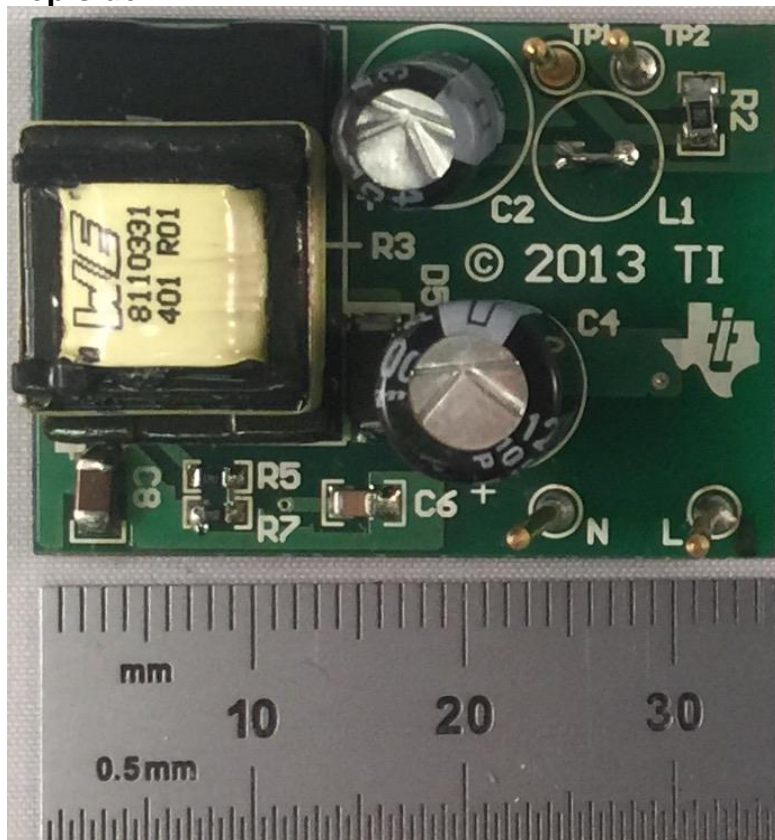


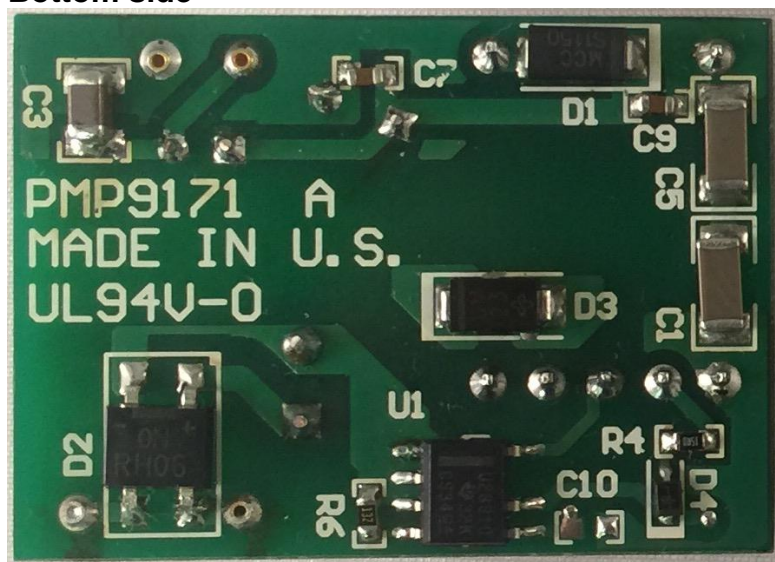
1 Photo

The photographs below show the PMP11405 Rev A assembly. This circuit was built on a PMP9171 Rev A PCB.

Top side

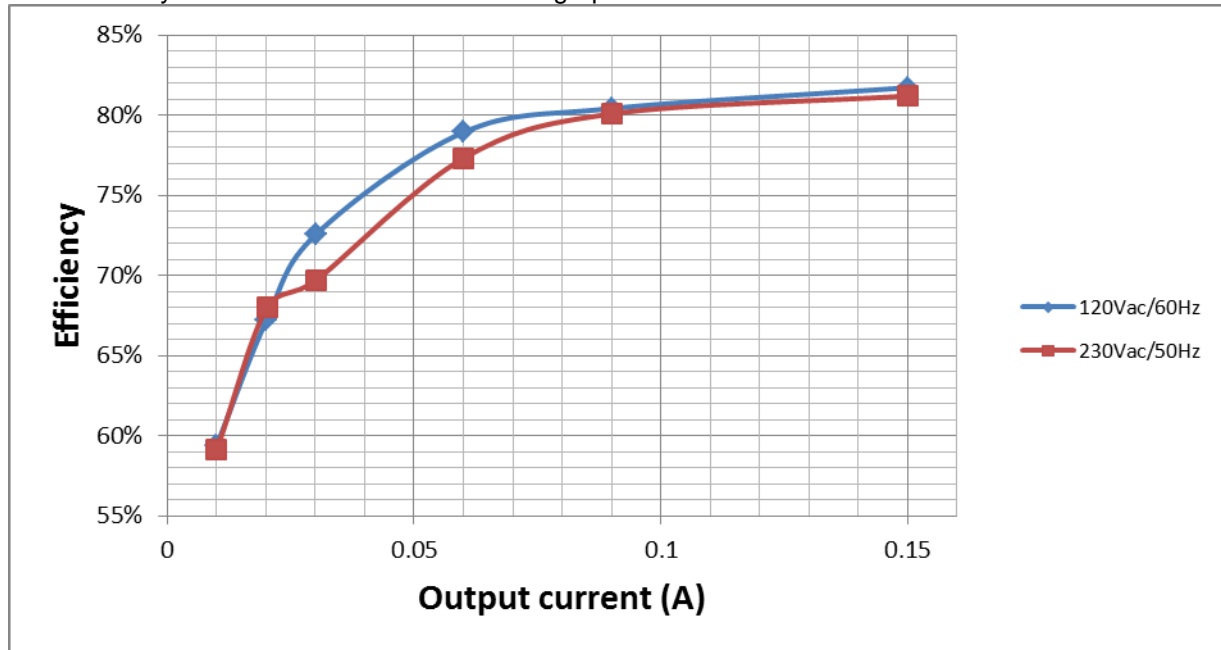


Bottom side



2 Converter Efficiency

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



$V_{in}=120V_{AC}/60Hz$

Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
120.01	71.95	4.452	24.239	0.1501	3.638274	0.8137261	81.72%
120.05	48.76	2.713	24.216	0.0901	2.181862	0.5311384	80.42%
120.08	35.96	1.845	24.234	0.0601	1.456463	0.3885366	78.94%
120.09	22.24	1.007	24.275	0.0301	0.730678	0.2763225	72.56%
120.1	17.205	0.7269	24.308	0.0201	0.488591	0.2383092	67.22%
120.1	10.511	0.4101	24.36	0.01	0.2436	0.1665	59.40%
120.12	2.712	0.09061	24.5	0	0	0.09061	0.00%

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

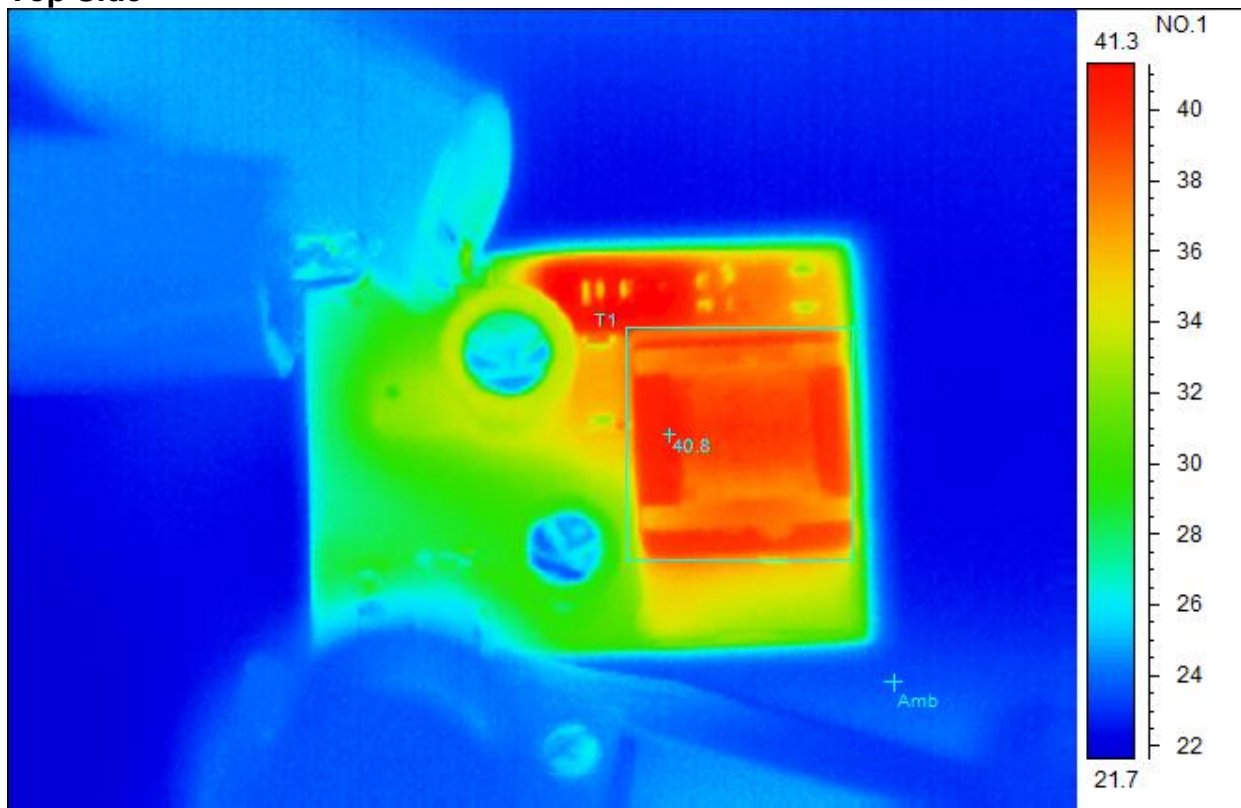
Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
230	48.35	4.473	24.215	0.15	3.63225	0.84075	81.20%
230	32.87	2.723	24.204	0.0901	2.18078	0.5422196	80.09%
230.1	24.87	1.883	24.228	0.0601	1.456103	0.4268972	77.33%
230.1	15.273	1.048	24.266	0.0301	0.730407	0.3175934	69.70%
230.1	11.006	0.7231	24.338	0.0202	0.491628	0.2314724	67.99%
230.1	6.694	0.4126	24.384	0.01	0.24384	0.16876	59.10%
230.1	1.867	0.08862	24.466	0	0	0.08862	0.00%

3 Thermal Images

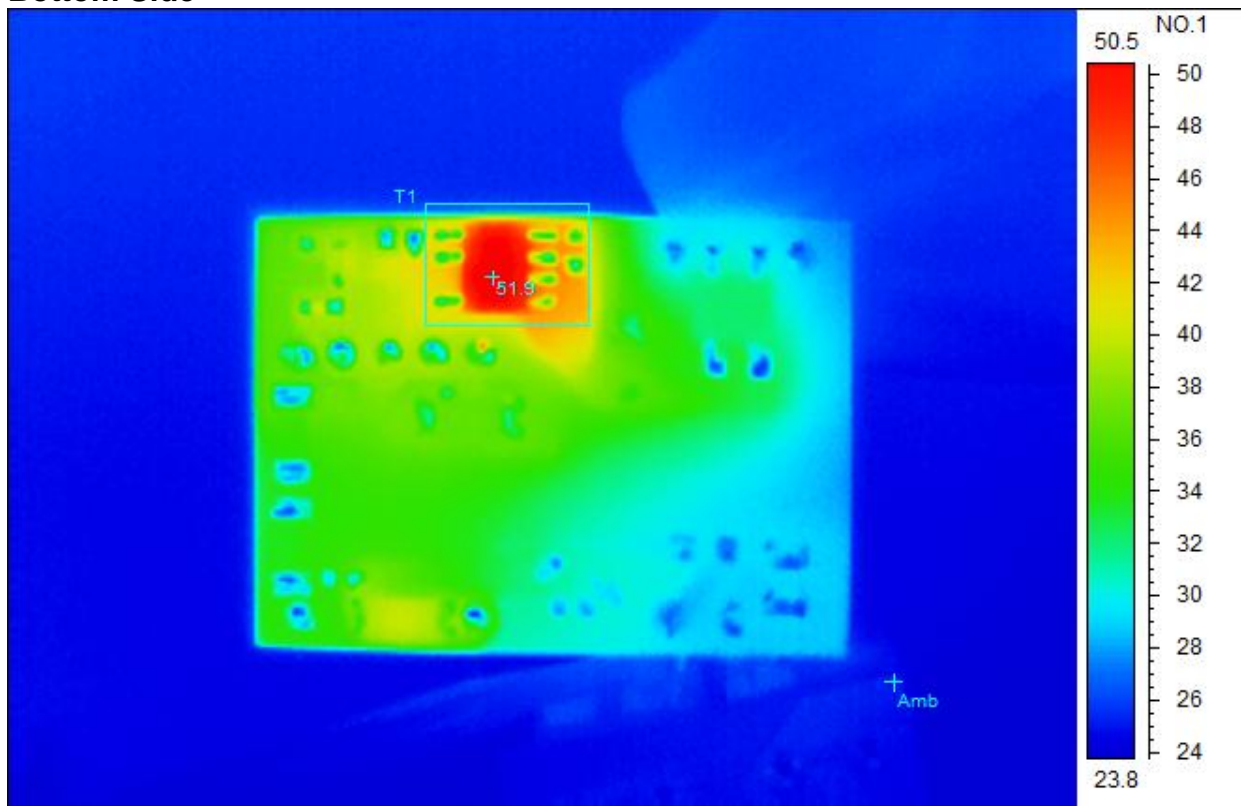
The thermal images below show a top view and bottom view of the board. The ambient temperature was 20°C with no forced air flow. The output was at full load: 24V/0.15A.

V_{in}=120V_{AC}/60Hz

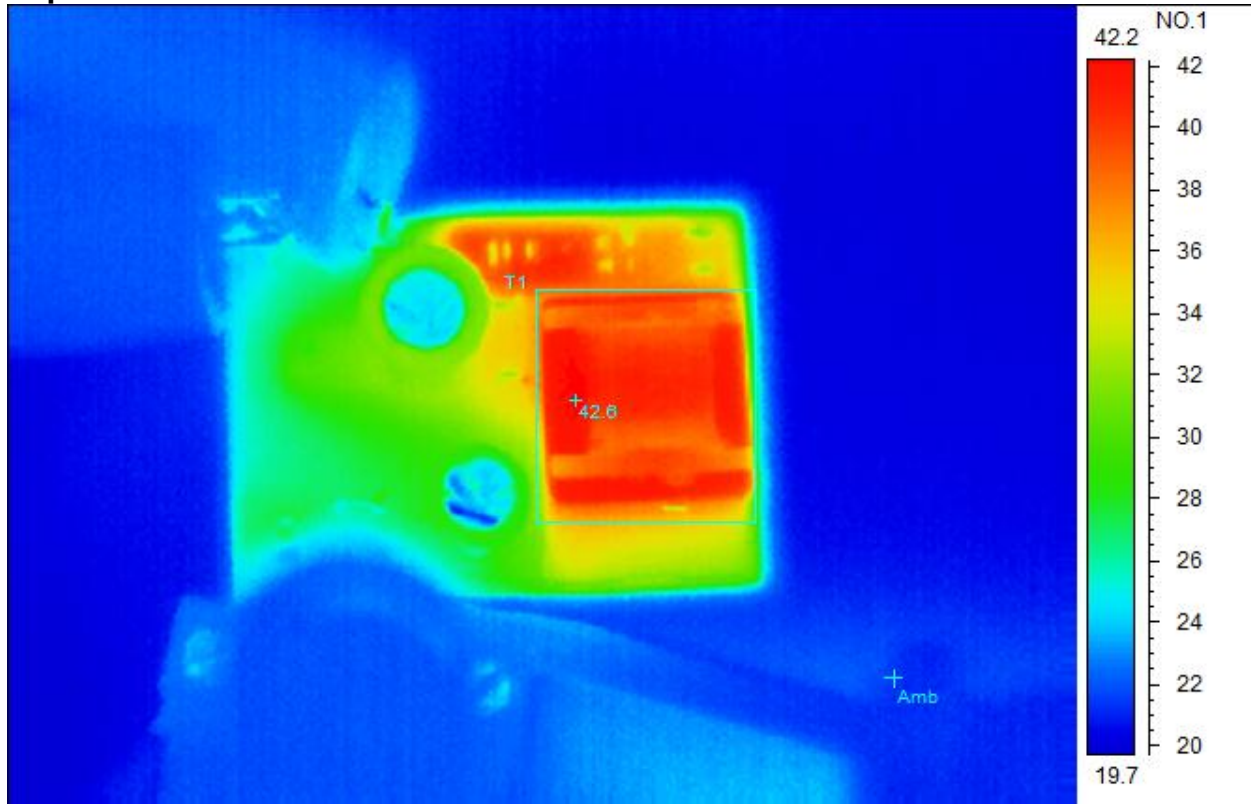
Top Side



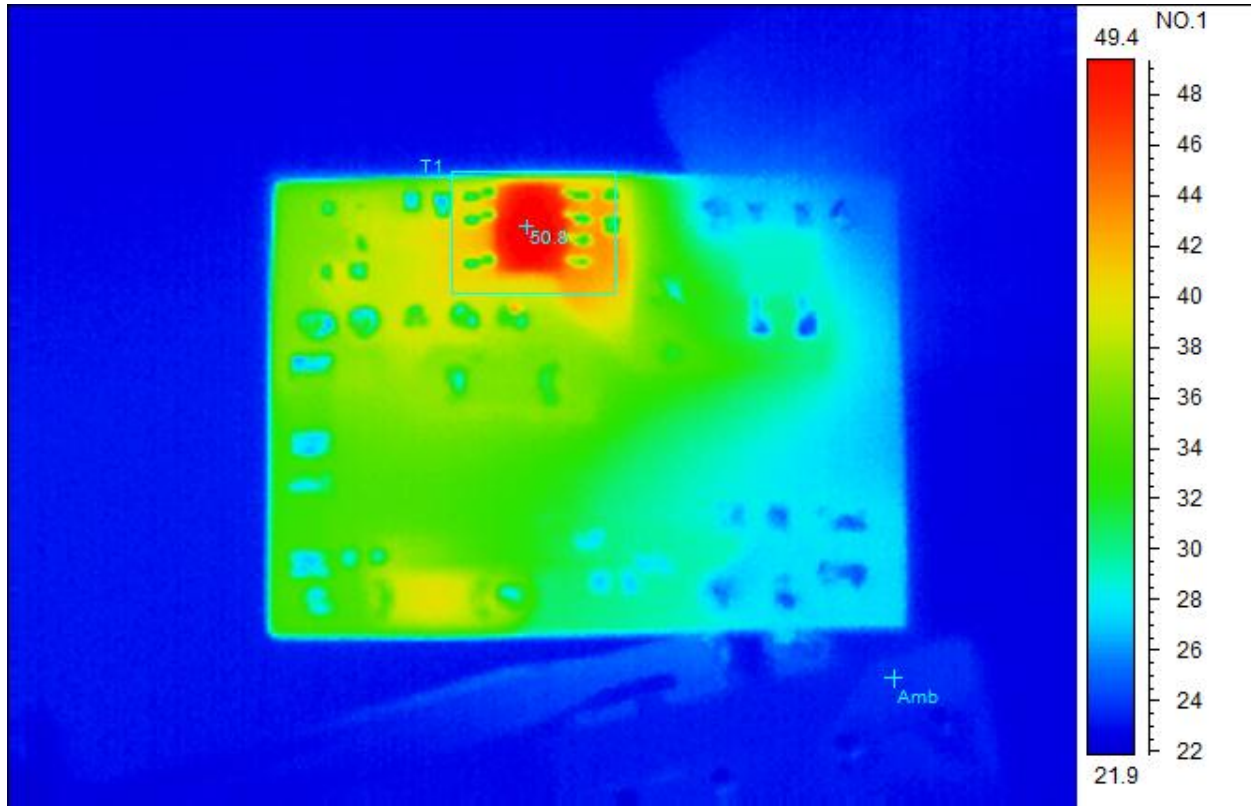
Spot analysis	Value
Amb Temperature	23.6°C
Area analysis	Value
T1Max	40.8°C

V_{in}=120V_{AC}/60Hz**Bottom Side**

Spot analysis	Value
Amb Temperature	25.2°C
Area analysis	Value
U1Max	51.9°C

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

Spot analysis	Value
Amb Temperature	21.5°C
Area analysis	Value
T1Max	42.6°C

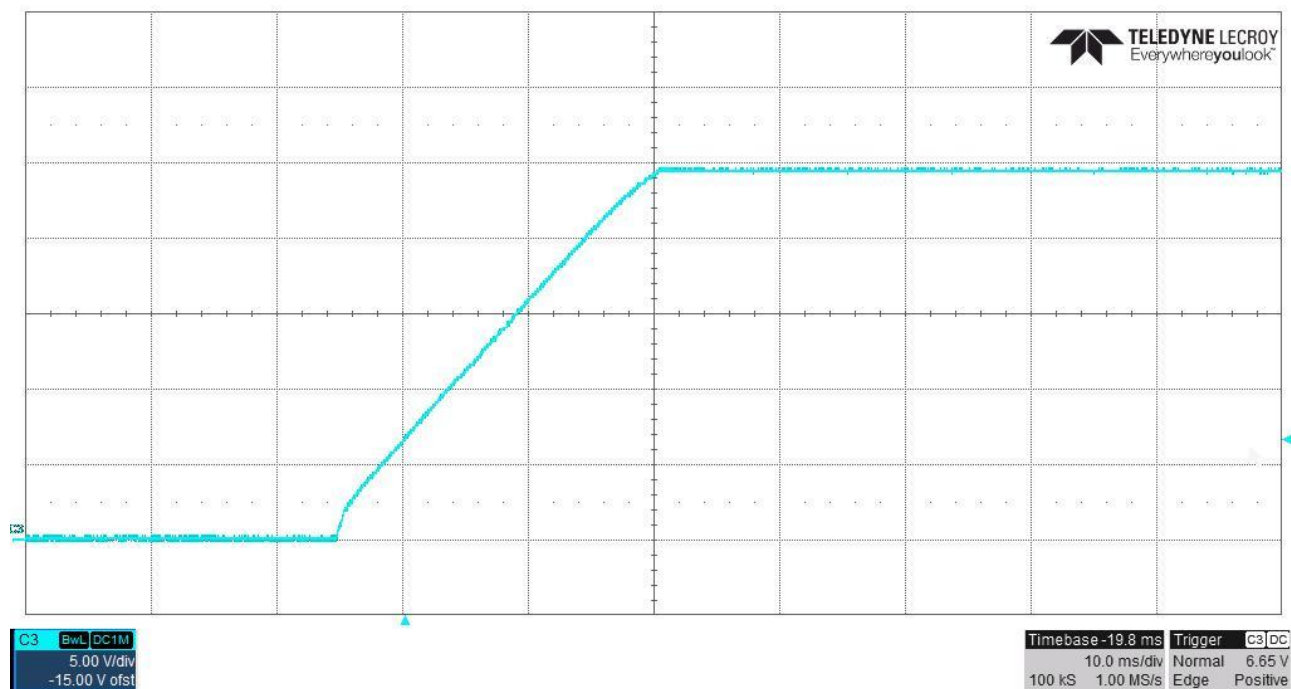
V_{in}=230V_{AC}/50Hz**Bottom Side**

Spot analysis	Value
Amb Temperature	23.7°C
Area analysis	Value
U1Max	50.8°C

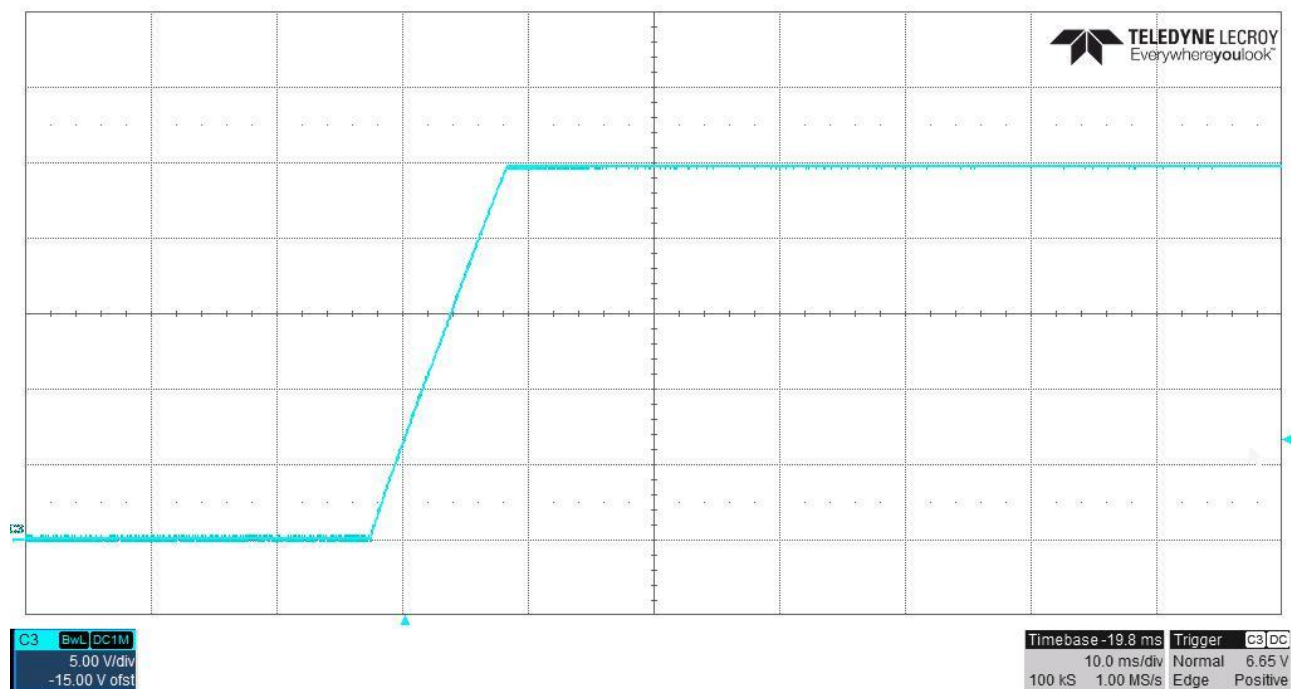
4 Startup

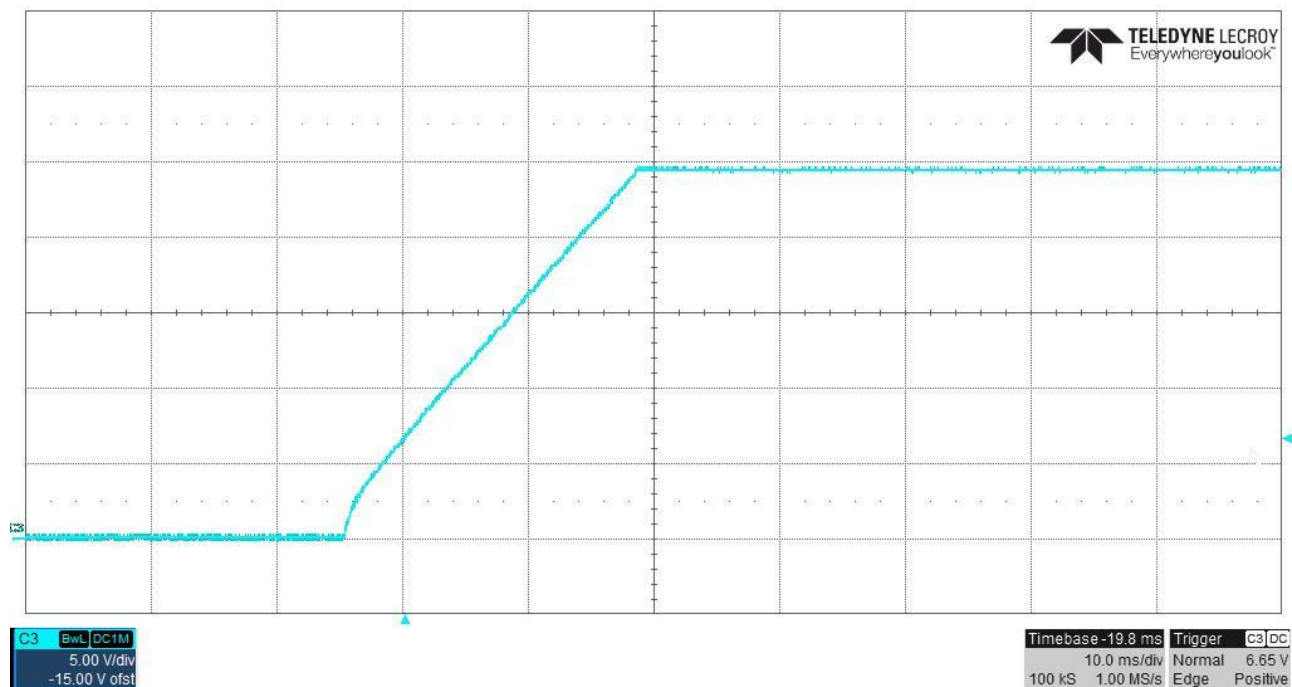
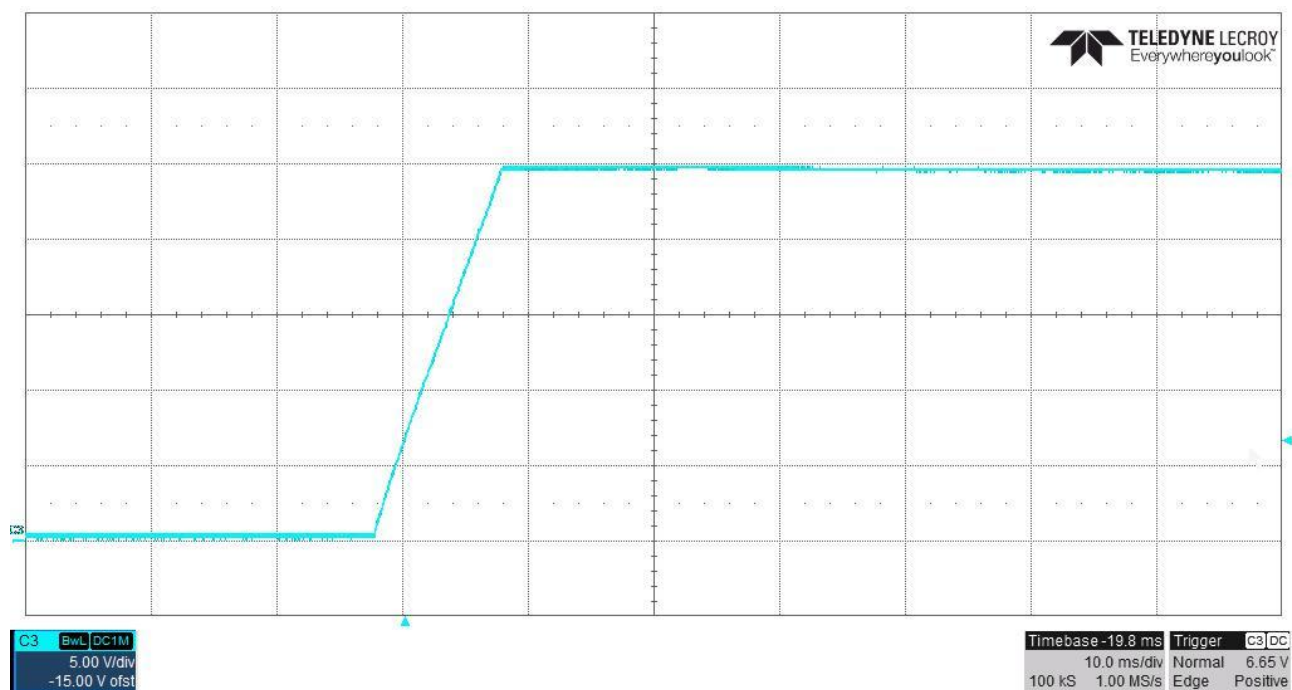
The output voltages at startup are shown in the images below.

4.1 Start Up @ 120V_{AC}/60Hz: 24V/0.15A.



4.2 Start Up @ 120V_{AC}/60Hz: no load.

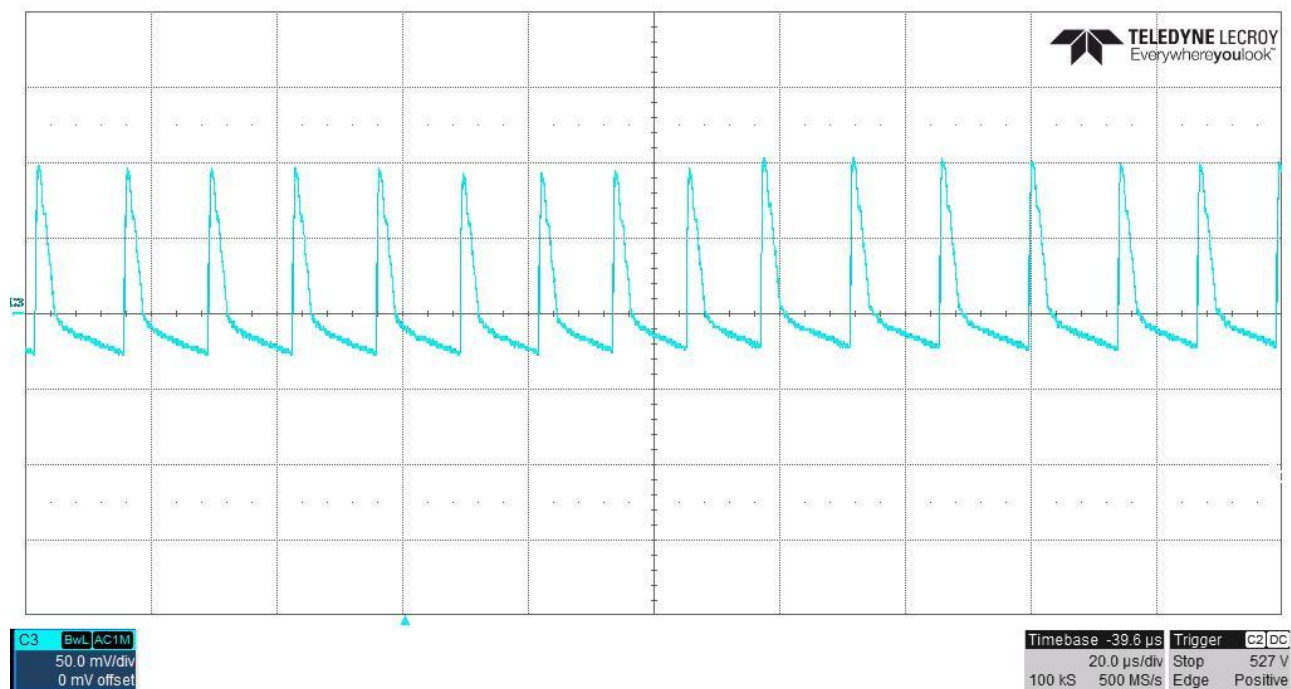


4.3 Start Up @ 230V_{AC}/50Hz: 24V/0.15A.**4.4 Start Up @ 230V_{AC}/50Hz: no load.**

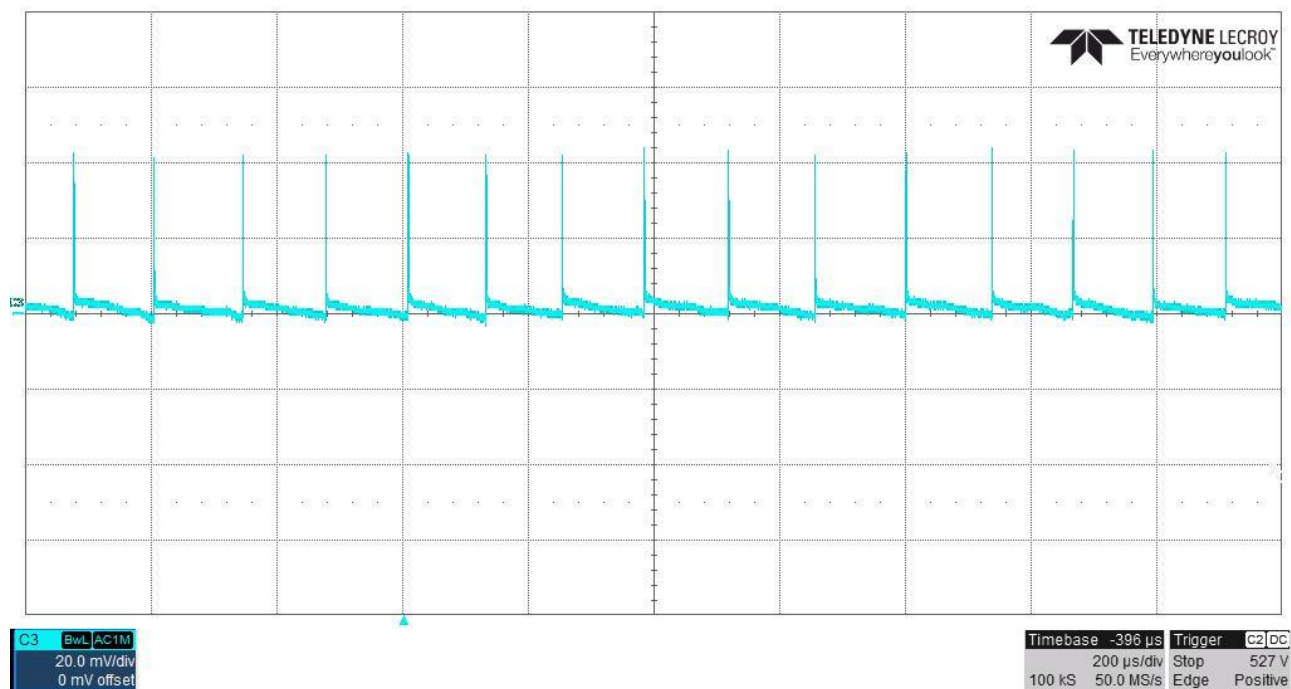
5 Output Ripple Voltages

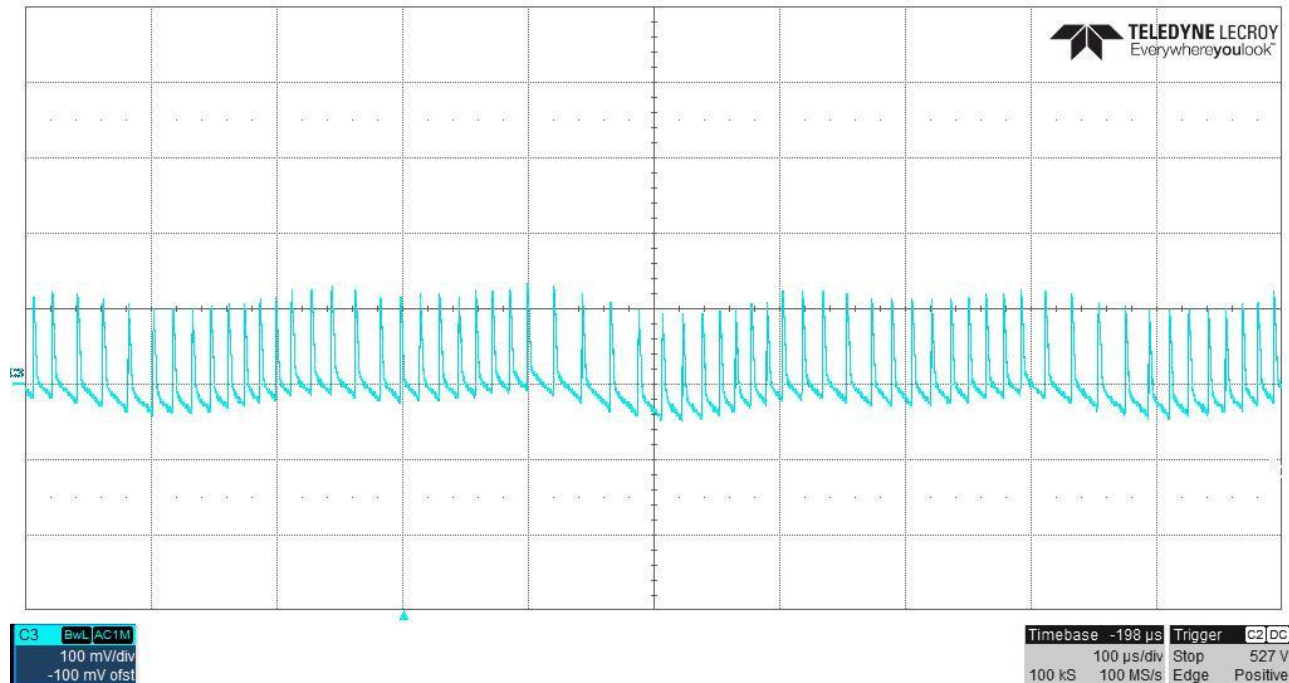
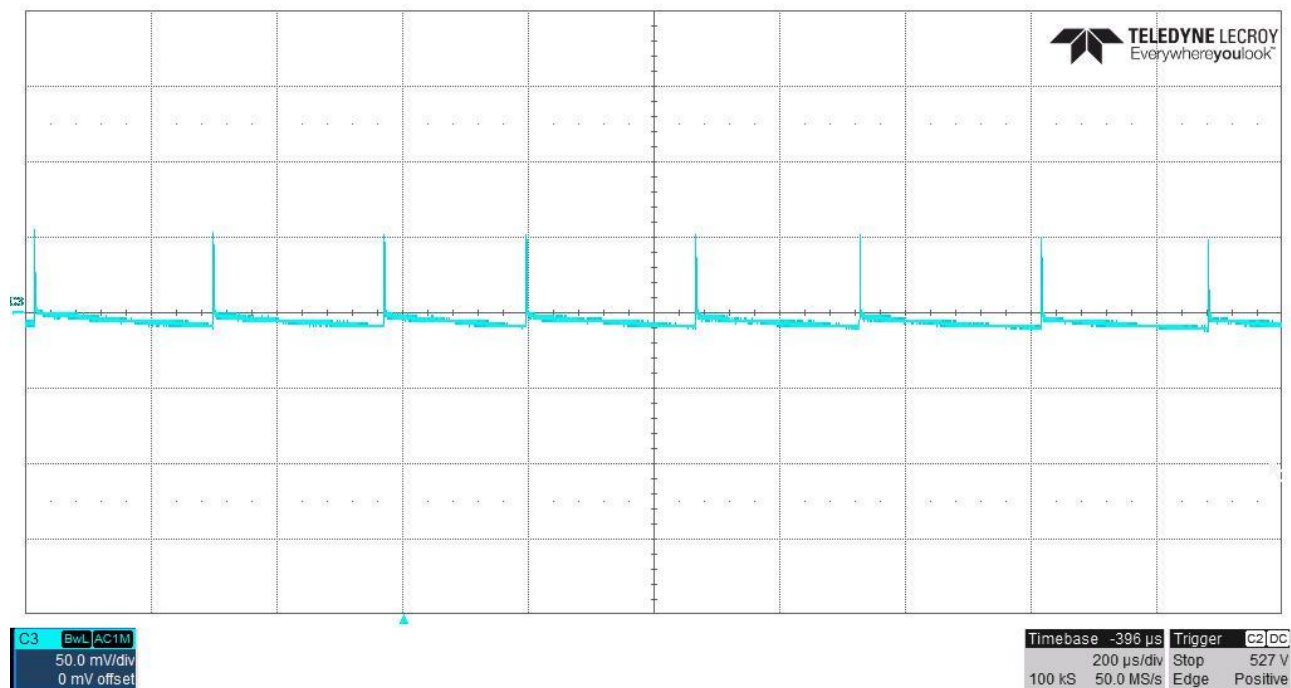
The output ripple voltages are shown in the plots below.

5.1 120V_{AC}/60Hz – 24V/0.15A



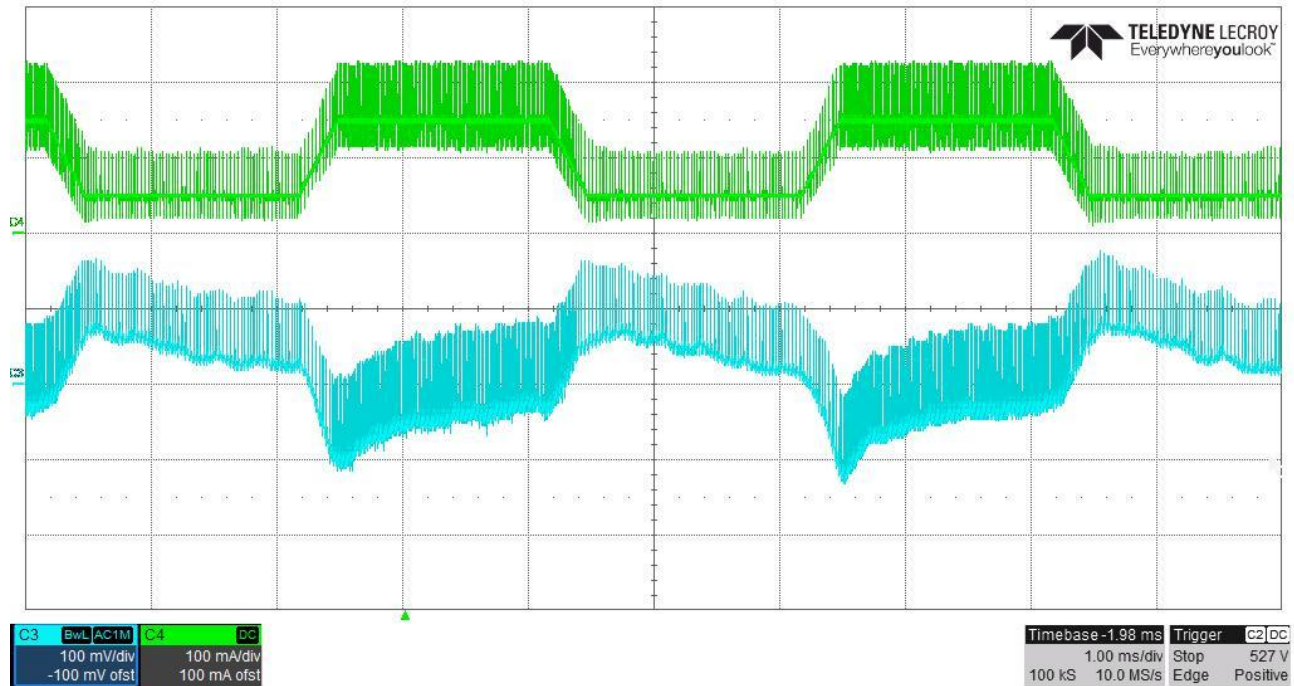
5.2 120V_{AC}/60Hz – 24V/ No load



5.3 230V_{AC}/50Hz – 24V/0.15A**5.4 230V_{AC}/50Hz – 24V/ No load**

6 Load Transient

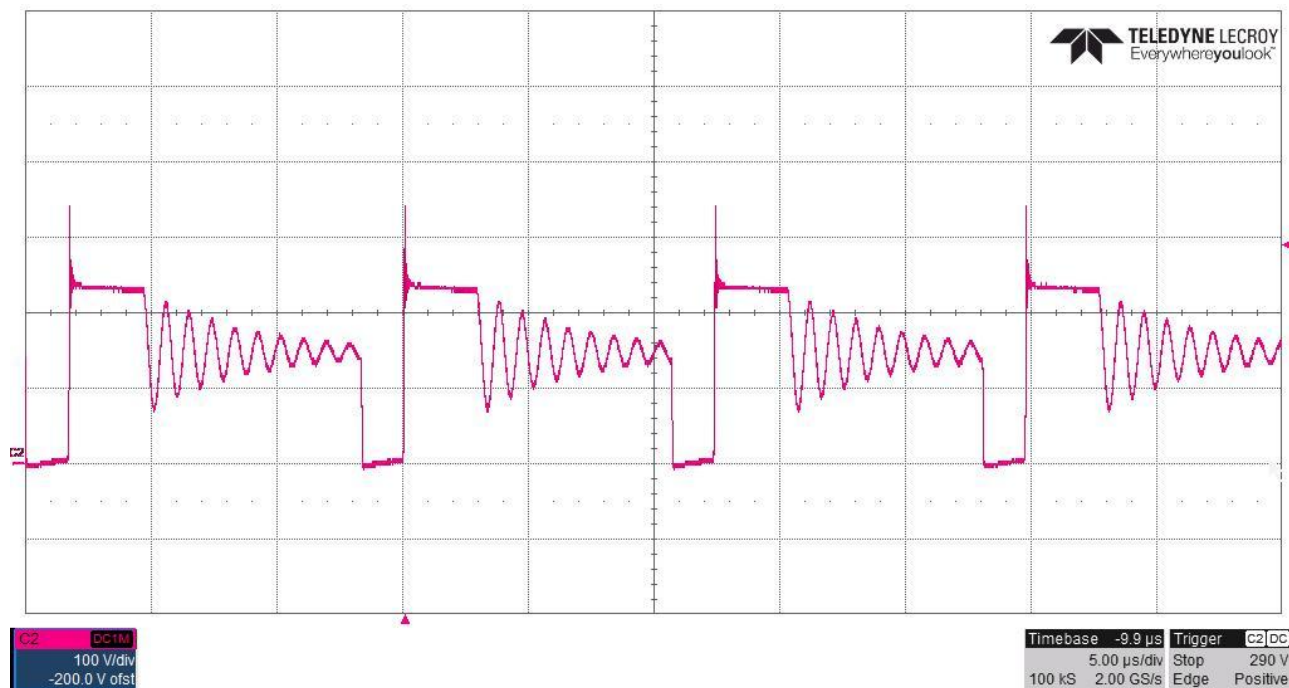
The image below shows $24V_{out}$ voltage response to a **0.05A** to **0.15A** load transient at a $120V_{AC}/60Hz$ input.



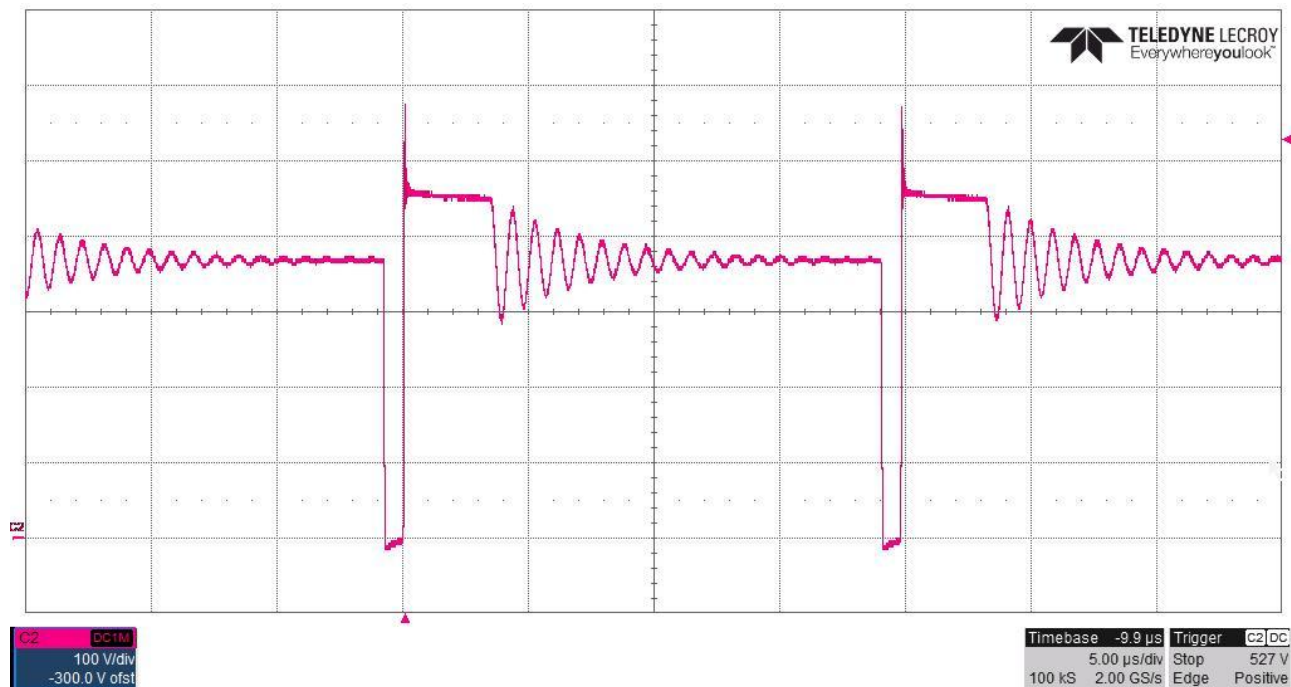
7 Switching Waveforms

The images below show key switching waveforms of PMP11405RevA. The waveforms are measured with 0.15A full load.

7.1 Primary MOSFET U1 pin8 @ 120V_{AC}/60Hz



7.2 Primary MOSFET U1 pin8 @ 265V_{AC}/50Hz



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