CA3600 ≡ 4007 CMOS
in Anl_misc.lib & Anl_misc.slb

11/02/05

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*-------------------------------------------------------------------------
*.model CA3600E
*14-pin DIP: pin#1  #2  #3  #4  #5  #6  #7  #8  #9  #10 #11 #12 #13 #14
*              |   |   |   |   |   |   |   |   |   |   |   |   |   |
.subckt CA3600E-X p01 p02 p03 p04 p05 p06 p07 p08 p09 p10 p11 p12 p13 p14
*               RCA             pid=CA3600
*               89-07-21 pwt

* The RCA data sheet was used for this model.

* BE SURE to keep pin #14 at the most positive potential w.r.t any other pin!
* BE SURE to keep pin # 7 at the most negative potential w.r.t any other pin!

  m_N1 p08   6 p07 p07 nch      ; device N1
  m_N2 p05   3 p04 p07 nch      ; device N2
  m_N3 p12  10 p09 p07 nch      ; device N3

  m_P1 p13   6 p14 p14 pch      ; device P1
  m_P2 p01   3 p02 p14 pch      ; device P2
  m_P3 p12  10 p11 p14 pch      ; device P3

* Input protection circuits from Fig. 34

  rx03 p03   3 r_zap 1          ; input protection on pin #3
  dx3p p03 p14 d_zap
  di3p   3 p14 d_zap
  di3n p07   3 d_zap

  rx06 p06   6 r_zap 1          ; input protection on pin #6
  dx6p p06 p14 d_zap
  di6p   6 p14 d_zap
  di6n p07   6 d_zap

  rx10 p10  10 r_zap 1          ; input protection on pin #10
  dx1p p10 p14 d_zap
  di1p  10 p14 d_zap
  di1n p07  10 d_zap

  d1 p07 p14 d_body             ; supply protection diode (D5 in Fig. 34)

* MOS characteristics derived as follows:
*
*       Id vs Vgs from Fig. 3 and 6 (using Parts as an aid)
*
*       output capacitance hand adjusted using simulations
*
*       Miller capacitance and output impedance hand adjusted using
*       simulations to match Fig. 10 and 11

.model nch nmos(Level=1 Tox=300n Uo=600 Kp=20.54u W=144u L=8u Vto= 1.3
+               Lambda=15m Cbd=4p Cbs=4p Cgdo=1.7n Cgso=1.7n Rs=1 Rd=1)
.model pch pmos(Level=1 Tox=300n Uo=300 Kp=10.32u W=328u L=8u Vto=-1.5
+               Lambda=15m Cbd=8p Cbs=8p Cgdo=1.7n Cgso=1.7n Rs=1 Rd=1)
.model r_zap  res(r=1.73K)
.model d_zap  D(Is= 1p Rs=1 N=1 Xti=3 Eg=1.11 Cjo=.01p M=0 Bv=20 Ibv=.1u)
.model d_body D(Is=15n Rs=1 N=1 Xti=3 Eg=1.11 Cjo=10p M=.5 Vj=.75
+               Fc=.5 Isr=.15n Nr=2 Bv=20 Ibv=100u)
.ends
*$
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