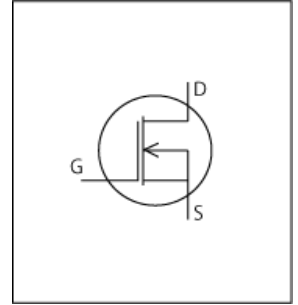


LTspice Model

NMOS

Infineon

IPD60N10S4L-12



Model Information

Model A macro model based on BSIM3 model
Call Name MDC_IPD60N10S4L-12_LT
Pin Assign 1:G 2:D 3:S
File List Model Library MDC_IPD60N10S4L-12_LT01.lib
 Model Report MDC_IPD60N10S4L-12_LT.pdf (this file)

Verified Simulator Version LTspice version XVII
Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 2011-11-30 Rev. 1.0
- Product name IPD60N10S4L-12
- Company name Infineon Technologies AG
- Characteristics IdVds[Vgs],Rds(on)Id[Vgs],IdVgs[Temp],Rds(on)Temp[Id],VthTemp[Id],CapacitanceVds[Cname],IsVsd[Temp],BvTemp[ir],VgsQg[Vdd],SwitchingIdd[Tname],Trrlf[Ir],Qrrlf[Ir],SwitchingWaveform,TrrWaveform

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	100	V
Gate-source voltage (DC)	-16	to	16	V
Temperature	-55	to	175	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

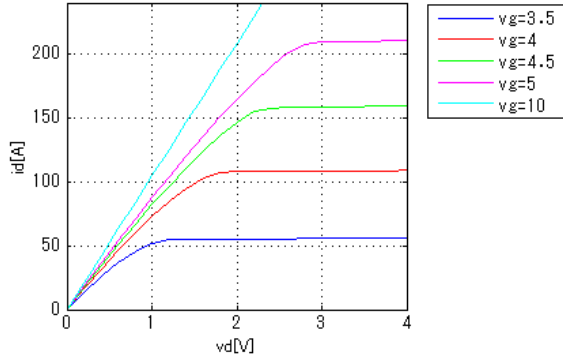
RANK=1

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

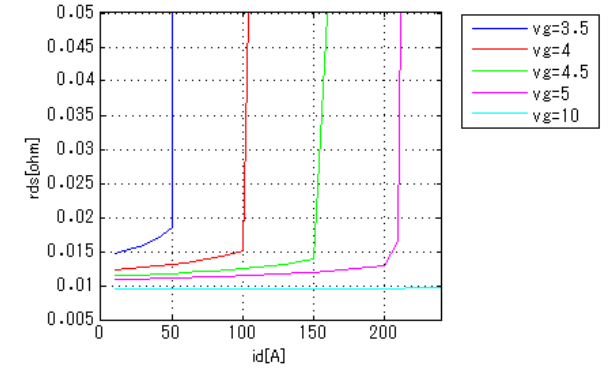
IdVds[Vgs]

Temp = 25degC



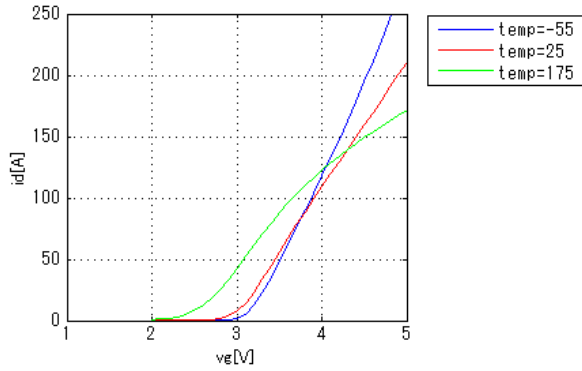
Rds(on)Id[Vgs]

Temp = 25degC



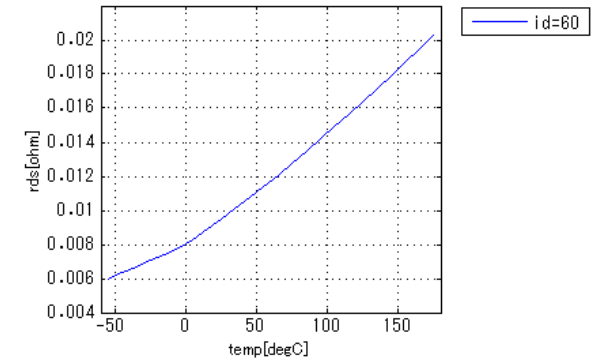
IdVgs[Temp]

Vds = 6V



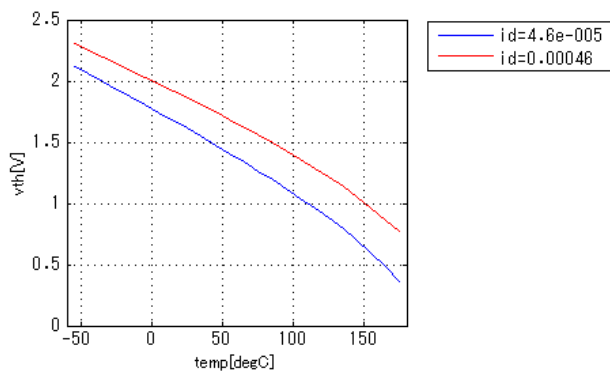
Rds(on)Temp[Id]

Vgs = 10V



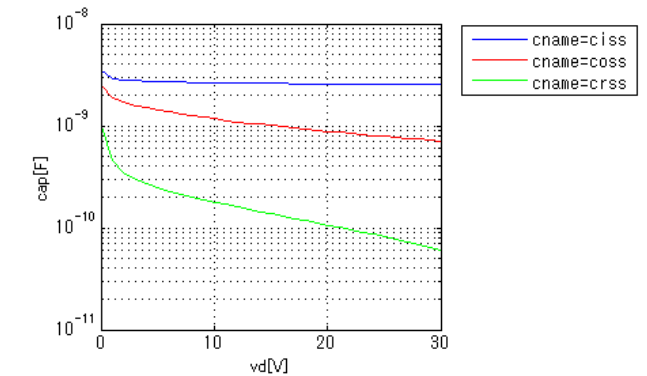
VthTemp[Id]

Vd = Vg



CapacitanceVds[Cname]

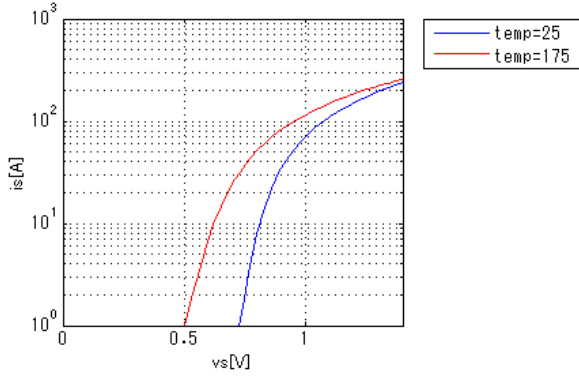
freq = 1000000Hz



Simulation results are following.
 Explanatory notes — : simulated

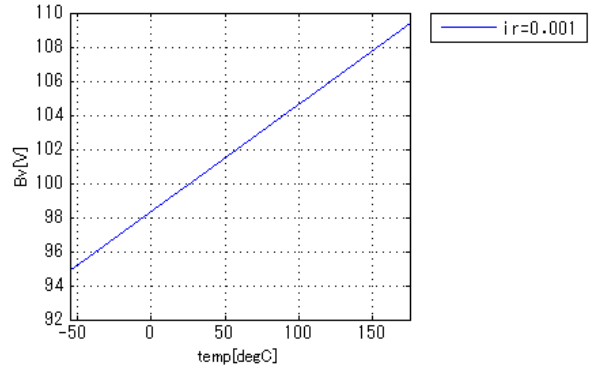
IsVsd[Temp]

vg = 0V



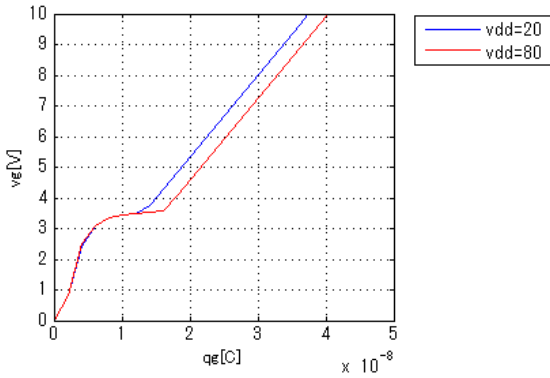
BvTemp[ir]

ir = 0.001A



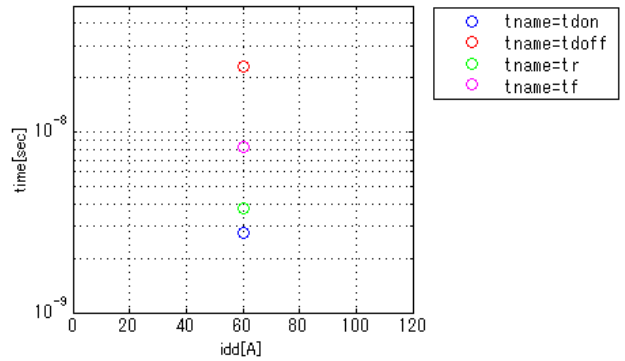
VgsQg[Vdd]

Id = 60A



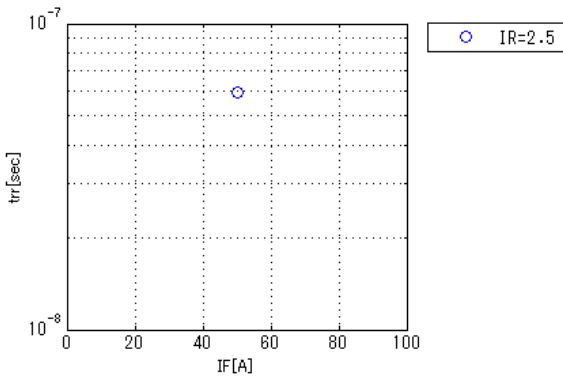
SwitchingIdd[Tname]

vgg = 10V, vdd = 50V, RGG = 3.5ohm



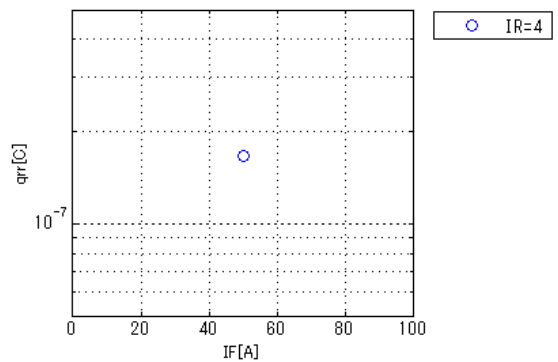
Trrlf[Ir]

vdd = 50V, didt = 100A/us, Temp = 25degC



Qrrlf[Ir]

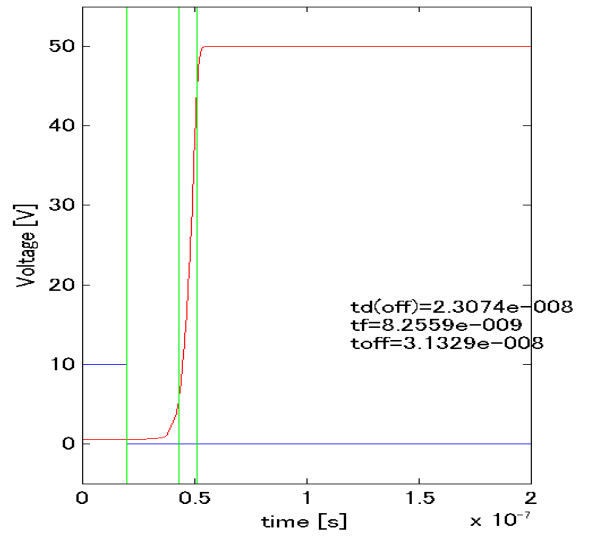
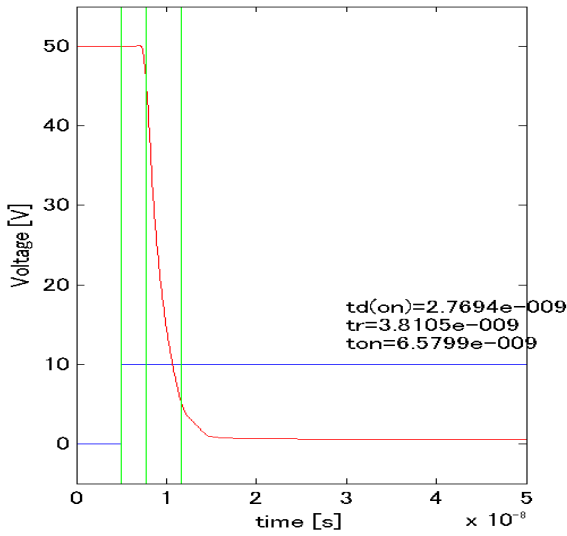
vdd = 50V, didt = 100A/us, Temp = 25degC



Simulation results are following.
 Explanatory notes — : simulated

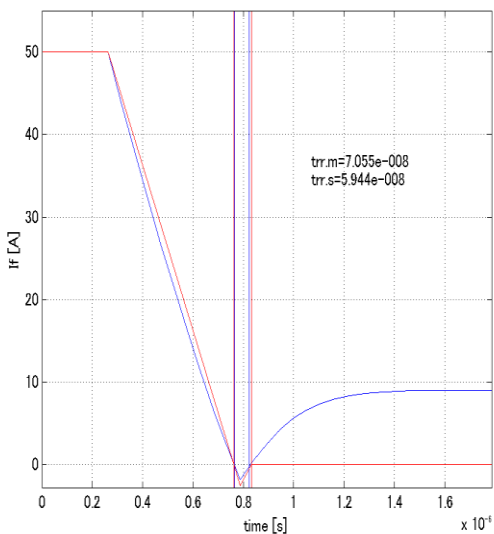
Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 10V, v_{dd} = 50V, R_{GG} = 3.5ohm, Temp = 25degC, I_{dd} = 60A



Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 100A/us, v_{cc} = 10V, i_f = 50A, i_r = 2.5A



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