

OP-05 Macromodel

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* Linear Technology OP05 op amp model
* Written: 08-23-1989 15:59:46 Type: Bipolar npn input, internal comp.
* Typical specs:
* Vos=2.0E-04, Ib=1.0E-09, Ios=1.0E-09, GBP=6.0E+05Hz, Phase mar.= 70 deg,
* SR(+)=3.0E-01V/us, SR(-)=2.9E-01V/us, Av= 114 dB, CMMR= 126 dB,
* Vsat(+)=2.00V, Vsat(-)=2.00V, Isc=+/-25.0mA, Iq= 3000uA
* (input differential mode clamp active)
*
* Connections: + - V+V-O
.subckt OP05 3 2 7 4 6
* input
rc1 7 80 8.842E+03
rc2 7 90 8.842E+03
q1 80 102 10 qm1
q2 90 103 11 qm2
rb1 2 102 5.000E+02
rb2 3 103 5.000E+02
ddm1 102 104 dm2
ddm3 104 103 dm2
ddm2 103 105 dm2
ddm4 105 102 dm2
c1 80 90 5.460E-12
re1 10 12 3.097E+03
re2 11 12 3.097E+03
iee 12 4 9.002E-06
re 12 0 2.222E+07
ce 12 0 1.579E-12
* intermediate
gcm 0 8 12 0 5.668E-11
ga 8 0 80 90 1.131E-04
r2 8 0 1.000E+05
c2 1 8 3.000E-11
gb 1 0 8 0 6.647E+02

* output
ro1 1 6 3.333E+01
ro2 1 0 6.667E+01
rc 17 0 1.393E-05
gc 0 17 6 0 7.179E+04
d1 1 17 dm1
d2 17 1 dm1
d3 6 13 dm2
d4 14 6 dm2
vc 7 13 2.803E+00
ve 14 4 2.803E+00
ip 7 4 2.991E-03
dsub 4 7 dm2
* models
.model qm1 npn (is=8.000E-16 bf=3.000E+03)
.model qm2 npn (is=8.062E-16 bf=9.000E+03)
.model dm1 d (is=5.991E-12)
.model dm2 d (is=8.000E-16)
.ends OP05
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* - - - - - * fini OP05 * - - - - - * [oamm vn1 8/89]

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