

PROCESS PARAMETERS	M3	POLY_HRI	M4	M5	M6	N_W	UNITS
Sheet Resistance	0.08	991.5	0.08	0.08	0.01	941	ohms/sq
Contact Resistance	8.97		14.09	18.84	21.44		ohms

COMMENTS: BLK is silicide block.

CAPACITANCE PARAMETERS	N+	P+	POLY	M1	M2	M3	M4	M5	M6	R_W	D_N_W	M5P	N_W	UNITS
Area (substrate)	998	1152	103	39	19	13	9	8	3		129		127	aF/um^2
Area (N+active)			8566	54	21	14	11	10	9					aF/um^2
Area (P+active)			8324											aF/um^2
Area (poly)				64	18	10	7	6	5					aF/um^2
Area (metal1)					44	16	10	7	5					aF/um^2
Area (metal2)						38	15	9	7					aF/um^2
Area (metal3)							40	15	9					aF/um^2
Area (metal4)								37	14					aF/um^2
Area (metal5)									36			1003		aF/um^2
Area (r well)	987													aF/um^2
Area (d well)										574				aF/um^2
Area (no well)	139													aF/um^2
Fringe (substrate)	244	201		18	61	55	43	25						aF/um
Fringe (poly)				69	39	29	24	21	19					aF/um
Fringe (metal1)					61	35		23	21					aF/um
Fringe (metal2)						54	37	27	24					aF/um
Fringe (metal3)							56	34	31					aF/um
Fringe (metal4)								58	40					aF/um
Fringe (metal5)									61					aF/um
Overlap (P+active)			652											aF/um

CIRCUIT PARAMETERS			UNITS
Inverters	K		
Vinv	1.0	0.74	volts
Vinv	1.5	0.78	volts
Vol (100 uA)	2.0	0.08	volts
Voh (100 uA)	2.0	1.63	volts
Vinv	2.0	0.82	volts
Gain	2.0	-23.33	
Ring Oscillator Freq.			
D1024_THK (31-stg,3.3V)		338.22	MHz
DIV1024 (31-stg,1.8V)		402.84	MHz
Ring Oscillator Power			
D1024_THK (31-stg,3.3V)		0.07	uW/MHz/gate
DIV1024 (31-stg,1.8V)		0.02	uW/MHz/gate

COMMENTS: DEEP_SUBMICRON

T4BK SPICE BSIM3 VERSION 3.1 PARAMETERS

SPICE 3f5 Level 8, Star-HSPICE Level 49, UTMOST Level 8

* DATE: Jan 21/05

* LOT: T4BK

WAF: 3004

* Temperature_parameters=Default

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.MODEL CMOSN NMOS (
+VERSION = 3.1          TNOM = 27          LEVEL = 49
+XJ = 1E-7             NCH = 2.3549E17     TOX = 4E-9
+K1 = 0.5802748       K2 = 3.124029E-3     VTH0 = 0.3662648
+K3B = 3.3886871      W0 = 1E-7          K3 = 1E-3
+DVT0W = 0            DVT1W = 0          NLX = 1.766159E-7
+DVT0 = 1.2312416     DVT1 = 0.3849841   DVT2W = 0
+U0 = 265.1889031     UA = -1.506402E-9  DVT2 = 0.0161351
+UC = 5.621884E-11    VSAT = 1.017932E5  UB = 2.489393E-18
+AGS = 0.4543117      B0 = 3.433489E-7   A0 = 2
+KETA = -0.0127714    A1 = 1.158074E-3   B1 = 5E-6
+RDSW = 136.5582806   PRWG = 0.5         A2 = 1
+WR = 1               WINT = 0           PRWB = -0.2
+XL = 0              XW = -1E-8        LINT = 1.702415E-8
+DWB = 1.107719E-8    VOFF = -0.0948017 DWG = -4.211574E-9
+CIT = 0             CDSC = 2.4E-4      NFACTOR = 2.1860065
+CDSCB = 0           ETA0 = 3.335516E-3 CDSCD = 0
+DSUB = 0.0214781    PCLM = 0.6602119  ETAB = 6.028975E-5
+PDIBLC2 = 3.287142E-3 PDIBLCB = -0.1     PDIBLC1 = 0.1605325
+PSCBE1 = 6.420235E9  PSCBE2 = 4.122516E-9 DROUT = 0.7917811
+DELTA = 0.01        RSH = 6.6         PVAG = 0.0347169
+PRT = 0             UTE = -1.5        MOBMOD = 1
+KT1L = 0           KT2 = 0.022       KT1 = -0.11
+UB1 = -7.61E-18     UC1 = -5.6E-11    UA1 = 4.31E-9
+WL = 0             WLN = 1           AT = 3.3E4
+WWN = 1           WWL = 0          WW = 0
+LLN = 1           LW = 0            LL = 0
+LWL = 0           CAPMOD = 2        LWN = 1
+CGDO = 8.06E-10     CGSO = 8.06E-10   XPART = 0.5
+CJ = 9.895609E-4    PB = 0.8          CGBO = 1E-12
+CJSW = 2.393608E-10 PBSW = 0.8        MJ = 0.3736889
+CJSWG = 3.3E-10     PBSWG = 0.8       MJSW = 0.1537892
+CF = 0             PVTH0 = -1.73163E-3 MJSWG = 0.1537892
+PK2 = 1.600729E-3   WKETA = 1.601517E-3 PRDSW = -1.4173554
+PU0 = 5.2024473     PUA = 1.584315E-12 LKETA = -3.255127E-3
+PVSAT = 1.686297E3  PETA0 = 1.001594E-4 PUB = 7.446142E-25
*                   PKETA = -2.039532E-3 )
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.MODEL CMOSP PMOS (
+VERSION = 3.1          TNOM = 27          LEVEL = 49
+XJ = 1E-7             NCH = 4.1589E17     TOX = 4E-9
+K1 = 0.5895473       K2 = 0.0235946     VTH0 = -0.3708038
+K3B = 13.8642028     W0 = 1E-6          K3 = 0
+DVT0W = 0            DVT1W = 0          NLX = 1.517201E-7
+DVT0 = 0.7885088     DVT1 = 0.2564577   DVT2W = 0
+U0 = 103.0478426     UA = 1.049312E-9   DVT2 = 0.1
+UC = -1E-10          VSAT = 1.645114E5  UB = 2.545758E-21
+AGS = 0.3295499      B0 = 5.207699E-7   A0 = 1.627879
+KETA = 0.0296157     A1 = 0.4449009     B1 = 1.370868E-6
+RDSW = 306.5789827   PRWG = 0.5         A2 = 0.3
+WR = 1               WINT = 0           PRWB = 0.5
+XL = 0              XW = -1E-8        LINT = 2.761033E-8
+DWB = -9.34648E-11  VOFF = -0.0867009 DWG = -2.433889E-8
+CIT = 0             CDSC = 2.4E-4      NFACTOR = 2
+CDSCB = 0           ETA0 = 1.018318E-3 CDSCD = 0
+DSUB = 1.094521E-3   PCLM = 1.3281073   ETAB = -3.206319E-4
+PDIBLC2 = -3.255915E-6 PDIBLCB = -1E-3    PDIBLC1 = 2.394169E-3
+PSCBE1 = 4.881933E10 PSCBE2 = 5E-10     DROUT = 0
*                   PVAG = 2.0932623
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+DELTA	= 0.01	RSH	= 7.5	MOBMOD	= 1
+PRT	= 0	UTE	= -1.5	KT1	= -0.11
+KT1L	= 0	KT2	= 0.022	UA1	= 4.31E-9
+UB1	= -7.61E-18	UC1	= -5.6E-11	AT	= 3.3E4
+WL	= 0	WLN	= 1	WW	= 0
+WWN	= 1	WWL	= 0	LL	= 0
+LLN	= 1	LW	= 0	LWN	= 1
+LWL	= 0	CAPMOD	= 2	XPART	= 0.5
+CGDO	= 6.52E-10	CGSO	= 6.52E-10	CGBO	= 1E-12
+CJ	= 1.157423E-3	PB	= 0.8444261	MJ	= 0.4063933
+CJSW	= 1.902456E-10	PBSW	= 0.8	MJSW	= 0.3550788
+CJSWG	= 4.22E-10	PBSWG	= 0.8	MJSWG	= 0.3550788
+CF	= 0	PVTH0	= 1.4398E-3	PRDSW	= 0.5073407
+PK2	= 2.190431E-3	WKETA	= 0.0442978	LKETA	= -2.936093E-3
+PU0	= -0.9769623	PUA	= -4.34529E-11	PUB	= 1E-21
+PVSAT	= -50	PETA0	= 1.002762E-4	PKETA	= -6.740436E-3
*)