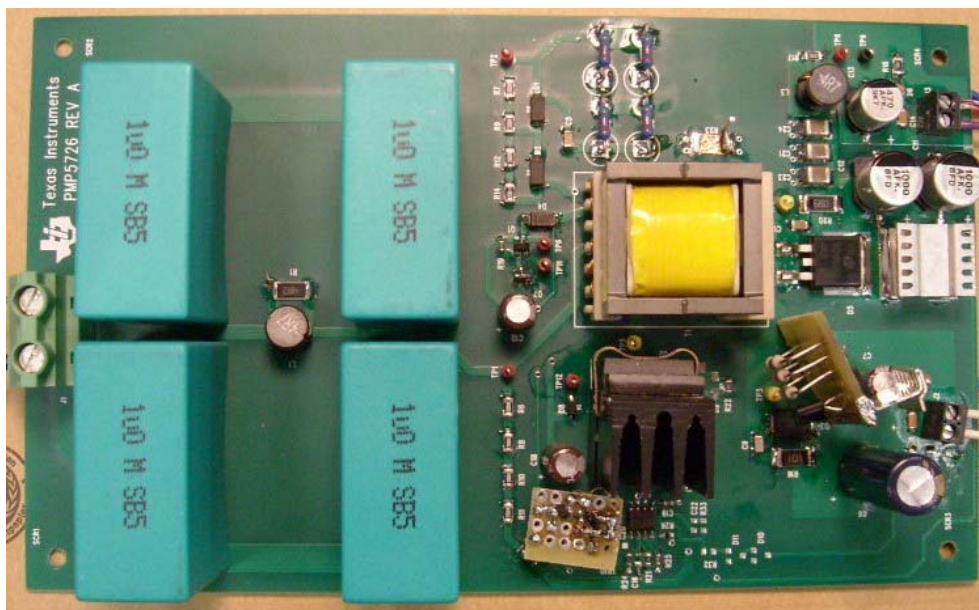


The PMP5725 has following requirements:

- 30W DC/DC SMPS
- Input voltage: 200VDC – 1000VDC
- Output voltage: 6.2V 100mA - 3A; 23V 200mA – 500mA
- Galvanic isolation: NO

Because of safety issues in our Laboratory, the PMP5725 is tested only up to 500VDC!

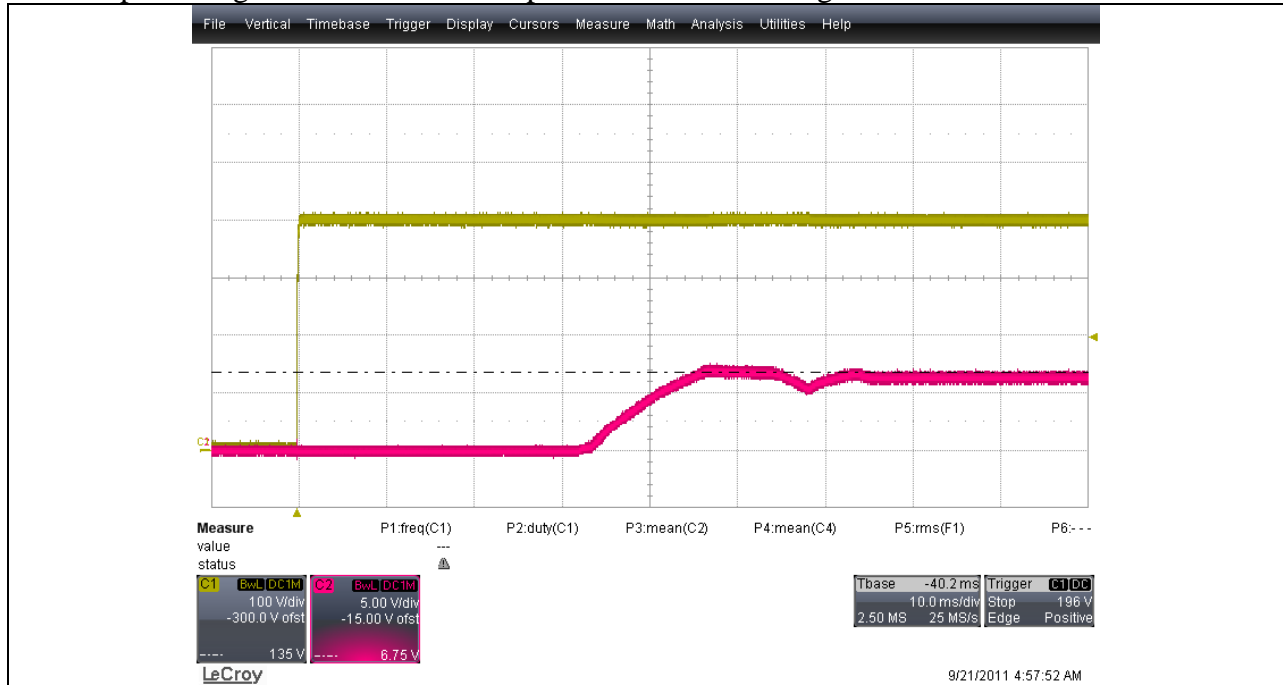
If not other described, all tests are done at 400VDC input voltage.



PCB - Top side view

1 Startup

The output voltage and current at startup are shown in the image below.



Full load

Channel 1 shows the input voltage (100V/div, 10ms/div).

Channel 2 shows the 6.2V output voltage (5V/div).

2 Efficiency

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

The load: constant current load.

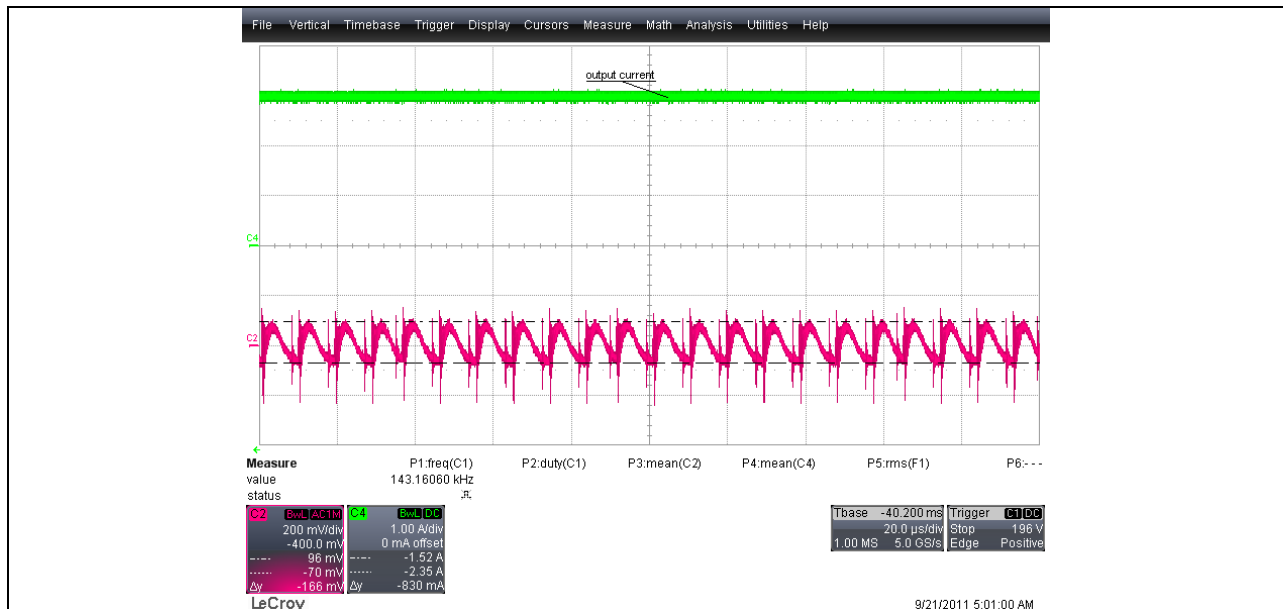
200V							
Uout 6V2	6.28	6.27	6.26	6.26	6.25	6.24	6.23
Iout 6V2	0.00	0.50	1.00	1.50	2.00	2.50	3.00
Uout 23V	23.74	25.39	25.73	25.41	25.26	25.17	25.14
Iout 23V	0.00	0.05	0.10	0.20	0.30	0.40	0.50
Pout W	0.00	4.47	8.83	14.47	20.08	25.67	31.26
Iin A	0.003	0.031	0.057	0.090	0.122	0.155	0.185
Uin V	200.00	200.00	200.00	200.00	200.00	200.00	200.00
Pin W	0.58	6.20	11.40	17.96	24.40	31.00	37.00
Plosses W	0.58	1.73	2.57	3.49	4.32	5.33	5.74
Pout/Pmax %	0.00	14.84	29.35	48.08	66.70	85.28	103.85
Eta %	0.00	72.06	77.48	80.58	82.29	82.80	84.49

400V							
Uout 6V2			6.26		6.25		6.23
Iout 6V2			1.00		2.00		3.00
Uout 23V			25.69		25.25		25.09
Iout 23V			0.10		0.30		0.50
Pout W			8.83		20.08		31.24
Iin A			0.029		0.122		0.185
Uin V			400.00		200.00		200.00
Pin W			11.60		24.40		37.00
Plosses W			2.77		4.33		5.77
Pout/Pmax %			29.33		66.69		103.77
Eta %			76.11		82.27		84.42



3 Output Ripple Voltage and current

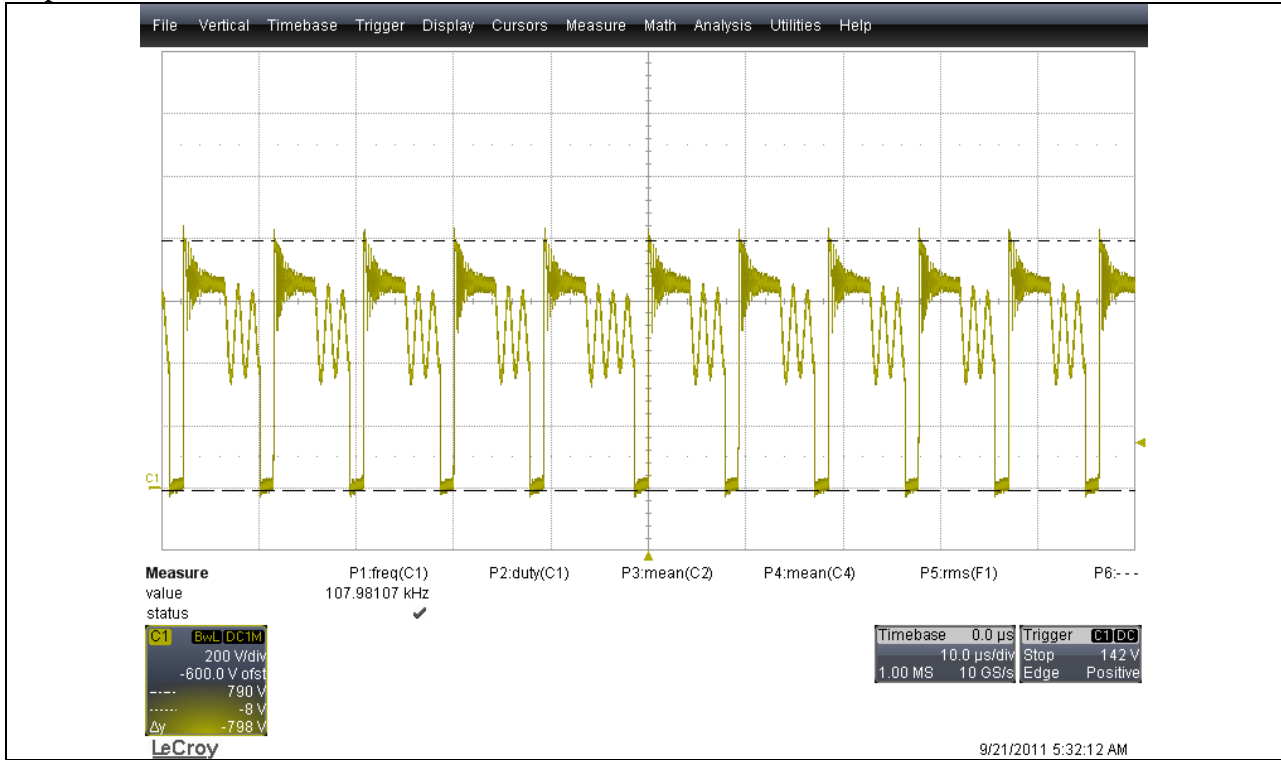
The output ripple voltage is shown in the plot below. Load 3A@6.2V, 0.5A@23V.



Full load
 Channel 2 shows the output AC voltage (200mV/div, 20us/div).
 The ripple voltage at 6.2V output is 166mVpp@3A load
 Channel 4 shows the output DC current (1A/div)

4 Switching Node Waveform

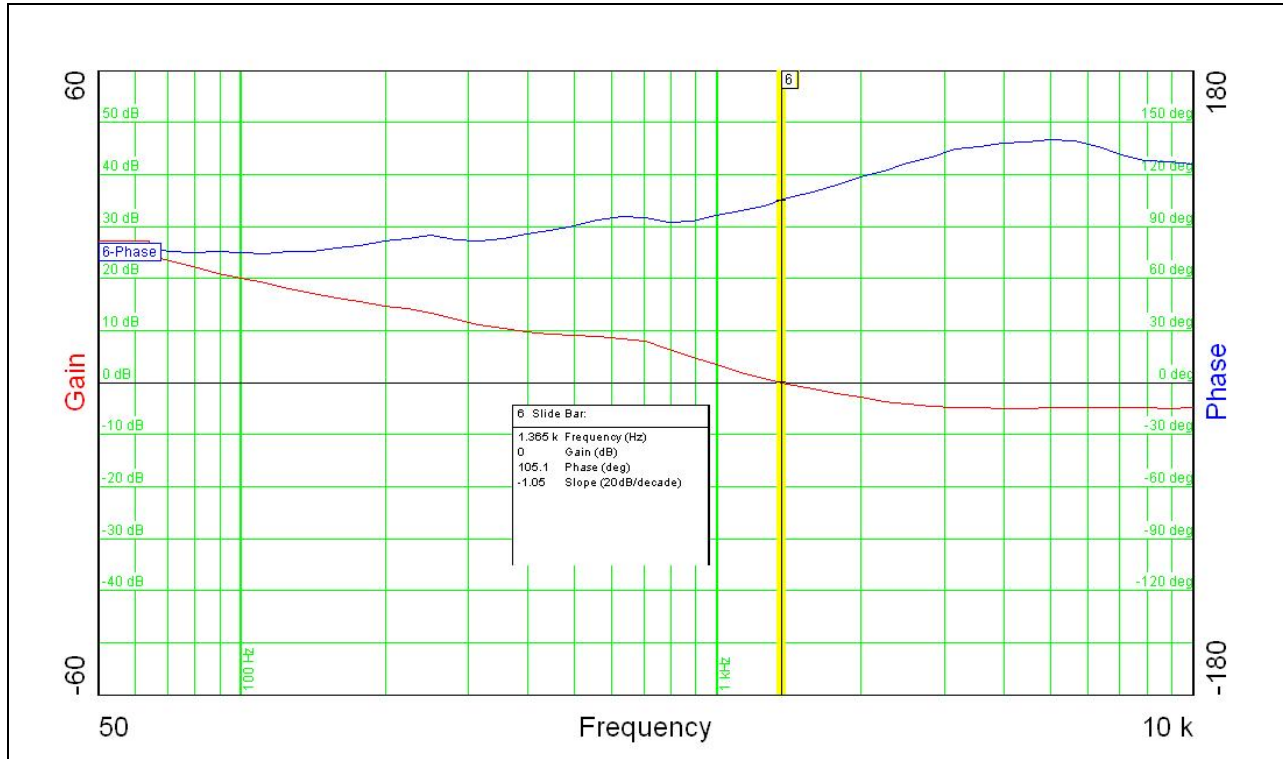
The image below shows the peak voltage on the drain of the switching node (Q2), at 500VDC input.



Full load
Channel 1: Switch node, drain voltage (200V/div, 10us/div, 200MHz BW).

5 Loop Response

The image below shows the loop response of the converter measured at half load. Crossover frequency is 1.3kHz, Phase margin is 105deg.



6 Thermal Image

The thermal measurements are not done.

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