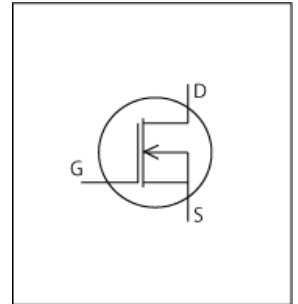# PSpice Model
NMOS
Infineon
IPZ40N04S5-8R4

Model Information

Model A macro model based on BSIM3 model
Call Name MDC_IPZ40N04S5-8R4_PS
Pin Assign 1:S 2:S 3:S 4:G 5:D 6:D 7:D 8:D
File List Model Library MDC_IPZ40N04S5-8R4_PS01.lib
Model Report MDC_IPZ40N04S5-8R4_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 2015-07-27 Rev1.1
- Product name IPZ40N04S5-8R4
- Company name Infineon Technologies AG
- Characteristics IdVds[Vgs],Rds(on)Id[Vgs],IdVgs[Temp],Rds(on)Temp[Vgs], VthTemp[Id],CapacitanceVds[Cname],IsVsd[Temp],BvTemp[ir],VgsQg[Vdd],SwitchingIdd[Tname],TrrIf[Ir],QrrIf[Ir],SwitchingWaveform,TrrQrrWaveform
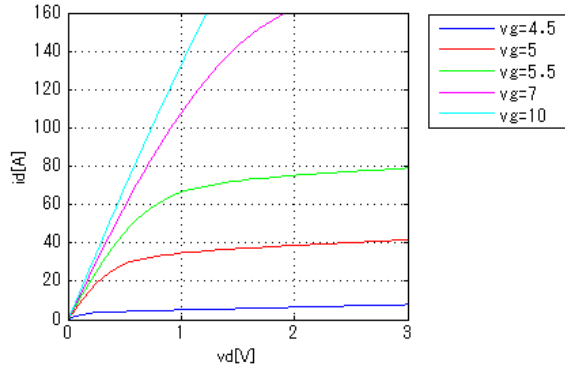
Simulation Range

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

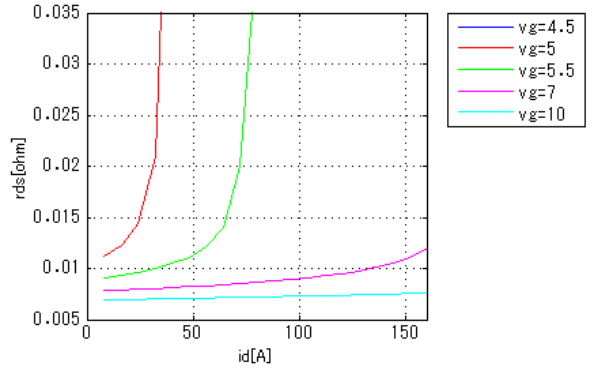| Item	Range			Unit
	Min.		Max.	
Drain-source voltage (DC)	0	to	40	V
Gate-source voltage (DC)	-20	to	20	V
Temperature	-55	to	175	deg C

Simulation results are following.
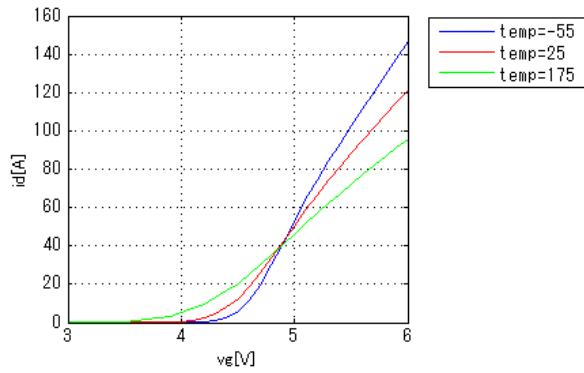Explanatory notes   ─ : simulated
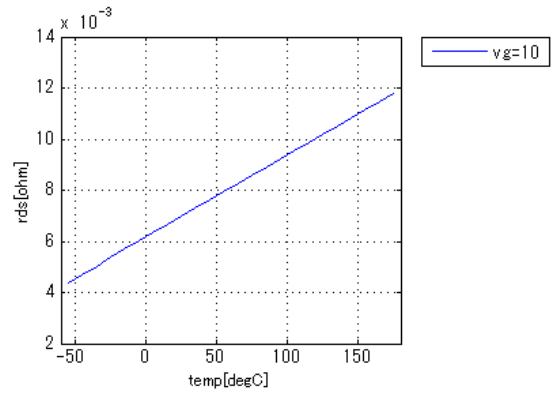
IdVds[Vgs]

Temp. = 25degC

Rds(on)Id[Vgs]

IdVgs[Temp]

Vds = 6V

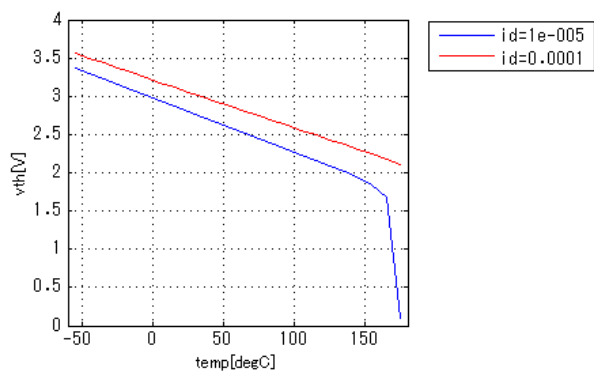## Rds(on)Temp[Vgs]

Id = 20A

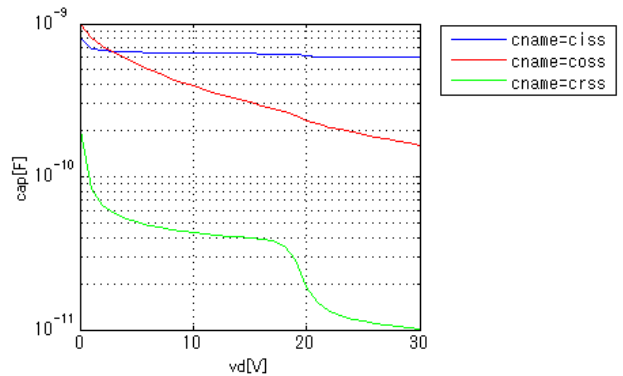## VthTemp[Id]

Vd = Vg

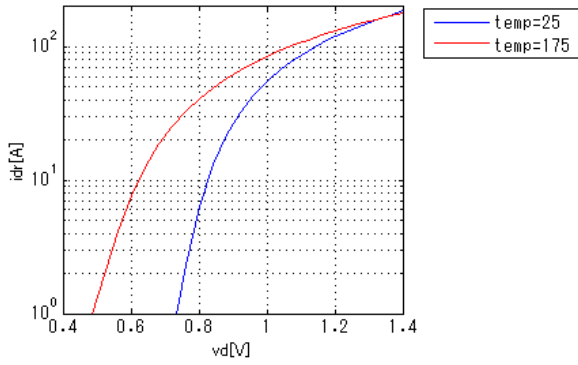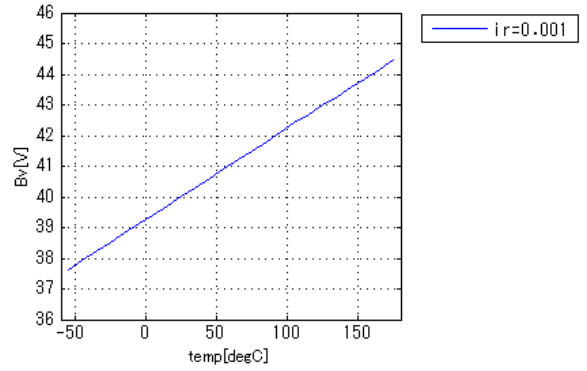## CapacitanceVds[Cname]

freq = 1000000Hz

Simulation results are following.
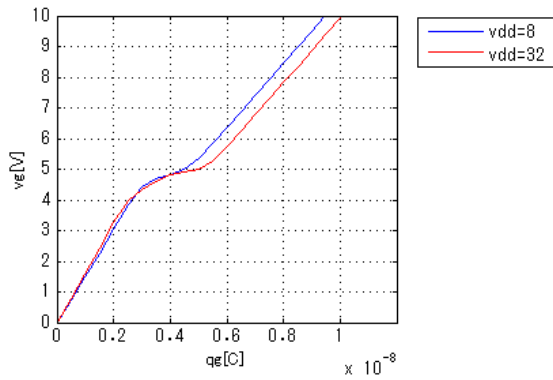Explanatory notes　　— : simulated

IsVsd[Temp]

vg = 0V

BvTemp[ir]

VgsQg[Vdd]

Id = 40A

SwitchingIdd[Tname]
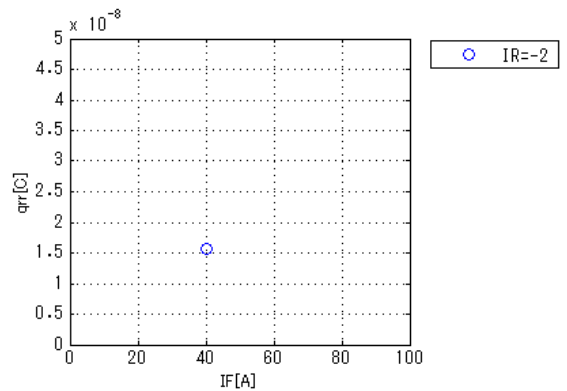
vgg = 10V, vdd = 20V, RGG = 3.5ohm

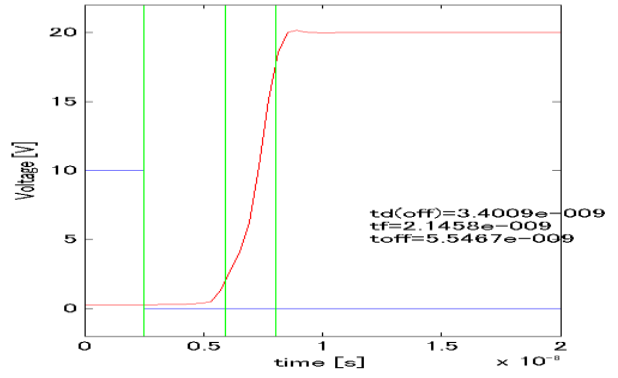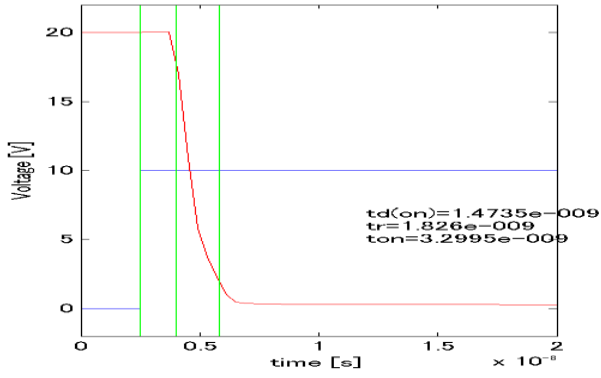

TrrIf[Ir]
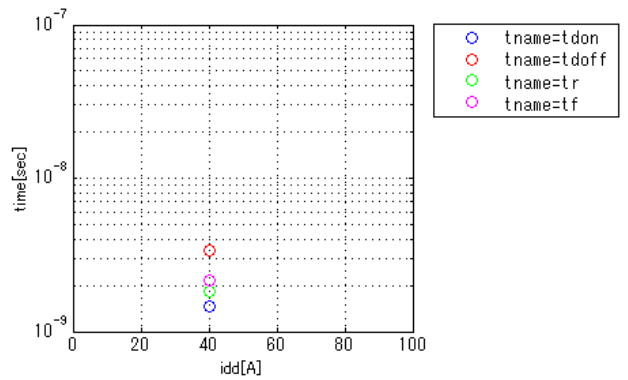
vdd = 20V, didt = 100A/us

QrrIf[Ir]
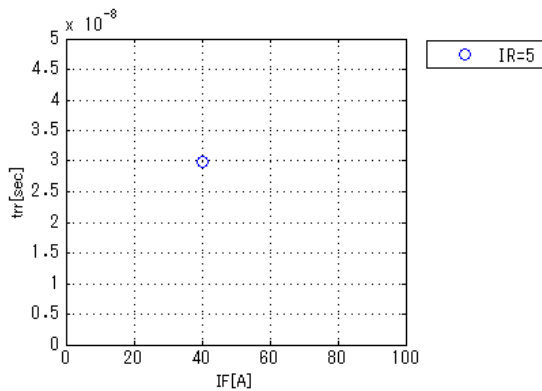
vdd = 20V, didt = 100A/us

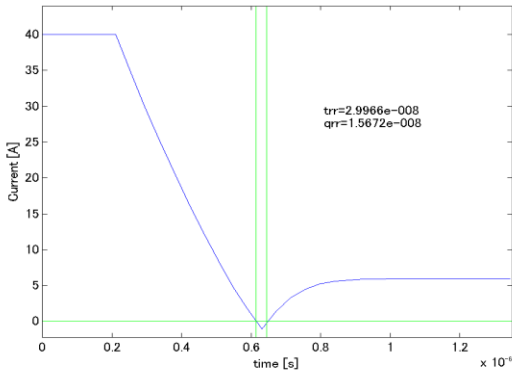Simulation results are following.
Explanatory notes 　　— : simulated

SwitchingWaveform

Blue : INPUT 　Red : OUTPUT

td(on)=1.4735e-009
tr=1.826e-009
ton=3.2995e-009

td(off)=3.4009e-009
tf=2.1458e-009
toff=5.5467e-009

TrrQrrWaveform

vdd = 20V, didt = 100A/us

trr=2.9966e-008
qrr=1.5672e-008

DISCLAIMER

MoDeCH

Modeling Design Technology

February 10, 2021
Rev. 1.0