

SIMetrix/SIMPLIS® Library

User Manual

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Murata Manufacturing Co., Ltd.

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1. About this Manual



- This manual describes how to register part model libraries used in SIMetrix/SIMPLIS®, and provides examples on their use.
 - While the procedures described in this manual cover the necessary steps for operation, please be aware that slight changes to the operating procedure may apply depending on the operating environment in use.
 - The operating procedure described in this manual assumes the use of SIMetrix version 8.10 or later.

2. Operating Environment



- The operating procedure described in this manual is based on the following operating environment.
Please refer to the relevant manuals for the devices and software in use based on your operating environment.
 - OS: Windows 7 SP1
 - SIMetrix version: 8.10 (x 64) or later

3. (Preparation) Library Decompression and Saving

SIMatrix/SIMPLIS® library formats vary for static models and dynamic models. Both SIMatrix and SIMPLIS® use the “*****.LIB” file format for static models. Dynamic models can only be used with SIMatrix, and these files use the “*****.ENCR” file format. This manual refers to both of these file types as libraries. Dynamic/static model zip files can be downloaded from our website. In this example, ***** refers to the series part number for products manufactured and sold by Murata Manufacturing Co., Ltd. (hereafter, the Company).

[Preparation]

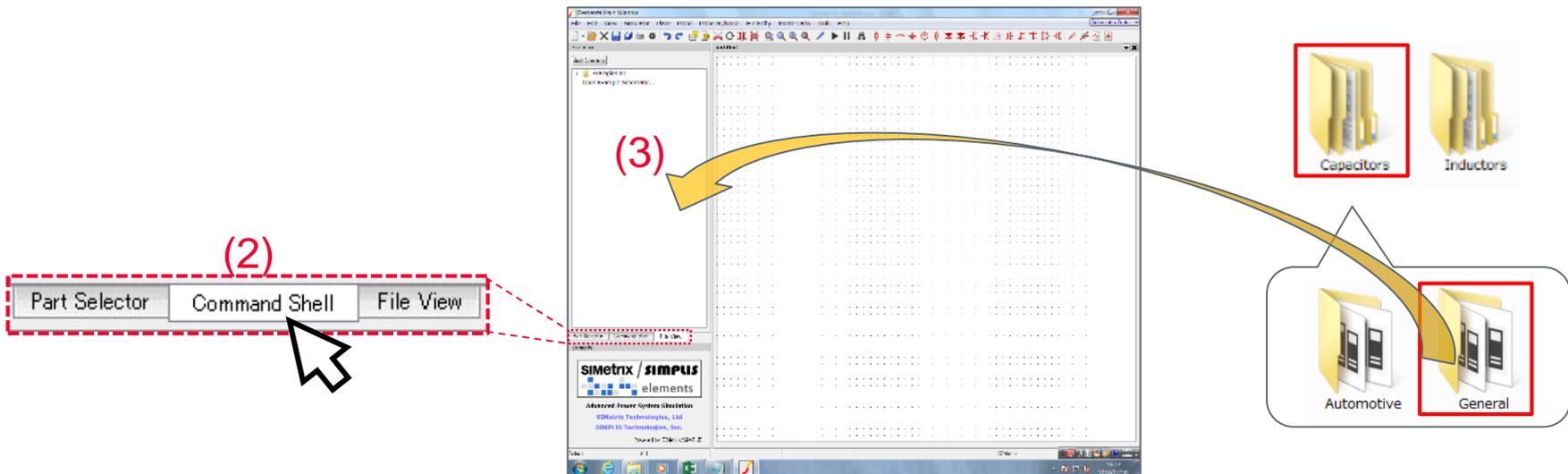
- (1) Unzip the downloaded zip file.
- (2) Save the “*****.LIB” or “*****.ENCR” file to a folder of your choice.
Do not move the “*****.LIB” or “*****.ENCR” file after the library has been imported. Doing so will cause an error to occur.
- (3) The zip file can be deleted after unzipping.

This ends the preparation phase.

4. Importing Models (1/2)

This section describes the procedure used to import unzipped static model libraries into SIMetrix/SIMPLIS®.

- (1) Launch SIMetrix.
- (2) On the bottom left of the SIMetrix screen, select [Command Shell].
- (3) Locate the [General] folder in the unzipped [Capacitors] folder, and drag and drop it into the [Command Shell] column.



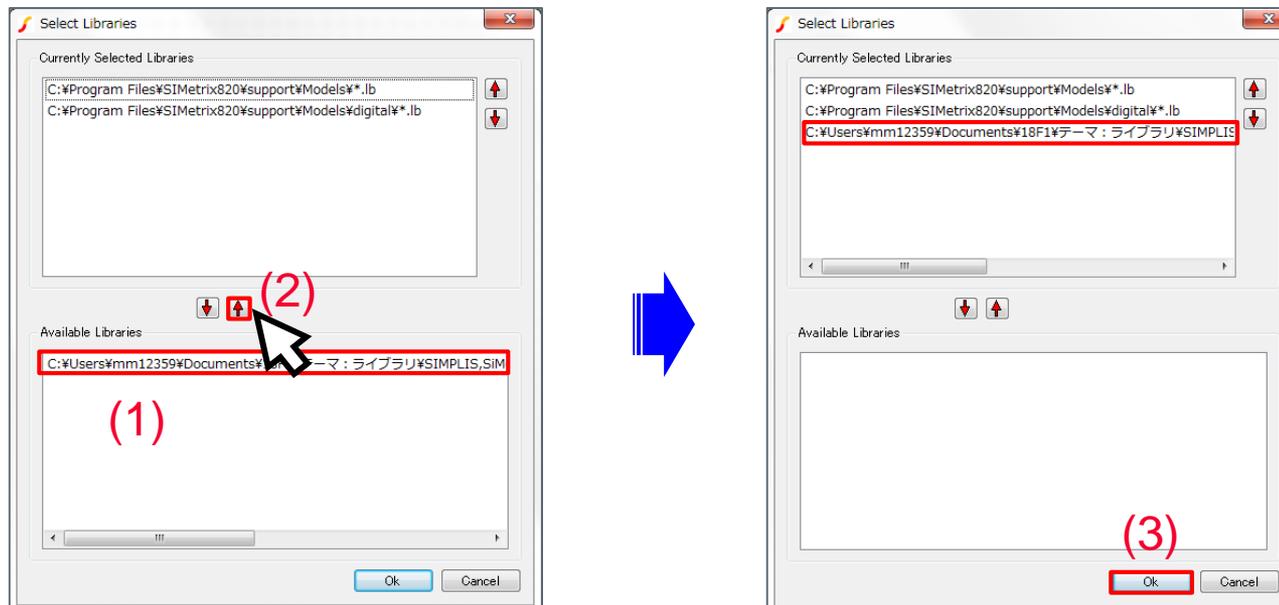
4. Importing Models (2/2)

(1) When the Select Libraries window appears, select the General folder you just dragged and dropped.

(2) Click the  button.

This will move the selected folder to the window above.

(3) Click the OK button. **This ends the import process.**



5. Calculating Impedance for Imported Models (1/12)

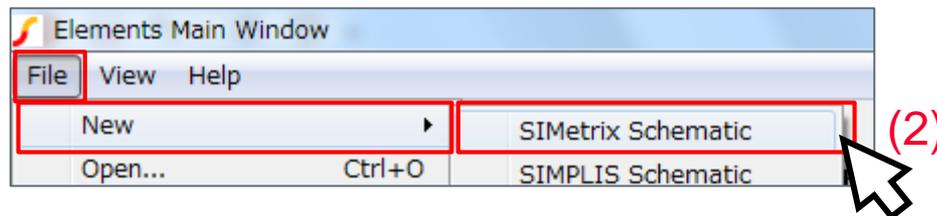
This section describes an example of analysis used to verify imported model operation.

In this example the impedance frequency characteristics of an MLCC are calculated.

First, we need to create a new circuit.

(1) Launch SIMetrix/SIMPLIS®.

(2) Select [File] -> [New] -> [SIMetrix Schematic].

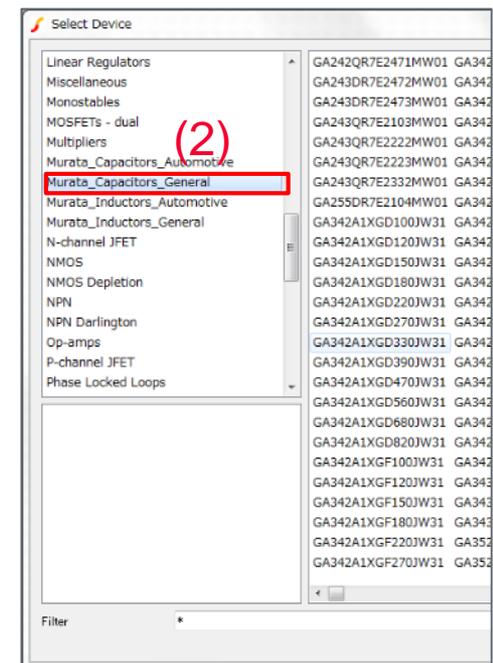
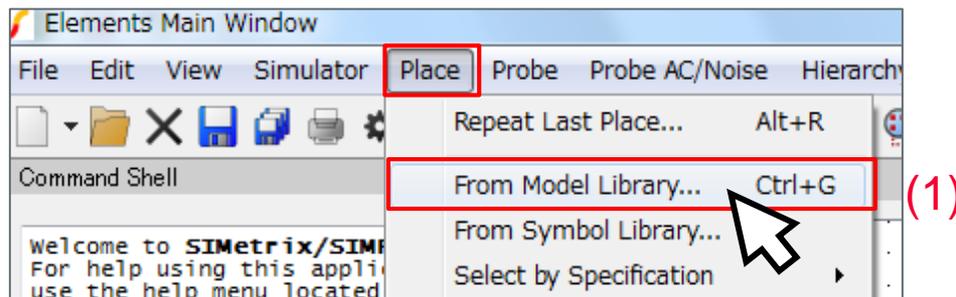


5. Calculating Impedance for Imported Models (2/12)

Next, you need to place the capacitor.

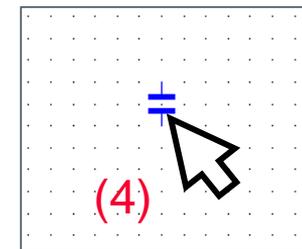
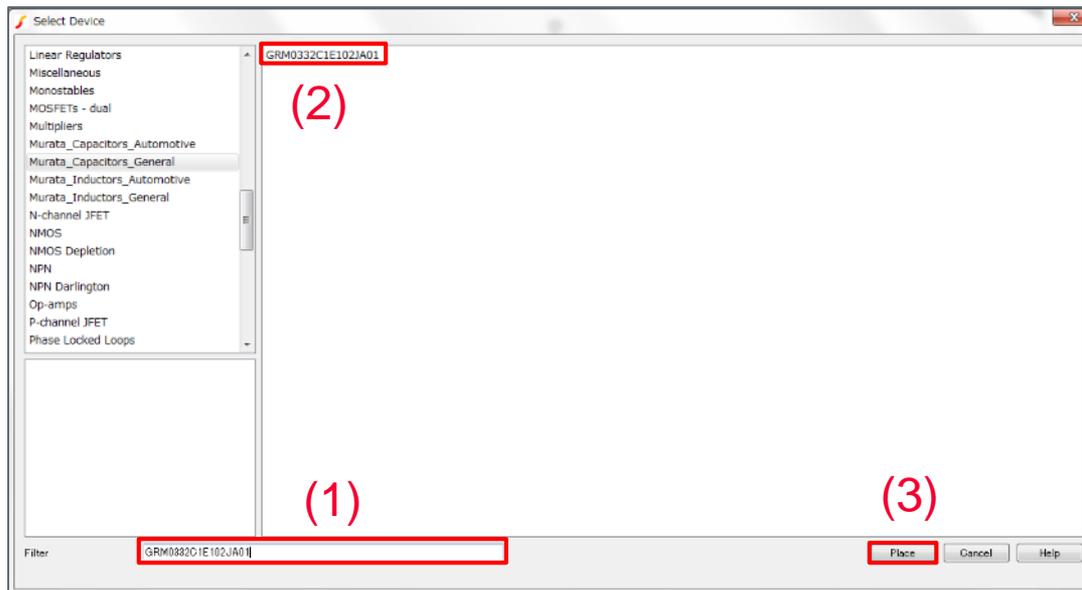
(1) Select [Place] -> [From Model Library...].

(2) When the Select Device window appears, select [Murata_Capacitors_General] from the left window column.



5. Calculating Impedance for Imported Models (3/12)

- (1) Enter “GRM0332C1E102JA01” in the Filter field.
- (2) Click “GRM0332C1E102JA01”.
- (3) Click the Place button.
- (4) An icon will appear on the Schematic Editor. Click this icon to place it.

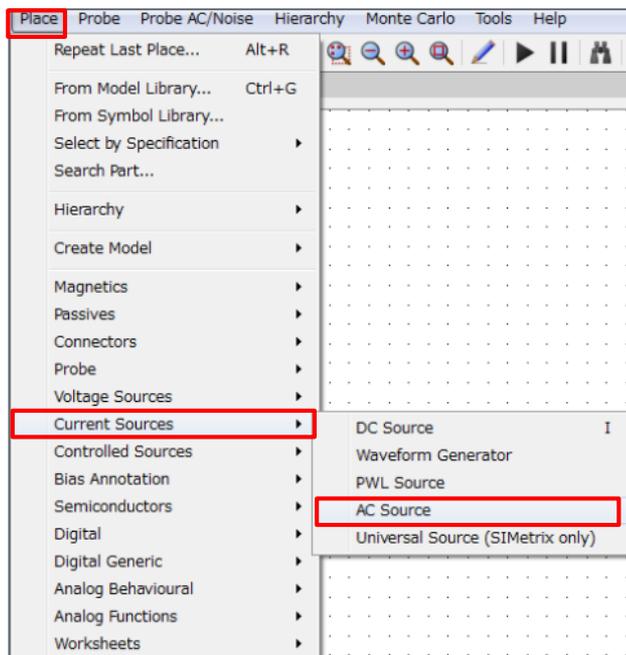


5. Calculating Impedance for Imported Models (4/12)

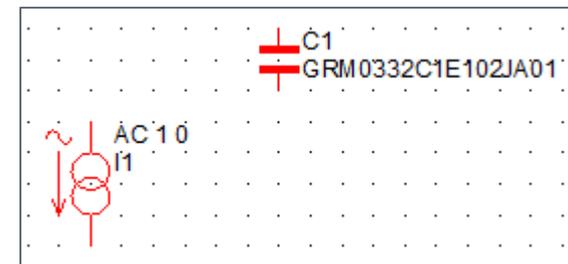
Next, you need to place a current source.

(1) Click [Place] -> [Current Sources] -> [AC Sources].

(2) An icon will appear on the Schematic Editor. Click this icon to place it.



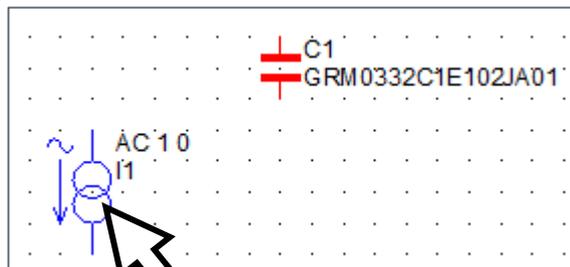
(1)



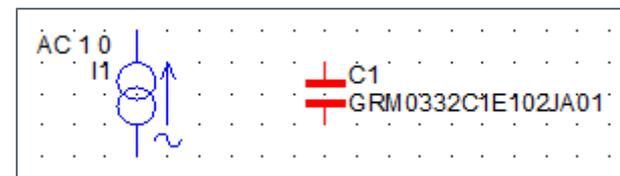
(2)

5. Calculating Impedance for Imported Models (5/12)

- (1) Click the current source. This will appear blue when selected.
- (2) Click the Rotate button twice to rotate the direction of the current source 180 degrees.

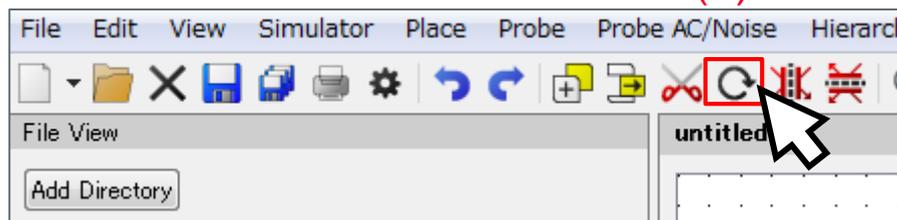


(1)



The arrow will now point upwards.

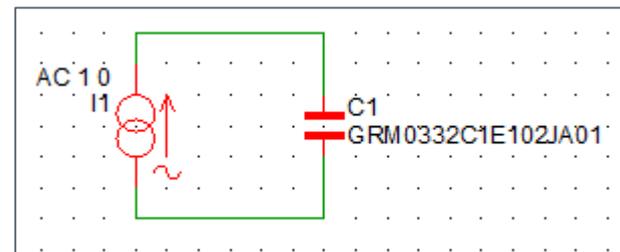
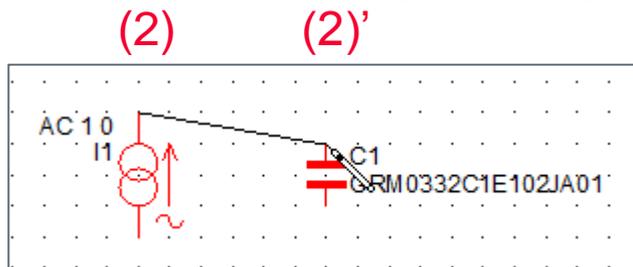
(2)



5. Calculating Impedance for Imported Models (6/12)

Connect the elements placed with a conducting wire.

- (1) Click a blank part of the Schematic Editor to deselect the current source. The current source will appear red when unselected.
- (2) Click the top of the current source. A line will now extend from the top of the current source. Move the cursor to the top of the capacitor (2)' and click again.
- (3) Right click to stop editing the conducting wire.
- (4) Connect the bottom of the current source to the bottom of the capacitor with a conducting wire in the same manner.
- (5) Right click to stop editing the conducting wire.



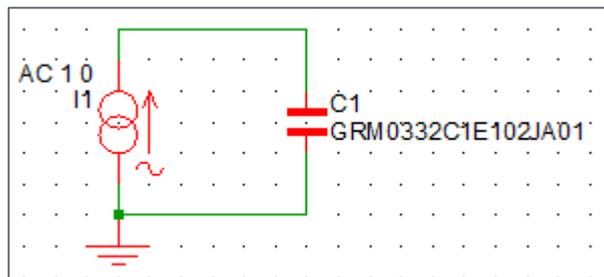
(4)

5. Calculating Impedance for Imported Models (7/12)

Next, place a ground element.

(1) Click the  icon on the toolbar.

(2) An icon will appear on the Schematic Editor. Place the ground element so that it connects to the bottom conducting wire.



(2)

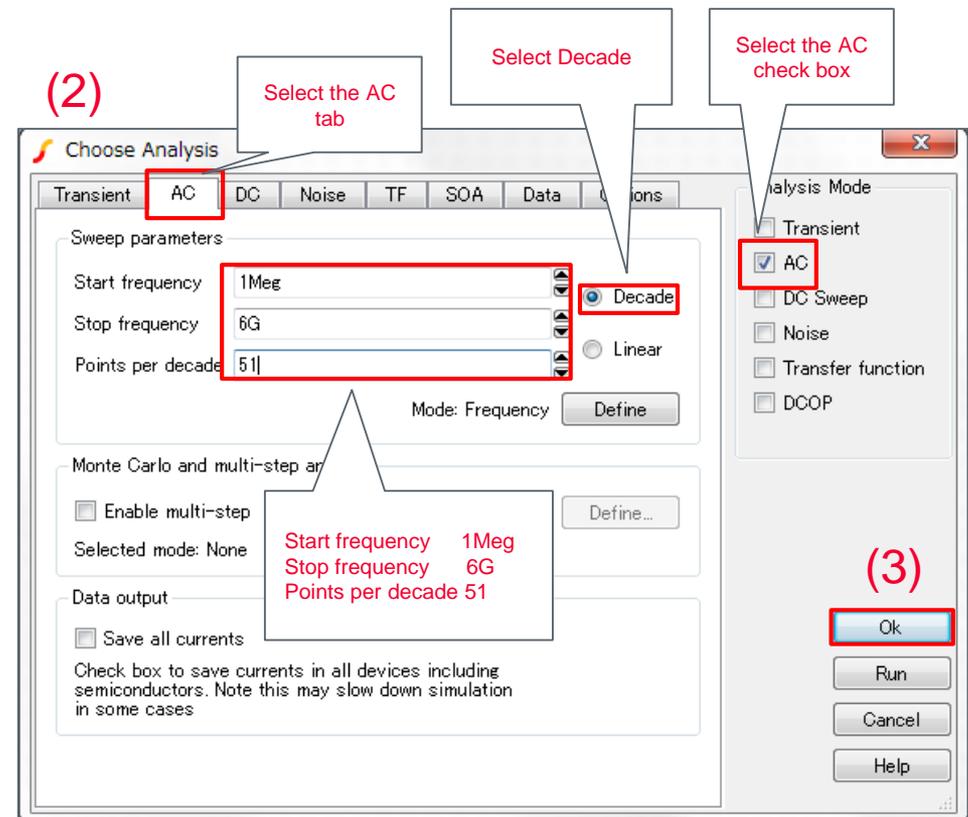
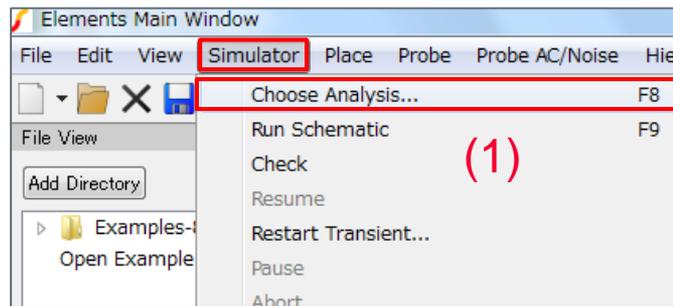
5. Calculating Impedance for Imported Models (8/12)

Next, set the analysis conditions.

(1) Click [Simulator] -> [Choose Analysis...].

(2) Enter the analysis conditions as shown in the diagram below.

(3) Click OK.

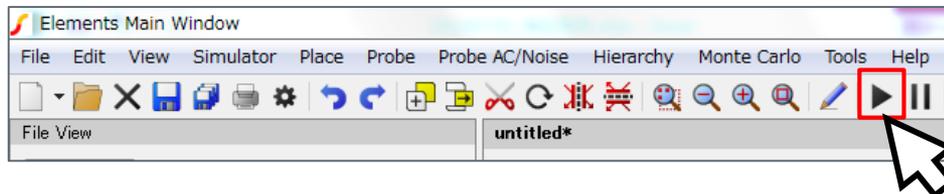


5. Calculating Impedance for Imported Models (9/12)

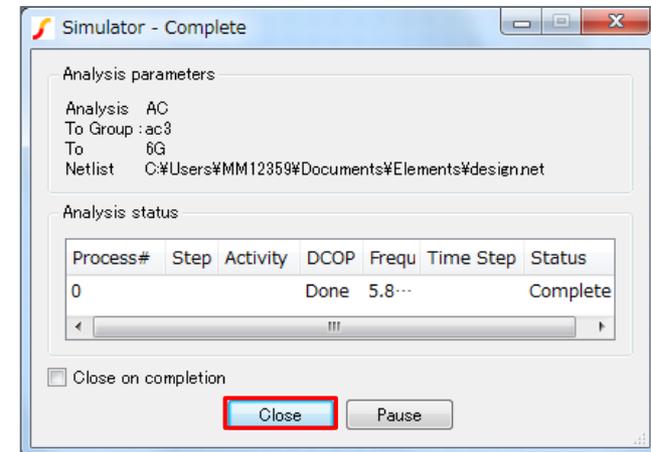
Next, run the analysis.

(1) Click the  button on the toolbar to start the analysis.

(2) The window shown on the bottom right will appear when the analysis ends. Click Close to proceed.



(1)



(2)

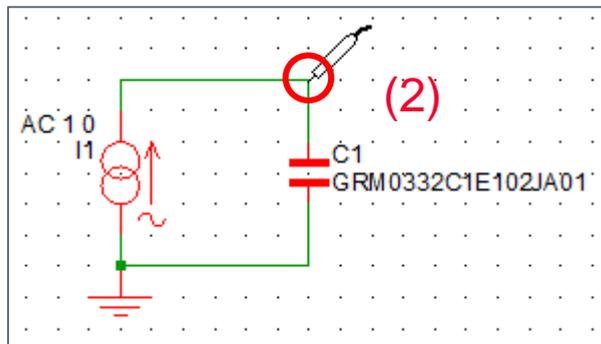
5. Calculating Impedance for Imported Models (10/12)

The analysis results will be displayed.

- (1) Select the voltage probe  from the toolbar.
- (2) Click the  position on the image.

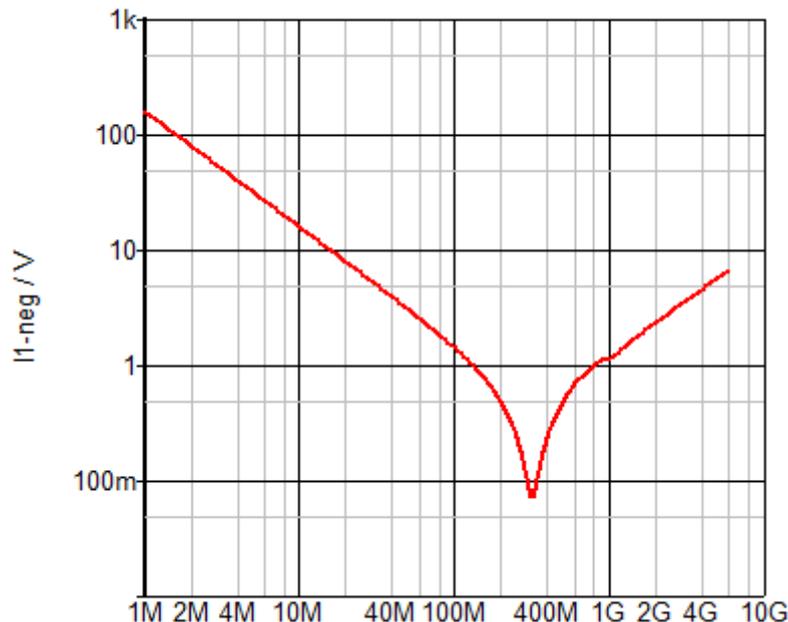


(1)



5. Calculating Impedance for Imported Models (11/12)

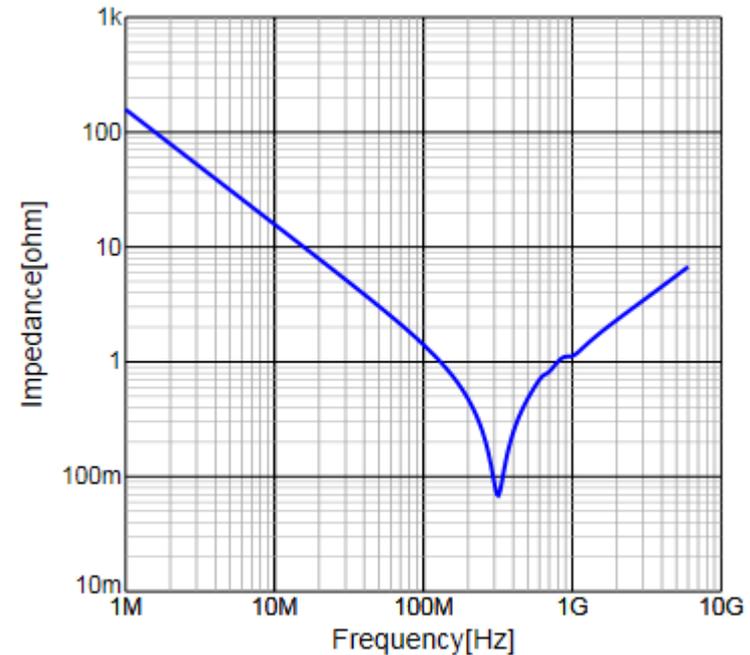
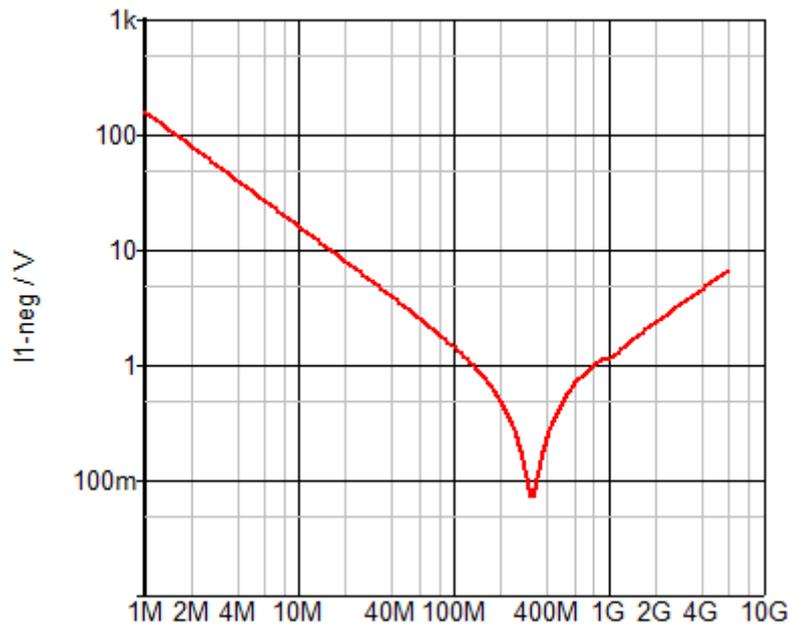
(1) A graph showing the voltage load on the conducting wire clicked will appear.



The horizontal axis shows the frequency, and the vertical axis represents the voltage load on the MLCC.

According to Ohm's law, $Z = \frac{V}{I}$, current source $I=1A$, $Z = V$ is used to show the impedance of the MLCC on the vertical axis.

5. Calculating Impedance for Imported Models (12/12)



The image on the left shows SIMetrix analysis results, and the image on the right shows the fundamental characteristic $[Z]$ for GRM0332C1E102JA01 in SimSurfing.

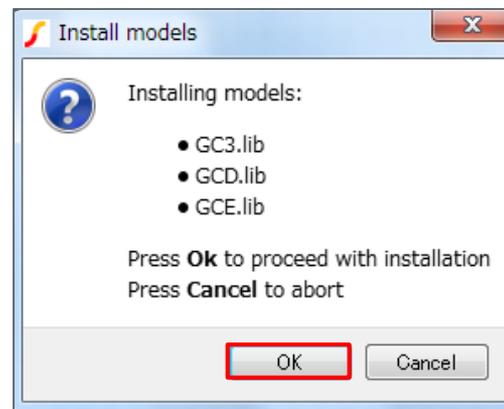
6. Notes Importing Single Series, Single Models

You can also import specific models and series without importing all models. (Note, however, that single static models cannot be imported).

(1) Select the [Command Shell] tab.

(2) Drag and drop the model or series file you wish to import into the [Command Shell].

(3) When the Install models window appears, click OK.



(3)

7. Inquiries

Please use the contact form on our website to send library-related inquiries.
(<https://www.murata.com/ja-jp/contactform>)

ホーム > Contact Form

Contact Form

* 必須項目

お問い合わせ項目 * 技術・研究開発的なお問い合わせ ▼

用途 * その他 ▼

用途詳細 * シミュレーション

製品カテゴリ * Tool: Library for EDA softw: ▼

品番 例) GRM188R71H104KA93

お問い合わせ内容 * SIMetrix/SIMPLIS用ライブラリについて

Please provide as much detail as possible and include a line such as “**Inquiry on SIMetrix/SIMPLIS® libraries**”.

Please send inquiries concerning the use of SIMetrix/SIMPLIS® to your distributor.