SOA DOCUMENTATION

soa documentation



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1 Definition

Safe operating areas can be defined within the simulator in order to check if the device is properly used. These can be viewed as rules that the simulator will evaluate during circuit simulation. If the rule check is false, a message is printed for the related componant.

The used rules are mainly based on device specification, electrical characterization and model limitation. Some of these rules are already present in the DRM. The present document lists all the rules for the different componants. Because soa rules are numerous and concern a lot of device, soas have been classified in four categories:

Category 1 : Out of process

This category contains all rules related to the standard process specification of the device. If we consider a 1.8V Mos device, we expect that the maximal Vgs and Vds is 1.8V. Such bias range do not rely on reliability or advanced electrical characterization and in consequence can be already defined at the device definition.

Category 2: Non functionnal

The rules present in these category are based on electrical characterization. They allow to check that the device is functional during all the simulation. The non functional limits could come from junction or device breakdown, or snap-back problem for MOS devices for example.

Category 3: Reliability

The rules here are also based on electrical tests, and mainly on the reliability program started at the maturity 10 of the device. With the previous categories, we could check that the device operates within the specification and is not broken. With this category, we could evaluate if the circuit is reliable for long time.

Category 4: Hot spot and modeling issues

Simulation are based on a device model. The model should be as close as possible to the silicon behaviour of the device. Nevertheless, some limitations, inaccuracies could be present in some operating areas. The rules here will list some known limitations. In the case of HV devices or resistances for example, some models will not take into account the self-heating that is present. The hot spot issue underline the fact that a device could operate in a safe domain for itself but could induce damage for other neighbour componant. Resistor self-heating for example is important for accurate modeling of the componant but could also be crucial when considering that the resistor self-heating could increase the temperature in the back-end line above where electromigration is an important limitation.

2 Soa filtering

Three level of filter have been created in order to address specific soa validation.

At device level: instance parameter soa

The device has an instance parameter soa. When setted at 0, it switched off all the soa rules for the selected device. Default value is 1 usually.



At family level: family_soa switch

family_soa parameter can be setted within DK interface or manually in the netlist in order to switch on(1)/off(0) the soas of the related family. Default value is 1 usually.

Global level: soa_outofprocess, soa_nonfunctionnal, soa_reliability, soa_modeling

Four global parameters (list above) related to the the four previous so acategories could be setted in the DK interface or manually in the netlist. They allow to switch on(1)/off(0) the different rules present in each category. Default values for the switches is 1 usually.

In consequence, an soa rule of a specific device is checked only if the instance parameter of the device is on (soa=1), AND the family soa flag is on (soa_family=1), AND the global switch of the related soa category is on (soa_reliability=1 for example).

3 Soa table nomenclature

Here below is an example of a simplified (only 2 categories are present) so atable. The 1st column is the label of the rule based on the category name. In the 2nd column you can find all the componant of the rule. The "Message" is the comment that appear in the soa simulator output.

The "Check" is the rule that is evaluated if the condition printed in the line below is true.

The "Condition" line lists the global condition that has to be true to do the check. If None, condition is null or with '-' character.

"Otherwise" line indicates the check that is evaluated if the condition above is false.

Above the table and in the caption you can see all the models that are concerned with these rules. All the information presented in the table comes directly from parsing the eldo soa command in the libraries.

Model list: ENULLLP_BS3JU, ENULLLP_BS3JUIO, ENULLLP_BS3JULEAK

Rule	Section	Value	
		Category: Out of process specification	
	Message	VGB bias outside limits	
OP1	Check	$-1.21~{ m V} < { m VGB} < 1.21~{ m V}$ for a laps time greater than 2.0ns	
	Condition	(VGB-Vth)<0)	
	Otherwise	$-2.41~{ m V} < { m VGB} < 2.41~{ m V}$ for a laps time greater than 2.0ns	
	Message	VBD bias outside limits	
OP2	Check	-2.41 V < VBD for a laps time greater than 2.0ns	
	Condition	-	
	Category: Reliability issues		
	Message	MOS HCI limitation on D side	
RE1	Check	$-1.4~\mathrm{V} < \mathrm{VBD} < 0.2~\mathrm{V}$ for a laps time greater than 2.0ns	
	Condition	(VGS-Vth)>0) and $(VDS>0.2)$	

Table 1: ENULLLP_BS3JU, ENULLLP_BS3JUIO, ENULLLP_BS3JULEAK soas



4 Section related to EGLVT library



${\bf 4.1 \quad Model \ Name: eglvtnfet_acc}$

Rule	Section	Value
Category: Out of process specification		
	Message	VGD bias outside limits
OP1	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	VDS < 3.7 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	VSD < 3.7 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NETT		bias outside limits	
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'150e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Large back bias not characterized and model accuracy not	
2504	CI. I	guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS)=0	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	Potential SELF-HEATING. On modeling structures measured on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 2: eglvtnfet_acc soas



$\mathbf{4.2}\quad \mathbf{Model\ Name:\ eglvtnfet_rf}$

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	VDS < 3.7 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	VSD < 3.7 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p $<$ VGD $<$ bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than $0.0001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NETT		bias outside limits	
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	$-1.98 < \mathrm{VGS} < 1.98$ for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '2e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<bul> <</bul>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 3: eglvtnfet_rf soas



4.3 Model Name : eglvtnfet_rfseg

Rule	Section	Value
Category: Out of process specification		
	Message	VGD bias outside limits
OP1	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1 \mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	VDS < 3.7 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	VSD < 3.7 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



		continued from previous
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NETT		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



		continued from previous
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress : VGS
		bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
		Category: Modeling information
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'206e-9nf' < w < '5e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'100e-9' < 1 < '2e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	$-0.5 < \mathrm{Vgs}$
	Condition	(abs(VDS) <= 1e-3)
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO4	Check	-1.98 < Vbs < 1.98
	Condition	(VDS>=0)
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use
		eglvt_dev = 1 to get accurate matching simulation results
MO5	Check	$0 < \text{eglvt_dev} < 3$
	Condition	-

Table 4: eglvtnfet_rfseg soas



${\bf 4.4}\quad {\bf Model\ Name: eglvtpfet_acc}$

Category: Out of process specification Message VGD bias outside limits -1.98 < VGD < 1.98 for a laps time greater than 0.1ns Condition - Message VGS bias outside limits OP2 Check -1.98 < VGS < 1.98 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.98 < VDS < 1.98 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Condition Condition Condi	
Condition Message OP2 Check -1.98 < VGS < 1.98 for a laps time greater than 0.1ns Condition Message OP3 Check -1.98 < VDS bias outside limits OP3 Check -1.98 < VDS < 1.98 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure NF1 Check -5.2 < VDS for a laps time greater than 0.01ns Condition Message Snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition	
Message VGS bias outside limits	
OP2 Check -1.98 < VGS < 1.98 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits -1.98 < VDS < 1.98 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Condition Message OP3 Check -1.98 < VDS < 1.98 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure Check -5.2 < VDS for a laps time greater than 0.01ns Condition Message Snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition Condition	
Message OP3 Check Condition Condition Category: Non functionnal FDSOI device Message NF1 Check Condition Message NF2 Check NF2 Check NF2 Check Condition Condition Condition Message Snapback on S side: Risk of Failure	
Category: Non functionnal FDSOI device Message	
Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Message snapback on D side: Risk of Failure Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Message snapback on D side: Risk of Failure Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
NF1 Check -5.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Message snapback on S side : Risk of Failure Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
NF2 Check -5.2 < VSD for a laps time greater than 0.01ns Condition -	
Category: Non functional device	
Message gate oxide breakdown - check the TDDB laws	
NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	



		continued from previous
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



		continued from previous
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
		Category: Modeling information
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'160e-9nf' < w < '10e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'150e-9' < l < '10e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO4	Check	-3.78 < Vbs < 1.98
	Condition	$(VDS \le 0)$
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V
	Message	Potential SELF-HEATING. On modeling structures measured
		on wafer, this will lead to a temperature increase superior to
		20C;
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns
	Condition	-
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use
		eglvt_dev = 1 to get accurate matching simulation results
MO6	Check	$0 < \text{eglvt_dev} < 3$
	Condition	-

Table 5: eglvtpfet_acc soas



$\mathbf{4.5}\quad \mathbf{Model\ Name:\ eglvtpfet_rf}$

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	$-5.2 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	-5.2 < VSD for a laps time greater than $0.01 ns$
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Condition	
	Message	gate oxide breakdown - check the TDDB laws



		continued from previous
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NETT		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



		continued from previous
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
		Category: Modeling information
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'206e-9nf' < w < '5e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'100e-9' < 1 < '2e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO4	Check	-3.78 < Vbs < 1.98
	Condition	$(VDS \le 0)$
	Otherwise	<bull> </bull>
	Message	Potential SELF-HEATING. On modeling structures measured
		on wafer, this will lead to a temperature increase superior to
		20C;
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns
	Condition	-
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use
		eglvt_dev = 1 to get accurate matching simulation results
MO6	Check	$0 < \text{eglvt_dev} < 3$
	Condition	-

Table 6: eglvtpfet_rf soas



4.6 Model Name : eglvtpfet_rfseg

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	-5.2 < VDS for a laps time greater than 0.01ns
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	-5.2 < VSD for a laps time greater than 0.01ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than 0.001ns
	Condition	
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
		0



		continued from previous
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NETT		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



		continued from previous
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress: VGS
		bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
		Category: Modeling information
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'206e-9nf' < w < '5e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'100e-9' < 1 < '2e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO4	Check	-3.78 < Vbs < 1.98
	Condition	$(VDS \le 0)$
	Otherwise	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use
		eglvt_dev = 1 to get accurate matching simulation results
MO5	Check	$0 < \text{eglvt_dev} < 3$
	Condition	-

Table 7: eglvtpfet_rfseg soas



4.7 Model Name : eglvtpspfet

OP1 Check -1.65 < VGD < 1.1 for a laps time greater than 0.1ns Condition - Message VGS bias outside limits OP2 Check -1.65 < VGS < 1.1 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
Condition Message OP2 Check -1.65 < VGS < 1.1 for a laps time greater than 0.1ns Condition Message OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				
OP2 Check -1.65 < VGS < 1.1 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
Condition - Message VDS bias outside limits OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
Message VDS bias outside limits OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
OP3 Check -1.1 < VDS < 1.1 for a laps time greater than 0.1ns				
Condition				
Condition -				
Category: Non functionnal FDSOI device				
Message snapback on D side : Risk of Failure				
NF1 Check -5.2 < VDS for a laps time greater than 0.01ns				
Condition -				
Message snapback on S side : Risk of Failure				
NF2 Check -5.2 < VSD for a laps time greater than 0.01ns				
Condition -				
Category: Non functional device				
Message gate oxide breakdown - check the TDDB laws				
NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns				
Condition -				
Message gate oxide breakdown - check the TDDB laws				
NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns				
Condition -				
Message gate oxide breakdown - check the TDDB laws				
NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns				
Condition -				
Message gate oxide breakdown - check the TDDB laws				
NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns				
Condition -				
Message gate oxide breakdown - check the TDDB laws				
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01m	3			
Condition -				
Message gate oxide breakdown - check the TDDB laws				



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF18	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NF19		bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



		continued from previous
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress: VGS
		bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO2	Check	-3.78 < Vbs < 1.98
	Condition	$(VDS \le 0)$
	Otherwise	<bull></bull>
	Message	Potential SELF-HEATING. On modeling structures measured
		on wafer, this will lead to a temperature increase superior to
		20C;
MO3	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns
	Condition	-
_	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use
		eglvt_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{eglvt_dev} < 3$
	Condition	-

Table 8: eglvtpspfet soas



${\bf 4.8 \quad Model \ Name: eglvtvnfet_acc}$

Rule	Section	Value	
		Category: Out of process specification	
	Message	VGD bias outside limits	
OP1	Check	-1.65 < VGD < 1.65 for a laps time greater than 0.1 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.65 < VGS < 1.65 for a laps time greater than 0.1 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than $0.1 \mathrm{ns}$	
	Condition	-	
	C	ategory : Non functionnal FDSOI device	
	Message	snapback on D side : Risk of Failure	
NF1	Check	VDS < 3.2 for a laps time greater than 0.01 ns	
	Condition	-	
	Message	snapback on S side: Risk of Failure	
NF2	Check	VSD < 3.2 for a laps time greater than 0.01 ns	
	Condition	-	
	Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws	
NF3	Check	-bv1p $<$ VGD $<$ bv1p for a laps time greater than 0.0001ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF4	Check	-bv1p $<$ VGS $<$ bv1p for a laps time greater than 0.0001ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF5	Check	-bv10p $<$ VGD $<$ bv10p for a laps time greater than 0.001ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than 0.001ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
	9		



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NF17	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NF19		bias outside limits	
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	$-1.98 < \mathrm{VGS} < 1.98$ for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
3.50		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
2.50		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 9: eglvtvnfet_acc soas



${\bf 4.9 \quad Model \ Name: eglvtvpfet_acc}$

Category: Out of process specification	Rule	Section	Value	
OP1 Check Condition Message VGS bias outside limits OP2 Check -1.65 < VGS < 1.65 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -			Category: Out of process specification	
Condition -		Message	VGD bias outside limits	
Message VGS bias outside limits -1.65 < VGS < 1.65 for a laps time greater than 0.1ns	OP1		$-1.65 < ext{VGD} < 1.65$ for a laps time greater than 0.1ns	
OP2 Check Condition -1.65 < VGS < 1.65 for a laps time greater than 0.1ns Check Check Check Condition -1.65 < VDS > 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message Message Snapback on D side: Risk of Failure NF1 Check Condition -4.2 < VDS for a laps time greater than 0.01ns Condition - Message Snapback on S side: Risk of Failure NF2 Check Condition -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv10p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
Condition Message VDS bias outside limits Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message Message Snapback on D side: Risk of Failure Condition Message Snapback on S side: Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition Message NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition Category: Non functional device Message Message gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGS < bvlp for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF7 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.01ns Condition -		Message	VGS bias outside limits	
Message VDS bias outside limits Cleck -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -	OP2		$-1.65 < \mathrm{VGS} < 1.65$ for a laps time greater than $0.1\mathrm{ns}$	
Check Condition Category: Non functionnal FDSOI device Message NF1 Check Condition Message NF2 Check Condition Category: Non functionnal FDSOI device Message NF3 Check Condition Message Snapback on S side: Risk of Failure Category: Non functional device Message Message Snapback on S side: Risk of Failure Condition Category: Non functional device Message Snapback on S side: Risk of Failure Check Condition Category: Non functional device Message Snapback on S side: Risk of Failure Category: Non functional device Message Snapback on S side: Risk of Failure Check Condition Category: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Category: Non functional device Message Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Actegory: Actegory Actegory: Non functional device Snapback on S side: Risk of Failure Actegory: Actegory Actegory Actegory: Actegory Actegory Actegory: Actegory Actegory: Actegory Acte		Condition	-	
Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -		Message	VDS bias outside limits	
Message snapback on D side : Risk of Failure	OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than 0.1ns	
Message		Condition	-	
Message		C	ategory : Non functionnal FDSOI device	
NF1 Check Condition Message NF2 Check Condition Category: Non functional device Message NF3 Check Condition Message Spate oxide breakdown - check the TDDB laws NF4 Check Condition Message Spate oxide breakdown - check the TDDB laws NF5 Check Condition Message Spate oxide breakdown - check the TDDB laws NF4 Check Condition Message Spate oxide breakdown - check the TDDB laws NF5 Check Condition Message Spate oxide breakdown - check the TDDB laws NF5 Check Condition Message Spate oxide breakdown - check the TDDB laws NF5 Check Condition Message Spate oxide breakdown - check the TDDB laws NF5 Check Condition Message Spate oxide breakdown - check the TDDB laws NF6 Check Condition Message Spate oxide breakdown - check the TDDB laws NF6 Check Condition Message Spate oxide breakdown - check the TDDB laws NF6 Check Condition Message Spate oxide breakdown - check the TDDB laws NF6 Check Condition Message Spate oxide breakdown - check the TDDB laws NF7 Check Condition Message Spate oxide breakdown - check the TDDB laws NF7 Check				
Message	NF1		-4.2 < VDS for a laps time greater than 0.01ns	
NF2 Check -4.2 < VSD for a laps time greater than 0.01ns		Condition	-	
NF2 Check -4.2 < VSD for a laps time greater than 0.01ns		Message	snapback on S side : Risk of Failure	
Message gate oxide breakdown - check the TDDB laws	NF2		=	
Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
NF3 Check		Category: Non functional device		
Condition -		Message	gate oxide breakdown - check the TDDB laws	
Message gate oxide breakdown - check the TDDB laws Check	NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns	
NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
Condition -		Message	gate oxide breakdown - check the TDDB laws	
Message gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns	
NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
Condition Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Message	gate oxide breakdown - check the TDDB laws	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF5		3	
Condition Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF5	Check	3	
	NF5	Check Condition	-bv10p < VGD < bv10p for a laps time greater than 0.001ns -	
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Check Condition Message	-bv10p < VGD < bv10p for a laps time greater than 0.001ns - gate oxide breakdown - check the TDDB laws	
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns -		Check Condition Message Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns - gate oxide breakdown - check the TDDB laws	
		Check Condition Message Check Condition	-bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns -	
	NF6	Check Condition Message Check Condition Message	-bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws	
Message gate oxide breakdown - check the TDDB laws	NF6	Check Condition Message Check Condition Message Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws	



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NF17	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NF19		bias outside limits	
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	$-1.98 < \mathrm{VGS} < 1.98$ for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-3.78 < Vbs < 1.98	
	Condition	$(VDS \le 0)$	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
2.50		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 10: eglvtvpfet_acc soas



${\bf 4.10 \quad Model \ Name: egvlvtnfet_rf}$

Category : Out of process specification	Rule	Section	Value	
OP1 Check Condition Message OP2 Check -1.65 < VGD < 1.65 for a laps time greater than 0.1ns Condition Message OP3 Check -1.65 < VGS < 1.65 for a laps time greater than 0.1ns Condition Message OP3 Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition Message NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition Category: Non functional device Message NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition Category: Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF7 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.01ns			Category: Out of process specification	
Condition -		Message	VGD bias outside limits	
Message	OP1		-1.65 < VGD < 1.65 for a laps time greater than 0.1ns	
OP2 Check Condition - 1.65 < VGS < 1.65 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Condition - DB laws NF7 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - DB laws NF7 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - DB laws NF7 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - DB laws NF7 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns		Condition	-	
Condition Message VDS bias outside limits Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message Message NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition - Message NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category: Non functional device NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category: Non functional device Message Message gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition -		Message	VGS bias outside limits	
Message VDS bias outside limits Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition -	OP2		-1.65 < VGS < 1.65 for a laps time greater than 0.1 ns	
Check Condition Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition Message Snapback on S side: Risk of Failure NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition Condition Category: Non functional device Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -		Condition	-	
Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check VDS < 3.2 for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.01ns Condition -		Message	VDS bias outside limits	
Message snapback on D side : Risk of Failure	OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than 0.1ns	
Message snapback on D side: Risk of Failure VDS < 3.2 for a laps time greater than 0.01ns Condition Message snapback on S side: Risk of Failure VSD < 3.2 for a laps time greater than 0.01ns Condition Category: Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws Condition Ondition Ondition The provided the provided that the provided the provided that the provided th		Condition	-	
Message		C	ategory : Non functionnal FDSOI device	
NF1 Check Condition - Message snapback on S side : Risk of Failure NF2 Check VSD < 3.2 for a laps time greater than 0.01ns Condition - Category : Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.01ns Condition -				
Message	NF1		VDS < 3.2 for a laps time greater than 0.01 ns	
NF2 Check VSD < 3.2 for a laps time greater than 0.01ns		Condition	-	
NF2 Check VSD < 3.2 for a laps time greater than 0.01ns		Message	snapback on S side: Risk of Failure	
Message gate oxide breakdown - check the TDDB laws	NF2			
Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
NF3 Check		Category: Non functional device		
Condition -		Message		
Message gate oxide breakdown - check the TDDB laws Check	NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns	
NF4 Check		Condition	-	
Condition -		Message	gate oxide breakdown - check the TDDB laws	
Message gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns	
NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
Condition Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Condition	-	
Condition - Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws	
	NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$	
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-	
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws	
	NF7		-bv100p < VGD < bv100p for a laps time greater than 0.01ns	
		Condition	-	
Message gate oxide breakdown - check the TDDB laws		3.4	mate evide breeledown shock the TDDD loves	



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF18	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NF19		bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < l < '2e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 11: egvlvtnfet_rf soas



4.11 Model Name : egvlvtnfet_rfseg

Rule	Section	Value		
	Category: Out of process specification			
	Message	VGD bias outside limits		
OP1	Check	-1.65 < VGD < 1.65 for a laps time greater than 0.1 ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	-1.65 < VGS < 1.65 for a laps time greater than 0.1 ns		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than $0.1 \mathrm{ns}$		
	Condition	-		
	C	ategory : Non functionnal FDSOI device		
	Message	snapback on D side : Risk of Failure		
NF1	Check	VDS < 3.2 for a laps time greater than 0.01 ns		
	Condition	-		
	Message	snapback on S side : Risk of Failure		
NF2	Check	VSD < 3.2 for a laps time greater than 0.01 ns		
	Condition	-		
		Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than 0.001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
1				



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NF19		bias outside limits	
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '2e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 12: egvlvtnfet_rfseg soas



$\mathbf{4.12} \quad \mathbf{Model} \ \mathbf{Name} : \ \mathbf{egvlvtpfet_rf}$

Message VGD bias outside limits	Rule	Section	Value
OP1 Check Condition Message VGS bias outside limits OP2 Check -1.65 < VGS < 1.65 for a laps time greater than 0.1ns Condition - Message VDS bias outside limits OP3 Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category : Non functionnal FDSOI device Message snapback on D side : Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side : Risk of Failure NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category : Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv1p < VGD < bv1p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -			Category: Out of process specification
Condition -		Message	VGD bias outside limits
Message VGS bias outside limits -1.65 < VGS < 1.65 for a laps time greater than 0.1ns	OP1		-1.65 < VGD < 1.65 for a laps time greater than 0.1ns
OP2 Check Condition -1.65 < VGS < 1.65 for a laps time greater than 0.1ns Check Condition -1.65 < VDS bias outside limits OP3 Check Condition -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition - Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition -		Condition	-
Condition Message VDS bias outside limits Check -1.65 < VDS < 1.65 for a laps time greater than 0.1ns Condition Category: Non functionnal FDSOI device Message Message Snapback on D side: Risk of Failure Condition Message Snapback on S side: Risk of Failure NF1 Check -4.2 < VDS for a laps time greater than 0.01ns Condition Message NF2 Check -4.2 < VSD for a laps time greater than 0.01ns Condition Category: Non functional device Message Message gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGS < bvlp for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF5 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF7 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.01ns Condition -		Message	VGS bias outside limits
Message	OP2		$-1.65 < \mathrm{VGS} < 1.65$ for a laps time greater than $0.1\mathrm{ns}$
Check Condition Category: Non functionnal FDSOI device Message NF1 Check Condition Message NF2 Check Condition Message NF3 Check Condition Message Suapback on S side: Risk of Failure Category: Non functional device Message Suapback on S side: Risk of Failure NF2 Check Condition Category: Non functional device Message Suapback on S side: Risk of Failure NF2 Check Condition Category: Non functional device Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws NF4 Check Condition Message Suate oxide breakdown - check the TDDB laws NF5 Check Condition Message Suate oxide breakdown - check the TDDB laws NF5 Check Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Message Suate oxide breakdown - check the TDDB laws Condition Check Condition Check		Condition	-
Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure Check -4.2 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure Check -4.2 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -		Message	VDS bias outside limits
Message snapback on D side : Risk of Failure	OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than 0.1ns
Message		Condition	-
Message		C	ategory : Non functionnal FDSOI device
NF1 Check Condition Message NF2 Check Condition Category: Non functional device Message NF3 Check Condition Message Supplied breakdown - check the TDDB laws NF4 Check Condition Message Supplied breakdown - check the TDDB laws NF5 Check Condition Message Supplied breakdown - check the TDDB laws NF4 Check Condition Message Supplied breakdown - check the TDDB laws NF5 Check Condition Message Supplied breakdown - check the TDDB laws NF5 Check Condition Message Supplied breakdown - check the TDDB laws NF5 Check Condition Message Supplied breakdown - check the TDDB laws NF5 Check Condition Message Supplied breakdown - check the TDDB laws NF6 Check Condition Message Supplied breakdown - check the TDDB laws NF6 Check C			
Message	NF1		$-4.2 < \mathrm{VDS}$ for a laps time greater than $0.01\mathrm{ns}$
NF2 Check -4.2 < VSD for a laps time greater than 0.01ns		Condition	-
NF2 Check -4.2 < VSD for a laps time greater than 0.01ns		Message	snapback on S side: Risk of Failure
Message gate oxide breakdown - check the TDDB laws	NF2	_	-
Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
NF3 Check			Category: Non functional device
Condition -		Message	gate oxide breakdown - check the TDDB laws
Message gate oxide breakdown - check the TDDB laws Check	NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
NF4 Check		Condition	-
Condition -		Message	gate oxide breakdown - check the TDDB laws
Message gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
Condition Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Condition	-
Condition Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
	NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns -		Message	gate oxide breakdown - check the TDDB laws
	NF7	Check	-bytoop < vGD < bytoop for a laps time greater than 0.01ns
Message gate oxide breakdown - check the TDDB laws	NF7		-bv100p < vGD < bv100p for a laps time greater than 0.01hs



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NF19		bias outside limits	
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '2e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-3.78 < Vbs < 1.98	
	Condition	$(VDS \le 0)$	
	Otherwise	<bul> <</bul>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 13: egvlvtpfet_rf soas



${\bf 4.13 \quad Model\ Name: egvlvtpfet_rfseg}$

'		
	•	Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.65 < VGD < 1.65 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.65 < VGS < 1.65 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than $0.1 \mathrm{ns}$
	Condition	-
	Ca	ategory: Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	$-4.2 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	-4.2 < VSD for a laps time greater than $0.01 ns$
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p $<$ VGS $<$ bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF18	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
NF19		bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '2e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-3.78 < Vbs < 1.98	
	Condition	$(VDS \le 0)$	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	eglvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eglvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{eglvt_dev} < 3$	
	Condition	-	

Table 14: egvlvtpfet_rfseg soas



5 Section related to DIODE library



5.1 Model Name: diodenwx

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-10 < Vsxnw for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	Vnwsx < 10 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	$V_{nwsx} < 12.0$ for a laps time greater than $10ps$	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	Vsxnw < 0.6 for a laps time greater than $0.01ns$	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	Vsxnw < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 15: diodenwx soas



5.2 Model Name: diodenx

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-6.0 < Vsxnd for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	Vndsx < 6.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDSX < 10.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	Vsxnd < 0.6 for a laps time greater than $0.01ns$	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	Vsxnd < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 16: diodenx soas



5.3 Model Name: diodepnw

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-7.0 < Vpdnw for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	Vnwpd < 7.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF2	Check	VNWPD < 10.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	Vpdnw < 0.6 for a laps time greater than $0.01ns$	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	Vpdnw < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 17: diodepnw soas



5.4 Model Name : diodepwtw

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-10 < Vpwtw for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	Vtwpw < 10 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF2	Check	Vtwpw < 12.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	Vpwtw < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	Vpwtw < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 18: diodepwtw soas



5.5 Model Name : diodetwx

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-10 < Vsxtw for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	Vtwsx < 10 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	Vtwsx < 12.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	Vsxtw < 0.6 for a laps time greater than $0.01ns$	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	Vsxtw < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 19: diodetwx soas



6 Section related to LVT library



$6.1 \quad Model \ Name: lvtnfet_acc$

Rule	Section	Value			
	Category: Out of process specification				
	Message	VGD bias outside limits			
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	$-1.155 < \mathrm{VGS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	C	ategory : Non functionnal FDSOI device			
	Message	snapback on D side : Risk of Failure			
NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
	Message	snapback on S side : Risk of Failure			
NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
		Category: Non functional device			
	Message	gate oxide breakdown - check the TDDB laws			
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NIDAR	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check Condition	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NE10	Check	bias outside limits -1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
NF19	Cneck Condition		
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'80e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '4e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<bul> <</bul>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 20: lvtnfet_acc soas



6.2 Model Name: lvtnfet_rf

		Value		
	Category: Out of process specification			
	Message	VGD bias outside limits		
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05 \mathrm{ns}$		
	Condition	-		
	Ca	ategory: Non functionnal FDSOI device		
	Message	snapback on D side : Risk of Failure		
	Check	VDS < 3.0 for a laps time greater than 0.01 ns		
	Condition	-		
	Message	snapback on S side: Risk of Failure		
	Check	VSD < 3.0 for a laps time greater than 0.01 ns		
	Condition	-		
		Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p $<$ VGD $<$ bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p $<$ VGS $<$ bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF6	Check	-bv10p $<$ VGS $<$ bv10p for a laps time greater than 0.001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NIDAR	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check Condition	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NE10	Check	bias outside limits -1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
NF19	Cneck Condition		
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 21: lvtnfet_rf soas



$6.3 \quad Model \ Name: lvtnfet_rfseg$

Rule	Section	Value		
	Category: Out of process specification			
	Message	VGD bias outside limits		
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$		
	Condition	-		
	C	ategory : Non functionnal FDSOI device		
	Message	snapback on D side: Risk of Failure		
NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns		
	Condition	-		
	Message	snapback on S side: Risk of Failure		
NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns		
	Condition	-		
		Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
3.777				
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns		
NF7	Check Condition	-bv100p < VGD < bv100p for a laps time greater than 0.01ns		
NF7		-bv100p < VGD < bv100p for a laps time greater than 0.01ns - gate oxide breakdown - check the TDDB laws		



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NIDAR	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check Condition	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NE10	Check	bias outside limits -1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
NF19	Cneck Condition		
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 22: lvtnfet_rfseg soas



$\mathbf{6.4} \quad \mathbf{Model} \ \mathbf{Name} : \mathbf{lvtpfet_acc}$

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	$-3.5 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
		gate oxide breakdown - check the TDDB laws
	Message	gate oxide breakdown - check the TDDb laws
NF7	Message Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
NF7		
NF7	Check	



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
3.777.4.0	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NID15	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NID10	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check Condition	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NE10	Check	bias outside limits -1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
NF19	Condition		
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'80e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '4e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-2.3 < Vbs < 0.3	
	Condition	$(VDS \le 0)$	
	Otherwise	<bul> <</bul>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 23: lvtpfet_acc soas



$6.5 \quad Model\ Name: lvtpfet_rf$

Rule	Section	Value
·		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	$-3.5 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGD	
		bias outside limits	
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-2.3 < Vbs < 0.3	
	Condition	$(VDS \le 0)$	
	Otherwise	<bul> <</bul>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 24: lvtpfet_rf soas



$6.6 \quad Model \ Name: lvtpfet_rfseg$

Rule	Section	Value			
	Category: Out of process specification				
	Message	VGD bias outside limits			
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	C	ategory: Non functionnal FDSOI device			
	Message	snapback on D side : Risk of Failure			
NF1	Check	$-3.5 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$			
	Condition	-			
	Message	snapback on S side: Risk of Failure			
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$			
	Condition	-			
		Category: Non functional device			
	Message	gate oxide breakdown - check the TDDB laws			
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGD	
		bias outside limits	
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < l < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-2.3 < Vbs < 0.3	
	Condition	$(VDS \le 0)$	
	Otherwise		
	Message	lvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		lvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{lvt_dev} < 3$	
	Condition	-	

Table 25: lvtpfet_rfseg soas



7 Section related to RESISTOR library



7.1 Model Name: nwres and other related models

 $Model\ list:\ nwres,\ nwres_std$

Rule	Section	Value
		Category: Modeling information
	Message	Accurante bias dependence modeling not guaranteed when serial stripes > 1. Please run Post-Layout Simulation for accurate modeling.
MO1	Check	ssoa < 1
	Condition	-

Table 26: nwres, nwres_std soas



7.2 Model Name: opndres and other related models

 $Model\ list: opndres, opndres_std$

Rule	Section	Value
		Category: Modeling information
	Message	Accurante bias dependence modeling not guaranteed when serial stripes > 1. Please run Post-Layout Simulation for accurate modeling.
MO1	Check	ssoa < 1
	Condition	-

Table 27: opndres_std soas



7.3 Model Name : opppcres and other related models

 $Model\ list: opppcres_std$

Rule	Section	Value
		Category: Modeling information
	Message	Accurante bias dependence modeling not guaranteed when se-
		rial stripes > 1. Please run Post-Layout Simulation for accu-
		rate modeling.
MO1	Check	ssoa < 1
	Condition	-
	Message	Possible Hot-spot in back-end lines due to resistor self-heating
		when $DeltaT > 5C$ and current density exceed limits
MO2	Check	(abs(i(vsoa))/(wpbar)) < 0.36e+3
	Condition	-

Table 28: opppcres_std so as



7.4 Model Name: opppcres_lc and other related models

 $Model\ list: opppcres_lc, opppcres_lc_std$

Rule	Section	Value
		Category: Modeling information
	Message	Accurante bias dependence modeling not guaranteed when se-
		rial stripes > 1. Please run Post-Layout Simulation for accu-
		rate modeling.
MO1	Check	ssoa < 1
	Condition	-
	Message	Possible Hot-spot in back-end lines due to resistor self-heating
		when $DeltaT > 5C$ and current density exceed limits
MO2	Check	(abs(i(vsoa))/(wpbar)) < 0.36e+3
	Condition	-

Table 29: opppcres_lc_std soas



7.5 Model Name : opreres and other related models

Model list: opreres_std

Rule	Section	Value
		Category: Modeling information
	Message	Accurante bias dependence modeling not guaranteed when se-
		rial stripes > 1. Please run Post-Layout Simulation for accu-
		rate modeling.
MO1	Check	ssoa < 1
	Condition	-
	Message	Possible Hot-spot in back-end lines due to resistor self-heating
		when $DeltaT > 5C$ and current density exceed limits
MO2	Check	(abs(i(vsoa))/(wpbar)) < 0.12e+3
	Condition	-
	Message	W<150nm not allowed. Exception for W=50nm for RF switch
		application, without commitment on electrical result.
MO3	Check	150e-9 < w
	Condition	-

Table 30: opreres_std soas



8 Section related to BIPOLAR library



8.1 Model Name: vnpn

Rule	Section	Value	
	Category: Out of process specification		
	Message	VCE bias outside limits	
OP1	Check	-2.0 < Vce < 4.0 for a laps time greater than 2.0 ns	
	Condition	-	
	Message	VBE bias outside limits	
OP2	Check	-2.0 < Vbe < 1.2 for a laps time greater than 2.0 ns	
	Condition	-	
	Message	VBC bias outside limits	
OP3	Check	$-6.0 < \mathrm{Vbc} < 3.2$ for a laps time greater than 2.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: npn out of functionnal safe operating	
		area	
NF1	Check	-2.0 < Vbe < 1.2 for a laps time greater than 10 ps	
	Condition	-	
	Message	Non functionnal device: npn out of functionnal safe operating	
		area	
NF2	Check	$-6.0 < \mathrm{Vbc} < 1.2$ for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device: npn out of functionnal safe operating	
		area	
NF3	Check	-2.0 < Vce < +4.0 for a laps time greater than 10 ps	
	Condition	-	

Table 31: vnpn soas



8.2 Model Name: vpnp

Rule	Section	Value	
		Category: Out of process specification	
	Message	VCE bias outside limits	
OP1	Check	-11 < Vce < 2.0 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBE bias outside limits	
OP2	Check	-1.2 < Vbe < 2.0 for a laps time greater than 2.0 ns	
	Condition	-	
	Message	VBC bias outside limits	
OP3	Check	$-3.2 < \mathrm{Vbc} < 15$ for a laps time greater than 2.0ns	
	Condition	-	
	Category: nonfunctionnal information		
	Message	Non functionnal device: pnp out of functionnal safe operating	
		area	
NF1	Check	-1.2 < Vbe < 2.0 for a laps time greater than 10 ps	
	Condition	-	
	Message	Non functionnal device: pnp out of functionnal safe operating	
		area	
NF2	Check	$-1.2 < \mathrm{Vbc} < 15.0$ for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device: pnp out of functionnal safe operating	
		area	
NF3	Check	-11.0 < Vce < 2 for a laps time greater than 10ps	
	Condition	-	

Table 32: vpnp soas



9 Section related to CMIM16ACC library



9.1 Model Name: cmim16acc and other related models

Model list: cmim16acc_sh, cmim16acc_2p, cmim16acc_acc, cmim16acc_2p_acc, cmim16acc_sh_acc

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits for standard use	
OP1	Check	-1.1 < Vplusminus < 1.1 for a laps time greater than 2.0ns	
	Condition	-	
	Category : Reliability		
	Message	Bias outside limits for extended use	
RE1	Check	-1.4 < Vplusminus < 1.4 for a laps time greater than 2.0 ns	
	Condition	-	
	Category: Modeling information		
	Message	The PCell is not optimized for RF application, please put the	
		instance parameter mim_rf to 1	
MO1	Check	$0.1 < \text{mim_rf}$	
	Condition	-	

 $Table~33:~cmim16acc_sh,~cmim16acc_2p,~cmim16acc_acc,~cmim16acc_2p_acc,~cmim16acc_sh_acc\\soas$



10 Section related to CMOM library



$10.1 \quad Model \ Name: cmom_5U1x_1T8x_LB_2p \ and \ other \ related \ models$

 $Model\ list: cmom_5U1x_1T8x_LB_2p, cmom_5U1x_1T8x_LB_sh, cmom_5U1x_1T8x_LB_sh_acc, cmom_5U1x_1T8x_LB_sh_acc, cmom_5U1x_1T8x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1x_sh_acc, cmom_5U1$

Rule	Section	Value	
	Category: Out of process specification		
MO9	Message	Bias outside limits for standard use	
	Check	-1.155 < Vplusminus < 1.155	
	Condition	$(spacefinger_mx=50e-9)$	
	Message	Bias outside limits for standard use	
MO10	Check	-1.98 < Vplusminus < 1.98	
	Condition	(spacefinger_mx>=60e-9 and spacefinger_mx<80e-9)	
	Message	Bias outside limits for standard use	
MO11	Check	-8.8 < Vplusminus < 8.8	
	Condition	(spacefinger_mx>=80e-9)	
		Category: Modeling information	
	Message	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO1	Check	$10 < \text{nf_dirx} < 499$	
	Condition	-	
	Message	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO2	Check	$10 < \text{nf_diry_used} < 499$	
	Condition	-	
	Message	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
MO3	Check	$1 < \text{mtlfrbot_entry} < 4$	
	Condition	-	
	Message	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
MO4	Check	$2 < \text{mtlfrtop_entry} < 5$	
	Condition	-	
	Message	Bad connection number for standard use, value must be re-	
		placed by MIN/MAX value	
MO5	Check	1 < what_con	
	Condition	-	
	Message	M2 bottom connection is not possible with M3-M4(5) MOM	
		capacitor, connection must be replaced by M3	



	continued from previous		
Rule	Section	Value	
MO6	Check	0 < coefsoa_con_bt	
	Condition	-	
	Message	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
MO7	Check	0 < only_one_layer	
	Condition	-	
	Message	M4 connection is not possible with M1(2)-M3 MOM capacitor,	
		connection must be replaced by M2	
MO8	Check	0 < coefsoa_con_tp	
	Condition	-	

 $\label{thm:cmom_5U1x_1T8x_LB_2p, cmom_5U1x_1T8x_LB_sh, cmom_5U1x_1T8x_LB_sh, cmom_5U1x_1T8x_LB_sh_acc, cmom_5U1x_1T8x_LB_2p_acc so as$



$10.2 \quad Model \ Name: cmom_5U1x_1T8x_LB_wo_via_sh \ and \ other \ related \ models$

 $Model \ list: cmom_5U1x_1T8x_LB_wo_via_sh, cmom_5U1x_1T8x_LB_wo_via_2p, cmom_5U1x_1T8x_LB_wo_via_sh_extractions and cmom_5U1x_1T8x_LB_wo_via_2p_acc$

Mess				
		Category: Out of process specification		
	sage	Bias outside limits for standard use		
OP1 Chec	ck	-1.98 < V plusminus < 1.98 for a laps time greater than 2.0 ns		
Cond	dition	-		
		Category: Modeling information		
Mess	sage	Exceeding dirX fingers number for standard use, value must		
		be replaced by MIN/MAX value		
MO1 Chec	ck	$10 < \text{nf_dirx} < 499$		
Cond	dition	-		
Mess	sage	Exceeding dirY fingers number for standard use, value must		
		be replaced by MIN/MAX value		
MO2 Chec		$10 < \text{nf_diry_used} < 499$		
Cond	dition	-		
Mess	sage	Exceeding bottom layer number for standard use, value must		
		be replaced by MIN/MAX value		
MO3 Chec		$1 < \text{mtlfrbot_entry} < 4$		
Cond	dition	-		
Mess	sage	Exceeding top layer number for standard use, value must be		
		replaced by MIN/MAX value		
MO4 Chec		$2 < \text{mtlfrtop_entry} < 5$		
Cond	dition	-		
Mess	sage	Bad connection number for standard use, value must be re-		
		placed by MIN/MAX value		
MO5 Chec		1 < what_con		
Cond	dition	-		
Mess	sage	M2 bottom connection is not possible with M3-M4(5) MOM		
		capacitor, connection must be replaced by M3		
MO6 Chec	ck	0 < coefsoa_con_bt		
Cond	dition	-		
Mess	sage	For CMOM with only one layer, do not use the geometric		
		instanciation mode		
MO7 Chec		0 < only_one_layer		
Cond	dition	-		



	continued from previous		
Rule	Rule Section Value		
Message M4 connection is not possible with M1(2)-M3 M0 connection must be replaced by M2		m M4 connection is not possible with M1(2)-M3 MOM capacitor, connection must be replaced by M2	
MO8	Check	0 < coefsoa_con_tp	
	Condition	-	

 $\label{thm:comm_5U1x_1T8x_LB_wo_via_sh, cmom_5U1x_1T8x_LB_wo_via_2p, cmom_5U1x_1T8x_LB_wo_via_sh, cmom_5U1x_1T8x_LB_wo_via_2p, cmom_5U1x_1T8x_LB_wo_via_2p_acc soas}$



10.3~ Model Name : cmom_5U1x_2T8x_LB_2p and other related models

Rule	Section	Value	
	Category: Out of process specification		
MO9	Message	Bias outside limits for standard use	
	Check	-1.155 < Vplusminus < 1.155	
	Condition	$(spacefinger_mx=50e-9)$	
	Message	Bias outside limits for standard use	
MO10	Check	-1.98 < Vplusminus < 1.98	
	Condition	(spacefinger_mx>=60e-9 and spacefinger_mx<80e-9)	
	Message	Bias outside limits for standard use	
MO11	Check	-8.8 < Vplusminus < 8.8	
	Condition	(spacefinger_mx>=80e-9)	
		Category: Modeling information	
	Message	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO1	Check	$10 < \text{nf_dirx} < 499$	
	Condition	-	
	Message	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO2	Check	$10 < \text{nf_diry_used} < 499$	
	Condition	-	
	Message	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
MO3	Check	$1 < \text{mtlfrbot_entry} < 4$	
	Condition	-	
	Message	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
MO4	Check	$2 < \text{mtlfrtop_entry} < 5$	
	Condition	-	
	Message	Bad connection number for standard use, value must be re-	
		placed by MIN/MAX value	
MO5	Check	1 < what_con	
	Condition	-	
	Message	M2 bottom connection is not possible with M3-M4(5) MOM	
		capacitor, connection must be replaced by M3	



	continued from previous		
Rule	Section	Value	
MO6	Check	0 < coefsoa_con_bt	
	Condition	-	
	Message	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
MO7	Check	0 < only_one_layer	
	Condition	-	
	Message	M4 connection is not possible with M1(2)-M3 MOM capacitor,	
		connection must be replaced by M2	
MO8	Check	0 < coefsoa_con_tp	
	Condition	-	
	Message	For Radio Frequency applications and for asymmetric config-	
		urations (nf_dirx different of nf_dirx), we deeply advise to use	
		the long bus to connect the device. The value of the para-	
		sitic elements (resistance and inductor) given by the model	
		are widely under estimated in case of connection on the short bus. The true values of the parasitic elements (resistance and	
		inductor) will be much bigger in case of connection on the short	
		bus.	
MO9	Check	nf_diry < nf_dirx < nf_diry	
	Condition	-	
	Message	We deeply advise not to use monolayer connection for Ra-	
	J	dio Frequency applications. The value of the parasitic elements	
		(resistance and inductor) given by the model are widely under	
		estimated in case of monolayer connection. The true values of	
		the parasitic elements (resistance and inductor) will be much	
		bigger in case of monolayer connection.	
MO10	Check	1 < verif_connexion	
	Condition	-	

 $\label{thm:cmom_5U1x_2T8x_LB_2p_acc} Table \quad 36: \quad cmom_5U1x_2T8x_LB_2p, \quad cmom_5U1x_2T8x_LB_sh, \quad cmom_5U1x_2T8x_LB_2p_acc, \\ cmom_5U1x_2T8x_LB_sh_acc \ soas$



$10.4 \quad Model \ Name: cmom_5U1x_2T8x_LB_wo_via_sh \ and \ other \ related \ models$

 $Model \ list: cmom_5U1x_2T8x_LB_wo_via_sh, cmom_5U1x_2T8x_LB_wo_via_2p, cmom_5U1x_2T8x_LB_wo_via_sh_extraction and cmom_5U1x_2T8x_LB_wo_via_2p_acc$

Mess				
		Category: Out of process specification		
	sage	Bias outside limits for standard use		
OP1 Chec	ck	-1.98 < V plusminus < 1.98 for a laps time greater than 2.0 ns		
Cond	dition	-		
		Category: Modeling information		
Mess	sage	Exceeding dirX fingers number for standard use, value must		
		be replaced by MIN/MAX value		
MO1 Chec	ck	$10 < \text{nf_dirx} < 499$		
Cond	dition	-		
Mess	sage	Exceeding dirY fingers number for standard use, value must		
		be replaced by MIN/MAX value		
MO2 Chec		$10 < \text{nf_diry_used} < 499$		
Cond	dition	-		
Mess	sage	Exceeding bottom layer number for standard use, value must		
		be replaced by MIN/MAX value		
MO3 Chec		$1 < \text{mtlfrbot_entry} < 4$		
Cond	dition	-		
Mess	sage	Exceeding top layer number for standard use, value must be		
		replaced by MIN/MAX value		
MO4 Chec		$2 < \text{mtlfrtop_entry} < 5$		
Cond	dition	-		
Mess	sage	Bad connection number for standard use, value must be re-		
		placed by MIN/MAX value		
MO5 Chec		1 < what_con		
Cond	dition	-		
Mess	sage	M2 bottom connection is not possible with M3-M4(5) MOM		
		capacitor, connection must be replaced by M3		
MO6 Chec	ck	0 < coefsoa_con_bt		
Cond	dition	-		
Mess	sage	For CMOM with only one layer, do not use the geometric		
		instanciation mode		
MO7 Chec		0 < only_one_layer		
Cond	dition	-		



	continued from previous		
Rule	Section	Value	
	Message	m M4 connection is not possible with M1(2)-M3 MOM capacitor, connection must be replaced by M2	
MO8	Check	0 < coefsoa_con_tp	
	Condition	-	

 $\label{thm:comm_5U1x_2T8x_LB_wo_via_sh, cmom_5U1x_2T8x_LB_wo_via_2p, cmom_5U1x_2T8x_LB_wo_via_sh, cmom_5U1x_2T8x_LB_wo_via_2p, cmom_5U1x_2T8x_LB_wo_via_2p_acc soas}$



$10.5 \quad Model \ Name: cmom_6U1x_2T8x_LB_2p \ and \ other \ related \ models$

 $Model\ list: cmom_6U1x_2T8x_LB_2p, cmom_6U1x_2T8x_LB_sh, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_LB_2p_acc, cmom_6U1x_2T8x_2T8x_2p_acc, cmom_6U1x_2T8x_2p_acc, cmom_6U1x_2T8x_2p_acc, cmom_6U1x_2T8x_2p_acc, cmom_6U1x_2T8x_2p_acc, cmom_6U1x_2p_acc, cmom_6U1x_2p_acc, cmom_6U1x_2p_$

Rule	Section	Value	
	Category: Out of process specification		
MO9	Message	Bias outside limits for standard use	
	Check	-1.155 < Vplusminus < 1.155	
	Condition	(spacefinger_mx=50e-9)	
	Message	Bias outside limits for standard use	
MO10	Check	-1.98 < Vplusminus < 1.98	
	Condition	(spacefinger_mx>=60e-9 and spacefinger_mx<80e-9)	
	Message	Bias outside limits for standard use	
MO11	Check	-8.8 < Vplusminus < 8.8	
	Condition	$(\text{spacefinger_mx} \ge 80\text{e-}9)$	
		Category: Modeling information	
	Message	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO1	Check	$10 < \text{nf_dirx} < 499$	
	Condition	-	
	Message	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO2	Check	$10 < \text{nf_diry_used} < 499$	
	Condition	-	
	Message	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
MO3	Check	$1 < \text{mtlfrbot_entry} < 5$	
	Condition	-	
	Message	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
MO4	Check	$2 < \text{mtlfrtop_entry} < 6$	
	Condition	-	
	Message	Bad connection number for standard use, value must be re-	
		placed by MIN/MAX value	
MO5	Check	1 < what_con	
	Condition	-	
	Message	M2 bottom connection is not possible with M3-M4(5) MOM	
		capacitor, connection must be replaced by M3	



	continued from previous		
Rule	Section	Value	
MO6	Check	0 < coefsoa_con_bt	
	Condition	-	
	Message	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
MO7	Check	0 < only_one_layer	
	Condition	-	
	Message	M4 connection is not possible with M1(2)-M3 MOM capacitor,	
MO8	Check	connection must be replaced by M2	
MO8	Cneck	0 < coefsoa_con_tp	
MO9	Message Check Condition	For Radio Frequency applications and for asymmetric configurations (nf_dirx different of nf_dirx), we deeply advise to use the long bus to connect the device. The value of the parasitic elements (resistance and inductor) given by the model are widely under estimated in case of connection on the short bus. The true values of the parasitic elements (resistance and inductor) will be much bigger in case of connection on the short bus. nf_diry < nf_dirx < nf_diry	
		XX7. 1 1 '	
	Message	We deeply advise not to use monolayer connection for Ra- dio Frequency applications. The value of the parasitic elements	
		(resistance and inductor) given by the model are widely under	
		estimated in case of monolayer connection. The true values of	
		the parasitic elements (resistance and inductor) will be much	
		bigger in case of monolayer connection.	
MO10	Check	1 < verif_connexion	
	Condition	-	

 $\label{lem:comm_6U1x_2T8x_LB_2p_acc} Table \quad 38: \quad cmom_6U1x_2T8x_LB_2p, \quad cmom_6U1x_2T8x_LB_sh, \quad cmom_6U1x_2T8x_LB_2p_acc, \\ cmom_6U1x_2T8x_LB_sh_acc \ soas$



$10.6 \quad Model \ Name: cmom_6U1x_2T8x_LB_wo_via_sh \ and \ other \ related \ models$

 $Model \ list: cmom_6U1x_2T8x_LB_wo_via_sh, cmom_6U1x_2T8x_LB_wo_via_2p, cmom_6U1x_2T8x_LB_wo_via_sh_extraction and cmom_6U1x_2T8x_LB_wo_via_2p_acc$

		Value	
	Category: Out of process specification		
\mathbf{M}	Iessage	Bias outside limits for standard use	
OP1 C	heck	-1.98 < Vplusminus < 1.98 for a laps time greater than 2.0ns	
$oldsymbol{\mathbf{C}}$	Condition	-	
		Category: Modeling information	
M	Iessage	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
	heck	$10 < \text{nf_dirx} < 499$	
ig C	Condition	-	
M	Iessage	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
	heck	$10 < \text{nf_diry_used} < 499$	
$oxed{\mathbf{C}}$	Condition	-	
M	Iessage	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
	heck	$1 < mtlfrbot_entry < 5$	
$oxed{\mathbf{C}}$	ondition	-	
M	Iessage	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
	heck	2 < mtlfrtop_entry < 6	
$oxed{\mathbf{C}}$	ondition	-	
M	Iessage	Bad connection number for standard use, value must be re-	
		placed by MIN/MAX value	
	heck	1 < what_con	
$oxed{\mathbf{C}}$	ondition	-	
\mathbf{M}	Iessage	M2 bottom connection is not possible with M3-M4(5) MOM	
		capacitor, connection must be replaced by M3	
	heck	0 < coefsoa_con_bt	
$oxed{\mathbf{C}}$	Condition	-	
M	Iessage	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
	heck	0 < only_one_layer	
$oxed{\mathbf{C}}$	Condition	-	



continued from previous		
Rule	Section	Value
	Message	$ m M4$ connection is not possible with $ m M1(2) ext{-}M3$ MOM capacitor, connection must be replaced by $ m M2$
MO8	Check	0 < coefsoa_con_tp
	Condition	-

 $\label{thm:cmom_6U1x_2T8x_LB_wo_via_sh, cmom_6U1x_2T8x_LB_wo_via_2p, cmom_6U1x_2T8x_LB_wo_via_sh_acc, cmom_6U1x_2T8x_LB_wo_via_2p_acc so so so the control of the control$



10.7~ Model Name : cmom_6U1x_2U2x_2T8x_LB_2p and other related models

 $Model \ list: cmom_6U1x_2U2x_2T8x_LB_2p, cmom_6U1x_2U2x_2T8x_LB_sh, cmom_6U1x_2U2x_2T8x_LB_sh_acc, cmom_6U1x_2U2x_2T8x_LB_2p_acc$

Rule	Section	Value	
	Category: Out of process specification		
MO3	Message	Bias outside limits for standard use	
	Check	-1.155 < Vplusminus < 1.155	
	Condition	(spacefinger_mx=50e-9)	
	Message	Bias outside limits for standard use	
MO4	Check	-1.98 < Vplusminus < 1.98	
	Condition	(spacefinger_mx>=60e-9 and spacefinger_mx<80e-9)	
	Message	Bias outside limits for standard use	
MO5	Check	-8.8 < Vplusminus < 8.8	
	Condition	$(\text{spacefinger_mx} \ge 80\text{e-}9)$	
		Category: Modeling information	
	Message	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO1	Check	$10 < \text{nf_dirx} < 499$	
	Condition	-	
	Message	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO2	Check	$10 < \text{nf_diry_used} < 499$	
	Condition	-	
	Message	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
MO3	Check	$1 < \text{mtlfrbot_entry} < 5$	
	Condition	-	
	Message	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
MO4	Check	$2 < \text{mtlfrtop_entry} < 6$	
	Condition	-	
	Message	Bad connection number for standard use, value must be re-	
MO5	_	placed by MIN/MAX value	
	Check	1 < what_con	
	Condition	-	
	Message	M2 bottom connection is not possible with M3-M4(5) MOM	
		capacitor, connection must be replaced by M3	
		•	



	continued from previous		
Rule	Section	Value	
MO6	Check	0 < coefsoa_con_bt	
	Condition	-	
	Message	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
MO7	Check	0 < only_one_layer	
	Condition	-	
	Message	M4 connection is not possible with M1(2)-M3 MOM capacitor,	
		connection must be replaced by M2	
MO8	Check	0 < coefsoa_con_tp	
	Condition	-	
	Message	For Radio Frequency applications and for asymmetric config-	
		urations (nf_dirx different of nf_dirx), we deeply advise to use	
		the long bus to connect the device. The value of the para-	
		sitic elements (resistance and inductor) given by the model	
		are widely under estimated in case of connection on the short bus. The true values of the parasitic elements (resistance and	
		inductor) will be much bigger in case of connection on the short	
		bus.	
MO9	Check	nf_diry < nf_dirx < nf_diry	
	Condition	-	
	Message	We deeply advise not to use monolayer connection for Ra-	
	o o	dio Frequency applications. The value of the parasitic elements	
		(resistance and inductor) given by the model are widely under	
		estimated in case of monolayer connection. The true values of	
		the parasitic elements (resistance and inductor) will be much	
		bigger in case of monolayer connection.	
MO10	Check	1 < verif_connexion	
	Condition	-	

 $\label{thm:cmom_6U1x_2U2x_2T8x_LB_2p, cmom_6U1x_2U2x_2T8x_LB_sh, cmom_6U1x_2U2x_2T8x_LB_sh, cmom_6U1x_2U2x_2T8x_LB_sh_acc, cmom_6U1x_2U2x_2T8x_LB_2p_acc so as$



$10.8 \quad Model \ Name: cmom_6U1x_2U2x_2T8x_LB_wo_via_2p \ and \ other \ related \ models$

 $Model \ list: cmom_6U1x_2U2x_2T8x_LB_wo_via_2p, cmom_6U1x_2U2x_2T8x_LB_wo_via_sh, cmom_6U1x_2U2x_2T8x_LB_wo_via_2p_acc$

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits for standard use	
OP1	Check	-1.98 < Vplusminus < 1.98 for a laps time greater than 2.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Exceeding dirX fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO1	Check	$10 < \text{nf_dirx} < 499$	
	Condition	-	
	Message	Exceeding dirY fingers number for standard use, value must	
		be replaced by MIN/MAX value	
MO2	Check	$10 < \text{nf_diry_used} < 499$	
	Condition	-	
	Message	Exceeding bottom layer number for standard use, value must	
		be replaced by MIN/MAX value	
MO3	Check	$1 < \text{mtlfrbot_entry} < 5$	
	Condition	-	
	Message	Exceeding top layer number for standard use, value must be	
		replaced by MIN/MAX value	
MO4	Check	2 < mtlfrtop_entry < 6	
	Condition	-	
	Message	Bad connection number for standard use, value must be re-	
		placed by MIN/MAX value	
MO5	Check	1 < what_con	
	Condition	-	
	Message	M2 bottom connection is not possible with M3-M4(5) MOM	
MO6		capacitor, connection must be replaced by M3	
	Check	0 < coefsoa_con_bt	
	Condition	-	
	Message	For CMOM with only one layer, do not use the geometric	
		instanciation mode	
MO7	Check	0 < only_one_layer	
	Condition	-	
11			



continued from previous		
Rule	Section	Value
	Message	$ m M4$ connection is not possible with $ m M1(2) ext{-}M3$ MOM capacitor, connection must be replaced by $ m M2$
MO8	Check	0 < coefsoa_con_tp
	Condition	-

 $\label{thm:cmom_6U1x_2U2x_2T8x_LB_wo_via_2p, cmom_6U1x_2U2x_2T8x_LB_wo_via_sh, cmom_6U1x_2U2x_2T8x_LB_wo_via_sh, cmom_6U1x_2U2x_2T8x_LB_wo_via_sh_acc, cmom_6U1x_2U2x_2T8x_LB_wo_via_2p_acc so so so so that the company of the compa$



11 Section related to CMOM_RF_CUSTOM library



11.1 Model Name: cmom_rf_10f_100n

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits for standard use
OP1	Check	-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns
	Condition	-

Table 42: cmom_rf_10f_100n so as



11.2 Model Name: cmom_rf_10f_80n

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits for standard use
OP1		-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns
	Condition	-

Table 43: $cmom_rf_10f_80n$ soas



11.3 Model Name: cmom_rf_150f_100n

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits for standard use
OP1	Check	-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns
	Condition	-

Table 44: cmom_rf_150f_100n so as



11.4 Model Name: cmom_rf_150f_80n

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits for standard use	
OP1	Check	-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns	
	Condition	-	

Table 45: cmom_rf_150f_80n soas



11.5 Model Name: cmom_rf_50f_100n

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits for standard use
OP1	Check	-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns
	Condition	-

Table 46: cmom_rf_50f_100n soas



11.6 Model Name : cmom_rf_50f_80n

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits for standard use
OP1	Check	-8.8 < V plusminus < 8.8 for a laps time greater than 2.0 ns
	Condition	-

Table 47: $cmom_rf_50f_80n$ soas



12 Section related to DSV library



12.1 Model Name : dsvnfetpd

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	$-1.3 < \mathrm{Vbs}$	
	Condition	-	
_	Message	dsv_dev = 4 is for matching sensitivity analysis ONLY. Use	
		dsv_dev = 1 to get accurate matching simulation results	
MO4	Check	$0 < \text{dsv_dev} < 3$	
	Condition	-	

Table 48: dsvnfetpd soas



12.2 Model Name: dsvnfetwl

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	-1.3 < Vbs	
	Condition	-	
	Message	dsv_dev = 4 is for matching sensitivity analysis ONLY. Use	
		dsv_dev = 1 to get accurate matching simulation results	
MO4	Check	$0 < \text{dsv_dev} < 3$	
	Condition	-	

Table 49: dsvnfetwl soas



12.3 Model Name : dsvpfetpu

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	-2.6 < Vbs	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	Vbs < 1.3	
	Condition	-	
_	Message	dsv_dev = 4 is for matching sensitivity analysis ONLY. Use	
		dsv_dev = 1 to get accurate matching simulation results	
MO4	Check	$0 < \text{dsv_dev} < 3$	
	Condition	-	

Table 50: dsvpfetpu soas



13 Section related to DSW library



13.1 Model Name : dswnfetpd

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	-1.3 < Vbs	
	Condition	-	
	Message	dsw_dev = 4 is for matching sensitivity analysis ONLY. Use	
		$dsw_dev = 1$ to get accurate matching simulation results	
MO4	Check	$0 < dsw_dev < 3$	
	Condition	-	

Table 51: dswnfetpd soas



13.2 Model Name: dswnfetwl

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	-1.3 < Vbs	
	Condition	-	
	Message	dsw_dev = 4 is for matching sensitivity analysis ONLY. Use	
		$dsw_dev = 1$ to get accurate matching simulation results	
MO4	Check	$0 < dsw_dev < 3$	
	Condition	-	

Table 52: dswnfetwl soas



13.3 Model Name : dswpfetpu

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition		
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	Vgs < 0.5	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	-2.6 < Vbs	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	Vbs < 1.3	
	Condition	-	
	Message	dsw_dev = 4 is for matching sensitivity analysis ONLY. Use	
		$dsw_dev = 1$ to get accurate matching simulation results	
MO4	Check	$0 < dsw_dev < 3$	
	Condition	-	

Table 53: dswpfetpu soas



14 Section related to DSX library



14.1 Model Name : dsxnfetpd

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	-1.3 < Vbs	
	Condition	-	
	Message	dsx_dev = 4 is for matching sensitivity analysis ONLY. Use	
		dsx_dev = 1 to get accurate matching simulation results	
MO4	Check	$0 < dsx_dev < 3$	
	Condition	-	

Table 54: dsxnfetpd soas



14.2 Model Name: dsxnfetwl

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	$-1.3 < \mathrm{Vbs}$	
	Condition	-	
	Message	$dsx_dev = 4$ is for matching sensitivity analysis ONLY. Use	
		$dsx_{dev} = 1$ to get accurate matching simulation results	
MO4	Check	$0 < dsx_dev < 3$	
	Condition	-	

Table 55: dsxnfetwl soas



14.3 Model Name : dsxpfetpu

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	-2.6 < Vbs	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	Vbs < 1.3	
	Condition	-	
	Message	dsx_dev = 4 is for matching sensitivity analysis ONLY. Use	
		dsx_dev = 1 to get accurate matching simulation results	
MO4	Check	$0 < dsx_dev < 3$	
	Condition	-	

Table 56: dsxpfetpu soas



15 Section related to RVT library



15.1 Model Name : nfet_acc

Rule	Section	Value
	(Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p $<$ VGD $<$ bv1p for a laps time greater than 0.0001ns
	Condition	-
		·
NF4	Message	gate oxide breakdown - check the TDDB laws
	Message Check	gate oxide breakdown - check the TDDB laws -bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	<u> </u>	
	Check	
NF5	Check Condition	-bv1p < VGS < bv1p for a laps time greater than $0.0001 \mathrm{ns}$ -
NF5	Check Condition Message	$-bv1p < VGS < bv1p \ for \ a \ laps \ time \ greater \ than \ 0.0001ns$ -
NF5	Check Condition Message Check	$-bv1p < VGS < bv1p \ for \ a \ laps \ time \ greater \ than \ 0.0001ns$ -
NF5	Check Condition Message Check Condition	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns - gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns -
	Check Condition Message Check Condition Message	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws
	Check Condition Message Check Condition Message Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws
	Check Condition Message Check Condition Message Check Condition	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns -
NF6	Check Condition Message Check Condition Message Check Condition Message Check Condition	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws gate oxide breakdown - check the TDDB laws
NF6	Check Condition Message Check Condition Message Check Condition Message Check Condition	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws -bv10p < VGS < bv10p for a laps time greater than 0.001ns gate oxide breakdown - check the TDDB laws gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'80e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '4e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		$rvt_{-}dev = 1$ to get accurate matching simulation results	
MO6	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 57: nfet_acc soas



15.2 Model Name : nfet_rf

Rule	Section	Value			
	Category: Out of process specification				
	Message	VGD bias outside limits			
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	C	ategory : Non functionnal FDSOI device			
	Message	snapback on D side : Risk of Failure			
NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
	Message	snapback on S side : Risk of Failure			
NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
		Category: Non functional device			
	Message	gate oxide breakdown - check the TDDB laws			
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
		bias outside limits	
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
2.50		rvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 58: nfet_rf soas



$15.3 \quad Model \ Name: nfet_rfseg$

Rule	Section	Value			
	Category: Out of process specification				
	Message	VGD bias outside limits			
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	$-1.155 < \mathrm{VGS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	C	ategory : Non functionnal FDSOI device			
	Message	snapback on D side: Risk of Failure			
NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
	Message	snapback on S side : Risk of Failure			
NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns			
	Condition	-			
		Category: Non functional device			
	Message	gate oxide breakdown - check the TDDB laws			
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF6	Check	-bv $10p < VGS < bv10p for a laps time greater than 0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	(VDS>=0)	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		rvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 59: nfet_rfseg soas



$15.4 \quad Model \ Name: pfet_acc$

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$
	Condition	-
	Ca	ategory: Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	-3.5 < VDS for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$
	Condition	-
		Category: Modeling information
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'80e-9nf' < w < '10e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'30e-9' < 1 < '4e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
MO4		guaranteed in this regime
		-1.3 < Vbs < 1.3
	Condition	$(VDS \le 0)$
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V
	Message	Potential SELF-HEATING. On modeling structures measured
		on wafer, this will lead to a temperature increase superior to 20C;



	continued from previous		
Rule	Section	Value	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		rvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 60: pfet_acc soas

$15.5 \quad Model \ Name: pfet_rf$

Message VGD bias outside limits	Rule	Section	Value
OP1 Check Condition - Message VGS bias outside limits OP2 Check -1.155 < VGS < 1.155 for a laps time greater than 0.05ns Condition - Message VDS bias outside limits OP3 Check -1.155 < VDS < 1.155 for a laps time greater than 0.05ns Condition - Category : Non functionnal FDSOI device Message snapback on D side : Risk of Failure Check -3.5 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side : Risk of Failure NF1 Check -3.5 < VSD for a laps time greater than 0.01ns Condition - Category : Non functional device Message snapback on S side : Risk of Failure Check -3.5 < VSD for a laps time greater than 0.01ns Condition - Category : Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bvlp < VGS < bvlp for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition -			Category: Out of process specification
Condition -		Message	VGD bias outside limits
Message VGS bias outside limits Check -1.155 < VGS < 1.155 for a laps time greater than 0.05ns Condition - Message VDS bias outside limits Check -1.155 < VDS < 1.155 for a laps time greater than 0.05ns Condition - Category : Non functionnal FDSOI device Message snapback on D side : Risk of Failure Check -3.5 < VDS for a laps time greater than 0.01ns Condition - Message snapback on S side : Risk of Failure -3.5 < VSD for a laps time greater than 0.01ns Condition - Category : Non functional device gate oxide breakdown - check the TDDB laws Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bvlp < VGD < bvlp for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Check -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Check -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns	OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns
OP2 Check Condition Message OP3 Check Condition		Condition	-
Condition -		Message	VGS bias outside limits
Message VDS bias outside limits -1.155 < VDS < 1.155 for a laps time greater than 0.05ns -1.155 < VDS < 1.155 for a laps time greater than 0.05ns -1.155 < VDS < 1.155 for a laps time greater than 0.05ns -1.155 -1.155 for a laps time greater than 0.05ns -1.155 -1.155 for a laps time greater than 0.01ns -1.155 -1.155 -1.155 for a laps time greater than 0.01ns -1.155 -1.155 for a laps time greater than 0.01ns -1.155 -1.155 for a laps time greater than 0.01ns -1.155 for a laps time greater than 0.0001ns -1.155 for a laps time greater than 0.001ns -1.155 for a laps time greater th	OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns
Category: Non functionnal FDSOI device Message		Condition	-
Condition Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure Check Condition Message Snapback on S side: Risk of Failure NF2 Check Condition Category: Non functional device Message Me		Message	VDS bias outside limits
Message snapback on D side : Risk of Failure	OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$
Message NF1 Check Condition Message NF2 Check Condition Category: Non functional device Series of the TDDB laws NF3 Check Condition Message NF4 Check Condition Message NF5 Check Condition Message NF6 Check NF5 Check NF5 Check NF6 Check NF6 Check NF6 Check NF7 Check NF7 Check NF7 Check NF7 Check NF8 Sage NF6 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check NF8 Sage NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF8 Sage NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Sage Oxide Breakdown - check the TDDB laws NF9 Sage Sage Sage Oxide Sage Sage Sage Sage Sage Sage Sage Sag		Condition	-
Message NF1 Check Condition Message NF2 Check Condition Category: Non functional device Series of the TDDB laws NF3 Check Condition Message NF4 Check Condition Message NF5 Check Condition Message NF6 Check NF5 Check NF5 Check NF6 Check NF6 Check NF6 Check NF7 Check NF7 Check NF7 Check NF7 Check NF8 Sage NF6 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check Condition NESSAGE NF7 Check NF7 Check NF8 Sage NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF7 Check NF8 Sage Sage Sage Oxide breakdown - check the TDDB laws NF8 Sage NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Check NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Oxide breakdown - check the TDDB laws NF9 Sage Sage Sage Oxide Breakdown - check the TDDB laws NF9 Sage Sage Sage Oxide Sage Sage Sage Sage Sage Sage Sage Sag		C	ategory : Non functionnal FDSOI device
NF1 Check			
Message snapback on S side: Risk of Failure Check -3.5 < VSD for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition -	NF1		•
Check -3.5 < VSD for a laps time greater than 0.01ns		Condition	-
Check -3.5 < VSD for a laps time greater than 0.01ns		Message	snapback on S side: Risk of Failure
Message gate oxide breakdown - check the TDDB laws	NF2	9	-
Message gate oxide breakdown - check the TDDB laws Check		Condition	-
NF3 Check			Category: Non functional device
Condition Message NF4 Check Check Condition Message State oxide breakdown - check the TDDB laws Condition Message NF5 Check Condition Message NF6 Check Check Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Check Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Check Check Check Check Condition		Message	gate oxide breakdown - check the TDDB laws
Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.01ns Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
Condition Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
NF5 Check		Condition	-
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Message	gate oxide breakdown - check the TDDB laws
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF5		-bv10p < VGD < bv10p for a laps time greater than 0.001ns
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Condition	-
Condition Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
	NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
Condition -		Message	gate oxide breakdown - check the TDDB laws
	NF7	Check	-bv100p $<$ VGD $<$ bv100p for a laps time greater than 0.01ns
Message gate oxide breakdown - check the TDDB laws		Condition	-
		Message	gate oxide breakdown - check the TDDB laws



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NEW	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF18	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition		
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
NF19	Cl. 1	bias outside limits	
	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	$(VDS \le 0)$	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		rvt_dev = 1 to get accurate matching simulation results	
MO6	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 61: pfet_rf soas



$15.6 \quad Model \ Name: pfet_rfseg$

Rule	Section	Value			
	Category: Out of process specification				
	Message	VGD bias outside limits			
OP1	Check	-1.155 < VGD < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	-1.155 < VGS < 1.155 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.155 < \mathrm{VDS} < 1.155$ for a laps time greater than $0.05\mathrm{ns}$			
	Condition	-			
	C	ategory: Non functionnal FDSOI device			
	Message	snapback on D side : Risk of Failure			
NF1	Check	-3.5 < VDS for a laps time greater than $0.01 ns$			
	Condition	-			
	Message	snapback on S side: Risk of Failure			
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$			
	Condition	-			
		Category: Non functional device			
	Message	gate oxide breakdown - check the TDDB laws			
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			
NF7	Check	-bv100p $<$ VGD $<$ bv100p for a laps time greater than 0.01ns			
	Condition	-			
	Message	gate oxide breakdown - check the TDDB laws			



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.155 < VGD < 1.155 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.155 < VGS < 1.155 for a laps time greater than 10000.0ns	
	Condition	-	
	Category: Modeling information		
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'206e-9nf' < w < '5e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'30e-9' < 1 < '1e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.3 < Vbs < 1.3	
	Condition	$(VDS \le 0)$	
	Otherwise	<built-in function min $>$ V $<$ Vbd $<$ $<$ built-in function max $>$ V	
	Message	rvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		rvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{rvt_dev} < 3$	
	Condition	-	

Table 62: pfet_rfseg soas



16 Section related to EG library



$16.1 \quad Model \ Name: egnfet_acc$

Rule	Section	Value
		Category: Out of process specification
OP1	Message	VGD bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than 0.1ns
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side: Risk of Failure
NF1	Check	VDS < 3.8 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	VSD < 3.8 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	$-1.98 < \mathrm{VGS} < 1.98$ for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'150e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	$eg_{-}dev = 4$ is for matching sensitivity analysis ONLY. Use	
MO6		$eg_{-}dev = 1$ to get accurate matching simulation results	
	Check	0 < eg-dev < 3	
	Condition	-	

Table 63: egnfet_acc soas



$16.2 \quad Model \ Name: egpfet_acc$

Rule	Section	Value
		Category: Out of process specification
OP1	Message	VGD bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.98 < VGS < 1.98 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.98 < \mathrm{VDS} < 1.98$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	-5.1 < VDS for a laps time greater than 0.01ns
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	-5.1 < VSD for a laps time greater than 0.01ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
		·



	continued from previous		
Rule	Section	Value	
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition		
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
		bias outside limits	
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	



continued from previous		
Rule	Section	Value
	Message	Failure due to gate oxide breakdown under DC stress: VGS
		bias outside limits
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns
	Condition	-
Category: Modeling information		
	Message	Gate finger width out of range used for model extraction.
MO1	Check	'160e-9nf' < w < '10e-6nf'
	Condition	-
	Message	Gate length out of geometries used for model extraction.
MO2	Check	'150e-9' < 1 < '10e-6'
	Condition	-
	Message	MOS capacitor operating in accumulation mode
MO3	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Large back bias not characterized and model accuracy not
		guaranteed in this regime
MO4	Check	-1.98 < Vbs < 1.98
	Condition	$(VDS \le 0)$
	Otherwise	<bull></bull>
	Message	Potential SELF-HEATING. On modeling structures measured
		on wafer, this will lead to a temperature increase superior to
2.50=		20C;
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns
	Condition	-
	Message	eg_dev = 4 is for matching sensitivity analysis ONLY. Use
1.500		eg_dev = 1 to get accurate matching simulation results
MO6	Check	$0 < \text{eg_dev} < 3$
	Condition	-

Table 64: egpfet_acc soas



$16.3 \quad Model \ Name: egvnfet_acc$

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.65 < VGD < 1.65 for a laps time greater than 0.1ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.65 < VGS < 1.65 for a laps time greater than 0.1 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than $0.1\mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	VDS < 3.2 for a laps time greater than 0.01 ns
	Condition	-
	Message	snapback on S side: Risk of Failure
NF2	Check	VSD < 3.2 for a laps time greater than 0.01 ns
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p $<$ VGD $<$ bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than $0.0001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	(VDS>=0)	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	$eg_{-}dev = 4$ is for matching sensitivity analysis ONLY. Use	
		$eg_{-}dev = 1$ to get accurate matching simulation results	
MO6	Check	0 < eg-dev < 3	
	Condition	-	

Table 65: egvnfet_acc soas



$16.4 \quad Model \ Name: egvpfet_acc$

Rule	Section	Value		
	Category: Out of process specification			
OP1	Message	VGD bias outside limits		
	Check	-1.65 < VGD < 1.65 for a laps time greater than 0.1ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	$-1.65 < \mathrm{VGS} < 1.65$ for a laps time greater than $0.1\mathrm{ns}$		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.65 < \mathrm{VDS} < 1.65$ for a laps time greater than $0.1 \mathrm{ns}$		
	Condition	-		
	C	ategory : Non functionnal FDSOI device		
	Message	snapback on D side: Risk of Failure		
NF1	Check	$-4.2 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$		
	Condition	-		
	Message	snapback on S side : Risk of Failure		
NF2	Check	$-4.2 < \mathrm{VSD}$ for a laps time greater than $0.01\mathrm{ns}$		
	Condition	-		
		Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than $0.0001ns$		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF6	Check	-bv $10p < VGS < bv10p for a laps time greater than 0.001ns$		
	Condition			
	Message	gate oxide breakdown - check the TDDB laws		
NF7	Check	-bv100p $<$ VGD $<$ bv100p for a laps time greater than 0.01ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF17	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress : VGD
		bias outside limits
NF19	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS bias outside limits	
NF20	Check	$-1.98 < \mathrm{VGS} < 1.98$ for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Gate finger width out of range used for model extraction.	
MO1	Check	'160e-9nf' < w < '10e-6nf'	
	Condition	-	
	Message	Gate length out of geometries used for model extraction.	
MO2	Check	'100e-9' < 1 < '10e-6'	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO3	Check	Vgs < 0.5	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO4	Check	-1.98 < Vbs < 1.98	
	Condition	$(VDS \le 0)$	
	Otherwise	<bull></bull>	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO5	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.1ns	
	Condition	-	
	Message	eg_dev = 4 is for matching sensitivity analysis ONLY. Use	
		eg_dev = 1 to get accurate matching simulation results	
MO6	Check	0 < eg-dev < 3	
	Condition	-	

Table 66: egvpfet_acc soas



17 Section related to EG_CPOLY library



17.1 Model Name : egncap

Rule	Section	Value
		Category: Out of process specification
	Message	Bias outside limits for standard use
OP1	Check	-1.98 < Vgsd < 1.98 for a laps time greater than 2.0 ns
	Condition	-
		Category: non functionnal information
	Message	Non functionnal device: junction breakdown
NF1	Check	Vsdsx < 10.0 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device: junction breakdown: Failure even
		during short ESD event
NF2	Check	Vsdsx < 12.0 for a laps time greater than 10ps
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < Vgsd < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv10p < Vgsd < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv100p < Vgsd < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv1n < Vgsd < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv10n < Vgsd < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv100n < Vgsd < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1u < Vgsd < bv1u for a laps time greater than 100.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv10u < Vgsd < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
		bias outside limits	
NF11	Check	-1.98 < Vgsd < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGS	
		bias outside limits	
NF12	Check	-1.98 < Vgsd < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	

Table 67: egncap soas

17.2 Model Name : egpcap

Rule	Section	Value
	(Category: Out of process specification
	Message	Bias outside limits for standard use
OP1	Check	$-1.98 < \mathrm{Vgsd} < 1.98$ for a laps time greater than 2.0ns
	Condition	-
		Category: non functionnal information
	Message	Non functionnal device : junction breakdown
NF1	Check	Vnwsd < 10.0 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device : junction breakdown : Failure even
	G	during short ESD event
NF2	Check	Vnwsd < 12.0 for a laps time greater than 10ps
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < Vgsd < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv10p < Vgsd < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv100p < Vgsd < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv1n < Vgsd < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv10n < Vgsd < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv100n < Vgsd < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1u < Vgsd < bv1u for a laps time greater than 100.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	gate oxide breakdown - check the TDDB laws	
NF10	Check	-bv10u < Vgsd < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGD	
		bias outside limits	
NF11	Check	-1.98 < Vgsd < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF12	Check	-1.98 < Vgsd < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	

Table 68: egpcap soas

18 Section related to LSL library



18.1 Model Name: lslnfet

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$	
	Condition	-	
		Category: Modeling information	
	Message	MOS capacitor operating in accumulation mode	
MO1	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	(abs(VDS) <= 1e-3)	
	Message	Possible switching of back side parasitic MOSFET not taken	
		into account in the model	
MO2	Check	Vbs < 2.6	
	Condition	-	
	Message	Large reverse back bias not characterized and model accuracy	
		not guaranteed in this regime	
MO3	Check	-1.3 < Vbs	
	Condition	-	
	Message	lsl_dev = 4 is for matching sensitivity analysis ONLY. Use	
		$lsl_dev = 1$ to get accurate matching simulation results	
MO4	Check	$0 < lsl_dev < 3$	
	Condition	-	

Table 69: lslnfet soas



19 Section related to ESD_DIODE_GATED_HB library



19.1 Model Name : $esdndsx_eg$

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-5.5 < VSXND for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNDSX < 5.5 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDSX < 5.8 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VSXND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	VSXND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 70: esdndsx $_{eg}$ soas



$19.2 \quad Model \ Name: esdndsx_eg_nova$

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-5.5 < VSXND for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNDSX < 5.5 for a laps time greater than 100.0ns	
	Condition	-	
	1	Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDSX < 5.8 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VSXND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	VSXND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 71: esdndsx $_{eg}$ nova soas



19.3 Model Name : $esdndsx_eg_va$

Rule	Section	Value
		Category: Non functionnal device
	Message	Risk of junction breakdown
NF1	Check	VNDSX < 5.5 for a laps time greater than 100.0ns
	Condition	-
	(Category: nonfunctionnal information
	Message	Non functionnal device: junction breakdown: Failure even
		during short ESD event
NF2	Check	VNDSX < 5.8 for a laps time greater than 10ps
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VNDSX < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv10p < VNDSX < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv100p < VNDSX < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv1n < VNDSX < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv10n < VNDSX < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv100n < VNDSX < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1u < VNDSX < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv10u < VNDSX < bv10u for a laps time greater than 1000.0ns
	Condition	-
11		



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress: VGS	
		bias outside limits	
NF11	Check	-1.98 < VNDSX < 1.98 for a laps time greater than 10000.0 ns	
	Condition	_	
		Category : Reliability	
	Message	Category : Reliability Junction in Forward regime - Please check that you respect	
	Message		
	Message	Junction in Forward regime - Please check that you respect	
RE1	Message	Junction in Forward regime - Please check that you respect DRM Latchup Rules & Guidelines - Make your design reviewed	

Table 72: esdndsx_eg_va soas

20 Section related to $ESD_DIODE_GR_GATED_HB$ library



$20.1 \quad Model \ Name: esdvnpn_eg$

Rule	Section	Value	
Category: Out of process specification			
	Message	Bias outside limits	
OP1	Check	-5.5 < VPWND for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNDPW < 5.5 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDPW < 5.8 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWPW < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF4	Check	VNWPW < 12 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VPWND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	VPWND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 73: esdvnpn_eg soas



$20.2 \quad Model \ Name: esdvnpn_eg_nova$

Rule	Section	Value	
Category: Out of process specification			
	Message	Bias outside limits	
OP1	Check	-5.5 < VPWND for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNDPW < 5.5 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDPW < 5.8 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWPW < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF4	Check	VNWPW < 12 for a laps time greater than 10ps	
	Condition	-	
		Category : Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VPWND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	VPWND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 74: esdvnpn_eg_nova soas



$20.3 \quad Model \ Name: esdvnpn_eg_va$

Rule	Section	Value
		Category: Non functionnal device
	Message	Risk of junction breakdown
NF1	Check	VNDPW < 5.5 for a laps time greater than 100.0ns
	Condition	-
	(Category: nonfunctionnal information
	Message	Non functionnal device : junction breakdown : Failure even
		during short ESD event
NF2	Check	VNDPW < 5.8 for a laps time greater than 10ps
	Condition	-
	Message	Non functionnal device: junction breakdown
NF3	Check	VNWPW < 10 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device : junction breakdown : Failure even
		during short ESD event
NF4	Check	VNWPW < 12 for a laps time greater than 10ps
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv1p < VNDPW < bv1p for a laps time greater than $0.0001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VNDPW < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VNDPW < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv1n < VNDPW < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv10n < VNDPW < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv100n < VNDPW < bv100n for a laps time greater than 10.0ns



continued from previous			
Rule	Section	Value	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv1u < VNDPW < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10u < VNDPW < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF13	Check	-1.98 < VNDPW < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
	Category : Reliability		
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VPWND < 0.6 for a laps time greater than 0.01ns	
	Condition	-	

Table 75: esdvnpn_eg_va soas

$20.4 \quad Model \ Name: esdvpnp_eg$

Rule	Section	Value	
Category: Out of process specification			
	Message	Bias outside limits	
OP1	Check	-6.5 < VANW for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNWA < 6.5 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF2	Check	VNWA < 6.8 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWSX < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF4	Check	VNWSX < 12 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VANW < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
	Message	Direct regime only for a limited range	
MO1	Check	VANW < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 76: esdvpnp_eg soas



$20.5 \quad Model \ Name: esdvpnp_eg_nova$

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits
OP1	Check	-6.5 < VANW for a laps time greater than 2.0ns
	Condition	-
		Category: Non functionnal device
	Message	Risk of junction breakdown
NF1	Check	VNWA < 6.5 for a laps time greater than 100.0ns
	Condition	-
		Category: nonfunctionnal information
	Message	Non functionnal device: junction breakdown: Failure even
		during short ESD event
NF2	Check	VNWA < 6.8 for a laps time greater than 10ps
	Condition	-
	Message	Non functionnal device : junction breakdown
NF3	Check	VNWSX < 10 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device: junction breakdown: Failure even
		during short ESD event
NF4	Check	VNWSX < 12 for a laps time greater than 10ps
	Condition	-
		Category: Reliability
	Message	Junction in Forward regime - Please check that you respect
		DRM Latchup Rules & Guidelines - Make your design reviewed
		by a Latchup expert
RE1	Check	VANW < 0.6 for a laps time greater than 0.01 ns
	Condition	-
		Category : Modeling
	Message	Direct regime only for a limited range
MO1	Check	VANW < 0.3 for a laps time greater than 2.0ns
	Condition	-

Table 77: esdvpnp_eg_nova soas



$20.6 \quad Model \ Name: esdvpnp_eg_va$

Rule	Section	Value
		Category: Non functionnal device
	Message	Risk of junction breakdown
NF1	Check	VNWA < 6.5 for a laps time greater than 100.0ns
	Condition	-
		Category: nonfunctionnal information
	Message	Non functionnal device : junction breakdown : Failure even
		during short ESD event
NF2	Check	VNWA < 6.8 for a laps time greater than 10ps
	Condition	-
	Message	Non functionnal device : junction breakdown
NF3	Check	VNWSX < 10 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device : junction breakdown : Failure even
		during short ESD event
NF4	Check	VNWSX < 12 for a laps time greater than 10ps
	Condition	-
		Category: Non functional device
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv1p < VNWA < bv1p for a laps time greater than $0.0001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VNWA < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv100p < VNWA < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv1n < VNWA < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv10n < VNWA < bv10n for a laps time greater than 1.0ns
	Condition	
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv100n < VNWA < bv100n for a laps time greater than 10.0ns



	continued from previous		
Rule	Section	Value	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF11	Check	-bv1u < VNWA < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF12	Check	-bv10u < VNWA < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGS	
		bias outside limits	
NF13	Check	-1.98 < VNWA < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VANW < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category: Modeling information		
	Message	Model accuracy limitations due to reversible charge trapping	
		under ESD stress at I>6A	
MO1	Check	-6 < I(Vsoa)	
	Condition	-	

Table 78: esdvpnp_eg_va soas



21 Section related to ESD_DIODE_GR_STI_HB library



21.1 Model Name : esdvnpn

Rule	Section	Value
Category: Out of process specification		
	Message	Bias outside limits
OP1	Check	-6 < VPWND for a laps time greater than 2.0ns
	Condition	-
		Category: Non functionnal device
	Message	Risk of junction breakdown
NF1	Check	VNDPW < 6.0 for a laps time greater than 100.0ns
	Condition	-
		Category: nonfunctionnal information
	Message	Non functionnal device: junction breakdown: Failure even
		during short ESD event
NF2	Check	VNDPW < 10.0 for a laps time greater than 10ps
	Condition	-
	Message	Non functionnal device : junction breakdown
NF3	Check	VNWPW < 10 for a laps time greater than 100ns
	Condition	-
	Message	Non functionnal device : junction breakdown : Failure even
		during short ESD event
NF4	Check	VNWPW < 12 for a laps time greater than 10ps
	Condition	-
		Category: Reliability
	Message	Junction in Forward regime - Please check that you respect
		DRM Latchup Rules & Guidelines - Make your design reviewed
		by a Latchup expert
RE1	Check	VPWND < 0.6 for a laps time greater than 0.01 ns
	Condition	-
		Category : Modeling
	Message	Direct regime only for a limited range
MO1	Check	VPWND < 0.3 for a laps time greater than 2.0ns
	Condition	-

Table 79: esdvnpn soas



21.2 Model Name : esdvnpn_nova

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-6 < VPWND for a laps time greater than 2.0ns	
	Condition	-	
	Category: Non functionnal device		
	Message	Risk of junction breakdown	
NF1	Check	VNDPW < 6.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDPW < 10.0 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWPW < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF4	Check	VNWPW < 12 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
RE1		by a Latchup expert	
	Check	VPWND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category : Modeling		
MO1	Message	Direct regime only for a limited range	
	Check	VPWND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 80: esdvnpn_nova soas



21.3 Model Name : esdvnpn_va

		Category: Non functionnal device		
	Message	Risk of junction breakdown		
	Check	VNDPW < 6.0 for a laps time greater than 100.0ns		
	Condition	-		
	Category: nonfunctionnal information			
1	Message	Non functionnal device: junction breakdown: Failure even		
		during short ESD event		
NF2	Check	VNDPW < 10.0 for a laps time greater than $10ps$		
	Condition	-		
	Message	Non functionnal device : junction breakdown		
NF3	Check	VNWPW < 10 for a laps time greater than 100ns		
	Condition	-		
	Message	Non functionnal device: junction breakdown: Failure even		
		during short ESD event		
NF4	Check	VNWPW < 12 for a laps time greater than 10ps		
	Condition	-		
		Category: Reliability		
]	Message	Junction in Forward regime - Please check that you respect		
		DRM Latchup Rules & Guidelines - Make your design reviewed		
		by a Latchup expert		
RE1	Check	VPWND < 0.6 for a laps time greater than 0.01 ns		
	Condition	-		
	Category : Modeling information			
]	Message	Set failexit parameter to 1 for simulation to be interrupted		
		when thermal breakdown is reached		
MO1	Check	-5 < I(Vsoa)(1-failexit)		
	Condition	-		

Table 81: esdvnpn_va soas



21.4 Model Name : esdvpnp

Rule	Section	Value	
Category: Out of process specification			
OP1	Message	Bias outside limits	
	Check	-7 < VANW for a laps time greater than 2.0ns	
	Condition	-	
Category: Non functionnal device			
	Message	Risk of junction breakdown	
NF1	Check	VNWA < 7.0 for a laps time greater than 100.0ns	
	Condition	-	
	Category: nonfunctionnal information		
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNWA < 10.0 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWSX < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF4	Check	VNWSX < 12 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
RE1		by a Latchup expert	
	Check	VANW < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
Category : Modeling			
MO1	Message	Direct regime only for a limited range	
	Check	VANW < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 82: esdvpnp soas



21.5 Model Name : $esdvpnp_nova$

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-7 < VANW for a laps time greater than 2.0ns	
	Condition	-	
	Category: Non functionnal device		
	Message	Risk of junction breakdown	
NF1	Check	VNWA < 7.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF2	Check	VNWA < 10.0 for a laps time greater than 10ps	
	Condition	-	
	Message	Non functionnal device : junction breakdown	
NF3	Check	VNWSX < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF4	Check	VNWSX < 12 for a laps time greater than 10ps	
	Condition	-	
		Category : Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
RE1		by a Latchup expert	
	Check	VANW < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
Category : Modeling			
MO1	Message	Direct regime only for a limited range	
	Check	VANW < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 83: esdvpnp_nova soas



$\mathbf{21.6}\quad \mathbf{Model}\ \mathbf{Name: esdvpnp_va}$

Rule	Section	Value	
	Category: Non functionnal device		
	Message	Risk of junction breakdown	
NF1	Check	VNWA < 7.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNWA < 10.0 for a laps time greater than 10ps	
	Condition	-	
NF3	Message	Non functionnal device : junction breakdown	
	Check	VNWSX < 10 for a laps time greater than 100ns	
	Condition	-	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF4	Check	VNWSX < 12 for a laps time greater than 10ps	
	Condition	-	
	Category : Reliability		
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VANW < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	

Table 84: esdvpnp_va soas



22 Section related to ESD_DIODE_STI_HB library



22.1 Model Name: esdndsx

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-6 < VSXND for a laps time greater than 2.0ns	
	Condition	-	
	Category: Non functionnal device		
	Message	Risk of junction breakdown	
NF1	Check	VNDSX < 6.0 for a laps time greater than 100.0ns	
	Condition	-	
	Category: nonfunctionnal information		
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDSX < 10.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VSXND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
Category : Modeling			
	Message	Direct regime only for a limited range	
MO1	Check	VSXND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 85: esdndsx soas



22.2 Model Name : esdndsx_nova

Rule	Section	Value	
	Category: Out of process specification		
	Message	Bias outside limits	
OP1	Check	-6 < VSXND for a laps time greater than 2.0ns	
	Condition	-	
		Category: Non functionnal device	
	Message	Risk of junction breakdown	
NF1	Check	VNDSX < 6.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device: junction breakdown: Failure even	
		during short ESD event	
NF2	Check	VNDSX < 10.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VSXND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
Category : Modeling			
	Message	Direct regime only for a limited range	
MO1	Check	VSXND < 0.3 for a laps time greater than 2.0ns	
	Condition	-	

Table 86: esdndsx_nova soas



22.3 Model Name: esdndsx_va

Rule	Section	Value	
	Category: Non functionnal device		
	Message	Risk of junction breakdown	
NF1	Check	VNDSX < 6.0 for a laps time greater than 100.0ns	
	Condition	-	
		Category: nonfunctionnal information	
	Message	Non functionnal device : junction breakdown : Failure even	
		during short ESD event	
NF2	Check	VNDSX < 10.0 for a laps time greater than 10ps	
	Condition	-	
		Category: Reliability	
	Message	Junction in Forward regime - Please check that you respect	
		DRM Latchup Rules & Guidelines - Make your design reviewed	
		by a Latchup expert	
RE1	Check	VSXND < 0.6 for a laps time greater than 0.01 ns	
	Condition	-	
	Category: Modeling information		
	Message	Set failexit parameter to 1 for simulation to be interrupted	
		when thermal breakdown is reached	
MO1	Check	-5 < I(Vsoa)(1-failexit)	
	Condition	-	

Table 87: esdndsx_va soas



23 Section related to ESD_LOWCAP library



23.1 Model Name : esd_lowcap

Rule	Section	Value	
	Category: Modeling information		
MO1	Message	Capacitance validated below 10GHz	
	Check	freq < 1e+10	
	Condition	-	

Table 88: esd_lowcap soas



24 Section related to ESD_NFET_EG_HB library



24.1 Model Name : esdegnfet

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-99.01 < VGD < 1.99 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.99 < VGS < 1.99 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.99 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGB bias outside limits	
OP4	Check	-1.99 < VGB < 3.97 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBD bias outside limits	
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBS bias outside limits	
OP6	Check	-3.97 < VBS for a laps time greater than 2.0ns	
	Condition	-	
		Category: Modeling information	
	Message	First order model for low VDS voltage except for leakage	
MO1	Check	1.98 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.98 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	

Table 89: esdegnfet soas



$24.2 \quad Model \ Name: esdegnfet_nova$

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-99.01 < VGD < 1.99 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.99 < VGS < 1.99 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.99 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGB bias outside limits	
OP4	Check	-1.99 < VGB < 3.97 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBD bias outside limits	
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBS bias outside limits	
OP6	Check	-3.97 < VBS for a laps time greater than 2.0ns	
	Condition	-	
		Category: Modeling information	
	Message	First order model for low VDS voltage except for leakage	
MO1	Check	1.98 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.98 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	

Table 90: esdegnfet_nova soas



${\bf 24.3}\quad {\bf Model\ Name: esdegnfet_va}$

Rule	Section	Value		
	Category: Out of process specification			
	Message	VGD bias outside limits		
OP1	Check	-99.01 < VGD < 1.99 for a laps time greater than 2.0ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	-1.99 < VGS < 1.99 for a laps time greater than 2.0ns		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.99 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns		
	Condition	-		
	Message	VGB bias outside limits		
OP4	Check	-1.99 < VGB < 3.97 for a laps time greater than 2.0ns		
	Condition	-		
	Message	VBD bias outside limits		
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns		
	Condition	-		
	Message	VBS bias outside limits		
OP6	Check	-3.97 < VBS for a laps time greater than 2.0ns		
	Condition	-		
		Category: nonfunctionnal information		
	Message	High internal temperature increase: device degradation -		
NF1	Check	Vsoad0 < drtfail for a laps time greater than 10ps		
	Condition	-		
	Message	High internal temperature increase: device degradation -		
NF2	Check	Vsoas0 < stfail for a laps time greater than 10ps		
	Condition	-		
		Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than $0.0001ns$		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		



continued from previous		
Rule	Section	Value
NF5	Check	-bv1p < VGB < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF8	Check	-bv10p < VGB < bv10p for a laps time greater than $0.001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv100p < VGD < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv100p < VGS < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv100p < VGB < bv100p for a laps time greater than 0.01ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv1n < VGB < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
NF16	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF17	Check	-bv10n < VGB < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF18	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF19	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF20	Check	-bv100n < VGB < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF21	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF22	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF23	Check	-bv1u < VGB < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF24	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF25	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF26	Check	-bv10u < VGB < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF27	Message	Failure due to gate oxide breakdown under DC stress : VGD
		bias outside limits
	Check	-1.98 < VGD < 1.98 for a laps time greater than 10000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGS
		bias outside limits
NF28	Check	-1.98 < VGS < 1.98 for a laps time greater than 10000.0ns



	continued from previous		
Rule	Section	Value	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGB	
		bias outside limits	
NF29	Check	-1.98 < VGB < 1.98 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	First order model for low VDS voltage except for leakage	
MO1	Check	1.98 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.98 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	
	Message	High internal temperature increase: near device degradation-	
		risk of convergence issue	
MO3	Check	Vsoad0 < 0.9drtfail for a laps time greater than 10ps	
	Condition	-	
	Message	High internal temperature increase: near device degradation-	
		risk of convergence issue	
MO4	Check	Vsoas0 < 0.9stfail for a laps time greater than 10ps	
	Condition	-	

Table 91: esdegnfet_va soas



25 Section related to MOS_PSP_DR18OTP library



25.1 Model Name : ndriftotp

Rule	Section	Value
		Category: Out of process specification
OP1	Message	VGD bias outside limits
	Check	-6.01 < VGD < 1.81 for a laps time greater than 2.0ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	$-1.81 < \mathrm{VGS} < 1.81$ for a laps time greater than 2.0ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.81 < \mathrm{VDS} < 6.01$ for a laps time greater than 2.0ns
	Condition	-
	Message	VGB bias outside limits
OP4	Check	-1.81 < VGB < 3.61 for a laps time greater than 2.0ns
	Condition	-
	Message	VBD bias outside limits
OP5	Check	-6.01 < VBD for a laps time greater than 2.0ns
	Condition	-
	Message	VBS bias outside limits
OP6	Check	-3.61 < VBS for a laps time greater than 2.0ns
	Condition	-
Category: Reliability issues		
	Message	MOSHV HCI limitation on D side
RE1	Check	$-6.2 < \mathrm{VBD} < 0.2$ for a laps time greater than 2.0ns
	Condition	(VGS-Vth)>0) and $(VDS>0.2)$
	Message	MOSHV HCI limitation on S side
RE2	Check	$-6.2 < \mathrm{VBS} < 0.2$ for a laps time greater than 2.0ns
	Condition	(VGD-Vth)>0) and $(VDS<-0.2)$
		Category: Modeling information
	Message	lateral parasitic bipolar not modelled when D/B diode in for-
MO1		ward bias
	Check	VBD < 0.31 for a laps time greater than 2.0ns
	Condition	-
	Message	lateral parasitic bipolar not modelled when S/B diode in for-
		ward bias



continued from previous		
Rule	Section	Value
MO2	Check	VBS < 0.31 for a laps time greater than 2.0ns
	Condition	-

Table 92: ndriftotp soas



26 Section related to ESD_NFET_RVT_HB library



26.1 Model Name : esdnfet

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-99.01 < VGD < 1.22 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.22 < VGS < 1.22 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.22 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGB bias outside limits	
OP4	Check	-1.22 < VGB < 2.43 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBD bias outside limits	
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBS bias outside limits	
OP6	Check	-2.43 < VBS for a laps time greater than 2.0ns	
	Condition	-	
		Category: Modeling information	
	Message	First order model for low VDS voltage except for leakage	
MO1	Check	1.22 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.22 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	

Table 93: esdnfet soas



26.2 Model Name : esdnfet_nova

Rule	Section	Value	
	Category: Out of process specification		
	Message	VGD bias outside limits	
OP1	Check	-99.01 < VGD < 1.22 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGS bias outside limits	
OP2	Check	-1.22 < VGS < 1.22 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VDS bias outside limits	
OP3	Check	$-1.22 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns	
	Condition	-	
	Message	VGB bias outside limits	
OP4	Check	-1.22 < VGB < 2.43 for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBD bias outside limits	
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns	
	Condition	-	
	Message	VBS bias outside limits	
OP6	Check	-2.43 < VBS for a laps time greater than 2.0ns	
	Condition	-	
Category: Modeling information			
MO1	Message	First order model for low VDS voltage except for leakage	
	Check	1.22 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.22 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	

Table 94: esdnfet_nova soas



26.3 Model Name : esdnfet_va

Rule	Section	Value		
	Category: Out of process specification			
	Message	VGD bias outside limits		
OP1	Check	-99.01 < VGD < 1.22 for a laps time greater than 2.0ns		
	Condition	-		
	Message	VGS bias outside limits		
OP2	Check	$-1.22 < \mathrm{VGS} < 1.22$ for a laps time greater than 2.0ns		
	Condition	-		
	Message	VDS bias outside limits		
OP3	Check	$-1.22 < \mathrm{VDS} < 99.01$ for a laps time greater than 2.0ns		
	Condition	-		
	Message	VGB bias outside limits		
OP4	Check	-1.22 < VGB < 2.43 for a laps time greater than 2.0ns		
	Condition	-		
	Message	VBD bias outside limits		
OP5	Check	-99.01 < VBD for a laps time greater than 2.0ns		
	Condition	-		
	Message	VBS bias outside limits		
OP6	Check	-2.43 < VBS for a laps time greater than 2.0ns		
	Condition	-		
		Category: nonfunctionnal information		
	Message	High internal temperature increase: device degradation -		
NF1	Check	Vsoad0 < drtfail for a laps time greater than 10ps		
	Condition	-		
	Message	High internal temperature increase: device degradation -		
NF2	Check	Vsoas0 < stfail for a laps time greater than 10ps		
	Condition	-		
Category: Non functional device				
	Message	gate oxide breakdown - check the TDDB laws		
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns		
	Condition	-		
	Message	gate oxide breakdown - check the TDDB laws		



Rule Section Value	
Condition -	
Message	
NF6 Check	
Message gate oxide breakdown - check the TDDB laws	
Message NF7 Check Condition Message State oxide breakdown - check the TDDB laws Condition Message NF8 Check Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws Condition Message State oxide breakdown - check the TDDB laws NF12 Check State oxide breakdown - check the TDDB laws Condition -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
NF7	
Message gate oxide breakdown - check the TDDB laws	
Message NF8 Check Check Condition Message NF9 Check Condition Message NF9 Check Condition Message NF9 Check Condition Message NF10 Check Subtraction Message NF10 Check Subtraction Message NF10 Check Subtraction Message NF10 Check Subtraction Message NF11 Check Subtraction Message NF12 Check Subtraction Message Subtraction Message Subtraction Message Subtraction NF12 Check Subtraction NF13 Check Subtraction NF14 Check Subtraction NF15 Check Subtraction NF16 Check Subtraction NF17 Check Subtraction NF18 Check Subtraction NF19 Check Subtraction NF19 Check Subtraction NF10 Check Subtraction NF10 Check Subtraction NF11 Check Subtraction NF12 Check Subtraction NF12 Check Subtraction NF15 Condition NF16 Condition NF17 Check Subtraction NF18 Check Subtraction NF18 Check Subtraction NF19 Check Subtraction NF19 Check Subtraction NF10	
NF8 Check	
Message gate oxide breakdown - check the TDDB laws	
Message NF9 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition - Message NF10 Check -bv100p < VGS < bv100p for a laps time greater than 0.01ns Condition - Message NF10 Check -bv100p < VGS < bv100p for a laps time greater than 0.01ns Condition - Message Sate oxide breakdown - check the TDDB laws Condition -bv100p < VGB < bv100p for a laps time greater than 0.01ns Condition - Message Sate oxide breakdown - check the TDDB laws Condition - Message Sate oxide breakdown - check the TDDB laws Condition - Message Sate oxide breakdown - check the TDDB laws -bv100p < VGB < bv100p for a laps time greater than 0.01ns Condition - Message Sate oxide breakdown - check the TDDB laws -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
NF9 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws NF10 Check -bv100p < VGS < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws NF11 Check -bv100p < VGB < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws NF12 Check -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
Condition -	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
NF10 Check -bv100p < VGS < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws -bv100p < VGB < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
Condition Message gate oxide breakdown - check the TDDB laws -bv100p < VGB < bv100p for a laps time greater than 0.01ns Condition - Message gate oxide breakdown - check the TDDB laws NF12 Check -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
Condition Message gate oxide breakdown - check the TDDB laws NF12 Check -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
NF12 Check -bv1n < VGD < bv1n for a laps time greater than 0.1ns Condition -	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF13 Check -bv1n < VGS < bv1n for a laps time greater than 0.1ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF14 Check -bv1n < VGB < bv1n for a laps time greater than 0.1ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF15 Check -bv10n < VGD < bv10n for a laps time greater than 1.0ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	
NF16 Check -bv10n < VGS < bv10n for a laps time greater than 1.0ns	
Condition -	
Message gate oxide breakdown - check the TDDB laws	



	continued from previous		
Rule	Section	Value	
NF17	Check	-bv10n < VGB < bv10n for a laps time greater than 1.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF18	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF19	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF20	Check	-bv100n < VGB < bv100n for a laps time greater than 10.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF21	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF22	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns	
	Condition	-	
NF23	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv1u < VGB < bv1u for a laps time greater than 100.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF24	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	gate oxide breakdown - check the TDDB laws	
NF25	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
NF26	Message	gate oxide breakdown - check the TDDB laws	
	Check	-bv10u < VGB < bv10u for a laps time greater than 1000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGD	
		bias outside limits	
NF27	Check	-1.0 < VGD < 1.0 for a laps time greater than 10000.0ns	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF28	Check	-1.0 < VGS < 1.0 for a laps time greater than 10000.0ns	



	continued from previous		
Rule	Section	Value	
	Condition	-	
	Message	Failure due to gate oxide breakdown under DC stress: VGB	
		bias outside limits	
NF29	Check	-1.0 < VGB < 1.0 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	First order model for low VDS voltage except for leakage	
MO1	Check	1.22 < abs(Vds) for a laps time greater than 11ns	
	Condition	-	
	Message	First order model for low VDB voltage except for leakage	
MO2	Check	1.22 < abs(Vdb) for a laps time greater than 11ns	
	Condition	-	
	Message	High internal temperature increase: near device degradation -	
		risk of convergence issue	
MO3	Check	Vsoad0 < 0.9drtfail for a laps time greater than 10ps	
	Condition	-	
	Message	High internal temperature increase: near device degradation -	
		risk of convergence issue	
MO4	Check	Vsoas0 < 0.9stfail for a laps time greater than 10ps	
	Condition	-	

Table 95: esdnfet_va soas



27 Section related to ESD_ULC_EG library



$27.1 \quad Model \ Name: esd_ulc_eg$

Rule	Section	Value
		Category: Modeling information
	Message	Capacitance model validated between 1GHz and 50GHz
MO1	Check	1e+09 < freq < 6.5e+10
	Condition	-

Table 96: esd_ulc_eg soas



28 Section related to ESD_ULC_RVT library



28.1 Model Name : esd_ulc_rvt

Rule	Section	Value
		Category: Modeling information
	Message	Capacitance model validated between 1GHz and 50GHz
MO1	Check	1e+09 < freq < 6.5e+10
	Condition	-

Table 97: esd_ulc_rvt soas



29 Section related to HLVT library



29.1 Model Name: hlvtnfet

Category : Out of process specification	Rule	Section	Value
OP1 Check			Category: Out of process specification
Condition -		9	VGD bias outside limits
Message VGS bias outside limits -1.1 < VGS < 1.1 for a laps time greater than 0.05ns Condition - Wessage VDS bias outside limits -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Check -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Condition - Category : Non functionnal FDSOI device Message snapback on D side : Risk of Failure VDS < 3.0 for a laps time greater than 0.01ns Condition - Wessage snapback on S side : Risk of Failure VSD < 3.0 for a laps time greater than 0.01ns Condition - Category : Non functional device WSD < 3.0 for a laps time greater than 0.01ns Condition - Category : Non functional device gate oxide breakdown - check the TDDB laws Check -bvlp < VGD < bvlp for a laps time greater than 0.0001ns Condition - Wessage gate oxide breakdown - check the TDDB laws -bvlp < VGS < bvlp for a laps time greater than 0.0001ns Condition - Wessage gate oxide breakdown - check the TDDB laws -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns Condition - Wessage gate oxide breakdown - check the TDDB laws -bvl0p < VGD < bvl0p for a laps time greater than 0.001ns - Condition - Wessage gate oxide breakdown - check the TDDB laws -bvl0p < VGS < bvl0p for a laps time greater than 0.001ns	OP1		-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
OP2 Check Condition Message OP3 Check Condition -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Check Condition -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Condition - Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure VDS < 3.0 for a laps time greater than 0.01ns Condition - Message NF2 Check Condition - Category: Non functional device Stategory: Non functional functional device Stategory: Non functional functional functional device Stategory: Non functional functiona		Condition	-
Condition - Message VDS bias outside limits Check -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Condition - Category : Non functionnal FDSOI device Message snapback on D side : Risk of Failure VDS < 3.0 for a laps time greater than 0.01ns Condition - Message snapback on S side : Risk of Failure VSD < 3.0 for a laps time greater than 0.01ns Condition - Category : Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -		Message	VGS bias outside limits
Message VDS bias outside limits Check -1.1 < VDS < 1.1 for a laps time greater than 0.05ns Condition - Category: Non functionnal FDSOI device Message snapback on D side: Risk of Failure NF1 Check VDS < 3.0 for a laps time greater than 0.01ns Condition - Message snapback on S side: Risk of Failure NF2 Check VSD < 3.0 for a laps time greater than 0.01ns Condition - Category: Non functional device Message gate oxide breakdown - check the TDDB laws NF3 Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws NF5 Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition -	OP2		-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
Category: Non functional FDSOI device Message		Condition	-
Condition Category: Non functionnal FDSOI device Message Snapback on D side: Risk of Failure NF1 Check Condition Message NF2 Check VSD < 3.0 for a laps time greater than 0.01ns Condition Category: Non functional device Message Message Message Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws Condition Message Sate oxide breakdown - check the TDDB laws		Message	VDS bias outside limits
Category: Non functionnal FDSOI device	OP3		$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
Message		Condition	-
NF1 Check		C	ategory: Non functionnal FDSOI device
Message Snapback on S side : Risk of Failure		Message	snapback on D side : Risk of Failure
Message Snapback on S side : Risk of Failure	NF1	Check	VDS < 3.0 for a laps time greater than 0.01 ns
NF2 Check VSD < 3.0 for a laps time greater than 0.01ns		Condition	-
Category: Non functional device Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGD < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Obv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Obv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Obv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Obv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Obv10p < VGS < bv10p for a laps time greater than 0.01ns Condition -		Message	snapback on S side : Risk of Failure
Message gate oxide breakdown - check the TDDB laws	NF2	Check	VSD < 3.0 for a laps time greater than 0.01 ns
Message gate oxide breakdown - check the TDDB laws Check		Condition	-
NF3 Check			Category: Non functional device
Message gate oxide breakdown - check the TDDB laws		Message	gate oxide breakdown - check the TDDB laws
Message gate oxide breakdown - check the TDDB laws Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -	NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
NF4 Check -bv1p < VGS < bv1p for a laps time greater than 0.0001ns Condition - Message gate oxide breakdown - check the TDDB laws Check -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
Condition Message gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv10p for a laps time greater than 0.001ns Condition Message gate oxide breakdown - check the TDDB laws NF6 Check -bv10p < VGS < bv10p for a laps time greater than 0.001ns Condition - Message gate oxide breakdown - check the TDDB laws Condition - Message gate oxide breakdown - check the TDDB laws -bv10p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF4	Check	-bv1p < VGS < bv1p for a laps time greater than 0.0001ns
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Condition	-
		Message	gate oxide breakdown - check the TDDB laws
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	NF5	Check	-bv10p < VGD < bv10p for a laps time greater than $0.001ns$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Condition	-
Condition - Message Street S		Message	gate oxide breakdown - check the TDDB laws
	NF6	Check	-bv10p < VGS < bv10p for a laps time greater than $0.001ns$
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Condition	-
NF7 Check -bv100p < VGD < bv100p for a laps time greater than 0.01ns Condition -		Message	gate oxide breakdown - check the TDDB laws
	NF7	Check	
Message gate oxide breakdown - check the TDDB laws		Condition	-
0		Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
NF17	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF18	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.0 < VGD < 1.0 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous		
Rule	Section	Value	
	Message	Failure due to gate oxide breakdown under DC stress : VGS	
		bias outside limits	
NF20	Check	-1.0 < VGS < 1.0 for a laps time greater than 10000.0ns	
	Condition	-	
		Category: Modeling information	
	Message	Model is not valid for long gate length	
MO1	Check	30e-9 < lpb < 54e-9	
	Condition	-	
	Message	MOS capacitor operating in accumulation mode	
MO2	Check	$-0.5 < \mathrm{Vgs}$	
	Condition	$(abs(VDS) \le 1e-3)$	
	Message	Large back bias not characterized and model accuracy not	
		guaranteed in this regime	
MO3	Check	-1.3 < Vbs < 1.3	
	Condition	-	
	Message	Potential SELF-HEATING. On modeling structures measured	
		on wafer, this will lead to a temperature increase superior to	
		20C;	
MO4	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns	
	Condition	-	
	Message	hlvt_dev = 4 is for matching sensitivity analysis ONLY. Use	
		hlvt_dev = 1 to get accurate matching simulation results	
MO5	Check	$0 < \text{hlvt_dev} < 3$	
	Condition	-	

Table 98: hlvtnfet soas



29.2 Model Name : hlvtpfet

Rule	Section	Value
	(Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
	C	ategory : Non functionnal FDSOI device
	Message	snapback on D side : Risk of Failure
NF1	Check	$-3.5 < \mathrm{VDS}$ for a laps time greater than $0.01 \mathrm{ns}$
	Condition	-
	Message	snapback on S side : Risk of Failure
NF2	Check	-3.5 < VSD for a laps time greater than $0.01 ns$
	Condition	-
Category: Non functional device		
	Message	gate oxide breakdown - check the TDDB laws
NF3	Check	-bv1p < VGD < bv1p for a laps time greater than 0.0001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF4	Check	-bv1p < VGS < bv1p for a laps time greater than $0.0001ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF5	Check	-bv10p < VGD < bv10p for a laps time greater than 0.001ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF6	Check	-bv10p < VGS < bv10p for a laps time greater than 0.001ns
	Condition	
	Message	gate oxide breakdown - check the TDDB laws
NF7	Check	-bv $100p < VGD < bv100p$ for a laps time greater than 0.01ns
	Condition	
	Message	gate oxide breakdown - check the TDDB laws



continued from previous		
Rule	Section	Value
NF8	Check	-bv100p < VGS < bv100p for a laps time greater than $0.01ns$
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF9	Check	-bv1n < VGD < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF10	Check	-bv1n < VGS < bv1n for a laps time greater than 0.1ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF11	Check	-bv10n < VGD < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF12	Check	-bv10n < VGS < bv10n for a laps time greater than 1.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF13	Check	-bv100n < VGD < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF14	Check	-bv100n < VGS < bv100n for a laps time greater than 10.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF15	Check	-bv1u < VGD < bv1u for a laps time greater than 100.0ns
	Condition	-
	Message	gate oxide breakdown - check the TDDB laws
NF16	Check	-bv1u < VGS < bv1u for a laps time greater than 100.0ns
	Condition	-
NF17	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGD < bv10u for a laps time greater than 1000.0ns
	Condition	-
NF18	Message	gate oxide breakdown - check the TDDB laws
	Check	-bv10u < VGS < bv10u for a laps time greater than 1000.0ns
	Condition	-
	Message	Failure due to gate oxide breakdown under DC stress: VGD
		bias outside limits
NF19	Check	-1.0 < VGD < 1.0 for a laps time greater than 10000.0ns
	Condition	-



	continued from previous					
Rule	Section	Value				
NF20	Message	Failure due to gate oxide breakdown under DC stress : VGS				
		bias outside limits				
	Check	-1.0 < VGS < 1.0 for a laps time greater than 10000.0ns				
	Condition	-				
	Category: Modeling information					
	Message	Model is not valid for long gate length				
MO1	Check	30e-9 < lpb < 54e-9				
	Condition	-				
	Message	MOS capacitor operating in accumulation mode				
MO2	Check	Vgs < 0.5				
	Condition	$(abs(VDS) \le 1e-3)$				
	Message	Large back bias not characterized and model accuracy not				
		guaranteed in this regime				
MO3	Check	-0.3 < Vbs < 2.3				
	Condition	-				
	Message	Potential SELF-HEATING. On modeling structures measured				
		on wafer, this will lead to a temperature increase superior to				
		20C;				
MO4	Check	abs(ID(M1)Vdsrtheff/nf) < 20 for a laps time greater than 0.05ns				
	Condition	-				
	Message	hlvt_dev = 4 is for matching sensitivity analysis ONLY. Use				
MO5		$hlvt_{-}dev = 1$ to get accurate matching simulation results				
	Check	$0 < \text{hlvt_dev} < 3$				
	Condition	-				

Table 99: hlvtpfet soas



30 Section related to LSD library



30.1 Model Name: lsdnfetpd

Rule	Section	Value			
Category: Out of process specification					
OP1	Message	VGD bias outside limits			
	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns			
	Condition	-			
OP2	Message	VGS bias outside limits			
	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$			
	Condition	-			
		Category: Modeling information			
	Message	MOS capacitor operating in accumulation mode			
MO1	Check	$-0.5 < \mathrm{Vgs}$			
	Condition	$(abs(VDS) \le 1e-3)$			
	Message	Possible switching of back side parasitic MOSFET not taken			
		into account in the model			
MO2	Check	Vbs < 2.6			
	Condition	-			
	Message	Large reverse back bias not characterized and model accuracy			
		not guaranteed in this regime			
MO3	Check	-1.3 < Vbs			
	Condition	-			
	Message	lsd_dev = 4 is for matching sensitivity analysis ONLY. Use			
		lsd_dev = 1 to get accurate matching simulation results			
MO4	Check	$0 < \text{lsd_dev} < 3$			
	Condition	-			

Table 100: lsdnfetpd soas



30.2 Model Name: lsdnfetwl

Rule	Section	Value			
	Category: Out of process specification				
OP1	Message	VGD bias outside limits			
	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VGS bias outside limits			
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns			
	Condition	-			
	Message	VDS bias outside limits			
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$			
	Condition	-			
		Category: Modeling information			
	Message	MOS capacitor operating in accumulation mode			
MO1	Check	$-0.5 < \mathrm{Vgs}$			
	Condition	$(abs(VDS) \le 1e-3)$			
	Message	Possible switching of back side parasitic MOSFET not taken			
		into account in the model			
MO2	Check	Vbs < 2.6			
	Condition	-			
	Message	Large reverse back bias not characterized and model accuracy			
MO3		not guaranteed in this regime			
	Check	-1.3 < Vbs			
	Condition	-			
	Message	lsd_dev = 4 is for matching sensitivity analysis ONLY. Use			
		lsd_dev = 1 to get accurate matching simulation results			
MO4	Check	$0 < \operatorname{lsd_dev} < 3$			
	Condition	-			

Table 101: lsdnfetwl soas



30.3 Model Name : lsdpfetpu

Rule	Section	Value				
	Category: Out of process specification					
	Message	VGD bias outside limits				
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns				
	Condition	-				
	Message	VGS bias outside limits				
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns				
	Condition	-				
	Message	VDS bias outside limits				
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$				
	Condition	-				
		Category: Modeling information				
	Message	MOS capacitor operating in accumulation mode				
MO1	Check	Vgs < 0.5				
	Condition	$(abs(VDS) \le 1e-3)$				
	Message	Possible switching of back side parasitic MOSFET not taken				
		into account in the model				
MO2	Check	-2.6 < Vbs				
	Condition	-				
	Message	Large reverse back bias not characterized and model accuracy				
		not guaranteed in this regime				
MO3	Check	Vbs < 1.3				
	Condition	-				
	Message	lsd_dev = 4 is for matching sensitivity analysis ONLY. Use				
		lsd_dev = 1 to get accurate matching simulation results				
MO4	Check	$0 < lsd_dev < 3$				
	Condition	-				

Table 102: lsdpfetpu soas



31 Section related to LSP library



31.1 Model Name: lspnfetpd

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	$-0.5 < \mathrm{Vgs}$
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	Vbs < 2.6
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	-1.3 < Vbs
	Condition	-
_	Message	lsp_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsp_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{lsp_dev} < 3$
	Condition	-

Table 103: lspnfetpd soas



31.2 Model Name : lspnfetwl

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	$-0.5 < \mathrm{Vgs}$
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	Vbs < 2.6
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	$-1.3 < \mathrm{Vbs}$
	Condition	-
	Message	lsp_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsp_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{lsp_dev} < 3$
	Condition	-

Table 104: lspnfetwl soas



31.3 Model Name : lsppfetpu

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	-2.6 < Vbs
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	Vbs < 1.3
	Condition	-
_	Message	lsp_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsp_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{lsp_dev} < 3$
	Condition	-

Table 105: lsppfetpu soas



32 Section related to LSV library



32.1 Model Name: lsvnfetpd

Rule	Section	Value
	,	Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	$-0.5 < \mathrm{Vgs}$
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	Vbs < 2.6
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	-1.3 < Vbs
	Condition	-
_	Message	lsv_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsv_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{lsv_dev} < 3$
	Condition	-

Table 106: lsvnfetpd soas



32.2 Model Name: lsvnfetwl

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	$-0.5 < \mathrm{Vgs}$
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	Vbs < 2.6
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	-1.3 < Vbs
	Condition	-
	Message	lsv_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsv_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < \text{lsv_dev} < 3$
	Condition	-

Table 107: lsvnfetwl soas



32.3 Model Name : lsvpfetpu

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.1 < VGD < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.1 < VGS < 1.1 for a laps time greater than 0.05 ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.1 < \mathrm{VDS} < 1.1$ for a laps time greater than $0.05 \mathrm{ns}$
	Condition	-
		Category: Modeling information
	Message	MOS capacitor operating in accumulation mode
MO1	Check	Vgs < 0.5
	Condition	$(abs(VDS) \le 1e-3)$
	Message	Possible switching of back side parasitic MOSFET not taken
		into account in the model
MO2	Check	-2.6 < Vbs
	Condition	-
	Message	Large reverse back bias not characterized and model accuracy
		not guaranteed in this regime
MO3	Check	Vbs < 1.3
	Condition	-
	Message	lsv_dev = 4 is for matching sensitivity analysis ONLY. Use
		lsv_dev = 1 to get accurate matching simulation results
MO4	Check	$0 < lsv_dev < 3$
	Condition	-

Table 108: lsvpfetpu soas



33 Section related to MOS_PSP_EXT18HV library



33.1 Model Name : egnexti

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-5.01 < VGD < 1.81 for a laps time greater than 2.0ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	-1.81 < VGS < 1.81 for a laps time greater than 2.0ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-1.81 < \mathrm{VDS} < 5.01$ for a laps time greater than 2.0ns
	Condition	-
	Message	VGB bias outside limits
OP4	Check	-1.81 < VGSB < 3.61 for a laps time greater than 2.0ns
	Condition	-
	Message	VBD bias outside limits
OP5	Check	-5.01 < VSBD for a laps time greater than 2.0ns
	Condition	-
	Message	VBS bias outside limits
OP6	Check	-3.61 < VSBS for a laps time greater than 2.0ns
	Condition	-
	Message	VSB/SISO bias outside limits
OP7	Check	-20.01 < VSBSISO < 0.31 for a laps time greater than 2.0ns
	Condition	-
	Message	VSISO/SUB bias outside limits
OP8	Check	-0.31 < VSISOSUB < 20.01 for a laps time greater than 2.0ns
	Condition	-
		Category: Reliability issues
	Message	MOSHV HCI limitation on D side
RE1	Check	-5.2 < VSBD < 0.2 for a laps time greater than 2.0ns
	Condition	(VGS-Vth)>0) and $(VDS>0.2)$
	Message	MOSHV HCI limitation on S side
RE2	Check	-5.2 < VSBS < 0.2 for a laps time greater than 2.0ns
	Condition	(VGD-Vth)>0) and $(VDS<-0.2)$
		Category: Modeling information
	Message	lateral parasitic bipolar not modelled when D/B diode in for-
		ward bias



		continued from previous
Rule	Section	Value
MO1	Check	VSBD < 0.31 for a laps time greater than 2.0ns
	Condition	-
	Message	lateral parasitic bipolar not modelled when S/B diode in for-
	Message	lateral parasitic bipolar not modelled when S/B diode in forward bias
MO2	Message Check	· · · · · · · · · · · · · · · · · · ·

Table 109: egnexti soas



33.2 Model Name : egpext

Rule	Section	Value
		Category: Out of process specification
	Message	VGD bias outside limits
OP1	Check	-1.81 < VGD < 5.01 for a laps time greater than 2.0ns
	Condition	-
	Message	VGS bias outside limits
OP2	Check	$-1.81 < \mathrm{VGS} < 1.81$ for a laps time greater than 2.0ns
	Condition	-
	Message	VDS bias outside limits
OP3	Check	$-5.01 < \mathrm{VDS} < 1.81$ for a laps time greater than 2.0ns
	Condition	-
	Message	VGB bias outside limits
OP4	Check	-1.81 < VGSB < 3.61 for a laps time greater than 2.0ns
	Condition	-
	Message	VBD bias outside limits
OP5	Check	VSBD < 5.01 for a laps time greater than 2.0ns
	Condition	-
	Message	VBS bias outside limits
OP6	Check	VSBS < 3.61 for a laps time greater than 2.0ns
	Condition	-
		Category: Reliability issues
	Message	MOSHV HCI limitation on D side
RE1	Check	-0.2 < VSBD < 5.2 for a laps time greater than 2.0ns
	Condition	(VGS-Vth)<0) and $(VDS<-0.2)$
	Message	MOSHV HCI limitation on S side
RE2	Check	-0.2 < VSBS < 5.2 for a laps time greater than 2.0ns
	Condition	(VGD-Vth)<0) and $(VDS>0.2)$
		Category: Reliability information
	Message	Recommended value L= 0.222 um. For L< 0.222 um, please
		check SOA with TR&D reliability experts for mission profile
		confirmation
RE3	Check	0.222e-06 < 1
	Condition	-
		Category: Modeling information
	Message	lateral parasitic bipolar not modelled when D/B diode in for-
		ward bias



		continued from previous
Rule	Section	Value
MO1	Check	-0.31 < VSBD for a laps time greater than 2.0ns
	Condition	-
	Message	lateral parasitic bipolar not modelled when S/B diode in for-
	Message	lateral parasitic bipolar not modelled when S/B diode in forward bias
MO2	Message Check	· · · · · · · · · · · · · · · · · · ·

Table 110: egpext soas