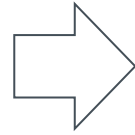
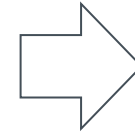


How to add (change) a new component

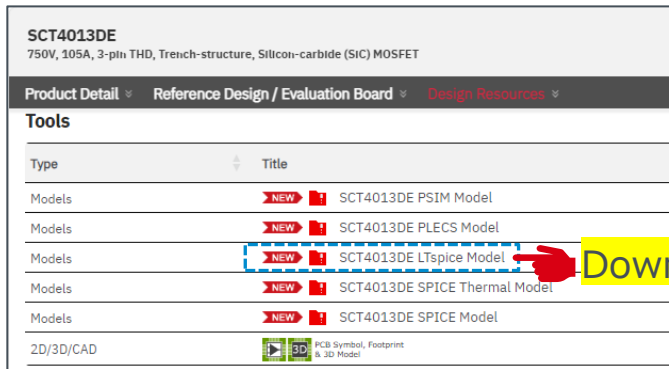
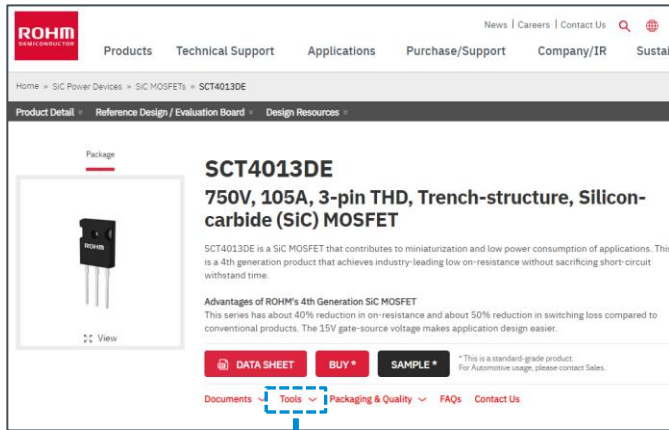
Download LTspice® model from ROHM website.



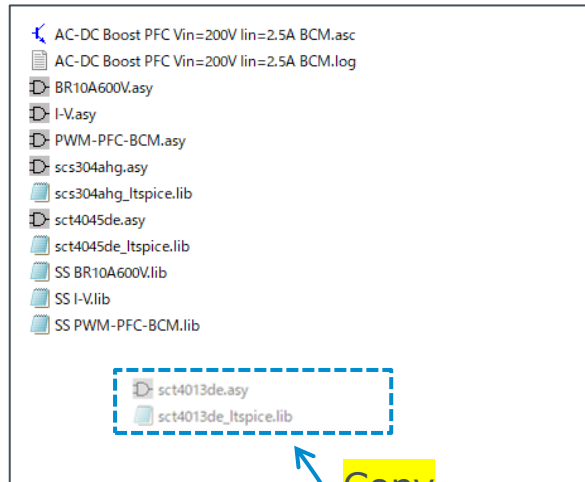
Save LTspice® model in the same folder as the schematic file.



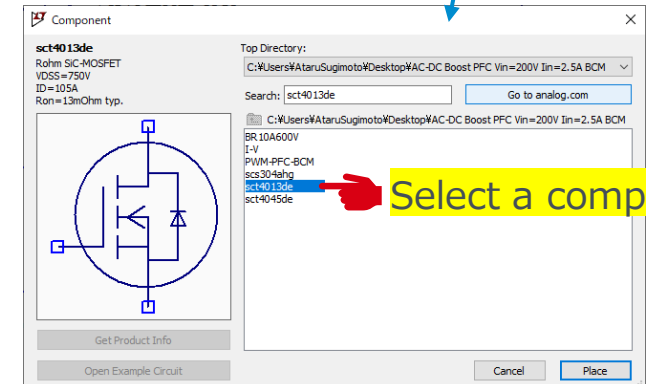
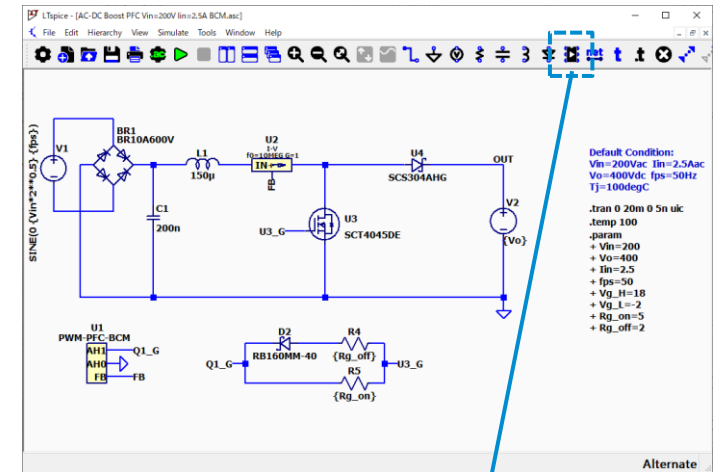
Click on the “Component” icon from the toolbar to add a new component to the schematic.



LTspice® schematic file

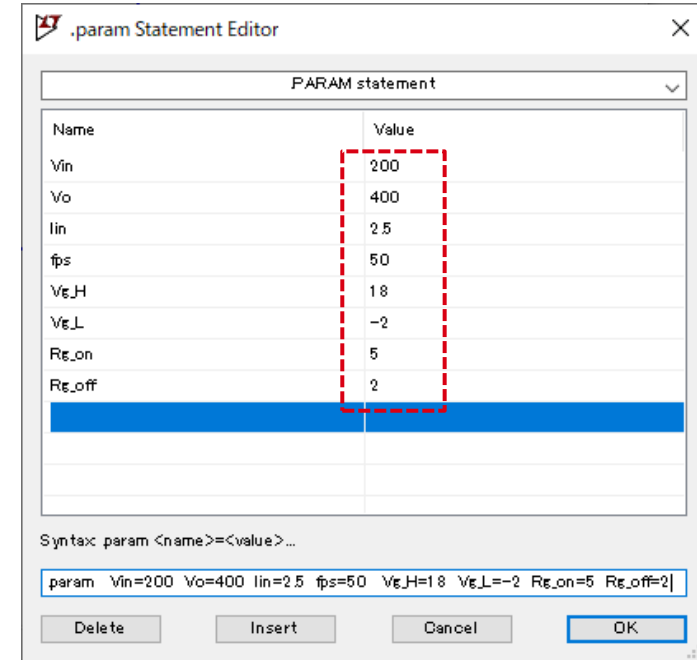
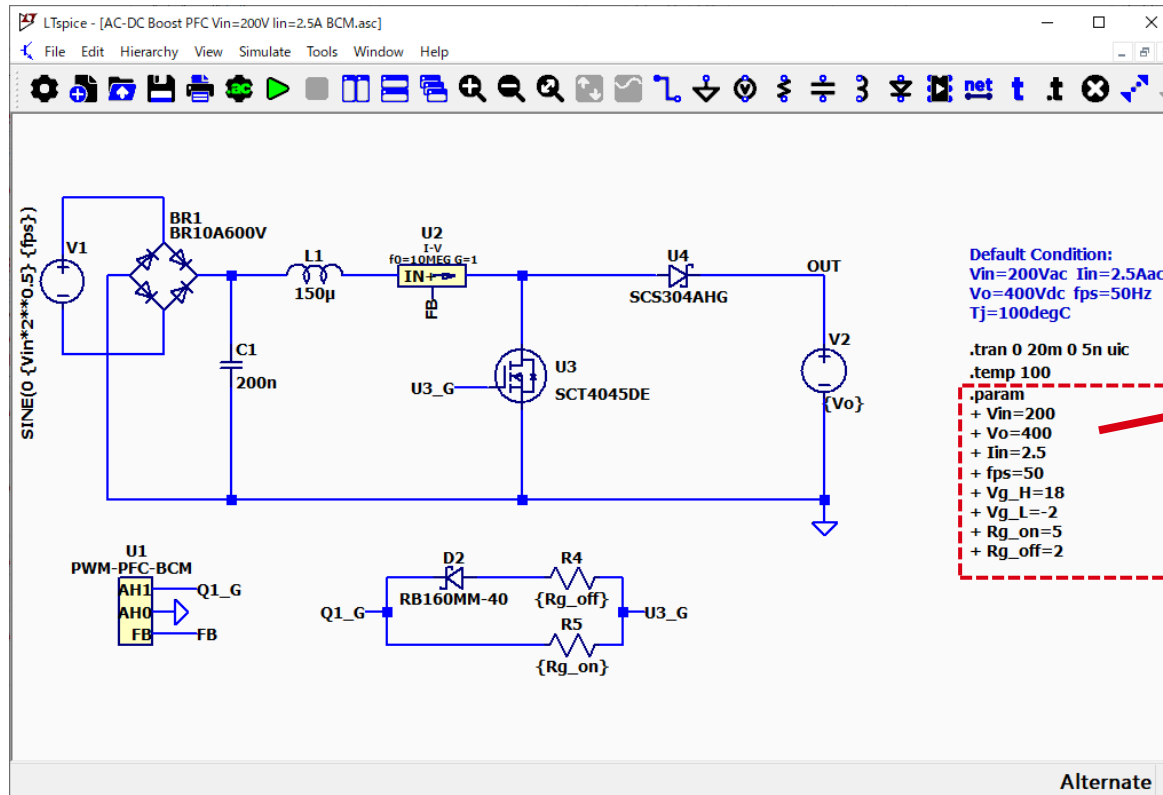


LTspice® model

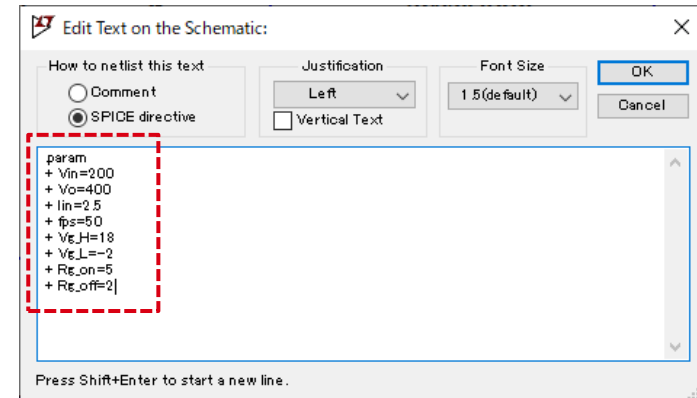


How to change the Simulation Conditions

Simulation Schematic



or



Right-click on the “.param” text on the schematic to launch the “.param Statement Editor” or “Text Editor. Change the parameters as necessary.

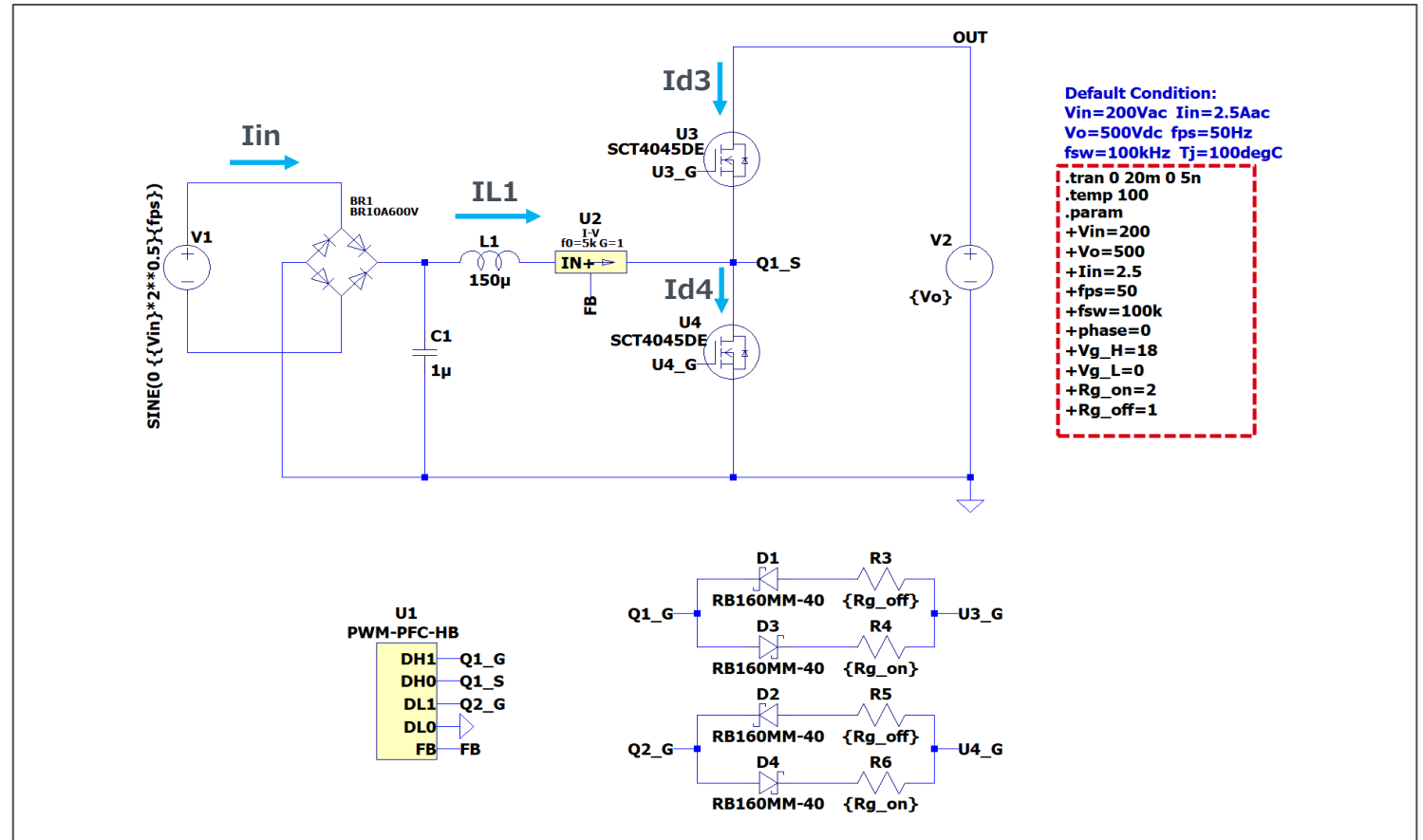
Simulation Parameters

Param name	Unit	Description
Vin	V	Input Voltage
Vo	V	Output Voltage
fps	Hz	Commercial power frequency
Iin	A	Input current
fsw	Hz	Switching frequency
Vg_H	V	Gate Drive Voltage High
Vg_L	V	Gate Drive Voltage Low
Rg_on	Ω	Gate Resistance On
Rg_off	Ω	Gate Resistance Off

Devices

Instance name	Type	Default
U3,U4	SiC MOSFET	SCT4045DE
BR1	Diode Bridge	BR10A600V
D1,2	SBD	RB160MM-40

Simulation Schematic



You can download and exchange other component models. See the link below for details.

[How to Use LTspice® Models、 Design Simulation Models](#) : English version

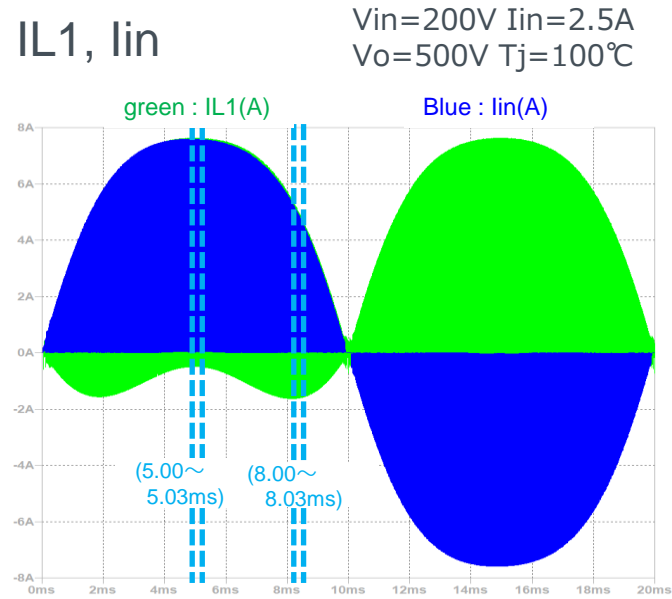
[LTspice®モデルの使い方、デザインモデル](#) : 日本語版

Simulation Result Waveform1

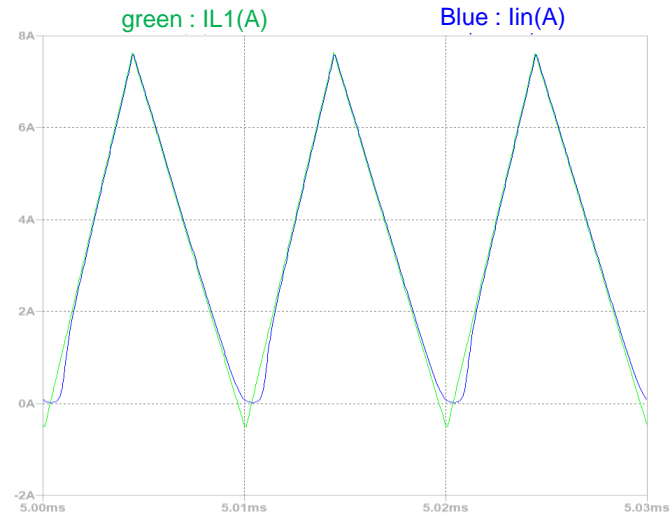
U3,4 : SiC MOSFET
SCT4045DE

2025 Jan.

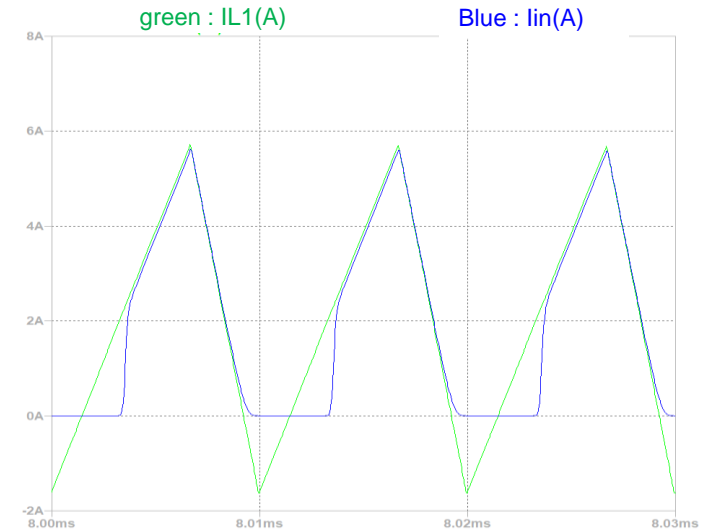
67UG114E Rev.002



Expansion (5.00~5.03ms)



Expansion (8.00~8.03ms)



Simulation Result Waveform2

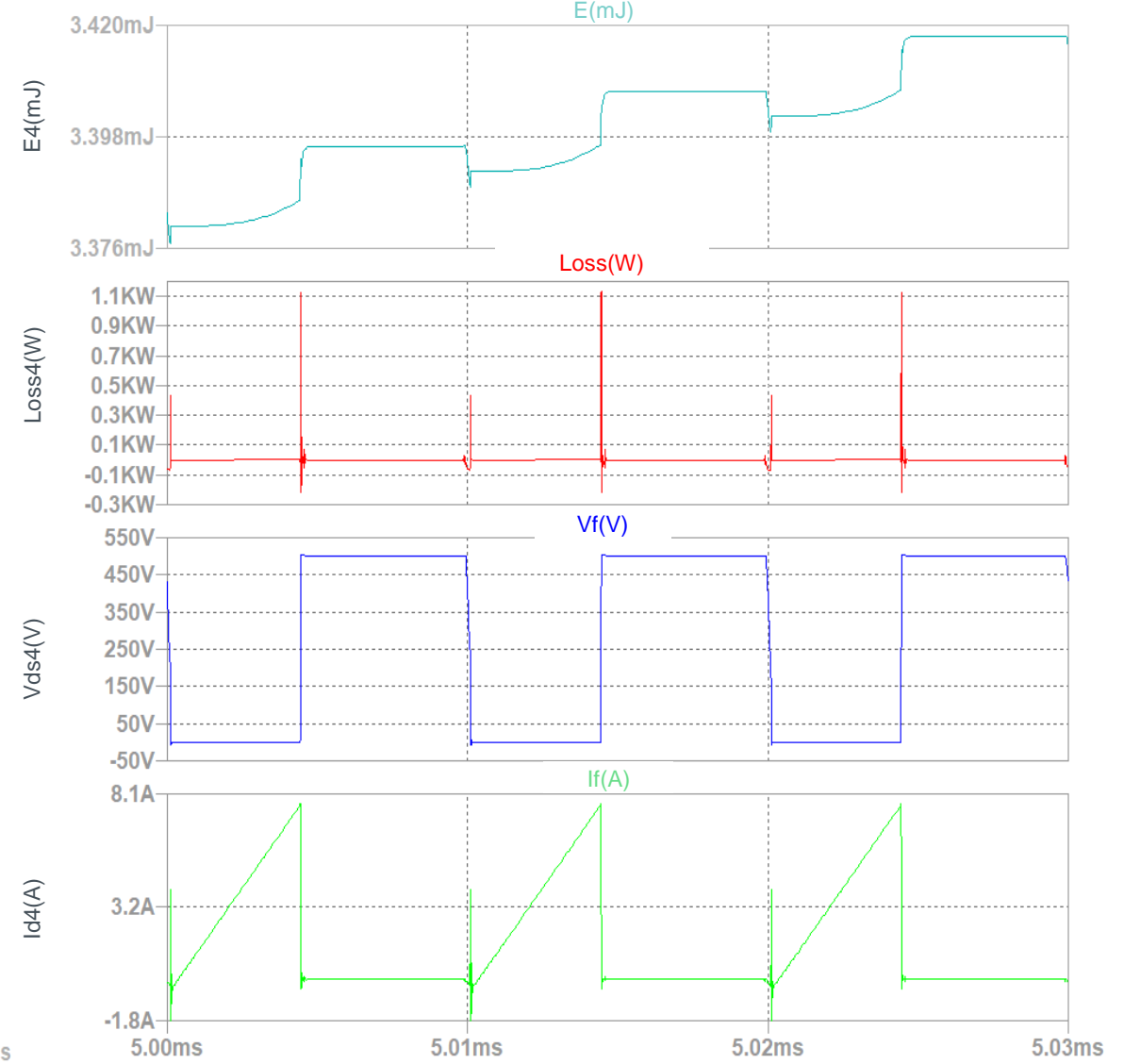
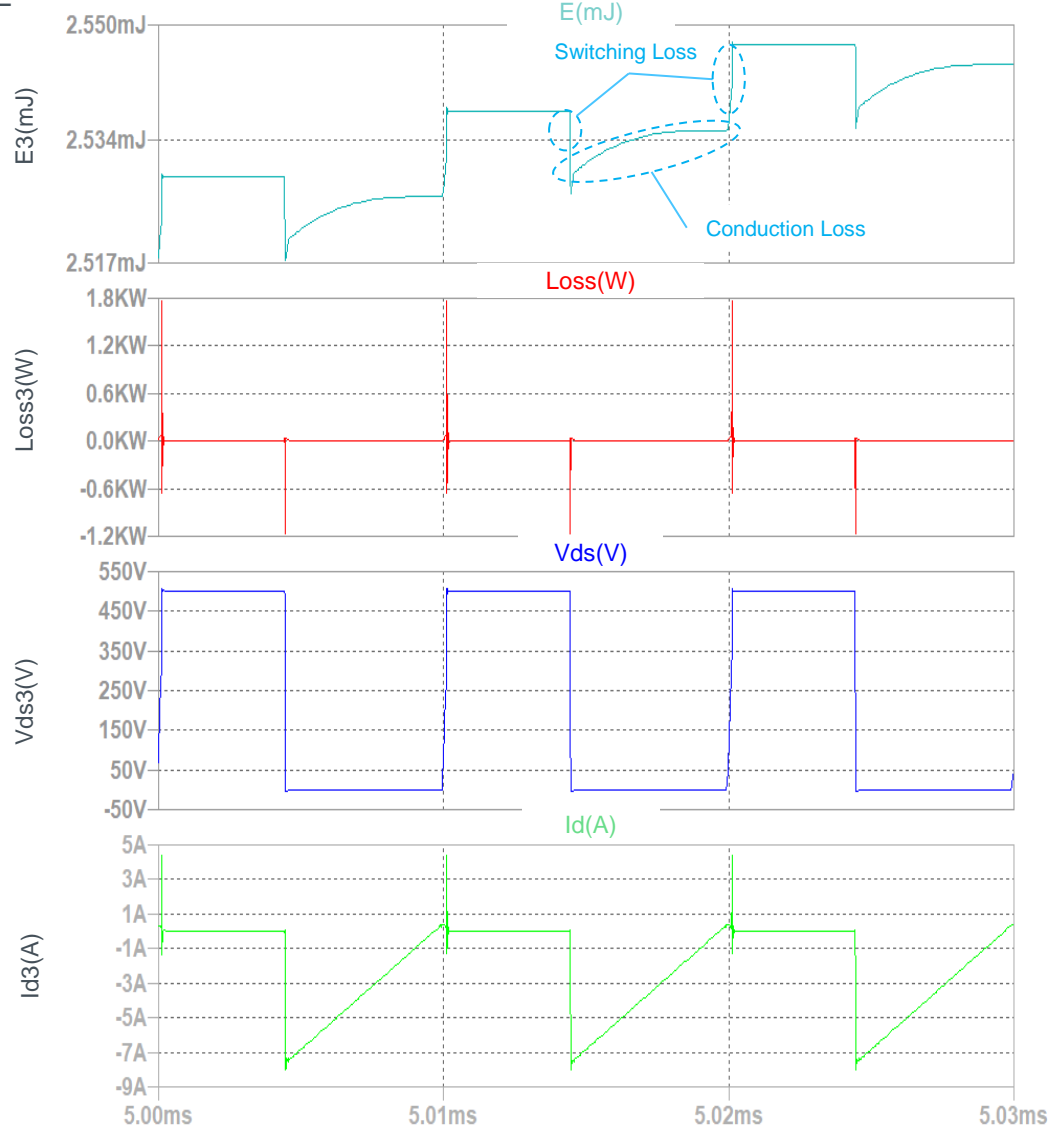
Vin=200V Iin=2.5A
Vo=500V Tj=100°C

Vin=200V Iin=2.5A
Vo=500V Tj=100°C

U3,4 : SiC MOSFET
SCT4045DE

U3_E3, Loss3, Vds3, Id3

U4_E4, Loss4, Vds4, Id4



Default setting

The screenshot shows the 'Settings' dialog box with the 'SPICE' tab selected. The 'Default Integration Method[*]' section has 'modified trap' selected. The 'Default DC solve strategy' section has 'Noopiter' and 'Skip Gmin Stepping' unchecked. The 'Engine' section has 'Solver[*]' set to 'Alternate', 'Max threads' to '12', 'Matrix Compiler' to 'object code', and 'Thread Priority[*]' to 'high'. The 'SPICE' parameters are: Gmin: 1e-12, Abstol: 1e-12, Reltol: 0.001, Chgtol: 1e-14, Trtol[*]: 1, Volttol: 1e-06, Sstol: 0.001, MinDeltaGmin: 0.0001, and 'No Bypass[*]' is checked. A 'Reset to Default Values' button is highlighted with a blue border. At the bottom, there are 'OK', 'キャンセル', and 'ヘルプ' buttons.

The screenshot shows the 'Configure Analysis' dialog box with the 'Transient' tab selected. The instruction reads 'Perform a non-linear, time-domain simulation.' The parameters are: Stop time: 20m, Time to start saving data: 0, and Maximum Timestep: 5n. There are four unchecked checkboxes: 'Start external DC supply voltages at 0V:', 'Stop simulating if steady state is detected:', 'Don't reset T=0 when steady state is detected:', and 'Step the load current source:'. The 'Skip initial operating point solution:' checkbox is also unchecked. The syntax box contains '.tran 0 20m 0 5n'. A 'Cancel and Edit Text Directly...' button is highlighted with a blue border. At the bottom, there are 'OK' and 'Cancel' buttons.

※LTspice version:24.1.3

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