

# LTspice Model

## 2A Bidirectional Power Backup Supply

### Analog Devices Inc.

### LTC3643

#### Model Information

Model	A macro model		
Call Name	MDC_LTC3643_LT		
Pin Assign	1,2:PGND 3:CAP 4,5:VIN 6:GATE 7:RUN 8:FBSYS 9:FBCAP 10:ITH 11:CAPGD 12:PFO 13:PFI 14:INTV <sub>cc</sub> 15:BOOST 16,17:INDIS 18-20:SW 21:ILIM 22,23:NC 24:CLP		
File List	Model Library	MDC_LTC3643_LT01.lib	
	Model Report	MDC_LTC3643_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	Unknown
●Product name	LTC3643
●Company name	Analog Devices Inc.

[Characteristics listed]	
●Characteristics	Switching Frequency 1MHz Switch A/B/C On Resistance Cap Voltage

#### Simulation Condition

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

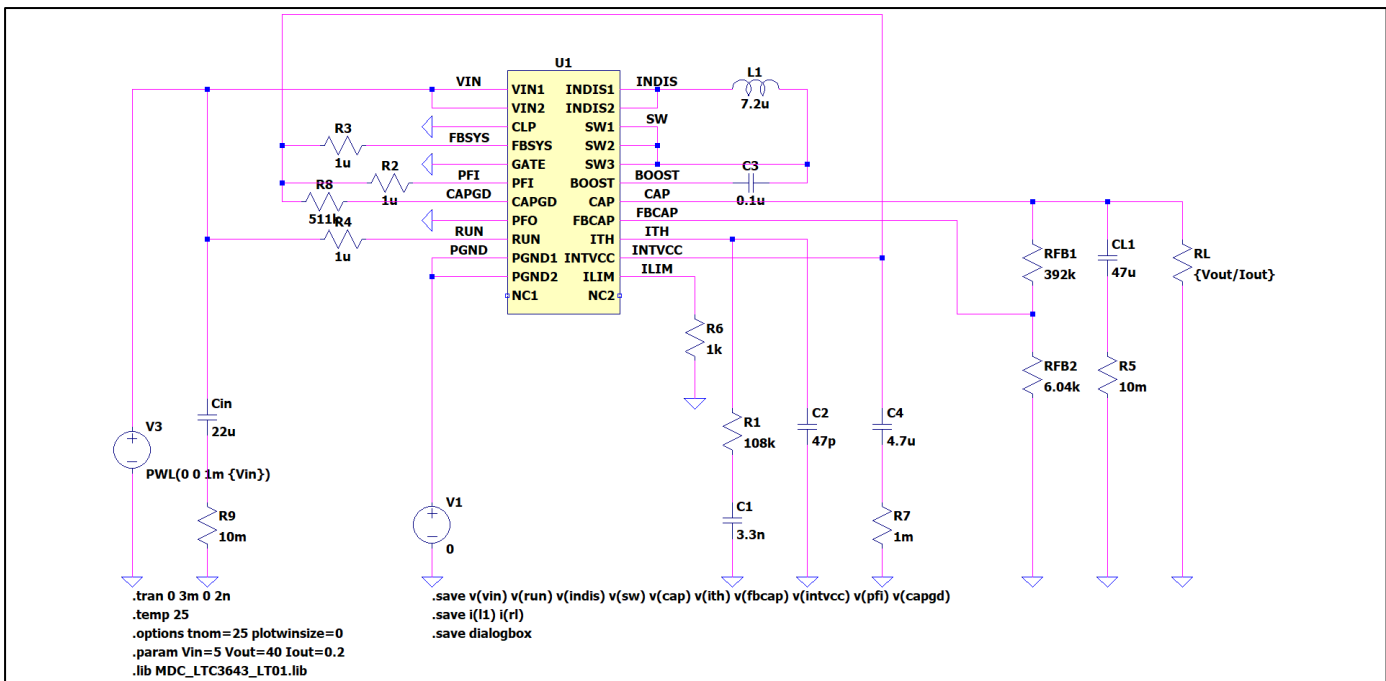
Item	Condition	Unit
Temperature	25	deg C

Model Functions Table

Functions	Implemented
Bidirectional Synchronous Boost Capacitor Charger/Buck Regulator for System Backup	○
Wide Input Voltage Range: 3V to 17V	○
Up to 40V Capacitor Voltage Storage for High Energy Backup	○
2A Maximum CAP Charge Current	○
Fast 1MHz Switching Frequency	○

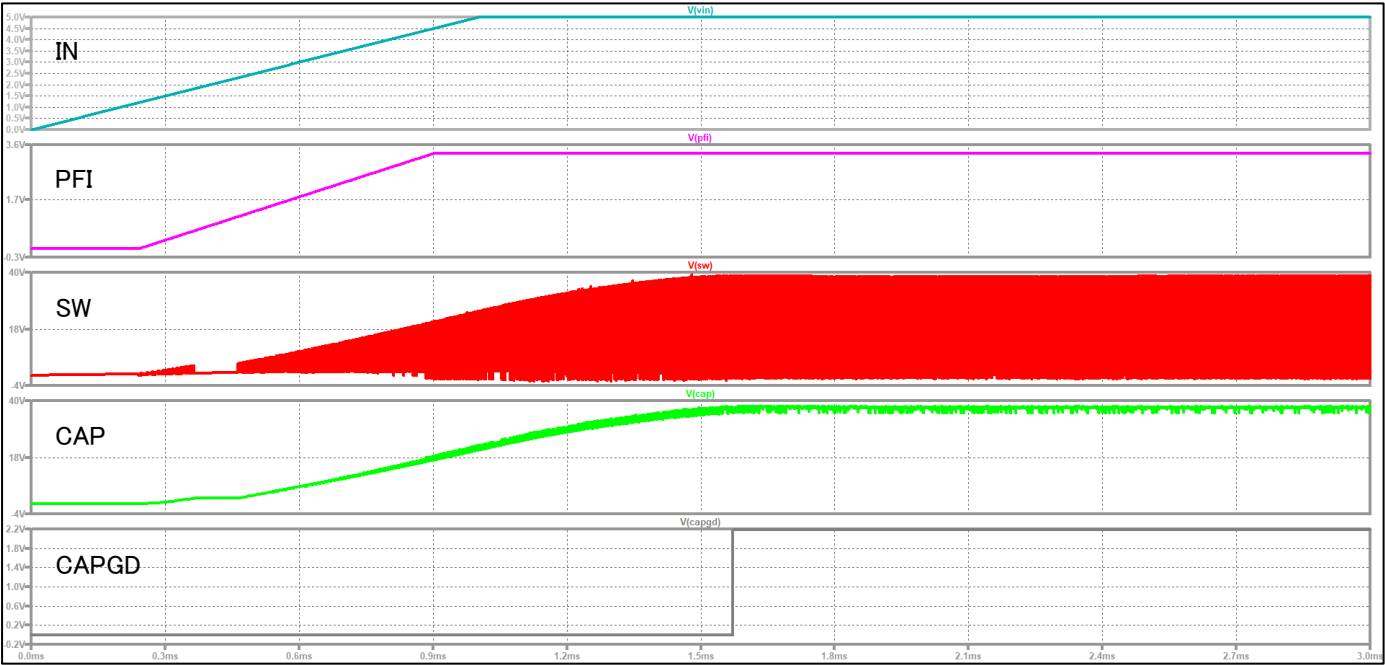
# 40V Synchronous Boost Regulator with Input Disconnect (VIN = 5V, IOUT = 0.2A ) Testbench

## Referred to Data Sheet



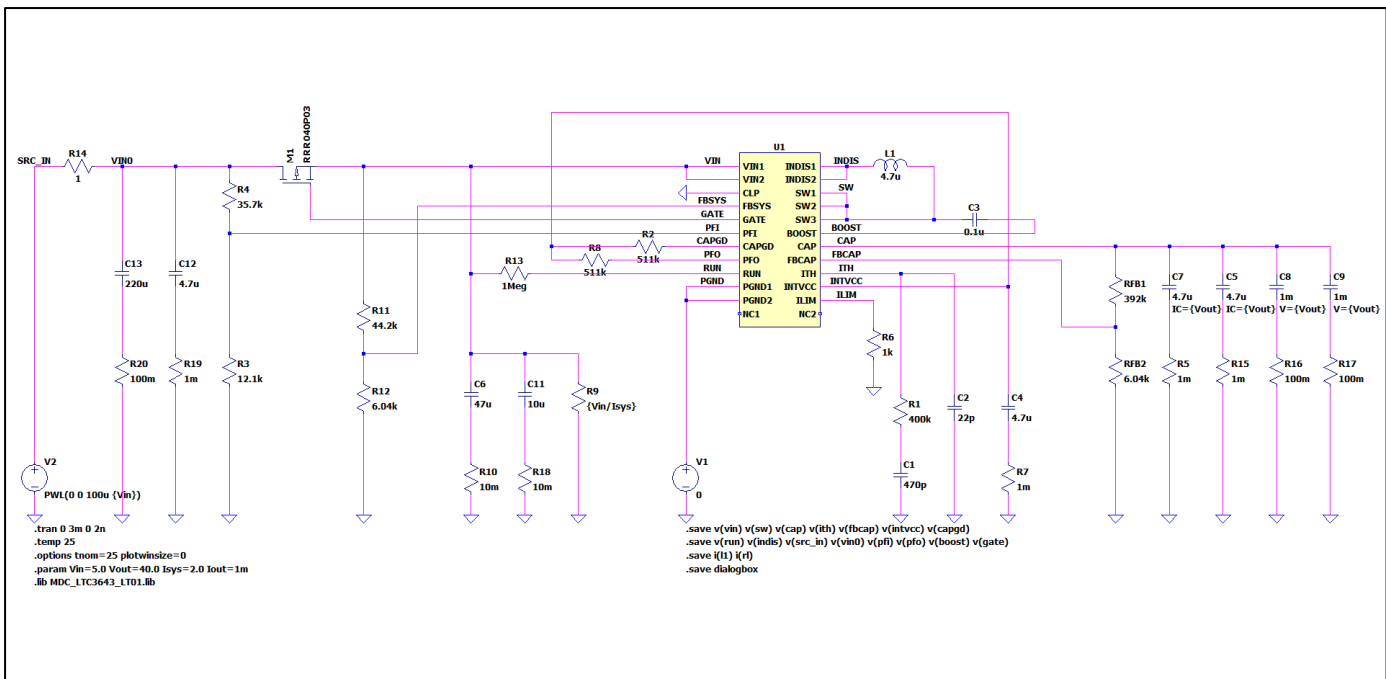
Simulation results are following.  
Explanatory notes    — : simulated

40V Synchronous Boost Regulator with Input Disconnect (VIN = 5V, IOUT = 0.2A ) Testbench



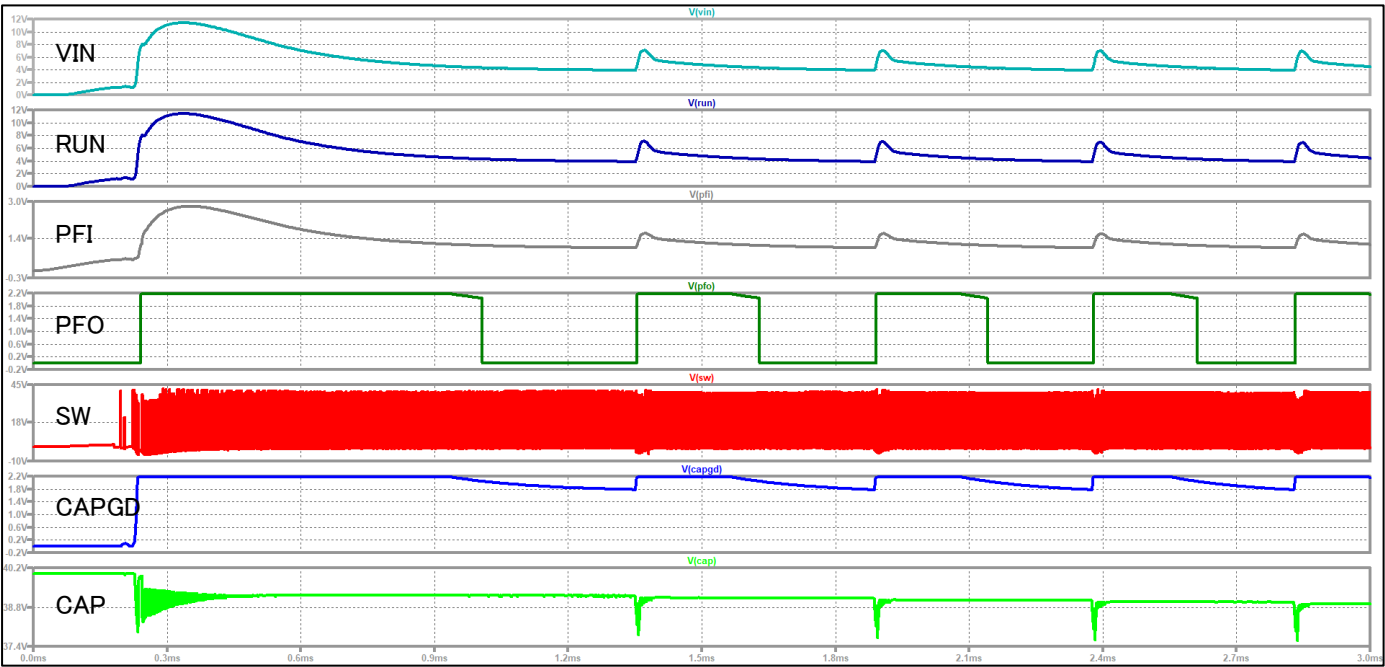
# 5V Backup System with VIN From 5V to 40V (VIN = 5V, IOUT = 0.2A ) Testbench

## Referred to Data Sheet



Simulation results are following.  
Explanatory notes    — : simulated

5V Backup System with VIN From 5V to 40V (VIN = 5V, IOU<sub>T</sub> = 0.2A ) Testbench



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