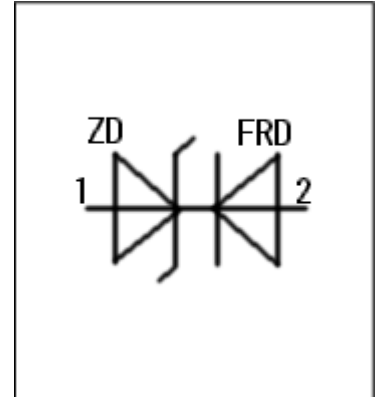


LTspice Model

ESD Protection Diode

SHINDENGEN

ST03DH-240



Model Information

Model A macro model based on general SPICE diode model
Call Name MDC_ST03DH-240_LT
Pin Assign 1:A(ZD) 2:A(FRD)
File List Model Library MDC_ST03DH-240_LT01.lib
 Model Report MDC_ST03DH-240_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 2012.06
- Product name ST03DH-240
- Company name Shindengen Electric Manufacturing Co., Ltd.
- Characteristics BvTemp,IrTemp[Vr],IfTemp[Vf],CjFreq[Vr],CjFreq[Vf],CjVr,CjVf,IrVr[Temp],IfVf[Temp],Trrlrf

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.	
Forward Voltage	0	to	200 1000	V
Temperature	-40	to	150	deg C

Diode

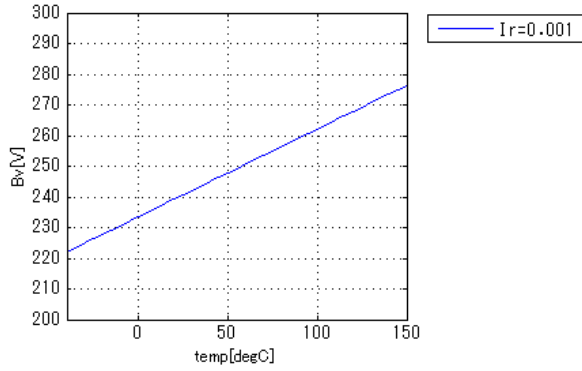
○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table
RANK=1

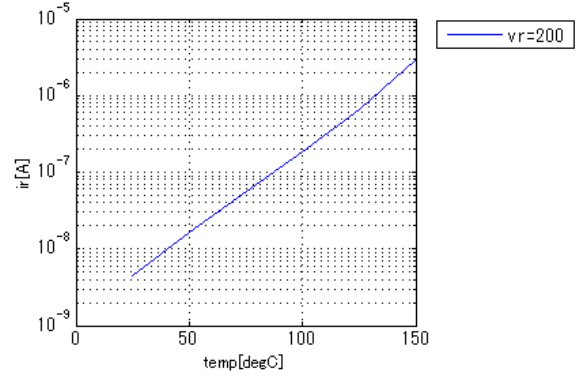
Functions	RANK	Implemented
IF-VF(Temp)	1	—
IR-VR(Temp)	1	○
Capacitance	1	○
Reverse recovery characteristics	1	○
Zz-Iz	1	—
Rectification characteristics(Bridge)	1	—
Surge-Transient	1	○
tlp	1	—

Simulation results are following.
 Explanatory notes — : simulated

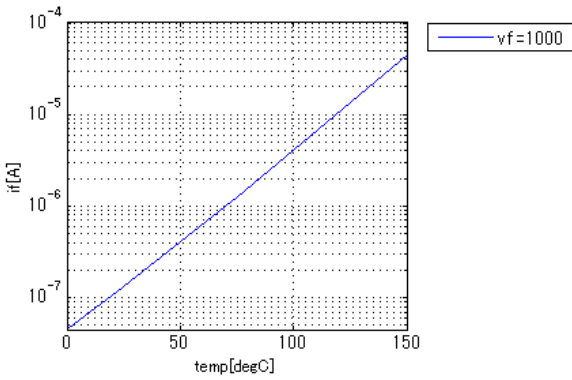
BvTemp



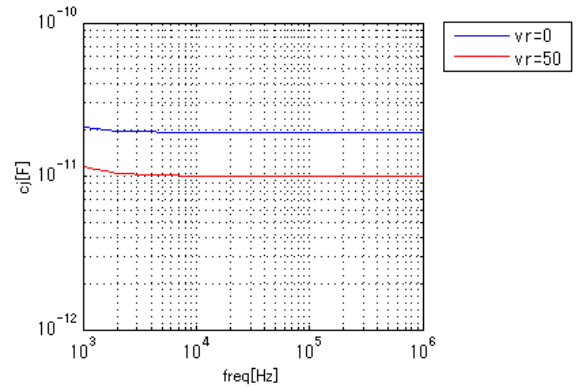
IrTemp[Vr]



IfTemp[Vf]

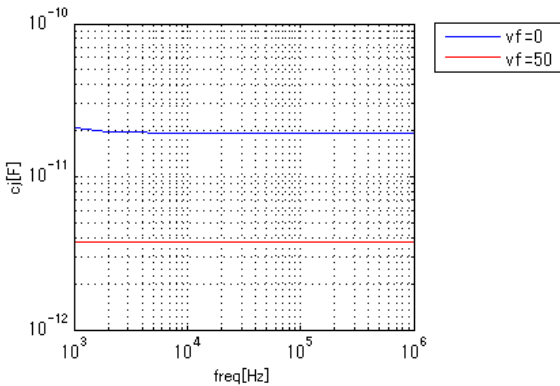


CjFreq[Vr]



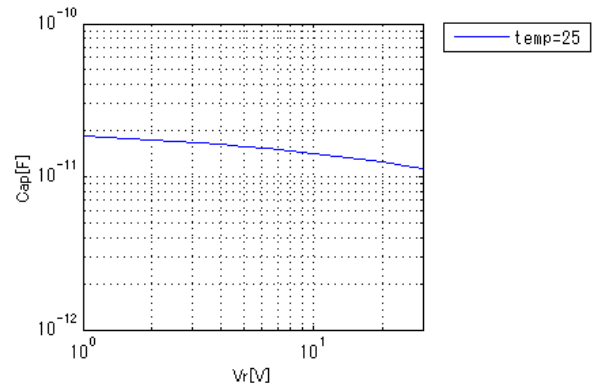
CjFreq[Vf]

Temp = 25degC



CjVr

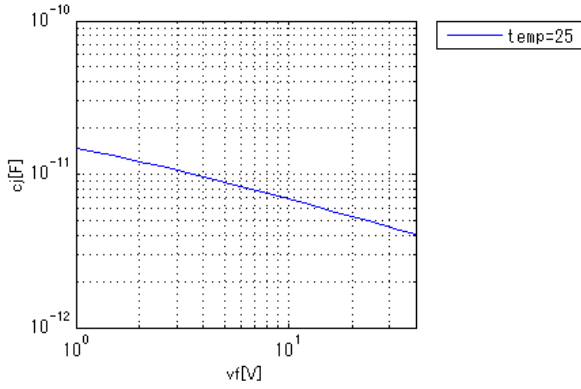
Freq = 100000Hz



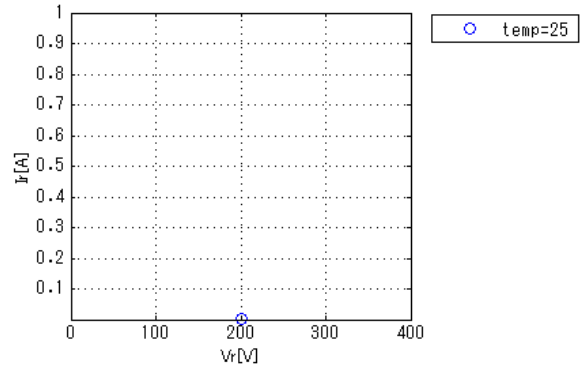
Simulation results are following.
 Explanatory notes — : simulated

CjVf

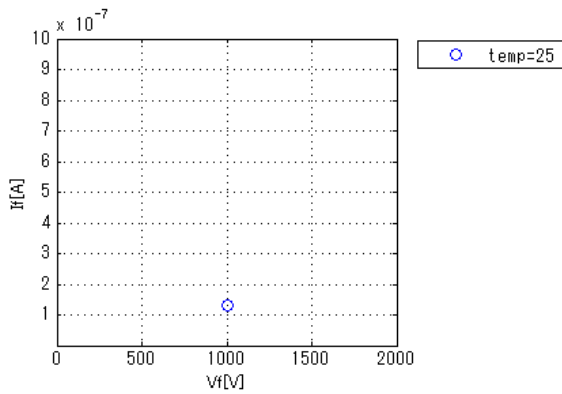
Freq = 1000000Hz



IrVr[Temp]

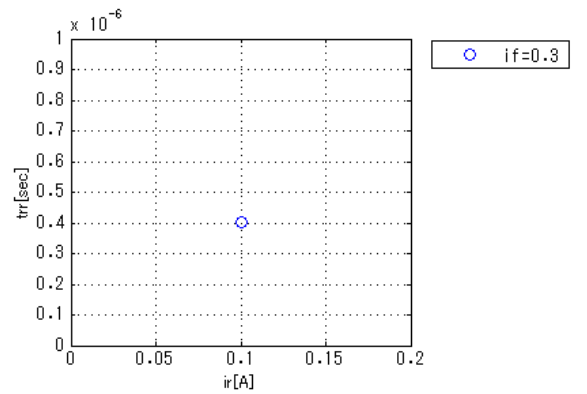


IfVf[Temp]



TrrIrIf

iff = 0.01A, didt = 2A/us

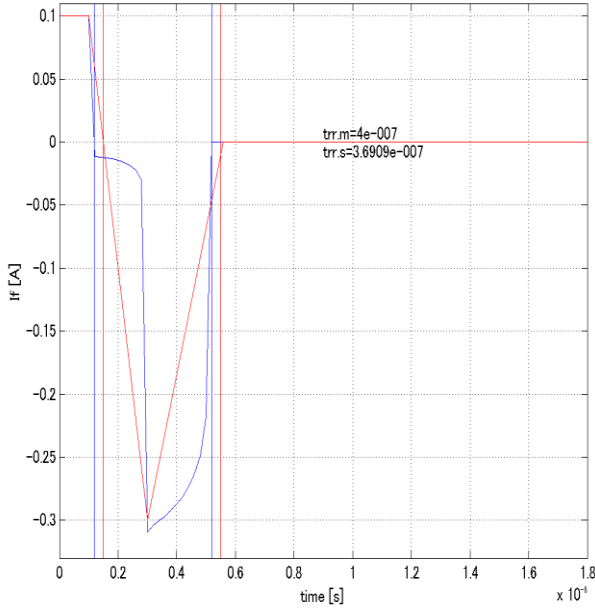


Simulation results are following.

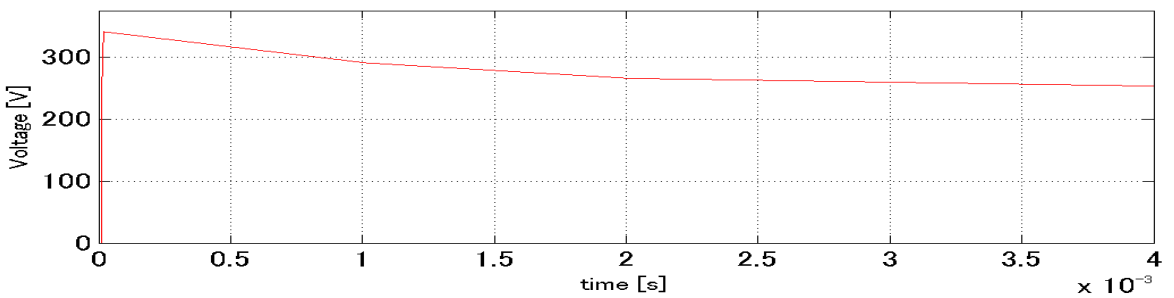
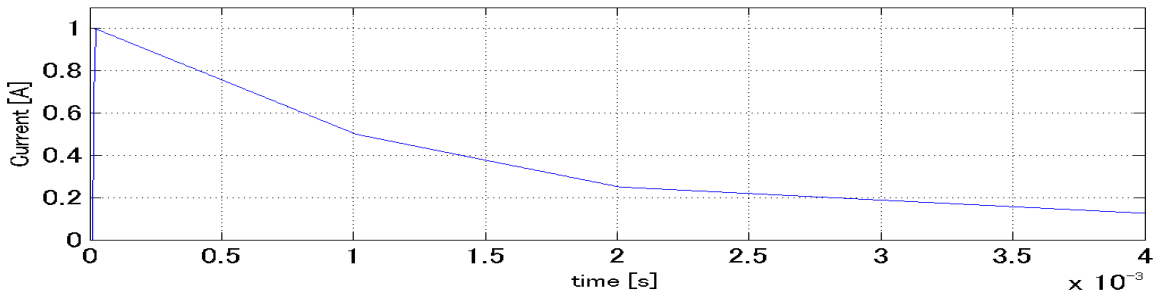
Explanatory notes — : simulated

Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 2A/us, ir = 0.1A, if = 0.3A, iff = 0.01A



Surge Current Waveform (Reverse 10u/1000u)



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