LTspice Model
DCDC converter
TEXAS INSTRUMENTS
LM34966QPWPRQ1

Model Information

Model	A macro model
Call Name	MDC_LM34966QPWPRQ1_PS
Pin Assign	1:BIAS 2:NC 3:VCC 4:GATE 5:PGND 6:AGND 7:CS 8:COMP 9:VDD 10:FB 11:SS 12:RT 13:PGOOD 14:EN_UVLO_SYNC 15:EP
File List	Model Library MDC_LM34966QPWPRQ1_PS01.lib Model Report MDC_LM34966QPWPRQ1_PS.pdf(this file)

Verified Simulator Version PSpice

Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- ●Date/Version SEPTEMBER 2020
- ●Product name LM34966QPWPRQ1
- ●Company name TEXAS INSTRUMENTS

[Characteristics listed]

- ●Characteristics
  - PWM Operation(Input=6V Output=24V IOUT=2A)
  - Overvoltage Protection
  - Overload Protection
  - UVLO Shutdown and Clock synchronization
  - UVLO Standby and Clock synchronization

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

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Model Functions Table

Function	Model
Dynamically programmable switching frequency from 100 kHz to 500 kHz	○
Optional clock synchronization	○
Hiccup mode overload protection	○note1
OVP protection	○
Adjustable soft start	○
PGOOD indicator	○

Note 1
This model does not have a function to count the waiting time after transition to Hiccup mode.
An OFF latch function is installed as an alternative function.

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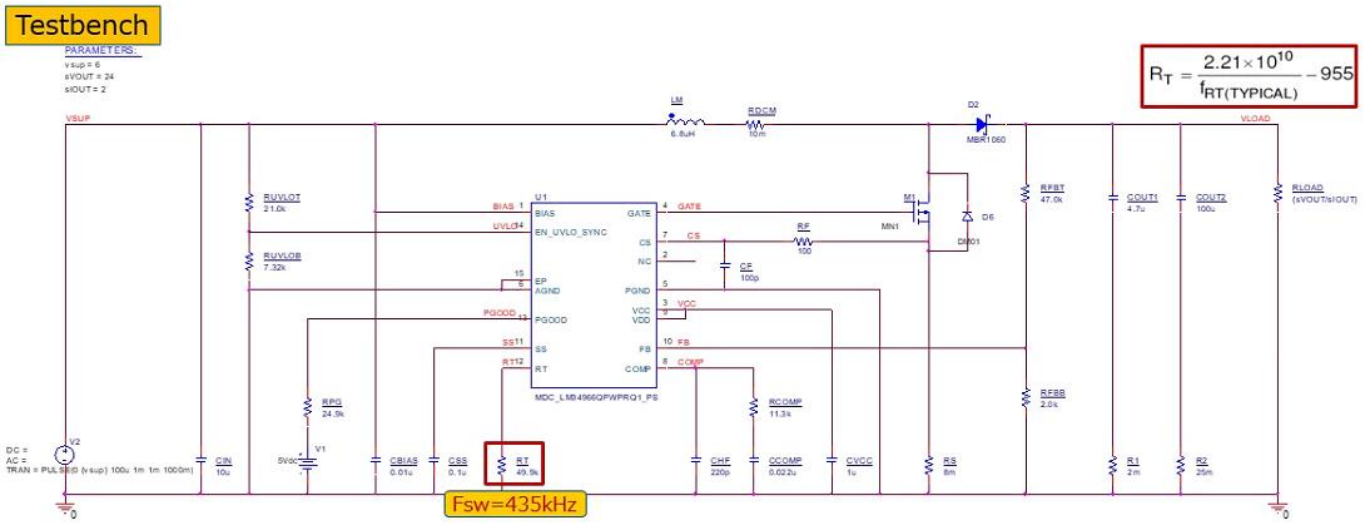
PWM Operation(Input=6V Output=24V IOUT=2A)

Simulation results are following.

Explanatory notes — : simulated



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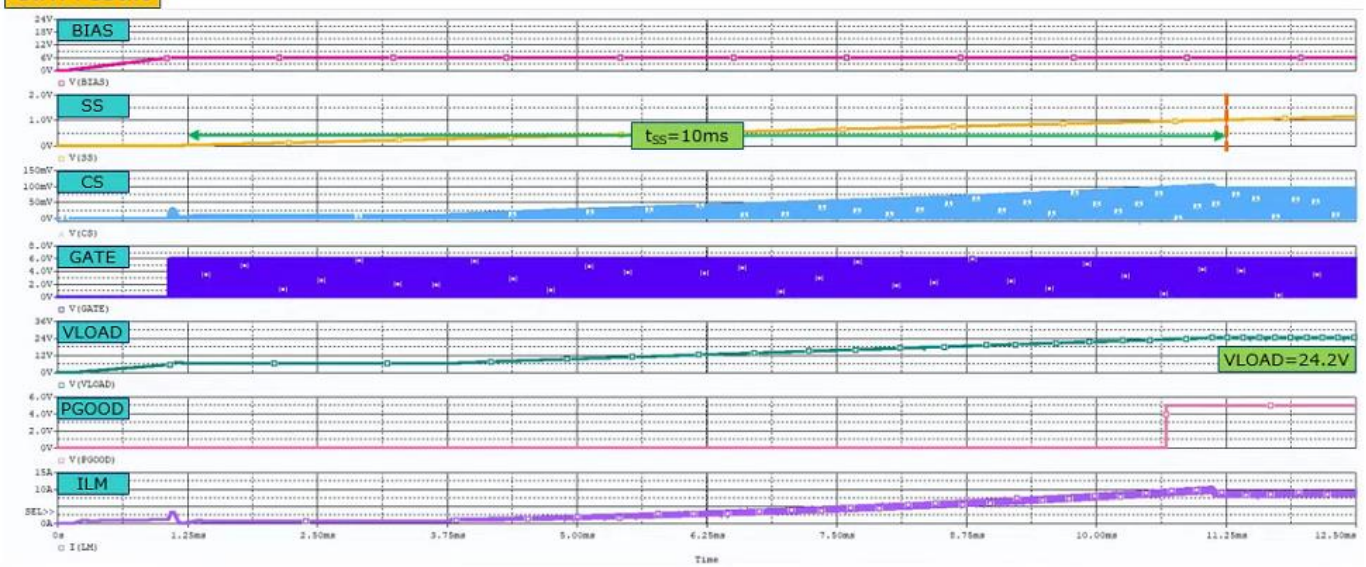
PWM Operation(Input=6V Output=24V IOUT=2A)

Simulation results are following.
Explanatory notes — : simulated

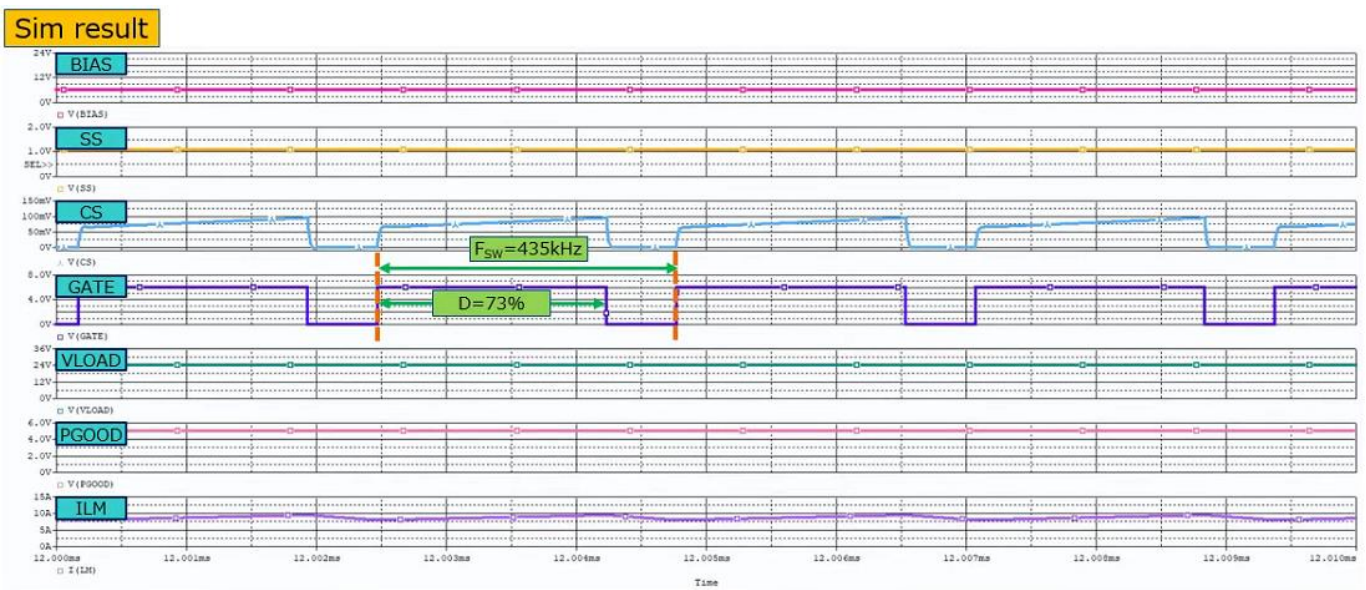
Sim result



PWM Operation(Input=6V Output=24V IOUT=2A)

Simulation results are following.
Explanatory notes — : simulated

Sim result



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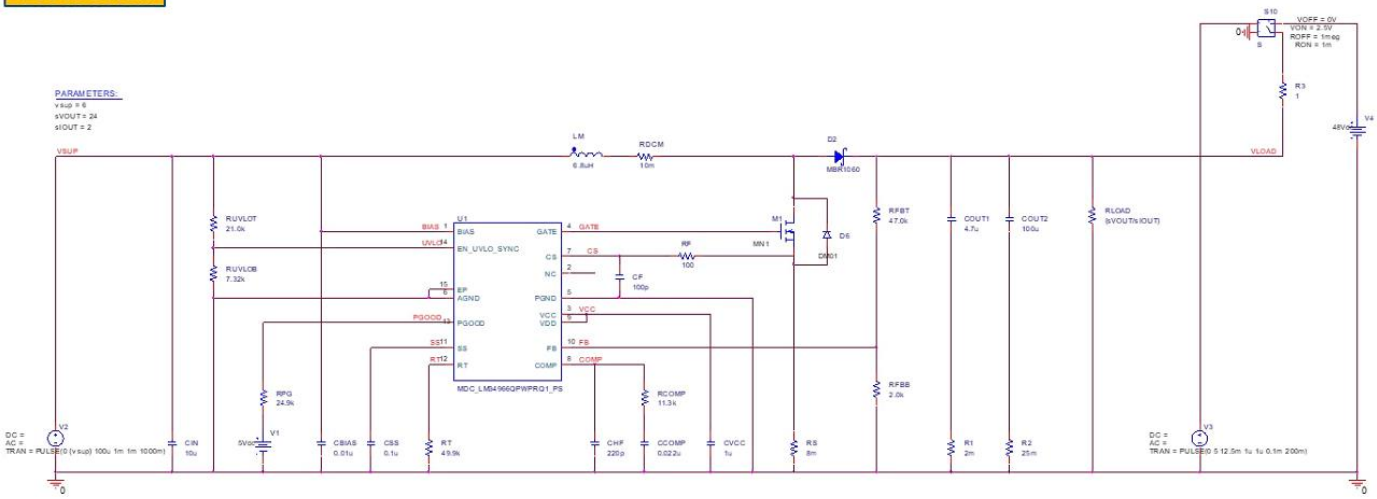
Overvoltage Protection

Simulation results are following.
Explanatory notes — : simulated

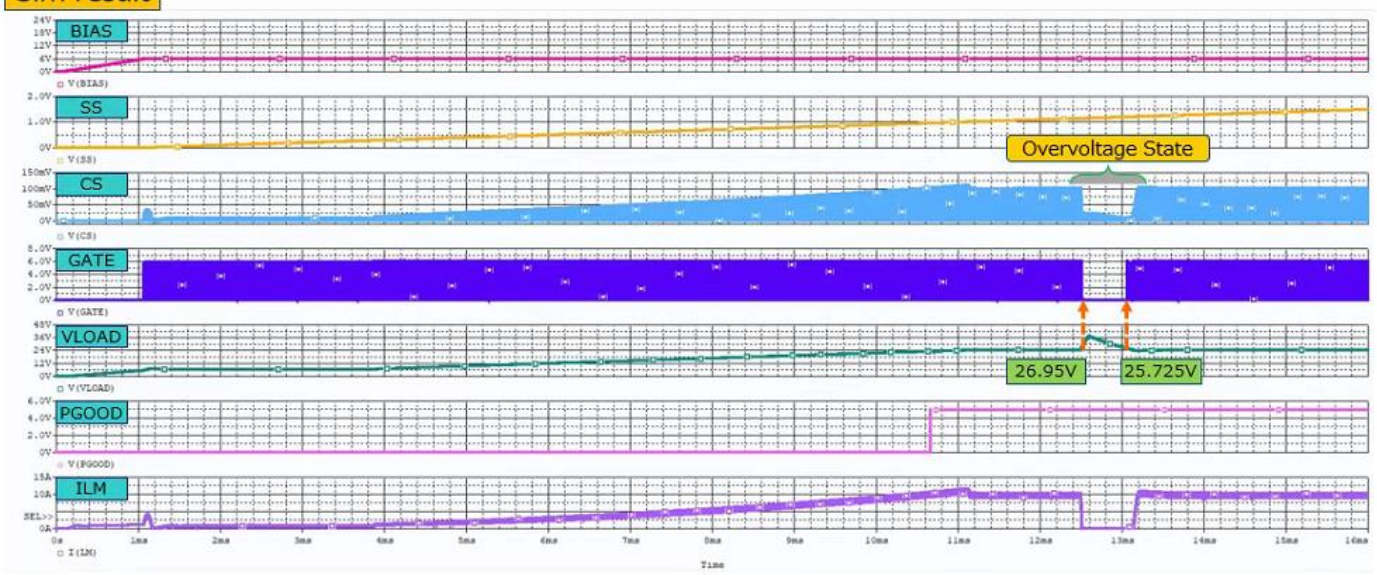
Testbench



Overvoltage Protection

Simulation results are following.
Explanatory notes — : simulated

Sim result



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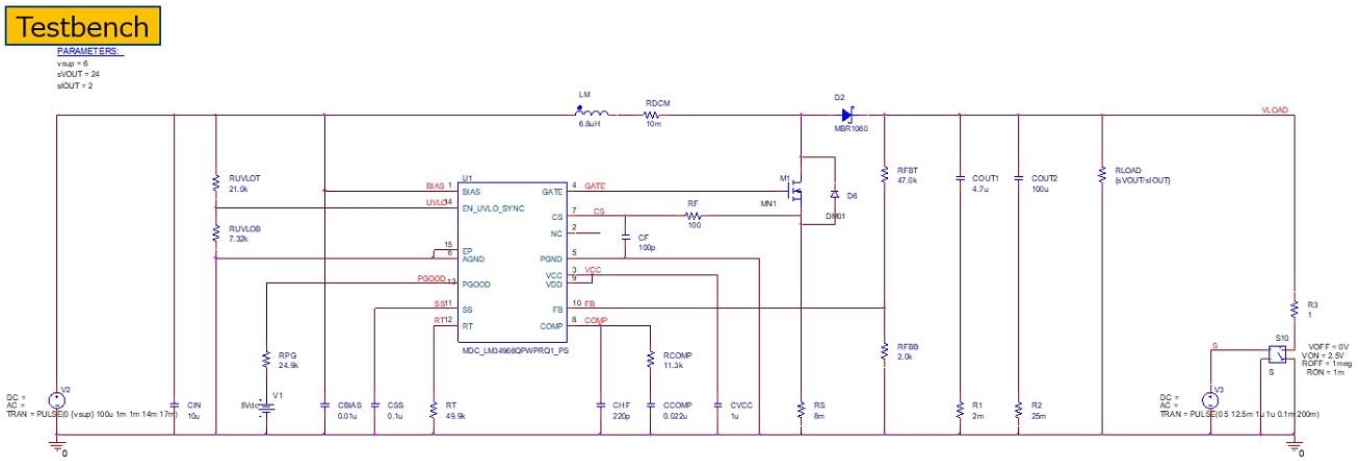
Overload Protection

Simulation results are following.
Explanatory notes — : simulated



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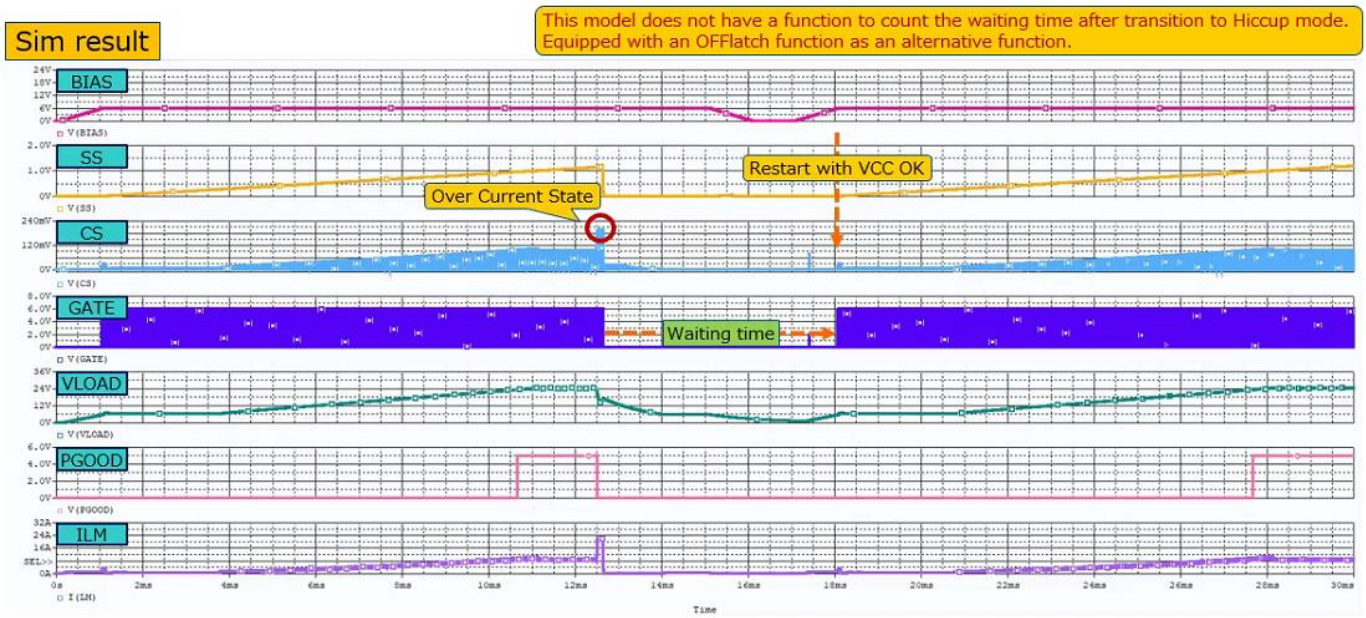
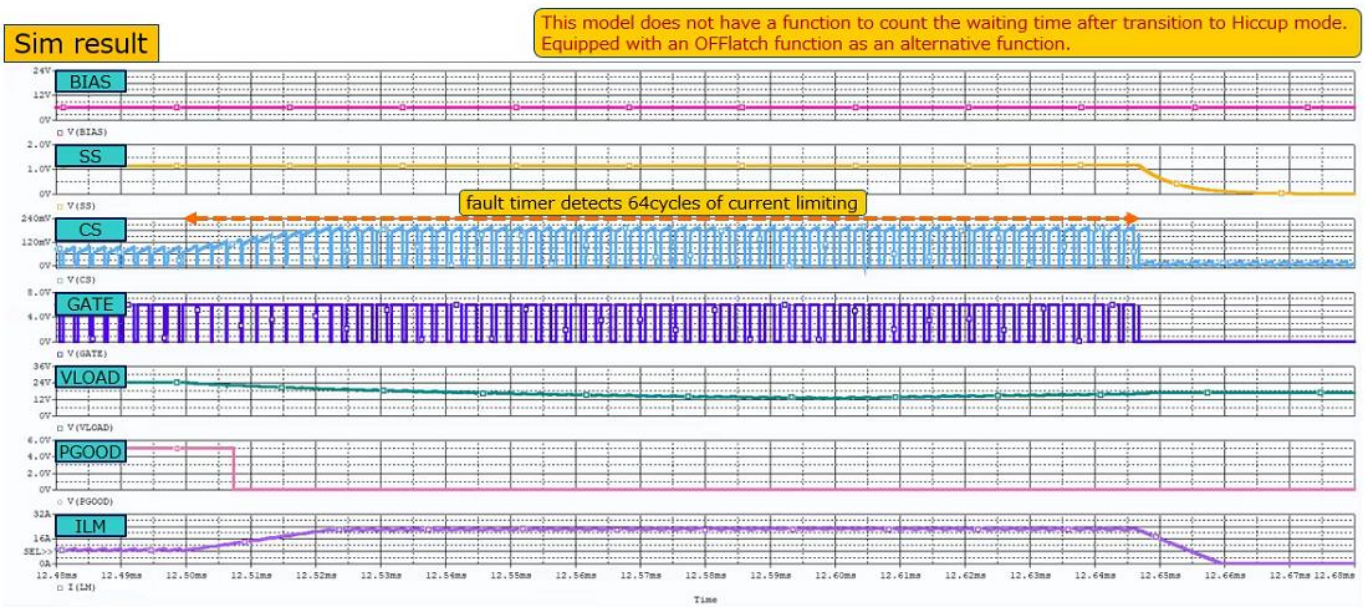
Overload Protection

Simulation results are following.
Explanatory notes — : simulated



Overcurrent Protection(Input=12V Output=5.0V IOUT=2.1A⇒5.0A⇒2.1A)

Simulation results are following.
Explanatory notes — : simulated



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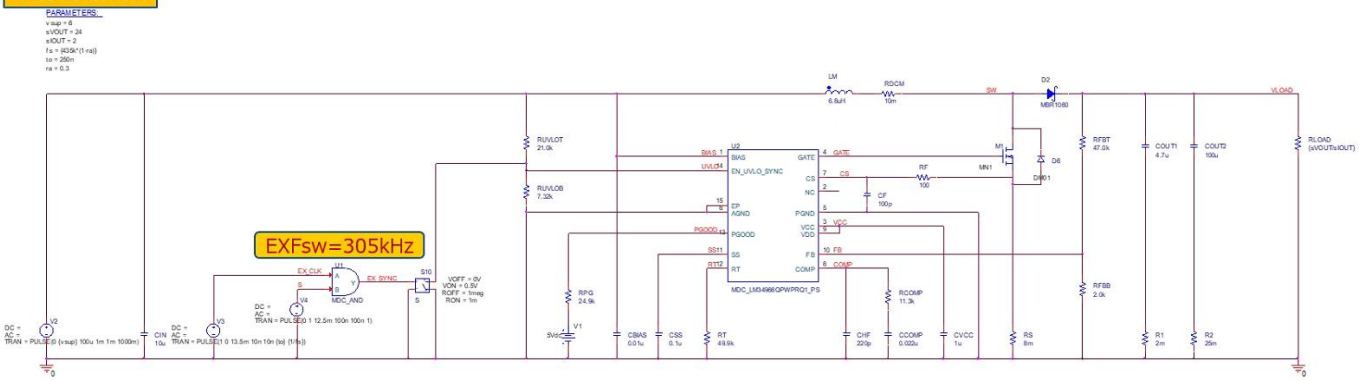
UVLO Shutdown and Clock synchronization

Simulation results are following.

Explanatory notes — : simulated

Testbench



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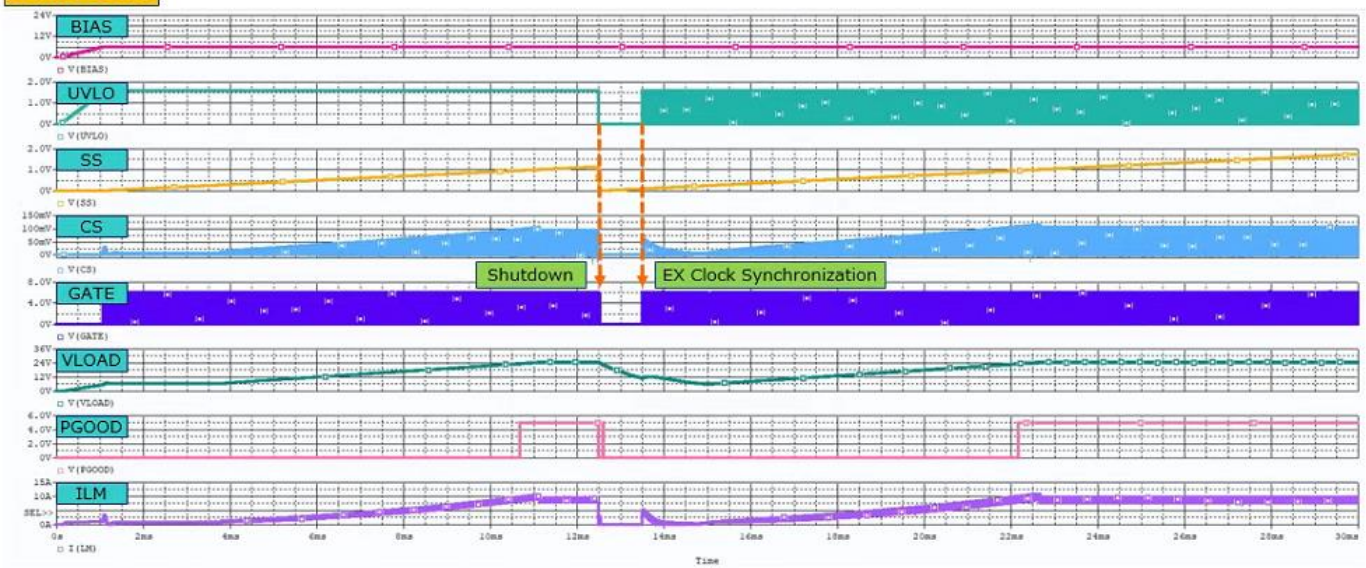
UVLO Shutdown and Clock synchronization

Simulation results are following.
Explanatory notes — : simulated

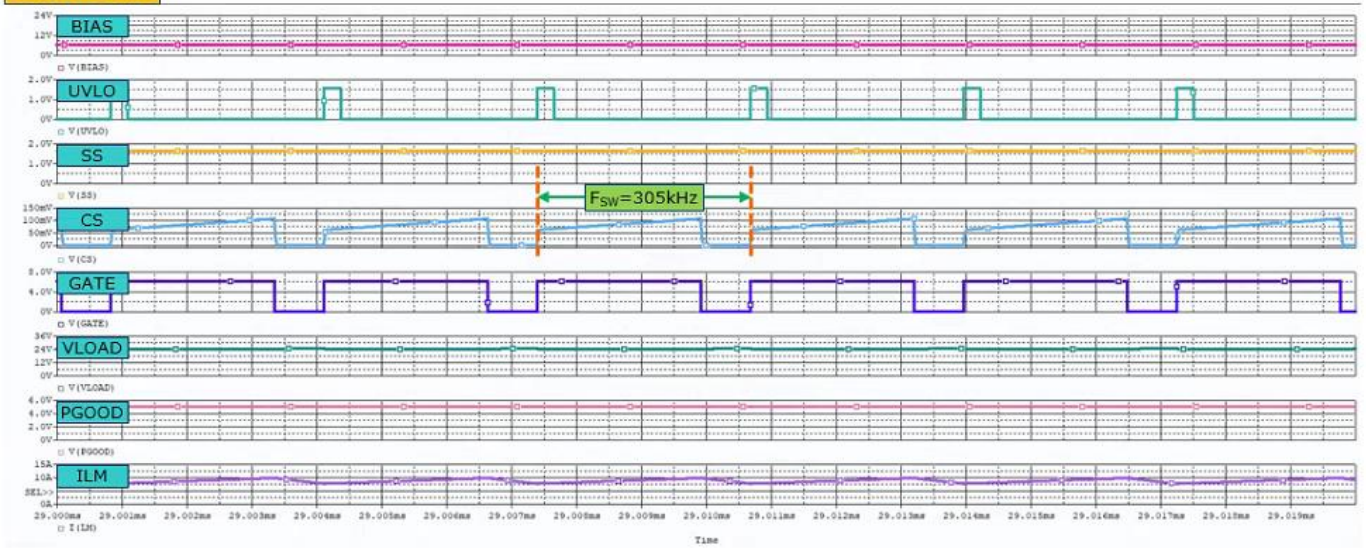
Sim result



UVLO Shutdown and Clock synchronization

Simulation results are following.
Explanatory notes — : simulated

Sim result



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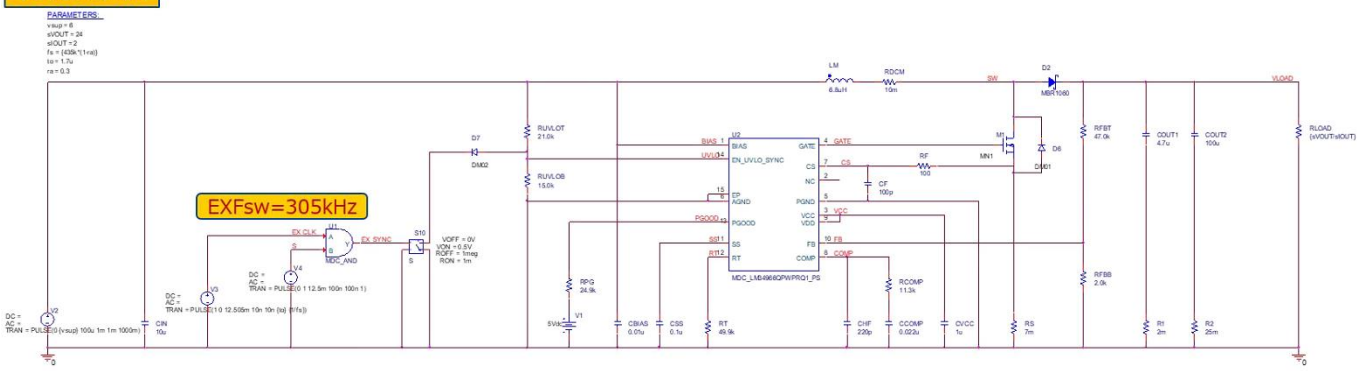
UVLO Standby and Clock synchronization

Simulation results are following.
Explanatory notes — : simulated

Testbench



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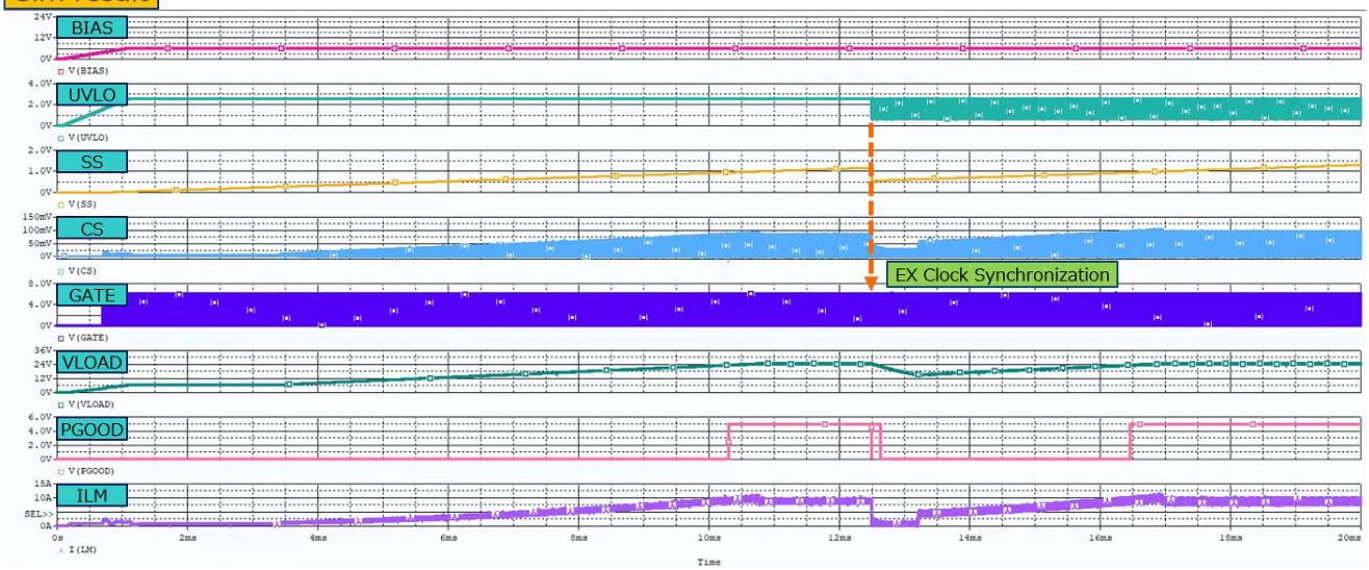
UVLO Standby and Clock synchronization

Simulation results are following.
Explanatory notes — : simulated

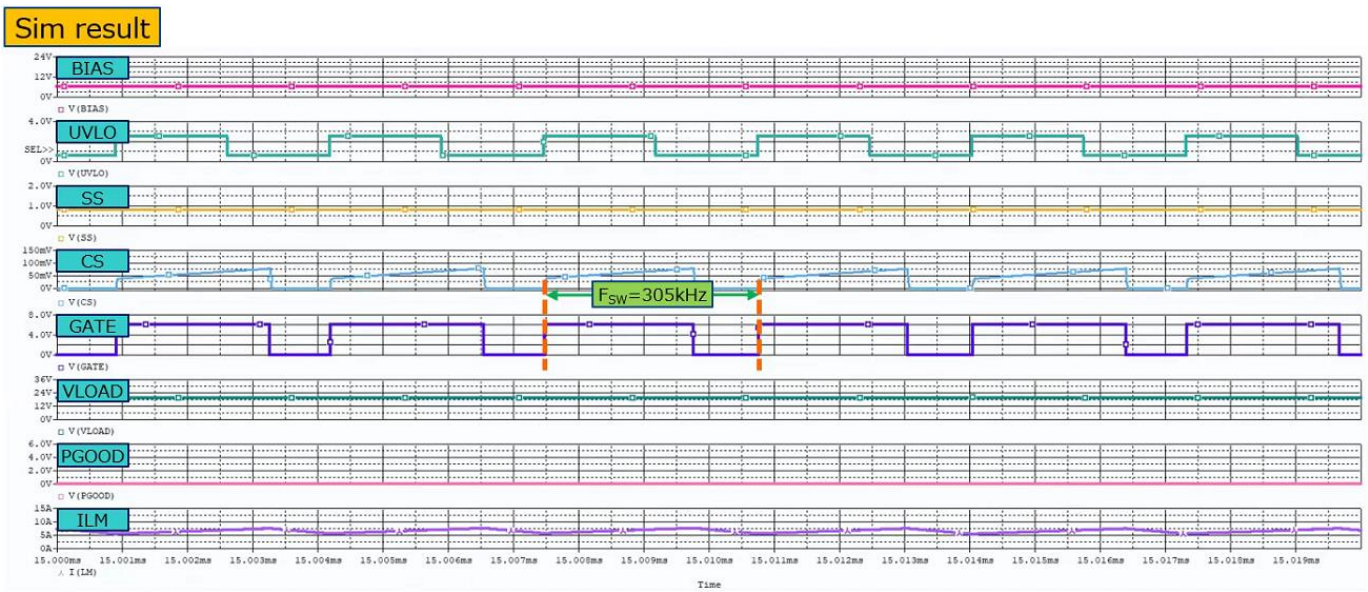
Sim result



UVLO Standby and Clock synchronization

Simulation results are following.
Explanatory notes — : simulated

Sim result



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