```
NGSPICE CTRL
                                                                            NGSPICE SAVE
                                                                             .save b d q n
 .option sparse
 .temp 27
                                                                             .save @n.xml.nsg13 lv pmos[cgsol]
 .param wx=5u lx=0.13u vbx=0
                                                                             .save @n.xml.nsg13 lv pmos[cgdol]
 .noise v(n) vg lin 1 1 1 1
                                                                             .save @n.xml.nsg13 lv pmos[cdd]
                                                                             .save @n.xml.nsg13 lv pmos[cgb]
 .control
                                                                             .save @n.xml.nsg13 lv pmos[cgd]
 option numdgt=3
 set wr singlescale
                                                                             .save @n.xml.nsg13 lv pmos[cgg]
                                                                             .save @n.xml.nsg13 lv pmos[cgs]
 set wr vecnames
                                                                             .save @n.xml.nsg13 lv pmos[css]
 compose l vec values 0.13u 0.2u 0.3u 0.4u 0.5u 1u 5u 10u
                                                                             .save @n.xml.nsg13 lv pmos[gds]
 compose vg vec start= 0 stop=1.5 step=25m
                                                                             .save @n.xml.nsg13 lv pmos[gm]
 compose vd vec start= 0 stop=1.5 step=25m
                                                                             .save @n.xml.nsg13 lv pmos[gmb]
 compose vb vec values 0 0.4 0.8 1.2
                                                                             .save @n.xml.nsg13 lv pmos[ids]
                                                                             .save @n.xml.nsg13 lv pmos[l]
 foreach var1 $&l vec
                                                                             .save @n.xml.nsg13 lv pmos[vgs]
   alterparam lx=$var1
                                                                             .save @n.xml.nsg13 lv pmos[vds]
   reset
                                                                             .save @n.xml.nsq13 lv pmos[vsb]
   foreach var2 $&vg vec
                                                                             .save @n.xml.nsg13 lv pmos[vth]
                                                                             .save @n.xml.nsg13 lv pmos[vdss]
     alter vg $var2
                                                                             .save @n.xml.nsg13 lv pmos[fug]
     foreach var3 $&vd vec
       alter vd $var3
                                                                             .save @n.xml.nsg13 lv pmos[sid]
                                                                             .save @n.xml.nsg13 lv pmos[sfl]
       foreach var4 $&vb vec
                                                                             .save @n.xml.nsg13 lv pmos[cjd]
         alter vsb $var4
                                                                             .save @n.xml.nsg13 lv pmos[cjs]
         wrdata techsweep sg13 lv pmos.txt noise1.all
                                                                             .save @n.xml.nsg13 lv pmos[rg]
         destroy all
         set appendwrite
         unset set wr vecnames
       end
                                                    simulate
     end
   end
                                                     annotate OP
 end
 set appendwrite=0
 alterparam lx=0.13u
                                                                                                        vth=
 alterparam vbx=0
                                                                                                  vdss(vds_sat)=
 reset
                                                                            {vbx}
 qo
                                                      0.65 AC 1
 *showmod
                                                                                                      fug(f_t)=
 write techsweep sg13g2 lv pmos.raw
                                                                 w = \{wx\}
|=\{|x\}
                                                                                                        cdg=
 .endc
                                                                                          n t
                                                                 sg13_lv_pmos
MODEL
.lib cornerMOSlv.lib mos tt
```

