

LTspice Model

Synchronous Step-Down Converter

Monolithic Power Systems

MPM3805GQB

Model Information

Model A macro model
Call Name MDC_MPM3805GQB_LT
Pin Assign 1,2:PGND 3,4:NC 5,6:OUT 7:VIN 8:PG 9:EN 10:FB 11:AGND 12:OUT_S
File List Model Library MDC_MPM3805GQB_LT01.lib
 Model Report MDC_MPM3805GQB_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
- Product name MPM3805GQB
- Company name Monolithic Power Systems Inc.

[Characteristics listed]

- Characteristics HS, LS switch-on resistance
Oscillator frequency
Soft-start time

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

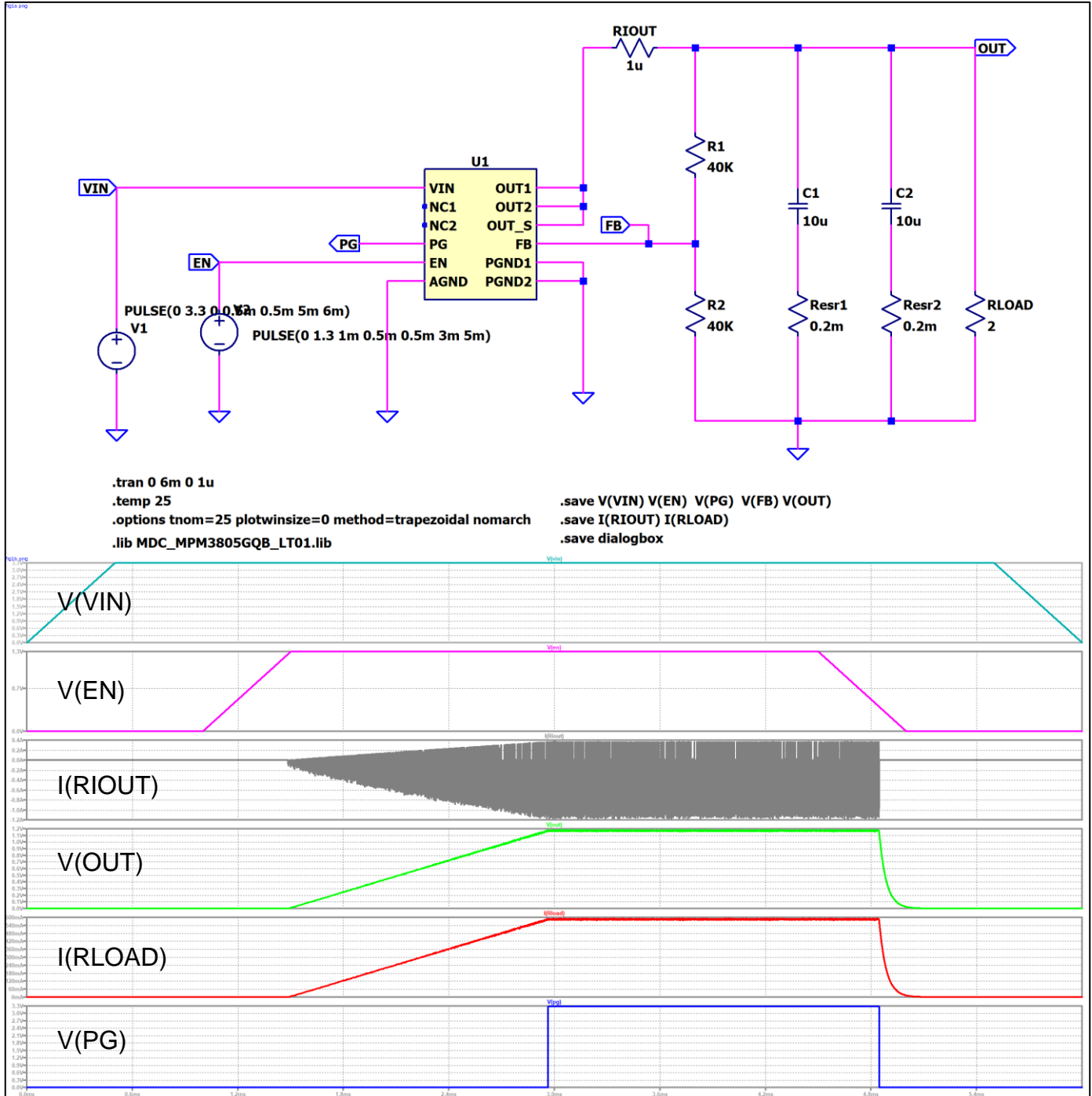
Switching Regulator

○ : Implemented
 × : Not Implemented
 — : Not applicable

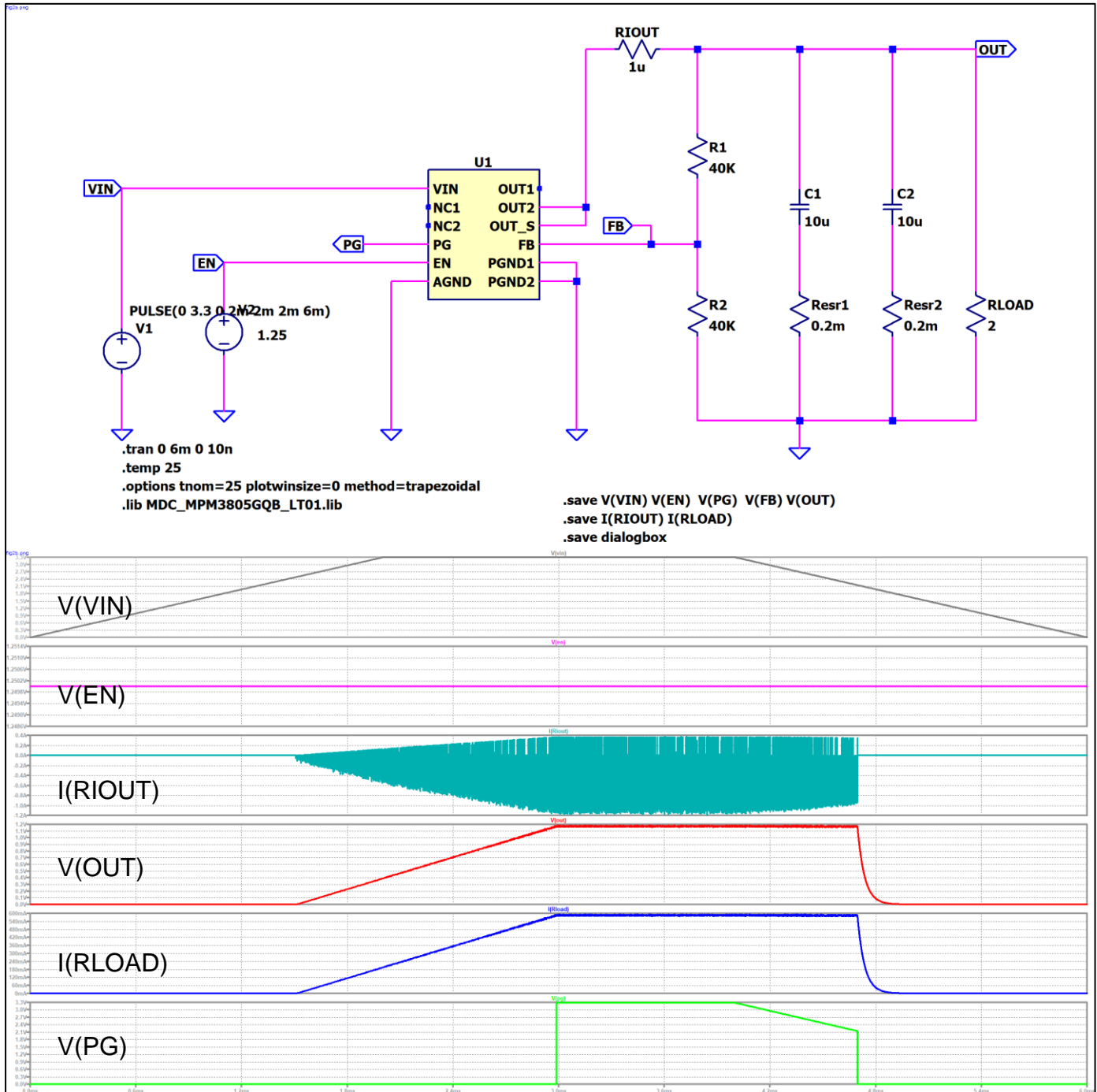
Model Functions Table
RANK=2

Functions	RANK	Implemented
EN	1	○
Soft-Start	1	○
Power Good	1	
UVLO	1	○
Cycle-by-Cycle Over Current Protection	1	○
Short-Circuit Protection with Hiccup	2	○
Adjustable Output	1	○
Constant On-Time Control	1	○
Light Load Operation	2	○

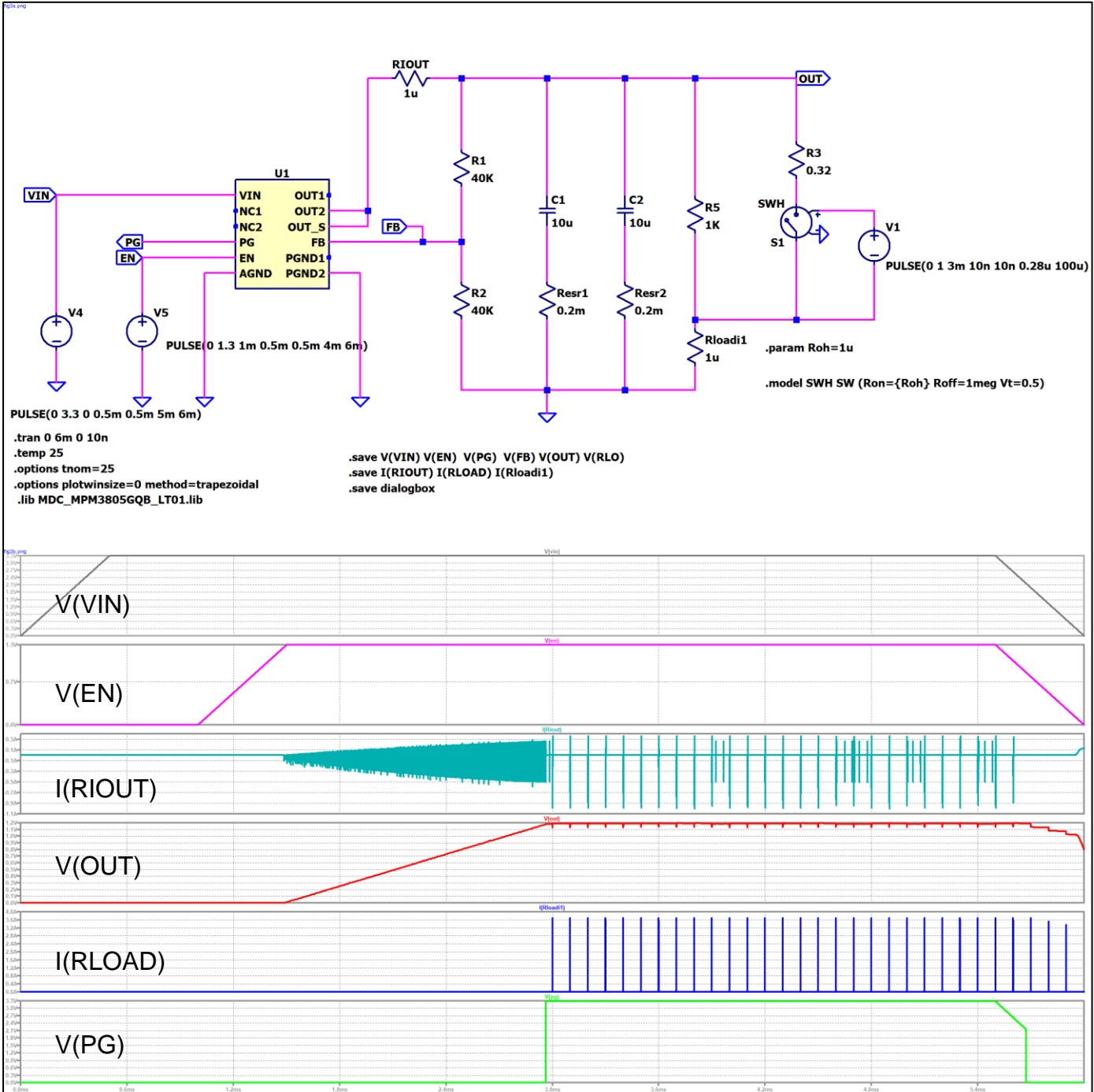
1) Test bench for enable, Soft-Start and Power good function (VOUT = 1.2V, IOU = 0.6A)



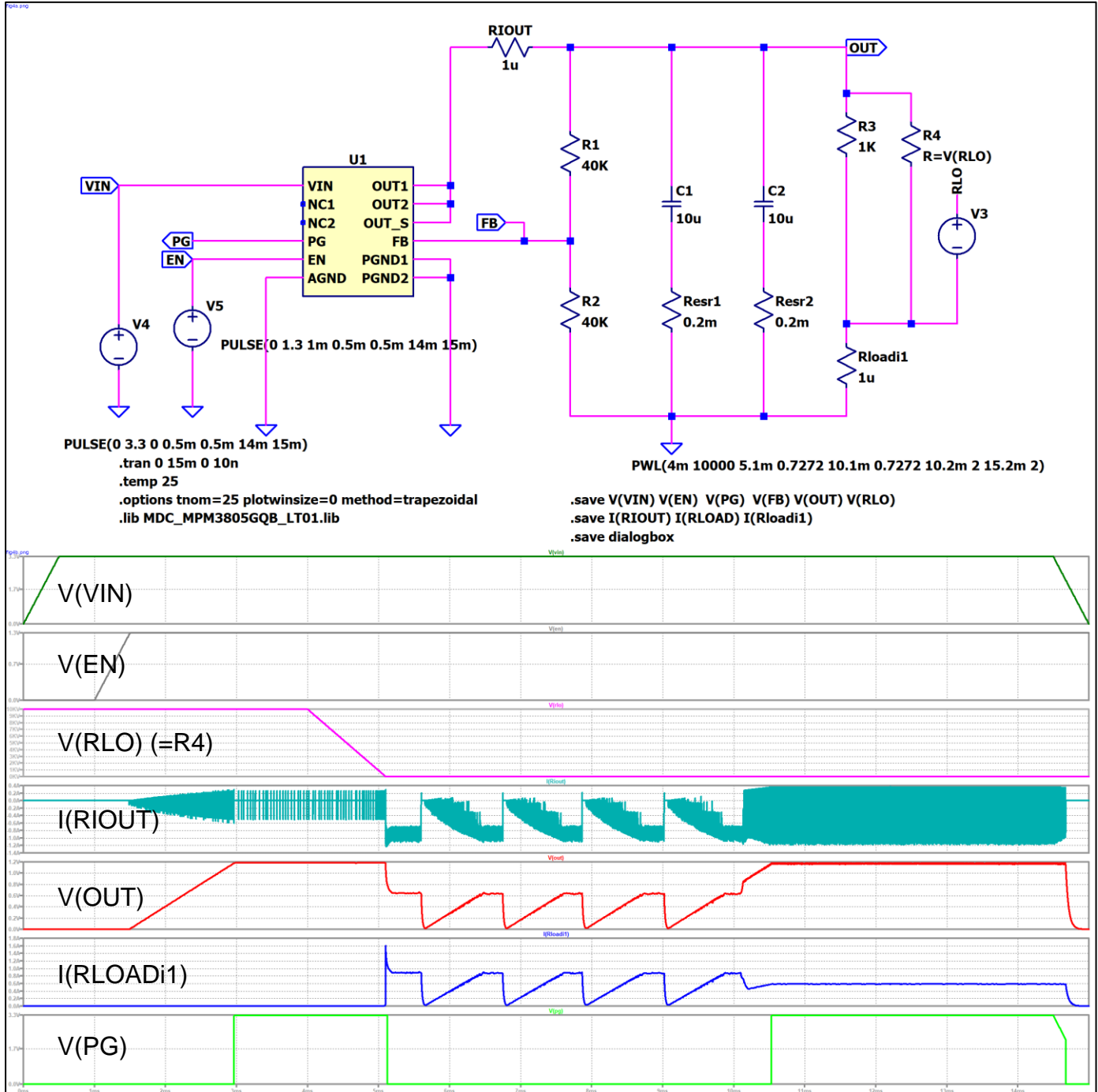
2) Test bench for UVLO function ($V_{OUT} = 1.2V$, $I_{OUT} = 0.6A$)



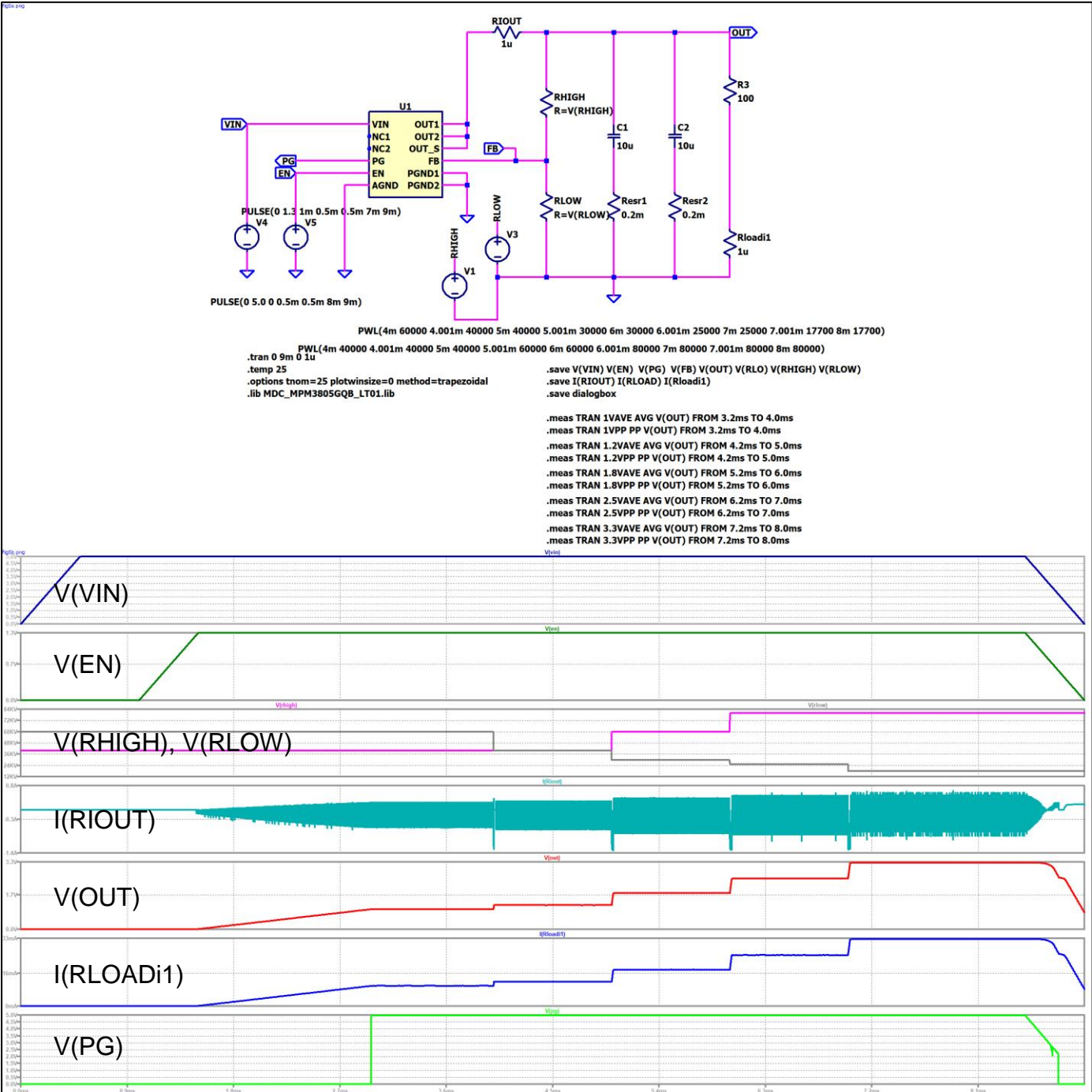
3) Test bench for Cycle-by-Cycle Over-Current protection function (VOUT = 1.2V, IOU = 0.6A)



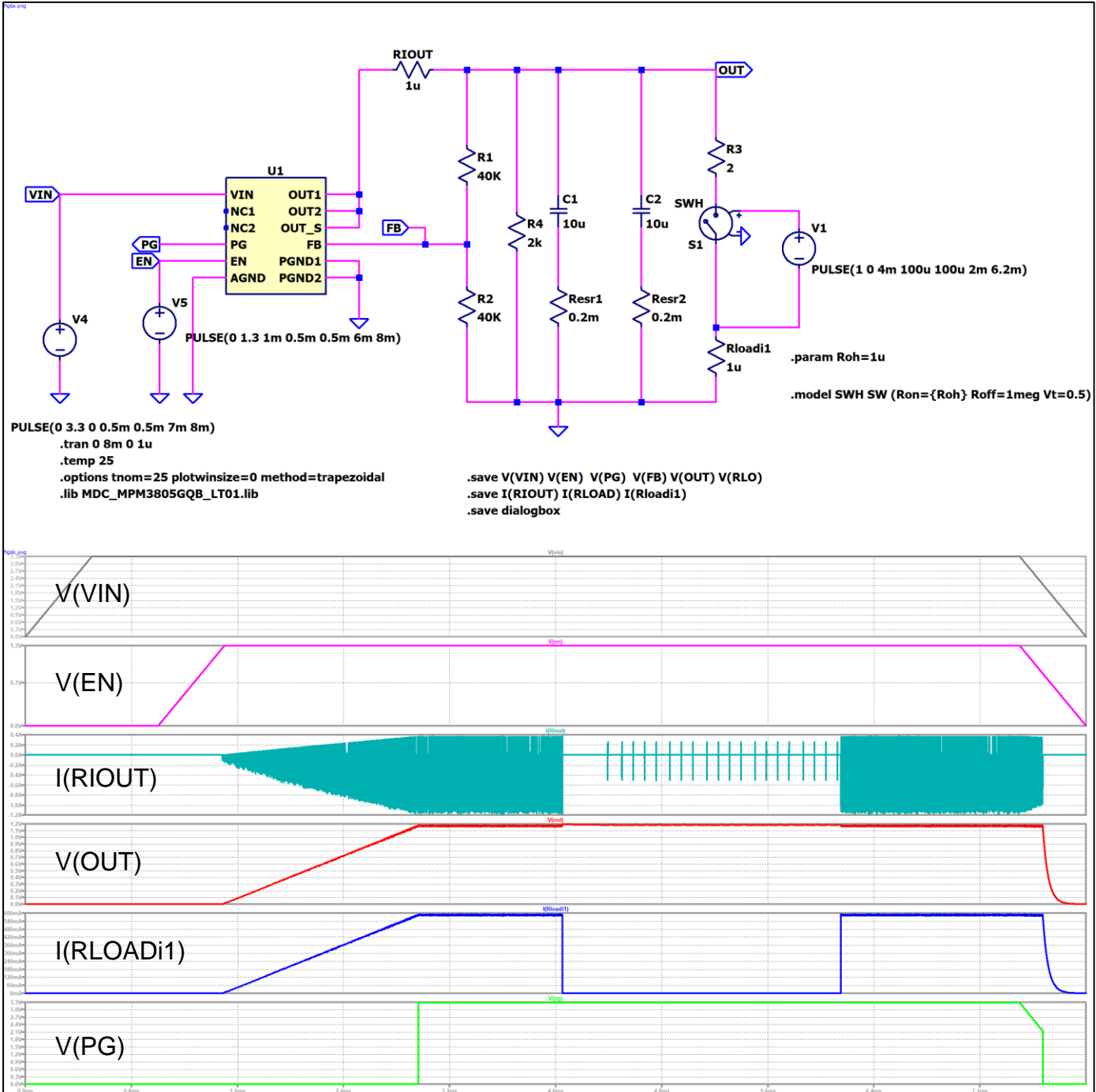
4) Test bench for Short-Circuit Protection with Hiccup (VOUT = 1.2V, IOUT = 0.6A)



5) Test bench for adjustable output function (V(IN)=5V, Output load=100Ω)



7) Test bench for light load operation ($V(OUT) = 1.2V$, $I_{OUT} = 0.6A$ $V(IN)=3.3V$ Load= $1.99\Omega \sim 1.95K\Omega$)



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