PMP7768

PMP7768 Test Results

Literature Number:SNVU020

36W Sepic Converter

TI reference design number: PMP 7768

(Formerly National Semiconductor design NSC0990)

Input: 9V – 50V
Output: 12V @ 3A

DC-DC Test Results

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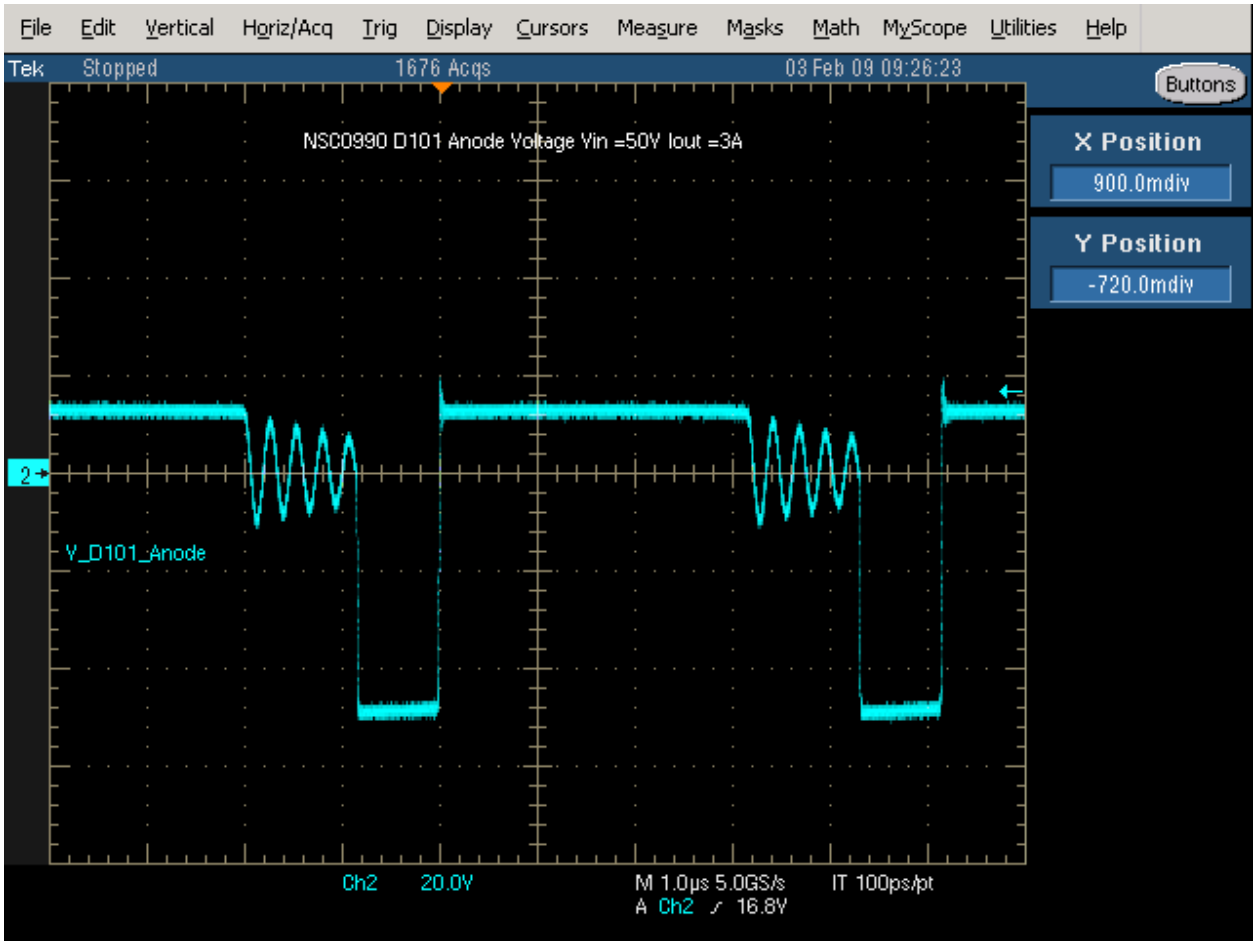
1.0 Circuit Description

It is a 36W Sepic Converter designed using LM5022. The output is set to 12V and input varies from 9V to 50V. It uses bootstrap supply to minimize losses in LM5022. It is a current mode controller.

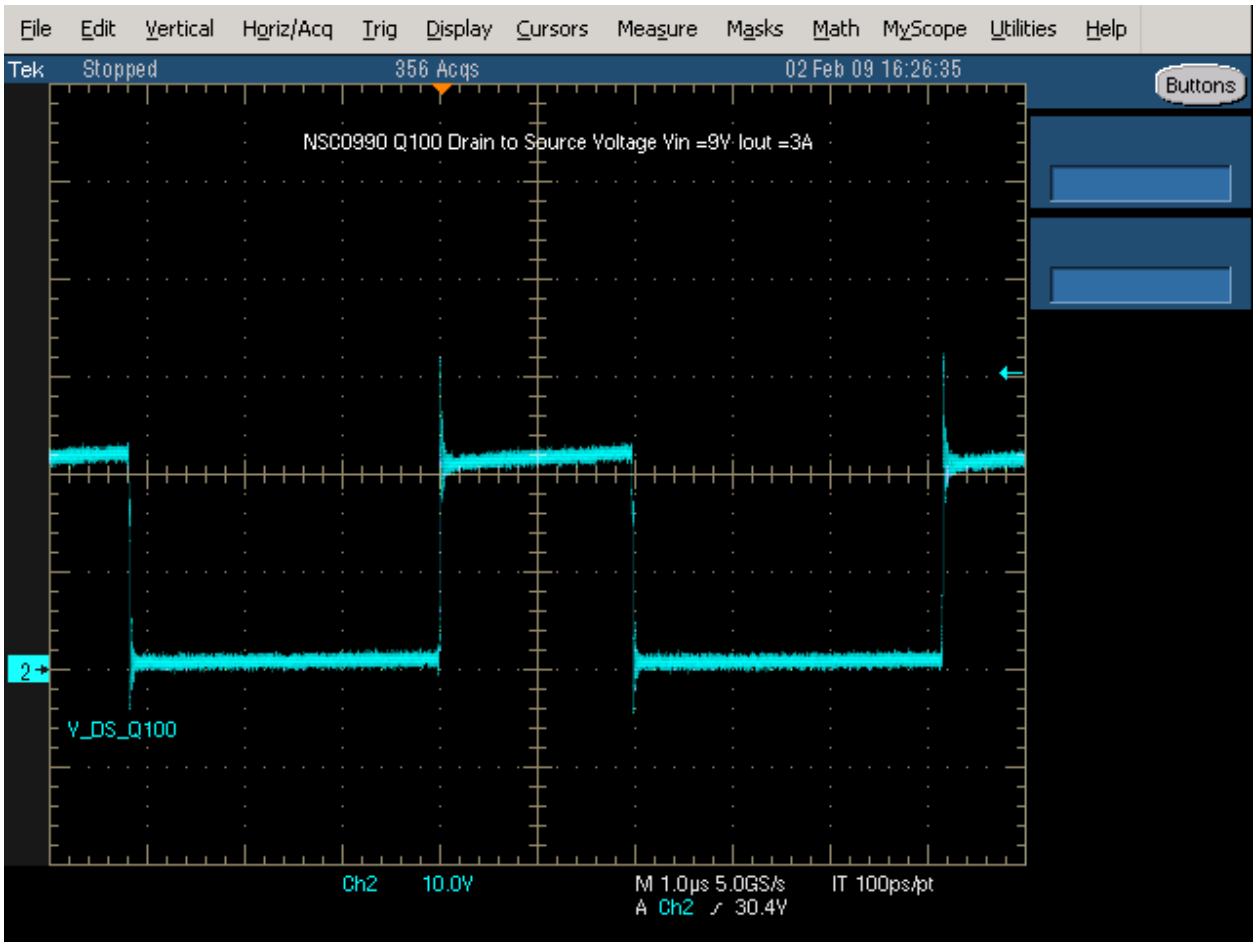
2.0 Waveforms

2.1 Anode voltage Vin = 50V Iout = 3A



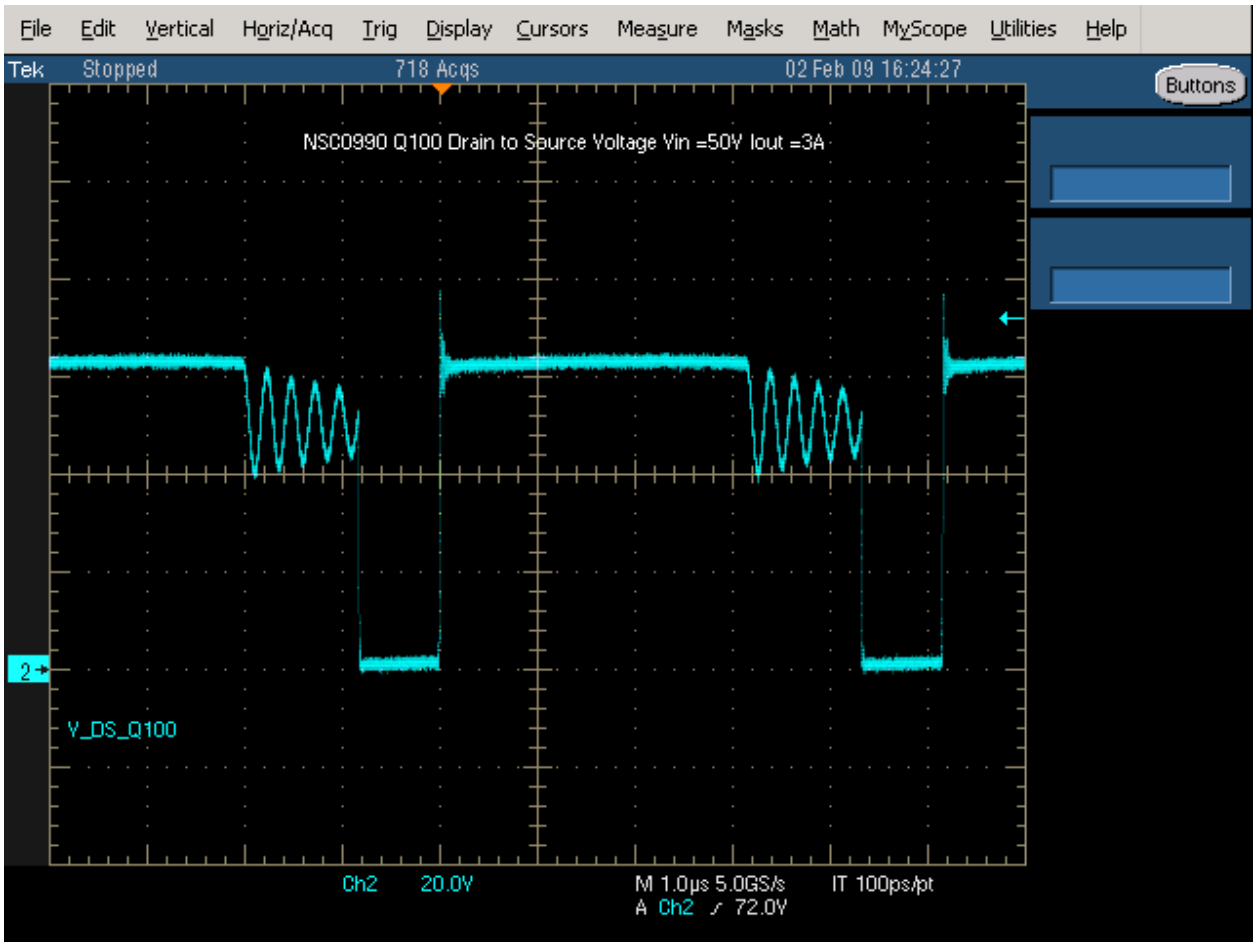
Anode voltage

2.2 Drain to Source voltage Vin = 9V Iout = 3A



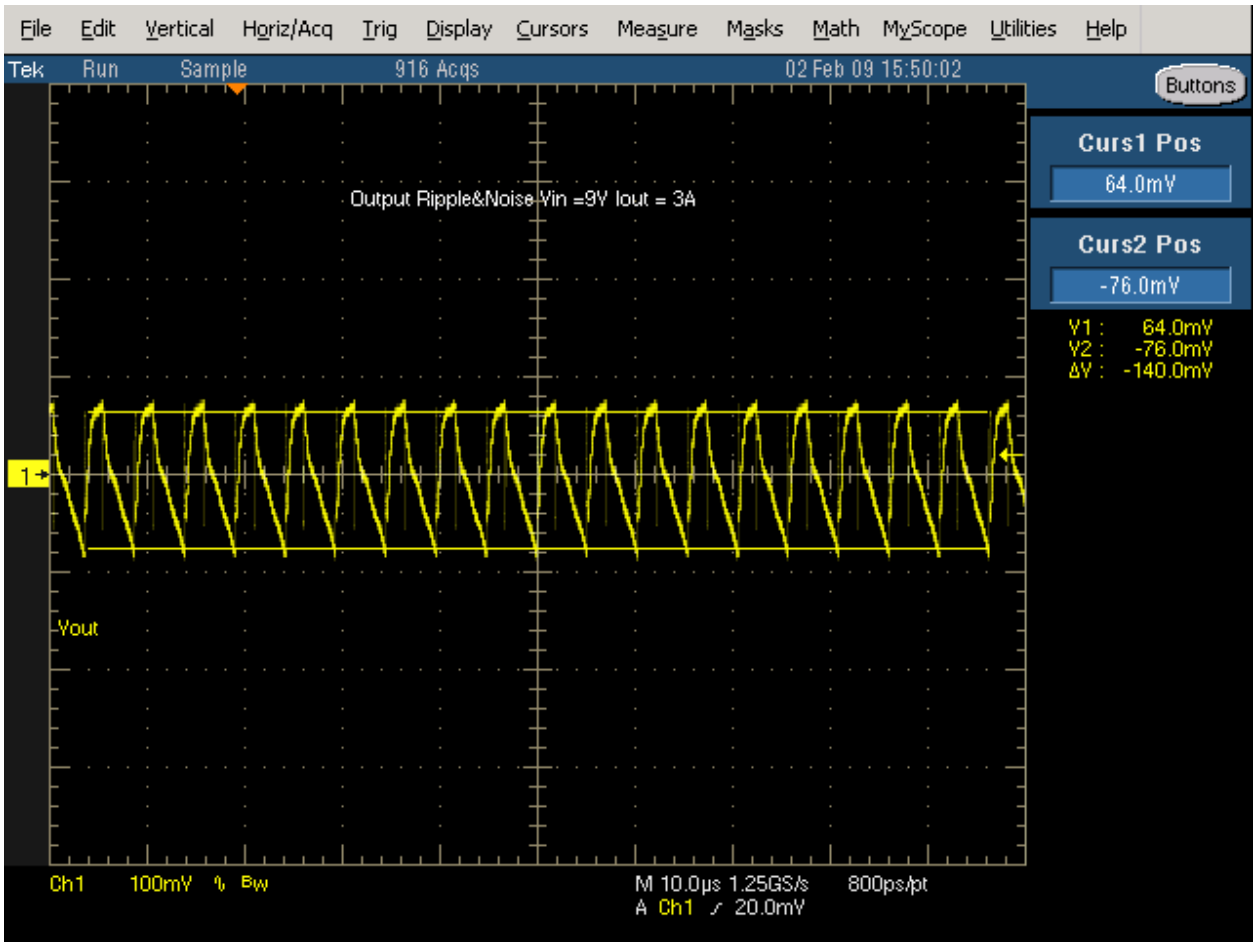
Drain to source voltage

2.3 Drain to Source voltage Vin = 50V Iout = 3A



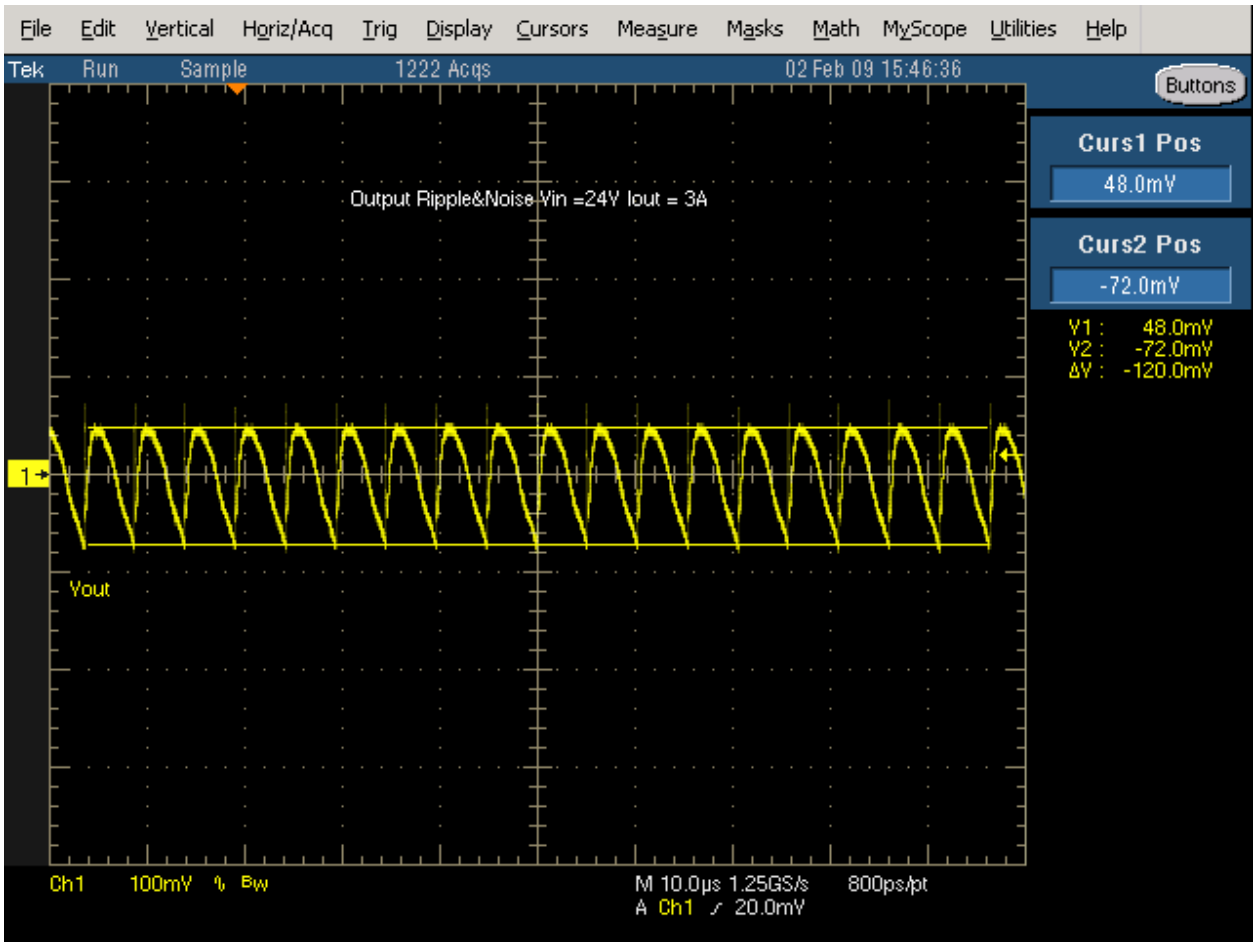
Drain to source voltage

2.4 Output Ripple and Noise for Vin = 9V



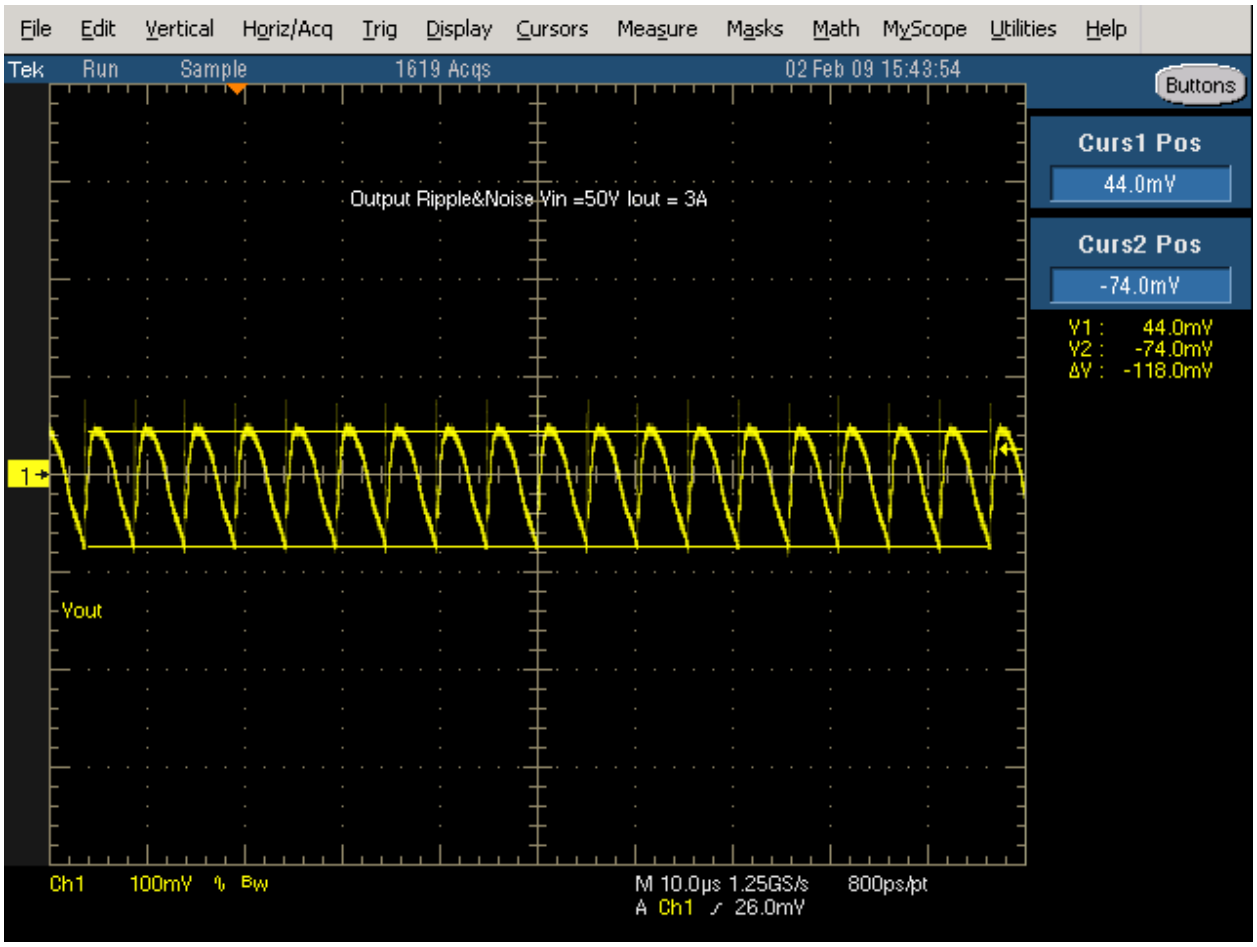
Output ripple & noise

2.5 Output Ripple and Noise for Vin = 24V



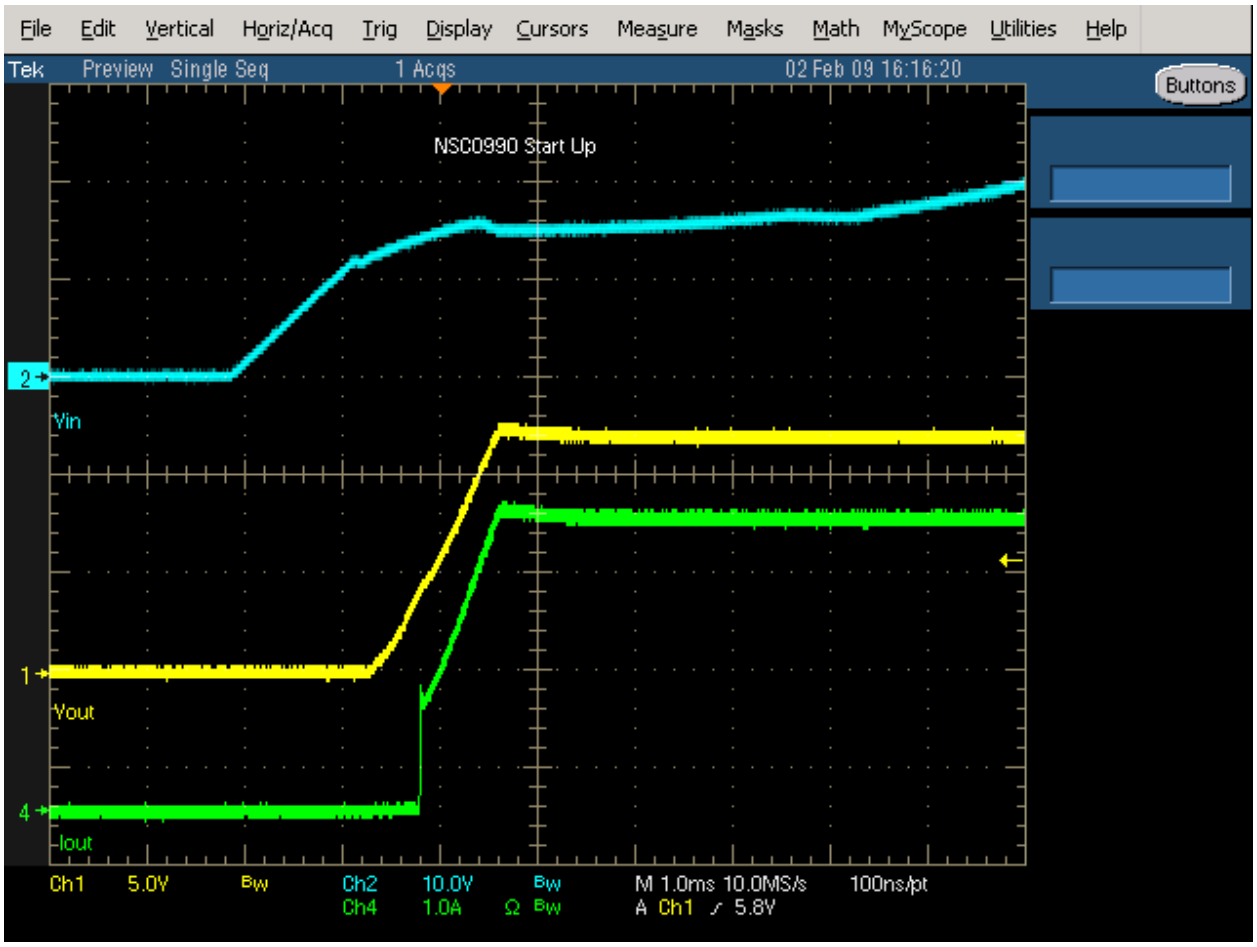
Output ripple & noise

2.6 Output Ripple and Noise for Vin = 50V



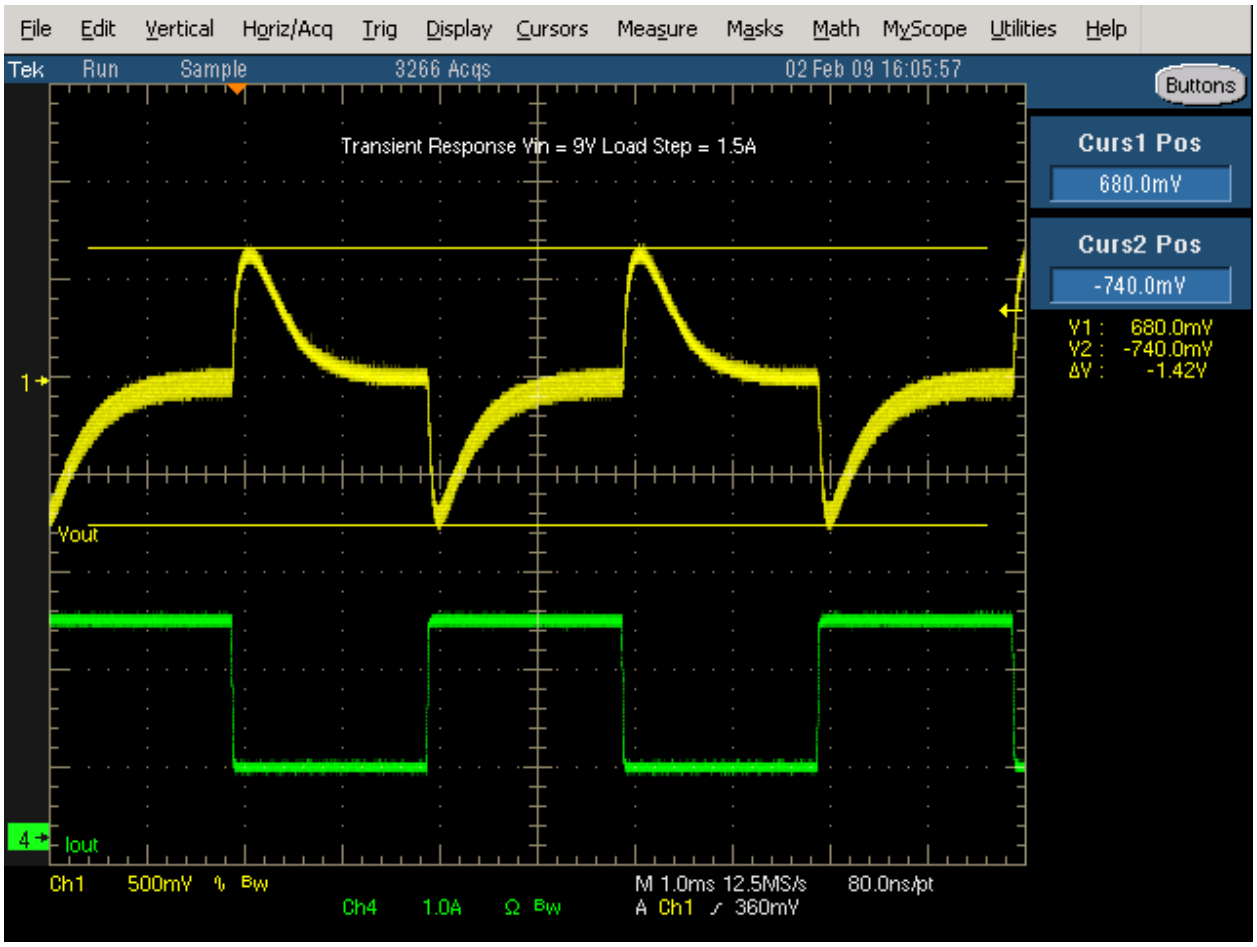
Output ripple & noise

2.7 Start up voltages



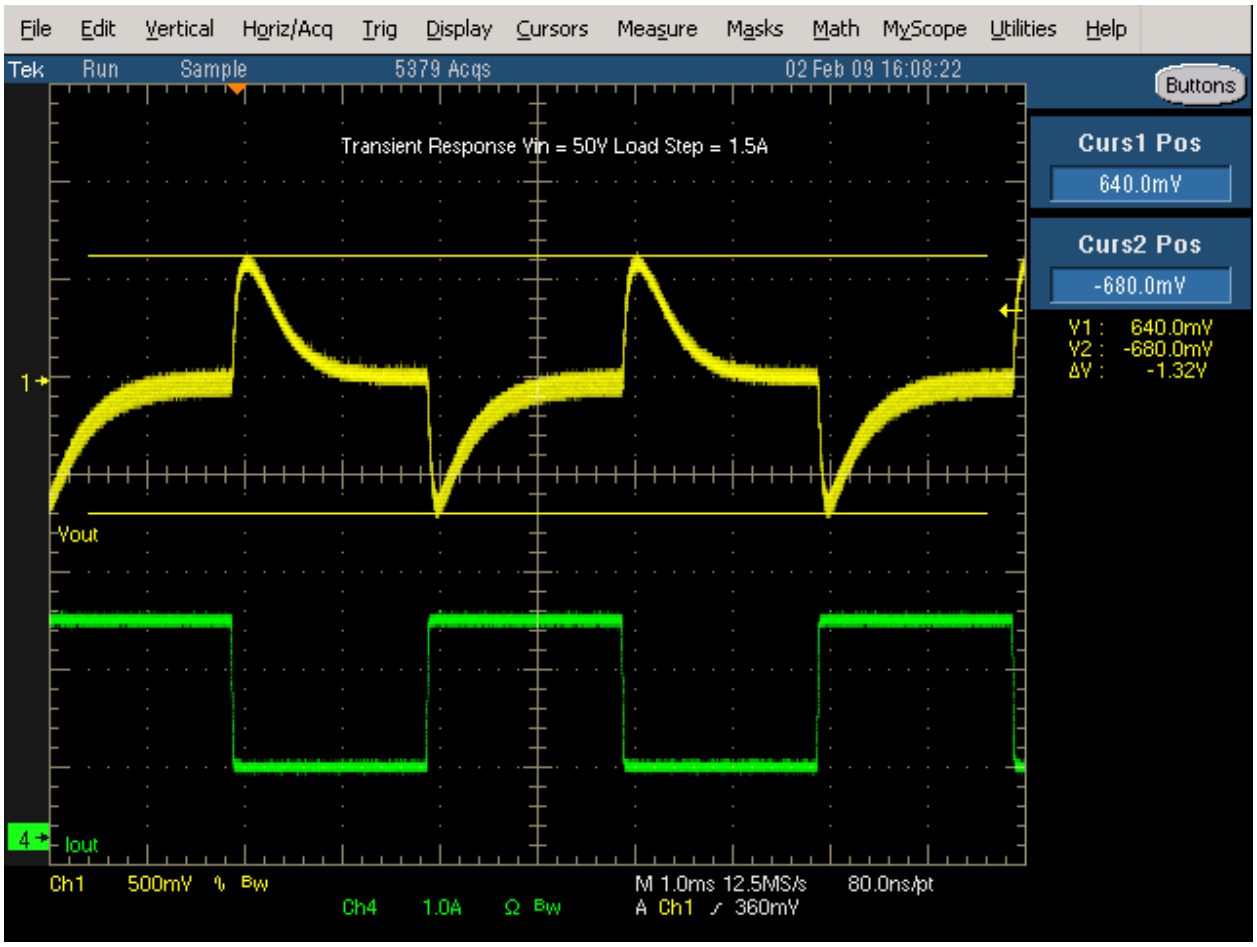
Output voltage
Input voltage
Output current

2.8 Transient response Vin = 9V



Output voltage
Output current

2.9 Transient response Vin = 50V



Output voltage
Output current

3.0 Efficiency results

Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency	Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency
9.07	0.651	12.14	0.4	82.24%	12.19	0.483	12.14	0.4	82.48%
9.03	1.29	12.14	0.8	83.37%	12.14	0.963	12.14	0.8	83.07%
9.09	1.92	12.13	1.2	83.40%	12.06	1.45	12.14	1.2	83.31%
9	2.56	12.13	1.6	84.24%	11.99	1.93	12.13	1.6	83.87%
9.02	3.19	12.13	2	84.31%	11.92	2.41	12.13	2	84.45%
9.05	3.83	12.13	2.4	83.99%	11.86	2.9	12.13	2.4	84.64%
9.03	4.51	12.12	2.8	83.33%	11.78	3.41	12.13	2.8	84.55%
8.97	4.88	12.11	3	83.00%	11.75	3.66	12.12	3	84.55%
24.22	0.246	12.14	0.4	81.50%	50.35	0.123	12.14	0.4	78.41%
24.18	0.487	12.14	0.8	82.48%	50.35	0.242	12.14	0.8	79.71%
24.15	0.729	12.14	1.2	82.75%	50.34	0.361	12.14	1.2	80.16%
24.08	0.969	12.14	1.6	83.25%	50.32	0.479	12.14	1.6	80.59%
24.05	1.21	12.14	2	83.43%	50.3	0.596	12.14	2	80.99%
24.01	1.45	12.13	2.4	83.62%	50.29	0.715	12.13	2.4	80.96%
24.01	1.69	12.13	2.8	83.70%	50.27	0.831	12.13	2.8	81.30%
24	1.81	12.13	3	83.77%	50.26	0.888	12.13	3	81.54%

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