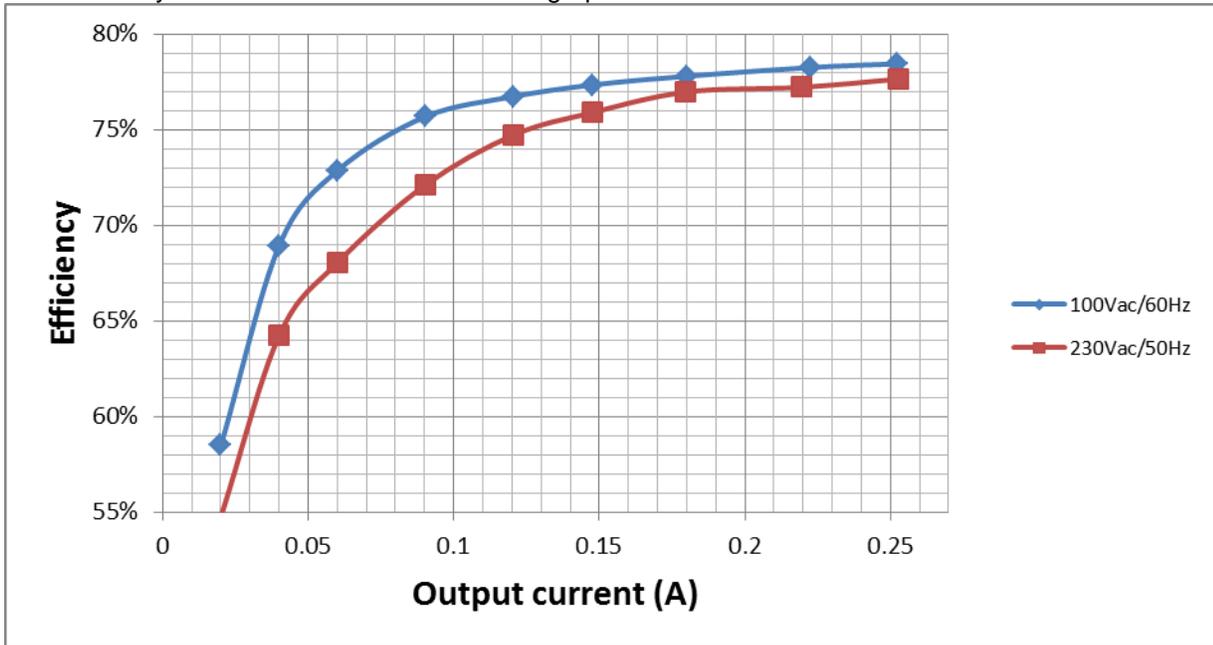




## 2 Converter Efficiency

The efficiency data is shown in the tables and graph below.



### $V_{in}=100V_{AC}/60Hz$

Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
100.06	88.72	4.825	14.99	0.2525	3.784975	1.040025	78.45%
100.08	80.14	4.27	15.01	0.2226	3.341226	0.928774	78.25%
100.11	67.94	3.48	15.04	0.18	2.7072	0.7728	77.79%
100.12	58.38	2.878	15.06	0.1478	2.225868	0.652132	77.34%
100.14	49.93	2.367	15.06	0.1206	1.816236	0.550764	76.73%
100.17	40.01	1.795	15.06	0.0902	1.358412	0.436588	75.68%
100.2	29.71	1.242	15.08	0.06	0.9048	0.3372	72.85%
100.19	22.45	0.877	15.1	0.04004	0.604604	0.272396	68.94%
100.21	14.514	0.5179	15.13	0.02002	0.302903	0.2149974	58.49%
100.23	3.622	0.11612	15.22	0	0	0.11612	0.00%

**V<sub>in</sub>=230V<sub>AC</sub>/50Hz**

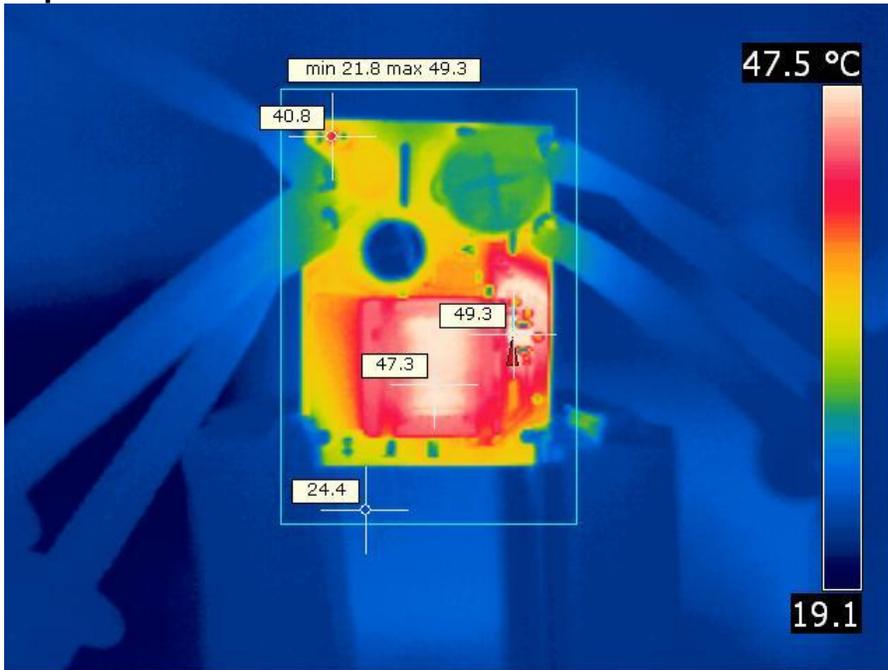
Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
229.9	53.52	4.884	15	0.2528	3.792	1.092	77.64%
229.9	48.19	4.263	15.01	0.2193	3.291693	0.971307	77.22%
230	41.48	3.511	15.03	0.1798	2.702394	0.808606	76.97%
230	35.78	2.927	15.04	0.1477	2.221408	0.705592	75.89%
230	30.71	2.429	15.05	0.1206	1.81503	0.61397	74.72%
230	24.6	1.884	15.06	0.0902	1.358412	0.525588	72.10%
230	18.132	1.331	15.09	0.06001	0.905551	0.4254491	68.04%
230	13.167	0.946	15.16	0.04009	0.607764	0.3382356	64.25%
230	7.953	0.5566	15.19	0.02007	0.304863	0.2517367	54.77%
230	2.206	0.15953	15.2	0	0	0.15953	0.00%

## 3 Thermal Images

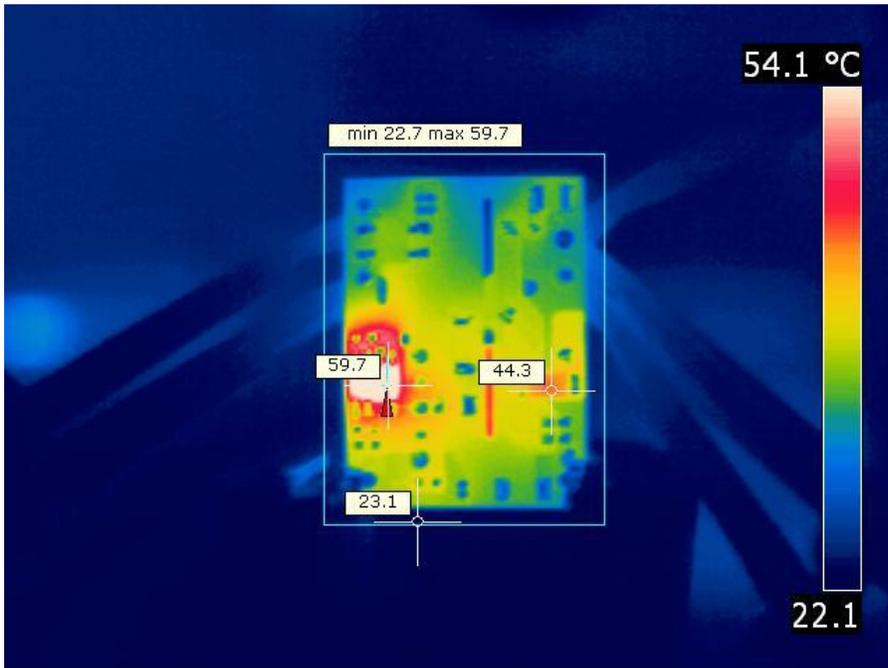
The thermal images below show a top view and bottom view of the board. The ambient temperature was 20°C with no forced air flow. The output was at full load: 15V/0.25A (with a 75ohm resistive load).

**V<sub>in</sub>=100V<sub>AC</sub>/60Hz**

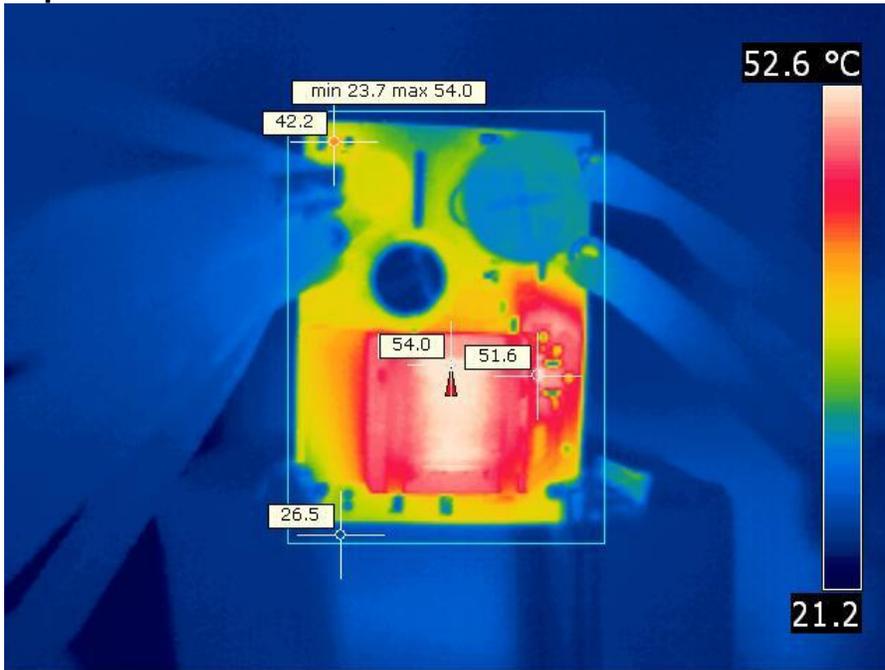
**Top Side**



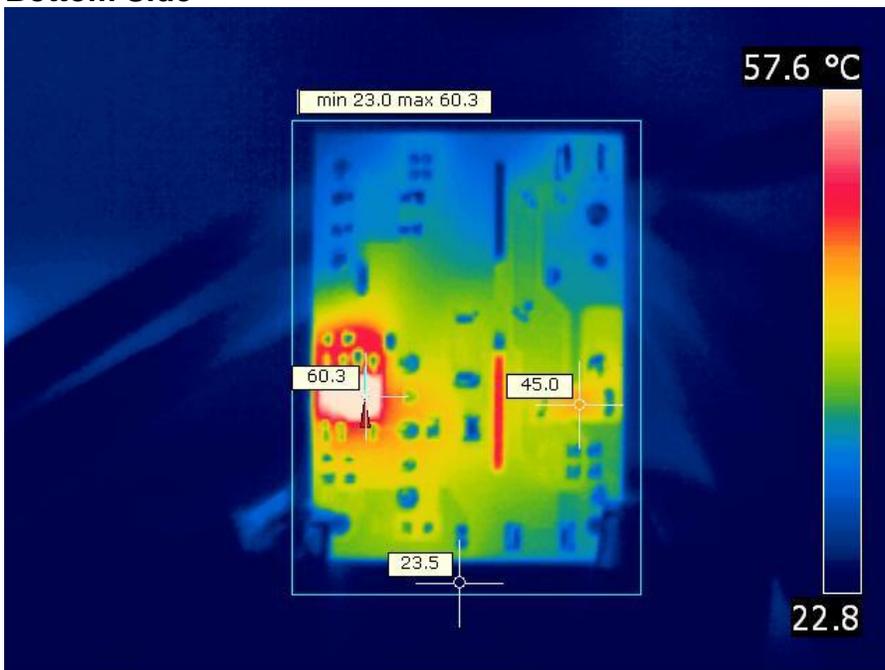
**Bottom Side**



$V_{in}=230V_{AC}/50Hz$   
Top Side



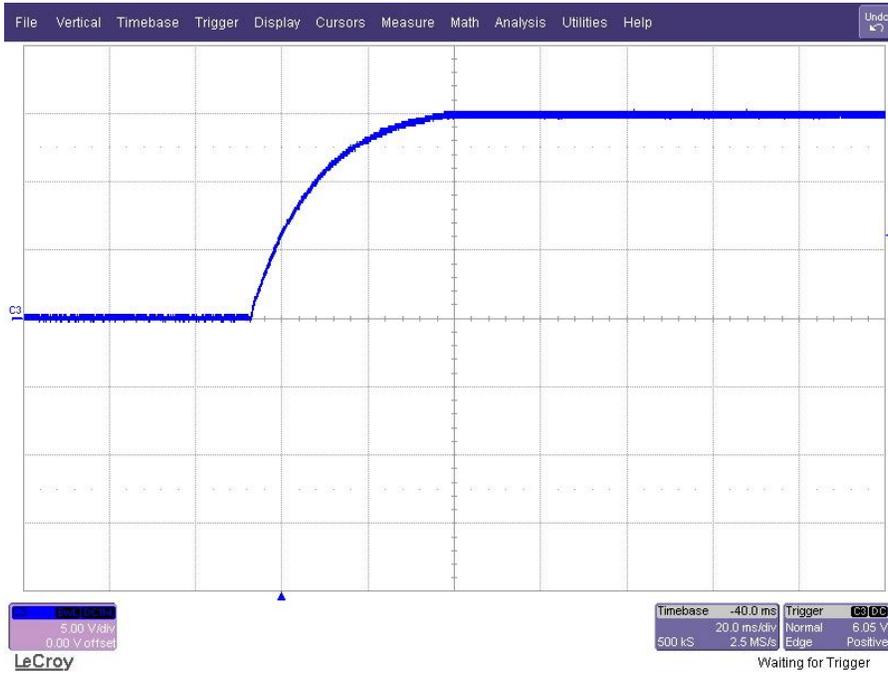
Bottom Side



## 4 Startup

The output voltages at startup are shown in the images below.

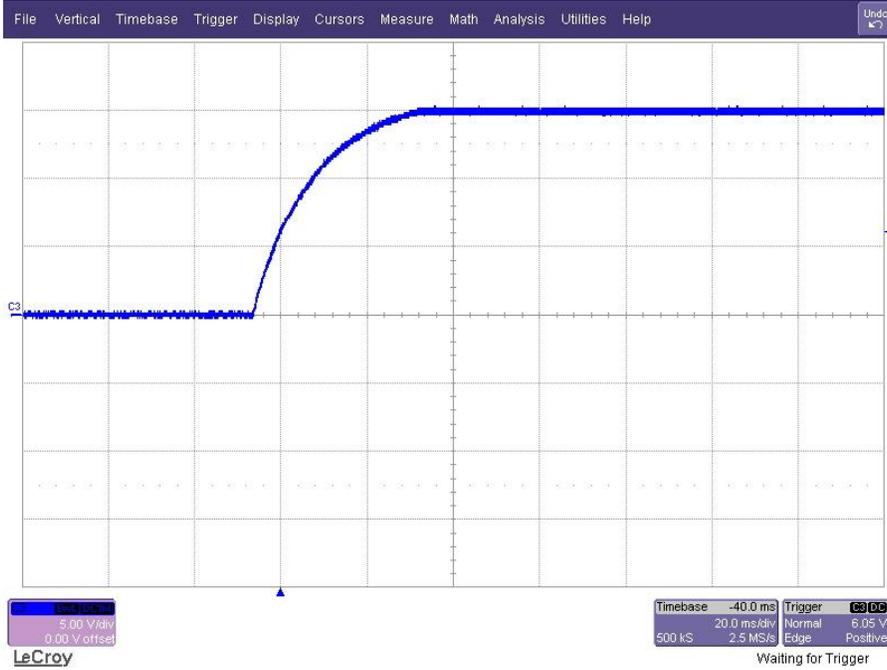
### 4.1 Start Up @ 100V<sub>ac</sub>/60Hz: 15V/75ohm.



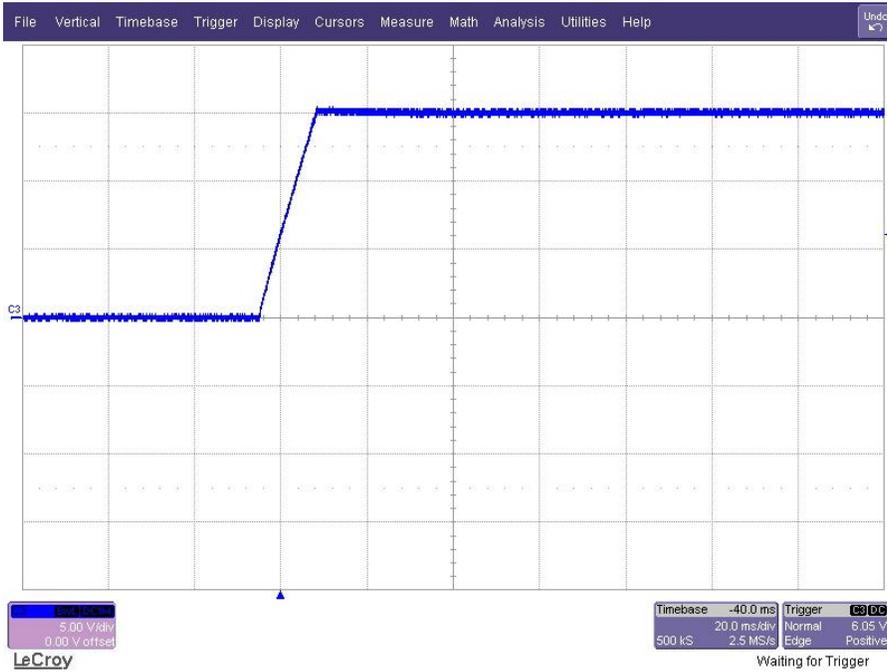
### 4.2 Start Up @ 100V<sub>ac</sub>/60Hz: no load.



### 4.3 Start Up @ 288V<sub>ao</sub>/50Hz: 15V/75ohm.



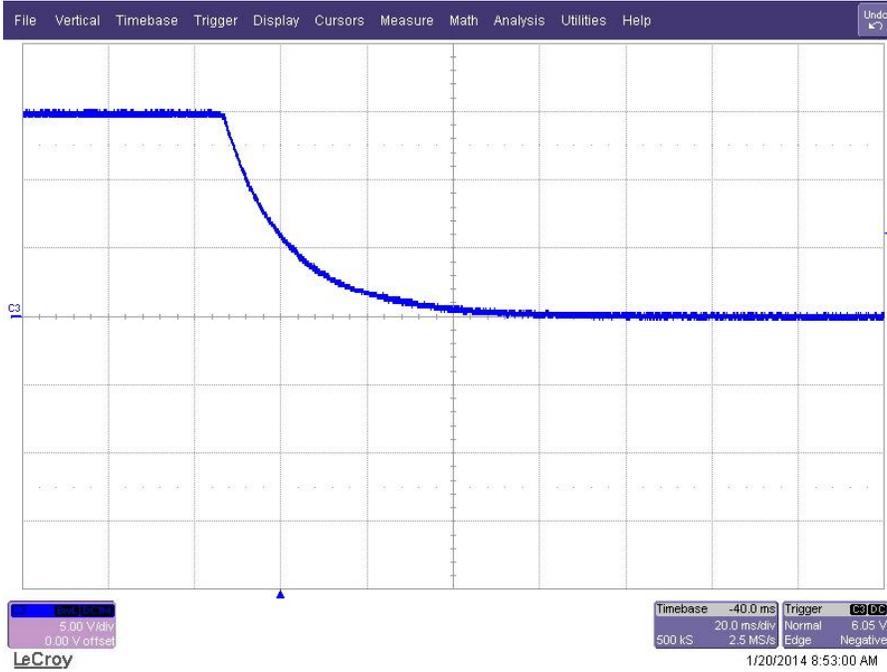
### 4.4 Start Up @ 288V<sub>ao</sub>/50Hz: no load.



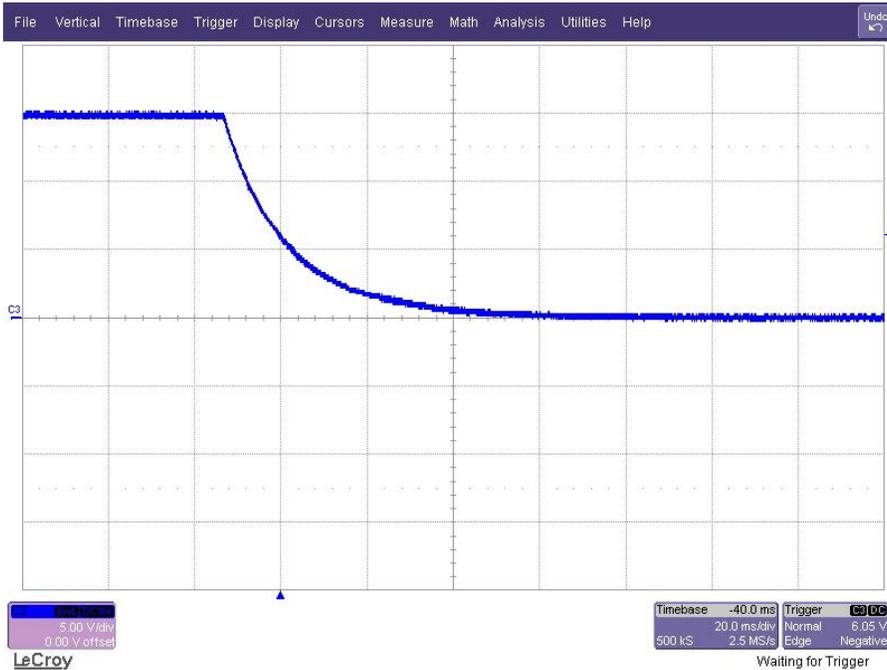
## 5 Turn off

The output voltage at turn off transient is shown in the image below at full load (15V/75ohm).

### 5.1 Turn off @ 100V<sub>ac</sub>: 15V/75ohm.



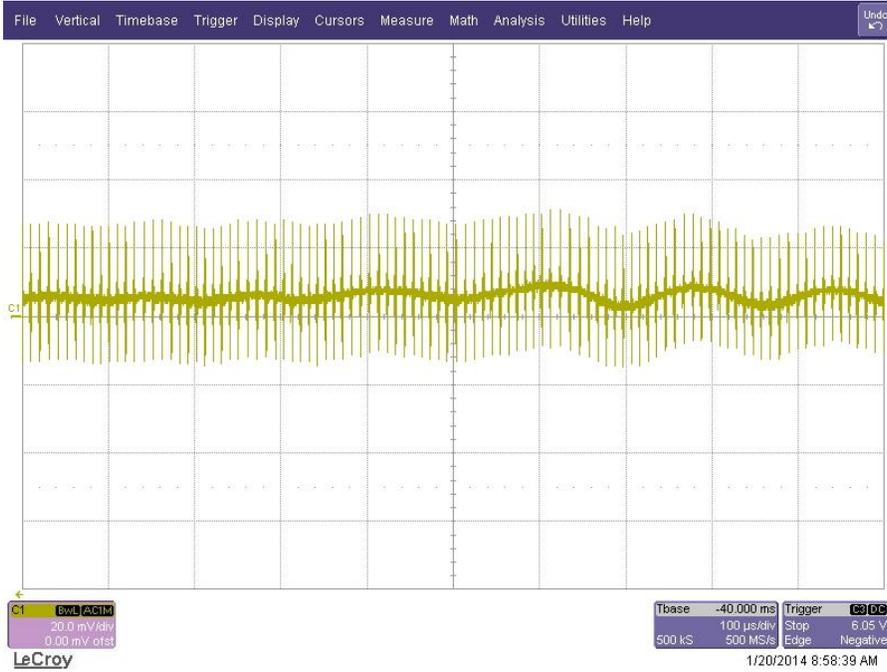
### 5.2 Turn off @ 288V<sub>ac</sub>: 15V/75ohm.



## 6 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

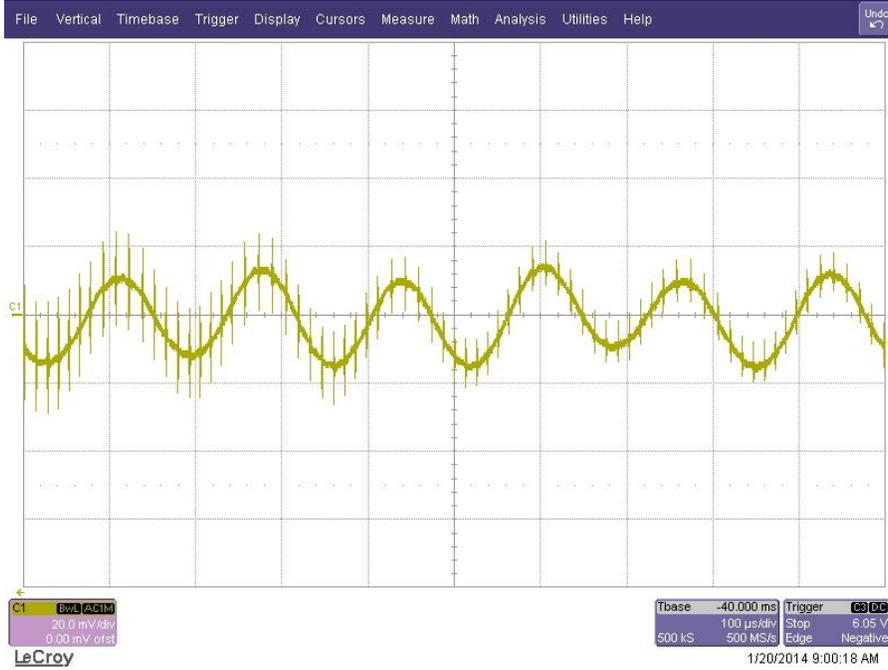
### 6.1 100V<sub>ao</sub>/60Hz – 15V/75ohm



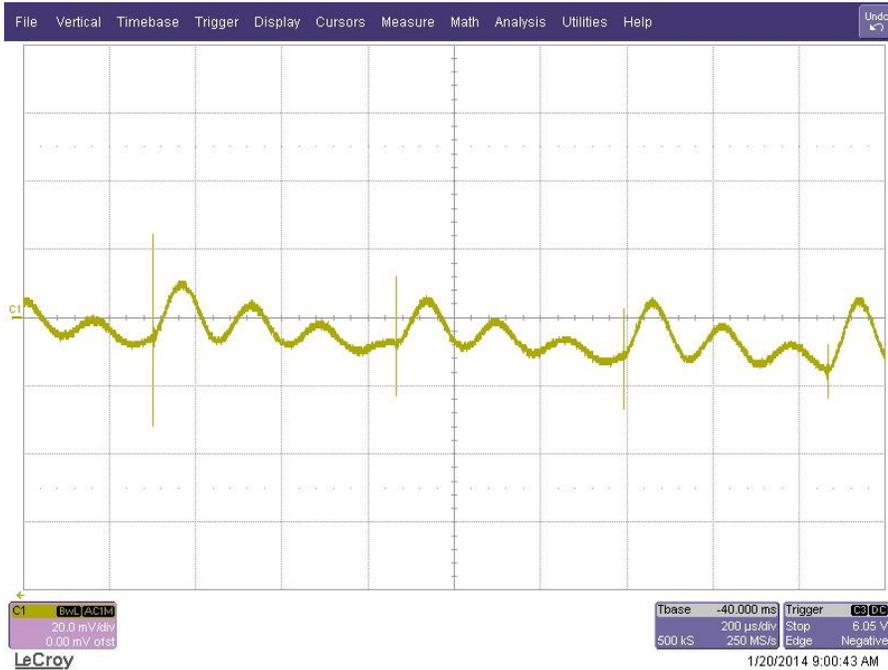
### 6.2 100V<sub>ao</sub>/60Hz – 15V/ No load



## 6.3 288V<sub>ac</sub>/50Hz – 15V/75ohm



## 6.4 288V<sub>ac</sub>/50Hz – 15V/ No load



## 7 Load Transient

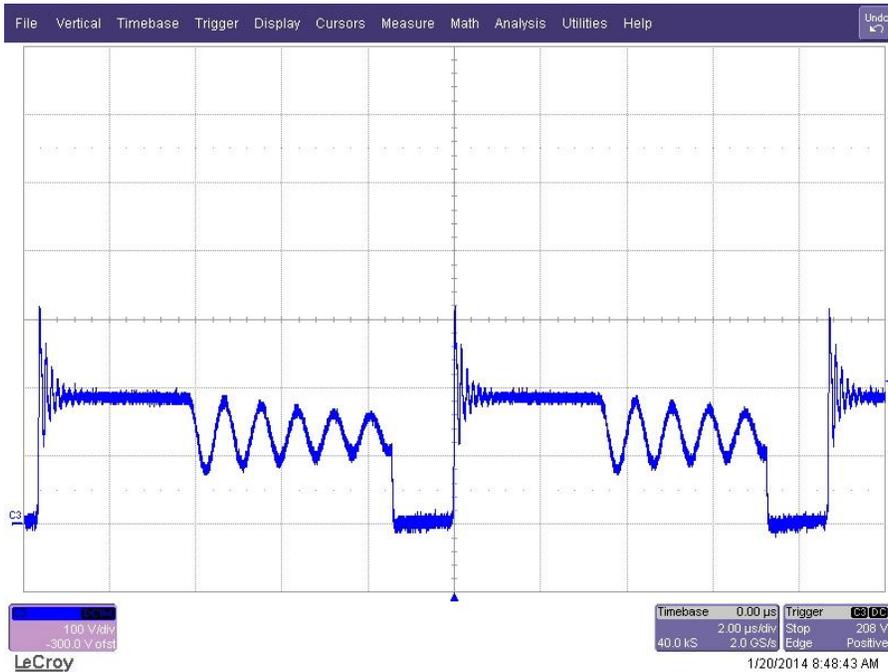
The image below shows  $15V_{out}$  voltage response to a **0.12A** to **0.25A** load transient at a  $100V_{ac}/60Hz$  input.



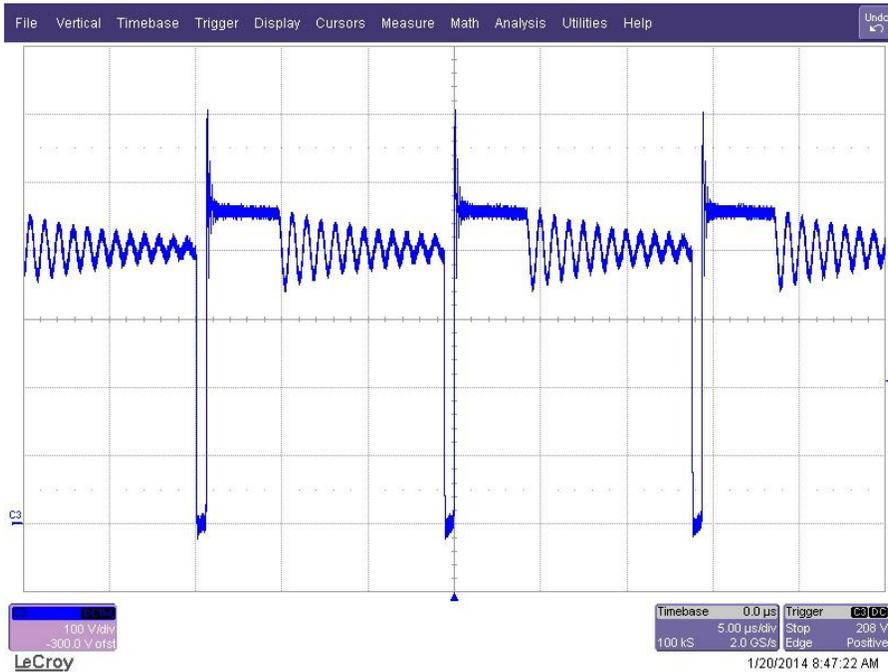
## 8 Switching Waveforms

The images below show key switching waveforms of PMP9506RevA. The waveforms are measured with 75ohm full load.

### 8.1 Primary MOSFET U1 pin8 @ 100V<sub>ac</sub>/60Hz



### 8.2 Primary MOSFET U1 pin8 @ 288V<sub>ac</sub>/50Hz



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