

LTspice Model

High-voltage resonant controller

STMicroelectronics N.V.

L6599

Model Information

Model A macro model
Call Name MDC_L6599_LT
Pin Assign 1:CSS 2:DELAY 3:CF 4:RFmin 5:STBY 6:ISEN 7:LINE 8:DIS 9:PFC_STOP 10:GND
 11:LVG 12:VCC 13:NC 14:OUT 15:HVG 16:VBOOT
File List Model Library MDC_L6599_LT01.lib
 Model Report MDC_L6599_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 February 2009 Rev. 3
 ●Product name L6599
 ●Company name STMicroelectronics N.V.

[Characteristics listed]
 ●Characteristics Vcc(on), Vcc(off), VISENx, VISENdis, td(H-L)
 Vth(line sensing), IHyst, Vclamp
 Vth(disable), fosc, TD, VCFp, VCFv, VREF, VL
 Vth(stby), ICHARGE, Vth1, Vth2 Vth3, VLVGH, tr, tf

Simulation Condition

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

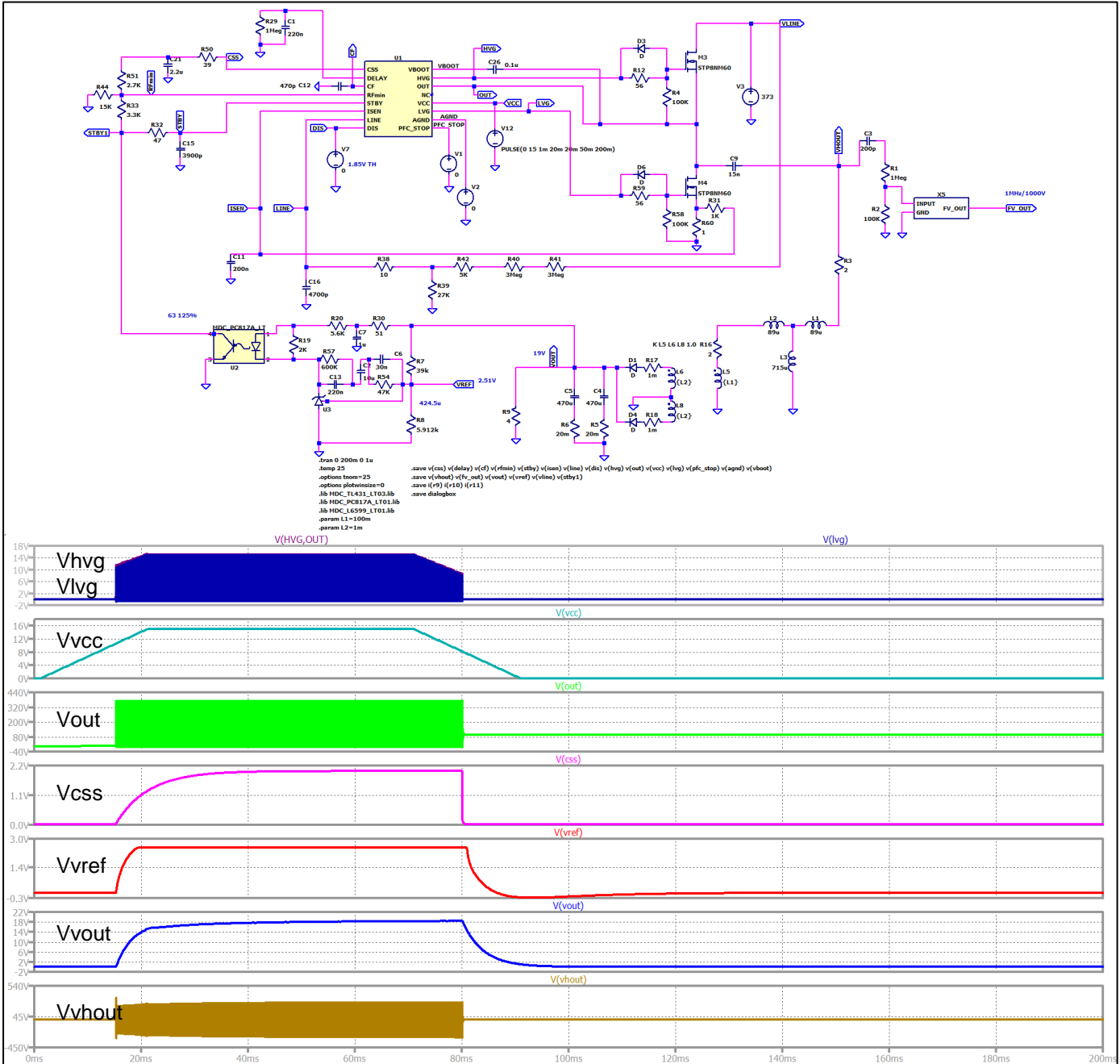
Item	Condition			Unit
	Min	Typ	Max	
Supply Voltage	8.85		16	V
Temperature		25		deg C

Model Functions Table

Functions	Implemented
Up to 500 kHz operating frequency	○
Two-level OCP: frequency-shift and latched shutdown	○
Burst-mode operation at light load	○
Input for power-ON/OFF sequencing or brownout protection	○
Non-linear soft-start for monotonic output voltage rise	○
600 V-rail compatible high-side gate driver with integrated bootstrap diode and high dV/dt Immunity	○
-300/800 mA high-side and low-side gate drivers with UVLO pull-down	○

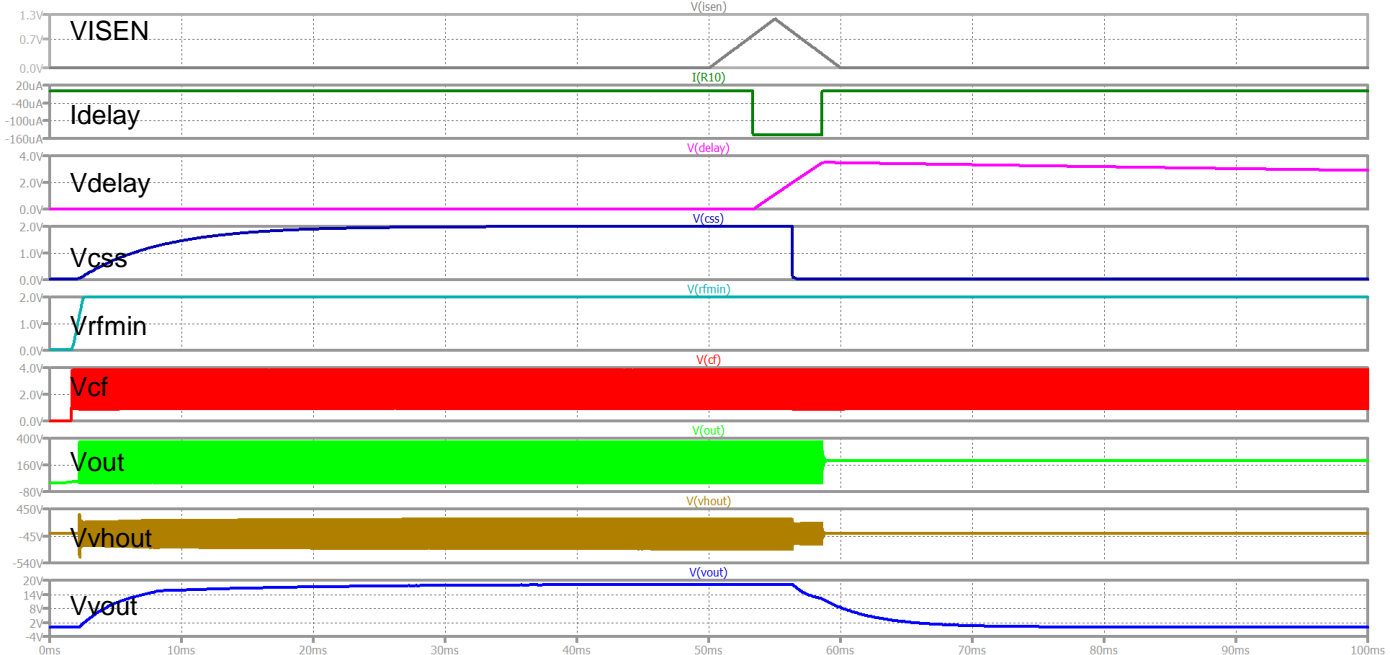
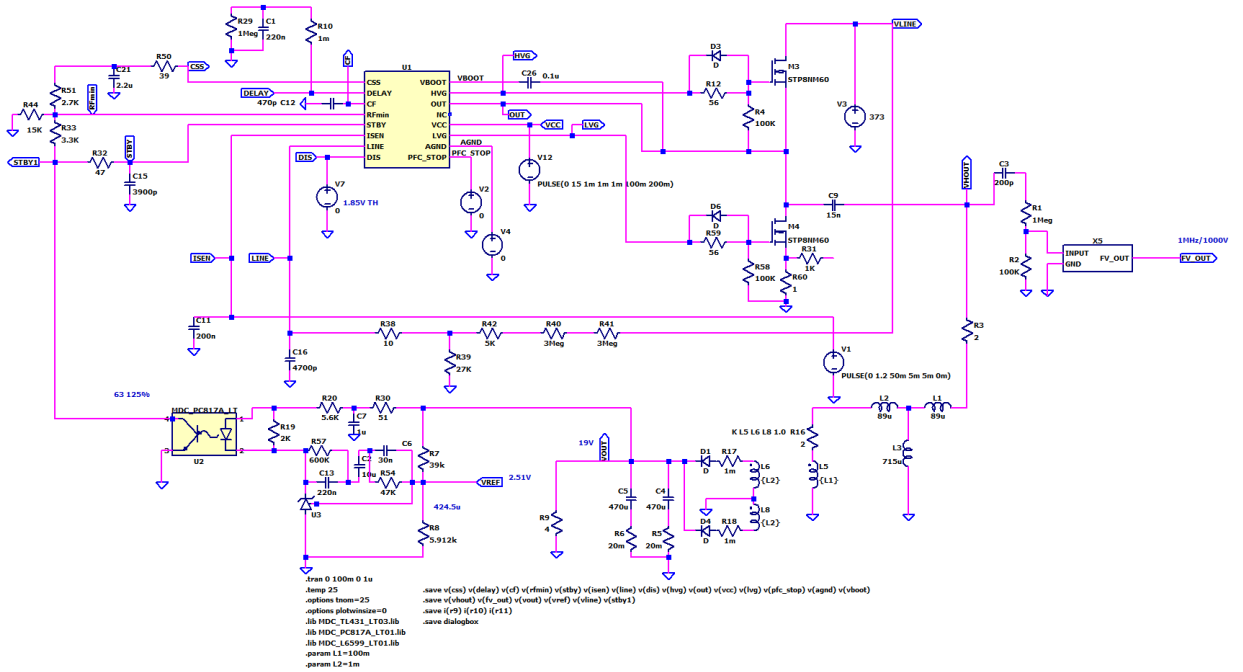
Testbench for UVLO function (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz])

Referred to Data Sheet



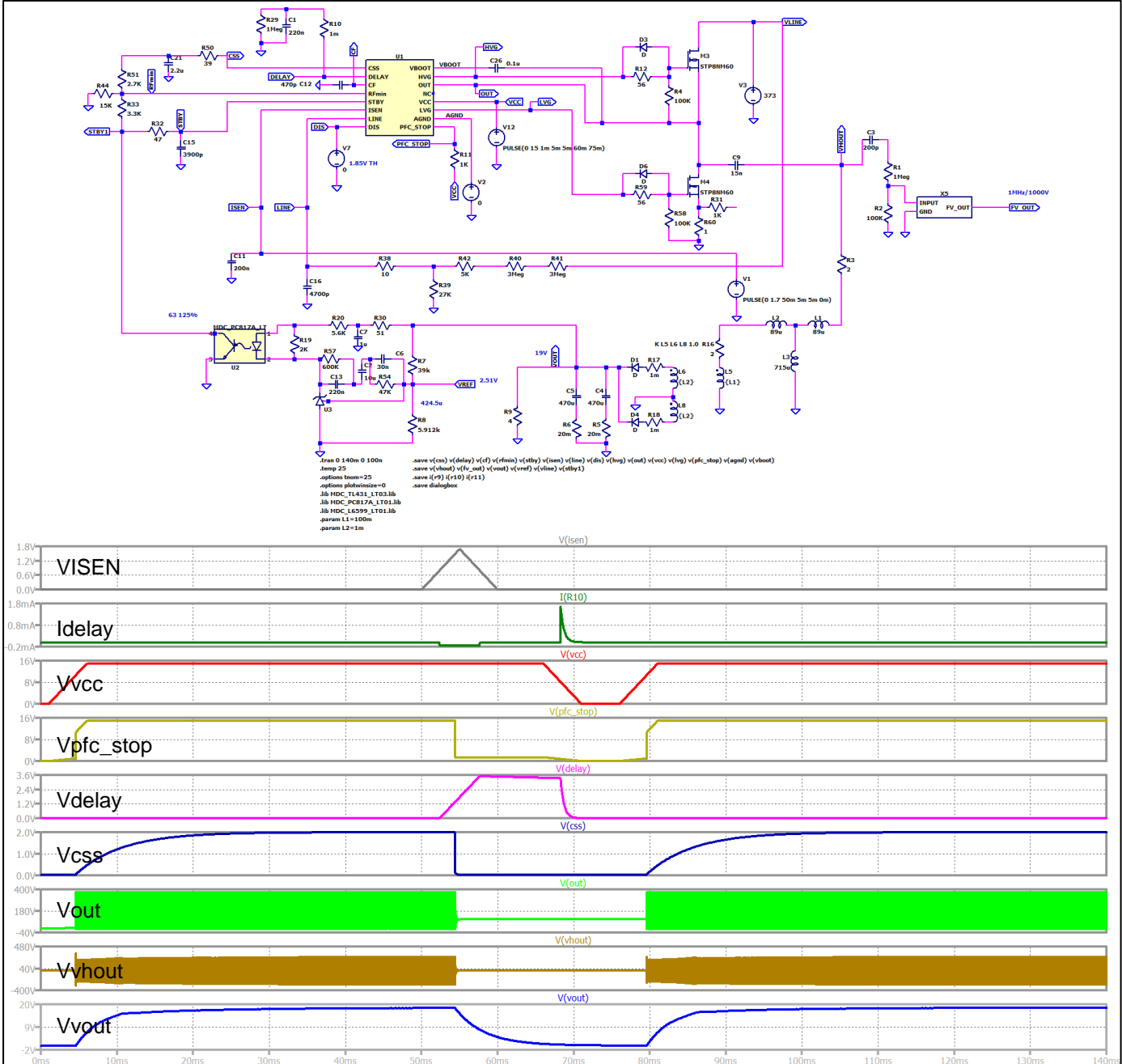
Testbench for OCP function (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz] ISEN < 1.5V[V])

Referred to Data Sheet



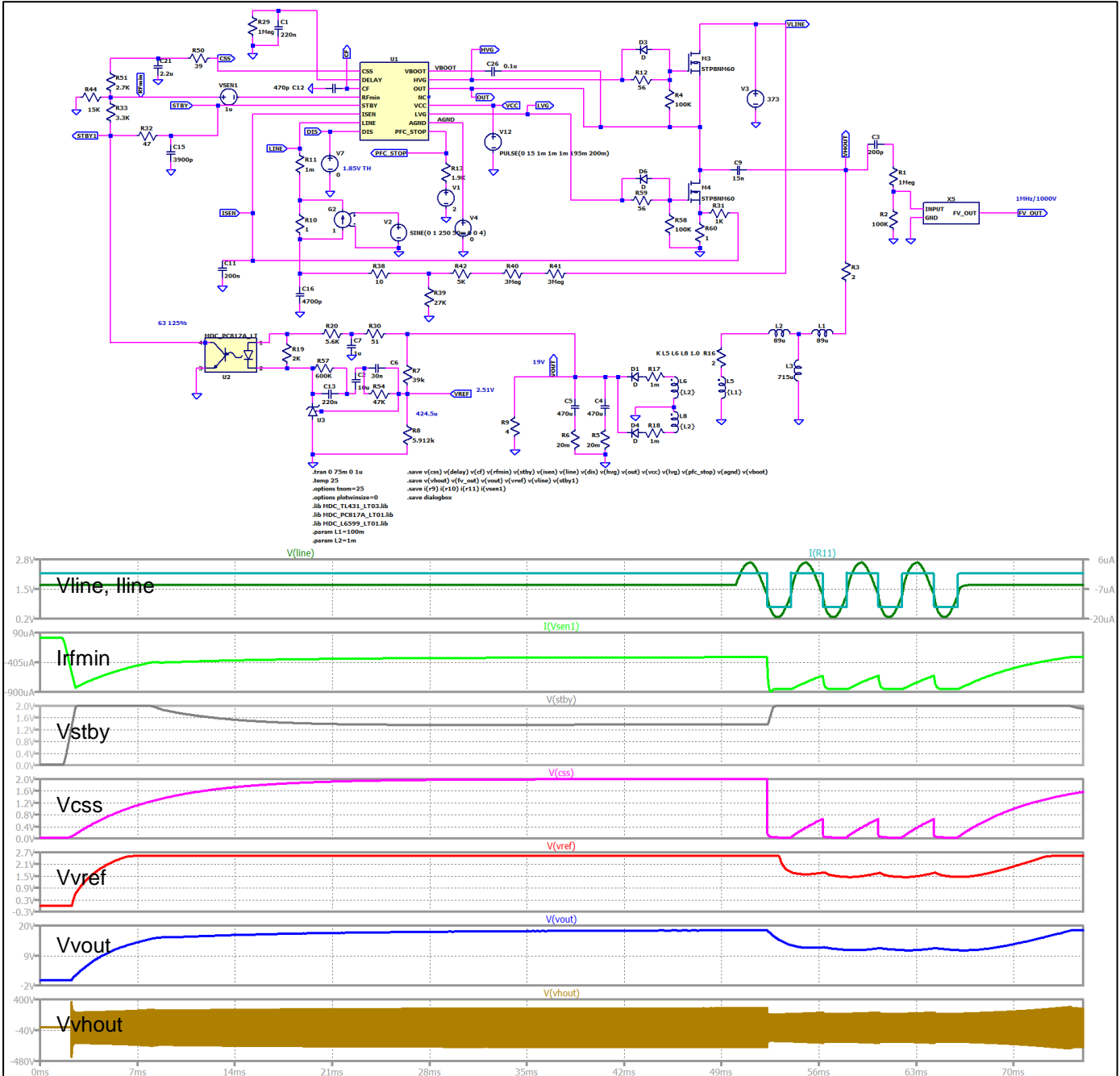
Testbench for OCP function (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz] ISEN > 1.5V[V])

Referred to Data Sheet



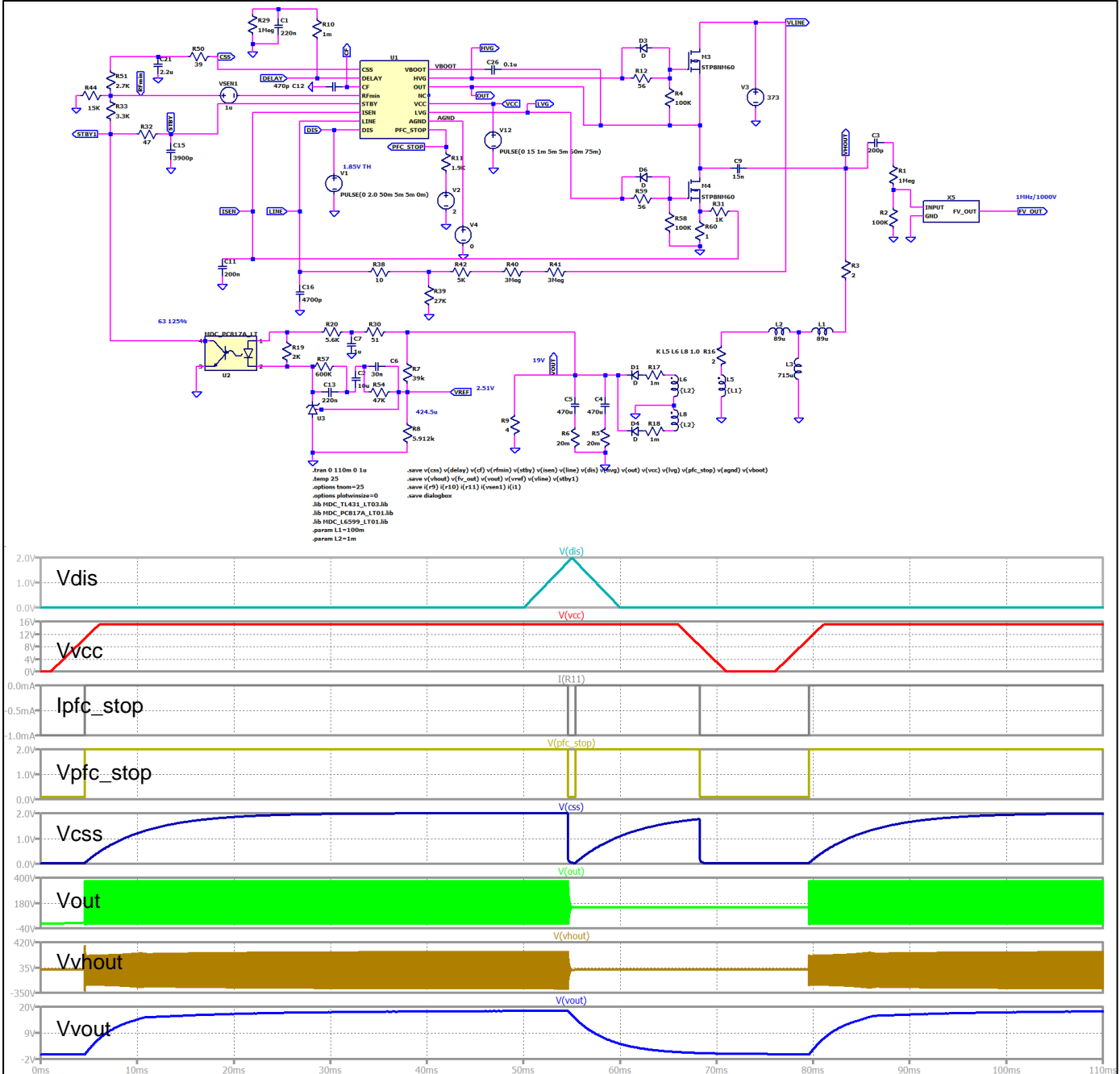
Testbench for line sensing function (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz])

Referred to Data Sheet



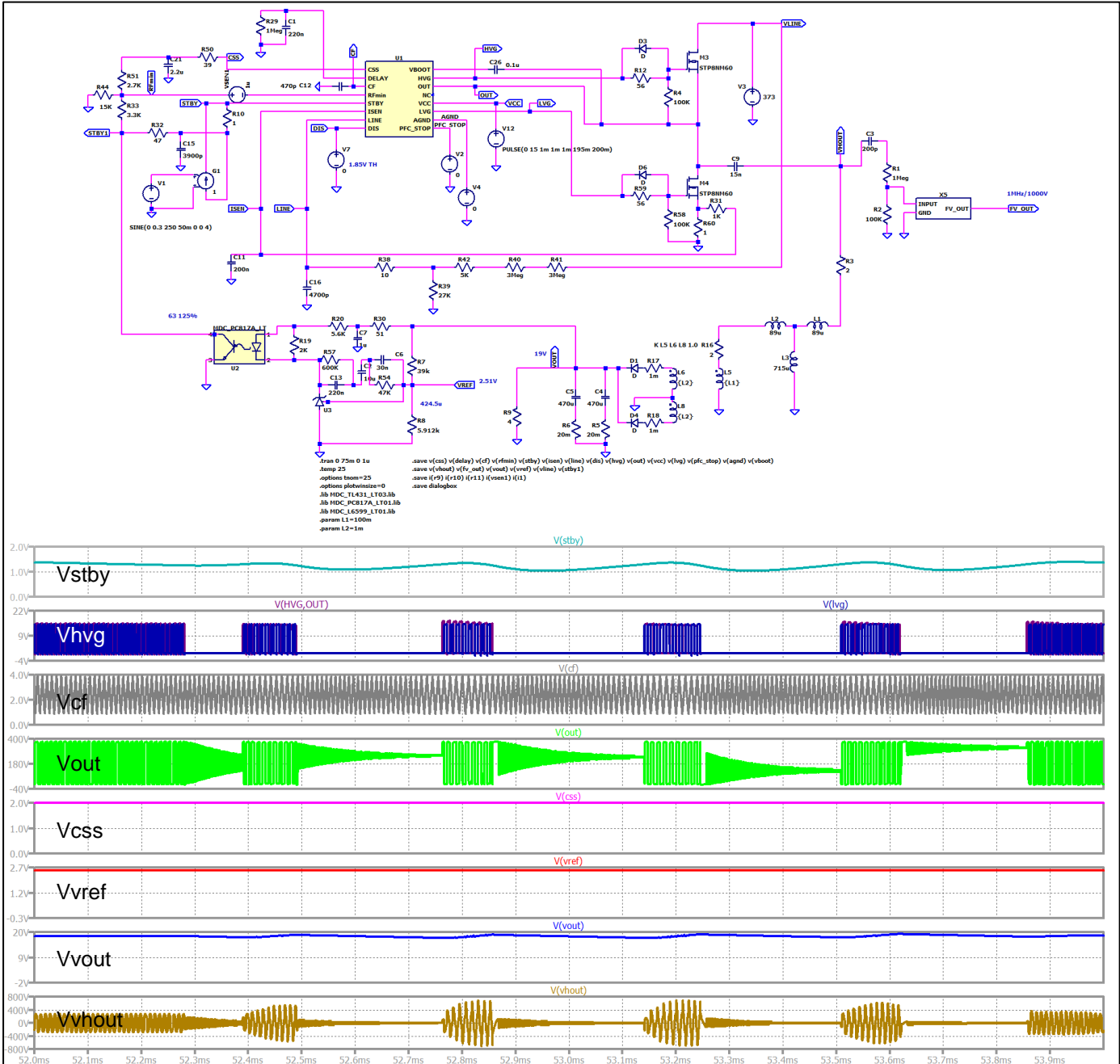
Testbench for disable function (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz])

Referred to Data Sheet



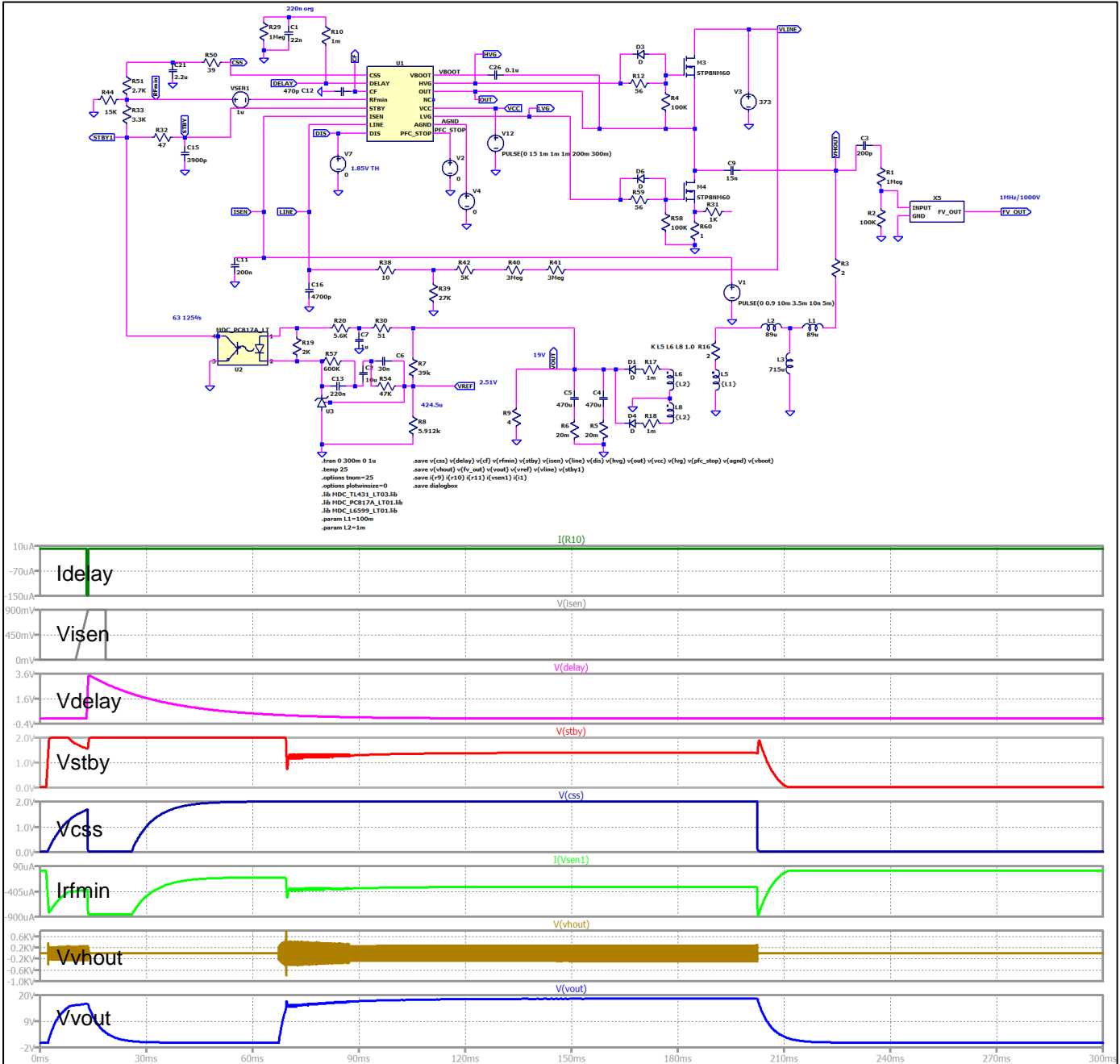
Testbench for stand-by function ($V_{line}=373[V]$ $V_{cc}=15[V]$ $V_{out}=19[V]$ $I_{out}=4.75[A]$ $F_{sw}=110[kHz]$)

Referred to Data Sheet



Testbench for delayed shutdown (Vline=373[V] Vcc=15[V] Vout=19[V] Iout=4.75[A] Fsw=110[kHz])

Referred to Data Sheet



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