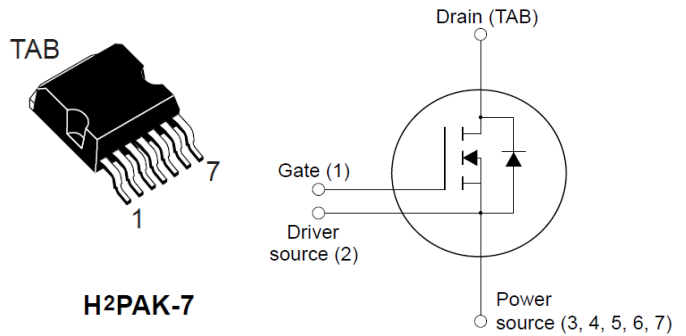


# PSpice Model

## NMOS

## STM

## SCT040H65G3AG



### Model Information

**Model** A macro model based on BSIM3 model  
**Call Name** MDC\_SCT040H65G3AG\_PS  
**Pin Assign** 1:G 2:S 3:S 4:S 5:S 6:S 7:S TAB:D  
**File List** Model Library MDC\_SCT040H65G3AG\_PS01.lib  
 Model Report MDC\_SCT040H65G3AG\_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 Rev 2 - January 2022
- Product name SCT040H65G3AG
- Company name STMicroelectronics N.V.
- Characteristics IdVds[Vgs], IdVds[Vgs]2, IdVgs[Temp], VgsQg[Vdd], CapacitanceVds[Cname], NormBvTemp{Ir}, NormVthTemp{Id}, NormRds(on)Temp[Vgs], IsVsd[Vgs], IsVsd[Vgs]2, SwitchingIdd[Tname], TrrIf[Ir], QrrIf[Ir], SwitchingWaveform, TrrWaveform

### 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)	-10	to	22	V
Temperature	-55	to	175	deg C

## MOSFET

○ : Implemented  
× : Not Implemented  
— : Not applicable

Model Functions Table

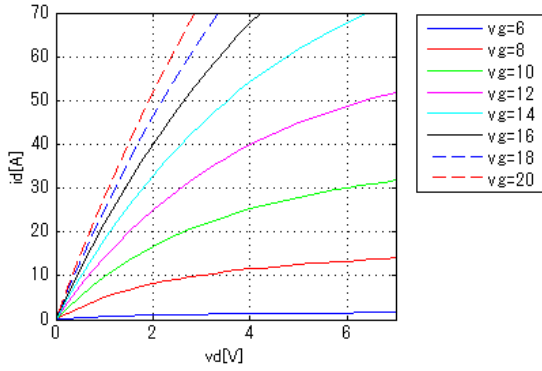
RANK=1

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

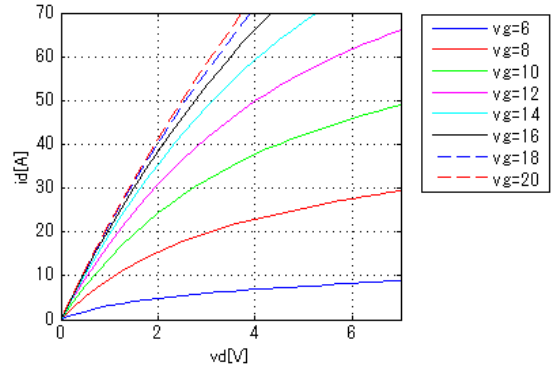
**IdVds[Vgs]**

Temp = 25degC



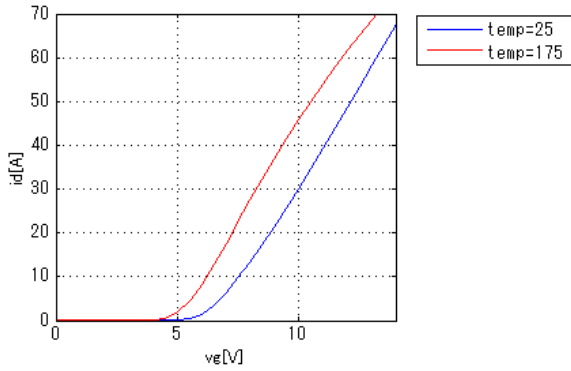
**IdVds[Vgs]2**

Temp = 175degC



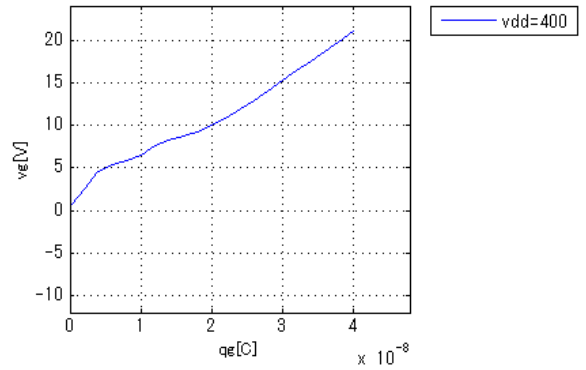
**IdVgs[Temp]**

Vds = 6V



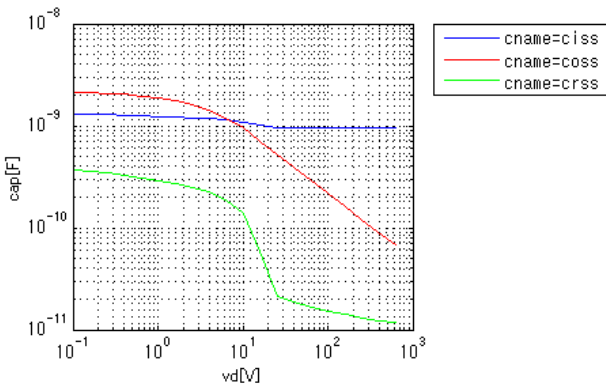
**VgsQg[Vdd]**

Id = 20A

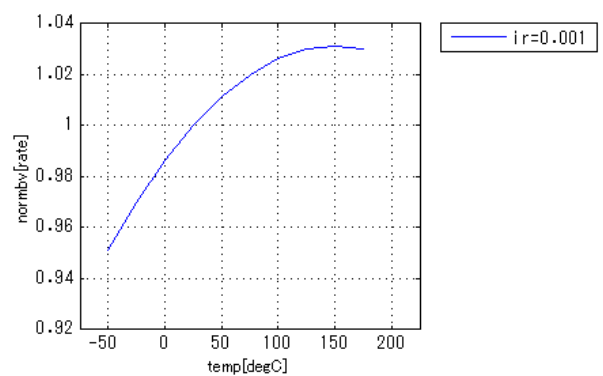


**CapacitanceVds[Cname]**

freq = 1000000Hz



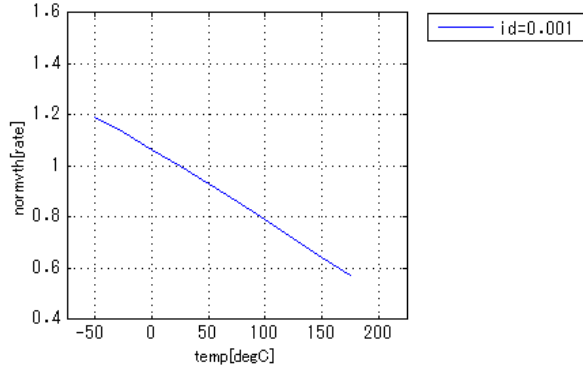
**NormBvTemp{Ir}**



Simulation results are following.  
 Explanatory notes — : simulated

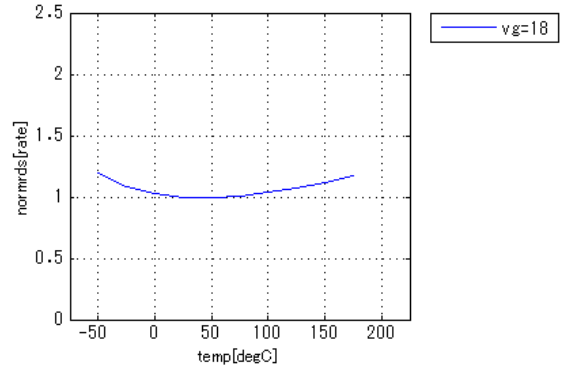
**NormVthTemp[Id]**

Vd = Vg



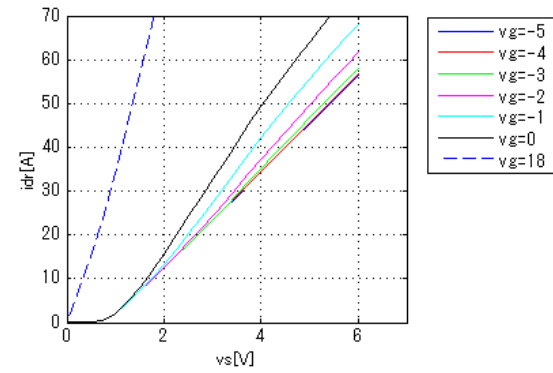
**NormRds(on)Temp[Vgs]**

Id = 20A



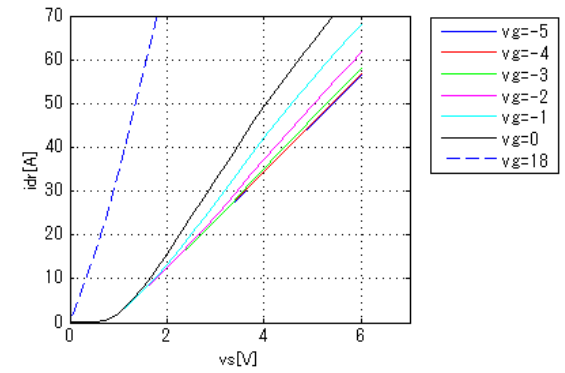
**IsVsd[Vgs]**

Temp = 25degC



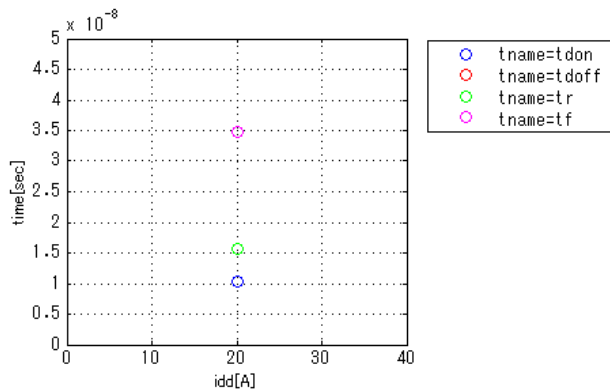
**IsVsd[Vgs]2**

Temp = 175degC



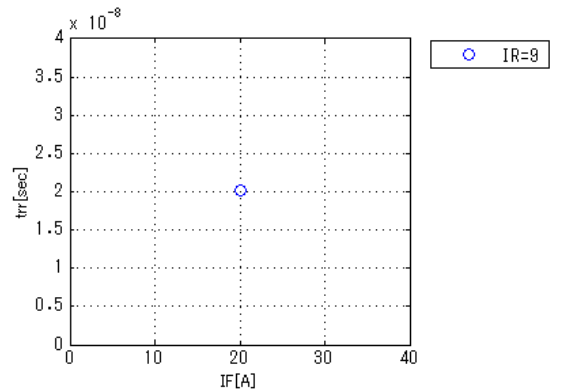
**SwitchingIdd[Tname]**

v<sub>g</sub> = 18V, v<sub>dd</sub> = 400V, R<sub>GG</sub> = 15ohm



**Trrif[Ir]**

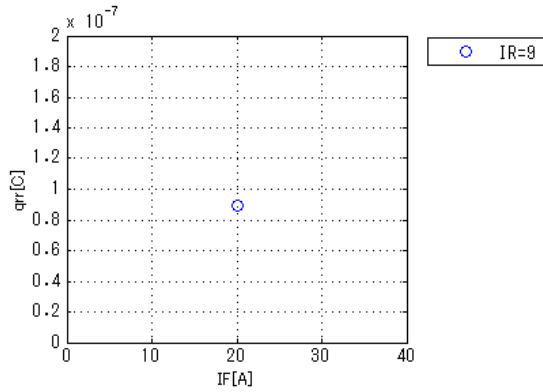
v<sub>dd</sub> = 400V, didt = 1000A/us, Temp = 25degC



Simulation results are following.  
 Explanatory notes — : simulated

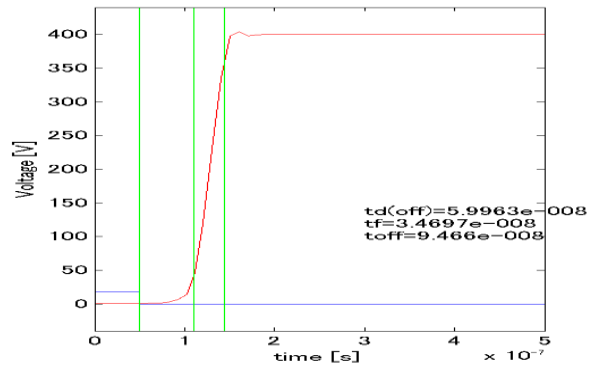
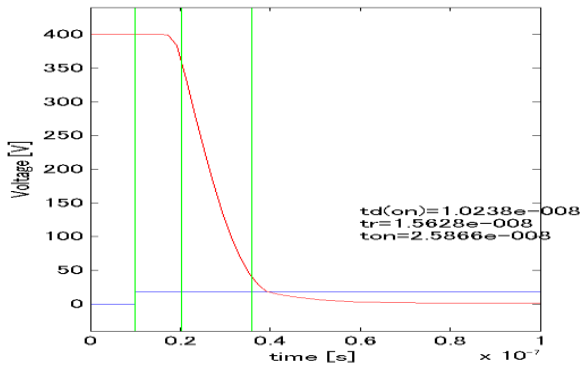
**Qrrlf[Ir]**

vdd = 400V, didt = 1000A/us, Temp = 25degC



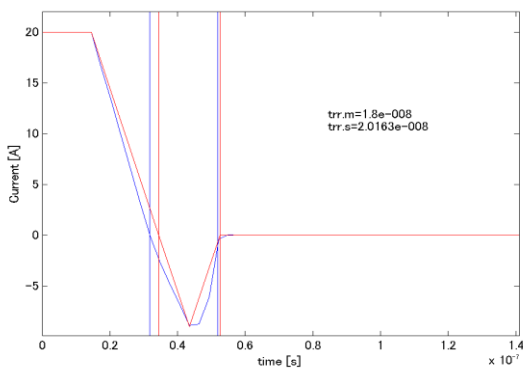
**Switching Waveform ( Blue : INPUT Red : OUTPUT )**

v<sub>gg</sub> = 18V, v<sub>cc</sub> = 400V, r<sub>gg</sub> = 15ohm, temp = 25degC, i<sub>c</sub> = 20A



**Trr Waveform ( Red : Datasheet Blue : Simulation )**

didt = 1000A/us, v<sub>dd</sub> = 400V, i<sub>f</sub> = 20A, i<sub>r</sub> = 9A



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MoDeCH Inc.

Head Office

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

Tel:+81-42-656-3360

E-Mail:[model-on-support@modech.co.jp](mailto:model-on-support@modech.co.jp)

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