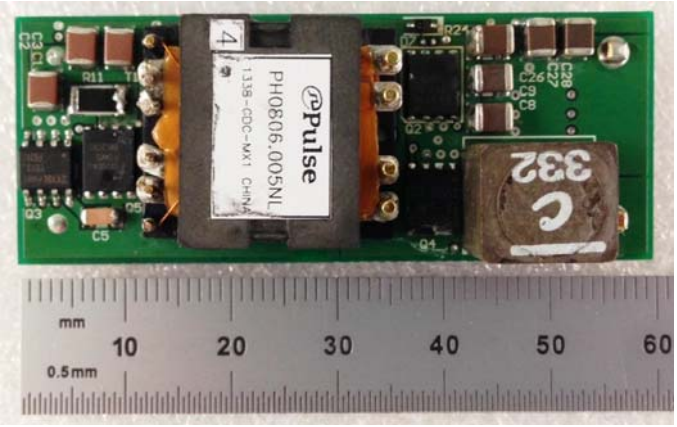
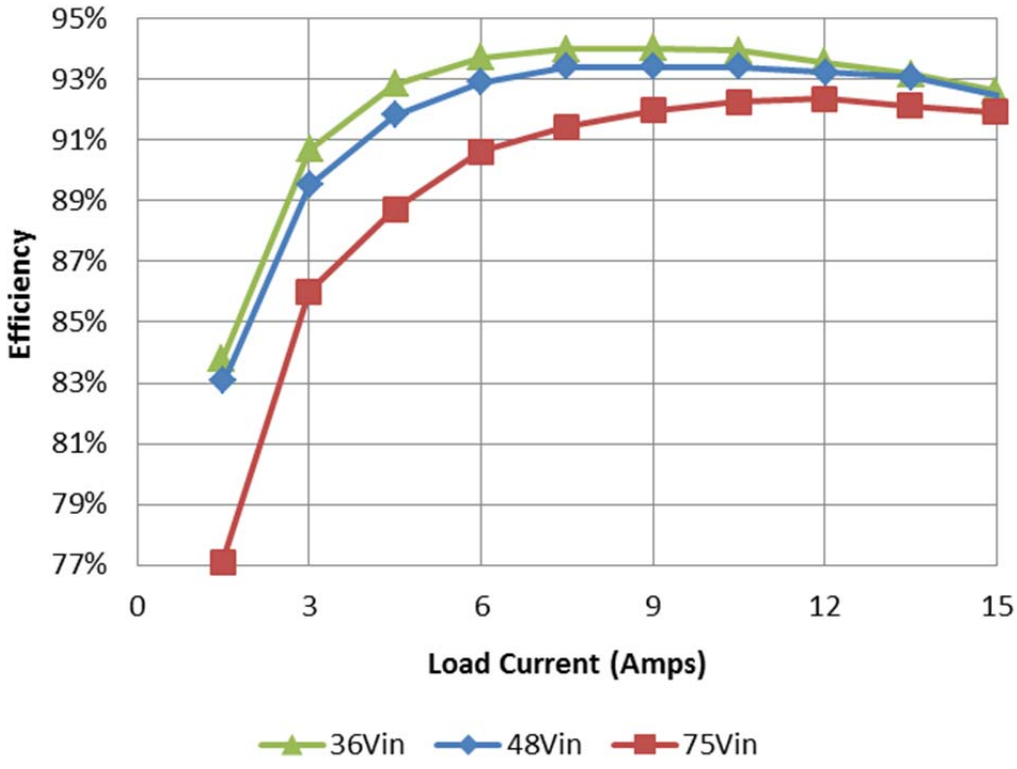
1 Photo

The photographs below show the top and bottom views of the PMP9126 Rev B demo board. The circuit is built on a PMP9126 Rev A PWB.



2 Efficiency



PMP9126 Rev B Test Results

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	5.13	36.0	0.040	0.00	1.440	0.0%
1.483	5.13	36.0	0.252	7.61	1.472	83.8%
3.010	5.13	36.0	0.473	15.44	1.587	90.7%
4.502	5.13	36.0	0.691	23.10	1.781	92.8%
5.997	5.13	36.0	0.912	30.76	2.067	93.7%
7.50	5.13	36.0	1.137	38.48	2.457	94.0%
9.00	5.13	36.0	1.364	46.17	2.934	94.0%
10.49	5.13	36.0	1.591	53.81	3.462	94.0%
12.00	5.12	36.0	1.824	61.44	4.224	93.6%
13.51	5.12	36.0	2.062	69.17	5.061	93.2%
14.99	5.12	36.0	2.302	76.75	6.123	92.6%

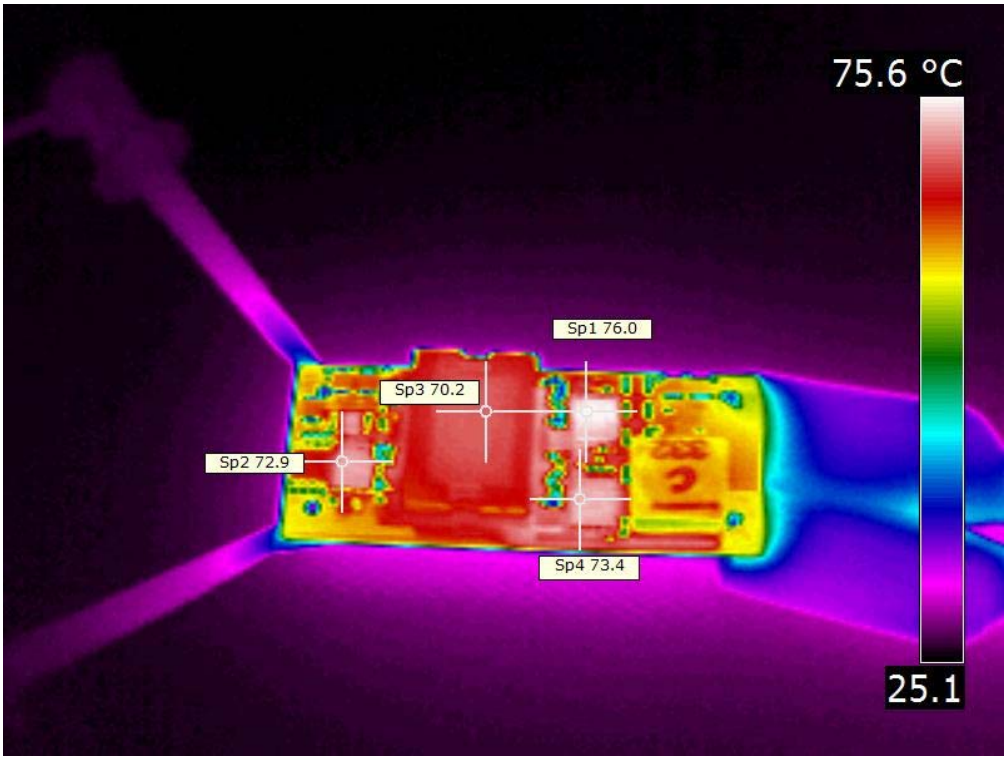
Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	5.13	48.0	0.034	0.00	1.632	0.0%
1.500	5.13	48.0	0.193	7.70	1.569	83.1%
3.007	5.13	48.0	0.359	15.43	1.806	89.5%
4.502	5.13	48.0	0.524	23.10	2.057	91.8%
5.998	5.13	48.0	0.690	30.77	2.350	92.9%
7.49	5.13	48.0	0.857	38.42	2.712	93.4%
9.01	5.12	48.0	1.029	46.13	3.261	93.4%
10.50	5.12	48.0	1.199	53.76	3.792	93.4%
12.01	5.12	48.0	1.374	61.49	4.461	93.2%
13.50	5.12	48.0	1.547	69.12	5.136	93.1%
15.01	5.11	48.0	1.728	76.70	6.243	92.5%

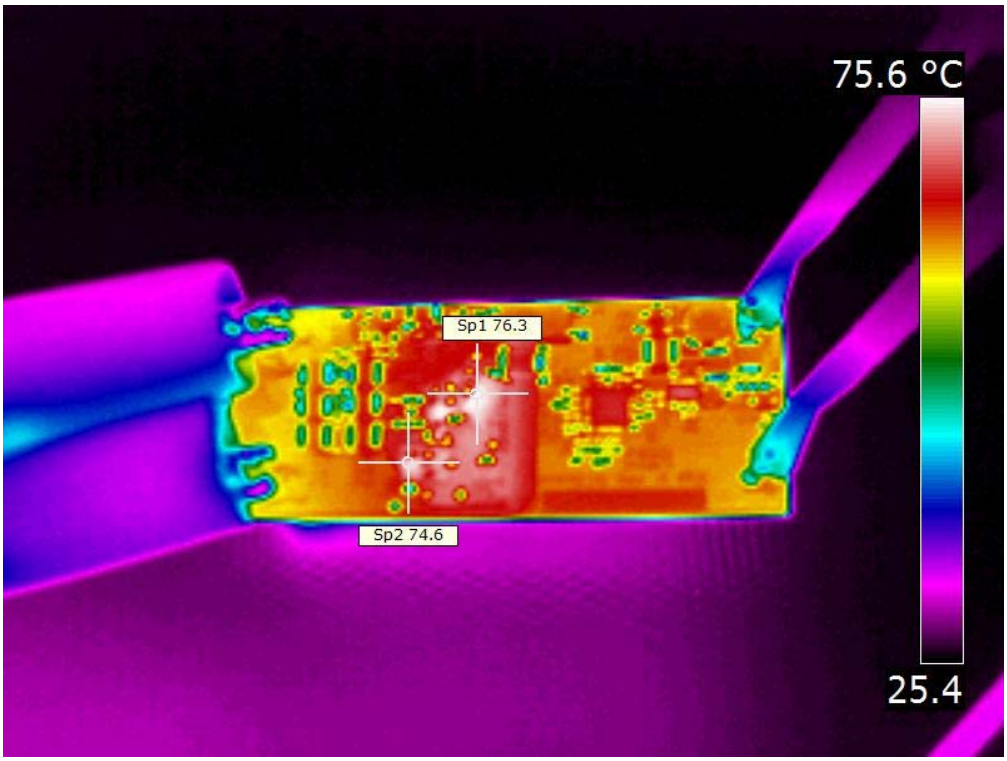
Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	5.13	75.0	0.029	0.00	2.175	0.0%
1.488	5.13	75.0	0.132	7.63	2.267	77.1%
3.005	5.13	75.0	0.239	15.42	2.509	86.0%
4.501	5.13	75.0	0.347	23.09	2.935	88.7%
6.001	5.13	75.0	0.453	30.79	3.190	90.6%
7.50	5.12	75.0	0.560	38.40	3.600	91.4%
9.00	5.12	75.0	0.668	46.08	4.020	92.0%
10.50	5.12	75.0	0.777	53.76	4.515	92.3%
12.00	5.12	75.0	0.887	61.44	5.085	92.4%
13.48	5.11	75.0	0.997	68.88	5.892	92.1%
14.99	5.11	75.0	1.111	76.60	6.726	91.9%

3 Thermal Images

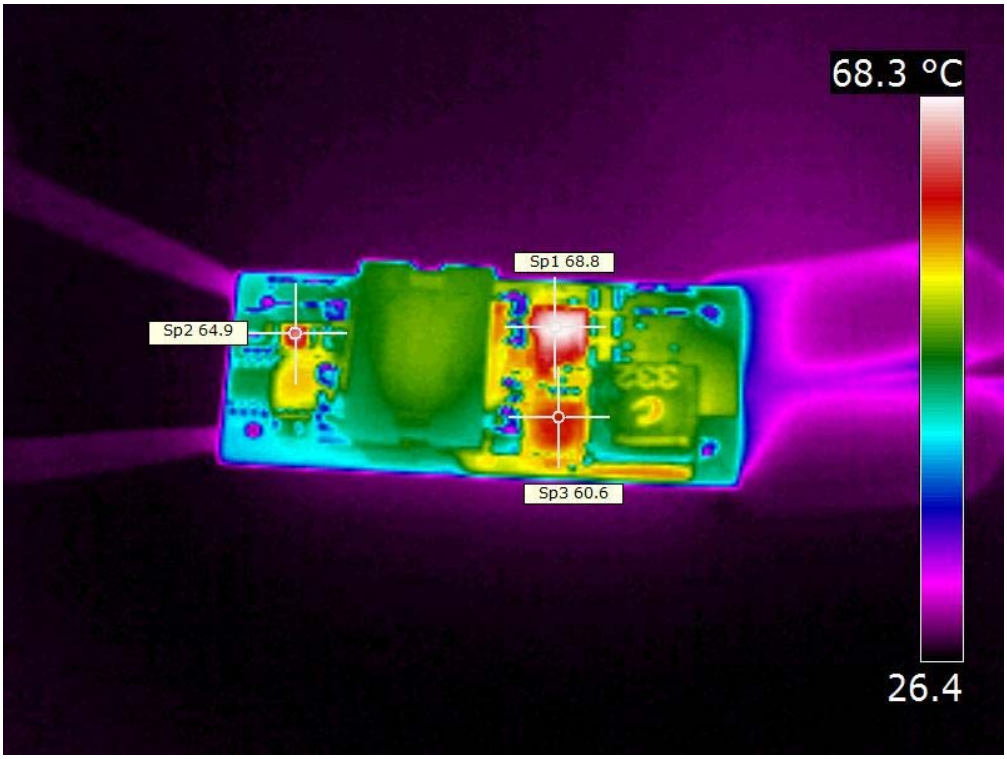
The ambient temperature was 25C. The input voltage was set to 48V.

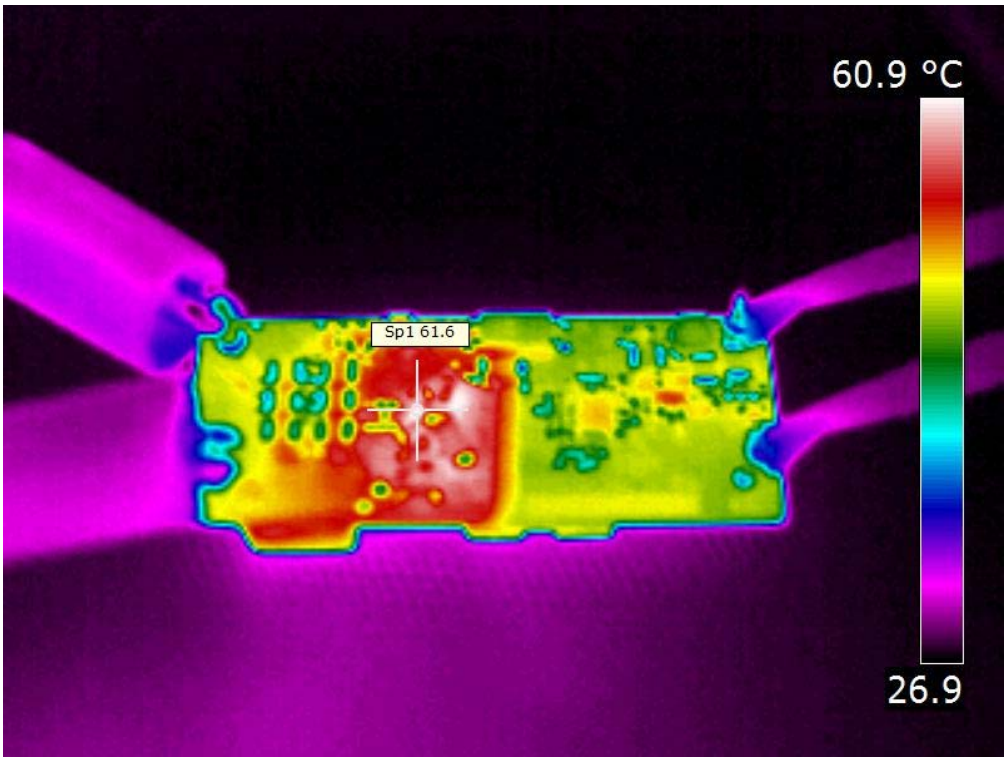
3.1 10A Load – No Forced Air



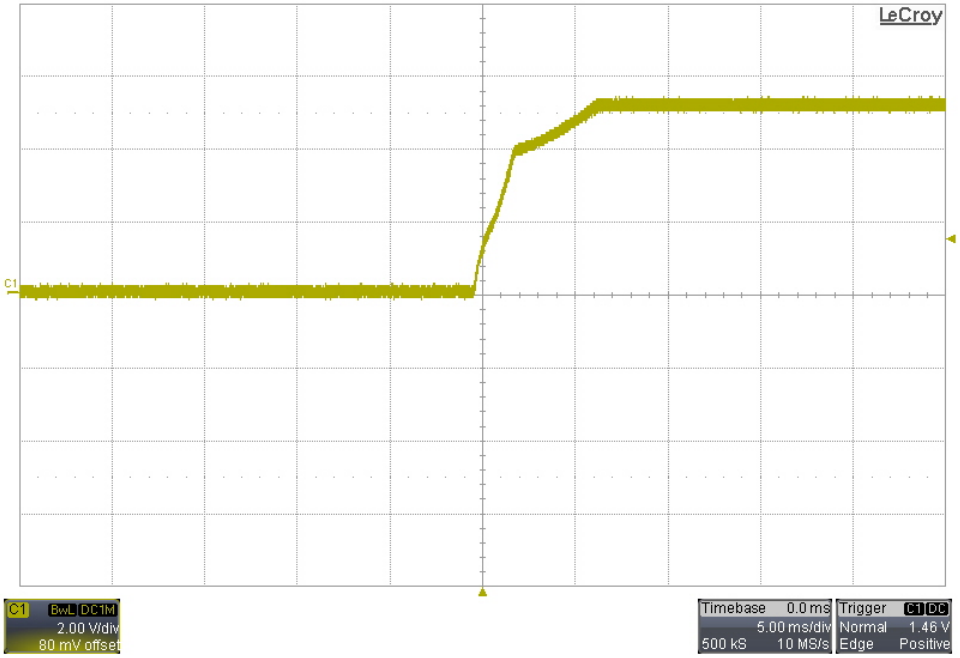


3.2 15A Load – 300 LFM

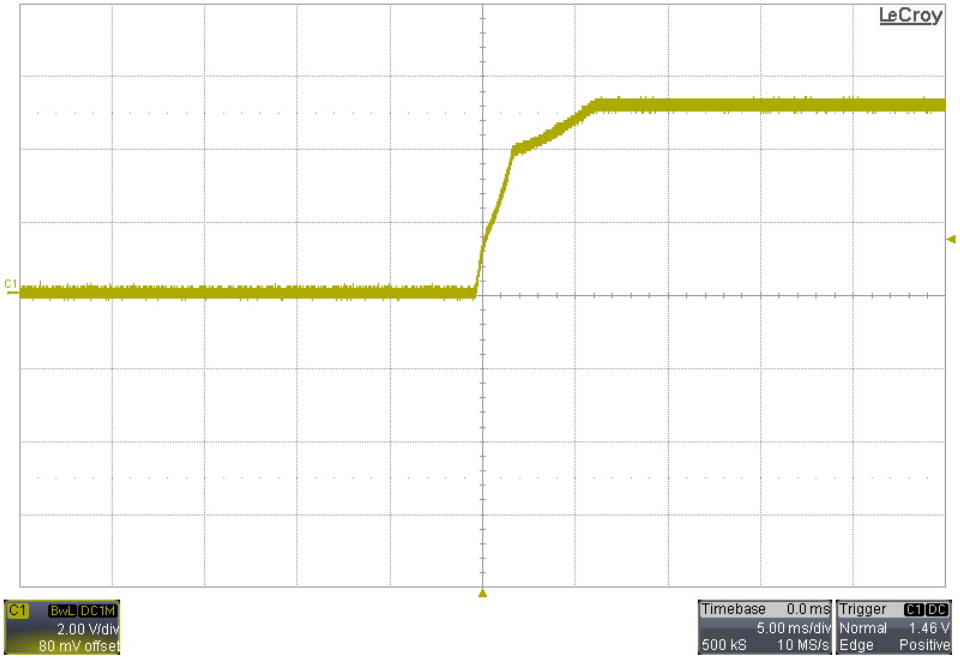




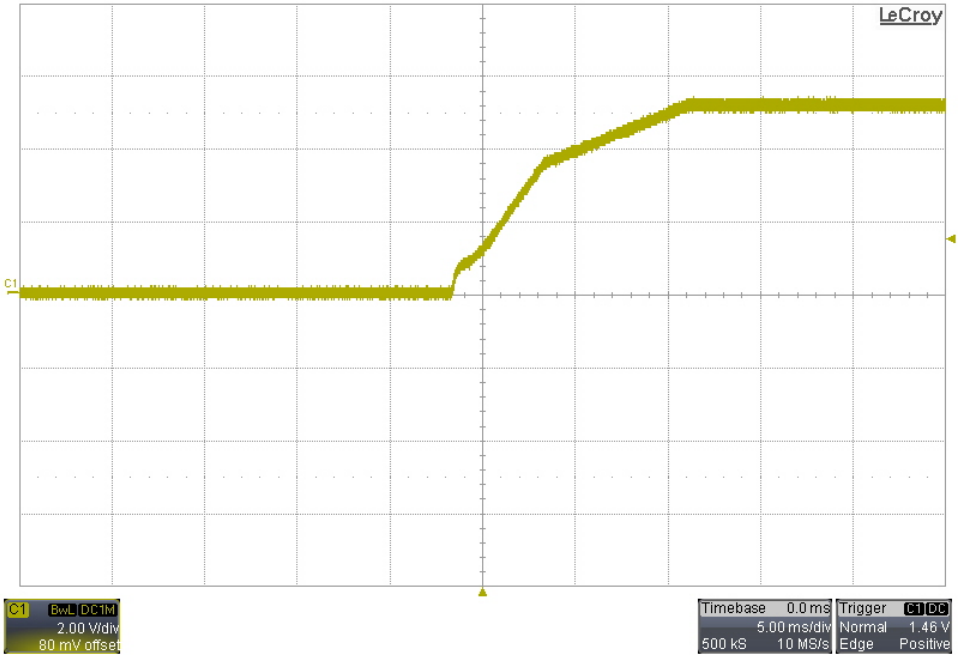
4 Startup – 36V Input, No Load



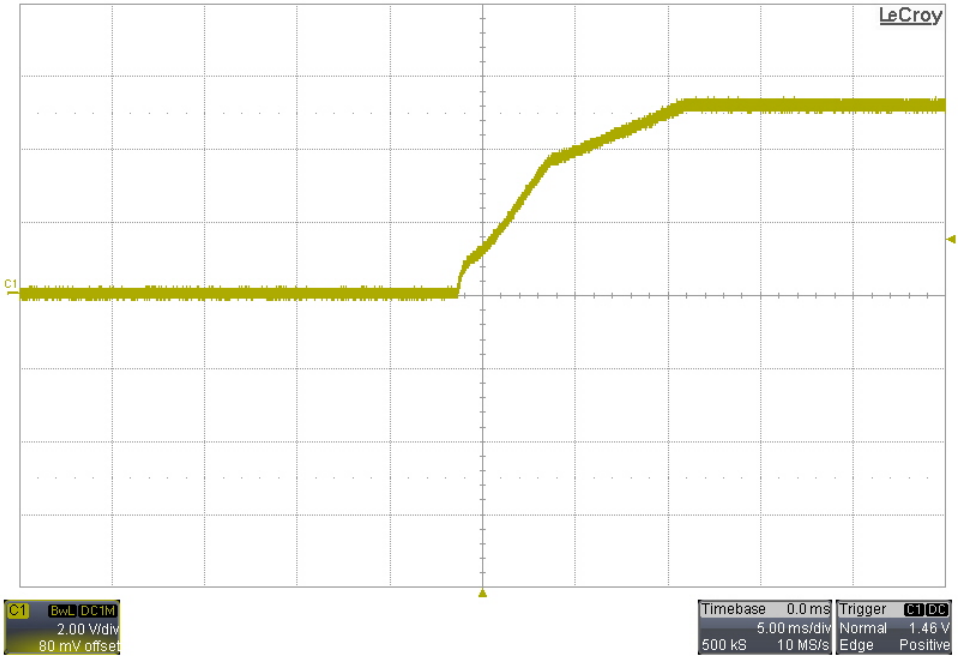
5 Startup – 75V Input, No Load



6 Startup – 36V Input, 0.33Ω Load



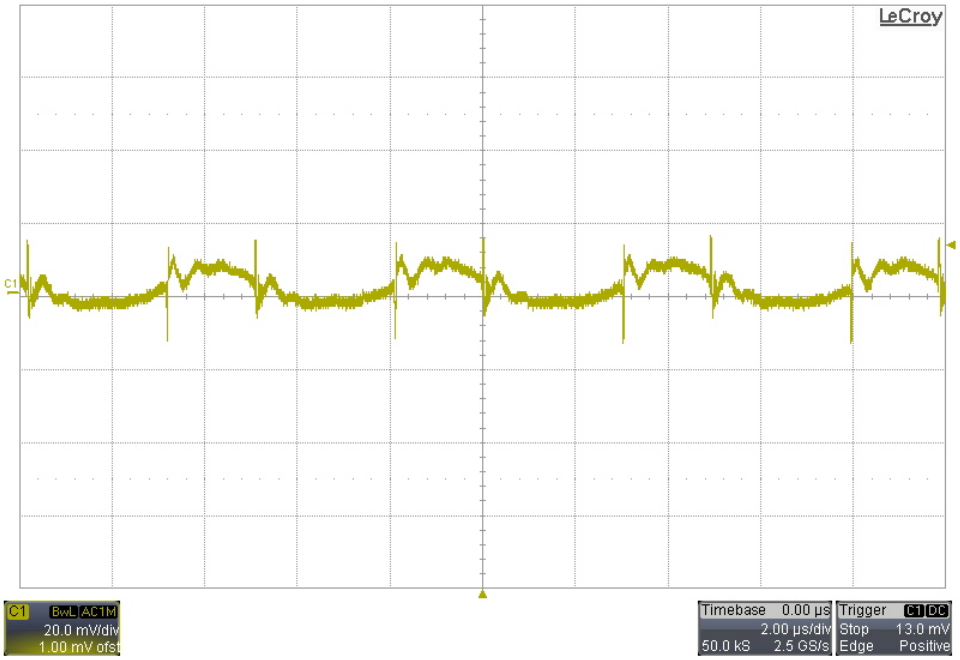
7 Startup – 75V Input, 0.33Ω Load



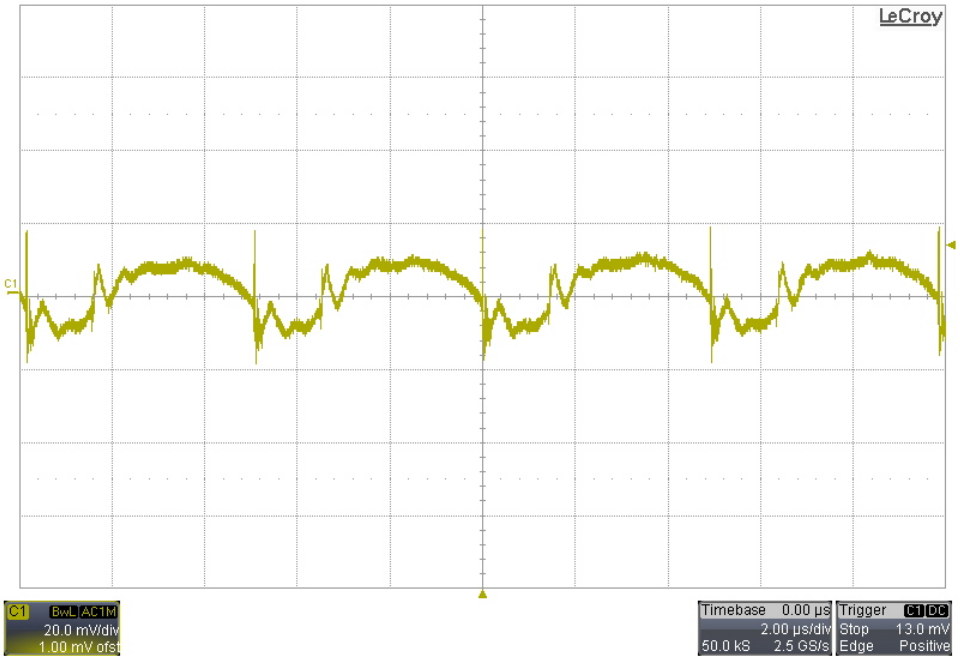
8 Output Ripple Voltage

The output ripple voltage is shown in the plots below. The output was loaded with 15A.

8.1 36V Input



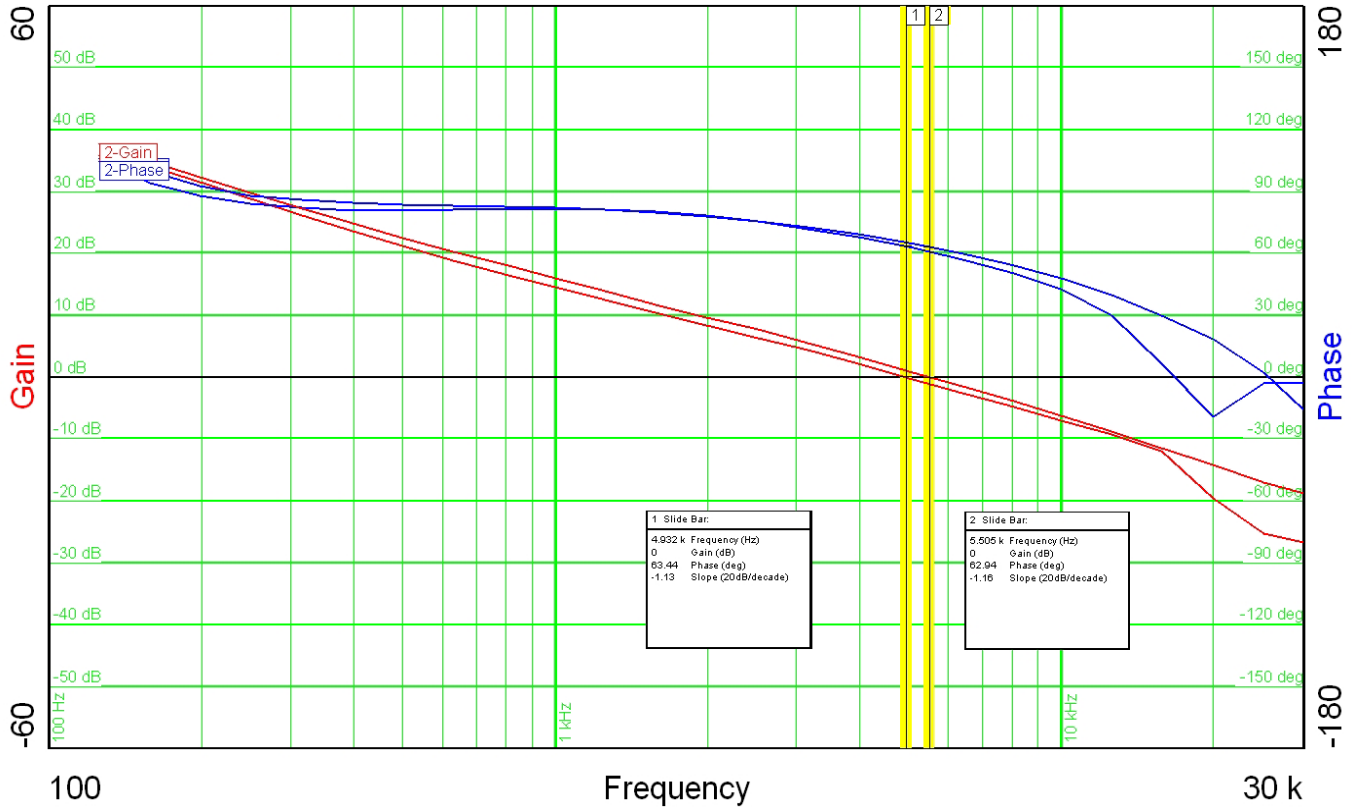
8.2 75V Input



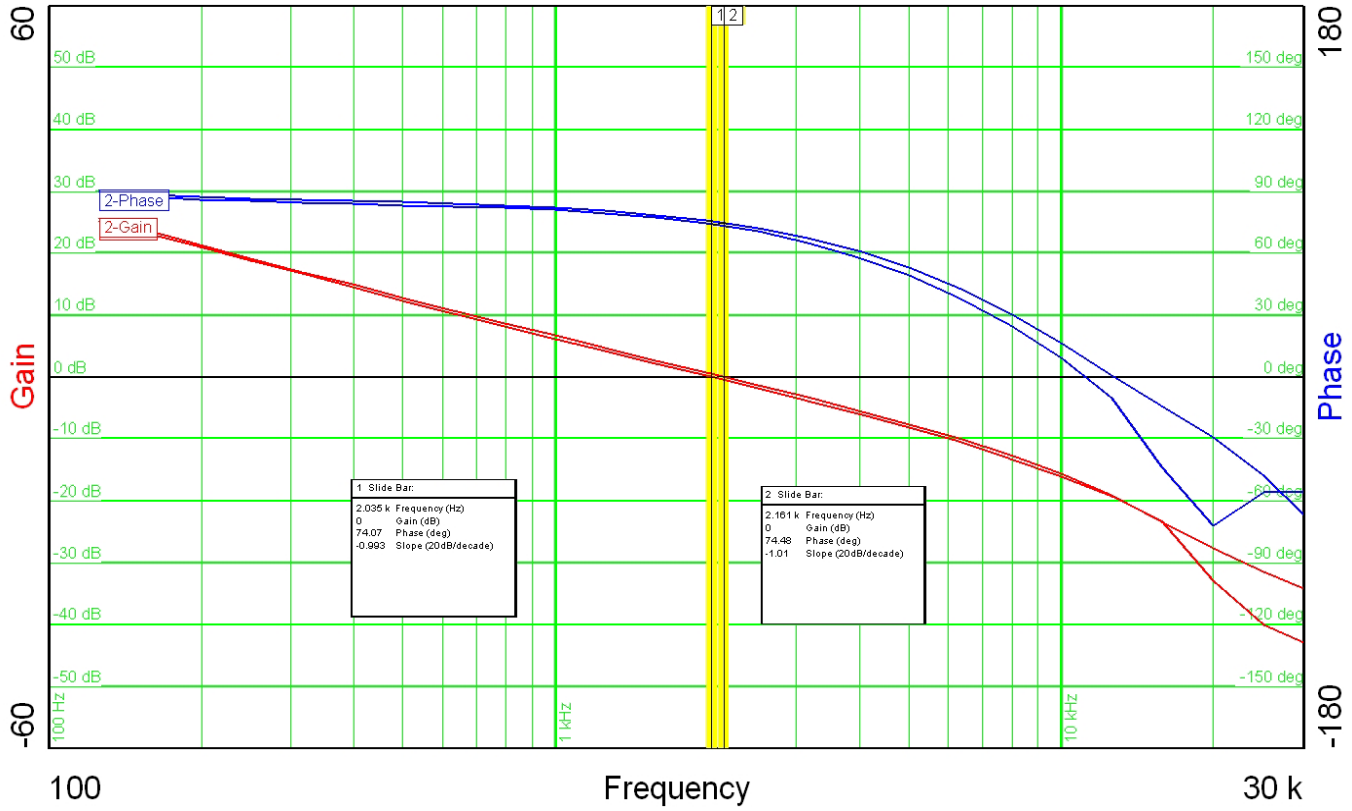
9 Frequency Response

The frequency response of the feedback loop is shown below. For the gain/phase plot #1, the input was set to 36V. For the gain/phase plot #2, the input was set to 75V. The output was loaded with 15A.

9.1 Measured Across R15



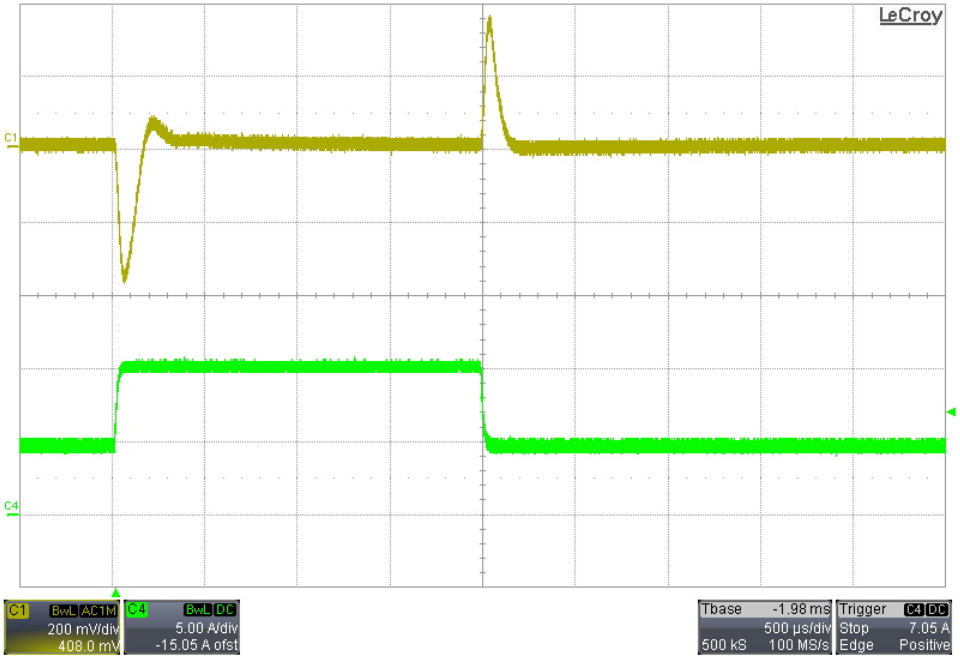
9.2 Measured Across R17



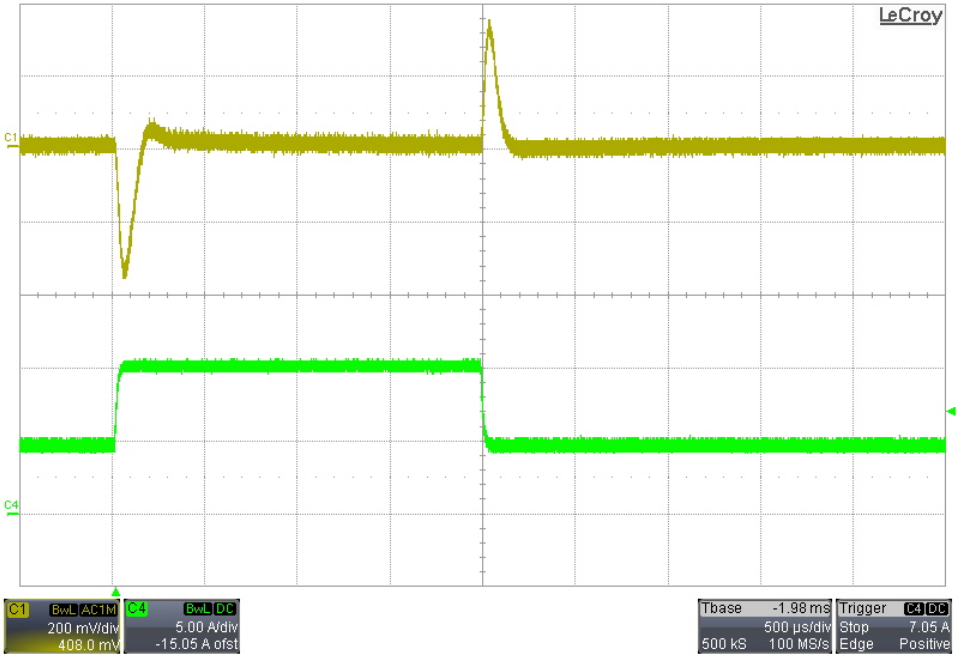
10 Load Transients

The response to a load step from 5A to 10A is shown in the images below. Channel 1: Vout (ac coupled); Channel 4: Iout

10.1 36V Input



10.2 75V Input



11 Input Under-Voltage Lock-Out

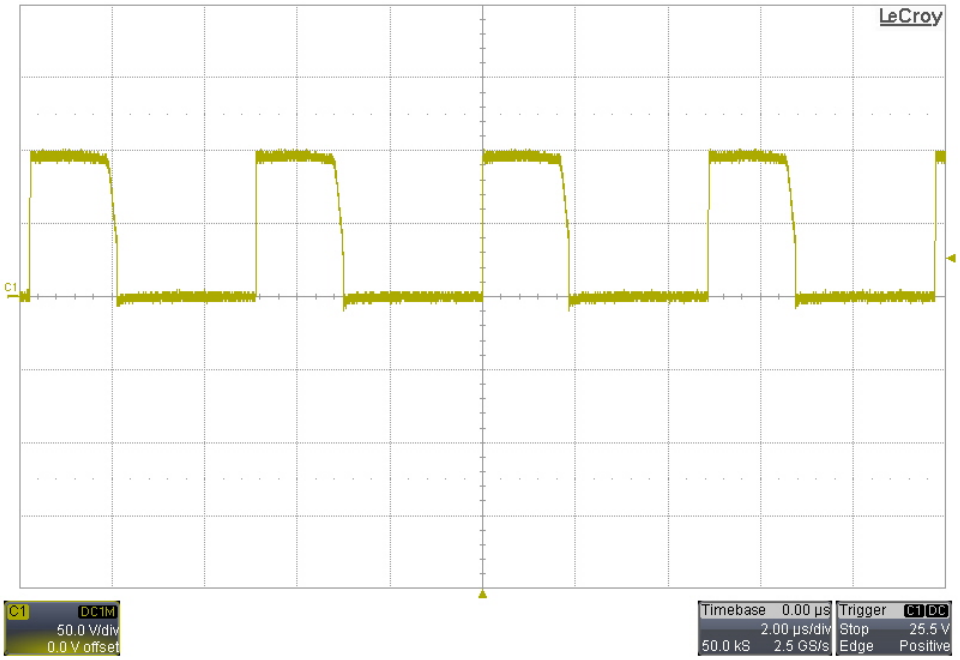
The turn-on and turn-off input voltages were measured and recorded below.

Turn-On	35.1 V
Turn-Off	34.6 V

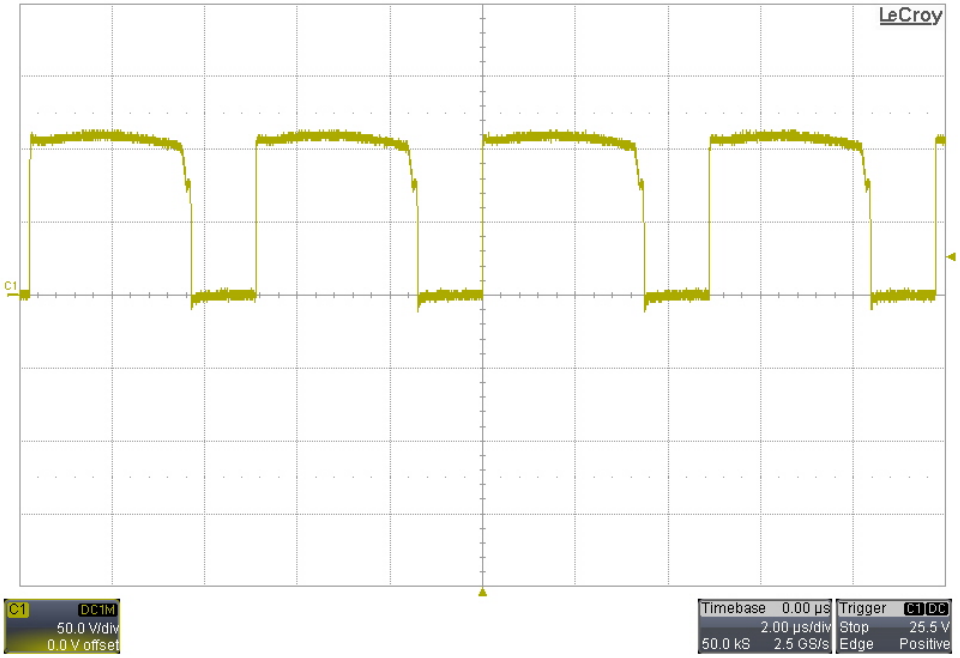
12 Switching Waveforms

For the images below show the output was loaded with 15A.

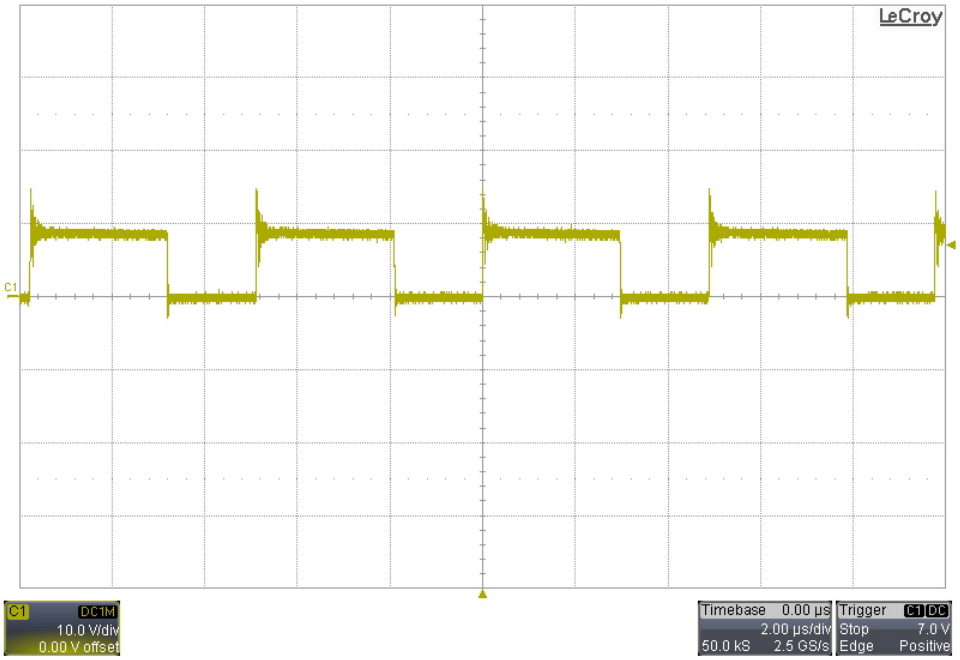
12.1 Primary FET (Q5) Vds – 36V Input



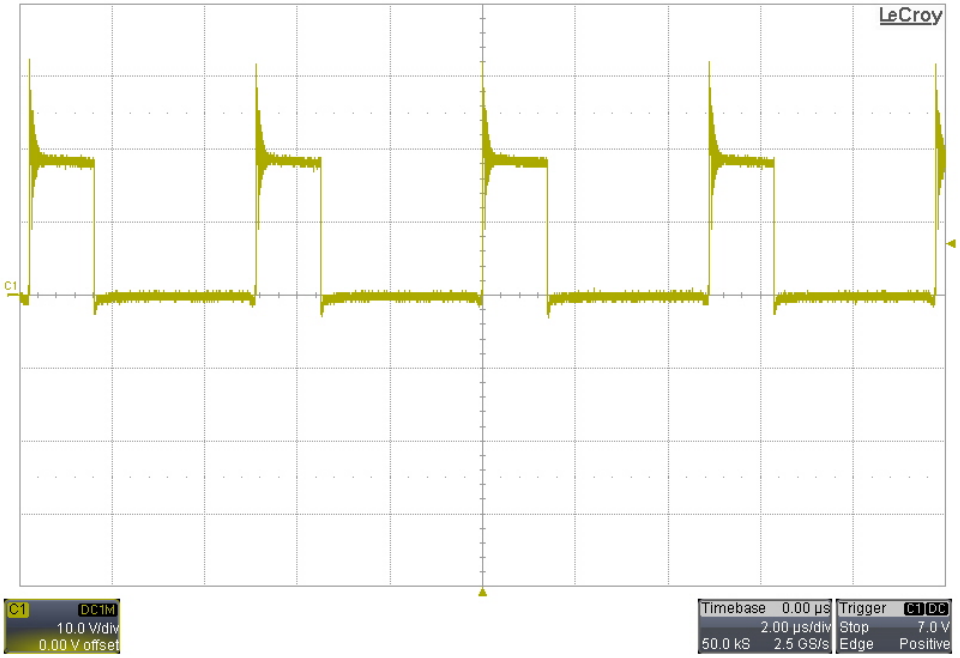
12.2 Primary FET (Q5) Vds – 75V Input



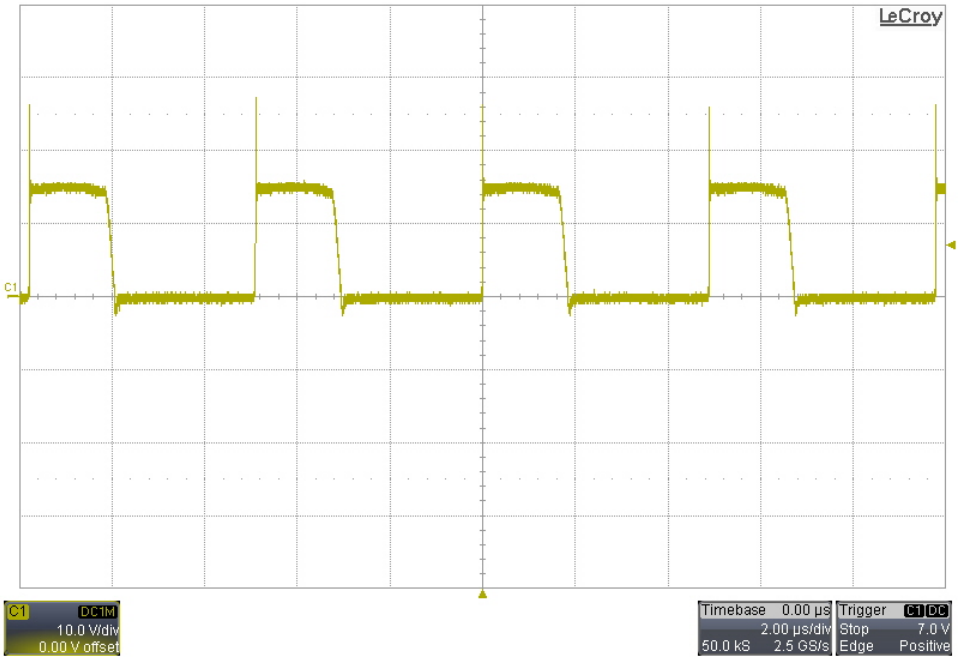
12.3 Q4 Synchronous FET Vds – 36V Input



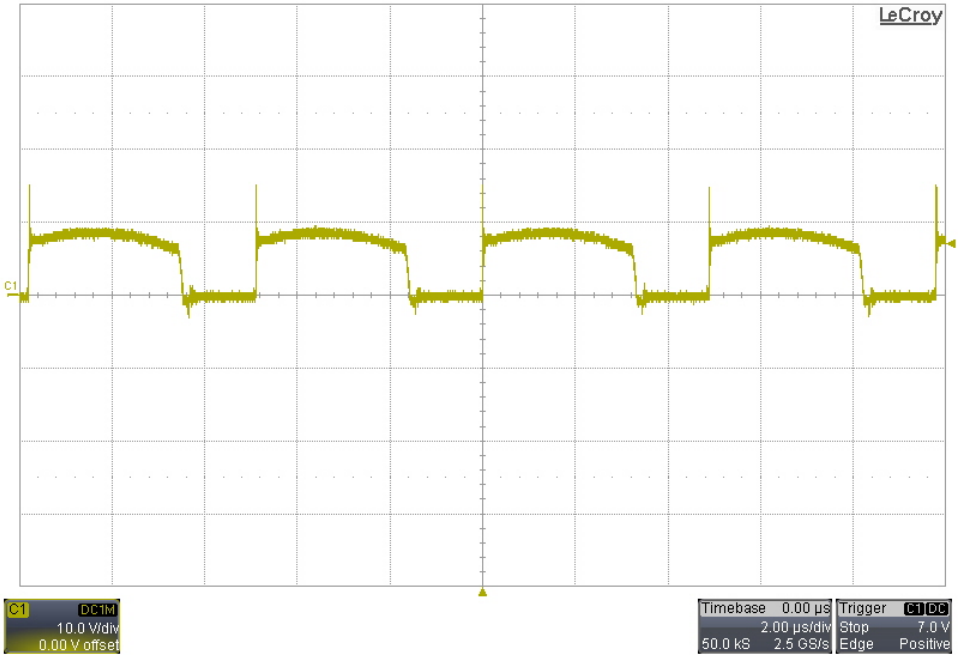
12.4 Q4 Synchronous FET – 75V Input



12.5 Q2 Synchronous FET – 36V Input



12.6 Q2 Synchronous FET – 75V Input



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