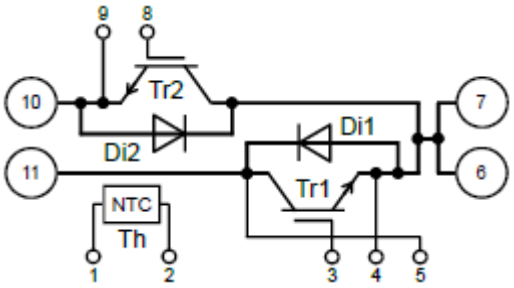
LTspice Model
Nch IGBT
Mitsubishi
CM600DX-24T

1. TH1
2. TH2
3. G1
4. Es1
5. Cs1
6. C2E1
7. C2E1
8. G2
9. Es2
10. E2
11. C1



Model Information

Model	An original macro model based on BSIM3 and Gummel-Poon model	
Call Name	MDC_CM600DX-24T_LT	
Pin Assign	3:G1 4:E1 5:C1 6:C2E1 7:C2E1 8:G2 9:E2 10:E2 11:C1	
File List	Model Library	MDC_CM600DX-24T_LT01.lib
	Model Report	MDC_CM600DX-24T_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: May 2022
- ●Product name: CM600DX-24T
- ●Company name: Mitsubishi Electric Corporation
- ●Characteristics: IcVce[Vge],Vce(sat)Ic[TEMP],VceVge[Ic],IfVf[Temp],SwitchingLloadIcc[Tname],CapacitanceVce[Cname],TrrIf,VgeQg[Vcc],VegQg[Vcc],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	1,200	V
Gate-emitter voltage (DC)	-20	to	20	V
Temperature	-40	to	125	deg C

IGBT

○ : Implemented
× : Not Implemented
— : Not applicable

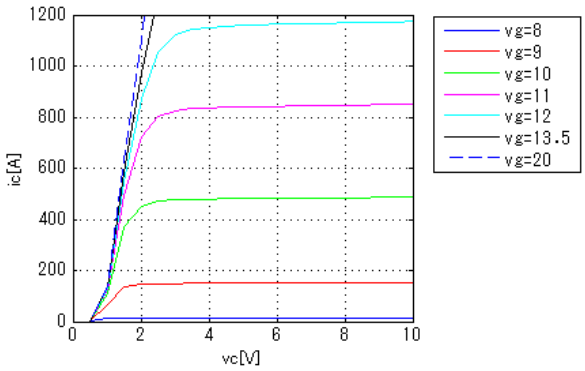
Model Functions Table

RANK=2

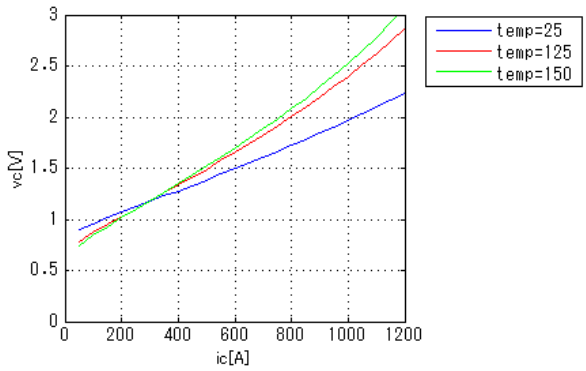
Functions	RANK	Implemented
IC-VCE-VGE	1	○
IC-VGE(Temp)	1	—
Vce(sat)	1	○
Capacitance	1	○
Gate Charge	2	○
IE-VEC(Diode Forward)	1	○
Reverse recovery	2	—
Switching(Typ.)	2	○
Vth	1	○

Simulation results are following.
Explanatory notes — : simulated

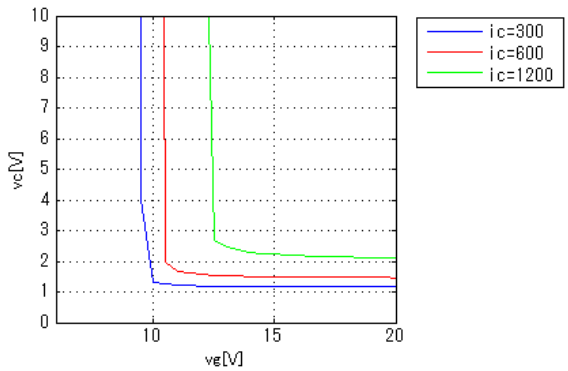
IcVce[Vge]
Temp. = 25deg C



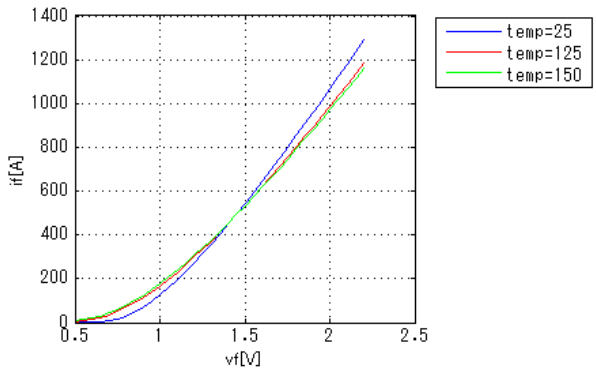
Vce(sat)Ic[TEMP]
Vge = 15V



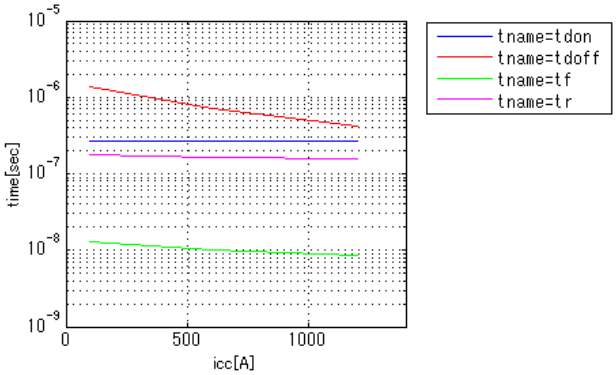
VceVge[Ic]
Temp. = 25deg C



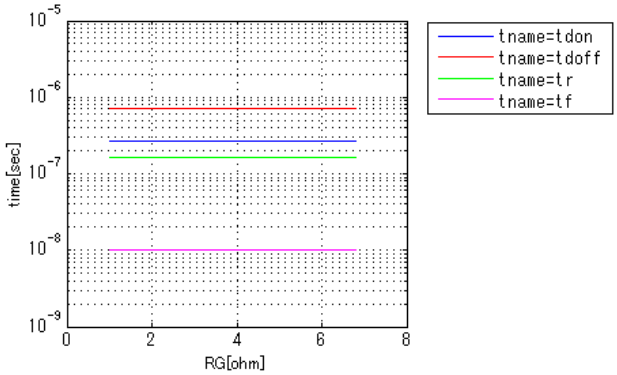
IfVf[Temp]



SwitchingLloadIcc[Tname]
vgg = 15V, vcc = 600V, RGG = 1ohm, Temp = 150degC



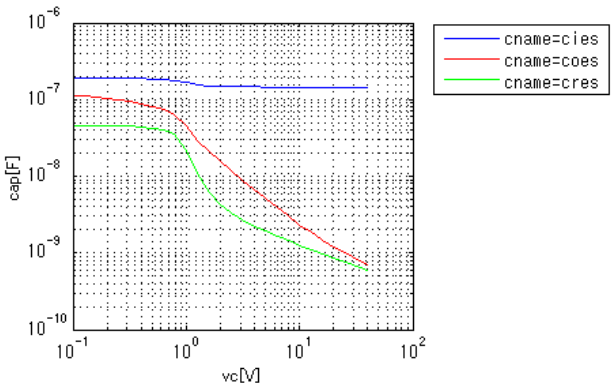
SwitchingLloadIcc[Tname]
icc = 600A, vgg = 15V, vcc = 600V, Temp = 150degC



Simulation results are following.
Explanatory notes — : simulated

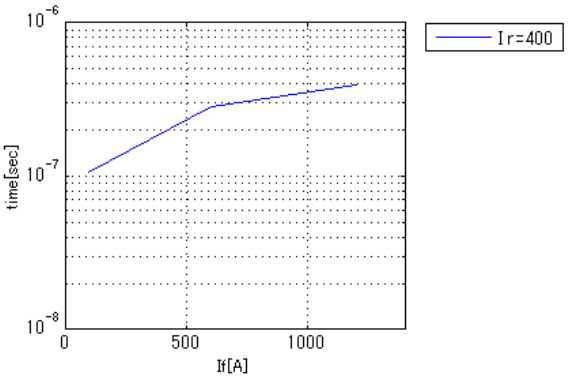
CapacitanceVce[Cname]

freq = 1000000Hz



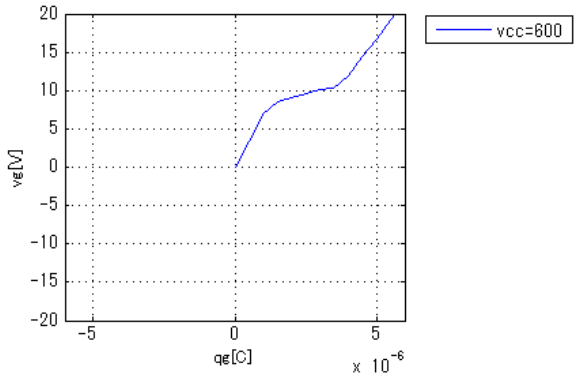
TrrIf

didt = 5000A/us, vcc = 600V, temp = 150degC



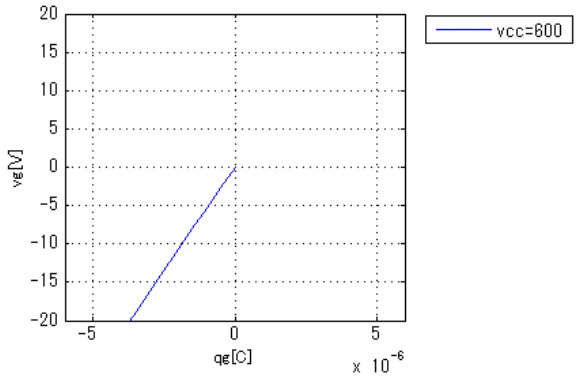
VgeQg[Vcc]

Ic = 600A



VegQg[Vcc]

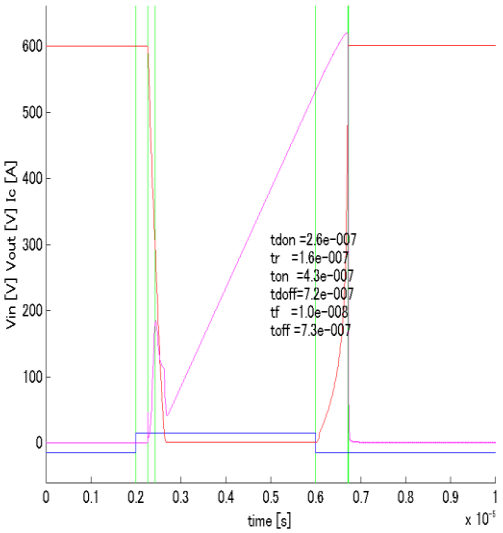
Ic = 600A



Simulation results are following.
Explanatory notes — : simulated

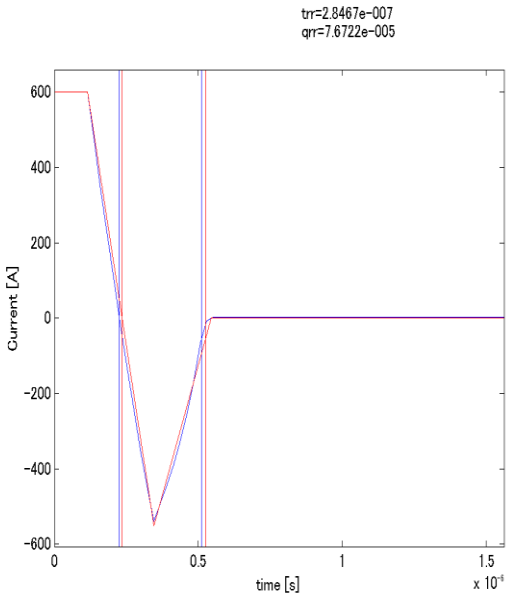
Switching Waveform (Blue : INPUT Red : OUTPUT Magenta : ICC)

vgg = 15V, vcc = 600V, RGG = 1ohm, Temp = 150degC, Icc = 600A



Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 5000A/us, vcc = 600V, temp = 150degC, if = 600A, ir=530A



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