

LTspice Model NMOS+NMOS TI CSD87330Q3D

Model Information

Model A macro model based on BSIM3 model
Call Name MDC_CSD87330Q3D_LT
Pin Assign 1:VIN 2:VIN 3:TG 4:TGR 5:BG 6:VSW 7:VSW 8 :VSW 9:PGND
File List Model Library MDC_CSD87330Q3D_LT03.lib
 Model Report MDC_CSD87330Q3D_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 Rev. D
- Product name CSD87330Q3D
- Company name Texas Instruments Inc.
- Characteristics IdVds[Vgs], IdVgs[Temp], VgsQg[Vdd], Crss, Coss, Ciss, VthTe mp[lid], Rds(on)Vgs[Temp], IsVsd[Temp], tdon, tdoff, tf, tr

Simulation Range

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

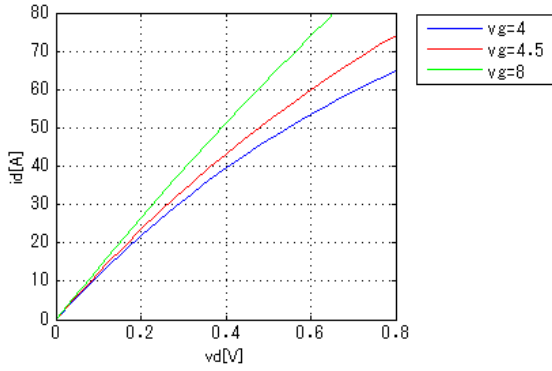
Item	Range			Unit
	Min.		Max.	
Drain-source voltage (DC)	0	to	30	V
Gate-source voltage (DC)	0	to	8	V
Temperature	-55	to	150	deg C

Simulation results are following.
 Explanatory notes — : simulated

Q1 (Control FET)

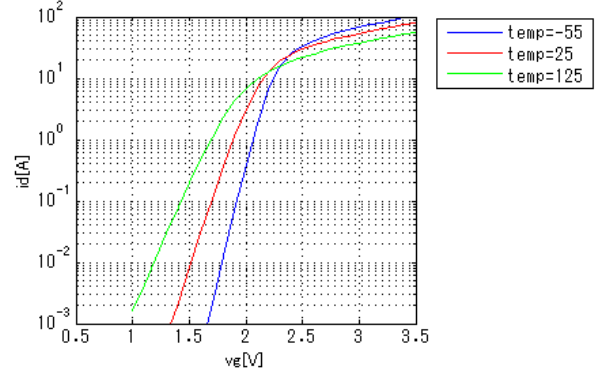
IdVds[Vgs]

Temp. = 25deg C



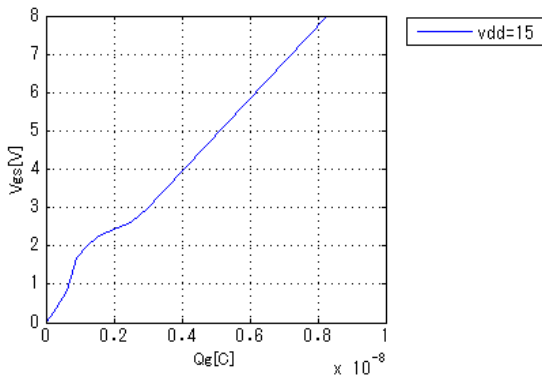
IdVgs[Temp]

$V_{ds} = 5V$



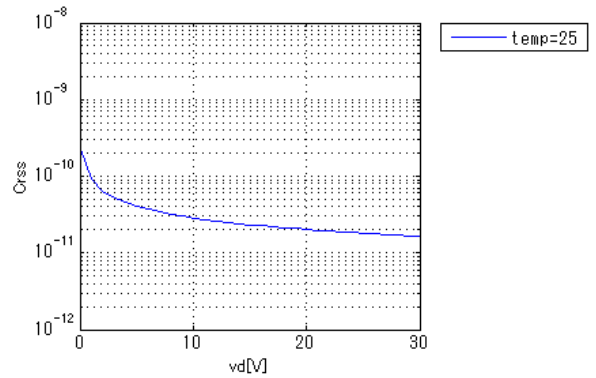
VgsQg[Vdd]

$I_d = 15A$



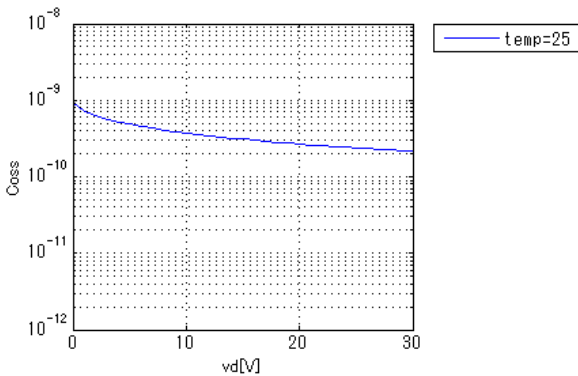
Crss

Freq. = 1MHz



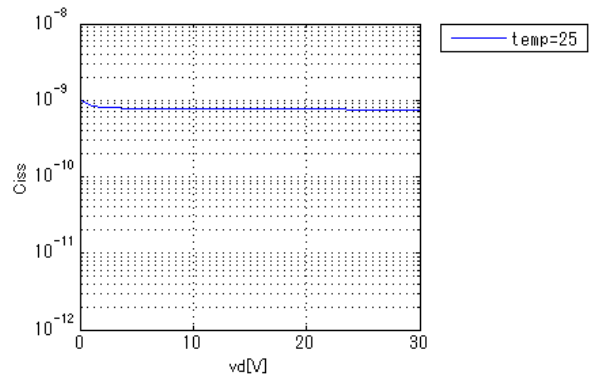
Coss

Freq. = 1MHz



Ciss

Freq. = 1MHz

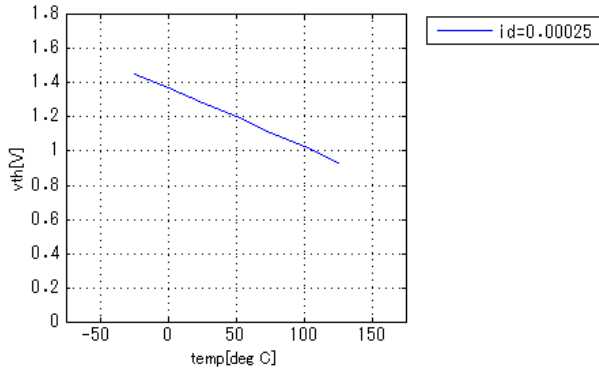


Simulation results are following.
 Explanatory notes — : simulated

Q1 (Control FET)

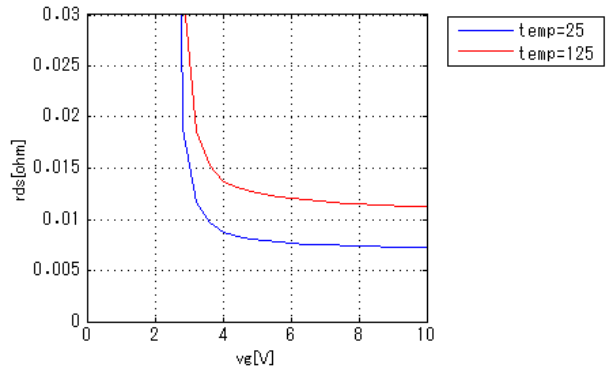
VthTemp[Id]

Vd = Vg

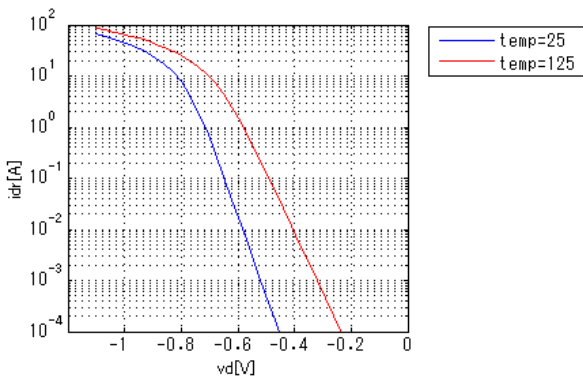


Rds(on)Vgs[Temp]

Id = 15A

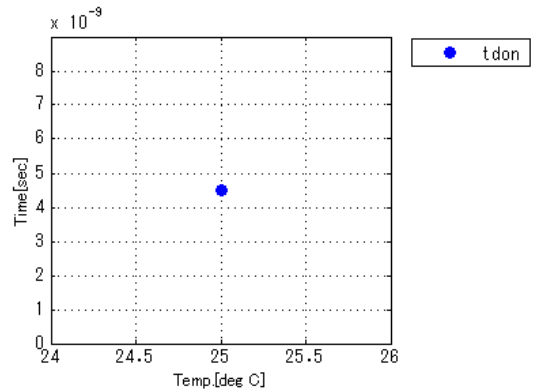


IsVsd[Temp]



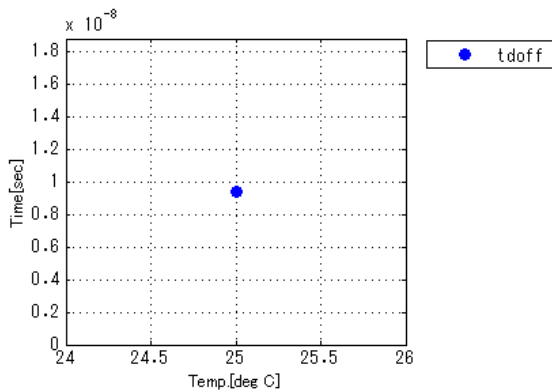
tdon

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



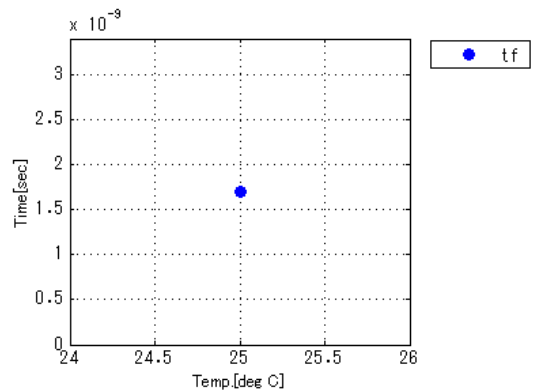
tdoff

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



tf

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



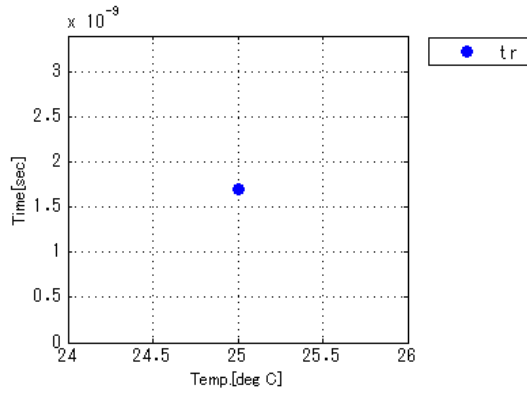
Simulation results are following.

Q1 (Control FET)

Explanatory notes — : simulated

tr

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm

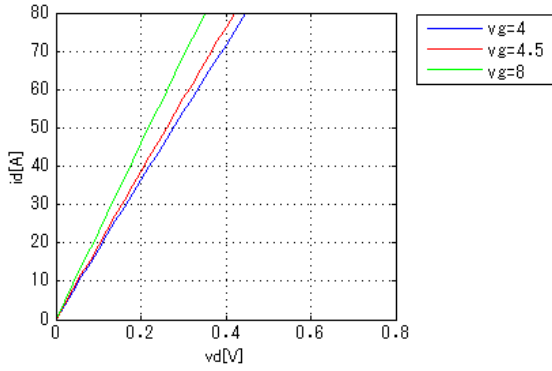


Simulation results are following.
 Explanatory notes — : simulated

Q2 (Sync FET)

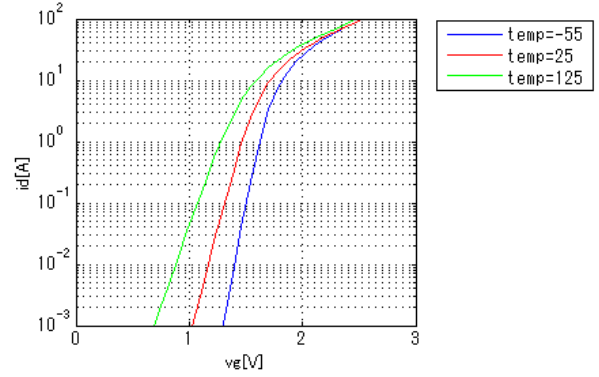
IdVds[Vgs]

Temp. = 25deg C



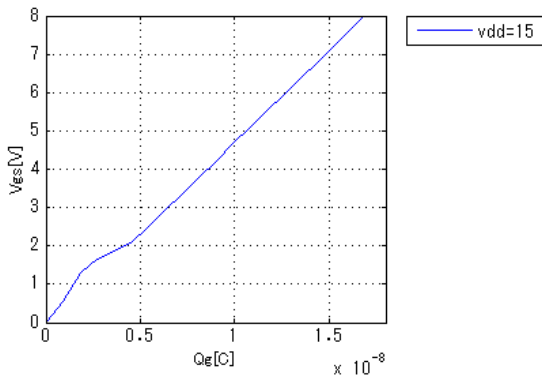
IdVgs[Temp]

$V_{ds} = 5V$



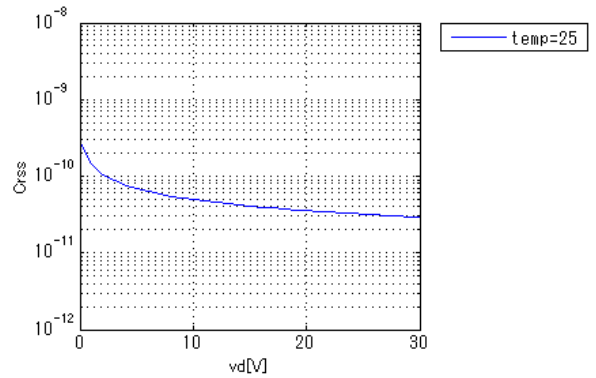
VgsQg[Vdd]

$I_d = 15A$



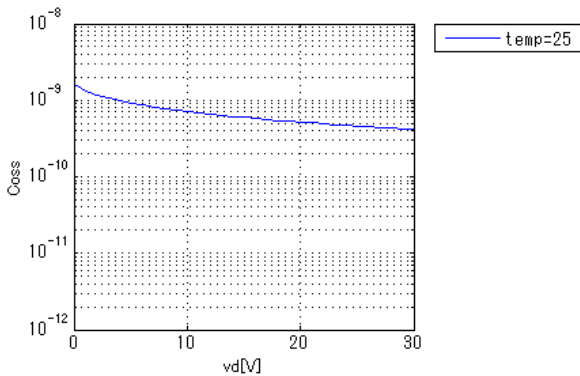
Crss

Freq. = 1MHz



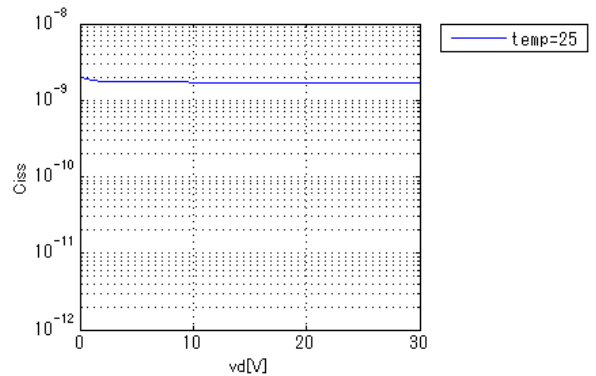
Coss

Freq. = 1MHz



Ciss

Freq. = 1MHz

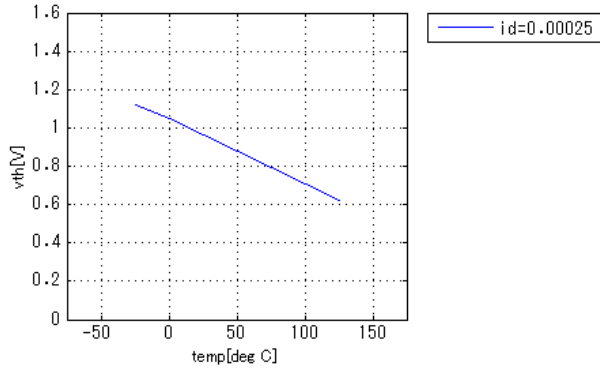


Simulation results are following.
 Explanatory notes — : simulated

Q2 (Sync FET)

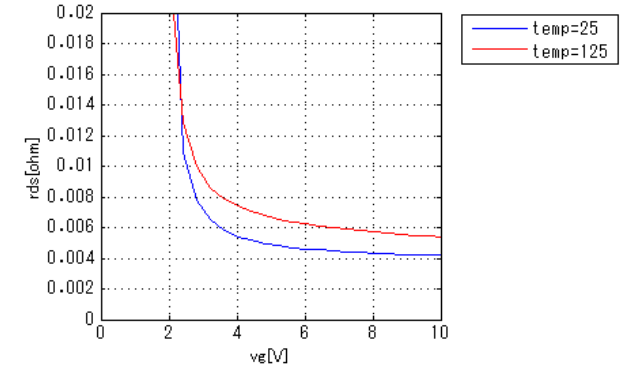
VthTemp[Id]

Vd = Vg

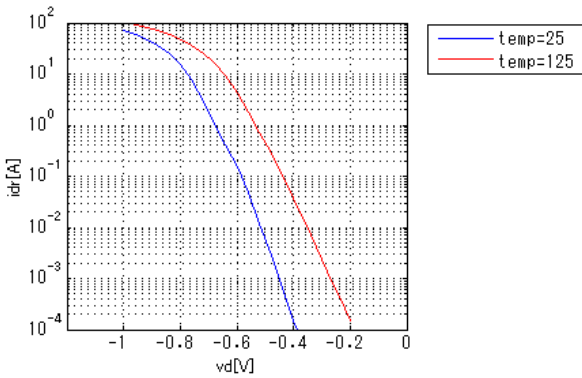


Rds(on)Vgs[Temp]

Id = 15A

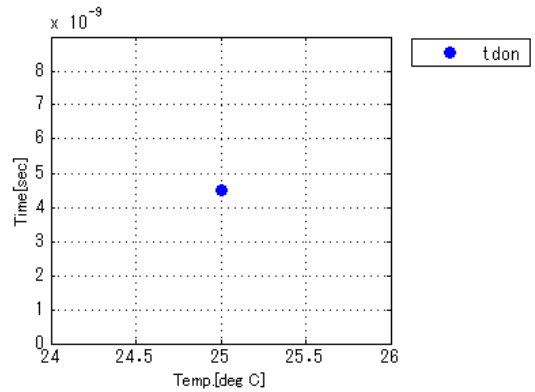


IsVsd[Temp]



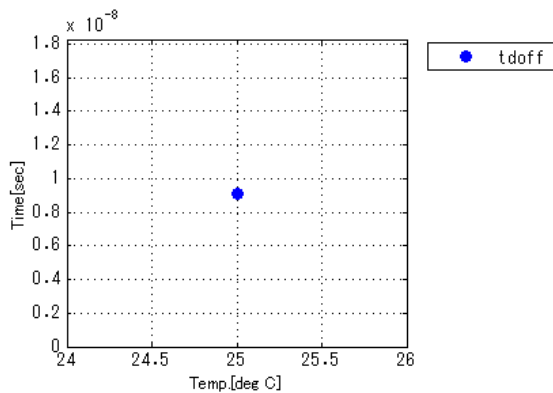
tdon

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



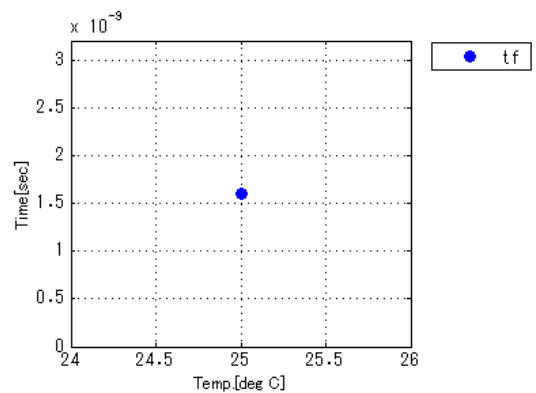
tdoff

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



tf

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



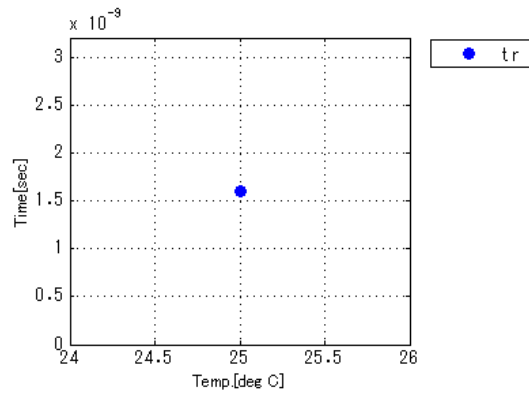
Simulation results are following.

Q2 (Sync FET)

Explanatory notes — : simulated

tr

Vdd = 15V, Id = 15A, +Vg = 4.5V, -Vg = 0V, Rg = 0.001ohm



DISCLAIMER

1. This SPICE (Simulation Program with Integrated Circuit Emphasis) model and its content (the "Contents") are copyright of MoDeCH Inc. All rights reserved. Any redistribution or reproduction of any or all part of the Contents in any form is prohibited without express written permission made by MoDeCH Inc.
2. MoDeCH Inc. as licensor (the "Licensor") hereby grants to you, as licensee (the "Licensee"), a non-exclusive, non-transferable license to use the Contents as long as you abide by the terms and conditions of this DISCLAIMER.
3. The Licensee is not authorized to sell, loan, rent and redistribute or license the Contents in whole or in part, or in modified form, to anyone.
4. The Licensor shall in no way be liable to the Licensee or any third party for any loss or damage (including ,but not limited to, lost profits, or other incidental, consequential, or punitive damages), however caused (including through negligence) which may be directly or indirectly suffered from, arising out of, or in connection with, any use of the Contents .
5. Notwithstanding anything contained in this DISCLAIMER, in no event shall Licensor be liable for any claims, damages or loss which may arise from the modification, combination, operation or use of the Contents with the Licensee's computer programs.
6. The Licensor does not warrant that the Contents will function in any environment.
7. The Contents may be changed or updated without notice. MoDeCH Inc. may also make improvements and/or changes in the products, pricing and/or the programs related to the Contents at any time without notice.



MoDeCH Inc.

Head Office

Location: Mitsuseimei Hachioji Bldg., 5-15 Yokoyama-cho, Hachioji-Shi, Tokyo 192-0081, Japan

Tel:+81-42-656-3360

E-Mail:model-on-support@modech.co.jp

URL:<http://www.modech.com/en/>