

LTspice Model

DC-DC Converter

TEXAS INSTRUMENTS

TPS62200DBVT

Model Information

Model A macro model
Call Name MDC_TPS62200DBVT_LT
Pin Assign 1:VI 2: AGND 3:EN 4:FB 5:SW
File List Model Library MDC_TPS62200DBVT_LT01.lib
 Model Report MDC_TPS62200DBVT_LT.pdf (this file)

Verified Simulator Version LTspice XVII
Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version REVISED JUNE 2015
- Product name TPS62200DBVT
- Company name TEXAS INSTRUMENTS

[Characteristics listed]

- Characteristics PWM Control
PFM Control
UVLO Protection
EN Function
Line Transient
Load Transient

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

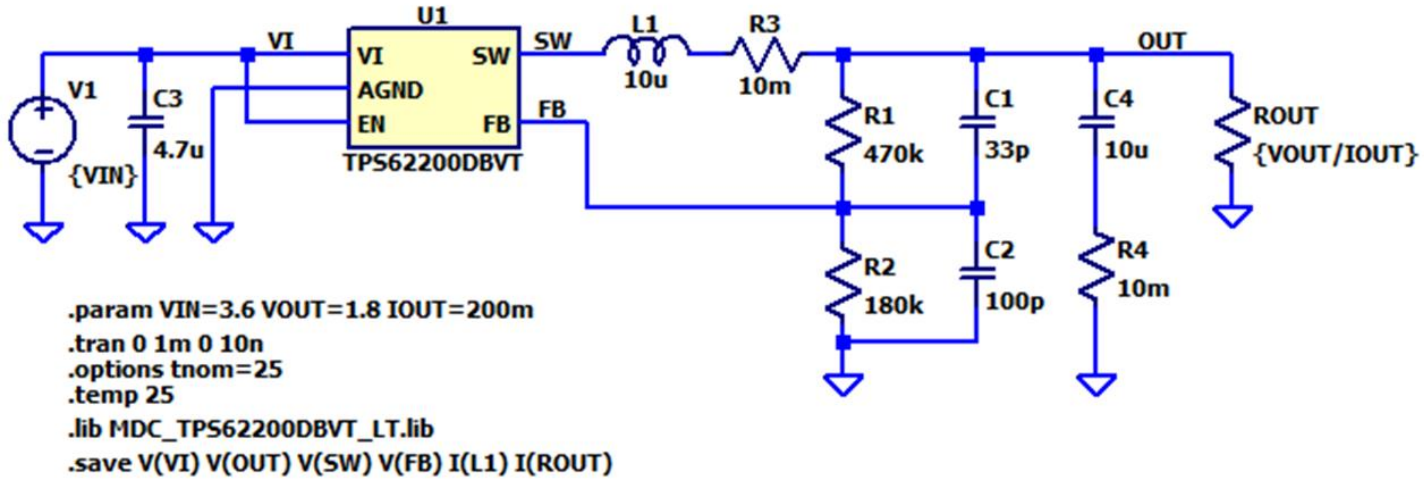
Switching Regulator

○ : Implemented
 × : Not Implemented
 — : Not applicable

Model Functions Table
RANK=2

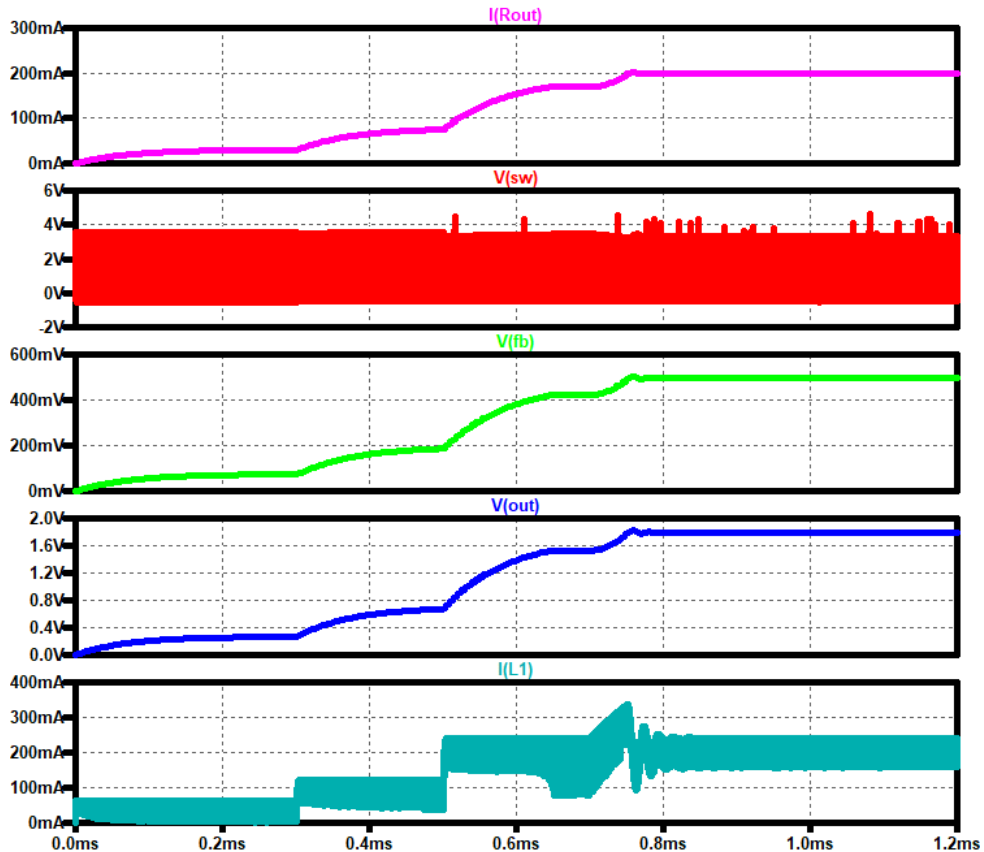
Functions	RANK	Implemented
Control Method(PWM,PFM)	1	○
Enable Function	1	○
Soft Start	1	○
Line Regulation	1	○
Load Regulation	1	○
Synchronous External Oscillation	1	—
UVLO	1	○
Line Transient	2	○
Load Transient	2	○
Light Load Current Mode	2	○
Spread Spectrum	2	—
Over Current Protection	2	○
Over Voltage Protection	2	—
Forward/Flyback Other Device in Circuit	3	—
Brown IN/OUT Function	—	—
ZT Pin OVP Function	—	—

PWM Control Testbench



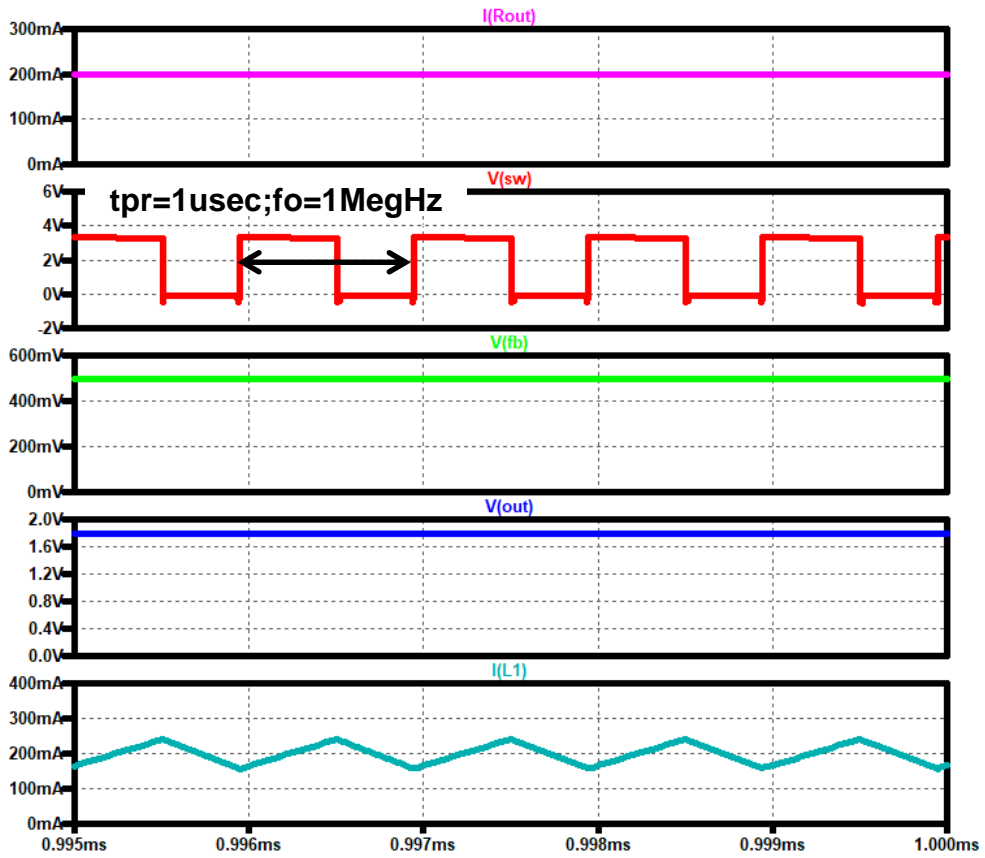
Simulation results are following.
 Explanatory notes — : simulated

PWM Control

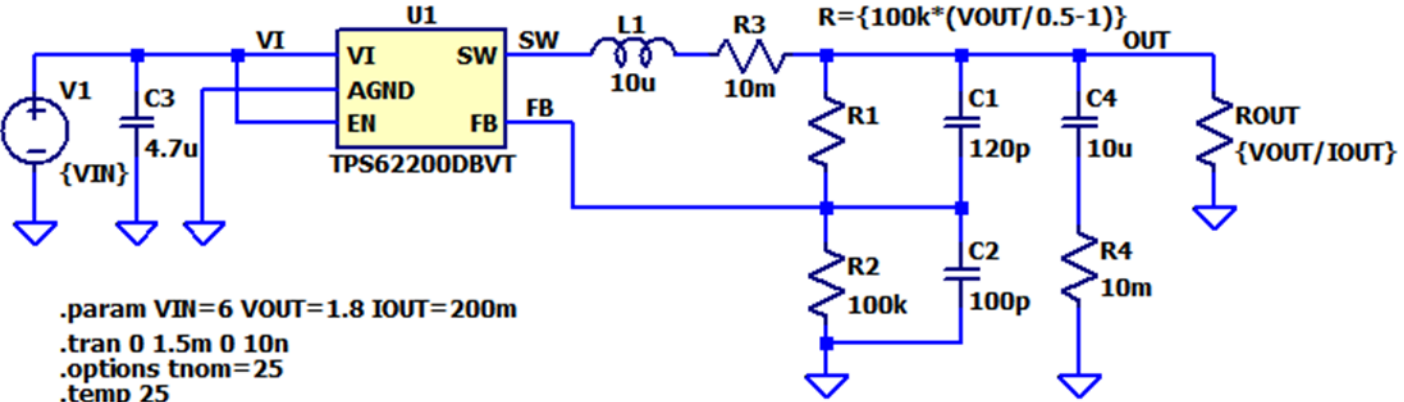


Simulation results are following.
Explanatory notes — : simulated

PWM Control



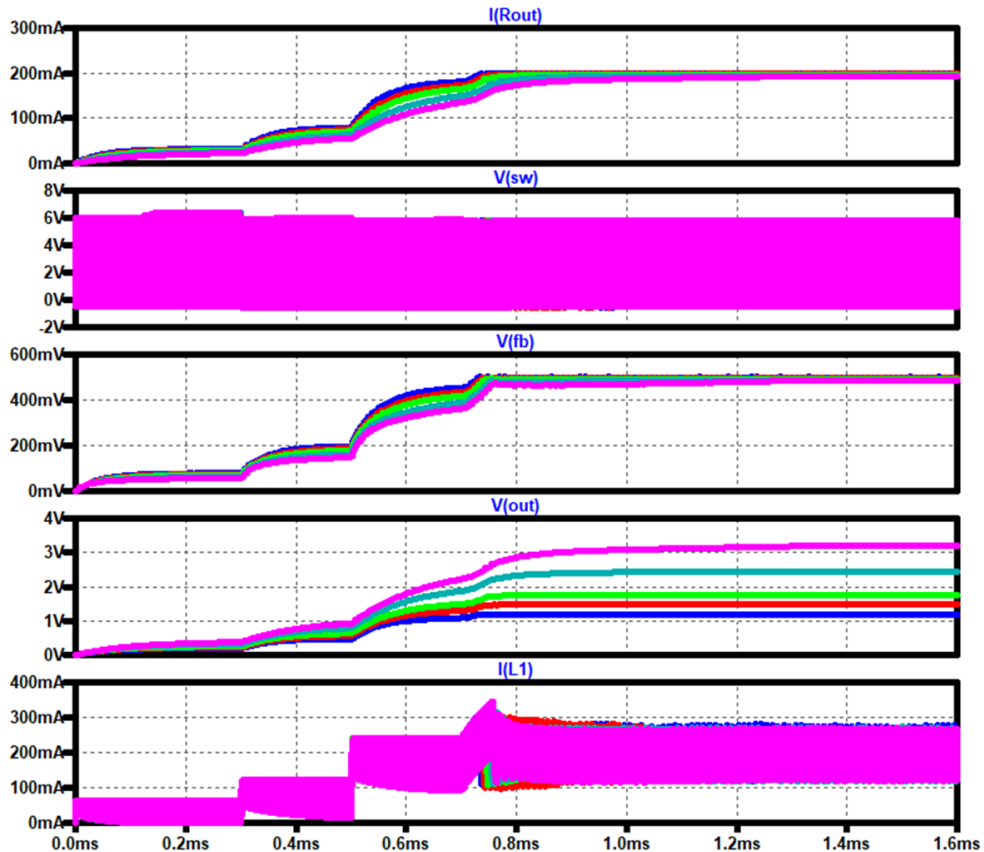
PWM Control Testbench



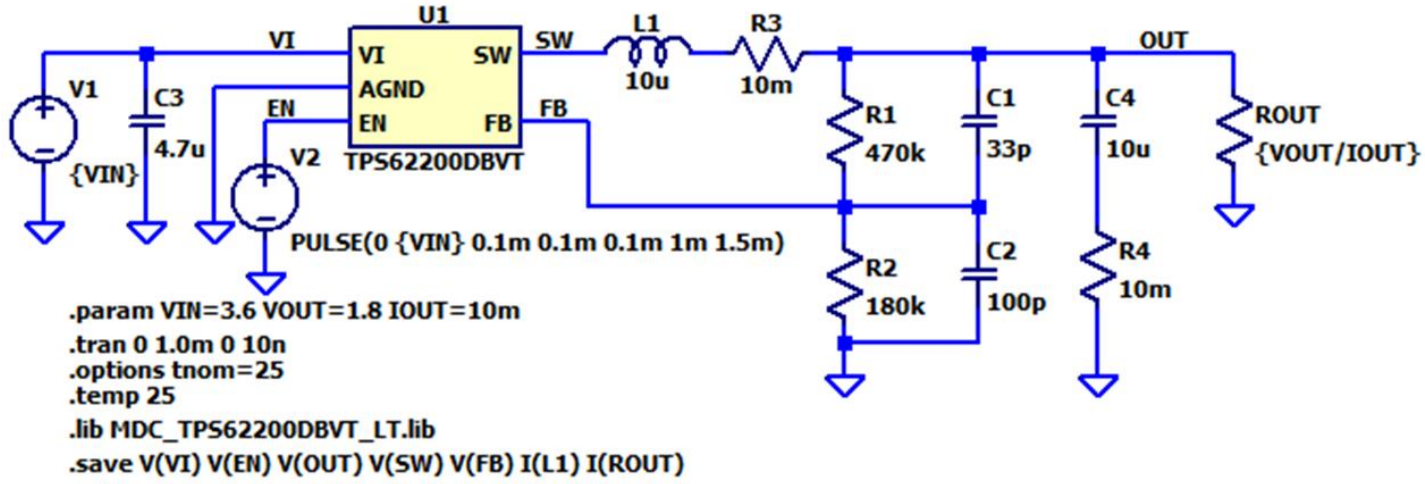
```
.param VIN=6 VOUT=1.8 IOUT=200m
.tran 0 1.5m 0 10n
.options tnom=25
.temp 25
.lib MDC_TPS62200DBVT_LT.lib
.save V(VI) V(OUT) V(SW) V(FB) I(L1) I(ROUT)
.step param VOUT list 1.2 1.5 1.8 2.5 3.3
```

Simulation results are following.
 Explanatory notes — : simulated

PWM Control

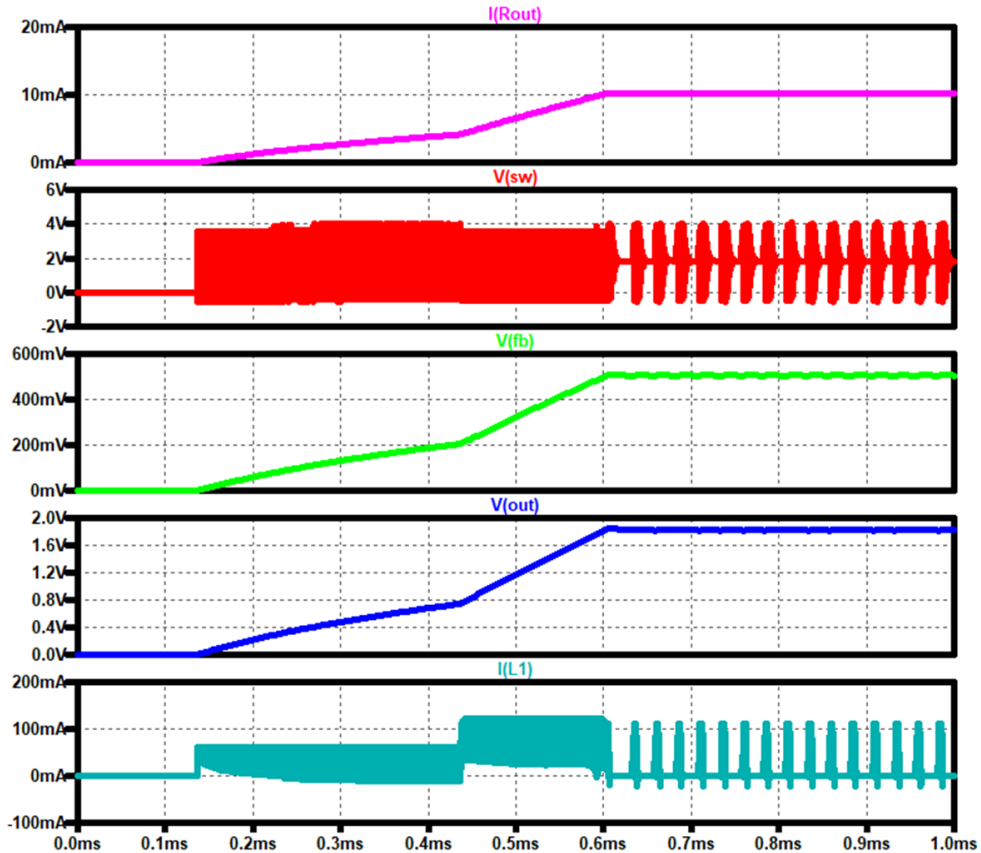


PFM Control Testbench



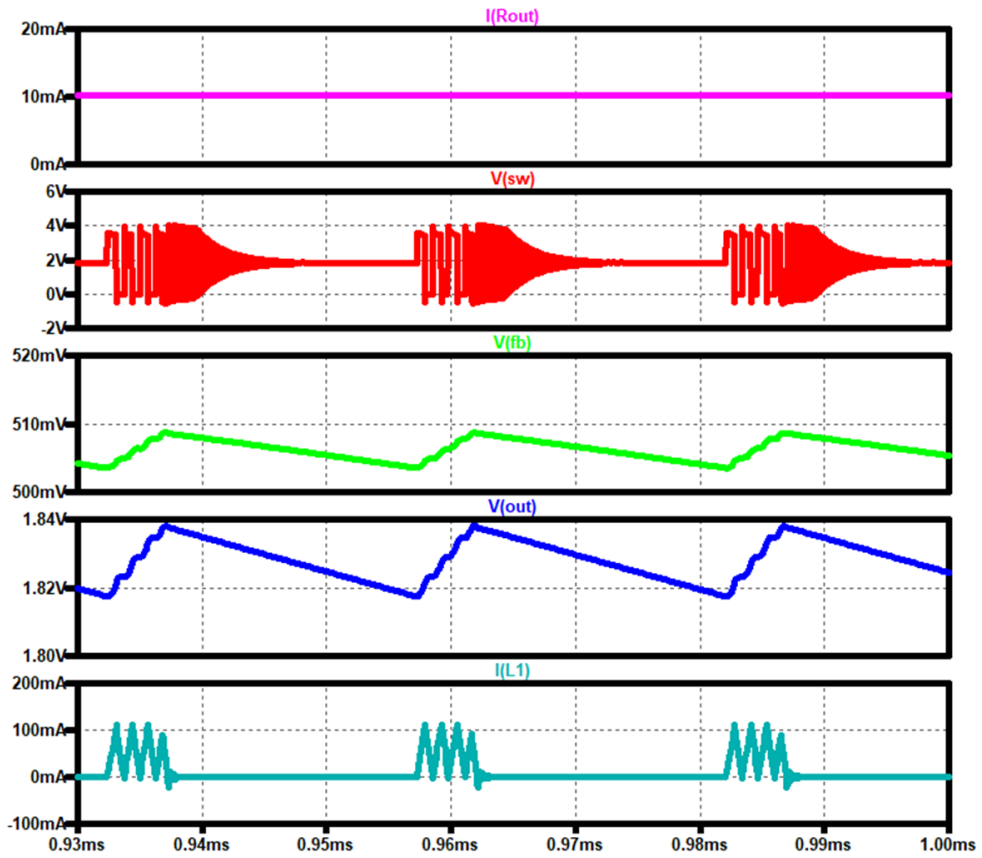
Simulation results are following.
 Explanatory notes — : simulated

PFM Control

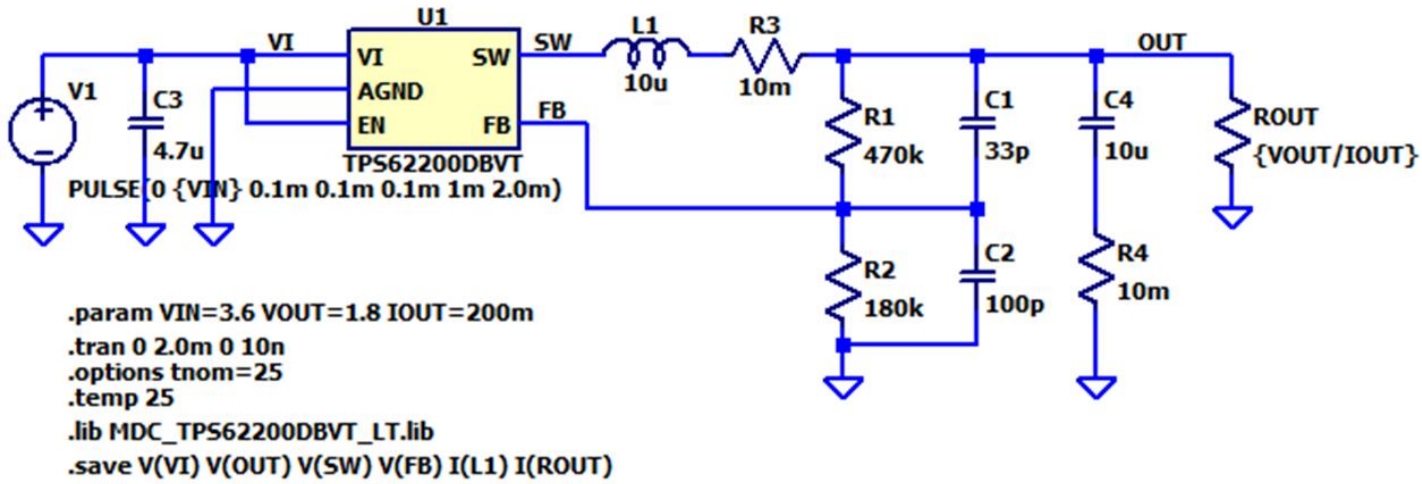


Simulation results are following.
Explanatory notes — : simulated

PFM Control

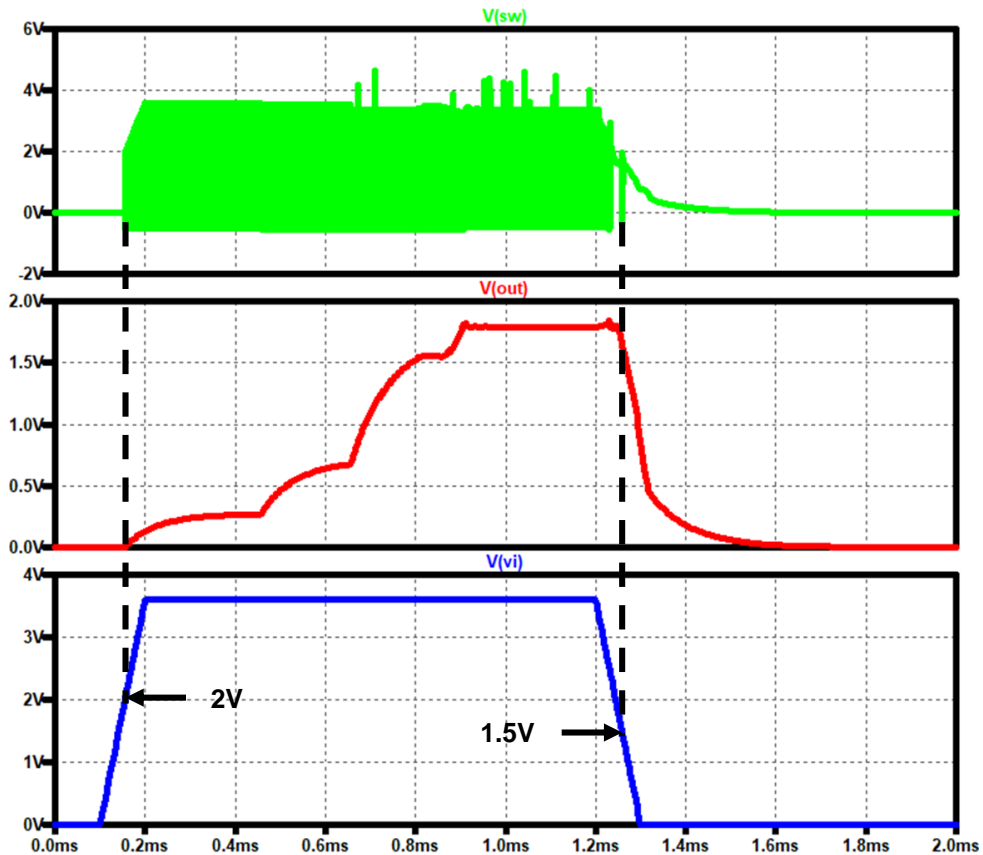


UVLO Testbench

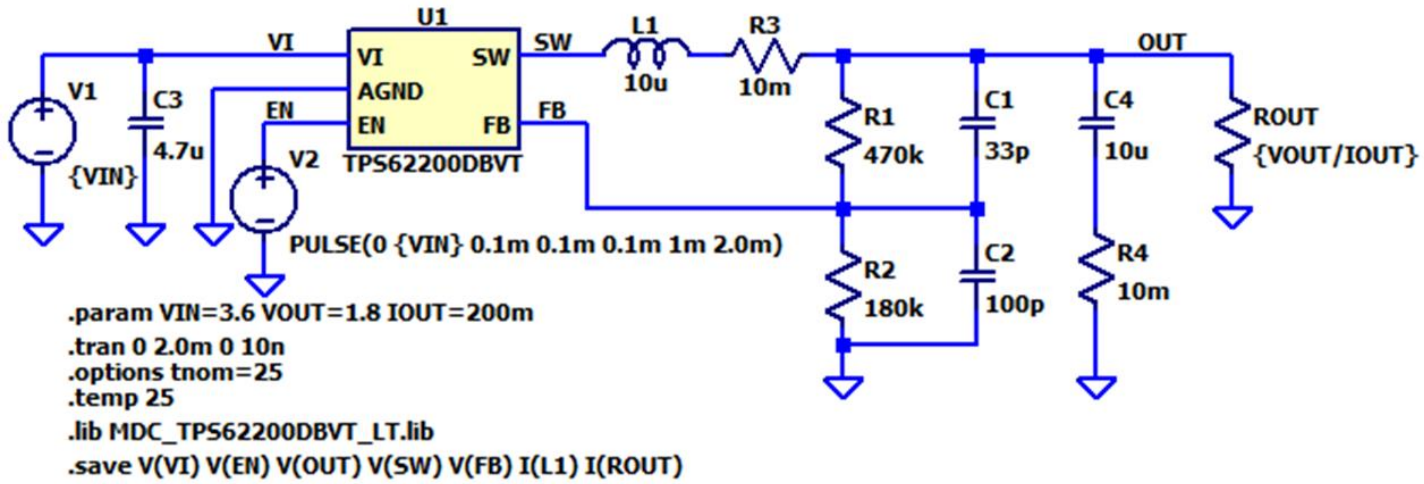


Simulation results are following.
 Explanatory notes — : simulated

UVLO

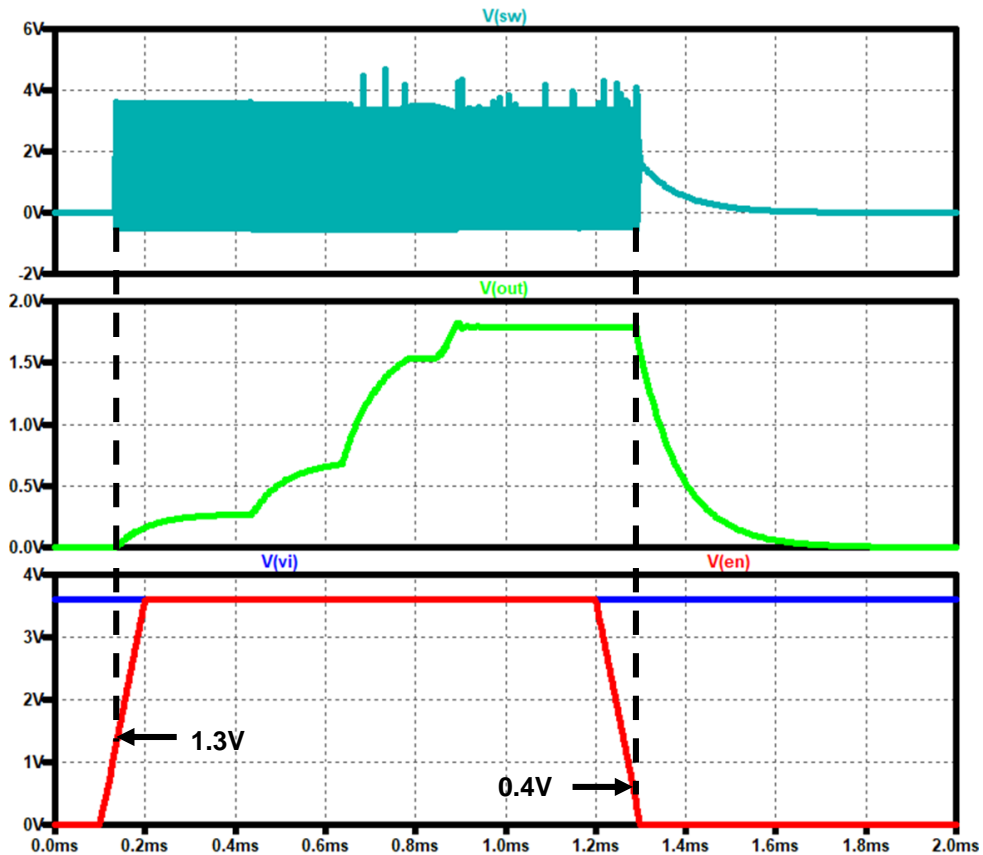


EN Testbench



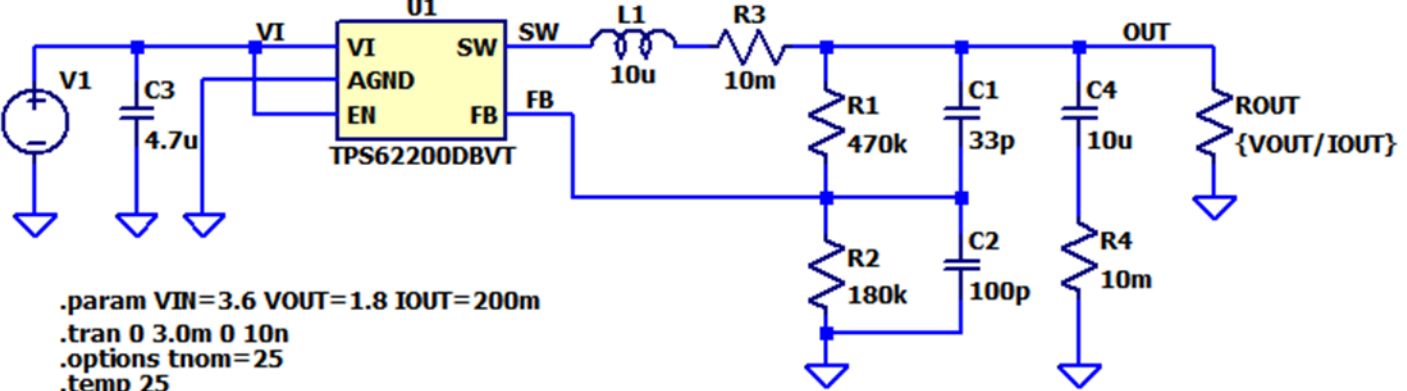
Simulation results are following.
 Explanatory notes — : simulated

EN



Line Transient Testbench

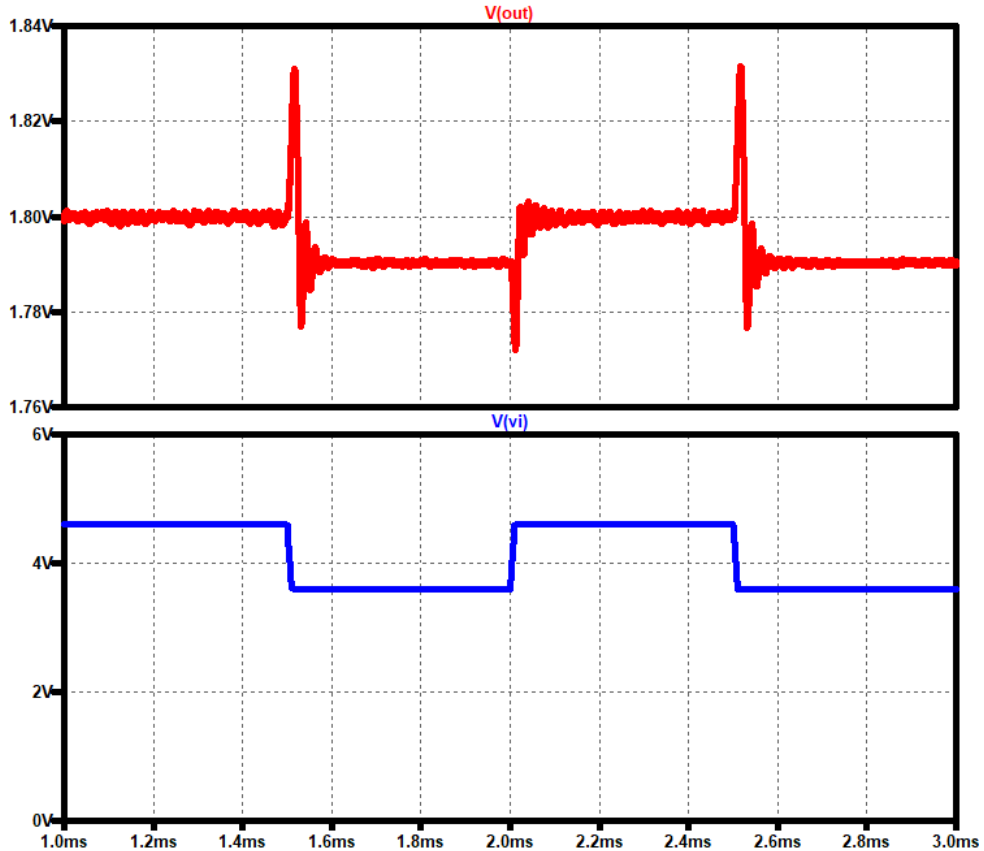
PWL(0 4.6 1.5m 4.6 {1.5m+10u} 3.6 2.0m 3.6 {2.0m+10u} 4.6 2.5m 4.6 {2.5m+10u} 3.6)



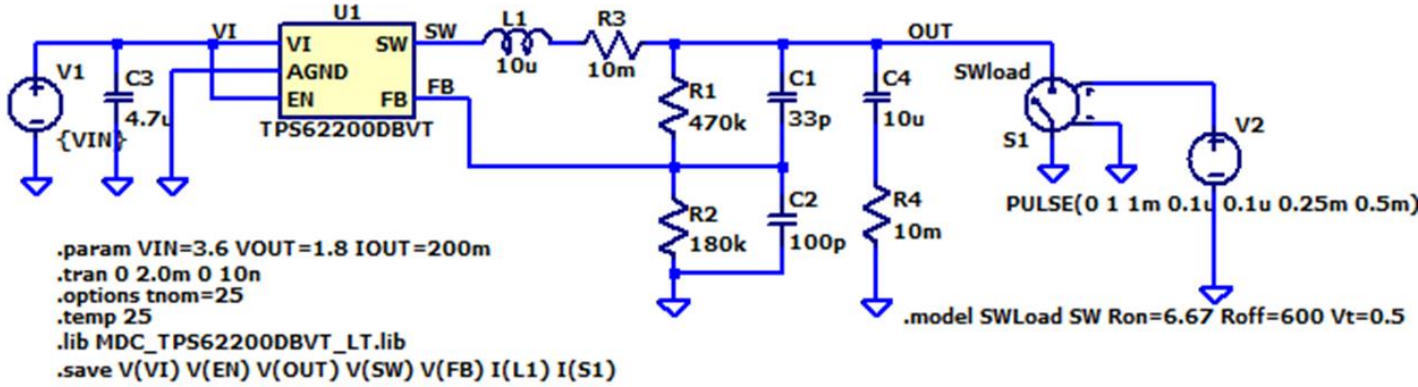
```
.param VIN=3.6 VOUT=1.8 IOU=200m
.tran 0 3.0m 0 10n
.options tnom=25
.temp 25
.lib MDC_TPS62200DBVT_LT.lib
.save V(VI) V(EN) V(OUT) V(SW) V(FB) I(L1) I(ROUT)
```

Simulation results are following.
Explanatory notes — : simulated

Line Transient

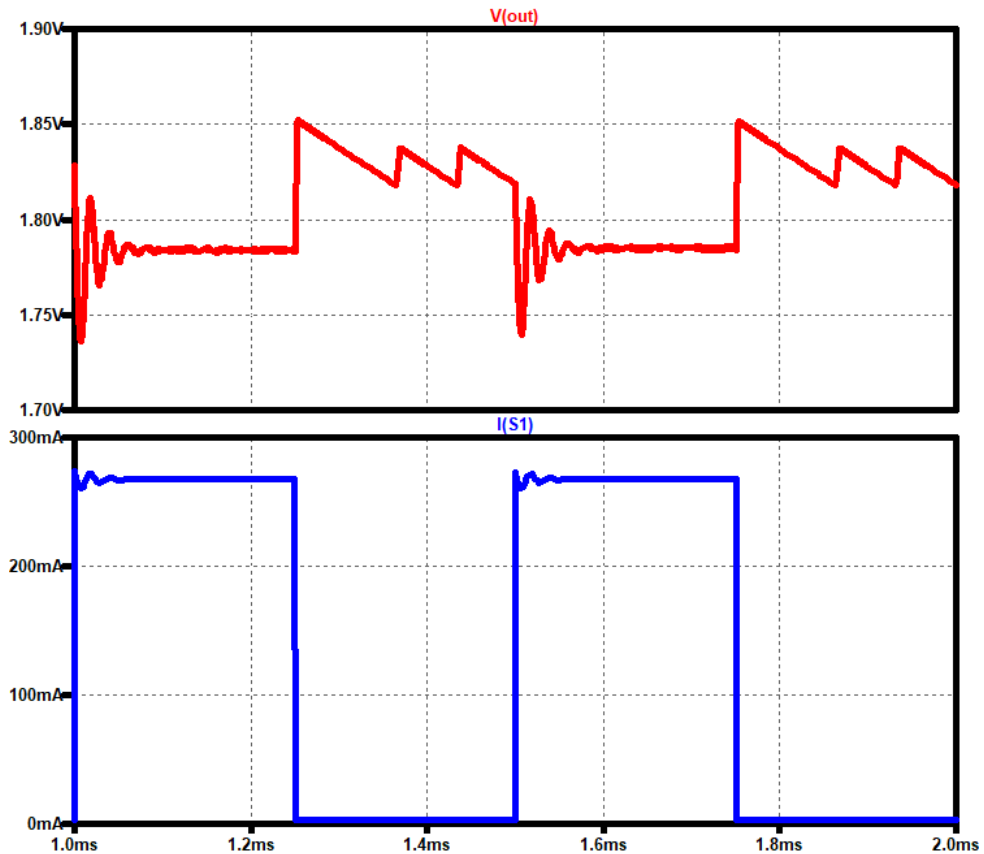


Load Transient Testbench



Simulation results are following.
 Explanatory notes — : simulated

Load Transient



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