1   Photos

2   Efficiency

36Vin

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.0000	4.976	36.02	0.0351	0.00	1.264	0.0%
0.9946	4.975	36.00	0.1718	4.95	1.237	80.0%
2.001	4.974	36.01	0.3135	9.95	1.336	88.2%
2.998	4.973	36.01	0.4543	14.91	1.450	91.1%
3.999	4.971	35.99	0.5974	19.88	1.621	92.5%
5.006	4.970	36.00	0.7420	24.88	1.832	93.1%
5.995	4.968	36.01	0.8852	29.78	2.093	93.4%
7.012	4.967	36.01	1.0335	34.83	2.388	93.6%
8.019	4.965	35.99	1.1826	39.81	2.747	93.5%
9.031	4.963	36.00	1.3329	44.82	3.164	93.4%
10.036	4.960	36.01	1.4836	49.78	3.646	93.2%

48Vin

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.0000	4.968	48.02	0.0271	0.00	1.301	0.0%
0.9914	4.968	48.00	0.1292	4.93	1.276	79.4%
1.994	4.969	48.02	0.2377	9.91	1.506	86.8%
2.995	4.968	48.00	0.3455	14.88	1.705	89.7%
4.012	4.967	48.01	0.4544	19.93	1.888	91.3%
5.013	4.966	47.99	0.5627	24.89	2.109	92.2%
6.011	4.965	48.01	0.6712	29.84	2.380	92.6%
7.018	4.963	48.01	0.7810	34.83	2.665	92.9%
8.006	4.962	48.00	0.8904	39.73	3.013	92.9%
9.026	4.959	47.99	1.0043	44.76	3.436	92.9%
10.022	4.957	48.00	1.1160	49.68	3.889	92.7%

75Vin

| Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.0000	4.965	74.98	0.0231	0.00	1.732	0.0%
0.9932	4.966	75.01	0.0893	4.93	1.766	73.6%
2.002	4.966	75.01	0.1600	9.94	2.060	82.8%
3.014	4.966	75.02	0.2322	14.97	2.452	85.9%
4.001	4.965	75.01	0.3003	19.86	2.661	88.2%
5.008	4.963	75.00	0.3699	24.85	2.888	89.6%
6.011	4.962	75.02	0.4397	29.83	3.160	90.4%
7.009	4.960	75.00	0.5095	34.76	3.448	91.0%
8.021	4.958	75.00	0.5811	39.77	3.814	91.2%
9.036	4.956	75.01	0.6530	44.78	4.199	91.4%
10.036	4.953	75.00	0.7248	49.71	4.652	91.4%

3 Thermal

The thermal images below show the circuit board with a 48V input and 10A load. The ambient temperature was 25C and the air flow rate was approximately 200lfm (1m/s).
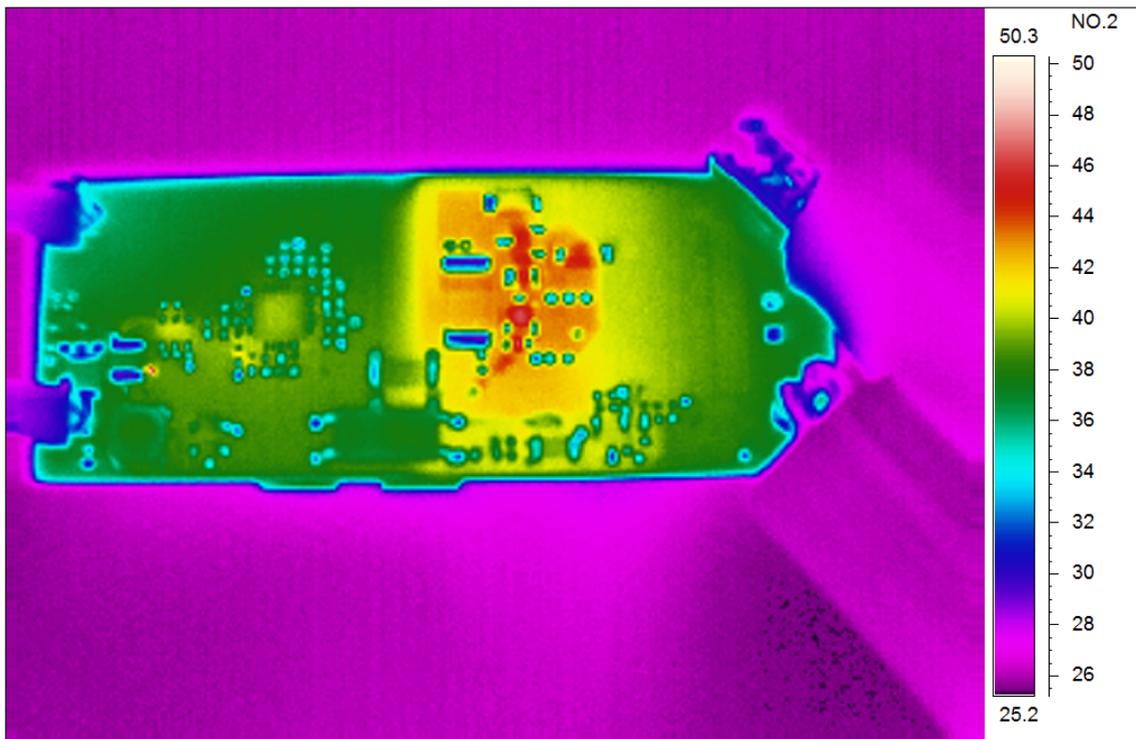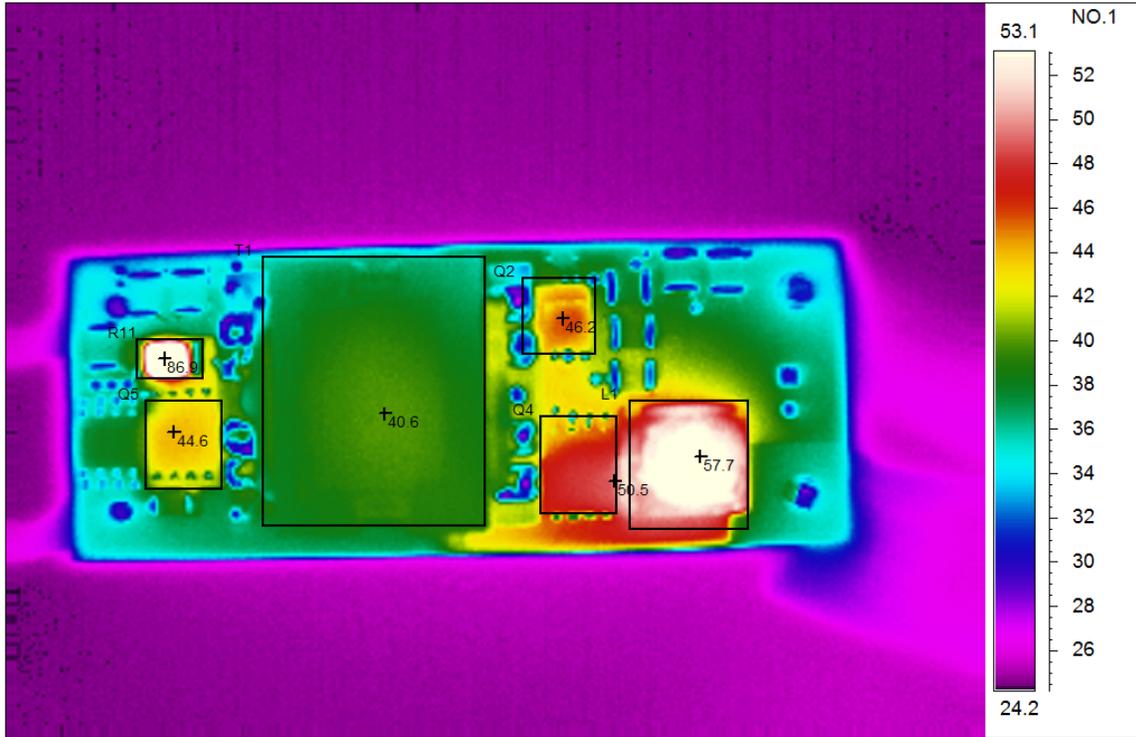
Area analysis	Value
R11 Max	86.9°C
Q5Max	44.6°C
L1Max	57.7°C
Q4Max	50.5°C
Q2 Max	46.2°C
T1 Max	40.6°C

NO.1

4 Startup

4.1 36V Input, No Load

Power Management Solutions
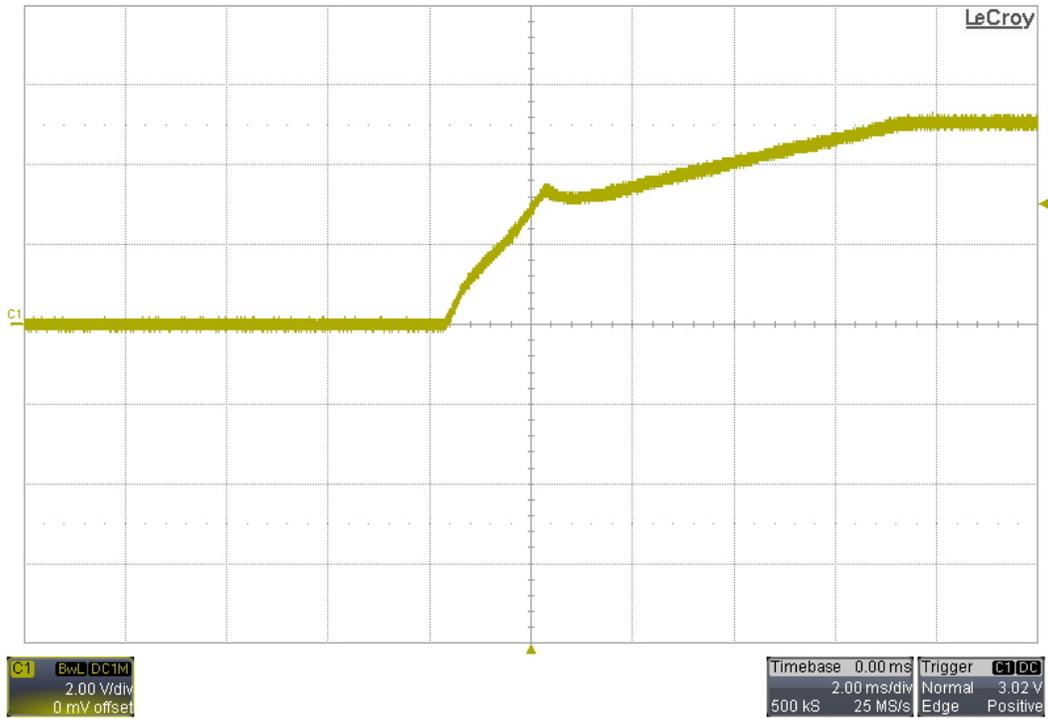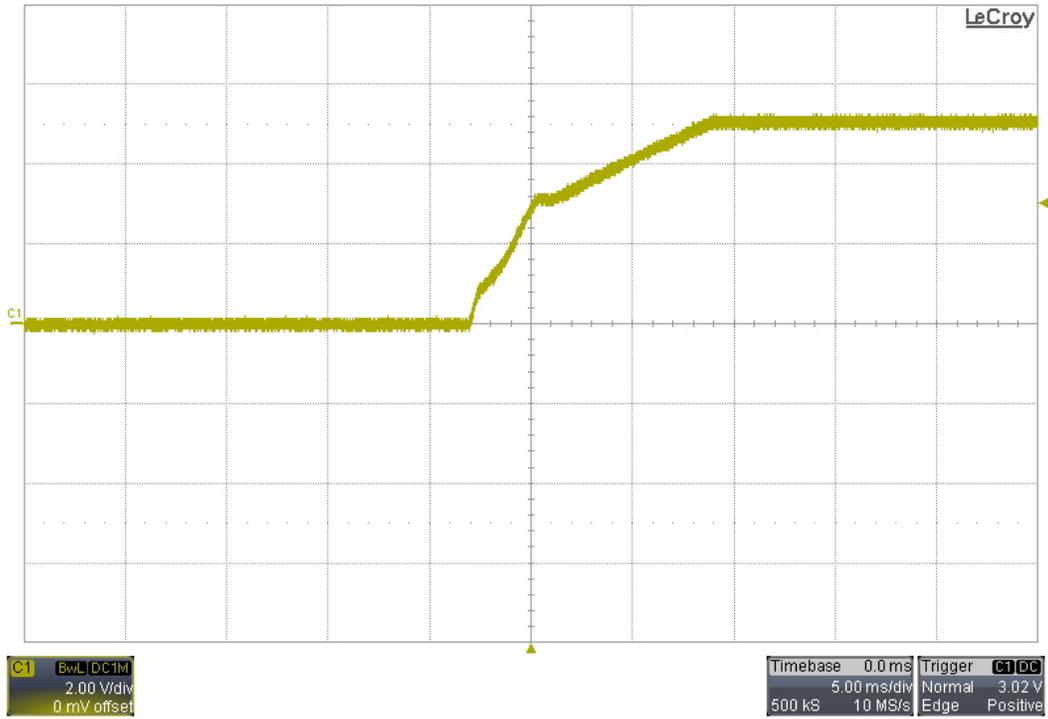
4.2   36V Input, 1Ω Load

4.3   75V Input, No Load
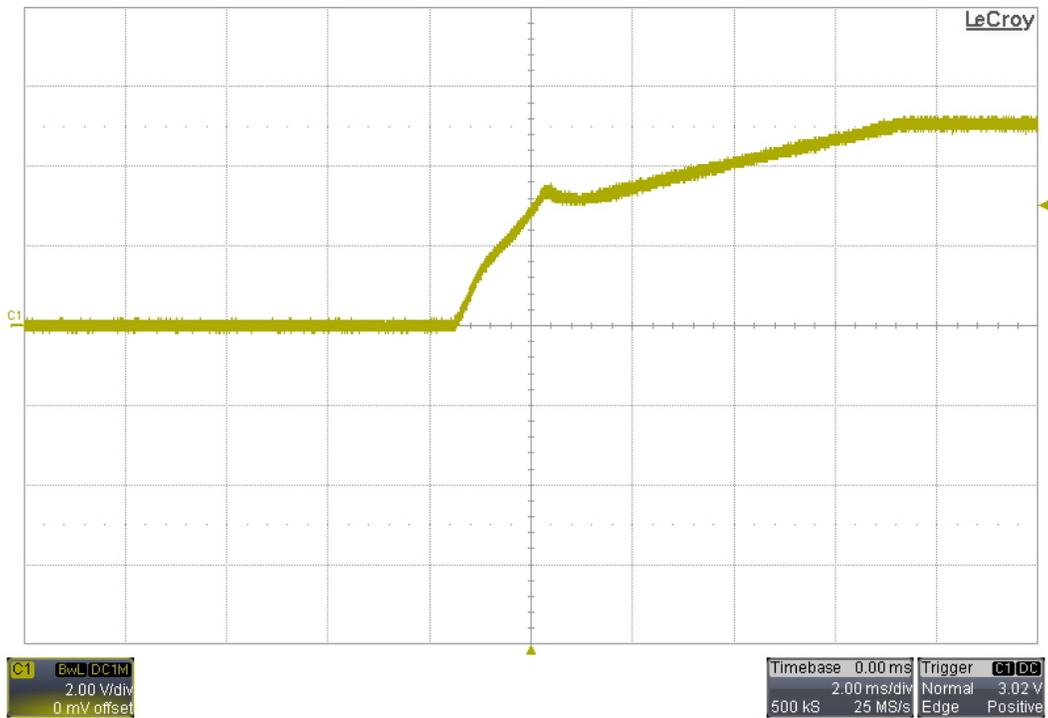
4.4 75V Input, 1Ω Load
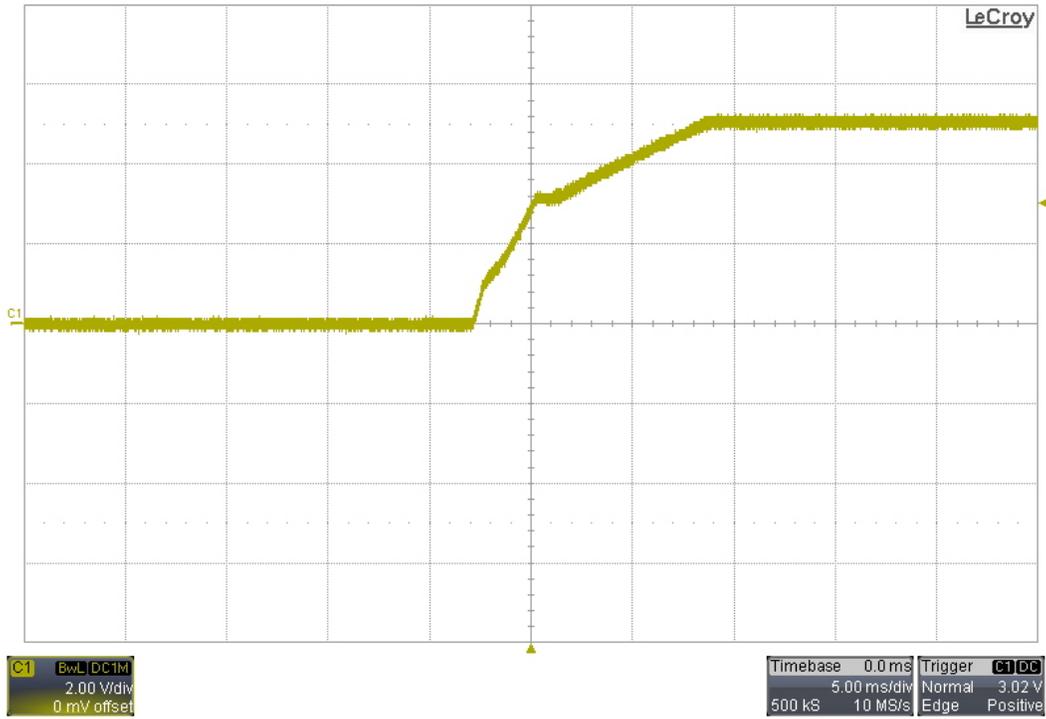
5 Output Ripple Voltage

5.1 36V Input, 10A Load
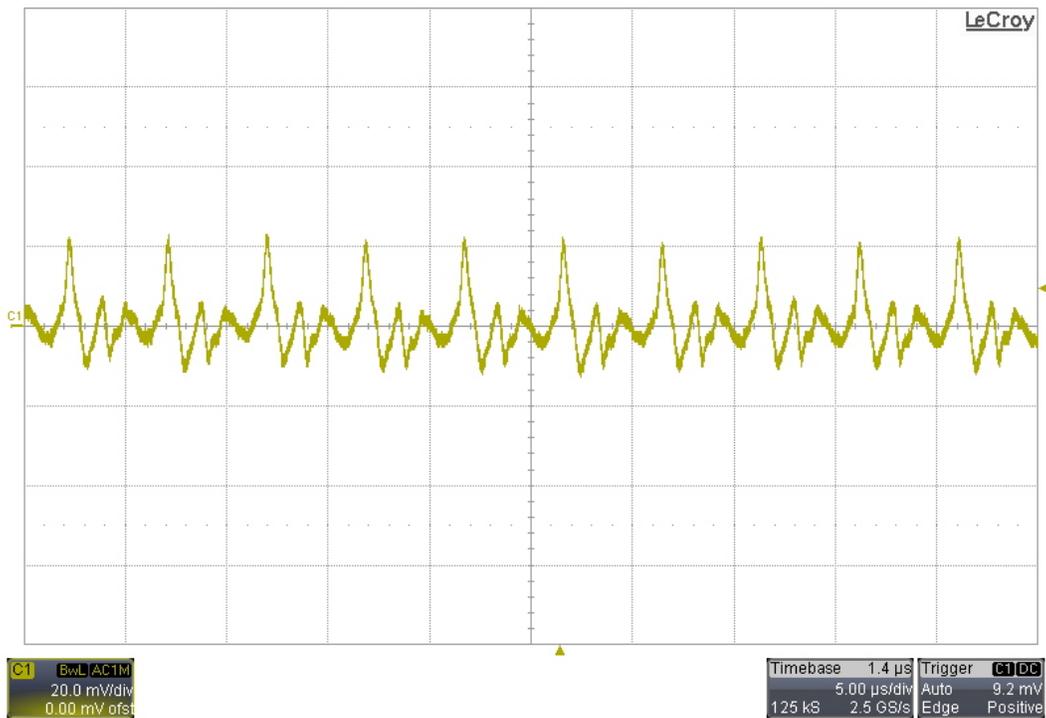
5.2   75V Input, 10A Load
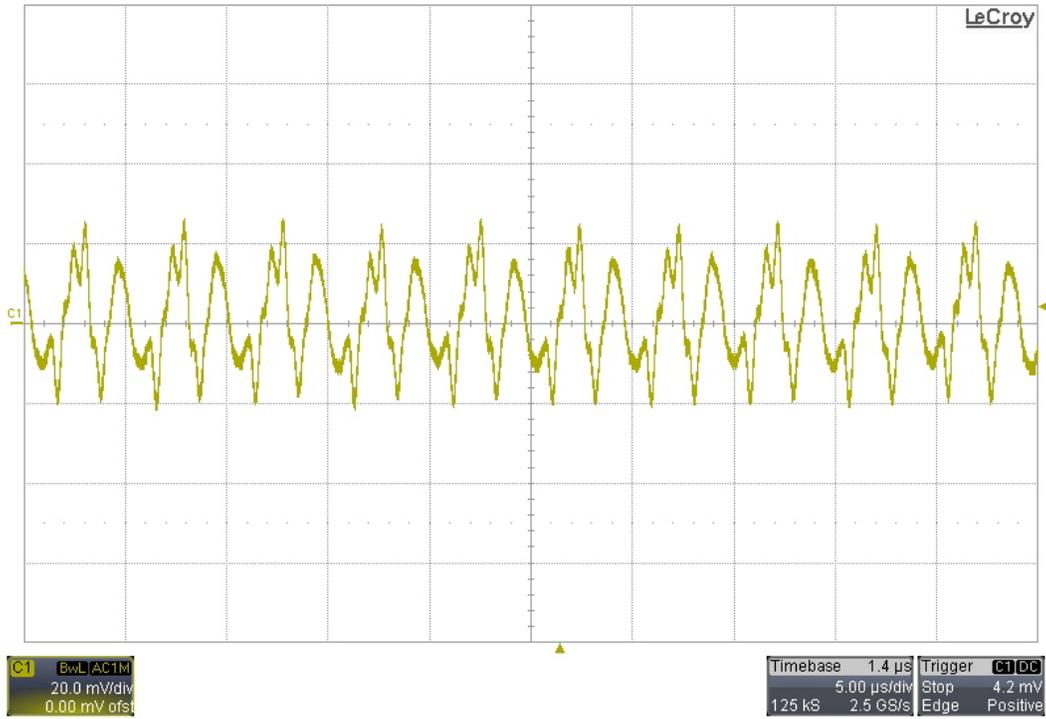
6   Frequency Response
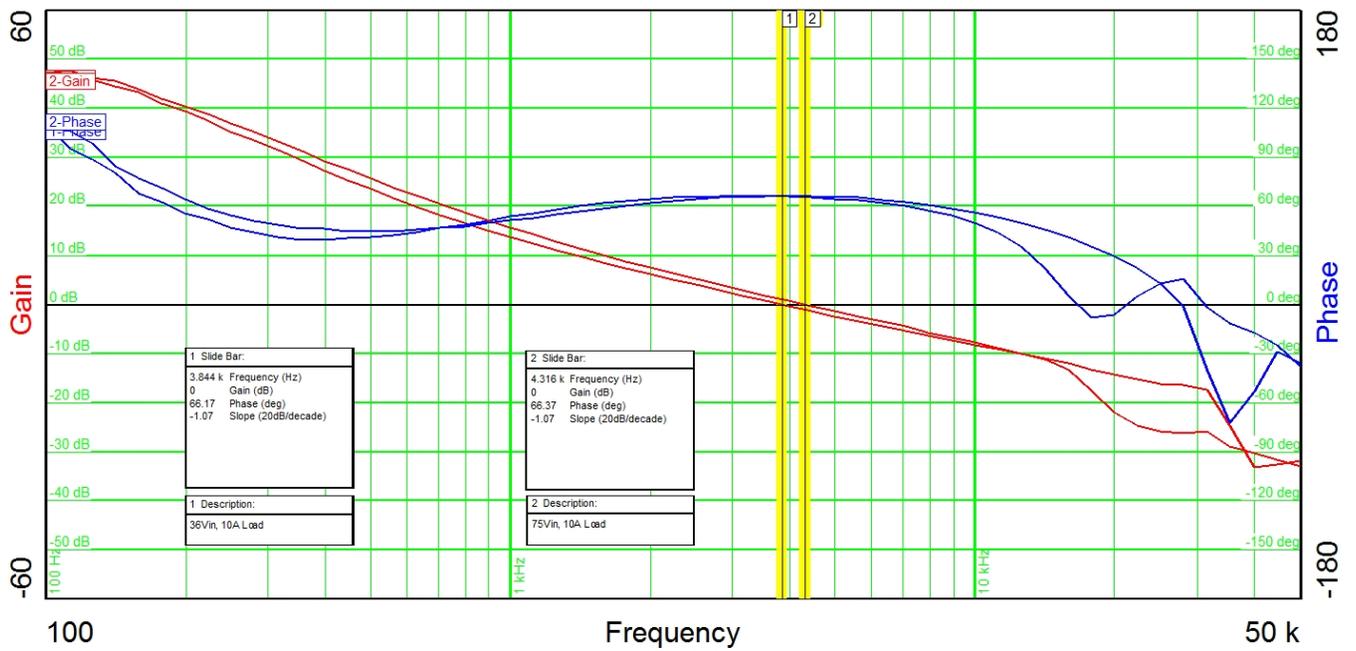
7 Load Transients

7.1 36V Input, 3.3A to 6.6A
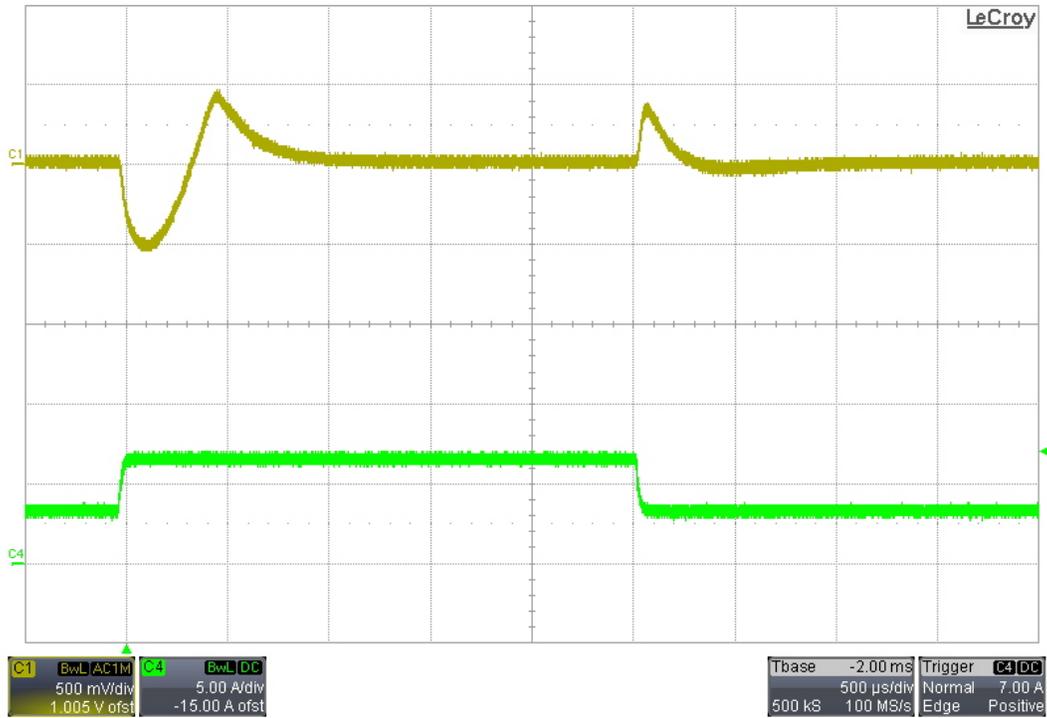
7.2 75V Input, 3.3A to 6.6A
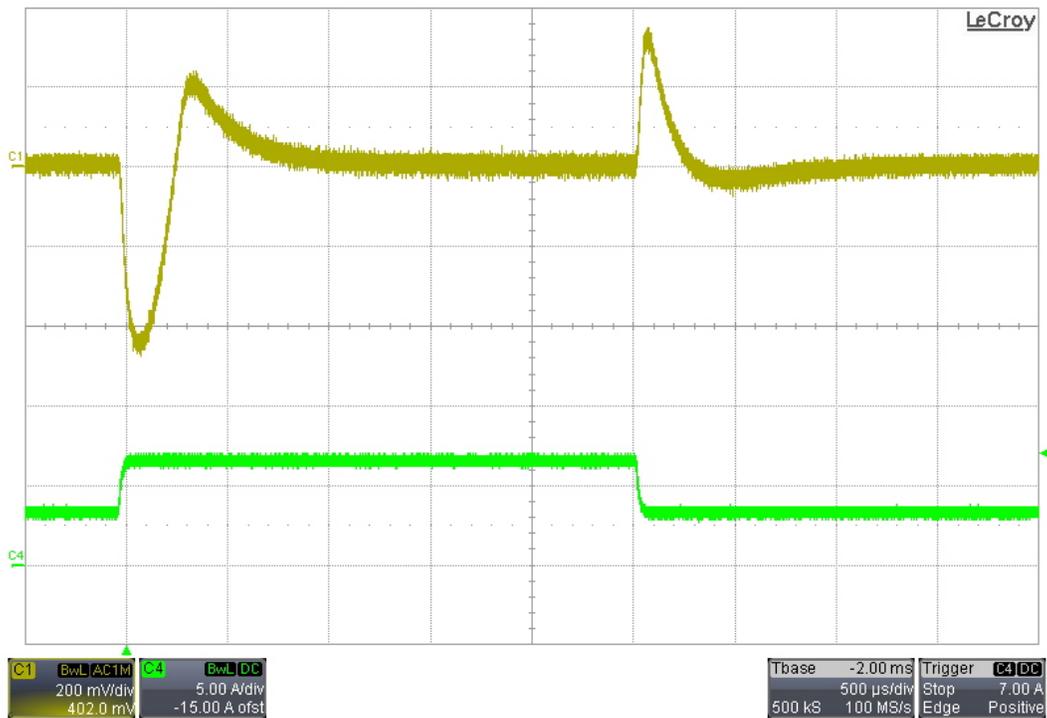
8 Shutdown

The output was unloaded.
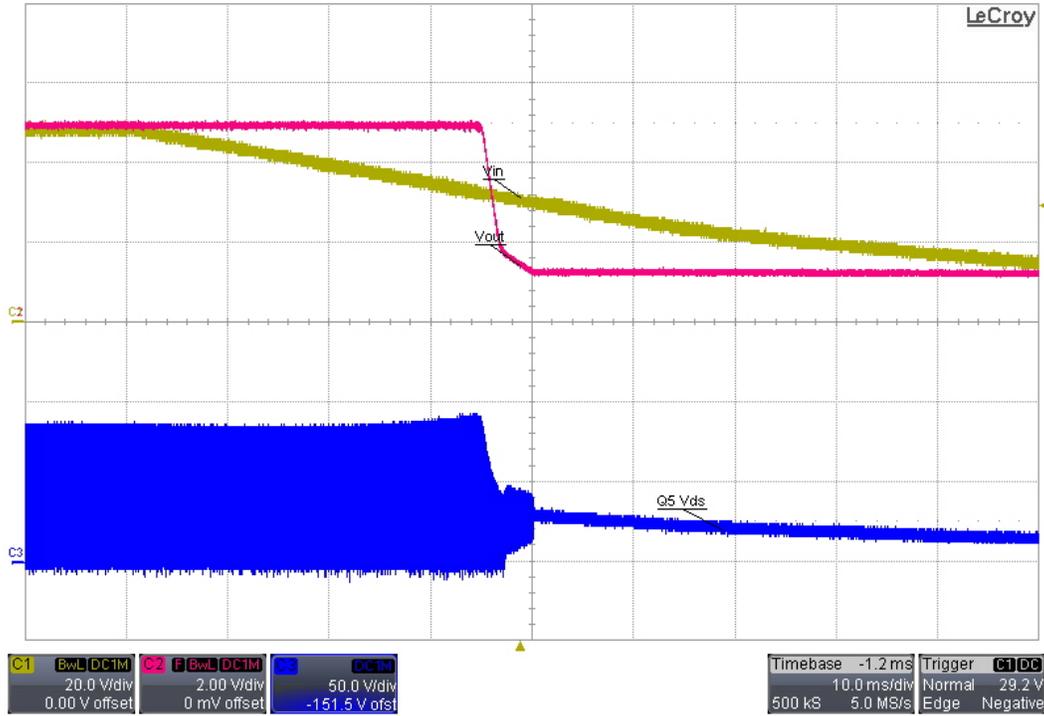
9 Switching Waveforms

9.1 Primary FET Vds (Q5) – 36Vin, 10A Load
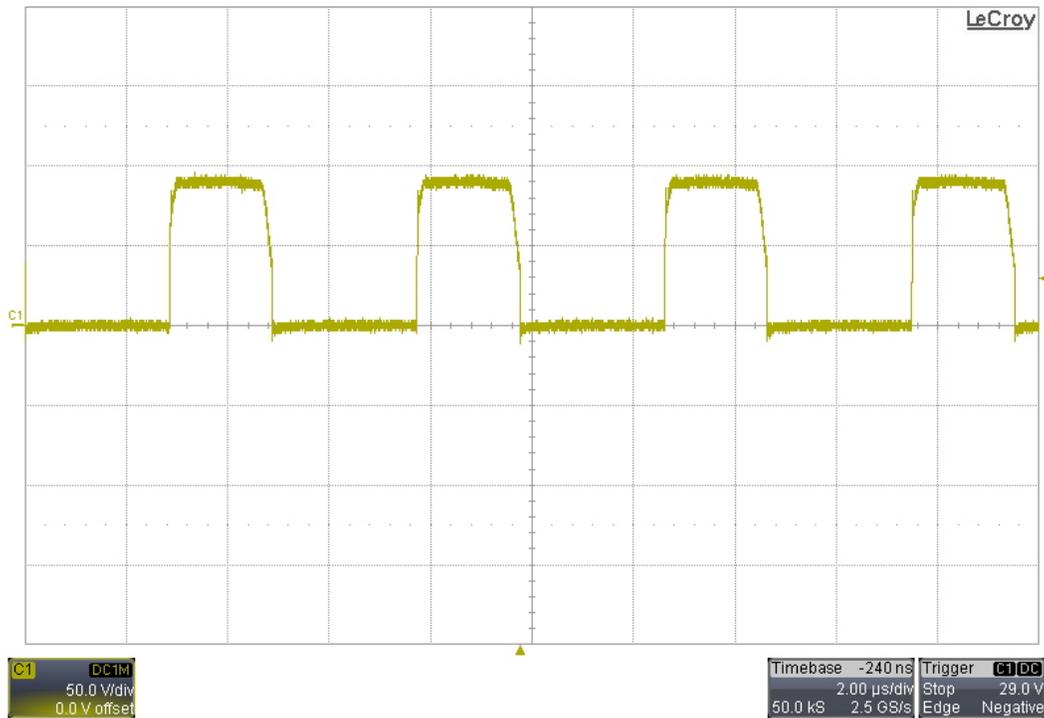
9.2 Primary FET Vds (Q5) – 75Vin, 10A Load
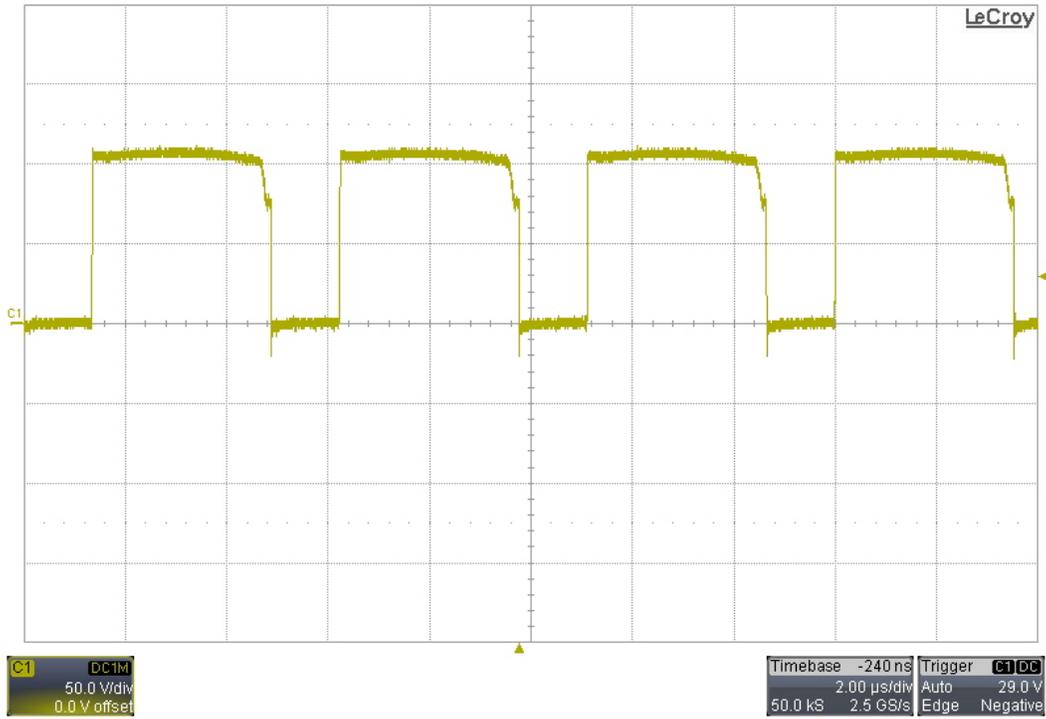
9.3 Sync FET Vds (Q2) – 36Vin, 10A Load
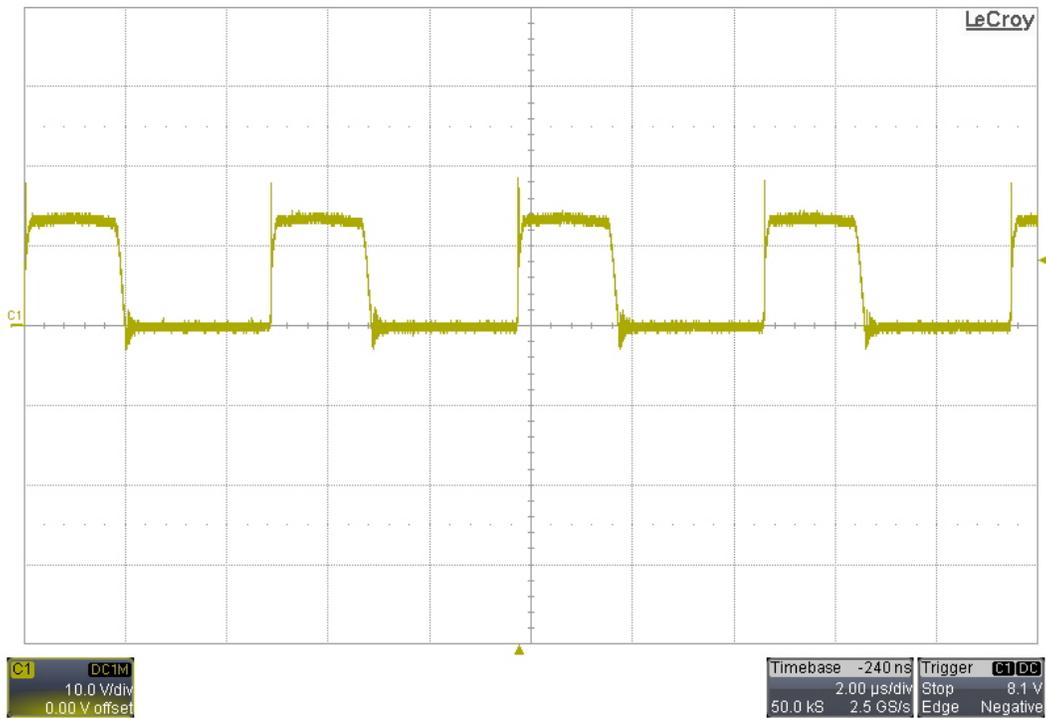
9.4   Sync FET Vds (Q2) – 75Vin, 10A Load
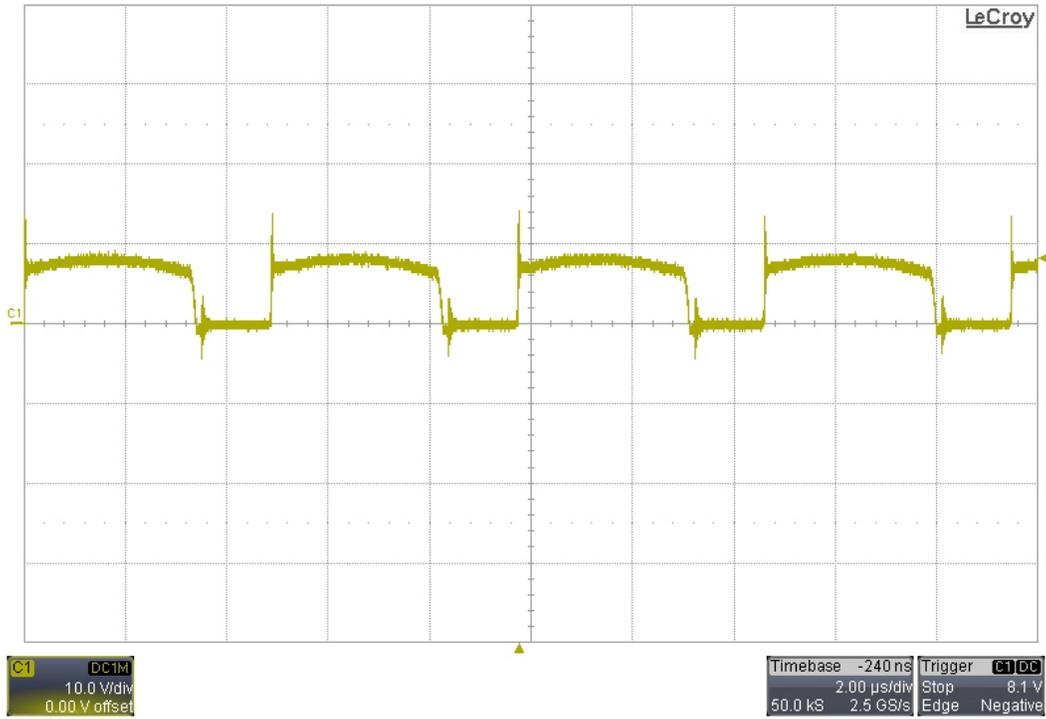
9.5   Sync FET Vds (Q4) – 36Vin, 10A Load
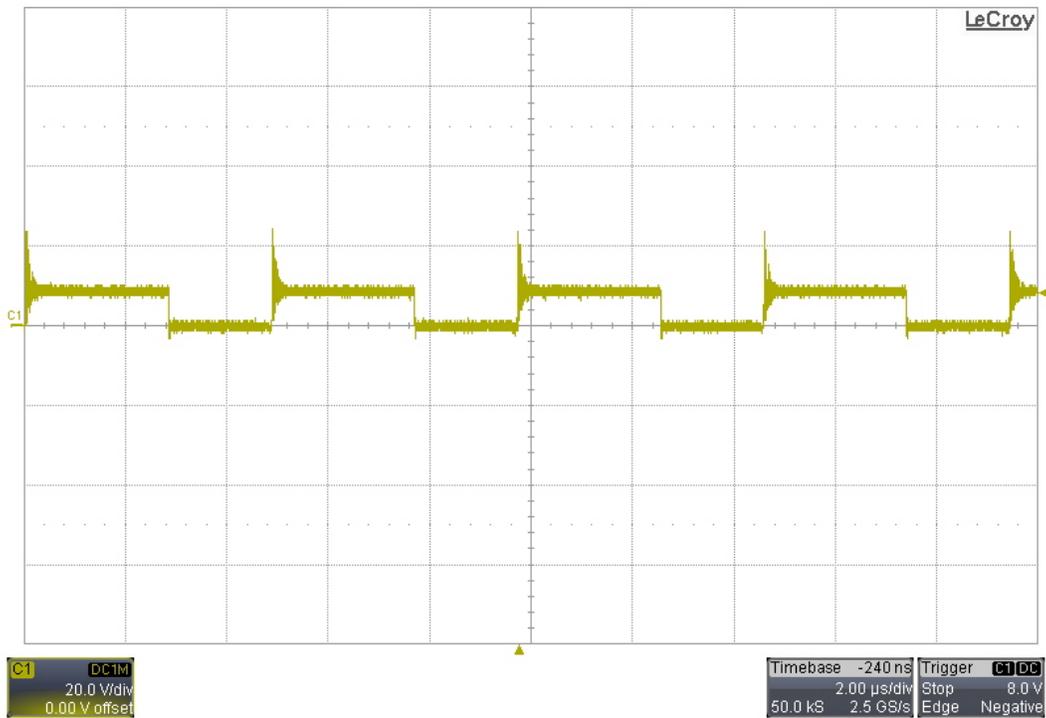
9.6 Sync FET Vds (Q4) – 75Vin, 10A Load
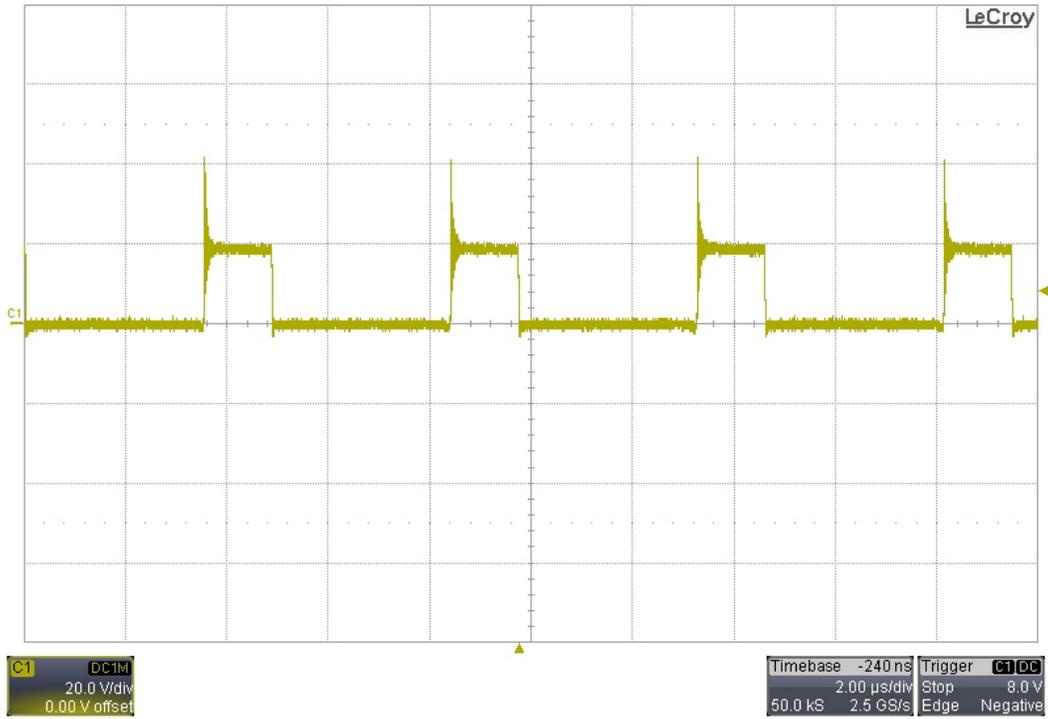
IMPORTANT NOTICE AND DISCLAIMER