

PSpice Model

NMOS

STM

STD8N60DM2



Model Information

Model A macro model based on BSIM3 model
Call Name MDC_STD8N60DM2_PS
Pin Assign 1:G 2:D 3:S
File List Model Library MDC_STD8N60DM2_PS02.lib
 Model Report MDC_STD8N60DM2_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 Rev 3 - September 2018
- Product name STD8N60DM2
- Company name STMicroelectronics N.V.
- Characteristics IdVds[Vgs], IdVgs[Temp], VgsQg[Vdd], VdsQg[Vdd], Rds(on)Id[Vgs], CapacitanceVds[Cname], NormVthTemp[Id], NormRds(on)Temp[Vgs], NormBvTemp[Ir], VsdIs[Temp], SwitchingIdd[Tname], Trrlf[Ir], Qrrlf[Ir], Trrlf[Ir]2, Qrrlf[Ir]2, SwitchingWaveform, TrWaveform

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	600	V
Gate-source voltage (DC)	-25	to	25	V
Temperature	-55	to	150	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

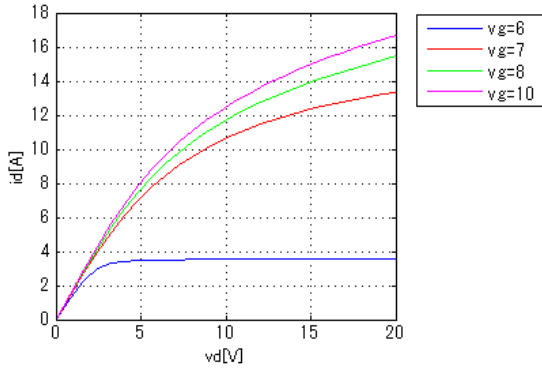
RANK=1

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

Simulation results are following.
 Explanatory notes — : simulated

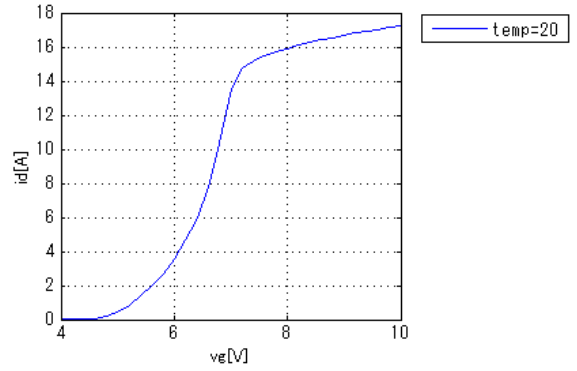
IdVds[Vgs]

Temp = 25degC



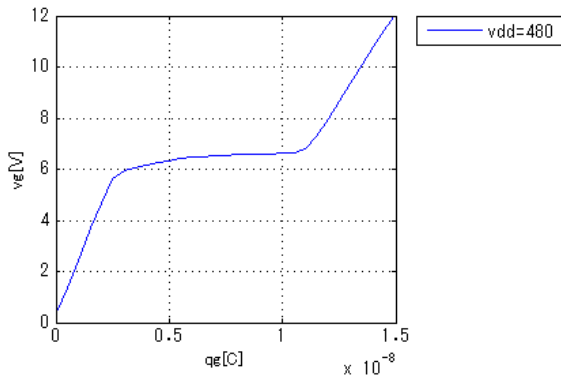
IdVgs[Temp]

Vds = 20V



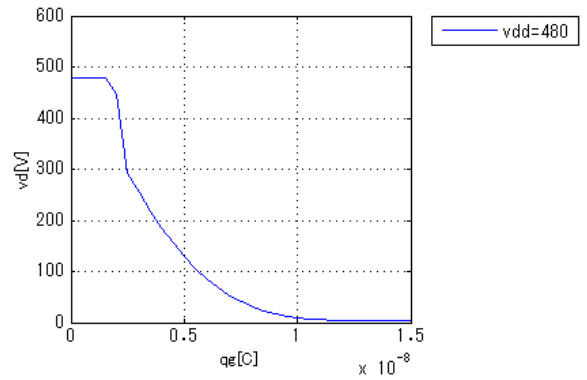
VgsQg[Vdd]

Id = 8A



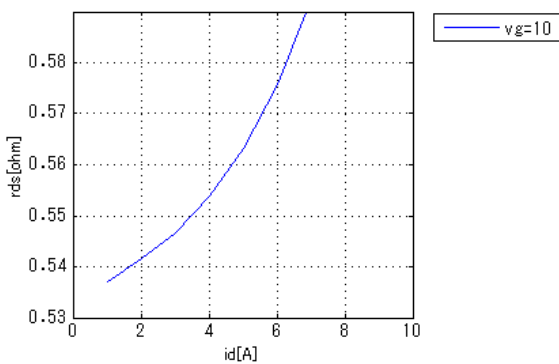
VdsQg[Vdd]

Id = 8A



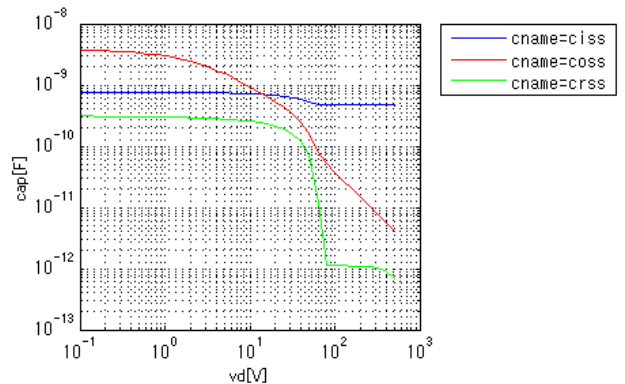
Rds(on)Id[Vgs]

Temp = 25degC



CapacitanceVds[Cname]

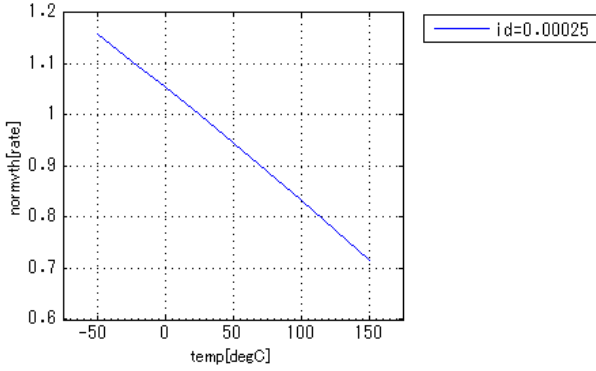
freq = 1000000Hz



Simulation results are following.
 Explanatory notes — : simulated

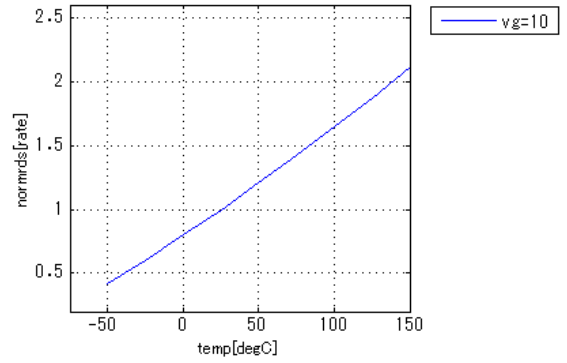
NormVthTemp[Id]

Vd = Vg

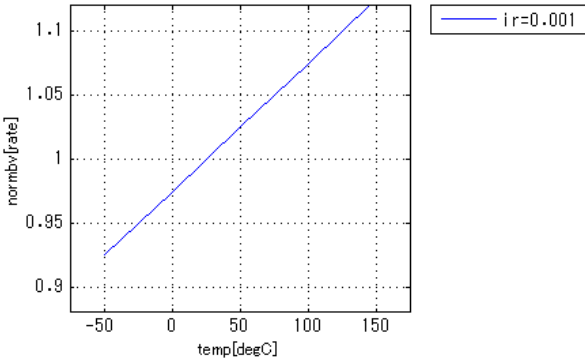


NormRds(on)Temp[Vgs]

Id = 4A

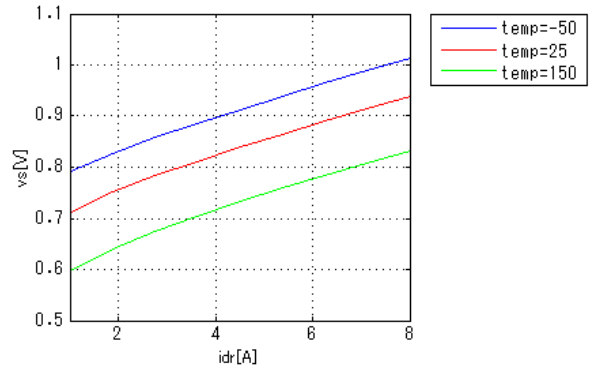


NormBvTemp{Ir}



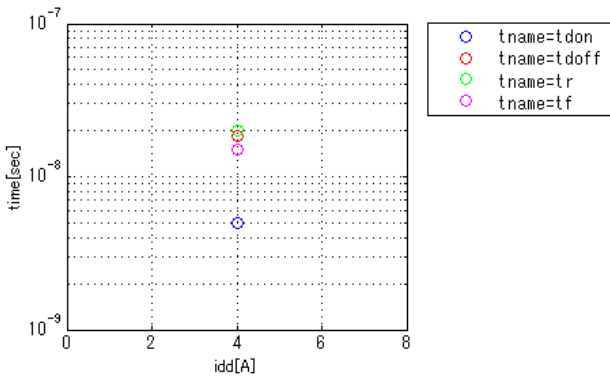
Vsdlis[Temp]

vg = 0V



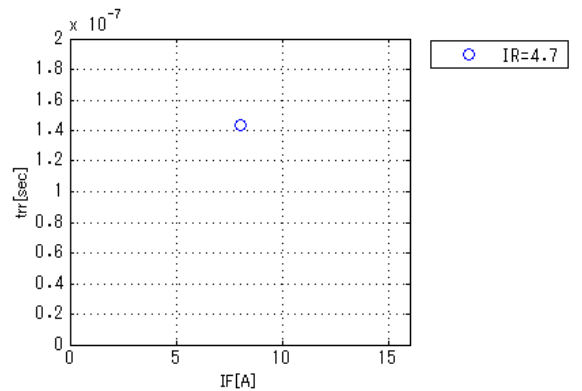
SwitchingIdd[Tname]

vgg = 10V, vdd = 300V, RGG = 4.7ohm



TrrIf[Ir]

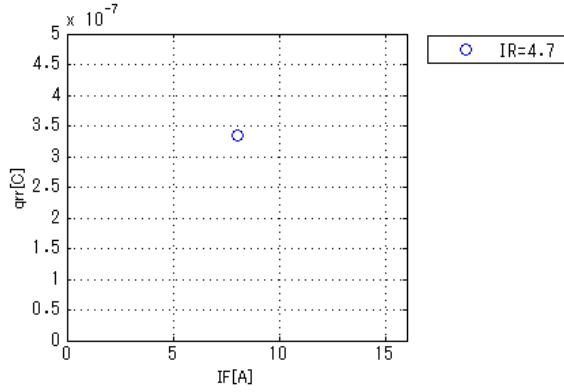
vdd = 60V, didt = 150A/us, Temp = 25degC



Simulation results are following.
 Explanatory notes — : simulated

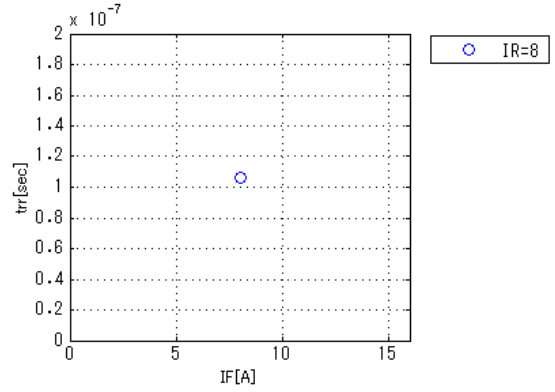
Qrrlf[Ir]

vdd = 60V, didt = 150A/us, Temp = 25degC



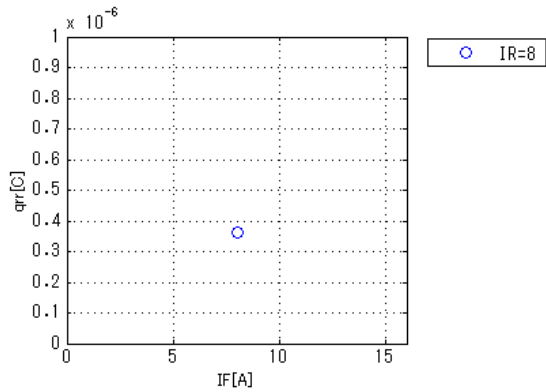
Trrlf[Ir]2

vdd = 60V, didt = 100A/us, Temp = 150degC



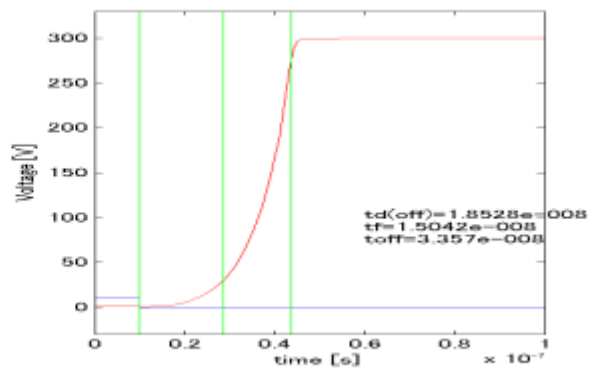
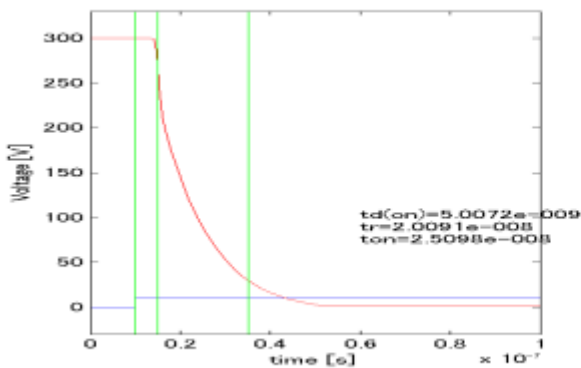
Qrrlf[Ir]2

vdd = 60V, didt = 100A/us, Temp = 150degC



Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 10V, v_{dd} = 300V, R_{GG} = 4.7ohm, i_{dd} = 4A

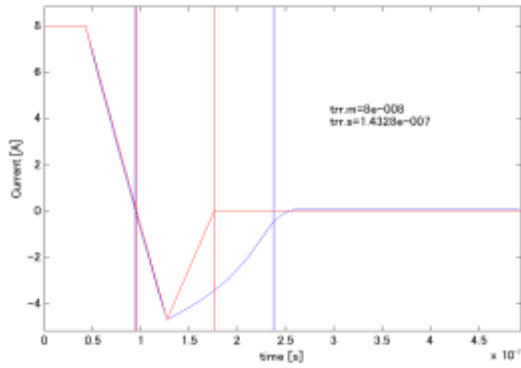


Simulation results are following.

Explanatory notes — : simulated

Trr Waveform (Red : Datasheet Blue : Simulation)

vdd = 60V, didt = 150A/us, Temp = 25degC, If = 8A



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