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* IC Technology: CMOS 90nm, 6 Metal Copper - strained SiGe - LowK
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VDD 1 0 DC 1.20
VS 24 0 DC 0 PULSE(0.00 1.20 0.19N 0.01N 0.01N 0.19N 0.40N)
VR 25 0 DC 0 PULSE(0.00 1.20 0.09N 0.01N 0.01N 0.09N 0.20N)
V28_vddHV 28 0 DC 9.00V
Vclock 42 0 DC 0 PULSE(0.00 1.50 0.39N 0.01N 0.01N 0.39N 0.80N)
Vclock 43 0 DC 0 PULSE(0.00 1.50 0.79N 0.01N 0.01N 0.79N 1.60N)
*

* List of nodes
* "OUT" corresponds to n°11
* "Qbar" corresponds to n°19
* "Q" corresponds to n°20
* "S" corresponds to n°24
* "R" corresponds to n°25
* "clock" corresponds to n°42, WARNING: appears 2 times in the layout
* "clock" corresponds to n°43, WARNING: appears 2 times in the layout
*

* MOS devices
MN1 0 19 11 0 N1 W= 0.30U L= 0.10U
MN2 0 15 0 0 N1 W= 0.30U L= 0.15U
MN3 0 19 15 0 N1 W= 0.30U L= 0.15U
MN4 34 22 0 0 N1 W= 0.60U L= 0.10U
MN5 35 19 0 0 N1 W= 0.60U L= 0.10U
MN6 19 20 34 0 N1 W= 0.60U L= 0.10U
MN7 20 15 35 0 N1 W= 0.60U L= 0.10U
MN8 37 43 0 0 N1 W= 0.60U L= 0.10U
MN9 22 24 37 0 N1 W= 0.60U L= 0.10U
MN10 39 42 0 0 N1 W= 0.60U L= 0.10U
MN11 15 25 39 0 N1 W= 0.60U L= 0.10U
MN12 0 28 24 0 N1 W= 0.60U L= 0.10U
MN13 41 28 25 0 N1 W= 0.60U L= 0.10U
MN14 0 28 28 0 N1 W= 0.60U L= 0.10U
MN15 41 28 28 0 N1 W= 0.60U L= 0.10U
MP1 1 19 11 1 P1 W= 0.30U L= 0.10U
MP2 1 15 0 1 P1 W= 0.30U L= 0.15U
MP3 1 19 15 1 P1 W= 0.30U L= 0.15U
MP4 19 22 1 1 P1 W= 0.60U L= 0.10U
MP5 20 19 1 1 P1 W= 0.60U L= 0.10U
MP6 1 20 19 1 P1 W= 0.60U L= 0.10U
MP7 1 15 20 1 P1 W= 0.60U L= 0.10U
MP8 22 43 1 1 P1 W= 0.60U L= 0.10U
MP9 1 24 22 1 P1 W= 0.60U L= 0.10U
MP10 15 42 1 1 P1 W= 0.60U L= 0.10U
MP11 1 25 15 1 P1 W= 0.60U L= 0.10U
MP12 1 28 24 1 P1 W= 0.60U L= 0.10U
MP13 1 28 25 1 P1 W= 0.60U L= 0.10U
MP14 1 28 28 1 P1 W= 0.60U L= 0.10U
MP15 1 28 28 1 P1 W= 0.60U L= 0.10U
*

C2 1 0 0.480fF
C3 1 0 0.338fF
C4 1 0 0.480fF
C5 1 0 0.338fF
C6 1 0 0.945fF
C7 1 0 0.338fF
C8 1 0 0.984fF
C9 1 0 0.480fF
C10 1 0 0.480fF
C11 11 0 0.379fF
C13 1 0 0.189fF
C14 1 0 0.163fF
C15 15 0 5.052fF
C16 1 0 0.163fF
C17 1 0 0.615fF
C18 1 0 0.615fF
C19 19 0 2.639fF
C20 20 0 1.911fF
C21 1 0 0.615fF
C22 22 0 0.911fF
C23 1 0 0.615fF
C24 24 0 0.834fF
C25 25 0 0.819fF
C26 1 0 0.702fF
C27 1 0 0.702fF
C28 28 0 3.076fF
C34 34 0 0.228fF

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C35 35 0 0.228fF
C37 37 0 0.228fF
C39 39 0 0.228fF
C41 41 0 0.724fF
C42 42 0 0.021fF
C43 43 0 0.022fF
C44 44 0 0.491fF
*
* Extra RLC
*
Radd1 28 0 3000
Radd2 44 28 3000
Radd3 28 28 3000
Radd4 15 44 3000
Cadd5 28 0 0.1pF
Radd6 15 28 3000
*
*
* n-MOS BSIM4 :
* low leakage
.MODEL N1 NMOS LEVEL=14 VTHO=0.28 U0=0.060 TOXE= 1.2E-9 LINT=0.015U
+K1 =0.450 K2=0.100 DVT0=2.300
+DVT1=0.570 LPE0=23.000e-9 ETA0=0.080
+NFACTOR= 0.9 U0=0.060 UA=3.400e-15
+WINT=0.005U LPE0=23.000e-9
+KT1=-0.060 UTE=-1.800 VOFF=0.010
+XJ=0.150U NDEP=170.000e15 PCLM=1.100
+CGSO=100.0p CGDO=100.0p
+CGBO= 60.0p
*
* p-MOS BSIM4:
* low leakage
.MODEL P1 PMOS LEVEL=14 VTHO=-0.32 U0=0.027 TOXE= 1.2E-9 LINT=0.015U
+K1 =0.450 K2=0.100 DVT0=2.300
+DVT1=0.570 LPE0=23.000e-9 ETA0=0.080
+NFACTOR= 1.9 U0=0.027 UA=2.200e-15
+WINT=0.005U LPE0=23.000e-9
+KT1=-0.060 UTE=-1.800 VOFF=0.010
+XJ=0.150U NDEP=170.000e15 PCLM=0.700
+CGSO=100.0p CGDO=100.0p
+CGBO= 60.0p
*
* Transient analysis
*
* (Winspice)
.options temp=27.0
.control
tran 0.1N 15.00N
print V(19) V(20) V(25) V(24) V(11) V(25) V(24) > out.txt
plot V(19) V(20) V(25) V(24) V(11) V(25) V(24)
.endc
.END
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