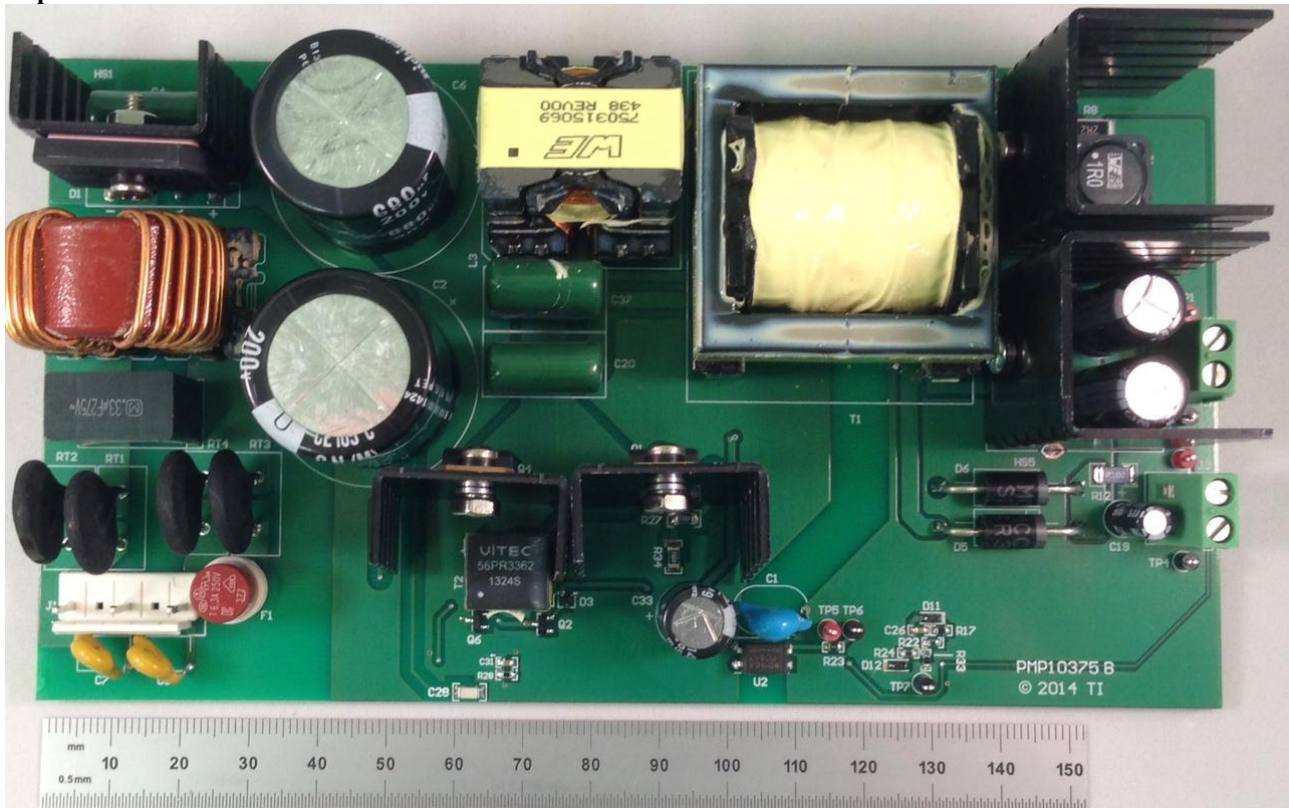


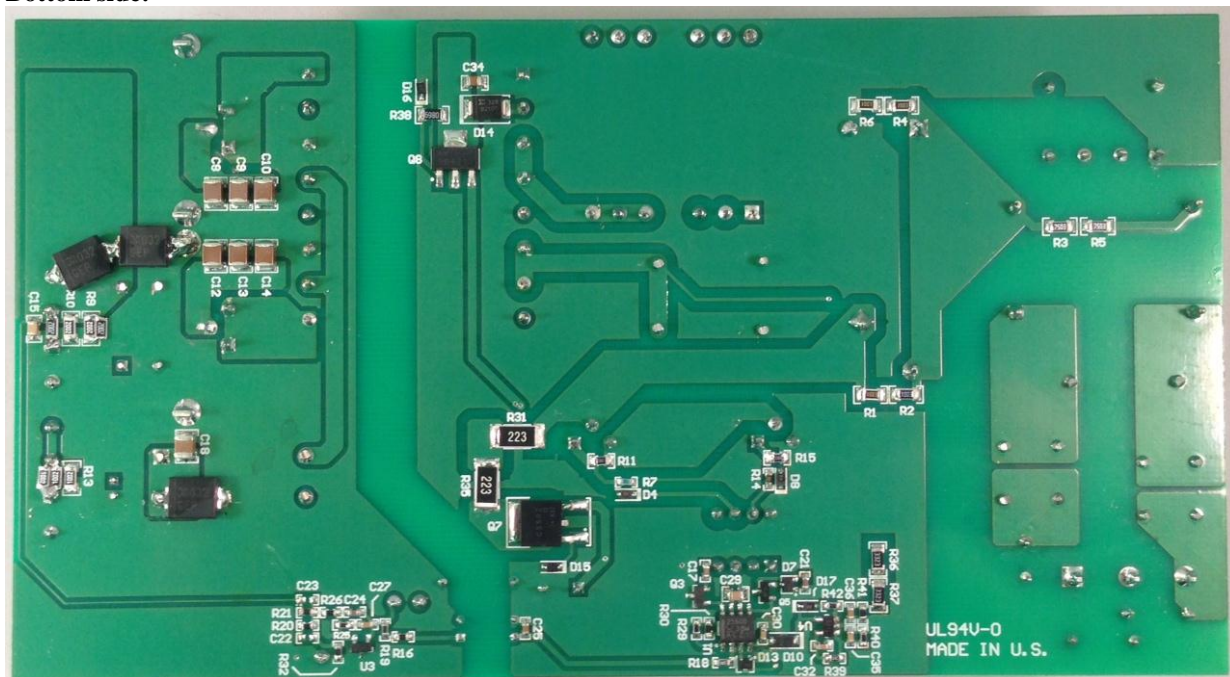
## 1 Photo

The photographs below show the PMP10375 Rev B assembly. This circuit was built on a PMP10375 Rev B PCB.

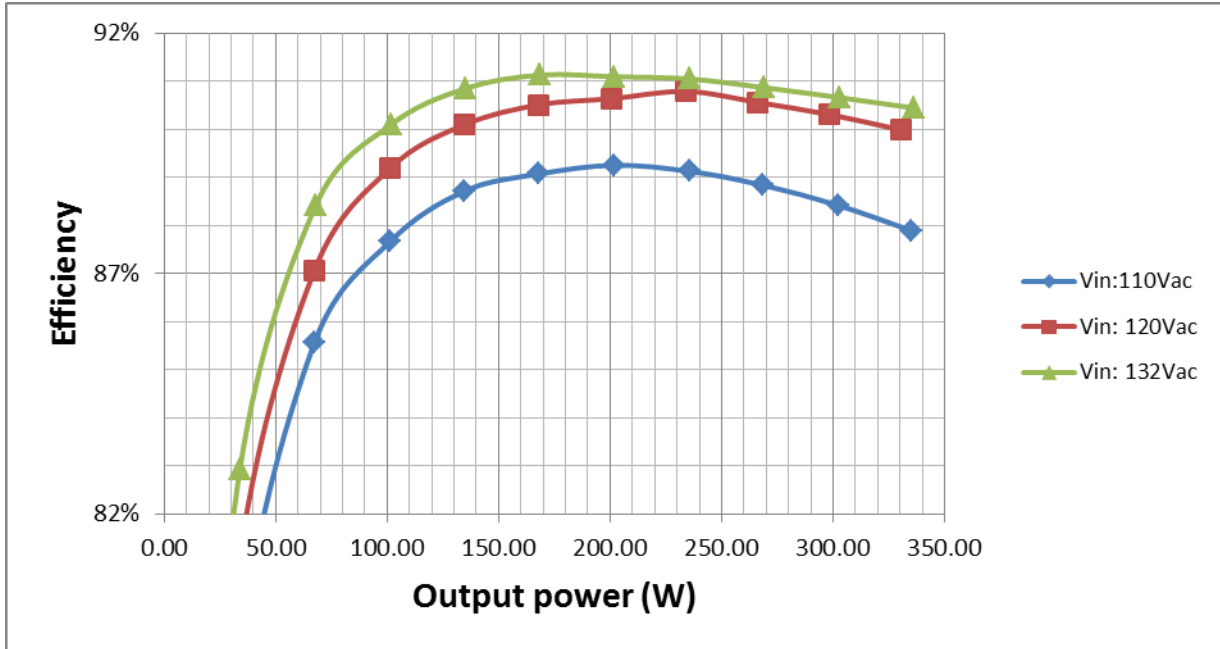
**Top side:**



**Bottom side:**



## 2 Efficiency



### 102V<sub>AC</sub>/60Hz

Vin(ac)	Iin(A)	Pin(W)	PF	32V(V)	32V(A)	15V(V)	15V(A)	Pout(W)	Eff (%)
101.91	5.78	381.5	0.648	31.88	10.00	16.33	1.01	335.29	87.89%
101.88	5.24	341.7	0.641	31.91	9.01	16.28	0.90	302.13	88.42%
101.82	4.67	302.3	0.635	31.94	8.00	16.23	0.80	268.55	88.84%
101.82	4.15	264.3	0.625	31.97	7.01	16.19	0.71	235.56	89.12%
101.83	3.62	226.2	0.613	31.99	6.01	16.15	0.60	201.89	89.25%
101.84	3.10	188.8	0.599	32.01	5.00	16.12	0.50	168.17	89.07%
101.84	2.56	152.0	0.583	32.03	4.01	16.10	0.41	134.83	88.72%
101.83	2.01	115.6	0.564	32.05	3.01	16.07	0.31	101.34	87.66%
101.78	1.43	78.9	0.541	32.06	2.01	16.05	0.20	67.47	85.57%
101.75	0.83	42.7	0.507	32.09	1.00	16.01	0.10	33.82	79.18%
101.74	0.50	24.6	0.479	32.10	0.50	15.99	0.05	16.82	68.47%
101.75	0.15	6.2	0.414	32.16	0.00	15.85	0.00	0.00	0.00%

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

Vin(ac)	Iin(A)	Pin(W)	PF	32V(V)	32V(A)	15V(V)	15V(A)	Pout(W)	Eff (%)
119.87	4.14	367.4	0.741	31.47	10.00	15.84	1.01	330.60	89.98%
120.00	3.76	330.2	0.732	31.58	8.99	15.88	0.90	298.20	90.31%
120.67	3.37	294.0	0.723	31.68	8.00	15.90	0.81	266.24	90.56%
121.34	2.98	257.9	0.713	31.79	7.01	15.93	0.71	234.14	90.79%
120.44	2.61	221.3	0.704	31.84	6.00	15.95	0.60	200.58	90.64%
120.41	2.23	185.6	0.691	31.92	5.01	15.97	0.50	167.94	90.51%
119.98	1.84	149.3	0.677	31.97	4.00	15.98	0.41	134.48	90.09%
120.00	1.44	113.4	0.658	32.02	3.00	15.98	0.31	101.16	89.18%
120.10	1.02	77.4	0.632	32.06	2.00	15.99	0.20	67.35	87.06%
120.02	0.59	41.9	0.593	32.09	1.01	15.99	0.11	33.99	81.17%
120.35	0.36	24.1	0.557	32.10	0.51	15.98	0.06	17.19	71.37%
120.09	0.09	4.7	0.441	37.67	0.00	18.59	0.00	0.00	0.00%

**132V<sub>AC</sub>/60Hz**

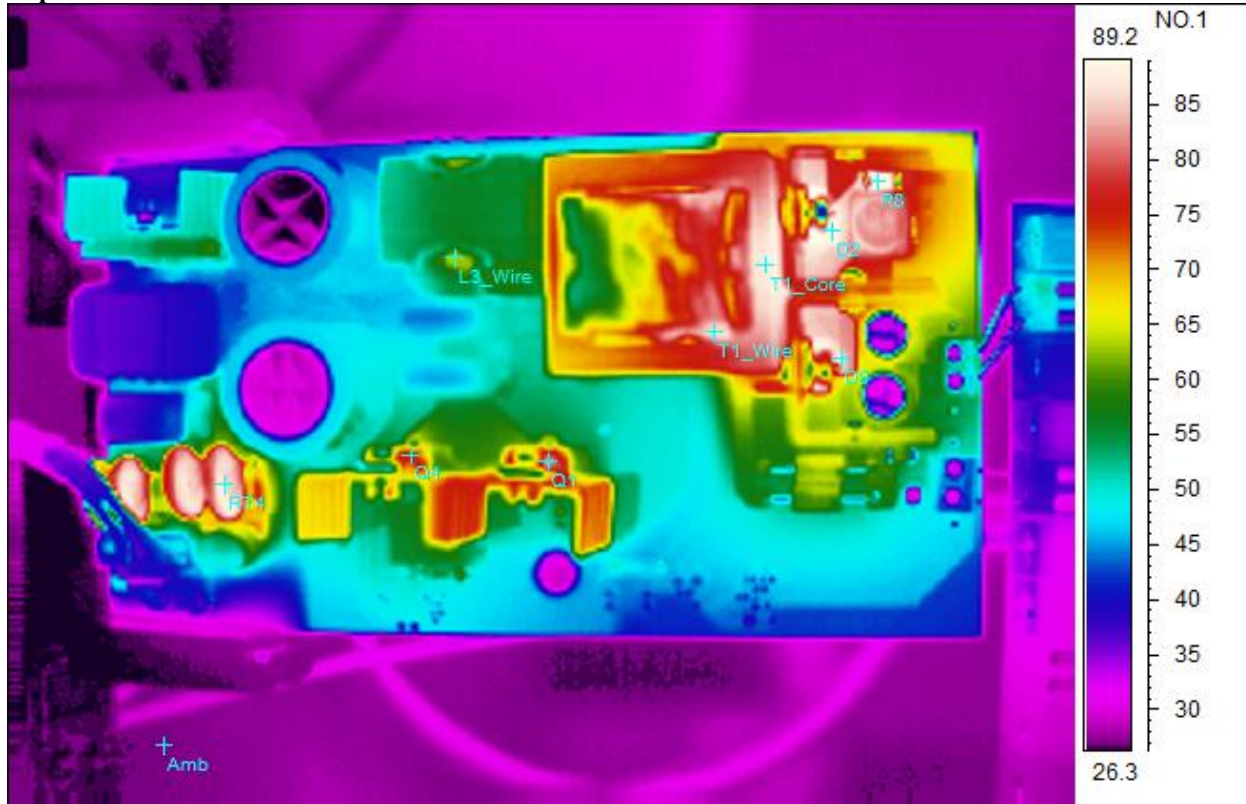
Vin(ac)	Iin(A)	Pin(W)	PF	32V(V)	32V(A)	15V(V)	15V(A)	Pout(W)	Eff (%)
131.90	4.55	372.0	0.621	32.03	10.00	15.98	1.01	336.44	90.44%
131.96	4.16	333.9	0.609	32.04	9.00	15.98	0.90	302.71	90.66%
132.05	3.77	296.3	0.596	32.05	8.00	15.98	0.80	269.23	90.86%
132.11	3.38	258.9	0.58	32.06	7.00	15.98	0.71	235.72	91.05%
132.15	2.98	221.7	0.564	32.07	6.00	15.99	0.60	201.95	91.09%
132.10	2.54	184.9	0.552	32.09	5.00	15.99	0.50	168.49	91.13%
132.04	2.09	148.5	0.539	32.10	4.00	16.00	0.41	134.94	90.85%
131.99	1.63	112.8	0.525	32.11	3.01	15.99	0.31	101.58	90.09%
131.95	1.16	76.9	0.503	32.12	2.02	16.00	0.20	67.99	88.42%
131.91	0.66	40.9	0.469	32.13	1.01	16.01	0.10	33.92	82.92%
131.88	0.40	23.4	0.441	32.14	0.51	16.00	0.05	17.09	73.05%
131.87	0.11	5.3	0.375	38.59	0.00	19.13	0.00	0.00	0.00%

### 3 Thermal Images

The ambient temperature was 25°C with no forced air flow. The outputs were loaded with 32V/10A and 15V/1A.

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

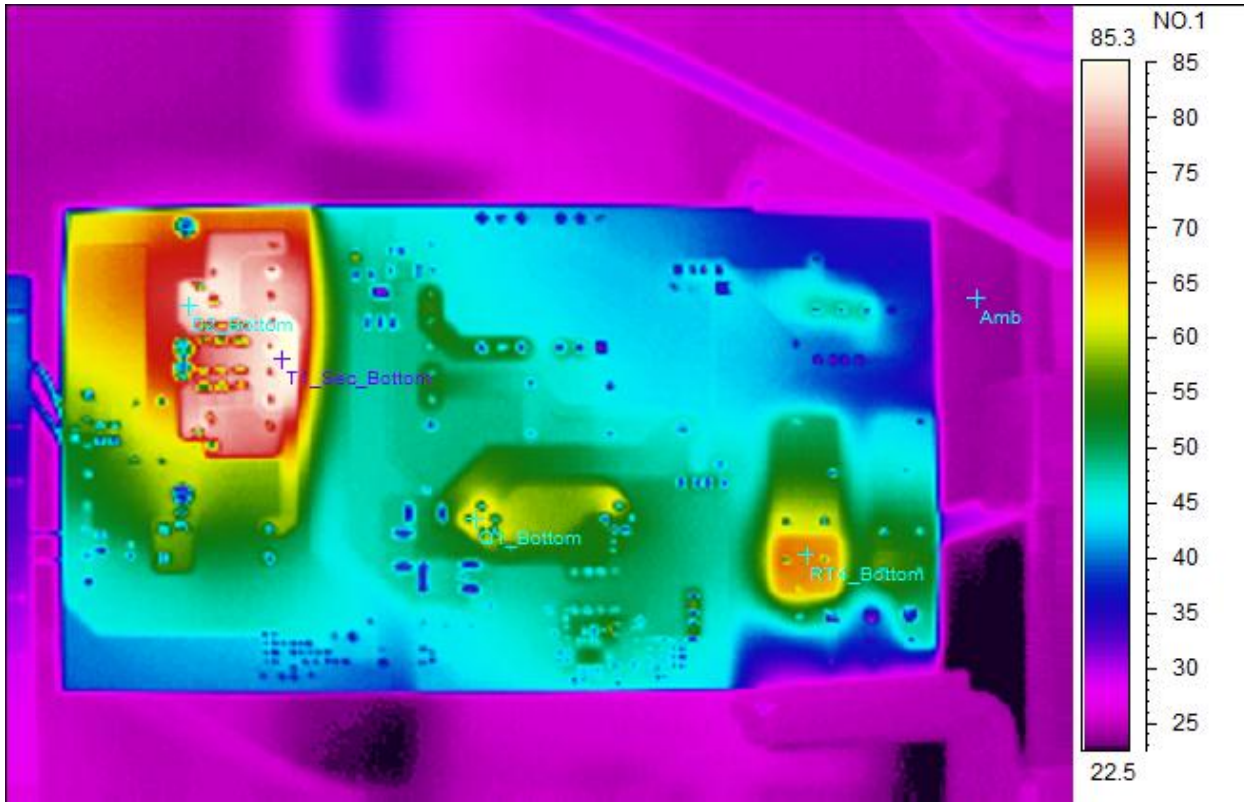
Top side



Spot analysis	Value
AmbTemperature	27.2°C
RT4Temperature	87.3°C
Q1Temperature	84.2°C
Q4Temperature	77.0°C
L3_WireTemperature	66.3°C
T1_CoreTemperature	88.2°C
T1_WireTemperature	86.8°C
D2 Temperature	89.6°C
R8 Temperature	93.1°C
D9 Temperature	87.0°C

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

**Bottom side**

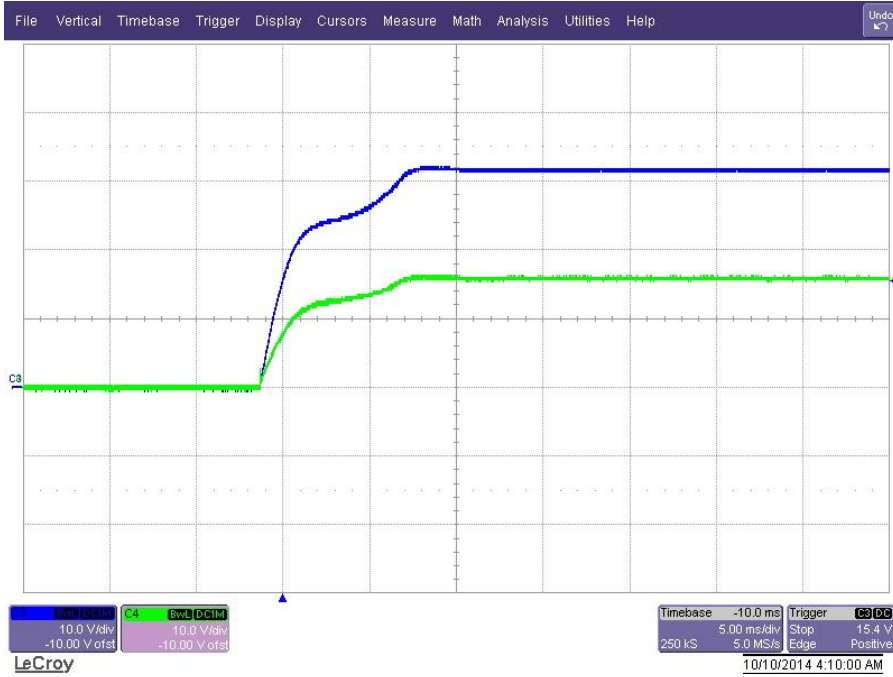


Spot analysis	Value
AmbTemperature	24.3°C
RT4_BottomTemperature	70.3°C
T1_Sec_BottomTemperatur	86.9°C
D2_BottomTemperature	83.1°C
Q1_Bottom Temperature	67.3°C

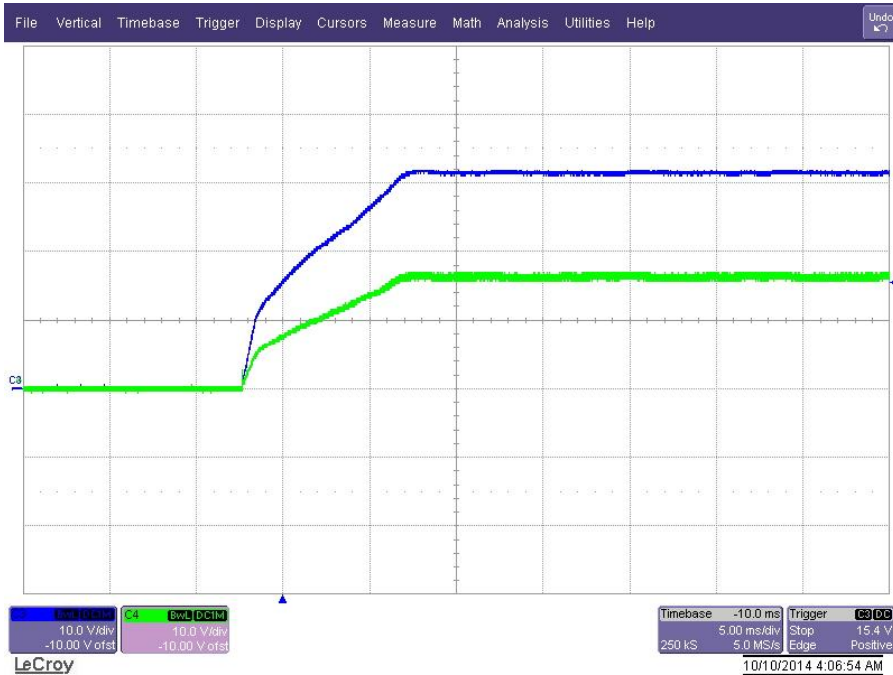
## 4 Startup

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

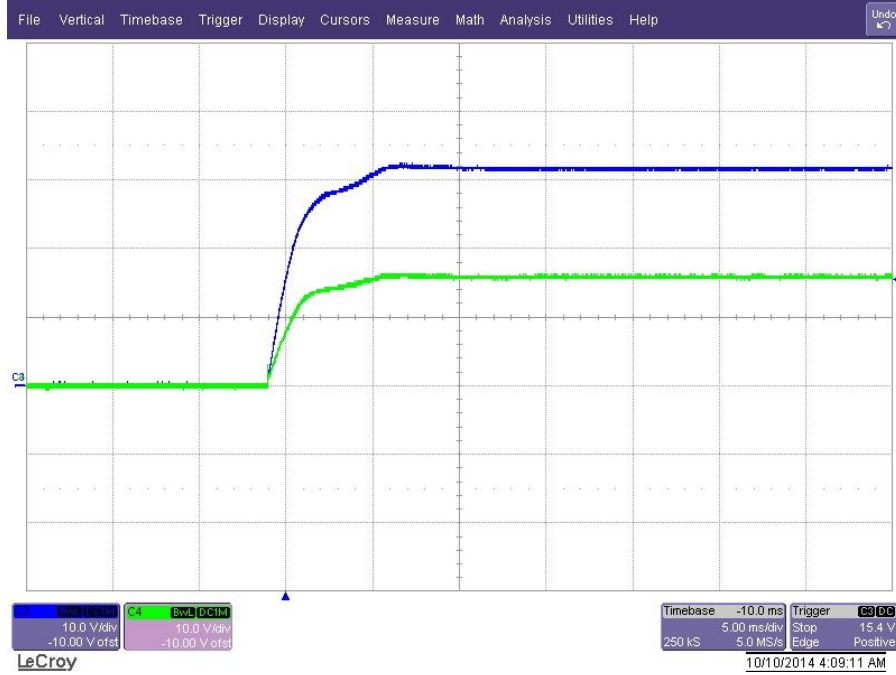
### 4.1 No Load @ 102V<sub>AC</sub>/60Hz



### 4.2 Full Load (32V/10A and 15V/1A) @ 110V<sub>AC</sub>/60Hz



## 4.3 No Load @ 120V<sub>AC</sub>/60Hz



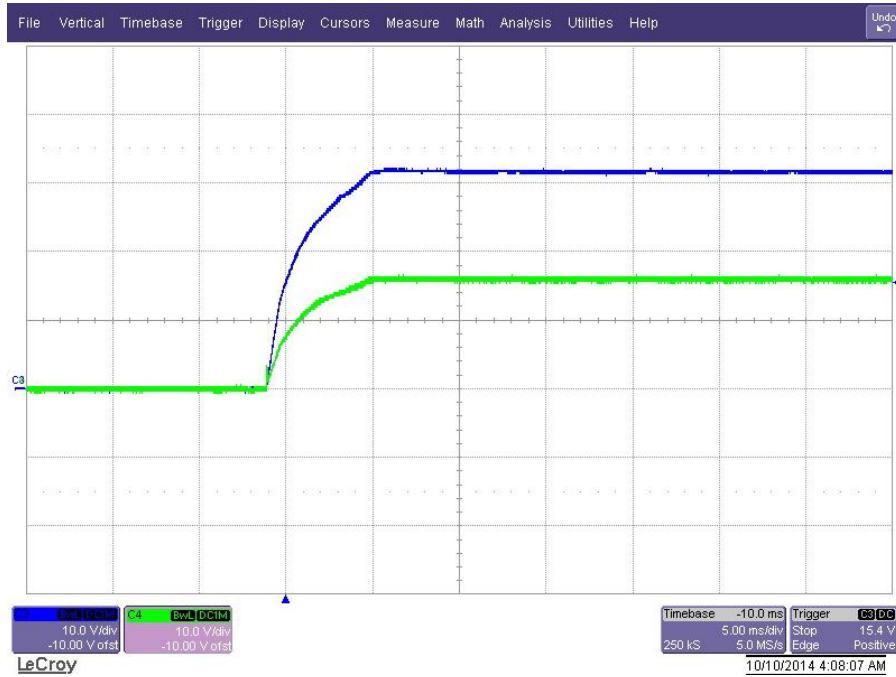
## 4.4 Full Load (32V/10A and 15V/1A) @ 120V<sub>AC</sub>/60Hz



## 4.5 No Load @ 132V<sub>AC</sub>/60Hz



## 4.6 Full Load (32V/10A and 15V/1A) @ 132V<sub>AC</sub>/60Hz

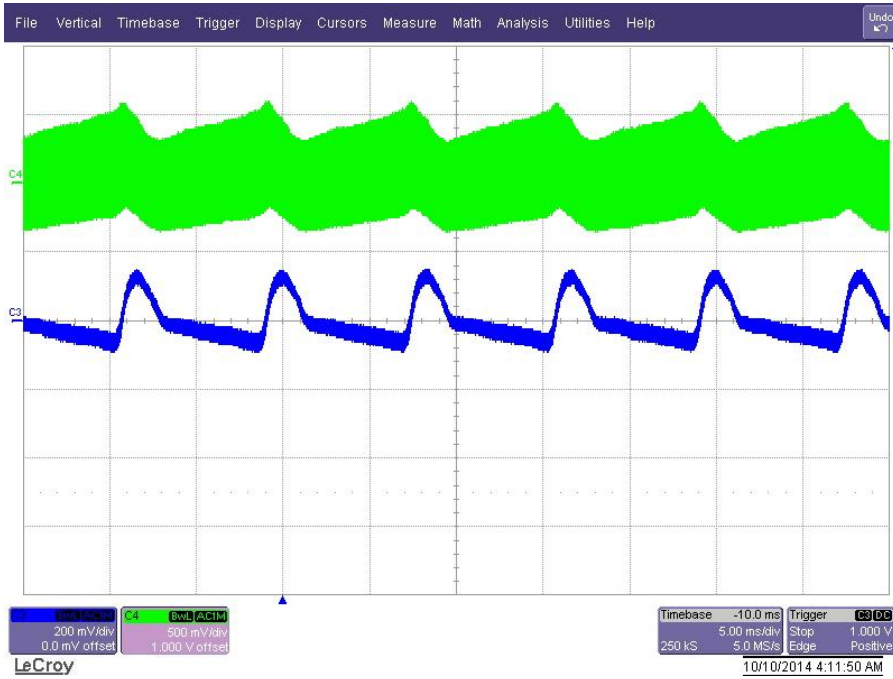




## 5 Output Ripple Voltage

The output ripple voltages at full load (32V/10A and 15V/1A) are shown in the plots below.

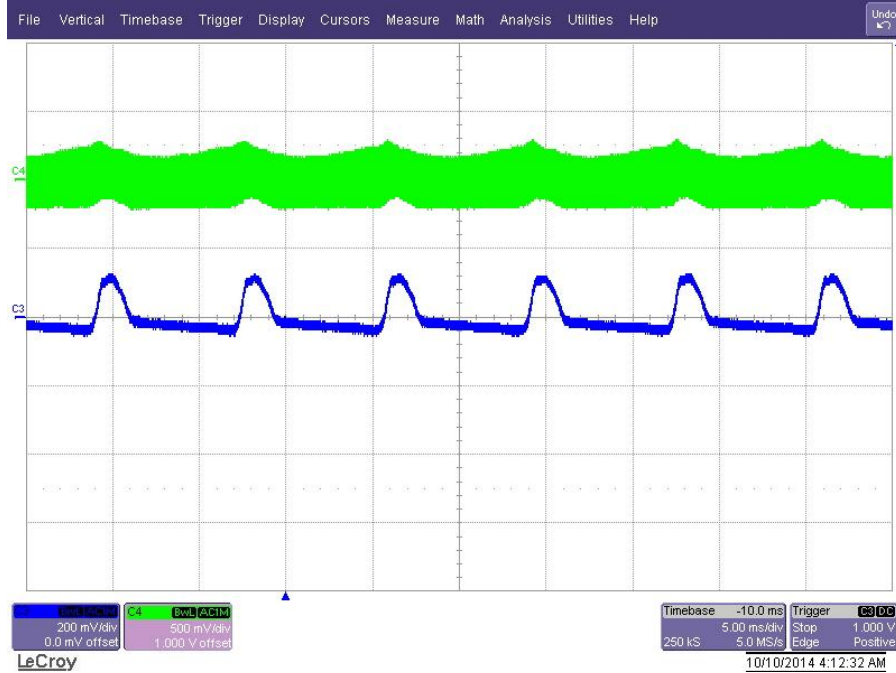
### 5.1 Full Load @ $V_{in}=102V_{AC}/60Hz$



### 5.2 Full Load @ $V_{in}=120V_{AC}/60Hz$



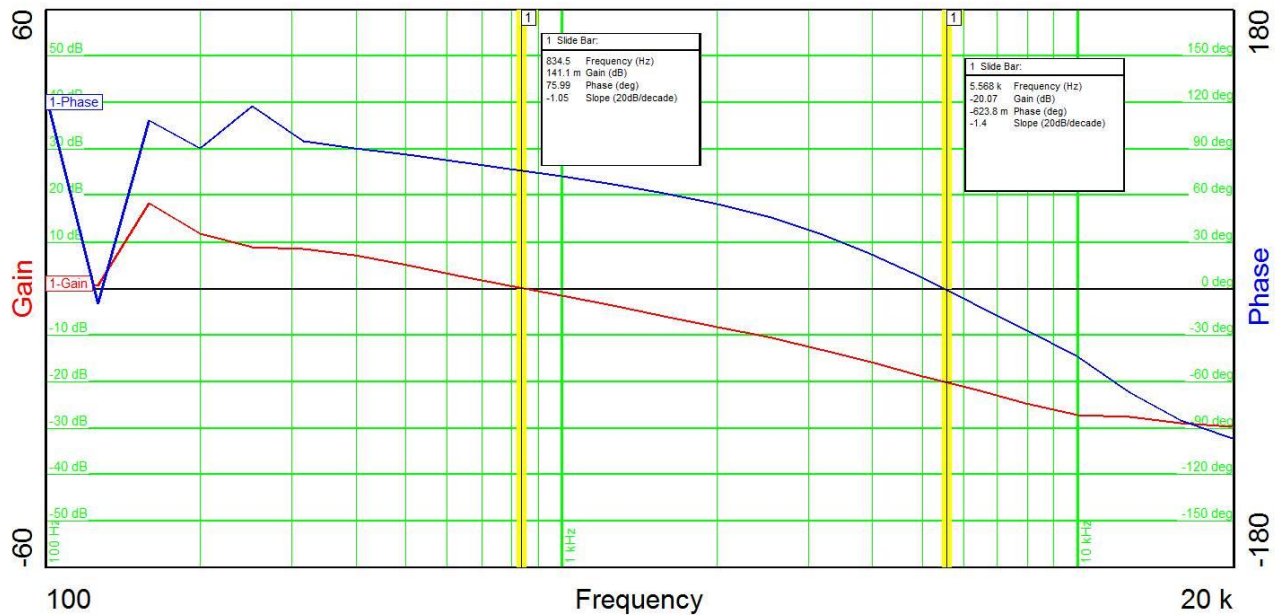
### 5.3 Full Load @ $V_{in}=132V_{AC}/60Hz$



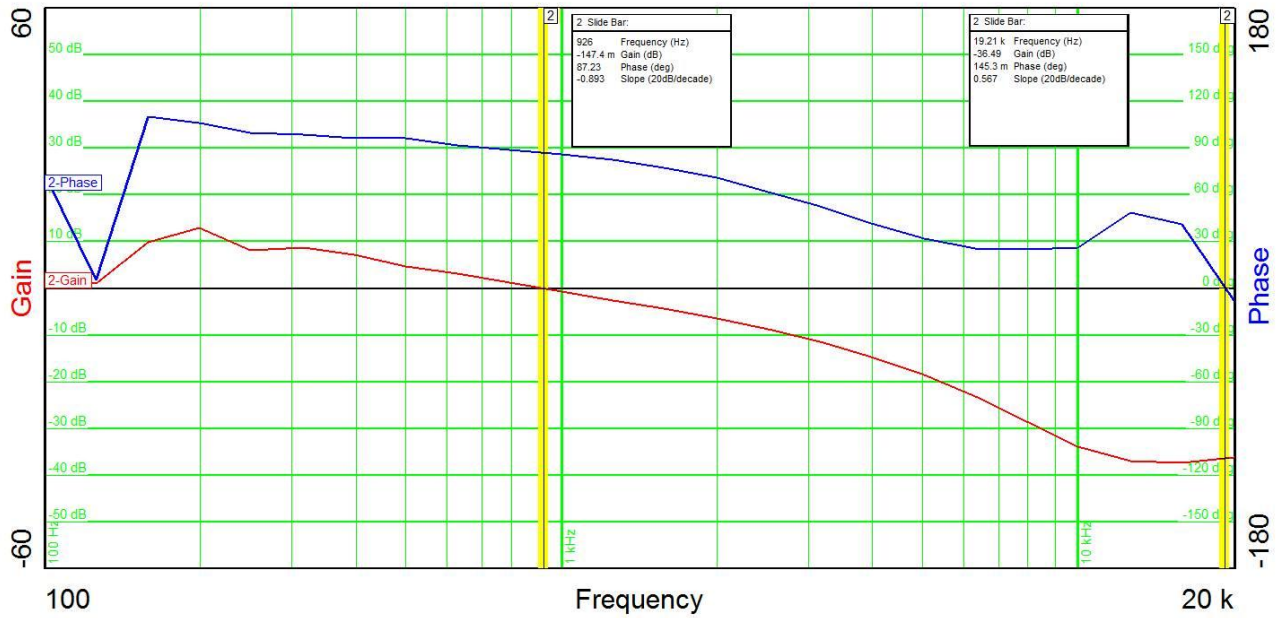
## 6 Loop Response

The frequency response of the feedback loop is shown in the image below. The frequency response was measured by inserting small signal from TP3 and TP4. The outputs were at full load (32V/10A and 15V/1A).

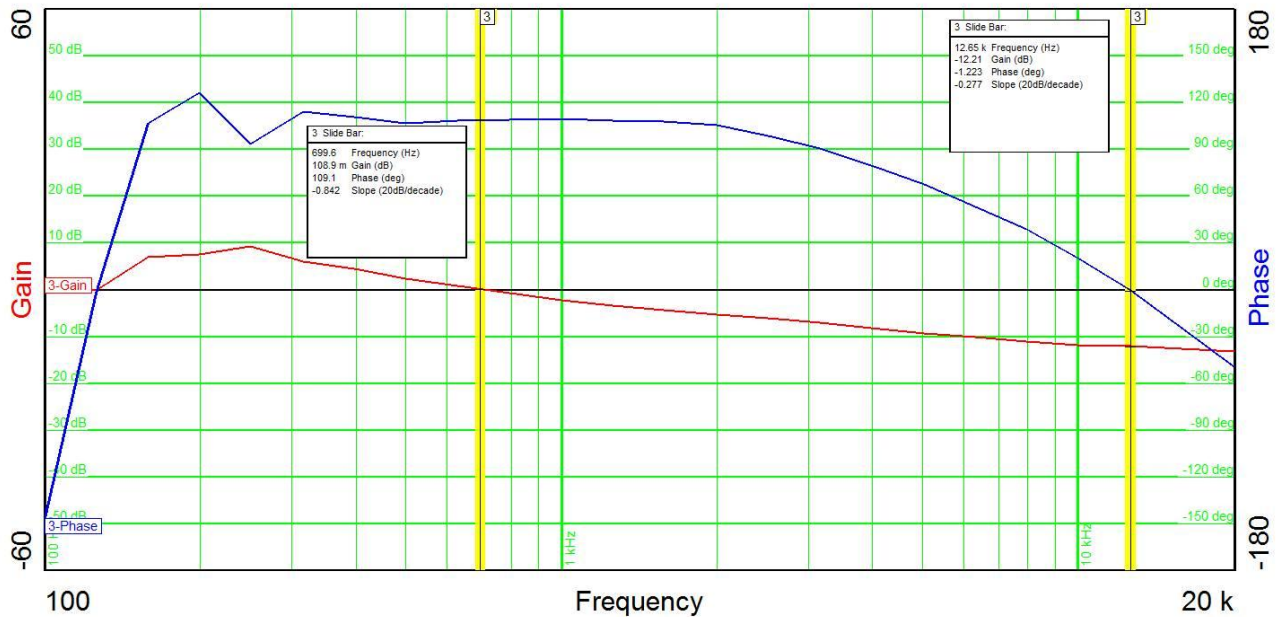
### 6.1 110 V<sub>AC</sub>



6.2 120 V<sub>AC</sub>



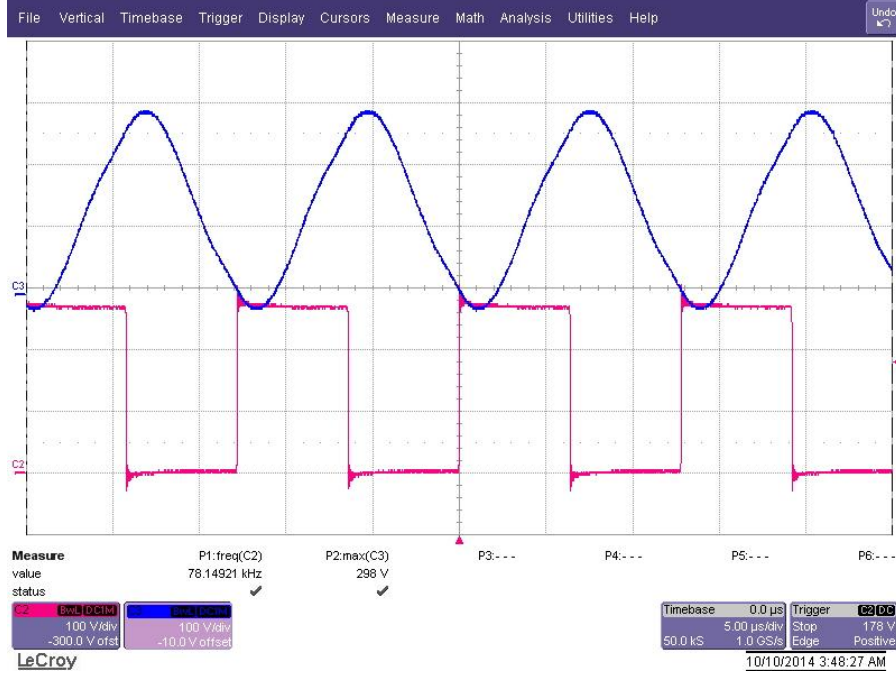
6.3 132V V<sub>AC</sub>



## 7 Switching Waveforms

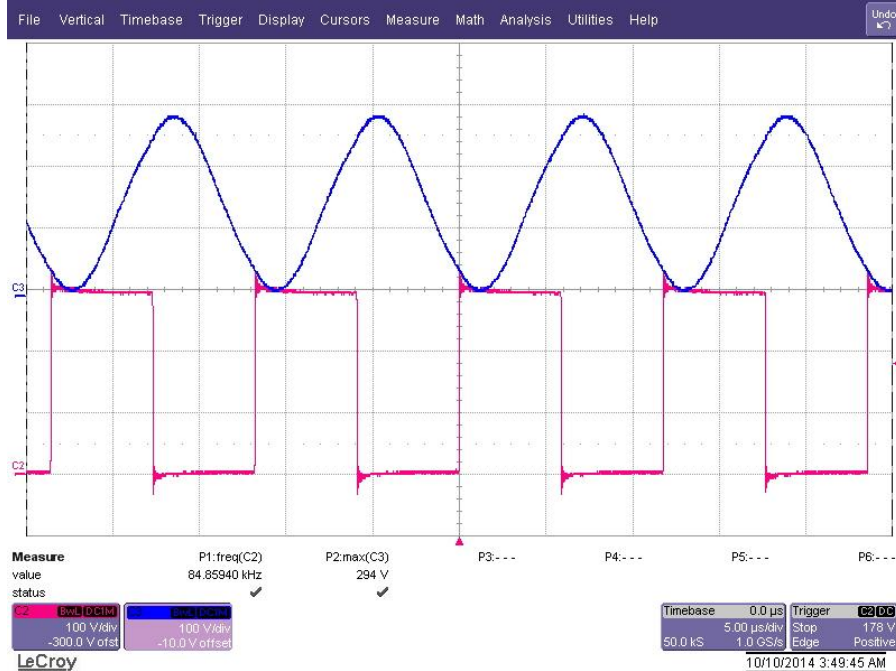
### 7.1 Q4 $V_{DS}$ and C20 voltage @ 110V<sub>AC</sub>, 32V<sub>out</sub>/10A and 15V/1A

Channel 2: Q4  $V_{DS}$ , Channel 3: C20 Voltage



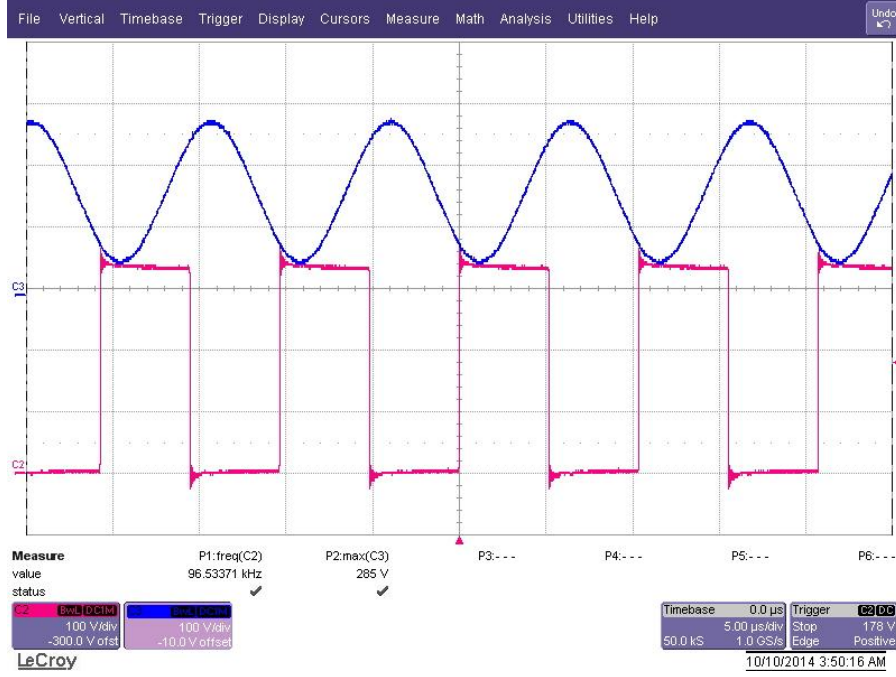
### 7.2 Q4 $V_{DS}$ and C20 voltage @ 120V<sub>AC</sub>, 32V<sub>out</sub>/10A and 15V/1A

Channel 1: Q4  $V_{DS}$ , Channel 2: C20 Voltage



## 7.3 Q4 $V_{DS}$ and C20 voltage @ 132V<sub>AC</sub>, 32V<sub>out</sub>/10A and 15V/1A

Channel 1: Q4  $V_{DS}$ , Channel 2: C20 Voltage



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