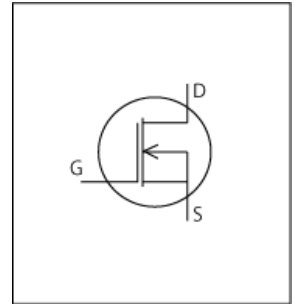


# PSpice Model

## NMOS

### Infineon

## IPD60N10S4L-12



### Model Information

**Model** A macro model based on BSIM3 model  
**Call Name** MDC\_IPD60N10S4L-12\_PS  
**Pin Assign** 1:G 2:D 3:S  
**File List** Model Library MDC\_IPD60N10S4L-12\_PS02.lib  
 Model Report MDC\_IPD60N10S4L-12\_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 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],Vt hTemp[Id],CapacitanceVds[Cname],IsVsd[Temp],BvTemp[ir],VgsQg[Vdd],SwitchingIdd[Tname],Trrlf[Ir],Qrrlf[Ir],Switching Waveform,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

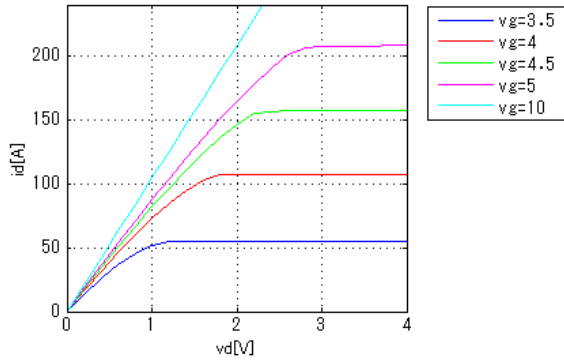
RANK=1

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

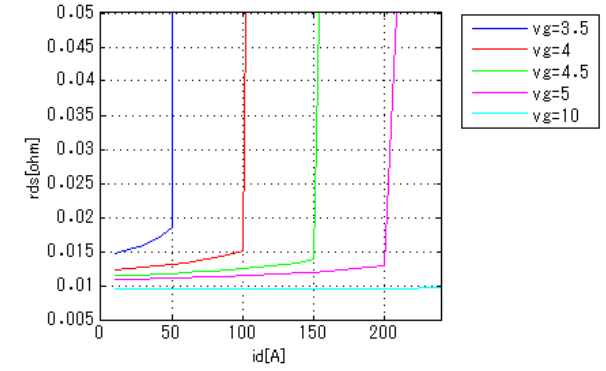
**IdVds[Vgs]**

Temp = 25degC



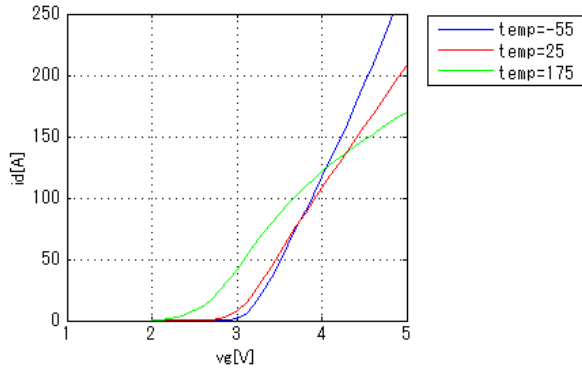
**Rds(on)Id[Vgs]**

Temp = 25degC



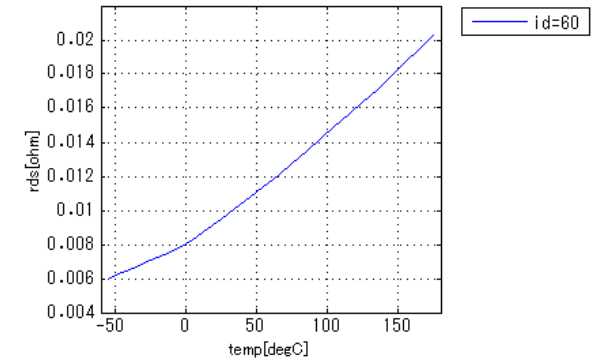
**IdVgs[Temp]**

Vds = 6V



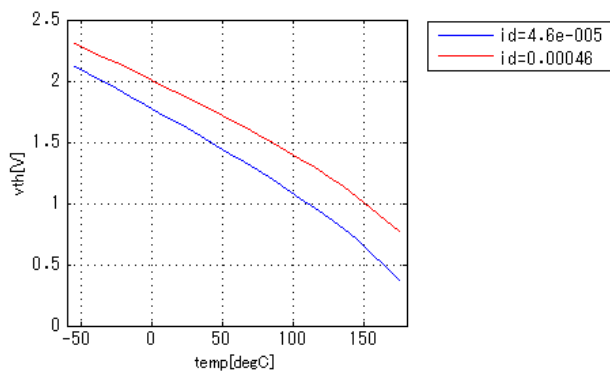
**Rds(on)Temp[Id]**

Vgs = 10V



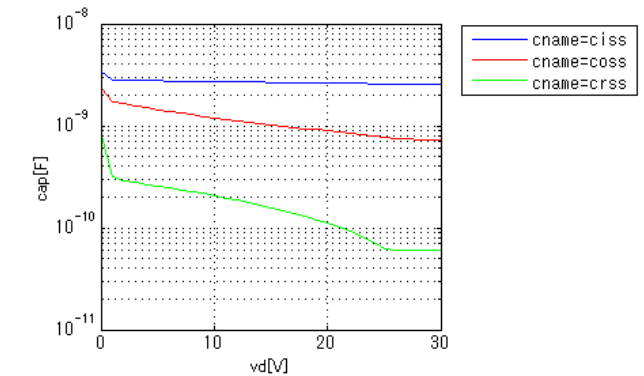
**VthTemp[Id]**

Vd = Vg



**CapacitanceVds[Cname]**

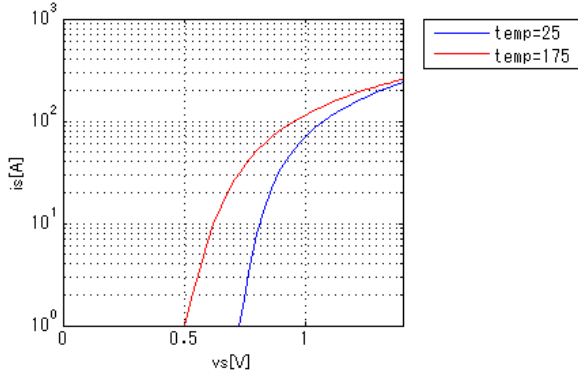
freq = 1000000Hz



Simulation results are following.  
 Explanatory notes — : simulated

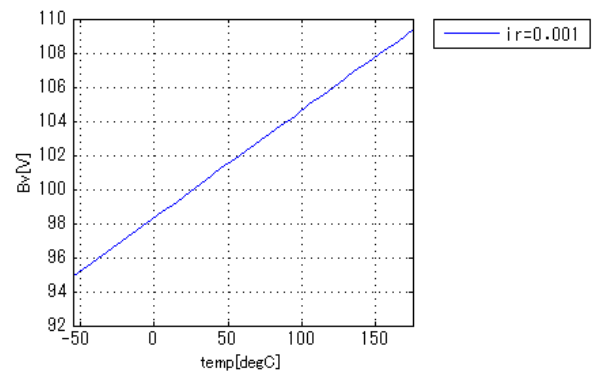
**IsVsd[Temp]**

vg = 0V



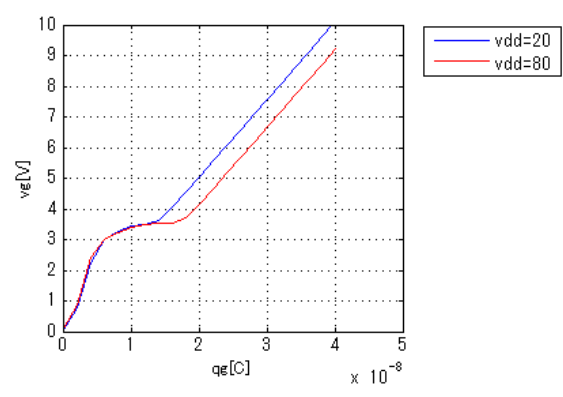
**BvTemp[ir]**

ir = 0.001A



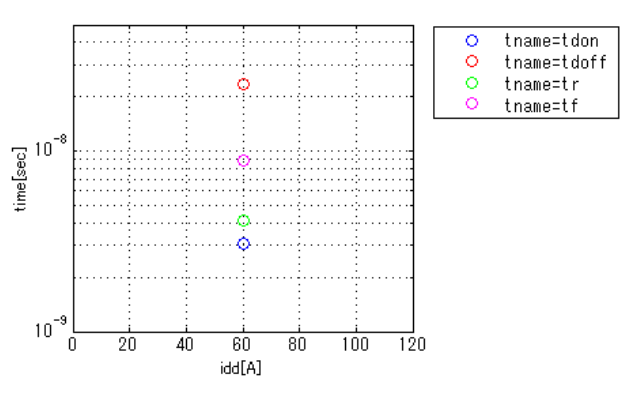
**VgsQg[Vdd]**

Id = 60A



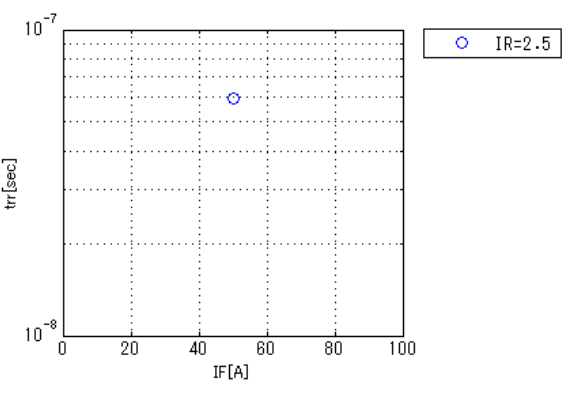
**SwitchingIdd[Tname]**

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



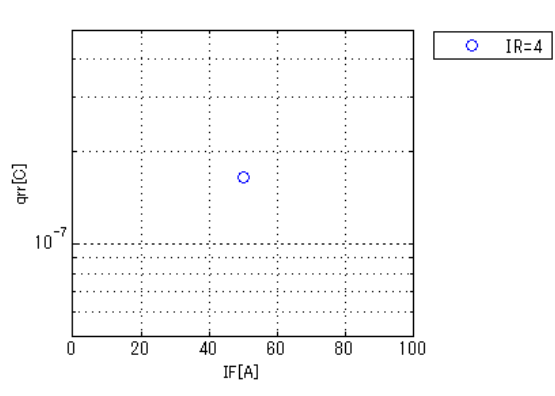
**Trrlf[Ir]**

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



**Qrrlf[Ir]**

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

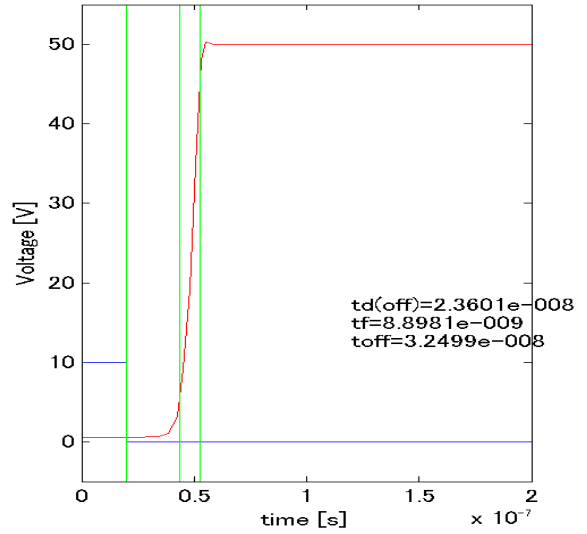
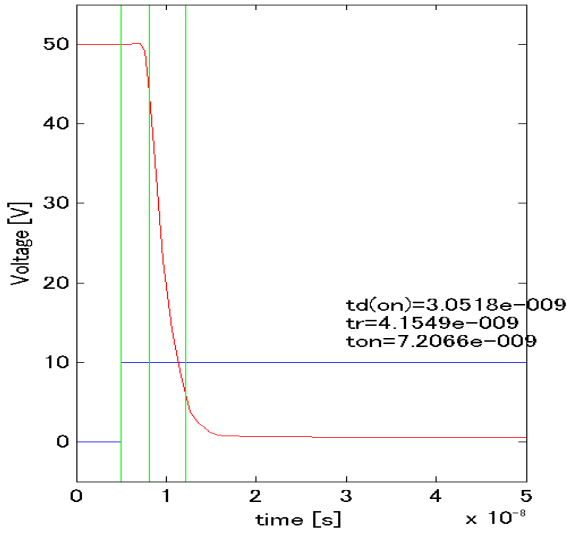


Simulation results are following.

Explanatory notes — : simulated

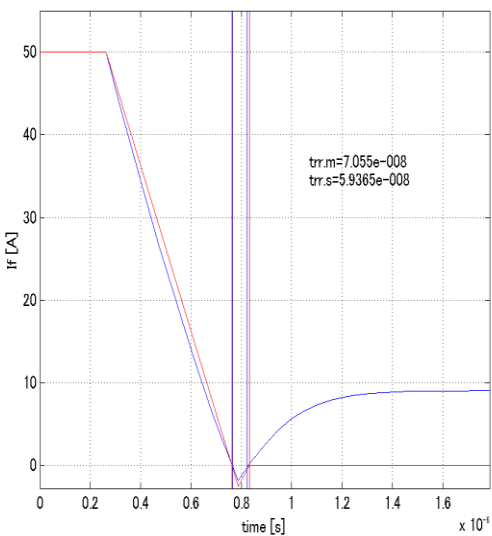
**Switching Waveform ( Blue : INPUT Red : OUTPUT )**

v<sub>gg</sub> = 10V, v<sub>dd</sub> = 50V, R<sub>GG</sub> = 3.5ohm, Temp = 25degC, I<sub>dd</sub> = 60A



**Trr Waveform ( Red : Datasheet Blue : Simulation )**

didt = 100A/us, v<sub>cc</sub> = 10V, i<sub>f</sub> = 50A, i<sub>r</sub> = 2.5A



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