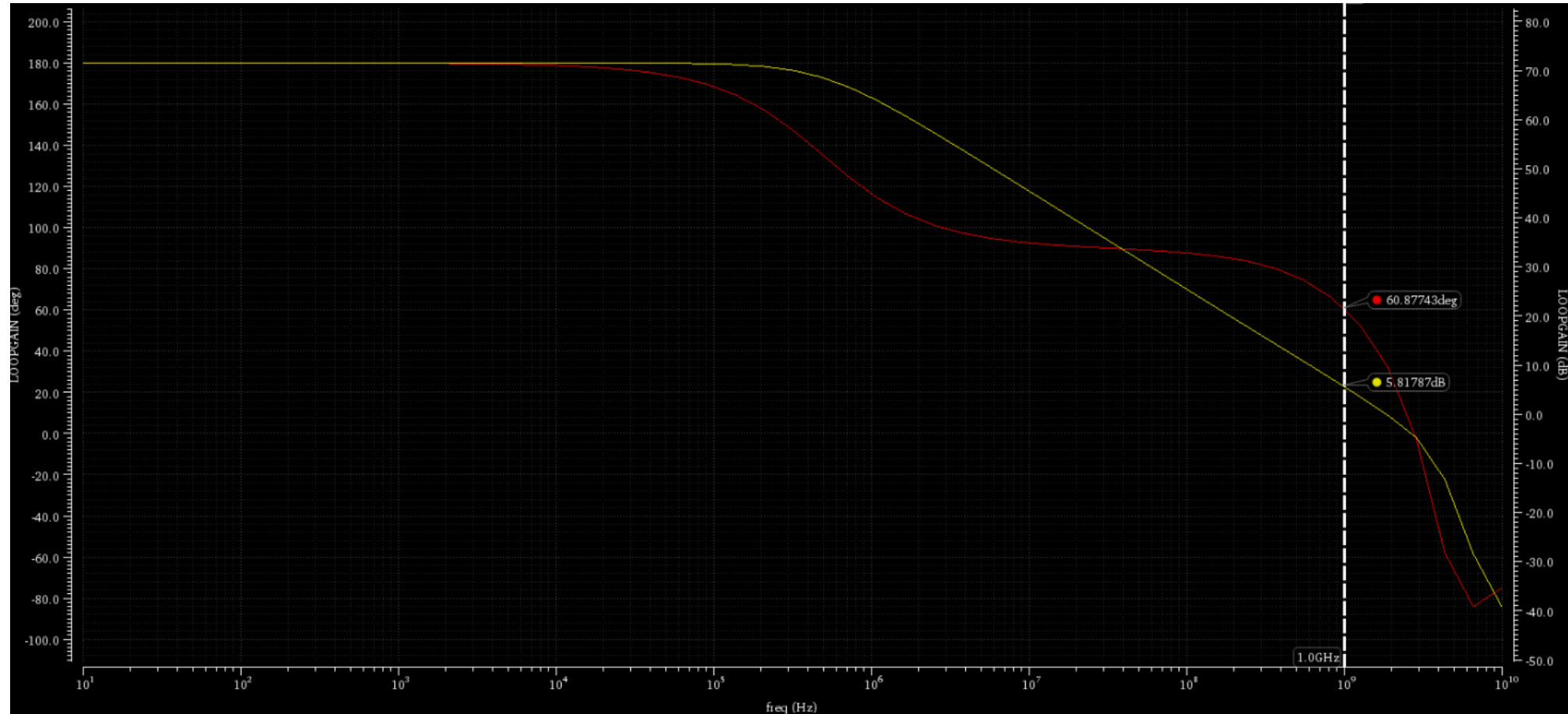
Folded Cascode Gain and Phase margin



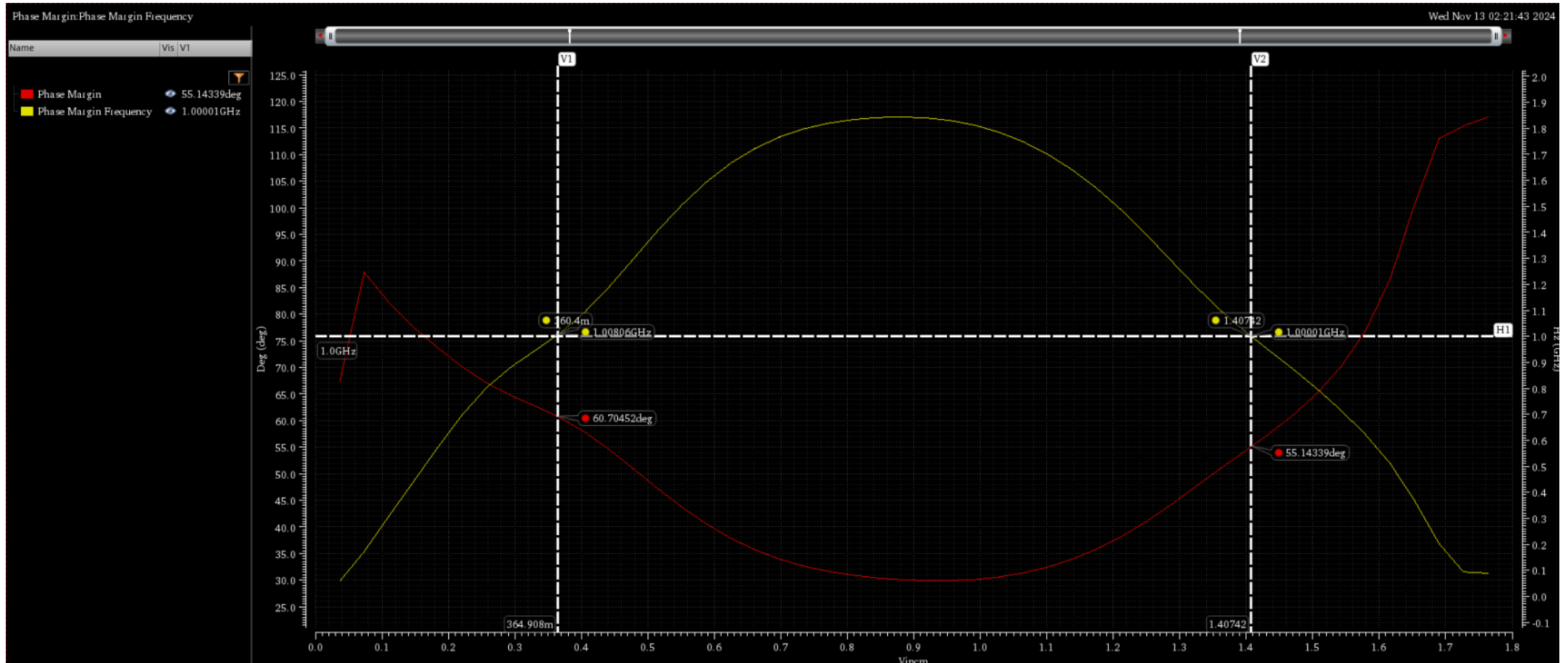
Folded Cascode Rail to Rail



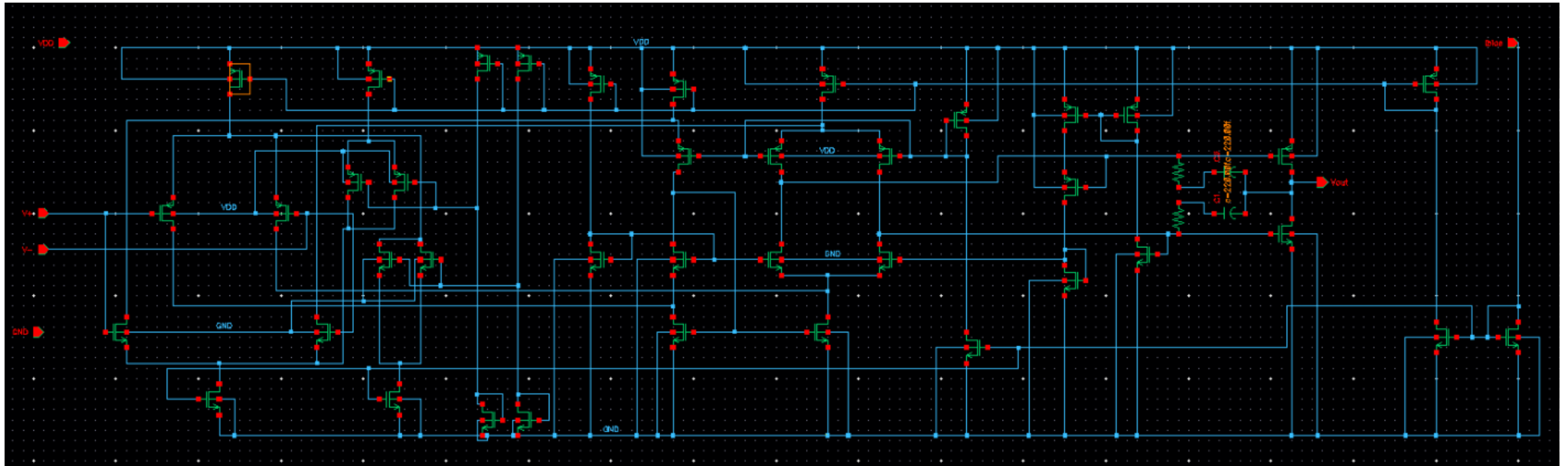
Folded Cascode Gain and Phase margin



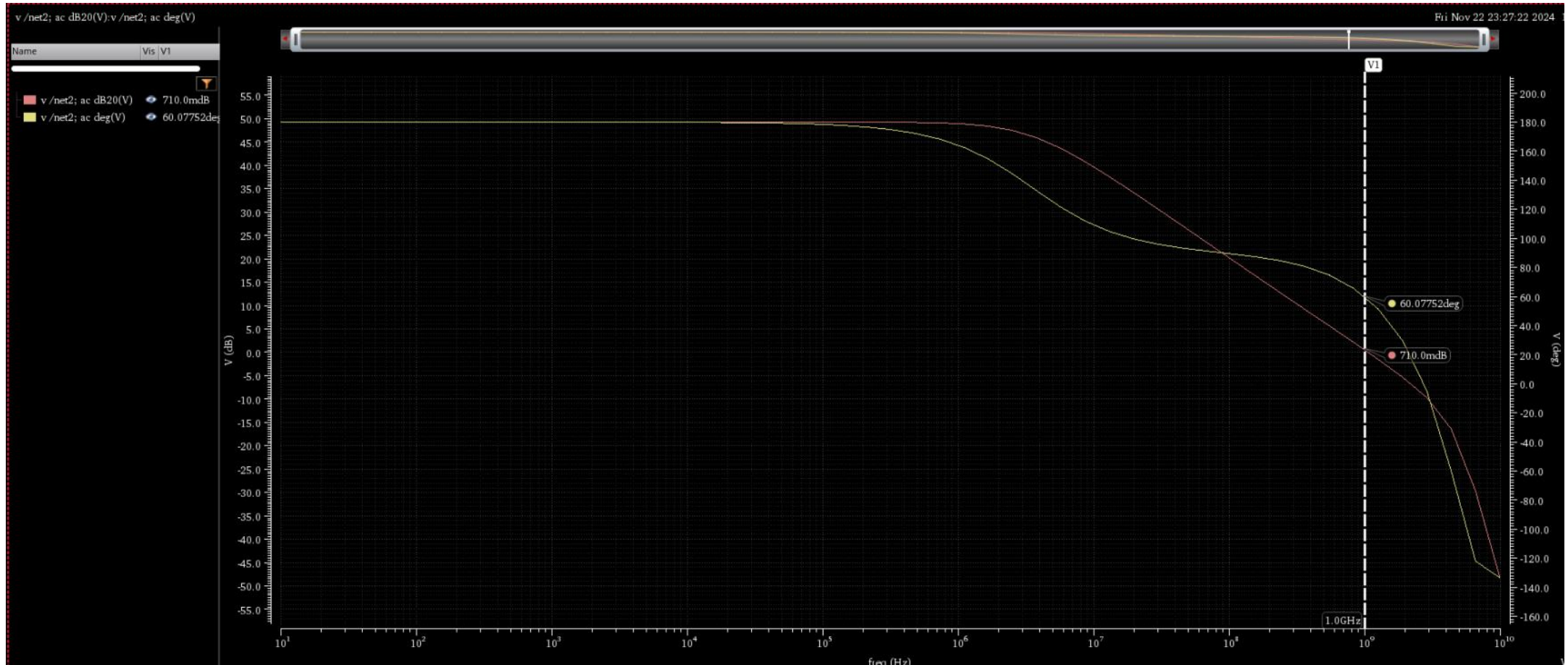
Folded Cascode Rail to Rail



Folded Cascode Rail to Rail with Constant Gm



Folded Cascode Rail to Rail with Constant GM Gain and Phase margin



Simulate Input Stage With Constant GM

