

MOSIS WAFER ELECTRICAL TESTS

RUN: V37P
TECHNOLOGY: SCN05

VENDOR: AMIS (ON-SEMI)
FEATURE SIZE: 0.5 microns

Run type: SHR

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: SMSCN3ME06_ON-SEMI

TRANSISTOR PARAMETERS	W/L	N-CHANNEL	P-CHANNEL	UNITS
MINIMUM Vth	3.0/0.6	0.76	-0.90	volts
SHORT Idss	20.0/0.6	466	-255	uA/um
Vth		0.65	-0.88	volts
Vpt		13.1	-12.2	volts
WIDE Ids0	20.0/0.6	< 2.5	< 2.5	pA/um
LARGE Vth	50/50	0.67	-0.94	volts
Vj bkd		10.9	-11.8	volts
Ij lk		242.7	<50.0	pA
Gamma		0.49	0.56	V^0.5
K' (Uo*Cox/2)		57.8	-18.9	uA/V^2
Low-field Mobility		472.03	154.35	cm^2/V*s

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

Design Technology	XL (um)	XW (um)
SCMOS_SUBM (lambda=0.30)	0.10	0.00
SCMOS (lambda=0.35)	0.00	0.20

FOX TRANSISTORS	GATE	N+ACTIVE	P+ACTIVE	UNITS
Vth	Poly	>15.0	<-15.0	volts

COMMENTS:

PROCESS PARAMETERS	N+	P+	N_W	U	POLY	PLY2_HR	POLY2	M1	UNITS
Sheet Resistance	82.4	106.7	814.1	23.2	1076	40.8	0.09		ohms/sq
Contact Resistance	59.6	152.5		16.0		26.0			ohms
Gate Oxide Thickness	141								angstrom

PROCESS PARAMETERS	M2	M3	N_W	UNITS
Sheet Resistance	0.09	0.05	808	ohms/sq
Contact Resistance	0.84	0.82		ohms

CAPACITANCE PARAMETERS	N+	P+	POLY	POLY2	M1	M2	M3	N_W	UNITS
Area (substrate)	416	710	86		29	12	8	91	aF/um^2
Area (N+active)			2456		37	17	12		aF/um^2
Area (P+active)			2362						aF/um^2
Area (poly)				922	64	16	9		aF/um^2
Area (poly2)					58				aF/um^2
Area (metall1)						32	12		aF/um^2
Area (metal2)							32		aF/um^2
Fringe (substrate)	345	236			51	34	26		aF/um
Fringe (poly)					70	39	28		aF/um
Fringe (metall1)						49	33		aF/um
Fringe (metal2)							55		aF/um
Overlap (N+active)			191						aF/um
Overlap (P+active)			234						aF/um

CIRCUIT PARAMETERS			UNITS
Inverters	K		
Vinv	1.0	2.02	volts
Vinv	1.5	2.29	volts
Vol (100 uA)	2.0	0.47	volts
Voh (100 uA)	2.0	4.48	volts
Vinv	2.0	2.47	volts
Gain	2.0	-17.59	
Ring Oscillator Freq.			
DIV256 (31-stg, 5.0V)		103.03	MHz
D256_WIDE (31-stg, 5.0V)		158.86	MHz
Ring Oscillator Power			
DIV256 (31-stg, 5.0V)		0.48	uW/MHz/gate
D256_WIDE (31-stg, 5.0V)		0.99	uW/MHz/gate

COMMENTS: SUBMICRON

V37P SPICE BSIM3 VERSION 3.1 PARAMETERS

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

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* DATE: Oct 17/13
* LOT: v37p WAF: 1003
* 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 = 0.9137986 K2 = -0.1071877 VTH0 = 0.6176544
+K3B = -9.7485086 W0 = 2.658488E-8 K3 = 22.288867
+DVT0W = 0 DVT1W = 0 NLX = 1E-9
+DVT0 = 0.8309419 DVT1 = 0.3317542 DVT2W = 0
+UO = 460.0124125 UA = 2.759471E-13 DVT2 = -0.5
+UC = 3.089014E-12 VSAT = 1.840576E5 UB = 1.603084E-18
+AGS = 0.1204319 B0 = 1.941274E-6 A0 = 0.5615191
+KETA = -2.797385E-3 A1 = 2.420581E-5 B1 = 5E-6
+RDSW = 1.115544E3 PRWG = 0.0828351 A2 = 0.3164714
+WR = 1 WINT = 2.526685E-7 PRWB = 0.0311852
+XL = 1E-7 XW = 0 LINT = 7.469087E-8
+DWB = 1.914595E-8 VOFF = -6.986376E-5 DWG = -1.032244E-8
+CIT = 0 CDSC = 2.4E-4 NFACTOR = 0.8533219
+CDSCB = 0 ETA0 = 2.045973E-3 CDSCD = 0
+DSUB = 0.0833302 PCLM = 2.3615569 ETAB = -3.21453E-4
+PDIBLC2 = 1.863456E-3 PDIBLCB = 0.0644698 PDIBLC1 = 9.500103E-5
DROUT = 1.39184E-3

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+PSCBE1 = 3.853855E8      PSCBE2 = 4.115782E-6      PVAG = 0
+DELTA = 0.01             RSH = 82.4             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 = 1.91E-10         CGSO = 1.91E-10     CGBO = 1E-9
+CJ = 4.131634E-4        PB = 0.8399766      MJ = 0.4305505
+CJSW = 3.400072E-10     PBSW = 0.809471     MJSW = 0.1977865
+CJSWG = 1.64E-10        PBSWG = 0.8         MJSWG = 0.2019414
+CF = 0                   PVTH0 = -0.028514   PRDSW = 114.6437024
+PK2 = -0.0768747       WKETA = -0.0138828  LKETA = 1.62687E-3 )
*

.MODEL CMOSP PMOS (
+VERSION = 3.1            TNOM = 27              LEVEL = 49
+XJ = 1.5E-7             NCH = 1.7E17         TOX = 1.41E-8
+K1 = 0.553472           K2 = 7.871921E-3     VTH0 = -0.9152268
+K3B = 0.5506188        W0 = 1E-8           K3 = 8.5645893
+DVT0W = 0               DVT1W = 0           NLX = 1.006451E-9
+DVT0 = 0.4716221       DVT1 = 0.1854949    DVT2W = 0
+U0 = 201.3603195       UA = 2.48572E-9     DVT2 = -0.3
+UC = -1E-10            VSAT = 1.578444E5  UB = 1.005454E-21
+AGS = 0.1111278        B0 = 5.743519E-7   A0 = 0.8192884
+KETA = -4.865785E-3    A1 = 5.800723E-4    B1 = 6.088988E-8
+RDSW = 3E3             PRWG = -0.0219603  A2 = 0.3229711
+WR = 1.01              WINT = 2.247043E-7  PRWB = -0.0910566
+XL = 1E-7              XW = 0             LINT = 9.979797E-8
+DWB = -1.38669E-8     VOFF = -0.0295318  DWG = 2.080226E-9
+CIT = 0                CDSC = 2.4E-4       NFACTOR = 0.5872216
+CDSCB = 0              ETA0 = 4.979072E-4  CDSCD = 0
+DSUB = 1               PCLM = 2.3970968   ETAB = -0.2
+PDIBLC2 = 4.073922E-3  PDIBLCB = -0.0315594 PDIBLC1 = 0.0961044
+PSCBE1 = 8E10          PSCBE2 = 8.966681E-8 DROUT = 0.2897615
+DELTA = 0.01           RSH = 106.7         PVAG = 0.0149129
+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 = 2.34E-10        CGSO = 2.34E-10     XPART = 0.5
+CJ = 7.086018E-4       PB = 0.8698912     CGBO = 1E-9
+CJSW = 2.340641E-10    PBSW = 0.8329387    MJ = 0.4856488
+CJSWG = 6.4E-11        PBSWG = 0.8         MJSW = 0.2034305
+CF = 0                  PVTH0 = 5.98016E-3  MJSWG = 0.2261452
+PK2 = 3.73981E-3       WKETA = 0.0120657  PRDSW = 14.8598424
*                          LKETA = -0.0104163 )

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[Download Text File](https://www.mosis.com/cgi-bin/cgiwrap/umosis/swp/params/ami-c5/v37p-c5-params.txt)