Using eGaN FET SPICE Models in SIMetrix/SIMPLIS Quick Start Guide

User Instructions

Revision 1.0



SIMETRIX / SIMPLIS

elements

DESCRIPTION

This document provides instructions on how to implement eGaN FET SPICE models in SIMetrix/SIMPLIS for circuit simulation. The simulation models of eGaN FETs can be installed into the SIMetrix/SIMPLIS simulator for evaluating device performance. The detailed SPICE model installation process is described in the user manuals [1]–[3].

Follow the next steps for the full model installation procedure of eGaN FETs.

A. Install eGaN FET SPICE models

- 1. Download the PSPICE model from the product page of EPC website http://epc-co.com/epc/Products/. Save the model using a text editor.
- 2. Save the PSPICE model in a directory with a filename suffixed with "**.lib**". For example, the filename can be "**EPC2001C.lib**".
- 3. In the schematic main window, select File → Model Library → Add/ Remove Libraries. Select the folder where the simulation model libraries created in Step 2 is located. Select the items to be installed in Available Libraries and add them to the Currently Selected Libraries. Another easy way for this step is pick up the files in Step 2 and drop it into the message window of the Simetrix command shell. The models are installed successfully if no error is reported in the command shell.

Select Libraries Currently Selected Libraries	
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Remove Add	
	<u>Ok</u> <u>C</u> ancel

B. (Optional) Create the corresponding schematic symbol of the device

For convenient use of the model in the circuit schematic, a corresponding schematic symbol of the device is necessary. EPC provides a schematic symbol for eGaN FET products. It is stored as a symbol file named "eGaN_FET.sxslb". This is optional since a device symbol can be auto created in next steps but it is recommended.

If the user chooses to use the recommended schematic symbol from EPC, select File \rightarrow Model Library \rightarrow Symbol Manager to add the symbol stored in "eGaN_FET.sxslb" into the Symbol Library.

SIMPLIS_BB.sxslb simplis_analog_functions.sxslb zetex-circ-sim.sxslb system.sxslb default.sxslb simplis_discrete_time_filters.sxsl eGaN_FET.sxslb Create	Symbols eGaN_FET.sslb Semiconductors GaNFET eGaN Plete Copy Create

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C. Associate the model(s) with a schematic symbol

1. Select File \rightarrow Model Library \rightarrow Associate Models and Symbols and select the device model(s) recently added.

- 2. A new category called **eGaN_FET** is added.
- 3. If Step B has been performed, then the symbol called eGaN can be selected in the "**Define Symbol**" section. If not, click "**Auto Create Symbol**" to create a new symbol for the device.
- 4. Click OK to complete the process of associating the model(s) with a schematic symbol.

🖌 Associate Models and Symbols		? ×
Select Devices	Choose Category	
* All User Models *	eGaN_FET	▼ New Category
EPC2047	Define Symbol	
	eGaN	 Auto Create Symbol
	Pin order	
	gate drain source	· · · · · · · · · · · · · · · · · · ·
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Electrical Model - EPC2047		
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	Apply Changes Ok	ancel <u>H</u> elp

D. Draw the circuit schematic

A simple resistive switching circuit schematic is plotted as an example.



E. Run simulation

The simulation of a circuit using eGaN FET can be successfully performed after correctly following steps A–D.



References

[1]SIMetrix/SIMPLIS User's Manual Version 8.2, Feb. 2018.

[2]SIMetrix Simulator Reference Manual Version 8.2, Jan. 2018.

For More Information:

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