

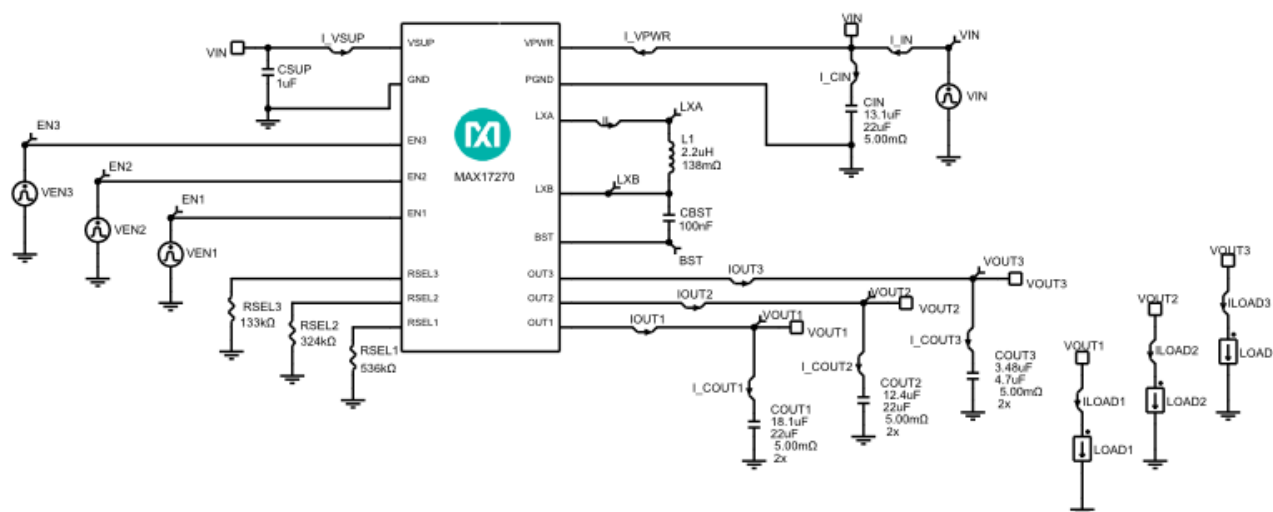
Initial Design

1.0

Design Requirements

Parameter	Value
Minimum Input Voltage	2.7V
Maximum Input Voltage	3.3V
Nominal Input Voltage	3V
Output Voltage 1	1.2V
Output Current 1	25mA
Output 1 Voltage Ripple	1%
Output Voltage 2	1.8V
Output Current 2	50mA
Output 2 Voltage Ripple	1%
Output Voltage 3	3.3
Output Current 3	75mA
Output 3 Voltage Ripple	1%
Performance Priority	Balance Efficiency and Size
BOM Priority	Cost
Ambient Temperature	25°C

Schematic



BOM

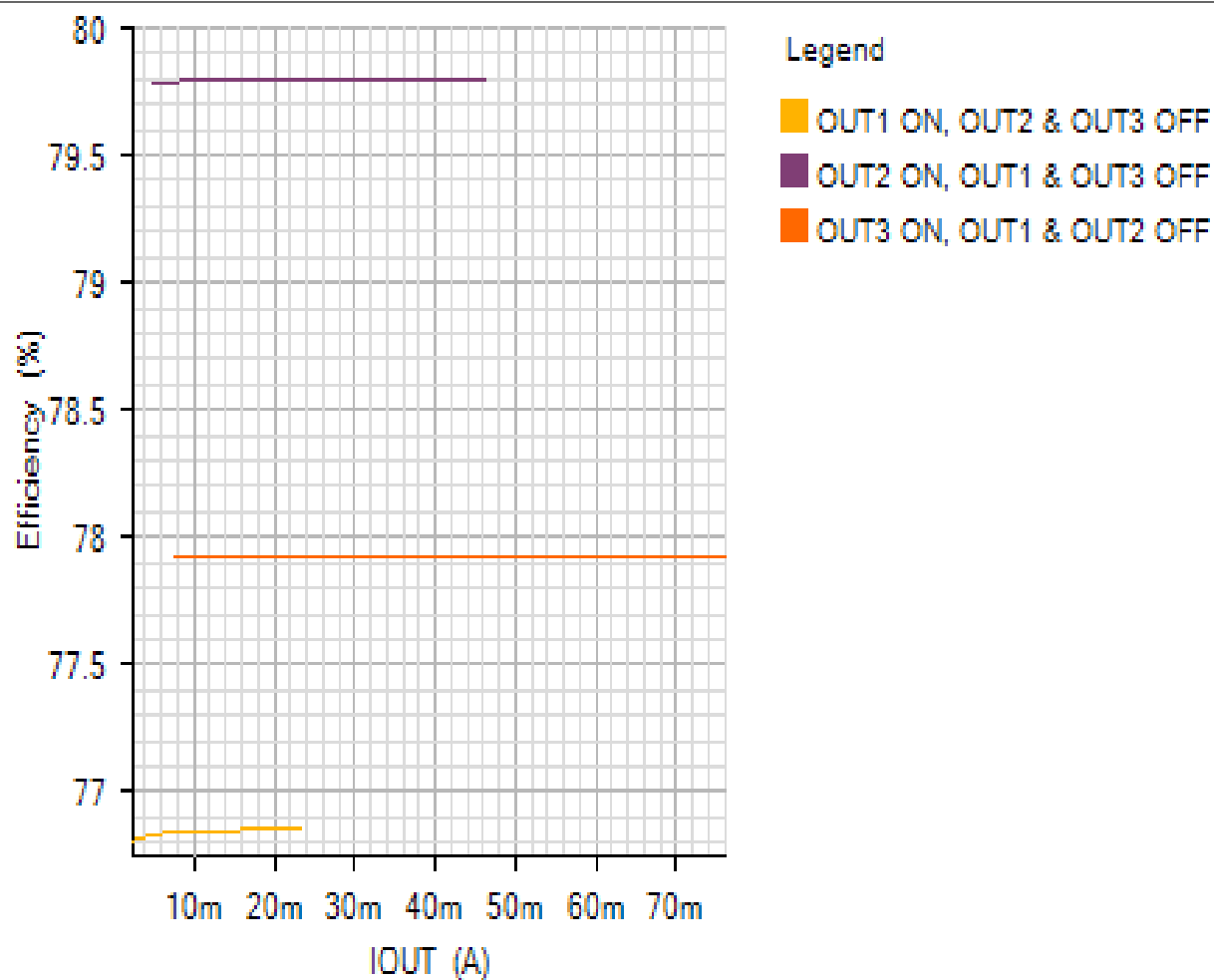
Ref	Qty	Part Number	Manufacturer	Description
CBST	1	LLL185R71A104MA01L	Murata Manufacturing	Cap Ceramic 0.1uF 10V X7R 20% Wide Terminal SMD 0306 125°C T/R
CIN	1	GRM21BR61A226ME51L	Murata	Cap Ceramic 22uF 10V X5R 20% SMD 0805 85C Embossed T/R
COUT1	2	GRM187R61A226ME15D	Murata	Cap Ceramic 22uF 10V 0603 85C
COUT2	2	GRM188C80G226ME15D	Murata	Cap Ceramic 22uF 4V 0603 105C
COUT3	2	GRM188C81C475KE11	Murata	Cap Ceramic 4.7uF 16V 0603 105C
CSUP	1	CL05A105KP5NNNC	Samsung Electro-Mechanics	Cap Ceramic 1uF 10V X5R 10% Pad SMD 0402 85°C T/R
L1	1	MLP2016H2R2MT0S1	TDK	Inductor 2.2uH 20% 110mOhm 0.6175A Isat 1.2A Irms
RSEL1	1	ERJ2RKF5363X	Panasonic	Res Thick Film 0402 536K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R
RSEL2	1	ERJ3EKF3243V	Panasonic	Res Thick Film 0603 324K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R
RSEL3	1	ERJ2RKF1333X	Panasonic	Res Thick Film 0402 133K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R

Simulation Results

Efficiency - Thu Jan 03 2019 13:37:13

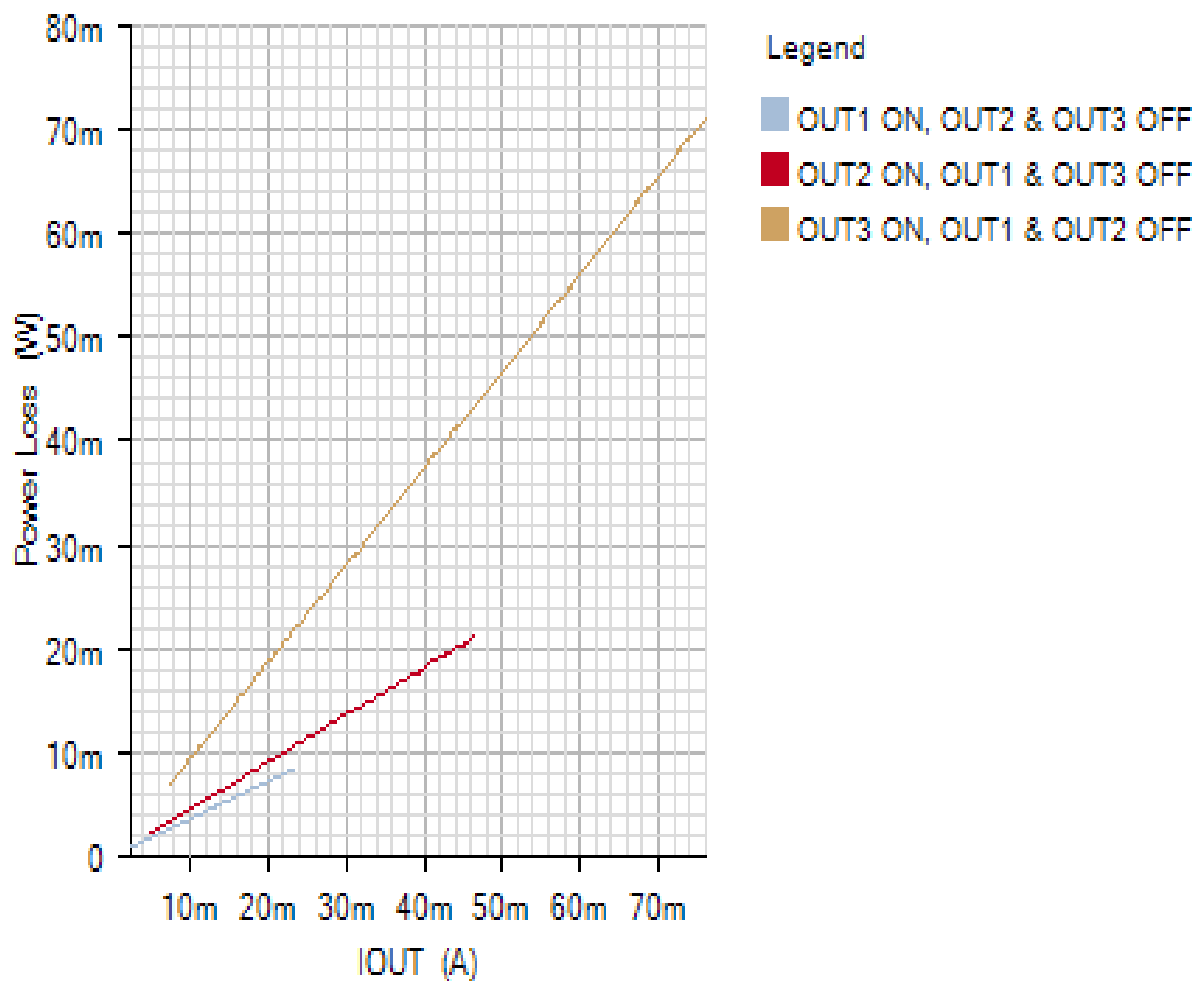
EFFICIENCY

Default



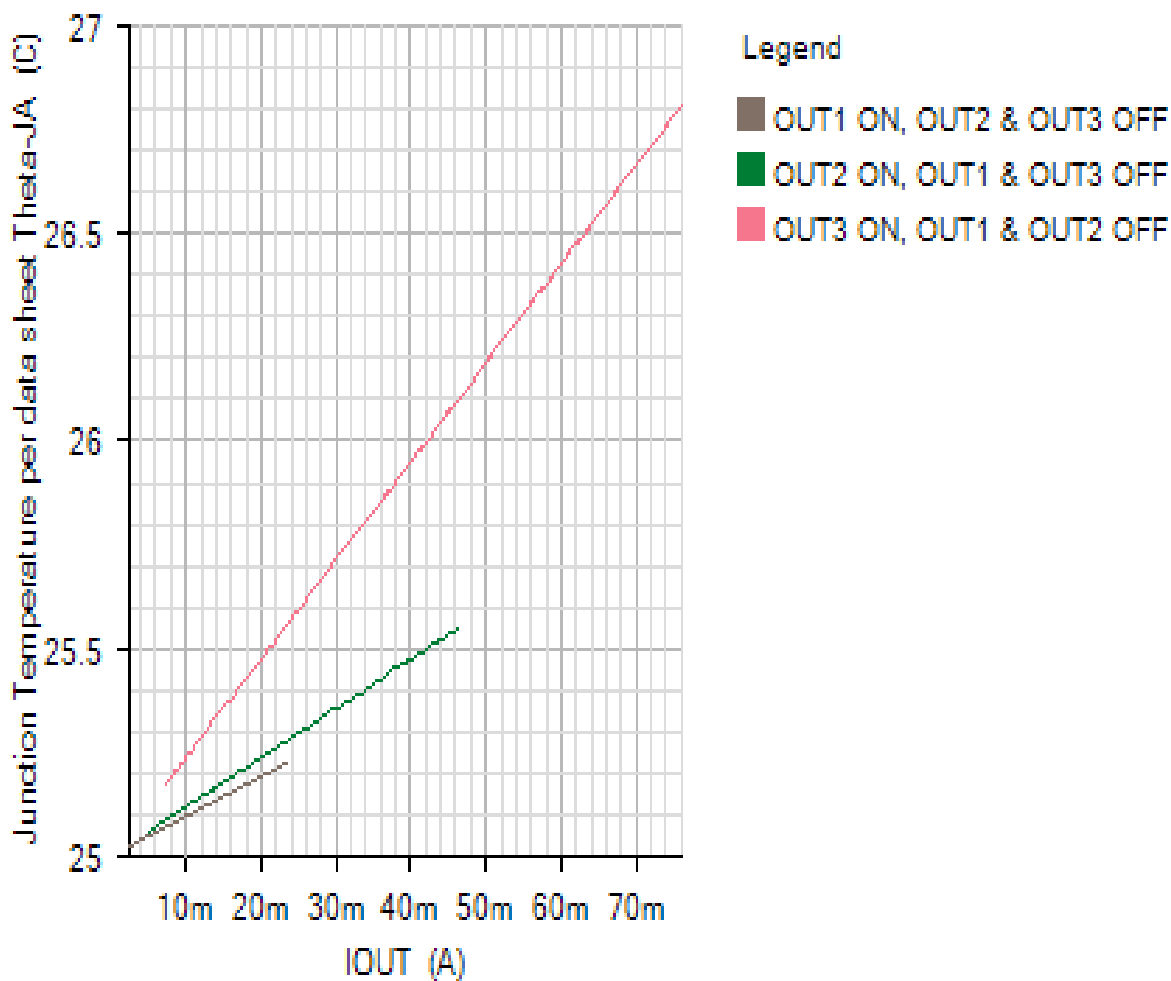
POWER_LOSS

Default

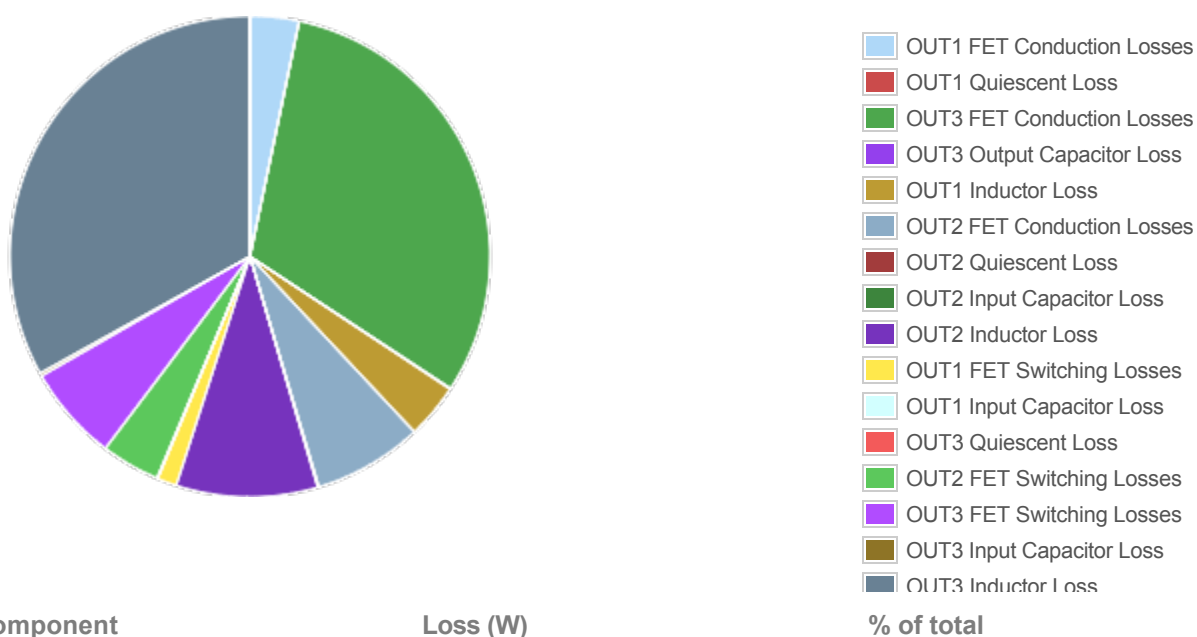


JUNCTION TEMPERATURE

Default



Losses

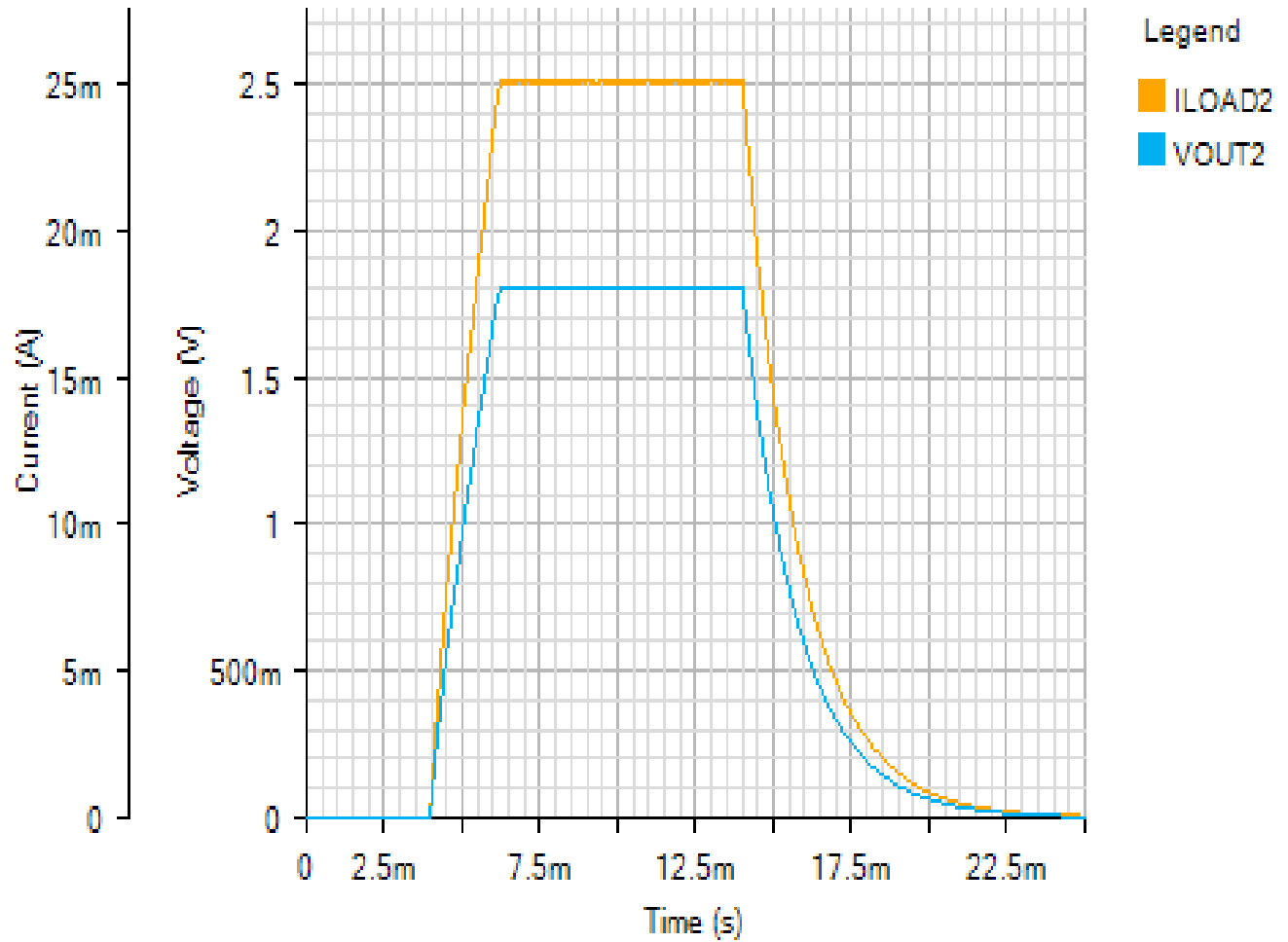


OUT1 FET Conduction Losses	0.003295	3.3
OUT1 Quiescent Loss	0.000018	0
OUT3 FET Conduction Losses	0.031083	30.9
OUT3 Output Capacitor Loss	0.000058	0.1
OUT1 Inductor Loss	0.00371	3.7
OUT2 FET Conduction Losses	0.007399	7.4
OUT2 Quiescent Loss	0.000037	0
OUT2 Input Capacitor Loss	0.00005	0
OUT2 Inductor Loss	0.009562	9.5
OUT1 FET Switching Losses	0.001312	1.3
OUT1 Input Capacitor Loss	0.000023	0
OUT3 Quiescent Loss	0.000044	0
OUT2 FET Switching Losses	0.003969	4
OUT3 FET Switching Losses	0.006466	6.4
OUT3 Input Capacitor Loss	0.000201	0.2
OUT3 Inductor Loss	0.033191	33
OUT1 Output Capacitor Loss	0.000008	0
OUT2 Output Capacitor Loss	0.000018	0
Total	0.100443	100

Start Up - Thu Jan 03 2019 13:37:13

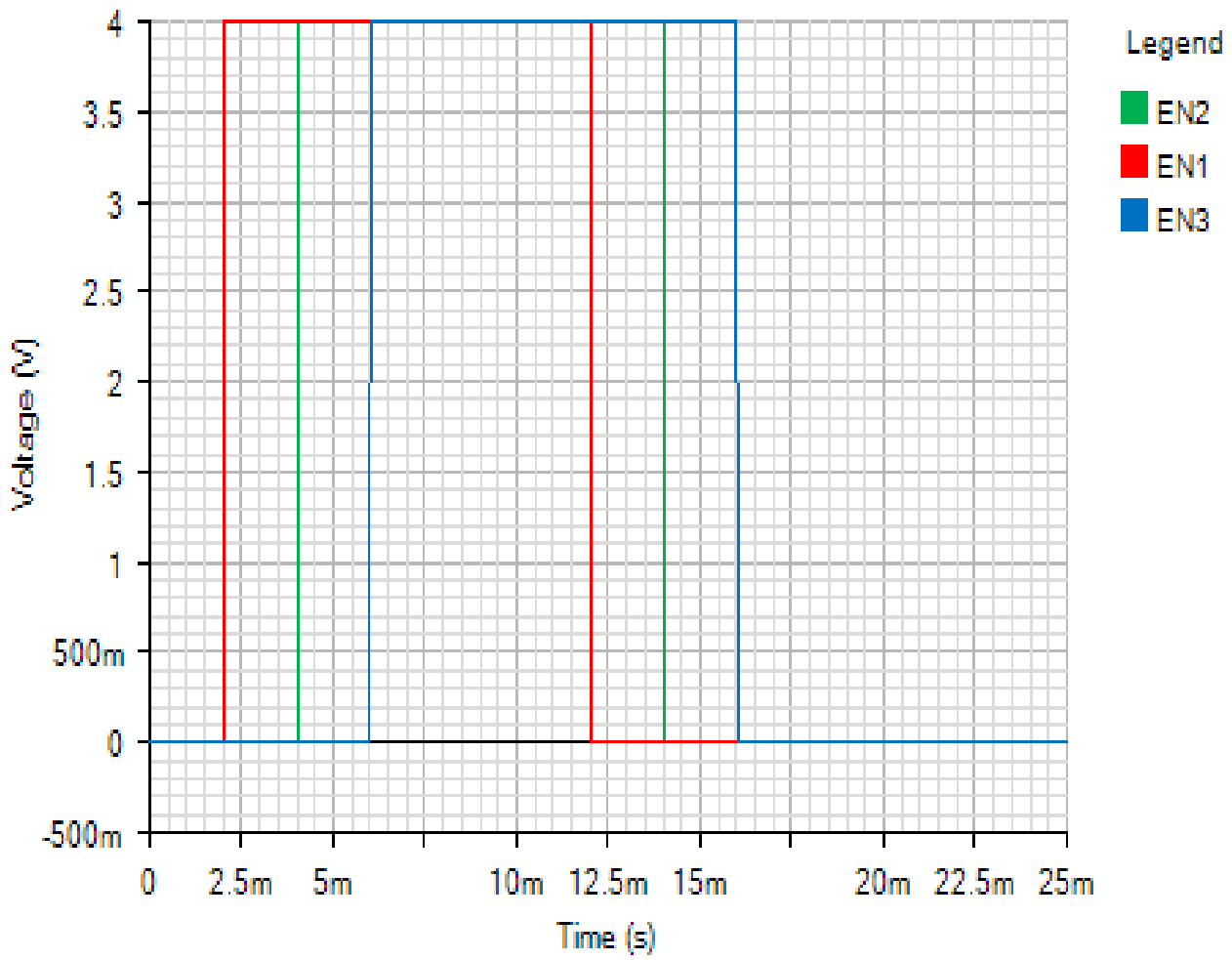
OUTPUT_2

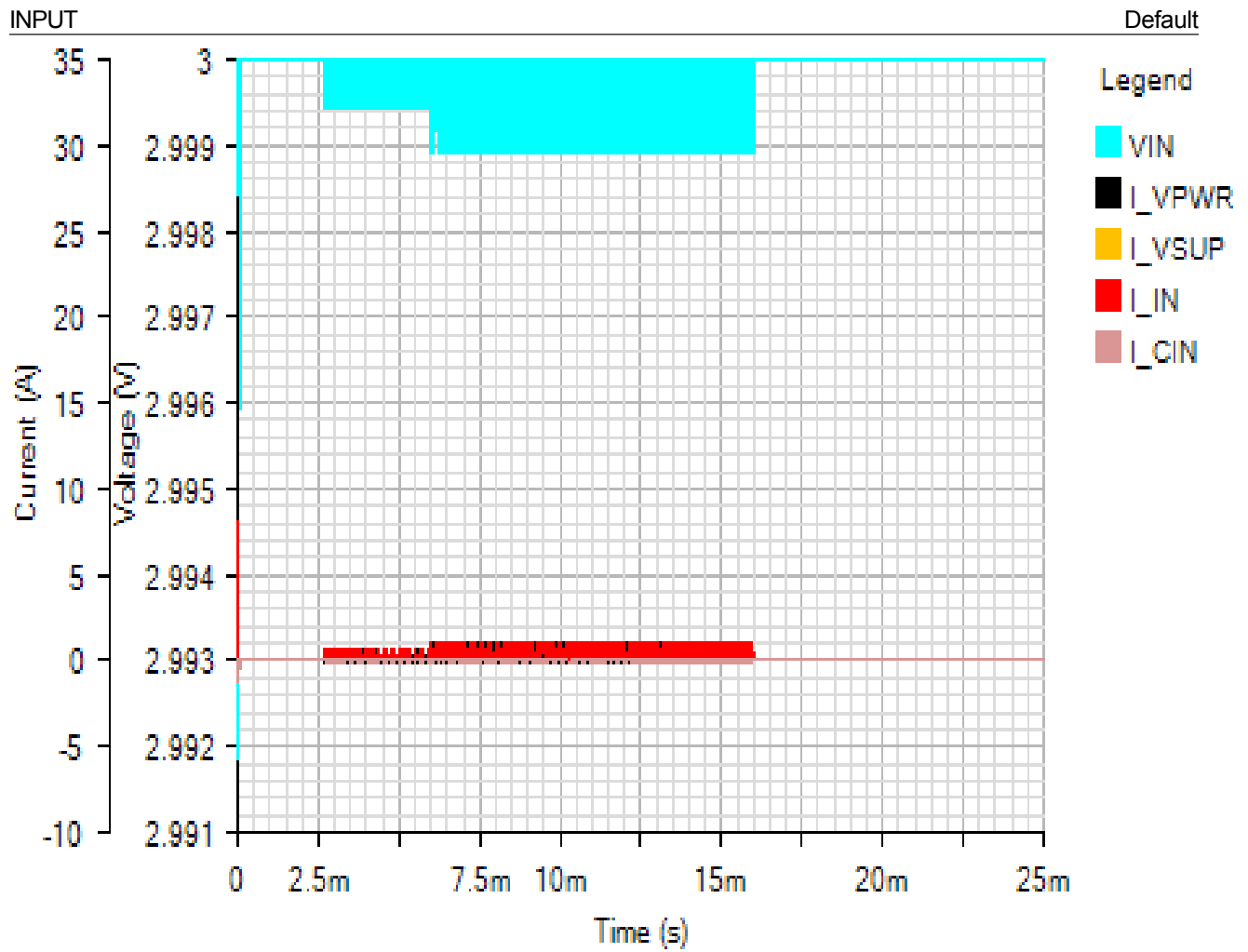
Default



IC

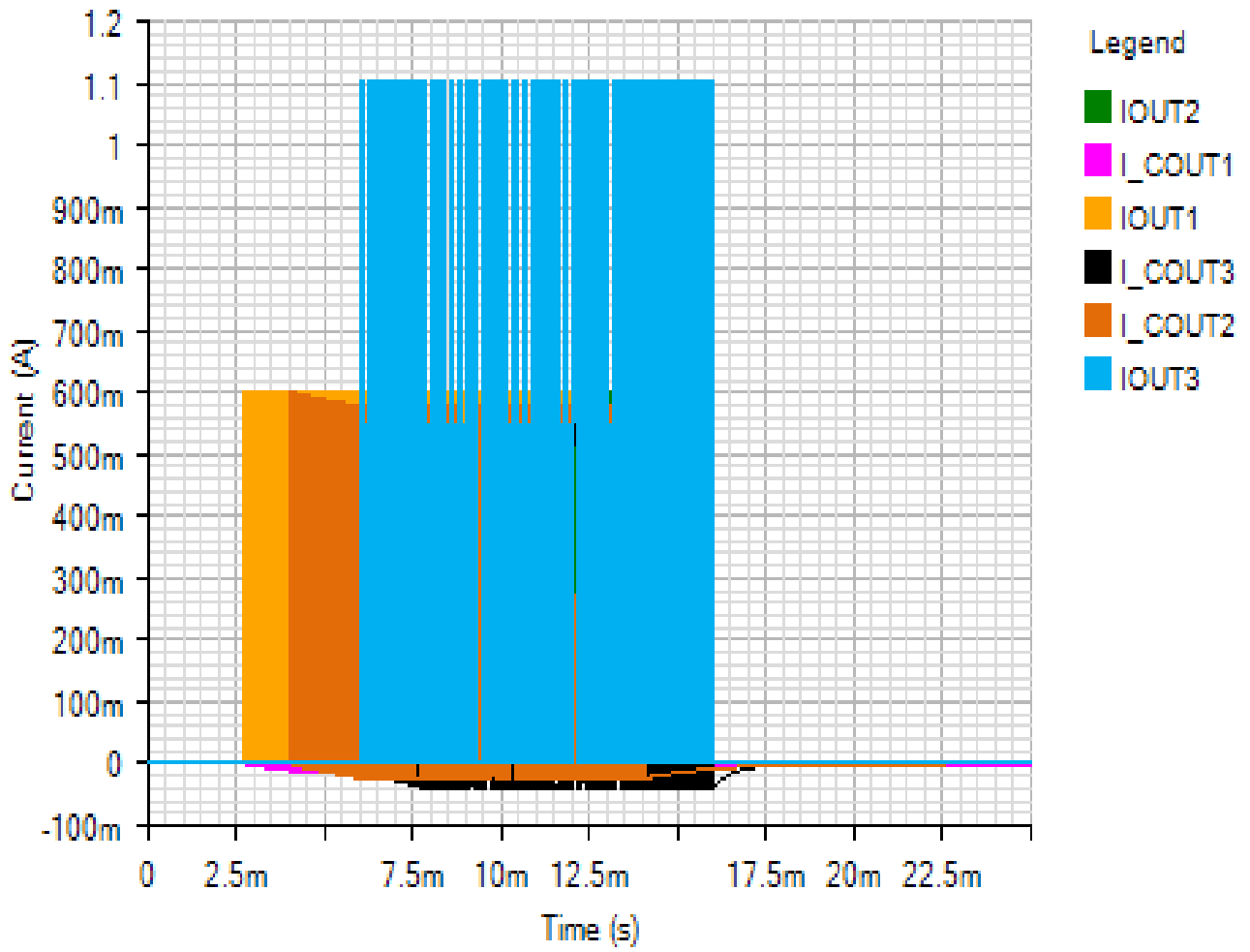
Default





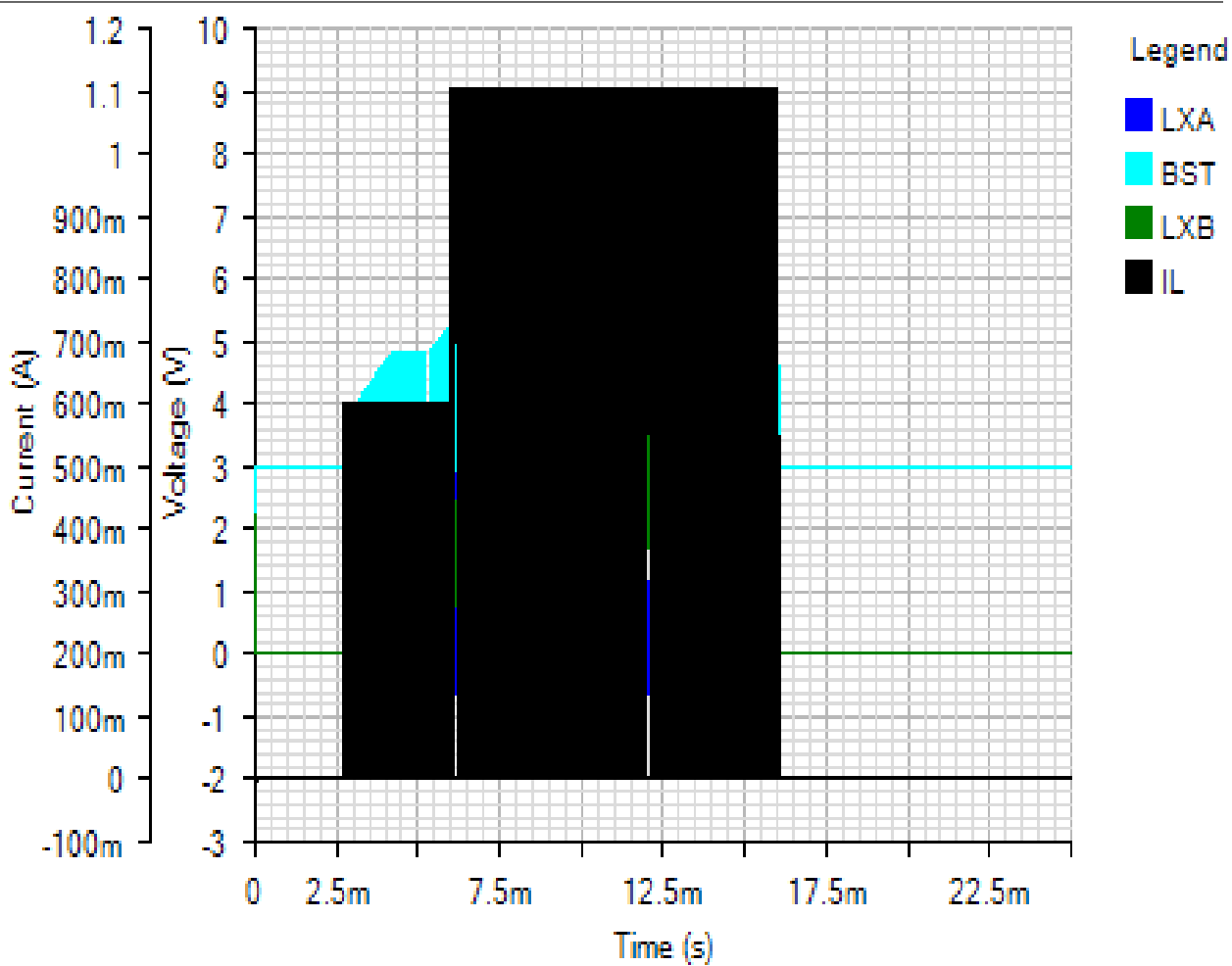
OUT_SW

Default



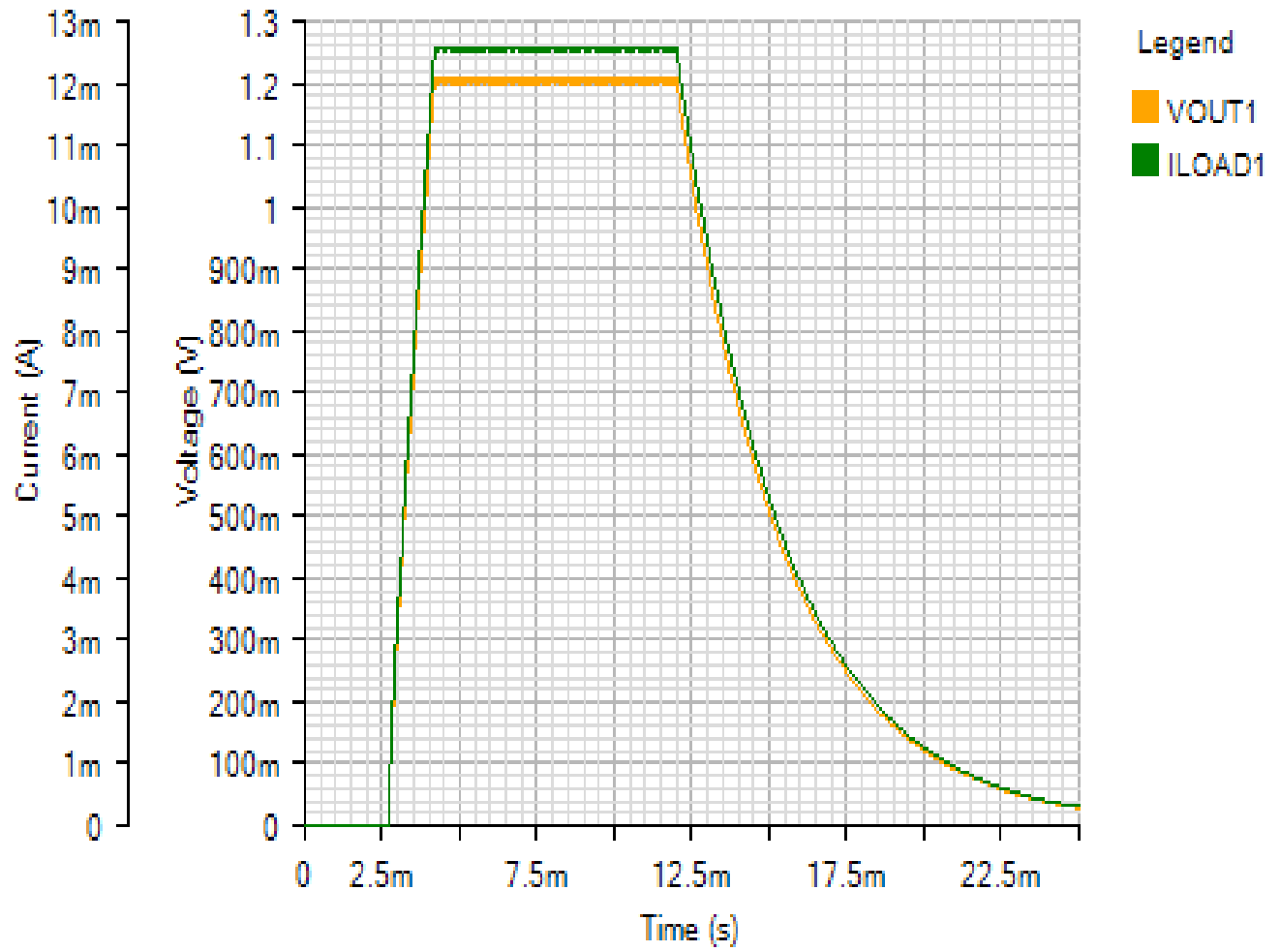
SWITCHING

Default



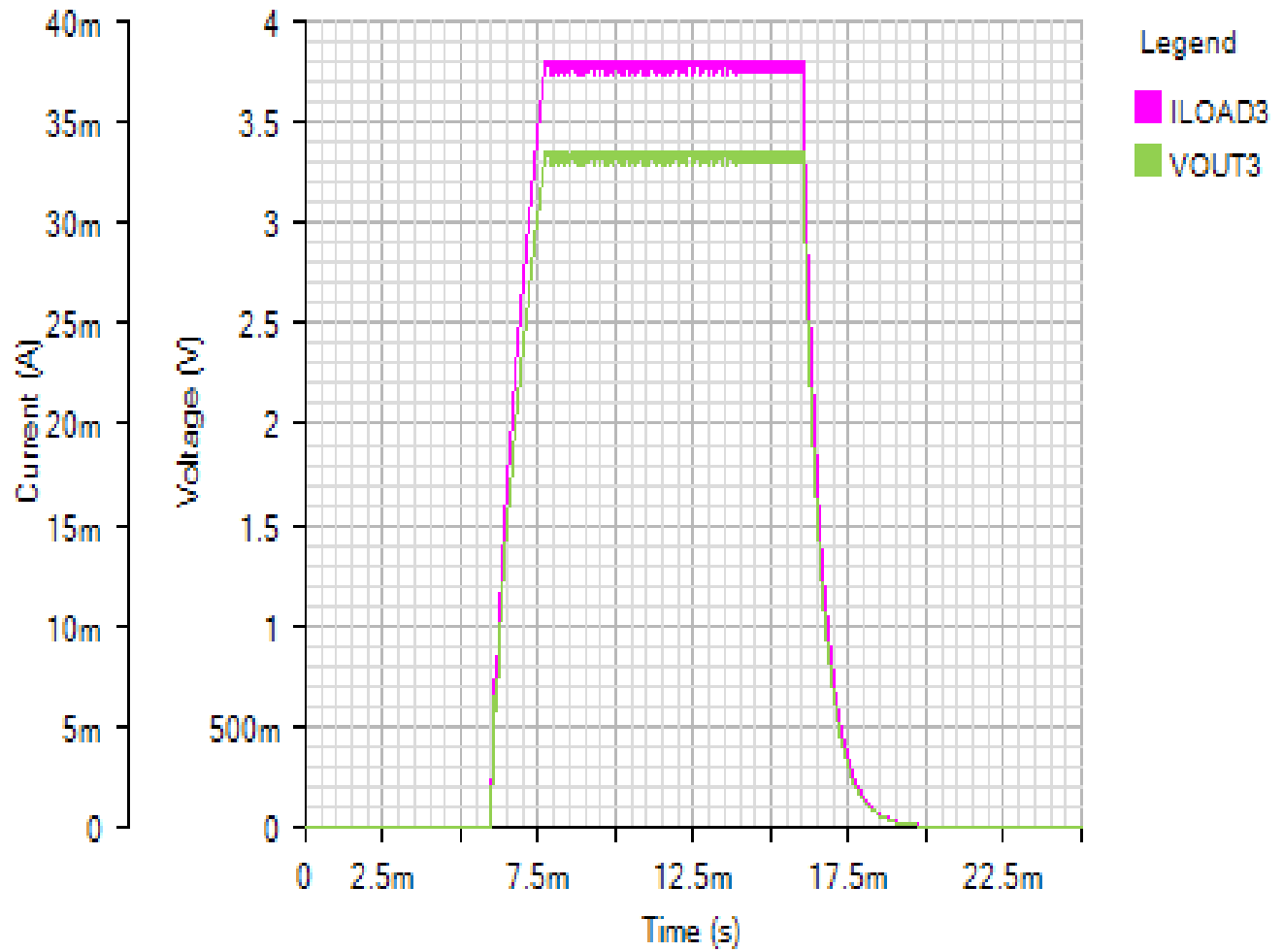
OUTPUT_1

Default



OUTPUT_3

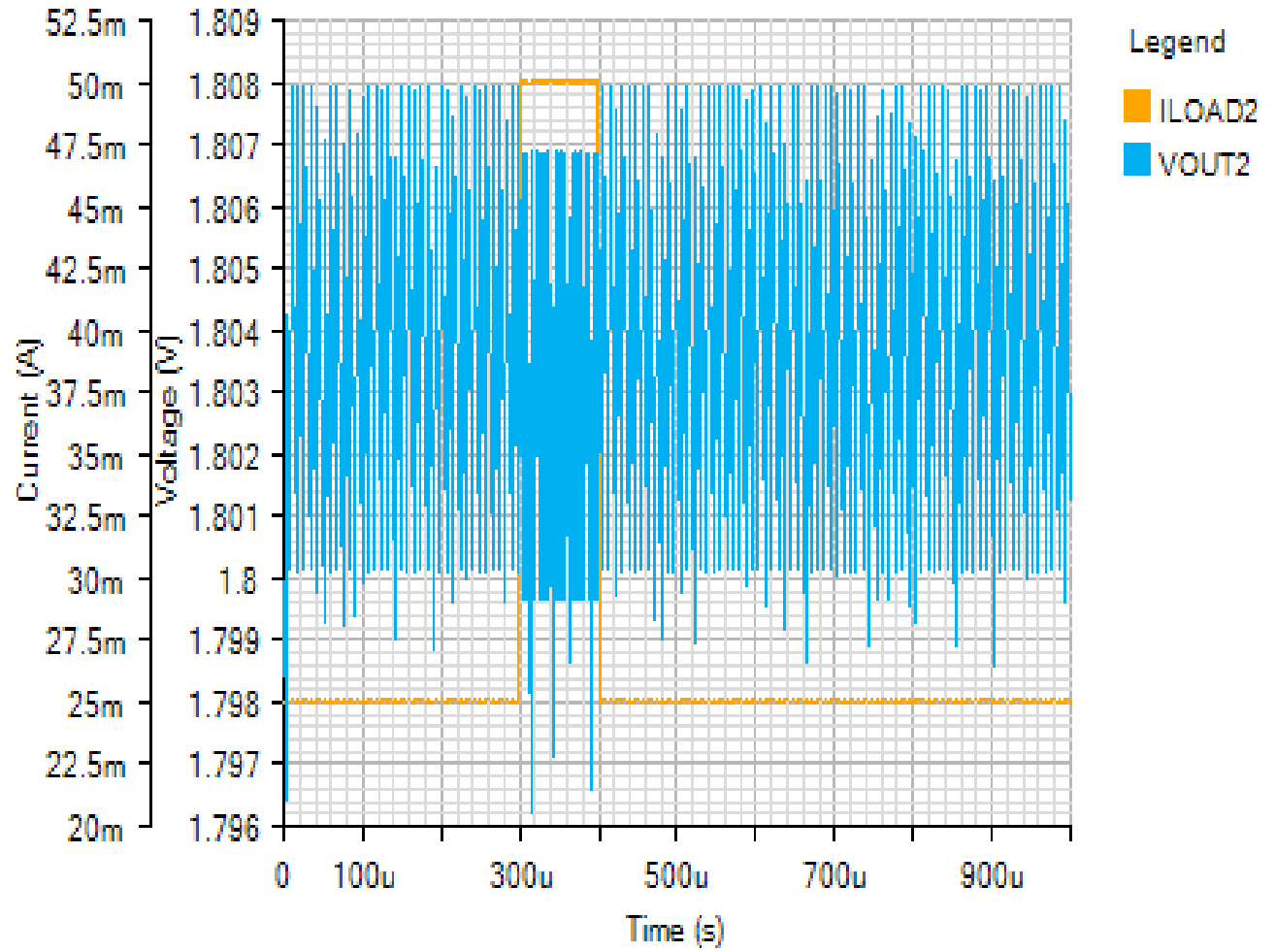
Default



Load Step - Thu Jan 03 2019 13:37:13

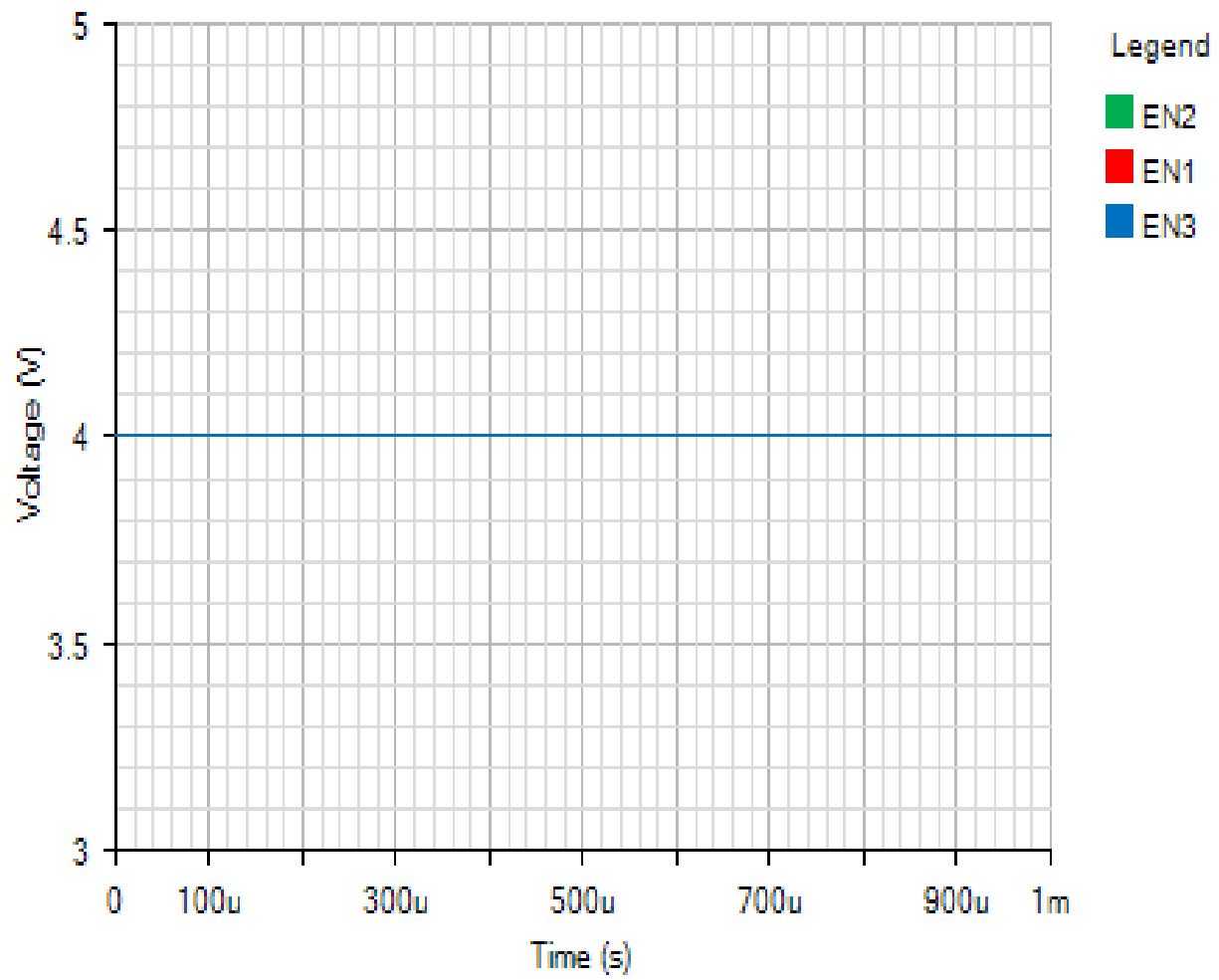
OUTPUT_2

Default



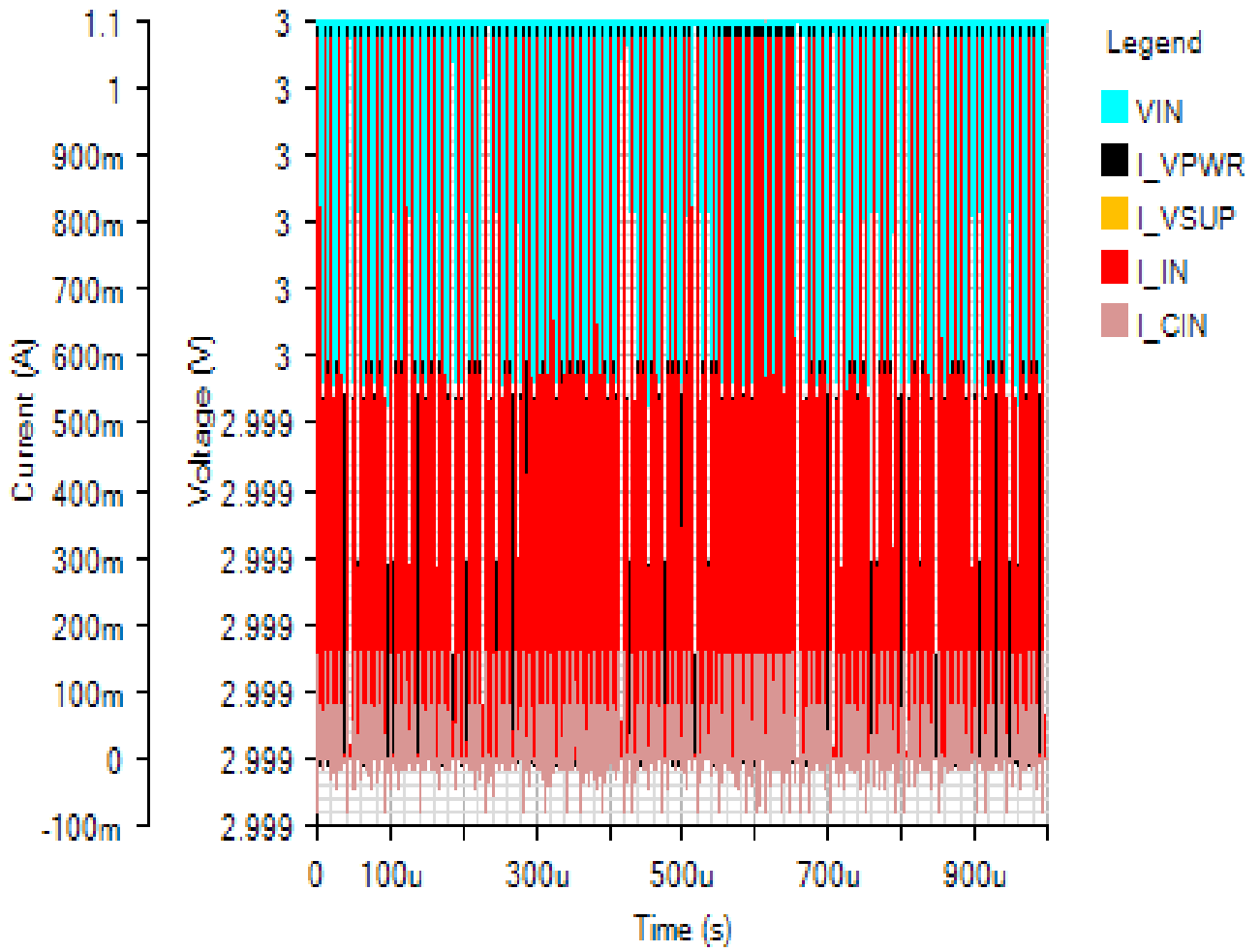
IC

Default



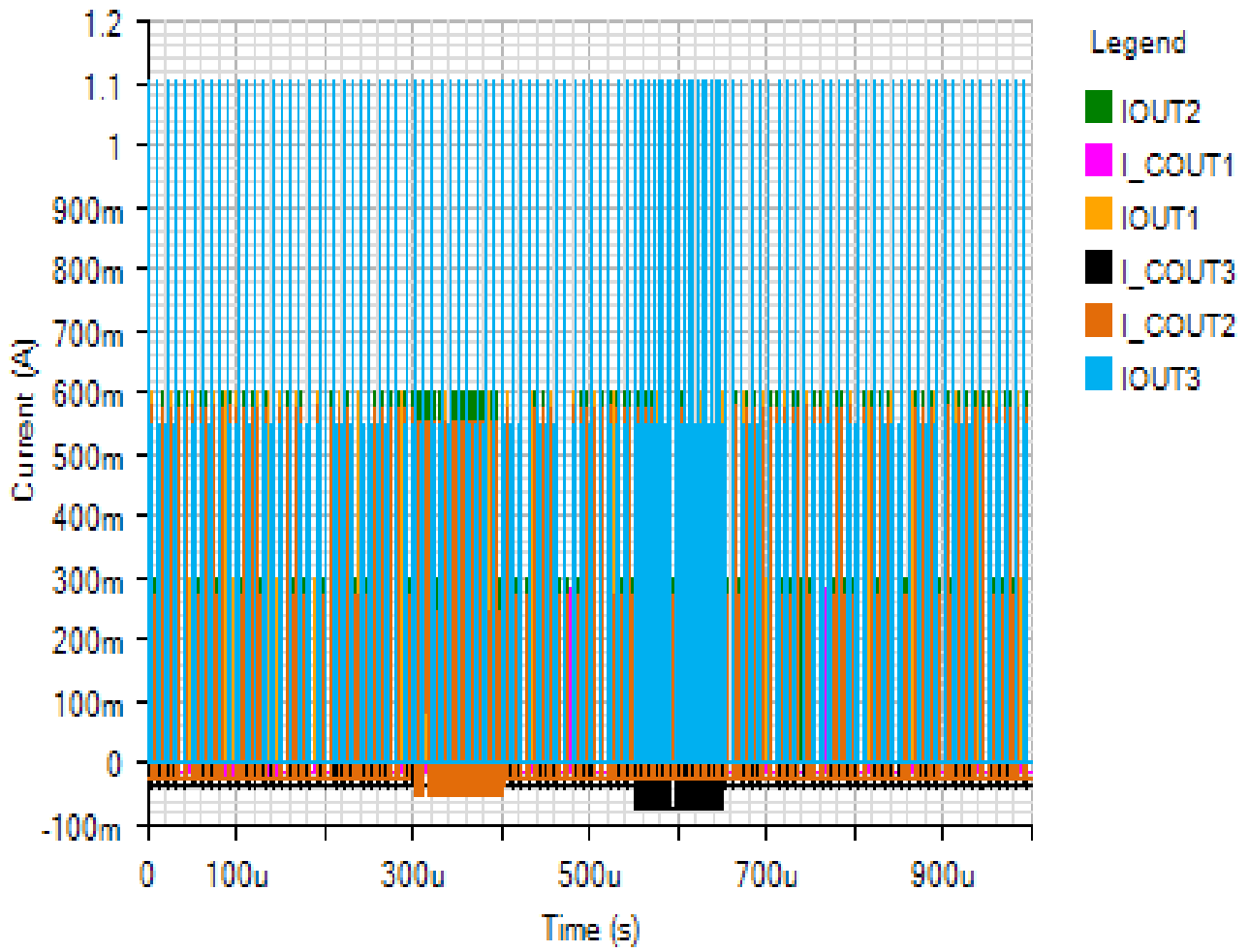
INPUT

Default



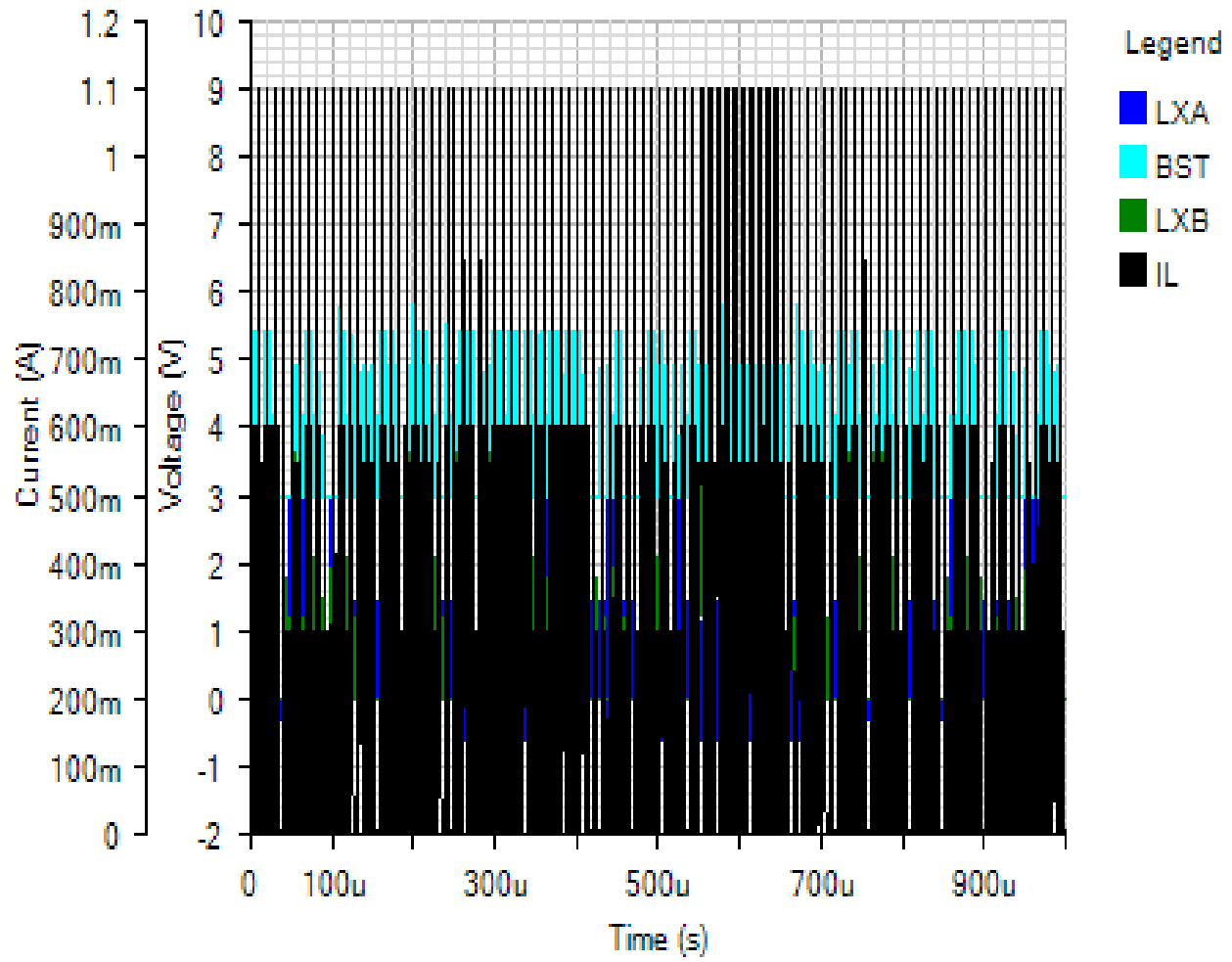
OUT_SW

Default



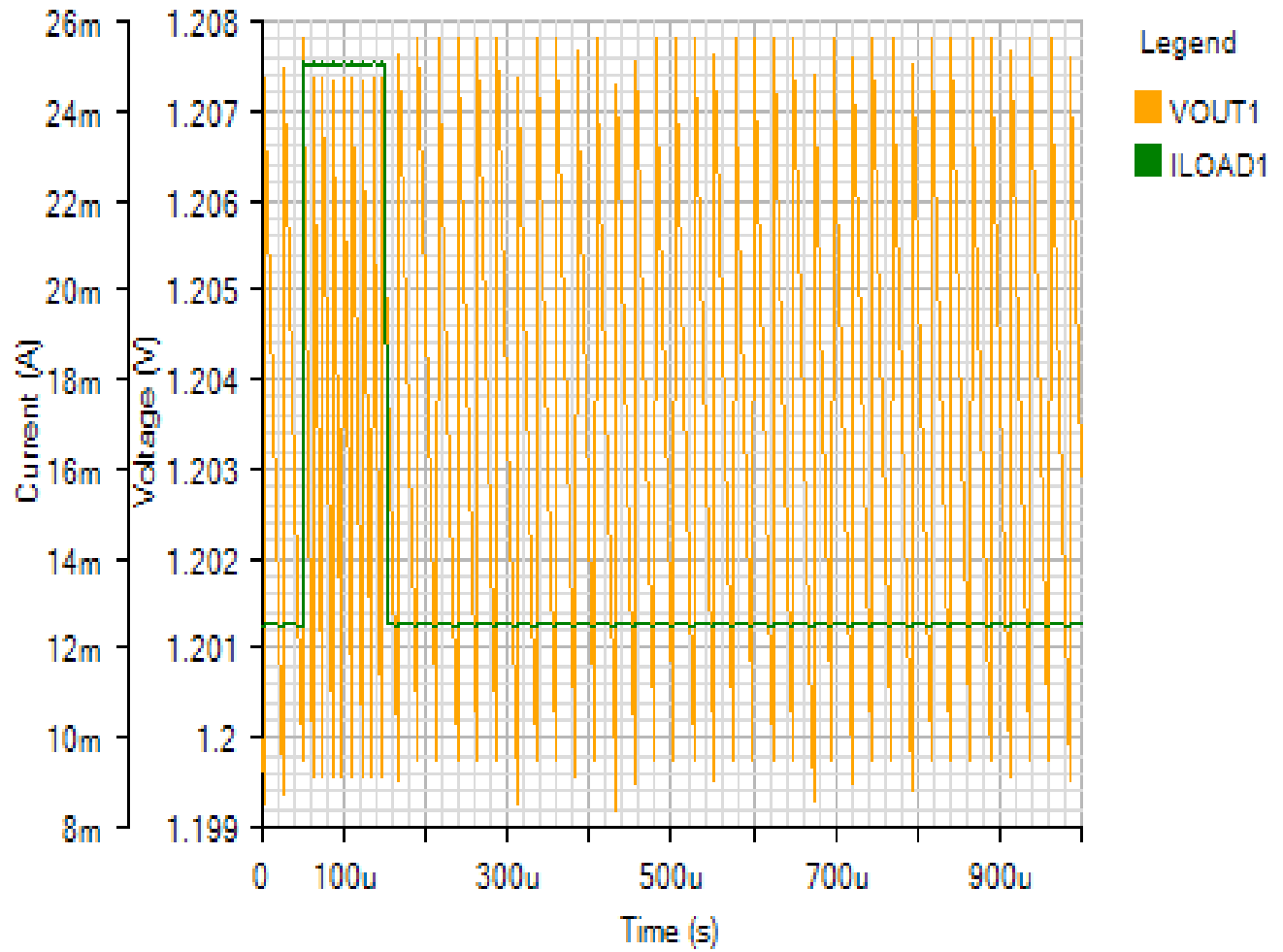
SWITCHING

Default



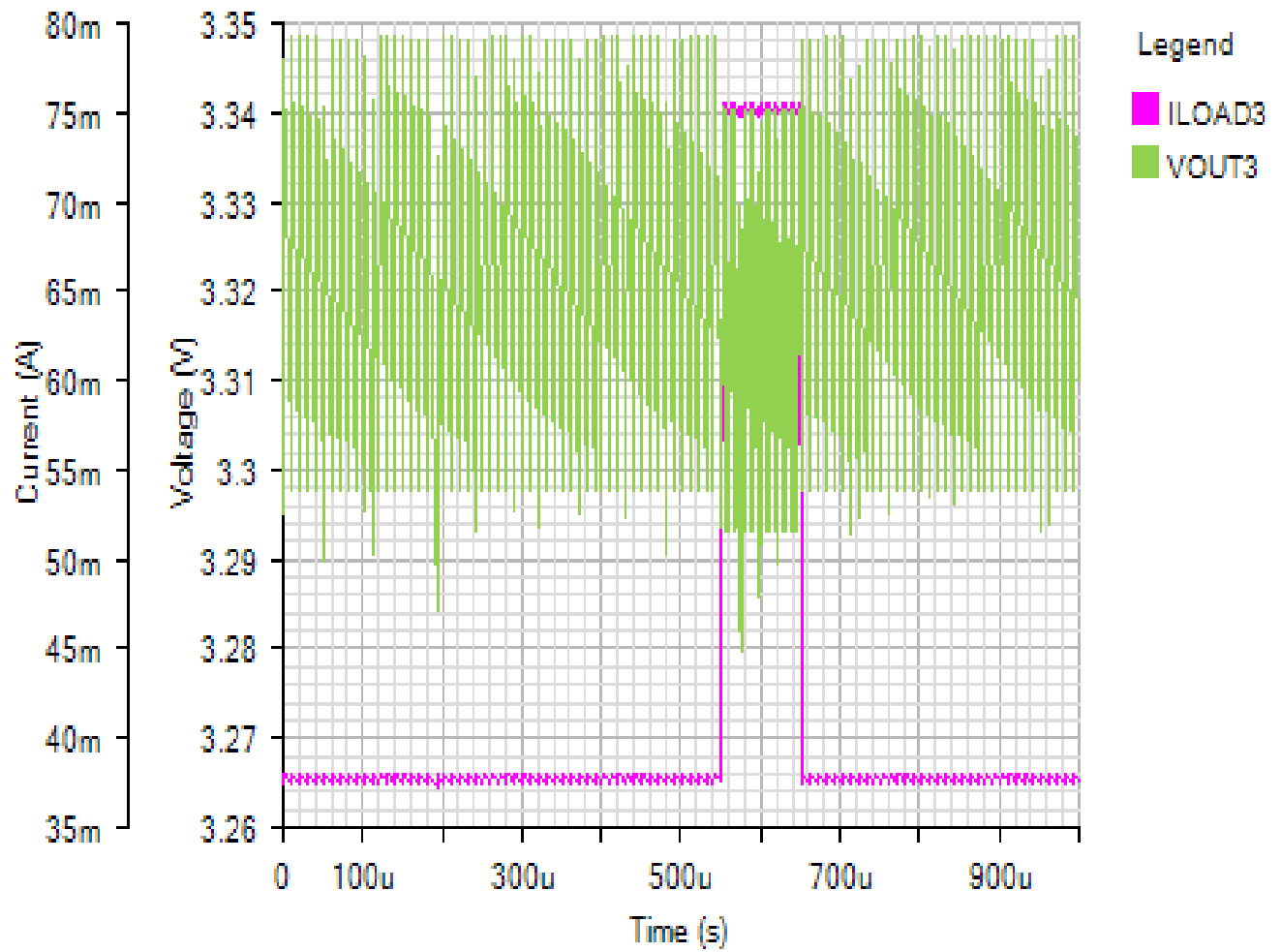
OUTPUT_1

Default

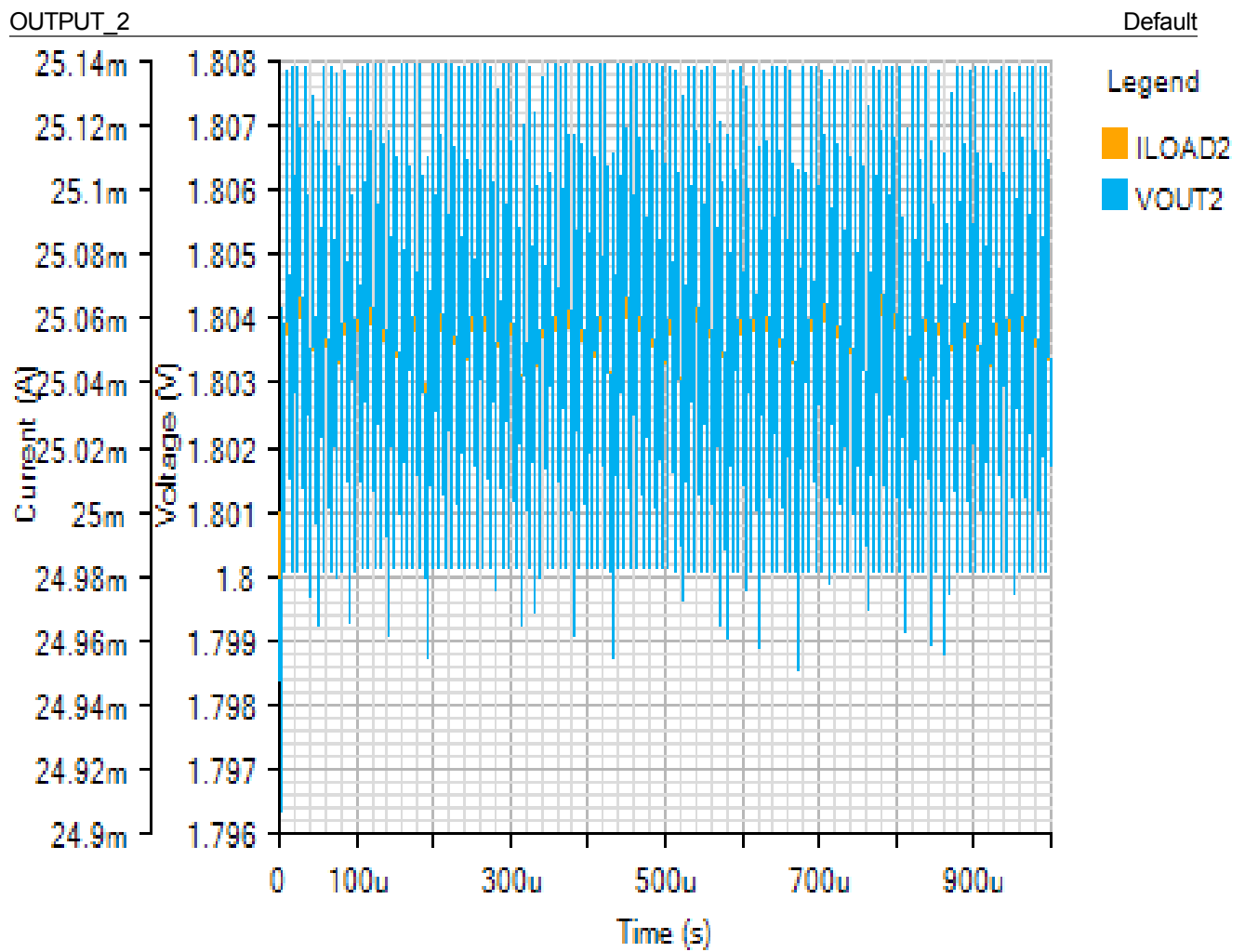


OUTPUT_3

Default

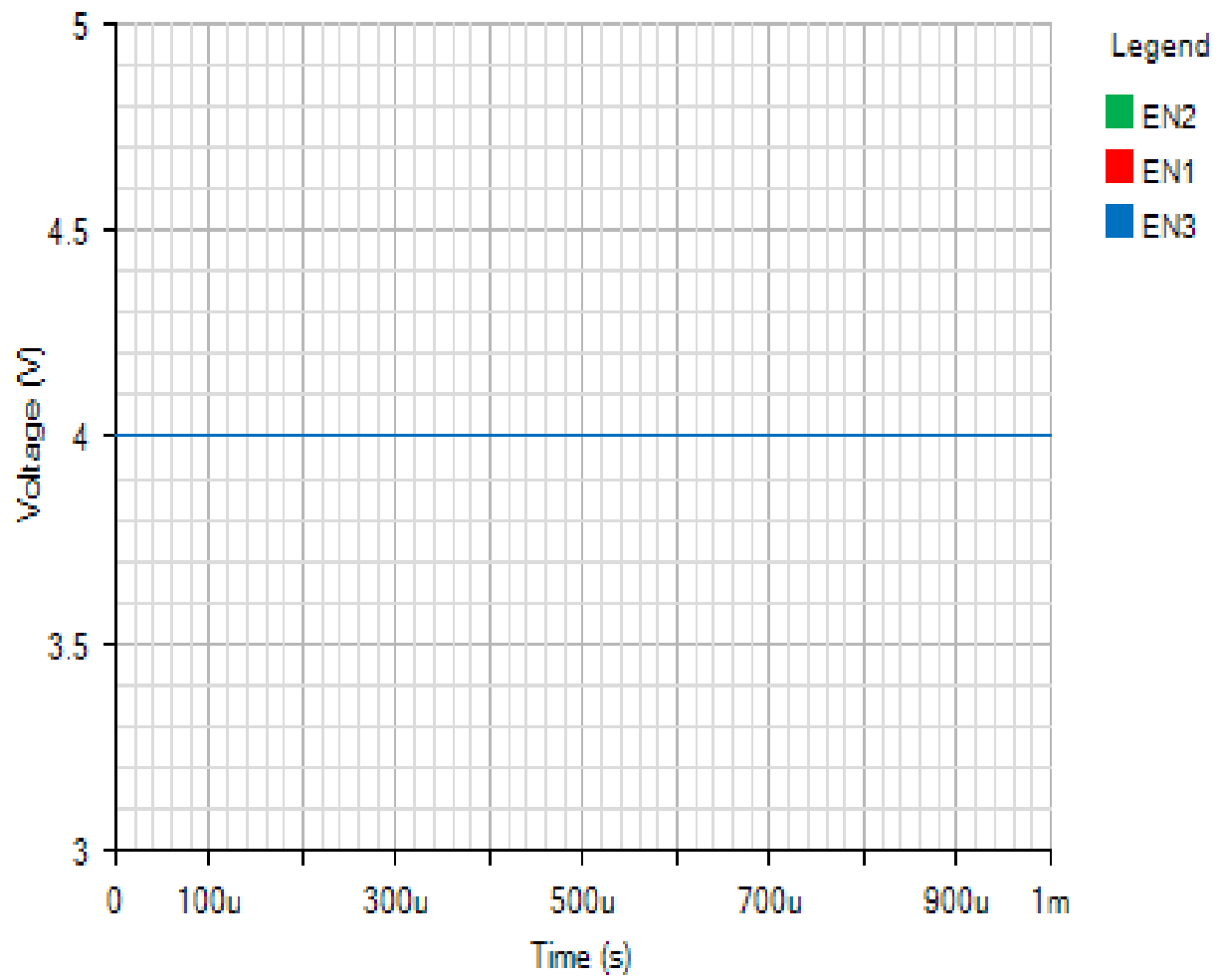


Line transient - Thu Jan 03 2019 13:37:13



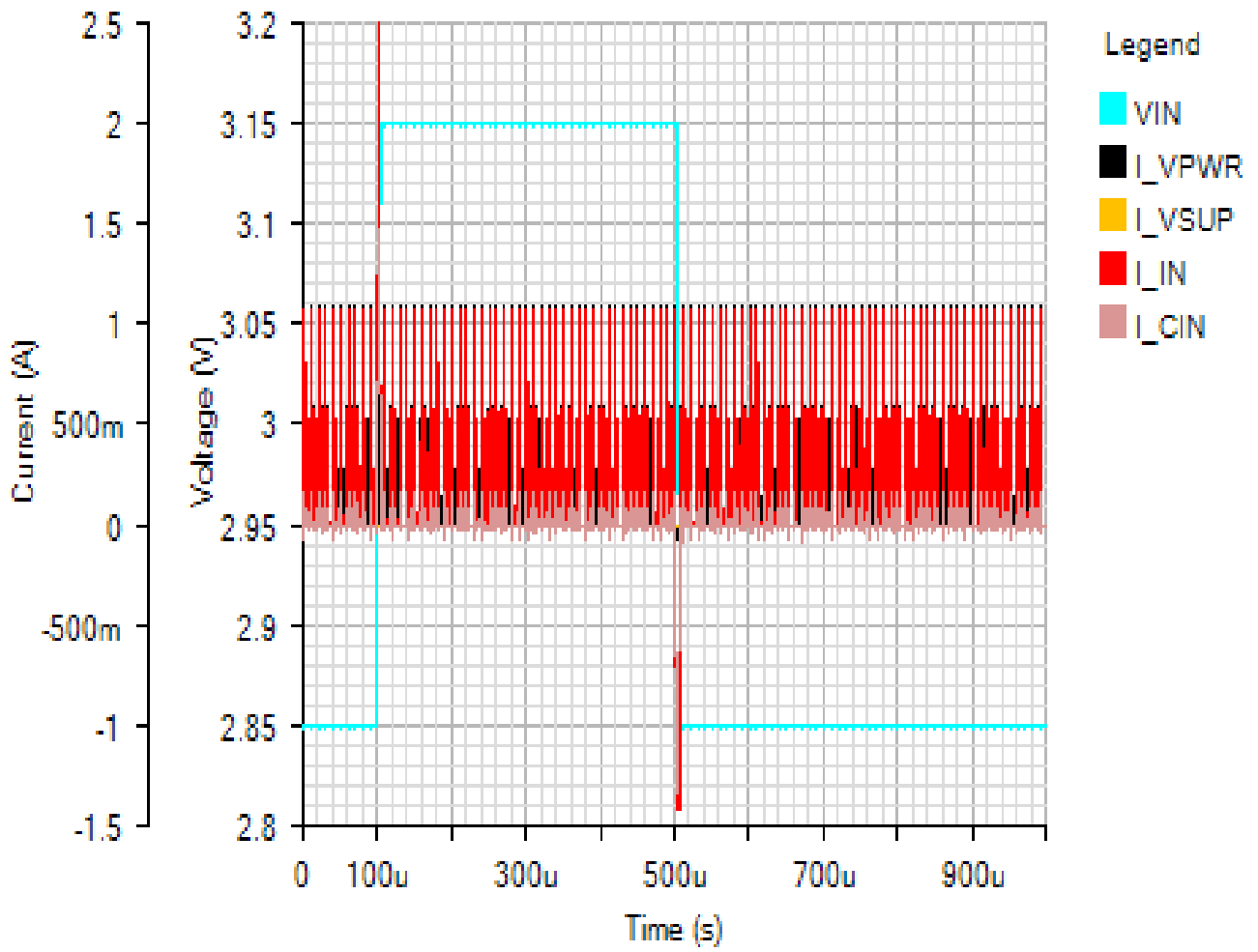
IC

Default



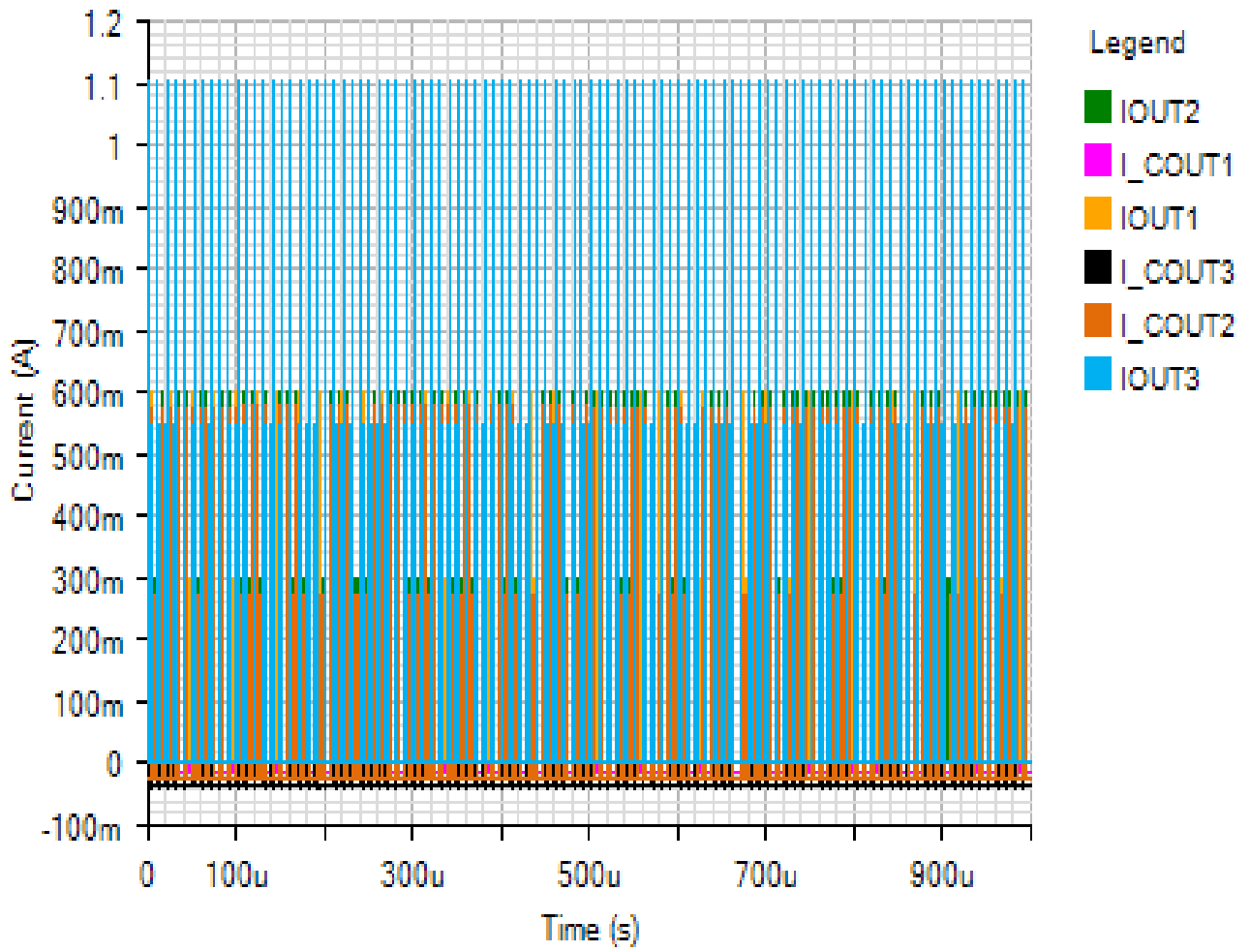
INPUT

Default



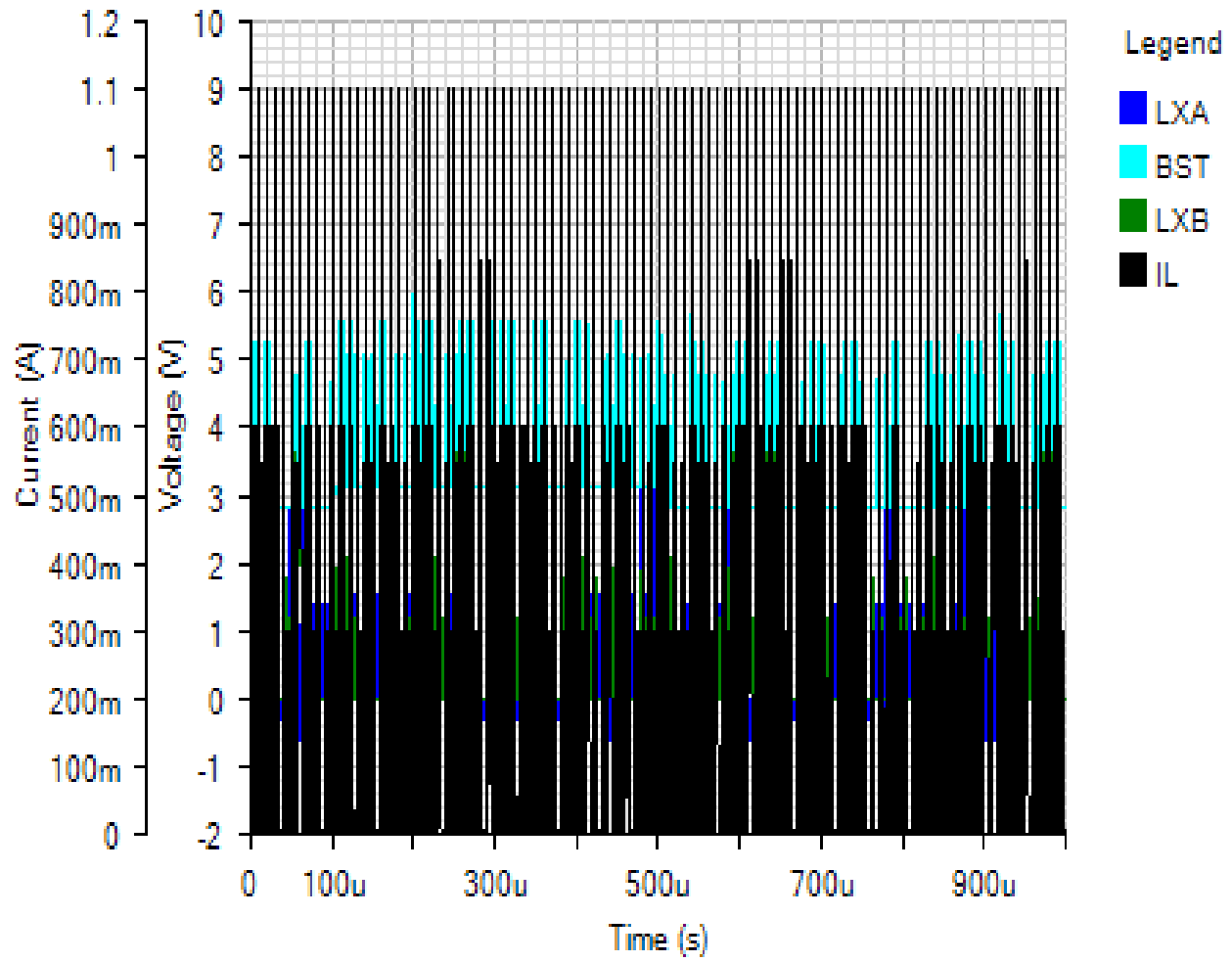
OUT_SW

Default



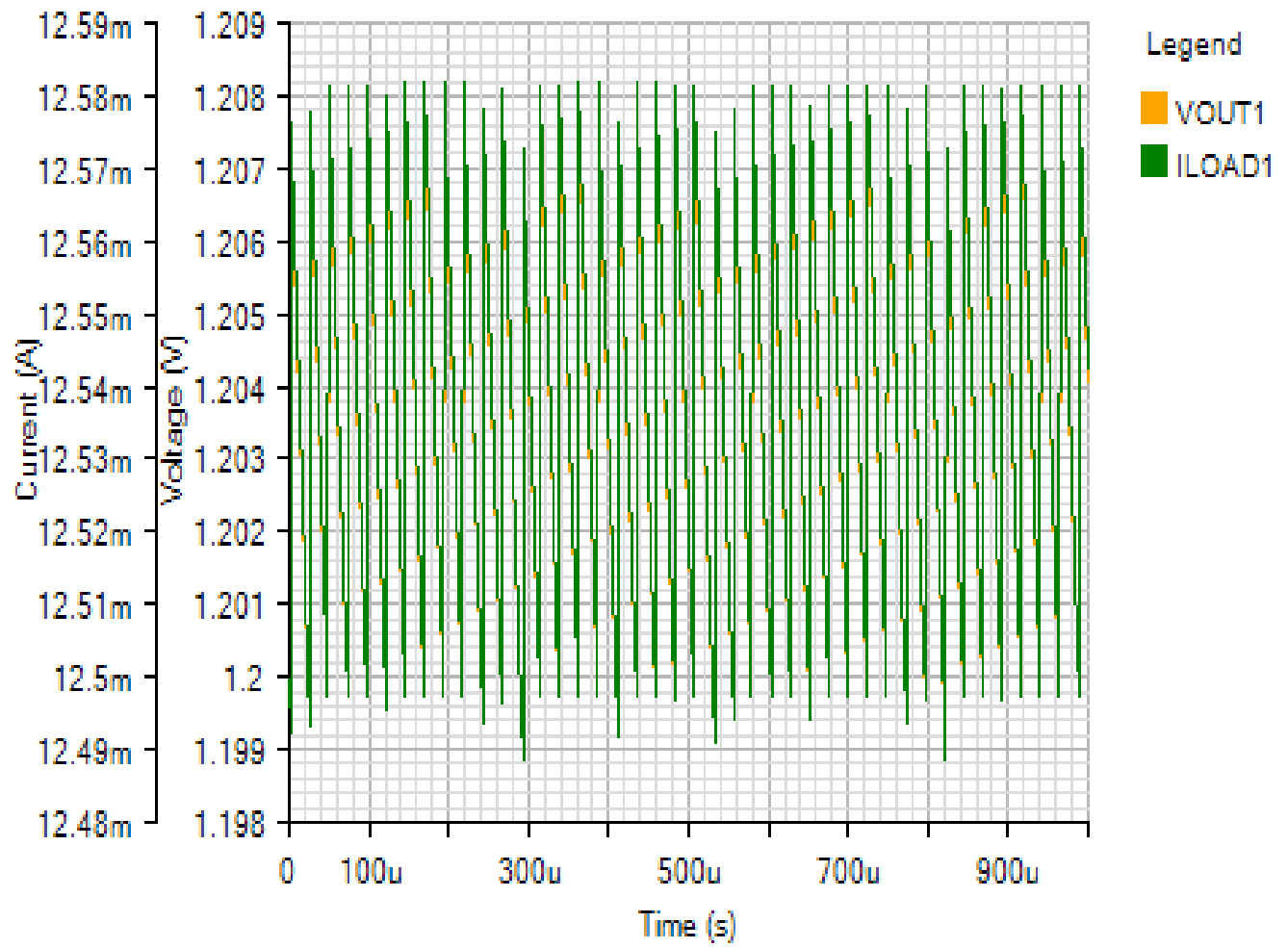
SWITCHING

Default



OUTPUT_1

Default



OUTPUT_3

Default

