LTspice Model
IC for switching power supply control
FUJI ELECTRIC
FA5511N-D1-TE3

Model Information

Model	A macro model
Call Name	MDC_FA5511N-D1-TE3_LT
Pin Assign	1:RT 2:FB 3:IS 4:GND 5:OUT 6:VCC 7:REF 8:CS
File List	Model Library MDC_FA5511N-D1-TE3_LT.lib
	Model Report MDC_FA5511N-D1-TE3_LT.pdf(this file)

Verified Simulator Version LTspice

Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- ●Date/Version
- ●Product name FA5511N-D1-TE3
- ●Company name FUJI ELECTRIC

[Characteristics listed]

●Characteristics
PWM control
Output ON-OFF function by external signal
Overload protection function
Overvoltage protection function detecting the Vcc voltage

Simulation Condition

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

Item	Condition	Unit
Temperature	25	deg C

○ : Implemented
× : Not Implemented
— : Not applicable

Model Functions Table

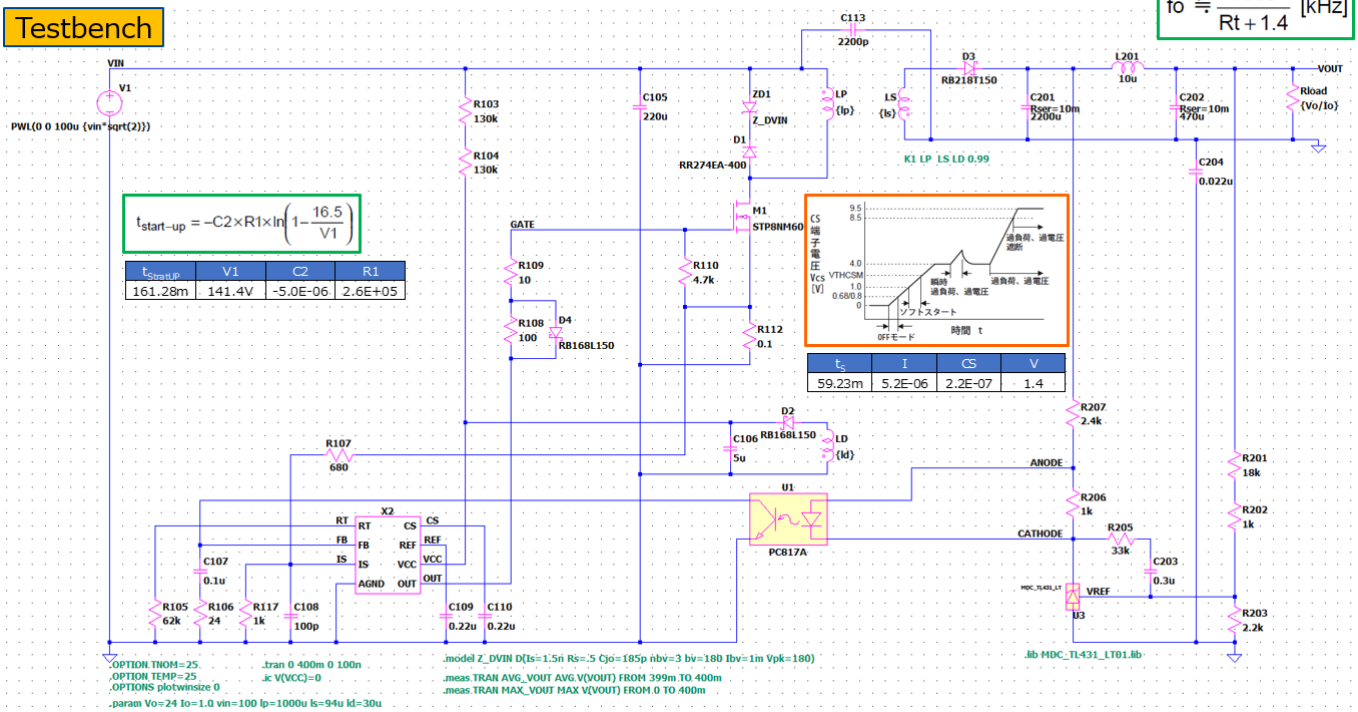
	RANK=2	
Functions	**RANK**	**Implemented**
PWM control	1	○
Overvoltage protection function detecting the Vcc voltage	2	○
Pulse-by-pulse overcurrent limiting function	2	○
Overload protection function	2	○
Output ON-OFF function by external signal	2	○
Undervoltage lockout function (16.5V ON / 9V OFF)	1	○
Reference voltage output (5V)	1	○

PWM control (Input=141V Output=24V IOUT=1.0A f_{SW}=77kHz)

Simulation results are following.
Explanatory notes　— : simulated

Testbench

$$fo \fallingdotseq \frac{4880}{Rt+1.4}\ [kHz]$$



$$t_{start-up} = -C2 \times R1 \times \ln\left(1 - \frac{16.5}{V1}\right)$$

$t_{StratUp}$	V1	C2	R1
161.28m	141.4V	-5.0E-06	2.6E+05

t_S	I	CS	V
59.23m	5.2E-06	2.2E-07	1.4

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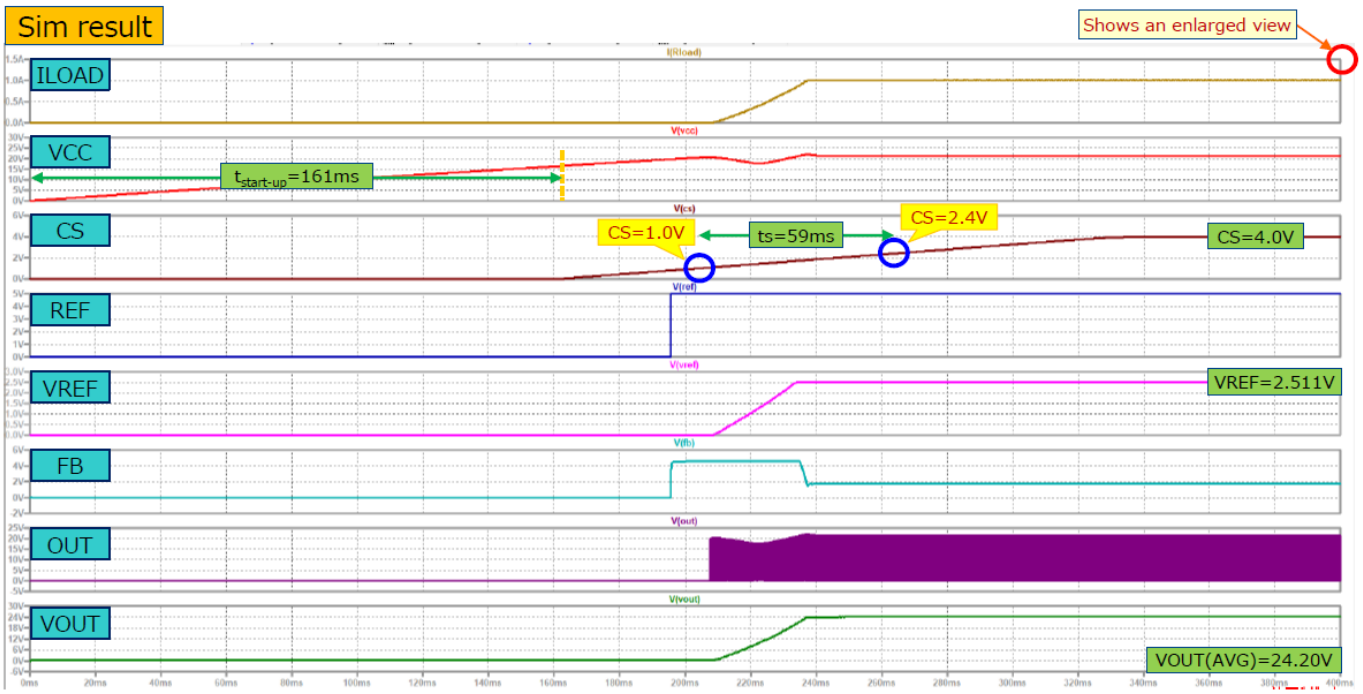

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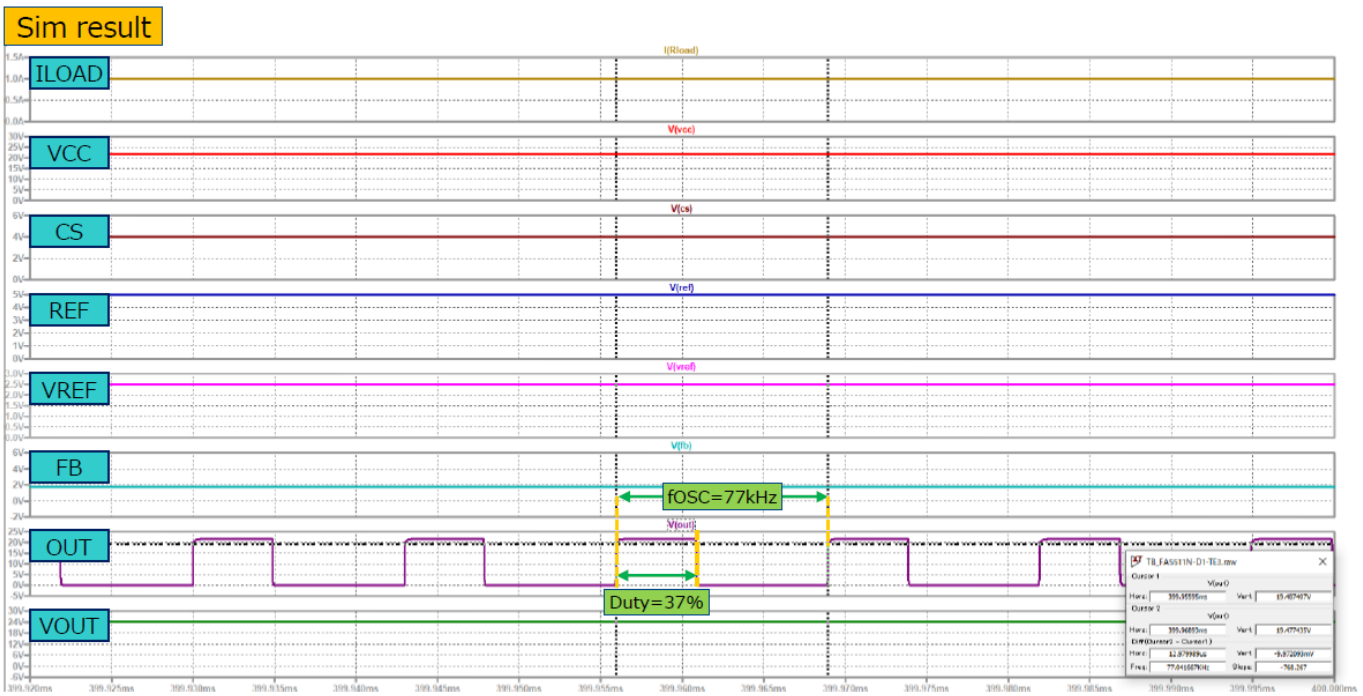
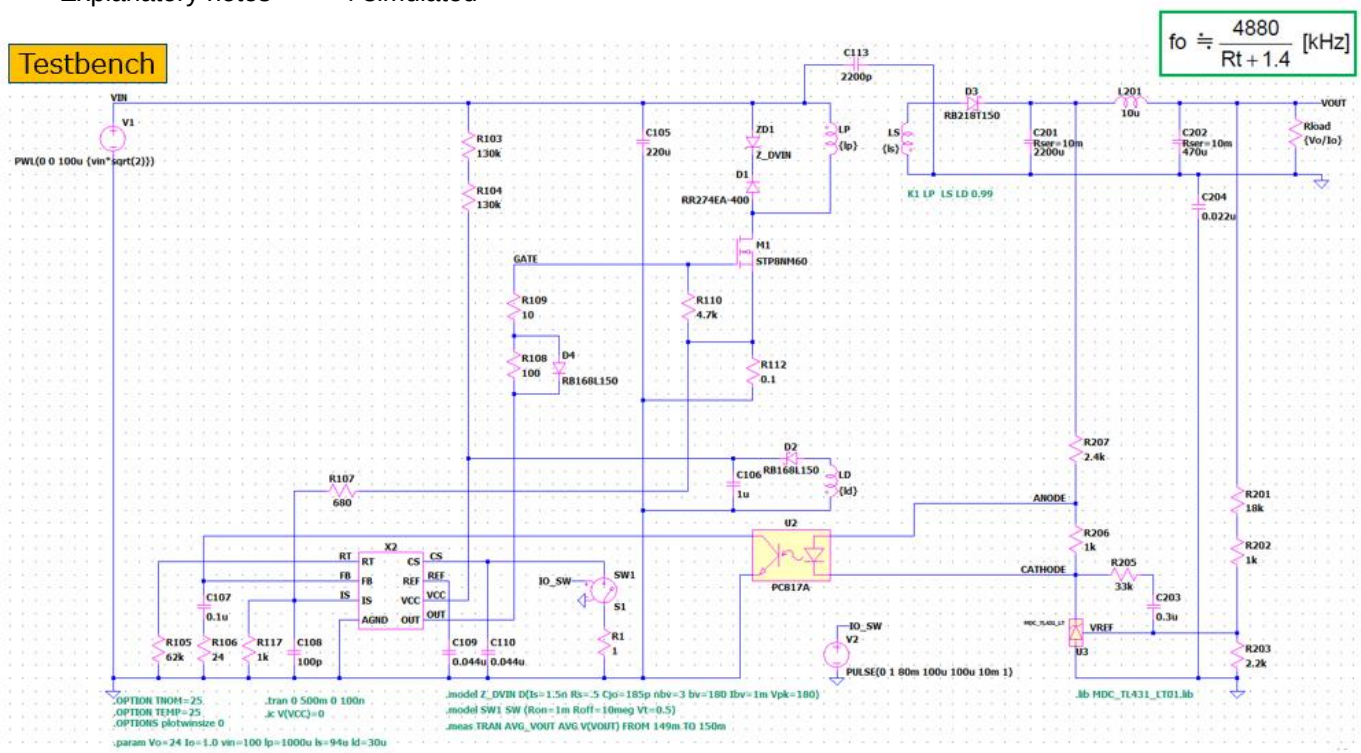


Output ON-OFF function by external signal (Input=141V Output=24V IOUT=1.0A f_{SW}=77kHz)

Simulation results are following.
Explanatory notes — : simulated

Testbench



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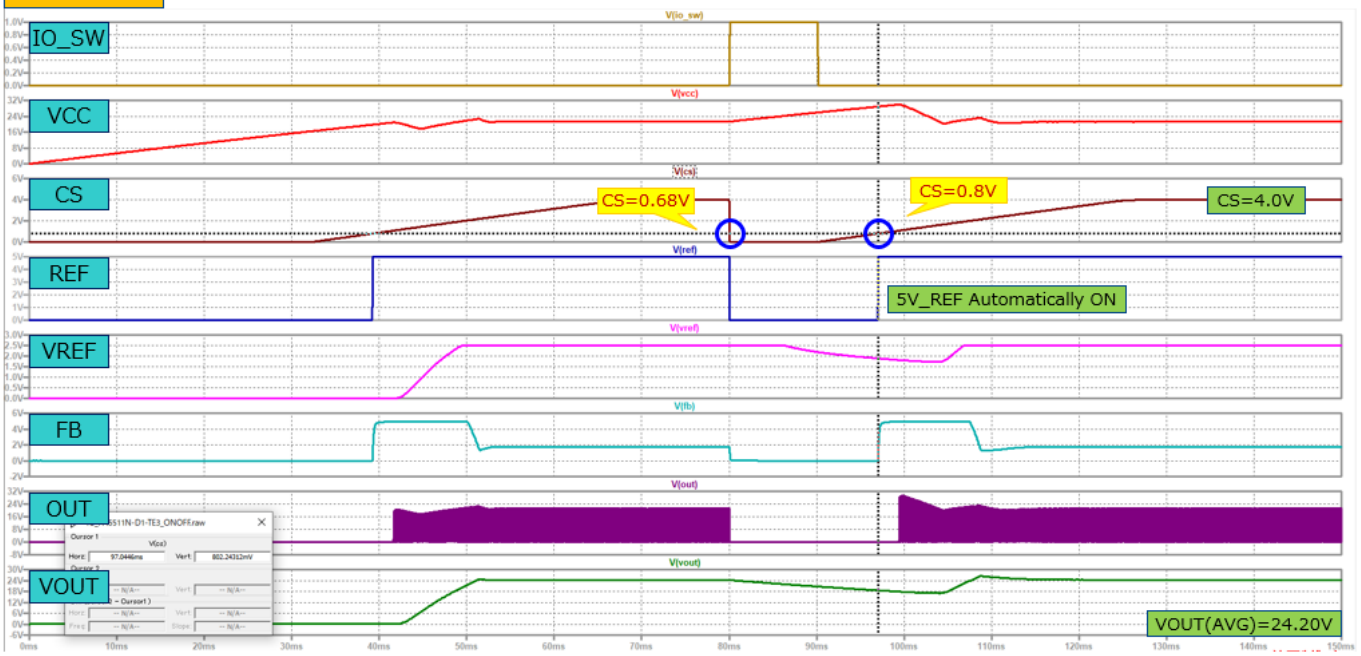
Explanatory notes — : simulated

Sim result



Overload protection function (Input=141V Output=24V IOUT=1.0A f_{SW}=77kHz)

Simulation results are following.
Explanatory notes — : simulated

Testbench

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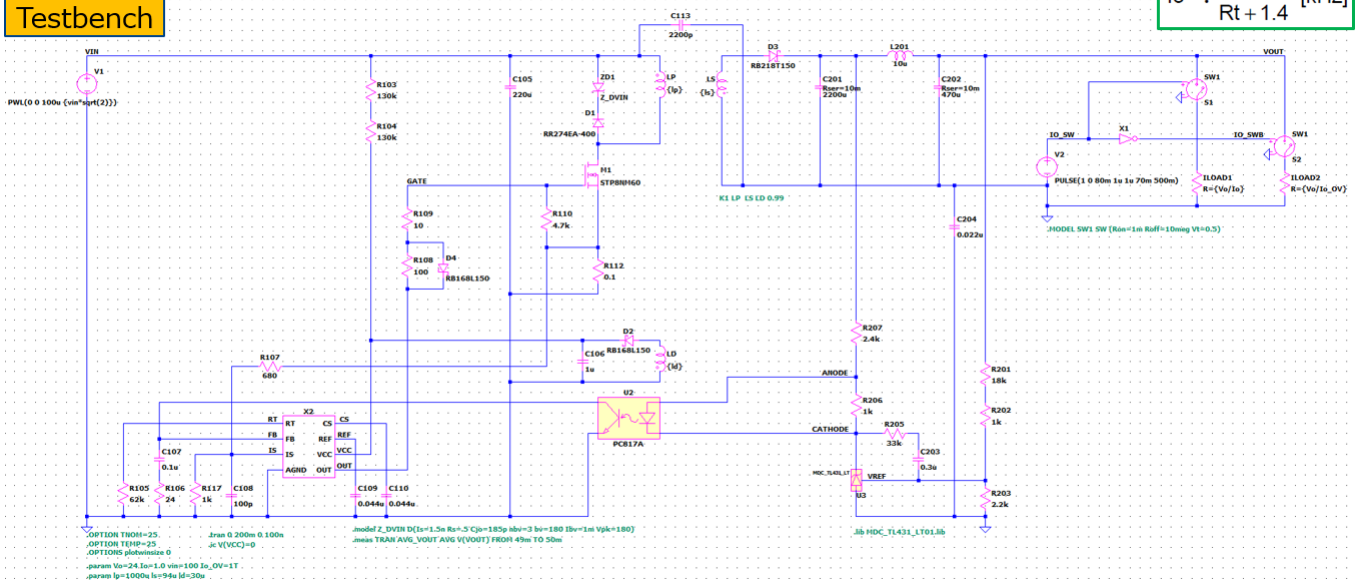

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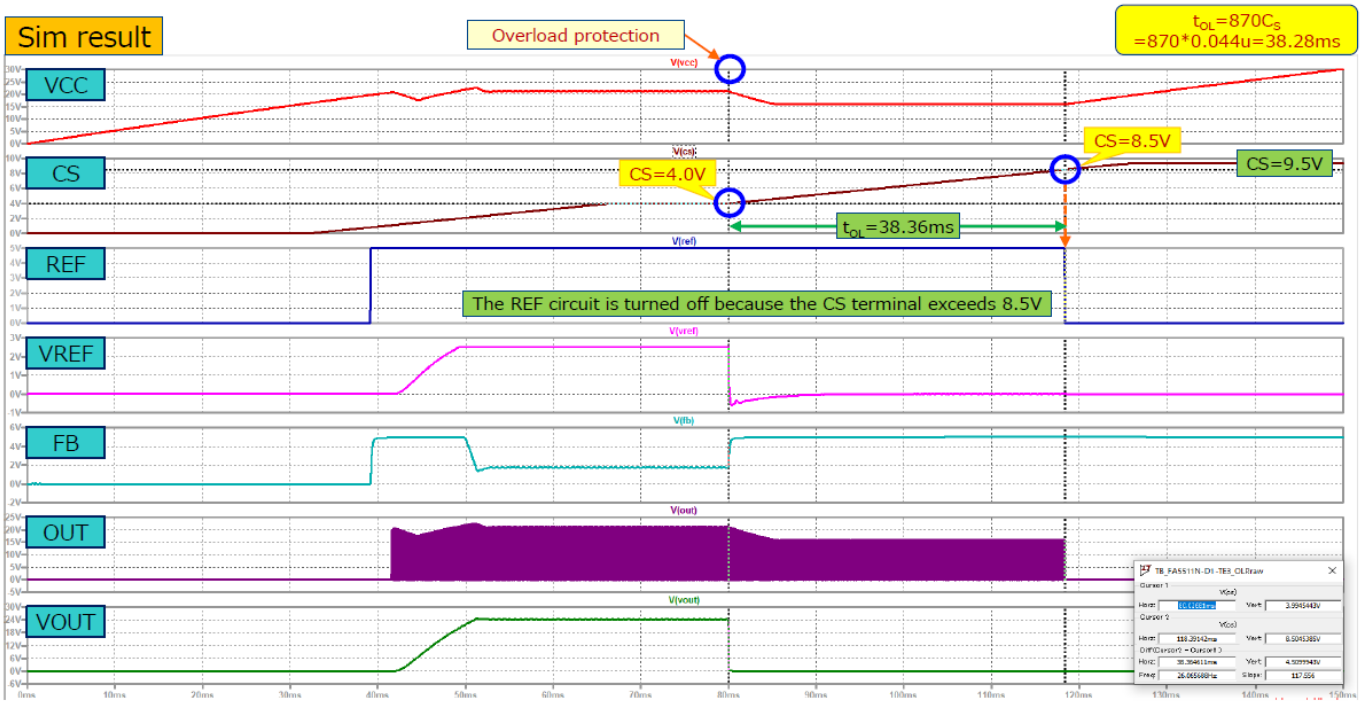
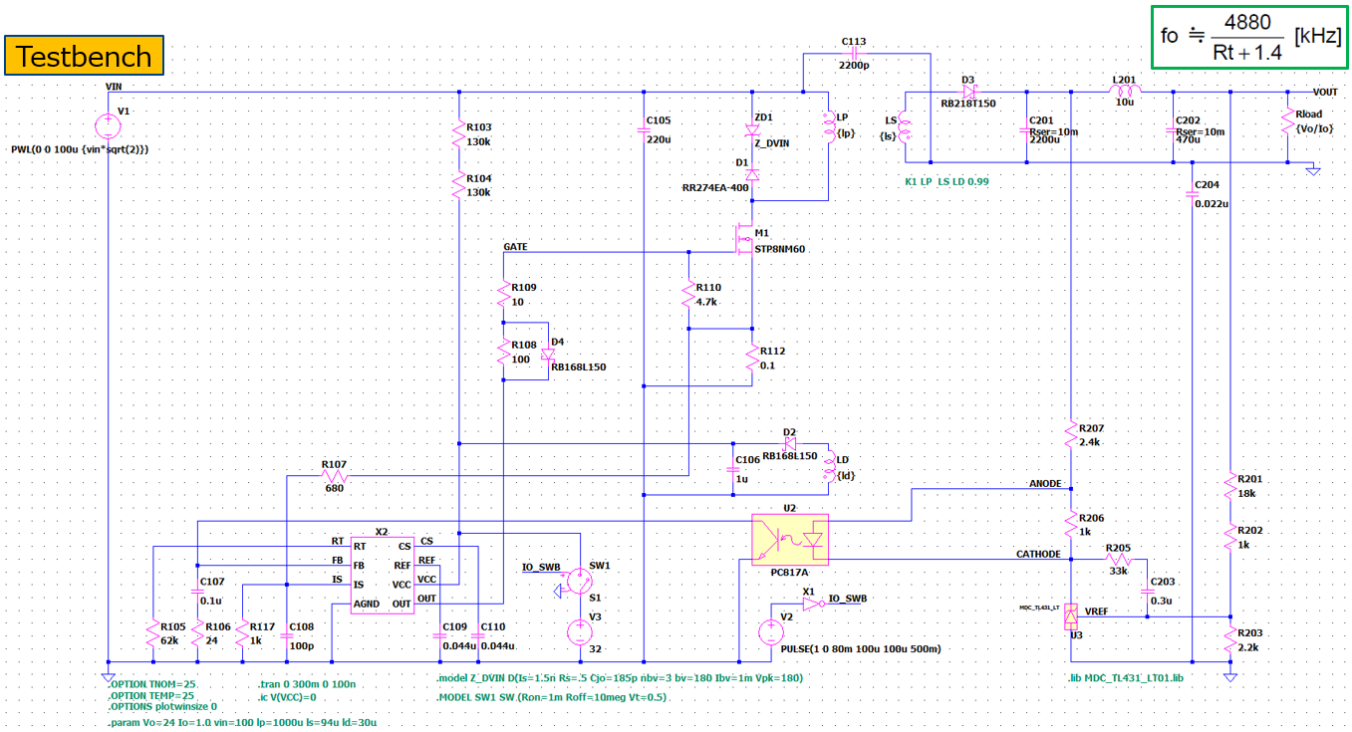


Overvoltage protection function detecting the Vcc voltage(Input=141V Output=24V IOUT=1.0A f_{SW}=77kHz)

Simulation results are following.

Explanatory notes — : simulated



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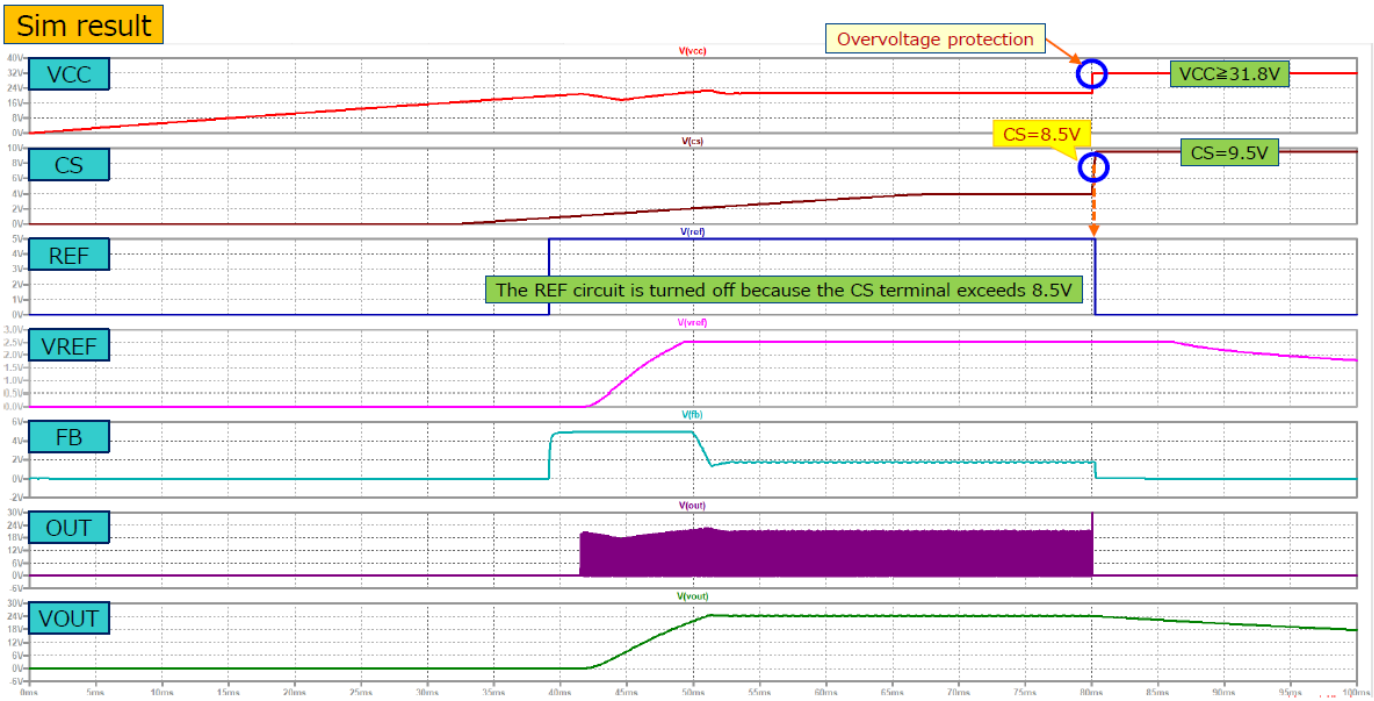

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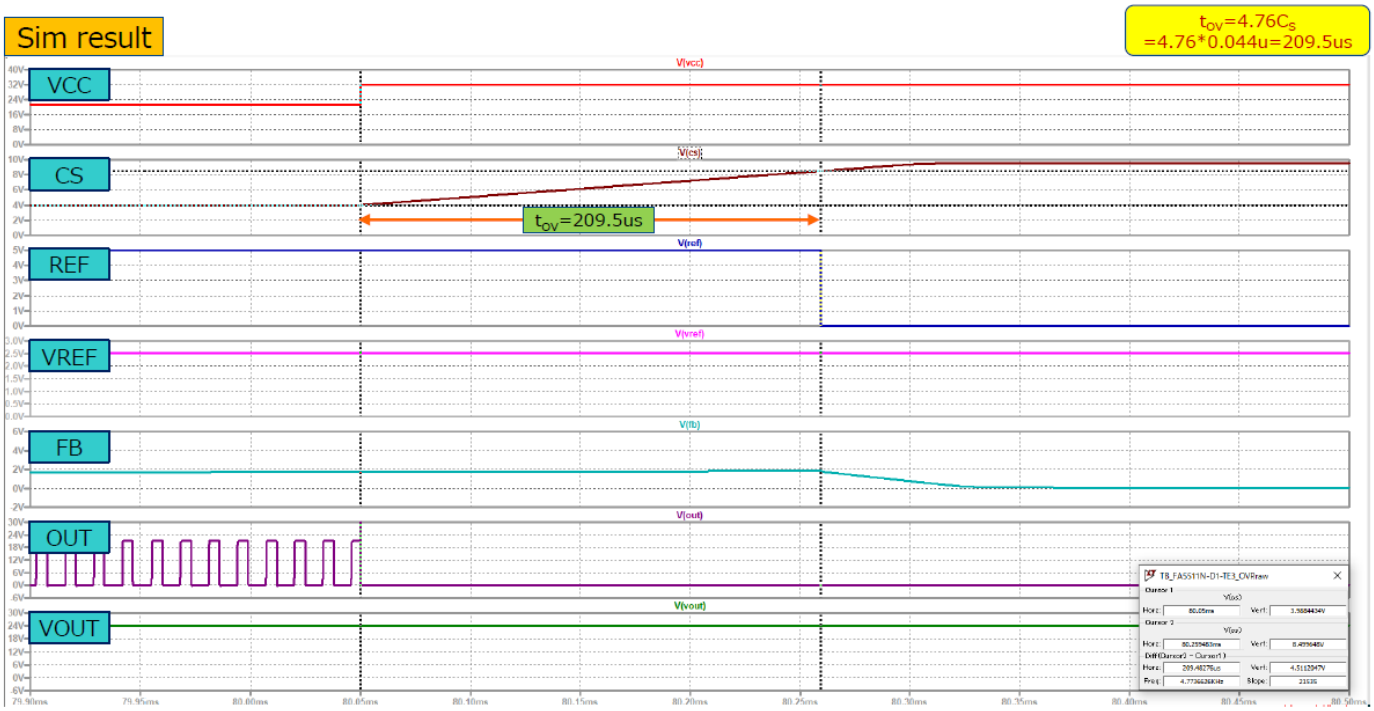

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