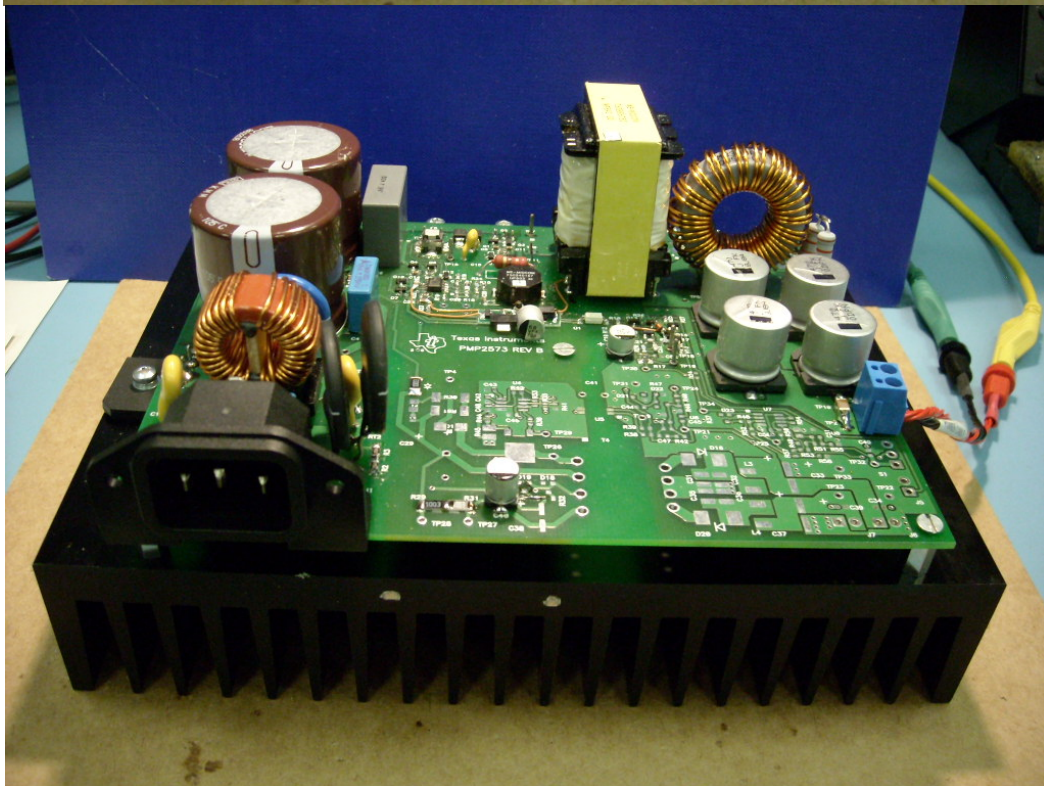
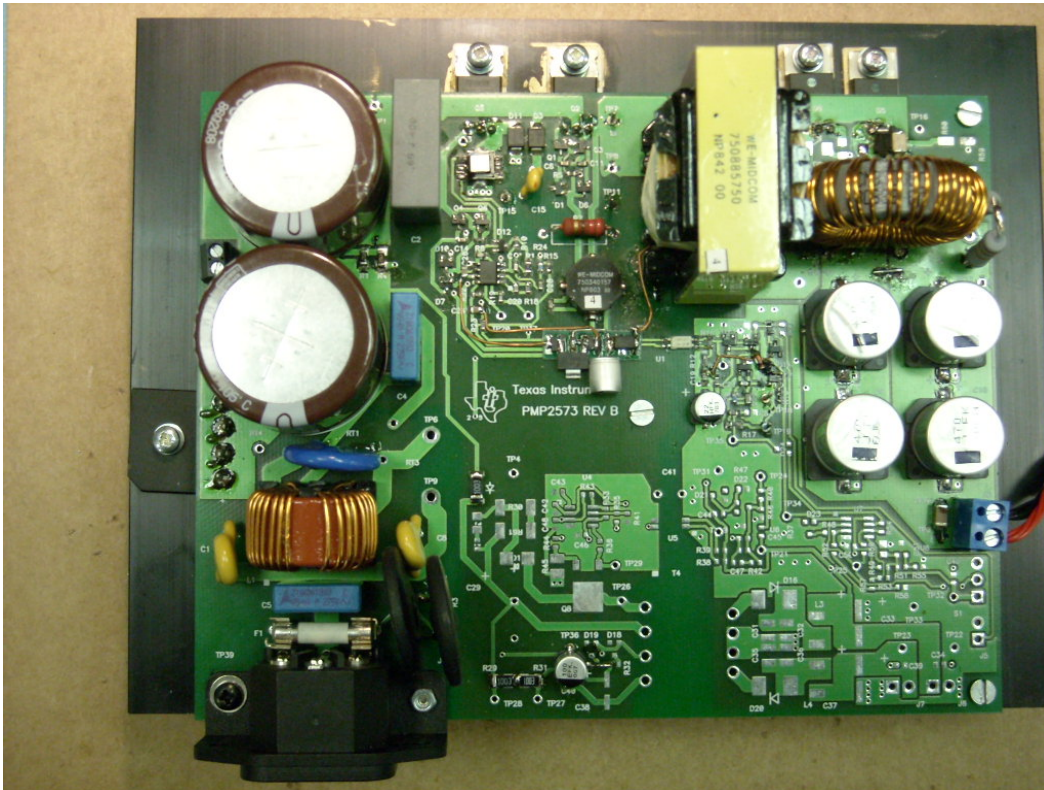


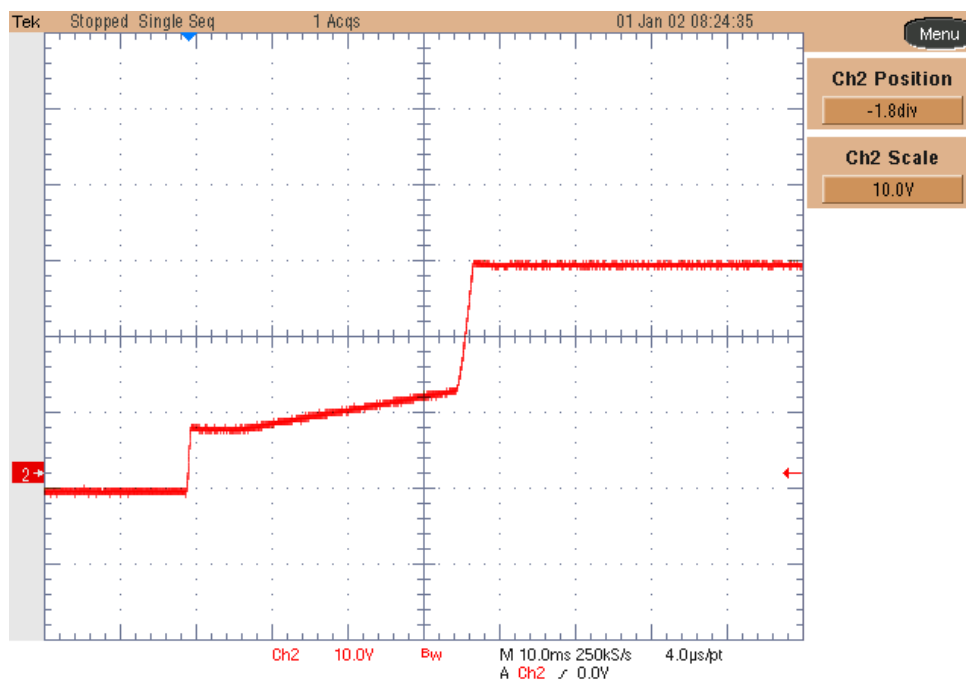
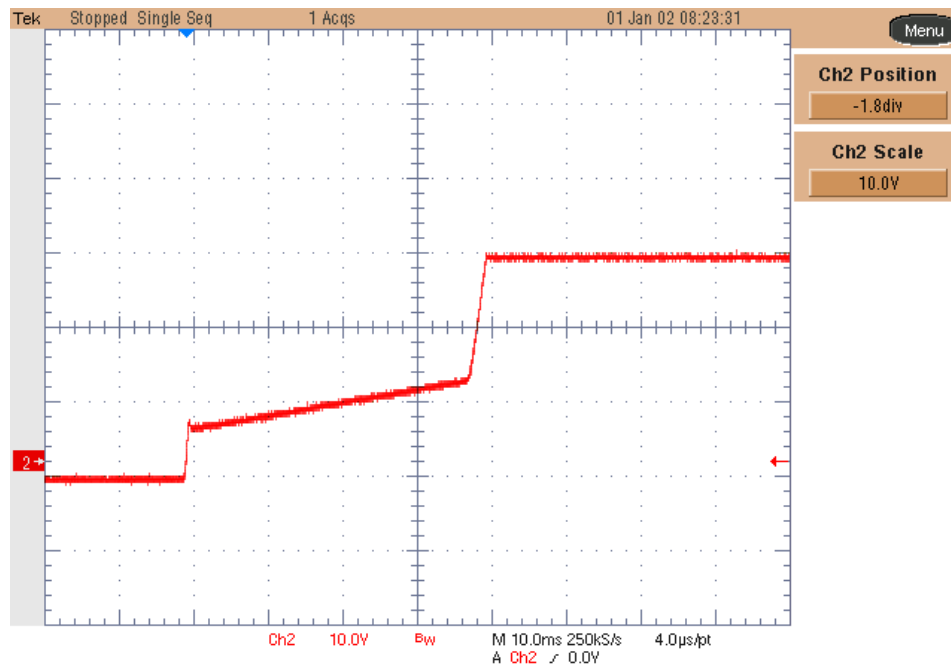
PHOTO OF THE PROTOTYPE



1 Startup

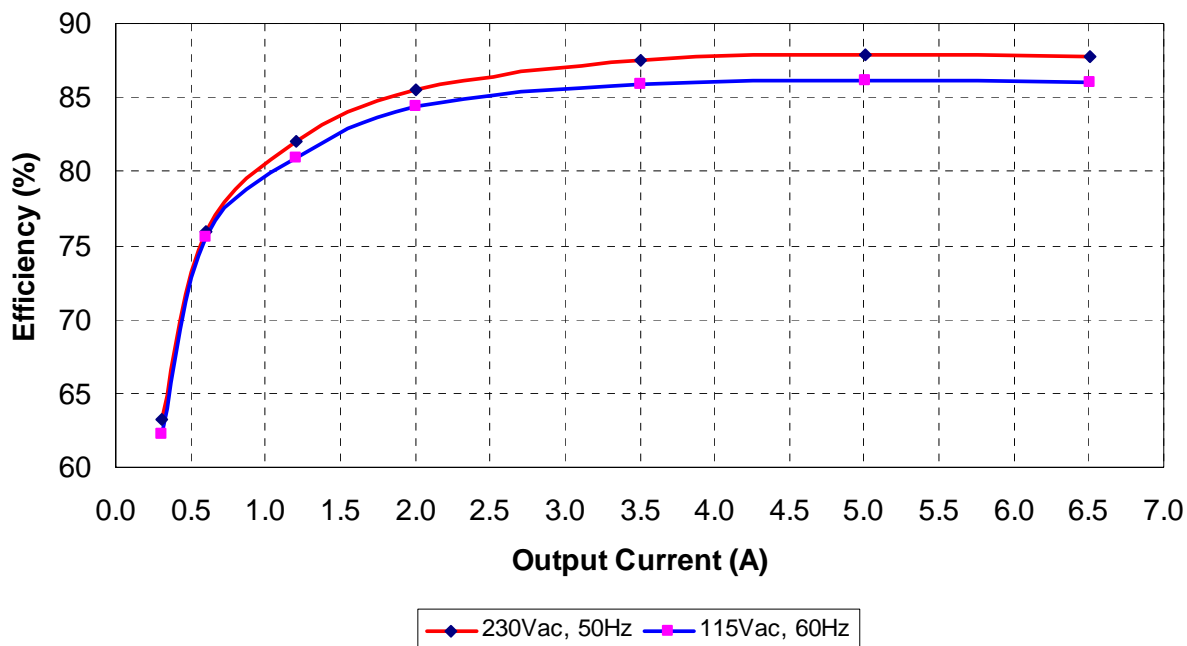
The output voltage at startup is shown in the image below. Input voltage was 320Vdc. The output was loaded with 6A for the upper picture and unloaded for the bottom one.

Channel 2: Output Voltage (10 V/div, 10msec/div., 20MHz BWL).



2 Efficiency

The efficiency data is shown in the tables and graph below. The source was a California Instruments AC source, set to 230Vac, 50Hz and 115Vac, 60Hz.

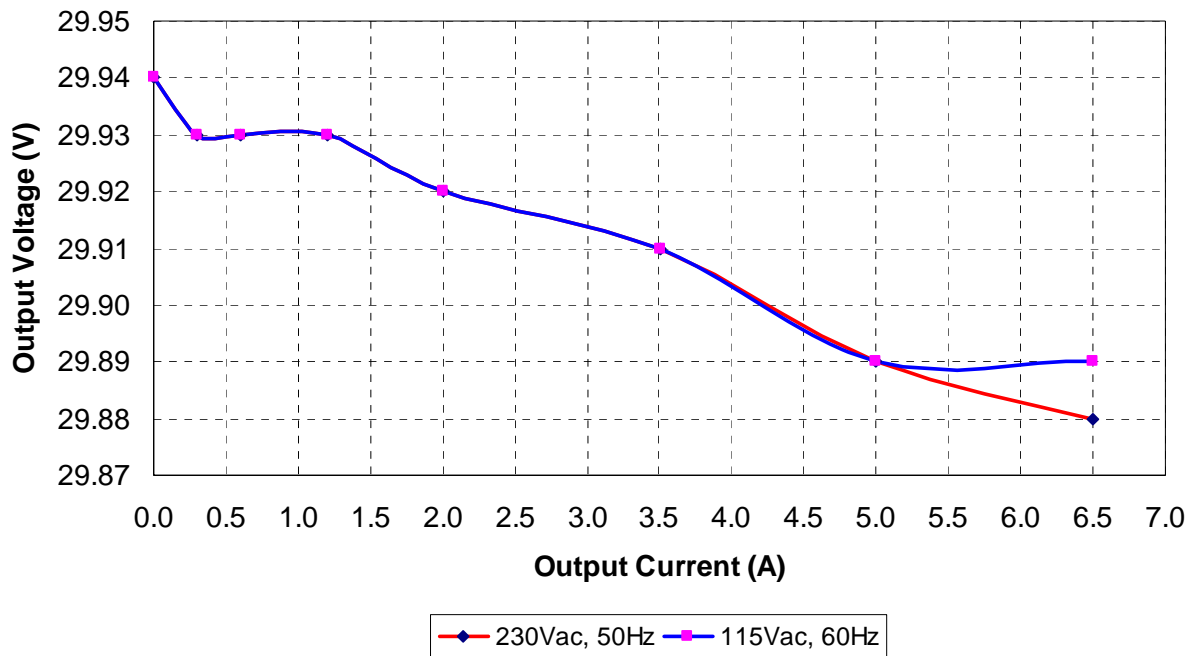


Vout (V)	Pout (W)	Vin (Vac)	Pin (W)	Ploss (W)	Eff (%)
29.94	0	230	3.3	3.30	0.00
29.93	9.11	230	14.4	5.29	63.27
29.93	18.108	230	23.84	5.73	75.95
29.93	36.01	230	43.90	7.89	82.02
29.92	59.99	230	70.12	10.13	85.55
29.91	104.80	230	119.7	14.90	87.56
29.89	149.51	230	170.2	20.69	87.84
29.88	194.31	230	221.5	27.19	87.72

Vout (V)	Pout (W)	Vin (Vac)	Pin (W)	Ploss (W)	Eff (%)
29.94	0	115	3.52	3.52	0.00
29.93	9.11	115	14.65	5.54	62.21
29.93	18.108	115	23.98	5.87	75.51
29.93	36.10	115	44.59	8.49	80.95
29.92	59.99	115	71.10	11.11	84.37
29.91	104.80	115	122.1	17.30	85.84
29.89	149.51	115	173.5	23.99	86.17
29.89	194.34	115	226.0	31.66	85.99

3 Output Voltage Regulation

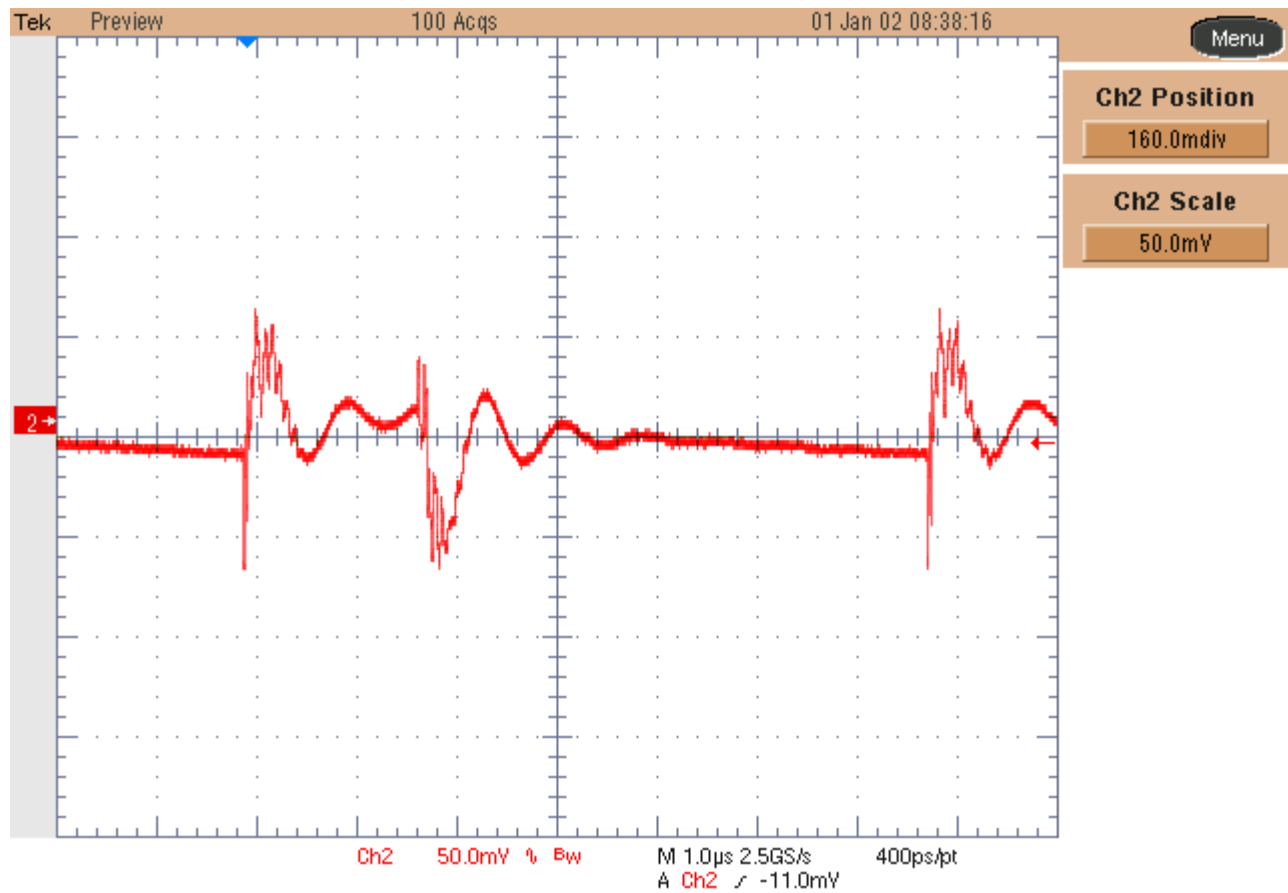
The output voltage versus load current is plotted below.
The voltage has been measured at the connector terminals.



4 Output Ripple Voltage

The output ripple voltage is shown in the plot below. The input was set at 320Vdc and the load was set to 6.5A.

Channel 2: Output Voltage (50 mV/div, 1 us/div, 20MHz BWL, AC coupled).

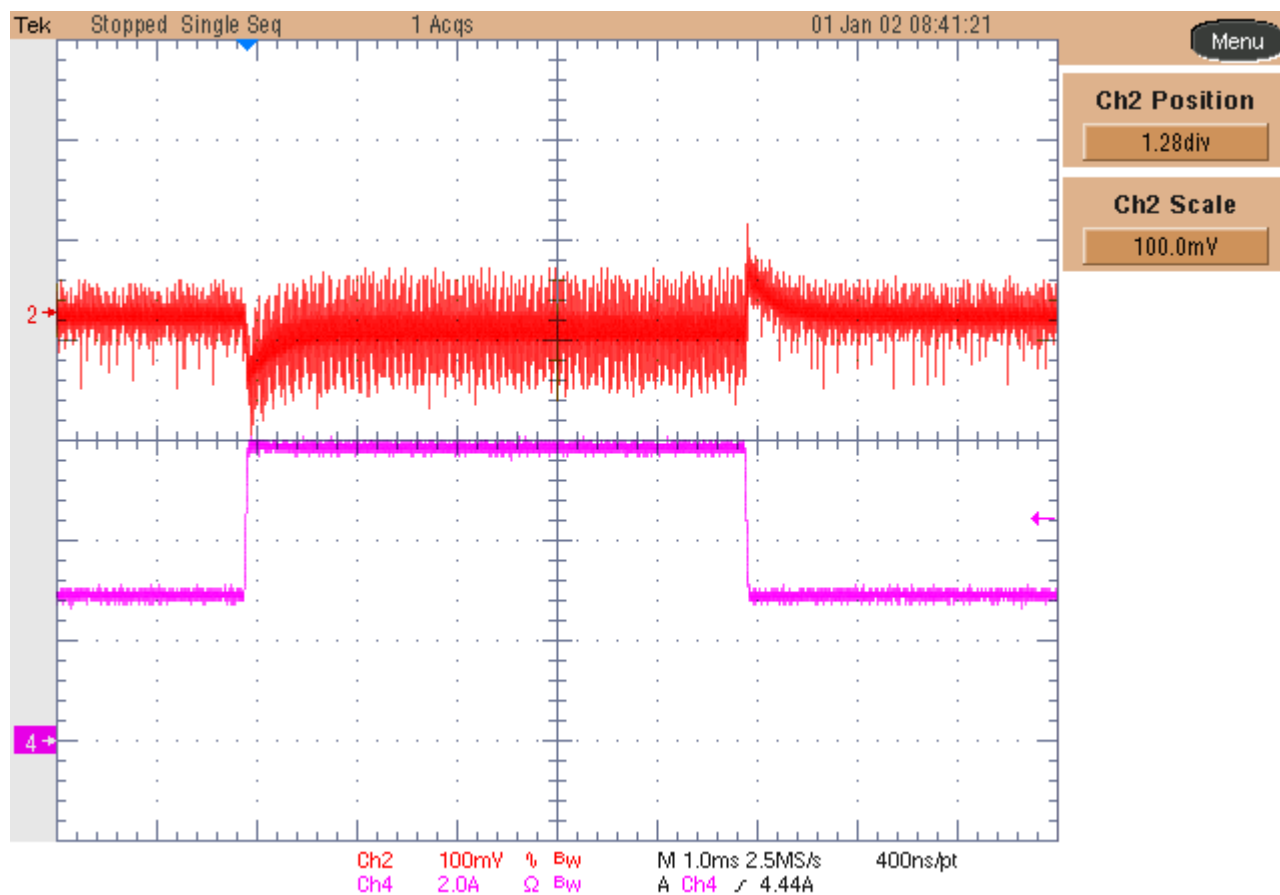


5 Load Transient

The image below shows the response to 3A to 6A load transient on the output voltage. The input voltage has been set to 320Vdc.

Channel 2: Output Voltage (100mV/div, 1ms/div, 20MHz BWL, AC coupled)

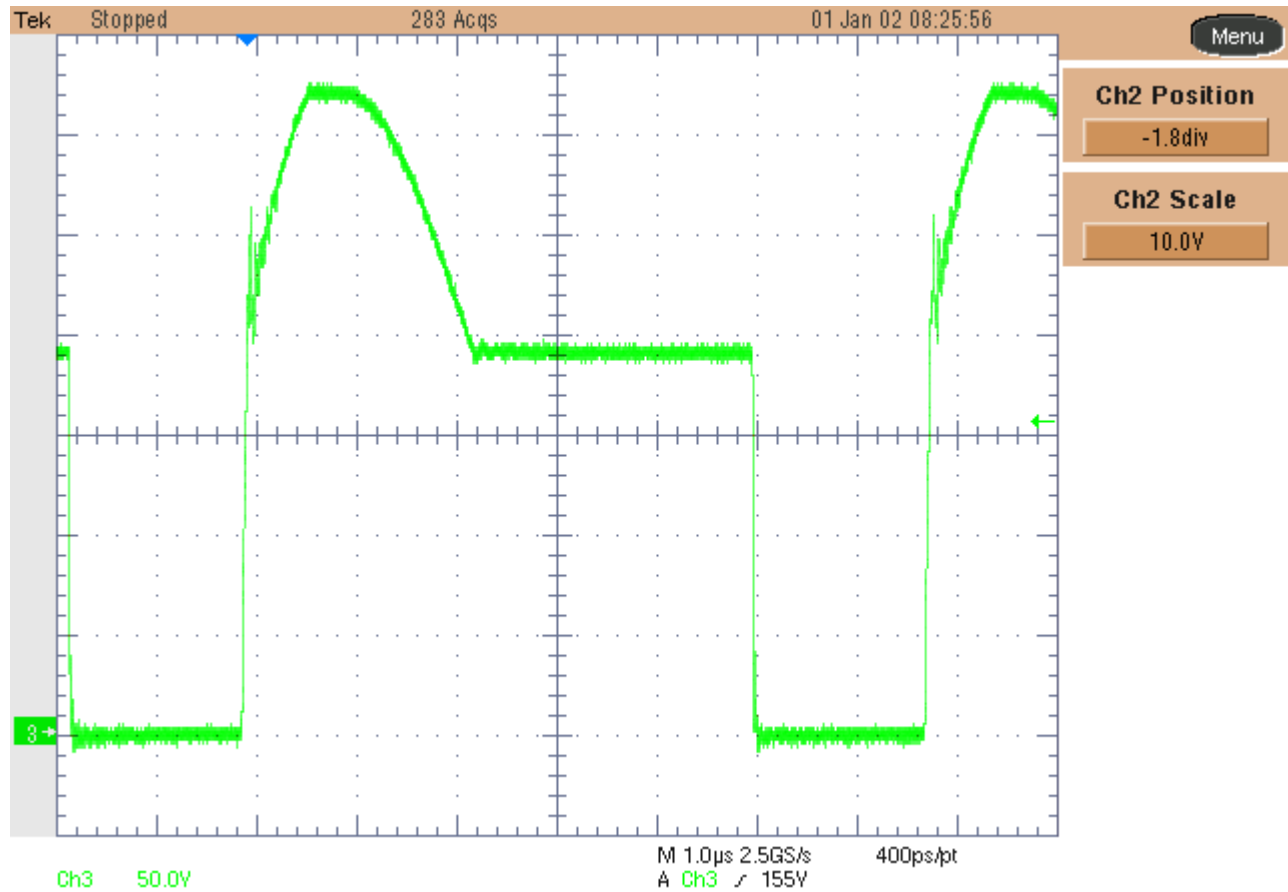
Channel 4: Output Current (2A/div, 20Mhz BWL, DC coupled)



6 Switching Waveforms

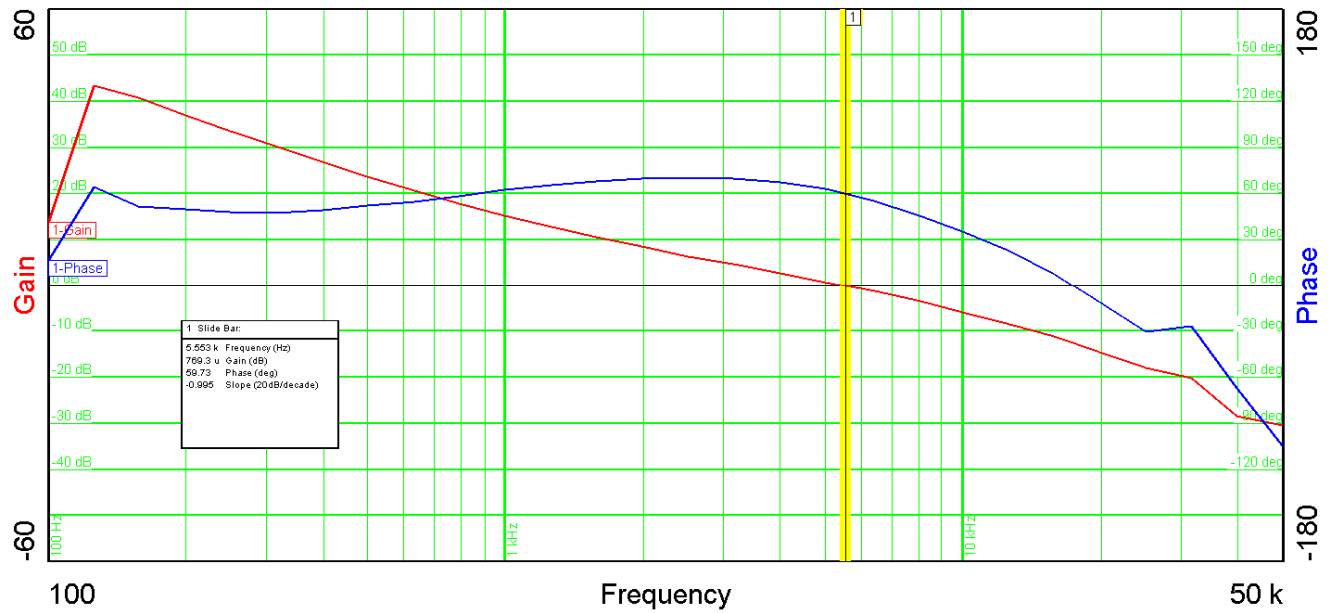
The image below shows the drain of Q5 (TP11) waveform at full load. The input voltage was set to 320Vdc.

Channel 1: Test point TP11 Voltage (50/div, 1us/div, No BWL)



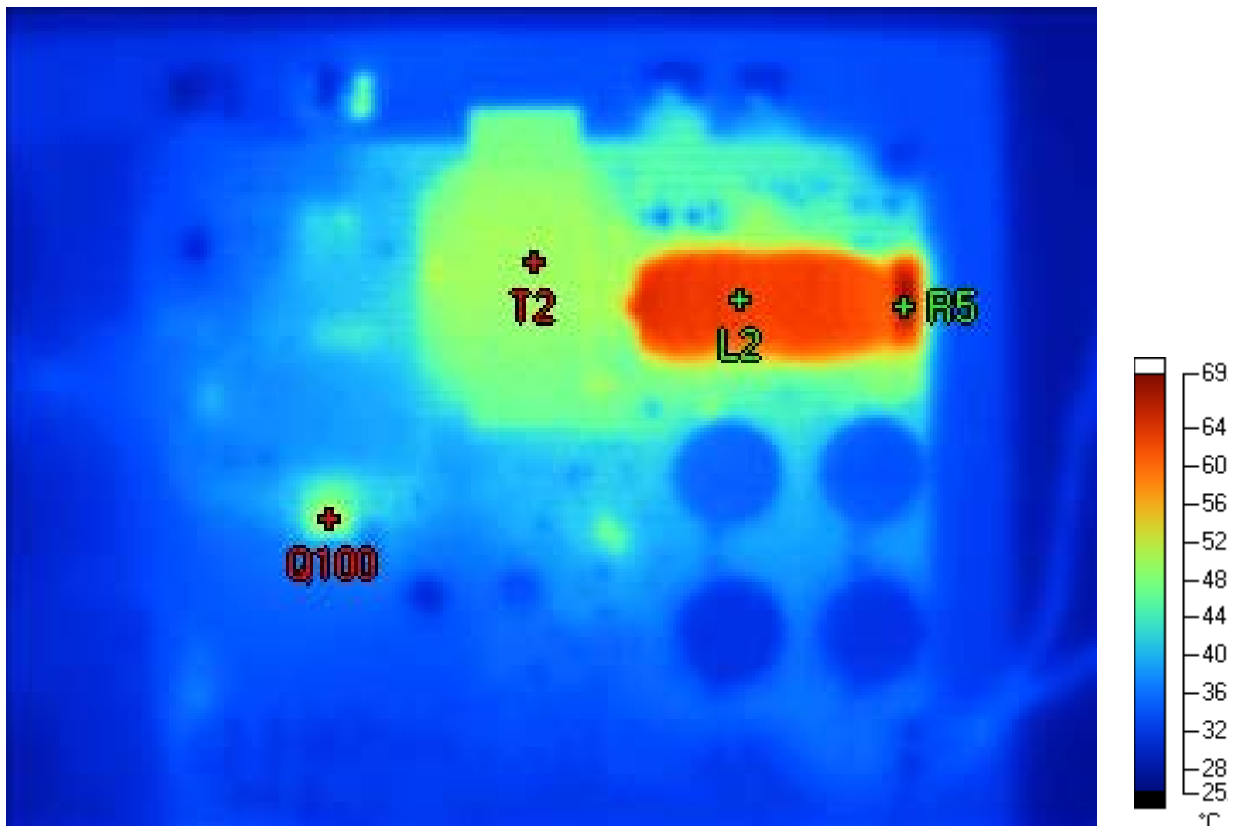
7 Loop Response

The image below shows the loop response of the converter measured with a 325Vdc input, and 6A load. The phase margin was 59.57 deg. and the crossover frequency 5.55 KHz.



8 Thermal Analysis

The image below shows the infrared image taken from the FlexCam after 15min at full load. Input voltage is 325Vdc, output load is 5A, and ambient temperature is 23C.



12/17/2012 3:16:20 PM

Image Info

Average Temperature	36.3 °C
Camera Model	Ti40FT
Image Range	26.6 °C to 68.8 °C
Image Time	12/17/2012 3:16:20 PM
Manufacturer	Fluke
Camera Serial Number	Ti40FT-070263

Markers

Label	Temperature	Emissivity	Background
Q100	51.8 °C	0.95	20.0 °C
T2	49.4 °C	0.95	20.0 °C
L2	62.9 °C	0.95	20.0 °C
R5	68.5 °C	0.95	20.0 °C

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