PSpice Model
GaN
Innoscience
INN650DA140A

Model Information

Model	An original macro model	
Call Name	MDC_INN650DA140A_PS	
Pin Assign	1:D 2:D 3:D 4:D 5:S 6:S 7:S 8:G 9:S	
File List	Model Library	MDC_INN650DA140A_PS01.lib
	Model Report	MDC_INN650DA140A_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 2021/10/26
- ●Product name INN650DA140A
- ●Company name Innoscience
- ●Characteristics IdVds[Vgs],IdVds[Vgs]2,Rds(on)Vgs[Id],Rds(on)Vgs[Id]2,IdVgs[Temp],IdVds[temp],NormVthTemp[ID],NormRds(on)Temp[Id],VgsQg[Vdd],CapacitanceVds[Cname],SwitchingLload[Tname],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	650	V
Gate-source voltage (DC)	-20	to	10	V
Temperature	-55	to	150	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

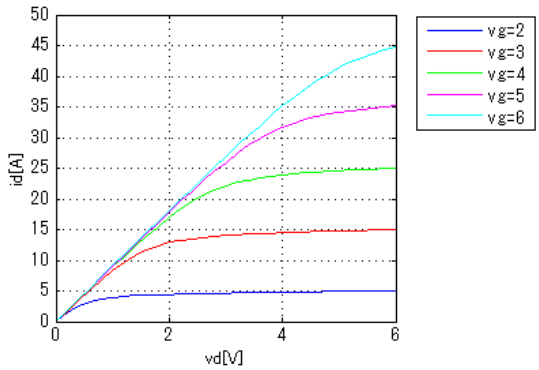
Model Functions Table

	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

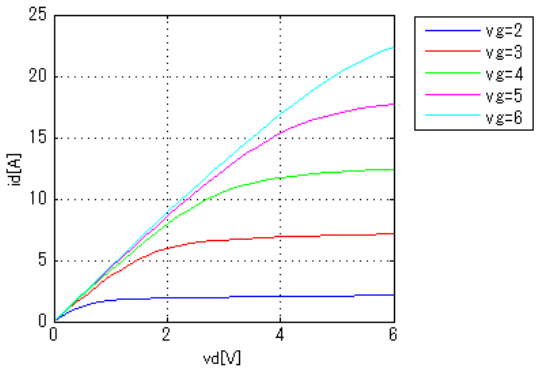
IdVds[Vgs]

Temp = 25degC



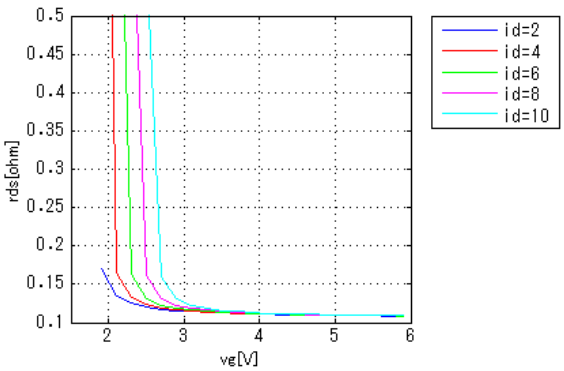
IdVds[Vgs]2

Temp = 125degC



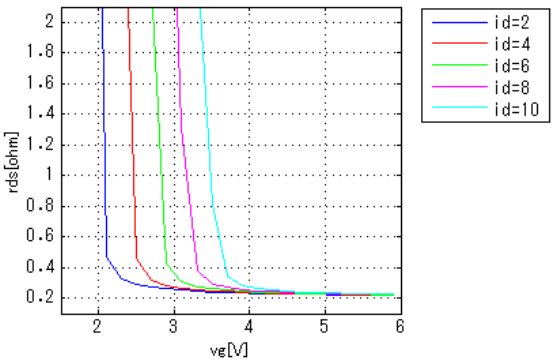
Rds(on)Vgs[Id]

Temp = 25degC



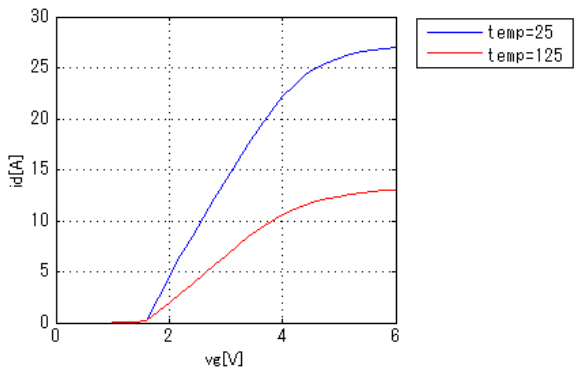
Rds(on)Vgs[Id]2

Temp = 125degC



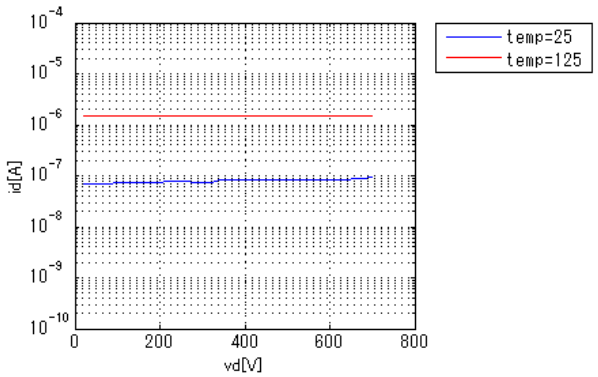
IdVgs[Temp]

Vds = 3V



IdVds[temp]

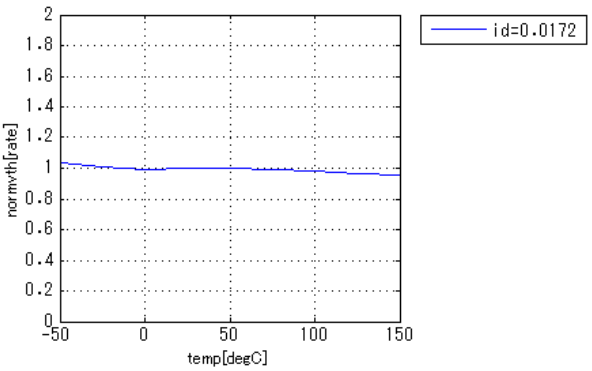
vg = 0V



Simulation results are following.
Explanatory notes — : simulated

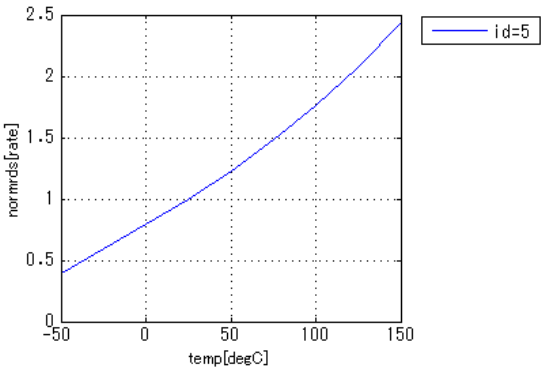
NormVthTemp[Id]

Vd = Vg



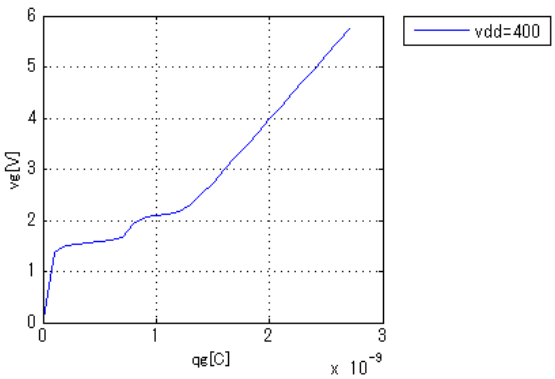
NormRds(on)Temp[Id]

Vgs = 6V



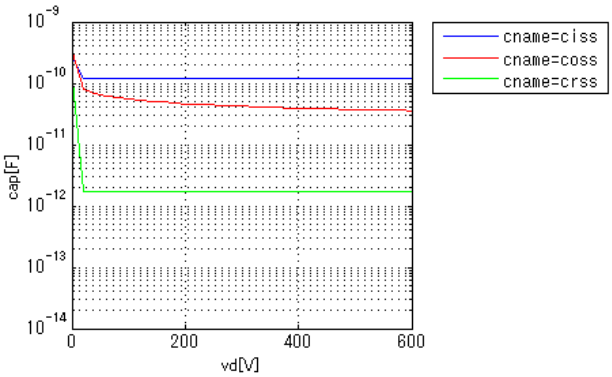
VgsQg[Vdd]

Id = 5A



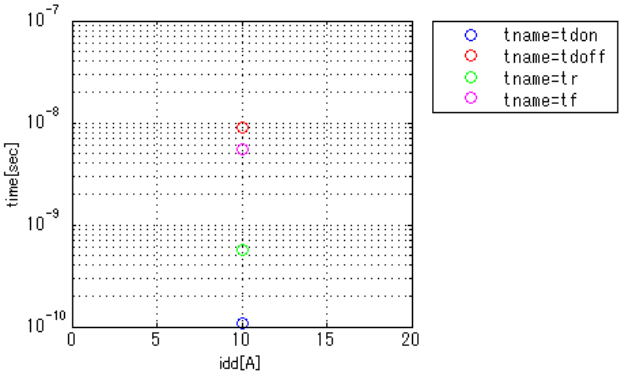
CapacitanceVds[Cname]

freq = 100000Hz



SwitchingLload[Tname]

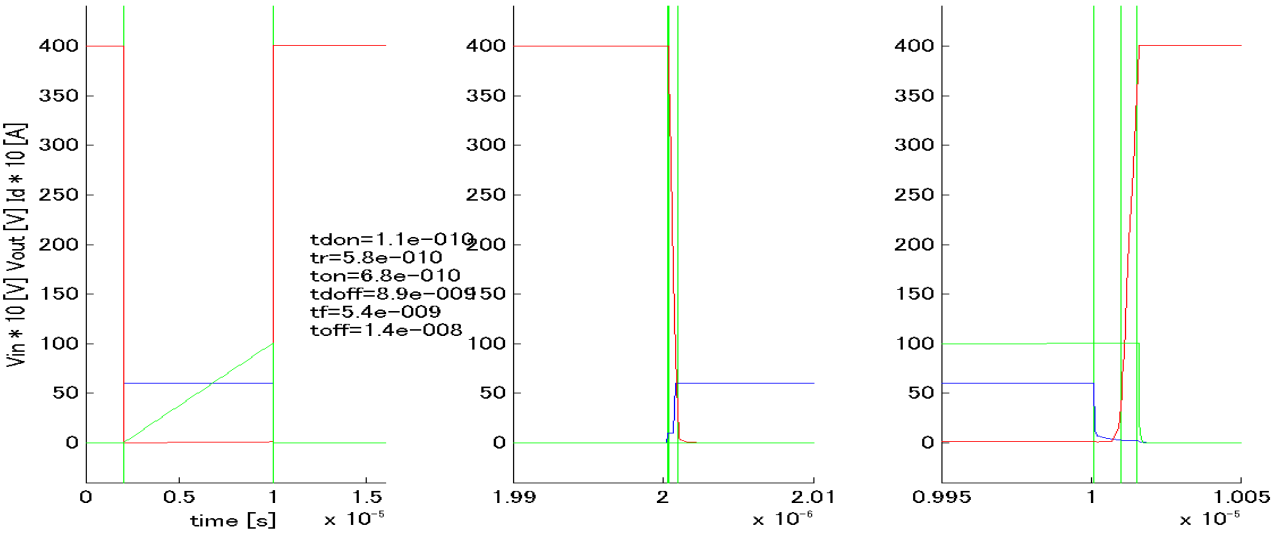
vgg = 6V, vdd = 400V, Lload = 318e-6H, RGon = 10ohm,
RGon = 2ohm



Simulation results are following.
Explanatory notes — : simulated

Switching Waveform (Blue : INPUT Red : OUTPUT Green : Current)

vgg = 6V, vcc = 400V, Lload = 318uH, RGon = 10ohm, Rgoff = 2ohm, Temp = 25degC, Id = 10A



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