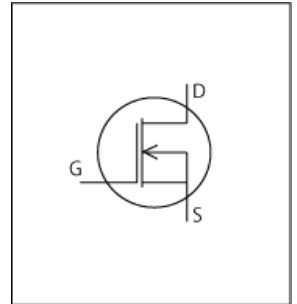


PSpice Model

NMOS

TOSHIBA

XPN3R804NC



Model Information

Model A macro model based on BSIM3 model
Call Name MDC_XPN3R804NC_PS
Pin Assign 1:S 2:S 3:S 4:G 5:D 6:D 7:D 8:D
File List Model Library MDC_XPN3R804NC_PS01.lib
 Model Report MDC_XPN3R804NC_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 2020-06-24 Rev.4.0
- Product name XPN3R804NC
- Company name Toshiba Corporation
- Characteristics IdVds[Vgs], IdVds[Vgs]02, IdVgs[Tmp], Rds(on)Id[Vgs], Rds(on)Temp[Id], Rds(on)Temp[Id]02, IsVsd[Vgs], BvTemp[ir], VthTemp[Id], CapacitanceVds[Cname], VgsQg[Vdd], SwitchingIdd[Tname], SwitchingWaveform

Simulation Range

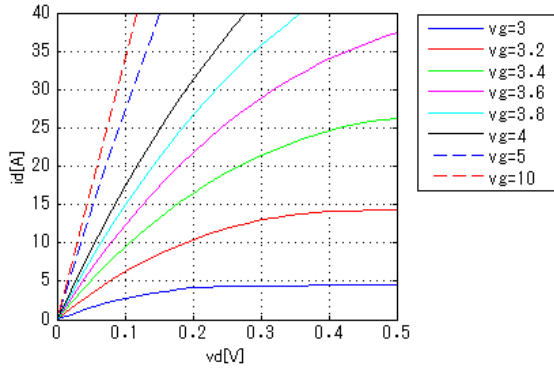
This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

Item	Range			Unit
	Min.		Max.	
Drain-source voltage (DC)	0	to	40	V
Gate-source voltage (DC)	-20	to	20	V
Temperature	-55	to	175	deg C

Simulation results are following.
 Explanatory notes — : simulated

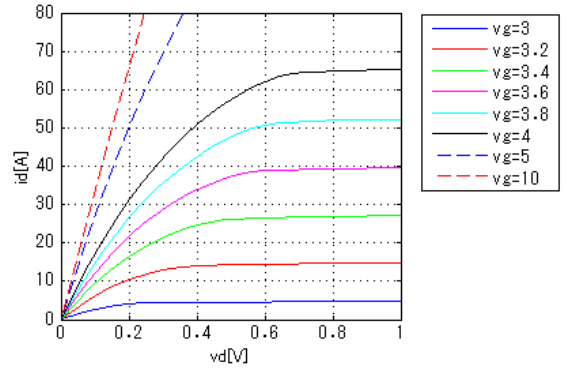
IdVds[Vgs]

Temp. = 25degC



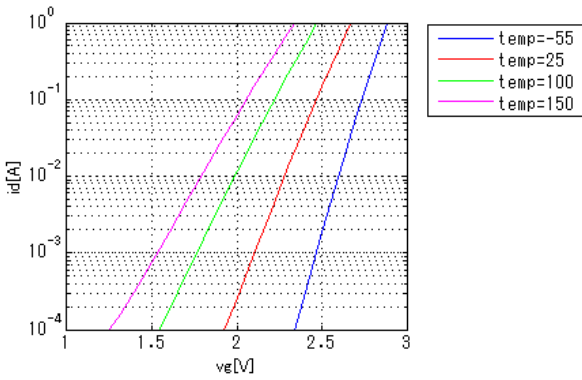
IdVds[Vgs]02

Temp. = 25degC

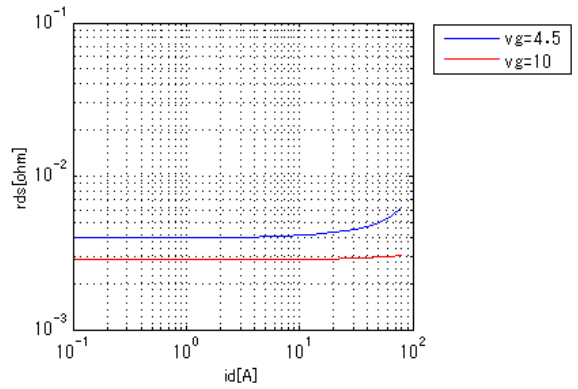


IdVgs[Temp]

Vds = 10V

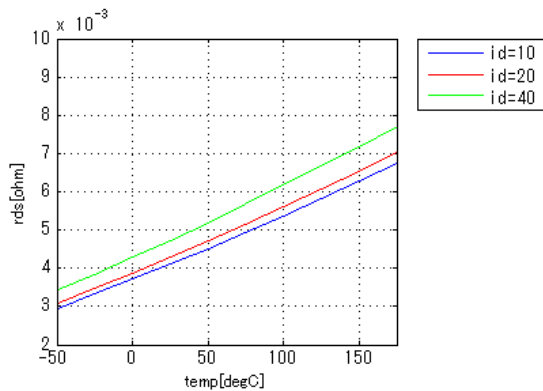


Rds(on)Id[Vgs]



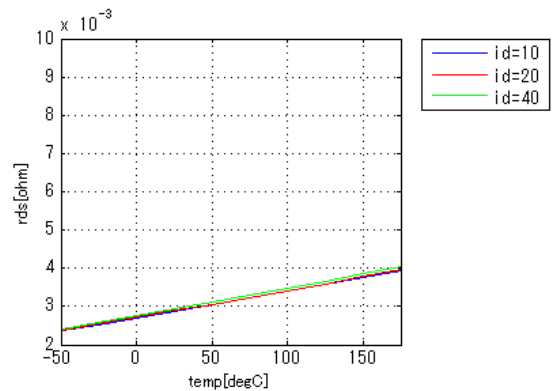
Rds(on)Temp[Id]

Vgs = 4.5V



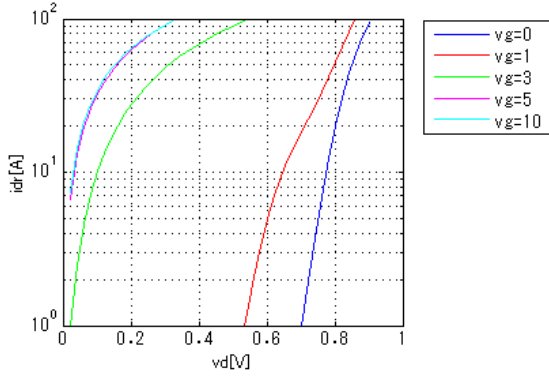
Rds(on)Temp[Id]02

Vgs = 10V

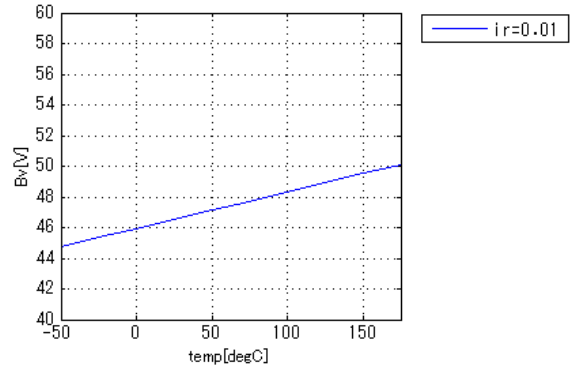


Simulation results are following.
 Explanatory notes — : simulated

IsVsd[Vgs]

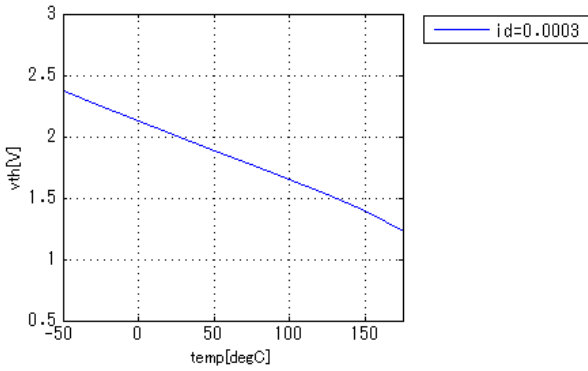


BvTemp[ir]



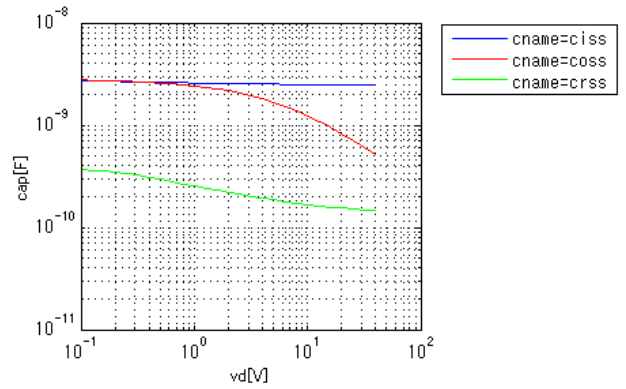
VthTemp[Id]

$V_{ds} = 10V$



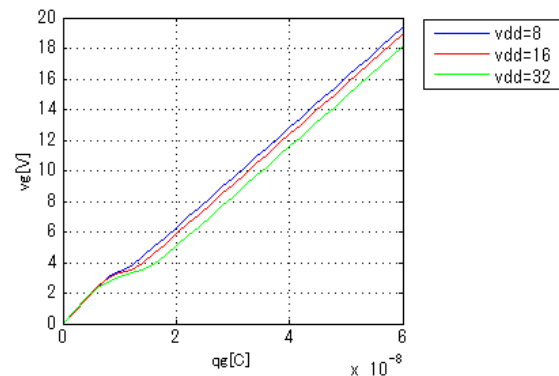
CapacitanceVds[Cname]

freq = 1000000Hz



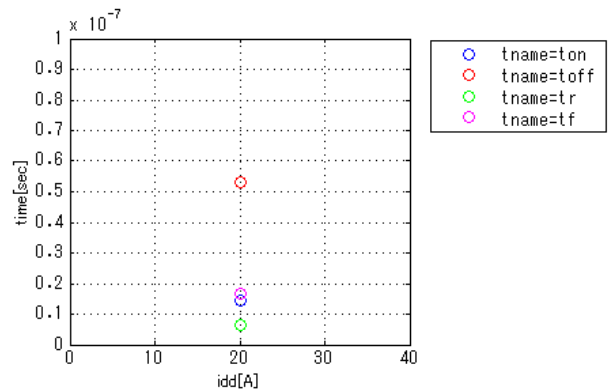
VgsQg[Vdd]

$I_d = 40A$



SwitchingIdd[Tname]

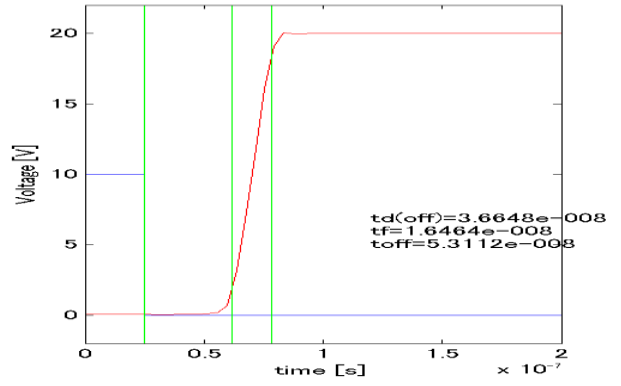
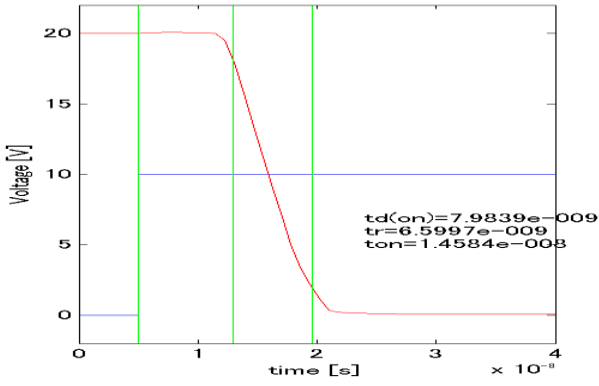
$v_{gs} = 10V, v_{dd} = 20V, R_{GG} = 4.7ohm$



Simulation results are following.
 Explanatory notes — : simulated

Switching Waveform

Blue : INPUT Red : OUTPUT



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