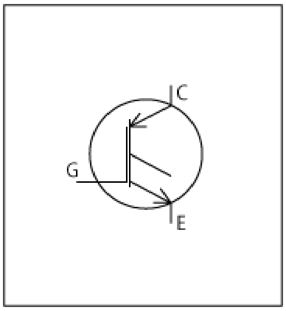
PSpice Model
Nch IGBT
ROHM
RGW60TS65D



Model Information

Model	An original macro model based on BSIM3 and Gummel-Poon model	
Call Name	MDC_RGW60TS65D_PS	
Pin Assign	1:G 2:C 3:E	
File List	Model Library	MDC_RGW60TS65D_PS01.lib
	Model Report	MDC_RGW60TS65D_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	2017.10 - Rev.A
●Product name	RGW60TS65D
●Company name	ROHM Co., Ltd.
●Characteristics	IcVce[Vge],IcVce[Vge]2,IcVge[Temp],VcesatTemp[Ic],Vce(sat)Vge[Ic],Vce(sat)Vge[Ic]2,SwitchingIcc[Tname],SwitchingRg[Tname],CapacitanceVce[Cname],VgeQg[Vcc],IfVf[Temp],TrrIf,TrrIf2,QrrIf,QrrIf2,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.	
Collector-emitter voltage (DC)	0	to	650	V
Gate-emitter voltage (DC)	-30	to	30	V
Temperature	-55	to	175	deg C

IGBT

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

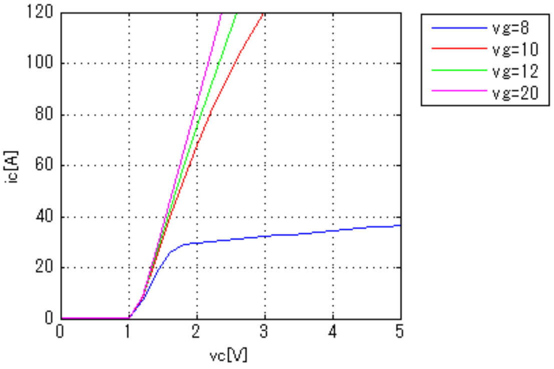
RANK=1

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

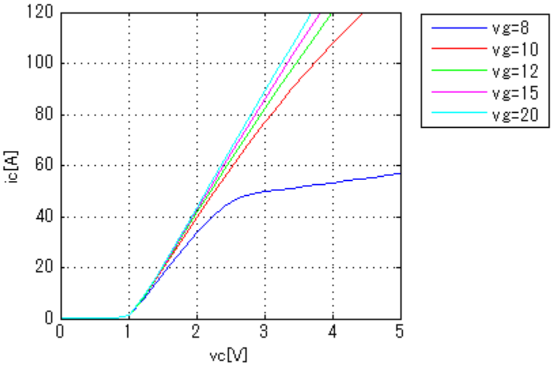
IcVce[Vge]

Temp. = 25deg C



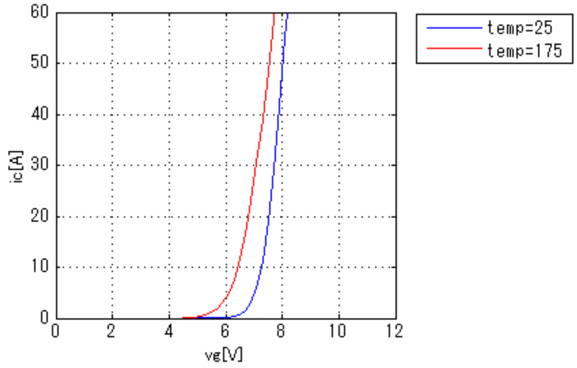
IcVce[Vge]2

Temp. = 175deg C



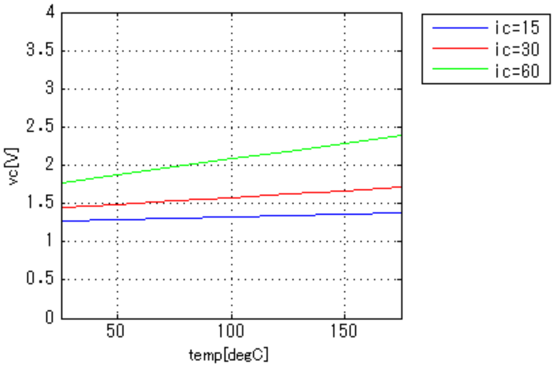
IcVge[Temp]

Vce = 10V



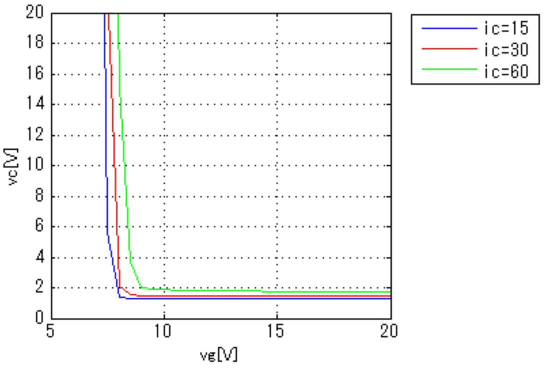
VcesatTemp[Ic]

vg = 15V



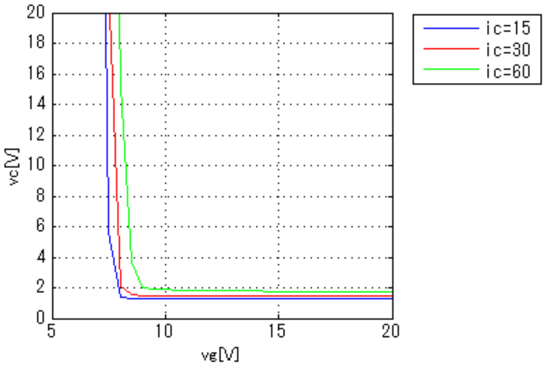
Vce(sat)Vge[Ic]

Temp. = 25deg C



Vce(sat)Vge[Ic]2

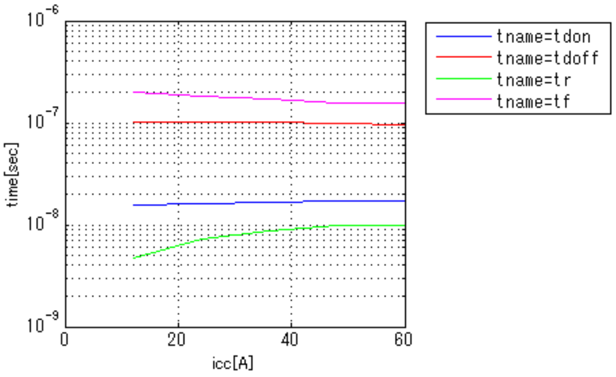
Temp. = 25deg C



Simulation results are following.
Explanatory notes — : simulated

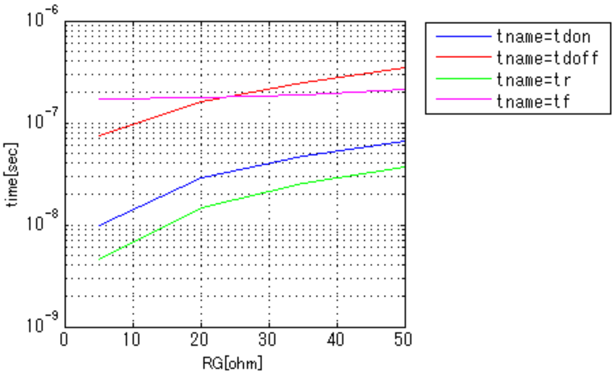
SwitchingIcc[Tname]

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



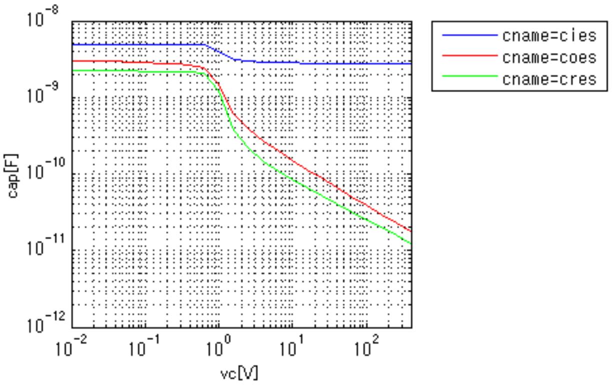
SwitchingRg[Tname]

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



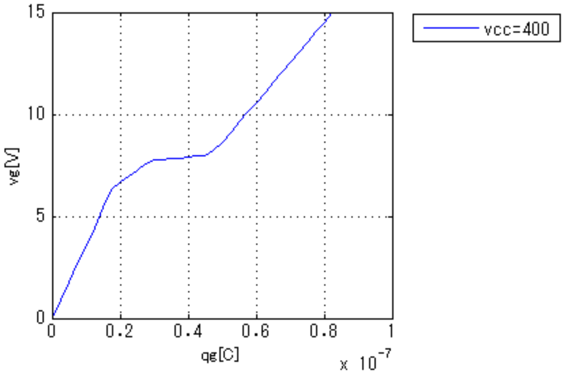
CapacitanceVce[Cname]

freq = 1000000Hz

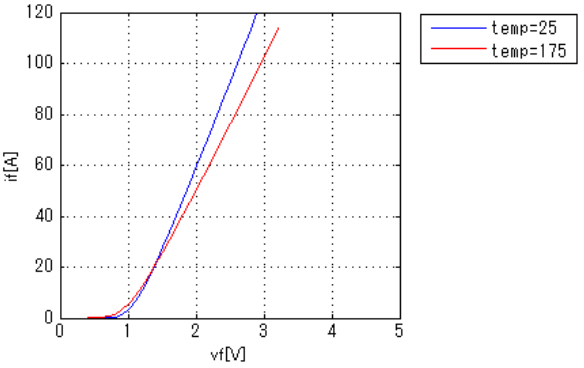


VgeQg[Vcc]

Ic = 30A

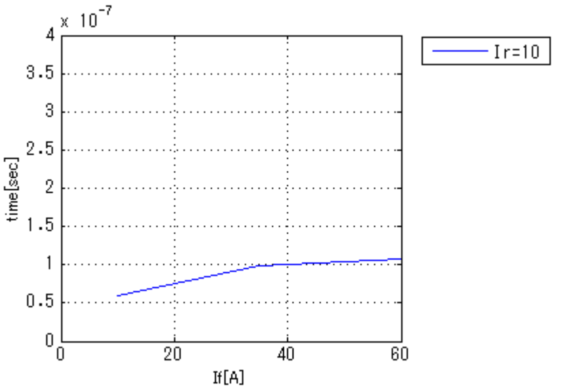


IfVf[Temp]



TrrIf

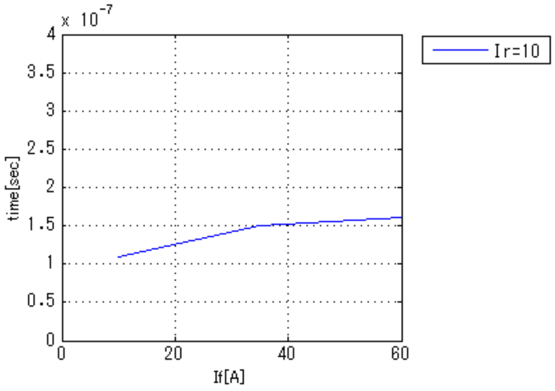
didt = 200A/us, vcc = 400V, temp = 25degC



Simulation results are following.
Explanatory notes — : simulated

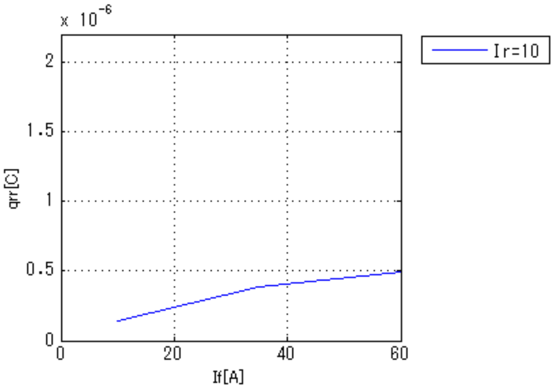
TrrIf2

didt = 200A/us, vcc = 400V, temp = 175degC



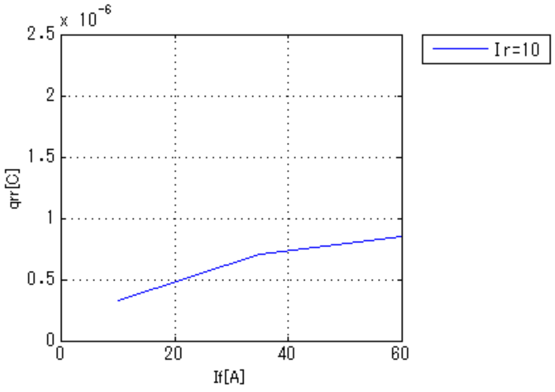
QrrIf

didt = 200A/us, vcc = 400V, temp = 25degC



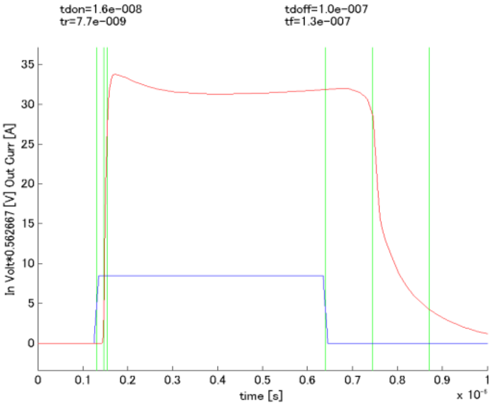
QrrIf2

didt = 200A/us, vcc = 400V, temp = 175degC



Switching Waveform (Blue : INPUT Red : OUTPUT)

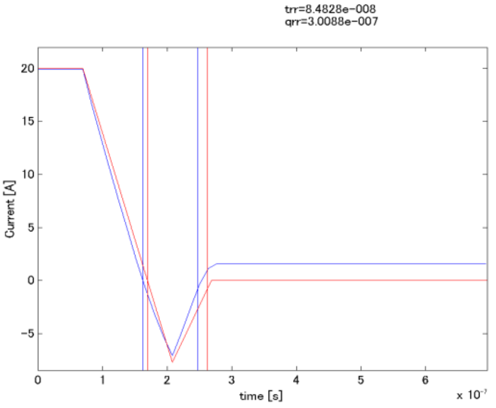
vgg = 15V, vcc = 400V, RGG = 10ohm, Temp = 175degC, Ic = 30A



Simulation results are following.
Explanatory notes　— : simulated

Trr Waveform (Red : Datasheet   Blue : Simulation)

didt = 200A/us, vcc = 400V, if = 20A, ir = 7.7A



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