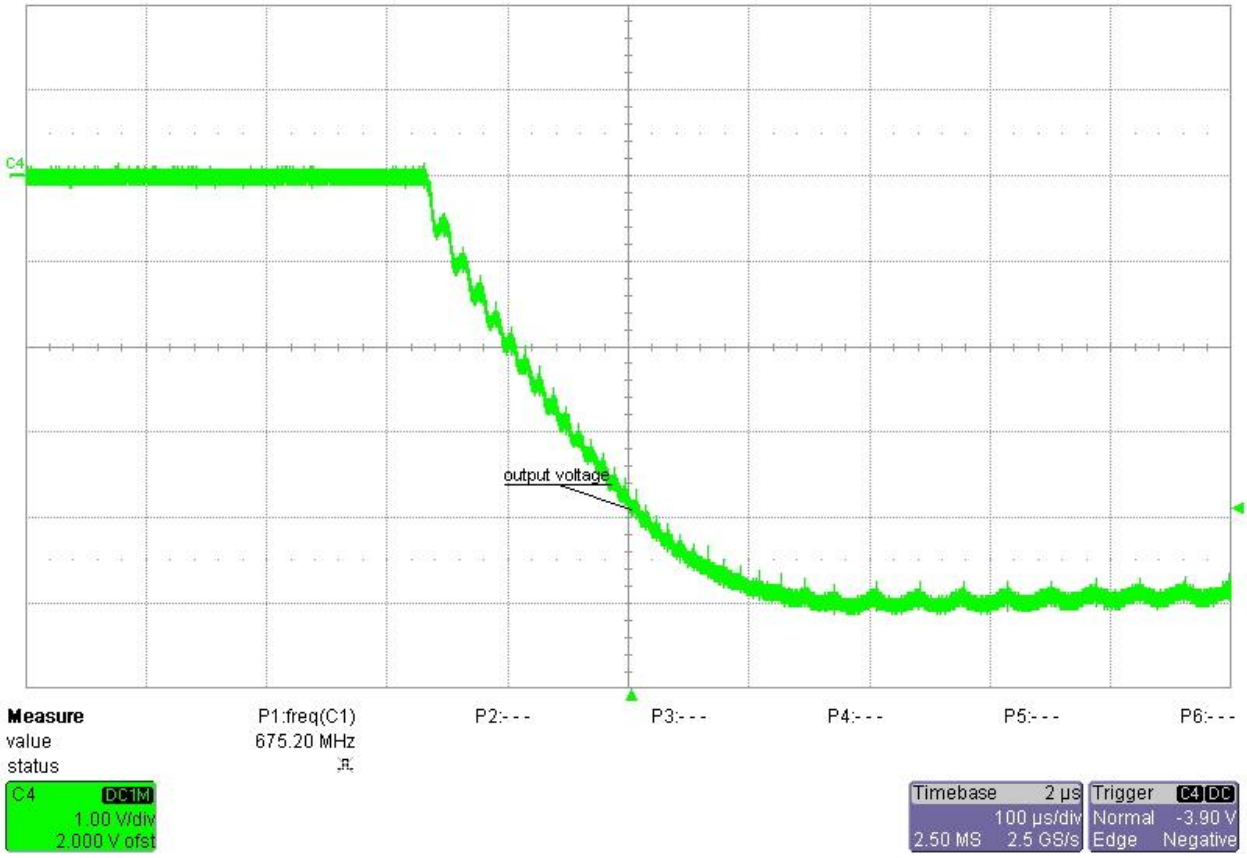
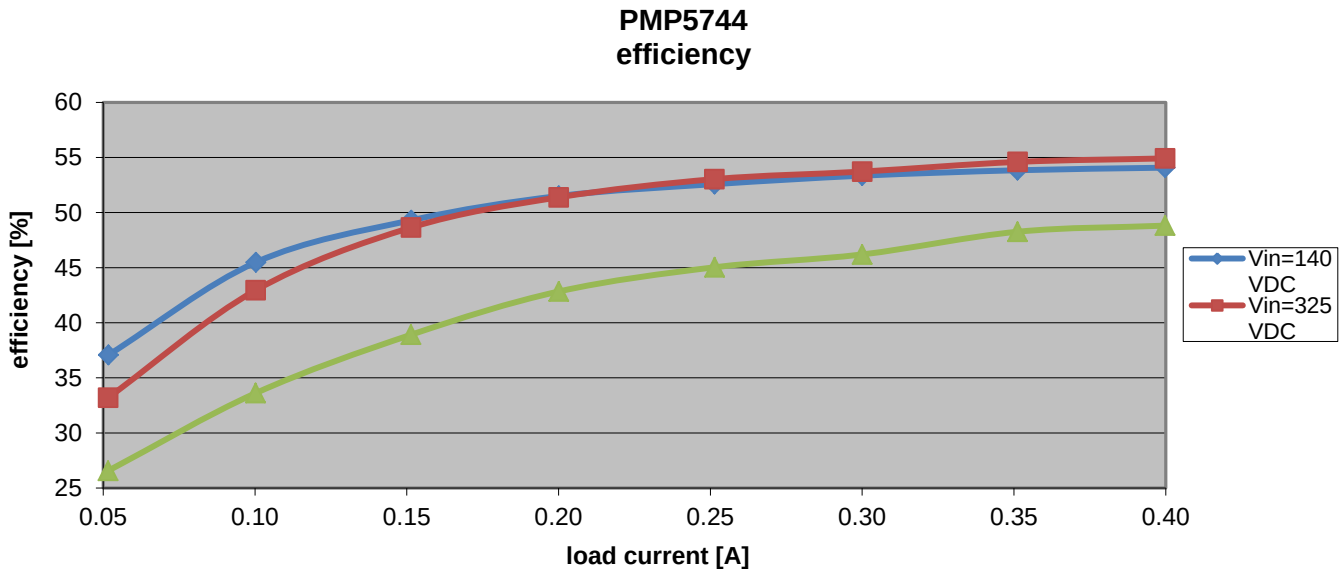
# 1 Startup

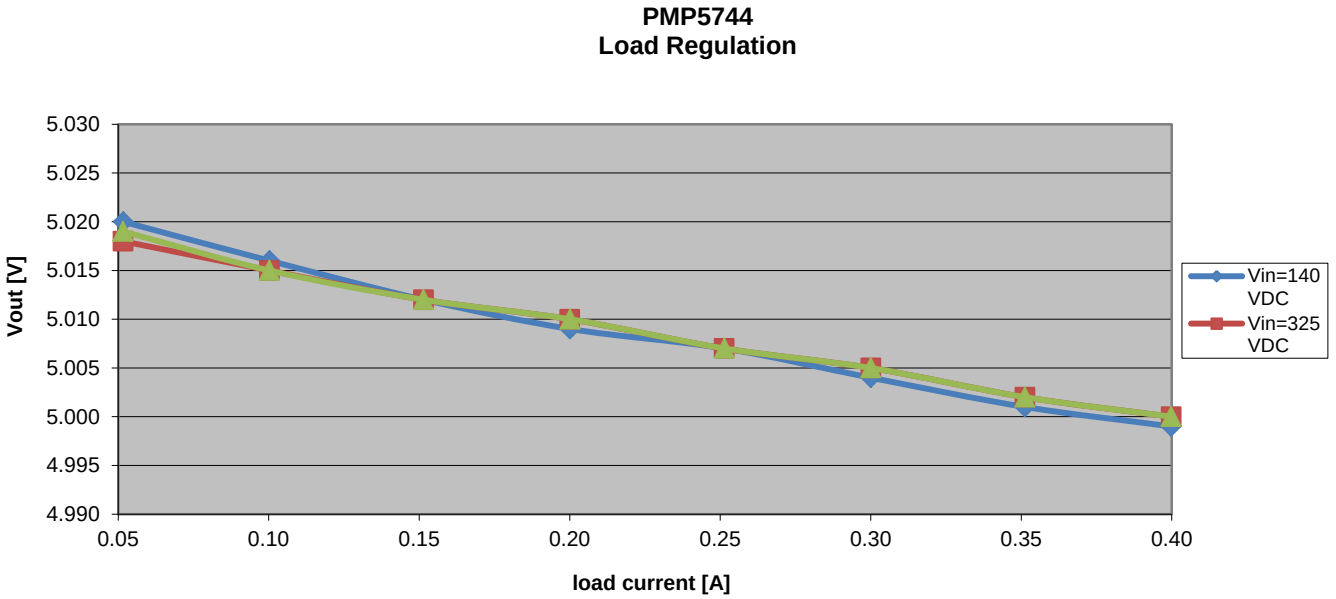
Input voltage = 230VAC
Load current = 0.4A



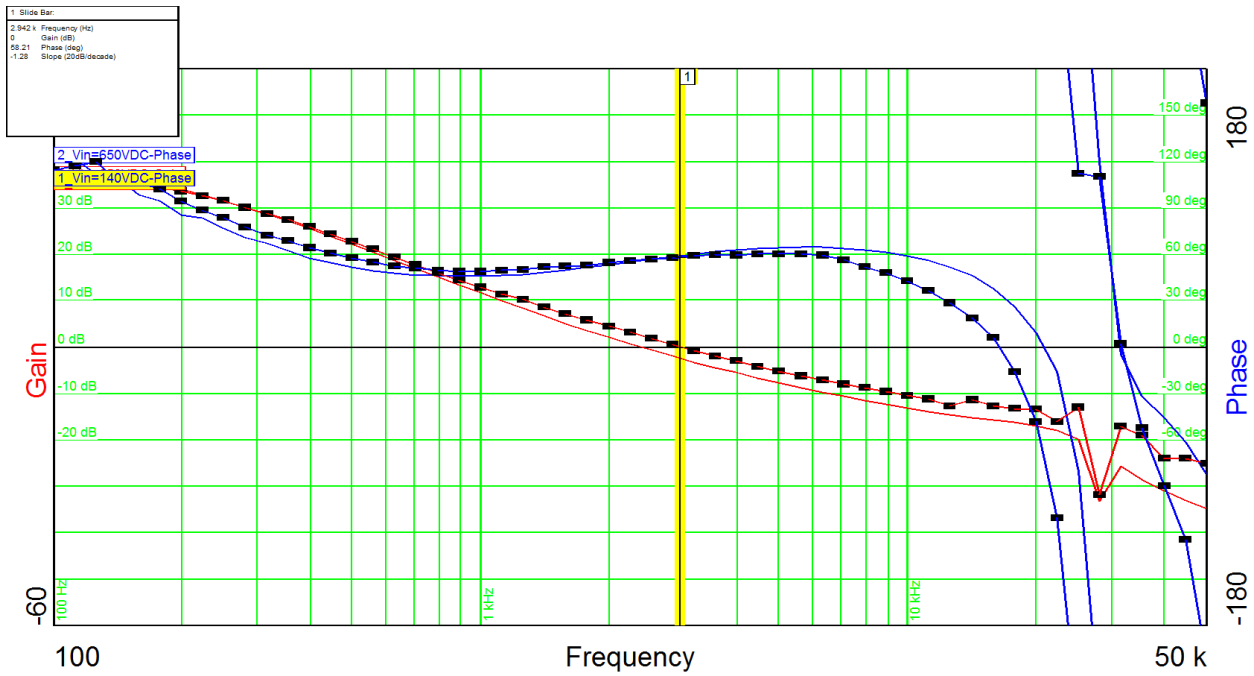
## 2 Efficiency




## 3 Load regulation



## 4 Control Loop Frequency Response

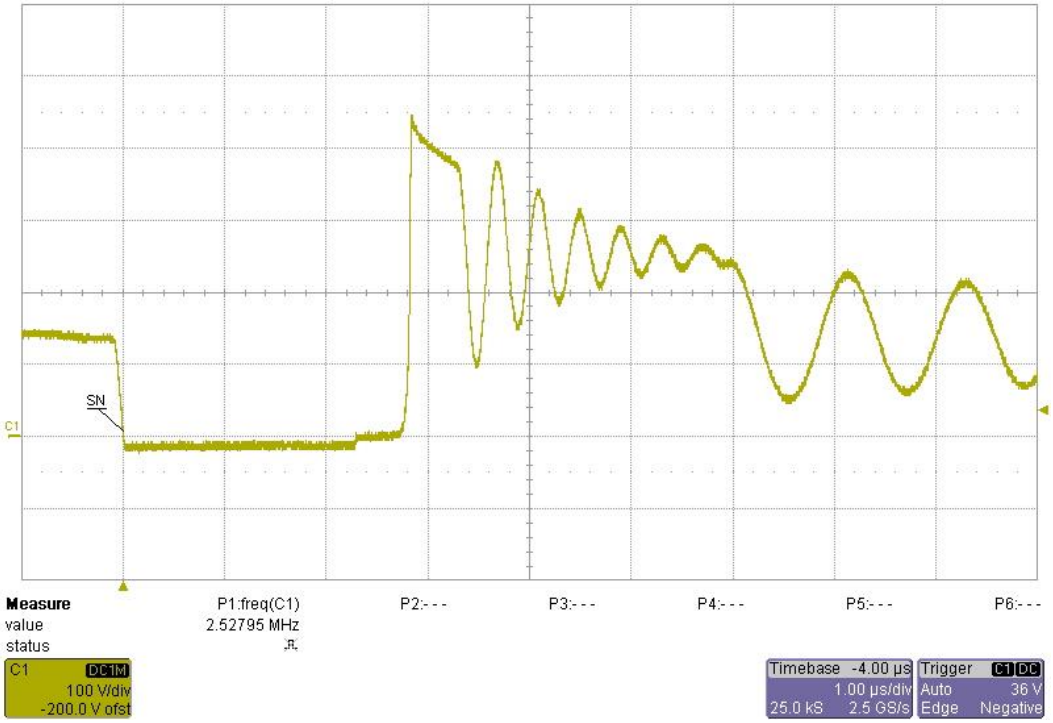


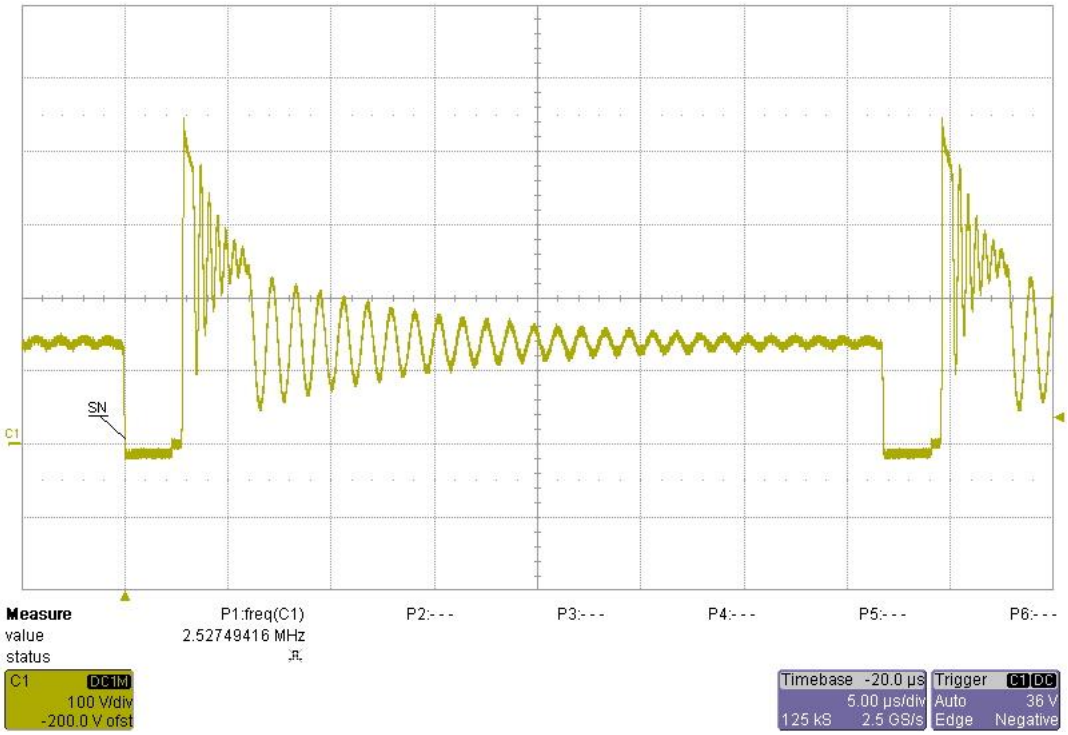

Input voltage = 140VDC:
Phase margin = 58.2°
Bandwidth = 2.94kHz

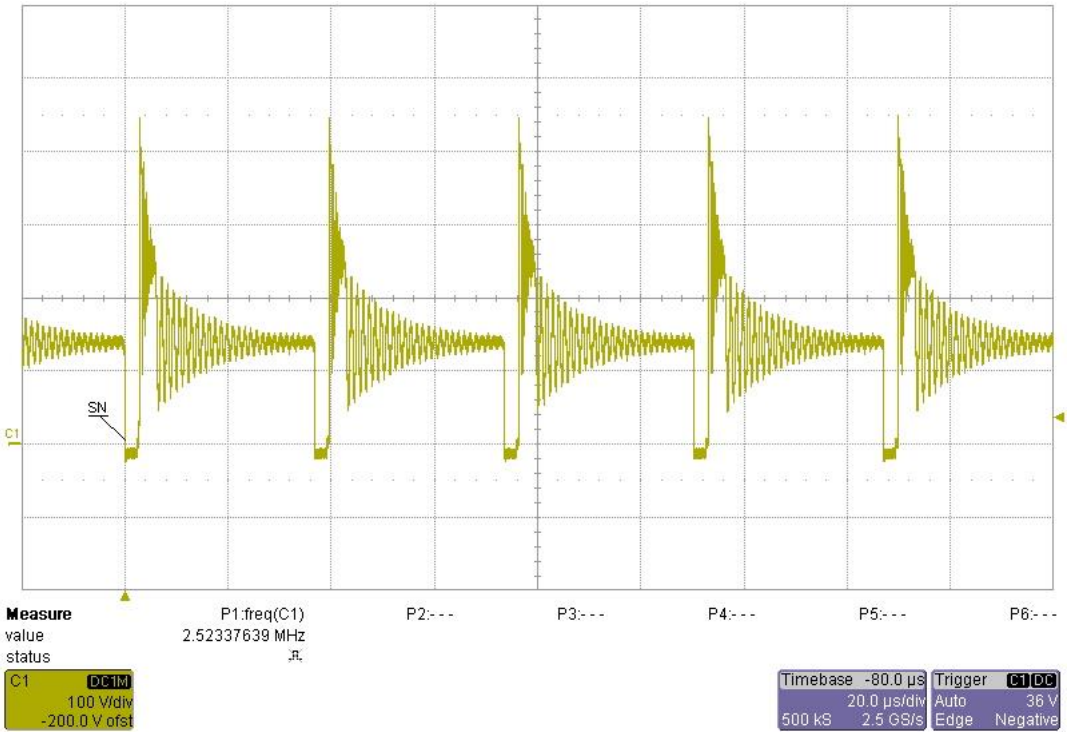
Input voltage = 650VDC
Phase margin = 55.8°
Bandwidth = 2.37kHz

## 5 Switch node Waveform

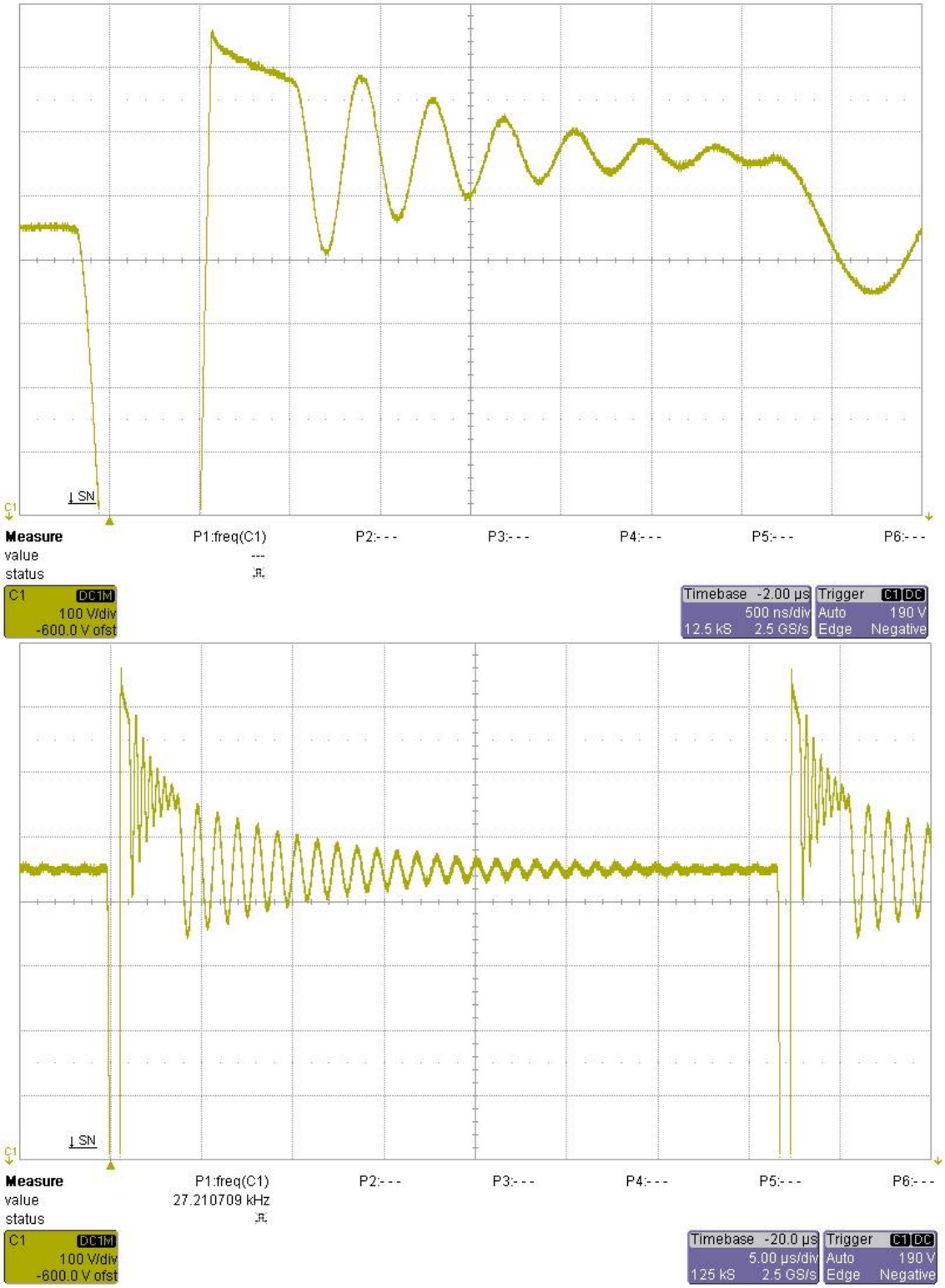
Input voltage = 140VDC
Load current = 0.4A

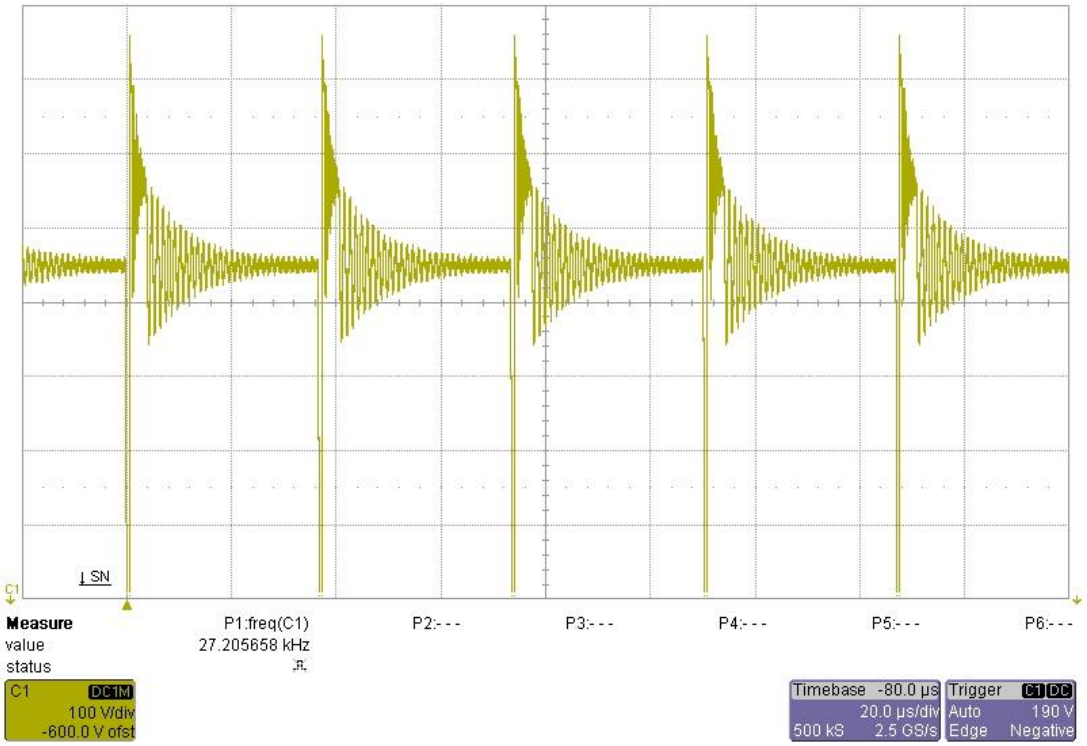



SN
C1
Measure
value
status
P1:freq(C1)
2.52337639 MHz
P2:- - -
P3:- - -
P4:- - -
P5:- - -
P6:- - -
C1 DC1M
100 V/div
-200.0 V ofst
Timebase -80.0 µs
20.0 µs/div
500 kS 2.5 GS/s
Trigger C1 DC
Auto 36 V
Edge Negative

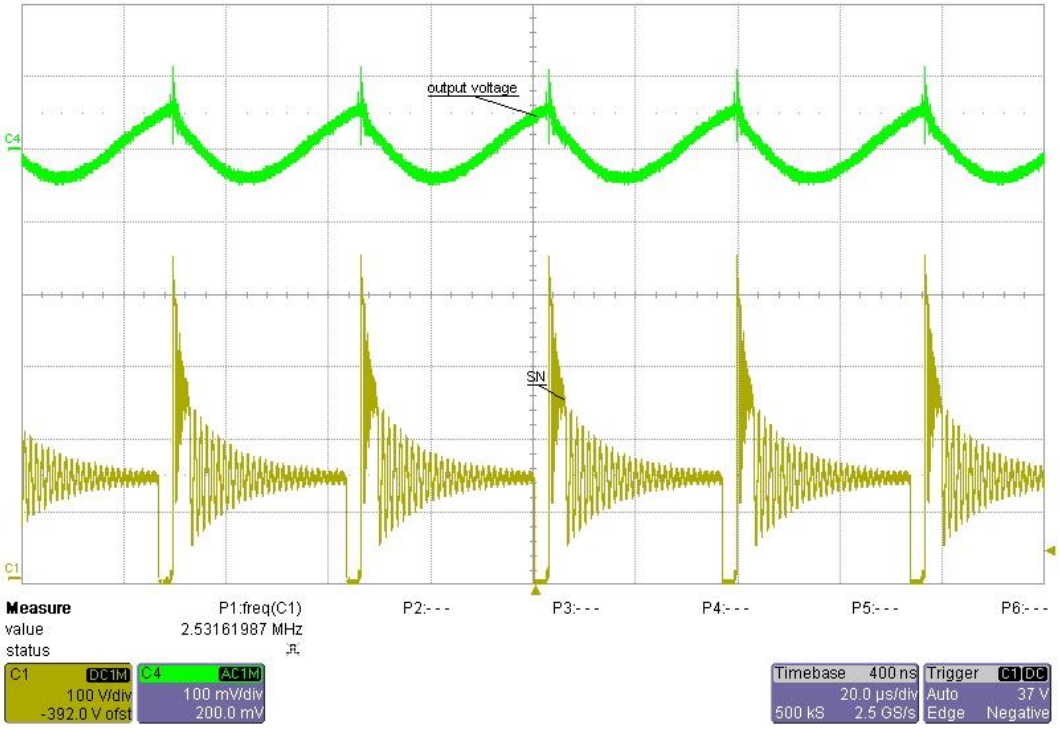
Input voltage = 650VDC
Load current = 0.4A



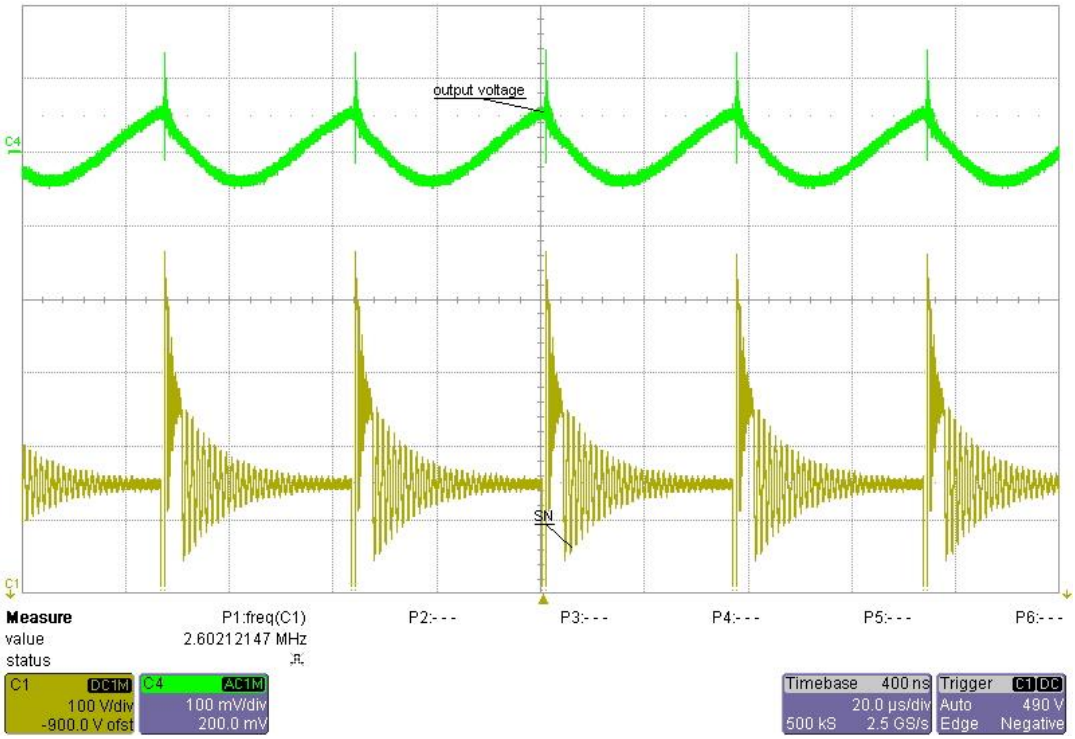

↓SN
C1
Measure
value
status
P1:freq(C1)
27.205658 kHz
P2:- - -
P3:- - -
P4:- - -
P5:- - -
P6:- - -
C1 DC1M
100 V/div
-600.0 V ofst
Timebase -80.0 µs
20.0 µs/div
500 kS 2.5 GS/s
Trigger C1 DC
Auto 190 V
Edge Negative

## 6 Output ripple voltage

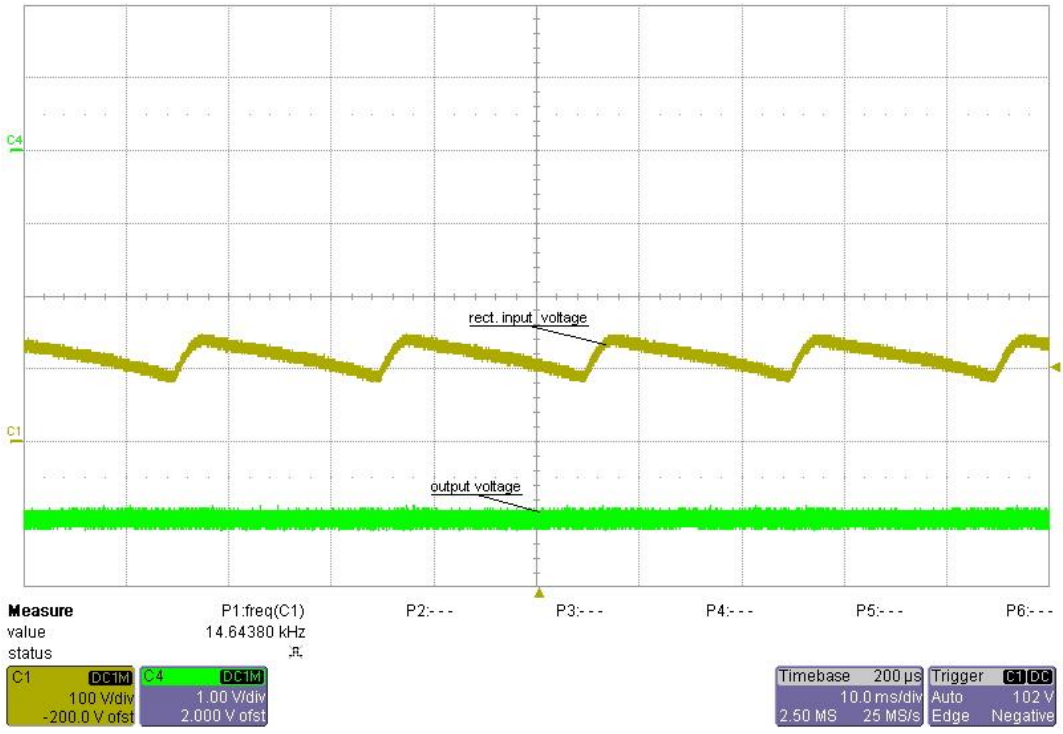
Input voltage = 140VDC
Load current = 0.4A



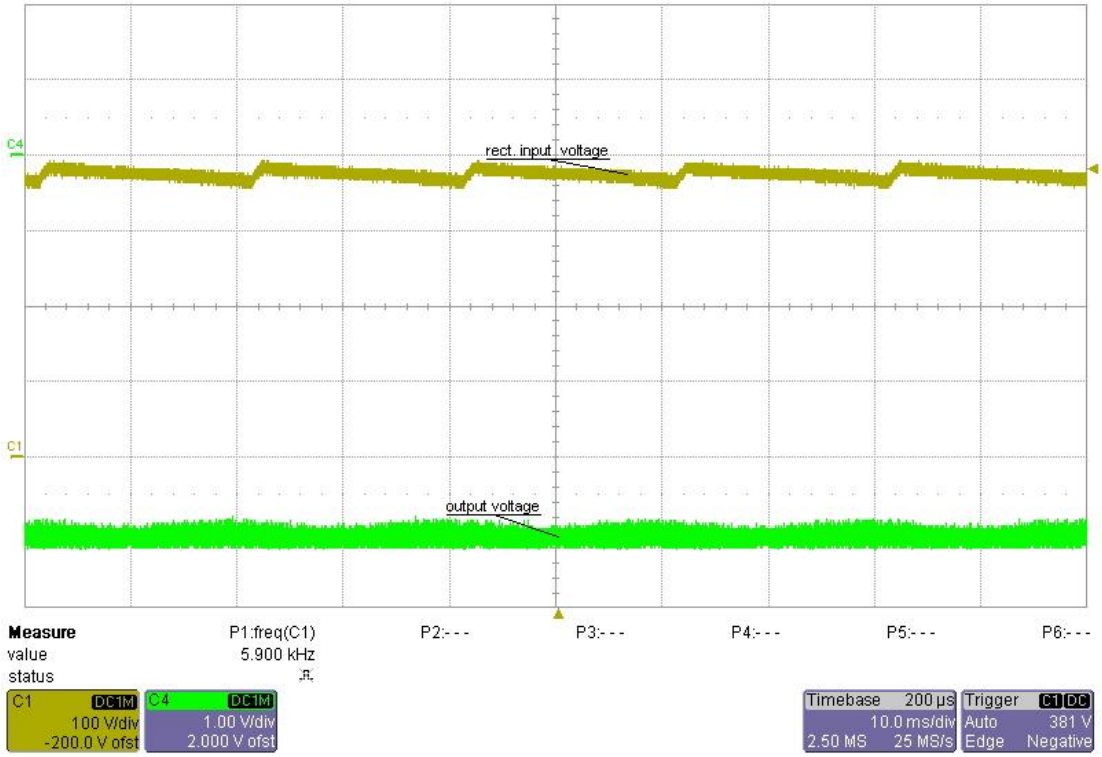

Input voltage = 650VDC
Load current = 0.4A



Input voltage = 100VAC
Load current = 0.4A

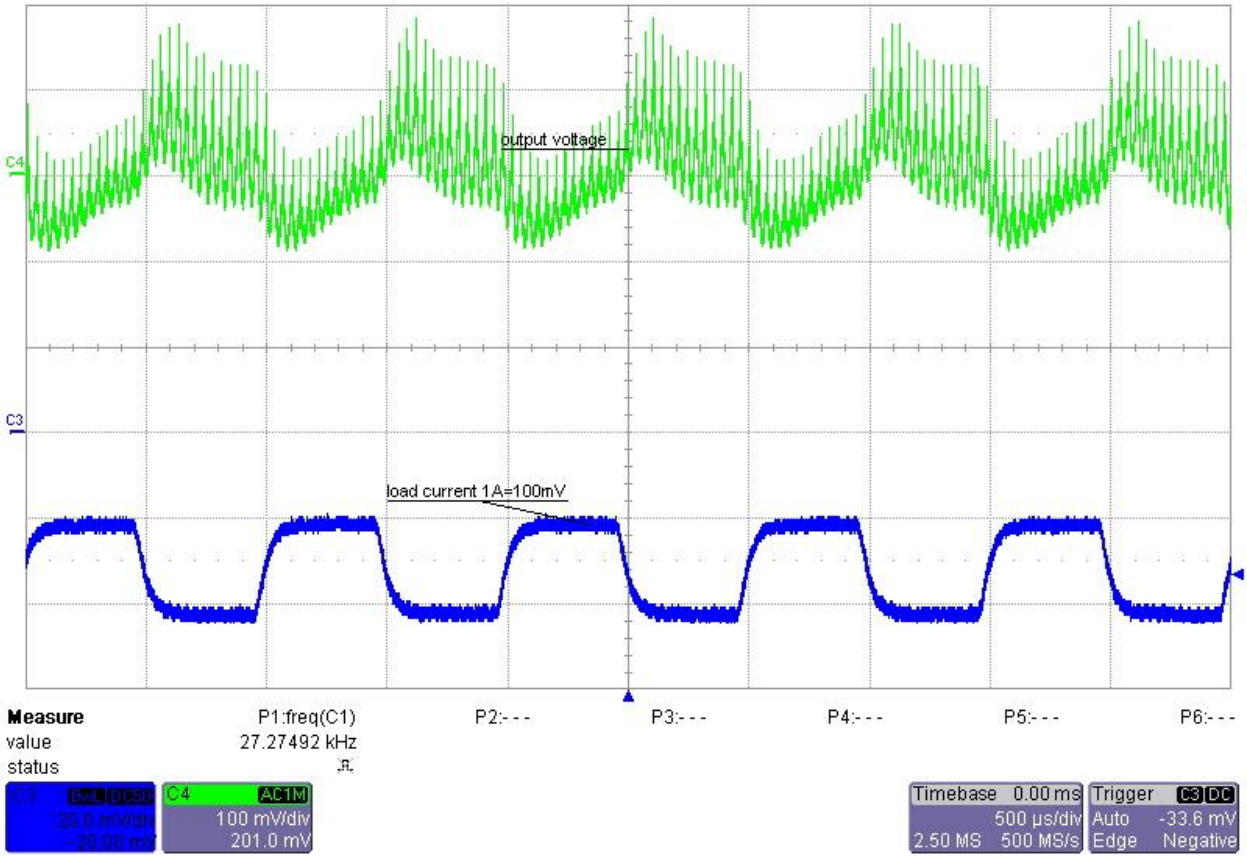



Input voltage = 270VAC
Load current = 0.4A

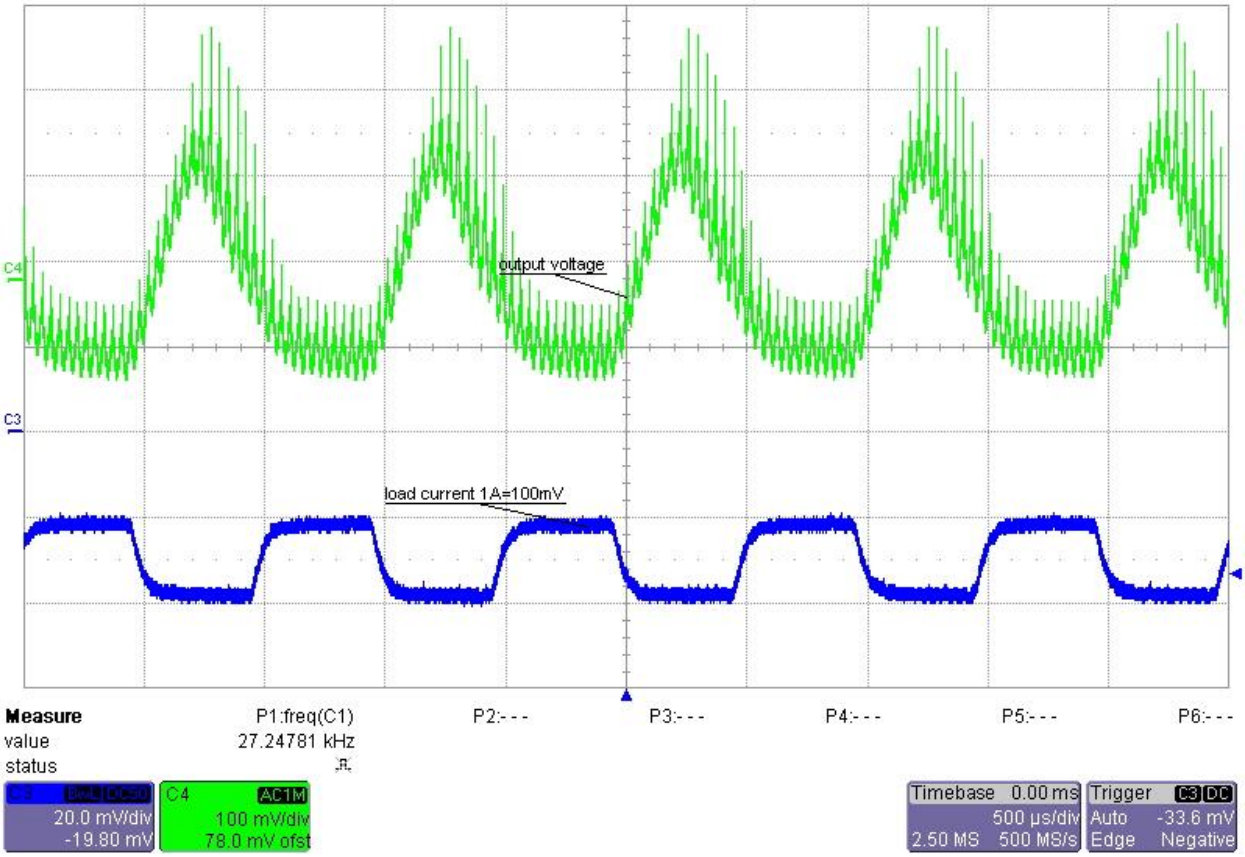


## 7 Load Transients

Input voltage = 140VDC
Load current = 0.2A to 0.4A



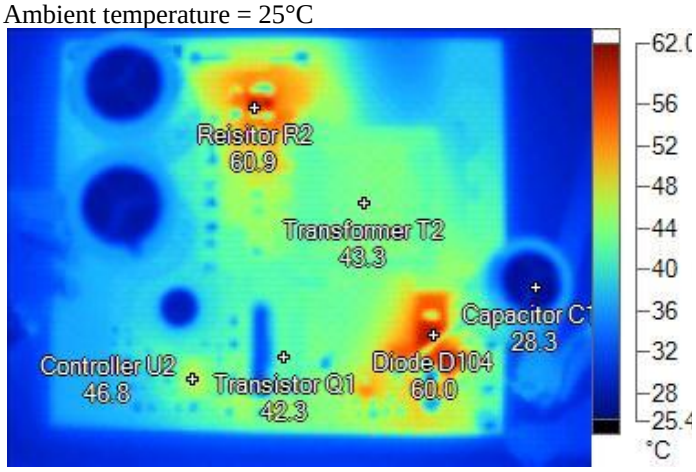
Input voltage = 650VDC
Load current = 0.4A



# 8 Thermal Analysis

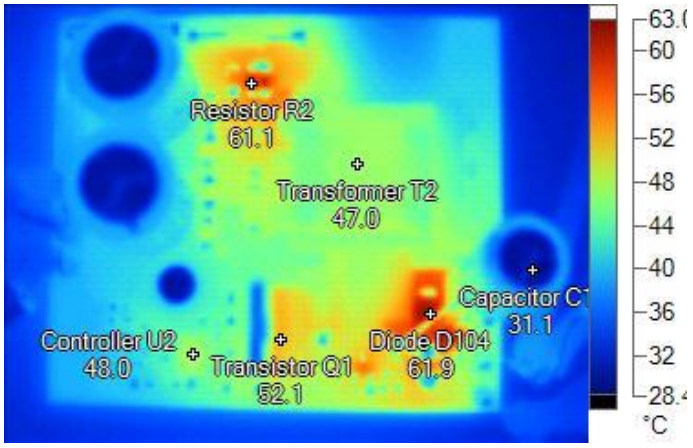
The images below show the infrared images taken from the FlexCam after 15min at full load (-5V@0.4A).

Input voltage = 140VDC
Ambient temperature = 25°C




| Name | Temperature | |
|---|---|---|
| Reisitor R2 | 60.9°C | |
| Transformer T2 | 43.3°C | |
| Diode D104 | 60.0°C | |
| Capacitor C11 | 28.3°C | |
| Transistor Q1 | 42.3°C | |
| Controller U2 | 46.8°C | |

Input voltage = 650VDC
Ambient temperature = 25°C




| Name | Temperature | |
|---|---|---|
| Diode D104 | 61.9°C | |
| Resistor R2 | 61.1°C | |
| Transistor Q1 | 52.1°C | |
| Controller U2 | 48.0°C | |
| Transformer T2 | 47.0°C | |
| Capacitor C11 | 31.1°C | |

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265