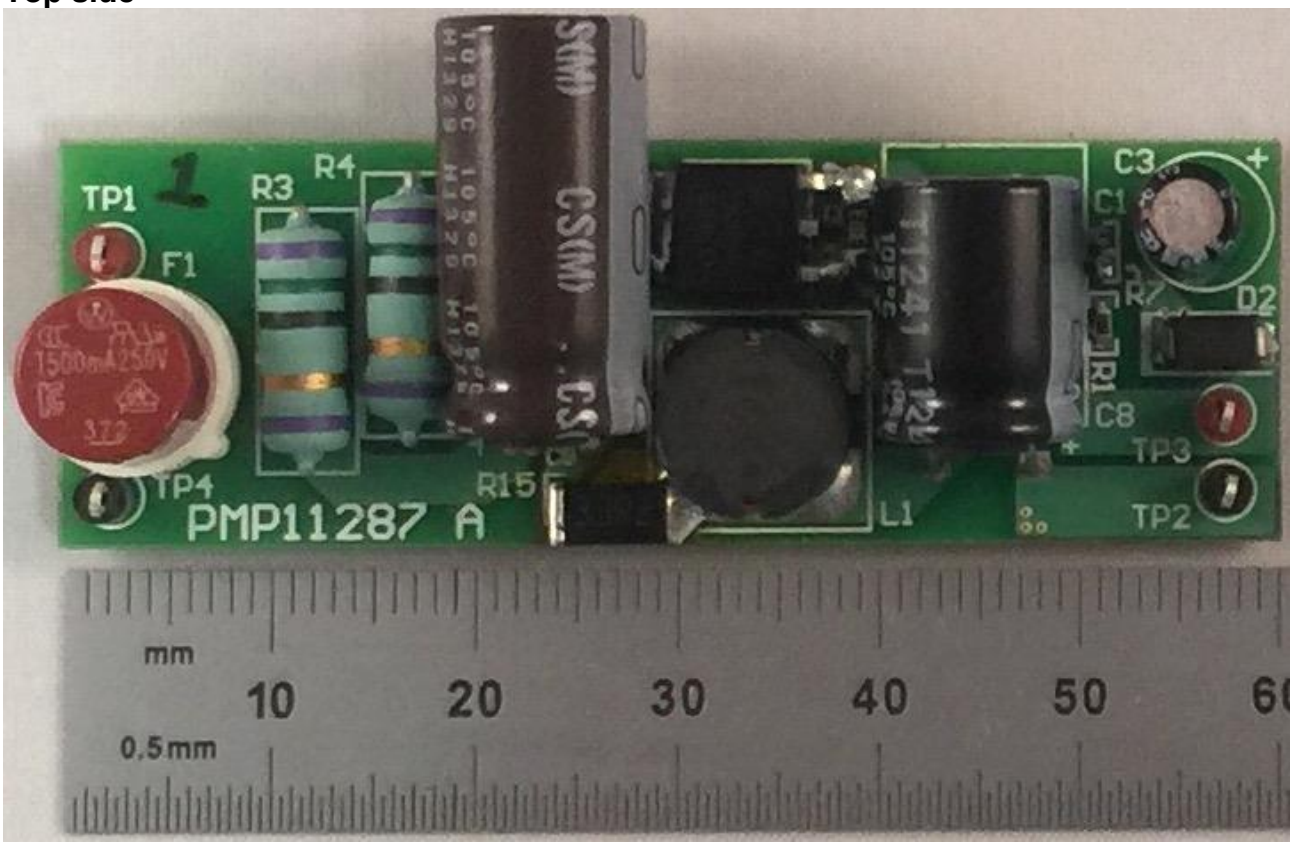
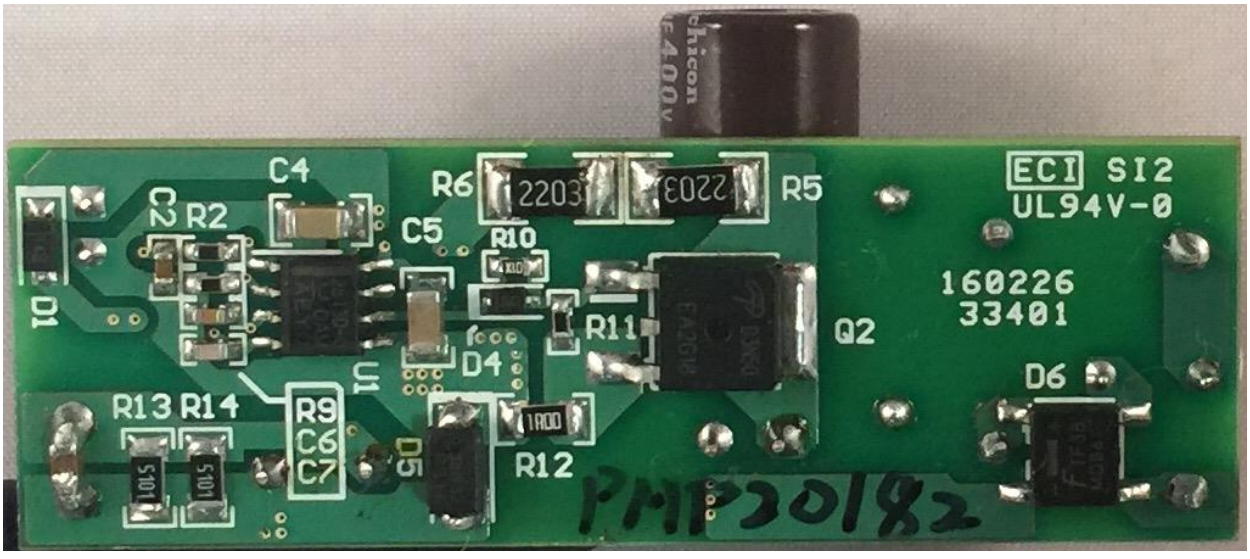
1 Photo

The photographs below show the PMP20182 Rev A assembly. This circuit was built on a PMP11287 Rev A PCB.

Top side



Bottom side

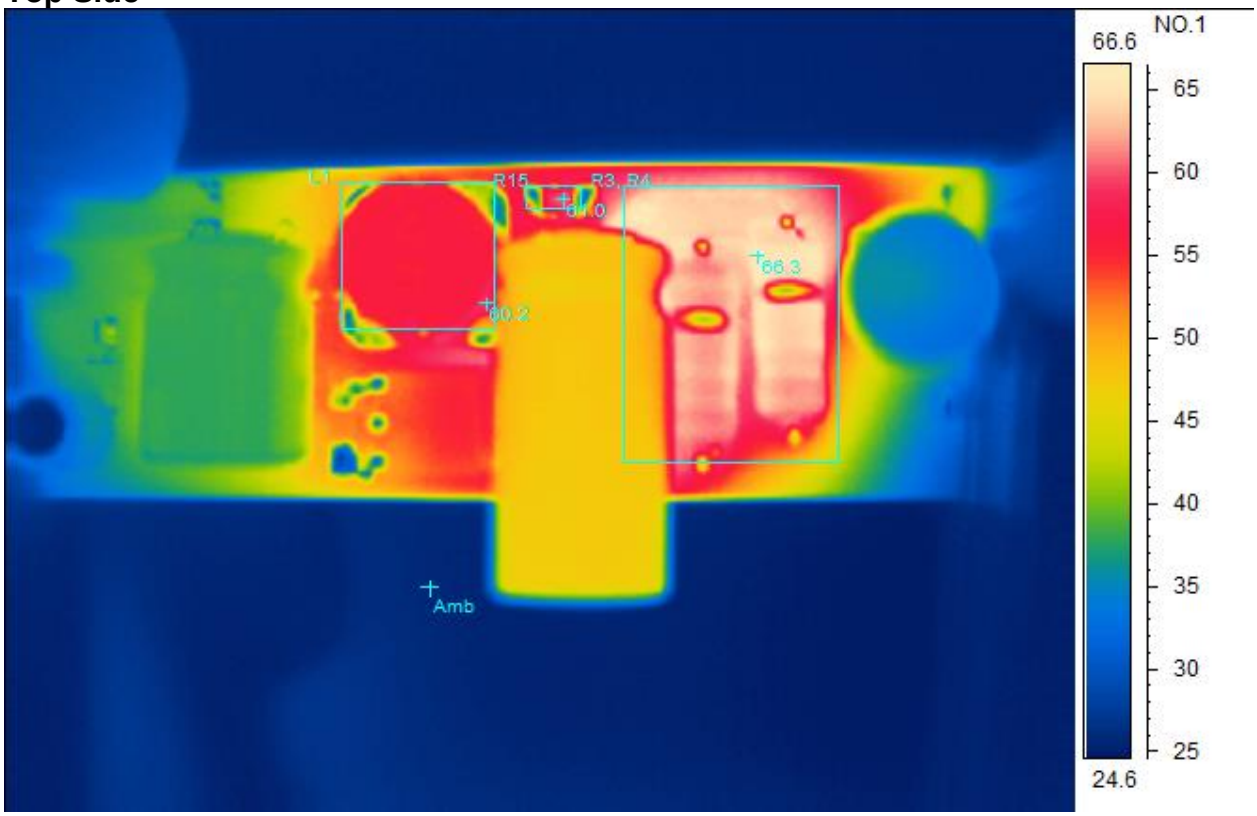


2 Thermal Images

The thermal images below show a top view and bottom view of the board at 12V/55mA full load. The ambient temperature was 20ºC with no forced air flow.

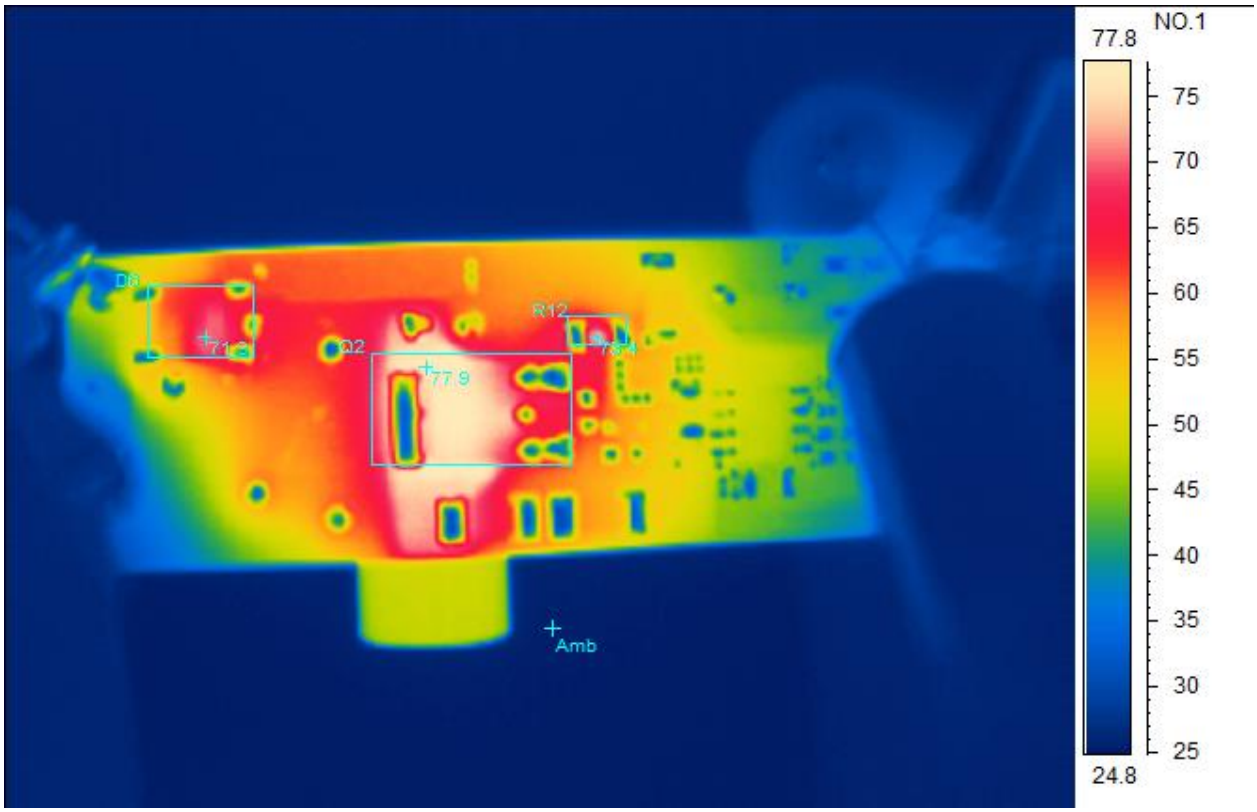
V_{in}=10.8V_{DC}

Top Side



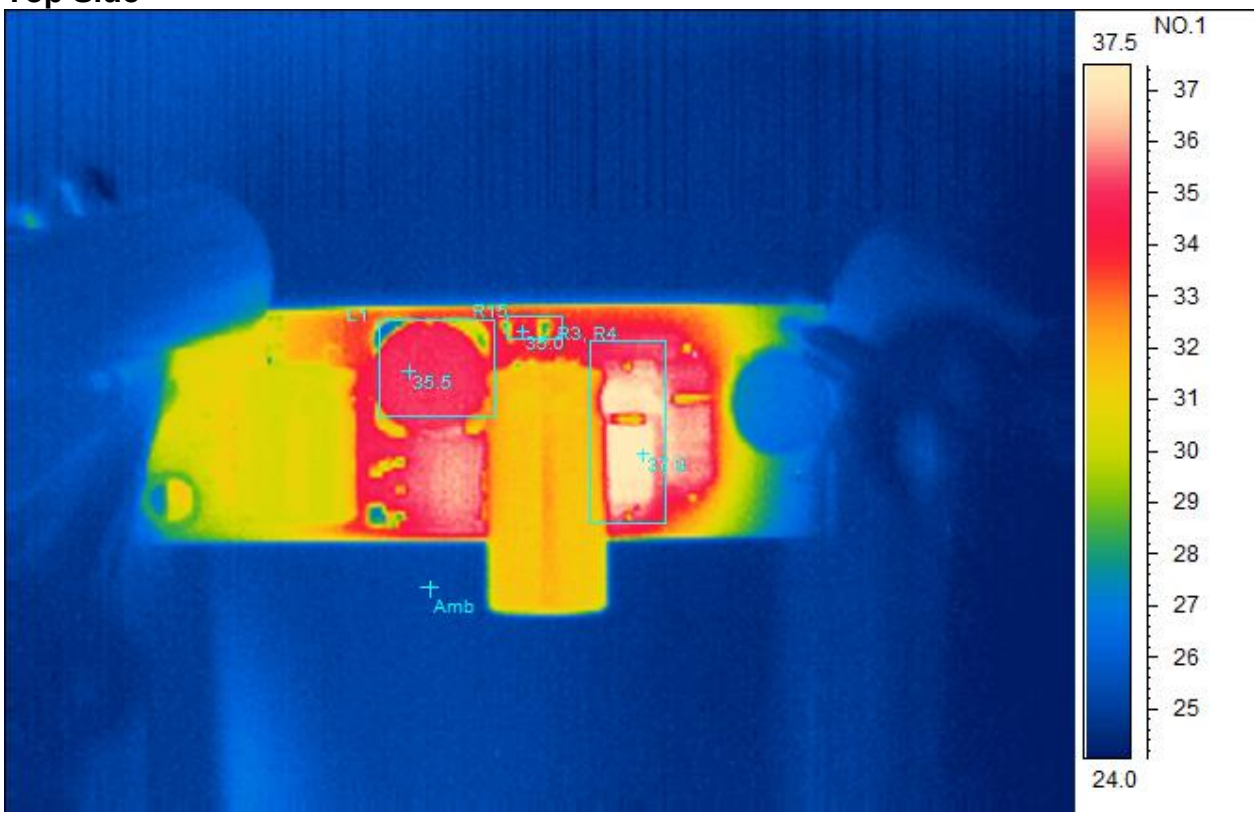
Spot analysis	Value
Amb Temperature	25.7°C
Area analysis	**Value**
R3, R4Max	66.3°C
L1Max	60.2°C
R15Max	61.0°C

V_{in}=10.8V_{DC}
Bottom Side



Spot analysis	Value
Amb Temperature	25.5°C
Area analysis	**Value**
D6Max	71.3°C
Q2Max	77.9°C
R12Max	73.4°C

V_{in}=140V_{DC}
Top Side

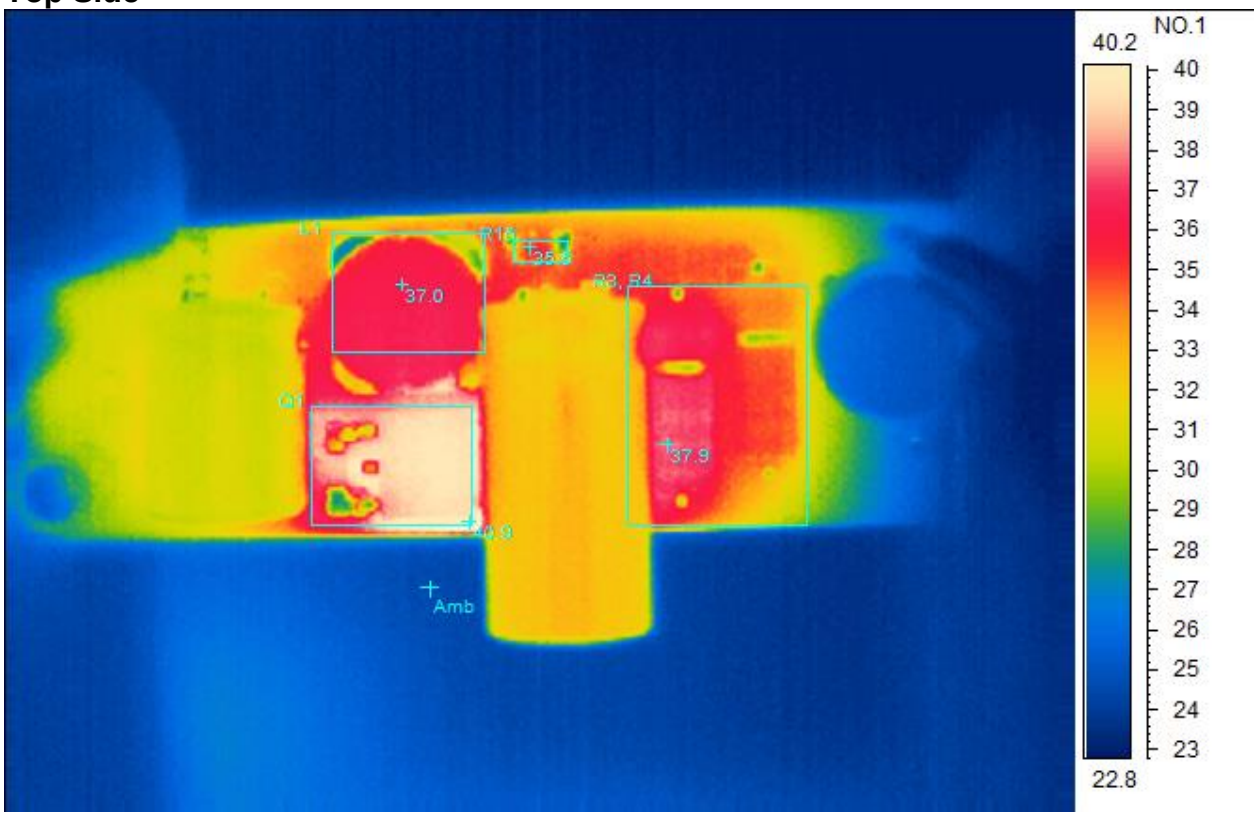


Spot analysis	Value
Amb Temperature	25.2°C
Area analysis	**Value**
R3, R4Max	37.9°C
L1Max	35.5°C
R15Max	35.0°C

V_{in}=140V_{DC}
Bottom Side

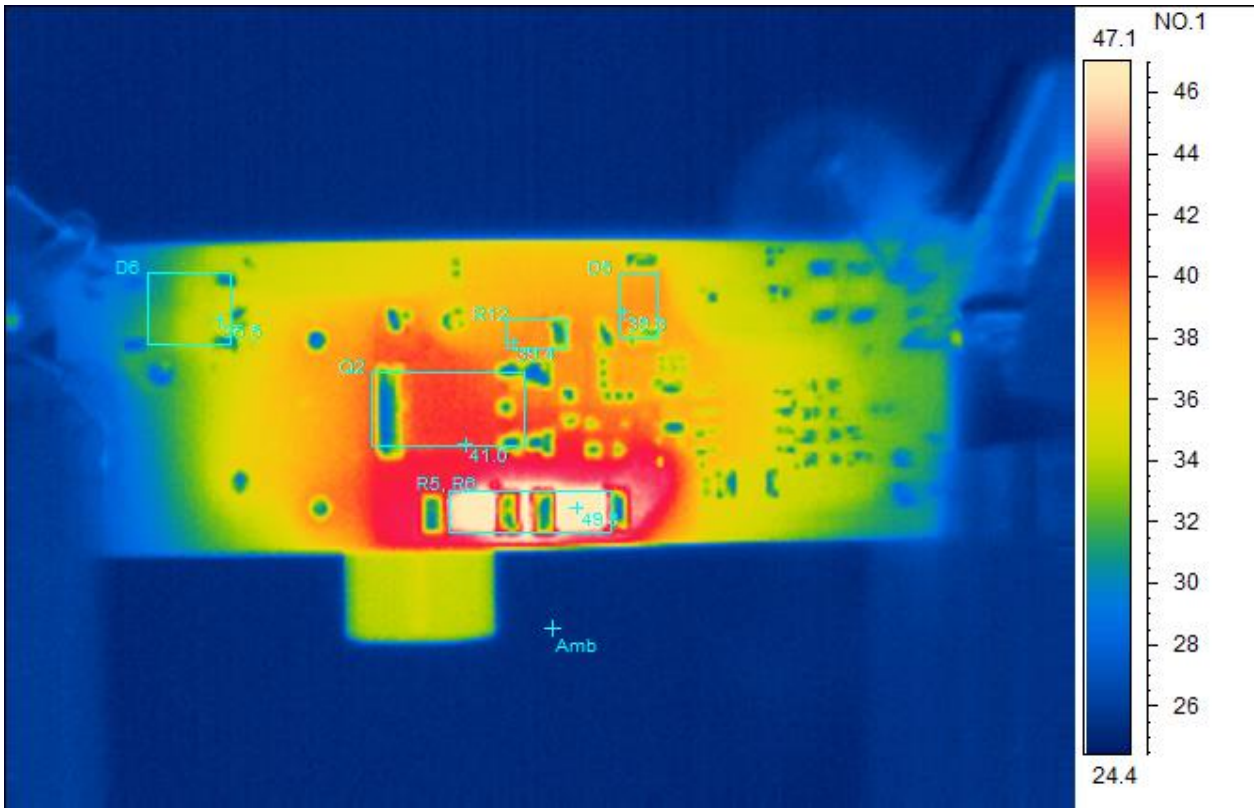
Spot analysis	Value
Amb Temperature	24.4°C
Area analysis	**Value**
D6Max	34.2°C
Q2Max	35.5°C
R12Max	35.2°C
D5Max	35.7°C
R5, R6 Max	36.5°C

V_{in}=325V_{DC}
Top Side



Spot analysis	Value
Amb Temperature	24.8°C
Area analysis	**Value**
R3, R4Max	37.9°C
L1Max	37.0°C
R15Max	35.5°C
Q1 Max	40.9°C

V_{in}=325V_{DC}
Bottom Side



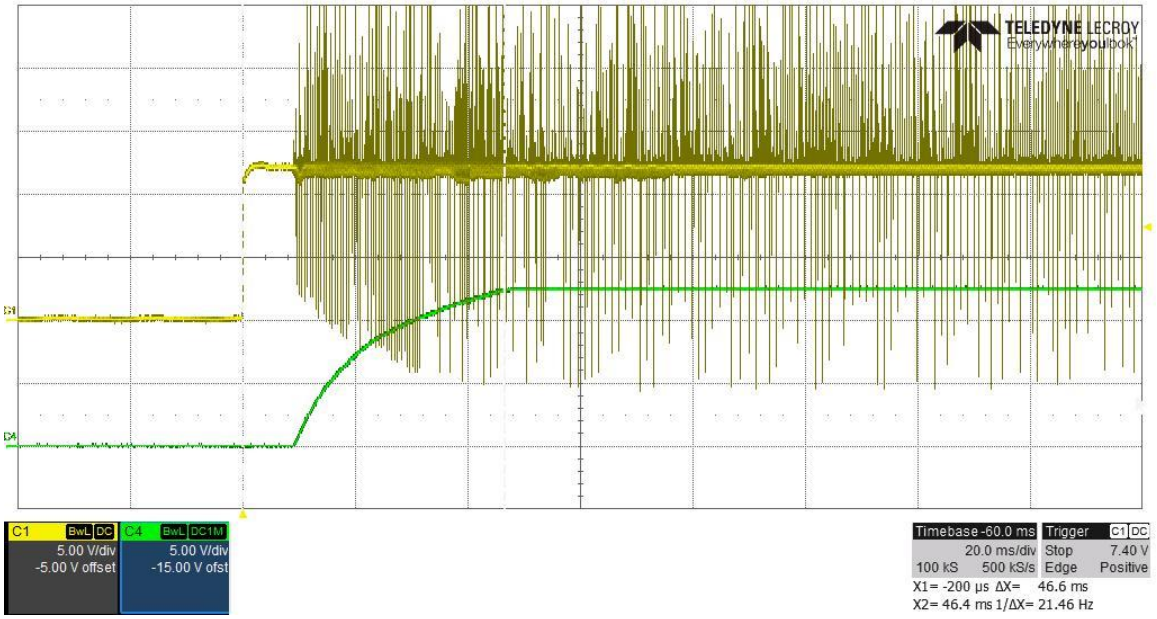
Spot analysis	Value
Amb Temperature	25.2°C
Area analysis	**Value**
D6Max	35.5°C
Q2Max	41.0°C
R12Max	39.4°C
D5Max	39.3°C
R5, R6 Max	49.8°C

3 Startup Waveforms

The output voltage at startup is shown in the images below.

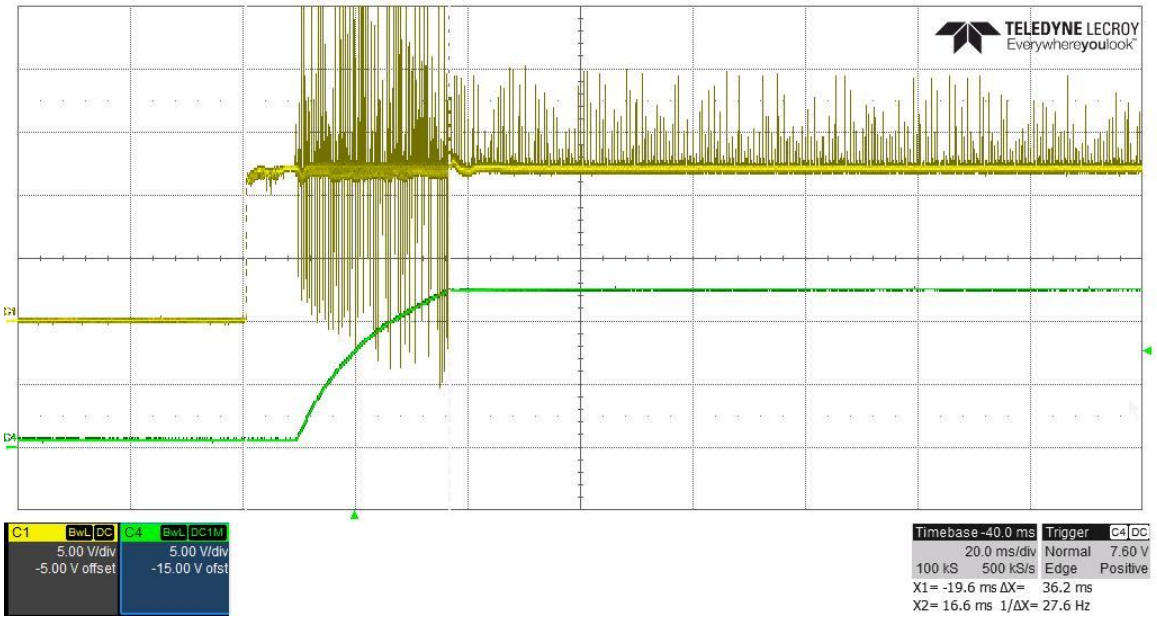
3.1 Start Up @ 12V_{DC} input, 12V/55mA output.

CH1: input voltage, CH4: output voltage



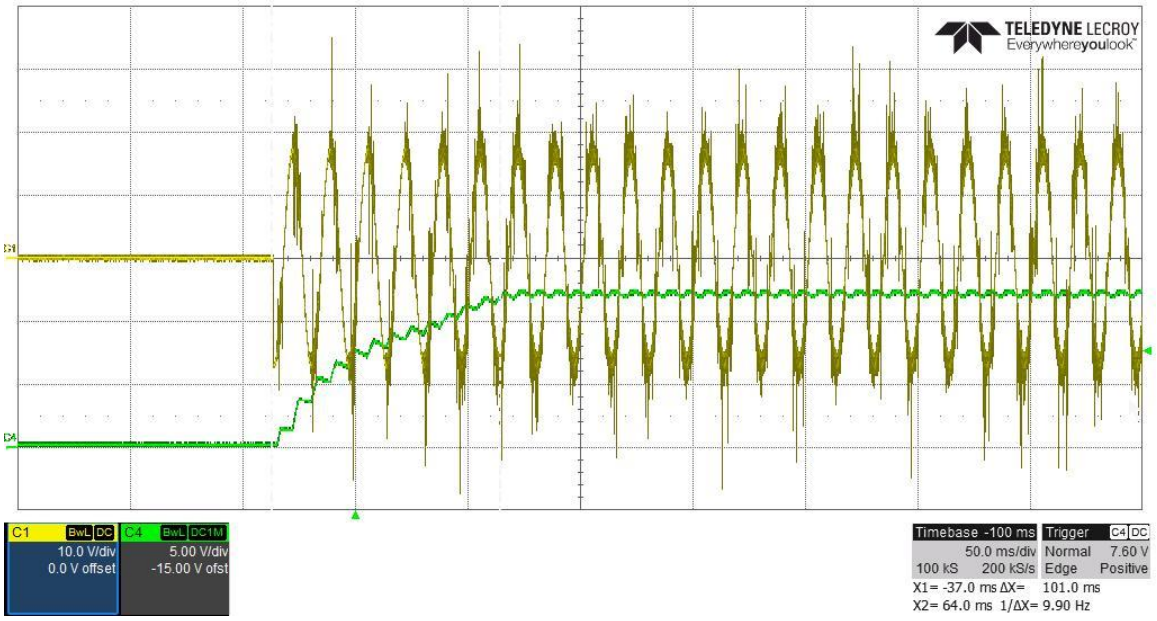
3.2 Start Up @ 12V_{DC} input, 12V/0A output.

CH1: input voltage, CH4: output voltage



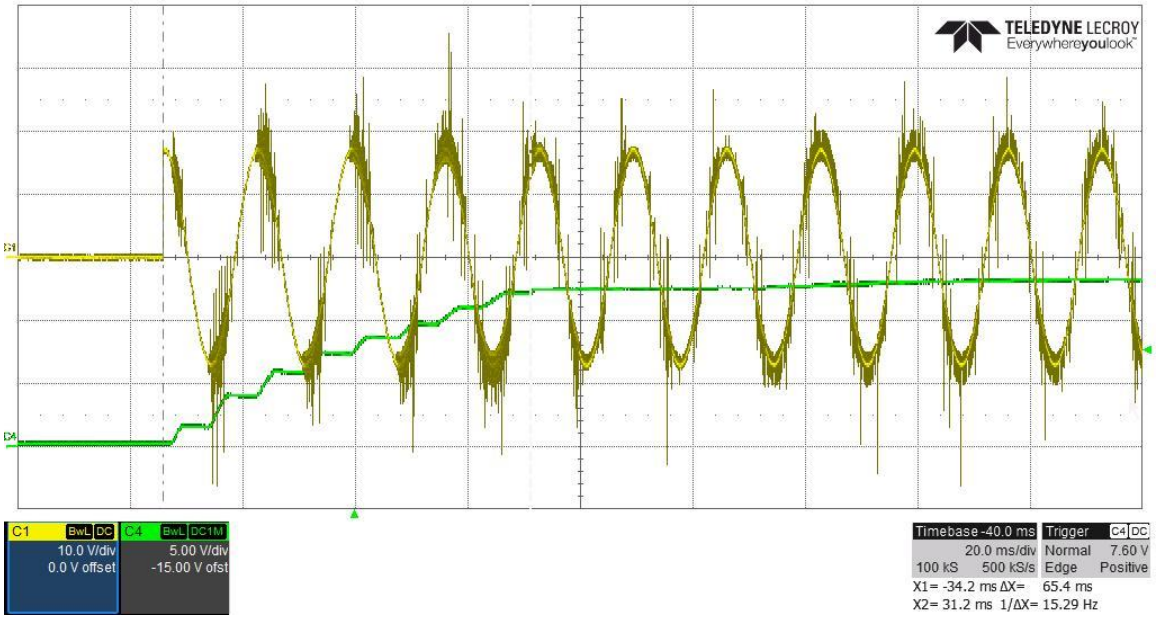
3.3 Start Up @ 12V_{AC}/60Hz input, 12V/55mA output.

CH1: input voltage, CH4: output voltage



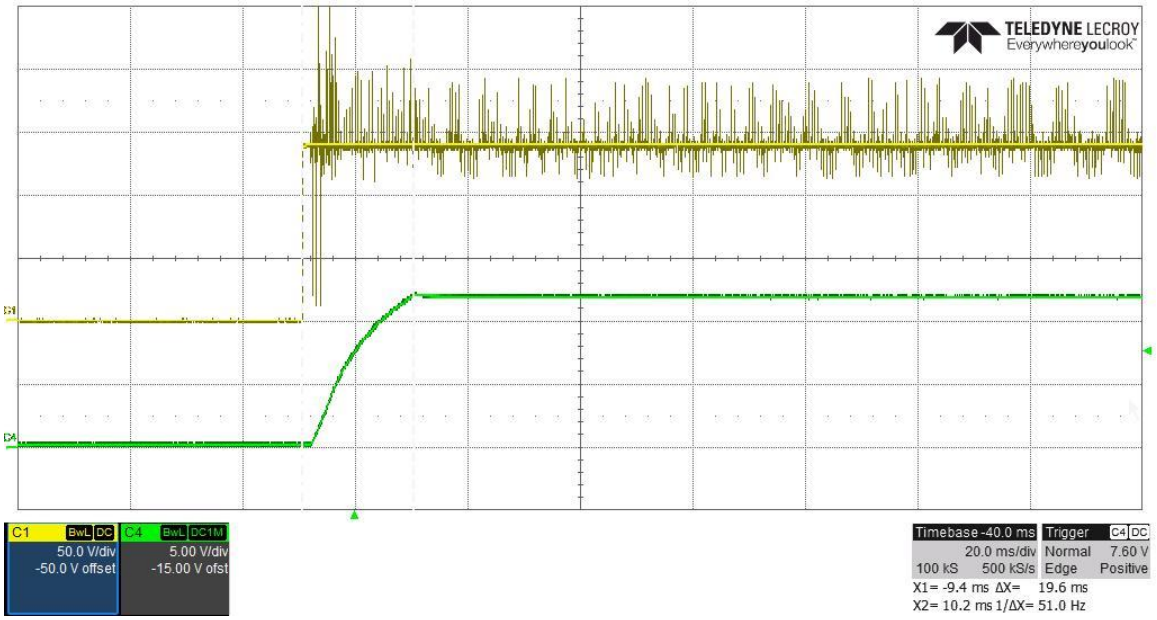
3.4 Start Up @ 12V_{AC}/60Hz input, 12V/0A output.

CH1: input voltage, CH4: output voltage



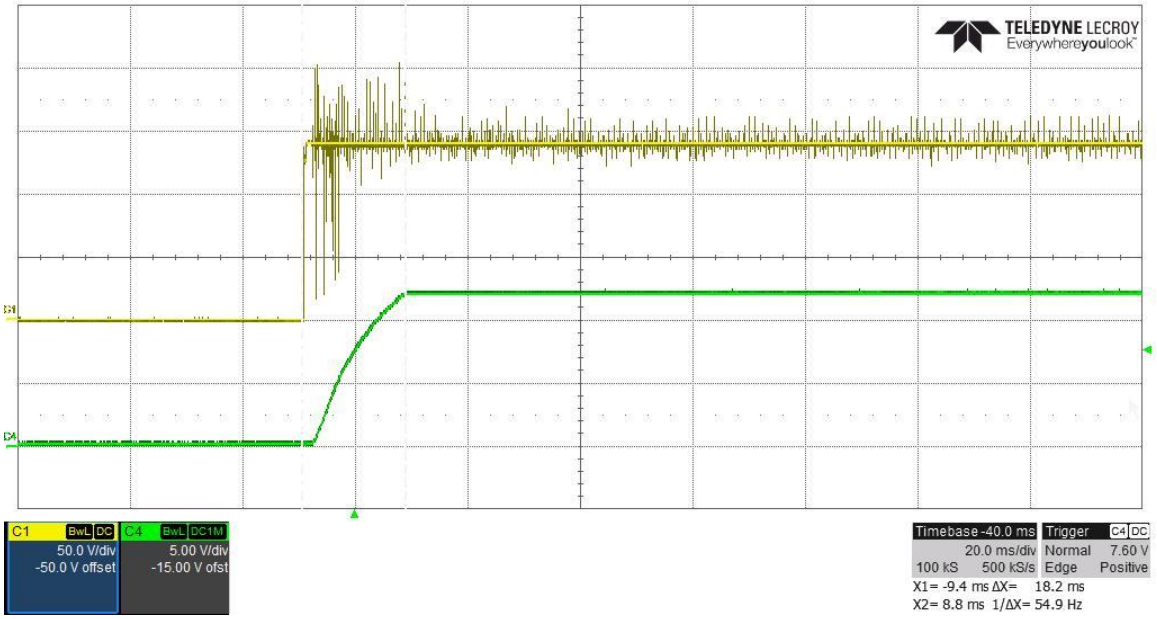
3.5 Start Up @ 140V_{DC} input, 12V/55mA output.

CH1: input voltage, CH4: output voltage



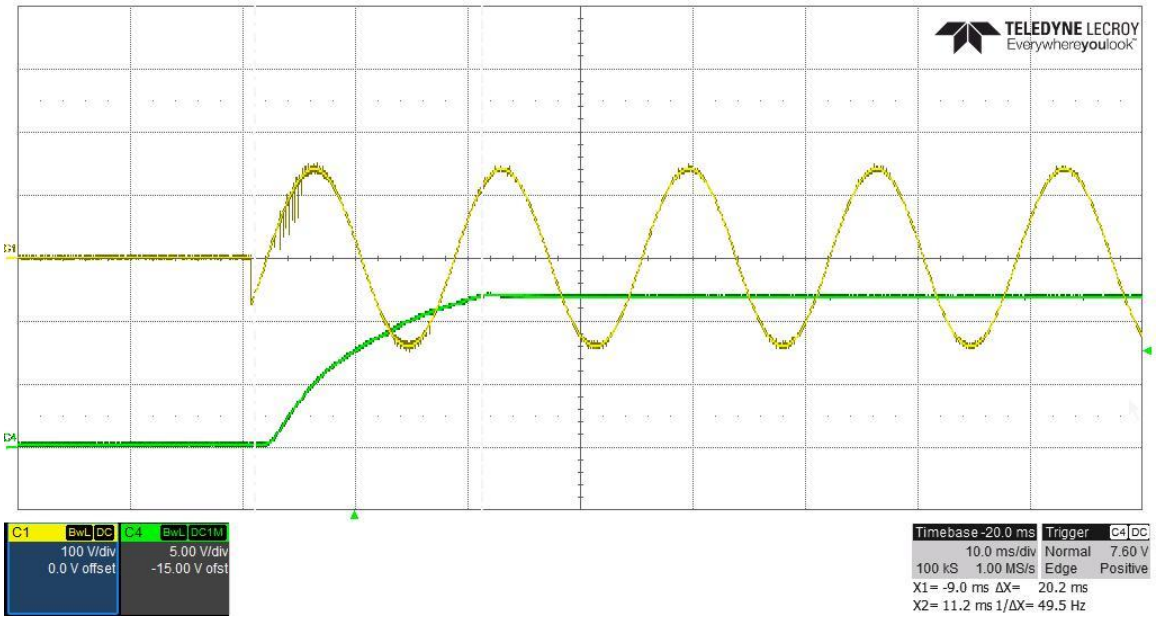
3.6 Start Up @ 140V_{DC} input, 12V/0A output.

CH1: input voltage, CH4: output voltage



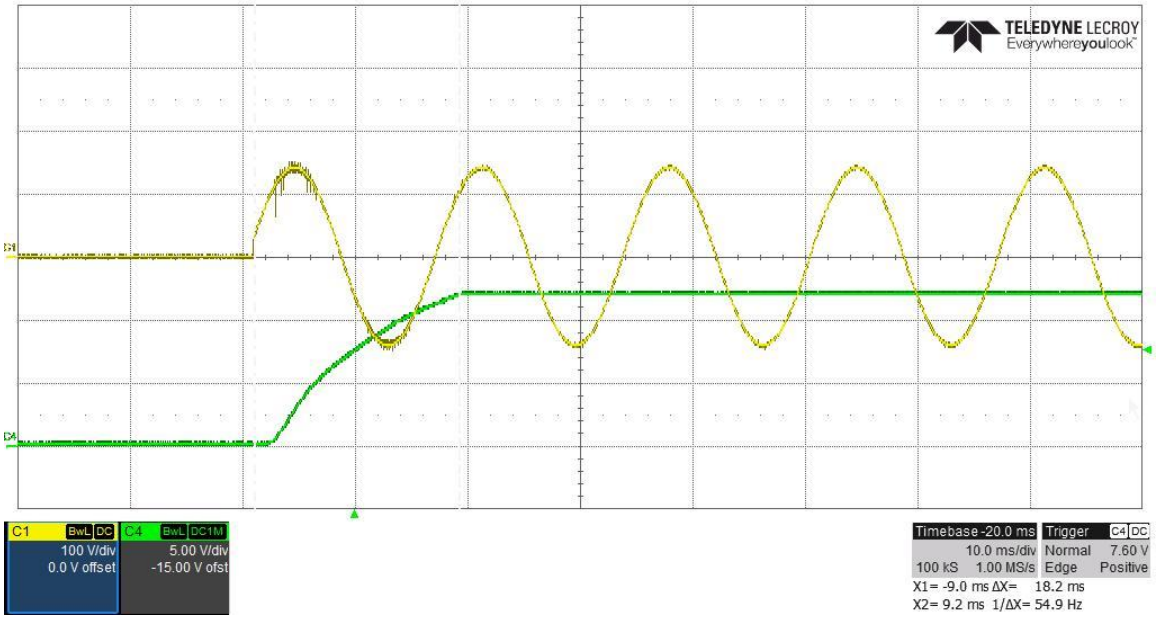
3.7 Start Up @ 100V_{AC}/60Hz input, 12V/55mA output.

CH1: input voltage, CH4: output voltage



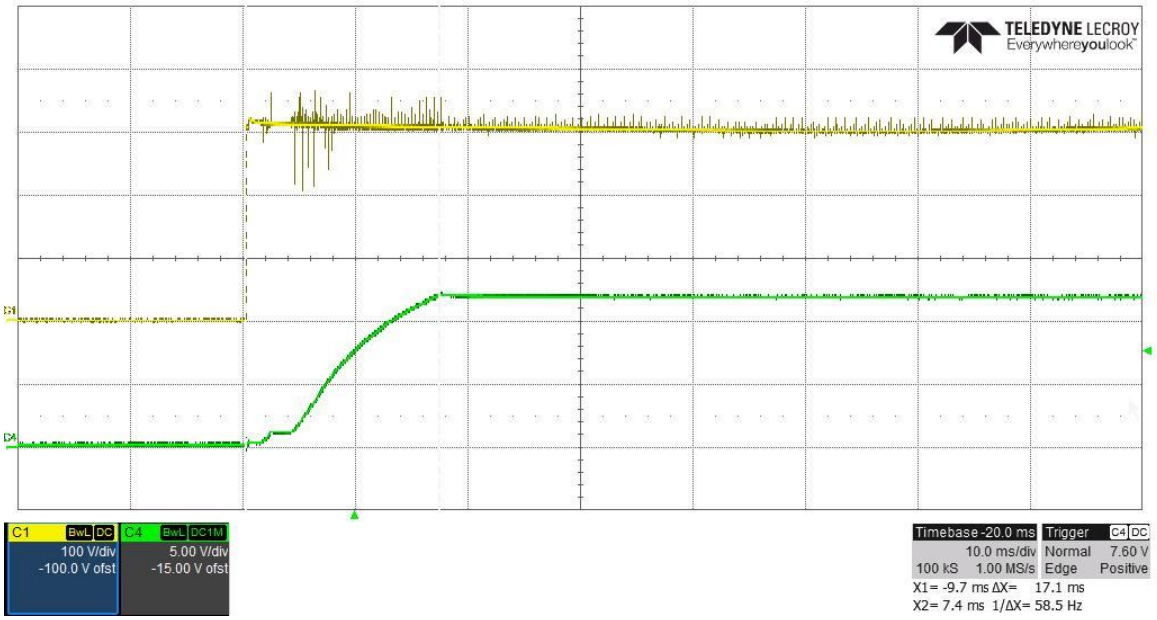
3.8 Start Up @ 100V_{AC}/60Hz input, 12V/0A output.

CH1: input voltage, CH4: output voltage



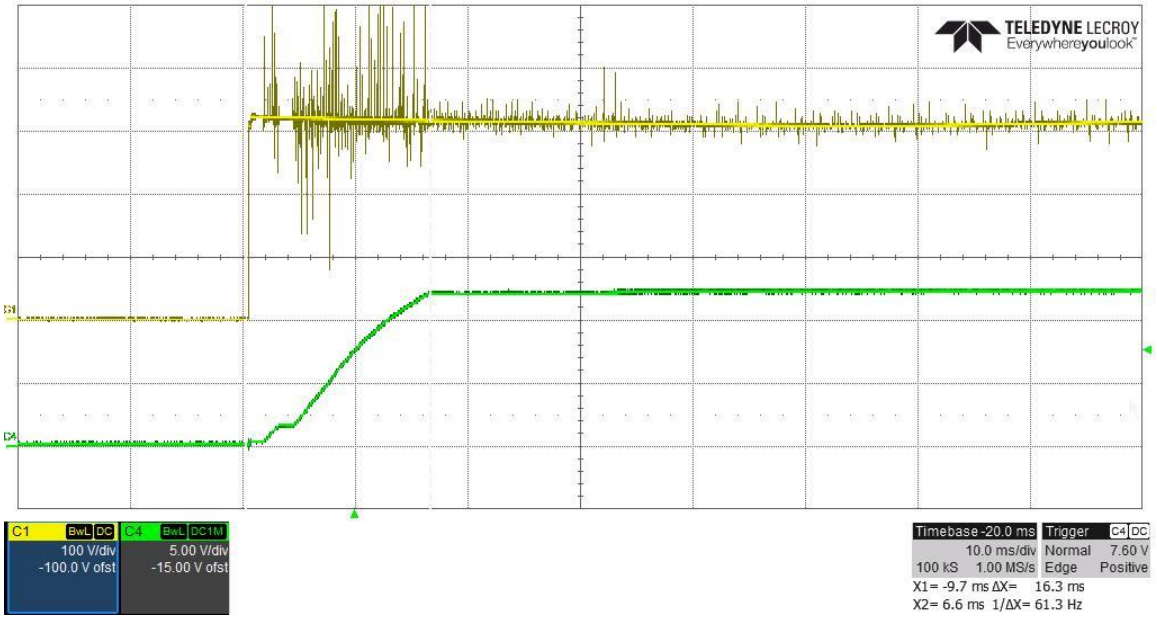
3.9 Start Up @ 325V_{DC} input, 12V/55mA output.

CH3: input voltage, CH4: output voltage



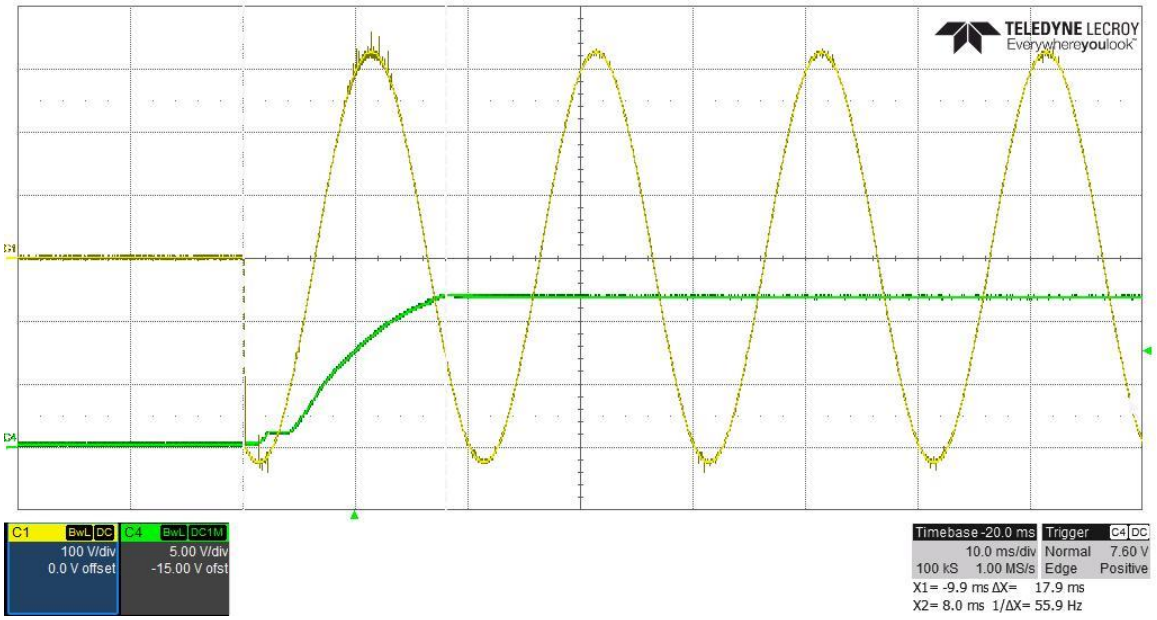
3.10 Start Up @ 325V_{DC} input, 12V/0A output.

CH3: input voltage, CH4: output voltage



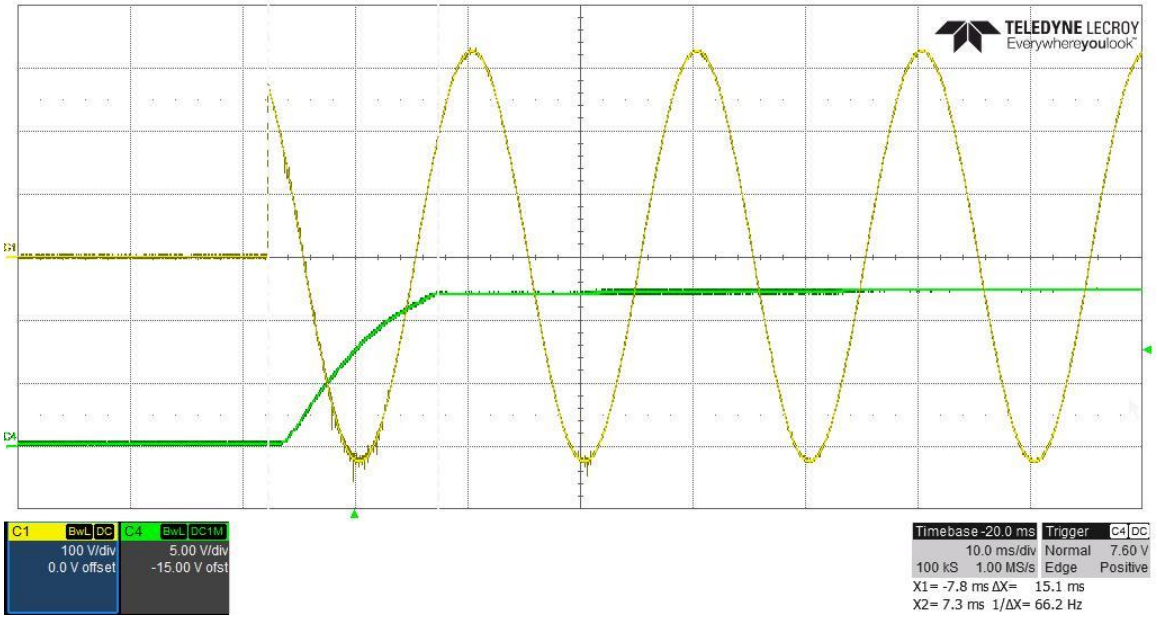
3.11 Start Up @ 230V_{AC}/50Hz input, 12V/55mA output.

CH3: output voltage, CH4: input voltage



3.12 Start Up @ 230V_{AC}/50Hz input, 12V/0A output.

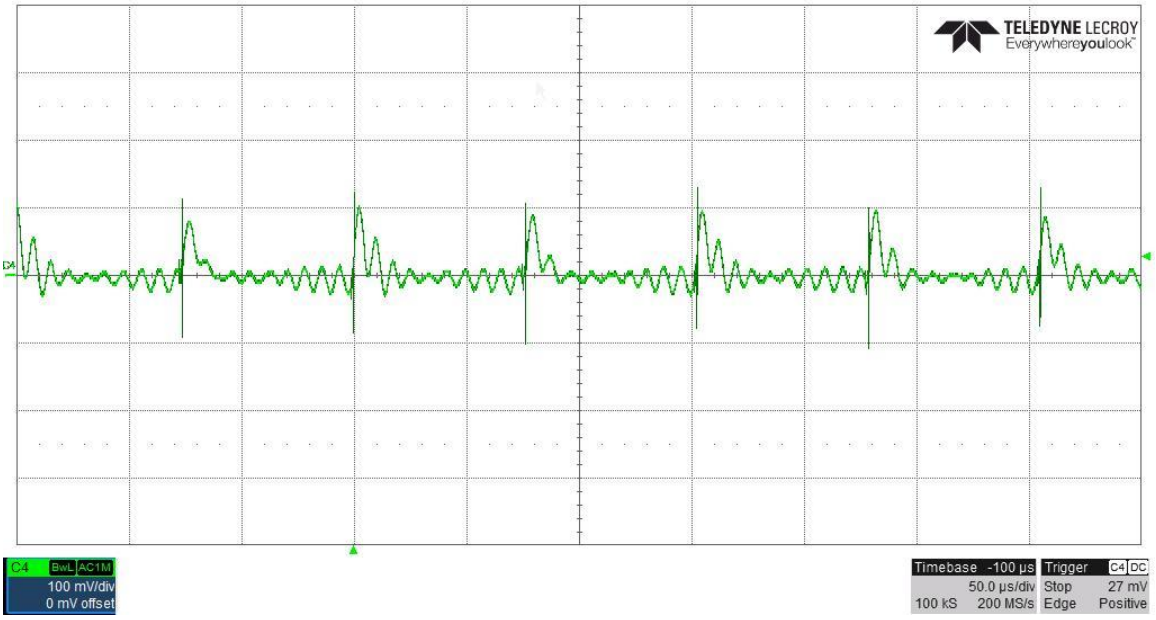
CH3: output voltage, CH4: input voltage



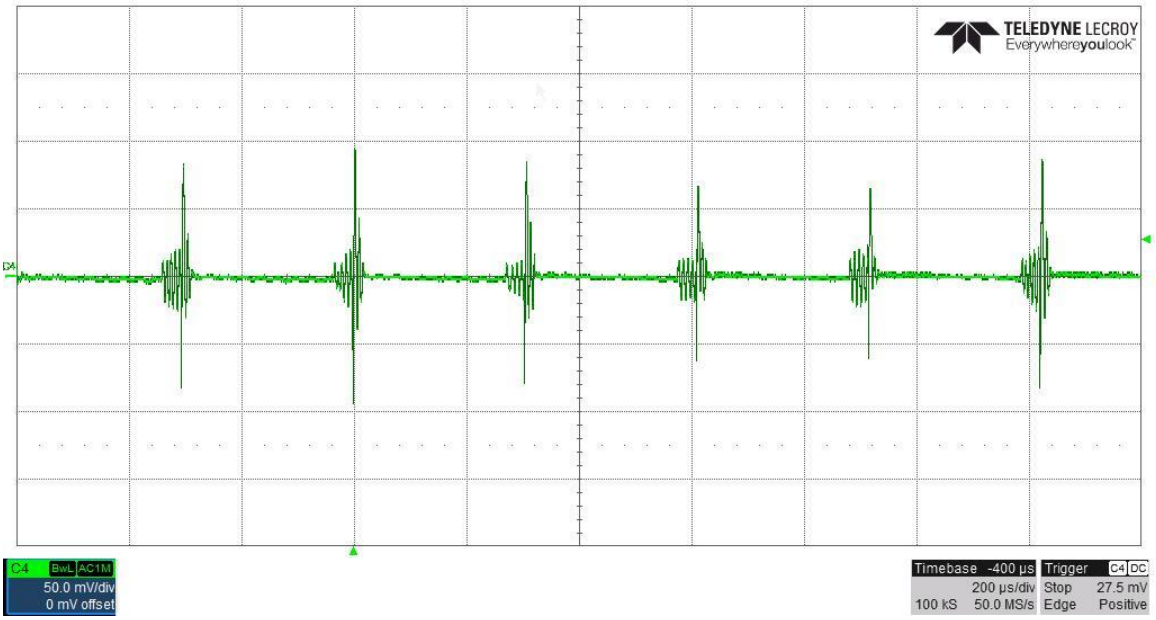
4 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

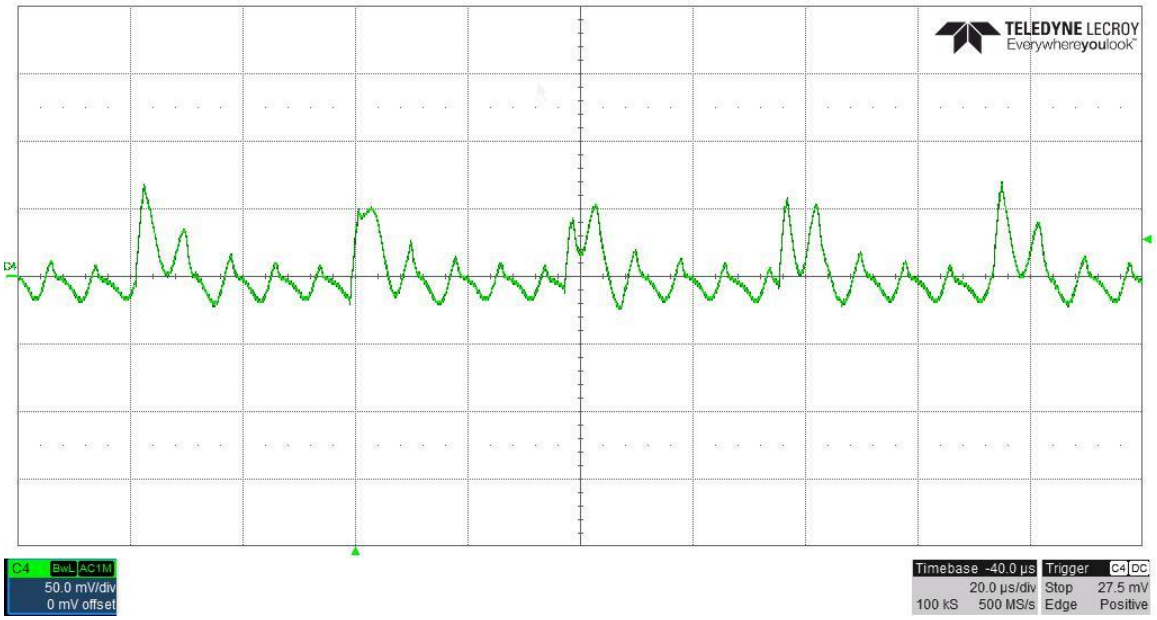
4.1 10.8V_{DC} input, 12V/55mA output.



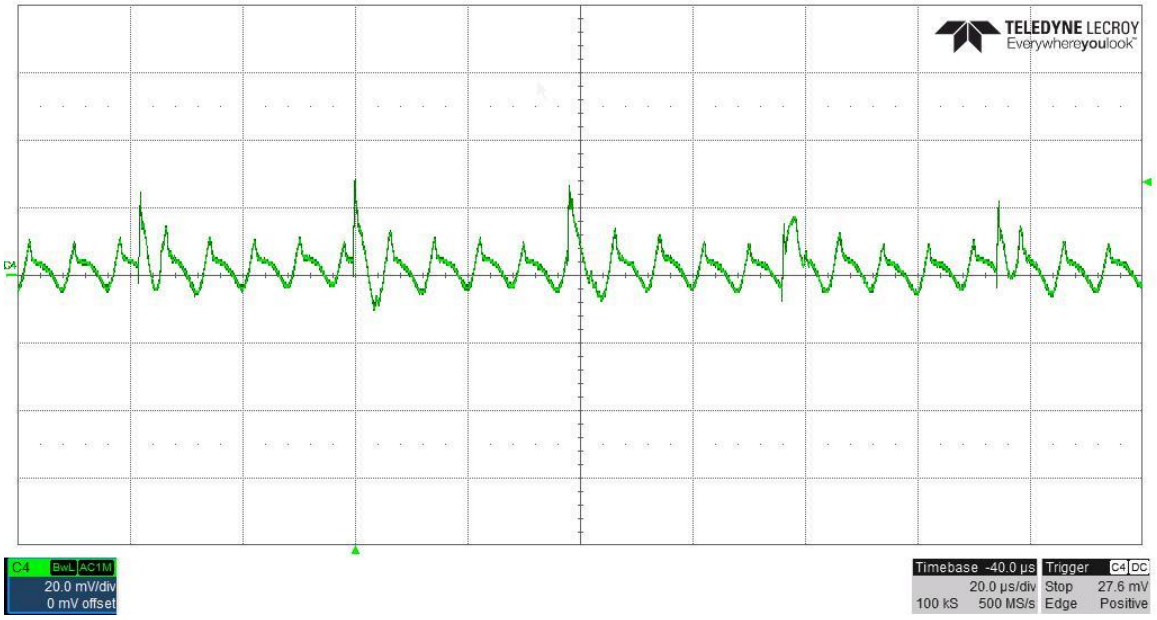
4.2 10.8V_{DC} input, 12V/0A output.



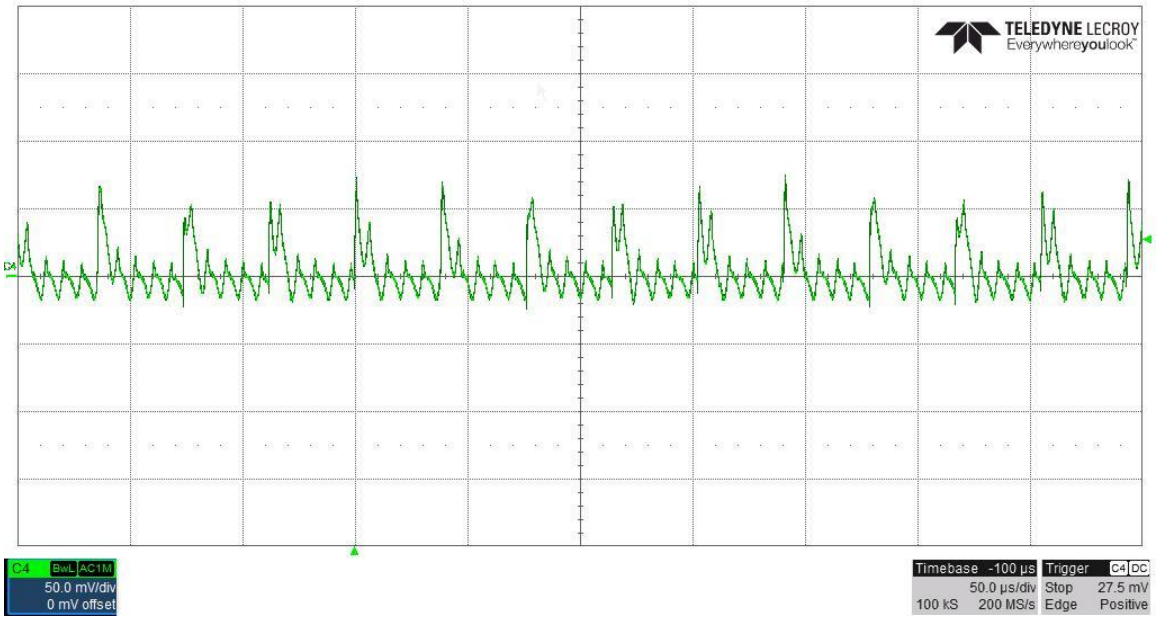
4.3 $140V_{DC}$ input, 12V/55mA output.



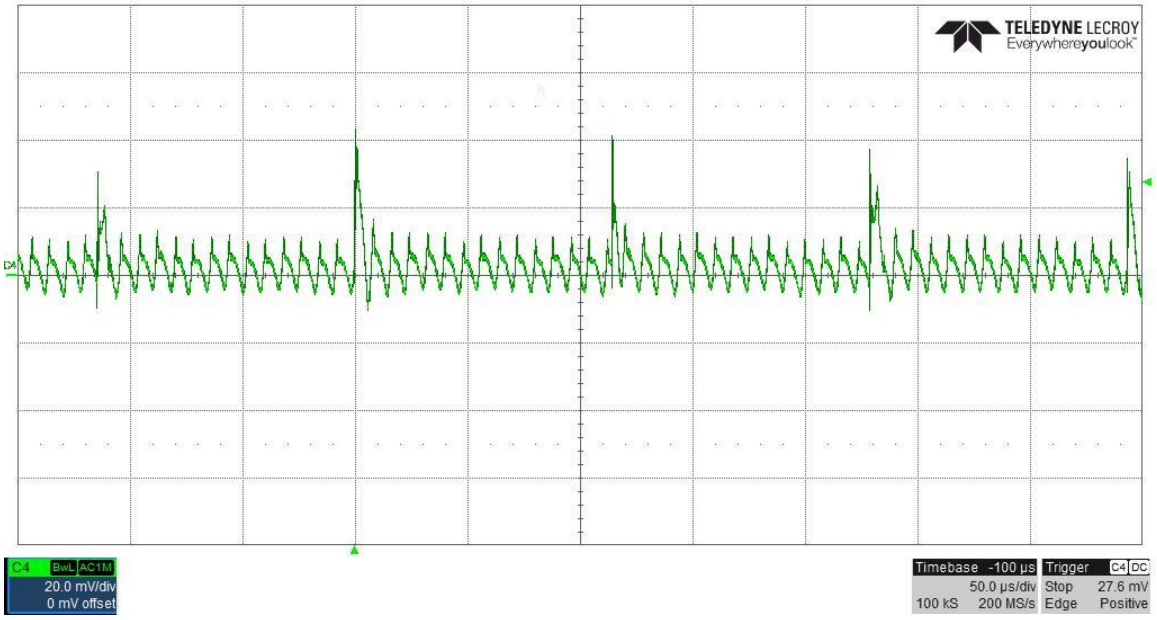
4.4 $140V_{DC}$ input, 12V/0A output.



4.5 $325V_{DC}$ input, 12V/55mA output.



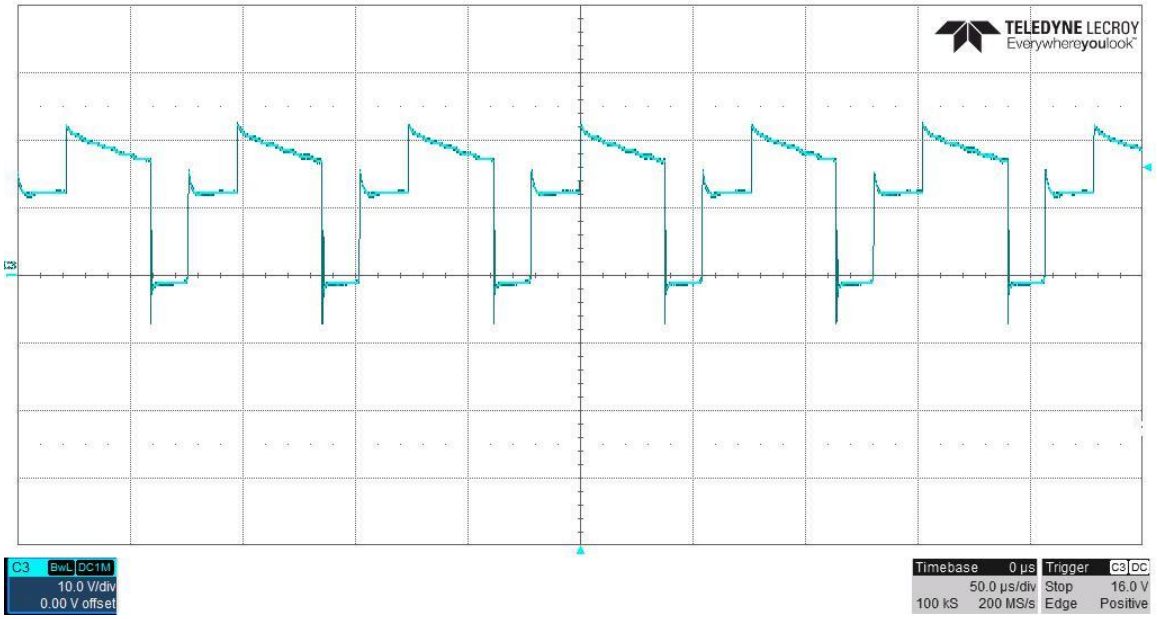
4.6 $325V_{DC}$ input, 12V/0A output.



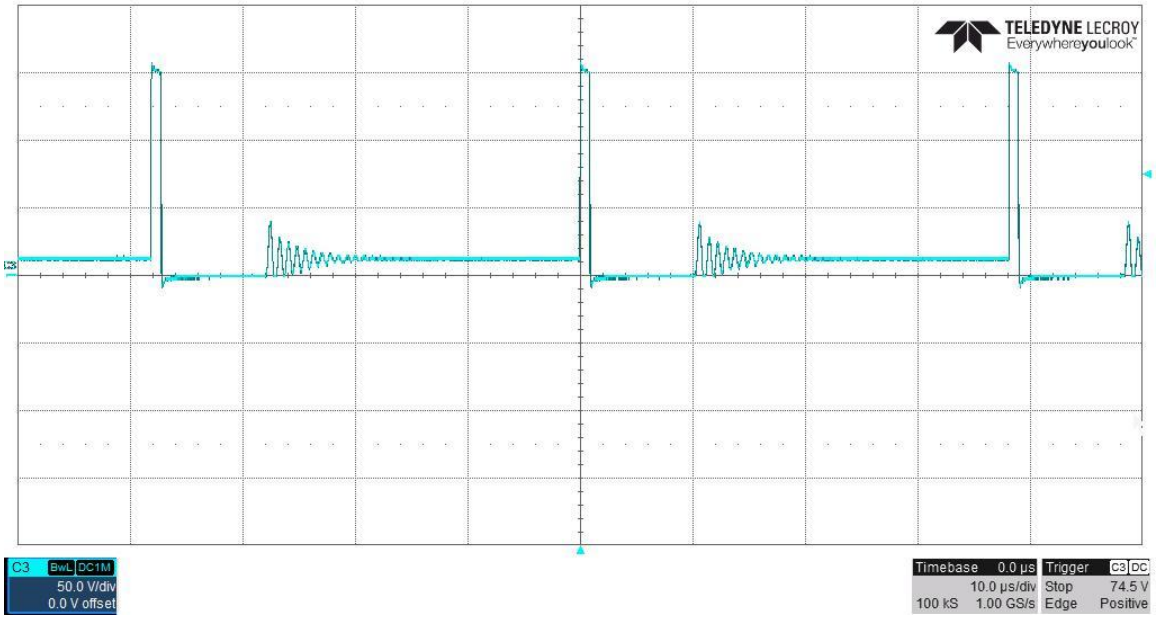
5 Switching Waveforms

The images below show key switching waveforms of PMP20182RevA. The waveforms are measured with 12V/55mA output. CH3: V_{D5}.

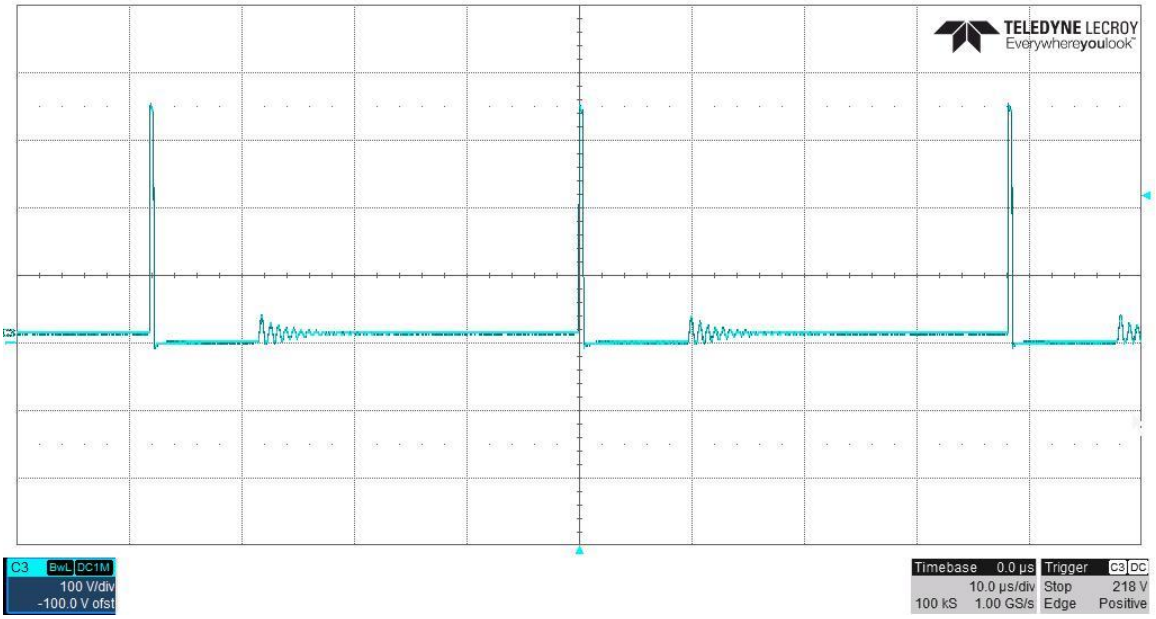
5.1 10.8V_{DC} input, 12V/55mA output.



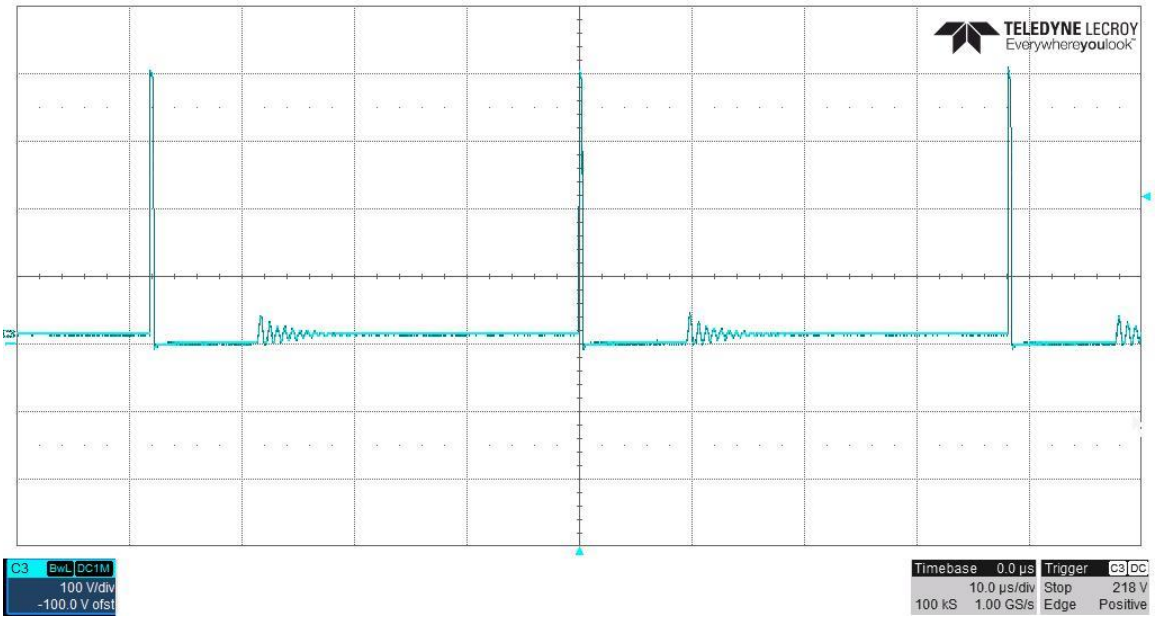
5.2 140V_{DC} input, 12V/55mA output.



5.3 325V_{DC} input, 12V/55mA output.



5.4 375V_{DC} input, 12V/55mA output.



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