TOSHIBA

Simple, Convenient and High performance! Toshiba Online Circuit Simulator

Toshiba Electronic Devices & Storage Corporation

Agenda

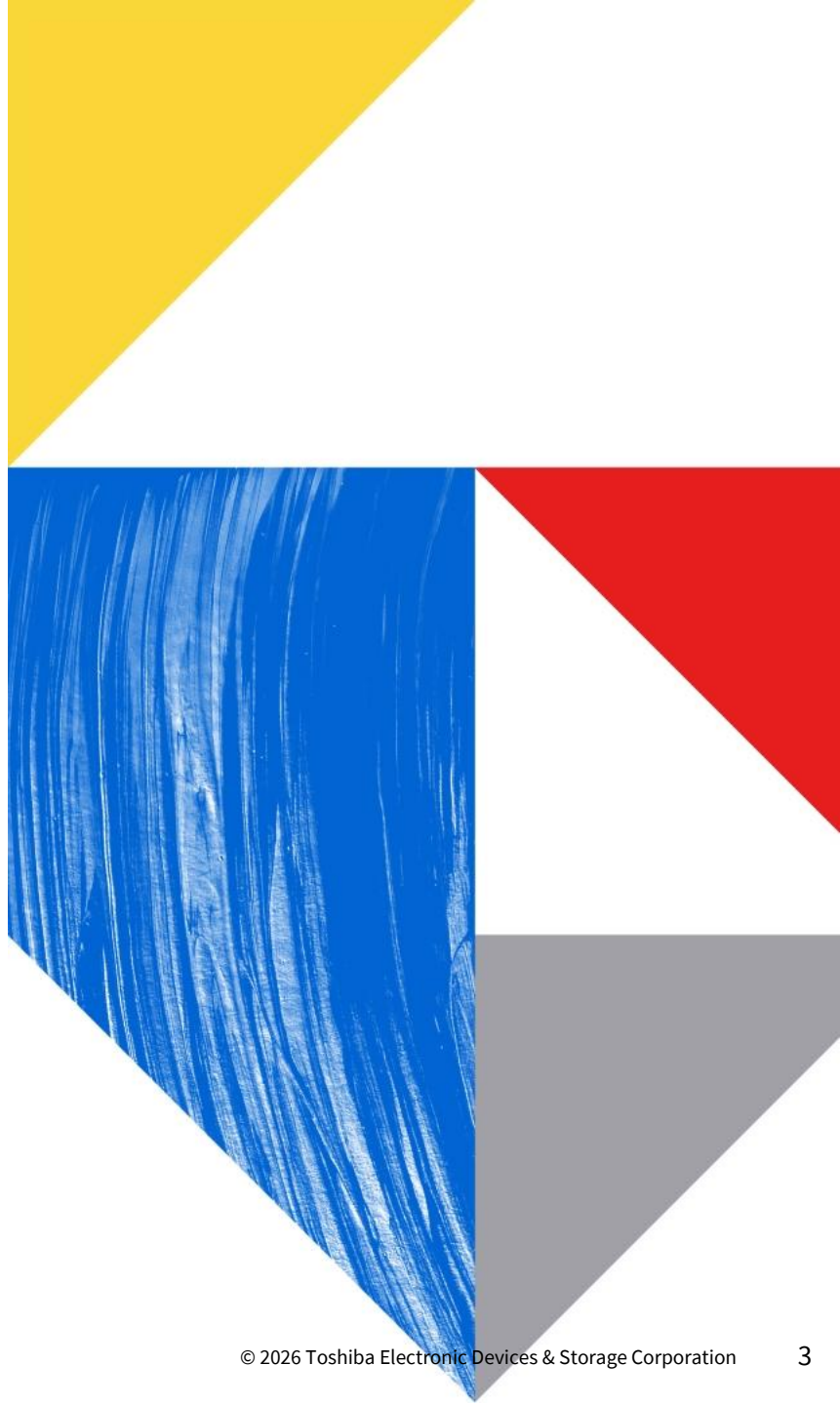
01 Introduction

02 Operation Instructions

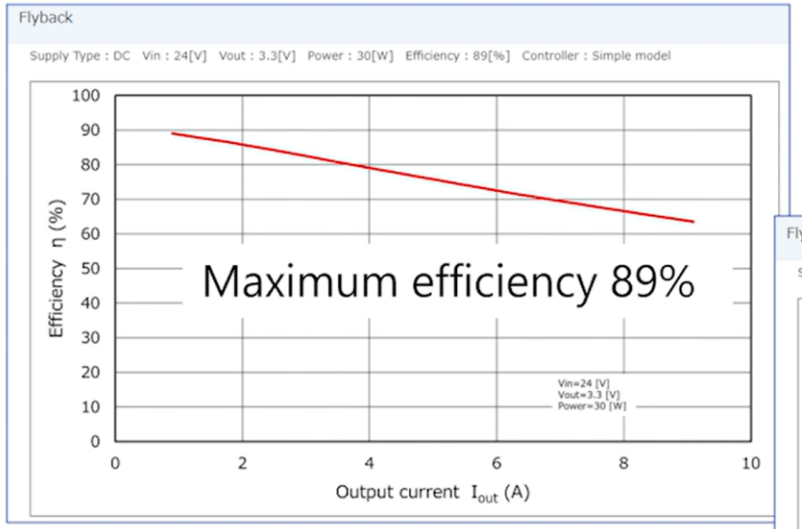
03 Summary

01

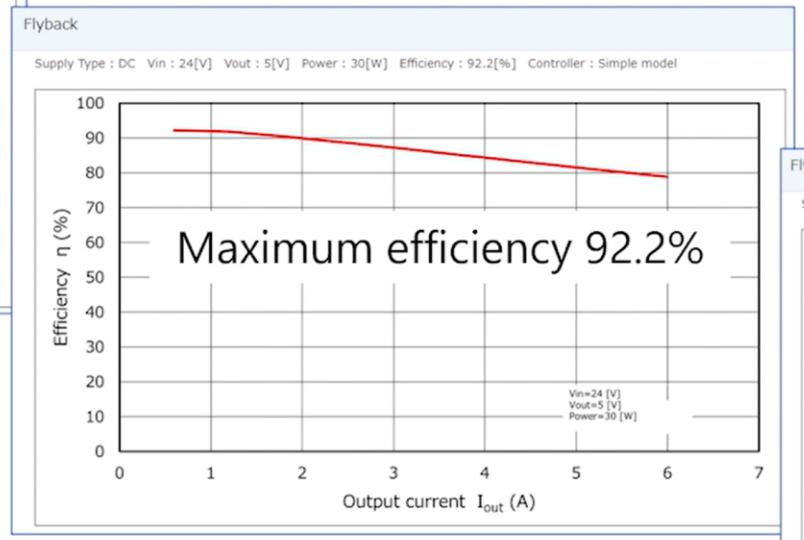
Introduction



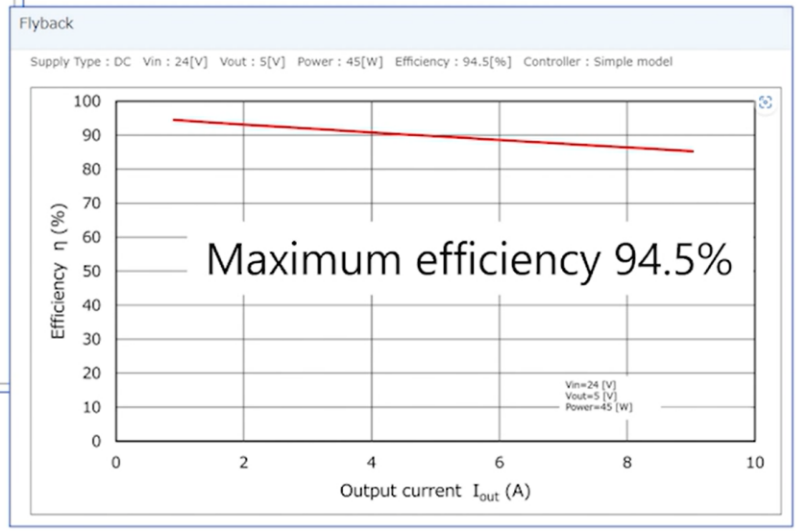
Design of switching power supply circuits



MOSFET
Primary= Product A
Secondary= Product C



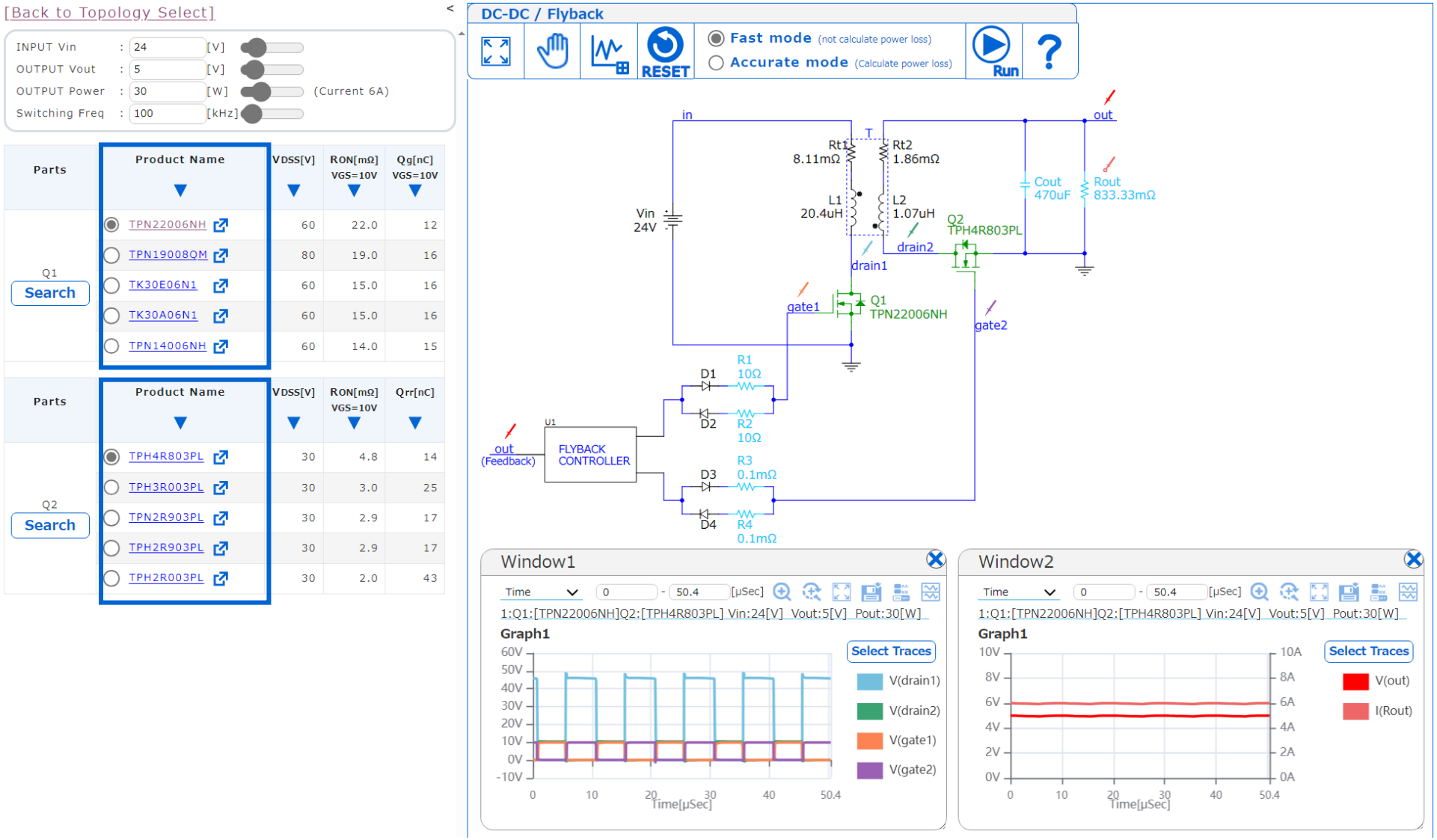
MOSFET
Primary= Product A
Secondary= Product B



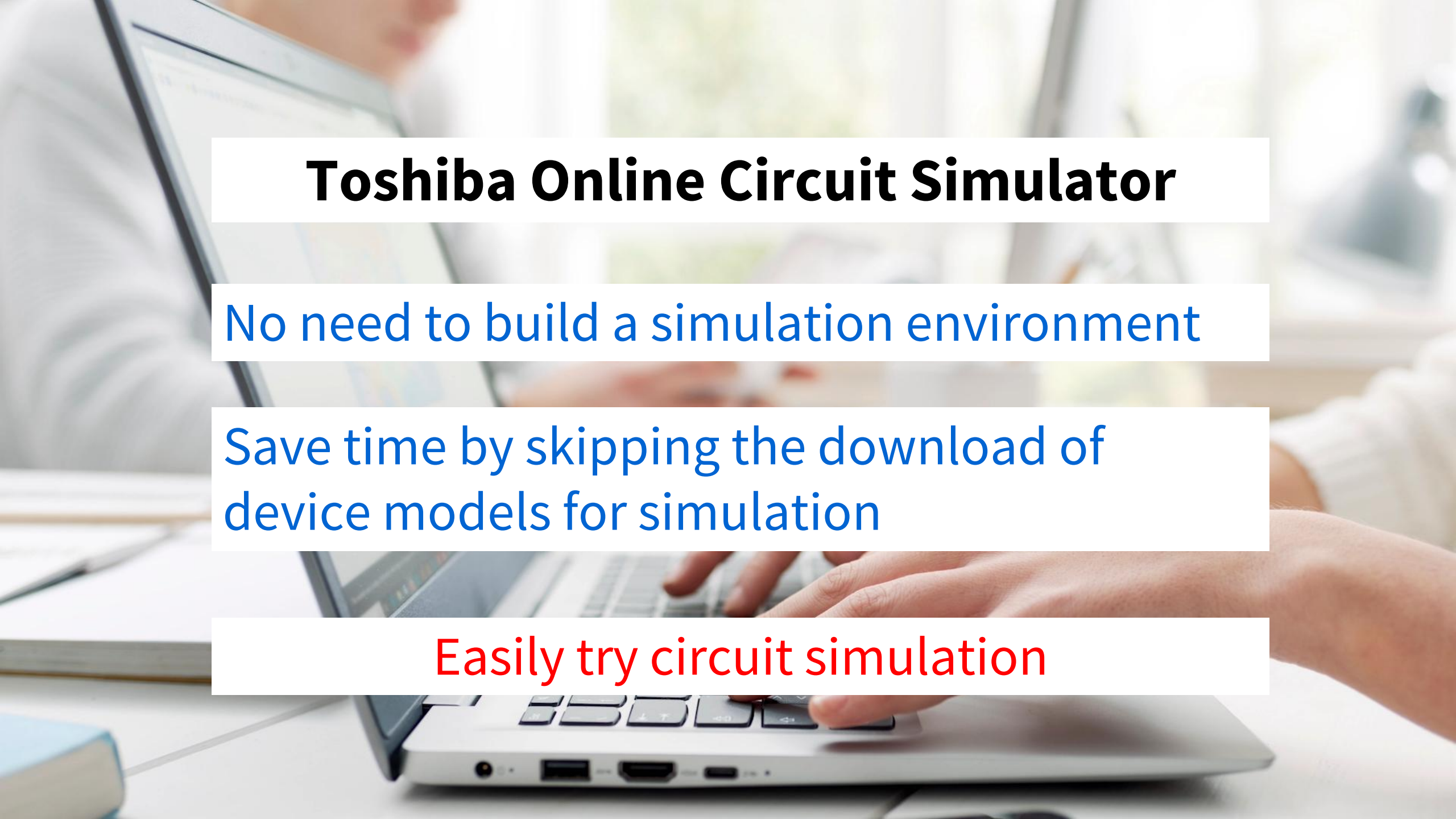
MOSFET
Primary= Product D
Secondary= Product B

※The image is a simulator image and may differ from the actual screen

Selection of MOSFET



※The image is a simulator image and may differ from the actual screen



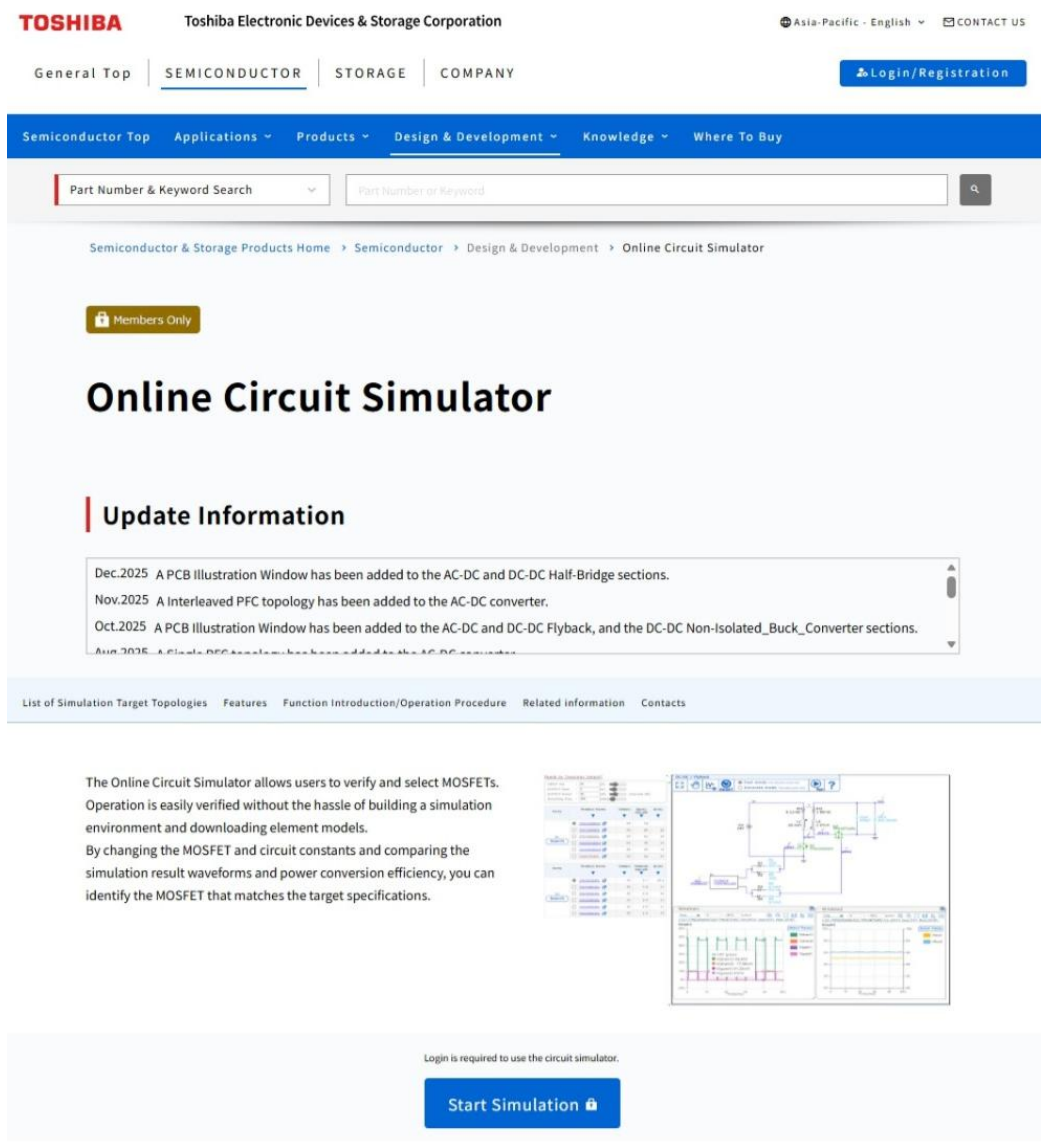
Toshiba Online Circuit Simulator

No need to build a simulation environment

Save time by skipping the download of device models for simulation

Easily try circuit simulation

Online Circuit Simulator



Easy to simulate circuitry on Web

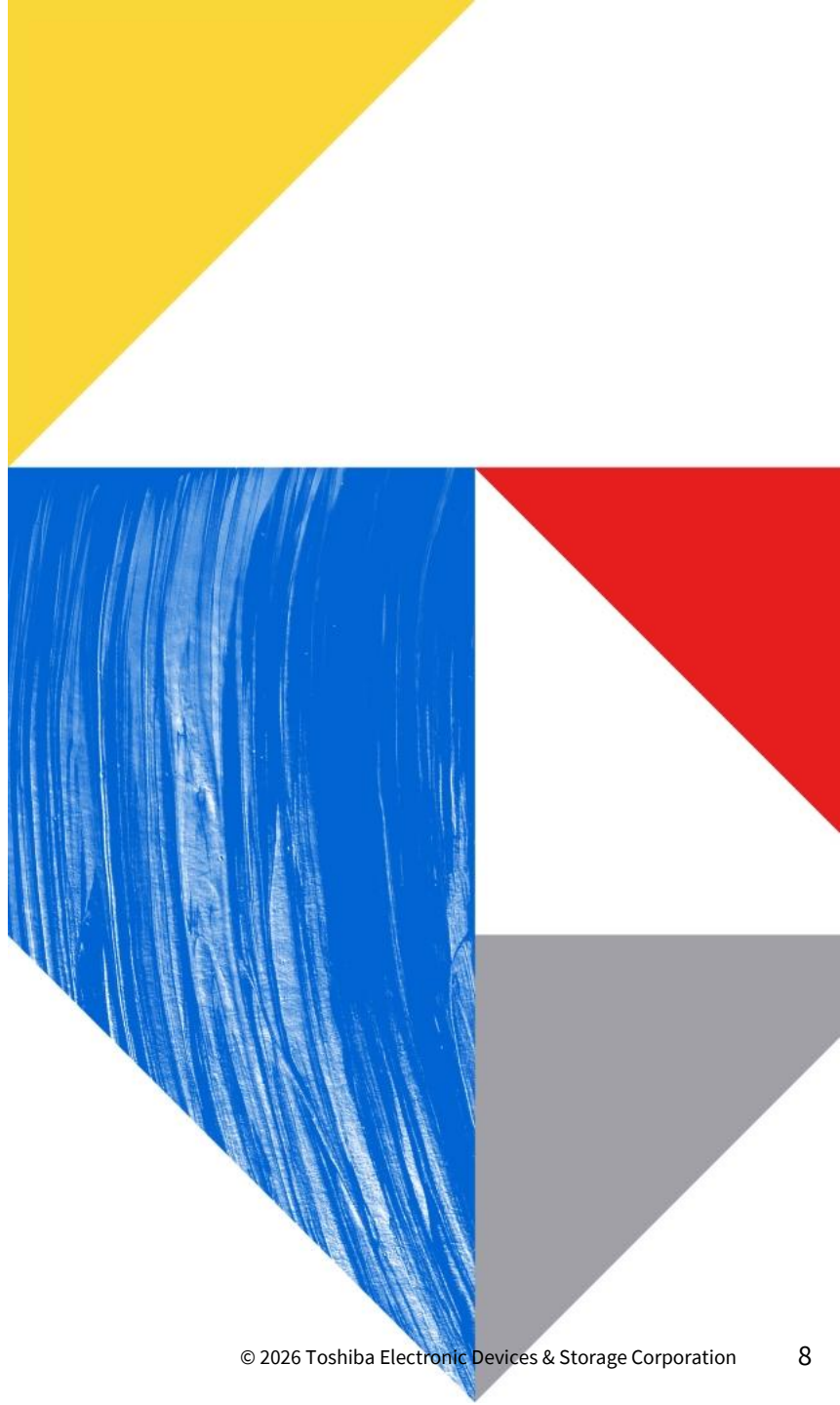
Supporting MOSFET Selection

Comparison of waveform and power conversion efficiency is possible

https://toshiba.semicon-storage.com/ad/semiconductor/design-development/online-circuit-simulator-introduction.html

02

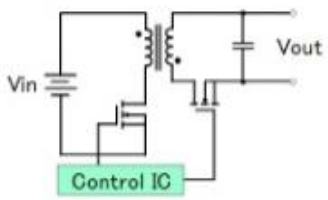
Operation Instructions



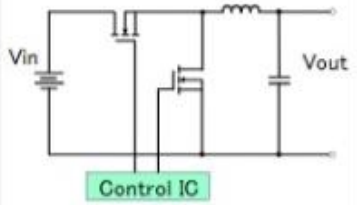
Topology selection

ALL | DC-DC | AC-DC

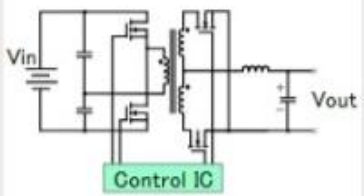
•DC-DC



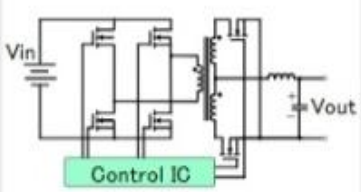
Flyback



Non-Isolated_Buck_Converter

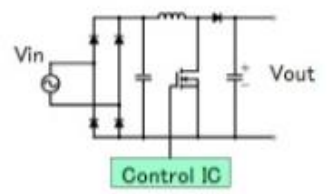


Half-Bridge



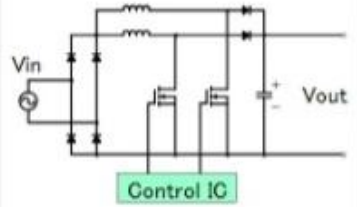
Full-Bridge

•AC-DC
-PFC (First Stage of AC-DC Converter)



Single_PFC

New

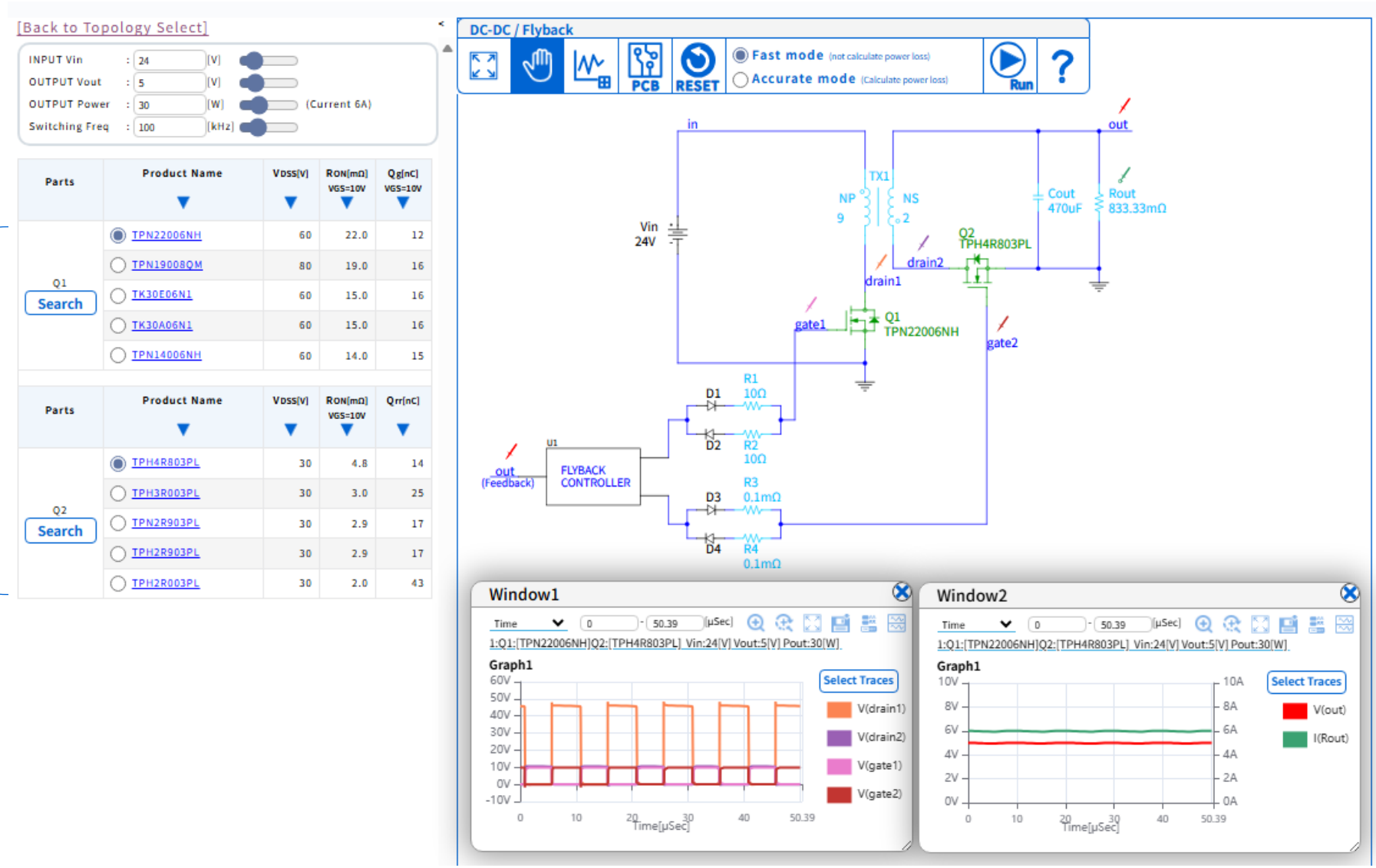


Interleaved_PFC

Initial screen after topology selection

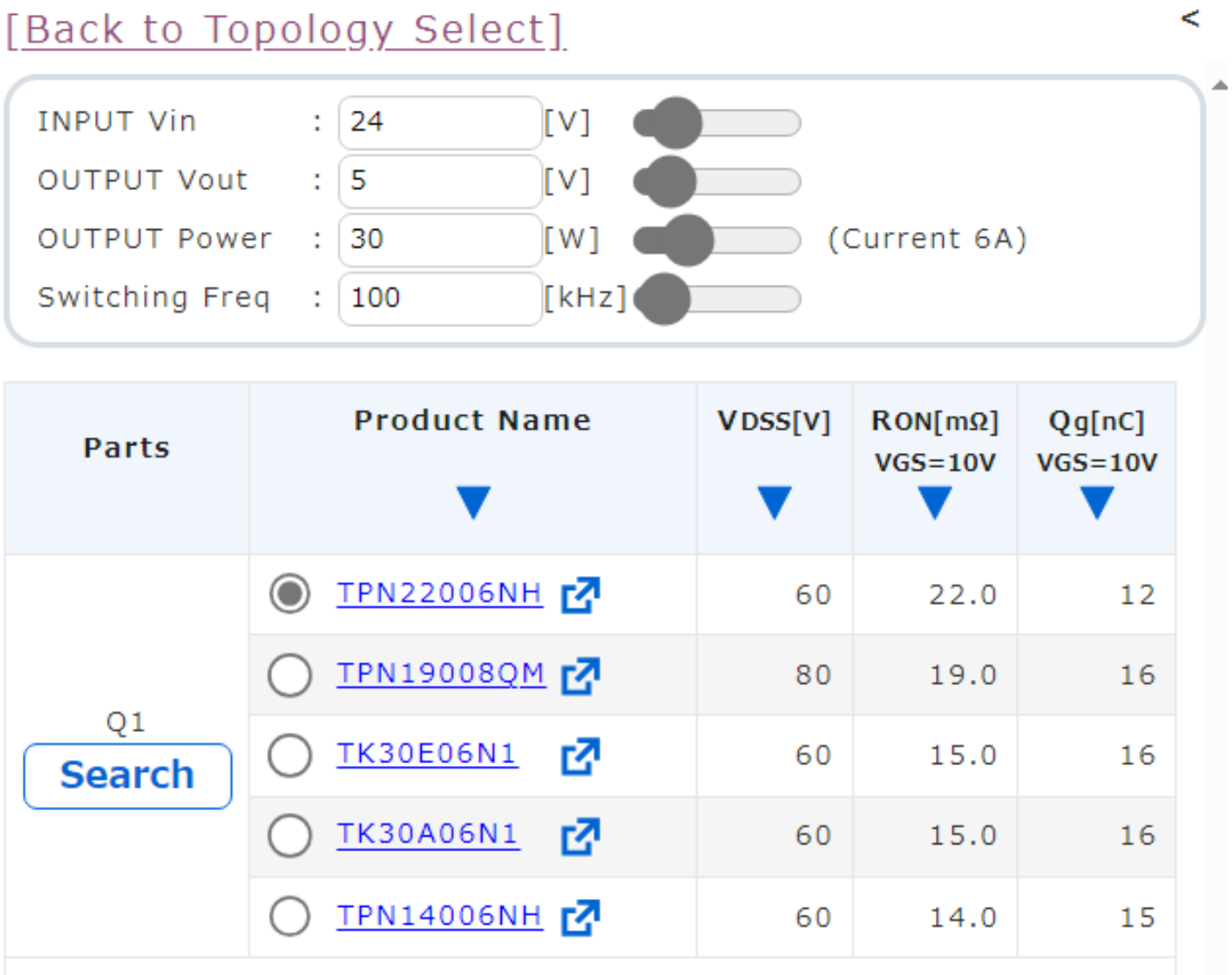
Four Power Supply Specifications

MOSFET list



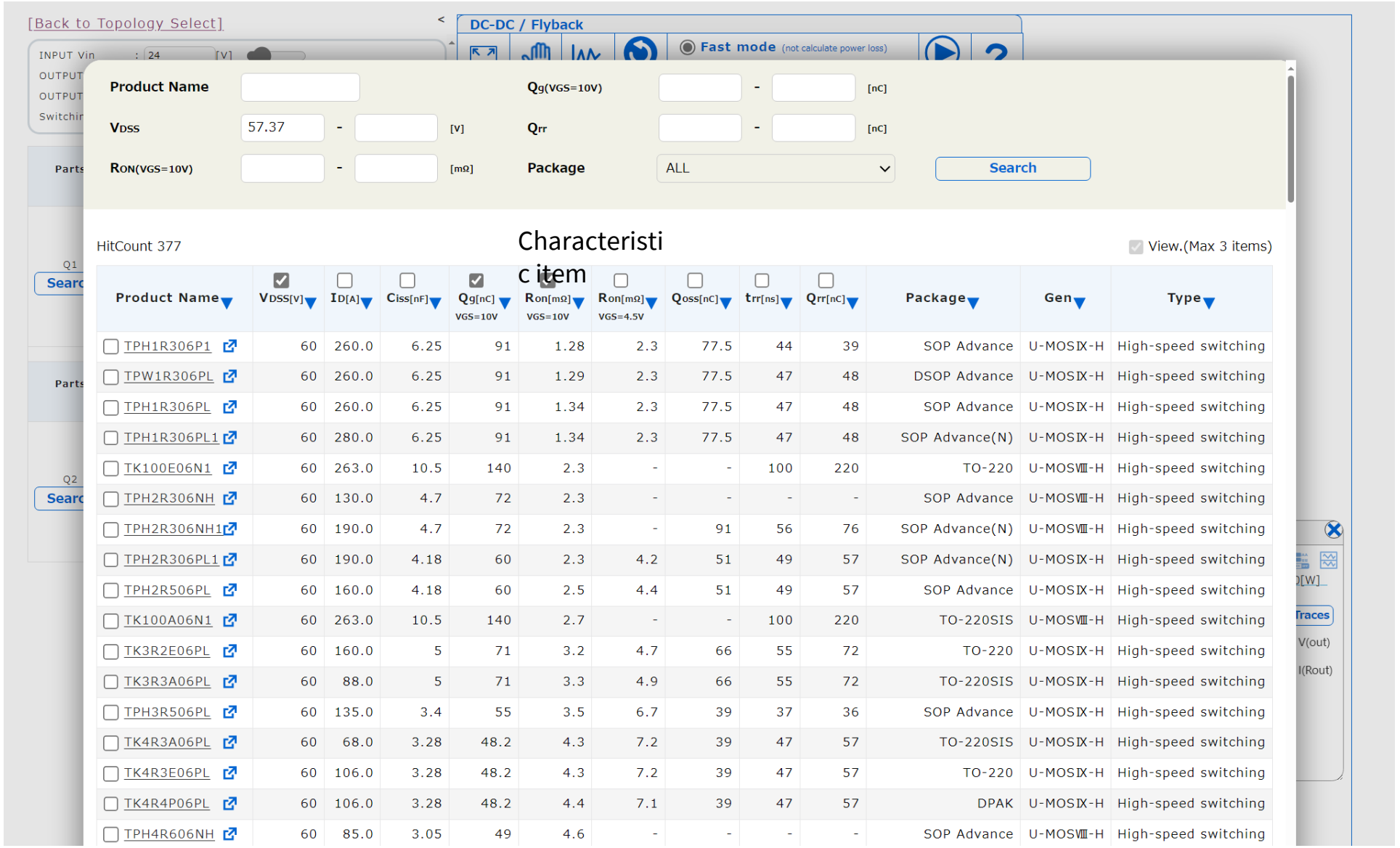
※The image is a simulator image and may differ from the actual screen

Switching MOSFET



Characteristic items

Switching MOSFET



Product Name	VDSS[V]	ID[A]	Ciss[nF]	Qg[nC] VGS=10V	Ron[mΩ] VGS=10V	Ron[mΩ] VGS=4.5V	Qoss[nC]	trr[ns]	Qrr[nC]	Package	Gen	Type
TPH1R306P1	60	260.0	6.25	91	1.28	2.3	77.5	44	39	SOP Advance	U-MOSIX-H	High-speed switching
TPW1R306PL	60	260.0	6.25	91	1.29	2.3	77.5	47	48	DSOP Advance	U-MOSIX-H	High-speed switching
TPH1R306PL	60	260.0	6.25	91	1.34	2.3	77.5	47	48	SOP Advance	U-MOSIX-H	High-speed switching
TPH1R306PL1	60	280.0	6.25	91	1.34	2.3	77.5	47	48	SOP Advance(N)	U-MOSIX-H	High-speed switching
TK100E06N1	60	263.0	10.5	140	2.3	-	-	100	220	TO-220	U-MOSVIII-H	High-speed switching
TPH2R306NH	60	130.0	4.7	72	2.3	-	-	-	-	SOP Advance	U-MOSVIII-H	High-speed switching
TPH2R306NH1	60	190.0	4.7	72	2.3	-	91	56	76	SOP Advance(N)	U-MOSVIII-H	High-speed switching
TPH2R306PL1	60	190.0	4.18	60	2.3	4.2	51	49	57	SOP Advance(N)	U-MOSIX-H	High-speed switching
TPH2R506PL	60	160.0	4.18	60	2.5	4.4	51	49	57	SOP Advance	U-MOSIX-H	High-speed switching
TK100A06N1	60	263.0	10.5	140	2.7	-	-	100	220	TO-220SIS	U-MOSVIII-H	High-speed switching
TK3R2E06PL	60	160.0	5	71	3.2	4.7	66	55	72	TO-220	U-MOSIX-H	High-speed switching
TK3R3A06PL	60	88.0	5	71	3.3	4.9	66	55	72	TO-220SIS	U-MOSIX-H	High-speed switching
TPH3R506PL	60	135.0	3.4	55	3.5	6.7	39	37	36	SOP Advance	U-MOSIX-H	High-speed switching
TK4R3A06PL	60	68.0	3.28	48.2	4.3	7.2	39	47	57	TO-220SIS	U-MOSIX-H	High-speed switching
TK4R3E06PL	60	106.0	3.28	48.2	4.3	7.2	39	47	57	TO-220	U-MOSIX-H	High-speed switching
TK4R4P06PL	60	106.0	3.28	48.2	4.4	7.1	39	47	57	DPAK	U-MOSIX-H	High-speed switching
TPH4R606NH	60	85.0	3.05	49	4.6	-	-	-	-	SOP Advance	U-MOSVIII-H	High-speed switching

Product-detailed display of MOSFET

TOSHIBA Toshiba Electronic Devices & Storage Corporation

Asia-Pacific - English

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TPN22006NH

Power MOSFET (N-ch single 30V<VDSS≤60V)

Switched Mode Power Supply Library | Online Circuit Simulator

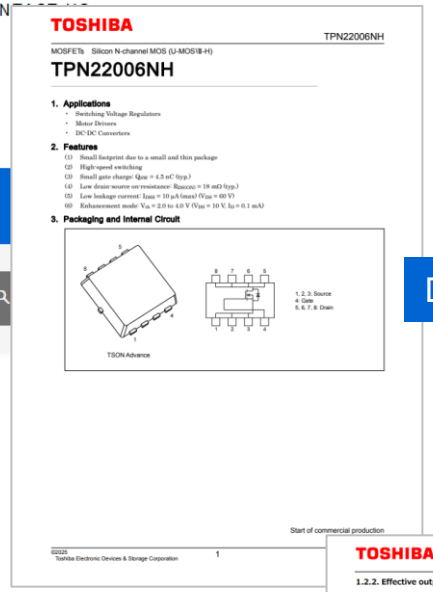
Stock Check | Inquiry | Parametric search

ALL | Data sheet | Application Note | Other

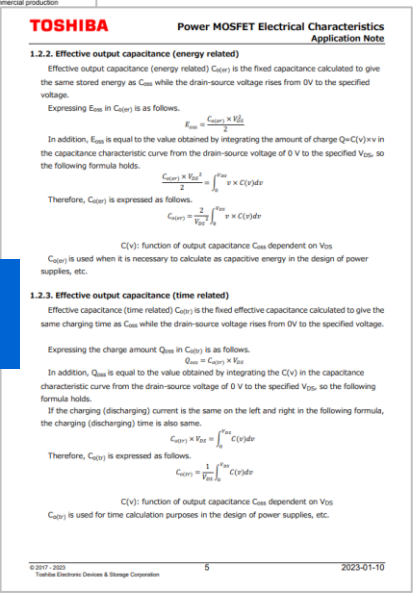
Data sheet
TPN22006NH Data sheet/Japanese[Sep,2025]
PDF: 373KB >

Data sheet
TPN22006NH Data sheet/English[Sep,2025]
PDF: 254KB >

Simulation Model
PSpice Model[Jan,2024]
ZIP: 42KB >

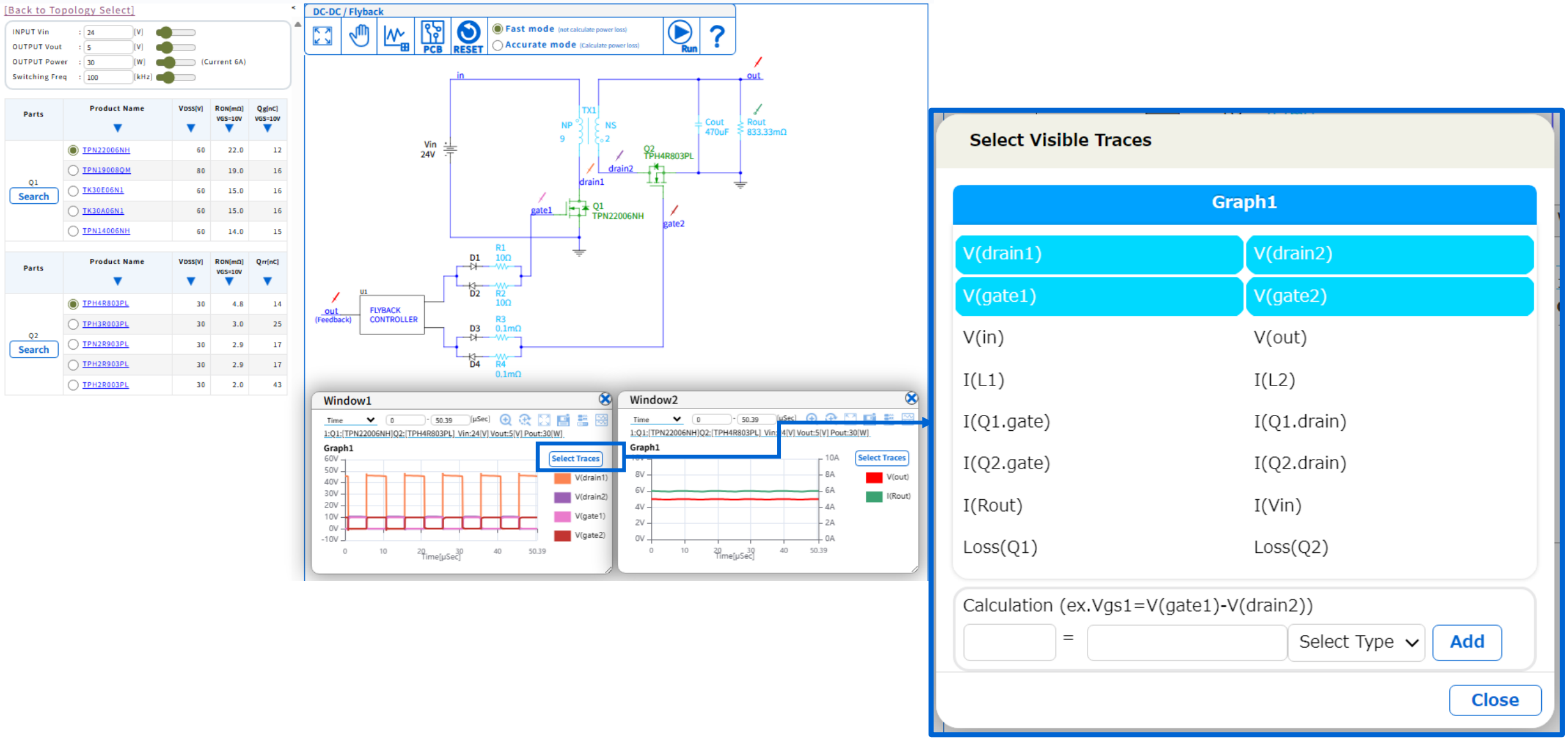

TOSHIBA TPN22006NH
MOSFETs Silicon N-channel MOS (U-MOSⅧ-H)
TPN22006NH
1. Applications
2. Features
3. Packaging and Internal Circuit

Data Sheet

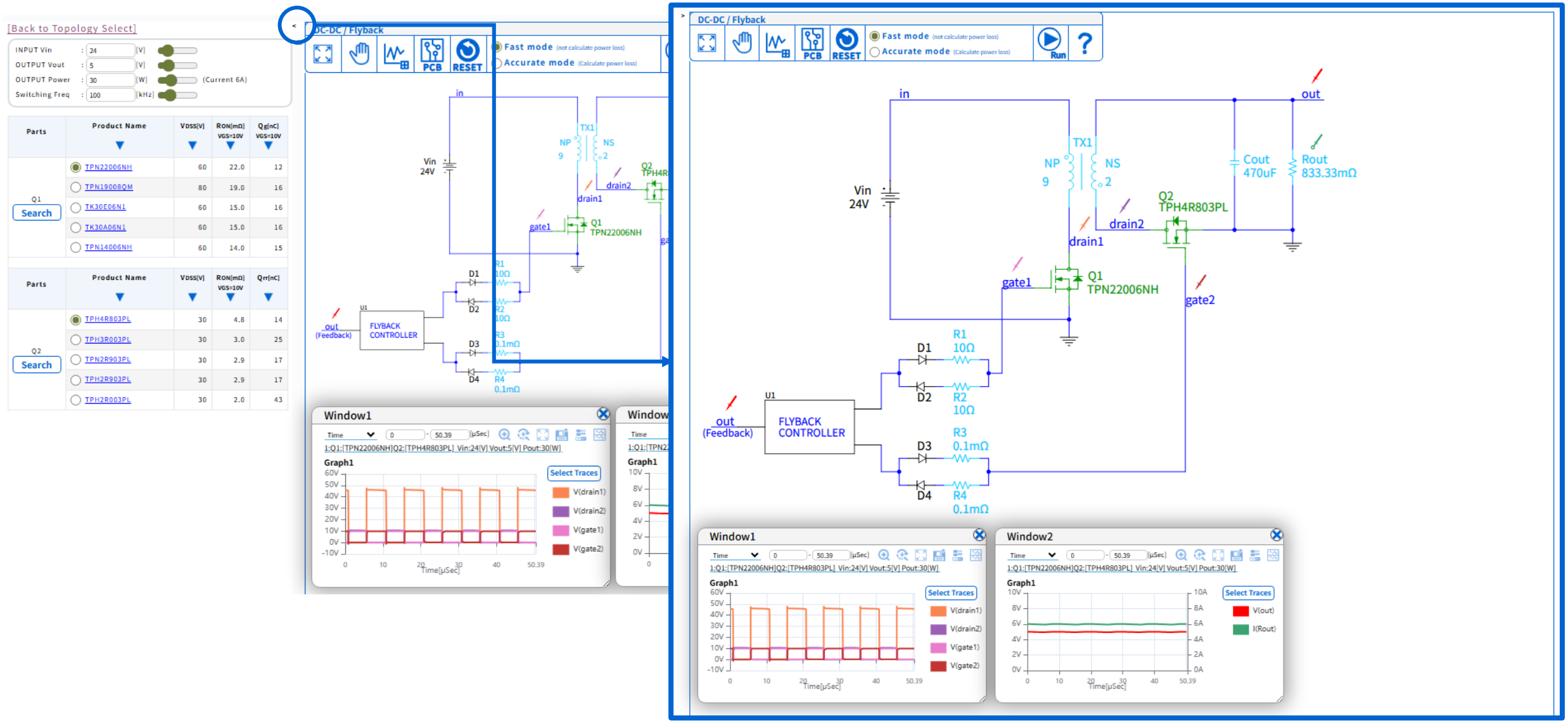

TOSHIBA Power MOSFET Electrical Characteristics Application Note
1.2.2. Effective output capacitance (energy related)
1.2.3. Effective output capacitance (time related)

Application Notes

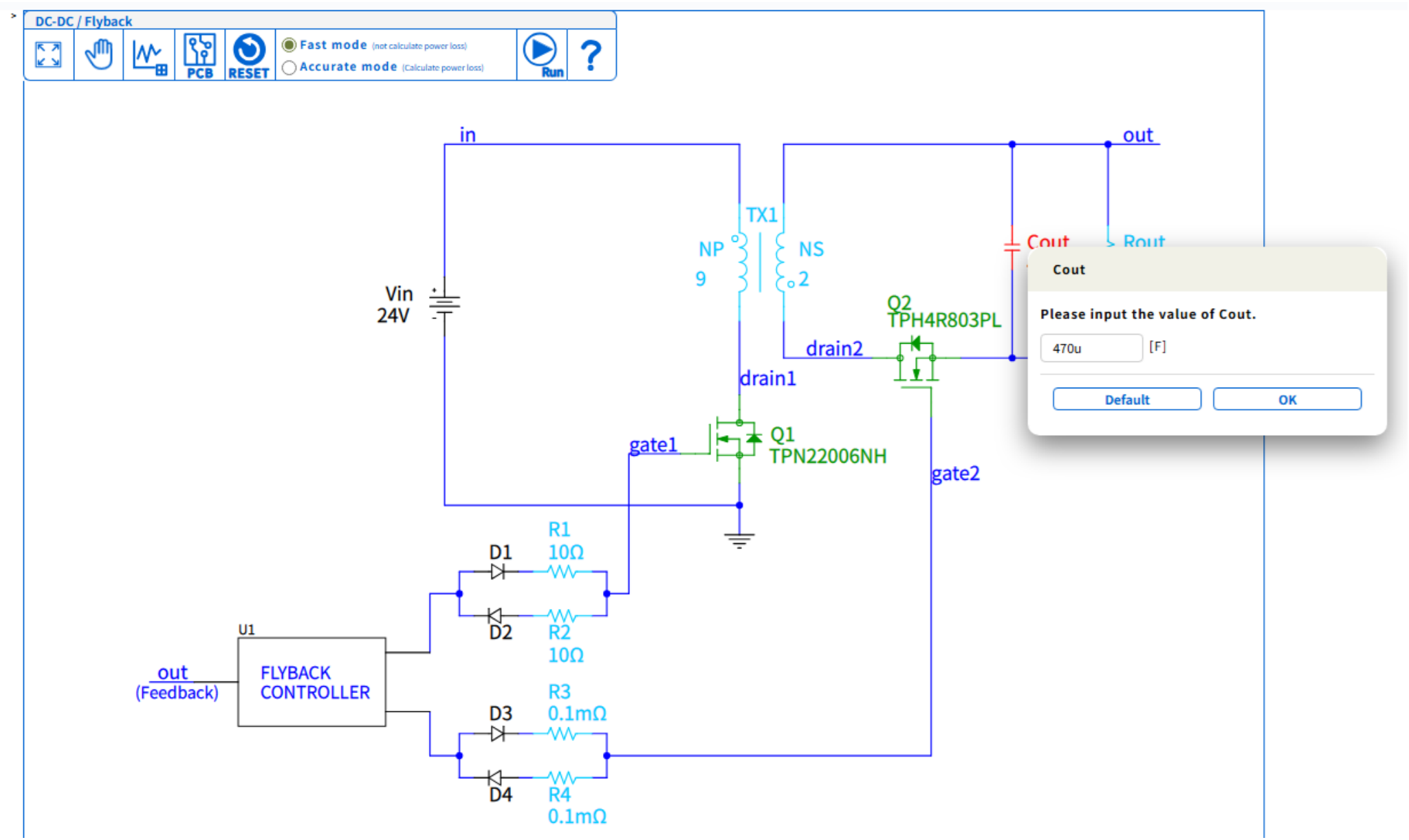
Simulation setting



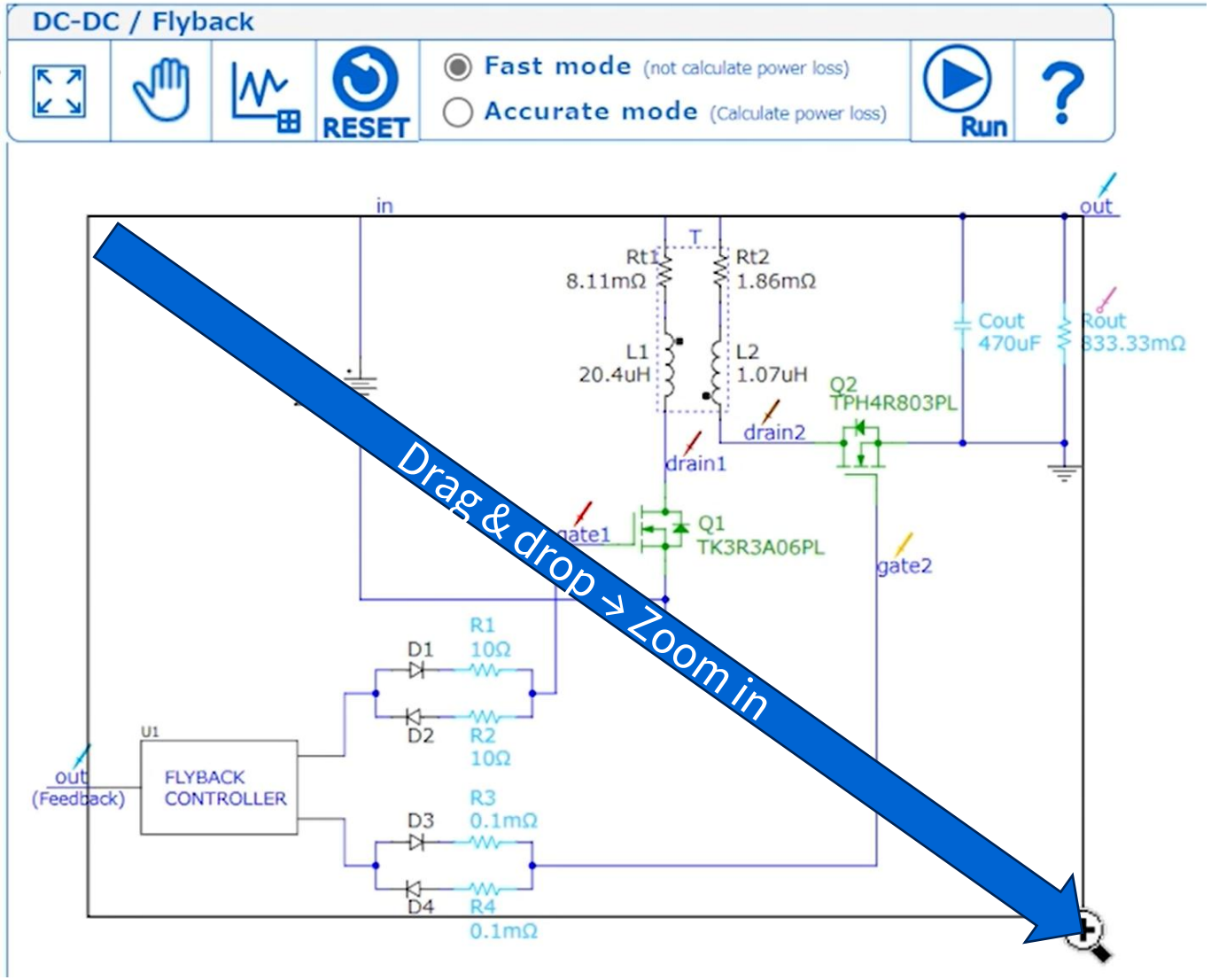
Folding Input/Output Settings and MOSFET List



Changing the circuit constant

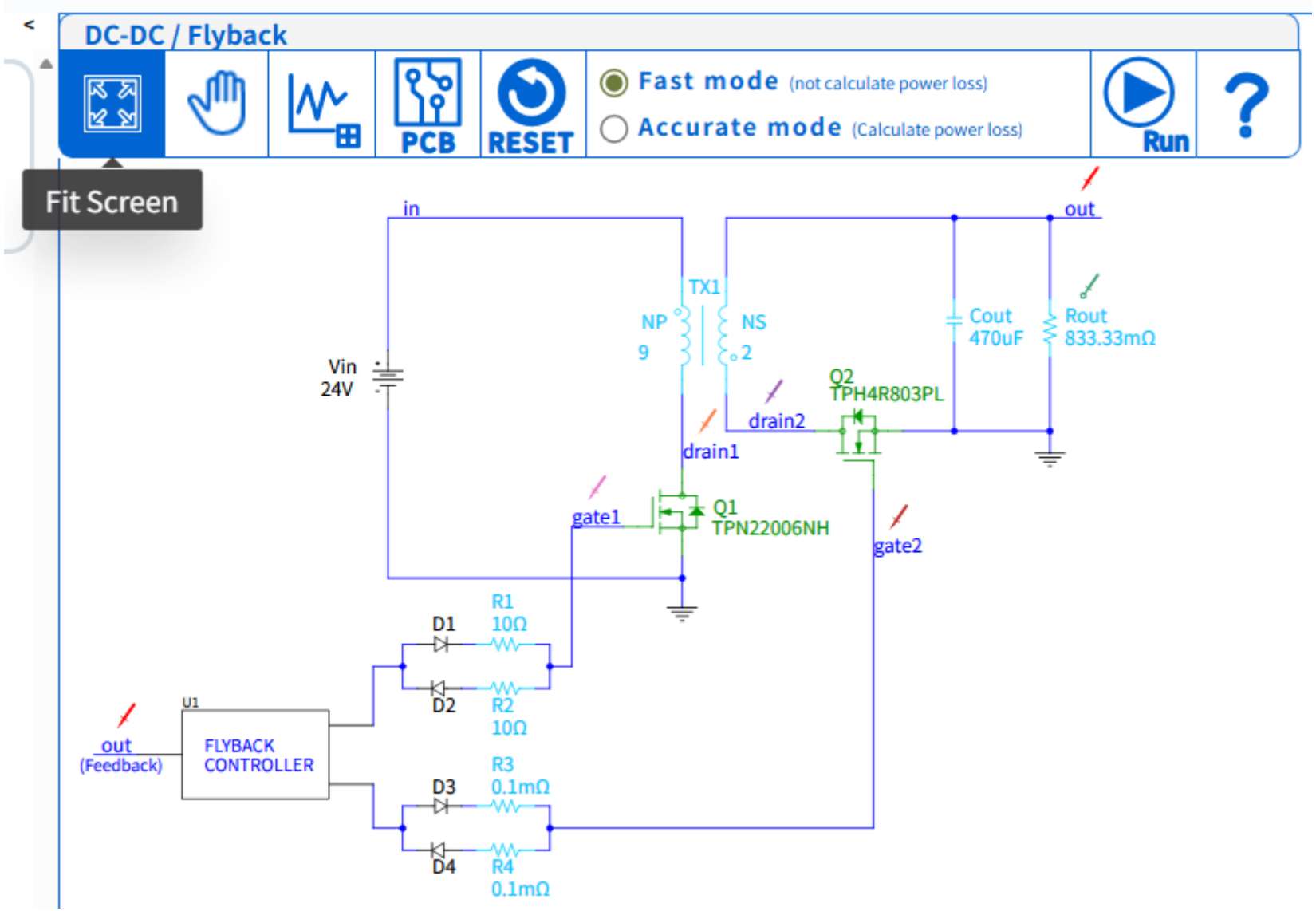


Resizing the schematic

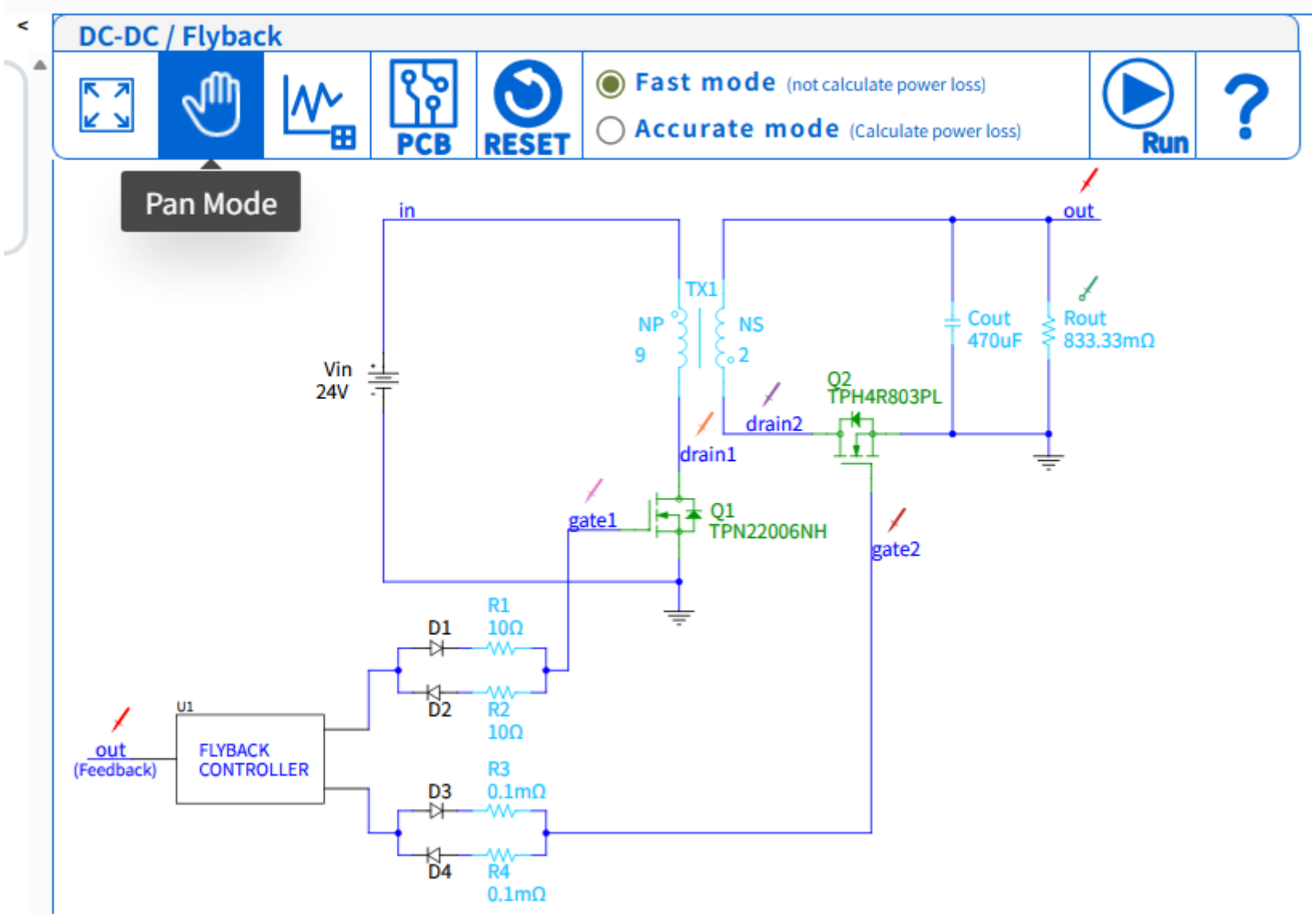


Zooming in and out of the schematic can also be done by pressing Ctrl and using the scrollwheel on the mouse.

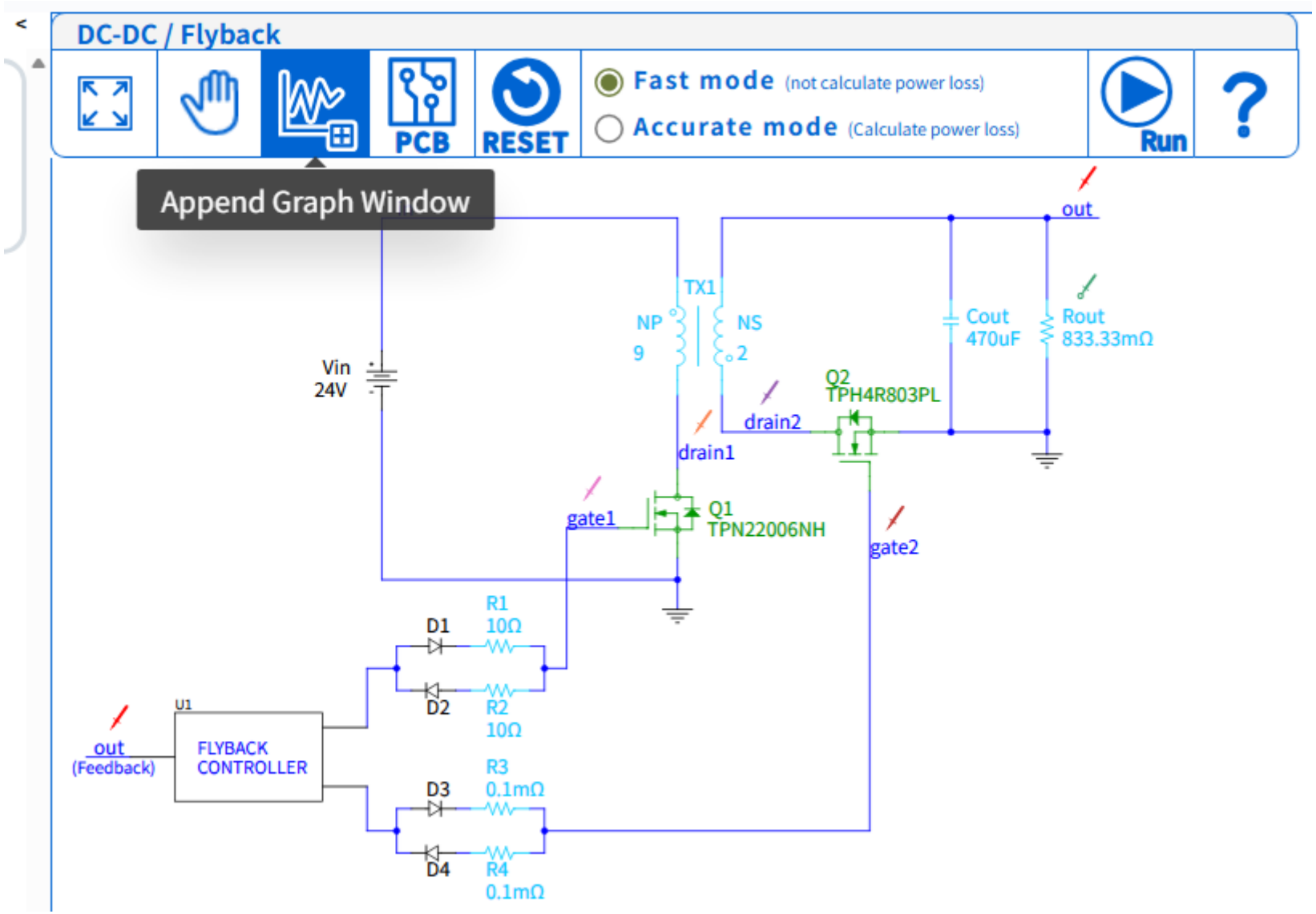
General view of circuit diagram



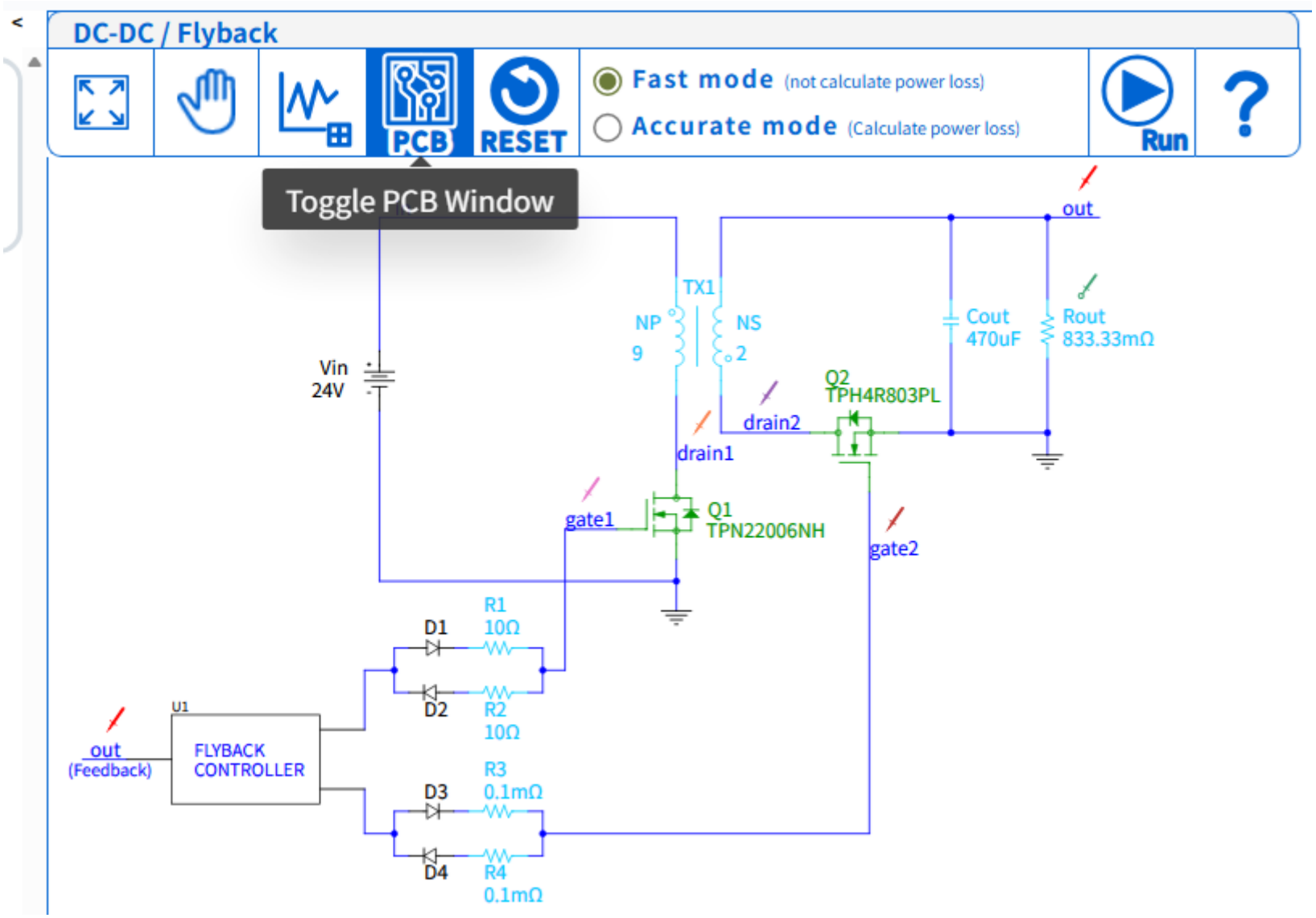
Moving the schematic



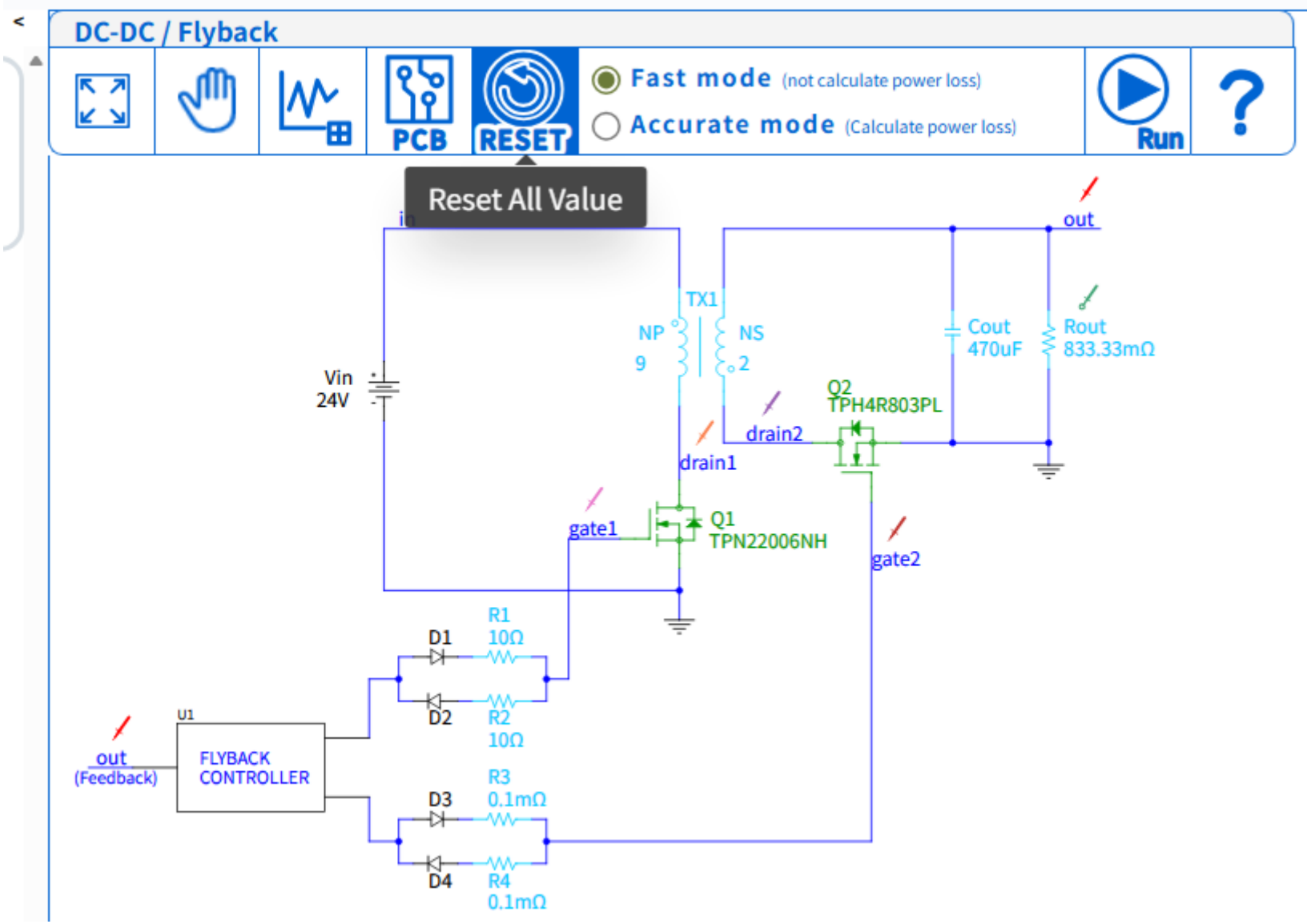
Adding a Graph Screen



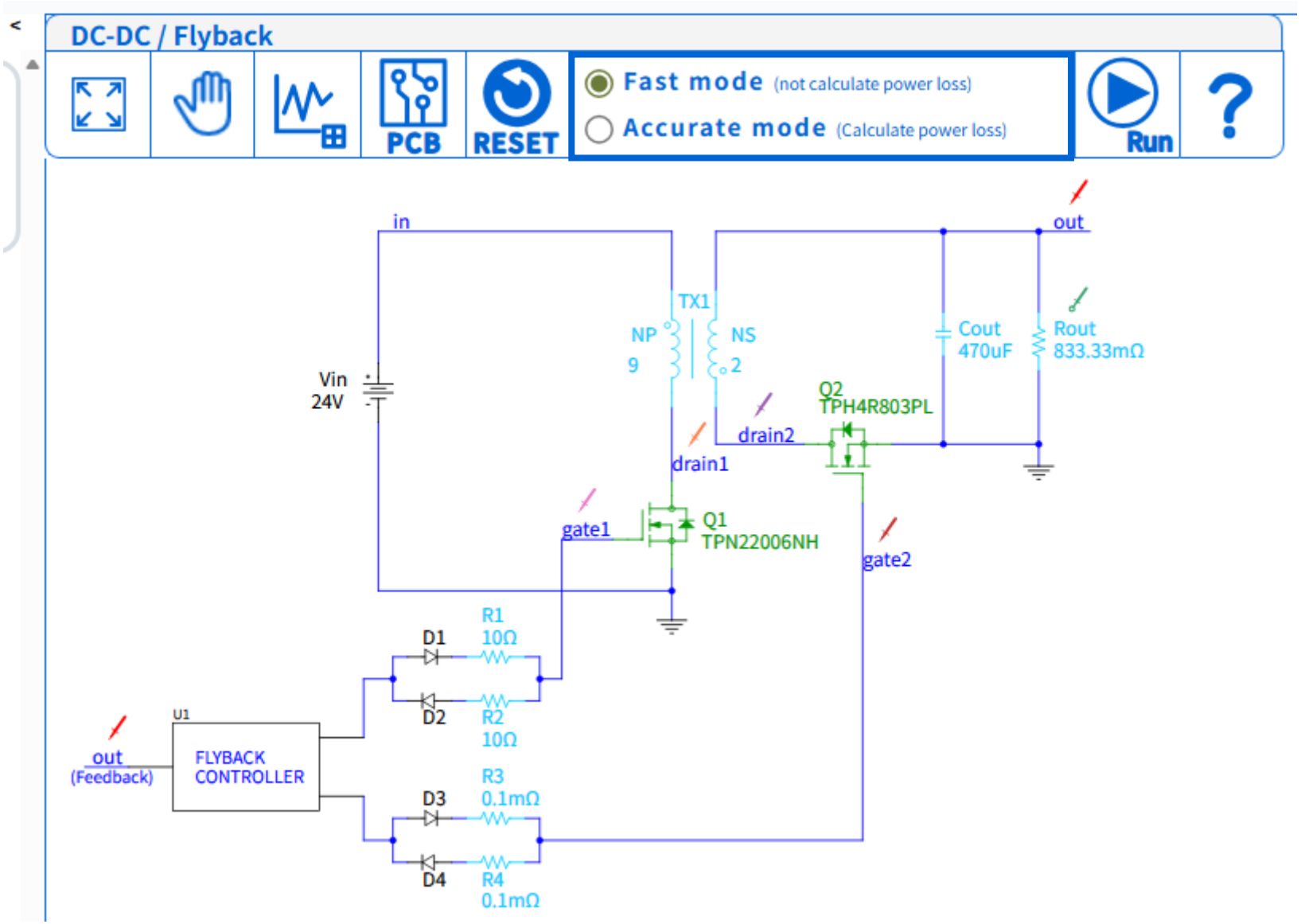
PCB window



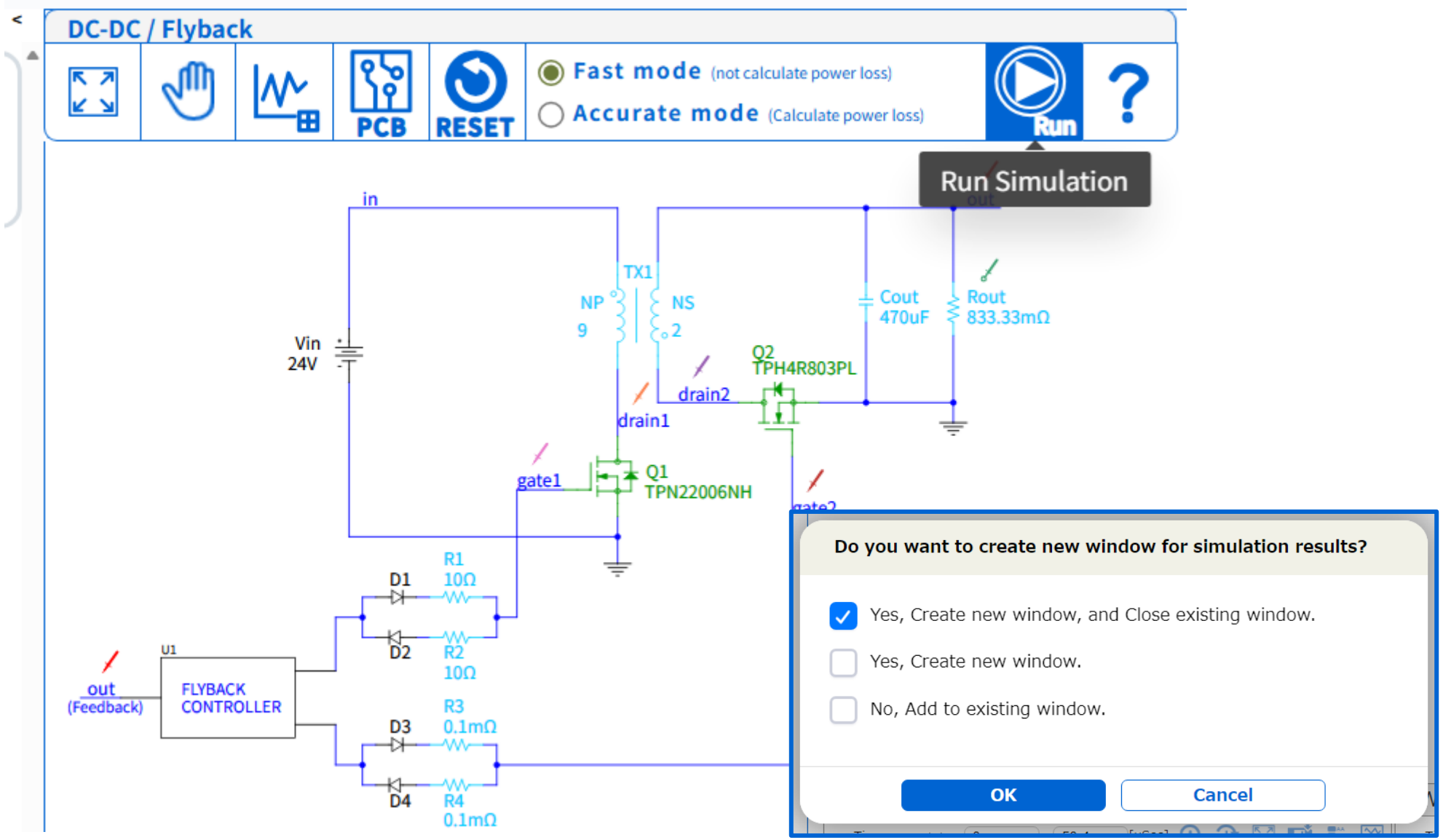
Reset All Value



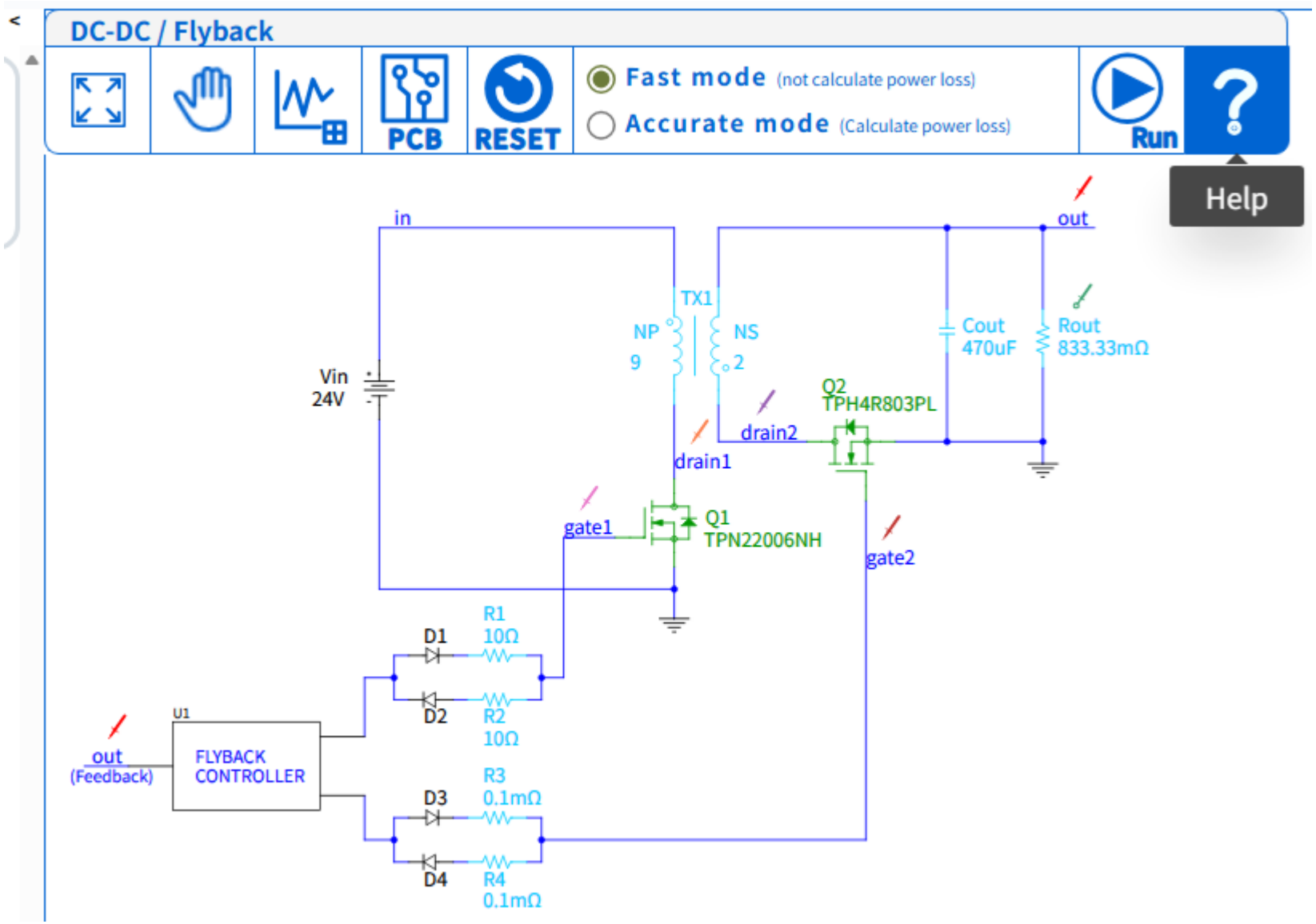
Simulation Mode Selection



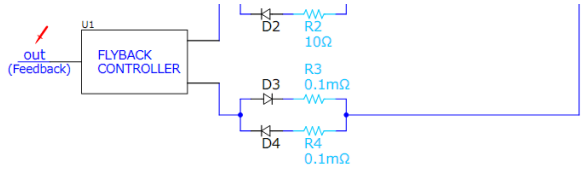
Running a Simulation

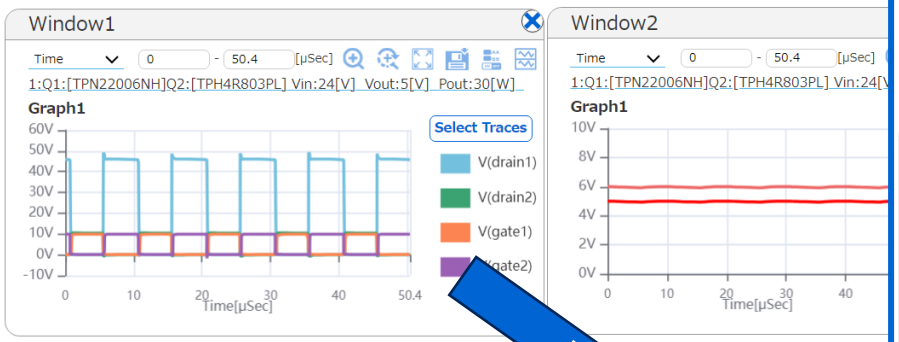


Help indication

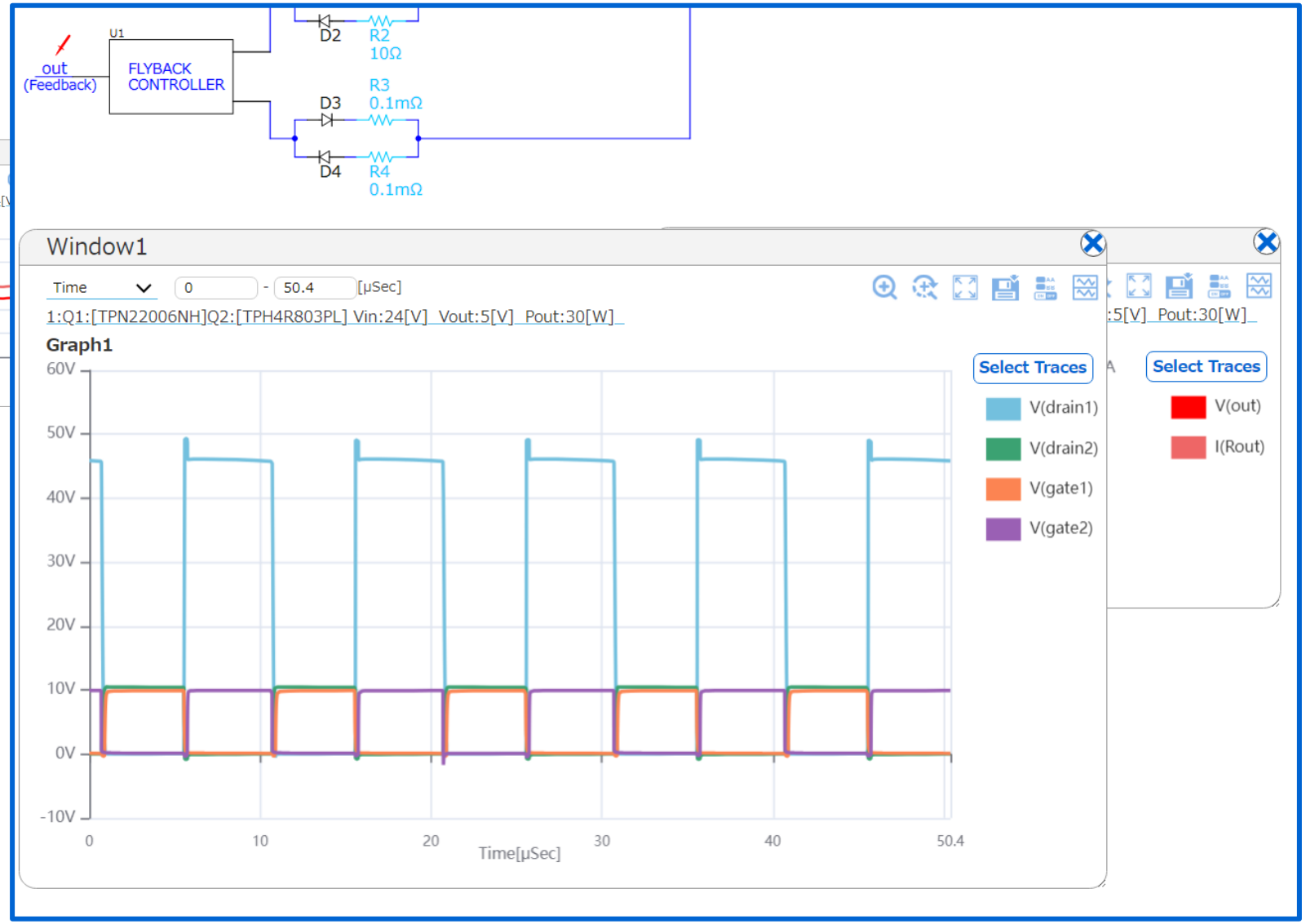


Resizing the Graph Screen

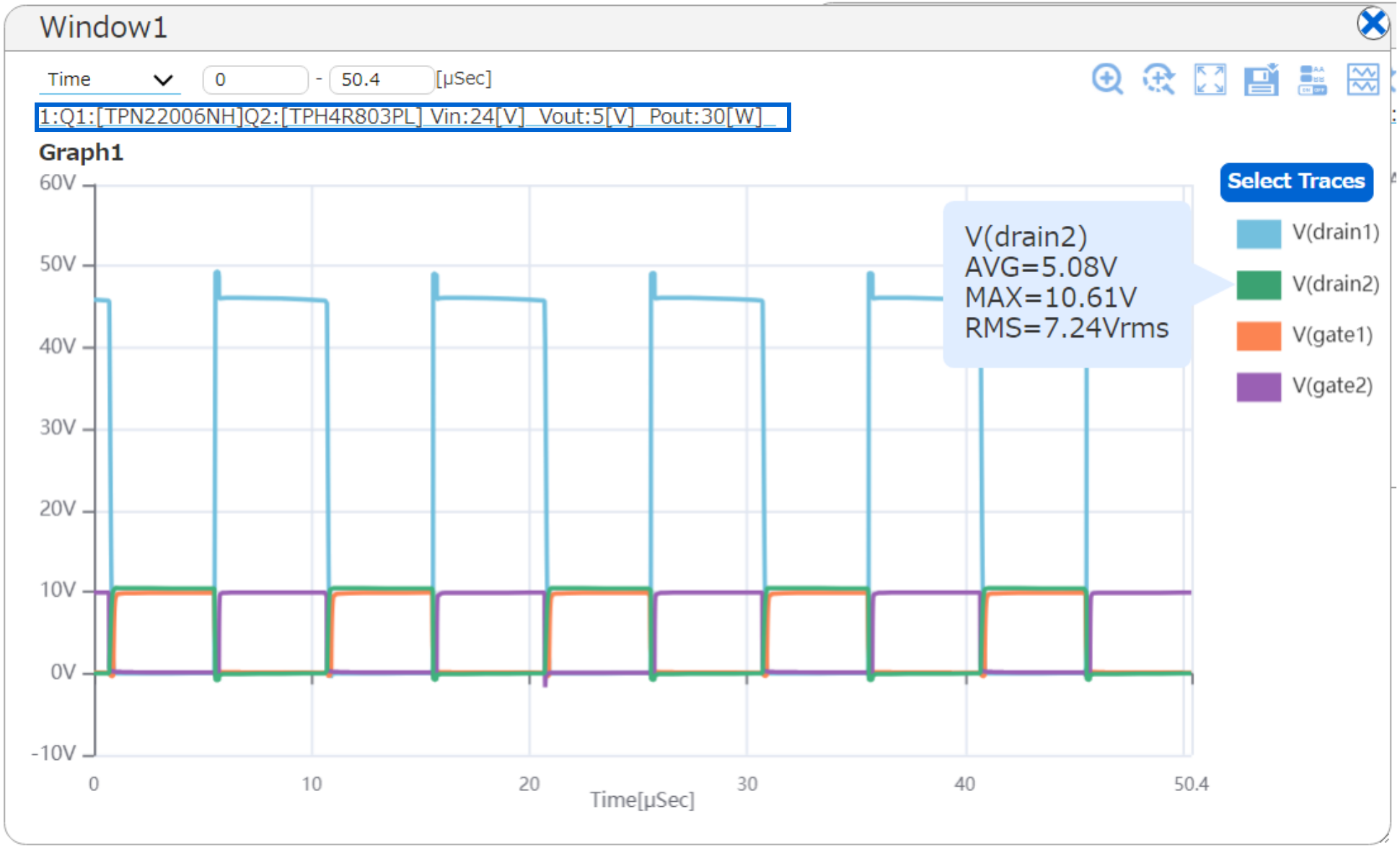




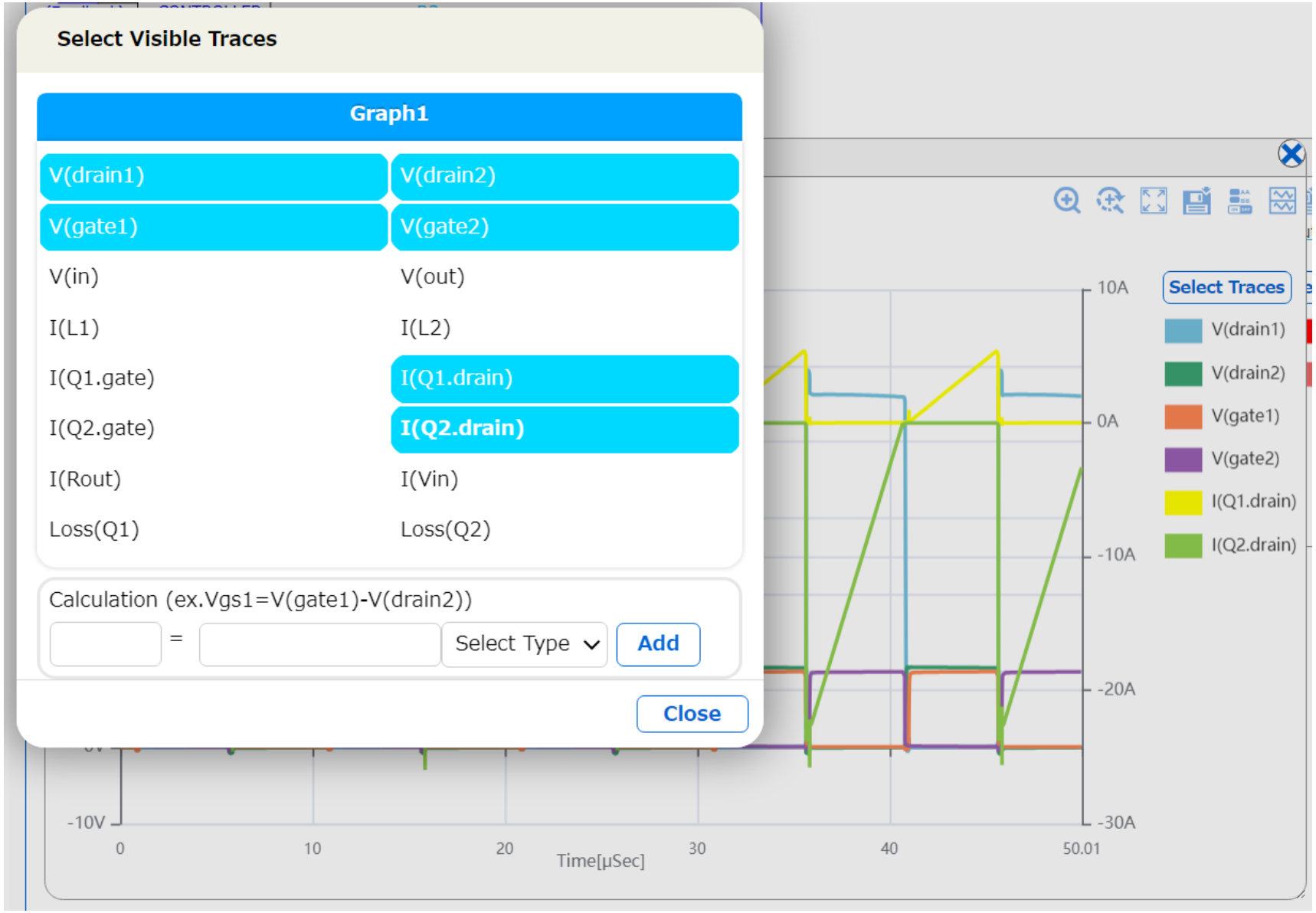
Drag → Enlarge



Information display of simulation results



Select waveform to display



Changing waveform color

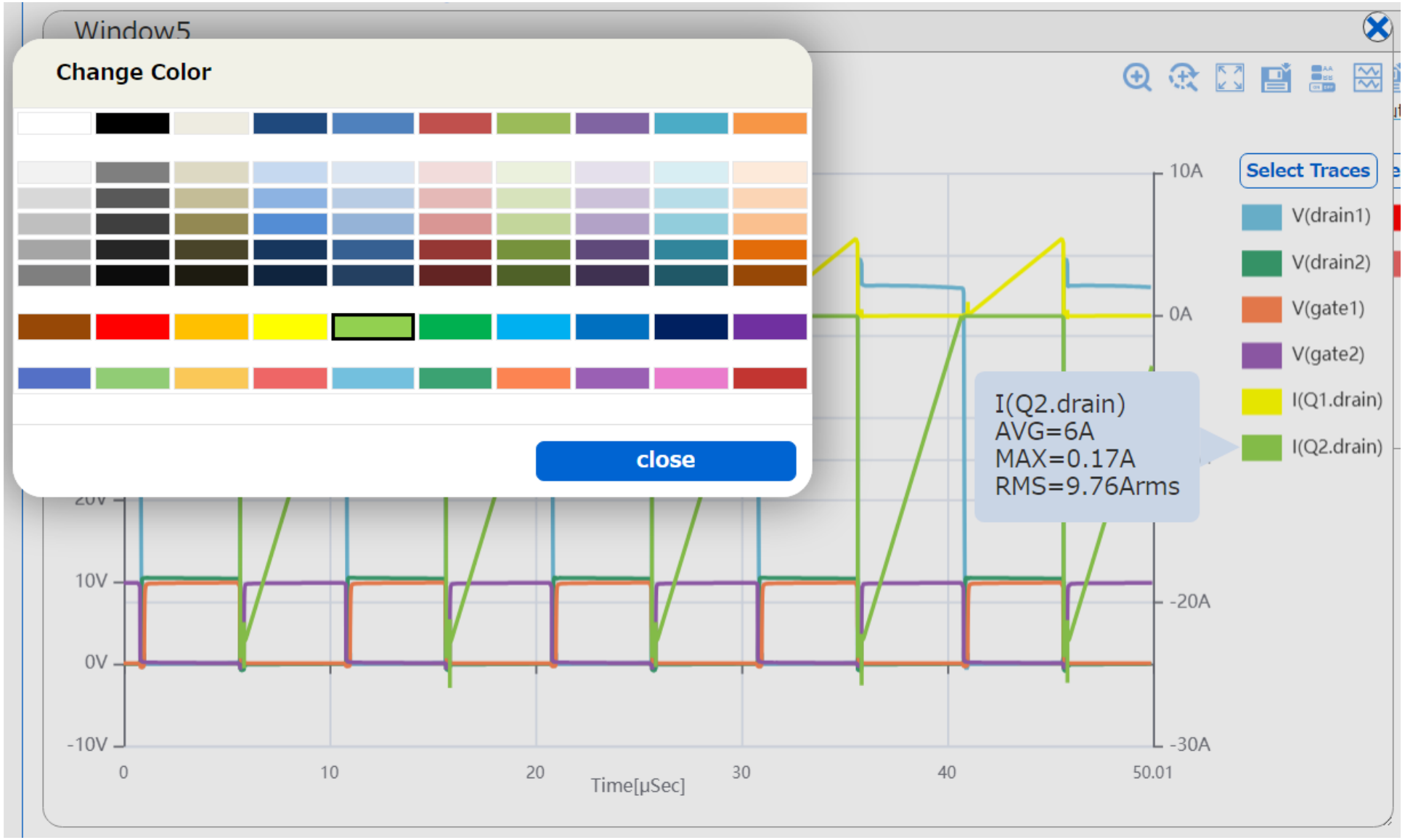
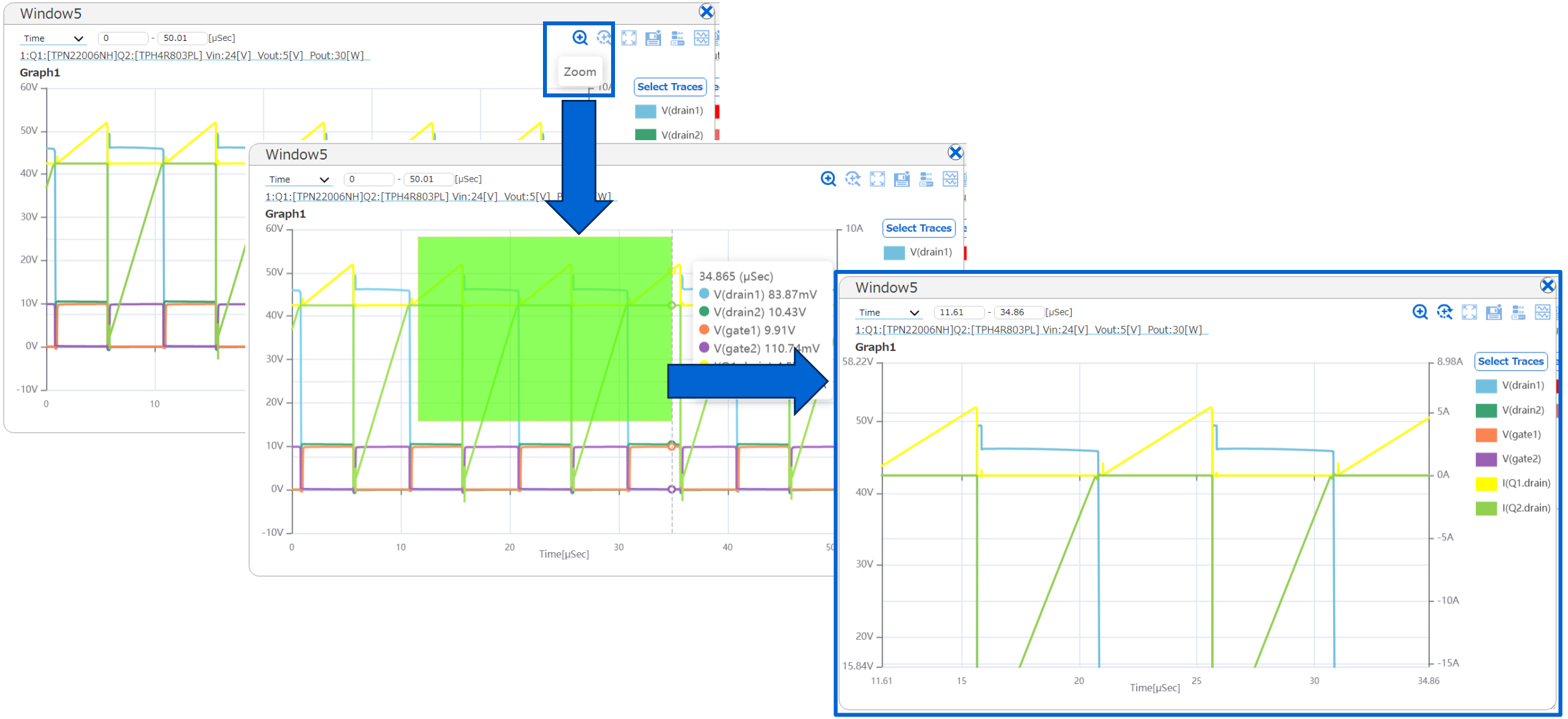
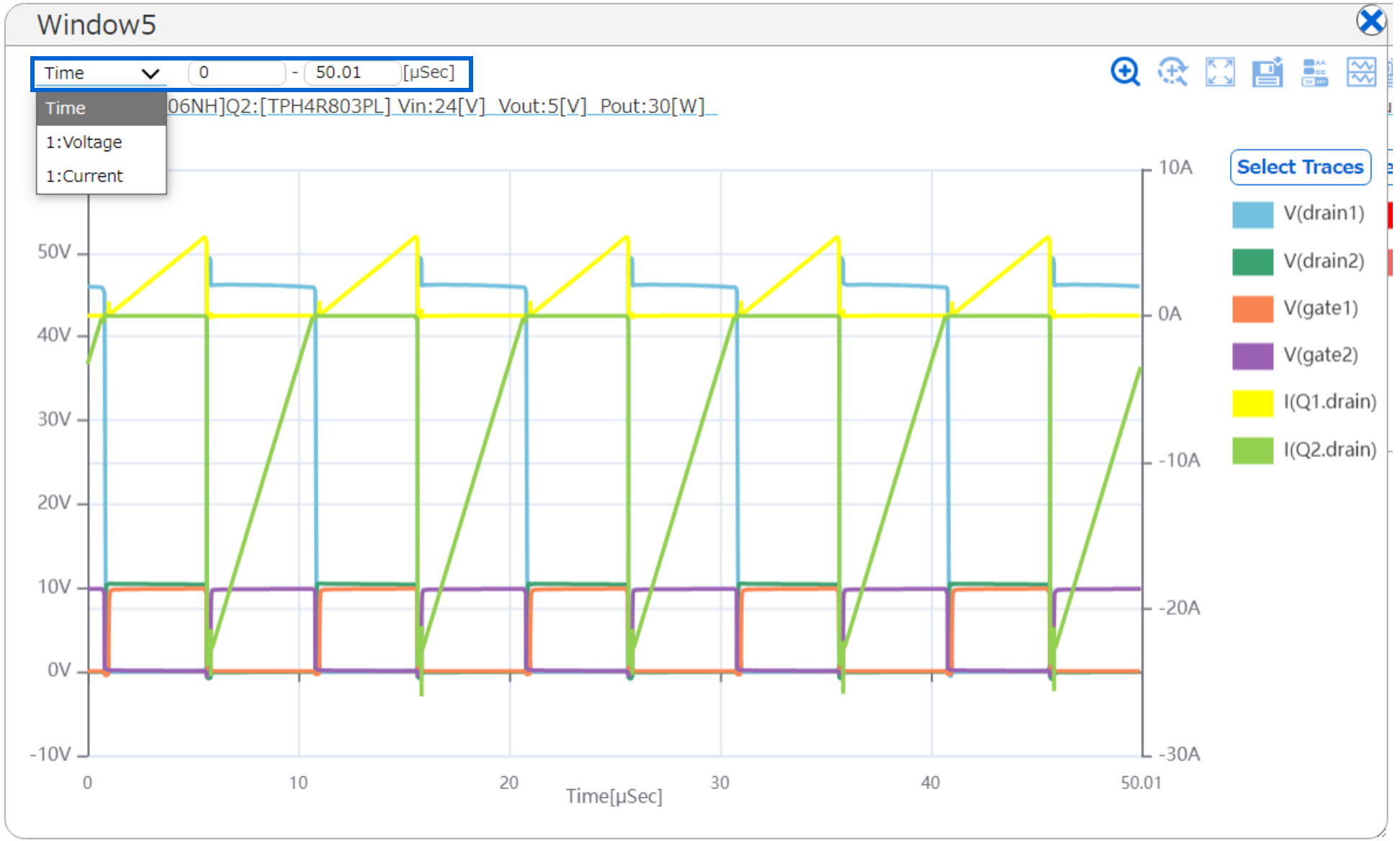


Chart Zoom and Zoom Undo

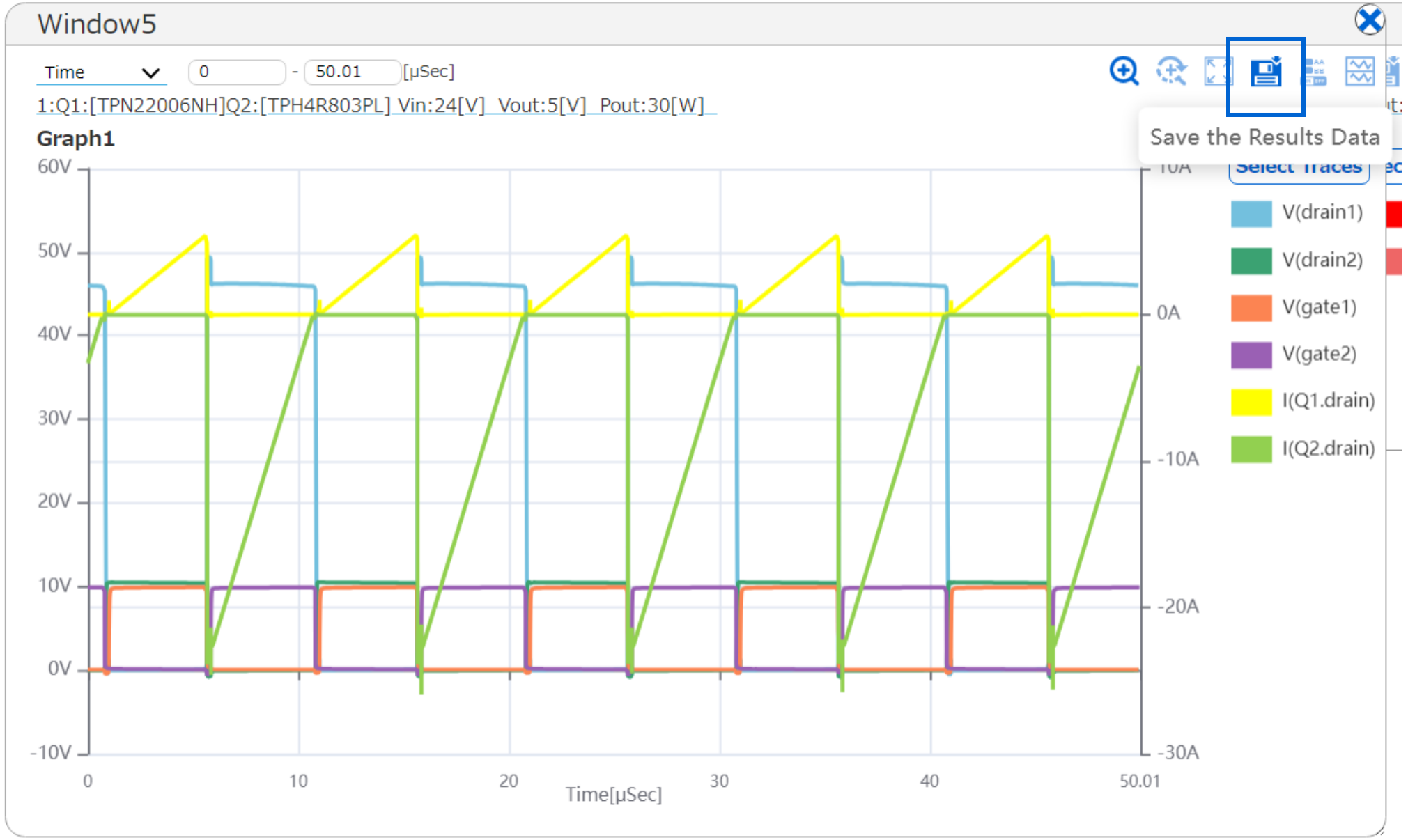


You can also use the mouse scroll wheel to zoom in or out.

Enlarged range specification of graph

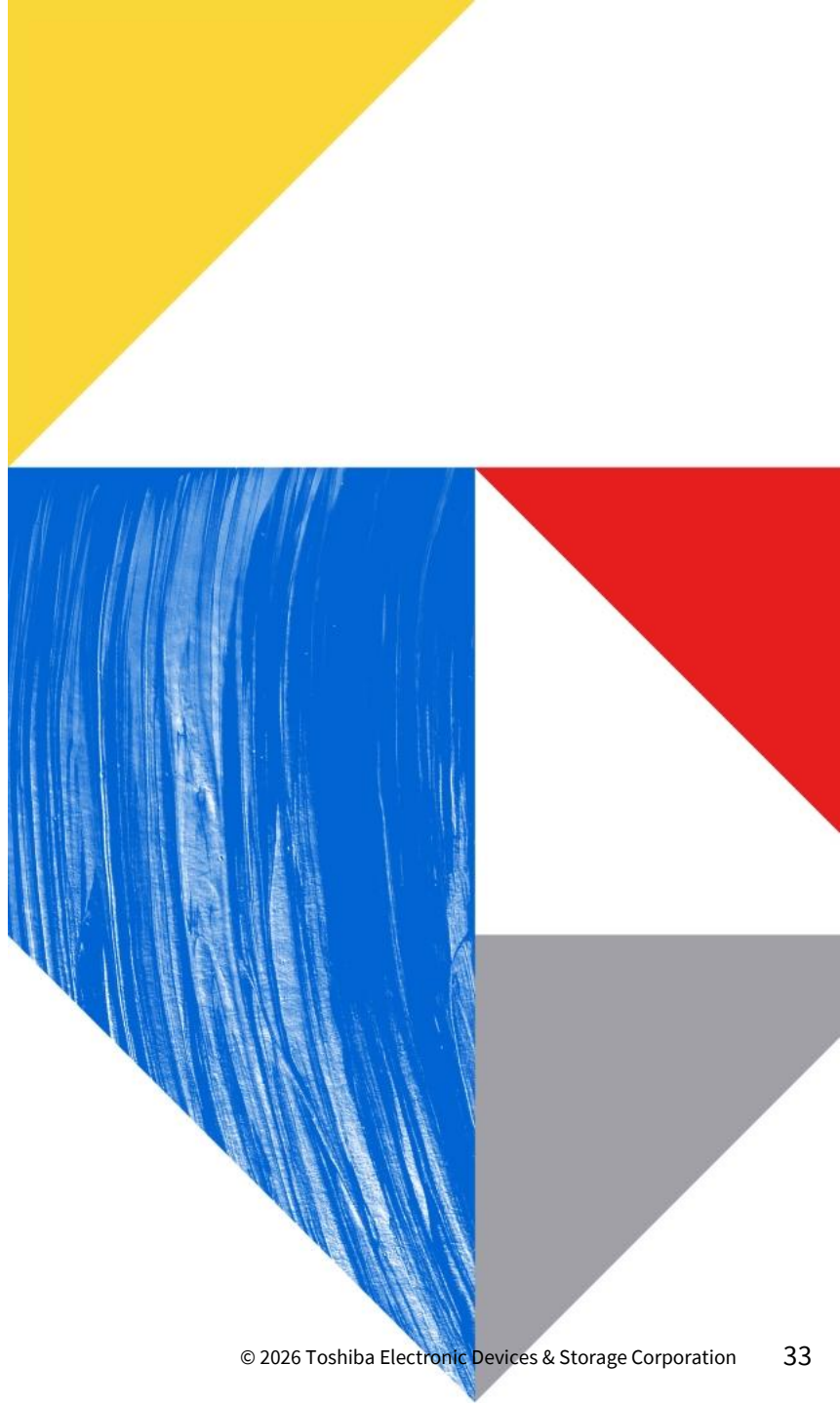


Saving Data in CSV Files



03

Summary



Toshiba Online Circuit Simulator

By registering “my ToshibaSemicon”, you can use it free of charge

Easily try circuit simulation with just a web browser.

Select circuits and MOSFETs efficiently according to specifications.

Please make full use of the online circuit simulator!

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