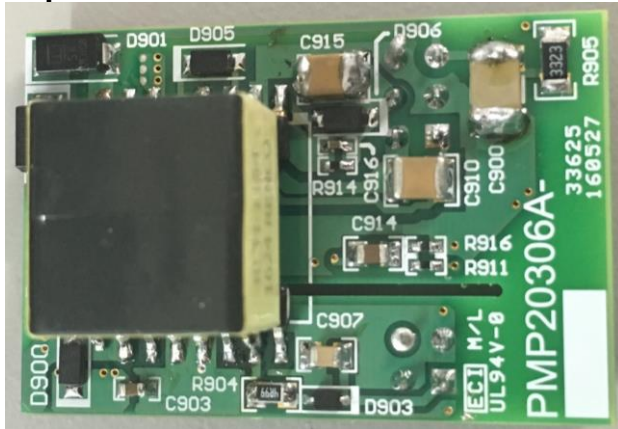


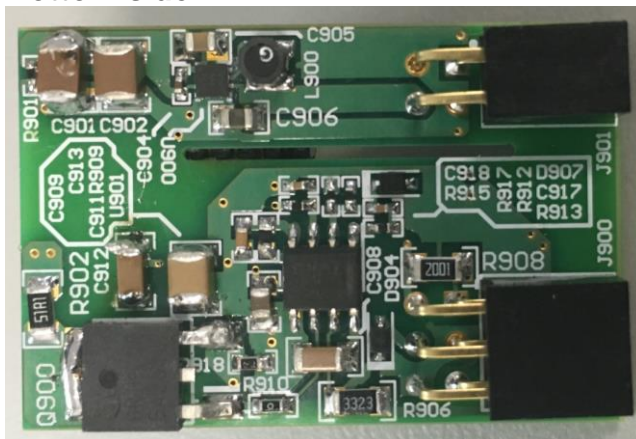
1 Photo

The photographs below show the PMP20306 Rev A assembly. This circuit was built on a PMP20306 Rev A PCB.

Top side



Bottom side



2 Cross Regulation

Load regulation under different load conditions is shown in the table below. The input voltage during this test was 350V_{DC}.

Iout (A)			Vout (V)		
5V@C902	12V _{PH} @C910	12V _{PL} @C915	5V@C902	12V _{PH} @C910	12V _{PL} @C915
0	0	0	5.85	11.94	12.06
0	0	0.06	6.4475	12.37	12.07
0	0.06	0	6.285	11.63	12.07
0	0.06	0.06	6.755	12.04	12.06
0.06	0	0	5.34	11.97	12.06
0.06	0	0.06	5.6875	12.34	12.05
0.06	0.06	0	5.5125	11.69	12.06
0.06	0.06	0.06	5.625	11.94	11.95

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.

110V_{DC}

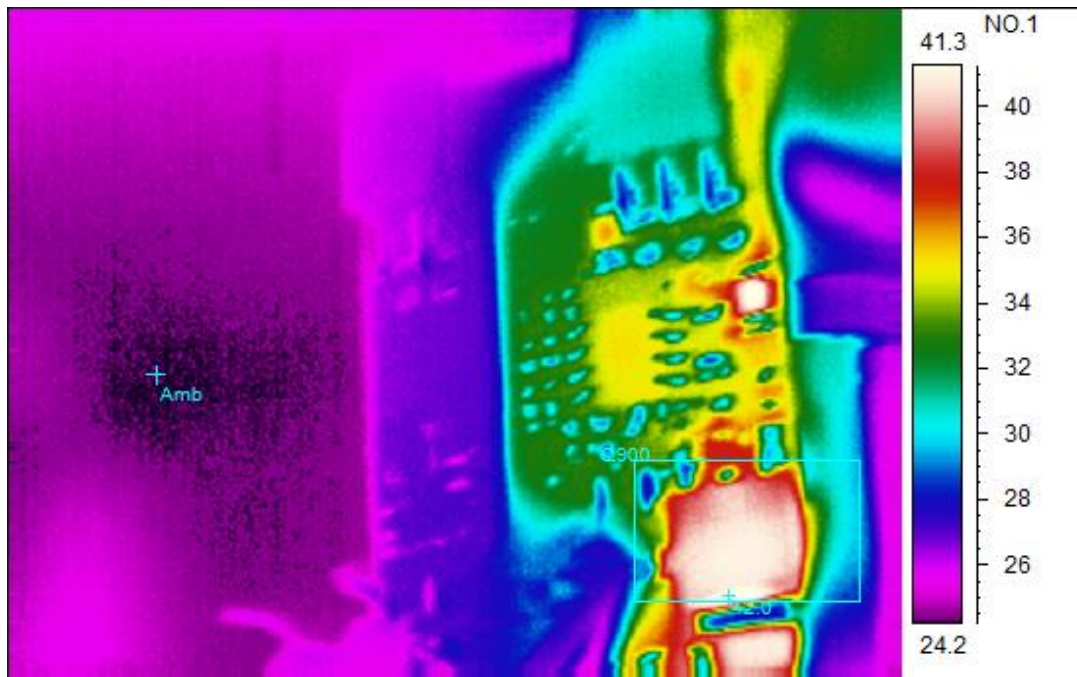
- $P_{in}=2.3W$, $V_{out1}=12.07V/0.062377A$, $V_{out2}=12.04V/0.06655A$, $V_{out3}=5.8V/0.06A$,
Efficiency: 82.7%

Top Side



Spot analysis	Value
AmbTemperature	23.7°C
Area analysis	Value
T900 Max	30.0°C

Bottom Side

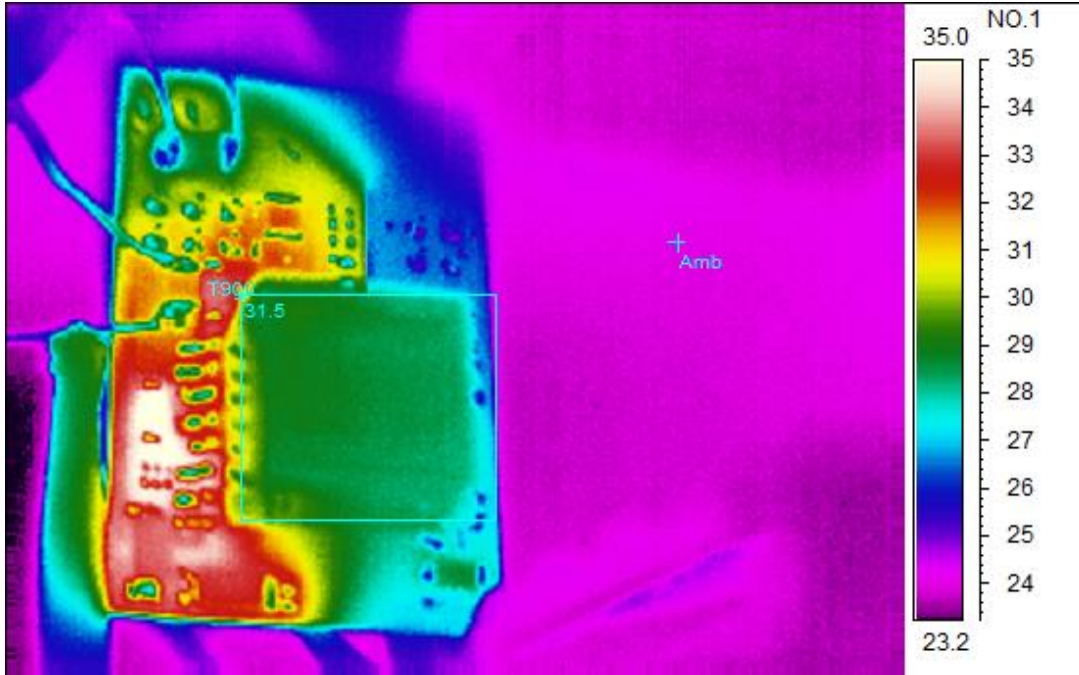


Spot analysis	Value
Amb Temperature	24.1°C
Area analysis	Value
Q900 Max	42.0°C

380V_{DC}:

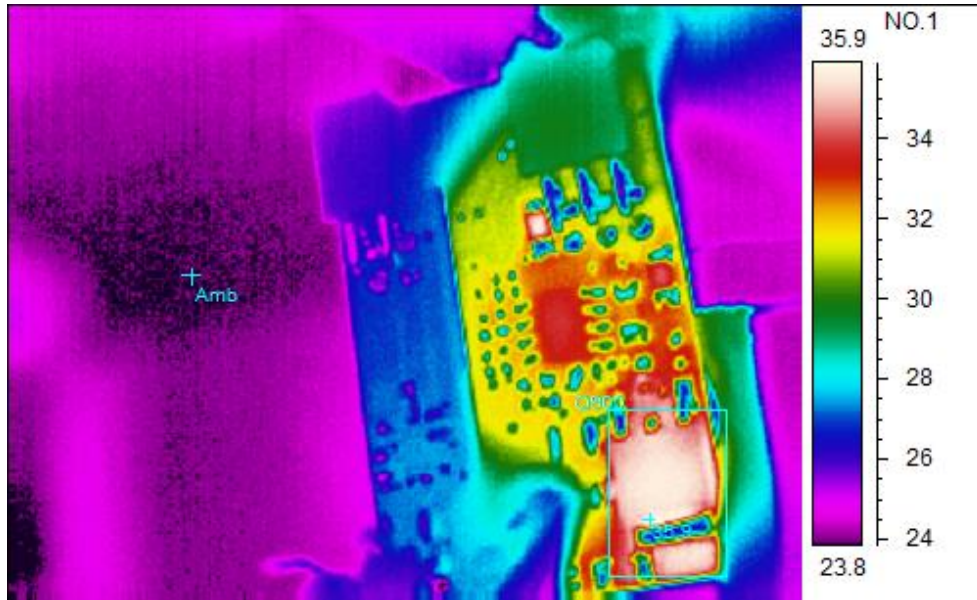
- $P_{in}=2.622W$, $V_{out1}=12.06V/0.0623A$, $V_{out2}=12.02V/0.06645A$, $V_{out3}=5.8V/0.06A$,
Efficiency: 72.4%

Top Side



Spot analysis	Value
AmbTemperature	24.0°C
Area analysis	Value
T900 Max	31.5°C

Bottom Side

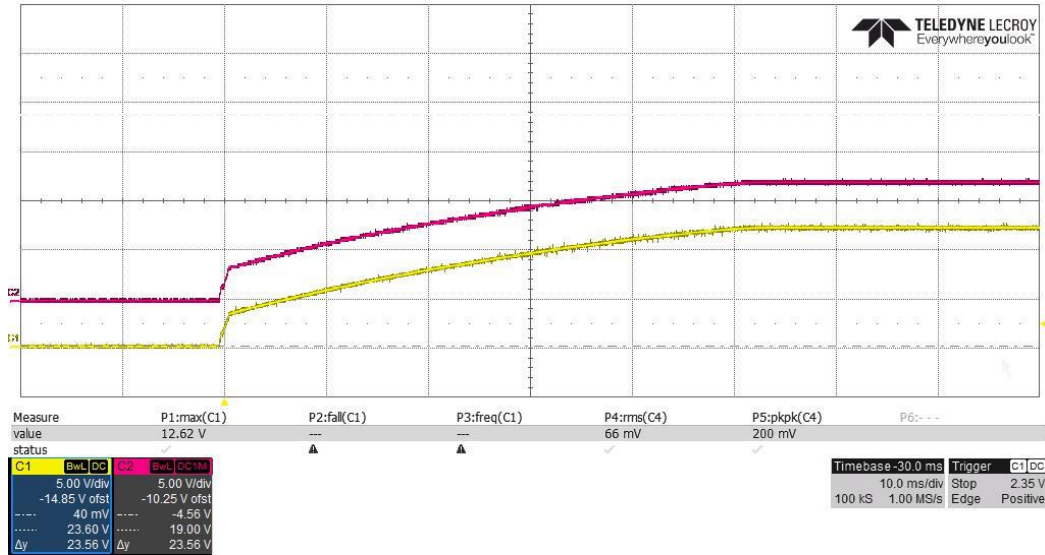
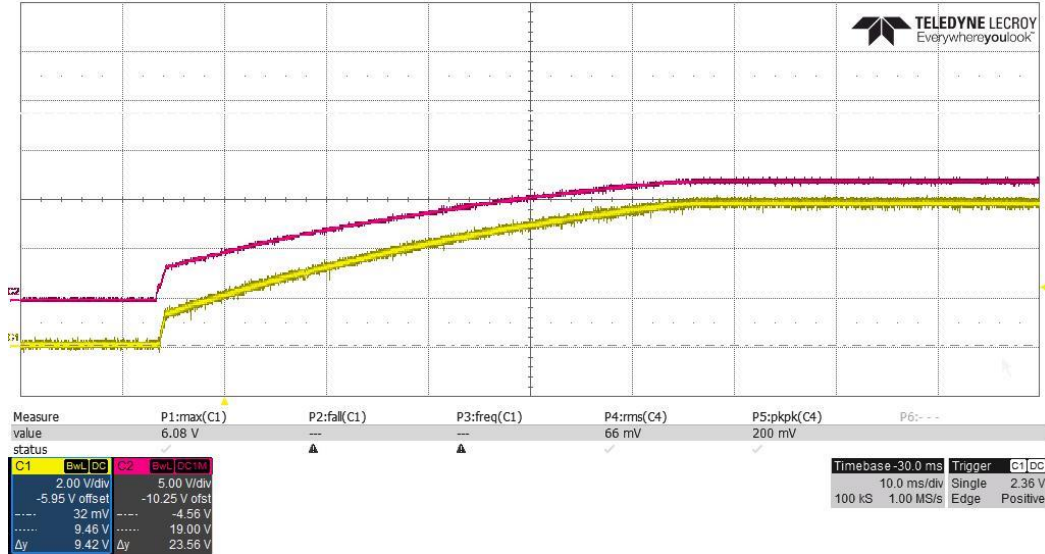


Spot analysis	Value
Amb Temperature	23.9°C
Area analysis	Value
Q900Max	35.9°C

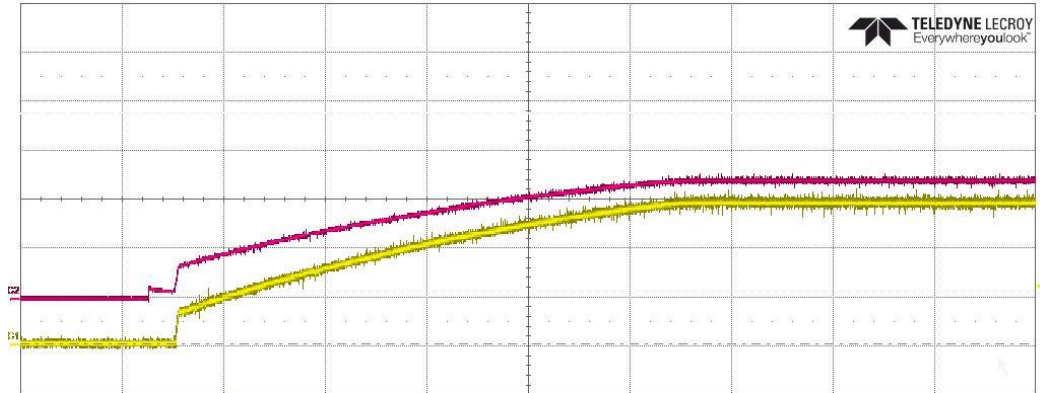
4 Startup

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

4.1 Start Up @ 200V_{DC}: 12V/0.06A, 12V/0.06A, 5.7V/0.06A



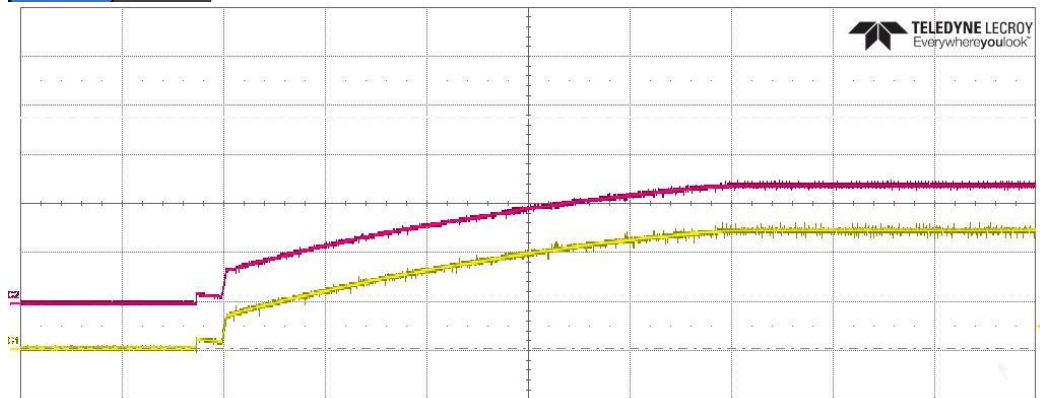
4.2 Start Up @ 380V_{DC}: 12V/0.06A, 12V/0.06A, 5.715V/0.06A,



Measure	P1:max(C1)	P2:fall(C1)	P3:freq(C1)	P4:rms(C4)	P5:pkpk(C4)	P6:---
value	6.35 V	---	---	66 mV	200 mV	---
status	---	▲	▲	✓	✓	---

C1	BwL DC	C2	BwL DC:NM
2.00 V/div	5.00 V/div		
-5.95 V ofst	-10.25 V ofst		
--- 32 mV	--- 4.56 V		
..... 9.46 V 19.00 V		
Δy 9.42 V	Δy 23.56 V		

Timebase	30.0 ms	Trigger	C1 DC
10.0 ms/div	Stop	2.36 V	
100 kS	1.00 MS/s	Edge	Positive



Measure	P1:max(C1)	P2:fall(C1)	P3:freq(C1)	P4:rms(C4)	P5:pkpk(C4)	P6:---
value	12.9 V	---	---	66 mV	200 mV	---
status	---	▲	▲	✓	✓	---

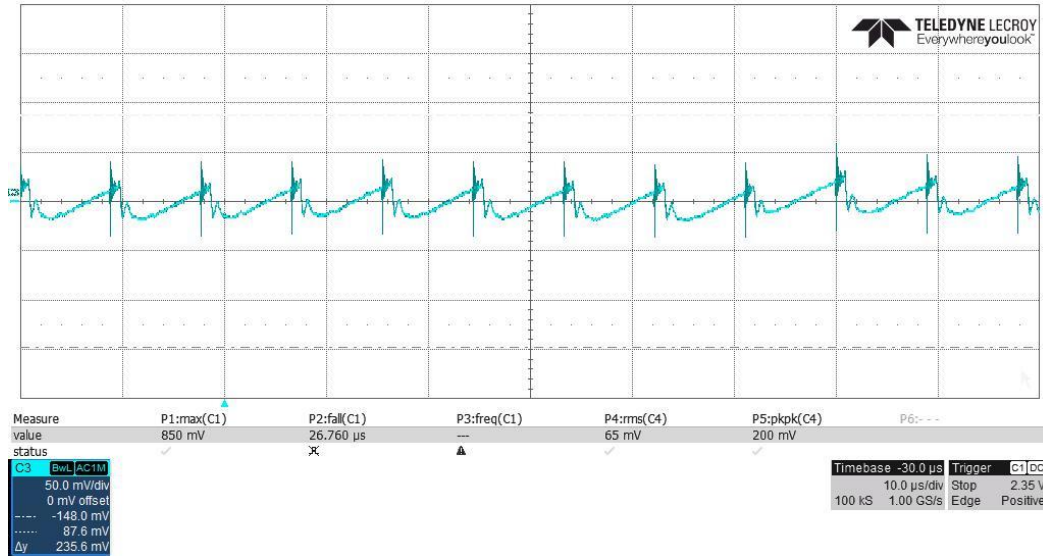
C1	BwL DC	C2	BwL DC:NM
5.00 V/div	5.00 V/div		
-14.85 V ofst	-10.25 V ofst		
--- 40 mV	--- 4.56 V		
..... 23.60 V 19.00 V		
Δy 23.56 V	Δy 23.56 V		

Timebase	30.0 ms	Trigger	C1 DC
10.0 ms/div	Stop	2.35 V	
100 kS	1.00 MS/s	Edge	Positive

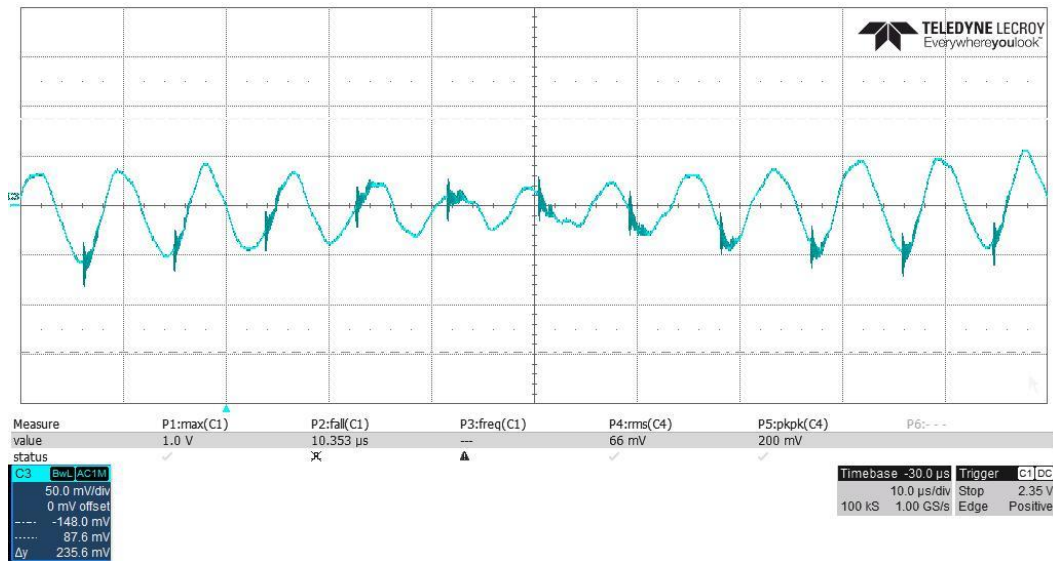
5 Output Ripple Voltages

The output ripple voltages are shown in the plots below at full load (12V/0.06A, 12V/0.06A, and 5.8V/0.06A).

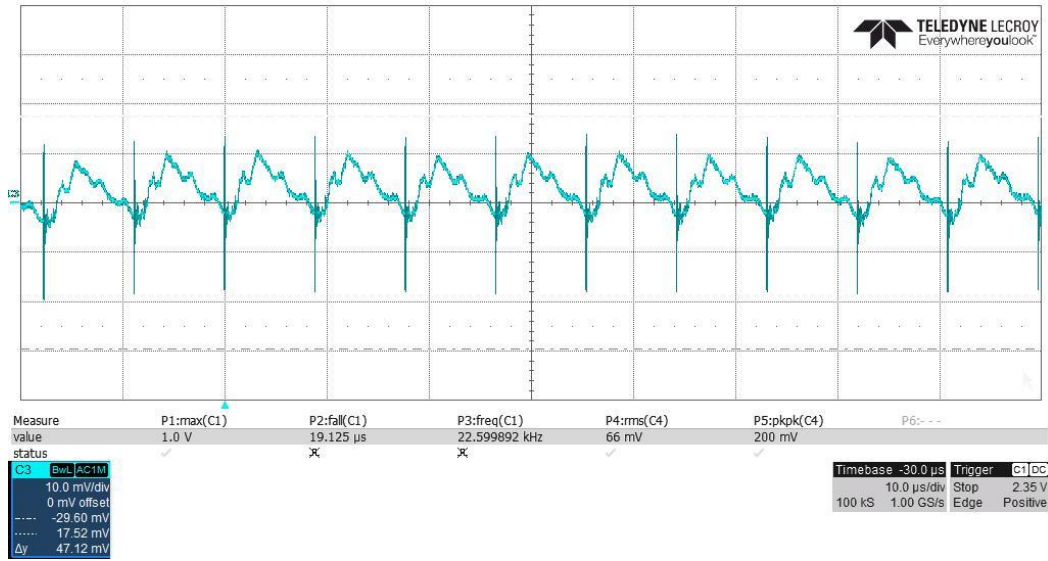
5.1 Output ripple at C912 @ 380V_{DC} input.



5.2 Output ripple at C915 @ 380V_{DC} input.



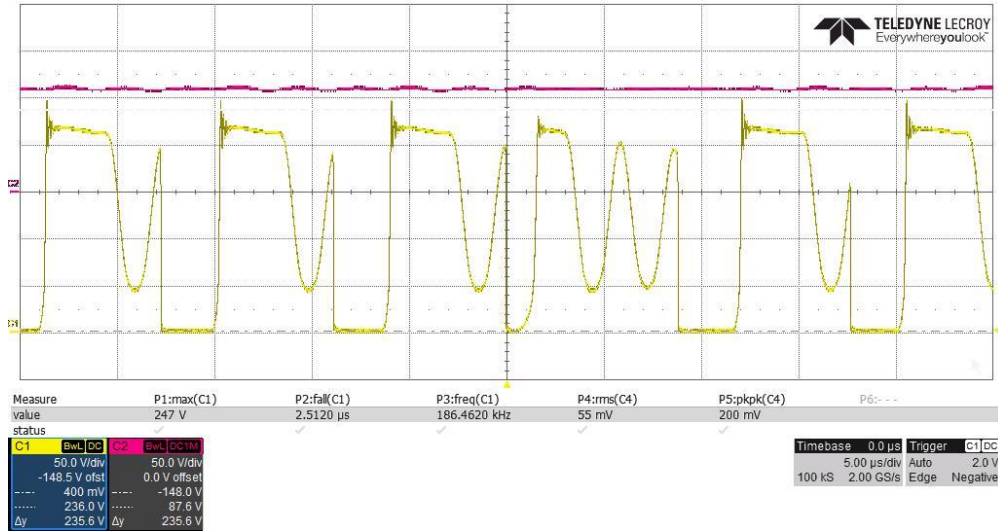
5.3 Output ripple at C901 @ 380V_{DC} input.



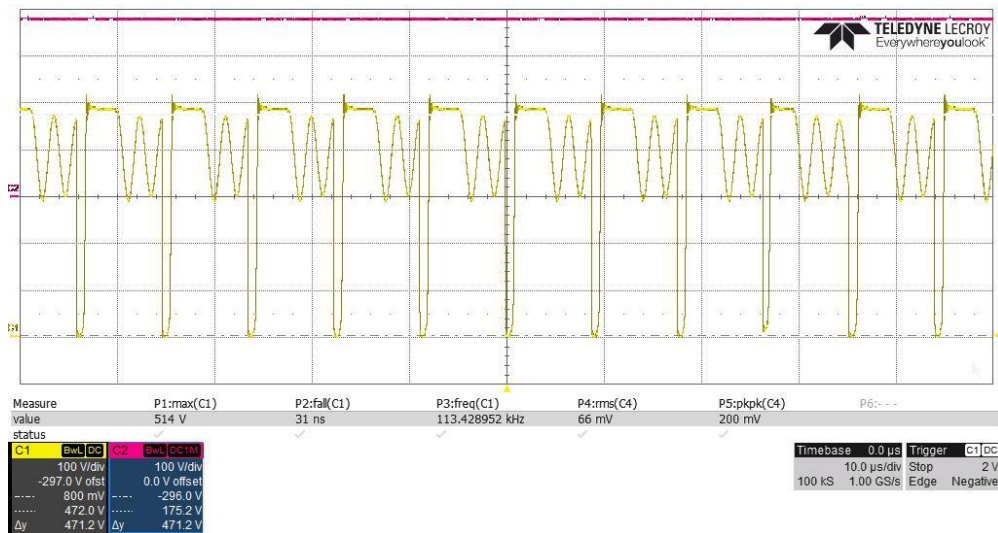
6 Switching Waveforms

The images below show key switching waveforms of PMP20306RevA. The waveforms are measured with 14V_{PH}/0.2A, 14V_{PL}/0.2A, and 5V/0.1A full load. CH1: U900 pin 8, CH2: V_{in}

6.1 Primary Transistor Q1 @ 110V_{DC}



6.2 Primary Transistor Q1 @ 380V_{DC}



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