

ADS Model

Fast Recovery Diode

SHINDENGEN

SG5L20USM



Model Information

Model A macro model based on general SPICE diode model
Call Name MDC_SG5L20USM_AD
Pin Assign 1:C 2:A
File List Model Library MDC_SG5L20USM_AD.zip
 Model Report MDC_SG5L20USM_AD.pdf (this file)

Verified Simulator Version ADS version 2022 Update 1
Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 2010.06
- Product name SG5L20USM
- Company name Shindengen Electric Manufacturing Co., Ltd.
- Characteristics IfVf[Temp],CjVr,IrVr[Temp],Trrlflr,TrrWaveform,SurgeWaveform

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.	
Reverse Voltage	0	to	200	V
Temperature	-55	to	150	deg C

Diode

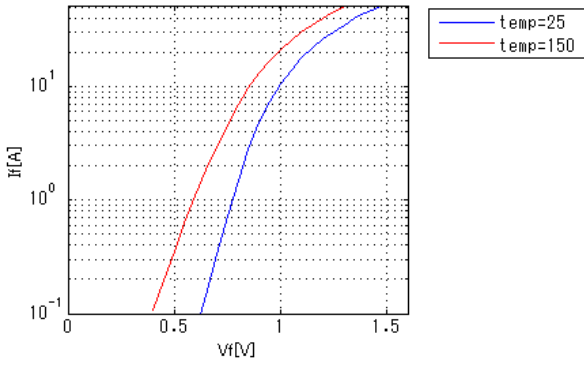
○ : Implemented
× : Not Implemented
— : Not applicable

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 Current-Transient	1	○

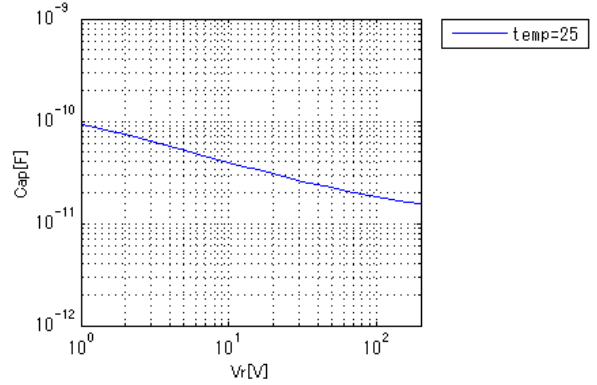
Simulation results are following.
 Explanatory notes — : simulated

IfVf[Temp]

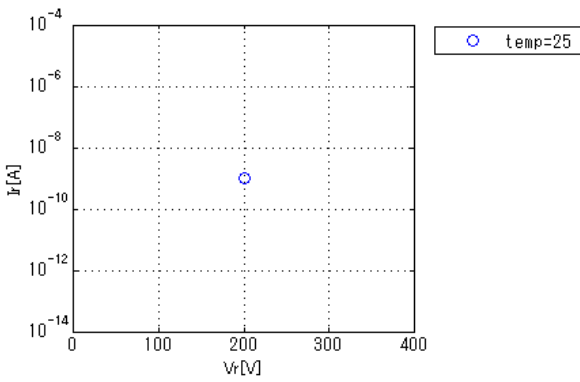


CjVr

Freq = 1000000Hz

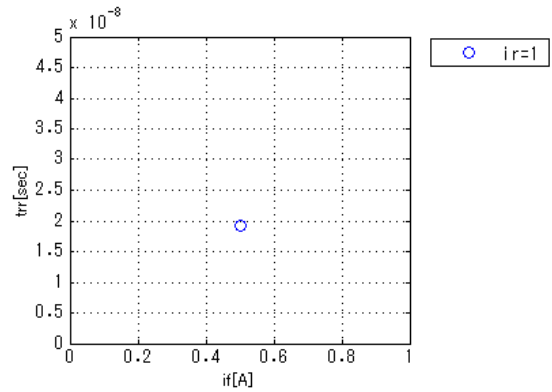


IrVr[Temp]



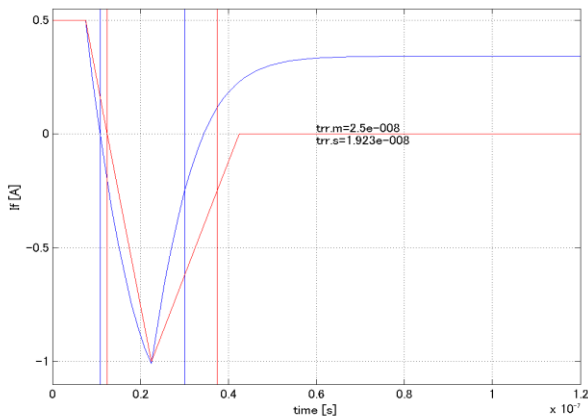
TrrIfIr

irr = 0.25A, didt = 100A/us



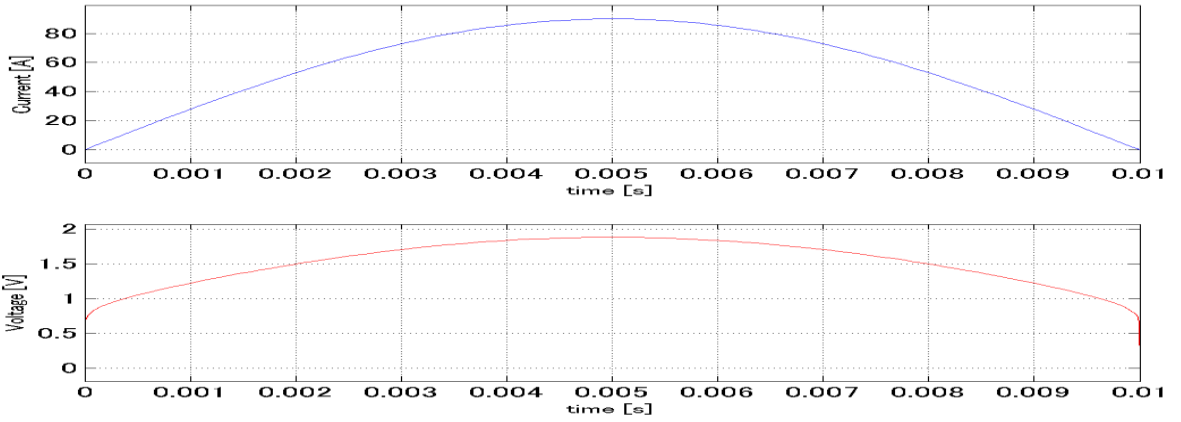
Trr Waveform (Red : Datasheet Blue : Simulation)

didt = 100A/us, if = 0.5A, ir = 1A, irr = 0.25A



Simulation results are following.
Explanatory notes — : simulated

Surge Current Waveform (Forward Sine Half 50Hz)



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