

LTspice Model

High-side Driver

STMicroelectronics

VN7140ASTR

Model Information

Model	A macro model		
Call Name	VN7140ASTR		
Pin Assign	1:INPUT 2:SEn 3:GND 4:MultiSense 5:VCC 6:OUTPUT 7:OUTPUT 8:VCC		
File List	Model Library	MDC_VN7140ASTR_LT.lib	
	Model Report	MDC_VN7140ASTR_LT.pdf(this file)	
Verified Simulator Version	LTspice version XVII		
Note			

References

The information which was used for modeling is as follow:

[Data Sheet]

●Date/Version	04-Apr-2019
●Product name	VN7140ASTR
●Company name	STMicroelectronics N.V.

[Characteristics listed]

●Characteristics	UVLO Overvoltage Clamp Current limitation
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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

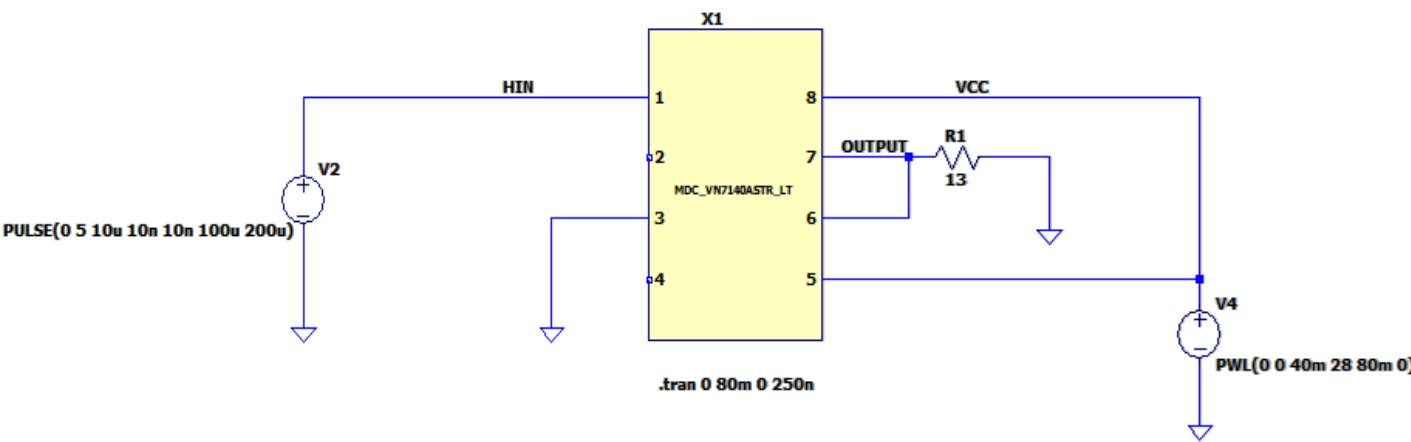
Model Functions Table

Functions	Implemented
Undervoltage shutdown	○
Overvoltage clamp(46V)	○
Load current limitation(12A)	○
Self limiting of fast thermal transients	※1
MultiSense diagnostic functions	※2
Sense enable/disable	○

※1 The temperature coefficient is unknown, shutdown is performed after a certain time has elapsed after reaching the current limit.

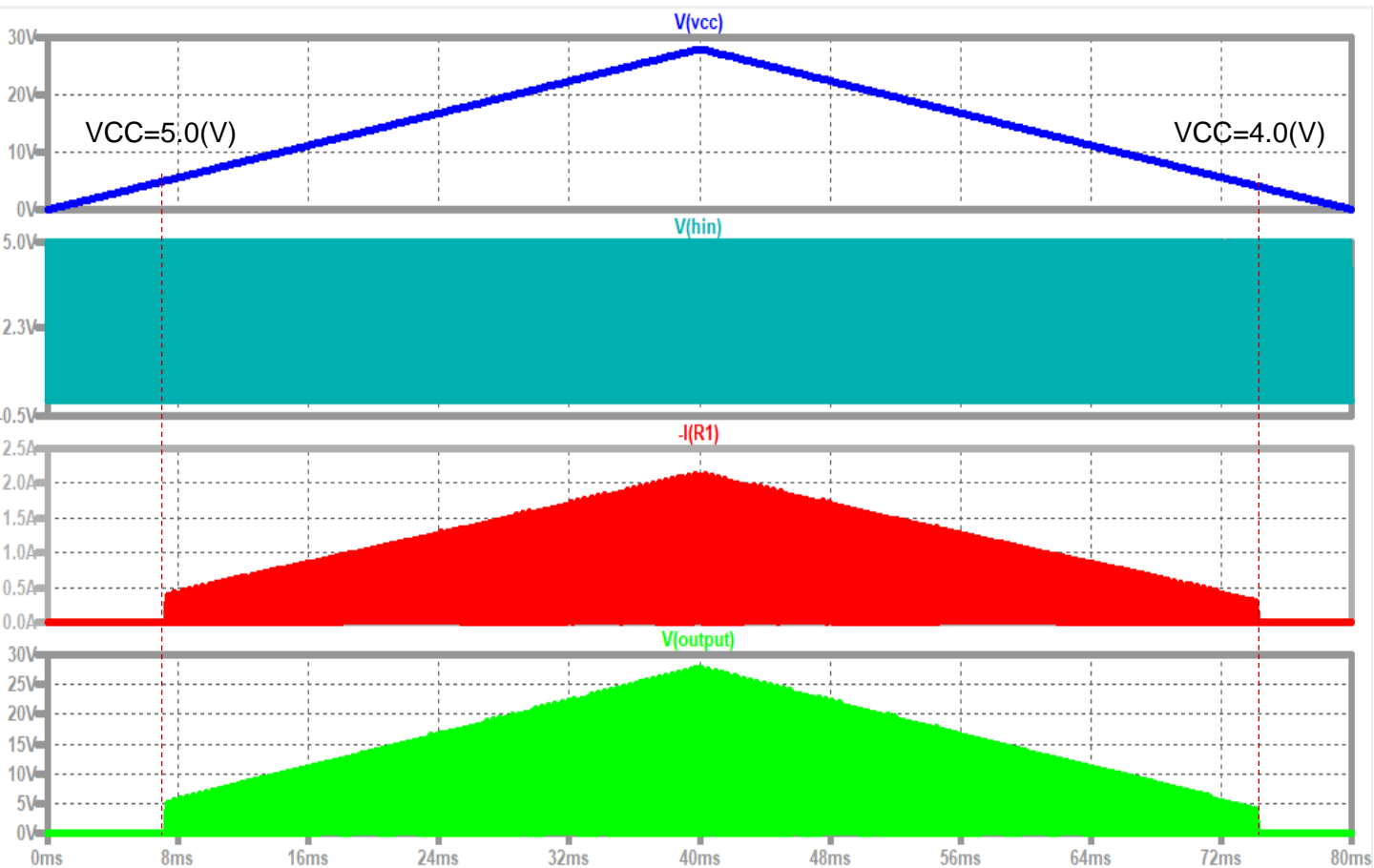
※2 Only for overcurrent shutdown.

UVLO Testbench
Referred to Data Sheet

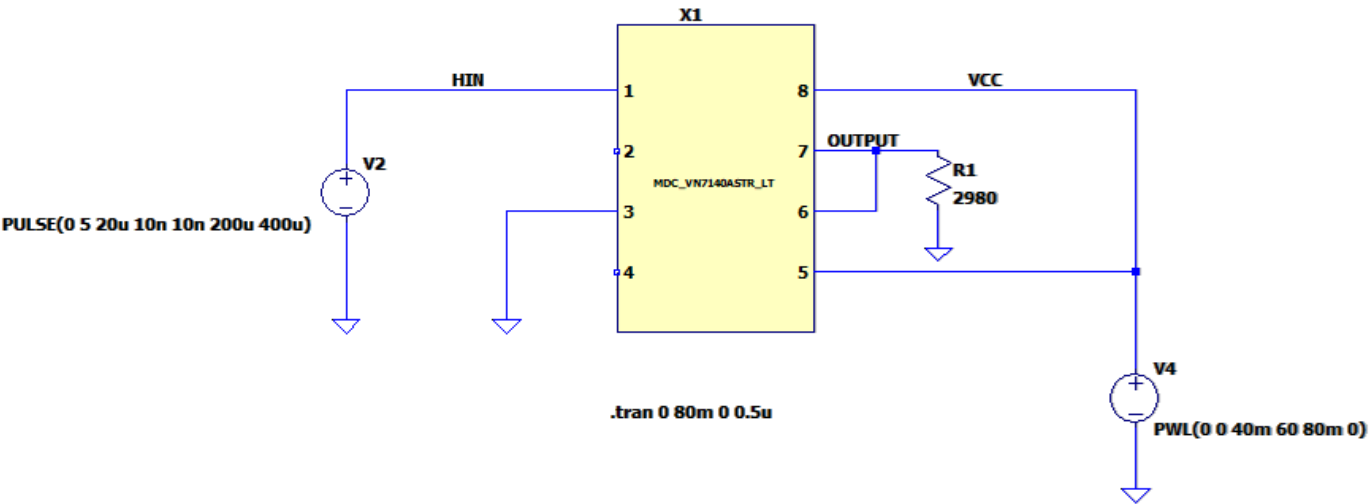


Simulation results are following.
Explanatory notes — : simulated

UVLO

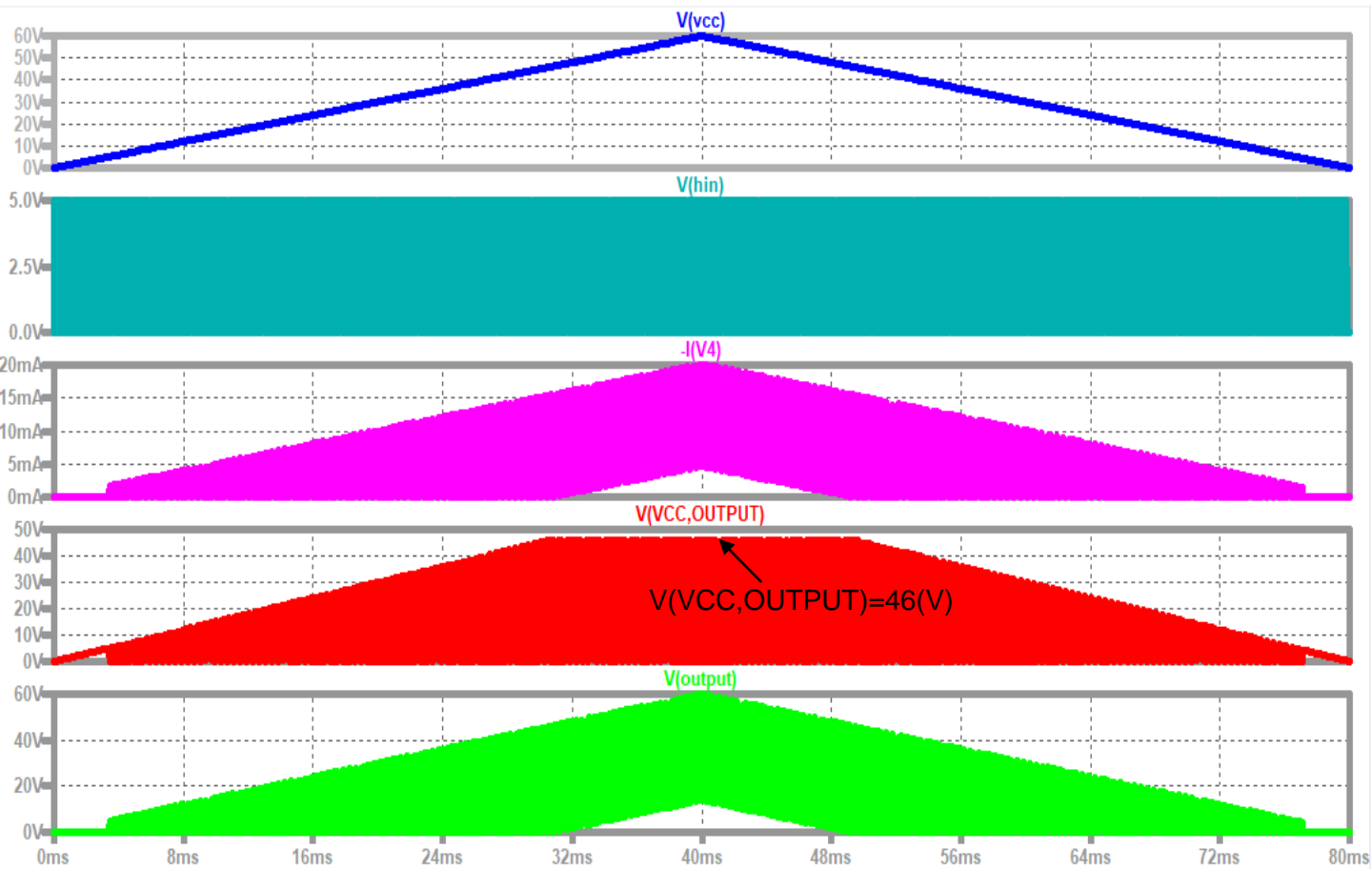


Overvoltage Clamp Testbench
Referred to Data Sheet

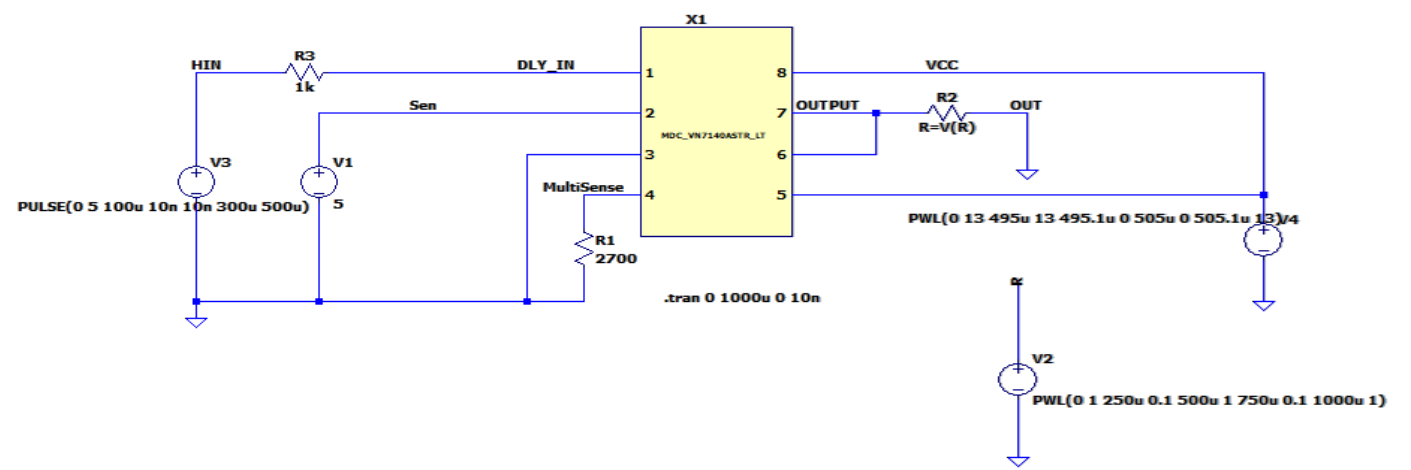


Simulation results are following.
Explanatory notes — : simulated

Overvoltage Clamp

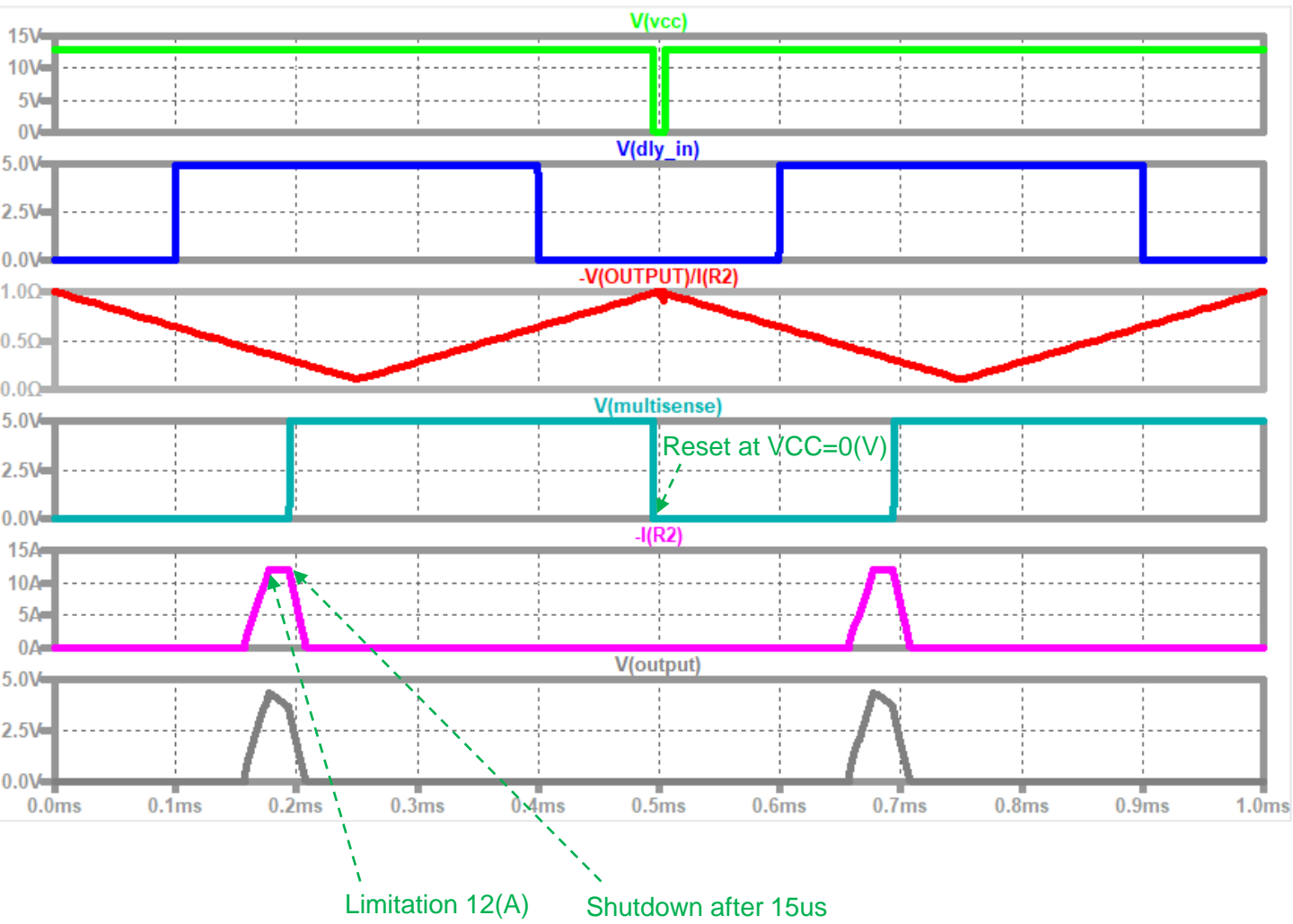


Current limitation Testbench
Referred to Data Sheet



Simulation results are following.
Explanatory notes — : simulated

Current limitation



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