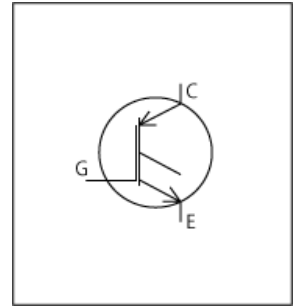


LTspice Model

Nch IGBT

Infineon

IHW30N60T



Model Information

Model An original macro model based on BSIM3 and Gummel-Poon model
Call Name MDC_IHW30N60T_LT
Pin Assign 1:C 2:G 3:E
File List Model Library MDC_IHW30N60T_LT01.lib
 Model Report MDC_IHW30N60T_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. 2.3 20.09.2013
- Product name IHW30N60T
- Company name Infineon Technologies AG
- Characteristics $I_{cVce}[V_{ge}]$, $I_{cVce}[V_{ge}]_2$, $I_{cV_{ge}}[Temp]$, $V_{cesatTemp}[I_c]$, $SwitchingI_{glcc}[Tname]$, $SwitchingR_g[Tname]$, $SwitchingTemp[Tname]$, $V_{thTemp}[I_c]$, $V_{geQg}[V_{cc}]$, $CapacitanceV_{ce}[Cname]$, $I_{fv}[Temp]$, $V_{fTemp}[I_f]$, $SwitchingWaveform$

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.	
Collector-emitter voltage (DC)	0	to	600	V
Gate-emitter voltage (DC)	-20	to	20	V
Temperature	-55	to	150	deg C

IGBT

○ : Implemented
 × : Not Implemented
 — : Not applicable

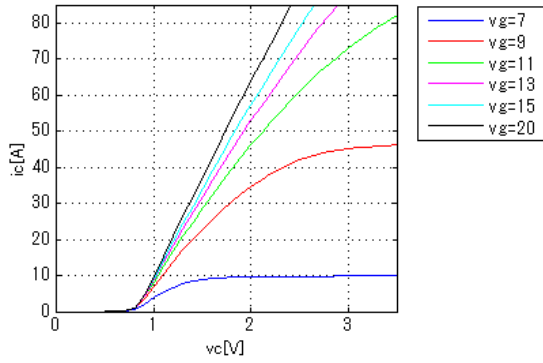
Model Functions Table
RANK=1

Functions	RANK	Implemented
IC-VCE-VGE	1	○
IC-VGE(Temp)	1	○
Vce(sat)	1	○
Capacitance	1	○
Gate Charge	1	○
IE-VEC(Diode Forward)	1	○
Reverse recovery	1	—
Switching(Typ.)	1	○
Vth	1	○

Simulation results are following.
 Explanatory notes — : simulated

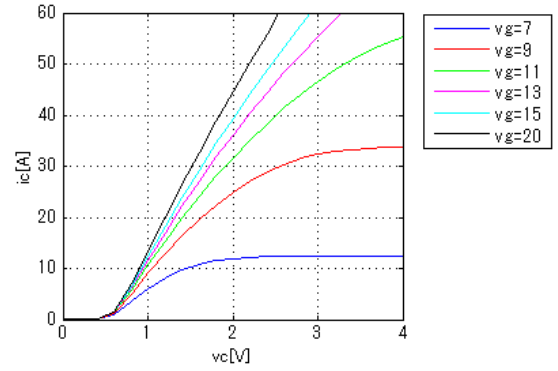
IcVce[Vge]

Temp. = 25deg C



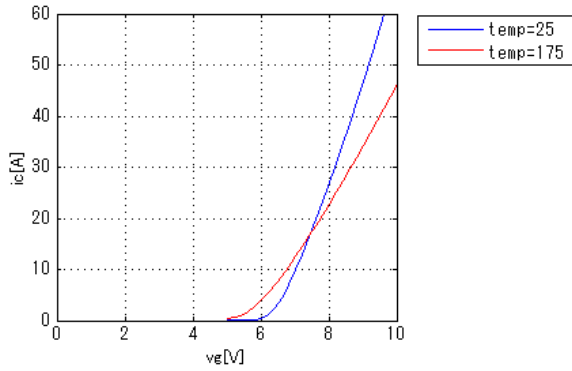
IcVce[Vge]2

Temp. = 175deg C



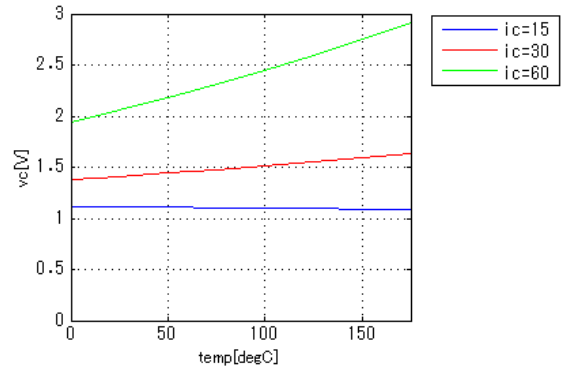
IcVge[Temp]

Vce = 10V



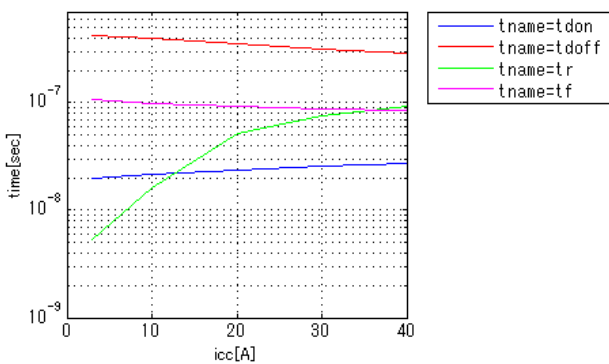
VcesatTemp[Ic]

vg = 15V



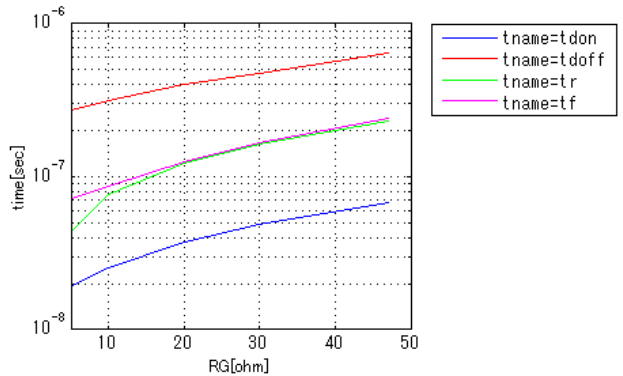
SwitchingIcc[Tname]

vgg = 15V, vcc = 400V, RGG = 10ohm, Temp = 175degC



SwitchingRg[Tname]

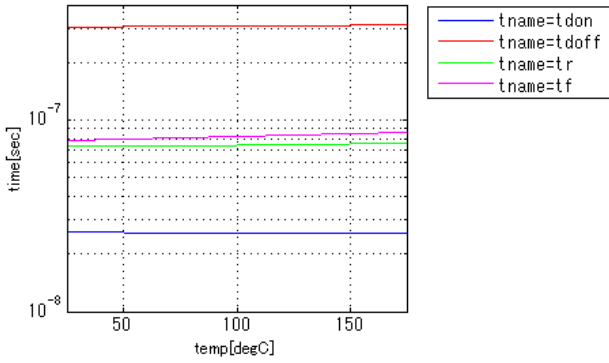
vgg = 15V, vcc = 400V, Icc = 30A, Temp = 175degC



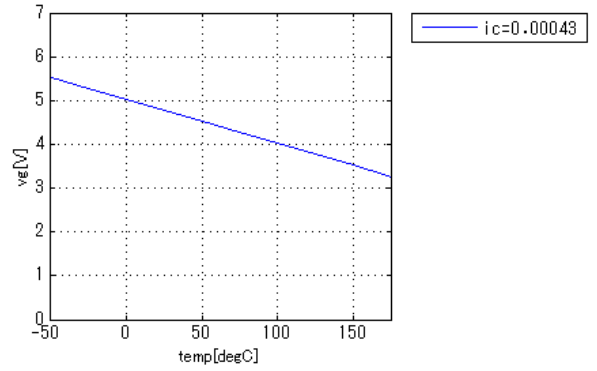
Simulation results are following.
 Explanatory notes — : simulated

SwitchingTemp[Tname]

vgg = 15V, vcc = 400V, RGG = 10ohm, icc = 30A

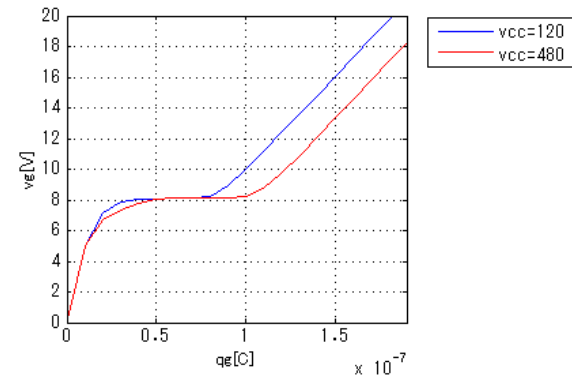


VthTemp[Ic]



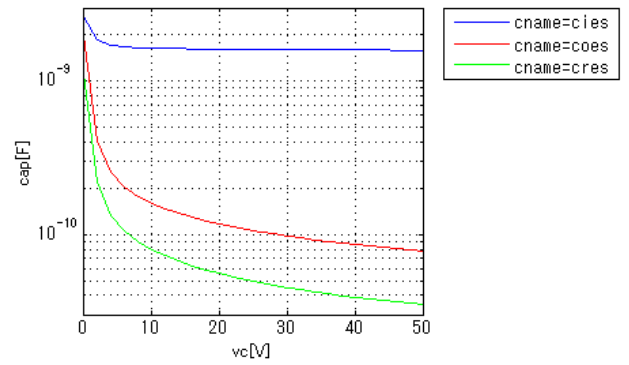
VgeQg[Vcc]

Ic = 30A

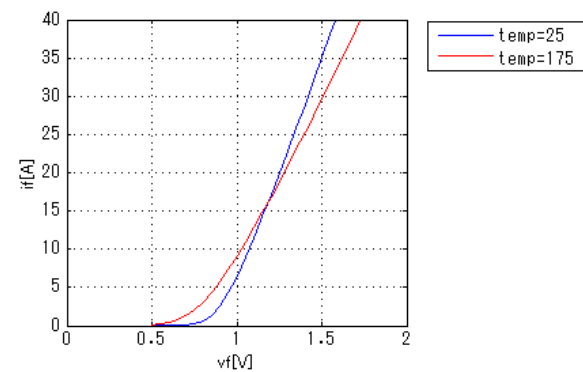


CapacitanceVce[Cname]

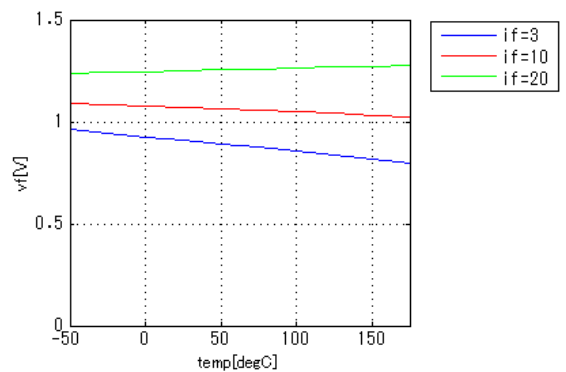
freq = 1000000Hz



IfVf[Temp]



VfTemp[If]

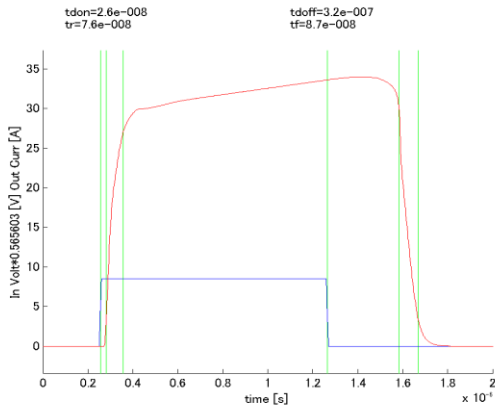


Simulation results are following.

Explanatory notes — : simulated

Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 15V, v_{cc} = 400V, R_{GG} = 10ohm, Temp = 175degC, I_c = 30A



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