Initial Design

1.0

Design Requirements

Parameter	Value
Minimum Input Voltage	7.5V
Maximum Input Voltage	8.5V
Nominal Input Voltage	8V
Input Voltage Ripple	1%
Output Voltage 1	2.8V
Output Voltage 2	1.2V
Output Current 1	0.3A
Output Current 2	0.3A
Output Voltage Ripple 1	1%
Output Voltage Ripple 2	1%
Load Step Start Current 1	0.15A
Load Step Start Current 2	0.15A
Load Step Current 1	0.3A
Load Step Current 2	0.3A
Load Step Edge Rate 1	1A/us
Load Step Edge Rate 2	1A/us
Output Voltage 1 Overshoot/Undershoot	3%
Output Voltage 2 Overshoot/Undershoot	3%
Performance Priority	Balance Efficiency and Size
BOM Priority	Cost
Inductor Current Ratio (LIR) 1	0.3
Inductor Current Ratio (LIR) 2	0.3

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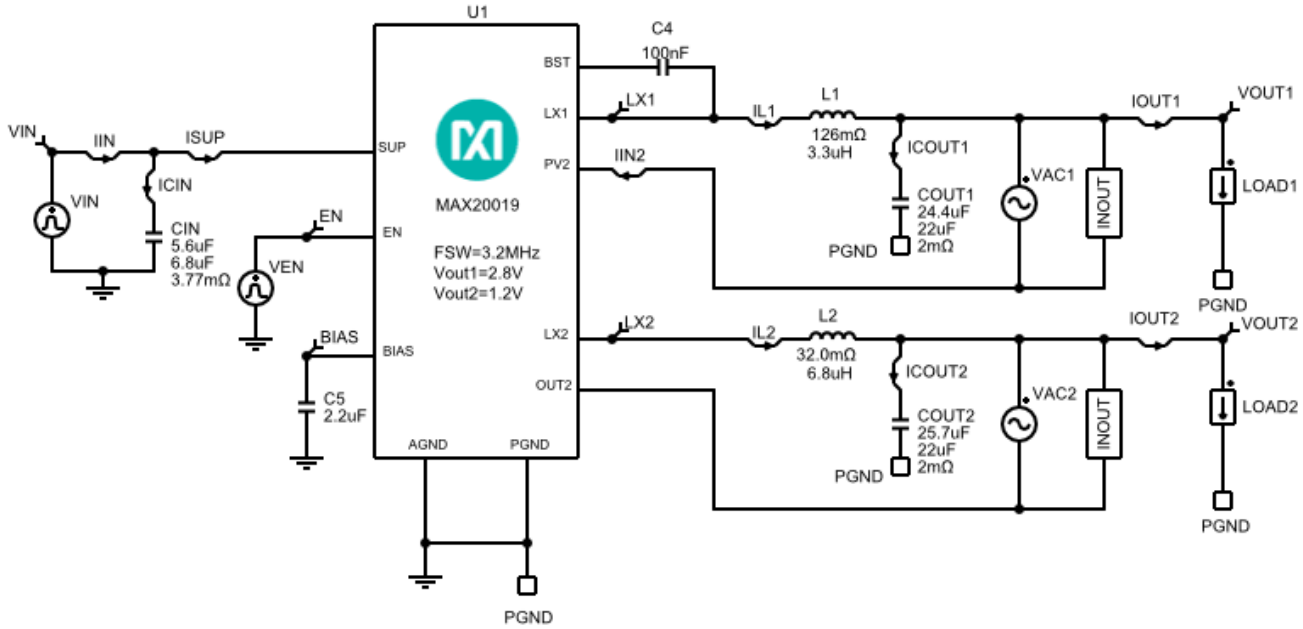
Schematic



BOM

Ref	Qty	Part Number	Manufacturer	Description
U1	1	MAX20019	User-Defined	IC
C4	1	0805YC104KAT2A	AVX	Cap Ceramic 0.1uF 16V X7R 10% Pad SMD 0805 125°C T/R
C5	1	CGA4J3X7R1C225K125AB	TDK	Cap Ceramic 2.2uF 16V X7R 10% Pad SMD 0805 125°C Automotive T/R
CIN	1	C3225X7R1E685K250AB	TDK	Cap Ceramic 6.8uF 25V X7R 10% SMD 1210 125C Plastic T/R
COUT1	1	GRM32ER71E226ME15	Murata	Cap Ceramic 22uF 25V 1210 125C
COUT2	1	GRM32ER71E226ME15	Murata	Cap Ceramic 22uF 25V 1210 125C
L1	1	1277AS-H-3R3M=P2	Murata	3.3uH 20% 105mOhm 2.6Asat 2.1Arms
L2	1	VLP8040T-6R8M	TDK	Inductor Power Shielded Wirewound 6.8uH 20% 100KHz Ferrite 4A 32mOhm DCR Embossed Carrier T/R

Simulation Results

Efficiency - Tue Nov 20 2018 11:48:50

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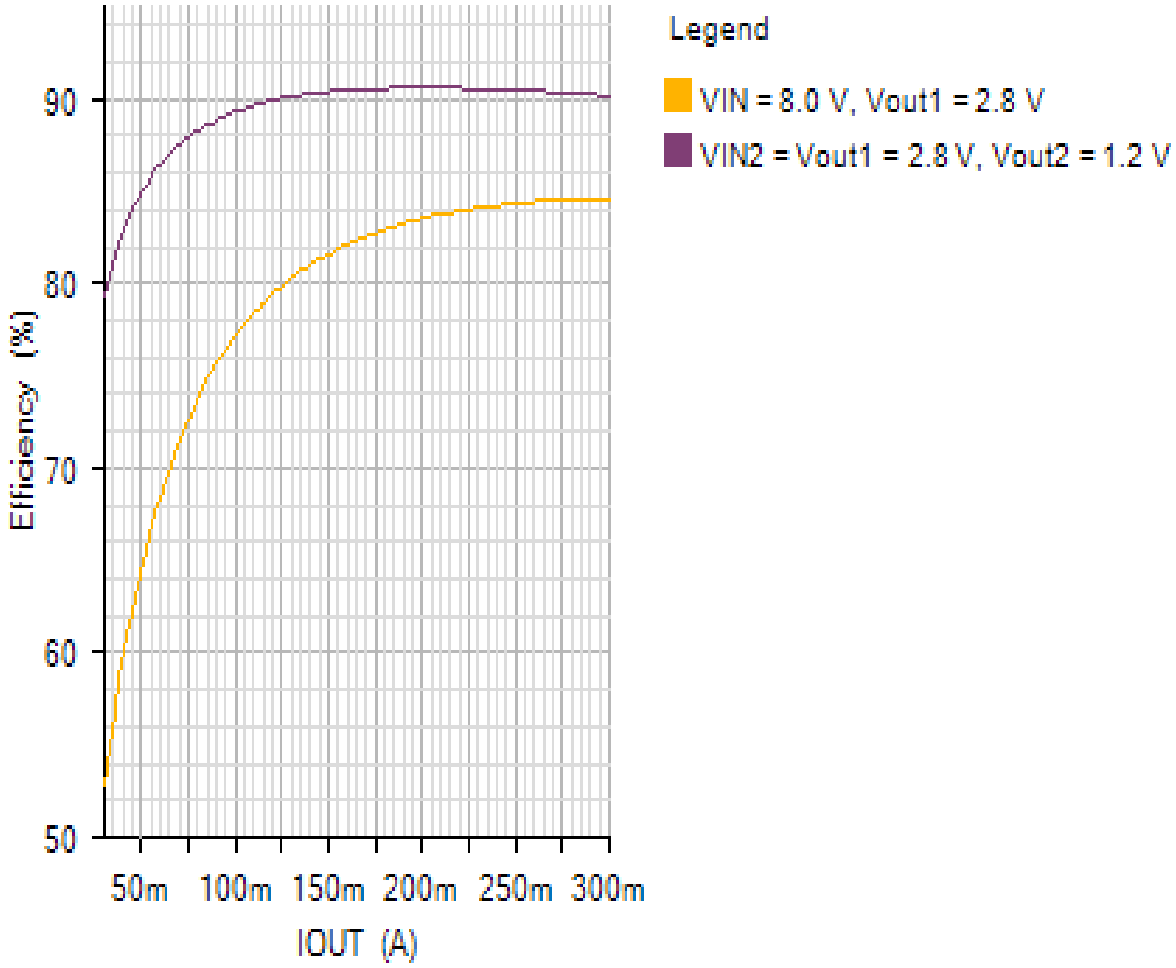
EFFICIENCY Default



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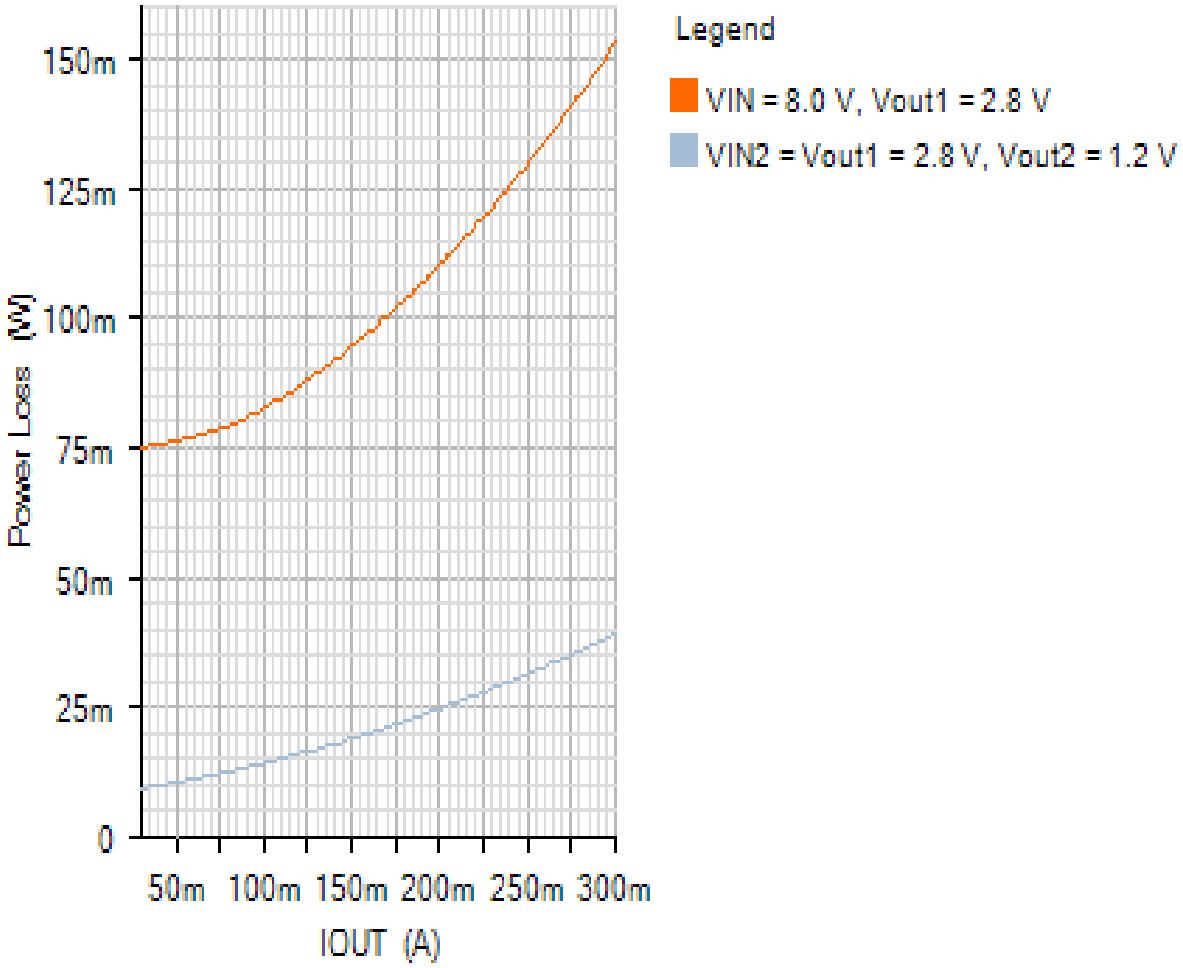
TOTAL_POWER_LOSS Default



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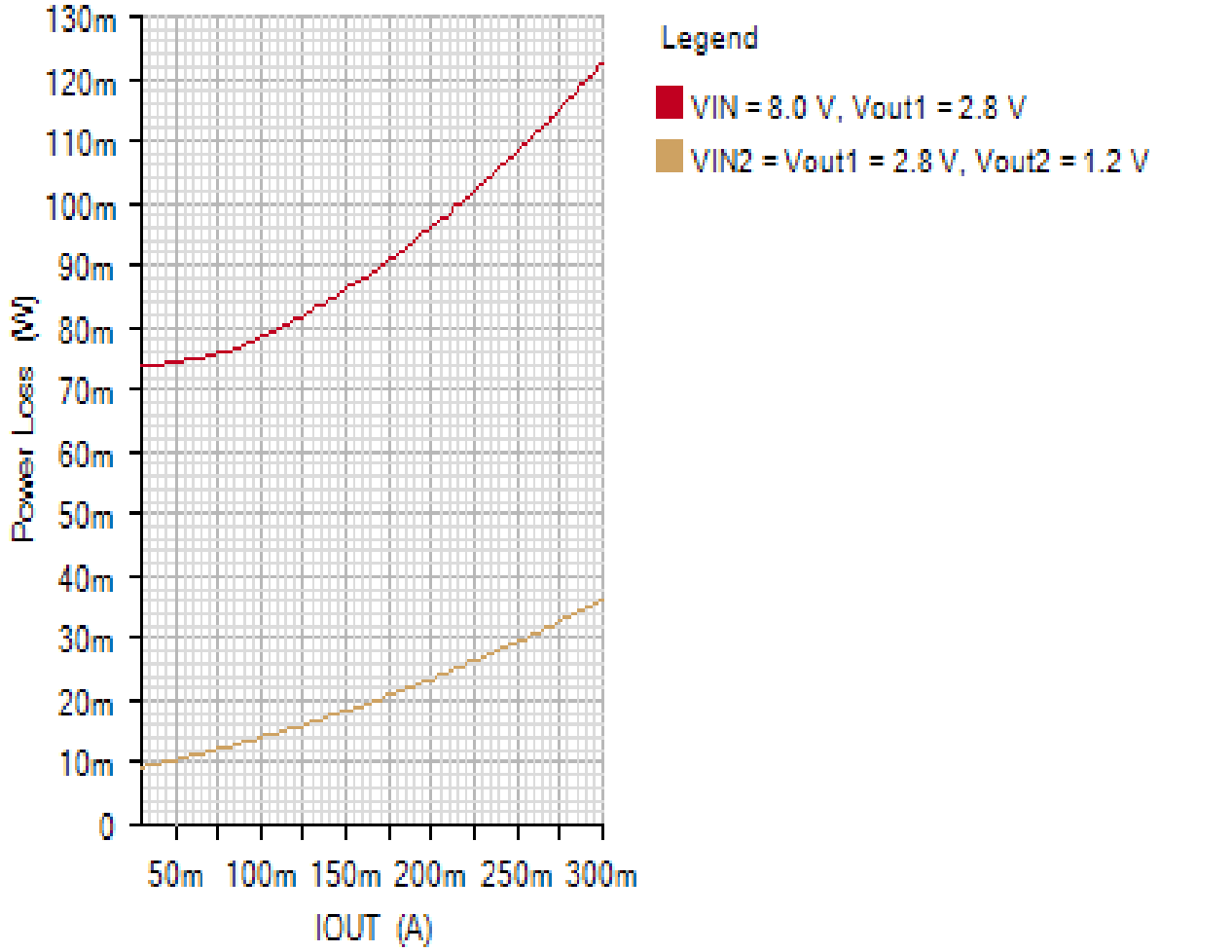
ON_CHIP_POWER_LOSS Default



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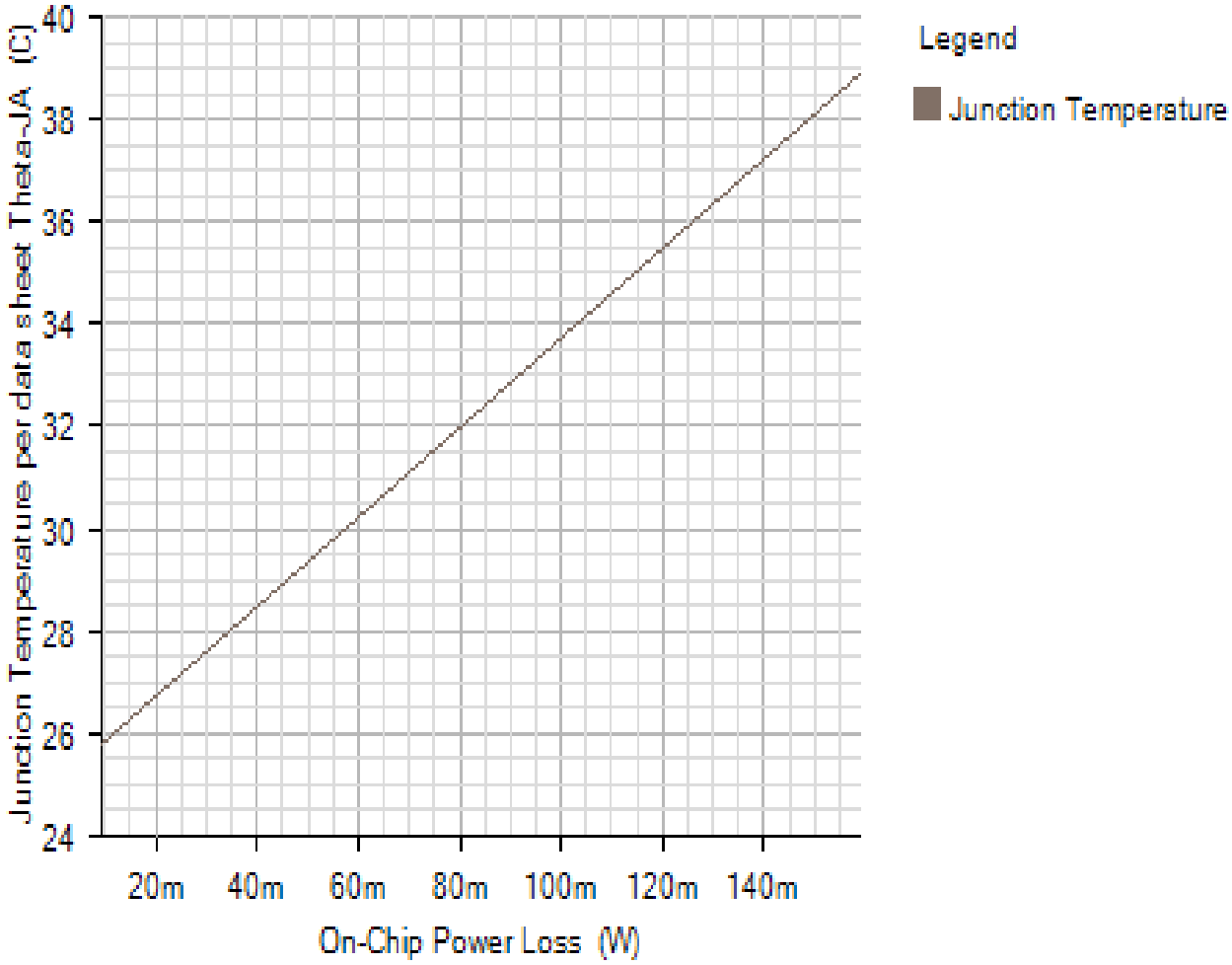
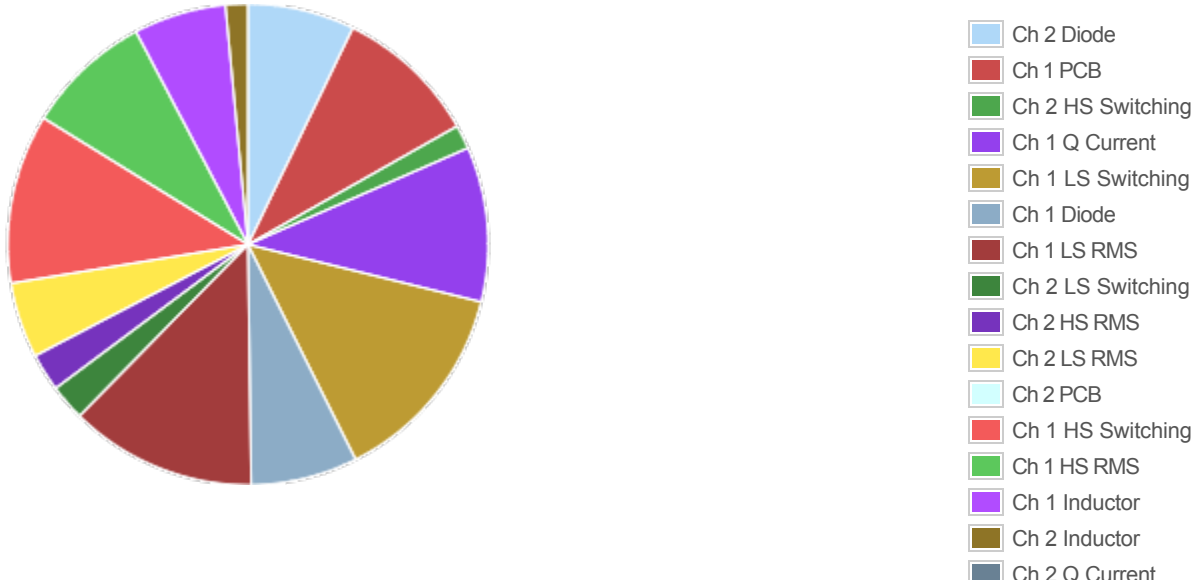
JUNCTION_TEMPERATURE Default



Losses



Component	Loss (W)	% of total

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Component	Loss (W)	% of total
Ch 2 Diode	0.013824	7.2
Ch 1 PCB	0.018495	9.6
Ch 2 HS Switching	0.003104	1.6
Ch 1 Q Current	0.02	10.4
Ch 1 LS Switching	0.026438	13.8
Ch 1 Diode	0.013824	7.2
Ch 1 LS RMS	0.024194	12.6
Ch 2 LS Switching	0.004656	2.4
Ch 2 HS RMS	0.004884	2.5
Ch 2 LS RMS	0.009768	5.1
Ch 2 PCB	0	0
Ch 1 HS Switching	0.021874	11.4
Ch 1 HS RMS	0.016284	8.5
Ch 1 Inductor	0.011964	6.2
Ch 2 Inductor	0.002885	1.5
Ch 2 Q Current	0	0
Total	0.192195	100

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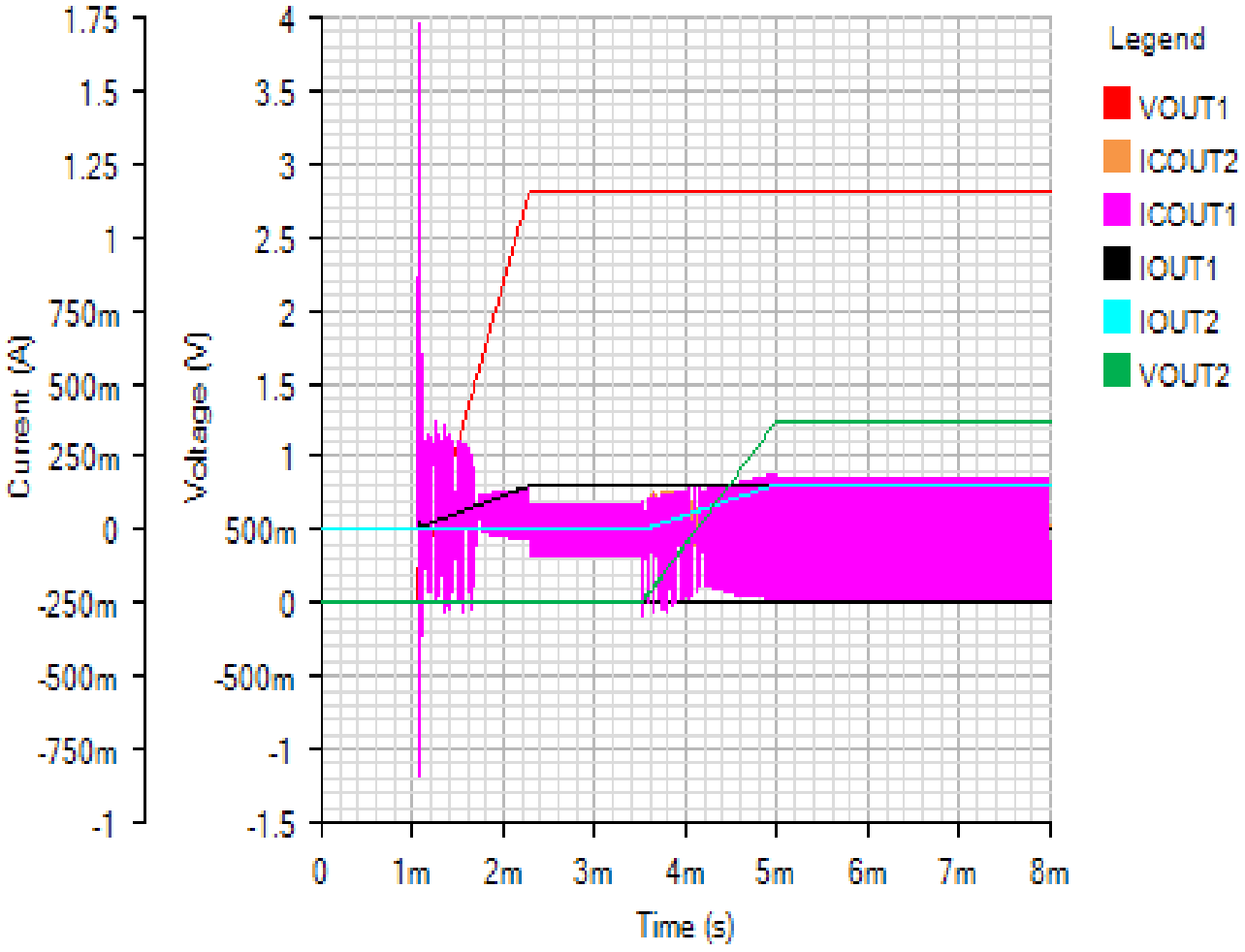
Start Up - Tue Nov 20 2018 11:48:50

OUTPUT Default



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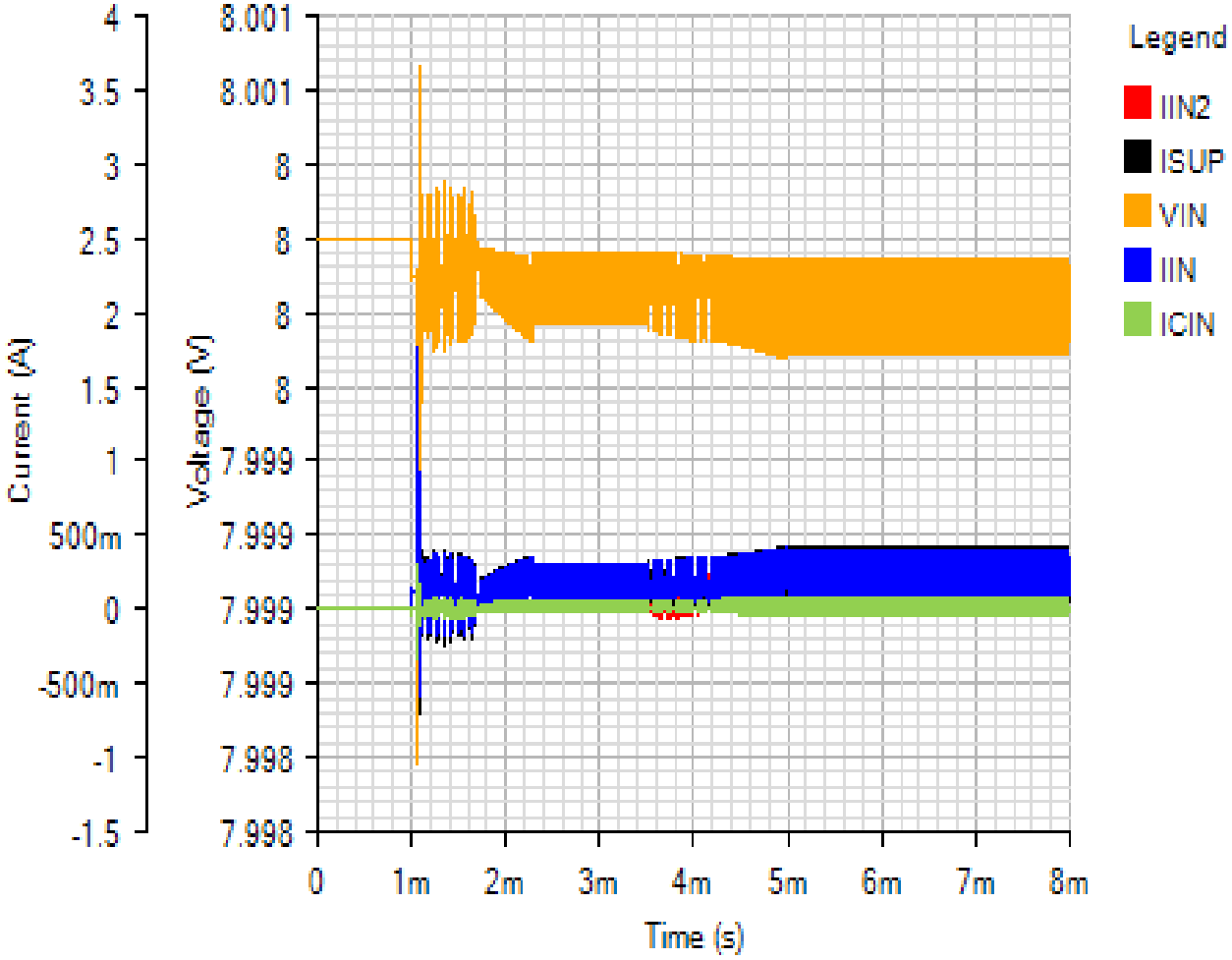

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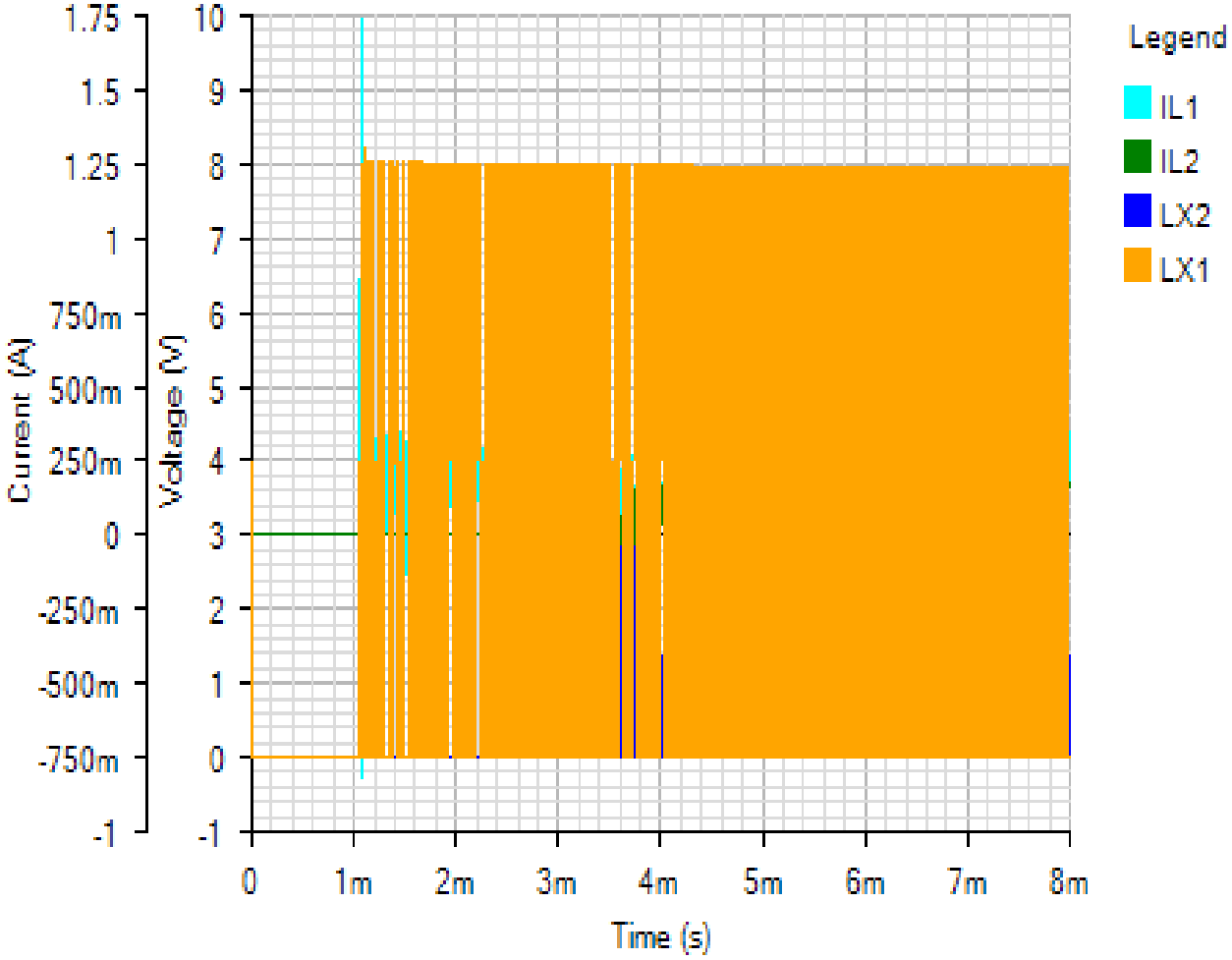
SWITCHING Default



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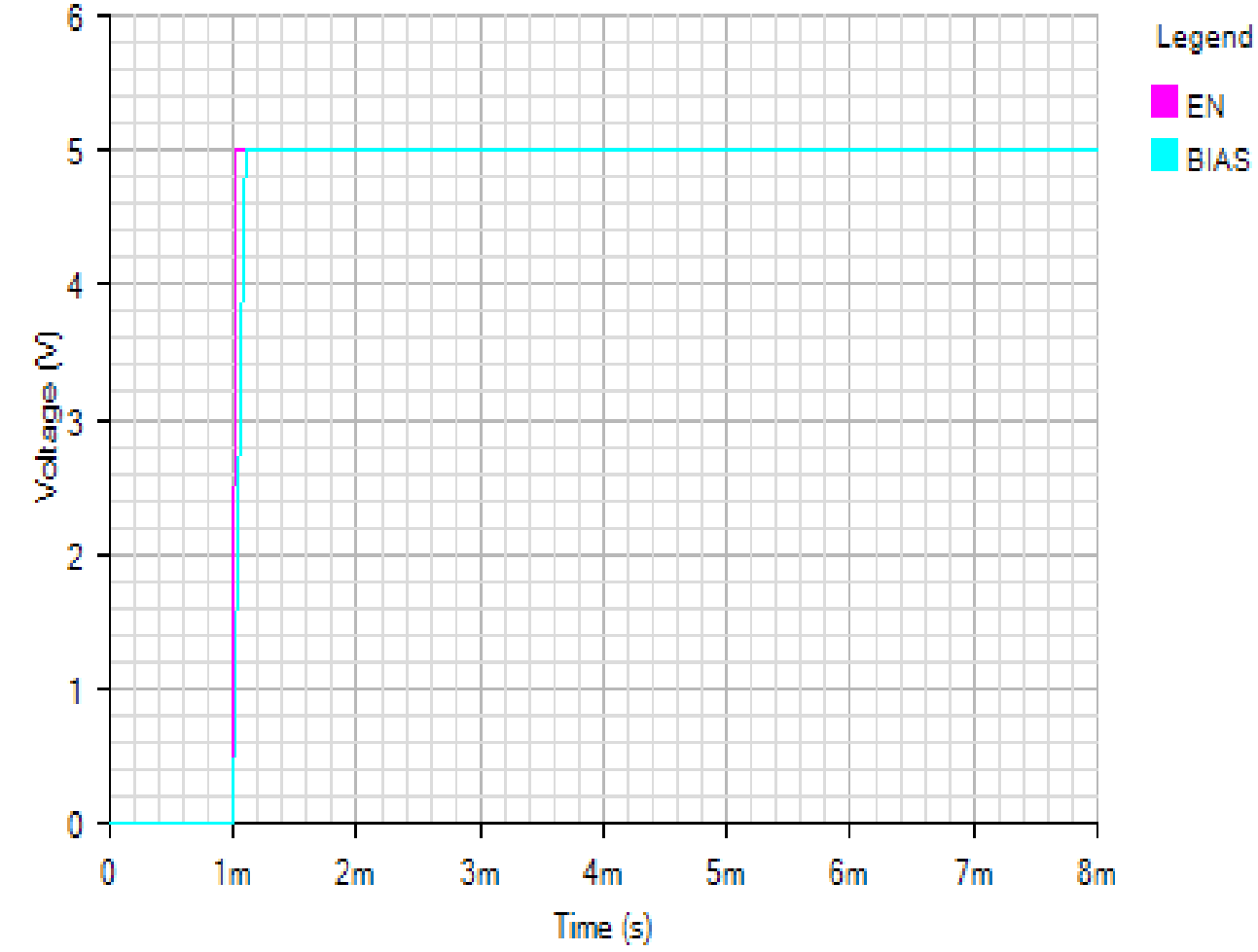

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Line Transient - Tue Nov 20 2018 11:48:50

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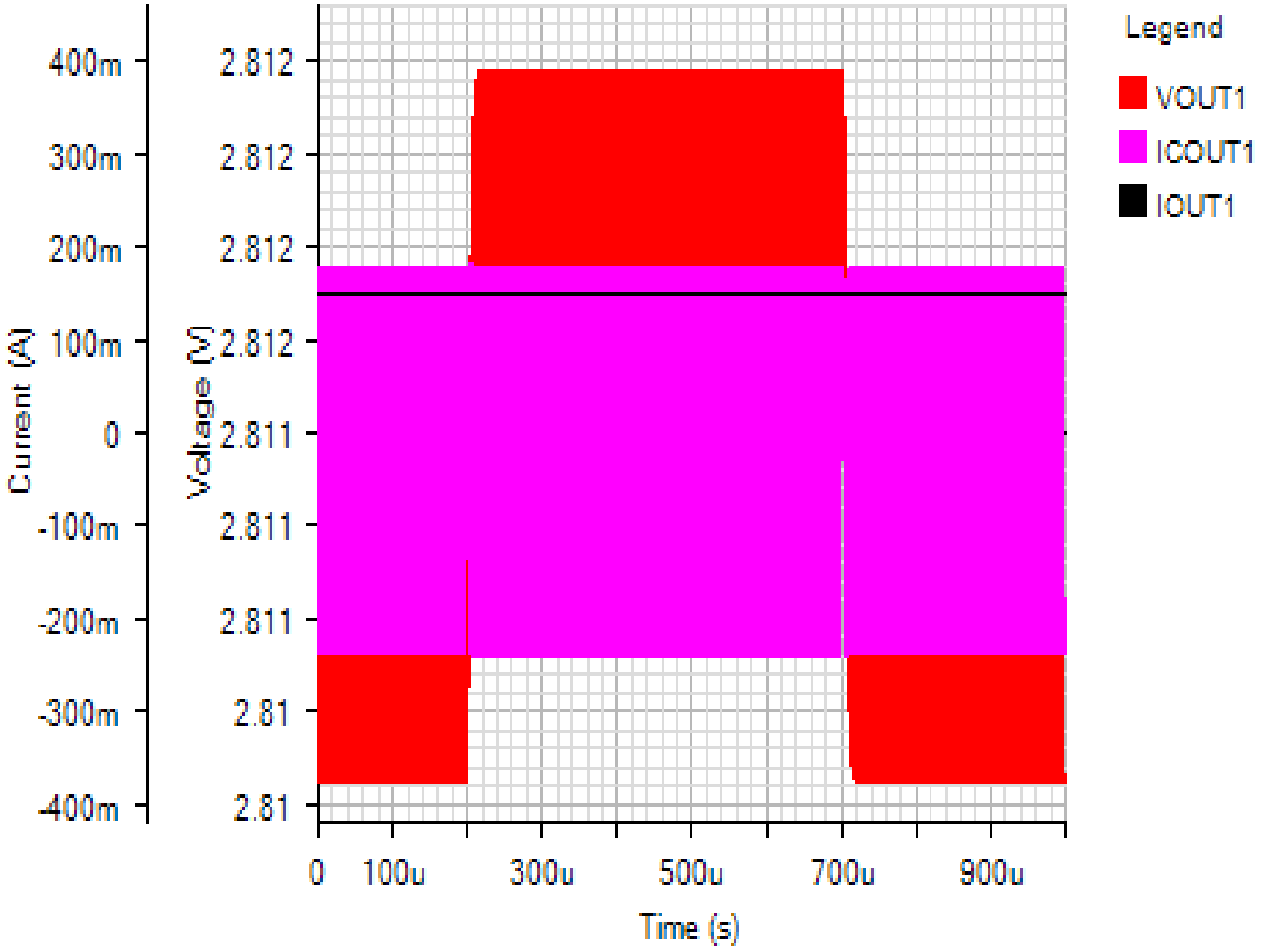

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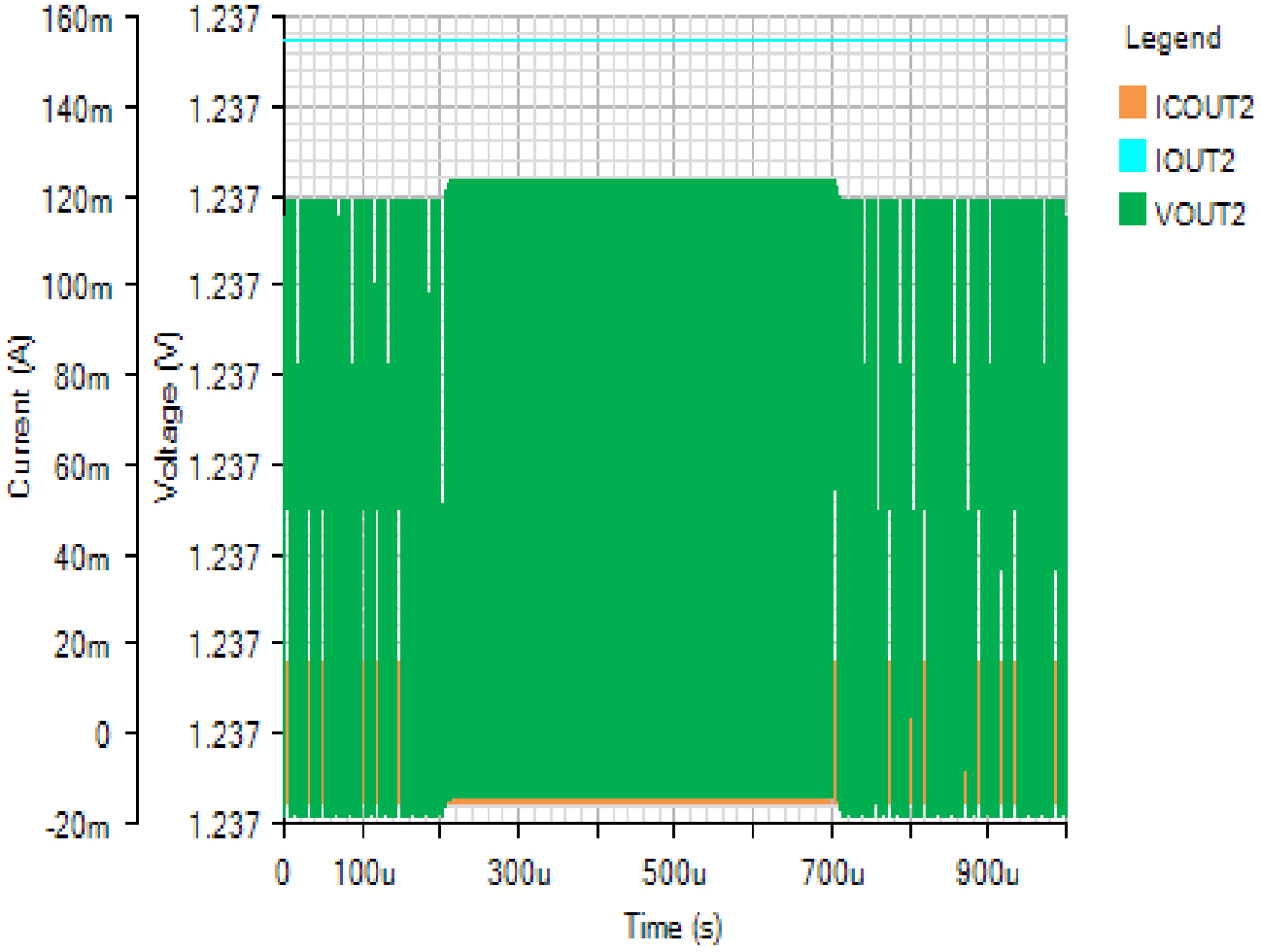
OUTPUT2 Default



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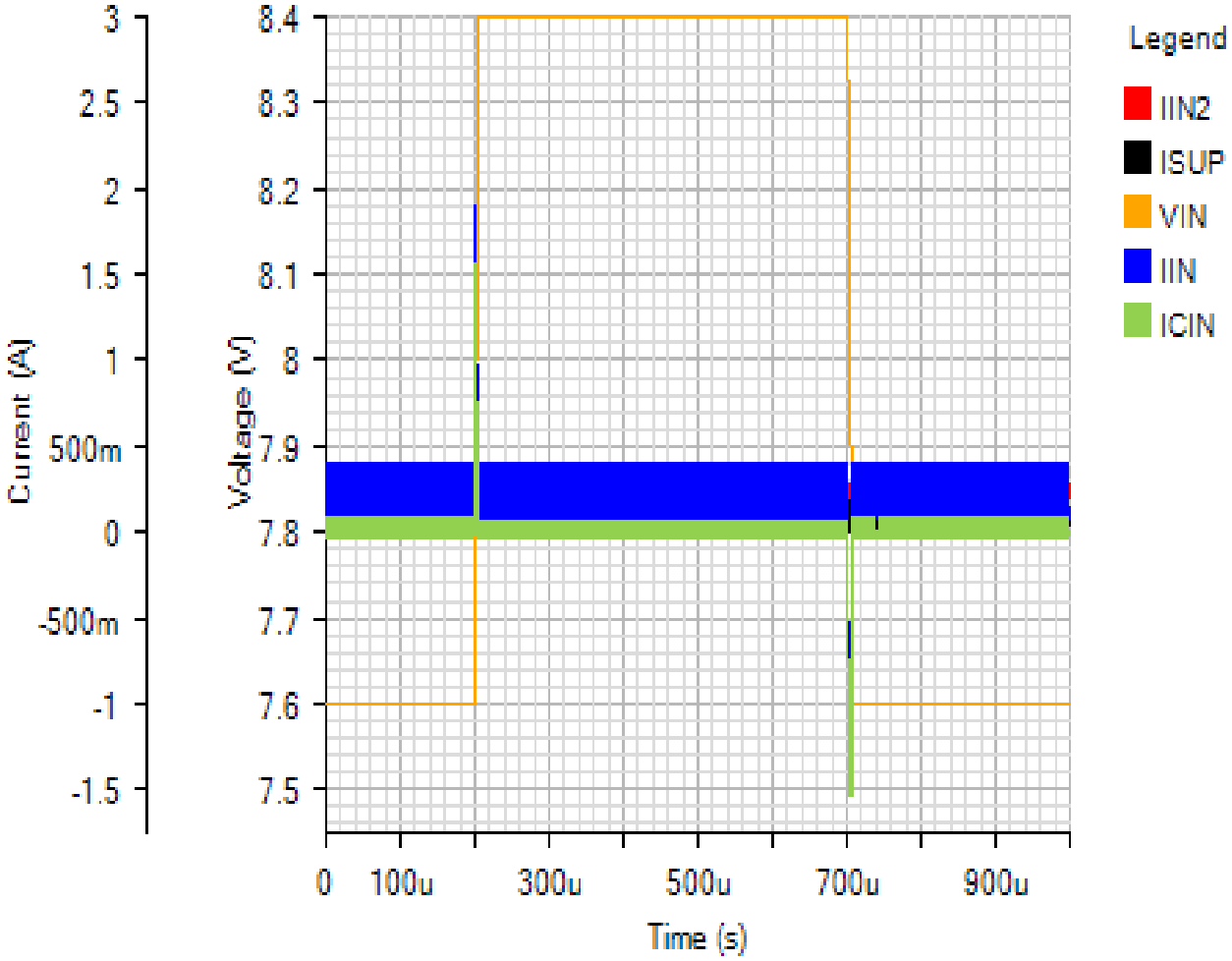

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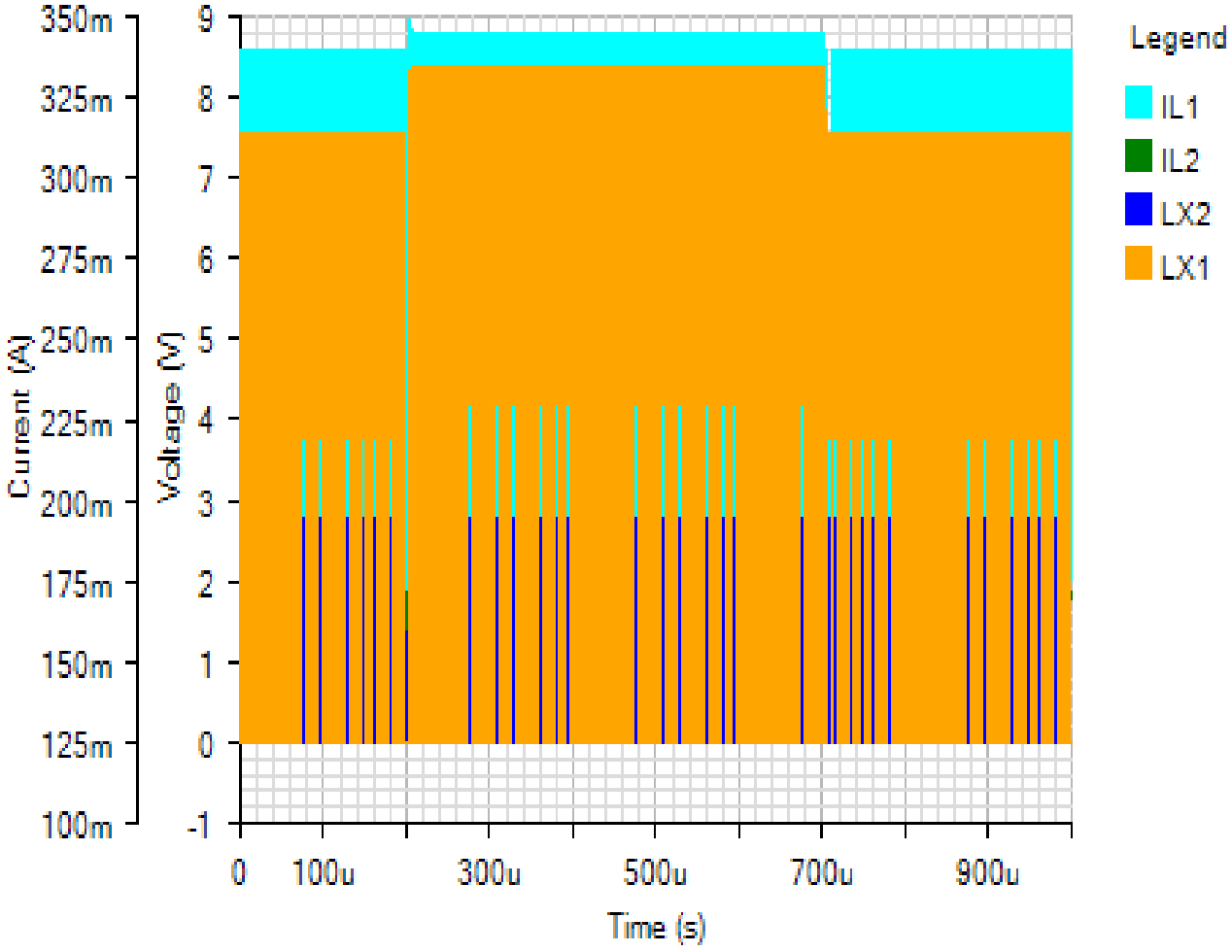

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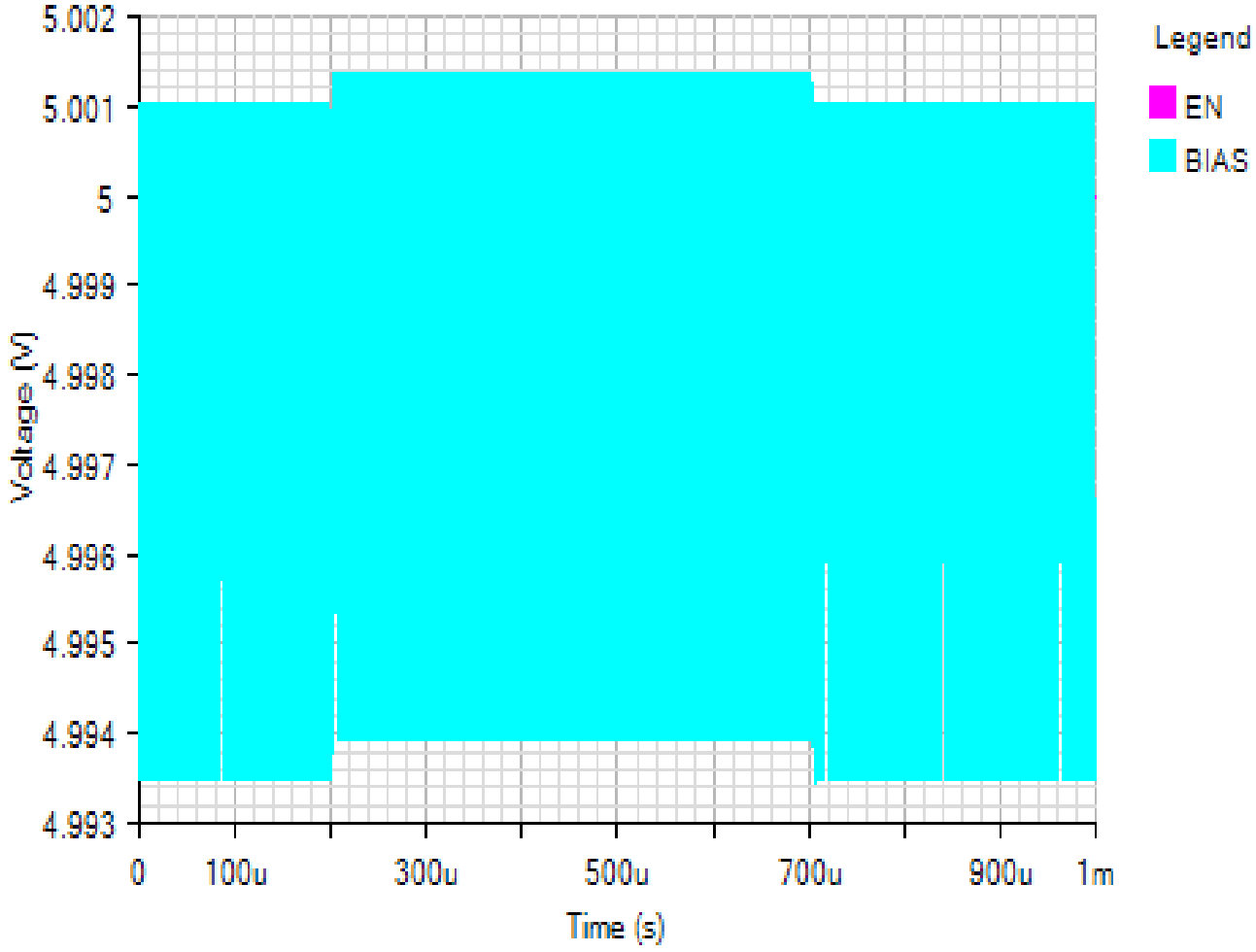

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Steady State - Tue Nov 20 2018 11:48:50

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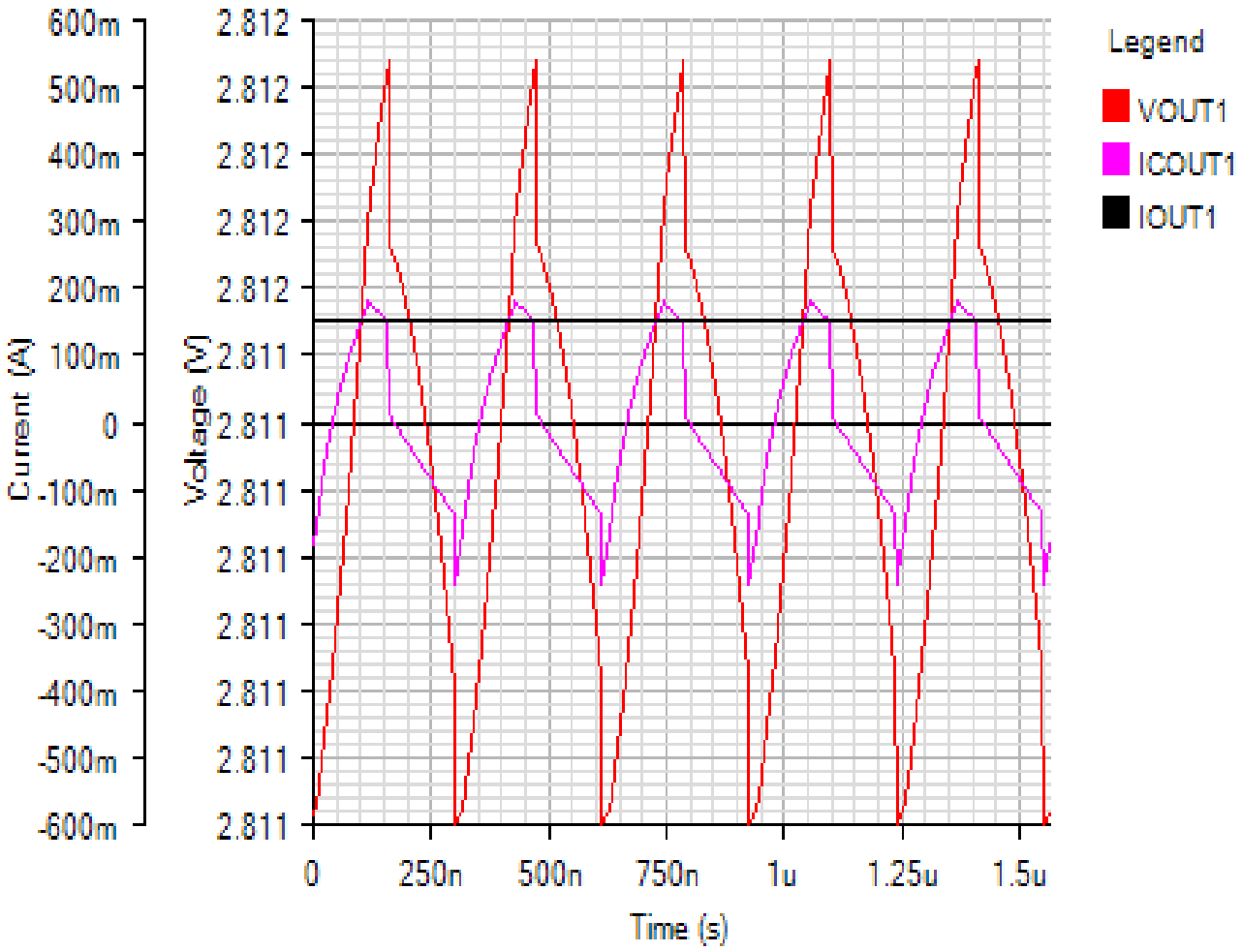

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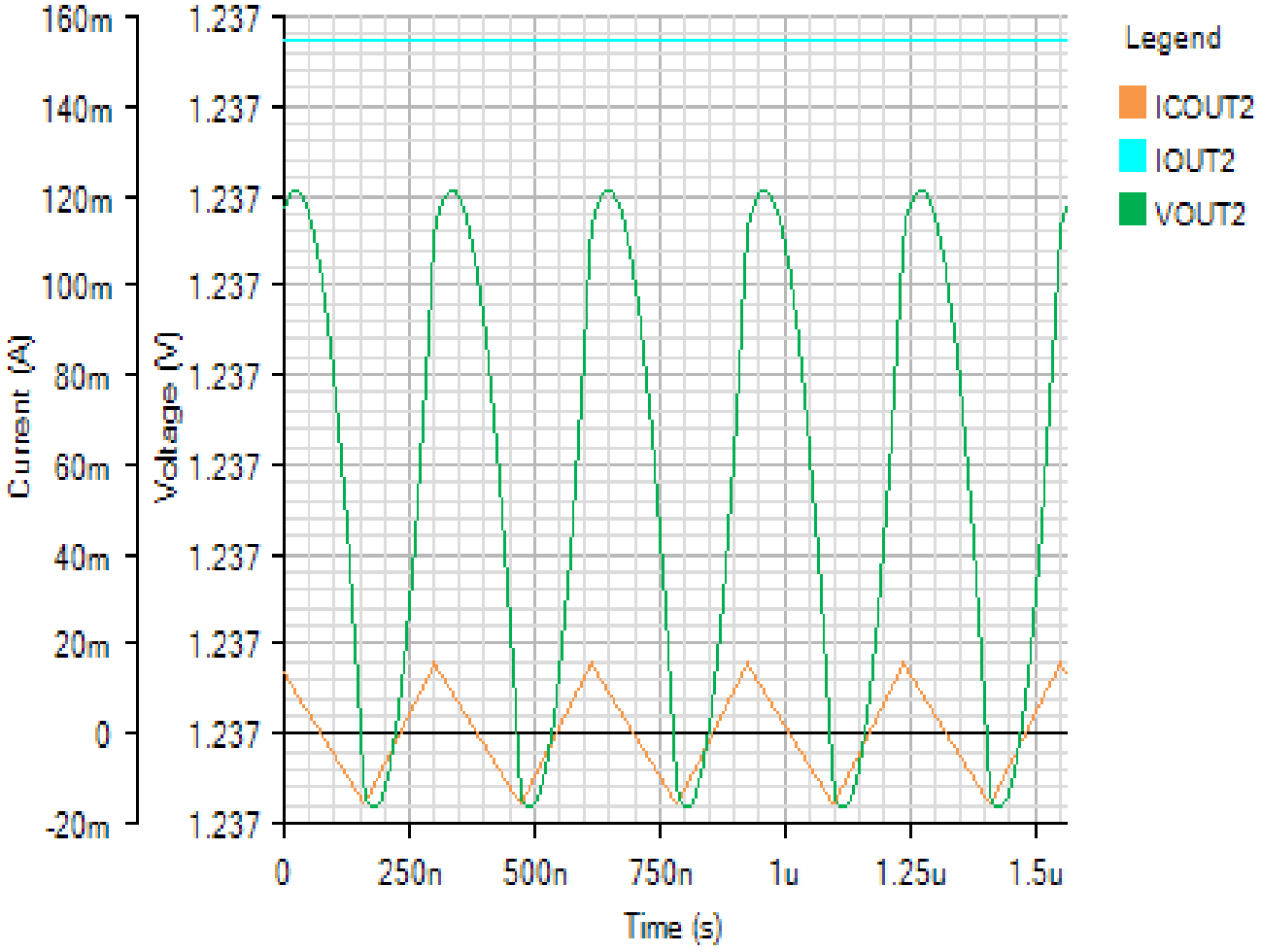
OUTPUT2 Default



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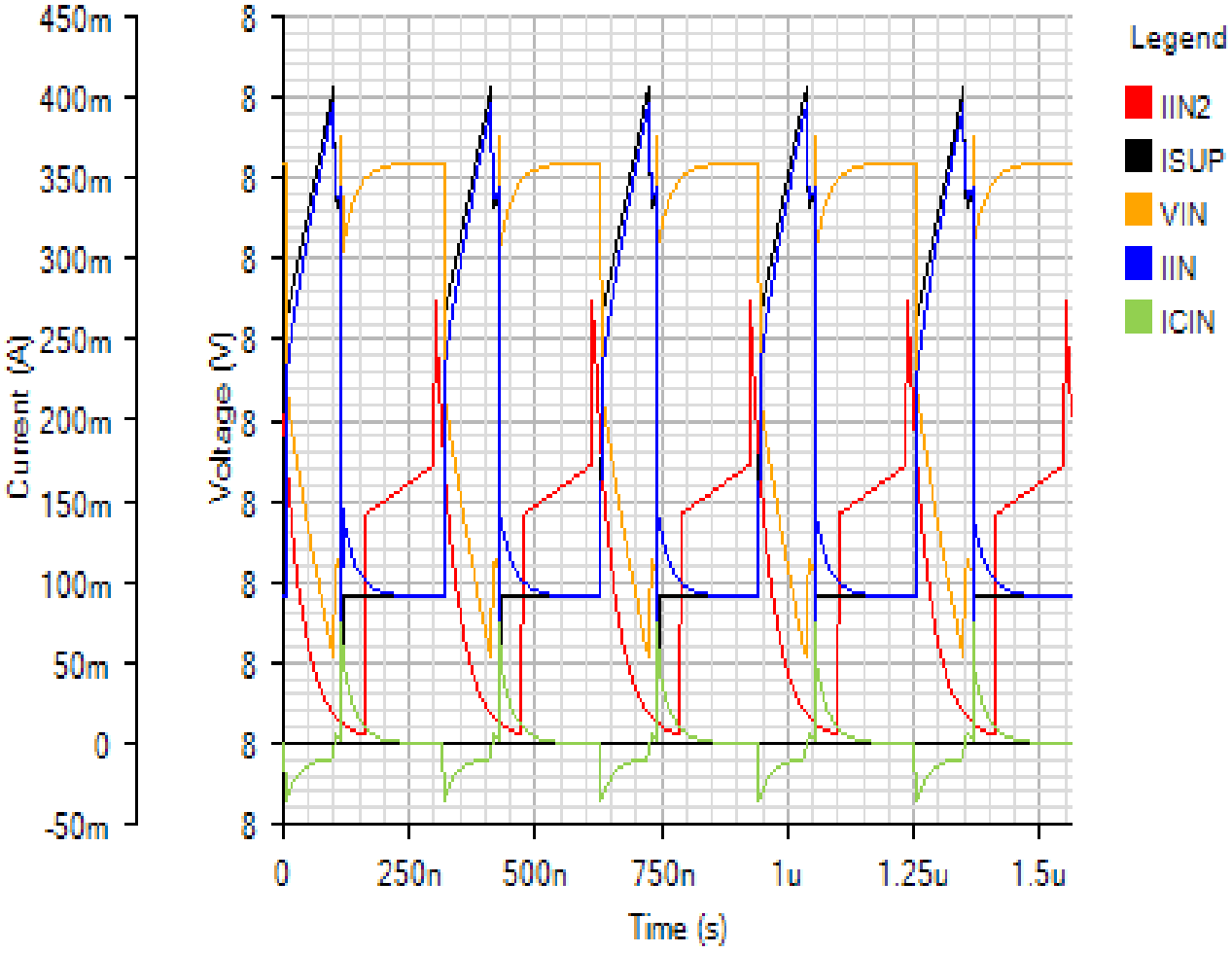
INPUT Default



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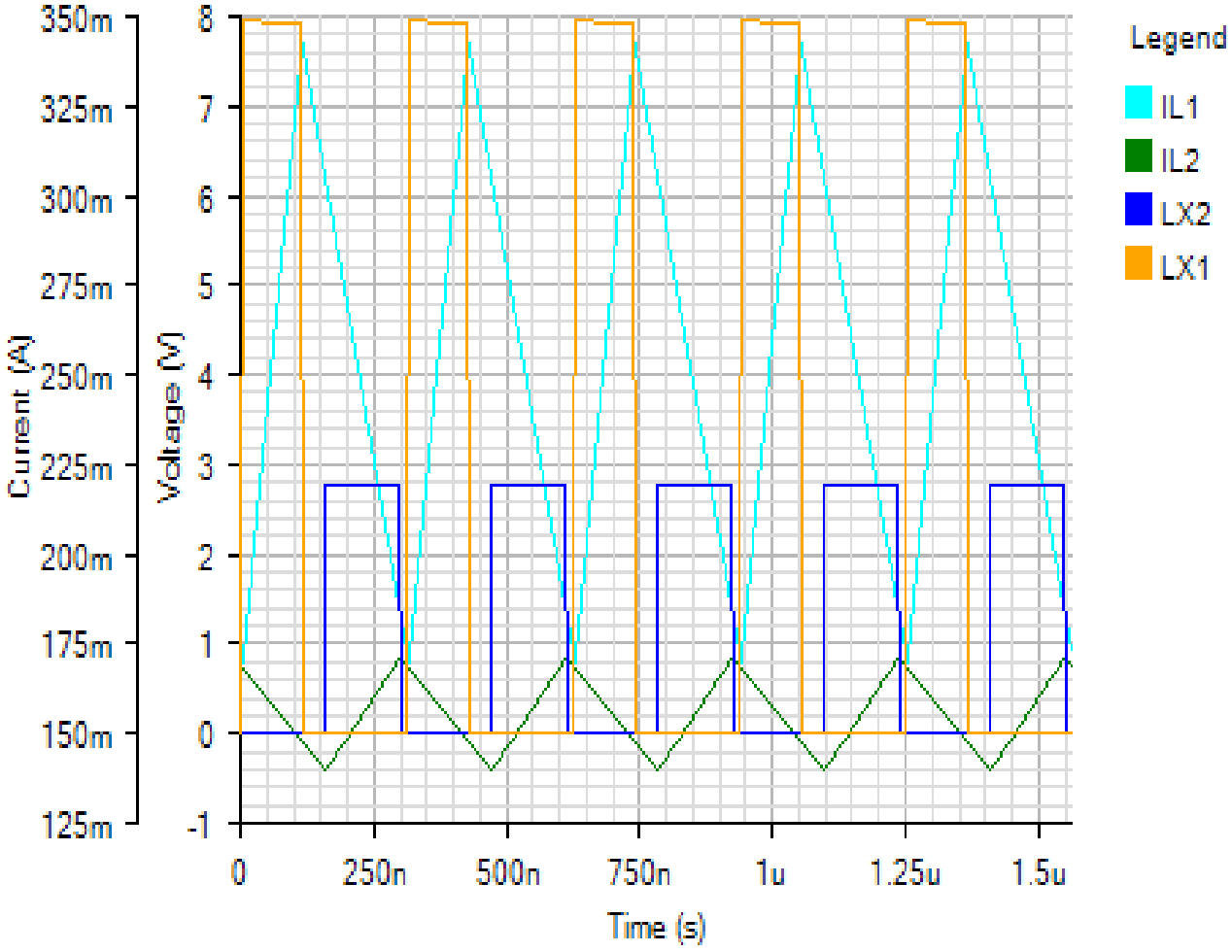
SWITCHING Default



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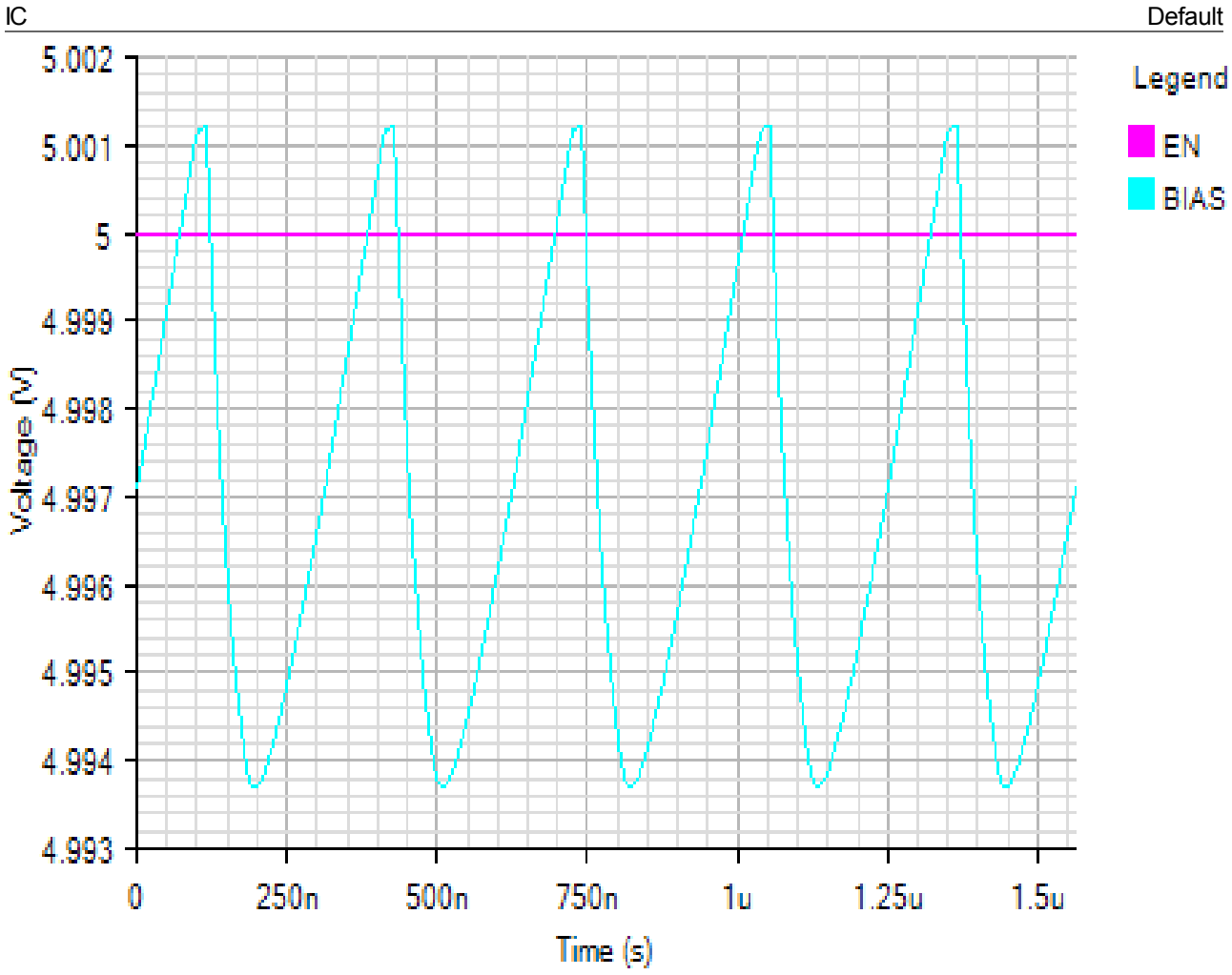

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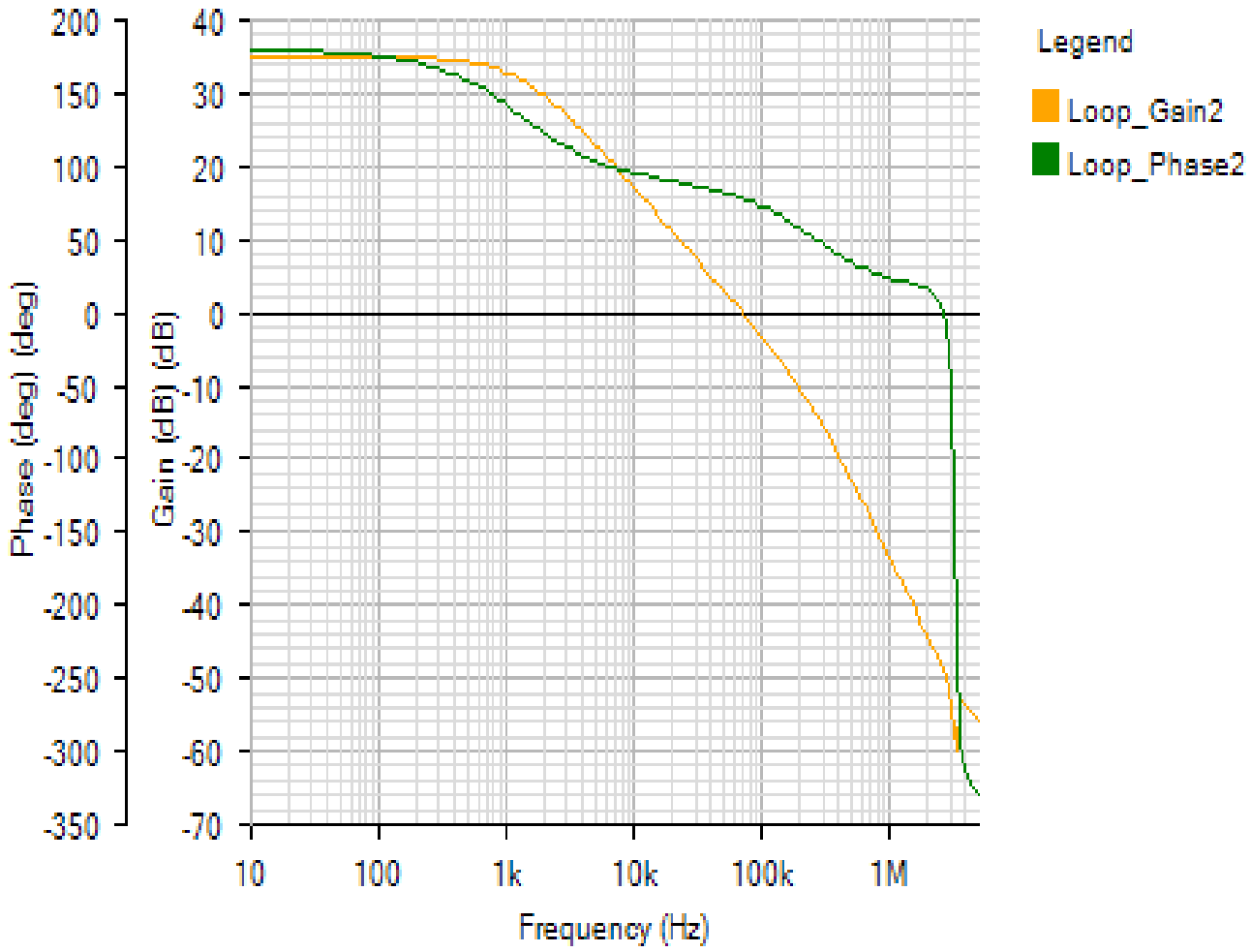
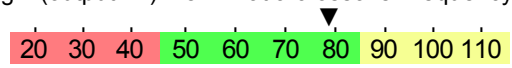
AC Loop - Tue Nov 20 2018 11:48:50

BODE2 Default



Phase Margin (output #2): 78.44° at a crossover frequency of 70.3kHz



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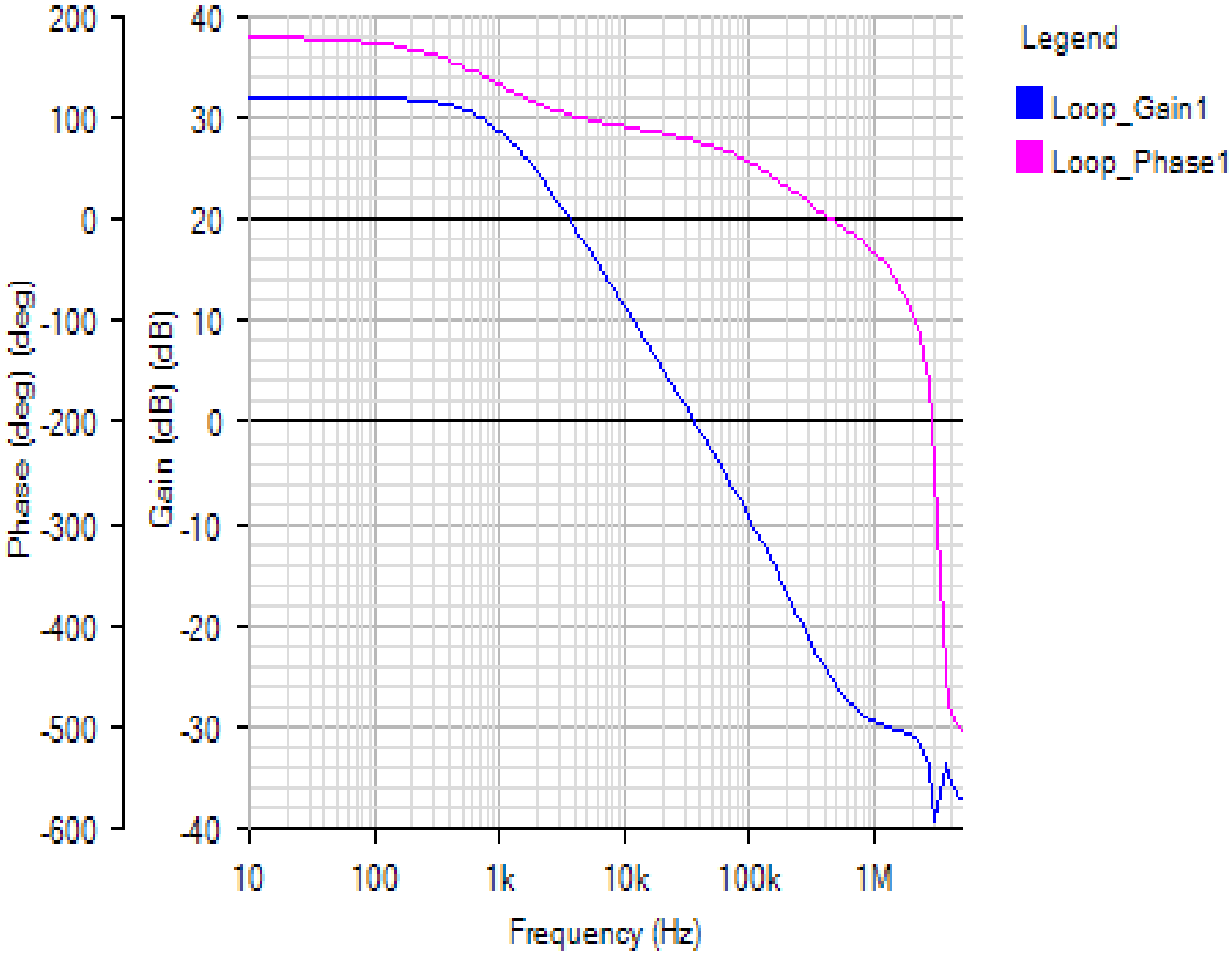
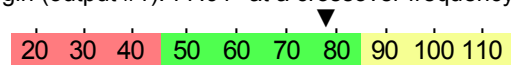
BODE1 Default



Phase Margin (output #1): 77.91° at a crossover frequency of 36.9kHz



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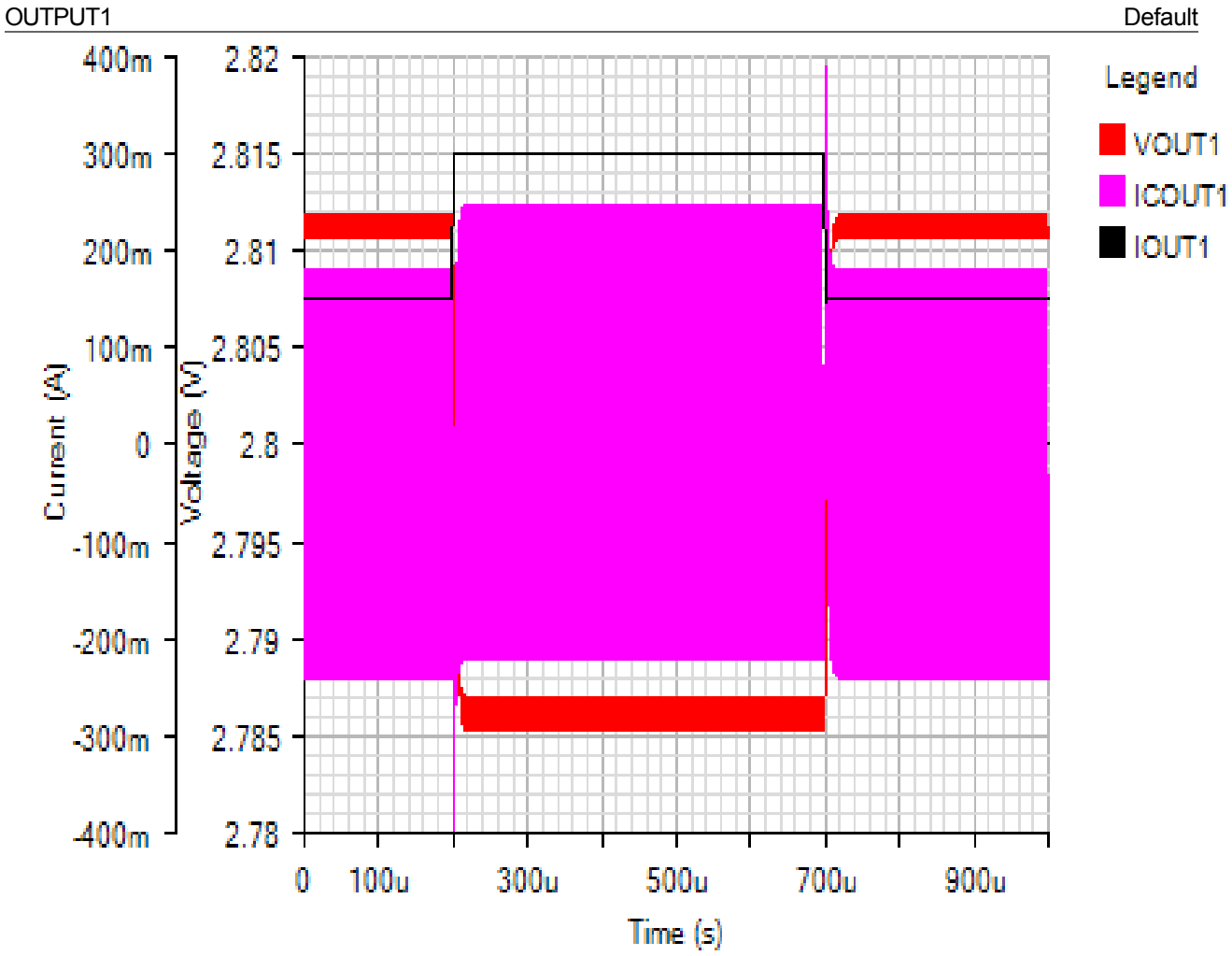
Load Step - Tue Nov 20 2018 11:48:50



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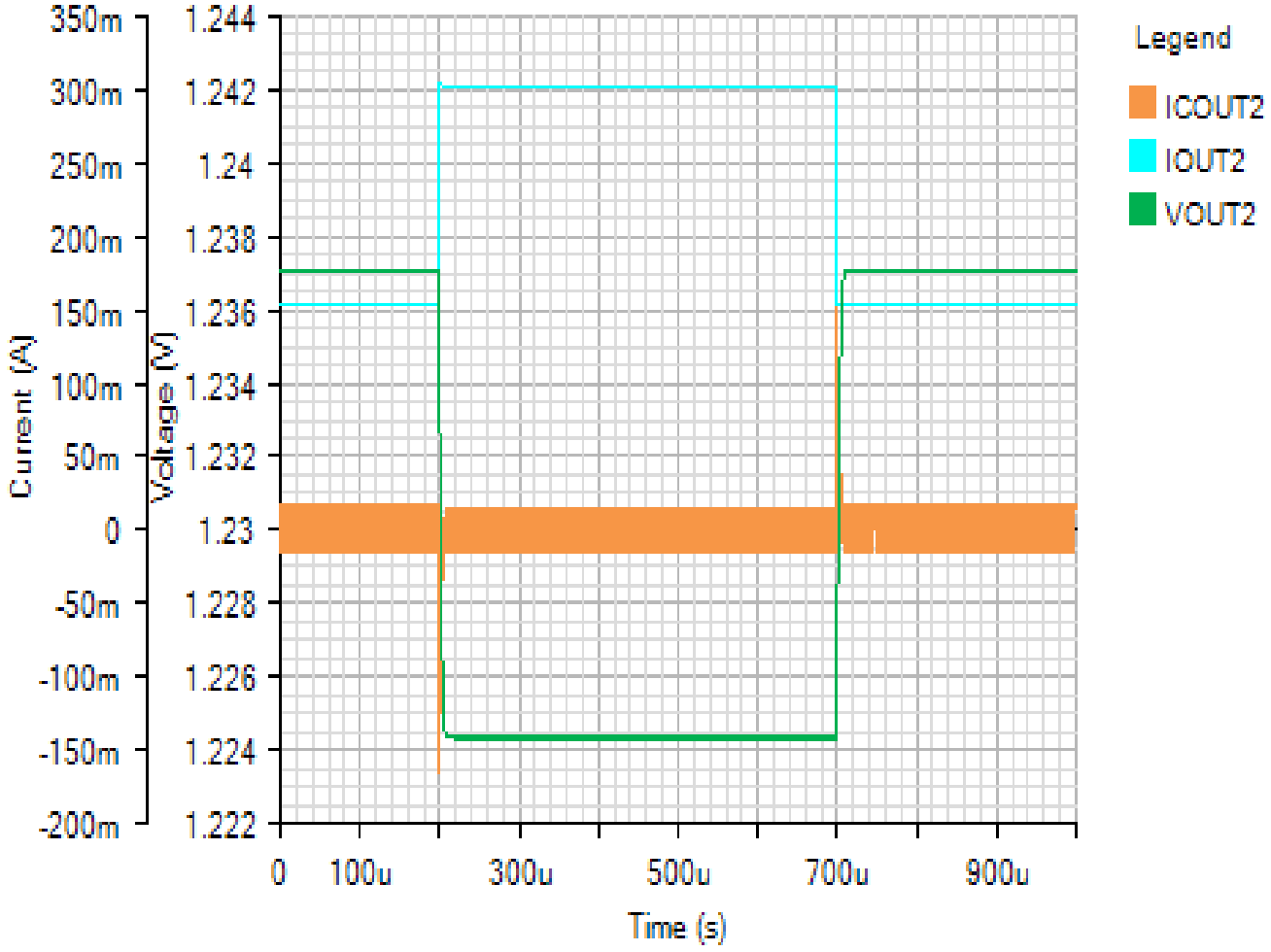
OUTPUT2 Default



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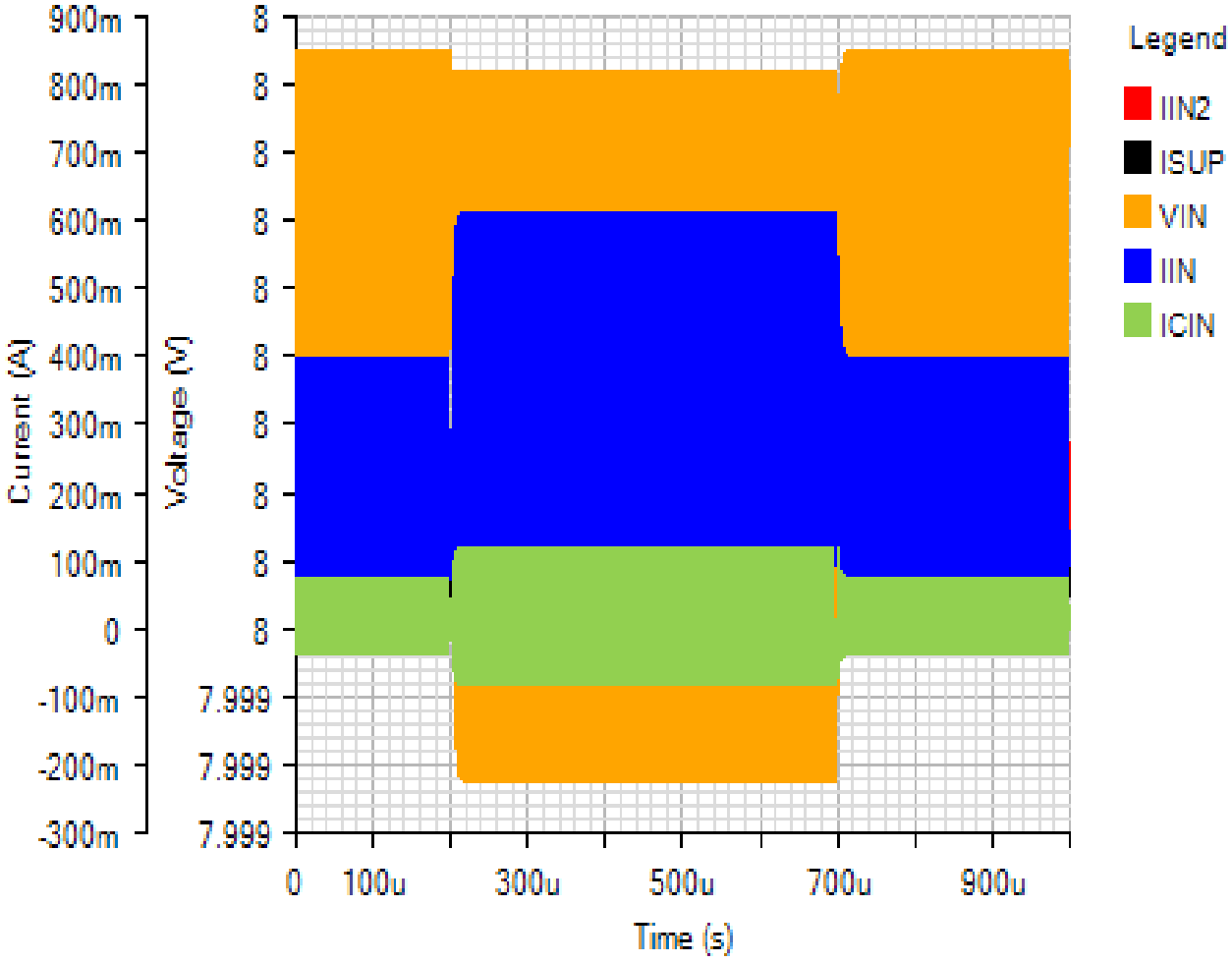
INPUT Default



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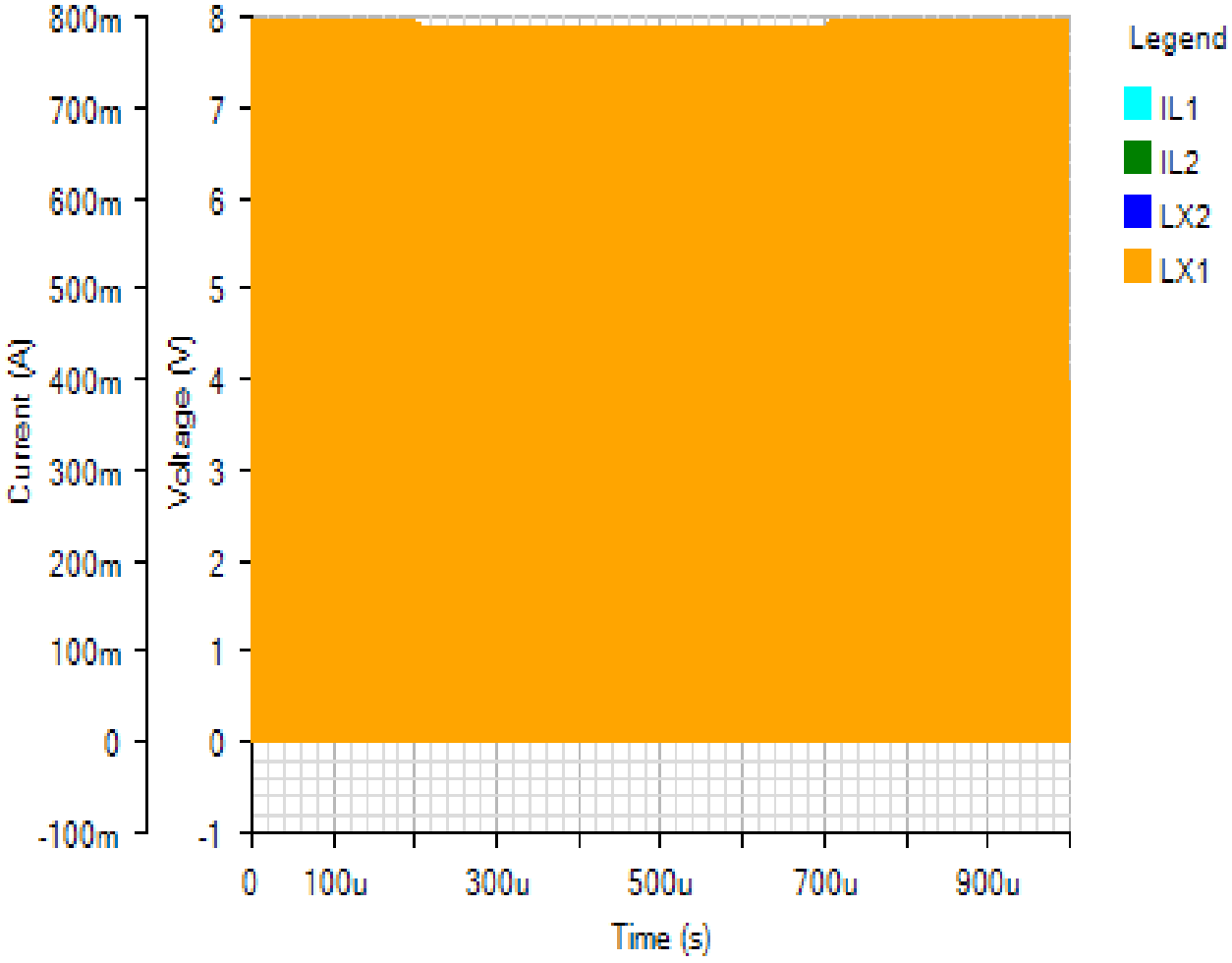
SWITCHING Default



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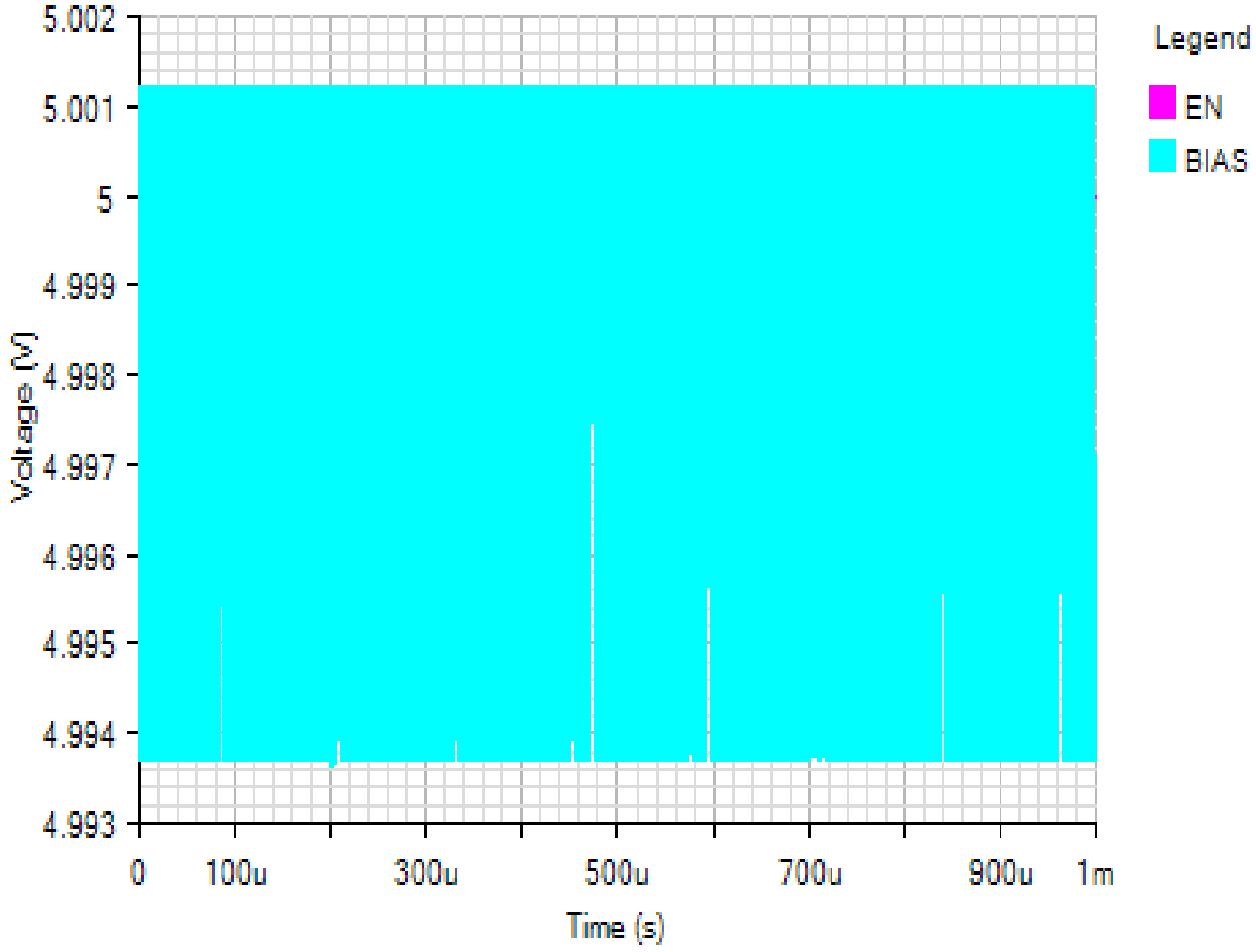

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