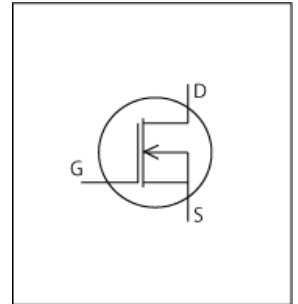


LTspice Model

NMOS

Infineon

IRFH5025TRPBF



Model Information

Model A macro model based on BSIM3 model
Call Name MDC_IRFH5025TRPBF_LT
Pin Assign 1:S 2:S 3:S 4:G 5:D 6:D 7:D 8:D
File List Model Library MDC_IRFH5025TRPBF_LT02.lib
 Model Report MDC_IRFH5025TRPBF_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 May 19,2015
- Product name IRFH5025TRPBF
- Company name Infineon Technologies AG
- Characteristics IdVds[Vgs], IdVds[Vgs]2, IdVgs[Temp], NormRds(on)Temp[Id], CapacitanceVds[Cname], VgsQg[Vdd], VthTemp[Id], Rds(on)Vgs[Temp], SwitchingIdd[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 | 250 | V |
| Gate-source voltage (DC) | -20 | to | 20 | V |
| Temperature | -55 | to | 150 | deg C |

MOSFET

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

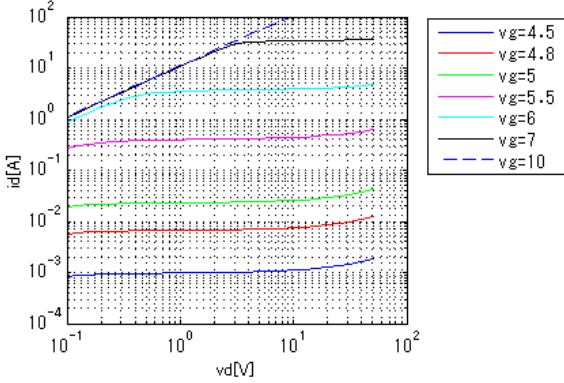
RANK=1

| 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

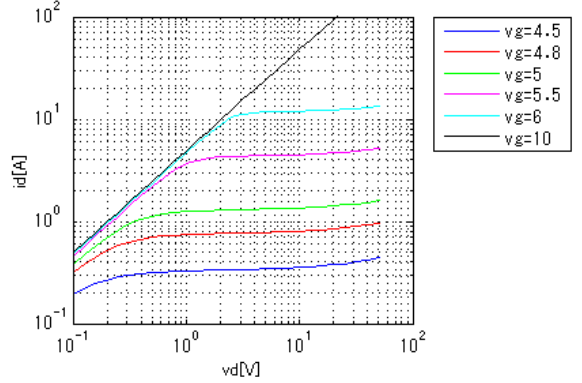
IdVds[Vgs]

Temp = 25degC



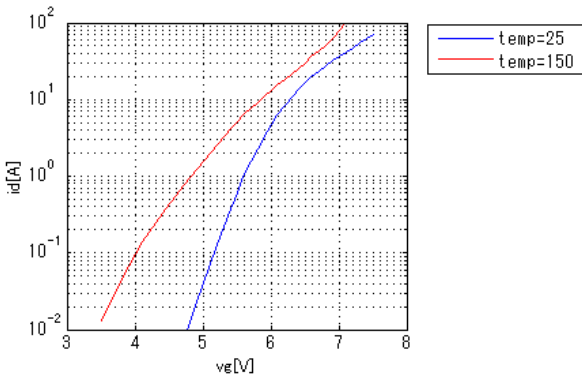
IdVds[Vgs]2

Temp = 150degC



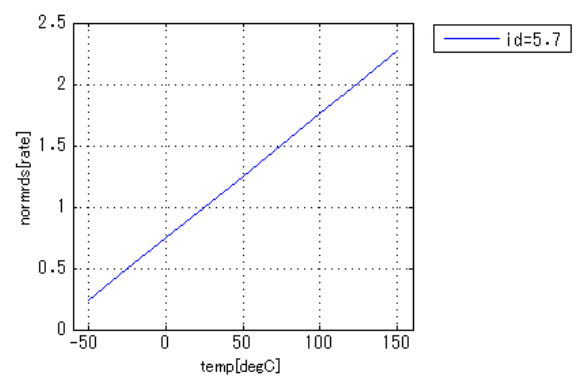
IdVgs[Temp]

Vds = 50V



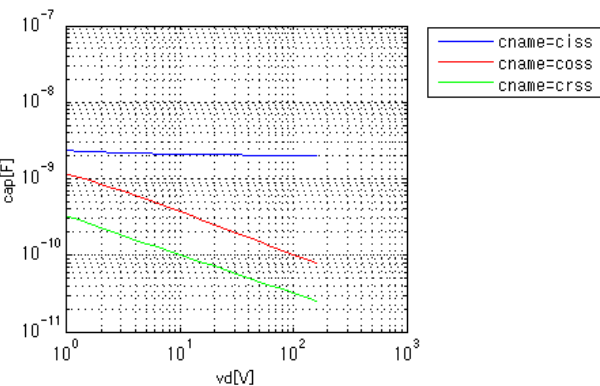
NormRds(on)Temp[Id]

Vgs = 10V



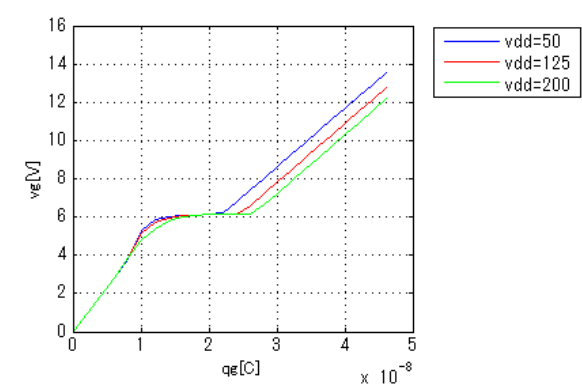
CapacitanceVds[Cname]

freq = 1000000Hz



VgsQg[Vdd]

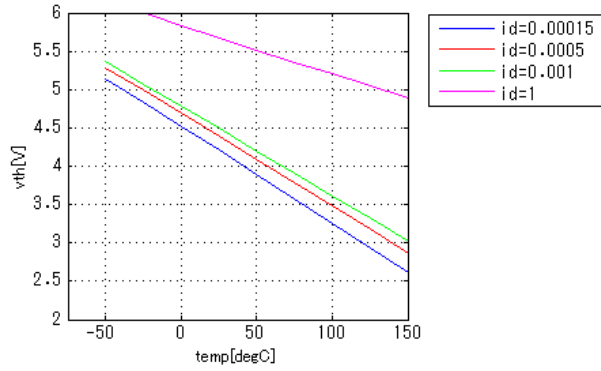
Id = 5.7A



Simulation results are following.
 Explanatory notes — : simulated

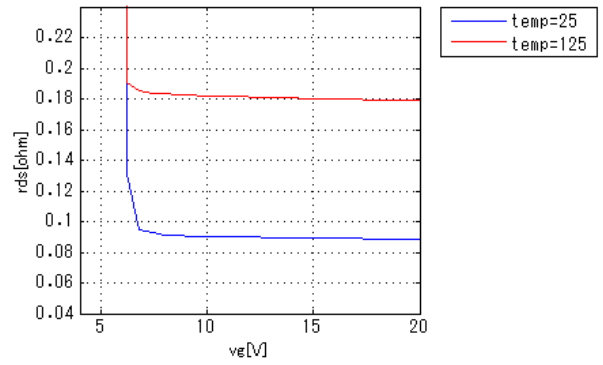
VthTemp[Id]

Vd = Vg



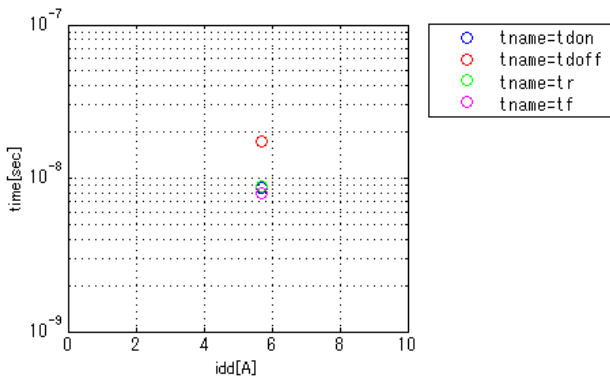
Rds(on)Vgs[Temp]

$I_d = 5.7$ A



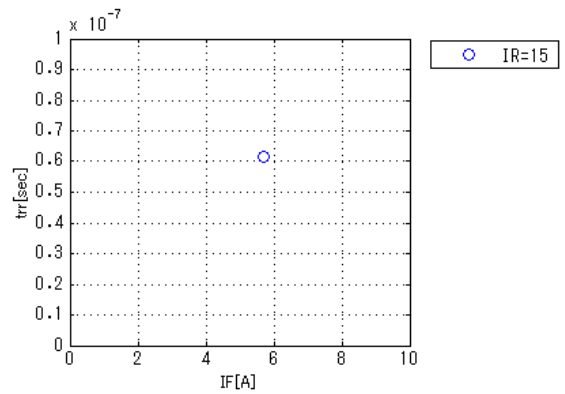
SwitchingIdd[Tname]

$v_{gg} = 10$ V, $v_{dd} = 125$ V, $R_{GG} = 1.8$ ohm



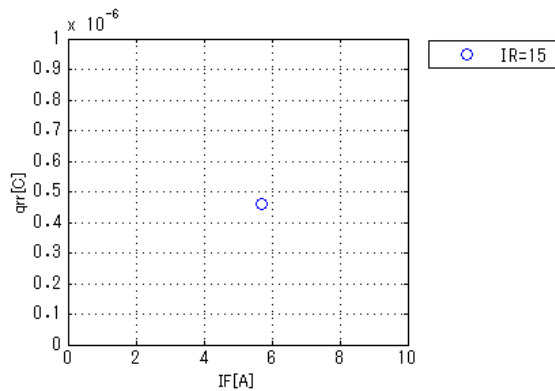
Trrlf[Ir]

$v_{dd} = 125$ V, $di/dt = 500$ A/us, $Temp = 25$ degC



Qrrf[Ir]

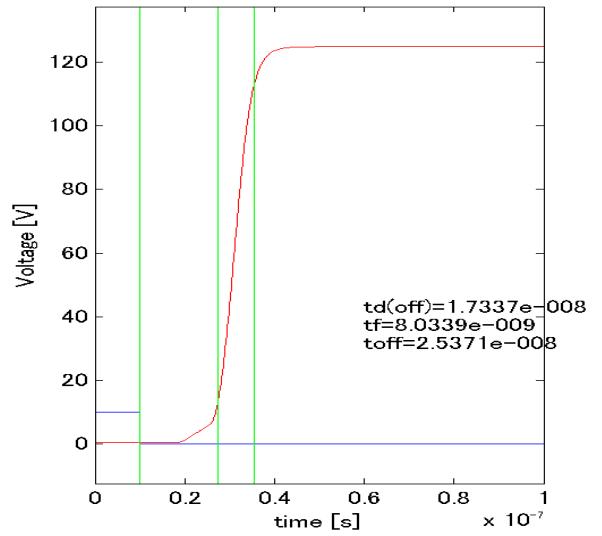
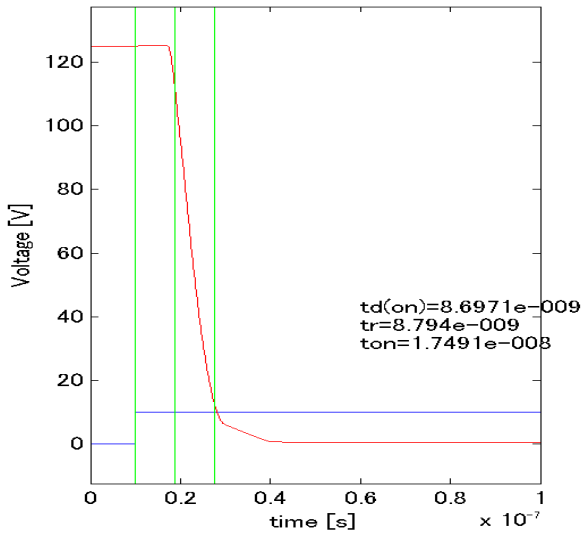
$v_{dd} = 125$ V, $di/dt = 500$ A/us, $Temp = 25$ degC



Simulation results are following.
 Explanatory notes — : simulated

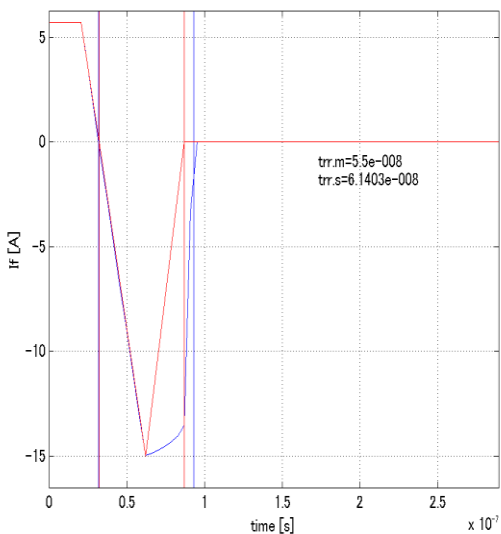
Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 10V, v_{cc} = 125V, R_{GG} = 1.8ohm, Temp = 25degC, I_c = 5.7A



Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 500A/us, v_{cc} = 500V, i_f = 5.7A, i_r = 15A



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