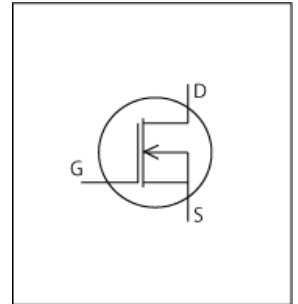


LTspice Model

NMOS

ON

PCP1402



Model Information

Model A macro model based on BSIM3 model
Call Name MDC_PCP1402_LT
Pin Assign 1:G 2:D 3:S
File List Model Library MDC_PCP1402_LT01.lib
 Model Report MDC_PCP1402_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 September, 2014
- Product name PCP1402
- Company name ON Semiconductor.
- Characteristics IdVds[Vgs], IdVgs[Temp], Rds(on)Vgs[Temp], Rds(on)Temp[Id], Yfsl[Temp], IsVsd[Temp], SwitchingIdd[Tname]Rs, CapacitanceVds[Cname], VgsQg[Vdd], VthTemp[Id], 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	250	V
Gate-source voltage (DC)	-30	to	30	V
Temperature	-55	to	150	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

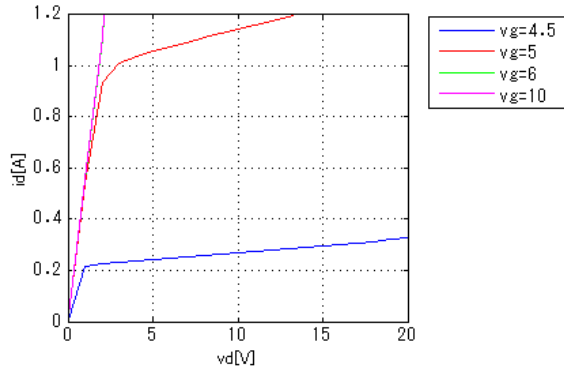
RANK=1

Functions	RANK	Implemented
ID-VDS-VGS	1	○
ID-VGS(Temp)	1	○
RDS(on)-VGS-ID	1	—
RDS(on)-VGS-Temp	1	○
RDS(on)-ID-VGS	1	—
RDS(on)-ID-Temp	1	—
RDS(on)-Temp-VGS	1	—
RDS(on)-Temp-ID	1	○
Capacitance	1	○
Gate Charge	1	○
IS-VSD(Forward)	1	○
Reverse recovery characteristics	1	—
Switching(Typ.)	1	○
Bv-Temp	1	—
Yfs-ID-Temp	1	○
Vth-Temp-ID	1	○

Simulation results are following.
 Explanatory notes — : simulated

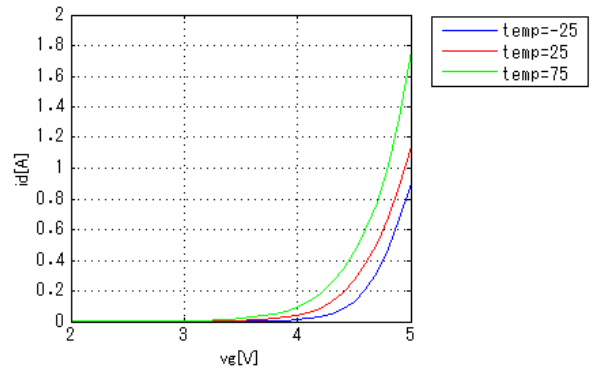
IdVds[Vgs]

Temp. = 25degC



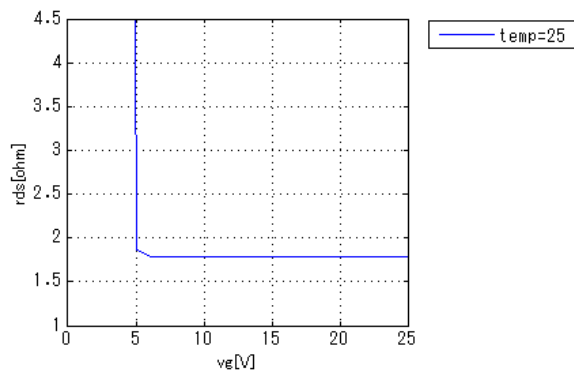
IdVgs[Temp]

$V_{ds} = 10V$



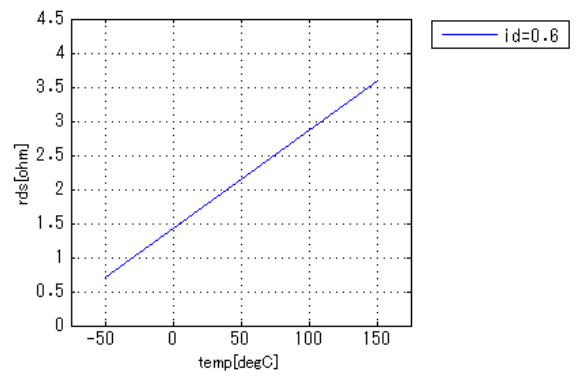
Rds(on)Vgs[Temp]

$i_d = 0.6A$



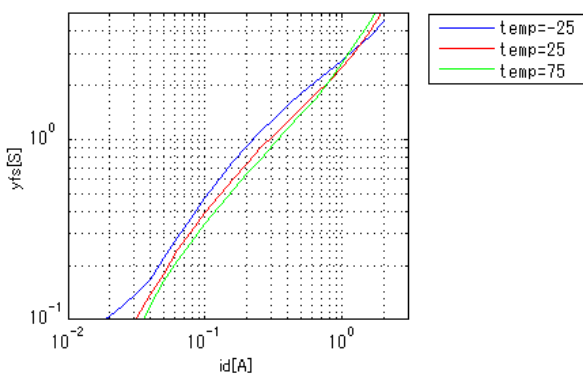
Rds(on)Temp[Id]

$V_{gs} = 10V$



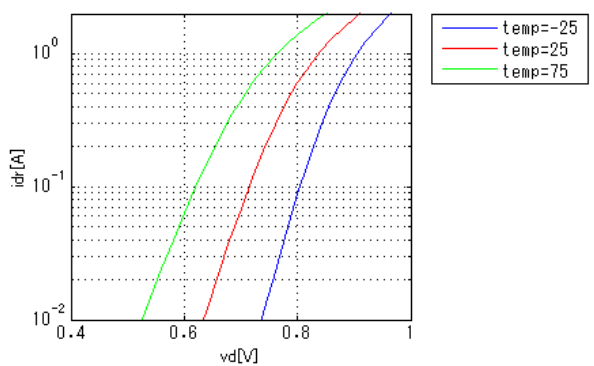
YfsId[Temp]

$V_{ds} = 10V$



IsVsd[Temp]

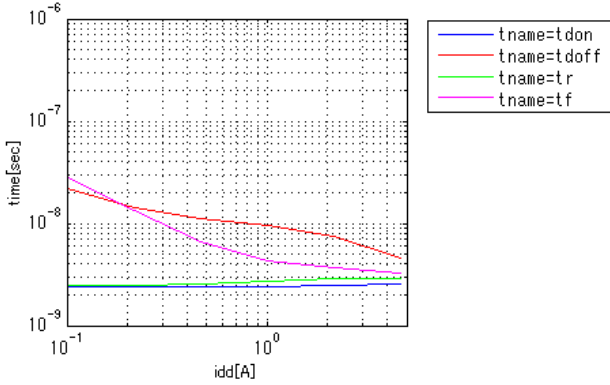
$v_g = 0V$



Simulation results are following.
 Explanatory notes — : simulated

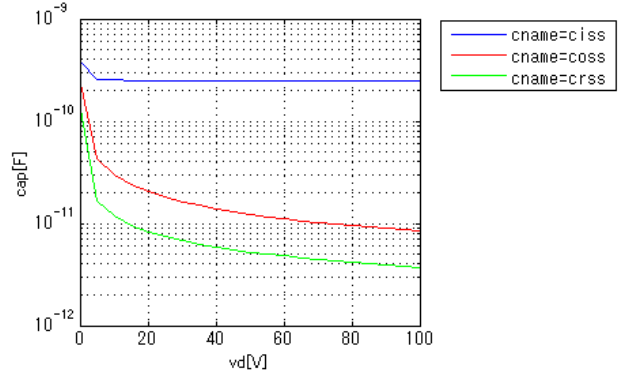
SwitchingIdd[Tname]Rs

vgg = 10V, vdd = 125V



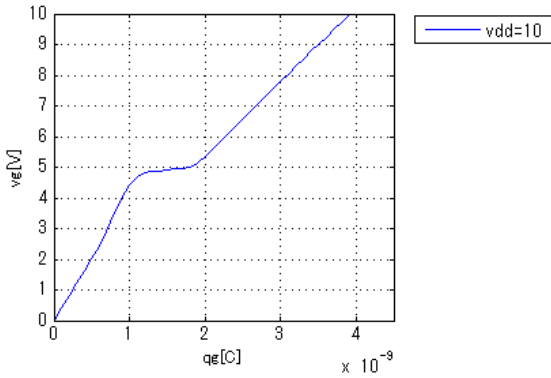
CapacitanceVds[Cname]

freq = 1000000Hz



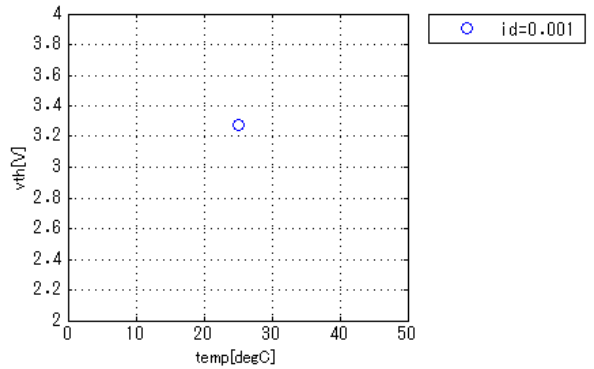
VgsQg[Vvdd]

Id. = A



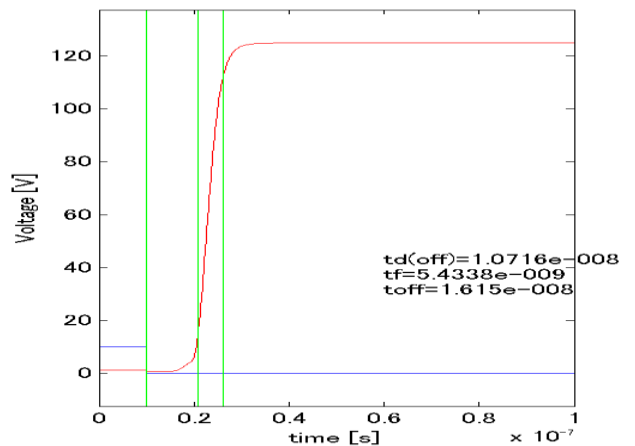
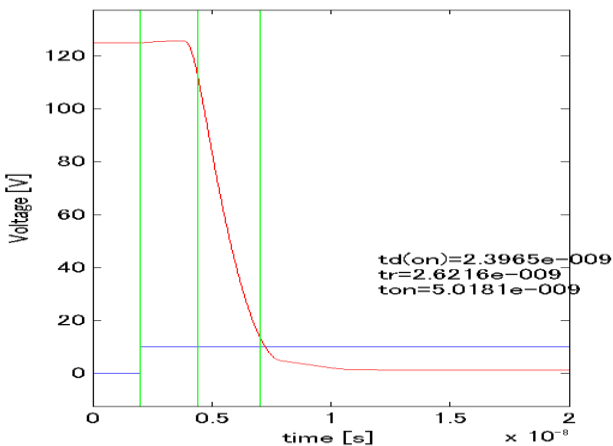
VthTemp[Id]

Vds = 10V



Switching Waveform (INPUT : Blue OUTPUT : Red)

vgg = 10V, vdd = 125V Id = 0.6A



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