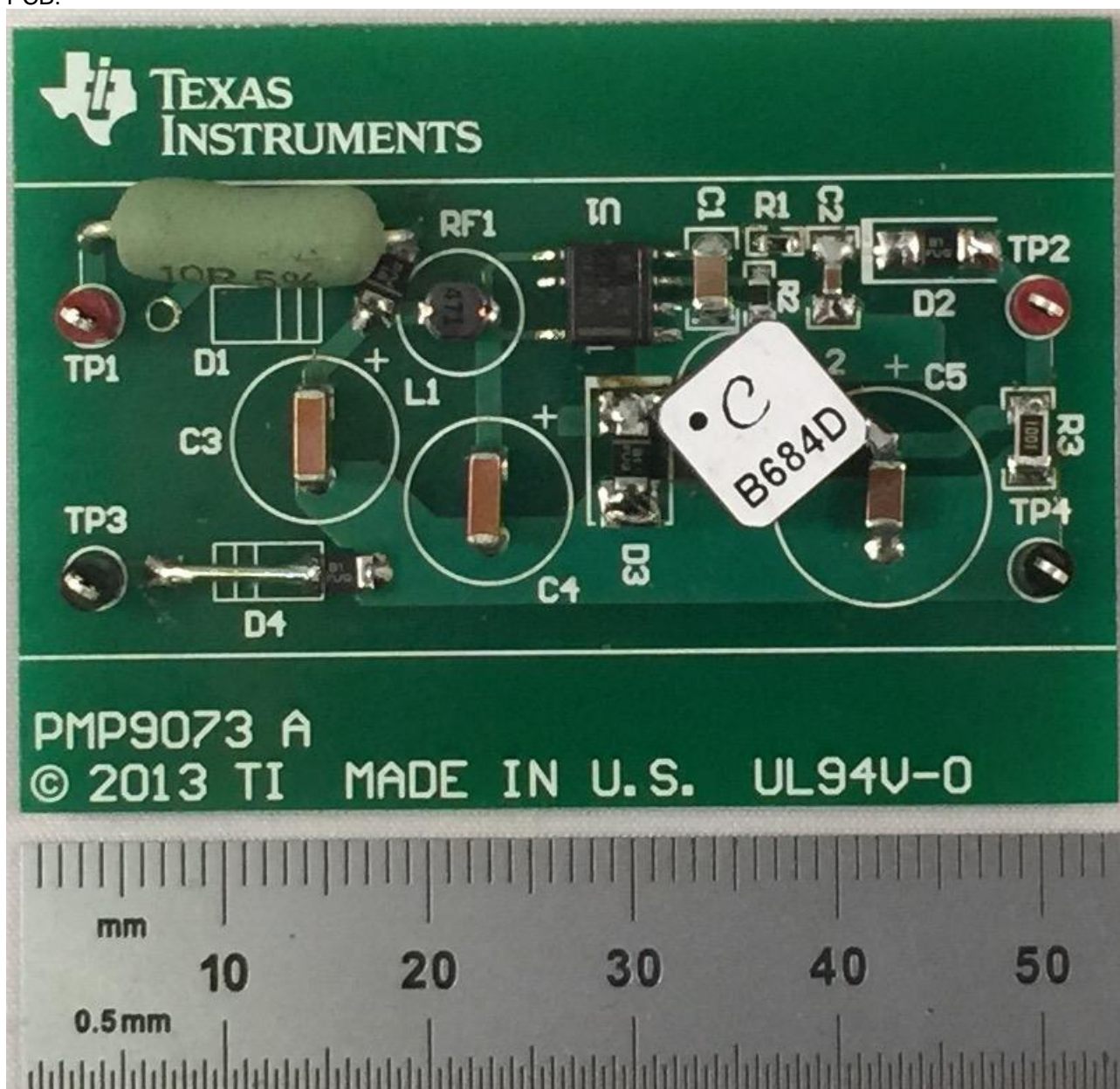


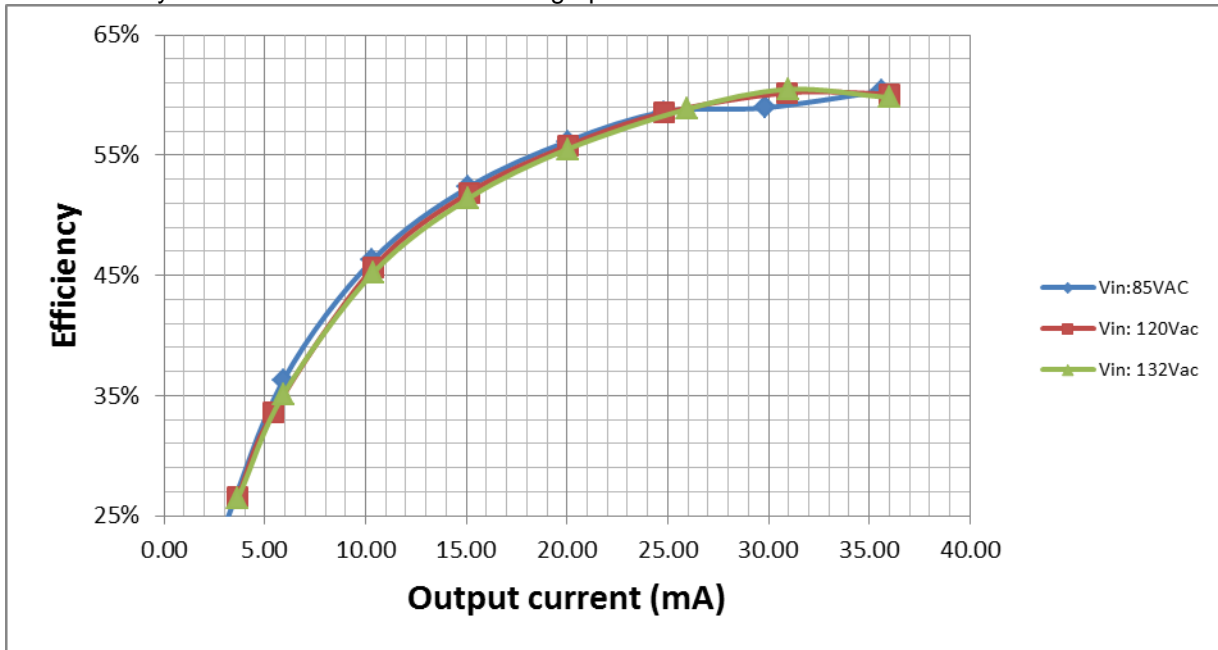
## 1 Photo

The photographs below show the PMP10994 Rev A assembly. This circuit was built on a PMP9073 Rev A PCB.



## 2 Converter Efficiency

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



**V<sub>in</sub>=85V<sub>AC</sub>/60Hz**

Vin(AC)	Iin(mA)	Pin(W)	Vout(V)	Iout(mA)	Pout(W)	Eff (%)
84.99	9.01	0.292	4.94	35.64	0.176	60.34%
85.00	7.75	0.250	4.95	29.82	0.148	58.95%
85.00	6.54	0.210	4.97	24.81	0.123	58.61%
85.00	5.62	0.178	4.98	20.02	0.100	56.15%
85.00	4.69	0.144	5.00	15.10	0.076	52.34%
85.00	3.81	0.112	5.02	10.34	0.052	46.28%
85.00	2.94	0.083	5.06	5.92	0.030	36.30%
84.99	2.35	0.062	5.11	2.85	0.015	23.52%
85.00	1.77	0.043	5.20	0.00	0.000	0.00%

**V<sub>in</sub>=120V<sub>AC</sub>/60Hz**

Vin(AC)	Iin(mA)	Pin(W)	Vout(V)	Iout(mA)	Pout(W)	Eff (%)
120.01	6.68	0.296	4.93	36.02	0.178	60.09%
120.00	5.81	0.255	4.95	30.95	0.153	60.20%
120.01	4.94	0.211	4.97	24.82	0.123	58.52%
120.01	4.30	0.179	4.98	20.04	0.100	55.80%
120.01	3.63	0.146	5.00	15.12	0.076	51.88%
120.01	2.98	0.114	5.02	10.36	0.052	45.62%
120.01	2.27	0.081	5.07	5.39	0.027	33.56%
120.02	2.01	0.070	5.10	3.65	0.019	26.56%
120.00	1.44	0.046	5.21	0.00	0.000	0.00%

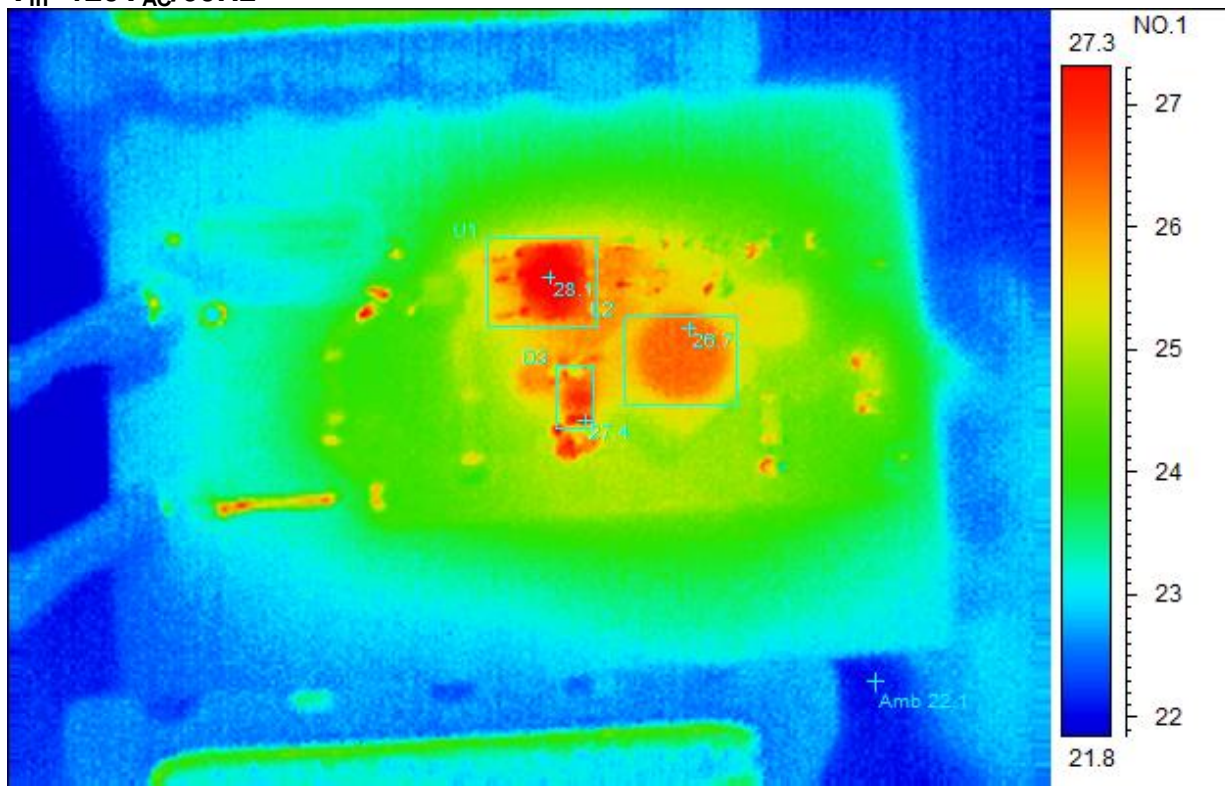
**V<sub>in</sub>=130V<sub>AC</sub>/60Hz**

Vin(AC)	Iin(mA)	Pin(W)	Vout(V)	Iout(mA)	Pout(W)	Eff (%)
130.01	6.26	0.297	4.93	36.02	0.178	59.79%
130.01	5.41	0.253	4.95	30.96	0.153	60.48%
130.01	4.78	0.219	4.96	25.97	0.129	58.84%
130.02	4.04	0.180	4.98	20.03	0.100	55.51%
130.02	3.44	0.147	5.00	15.11	0.076	51.42%
130.02	2.82	0.115	5.02	10.36	0.052	45.20%
130.03	2.23	0.085	5.06	5.93	0.030	35.12%
130.01	1.91	0.070	5.10	3.65	0.019	26.41%
130.03	1.38	0.047	5.22	0.00	0.000	0.00%

### 3 Thermal Images

The thermal images below show a top view of the board under 120V<sub>AC</sub>/60Hz. The ambient temperature was 20°C with no forced air flow. The output was at full load: 5V/35mA.

**V<sub>in</sub>=120V<sub>AC</sub>/60Hz**

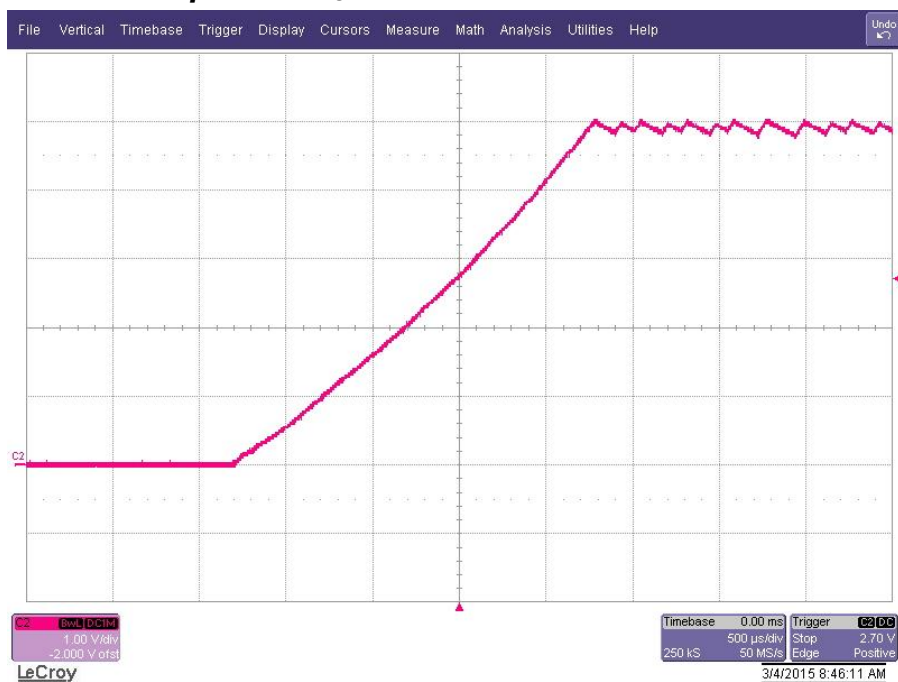


Spot analysis	Value
Amb Temperature	22.1°C
Area analysis	Value
U1Max	28.1°C
L2Max	26.7°C
D3Max	27.4°C

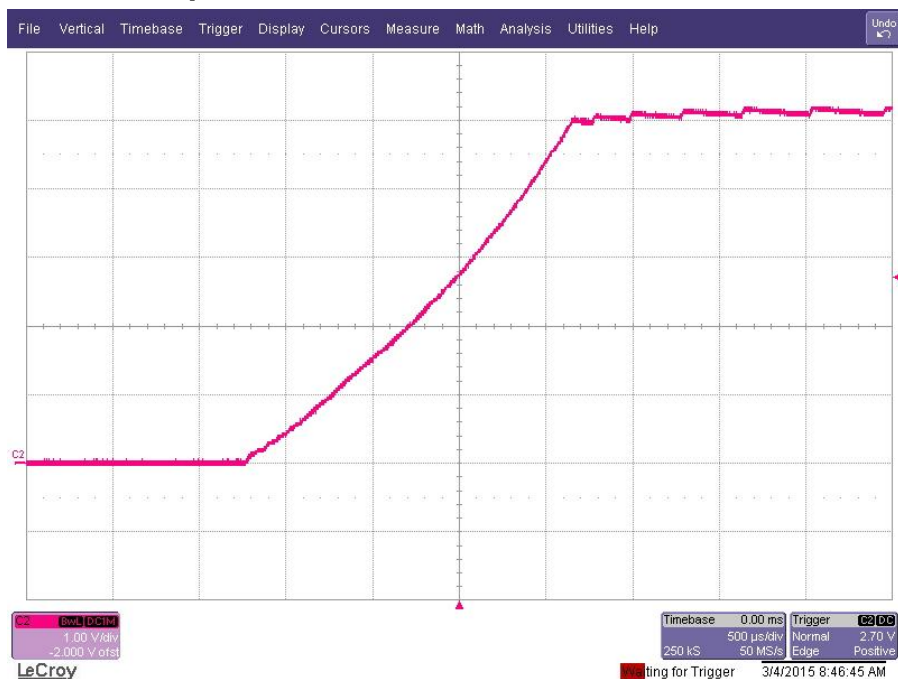
## 4 Startup Waveforms

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

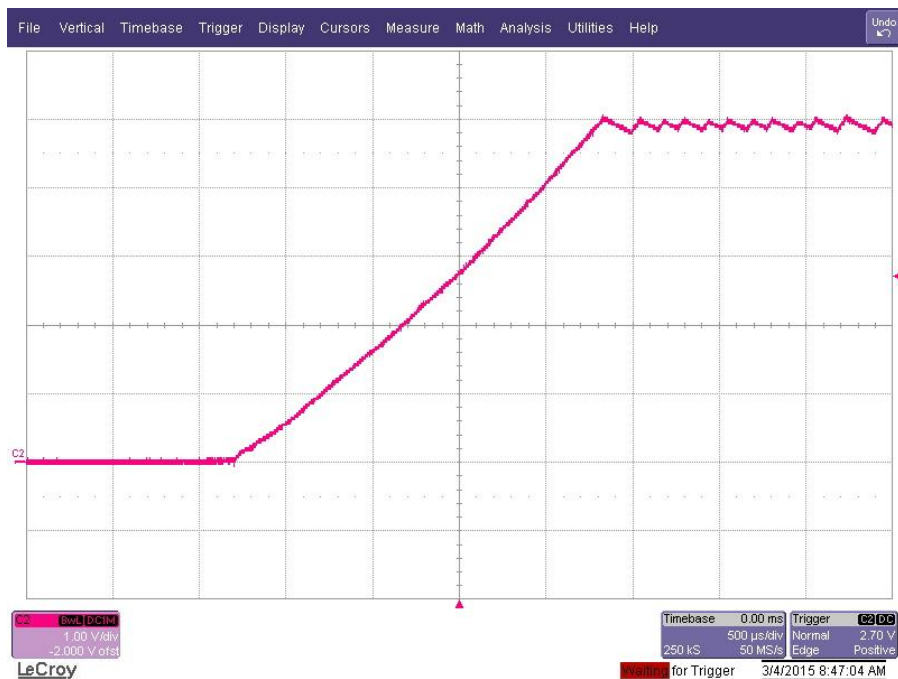
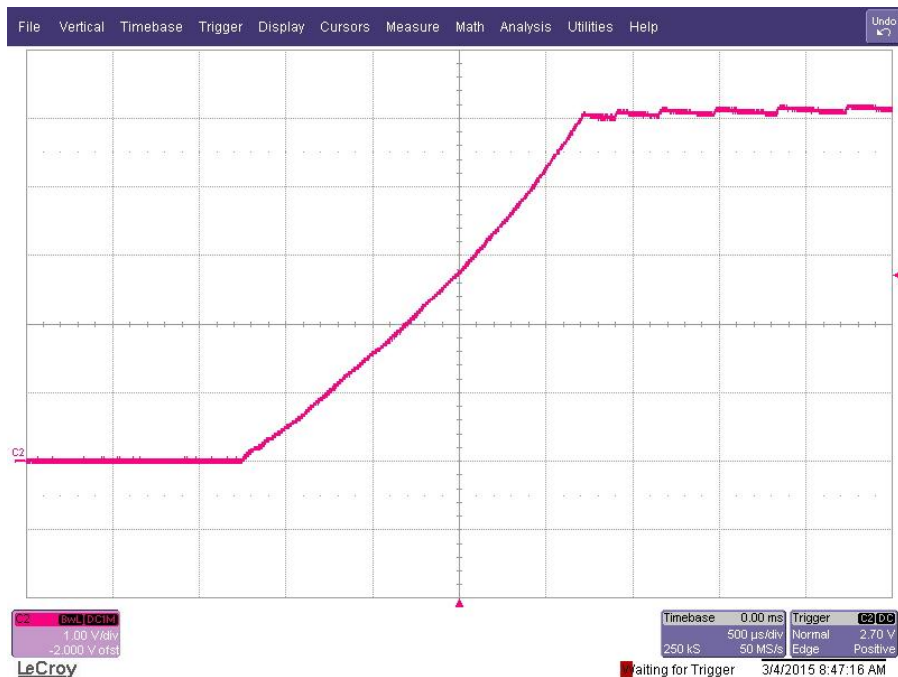
### 4.1 Start Up @ 85V<sub>AC</sub>: 5V/35mA.

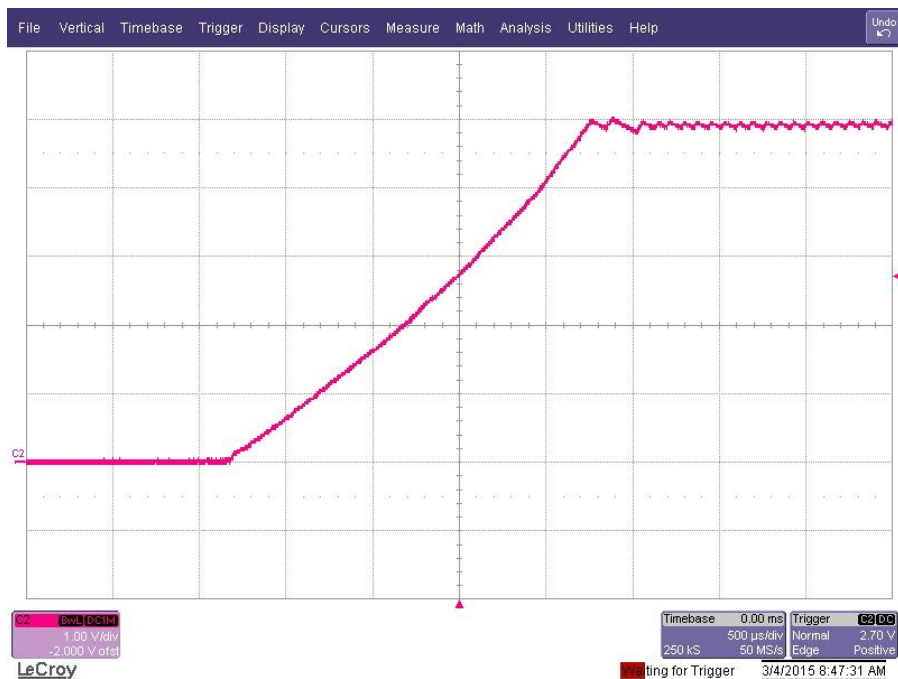
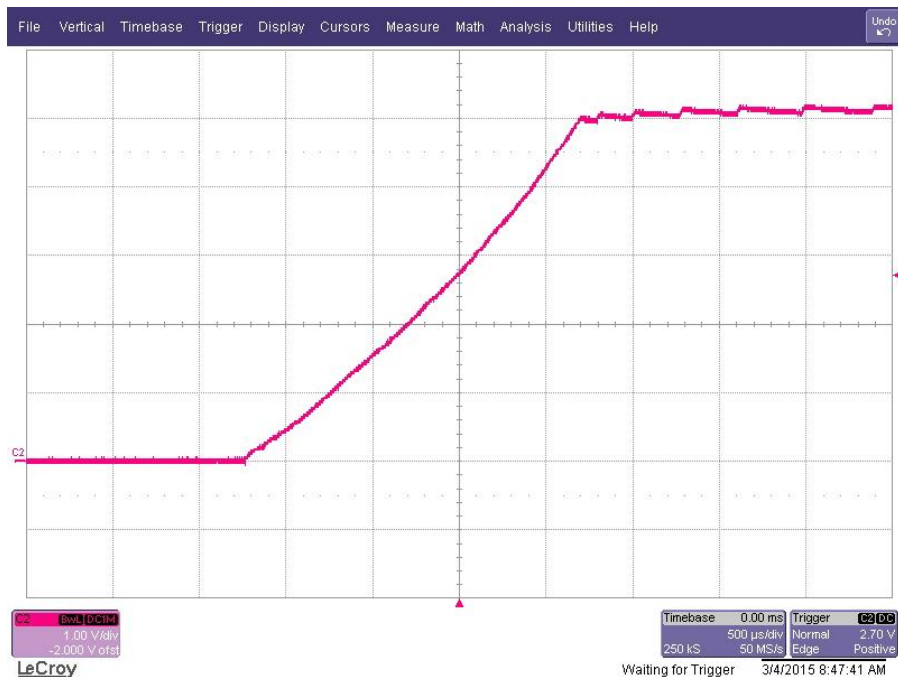


### 4.2 Start Up @ 85V<sub>AC</sub>: no load.





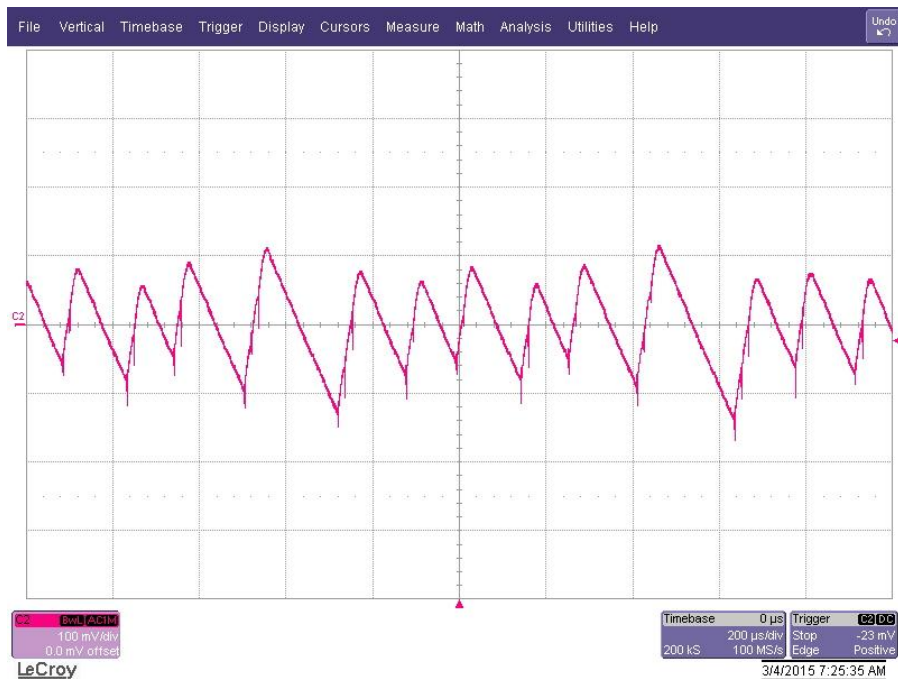
**4.3 Start Up @ 120V<sub>AC</sub>: 5V/35mA.****4.4 Start Up @ 120V<sub>AC</sub>: no load.**

**4.5 Start Up @ 130V<sub>AC</sub>: 5V/35mA.****4.6 Start Up @ 130V<sub>AC</sub>: no load.**

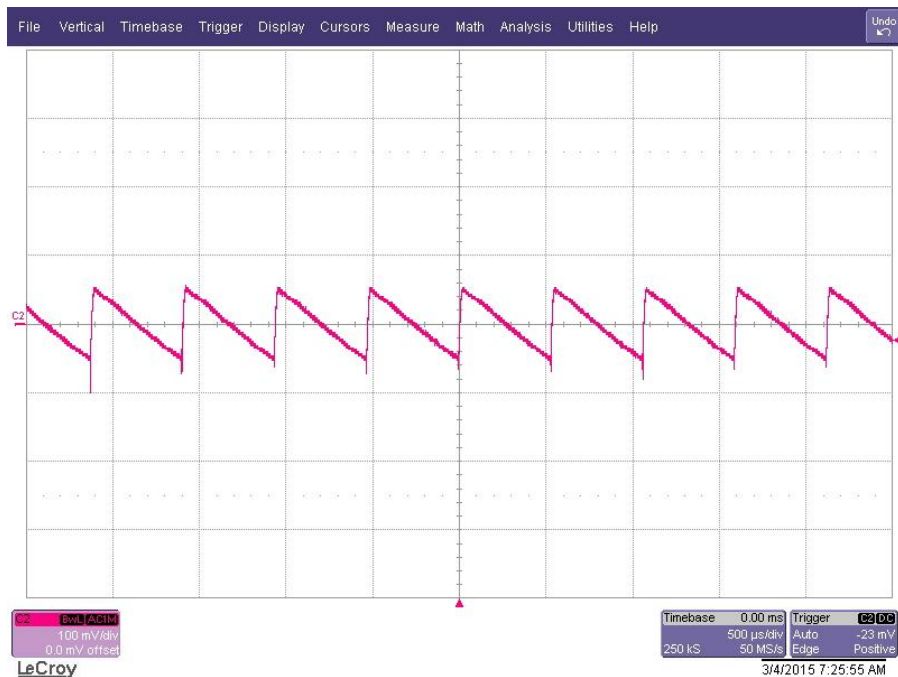
## 5 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

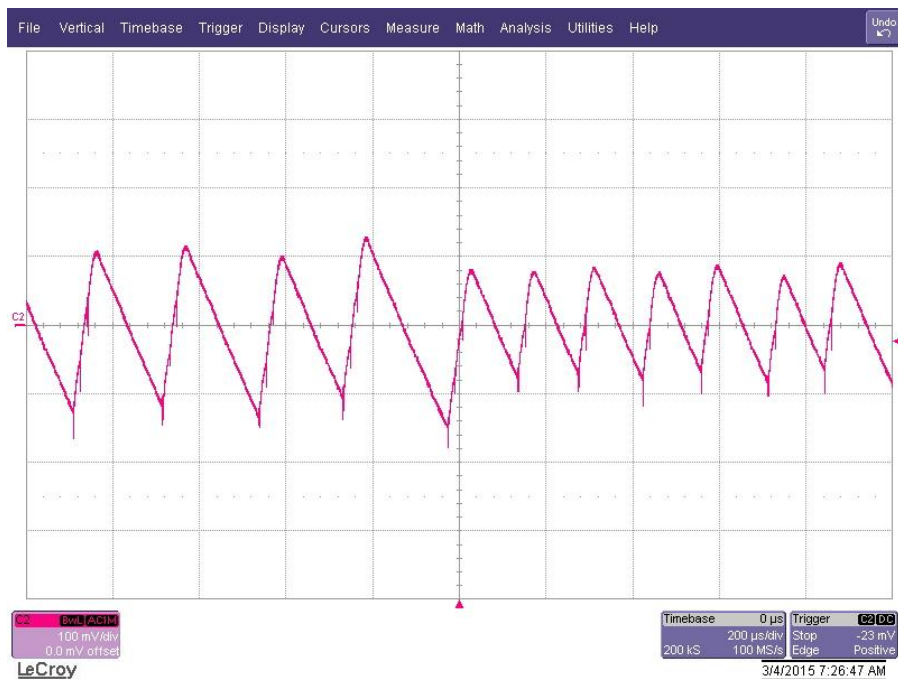
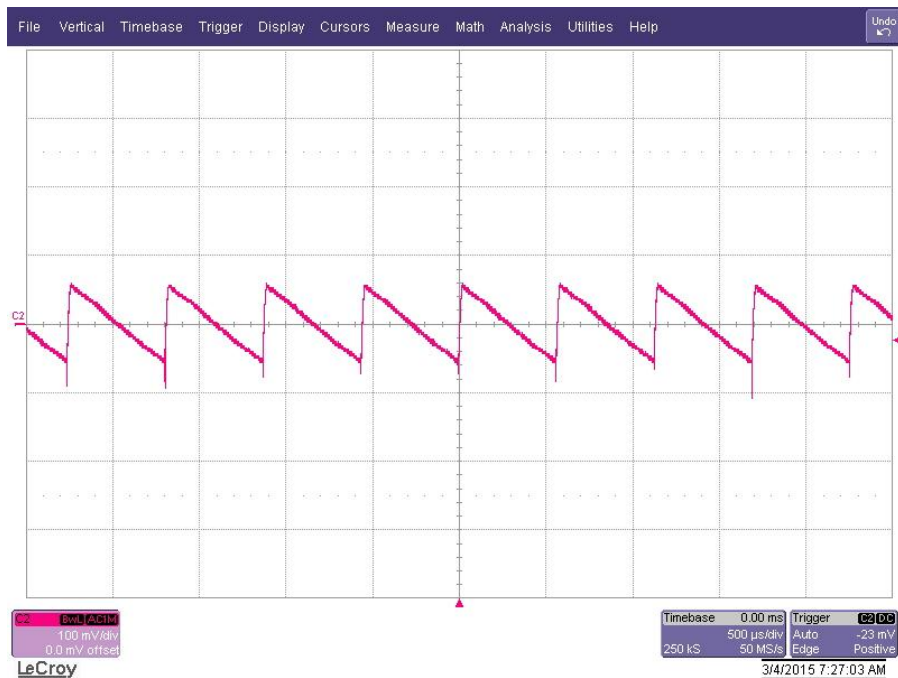
### 5.1 85V<sub>AC</sub>: 5V/35mA:

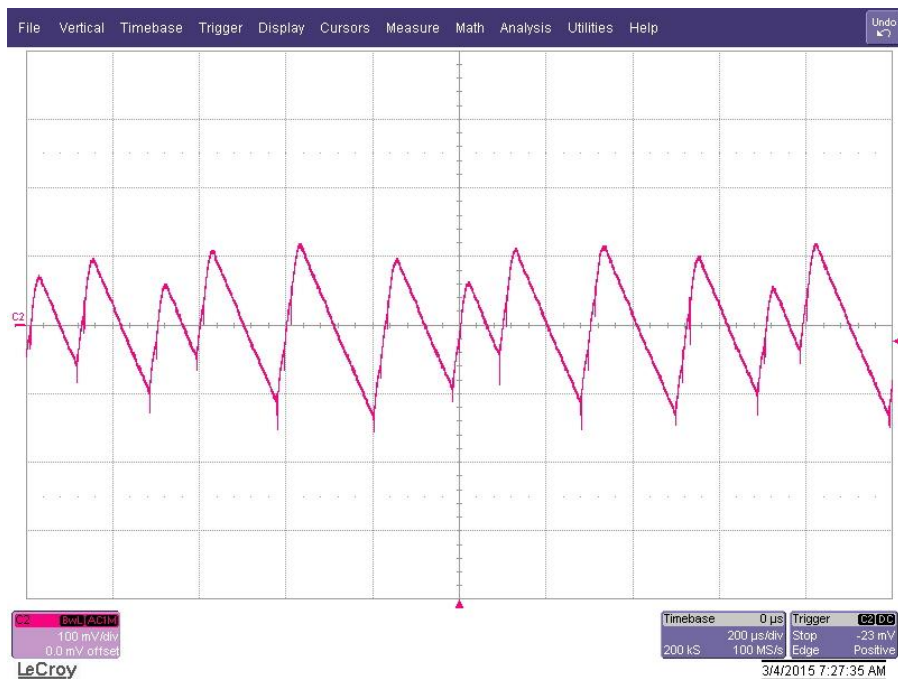
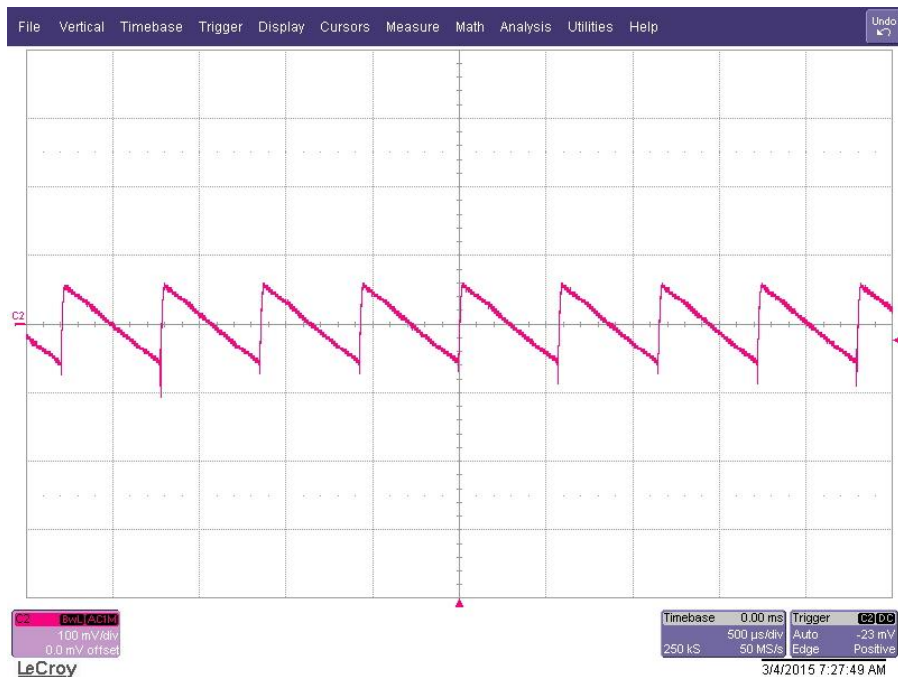


### 5.2 85V<sub>AC</sub>: no load:



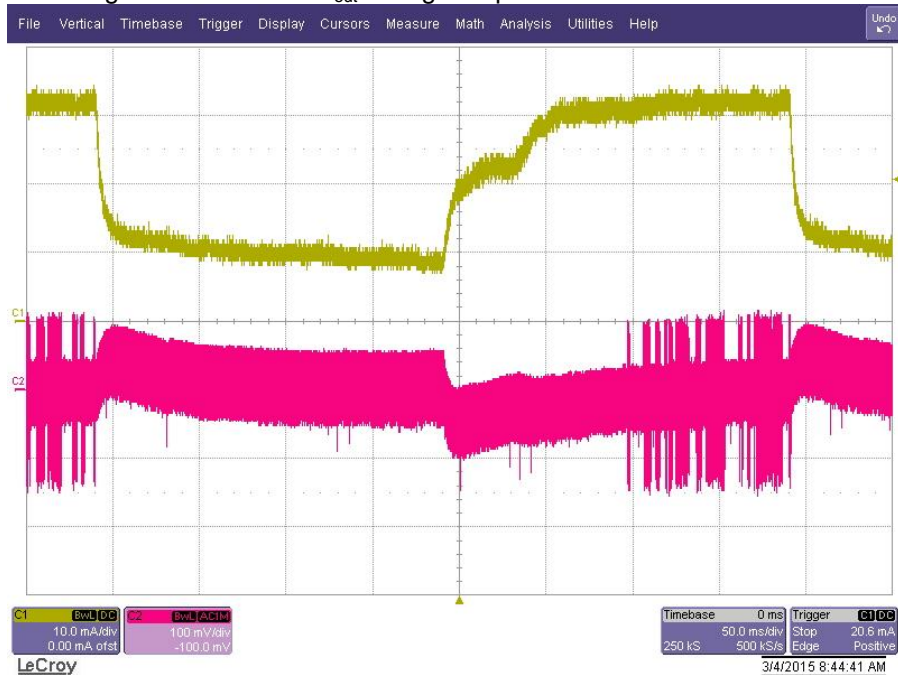


**5.3 120V<sub>AC</sub>: 5V/35mA:****5.4 120V<sub>AC</sub>: no load:**

**5.5 130V<sub>AC</sub>: 5V/35mA:****5.6 130V<sub>AC</sub>: no load:**

## 6 Load Transient

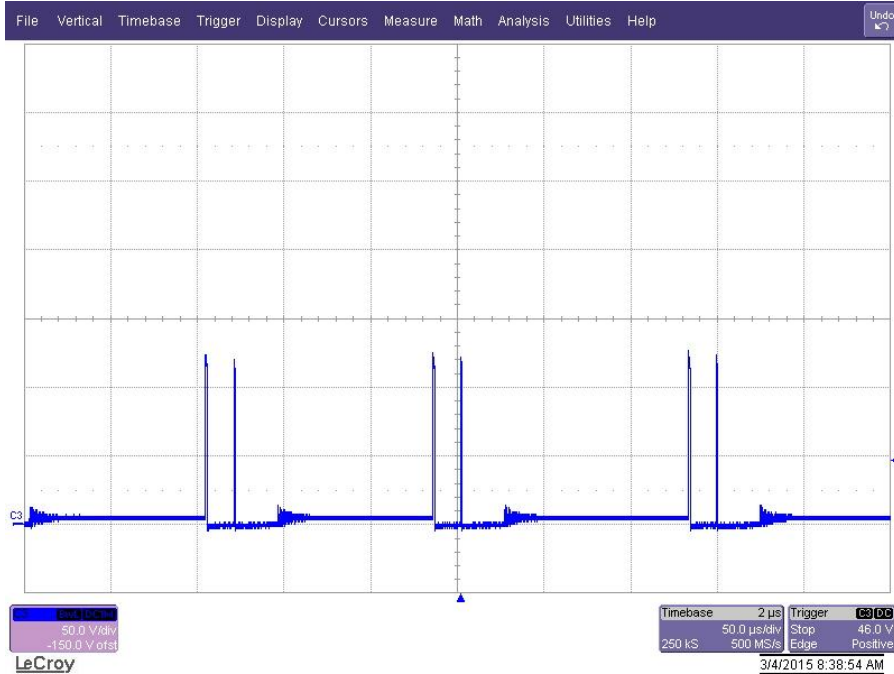
The image below shows  $5V_{out}$  voltage response to a **10mA** to **35mA** load transient at  $120V_{AC}/60Hz$ .



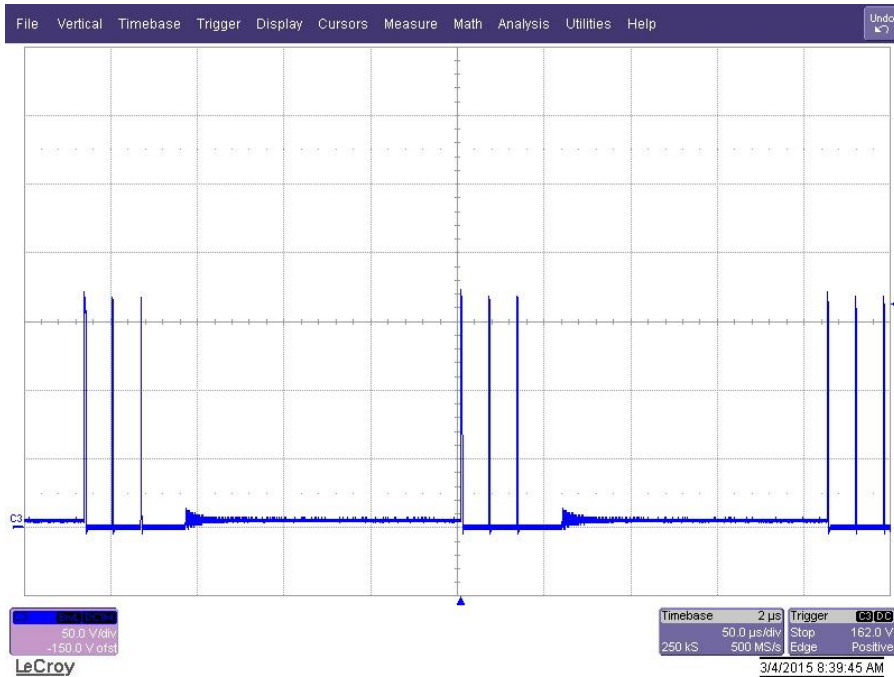
## 7 Switching Waveforms

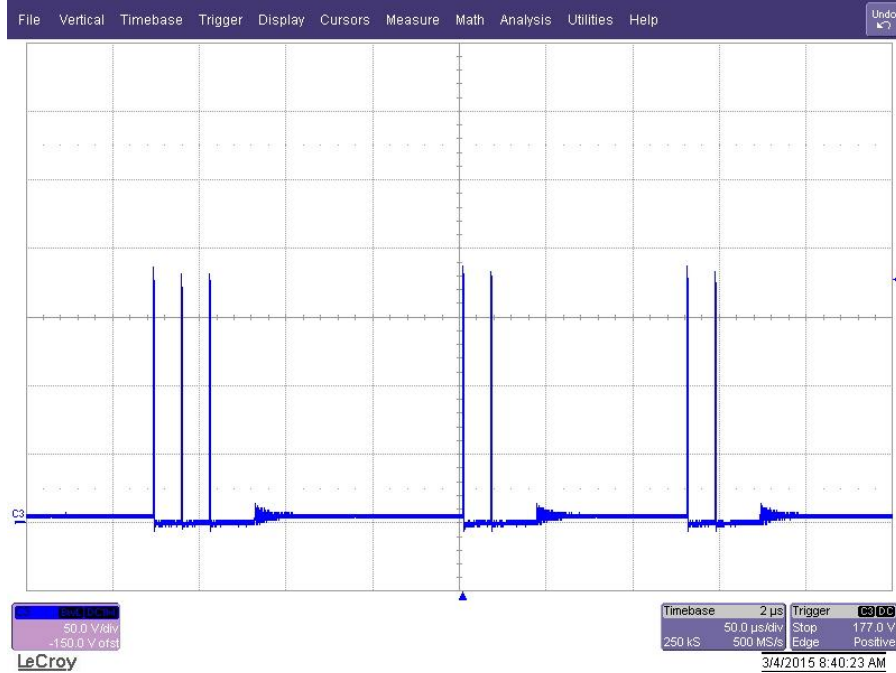
The images below show key switching waveforms of PMP10994RevA. The waveforms are measured with 35mA full load.

### 7.1 Diode D3 @ 85V<sub>AC</sub>/60Hz



### 7.2 Diode D3 @ 120V<sub>AC</sub>/60Hz



**7.3 Diode D3 @ 130V<sub>AC</sub>/60Hz**



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