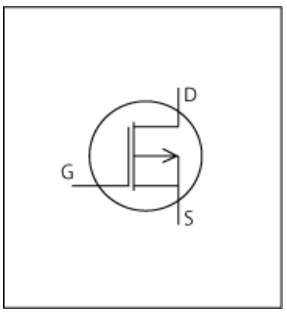
PSpice Model
PMOS
ROHM
RSR020P05FRA



Model Information

Model	A macro model based on BSIM3 model	
Call Name	MDC_RSR020P05FRA_PS	
Pin Assign	1:G 2:S 3:D	
File List	Model Library	MDC_RSR020P05FRA_PS02.lib
	Model Report	MDC_RSR020P05FRA_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 20160808 - Rev.001
- ●Product name RSR020P05FRA
- ●Company name ROHM Co., Ltd.
- ●Characteristics IdVds[Vgs],IdVds[Vgs]2,BvTemp[ir],IdVgs[Temp],VthTemp[Id],YfsId[Temp],Rds(on)Vgs[Id],Rds(on)Temp[Vgs],Rds(on)Id[Vgs],Rds(on)Id[Temp],Rds(on)Id[Temp]2,Rds(on)Id[Temp]3,CapacitanceVds[Cname],SwitchingIdd[Tname],VgsQg[Vdd],IsVsd[Temp],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	-45	V
Gate-source voltage (DC)	20	to	-20	V
Temperature	-55	to	150	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

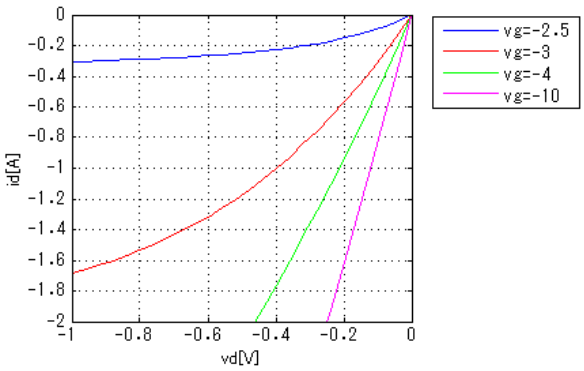
RANK=1

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

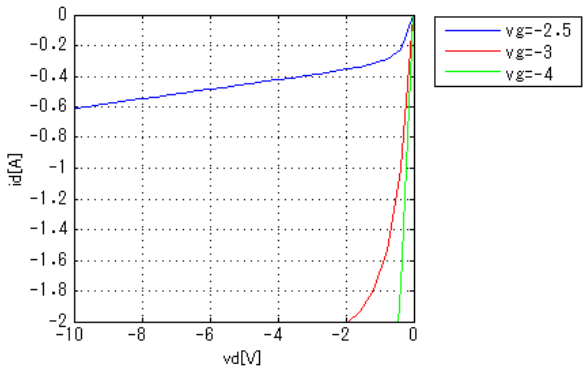
IdVds[Vgs]

Temp = 25degC



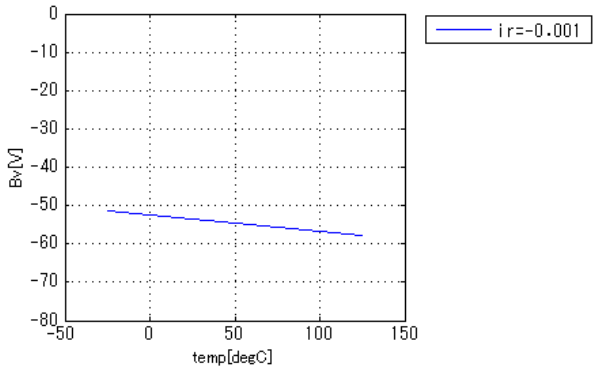
IdVds[Vgs]2

Temp = 25degC



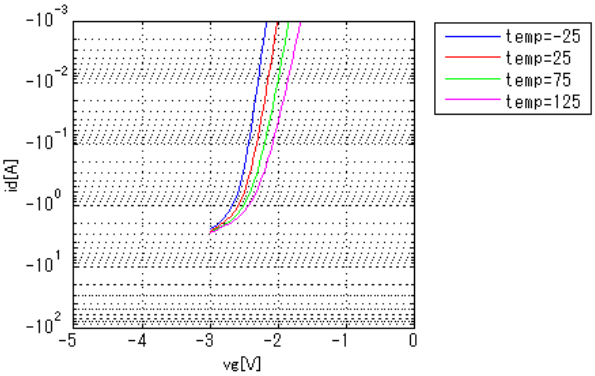
BvTemp[ir]

ir = -0.001A



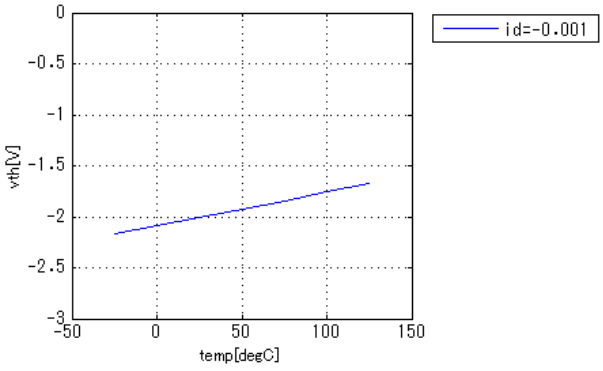
IdVgs[Temp]

Vds = -10V



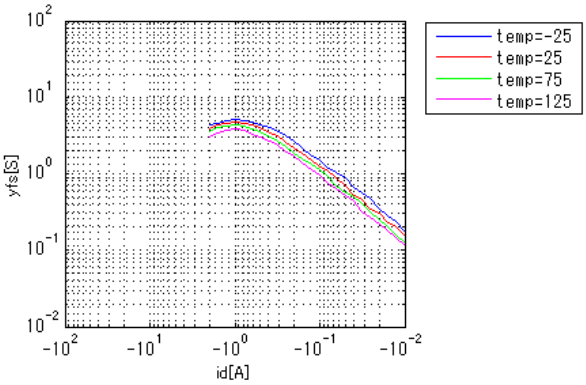
VthTemp[Id]

Vds = -10V



YfsId[Temp]

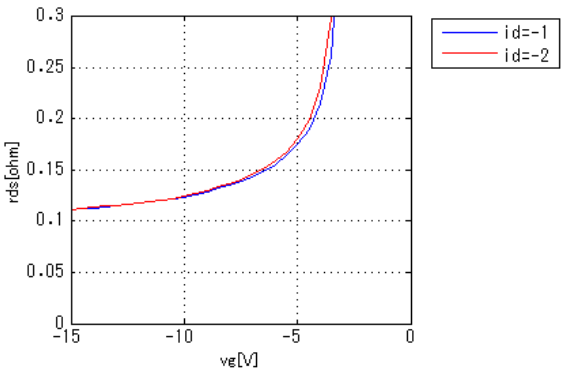
Vds = -10V



Simulation results are following.
Explanatory notes — : simulated

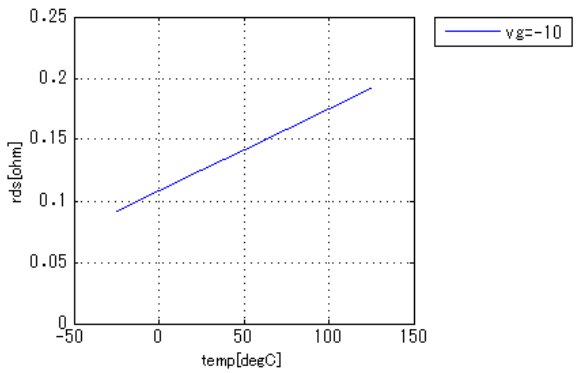
Rds(on)Vgs[Id]

Temp = 25degC



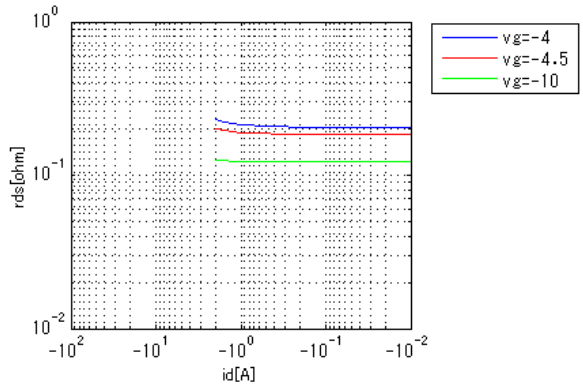
Rds(on)Temp[Vgs]

Id = -2A



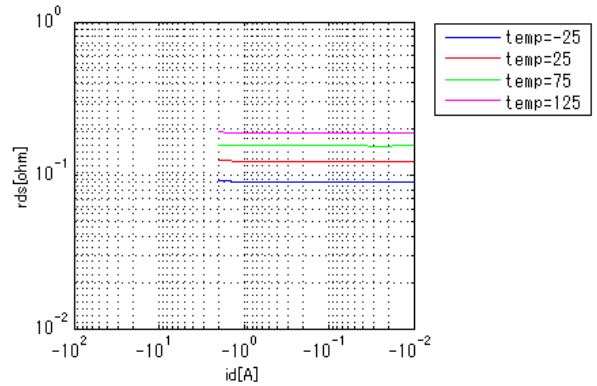
Rds(on)Id[Vgs]

Temp = 25degC



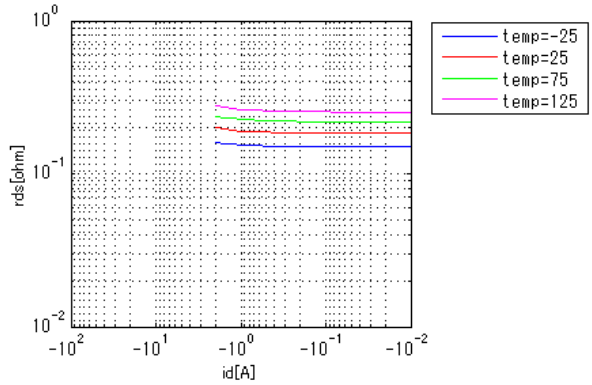
Rds(on)Id[Temp]

Vgs = -10V



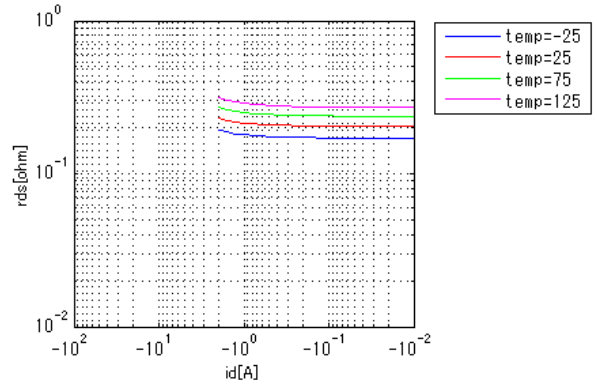
Rds(on)Id[Temp]2

Vgs = -4.5V



Rds(on)Id[Temp]3

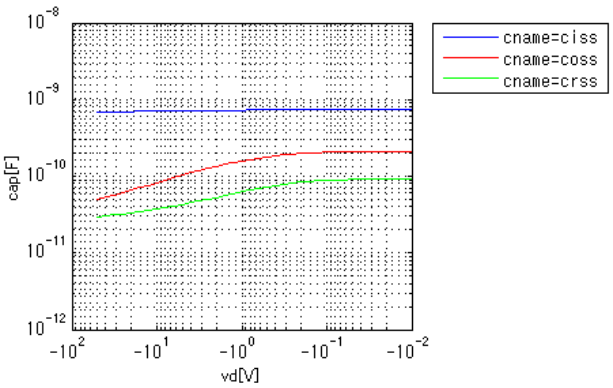
Vgs = -4V



Simulation results are following.
Explanatory notes — : simulated

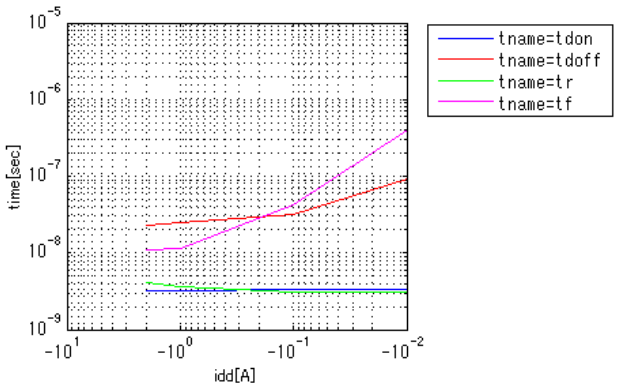
CapacitanceVds[Cname]

freq = 1000000Hz



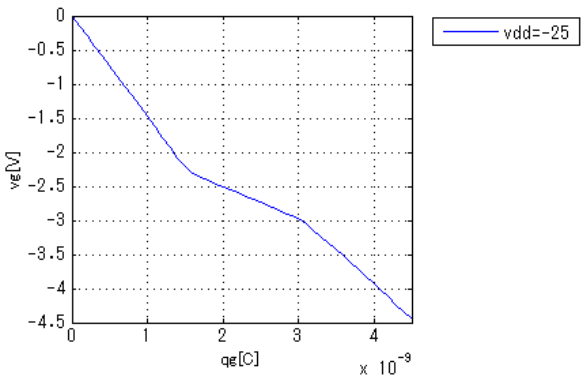
SwitchingIdd[Tname]

vgg = -10V, vdd = -25V, RGG = 10ohm



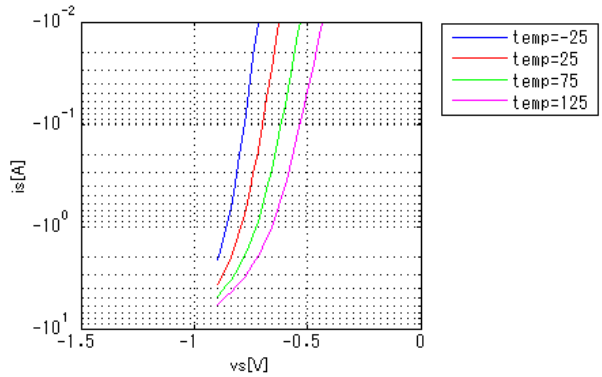
VgsQg[Vdd]

Id = -2A



IsVsd[Temp]

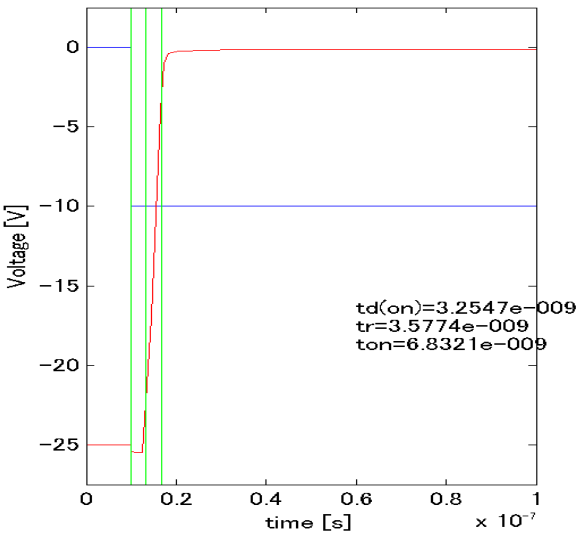
vg = 0V

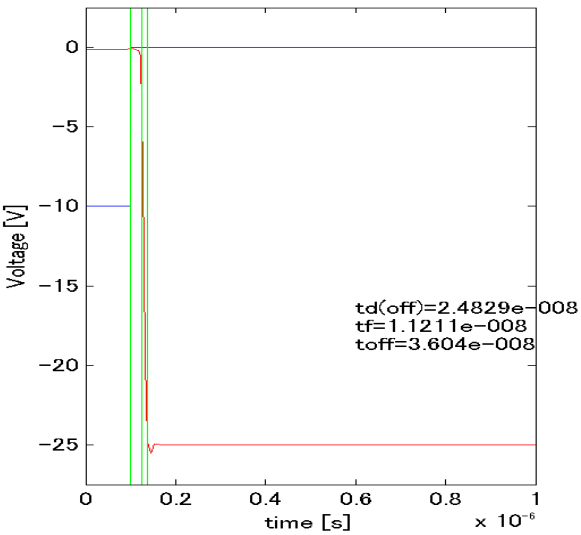


Simulation results are following.
Explanatory notes — : simulated

Switching Waveform (Blue : INPUT Red : OUTPUT)

vgg = -10V, vcc = -25V, RGG = 10ohm, Temp = 25degC, Ic = -1A





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