

MOSIS PARAMETRIC TEST RESULTS

RUN: N8BN  
 TECHNOLOGY: SCN05H

VENDOR: AMI  
 FEATURE SIZE: 0.5 microns

INTRODUCTION: This report contains the lot average results obtained by MOSIS from measurements of MOSIS test structures on each wafer of this fabrication lot. SPICE parameters obtained from similar measurements on a selected wafer are also attached.

COMMENTS: American Microsystems, Inc. C5N.

TRANSISTOR PARAMETERS	W/L	N-CHANNEL	P-CHANNEL	UNITS
MINIMUM	0.9/0.60			
Vth		1.04	-0.95	Volts
SHORT	15/0.60			
Idss		433	-263	uA/um
Vth		0.61	-0.89	Volts
Vpt		9.4	-11.6	Volts
WIDE	15/0.60			
Ids0		8.4	-0.2	pA/um
LARGE	5.4/5.4			
Vth		0.77	-0.95	Volts
Vjbkd		10.6	-11.6	Volts
Ijlk		-25.3	-2.5	pA
Gamma		0.59	0.68	V^0.5
K' (Uo*Cox/2)		56.0	-16.2	uA/V^2

COMMENTS: Poly bias varies with design technology. To account for mask and etch bias use the appropriate value for the parameter XL in your model card.

Design Technology	XL
SCN_SUBM (lambda=0.30)	0.00
AMI_C5	0.00
SCN (lambda=0.35)	-0.10

FOX TRANSISTORS	GATE	N+ACTIVE	P+ACTIVE	UNITS				
Vth	Poly	>15.0	<-15.0	Volts				
PROCESS PARAMETERS	N+ACTV	P+ACTV	POLY	POLY2	MTL1	MTL2	MTL3	UNITS
Sheet Resistance	79.4	108.1	24.7	25.6	0.09	0.09	0.09	ohms/sq
Width Variation (measured - drawn)	-0.24	-0.21	-0.22	-0.19	-0.03	-0.14	-0.21	microns
Contact Resistance	51.0	116.0	17.7	17.1		1.58	1.85	ohms
Gate Oxide Thickness	141							angstrom
PROCESS PARAMETERS	POLY_RES	N_WELL	N\PLY	UNITS				
Sheet Resistance	----	819	831	ohms/sq				
Width Variation (measured - drawn)				microns				
Contact Resistance				ohms				

COMMENTS: N\POLY is N-well under polysilicon.

CAPACITANCE PARAMETERS	N+ACTV	P+ACTV	POLY	POLY2	MTL1	MTL2	MTL3	N_WELL	UNITS
Area (substrate)	428	734	93		36	21	12	35	aF/um <sup>2</sup>
Area (N+active)			2455	839	60	27	19		aF/um <sup>2</sup>
Area (P+active)			2362	838					aF/um <sup>2</sup>
Area (poly)				798	55	22	14		aF/um <sup>2</sup>
Area (poly2)					57				aF/um <sup>2</sup>
Area (metall1)						34	18		aF/um <sup>2</sup>
Area (metal2)							35		aF/um <sup>2</sup>
Fringe (substrate)	370	279			77	50	55		aF/um
Fringe (poly)					64	47	35		aF/um
Fringe (metall1)						56	39		aF/um
Fringe (metal2)							48		aF/um
Overlap (N+active)			199						aF/um
Overlap (P+active)			240						aF/um

CIRCUIT PARAMETERS			UNITS
Inverters	K		
Vinv	1.0	2.21	Volts
Vinv	1.5	2.47	Volts
Vol (100 uA)	2.0	0.86	Volts
Voh (100 uA)	2.0	4.17	Volts
Vinv	2.0	2.65	Volts
Gain	2.0	-18.82	
Ring Oscillator Freq.			
DIV4 (31-stage,5V)		121.51	MHz
Ring Oscillator Power			
DIV4 (31-stage,5V)		0.07	uW/MHz/g

COMMENTS: SUBMICRON

N8BN SPICE BSIM3 VERSION 3.1 (HSPICE Level 49) PARAMETERS

\* DATE: Jan 25/99

\* LOT: n8bn

WAF: 03

\* Temperature\_parameters=Default

```
.MODEL CMOSN NMOS (
+VERSION = 3.1          TNOM = 27          LEVEL = 49
+XJ = 1.5E-7          NCH = 1.7E17        TOX = 1.41E-8
+K1 = 0.8354582      K2 = -0.088431      VTH0 = 0.7086
+K3B = -14           W0 = 6.480766E-7      K3 = 41.4403818
+DVTOW = 0          DVT1W = 5.3E6         NLX = 1E-10
+DVT0 = 3.6139113   DVT1 = 0.3795745   DVT2W = -0.032
+U0 = 533.6953445   UA = 7.558023E-10 DVT2 = -0.1399976
+UC = 2.582756E-11  VSAT = 1.300981E5  UB = 1.181167E-18
+AGS = 0.1463715   B0 = 1.283336E-6   A0 = 0.5292985
+KETA = -0.0173166 A1 = 0             B1 = 1.408099E-6
+RDSW = 2.268366E3 PRWG = -1E-3       A2 = 1
+WR = 1            WINT = 2.043512E-7      PRWB = 6.320549E-5
+XL = 0           XW = 0             LINT = 3.034496E-8
+DWB = 2.077539E-8 VOFF = -0.1137226 DWG = -1.446149E-8
+CIT = 0          CDSC = 1.506004E-4      NFACTOR = 1.2880596
+CDSCB = 0       ETA0 = 3.815372E-4      CDSCD = 0
+DSUB = 2.173055E-4 PCLM = 0.6171774  ETAB = -1.029178E-3
+PDIBLC2 = 3.473187E-3 PDIBLCB = -1E-3   PDIBLC1 = 0.185986
+PSCBE1 = 5.998012E9 PSCBE2 = 3.788068E-8 DROUT = 0.4037723
+DELTA = 0.01     MOBMOD = 1          PVAG = 0.012927
+UTE = -1.5       KT1 = -0.11        PRT = 0
+KT2 = 0.022     UA1 = 4.31E-9     KT1L = 0
+UC1 = -5.6E-11  AT = 3.3E4        UB1 = -7.61E-18
+WLN = 1         WW = 0             WL = 0
+WWL = 0         LL = 0             WWN = 1
+LW = 0          LWL = 1            LLN = 1
+CAPMOD = 2      XPART = 0.4        LWL = 0
+CGSO = 1.99E-10 CGBO = 0           CGDO = 1.99E-10
+PB = 0.9899238  MJ = 0.4495859   CJ = 4.233802E-4
+PBSW = 0.1082556 MJSW = 0.1083618 CJSW = 3.825632E-10
+PRDSW = -16.1546703 PK2 = 0.0253069  PVTH0 = 0.0212852
+LKETA = 0.0204965 ) WKETA = 0.0188633
*
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```
.MODEL CMOSN PMOS (
+VERSION = 3.1          TNOM = 27          LEVEL = 49
+XJ = 1.5E-7          NCH = 1.7E17        TOX = 1.41E-8
+K1 = 0.5575604      K2 = 0.010265      VTH0 = -0.9179952
+K3B = -2.3032921   W0 = 1.147829E-6   K3 = 14.0655075
+DVTOW = 0          DVT1W = 5.3E6         NLX = 1.114768E-10
+DVT0 = 2.2896412   DVT1 = 0.5213085   DVT2W = -0.032
+U0 = 202.4540953   UA = 2.290194E-9   DVT2 = -0.1337987
+UC = -3.69771E-11 VSAT = 1.307891E5  UB = 9.779742E-19
+AGS = 0.1568774   B0 = 2.365956E-6   A0 = 0.8356881
+KETA = -5.769328E-3 A1 = 0             B1 = 5E-6
+RDSW = 2.746814E3 PRWG = 2.34865E-3  A2 = 1
+WR = 1            WINT = 2.586255E-7  PRWB = 0.0172298
+XL = 0           XW = 0             LINT = 7.205014E-8
+DWB = 9.857534E-9 VOFF = -0.0837499 DWG = -2.133054E-8
+CIT = 0          CDSC = 4.363744E-4  NFACTOR = 1.2415529
+CDSCB = 0       ETA0 = 0.11276      CDSCD = 0
+DSUB = 0.3389402 PCLM = 4.9847806  ETAB = -2.9484E-3
+PDIBLC2 = 0.01   PDIBLCB = 0        PDIBLC1 = 2.481735E-5
+PSCBE1 = 3.497872E9 PSCBE2 = 4.974352E-9 DROUT = 0.9975107
+DELTA = 0.01     MOBMOD = 1          PVAG = 10.9914549
+UTE = -1.5       KT1 = -0.11        PRT = 0
+KT2 = 0.022     UA1 = 4.31E-9     KT1L = 0
+UC1 = -5.6E-11  AT = 3.3E4        UB1 = -7.61E-18
+WLN = 1         WW = 0             WL = 0
+WWL = 0         LL = 0             WWN = 1
+LW = 0          LWL = 1            LLN = 1
+CAPMOD = 2      XPART = 0.4        LWL = 0
+CGSO = 1.99E-10 CGBO = 0           CGDO = 1.99E-10
+PB = 0.9899238  MJ = 0.4495859   CJ = 4.233802E-4
+PBSW = 0.1082556 MJSW = 0.1083618 CJSW = 3.825632E-10
+PRDSW = -16.1546703 PK2 = 0.0253069  PVTH0 = 0.0212852
+LKETA = 0.0204965 ) WKETA = 0.0188633
*
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+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	=	0.4	CGDO	=	2.4E-10
+CGSO	=	2.4E-10	CGBO	=	0	CJ	=	7.273568E-4
+PB	=	0.9665597	MJ	=	0.4959837	CJSW	=	3.114708E-10
+PBSW	=	0.99	MJSW	=	0.2653654	PVTH0	=	9.420541E-3
+PRDSW	=	-231.2571566	PK2	=	1.396684E-3	WKETA	=	1.862966E-3
+LKETA	=	5.728589E-3	)					
*								

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