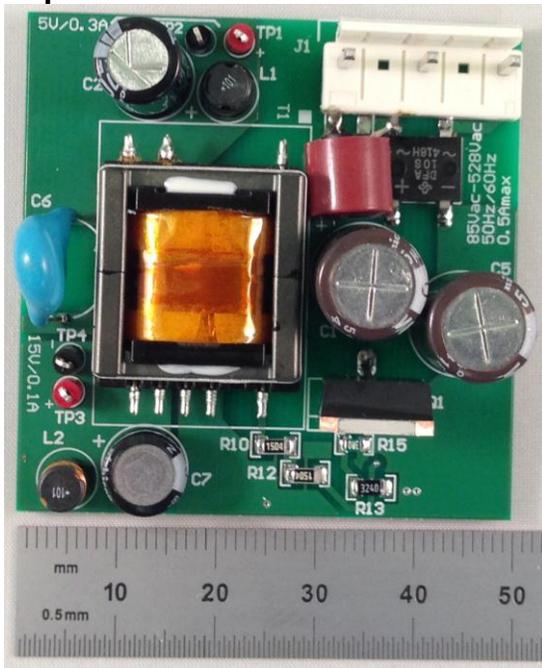


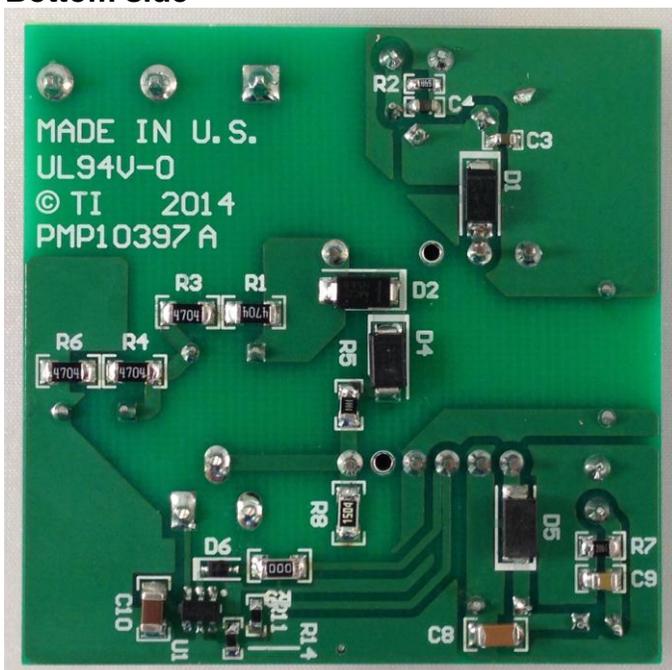
1 Photo

The photographs below show the PMP10397 Rev A assembly. This circuit was built on a PMP10397 Rev A PCB.

Top side



Bottom side



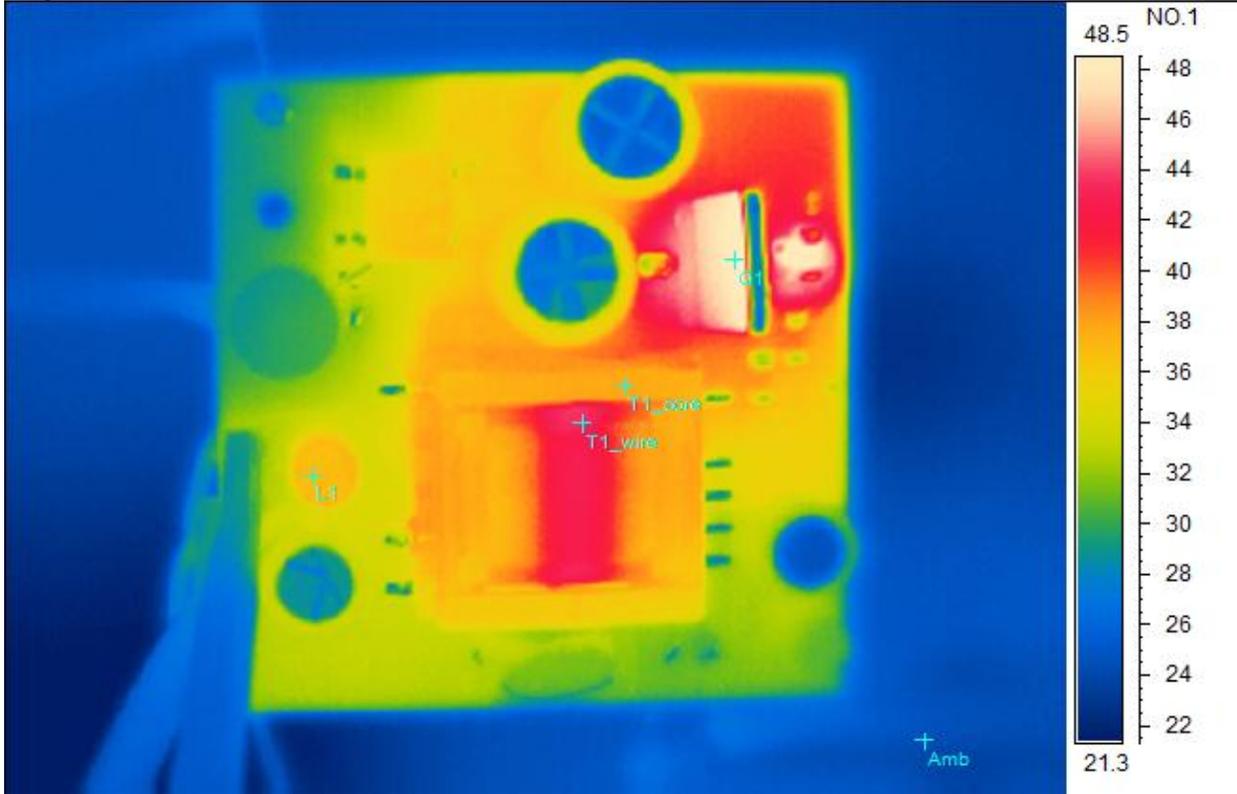
2 Thermal Images

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 outputs were at 5V/0.3A and 15V/0.1A loads.

85V_{AC}

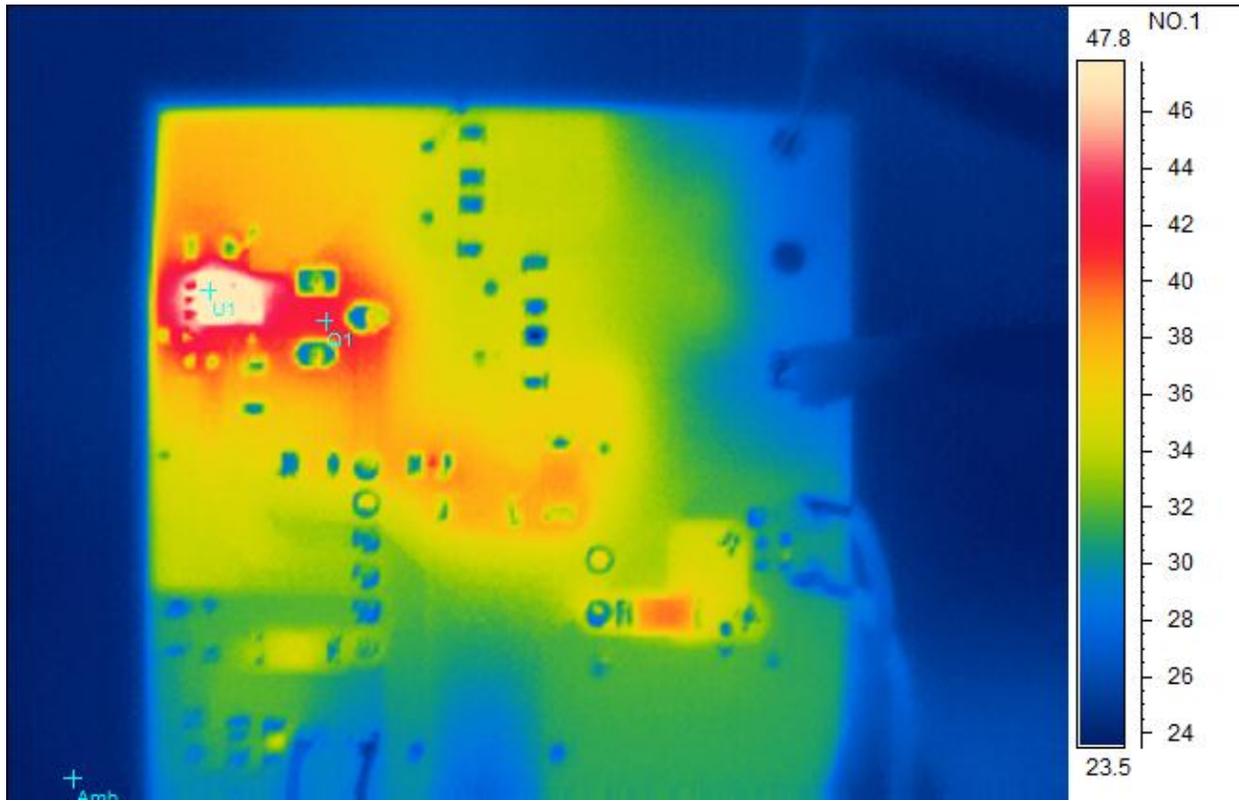
- $P_{in}=4.95W$, $15V_{out}=16.55V/0.1A$, $5V_{out}=5.001V/0.2984A$, Efficiency: 63.6%

Top Side



Spot analysis	Value
AmbTemperature	24.6°C
T1_wireTemperature	43.8°C
T1_coreTemperature	38.1°C
Q1Temperature	48.8°C
L1 Temperature	37.2°C

Bottom Side

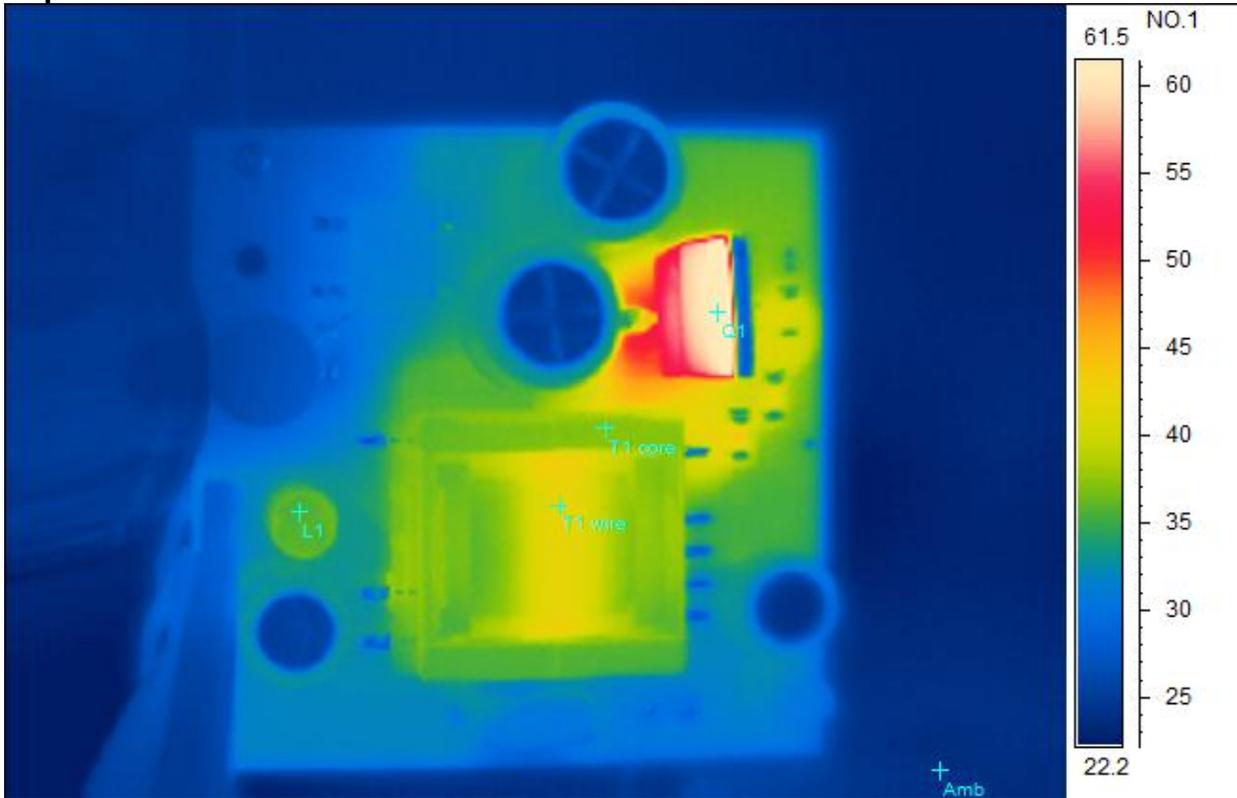


Spot analysis	Value
U1 Temperature	56.5°C
Amb Temperature	23.9°C
Q1 Temperature	41.9°C

528V_{AC} (528V_{AC} is generated by an 264V_{AC} with a voltage doubler circuit):

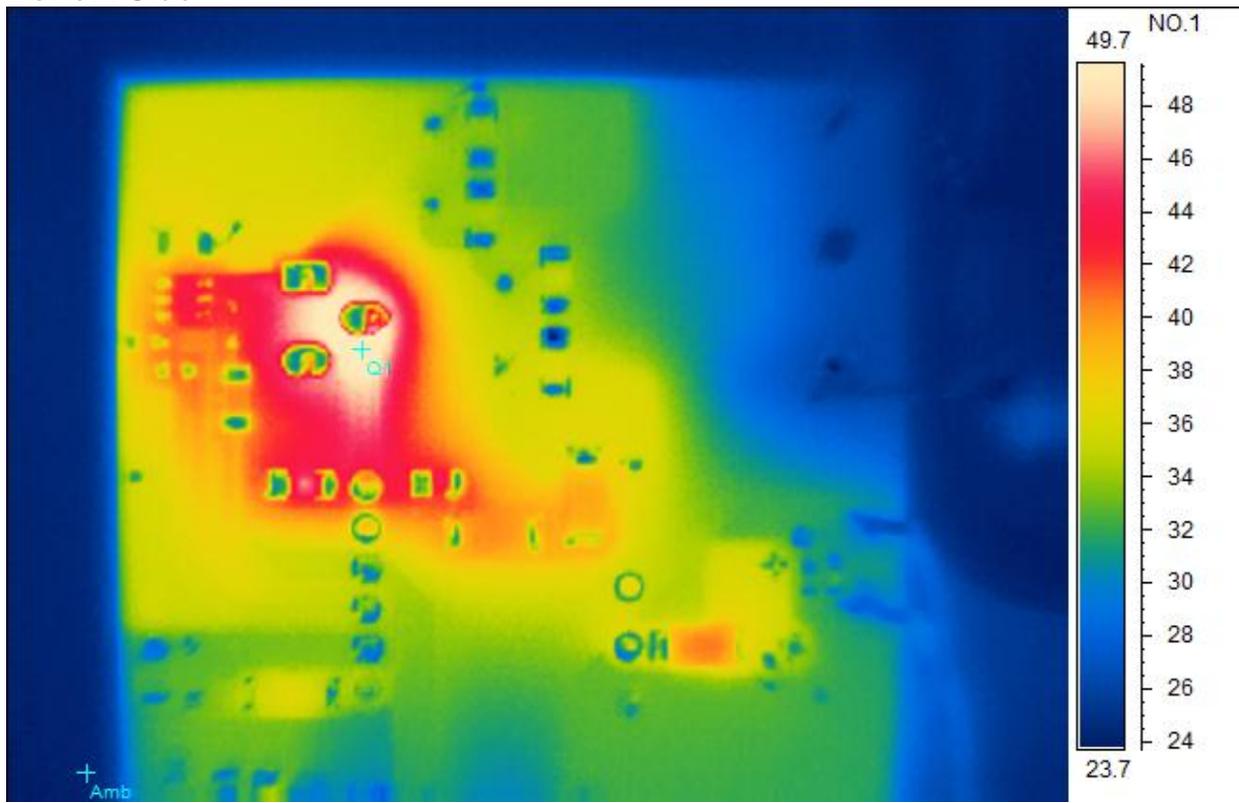
- P_{in}=5.137W, 15V_{out}=16.62V/0.1004A, 5V_{out}=5.024V/0.2984A, Efficiency: 61.7%

Top Side



Spot analysis	Value
AmbTemperature	24.2°C
Q1Temperature	62.8°C
T1 wireTemperature	43.0°C
T1 coreTemperature	38.2°C
L1 Temperature	36.4°C

Bottom Side



Spot analysis	Value
Q1 Temperature	51.0°C
Amb Temperature	24.4°C

3 Startup

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

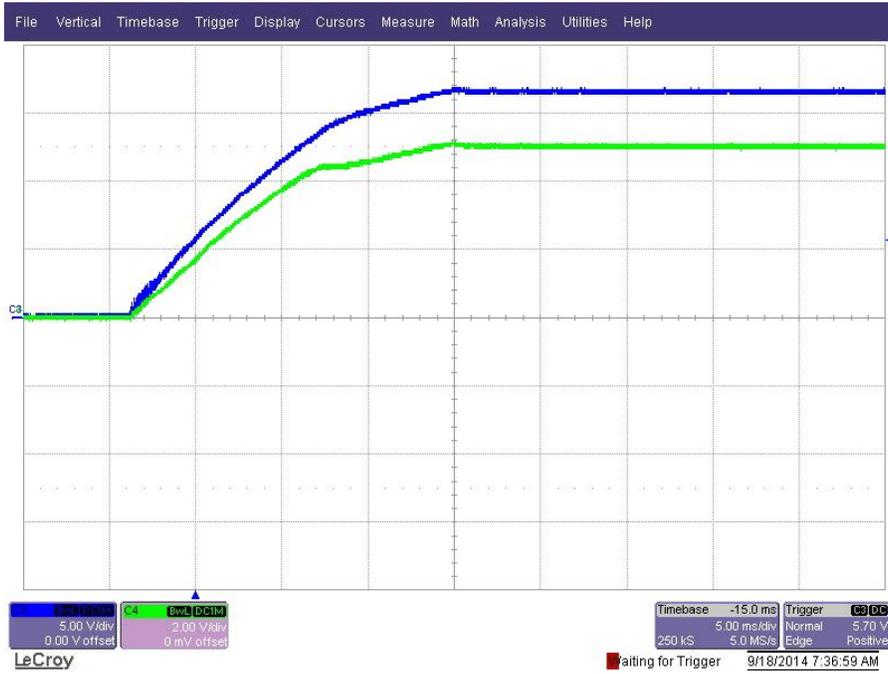
3.1 Start Up @ 85V_{AC}: 5V/0.3A, 15V/0.1A.



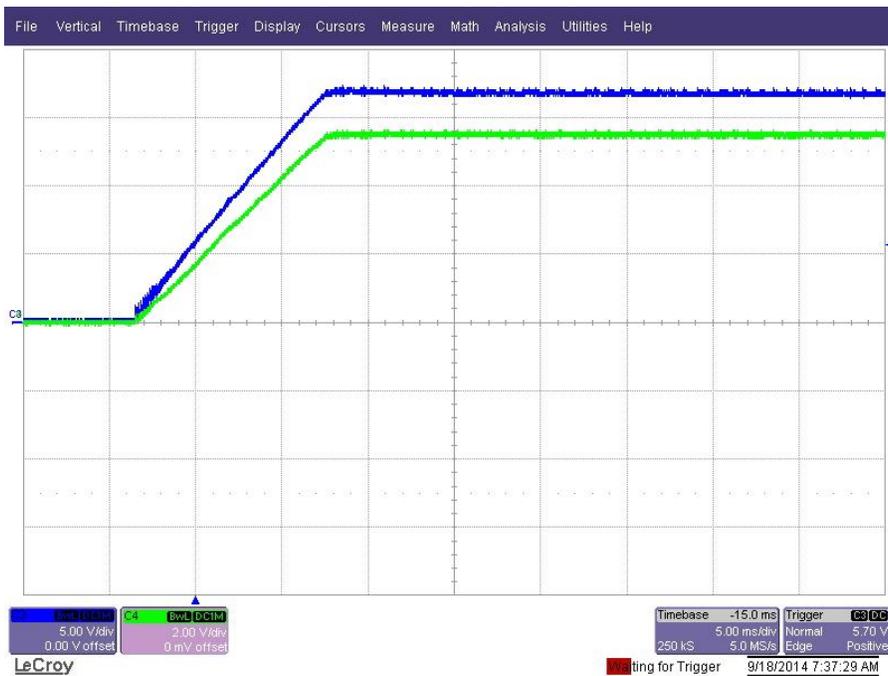
3.2 Start Up @ 85V_{AC}: no load.



3.3 Start Up @ 528V_{AC} (528V_{AC} is generated by an 264V_{AC} with a voltage doubler circuit): 5V/0.3A, 15V/0.1A.



3.4 Start Up @ 528V_{AC} (528V_{AC} is generated by an 264V_{AC} with a voltage doubler circuit): no load.



4 Cross regulation

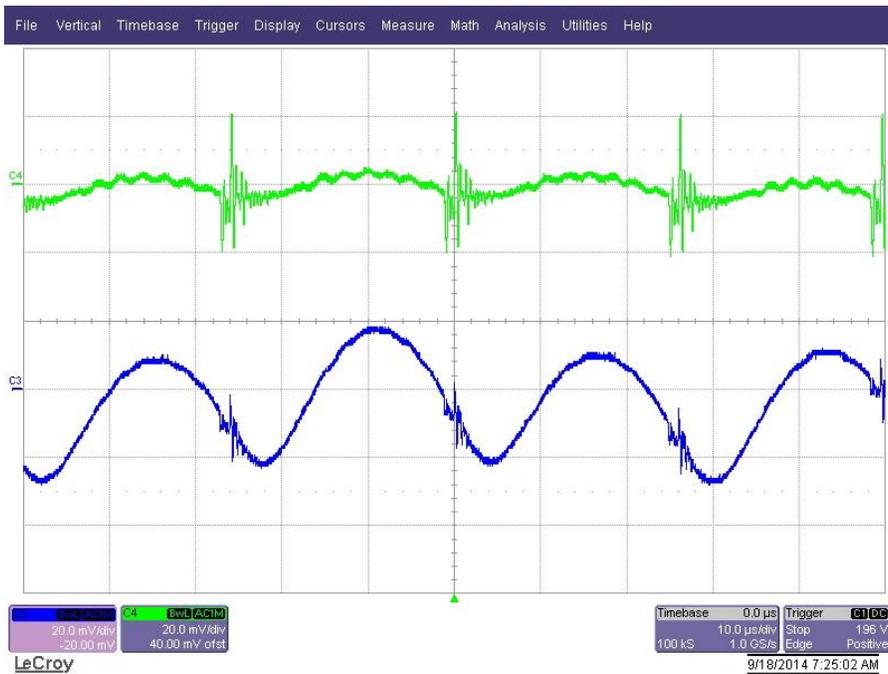
Output voltage cross regulation is tested at 120V_{AC}/60Hz input.

I _{out5V} (A)	I _{out15V} (A)	5V _{measured} (V)	15V _{measured} (V)
0.05	0	5.102	17.42
0.3	0.1	4.998	16.58
0.3	0	5.029	18.72
0.05	0.1	5.912	16.64

5 Output Ripple Voltages

The output ripple voltages are shown in the plots below at full load (5V/0.3A and 15V/0.1A).

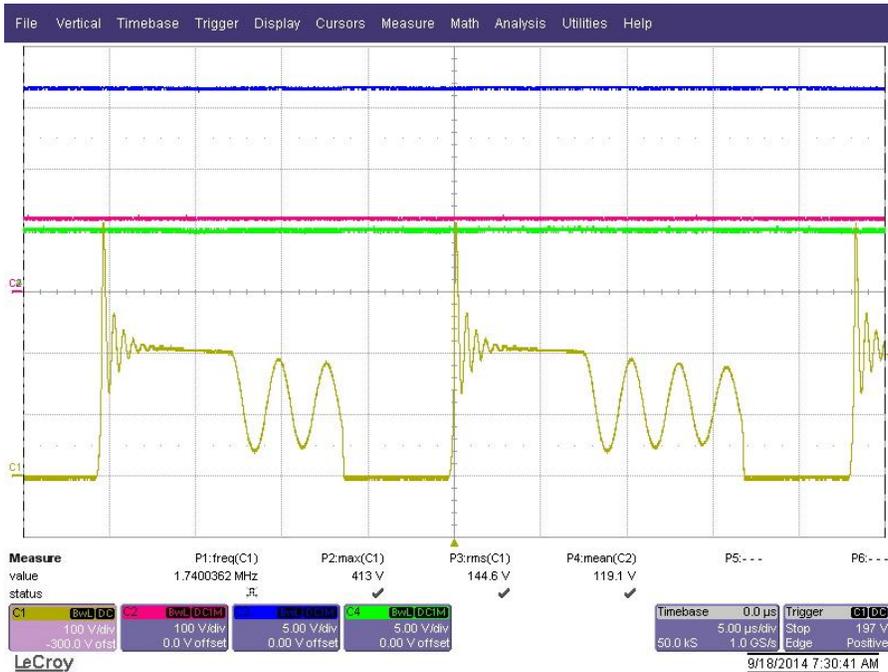
5.1 5V_{ripple} (CH4) and 15V_{ripple} (CH3) at 528V_{AC} (528V_{AC} is generated by an 264V_{AC} with a voltage doubler circuit)



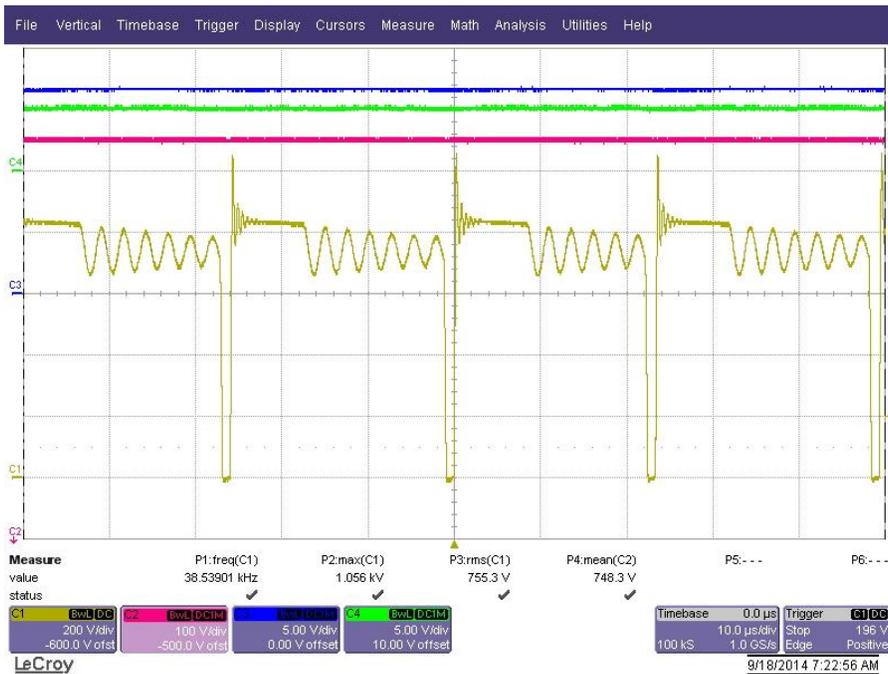
6 Switching Waveforms

The images below show key switching waveforms of PMP10397RevA. The waveforms are measured with 5V/0.3A and 15V/0.1A full load. CH1: $V_{CE}(Q_1)$, CH2: $V_{C1}+V_{C5}$, CH3: $15V_{out}$, CH4: $5V_{out}$

6.1 Primary Transistor Q1 @ 85V_{AC}



6.2 Primary Transistor Q1 @ 528V_{AC}



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