

High-Speed Online Power Electronics Simulator

ROHM PLECS Simulator

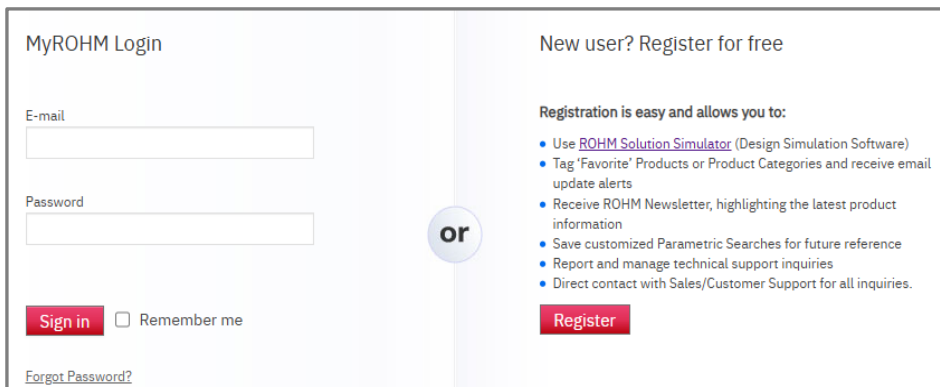
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1. How to Access

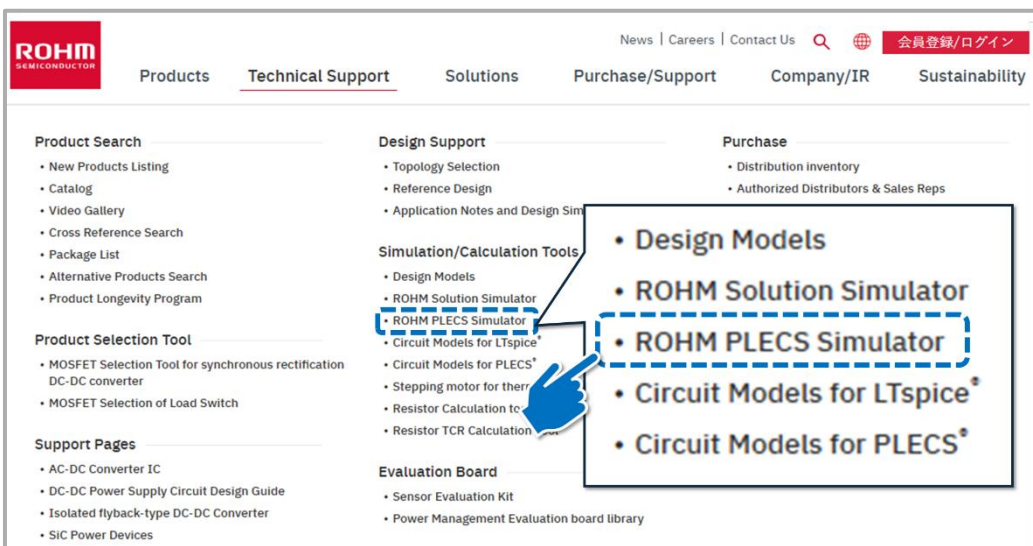
Internet access and a registration for “MyROHM” are required in advance to use “ ROHM PLECS Simulator ”.

<https://www.rohm.com/login?redirect=/>

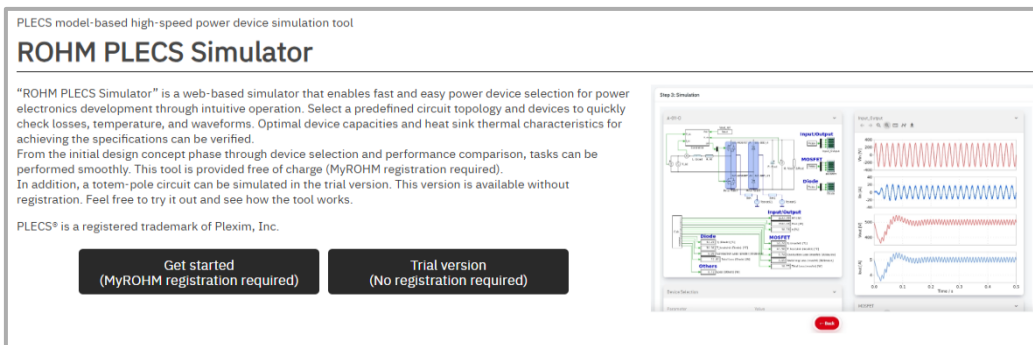


To start “ROHM PLECS Simulator”, please access from “Technical Support” in the top page of ROHM’s website.

<https://www.rohm.com/>



<https://www.rohm.com/simulator/plecs-simulator>



2. Select a Topology

1. Select a topology category.
A: AC-DC PFC
B: DC-AC Inverter
C: DC-DC Converter

2. From the shown list, select a topology that you want to simulate.

3. Enter basic simulation conditions.
※It is not mandatory if the default values are fine.

4. Click "Next" button once you have finished entering all the information.

3. Select Power Devices

1. Candidate power-device products are listed according to the basic simulation conditions that you have entered previous page.
If you want to check the detailed device specification, click the "Part Number", and you can see the data sheet.

2. Select "check-box" left of the Part Number that you want to simulate.
※"ROHM PLECS Simulator" allows you to select and simulate up to three products simultaneously.

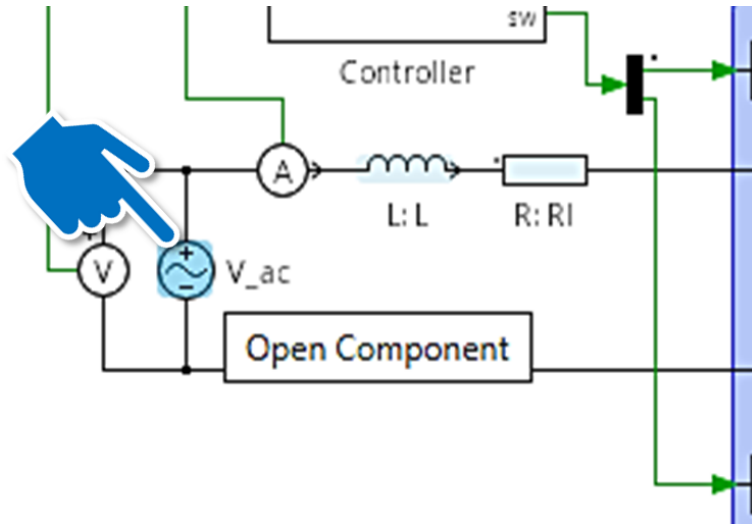
3. Click "Back" or "Next" button, then you can return or proceed.

Part Number	VDS [V]	Reve
<input type="checkbox"/> SCT4090KWAHR	1200	20.0
<input type="checkbox"/> SCT4090KR	1200	20.0
<input type="checkbox"/> SCT4065DWAHR	750	20.0
<input type="checkbox"/> SCT4065DR	750	20.0
<input type="checkbox"/> SCT4065DLL	750	20.0
<input type="checkbox"/> SCT4062KWAHR	1200	20.0
<input type="checkbox"/> SCT4062KWA	1200	20.0
<input type="checkbox"/> SCT4062KWZ	1200	20.0
<input type="checkbox"/> SCS320AM	650	20.0
<input type="checkbox"/> SCS320AJ	650	20.0
<input type="checkbox"/> SCS320AG	650	20.0

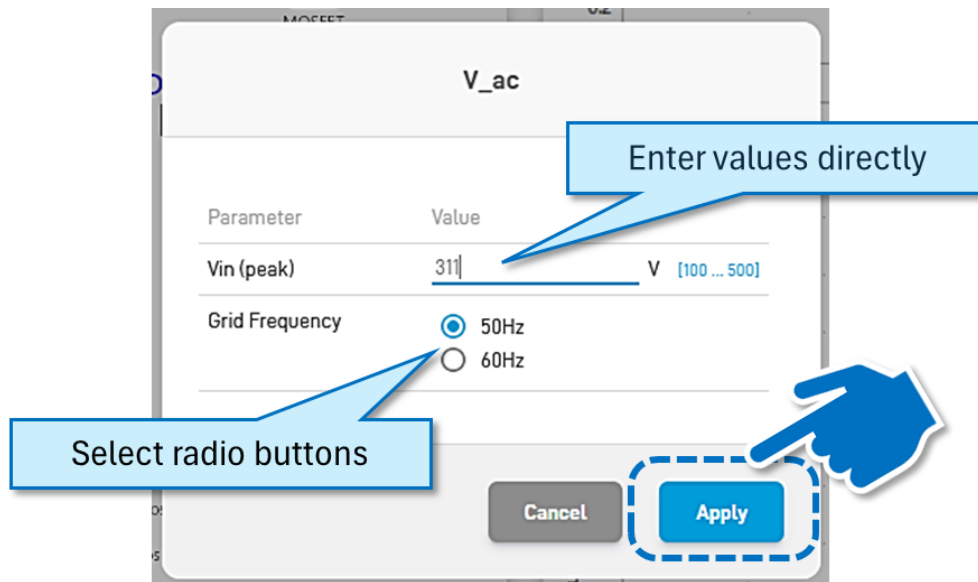
Parameter	Value
V _{DS}	1200V
R _{DS(on)} (Typ.)	90mΩ
I _D	19A
P _D	88W

4. Configure Circuit Parameters (“Dialog” parameters)

- 1.Symbols whose parameters can be changed are colored light-blue in the circuit diagram.
- 2.Over your mouse cursor to the symbol that you want to change the parameter and the symbol color is turned to blue (e.g. “V_ac” symbol in the below).
- 3.Click the mouse’s left button.



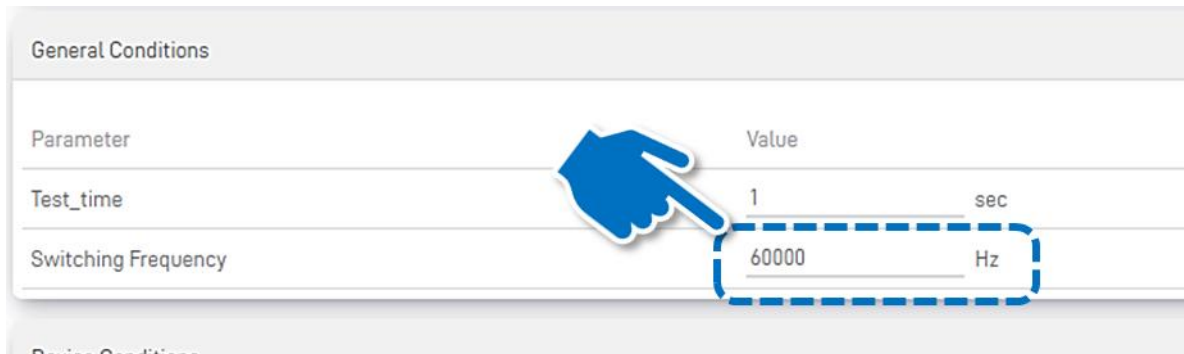
- 4.A new window like the below is opened.
- 5.You can change the parameters by entering the value directly* or selecting radio buttons.
- 6.Push “Apply” button after configuring all parameters.



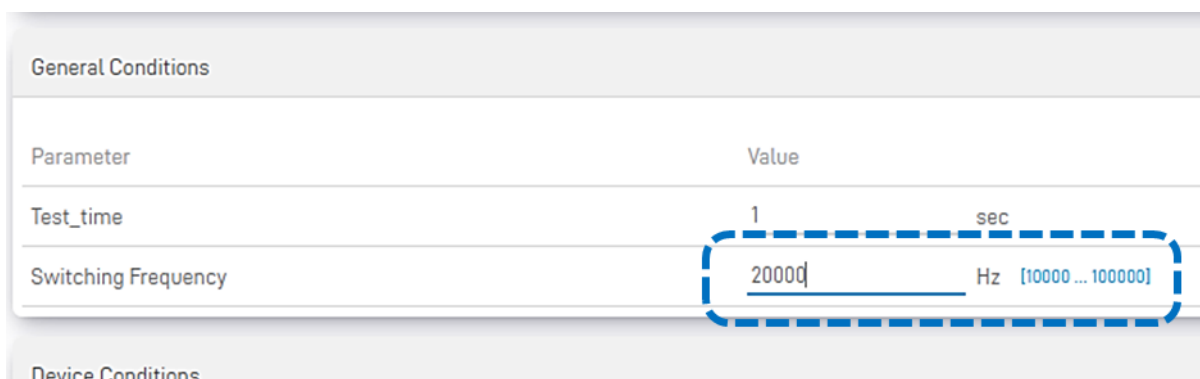
*Note: Parameters can be entered directly are limited by Min. and Max. values to avoid unexpected system errors. (e.g. “Vin(peak)” is limited between 100 and 500V in the above.)

5. Configure Circuit Parameters (“Table” parameters)

1. Choose the parameter that you want change on the parameter tables (e.g. “60kHz” of Switching Frequency in the figure below.)

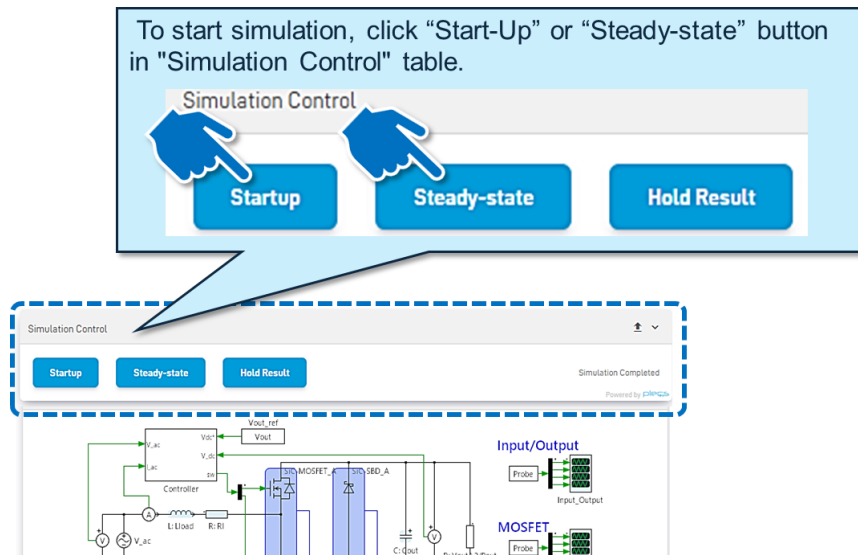


2. A blue under-line and variable range of the parameter are appeared.
3. Then, you can change the parameters by entering the value directly (e.g. “60kHz” was changed to “20kHz” in the figure below.)

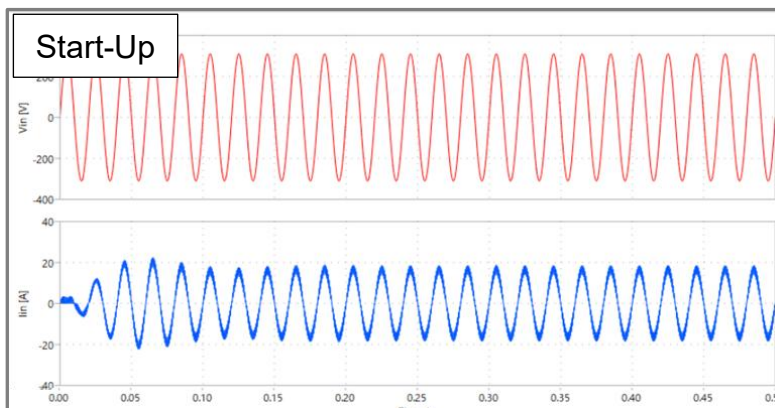


6. Run Simulation

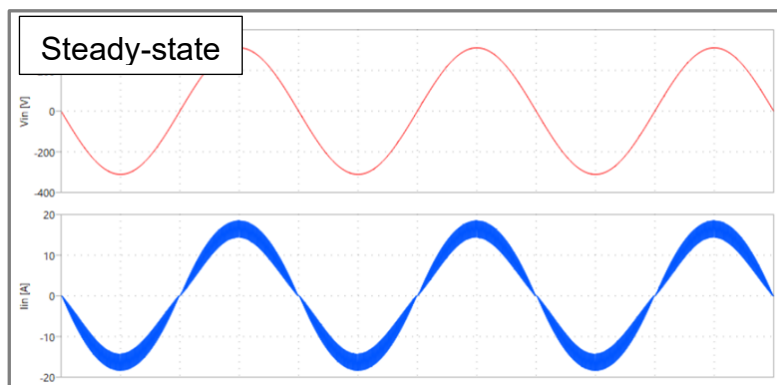
“ROHM PLECS Simulator” has two types of simulation modes (“Start-Up” and “Steady-state”). Please use the appropriate simulation mode depending on your needs.



- “Start-Up” mode simulates all transient process from the start time (0 sec) to the end time that you configured at “Test time” in “5.Configure Circuit parameters (Table parameters)”.

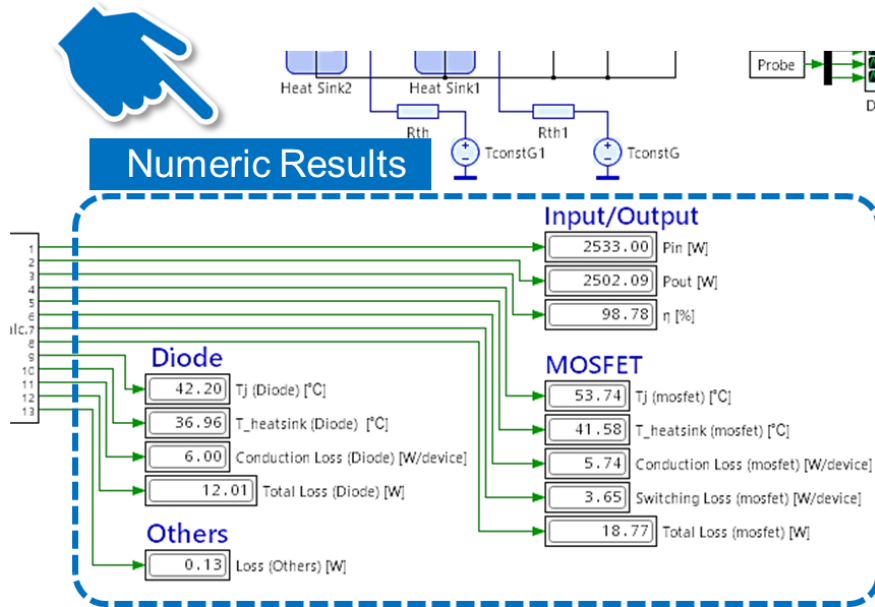


- On the other hand, “Steady-state” mode shows only the steady-state results.

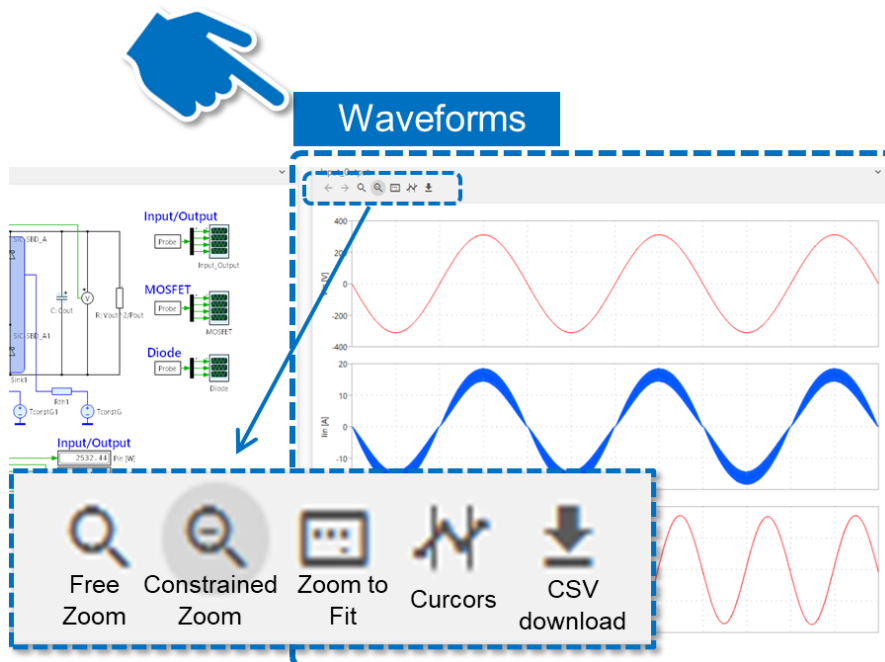


7. View Simulation Results

Numeric results (e.g. Power losses, Efficiency, Temperatures) are showed at the display blocks in the schematic window.

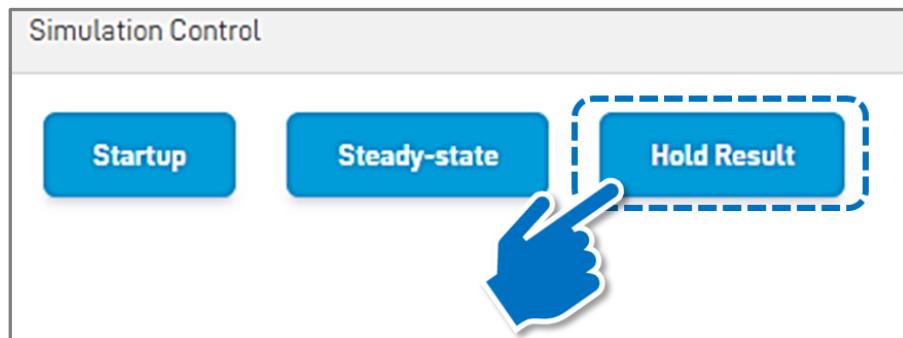


Waveforms are shown at the right side of simulation screen. You can Zoom-in and Zoom-out the waveforms and can also download the CSV data of waveforms.

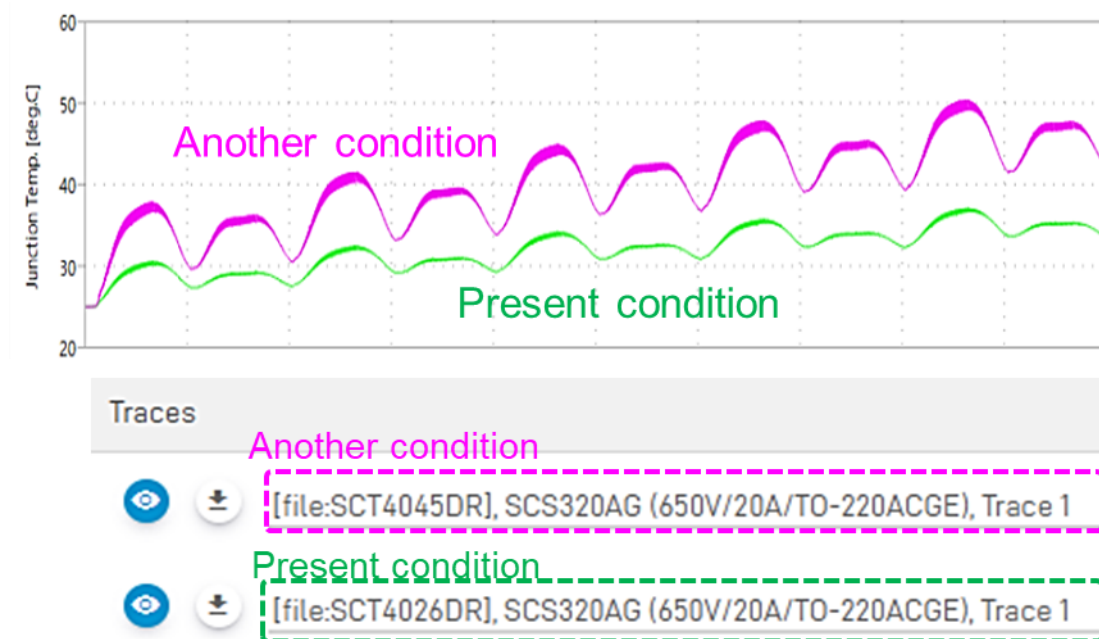


8. Hold Result Option

If you want to keep the present waveforms and to compare to another condition's waveforms, click "Hold Result" button in "Simulation Control" table.



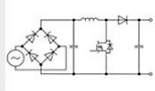


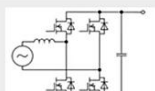


The present waveforms can be held, and after running another condition, its waveforms are going to be overwrapped in the same window.



Supplementals

All the original “PLECS circuits” in “ROHM PLECS Simulator” can be downloaded from ROHM’s website. Therefore, if you have a “PLECS license”, you can also run or modify these PLECS circuits on your PC.

<https://www.rohm.com/support/plecs>

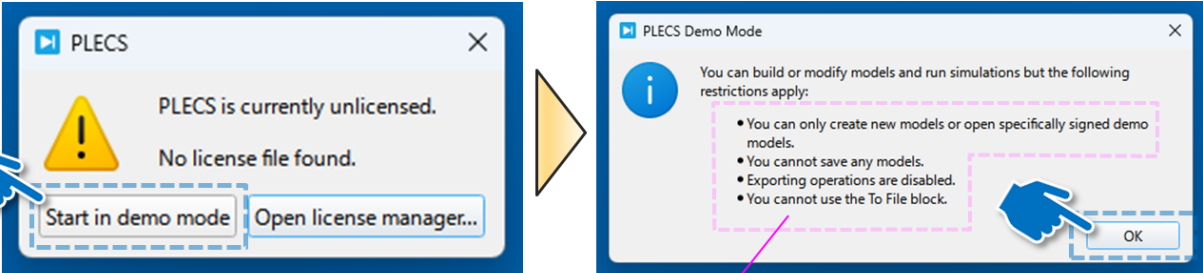
Circuit Models for PLECS					
ROHM provides PLECS models for circuit simulation. Please utilize them for preliminary verification using circuit simulation.					
AC-DC PFC	DC-AC Inverter	DC-DC Converter			
Category	Topology	NO.	Simulation circuit name	Circuit Models zip download	Document download
Boost PFC		A-002-D3	AC-DC Boost PFC Vin=200V Iin=2.5A CCM (Equipped with TO247-N Package)		
		A-010-DOT	AC-DC Totem-Pole Bridgeless PFC Vin=200V,Iin=100A,Synchronous FETs (Equipped with DOT-247 Package)		

To run or modify* these PLECS circuits downloaded from the above, you must have installed “PLECS” simulation software on your PC and inquired its license*”. For more information, please visit the official website of Plexim.Inc.

<https://www.plexim.com/download>



*Notes: For “Modifying” and “Saving” circuits, “Paid” or “Trial” license is mandatory.
For just “Running” and “Viewing” the circuit, “Demo Mode (No-license)” is available.



The image shows two screenshots of PLECS software dialog boxes. The first screenshot, titled 'PLECS', displays a warning icon and the message 'PLECS is currently unlicensed. No license file found.' Below the message are two buttons: 'Start in demo mode' and 'Open license manager...'. A blue hand icon points to the 'Start in demo mode' button. The second screenshot, titled 'PLECS Demo Mode', displays an information icon and the message 'You can build or modify models and run simulations but the following restrictions apply:'. Below the message is a list of restrictions:

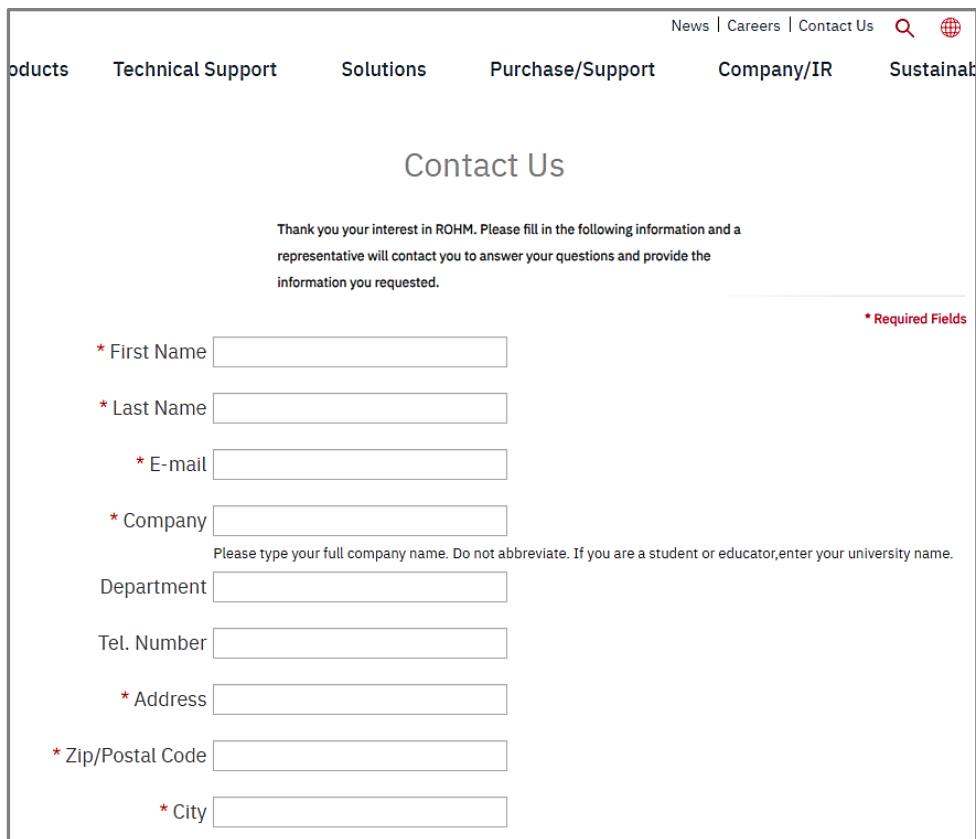
- You can only create new models or open specifically signed demo models.
- You cannot save any models.
- Exporting operations are disabled.
- You cannot use the To File block.

An 'OK' button is at the bottom right. A blue hand icon points to the 'OK' button. A pink arrow points from the text 'Restrictions in Demo Mode' to the list of restrictions.

Contact Information

If you have any questions, comments, or need support* with “ROHM PLECS Simulator”, please contact us from the below.

<https://www.rohm.com/contactus>



The screenshot shows the 'Contact Us' page on the ROHM website. At the top, there is a navigation bar with links for 'Products', 'Technical Support', 'Solutions', 'Purchase/Support', 'Company/IR', and 'Sustainat'. The main heading is 'Contact Us'. Below the heading, a message reads: 'Thank you your interest in ROHM. Please fill in the following information and a representative will contact you to answer your questions and provide the information you requested.' To the right of this message is a red asterisk and the text '* Required Fields'. The form contains several input fields: '* First Name', '* Last Name', '* E-mail', '* Company', 'Department', 'Tel. Number', '* Address', '* Zip/Postal Code', and '* City'. A note below the 'Company' field states: 'Please type your full company name. Do not abbreviate. If you are a student or educator, enter your university name.'

*Notice: Technical support might be subject to a fee.

Notice

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- 2) ROHM products are designed and manufactured for use in general electronic equipment and applications (such as Audio Visual equipment, Office Automation equipment, telecommunication equipment, home appliances, amusement devices, etc.) or specified in the datasheets. Therefore, please contact the ROHM sales representative before using ROHM products in equipment or devices requiring extremely high reliability and whose failure or malfunction may cause danger or injury to human life or body or other serious damage (such as medical equipment, transportation, traffic, aircraft, spacecraft, nuclear power controllers, fuel control, automotive equipment including car accessories, etc. hereafter referred to as Specific Applications). Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses, or losses incurred by you or third parties arising from the use of ROHM Products for Specific Applications.
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