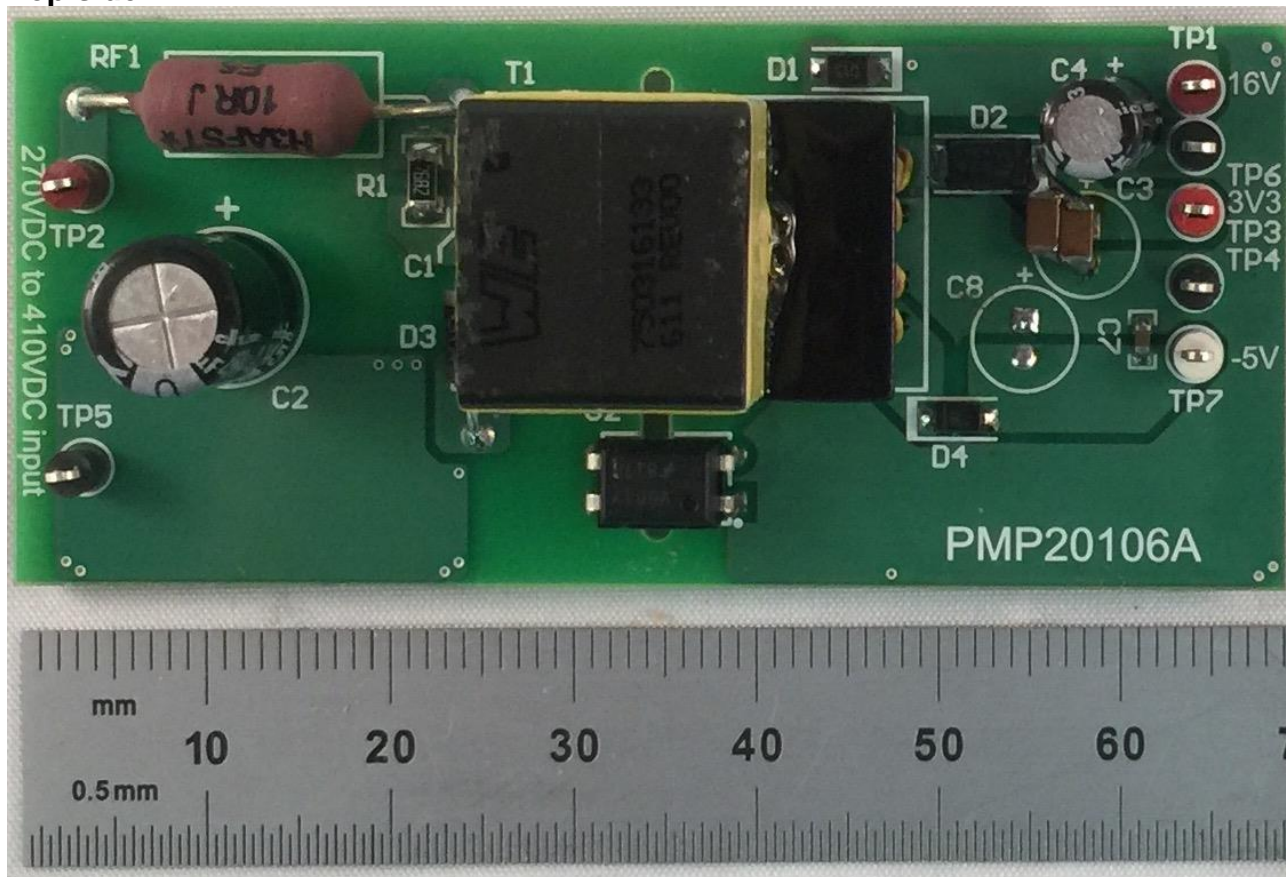


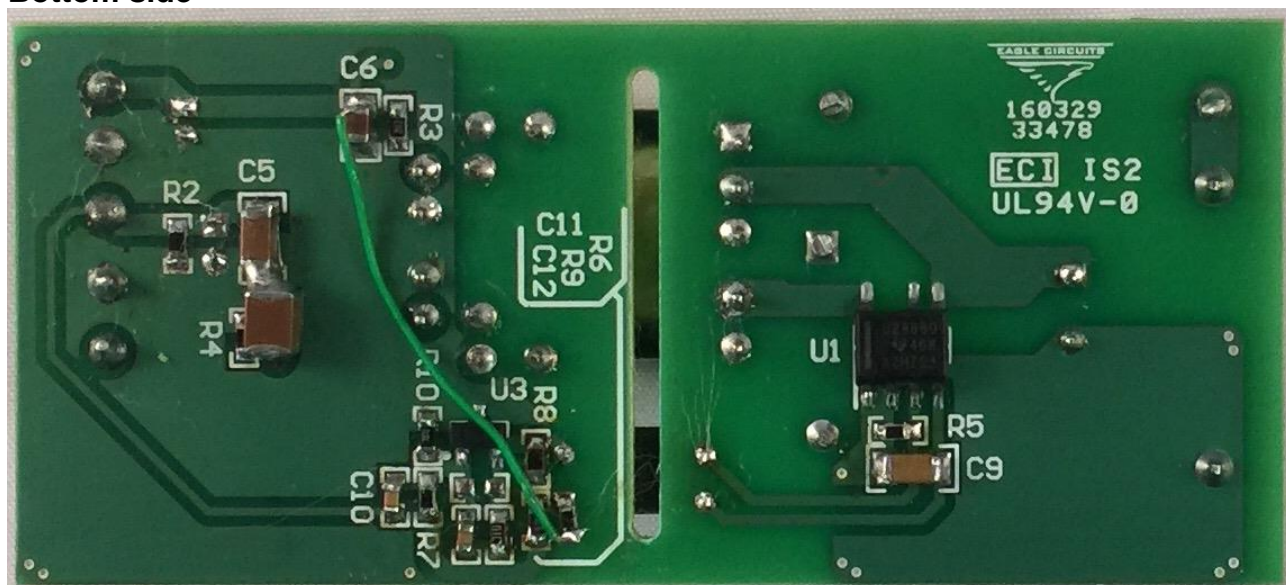
## 1 Photo

The photographs below show the PMP20106 Rev A assembly. This circuit was built on a PMP20106 Rev A PCB.

## Top side

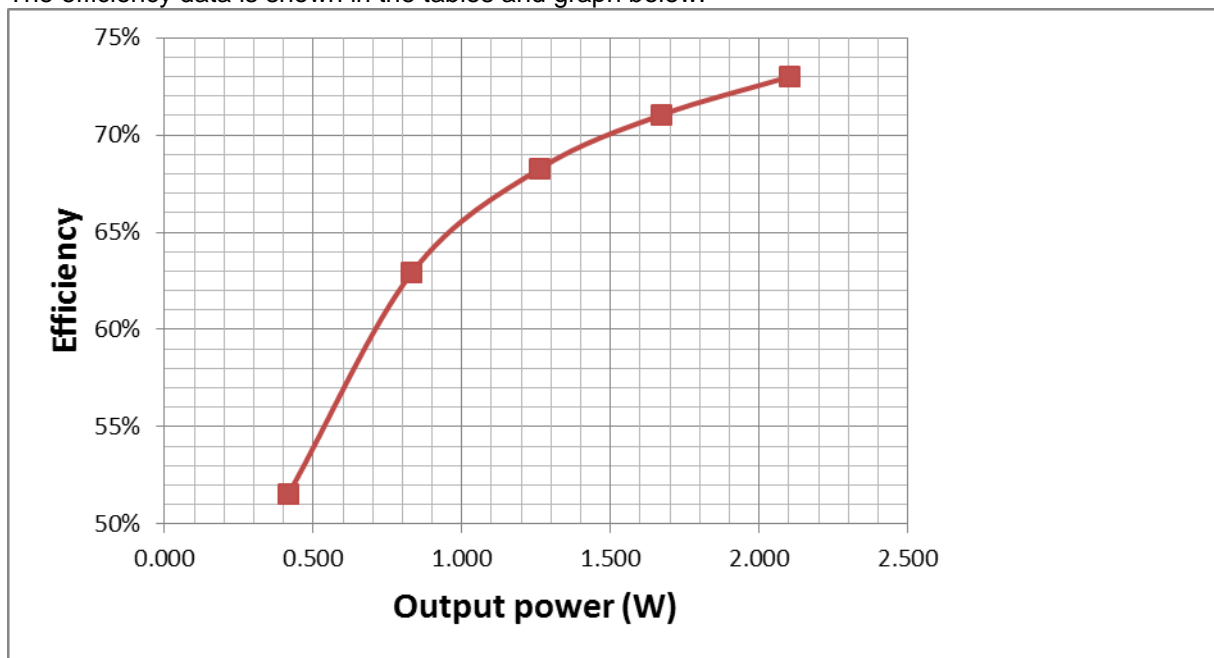


### Bottom side



## 2 Converter Efficiency

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



### Vin=340VDC

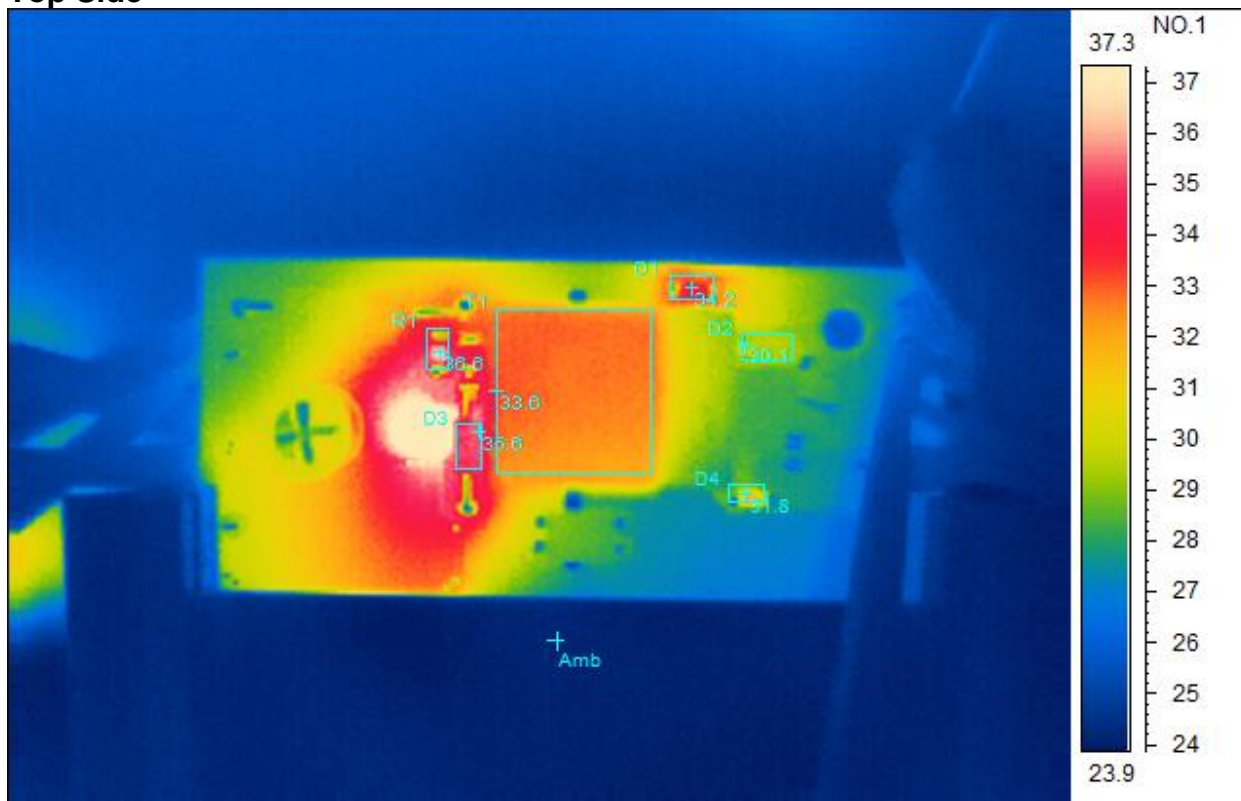
Vin(V)	Iin(mA)	Pin(W)	Vo1(V)	Io1(A)	Vo2(V)	Io2(A)	Vo3(V)	Io3(A)	Pout(W)	Eff. (%)
340.1	8.470	2.88	15.17	0.101	3.270	0.101	5.000	0.050	2.103	72.99%
340.1	6.920	2.35	15.14	0.080	3.271	0.080	4.990	0.040	1.672	71.04%
340.1	5.430	1.85	15.12	0.061	3.271	0.060	4.990	0.030	1.261	68.26%
340.1	3.890	1.32	15.09	0.040	3.271	0.040	4.990	0.020	0.833	62.94%
340.1	2.380	0.81	15.04	0.020	3.271	0.020	4.990	0.010	0.417	51.55%
340.0	0.751	0.26	14.00	0.000	3.272	0.000	4.650	0.000	0.000	0.00%

### 3 Thermal Images

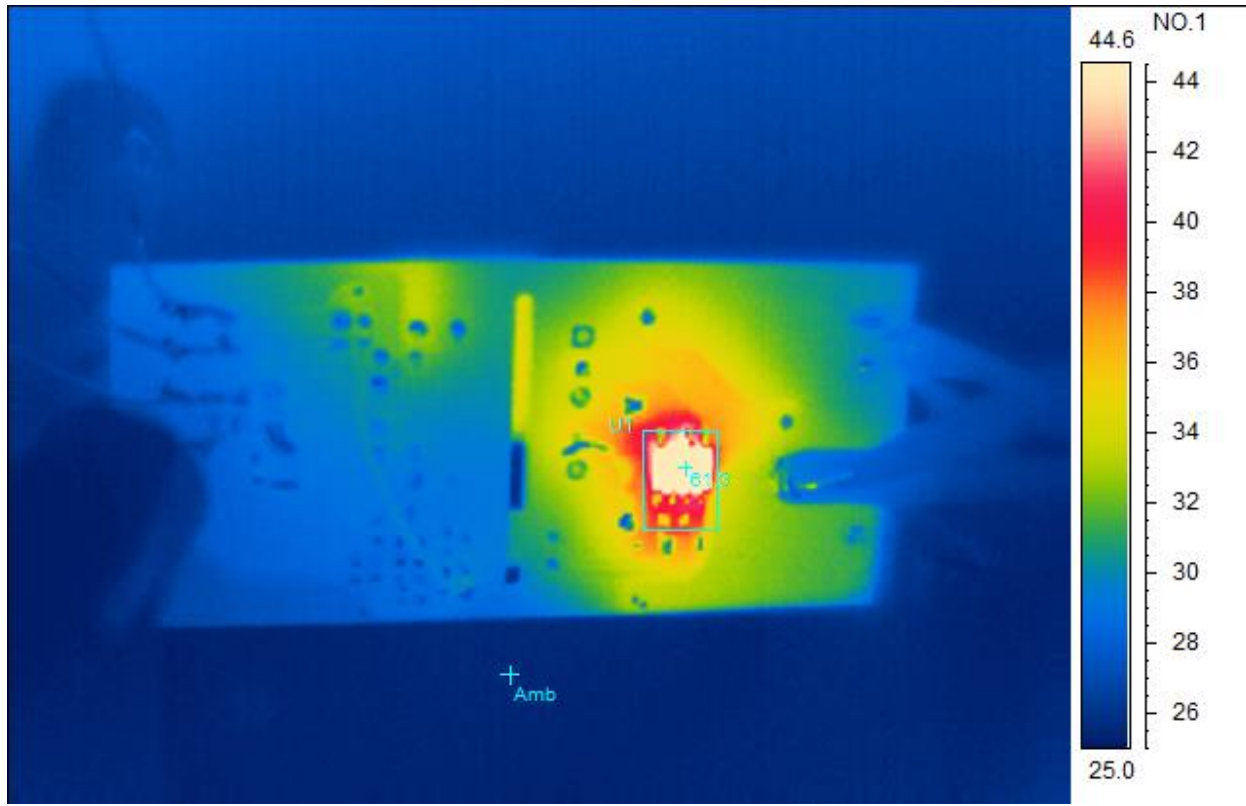
The thermal images below show a top view and bottom view of the board. The ambient temperature was 20°C with no forced air flow. The outputs were at 16V/100mA, 3.3V/100mA and -5V/50mA loads.

#### 340VDC Input

##### Top Side



Spot analysis	Value
Amb Temperature	24.0°C
Area analysis	Value
R1Max	36.6°C
T1Max	33.6°C
D3Max	35.6°C
D1Max	34.2°C
D4Max	31.8°C
D2Max	30.1°C

**Bottom Side**

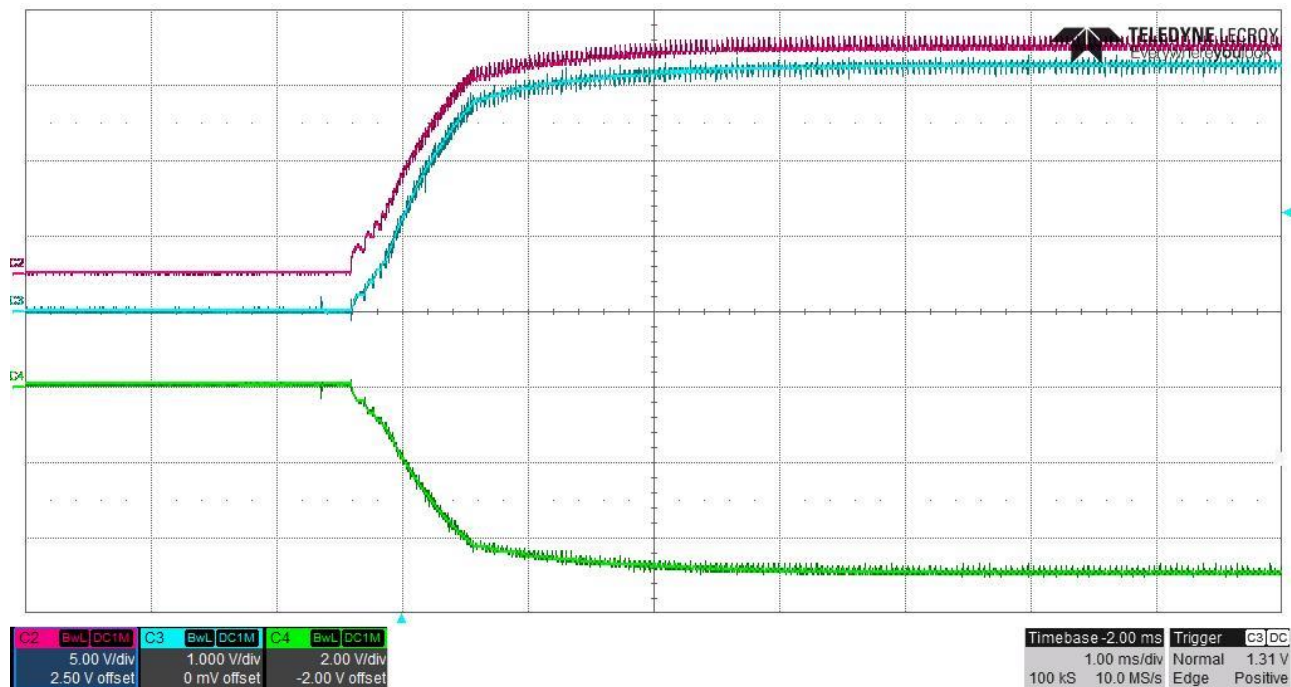
Spot analysis	Value
Amb Temperature	25.4°C
Area analysis	Value
U1Max	61.3°C



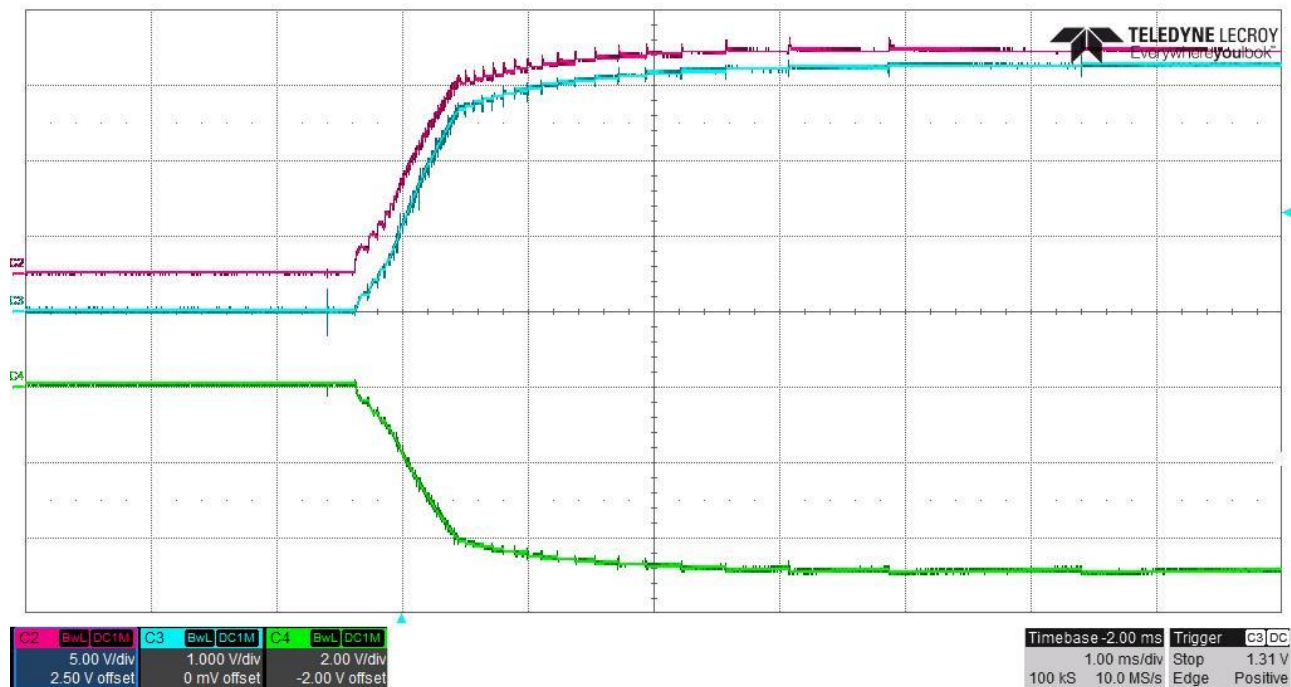
## 4 Startup

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

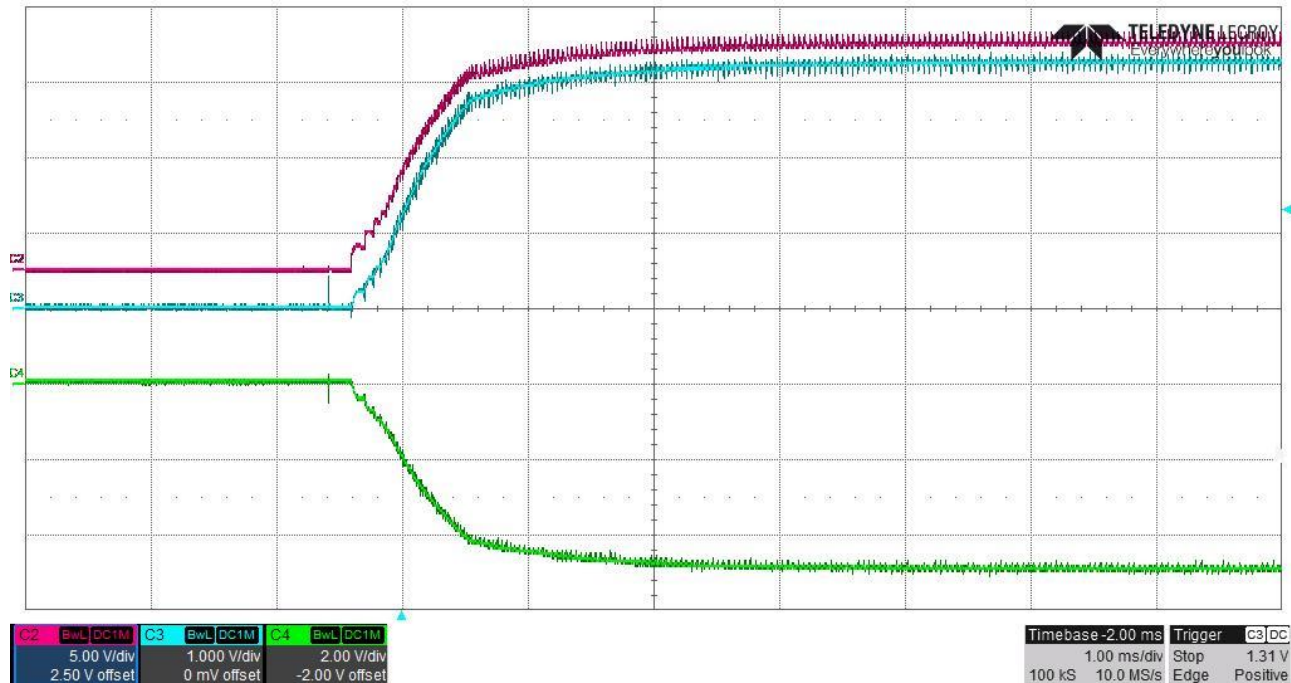
### 4.1 Start Up with 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 270V<sub>DC</sub> input:



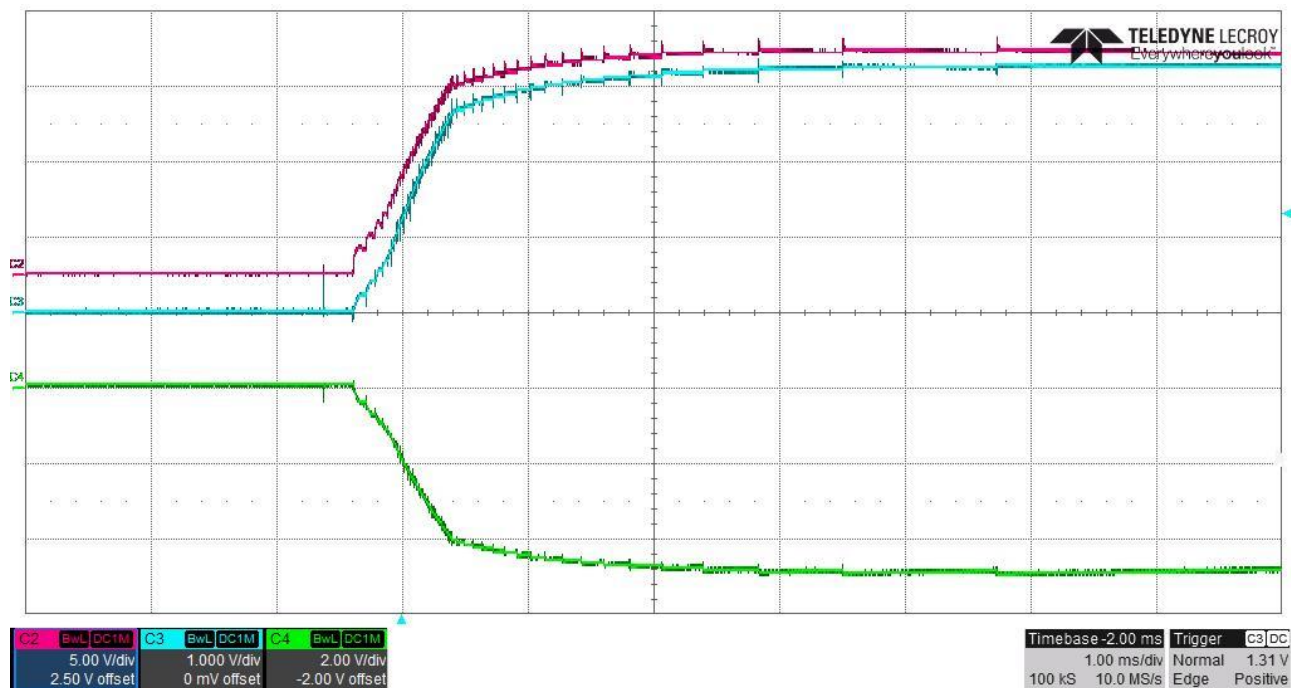
### 4.2 Start Up with no load @ 270V<sub>DC</sub> input:



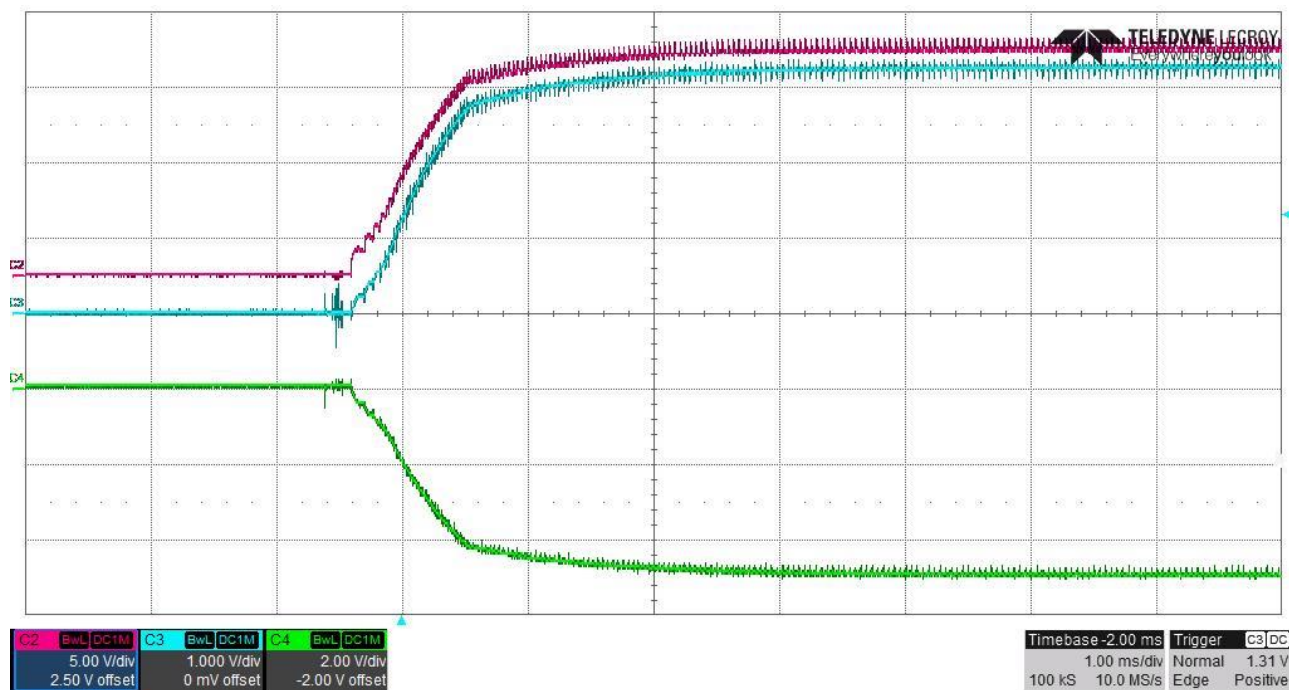
#### 4.3 Start Up with 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 340V<sub>DC</sub> input:



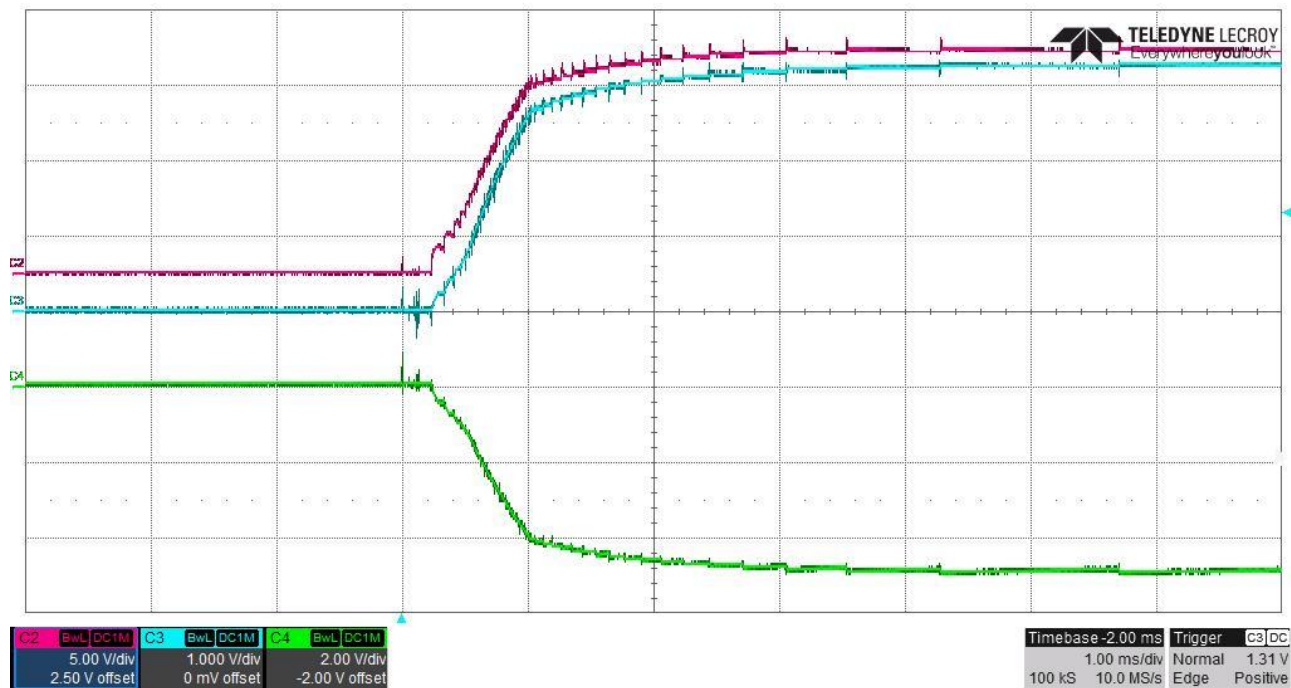
#### 4.4 Start Up with no load @ 340V<sub>DC</sub> input:



#### 4.5 Start Up with 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 410V<sub>DC</sub> input:



#### 4.6 Start Up with no load @ 410V<sub>DC</sub> input:



## 5 Cross regulation

Output voltage cross regulation is tested at 340V<sub>DC</sub> input.

Current (A)			Voltage (V)		
16V	3.3V	(-5V)	16V	3.3V	(-5V)
0.1	0.1	0.05	15.17	<b>3.270</b>	-5.00
0	0.1	0.05	16.65	3.272	-4.88
0.1	0	0.05	<b>9.35</b>	3.272	<b>-3.05</b>
0.1	0.1	0	15.12	3.272	<b>-6.25</b>
0	0.1	0	<b>16.99</b>	3.271	-5.81
0	0	0.05	12.30	3.272	-3.15
0.1	0	0	9.53	3.272	-4.28
0	0	0	14.00	3.272	-4.65

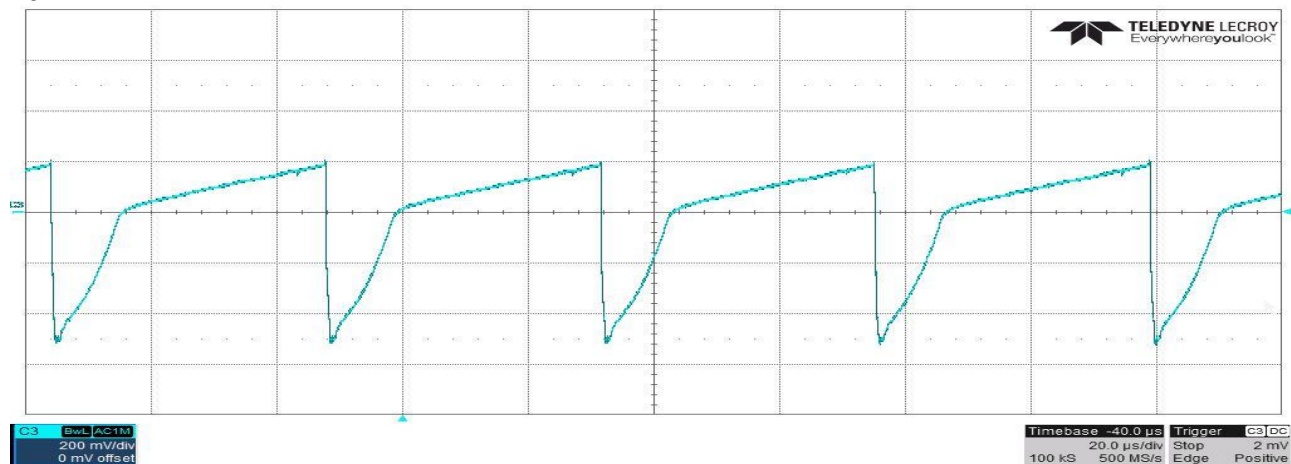


## 6 Output Ripple Voltages

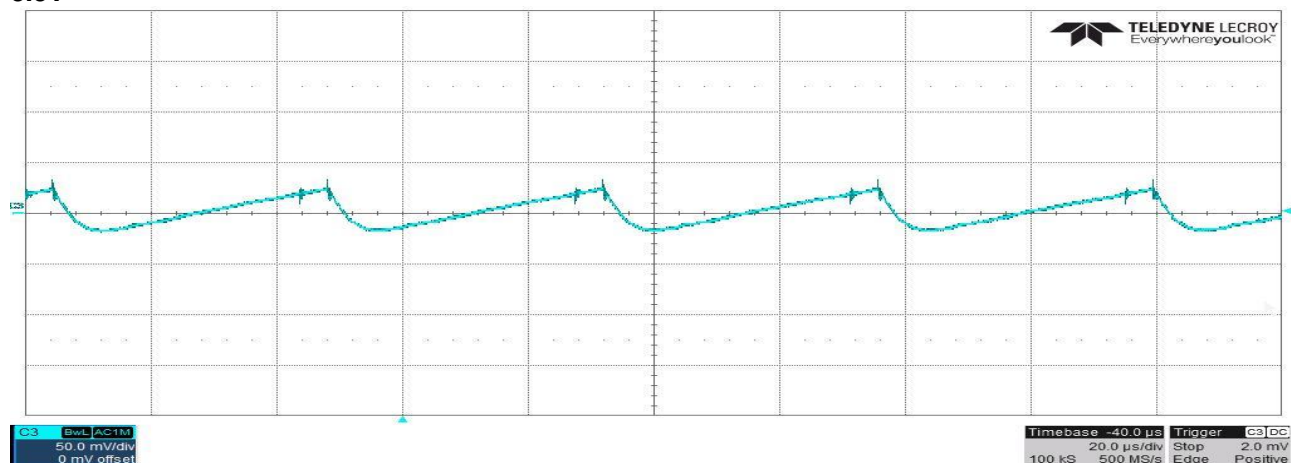
The output ripple voltages are shown in the plots below.

### 6.1 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 270V<sub>DC</sub> input:

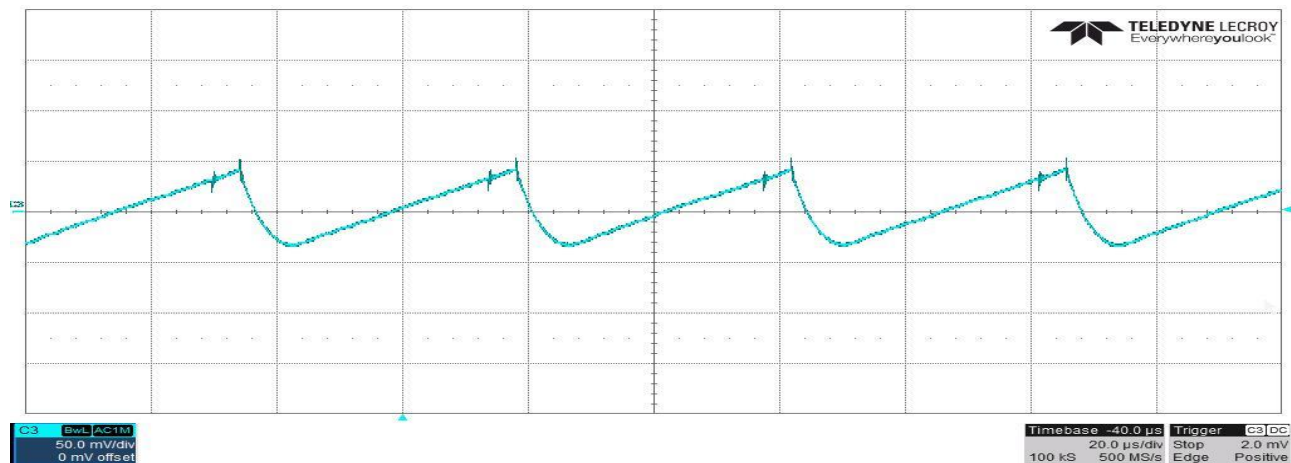
16V

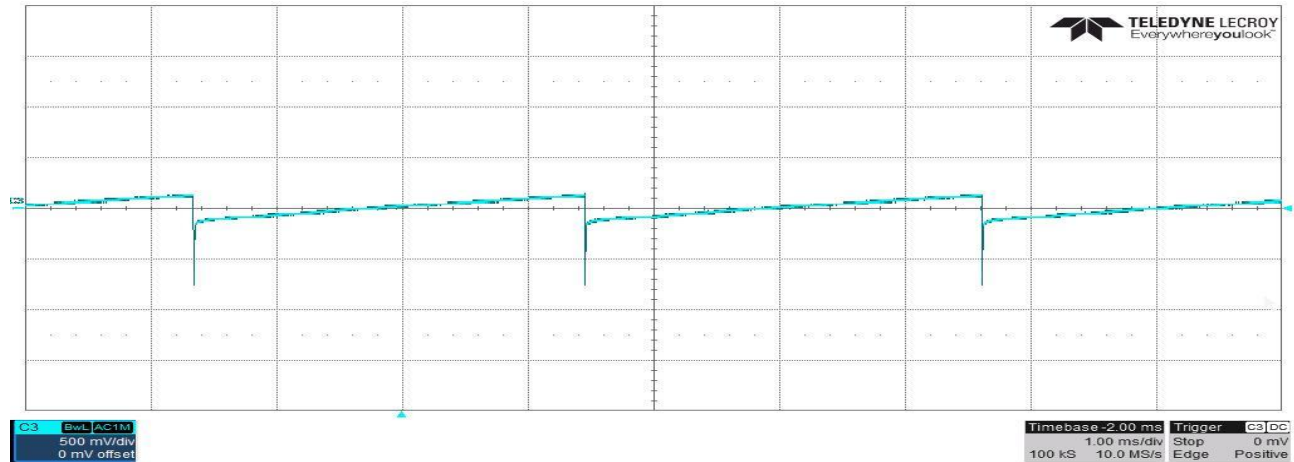
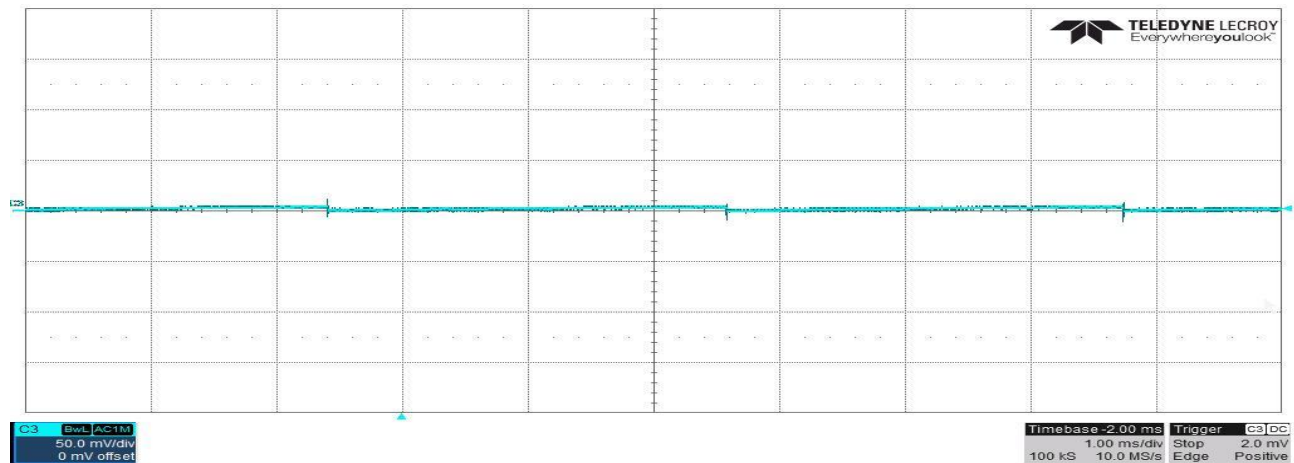
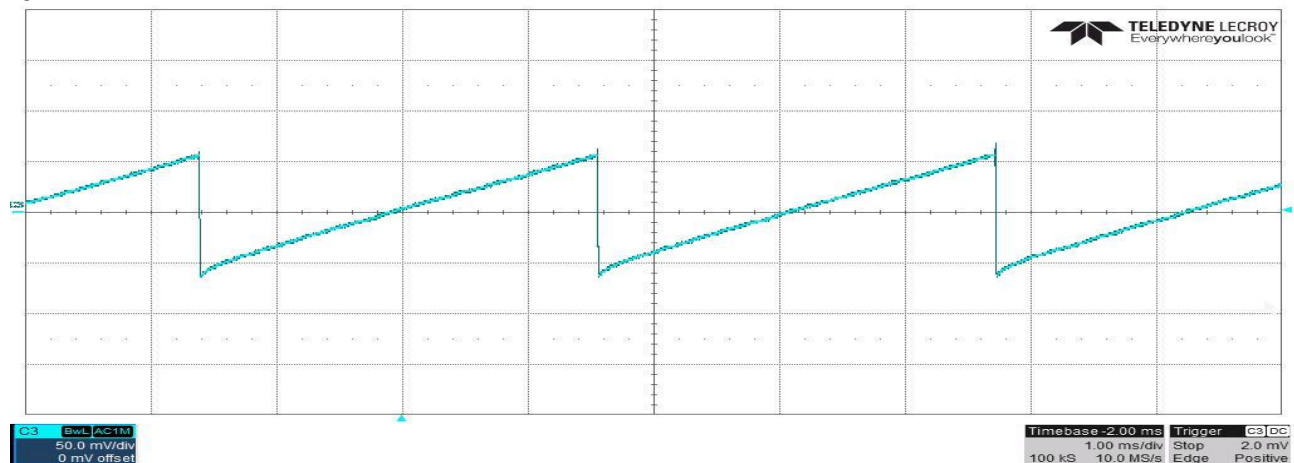


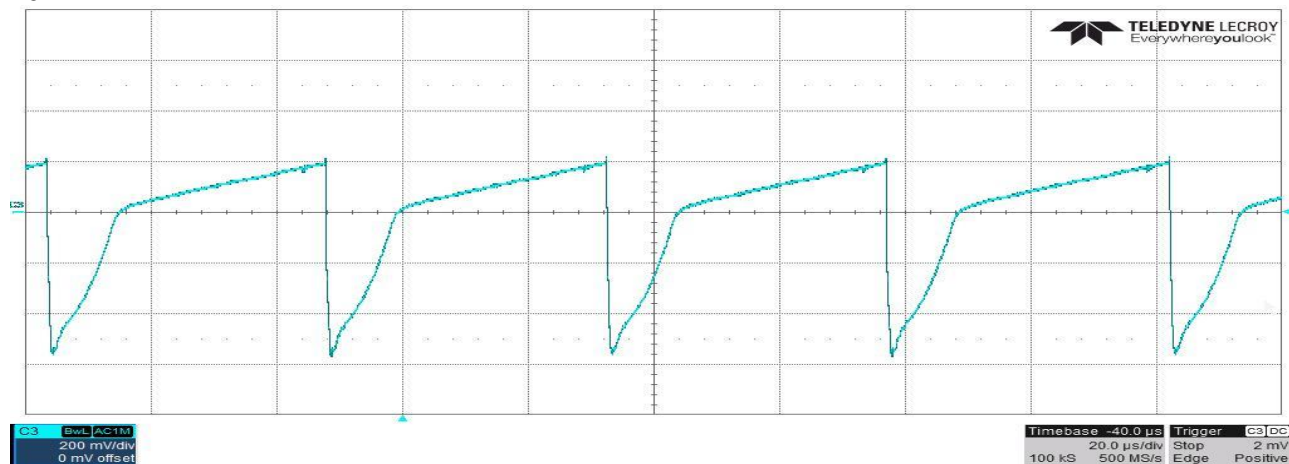
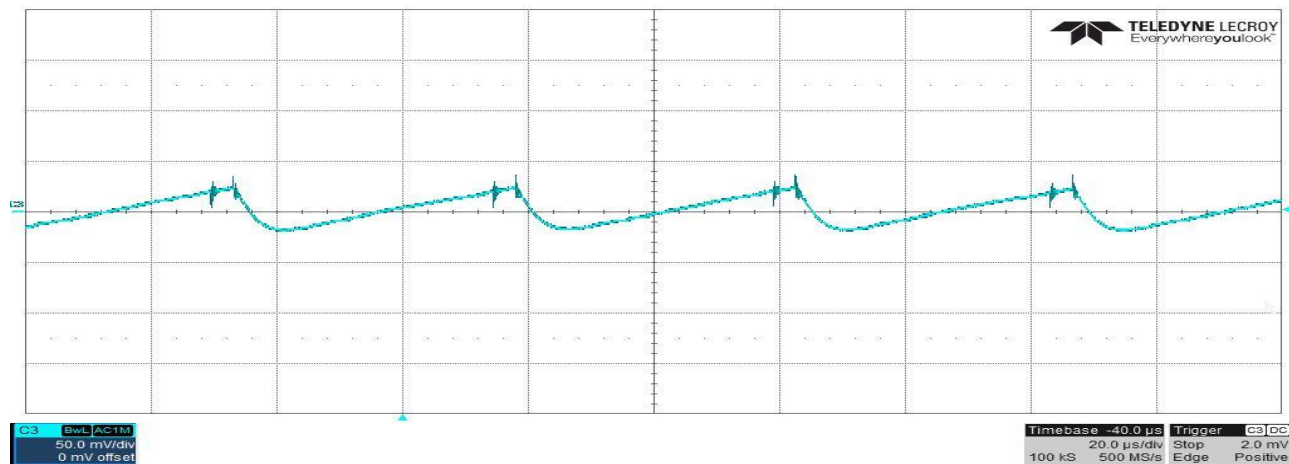
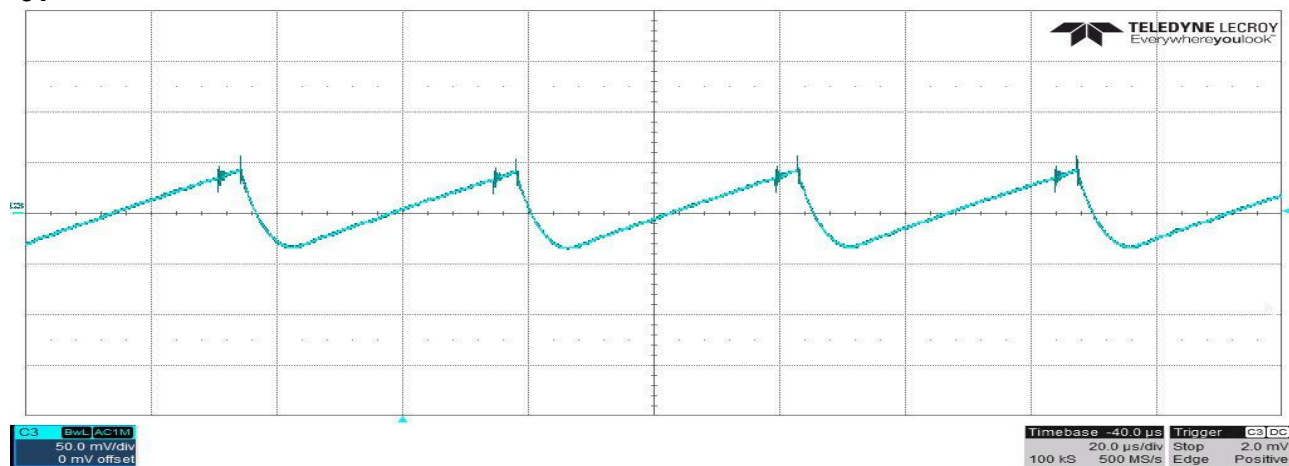
3.3V

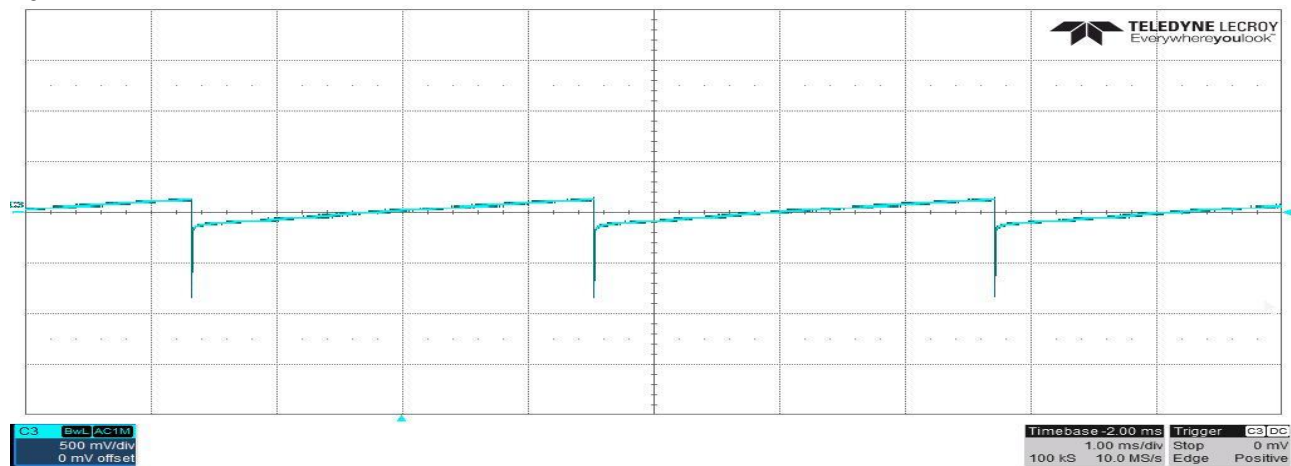
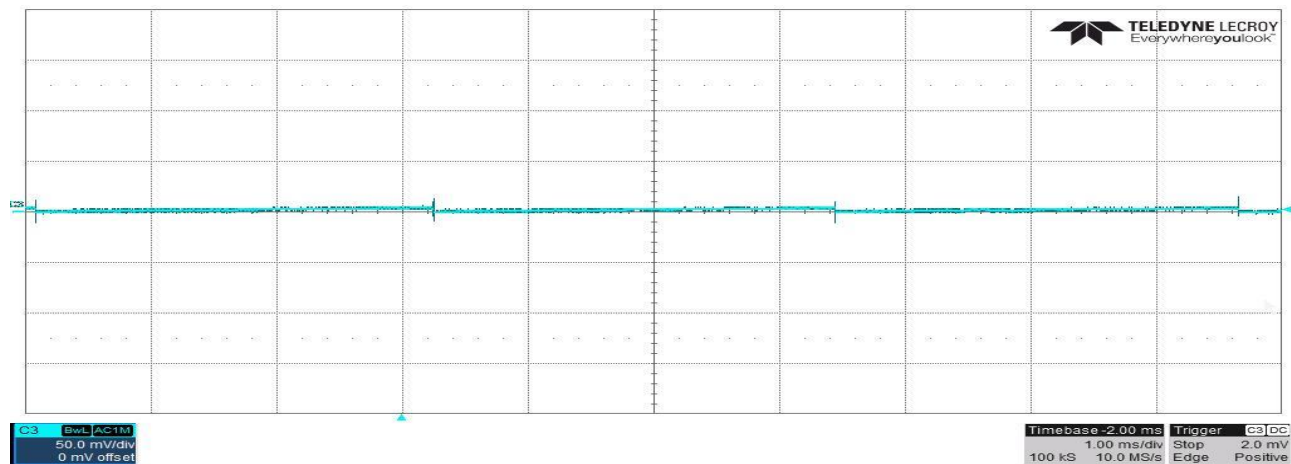
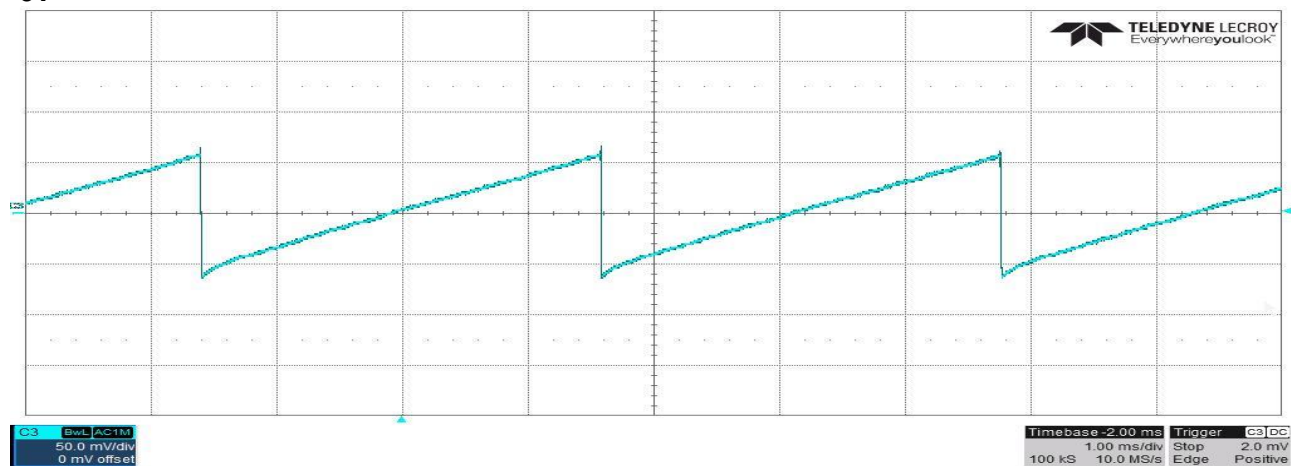


-5V

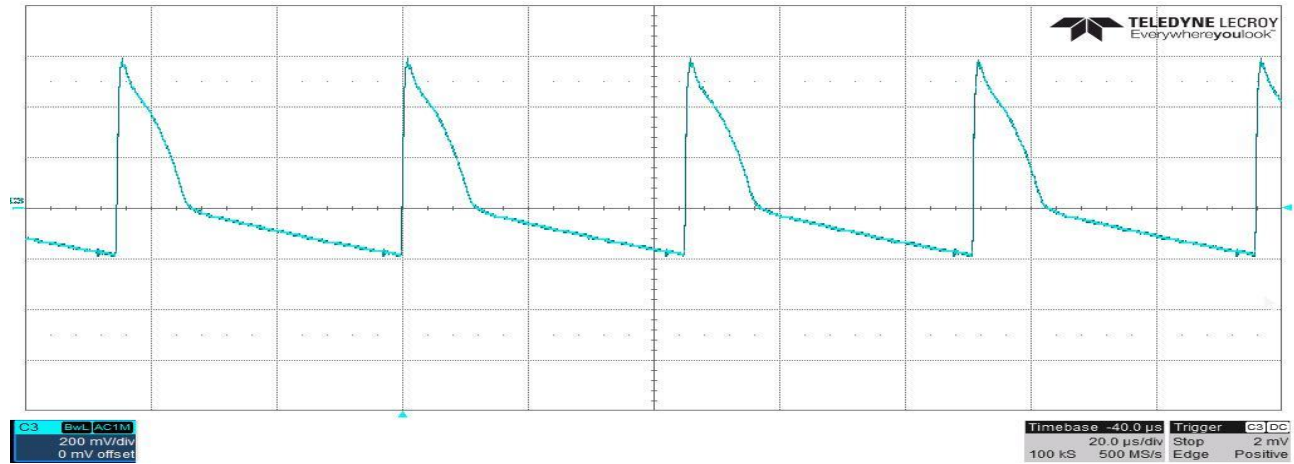
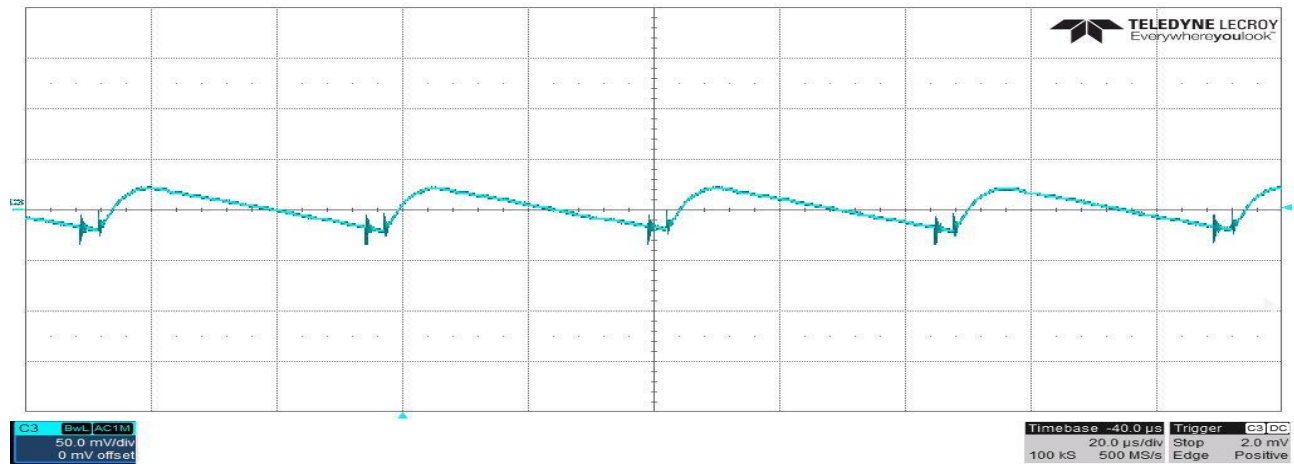
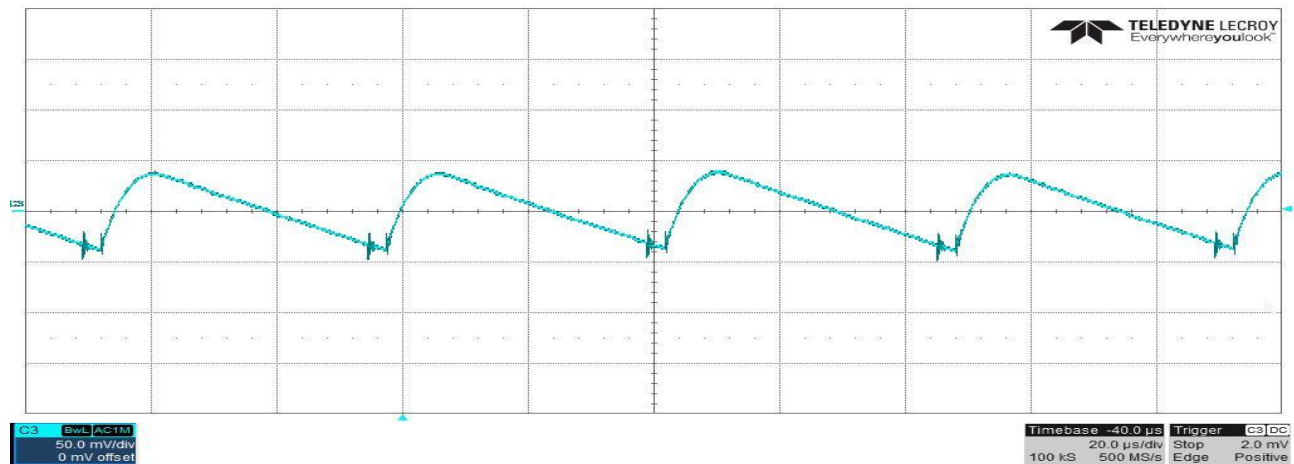


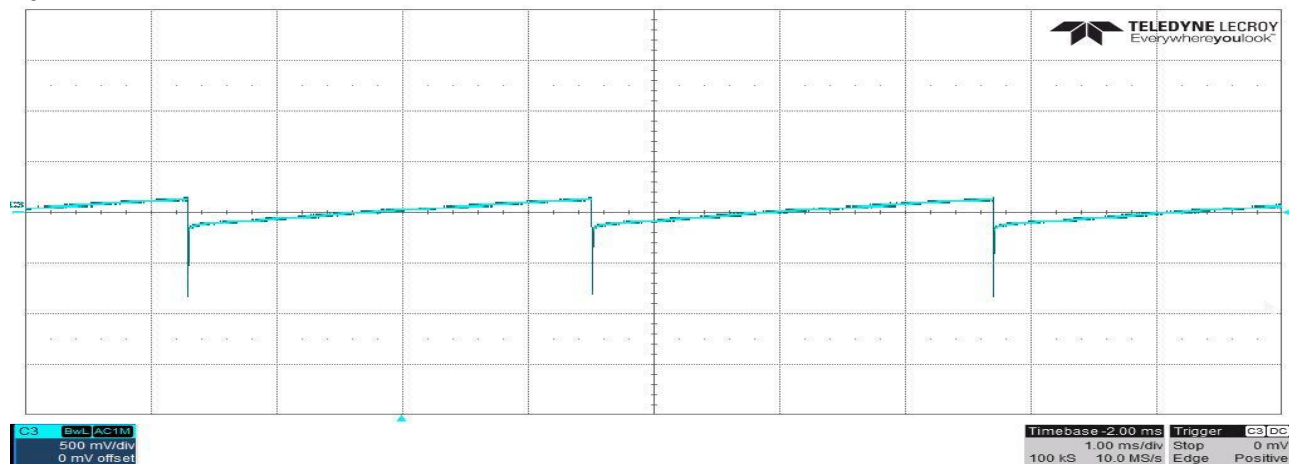
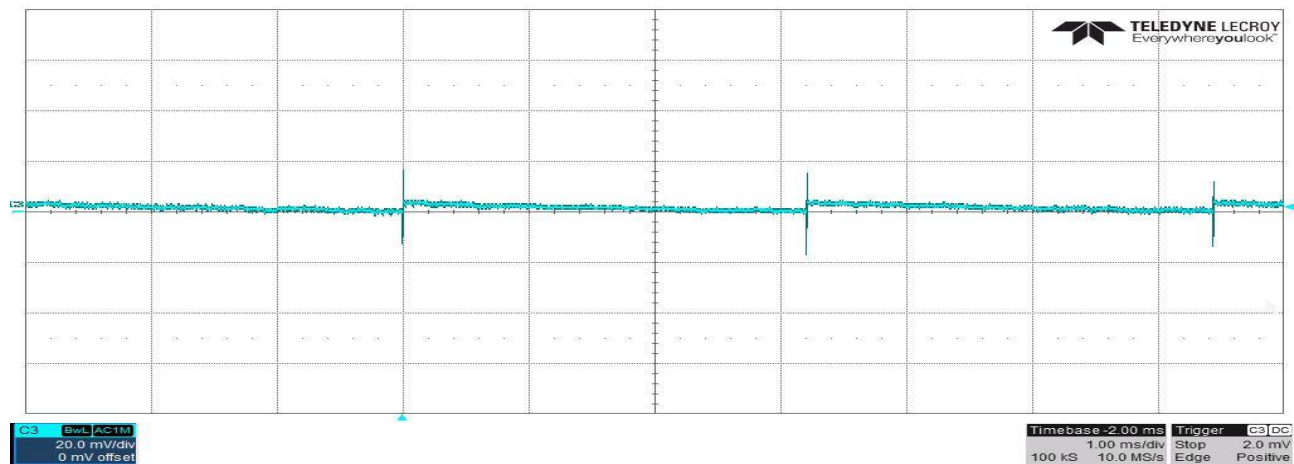
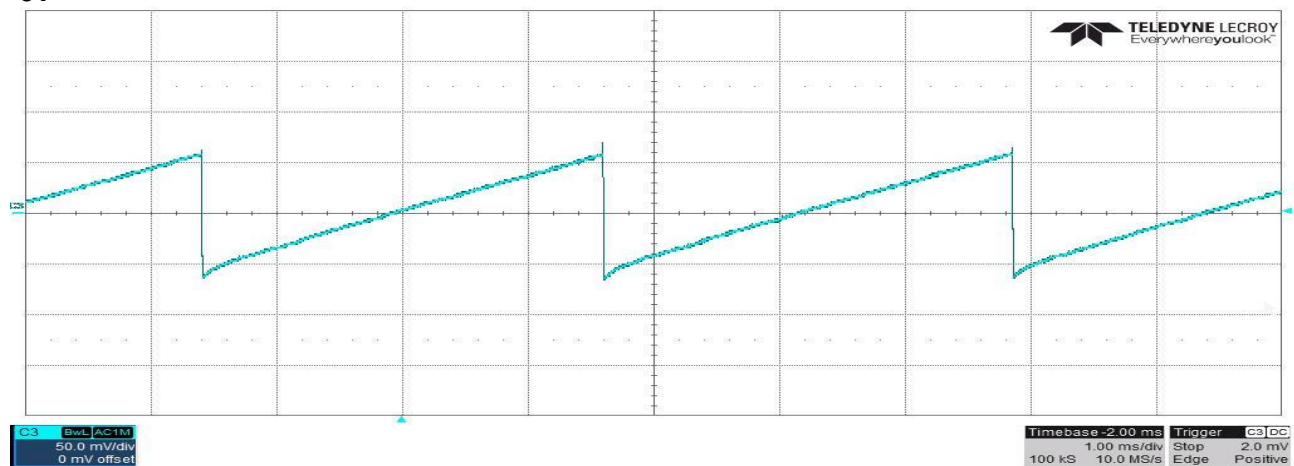
**6.2 No load @ 270V<sub>DC</sub> input:****16V****3.3V****-5V**

**6.3 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 340V<sub>DC</sub> input:****16V****3.3V****-5V**

**6.4 No load @ 340V<sub>DC</sub> input:****16V****3.3V****-5V**



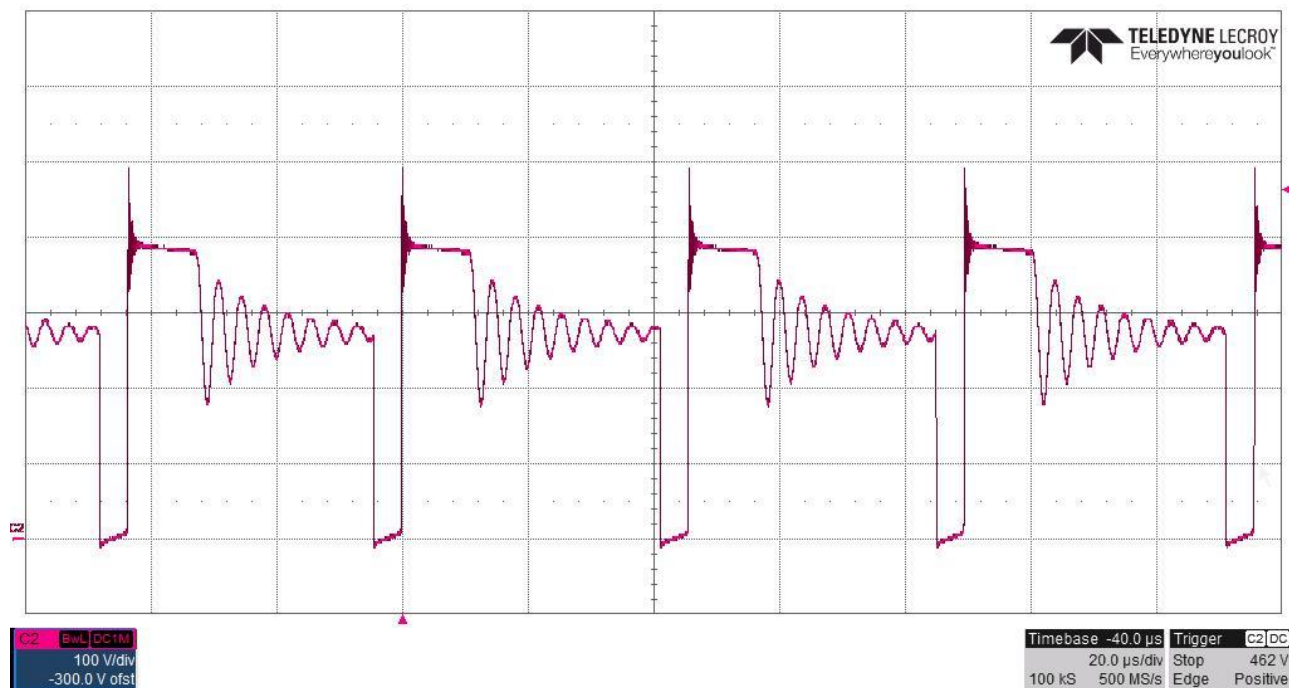
**6.5 16V/100mA, 3.3V/100mA and -5V/50mA full load @ 410V<sub>DC</sub> input:****16V****3.3V****-5V**

**6.6 No load @ 410V<sub>DC</sub> input:****16V****3.3V****-5V**

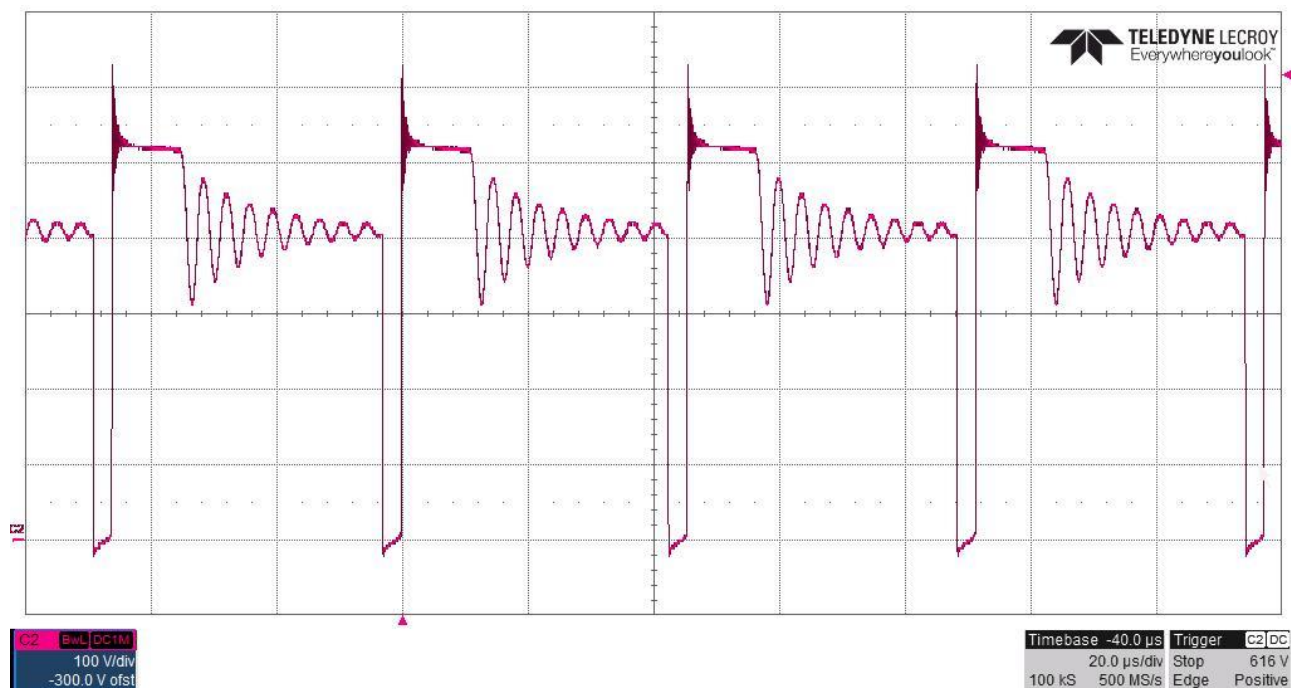
## 7 Switching Waveforms

The images below show key switching waveforms of PMP20106RevA. The waveforms are measured with 16V/100mA, 3.3V/100mA and -5V/50mA full load.

### 7.1 U1 pin8 to GND @ 270VDC



### 7.2 U1 pin8 to GND @ 410VDC



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