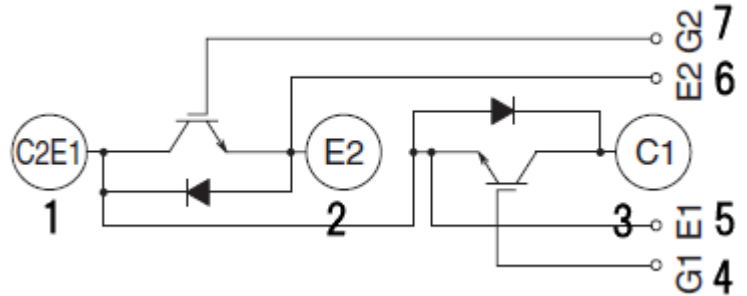


PSpice Model Nch IGBT Mitsubishi CM300DY-24NF



Model Information

Model An original macro model based on BSIM3 and Gummel-Poon model
Call Name MDC_CM300DY-24NF_PS
Pin Assign 1:C2E1 2:E2 3:C1 4:G1 5:E1 6:E2 7:G2
File List Model Library MDC_CM300DY-24NF_PS01.lib
 Model Report MDC_CM300DY-24NF_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 Feb. 2009
- Product name CM300DY-24NF
- Company name Mitsubishi Electric Corporation
- Characteristics $I_c V_{ce}[V_{ge}], V_{ce}(sat) I_c[TEMP], V_{ce}(sat) V_{ge}[I_c], I_{fv}[Temp], C_a$
 $pacitance V_{ce}[Cname], Switching I_{cc}[Tname], T_{rr} I_f, V_{ge} Q_g[V_{cc}]$
 $, Switching Waveform, T_{rr} Waveform$

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	1,200	V
Gate-emitter voltage (DC)	-20	to	20	V
Temperature	-40	to	125	deg C

IGBT

○ : Implemented
 × : Not Implemented
 — : Not applicable

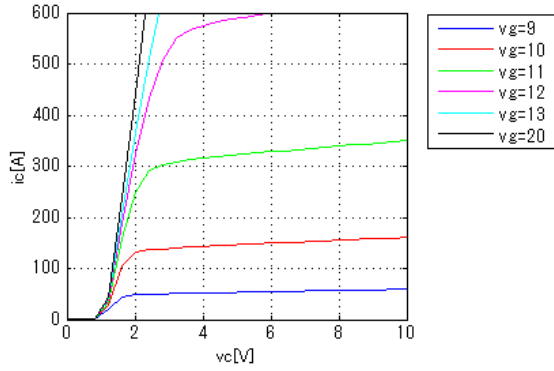
Model Functions Table
RANK=1

Functions	RANK	Implemented
DC Characteristics(with Temperature)	1	○
Capacitance	1	○
Gate Charge	1	○
Reverse recovery characteristics	1	○
Switching(Typ.) Inductor Load	1	○
trr	1	○

Simulation results are following.
 Explanatory notes — : simulated

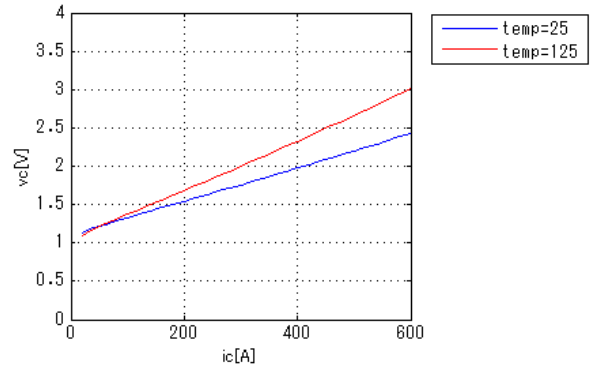
IcVce[Vge]

Temp. = 25deg C



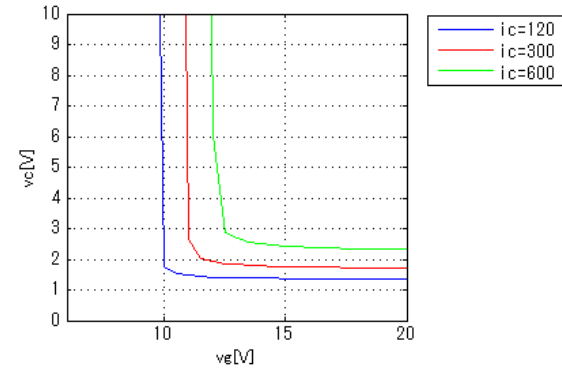
Vce(sat)Ic[TEMP]

Vge = 15V

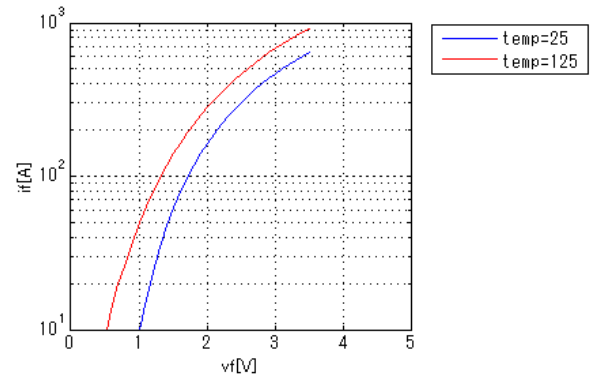


Vce(sat)Vge[Ic]

Temp. = 25deg C

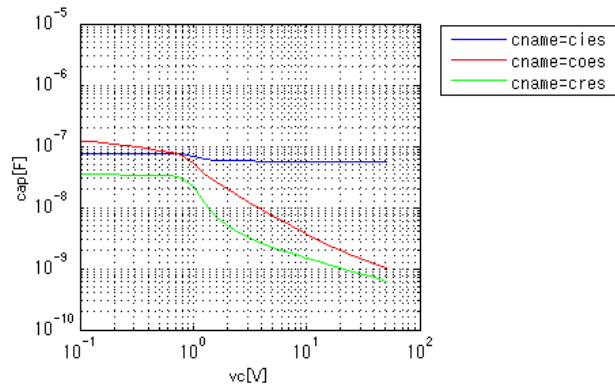


IfVf[Temp]



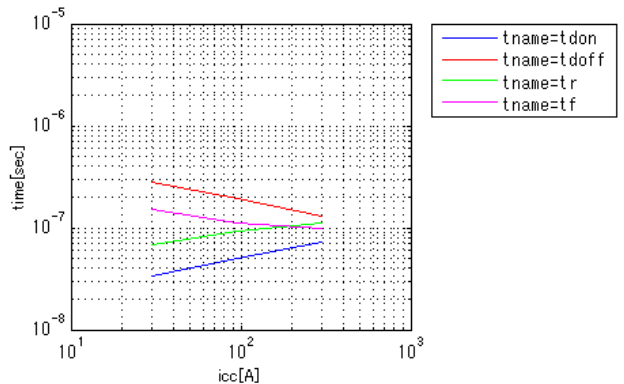
CapacitanceVce[Cname]

freq = 1000000Hz



SwitchingIcc[Tname]

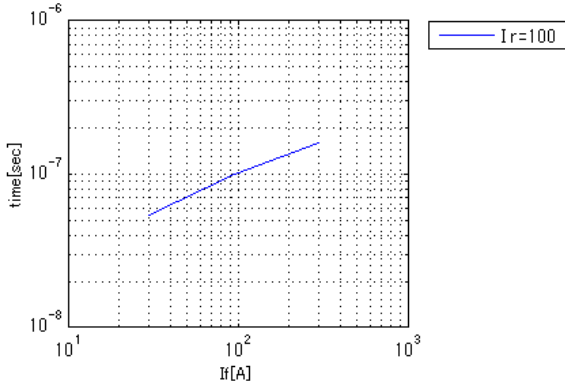
vge = 15V, vcc = 600V, RGG = 1ohm, Temp = 125degC



Simulation results are following.
 Explanatory notes — : simulated

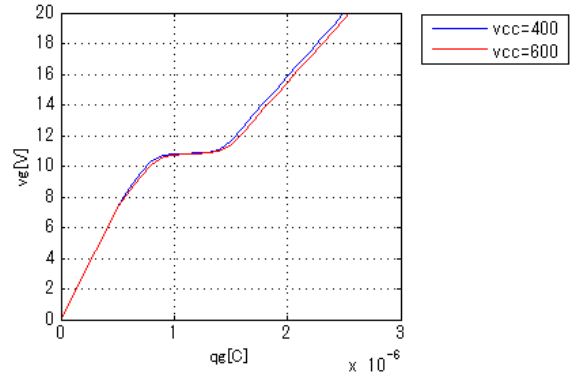
Trrlf

didt = 5000A/us, vcc = 600V



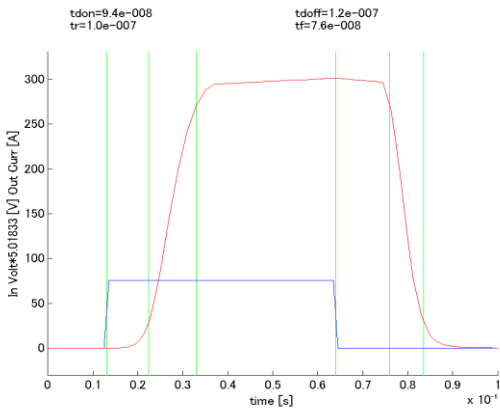
VgeQg[Vcc]

Ic = 300A



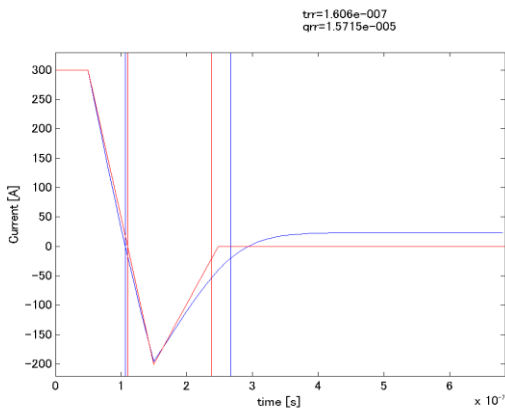
Switching Waveform (Blue : INPUT Red : OUTPUT)

v_{gg} = 15V, v_{cc} = 600V, R_{GG} = 1ohm, Temp = 125degC, I_c = 300A



Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 5000A/us, vcc = 600V, if = 300A, ir = 200A



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