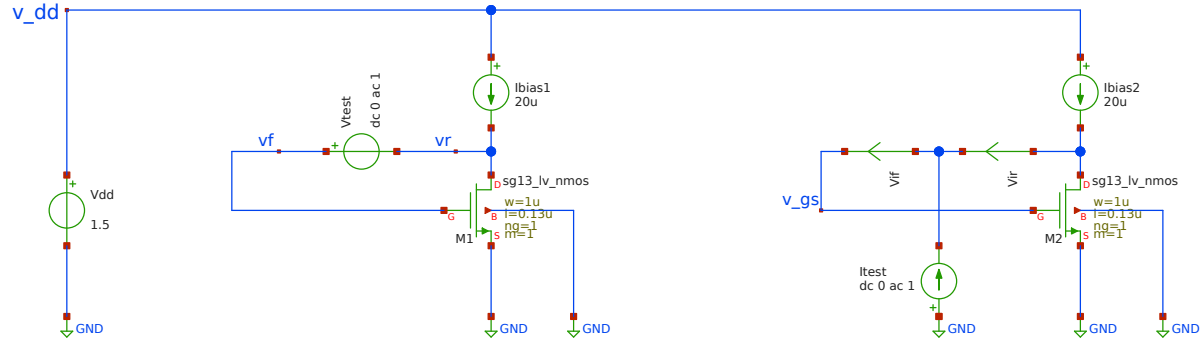NGSPICE

```
.param temp=27
.control
save all
op
ac dec 101 30k 30G
let tv=-v(vr)/v(vf)
let ti=-i(vir)/i(vif)
let t=(tv*ti - 1)/(tv + ti + 2)
plot db(t)
plot 180/pi*ph(t)
write mosfet_diode_loopgain.raw
.endc
```

MODEL

```
.lib cornerMOSlv.lib mos_tt
```

v_dd

Vtest
dc 0 ac 1

Ibias1
20u

vf   vr

Vdd

1.5

sg13_lv_nmos
w=1u
l=0.13u
ng=1
m=1

M1

GND   GND   GND

Ibias2
20u

vif   vir

v_gs

sg13_lv_nmos
w=1u
l=0.13u
ng=1
m=1

M2

Itest
dc 0 ac 1

GND   GND   GND

simulate   annotate OP

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/foss/designs/xschem/mosfet_diode_loopgain.sch