\* source 4P\_MODEL\_REV001

V\_V2 VS1 N520312 50.414Vdc

E\_E1 N521288 0 VALUE { 1000\*V(VS1, VSS1) }

E\_E2 N521295 0 VALUE { 1000\*V(VS1, VSS2) }

E\_E3 IUNB 0 VALUE { V(N521288, N521295) }

R\_R21 0 IUNB 1 TC=0,0

E\_SUM1 ILOAD 0 VALUE {V(N521288)+V(N521295)}

R\_R22 0 ILOAD 1 TC=0,0

R\_R30 0 N526315 1meg TC=0,0

E\_E4 HALF\_ILOAD 0 VALUE { 0.5\*V(ILOAD, 0) }

R\_R31 0 HALF\_ILOAD 1 TC=0,0

R\_R32 N520324 N526315 0.001 TC=0,0

G\_G1 N526315 0 VALUE { min(ILIM,(Ppd/V(Vpd\_In))) }

R\_R19 N520312 N598409 0.001 TC=0,0

R\_R20 N520312 N594228 0.001 TC=0,0

R\_R41 VS1 VSS1 0.001 TC=0,0

R\_R42 VS1 VSS2 0.001 TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_POS\_R21 ALTERNATIVE\_A\_PAIR\_POS\_N522513 VPD\_A\_POS

+ {alfa\*beta\*Rcable\_max} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_POS\_R20 N588826 ALTERNATIVE\_A\_PAIR\_POS\_N522513

+ {N\_conn\*Rconn\_min} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_POS\_R28 ALTERNATIVE\_A\_PAIR\_POS\_N522693 VPD\_A\_POS

+ {beta\*beta\_special\*Rcable\_max} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_POS\_R29 N588826 ALTERNATIVE\_A\_PAIR\_POS\_N522693

+ {N\_conn\*Rconn\_min} TC=0,0

R\_R7 N575719 N531127 {Rd\_max} TC=0,0

R\_R15 N575628 N524200 {Rd\_min} TC=0,0

V\_V3 N531127 N520324 {Vd\_max}

V\_V4 N524200 N520324 {Vd\_min}

V\_V5 0 N538171 {Vd\_max}

V\_V6 0 N538167 {Vd\_min}

R\_R35 N592232 N538167 {Rd\_min} TC=0,0

R\_R34 N576275 N538171 {Rd\_max} TC=0,0

R\_R36 N598086 N590940 {Rdson\_max} TC=0,0

R\_R39 N598409 N598086 {Rsense\_max} TC=0,0

R\_R40 N594228 N541774 {Rsense\_min} TC=0,0

R\_R38 N541774 N590759 {Rdson\_min} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_POS\_R14 ALTERNATIVE\_B\_PAIR\_POS\_N521853 VPD\_B\_POS

+ {Rcable\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_POS\_R5 ALTERNATIVE\_B\_PAIR\_POS\_N521651 VPD\_B\_POS

+ {Rcable\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_POS\_R21 N588926 ALTERNATIVE\_B\_PAIR\_POS\_N521651

+ {N\_conn\*Rconn\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_POS\_R22 N588926 ALTERNATIVE\_B\_PAIR\_POS\_N521853

+ {N\_conn\*Rconn\_max} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_NEG\_R28 ALTERNATIVE\_A\_PAIR\_NEG\_N523429 VPD\_A\_NEG

+ {beta\*Rcable\_max} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_NEG\_R21 ALTERNATIVE\_A\_PAIR\_NEG\_N523249 VPD\_A\_NEG

+ {beta\*Rcable\_max} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_NEG\_R20 N590773 ALTERNATIVE\_A\_PAIR\_NEG\_N523249

+ {N\_conn\*Rconn\_min} TC=0,0

R\_ALTERNATIVE\_A\_PAIR\_NEG\_R32 N590773 ALTERNATIVE\_A\_PAIR\_NEG\_N523429

+ {N\_conn\*Rconn\_min} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_NEG\_R14 ALTERNATIVE\_B\_PAIR\_NEG\_N522605 VPD\_B\_NEG

+ {Rcable\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_NEG\_R5 ALTERNATIVE\_B\_PAIR\_NEG\_N522403 VPD\_B\_NEG

+ {Rcable\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_NEG\_R20 N590948 ALTERNATIVE\_B\_PAIR\_NEG\_N522403

+ {N\_conn\*Rconn\_max} TC=0,0

R\_ALTERNATIVE\_B\_PAIR\_NEG\_R21 N590948 ALTERNATIVE\_B\_PAIR\_NEG\_N522605

+ {N\_conn\*Rconn\_max} TC=0,0

V\_V7 BETA 0 {beta}

V\_V8 ALFA 0 {alfa}

R\_R43 0 ALFA 1 TC=0,0

R\_R44 0 BETA 1 TC=0,0

E\_E5 VPD\_A 0 VALUE { V(VPD\_A\_POS, VPD\_A\_NEG) }

E\_E6 IA 0 VALUE { 1000\*V(VS1, VSS1) }

E\_E7 PPD 0 VALUE { v(Vpd\_a)\*v(Ia)+v(Vpd\_b)\*V(Ib) }

R\_R45 0 PPD 1 TC=0,0

R\_R46 0 IA 1 TC=0,0

E\_E8 IB 0 VALUE { 1000\*V(VS1, VSS2) }

R\_R47 0 IB 1 TC=0,0

R\_R48 0 VPD\_A 1 TC=0,0

E\_E9 VPD\_B 0 VALUE { V(VPD\_B\_POS, VPD\_B\_NEG) }

R\_R49 0 VPD\_B 1 TC=0,0

D\_D1 N576113 N575628 D1N4001

D\_D2 N576186 N575719 D1N4001

D\_D3 N592232 N576230 D1N4001

D\_D4 N576275 N576280 D1N4001

R\_R50 N576113 N575628 {RD\_MODEL} TC=0,0

R\_R51 N576186 N575719 {RD\_MODEL} TC=0,0

R\_R52 N576230 N592232 {RD\_MODEL} TC=0,0

R\_R53 N576280 N576275 {RD\_MODEL} TC=0,0

E\_E11 VPD\_IN 0 VALUE { (v(Vpd\_a)+v(Vpd\_b))/2 }

R\_R55 0 VPD\_IN 1 TC=0,0

R\_R33 VSS1 N588822 {Rt\_min/2} TC=0,0

R\_R56 N588822 N588826 {Rconn\_min/2} TC=0,0

R\_R58 N588922 N588926 {Rconn\_min/2} TC=0,0

R\_R57 VSS2 N588922 {Rt\_max/2} TC=0,0

R\_R60 N590763 N590773 {Rconn\_min/2} TC=0,0

R\_R59 N590759 N590763 {Rt\_min/2} TC=0,0

R\_R64 N590944 N590948 {Rconn\_min/2} TC=0,0

R\_R63 N590940 N590944 {Rt\_max/2} TC=0,0

R\_R66 N591327 N576113 {Rconn\_min/2} TC=0,0

R\_R65 VPD\_A\_POS N591327 {Rt\_min/2} TC=0,0

R\_R67 VPD\_B\_POS N597981 {Rt\_max/2} TC=0,0

R\_R68 N597981 N576186 {Rconn\_min/2} TC=0,0

R\_R69 VPD\_A\_NEG N597994 {Rdson\_min} TC=0,0

R\_R70 N597994 N576230 {Rt\_min/2} TC=0,0

R\_R71 VPD\_B\_NEG N598006 {Rt\_max/2} TC=0,0

R\_R72 N598006 N576280 {Rconn\_min/2} TC=0,0

.PARAM rsense\_max=0.1 vd\_min=0.001 vd\_max=0.001 lcable=100 beta=

+ {(1-p2prunb)/(1+p2prunb)} rt\_min=0.12 cable\_resistivity=0.0792

+ beta\_special=0.925 rd\_min=0.1 rt\_max=0.13 rd\_max=0.25

+ cordage\_resistivity=0.0926 resistivity=

+ {0.1\*cordage\_resistivity+0.9\*cable\_resistivity} alfa=

+ {(1-pair\_runb)/(1+pair\_runb)} rdson\_min=0.05 rdson\_max=0.1 ilim=2

+ rd\_model=0.001 pair\_a\_pos\_rmin=0.1 pair\_runb=0 pair\_a\_pos\_rmax=0.1

+ p2prunb=0.05 n\_conn=4 rcable\_max={lcable\*resistivity} ppd=51 rconn\_min=0.03

+ rconn\_max=0.05 rsense\_min={rsense\_max\*0.98}