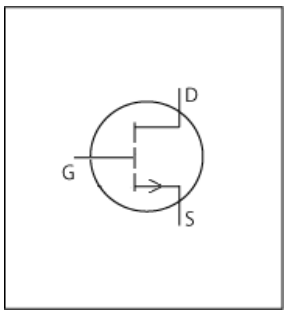
PSpice Model
GaN
STM
SGT120R65AL



Model Information

Model	A macro model based on BSIM3 model	
Call Name	MDC_SGT120R65AL_PS	
Pin Assign	1:S 2:S 3:S 4:G 5:D 6:D 7:D 8:D	
File List	Model Library	MDC_SGT120R65AL_PS01.lib
	Model Report	MDC_SGT120R65AL_PS.pdf (this file)
Verified Simulator Version		PSpice version 17.2
Note		

References

The information which was used for modeling is as follow :

[Data Sheet]

- ●Date/Version: 2023 Rev 12
- ●Product name: SGT120R65AL
- ●Company name: STMicroelectronics N.V.
- ●Characteristics: IdVds[Vgs],IdVds[Vgs]2,IdVgs[Temp],VgsQg[Vdd],CapacitanceVds[Cname],NormRds(on)Temp[Vgs],Rds(on)Id[Vgs],Rds(on)Id[Vgs]2,IdVds[Vgs]3,IdVds[Vgs]4,NormVthTemp[Id],SwitchingLload[Tname],SwitchingLload[Tname]2,SwitchingWaveform

Simulation Range

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

Item	Range			Unit
	Min.		Max.	
Drain-source voltage (DC)	0	to	650	V
Gate-source voltage (DC)	-10	to	7	V
Temperature	-55	to	150	deg C

MOSFET

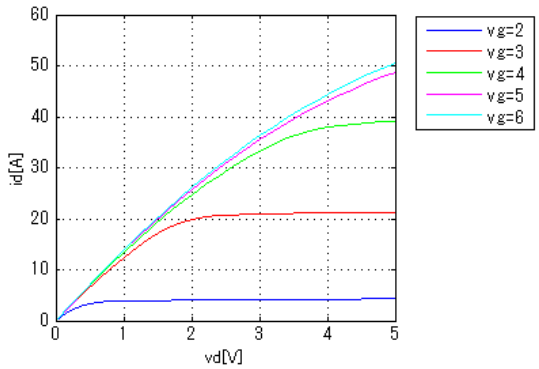
○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

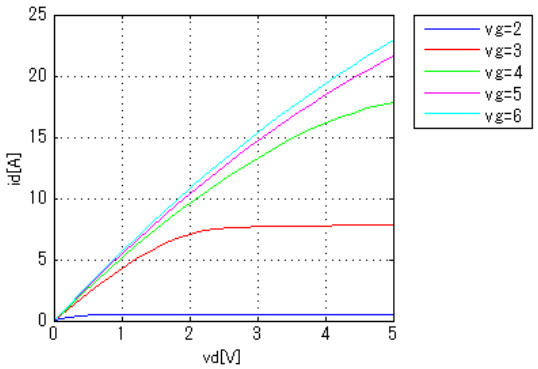
	RANK=1	
Functions	RANK	Implemented
ID-VDS-VGS	1	○
ID-VGS(Temp)	1	○
RDS(on)	1	○
Capacitance	1	○
Gate Charge	1	○
IS-VSD	1	○
Reverse recovery	1	—
Switching(Typ.)	1	○
Bv	1	—
Yfs	1	—
Vth	1	○

Simulation results are following.
Explanatory notes — : simulated

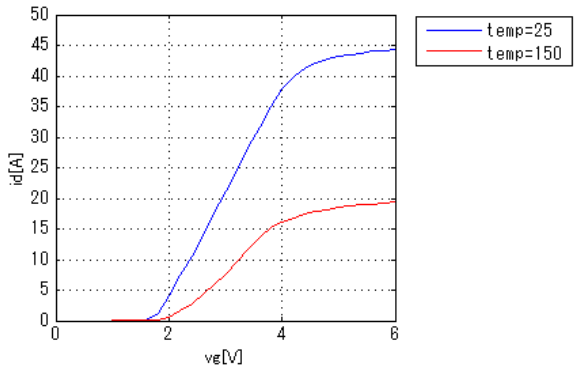
IdVds[Vgs]
Temp = 25degC



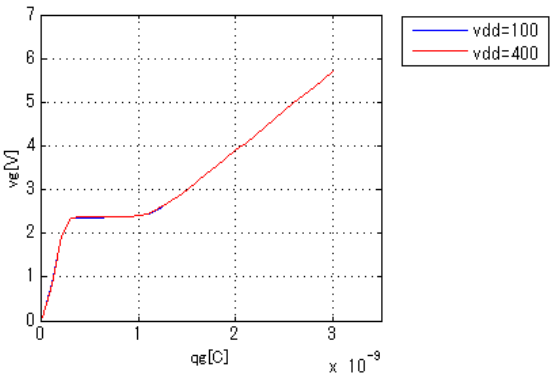
IdVds[Vgs]2
Temp = 150degC



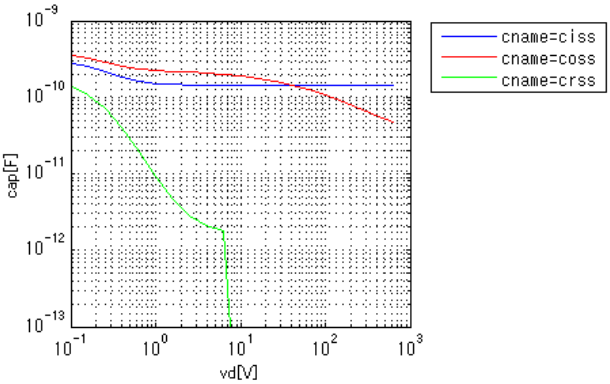
IdVgs[Temp]
Vds = 4V



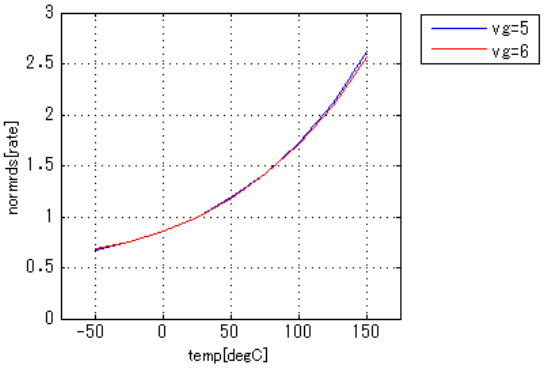
VgsQg[Vdd]
Id = 10A



CapacitanceVds[Cname]
freq = 1000000Hz

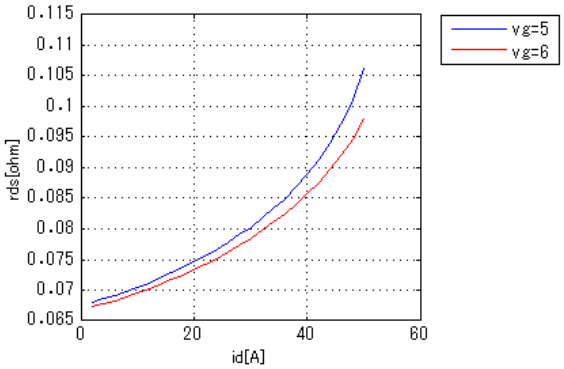


NormRds(on)Temp[Vgs]
Id = 5A

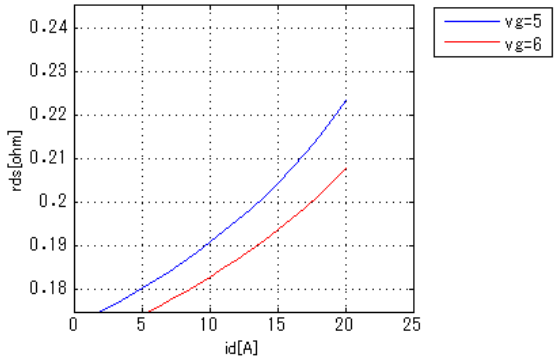


Simulation results are following.
Explanatory notes — : simulated

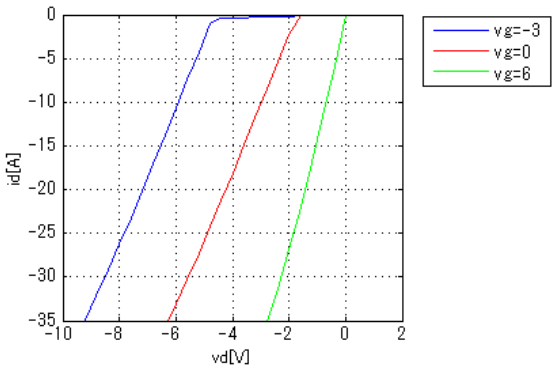
Rds(on)Id[Vgs]
Temp = 25degC



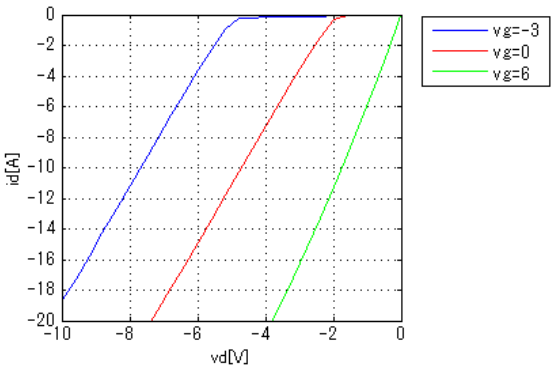
Rds(on)Id[Vgs]2
Temp = 150degC



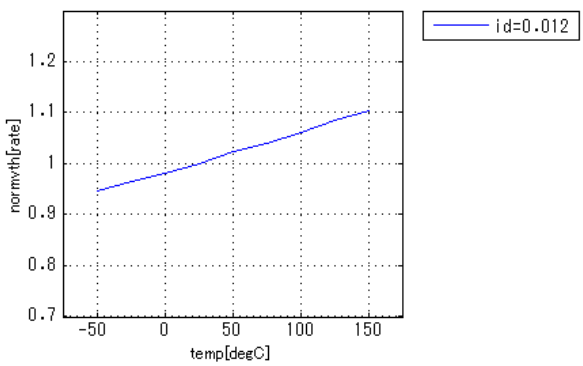
IdVds[Vgs]3
Temp = 25degC



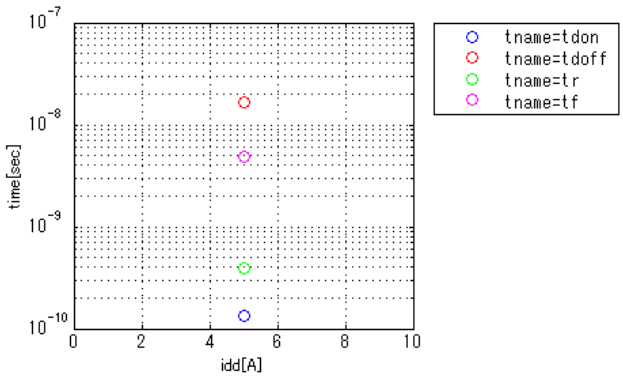
IdVds[Vgs]4
Temp = 150degC



NormVthTemp[Id]
vd = 0.1V



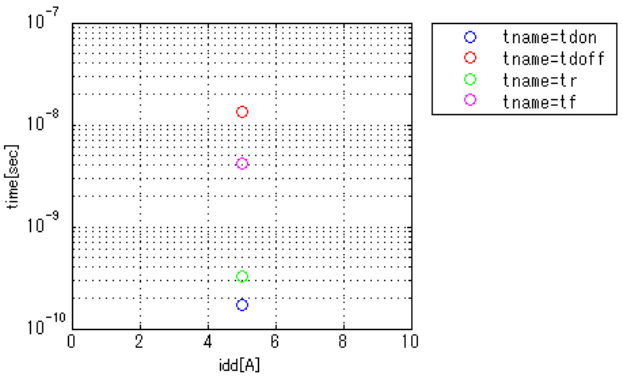
SwitchingLload[Tname]
vgg = 6V, vdd = 400V, Lload = 0.0005H, RGon = 10ohm, RGon = 3.3ohm, Temp = 25degC



Simulation results are following.
Explanatory notes — : simulated

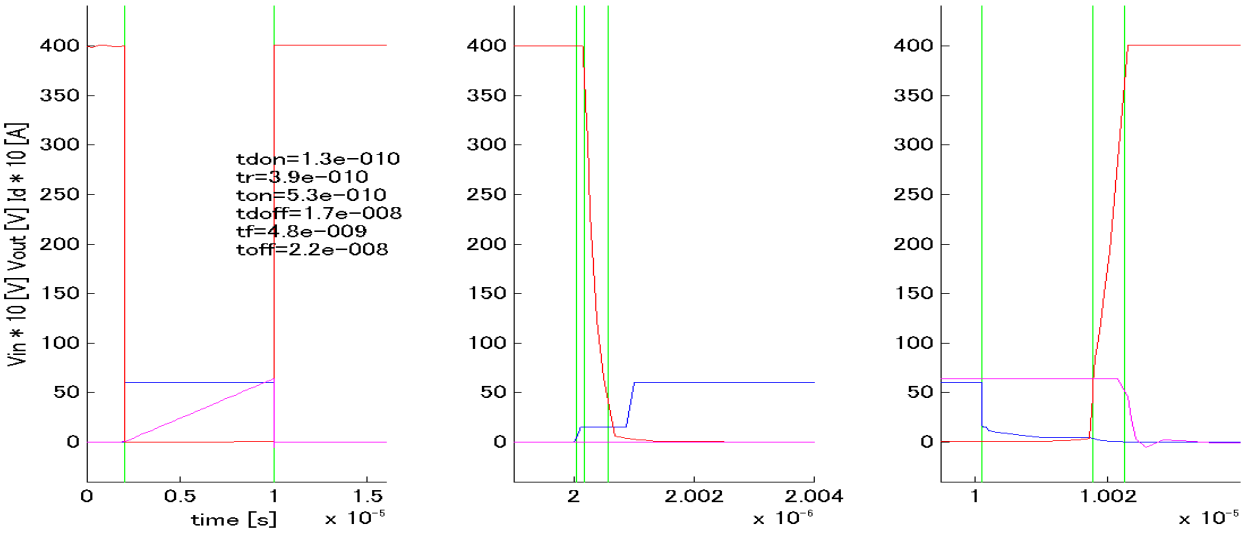
SwitchingLload[Tname]2

vgg = 6V, vdd = 400V, Lload = 0.0005H, RGon = 10ohm, RGon = 3.3ohm, Temp = 150degC



Switching Waveform (Blue : INPUT Red : OUTPUT Magenta : ID)

vgg = 6V, vdd = 400V, Lload = 0.0005H, RGon = 10ohm, RGon = 3.3ohm, Temp = 25degC, Id = 6A



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