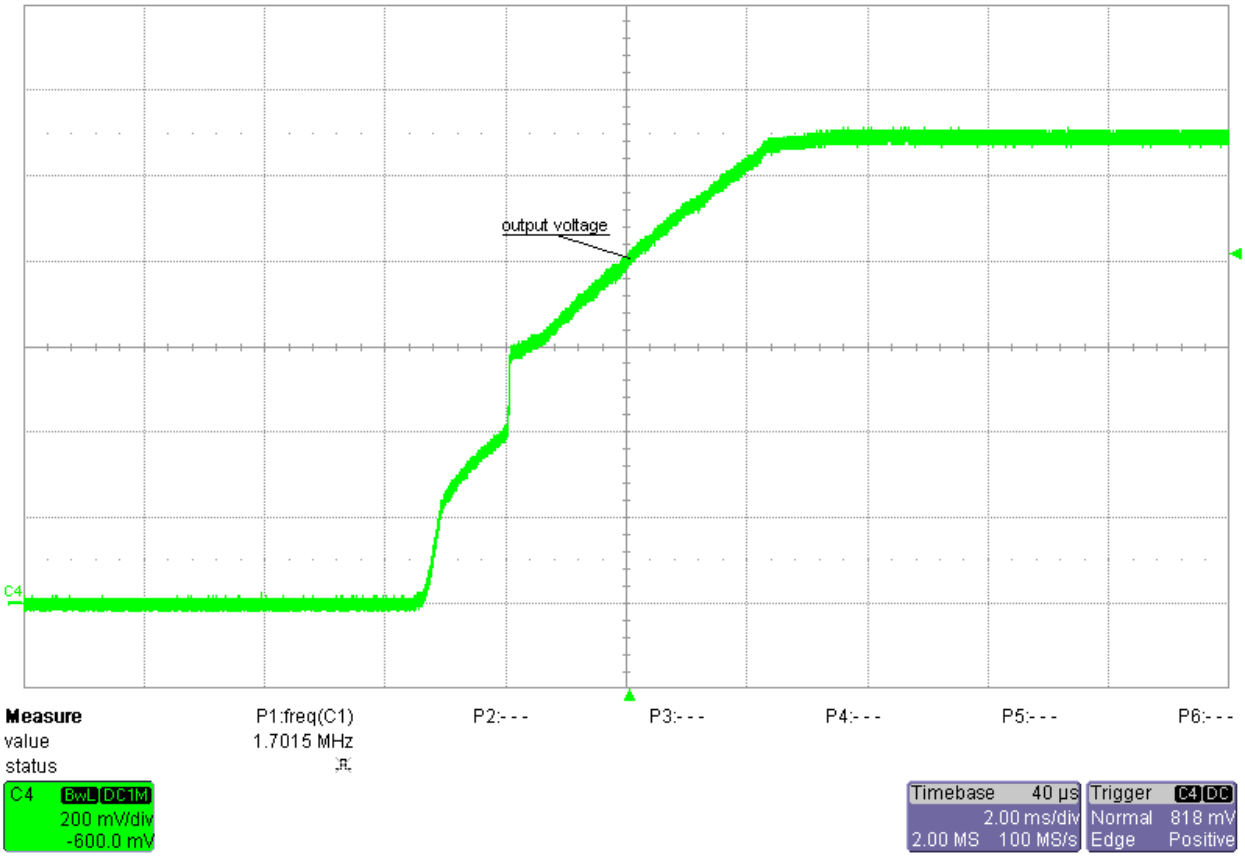
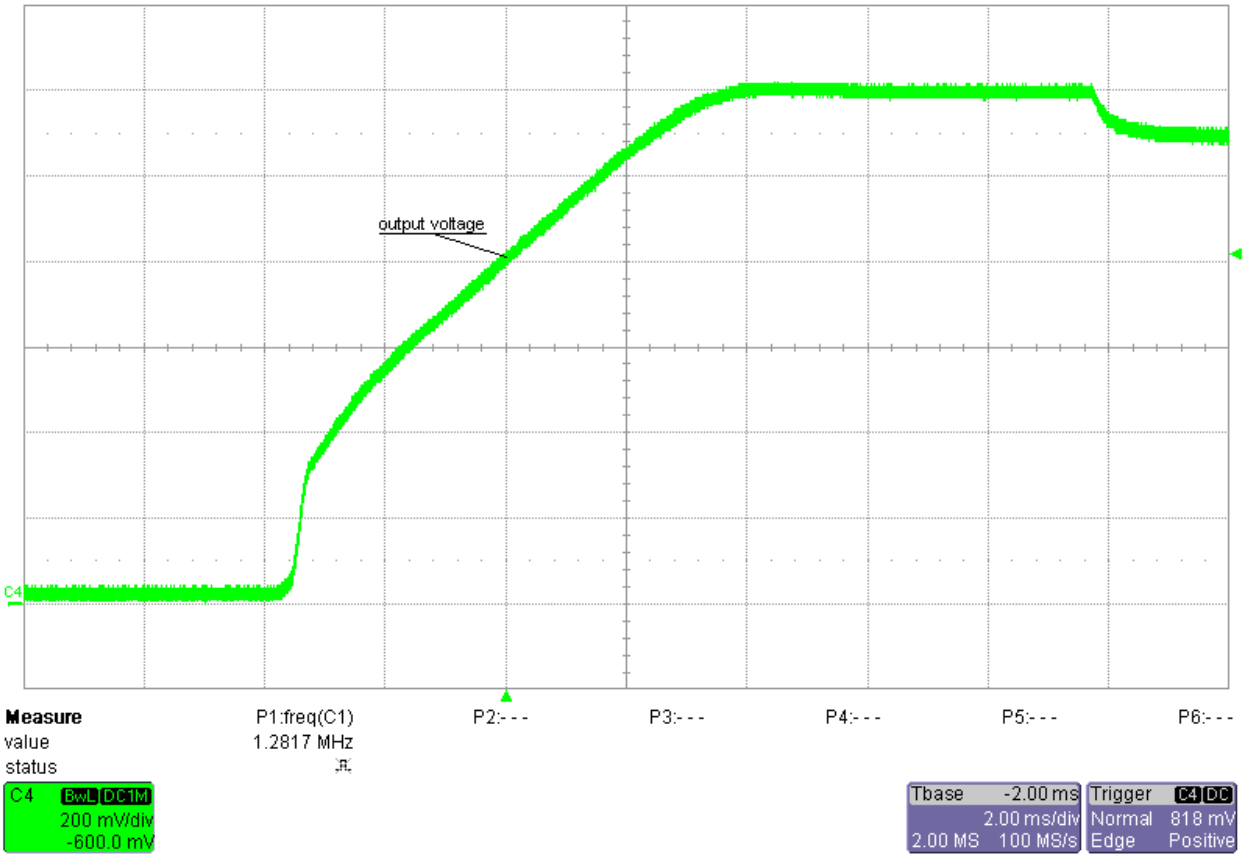
1 Startup

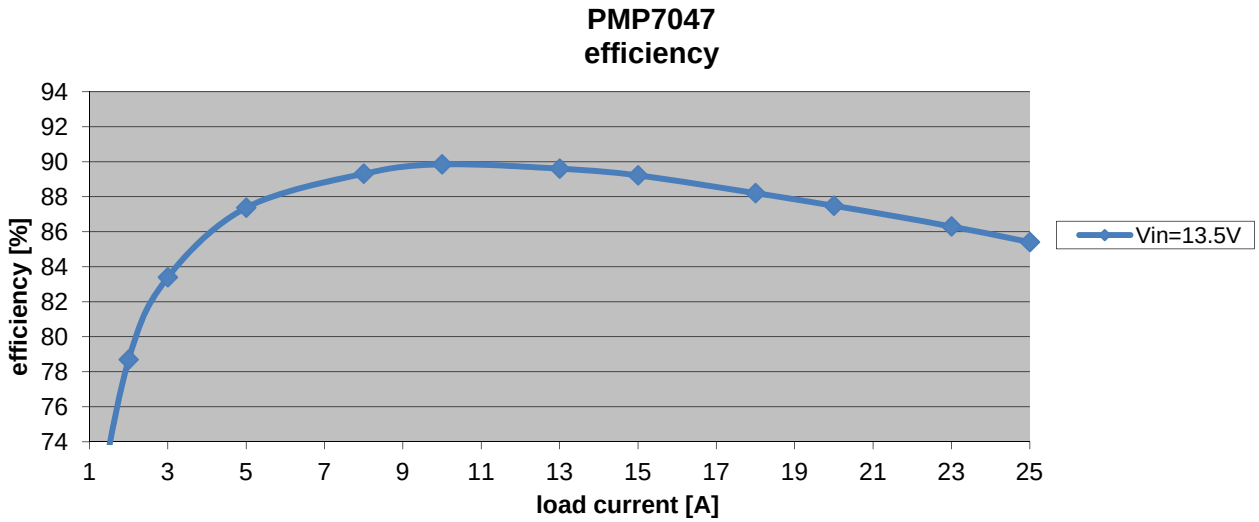
Input voltage = 13.5V
Output voltage = 1.1V
Load current = 25A



Input voltage = 13.5V
Output voltage = 1.1V
Load current = 0A

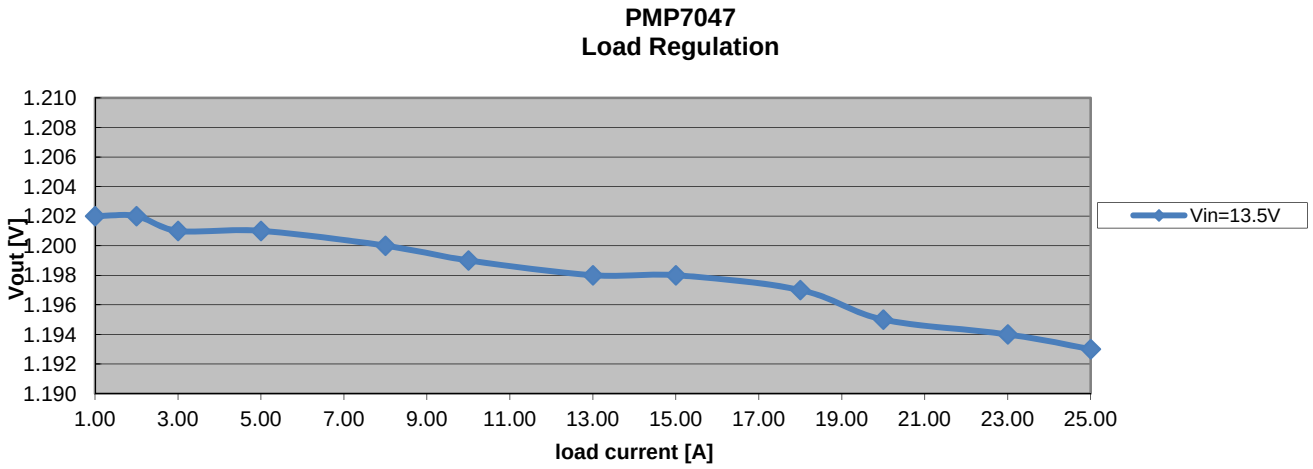


2 Efficiency

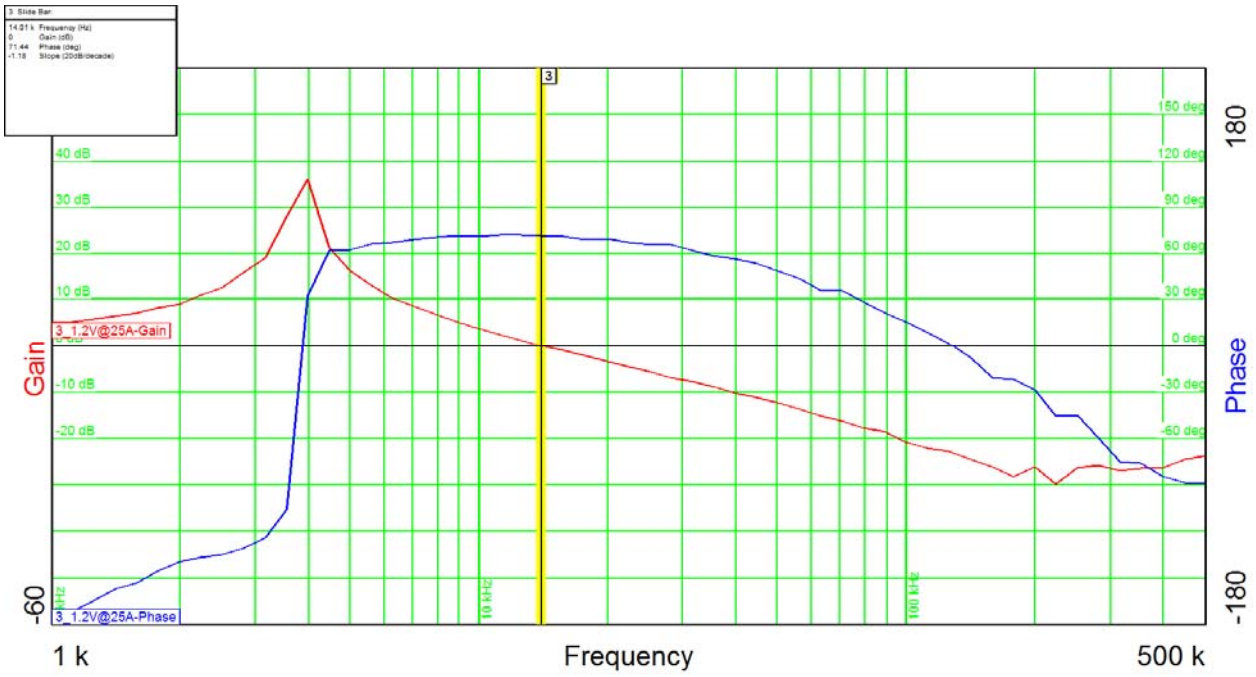


input		output		efficiency
voltage [V]	current [A]	voltage [V]	current [A]	[%]
13.690	0.1293	1.202	1.00	67.905
13.680	0.2233	1.202	2.00	78.697
13.680	0.3158	1.201	3.00	83.400
13.660	0.5031	1.201	5.00	87.379
13.650	0.7874	1.200	8.00	89.319
13.630	0.9790	1.199	10.00	89.855
13.610	1.2770	1.198	13.00	89.609
13.590	1.4820	1.198	15.00	89.224
13.600	1.7960	1.197	18.00	88.211
13.470	2.0280	1.195	20.00	87.491
13.420	2.3710	1.194	23.00	86.307
13.420	2.6020	1.193	25.00	85.412

3 Load regulation



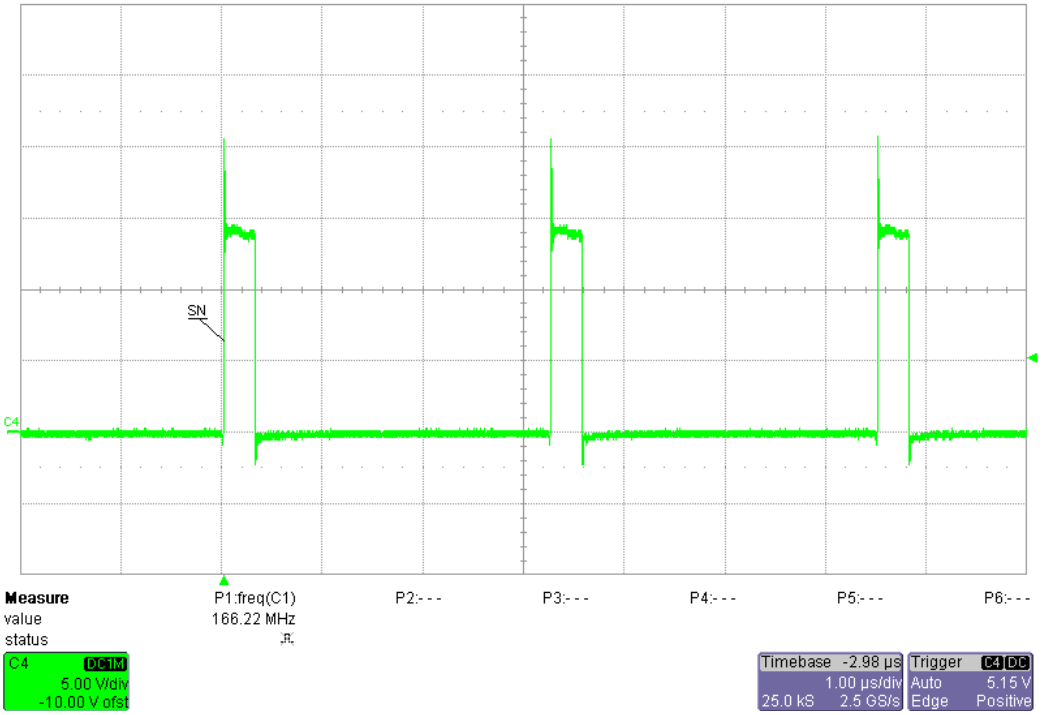
4 Control Loop Frequency Response

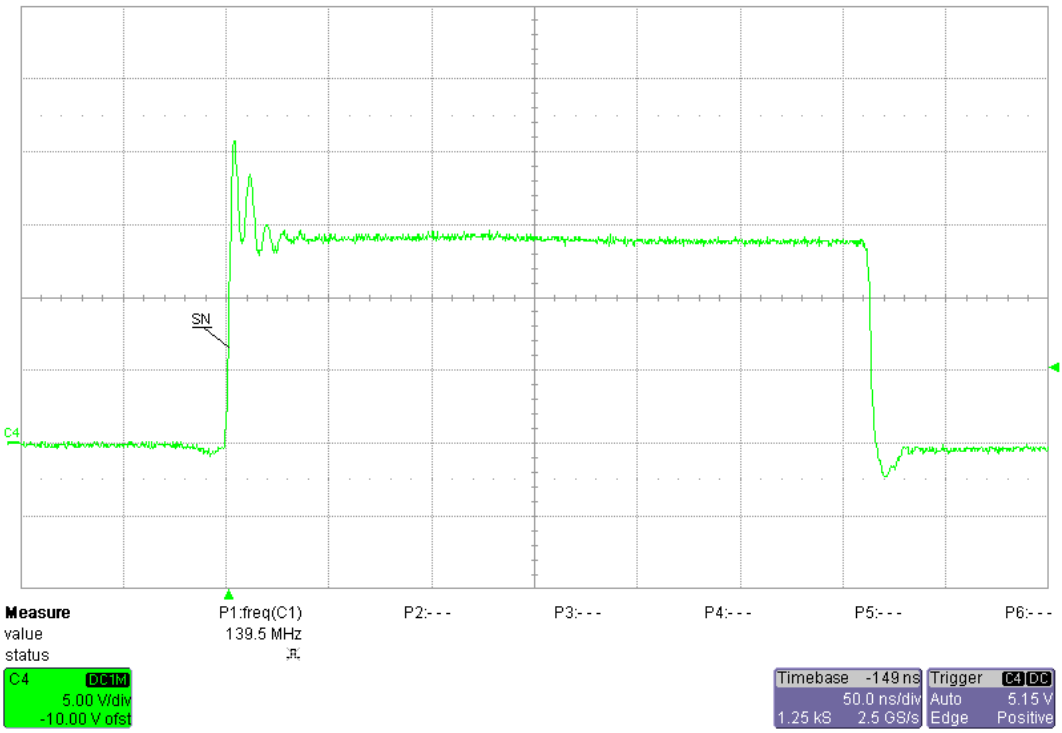


Input voltage	= 13.5VDC
Output voltage	= 1.2V
Load current	= 25A
Phase margin	= 71.4°
Bandwidth	= 14kHz

5 Switch node Waveform

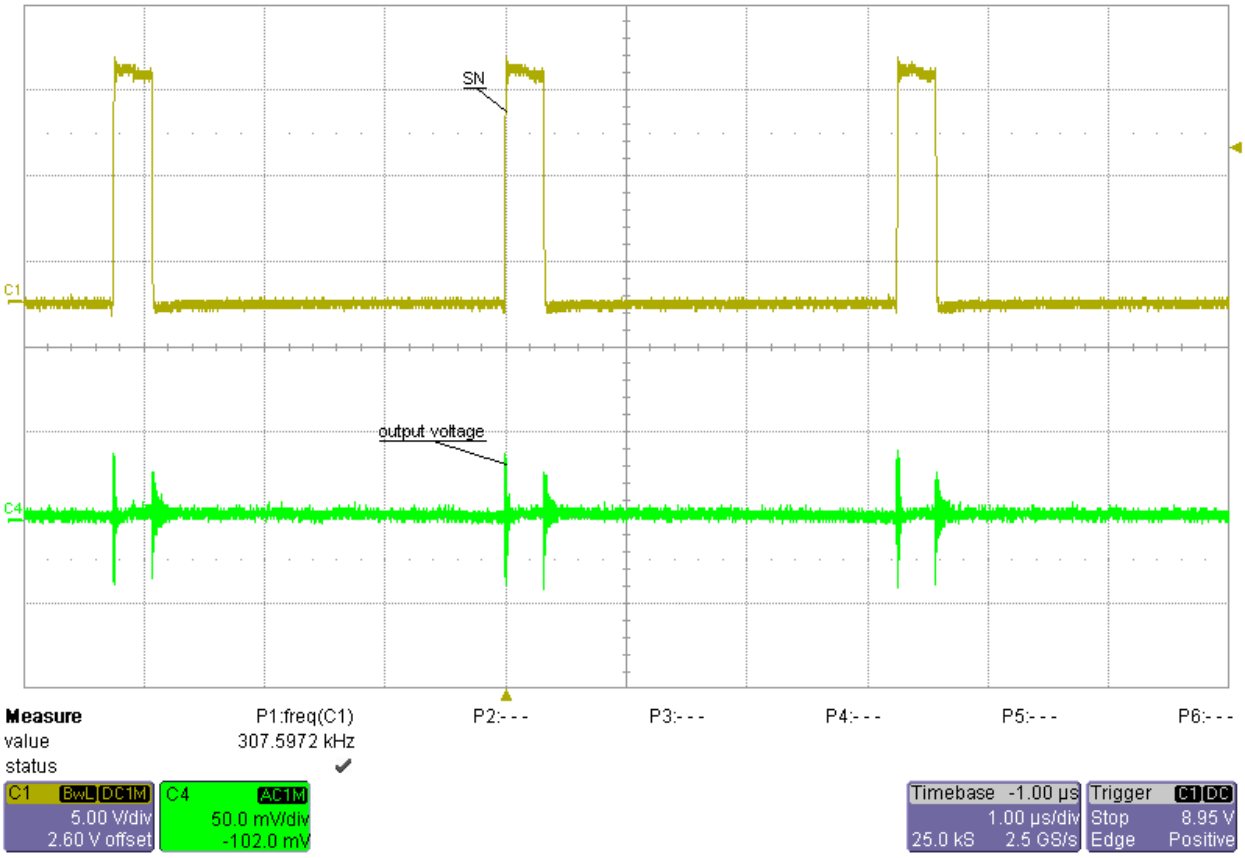
Input voltage = 14V
Output voltage = 1.2V
Load current = 25A





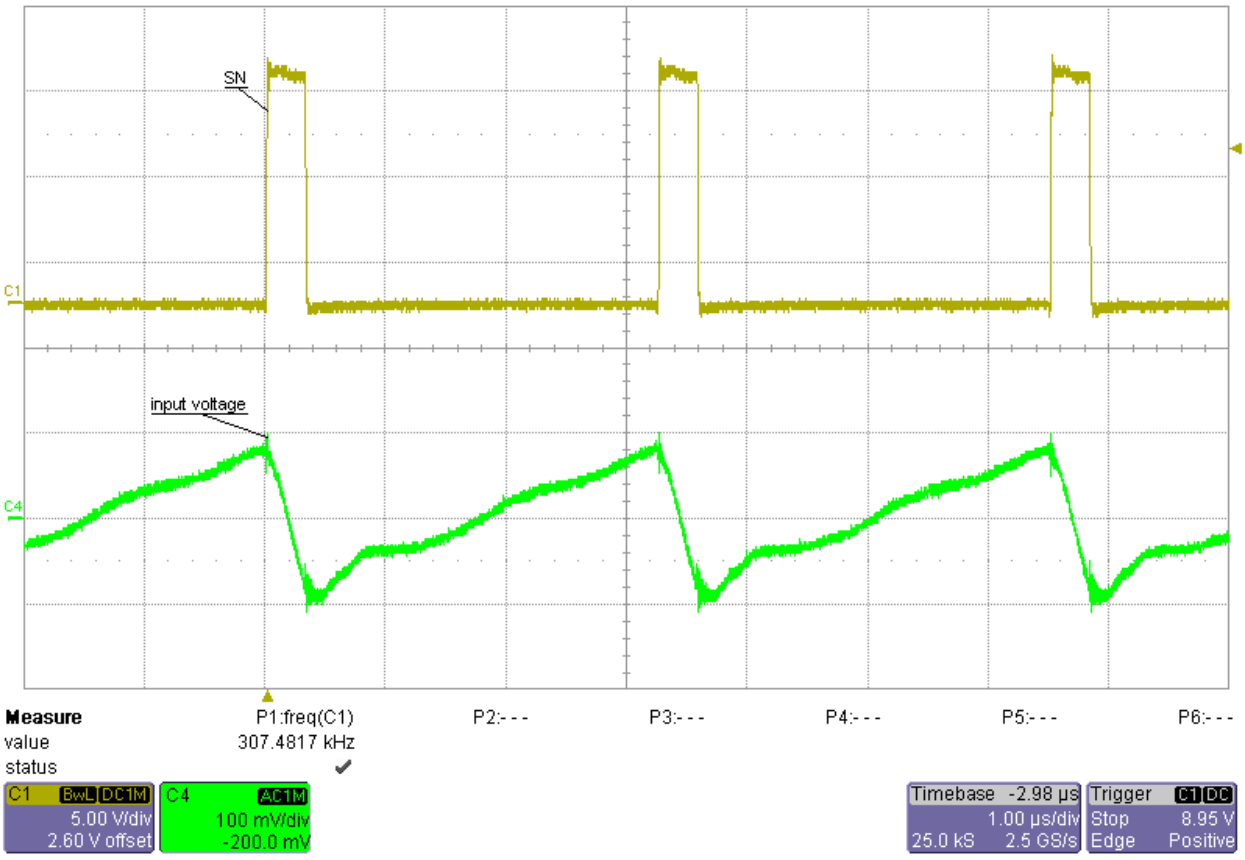
6 Output ripple voltage

Input voltage = 13.5V
Output voltage = 1.2V
Load current = 25A



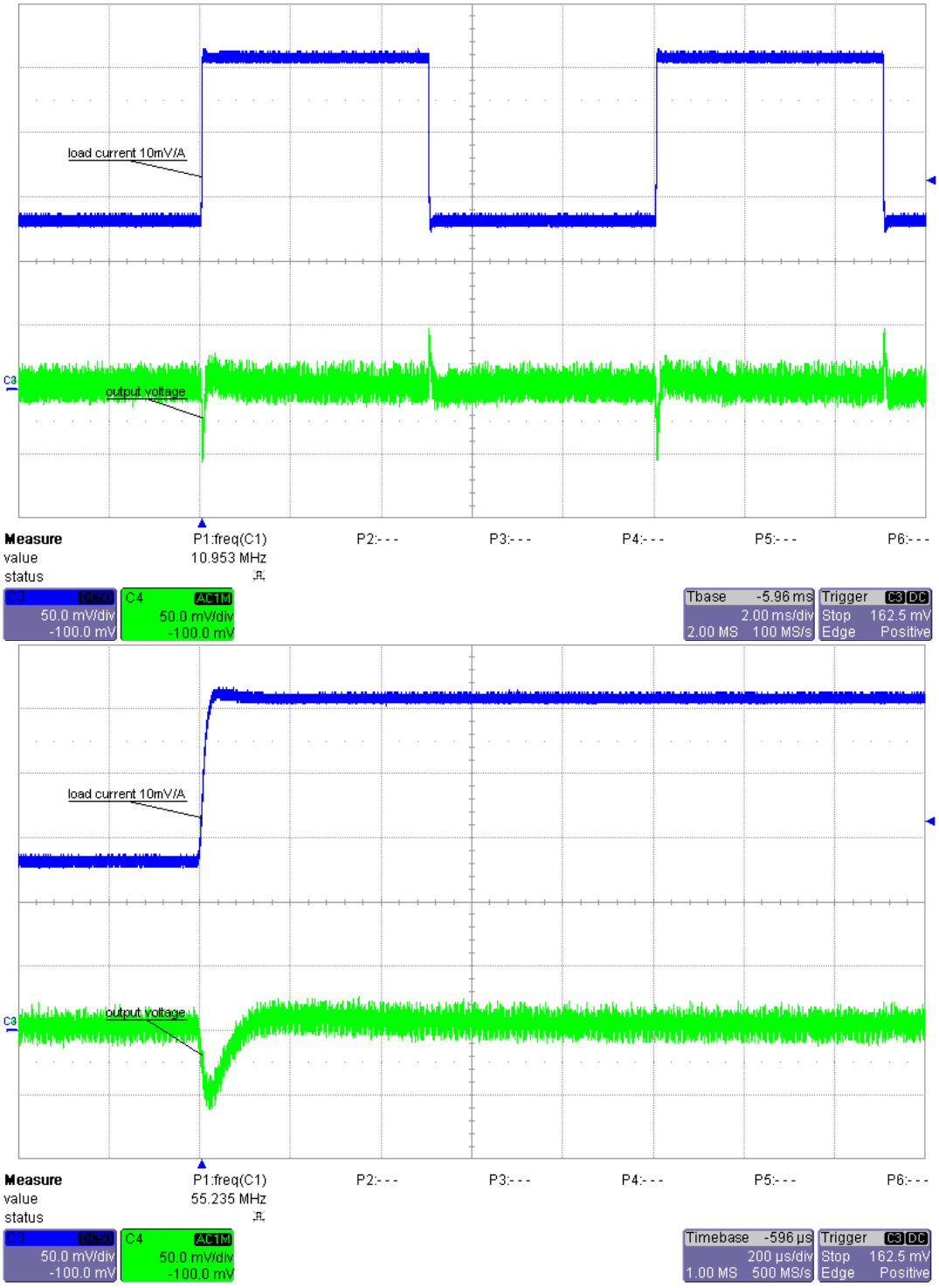
7 input ripple voltage

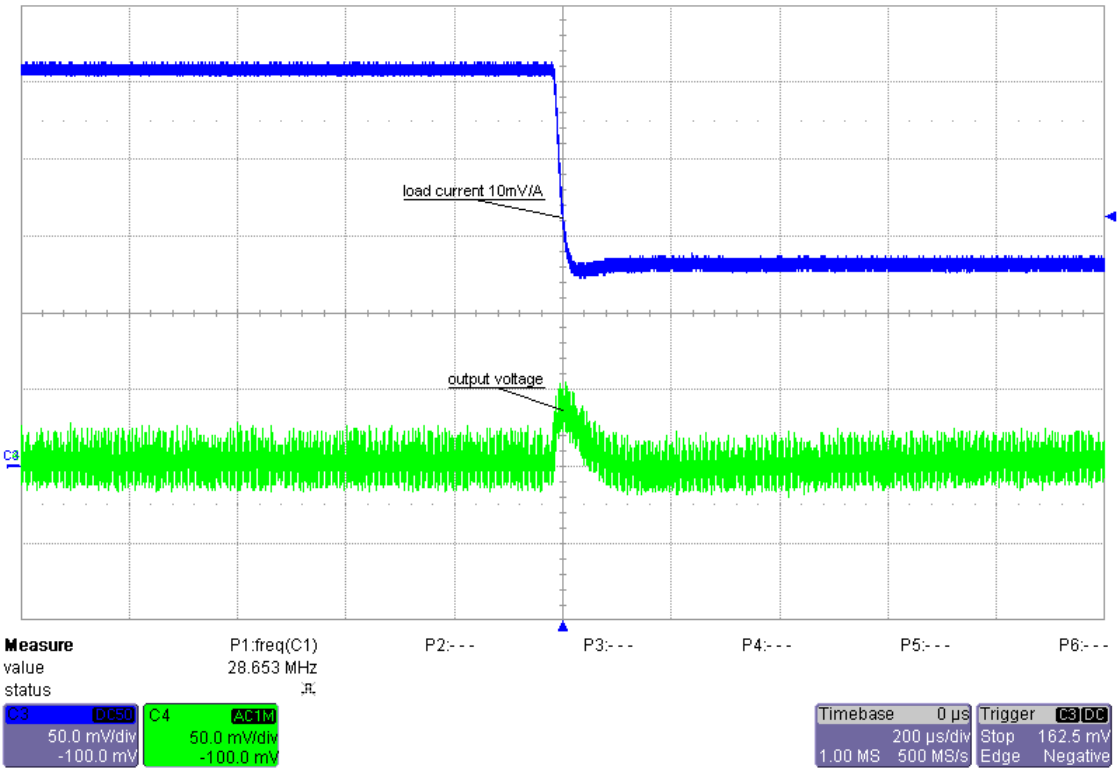
without bulk capacitors C104, C110
Input voltage = 13.5V
Output voltage = 1.2V
Load current = 25A



8 Load Transients

Input voltage = 13.5V
Output voltage = 1.2V
Load current = 12.5A – 25A

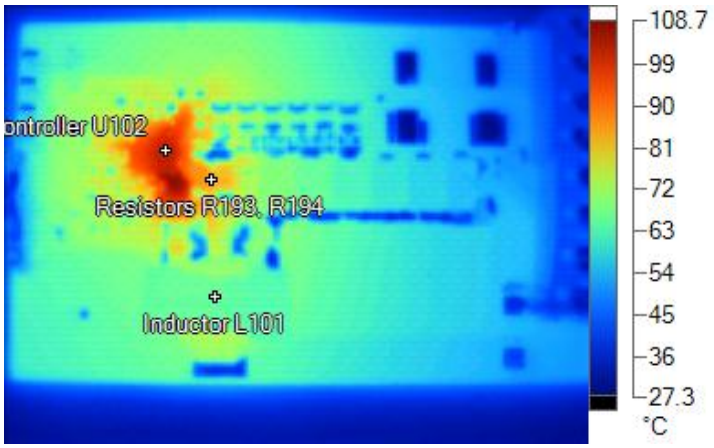



load current 10mV/A
output voltage
C3
Measure
value
status
P1:freq(C1)
28.653 MHz
P2:- - -
P3:- - -
P4:- - -
P5:- - -
P6:- - -
C3 DC50
50.0 mV/div
-100.0 mV
C4 AC1M
50.0 mV/div
-100.0 mV
Timebase 0 µs
200 µs/div
1.00 MS 500 MS/s
Trigger C3 DC
Stop 162.5 mV
Edge Negative

9 Thermal Analysis

The images below show the infrared images taken from the FlexCam after 15min at full load (1.2V@25A).

Input voltage = 13.5VDC



Name	Temperature
Controller U102	102.1°C
Resistors R193, R194	84.5°C
Inductor L101	65.0°C

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