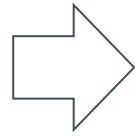
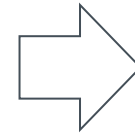


How to add (change) a new component

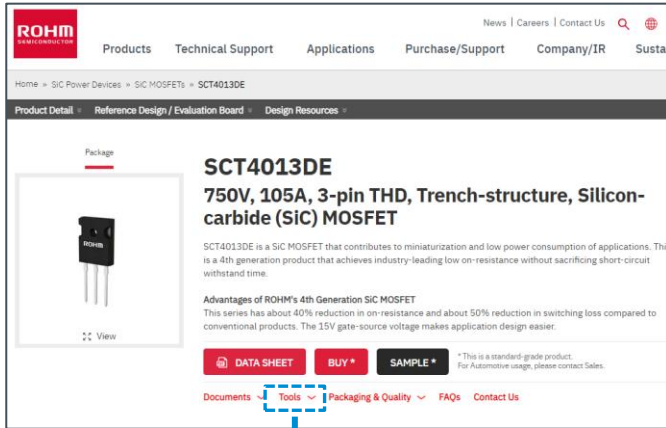
Download LTspice® model from ROHM website.



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



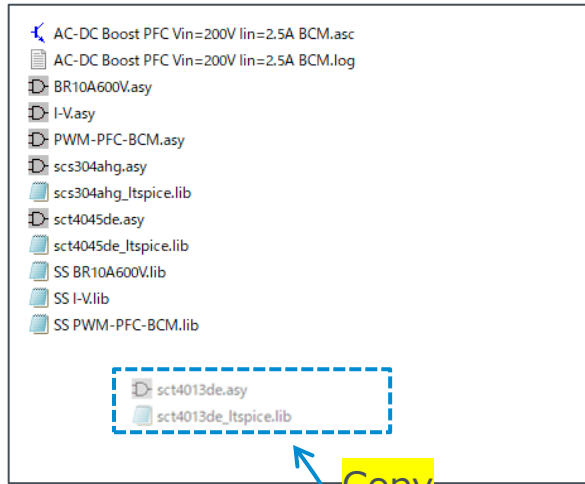
Click on the “Component” icon from the toolbar to add a new component to the schematic.



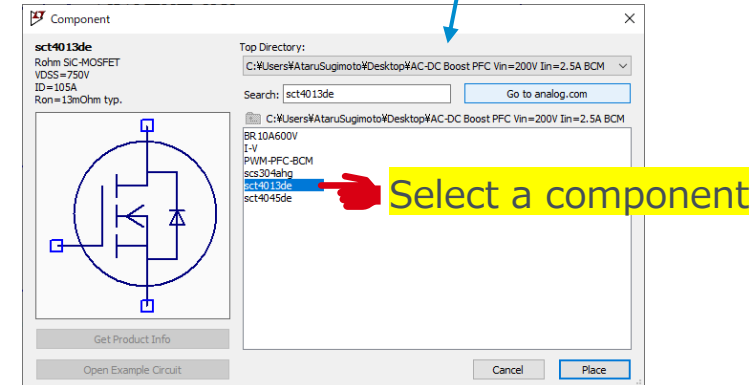
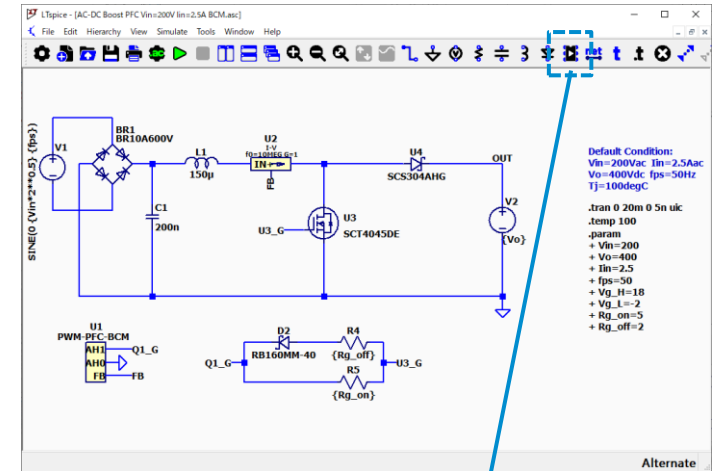
SCT4013DE	
750V, 105A, 3-pin THD, Trench-structure, Silicon-carbide (SiC) MOSFET	
Product Detail / Reference Design / Evaluation Board / Design Resources	
Tools	
Type	Title
Models	NEW SCT4013DE PSIM Model
Models	NEW SCT4013DE PLECS Model
Models	NEW SCT4013DE LTspice Model
Models	NEW SCT4013DE SPICE Thermal Model
Models	NEW SCT4013DE SPICE Model
2D/3D/CAD	PCB Symbol, Footprint & 3D Model

Download

LTspice® schematic file

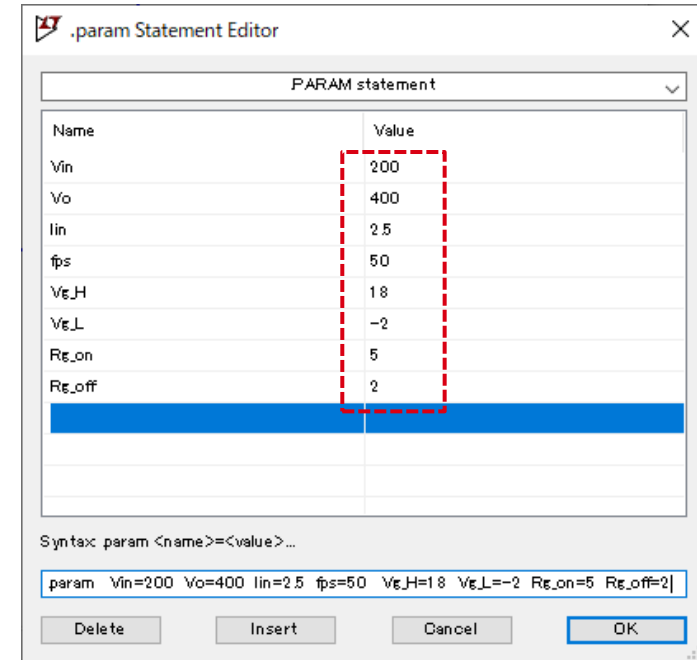
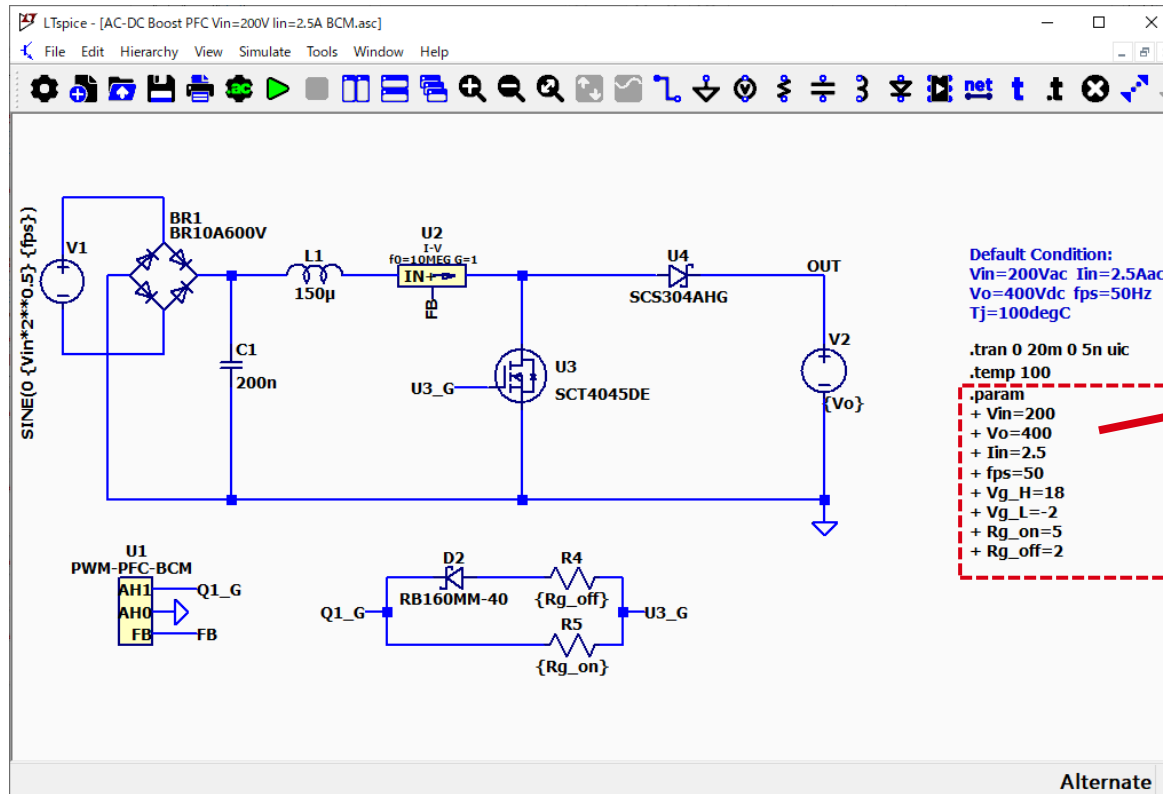


LTspice® model

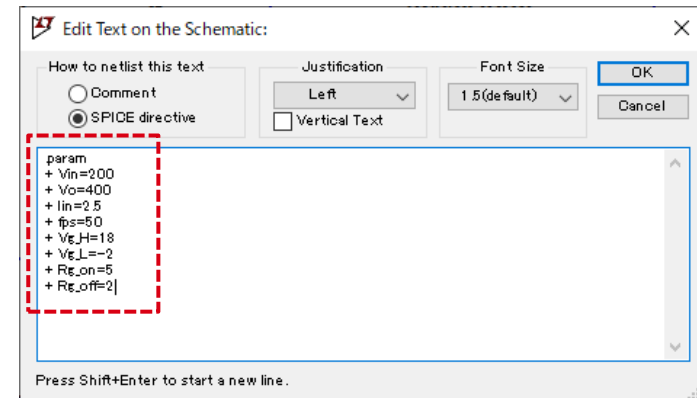


How to change the Simulation Conditions

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.

A-001. Boost PFC Vin=200V, Iin=2.5A, BCM

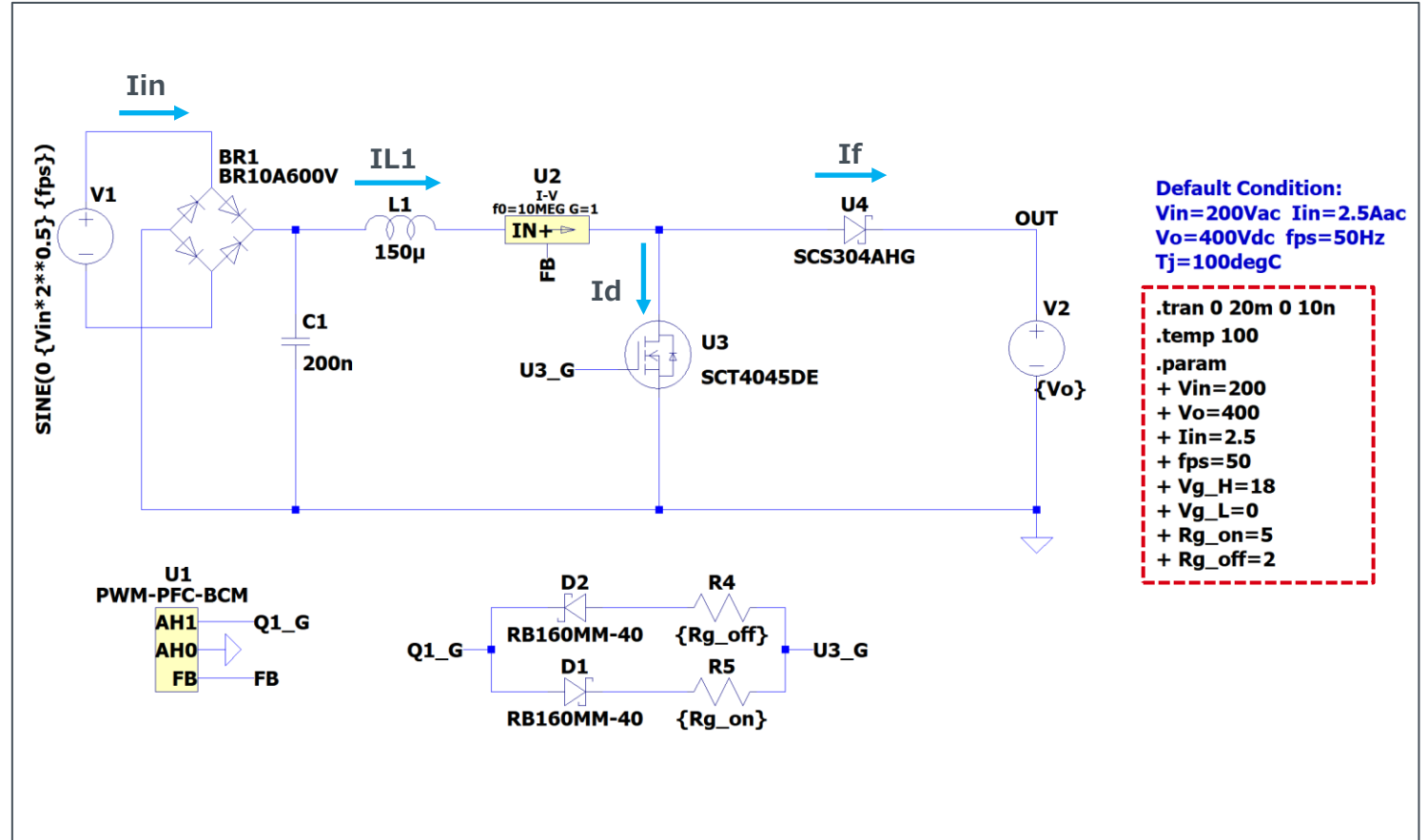
Simulation Parameters

Param name	Unit	Description
Vin	V	Input Voltage
Vo	V	Output Voltage
Iin	A	Input current
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

Components

Instance name	Type	Default
U3	SiC MOSFET	SCT4045DE
U4	SiC SBD	SCS304AHG
BR1	Diode Bridge	BR10A600V
D2	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 : SiC MOSFET

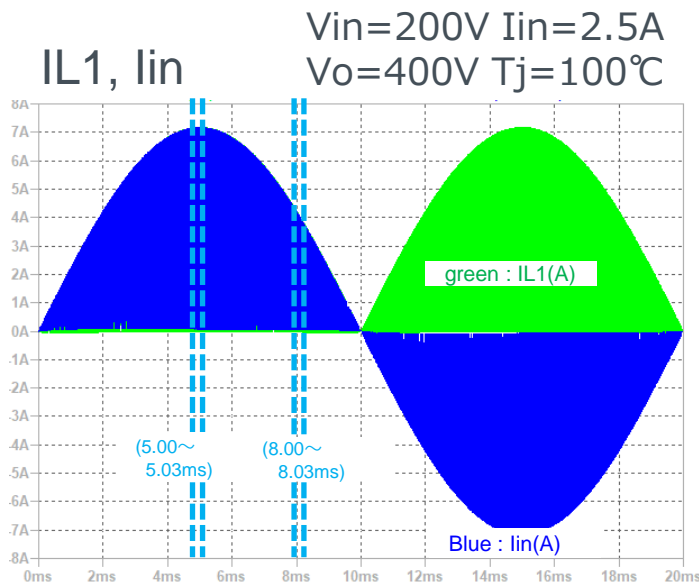
SCT4045DE

U4 : SiC SBD

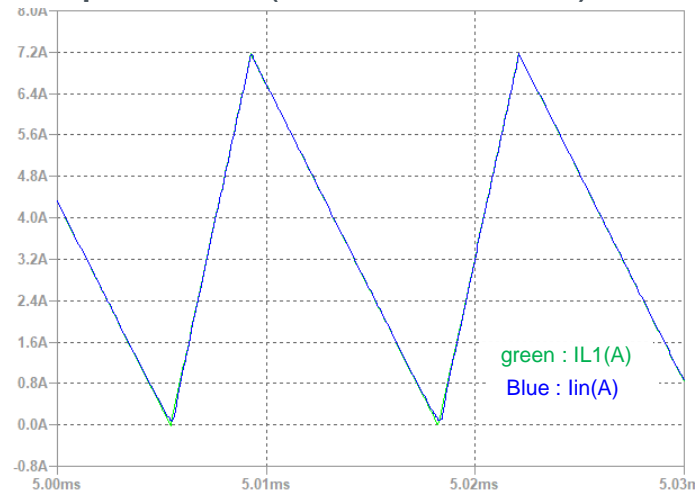
SCS304AHG

2025 Jan.

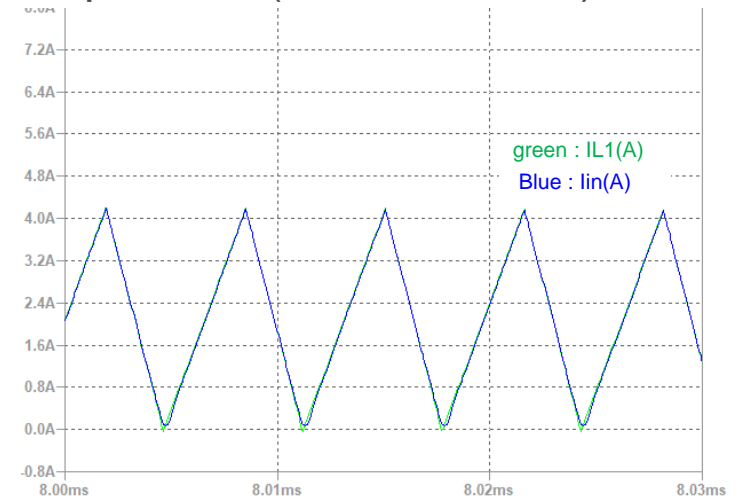
67UG111E Rev.002



Expansion (5.00~5.03ms)



Expansion (8.00~8.03ms)



Simulation Result Waveform2

U3 : SiC MOSFET

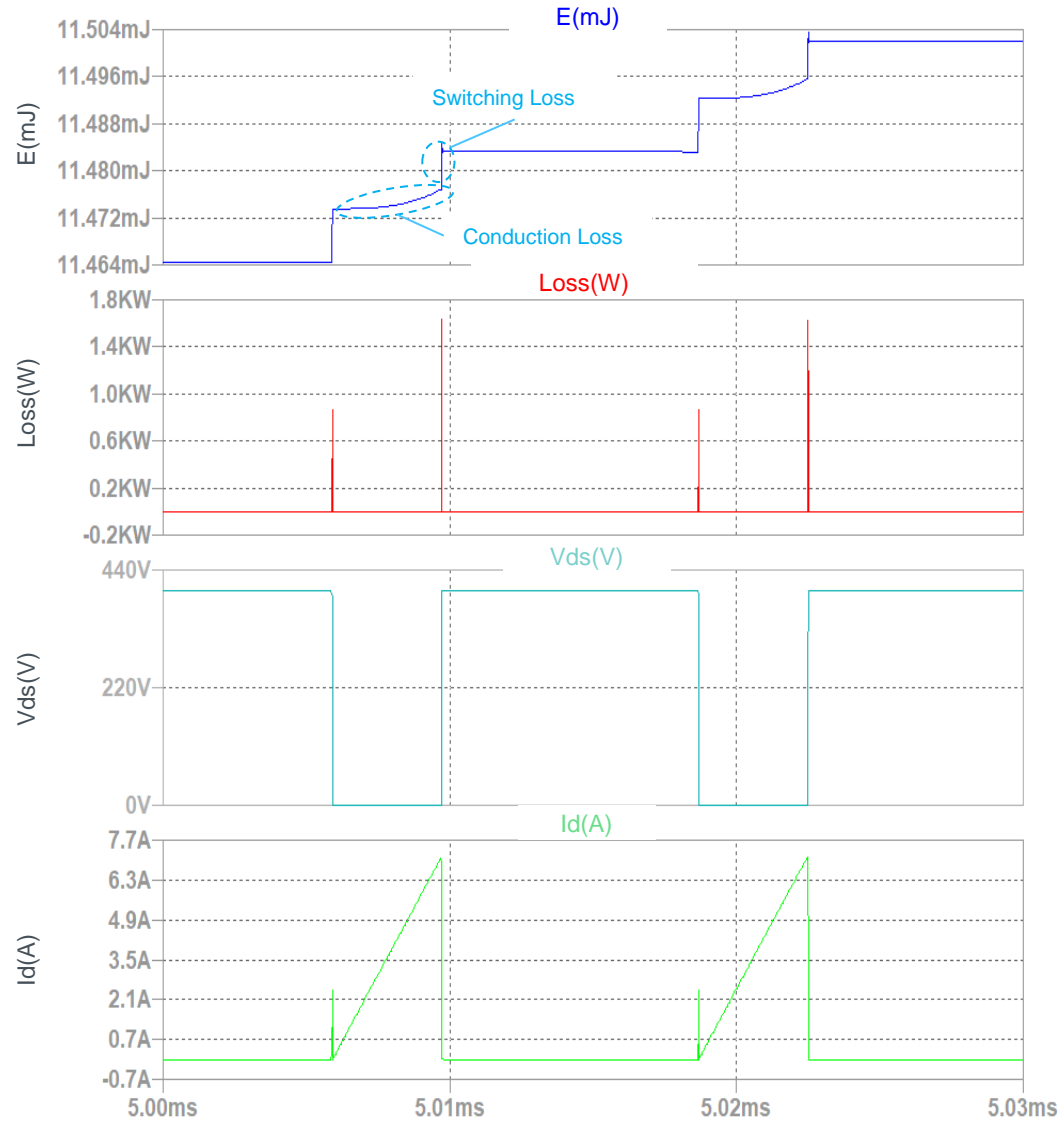
SCT4045DE

U4 : SiC SBD

SCS304AHG

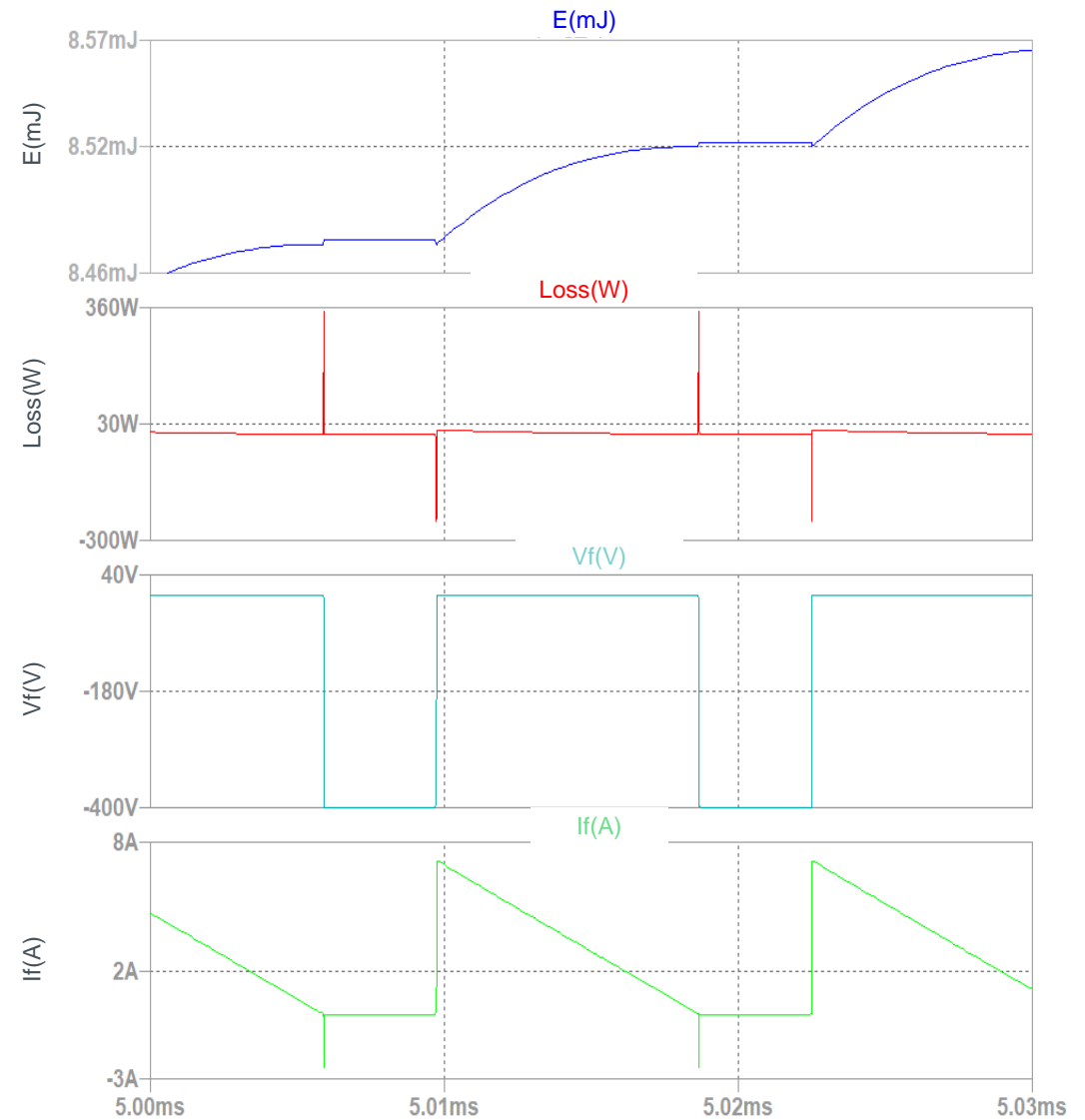
U3_E, Loss, Vds, Id

Vin=200V Iin=2.5A
Vo=400V Tj=100°C

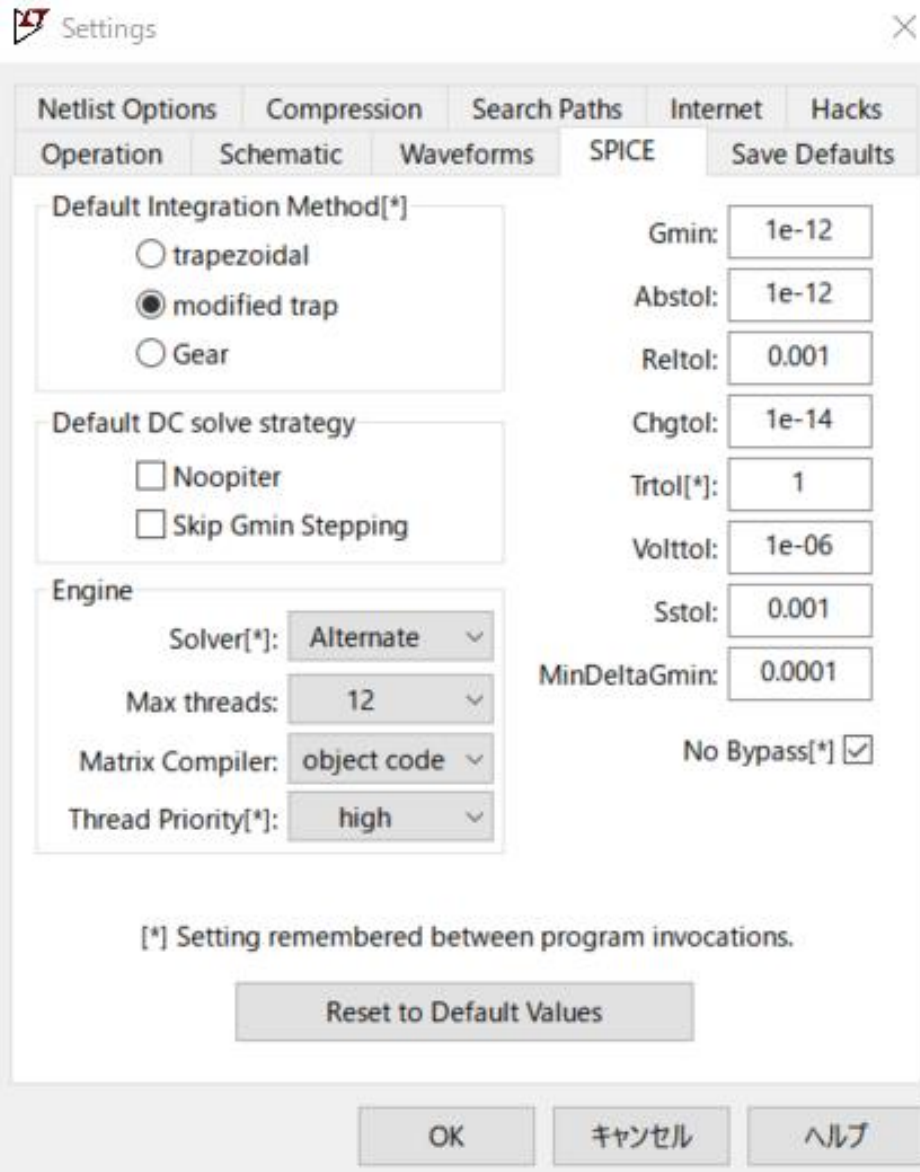


U4_E, Loss, Vf, If

Vin=200V Iin=2.5A
Vo=400V Tj=100°C



Default setting



Settings dialog box with tabs: Netlist Options, Compression, Search Paths, Internet, Hacks, Operation, Schematic, Waveforms, SPICE, Save Defaults.

Default Integration Method[*]

- trapezoidal
- modified trap
- Gear

Default DC solve strategy

- Noopiter
- Skip Gmin Stepping

Engine

- Solver[*]: Alternate
- Max threads: 12
- Matrix Compiler: object code
- Thread Priority[*]: high

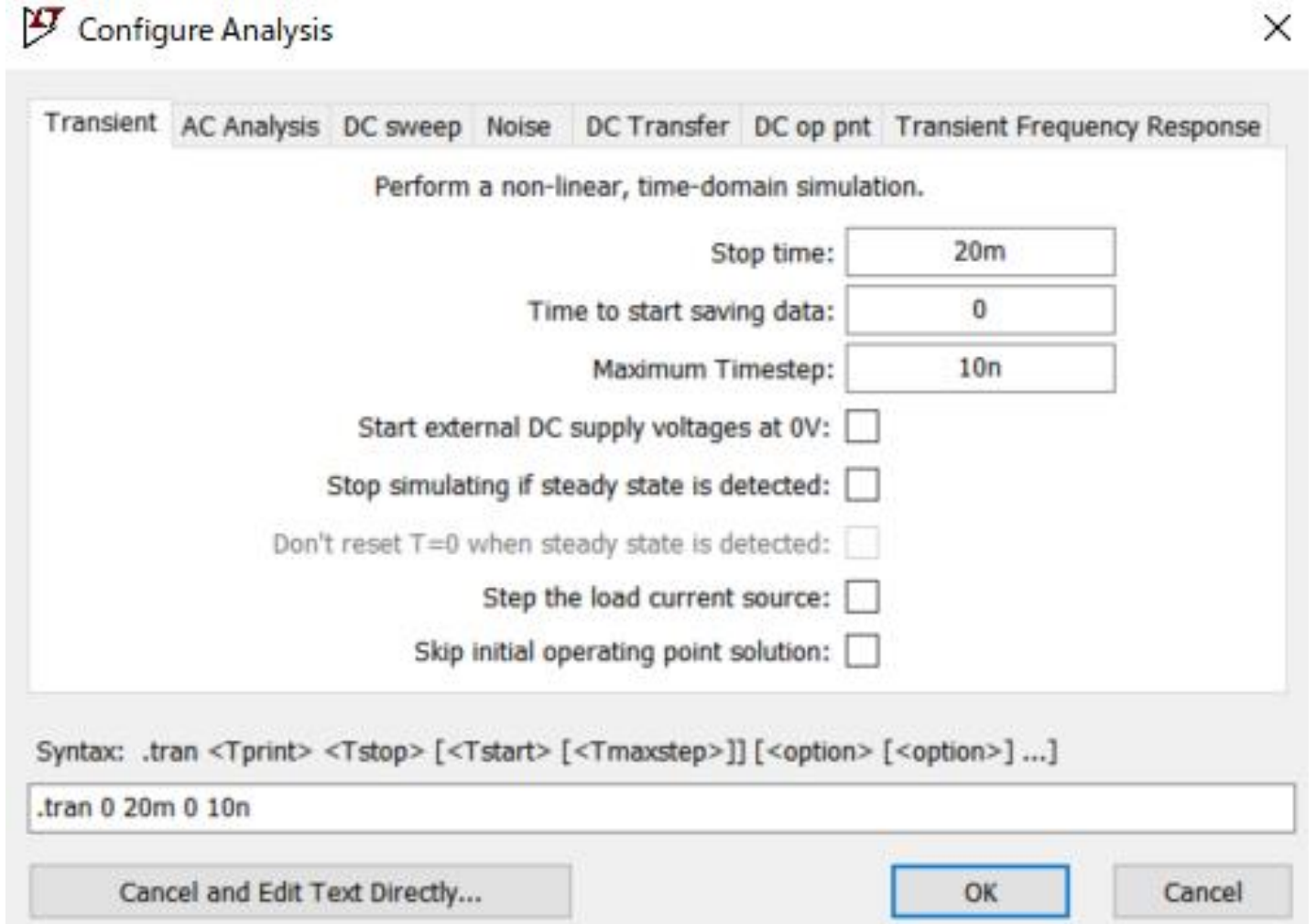
SPICE Parameters

- Gmin: 1e-12
- Abstol: 1e-12
- Reltol: 0.001
- Chgtol: 1e-14
- Trtol[*]: 1
- Volttol: 1e-06
- Sstol: 0.001
- MinDeltaGmin: 0.0001
- No Bypass[*]

[*] Setting remembered between program invocations.

Reset to Default Values

OK キャンセル ヘルプ



Configure Analysis dialog box with tabs: Transient, AC Analysis, DC sweep, Noise, DC Transfer, DC op pnt, Transient Frequency Response.

Transient

Perform a non-linear, time-domain simulation.

- Stop time: 20m
- Time to start saving data: 0
- Maximum Timestep: 10n

- Start external DC supply voltages at 0V:
- Stop simulating if steady state is detected:
- Don't reset T=0 when steady state is detected:
- Step the load current source:
- Skip initial operating point solution:

Syntax: `.tran <Tprint> <Tstop> [<Tstart> [<Tmaxstep>]] [<option> [<option>] ...]`

`.tran 0 20m 0 10n`

Cancel and Edit Text Directly... OK Cancel

※LTspice version:24.1.3

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