

# PSpice Model

## NMOS

### Infineon

### IPP65R190C7



### Model Information

**Model** A macro model based on BSIM3 model  
**Call Name** MDC\_IPP65R190C7\_PS  
**Pin Assign** 1:G 2:D 3:S  
**File List** Model Library MDC\_IPP65R190C7\_PS02.lib  
 Model Report MDC\_IPP65R190C7\_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. 2.1, 2013-10-17
- Product name IPP65R190C7
- Company name Infineon Technologies AG
- Characteristics IdVds[Vgs], IdVds[Vgs]2, Rds(on)Id[Vgs], Rds(on)Temp[Id], IdVgs[Temp], VgsQg[Vdd], IsVsd[Temp], BvTemp[ir], Capacitance Vds[Cname], 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	650	V
Gate-source voltage (DC)	-20	to	20	V
Temperature	-55	to	150	deg C

## MOSFET

○ : Implemented  
× : Not Implemented  
— : Not applicable

Model Functions Table

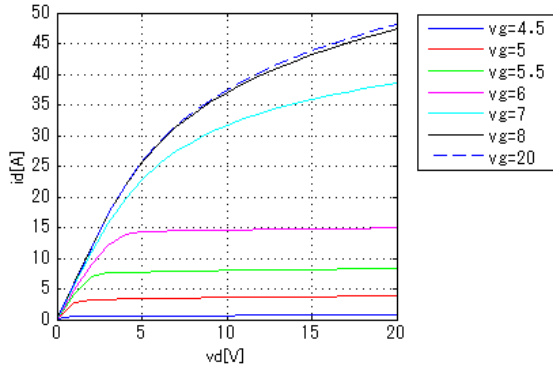
RANK=1

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

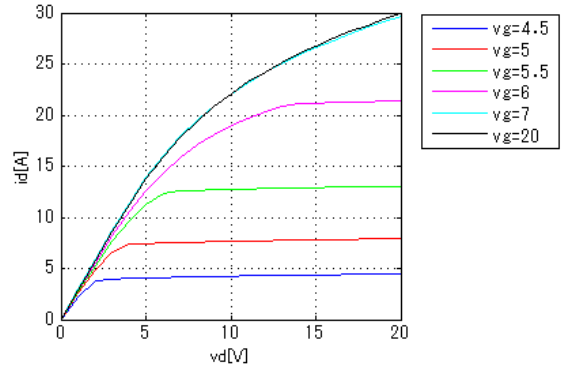
**IdVds[Vgs]**

Temp = 25degC



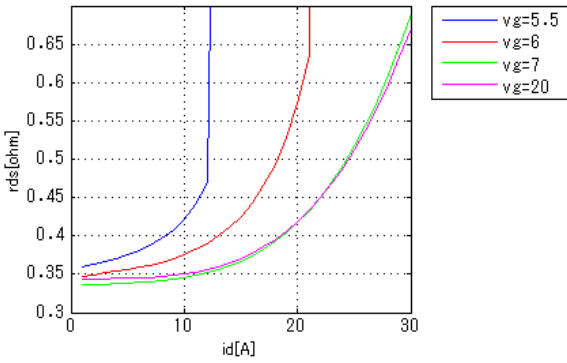
**IdVds[Vgs]2**

Temp = 125degC



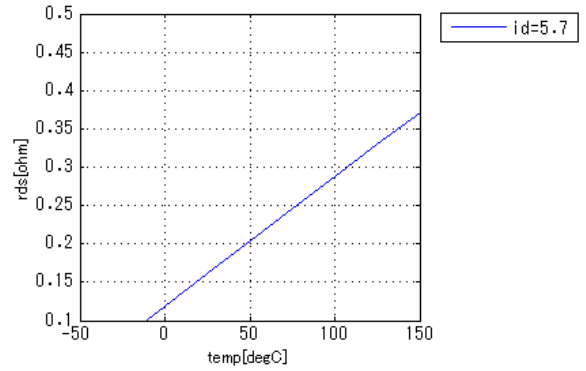
**Rds(on)Id[Vgs]**

Temp = 125degC



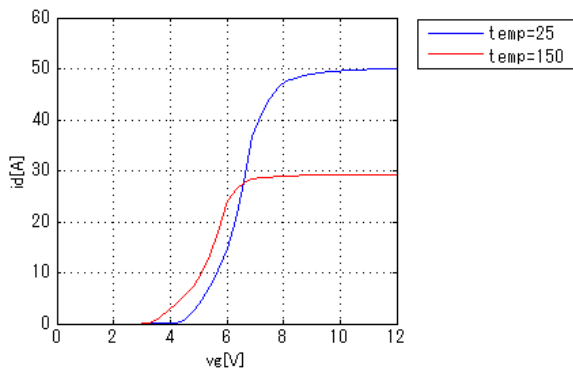
**Rds(on)Temp[Id]**

Vgs = 10V



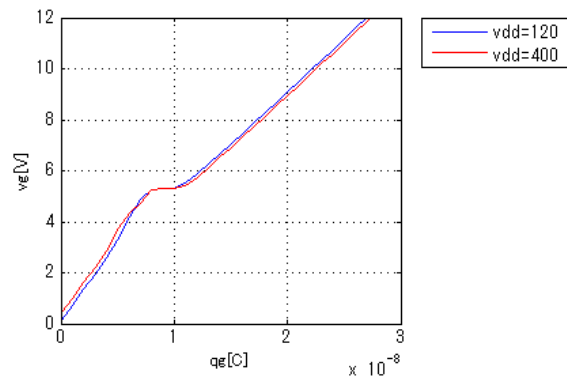
**IdVgs[Temp]**

Vds = 20V



**VgsQg[Vdd]**

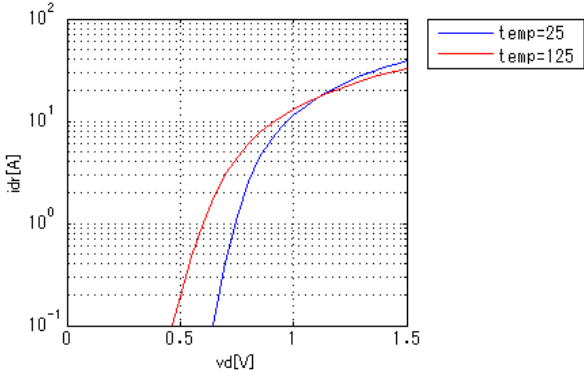
Id = 5.7A



Simulation results are following.  
 Explanatory notes — : simulated

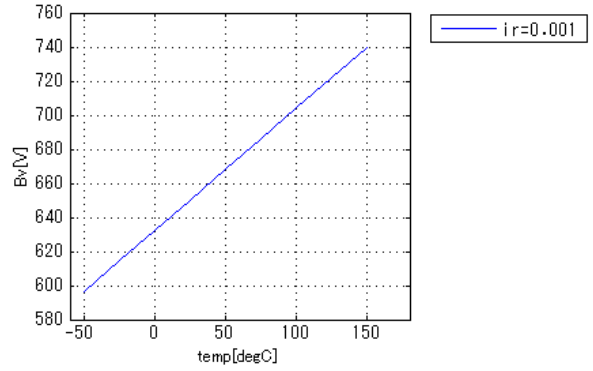
**IsVsd[Temp]**

vg = 0V



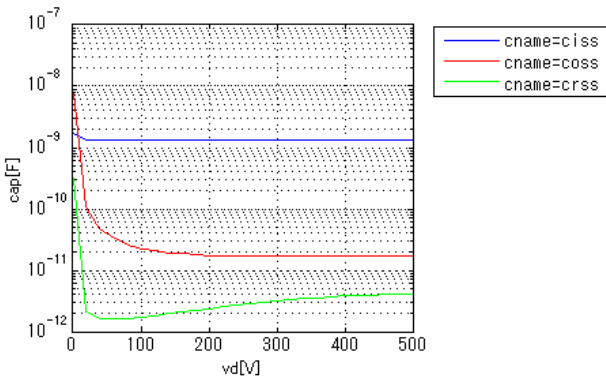
**BvTemp[ir]**

ir = 0.001A



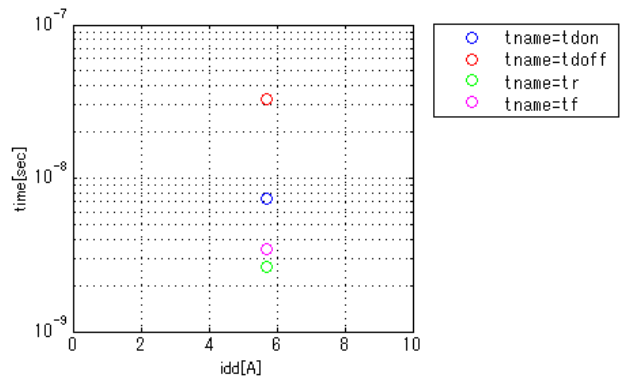
**CapacitanceVds[Cname]**

freq = 250000Hz



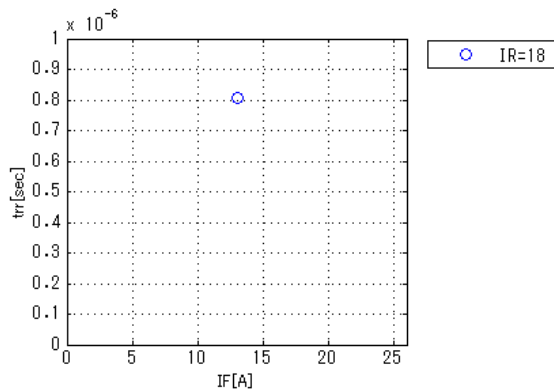
**SwitchingIdd[Tname]**

vgg = 13V, vdd = 400V, RGG = 10ohm



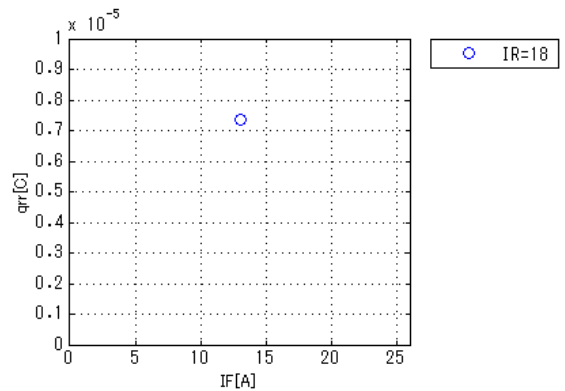
**Trrlf[Ir]**

vdd = 400V, didt = 55A/us, Temp = 25degC



**Qrrlf[Ir]**

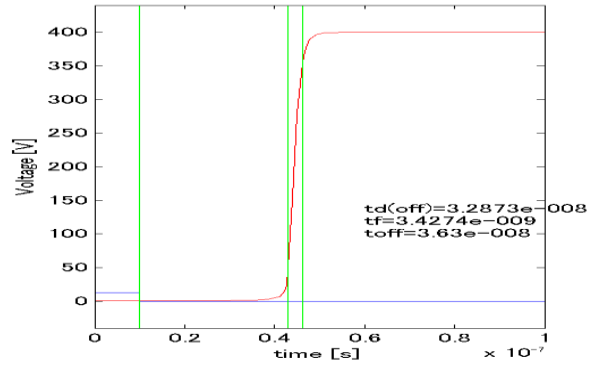
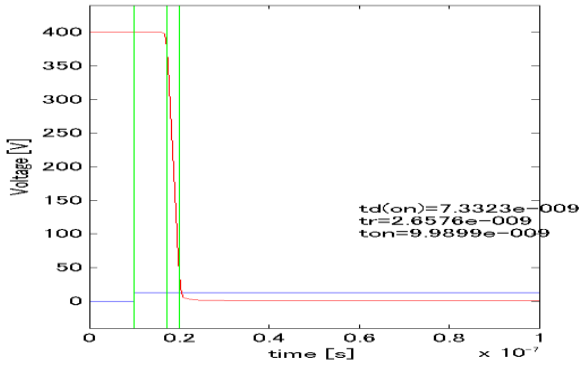
vdd = 400V, didt = 55A/us, Temp = 25degC



Simulation results are following.  
 Explanatory notes — : simulated

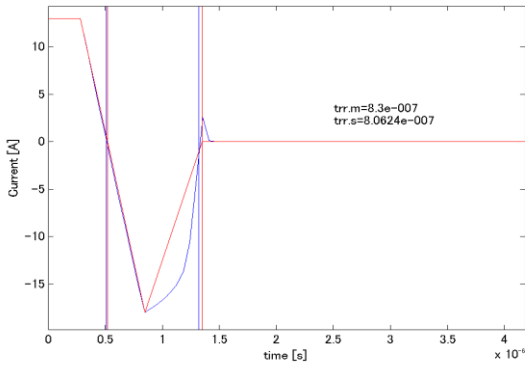
**Switching Waveform ( Blue : INPUT Red : OUTPUT )**

vgg = 13V, vdd = 400V, RGG = 10ohm, idd = 5.7A



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

vdd = 400V, didt = 55A/us, Temp = 25degC, If = 13A, Ir = 18A



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