

# LTspice Model

## Fast Recovery Diode

### SHINDENGEN

### S3L20U



#### Model Information

**Model** A macro model based on general SPICE diode model  
**Call Name** MDC\_S3L20U\_LT  
**Pin Assign** 1:C 2:A  
**File List** Model Library MDC\_S3L20U\_LT01.lib  
 Model Report MDC\_S3L20U\_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 Rev.01(2020.01)
- Product name S3L20U
- Company name Shindengen Electric Manufacturing Co., Ltd.
- Characteristics IfVf[Temp],CjVr,IrVr[Temp],TrrIfr,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	-40	to	150	deg C

## Diode

○ : Implemented  
× : Not Implemented  
— : Not applicable

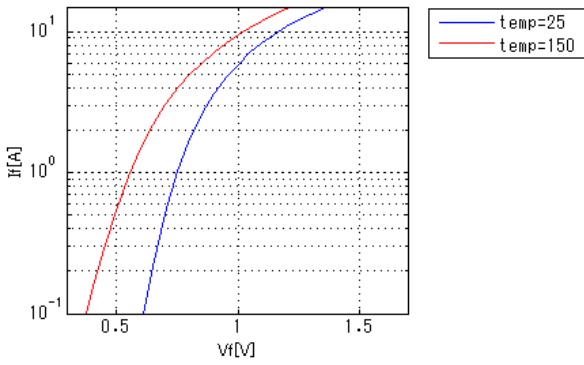
**Model Functions Table**

RANK=1

Functions	RANK	Implemented
IF-VF(Temp)	1	○
IR-VR(Temp)	1	○
Capacitance	1	○
Reverse recovery characteristics	1	○
Rectification characteristics(Bridge)	1	—
Surge voltage-Transient	2	—

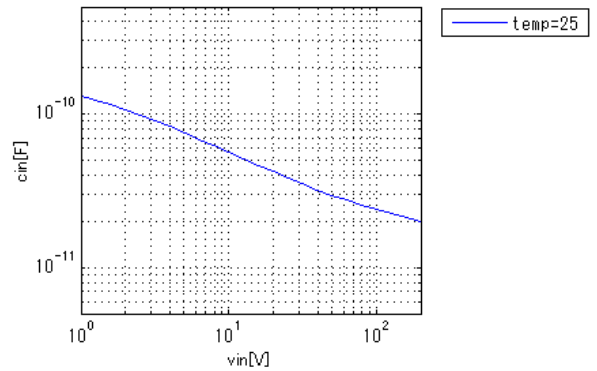
Simulation results are following.  
 Explanatory notes — : simulated

**IfVf[Temp]**

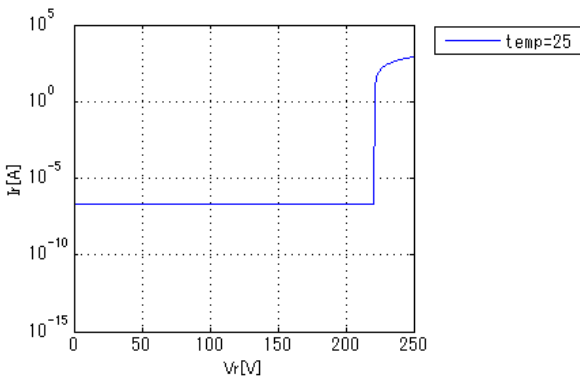


**CjVr**

Freq. = 1MHz

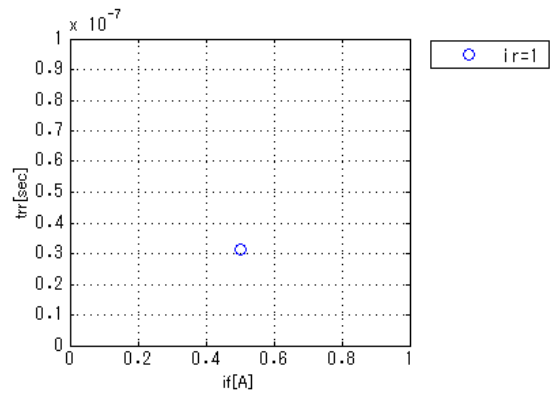


**IrVr[Temp]**



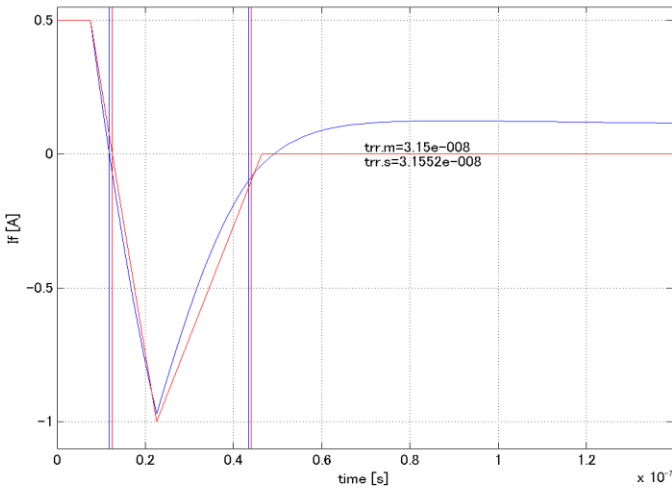
**TrrIfIr**

Irr. = 0.1A, didt. = 100A/us



**Trr Waveform ( DATASHEET : Red SIMULATION : Blue )**

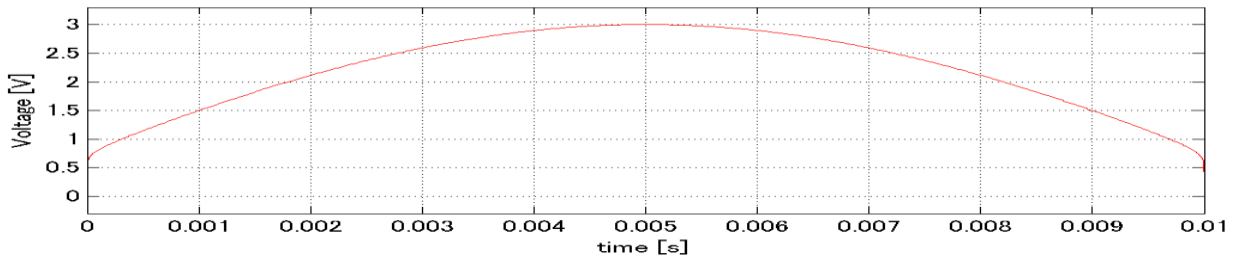
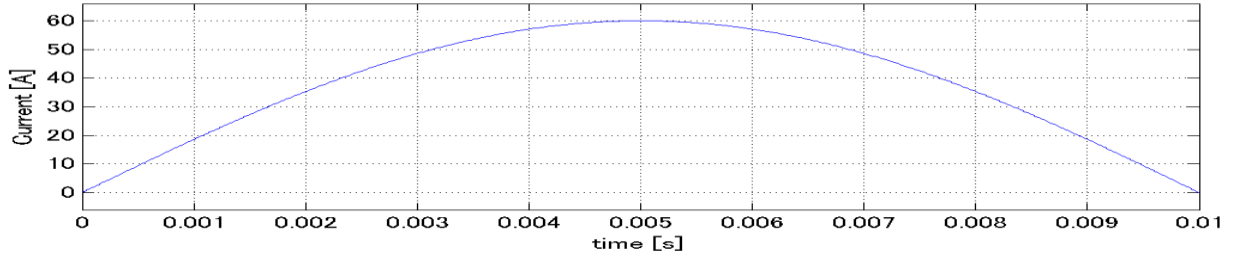
If = 0.5A, Ir = 1A, Irr. = 0.1A, didt. = 100A/us



Simulation results are following.  
Explanatory notes — : simulated

### Surge Waveform

Half Sine 50Hz



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