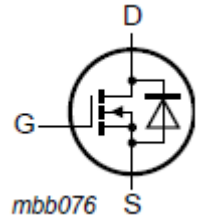
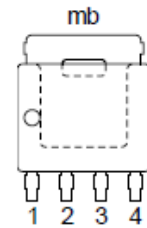


LTspice Model NMOS Nexperia BUK9Y4R8-60E

Pin	Symbol	Description
1	S	source
2	S	source
3	S	source
4	G	gate
mb	D	mounting base; connected drain



Model Information

Model	A macro model based on BSIM3 model		
Call Name	MDC_BUK9Y4R8-60E_LT		
Pin Assign	1:S 2:S 3:S 4:G mb:D		
File List	Model Library	MDC_BUK9Y4R8-60E_LT01.lib	
	Model Report	MDC_BUK9Y4R8-60E_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 7 January 2016
- Product name BUK9Y4R8-60E
- Company name Nexperia B.V.
- Characteristics IdVds[Vgs], Rds(on)Vgs[Temp], IdVgs[Temp], VthTemp[Id], IdVgs[Temp]2, Rds(on)Id[Vgs], NormRds(on)Temp[Id], VgsQg[Vd], CapacitanceVds[Cname], IsVsd[Temp], SwitchingRload[Tname], Trrlf[Ir], Qrrlf[Ir], SwitchingWaveform, TrWaveform

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	60	V
Gate-source voltage (DC)	-10	to	10	V
Temperature	-55	to	175	deg C

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

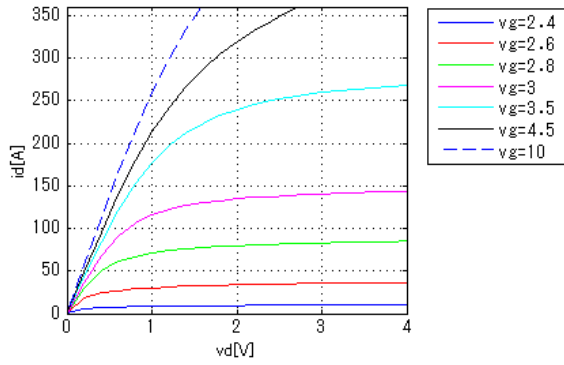
RANK=1

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

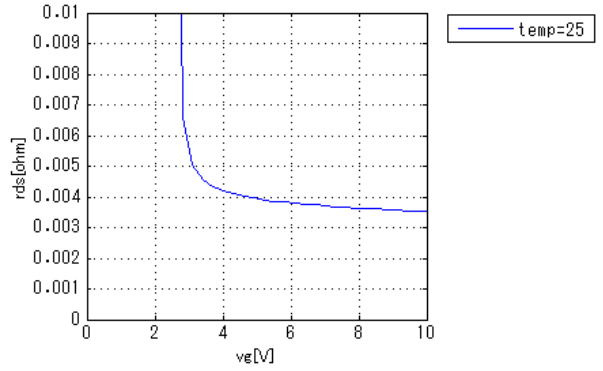
IdVds[Vgs]

Temp = 25degC



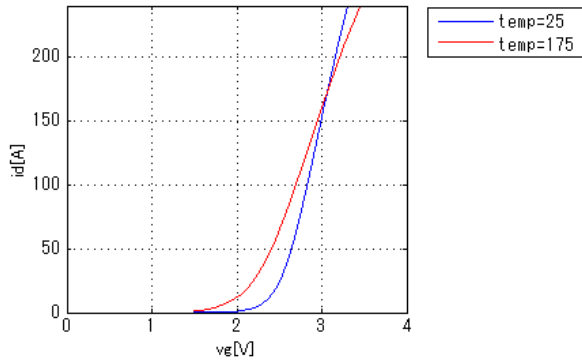
Rds(on)Vgs[Temp]

Id = 25A



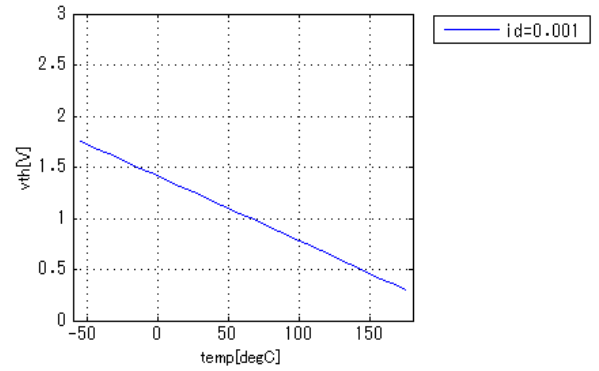
IdVgs[Temp]

Vds = 10V



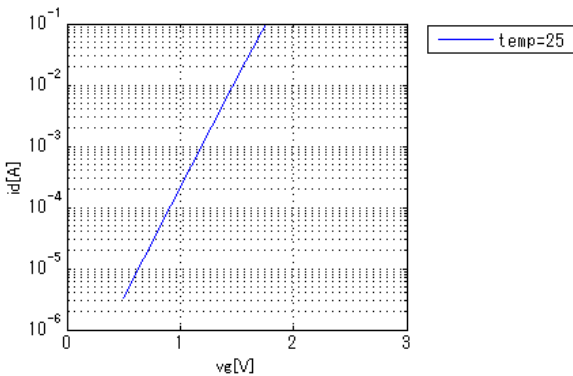
VthTemp[Id]

Vd = Vg



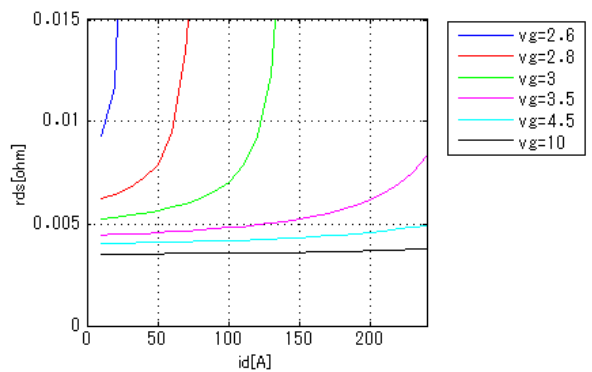
IdVgs[Temp]2

Vds = 5V



Rds(on)Id[Vgs]

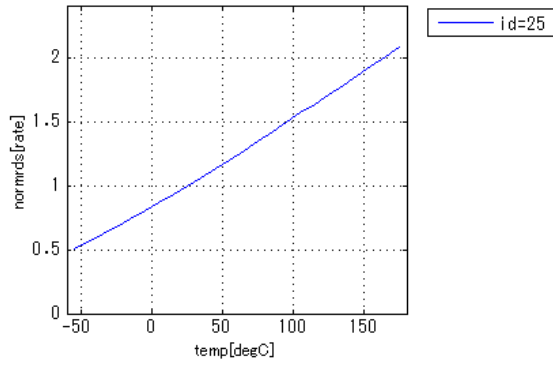
Temp = 25degC



Simulation results are following.
 Explanatory notes — : simulated

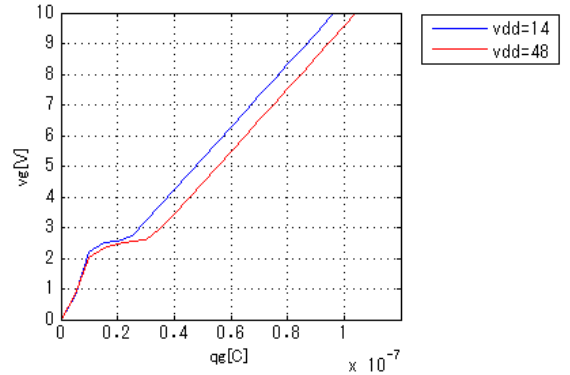
NormRds(on)Temp[Id]

Vgs = 0V



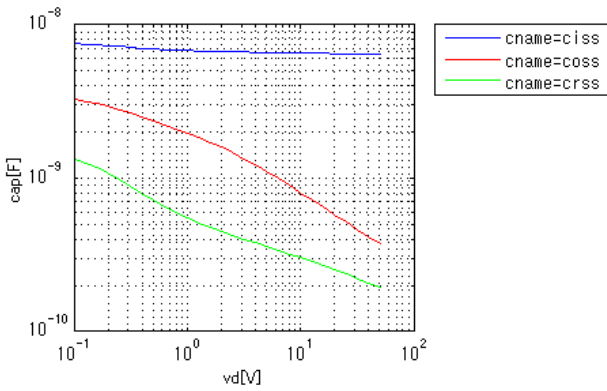
VgsQg[Vdd]

Id = 25A



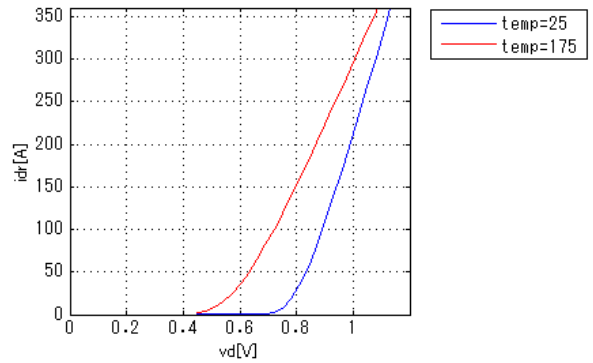
CapacitanceVds[Cname]

freq = 1000000Hz



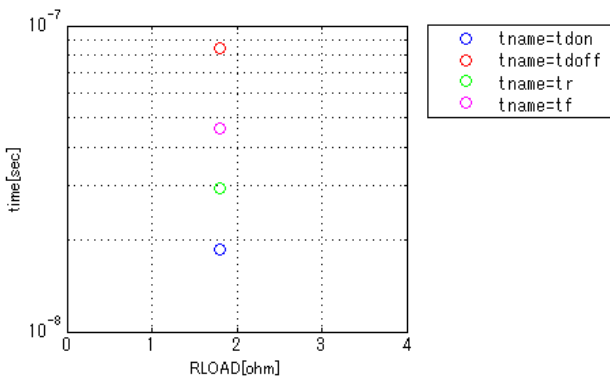
IsVsd[Temp]

vg = 0V



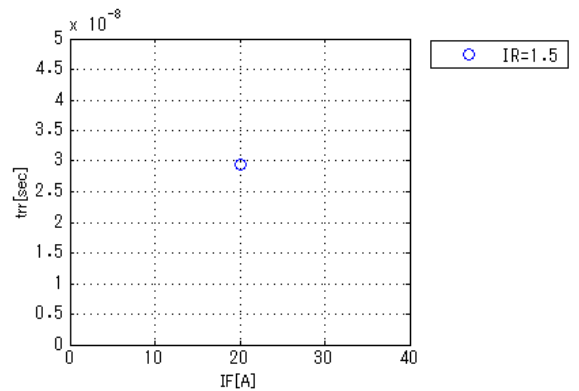
SwitchingRload[Tname]

vgs = 5V, vds = 45V, RGG = 5ohm



TrrIf[Ir]

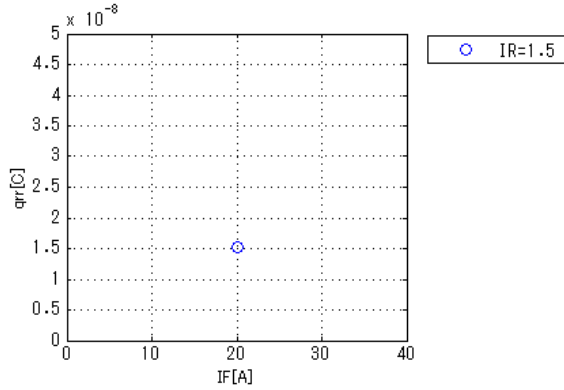
vds = 25V, didt = 100A/us, Temp = 25degC



Simulation results are following.
 Explanatory notes — : simulated

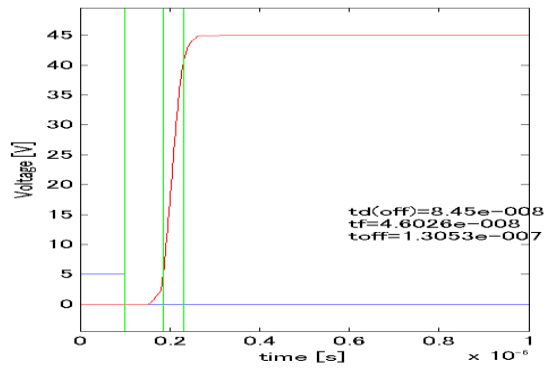
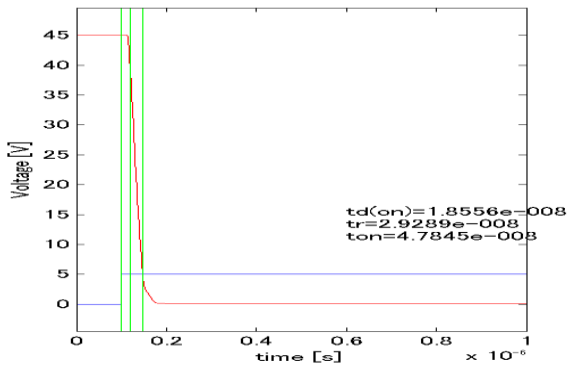
Qrrlf[Ir]

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



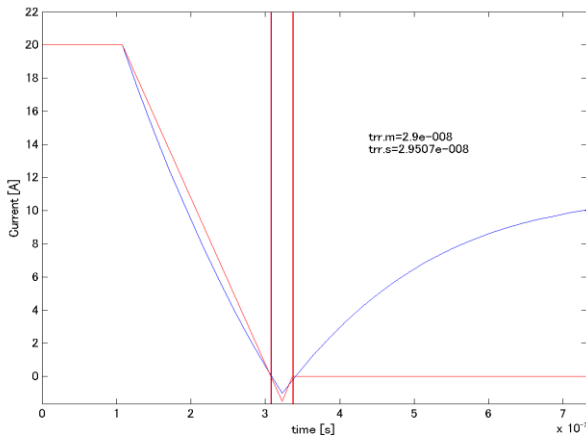
Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 5V, v_{dd} = 45V, R_{GG} = 5ohm, Temp = 25degC, R_{load} = 1.8ohm



Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 100A/us, v_{dd} = 25V, if = 20A, ir = 1.5A



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