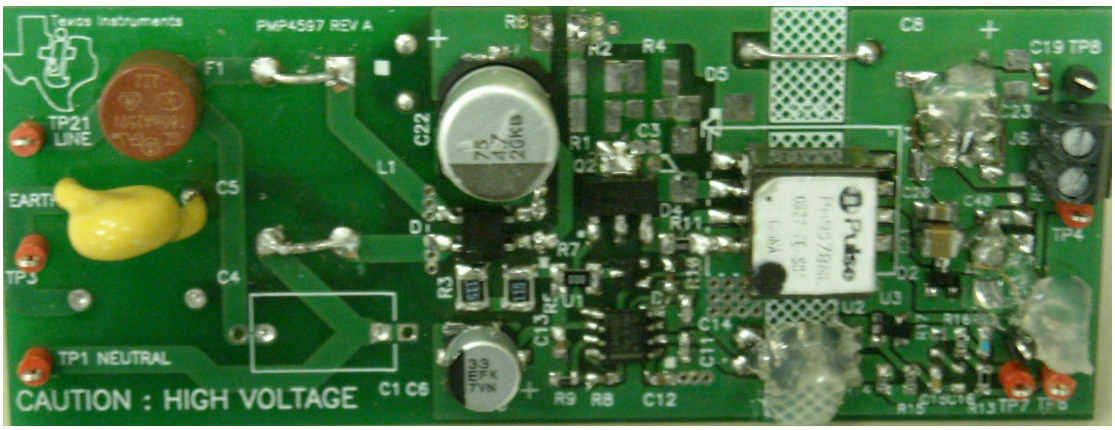
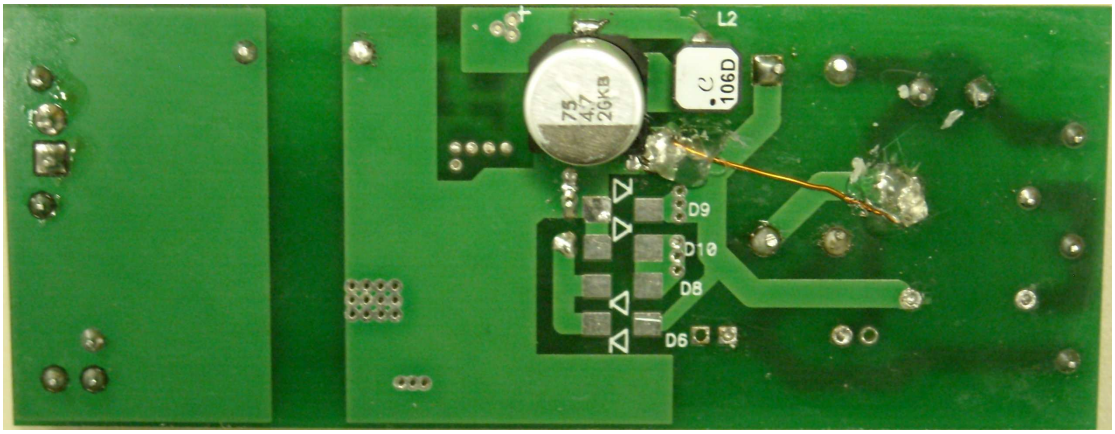
1 Pictures of the Converter

Board has been assempled accordingly with SCH and BOM PMP4562 Rev.B.
Component with number higher than 100 in the schematic have been mounted wired on the existing PCB from PMP4597 Rev.A. Transparent glue has been put over the critical parts to protect them mechanically.





2 Main waveforms

The following three pictures show the Drain of the main mosfet at minimum, nominal EU and maximum AC rms voltage in input at a nominal load of 150mA.

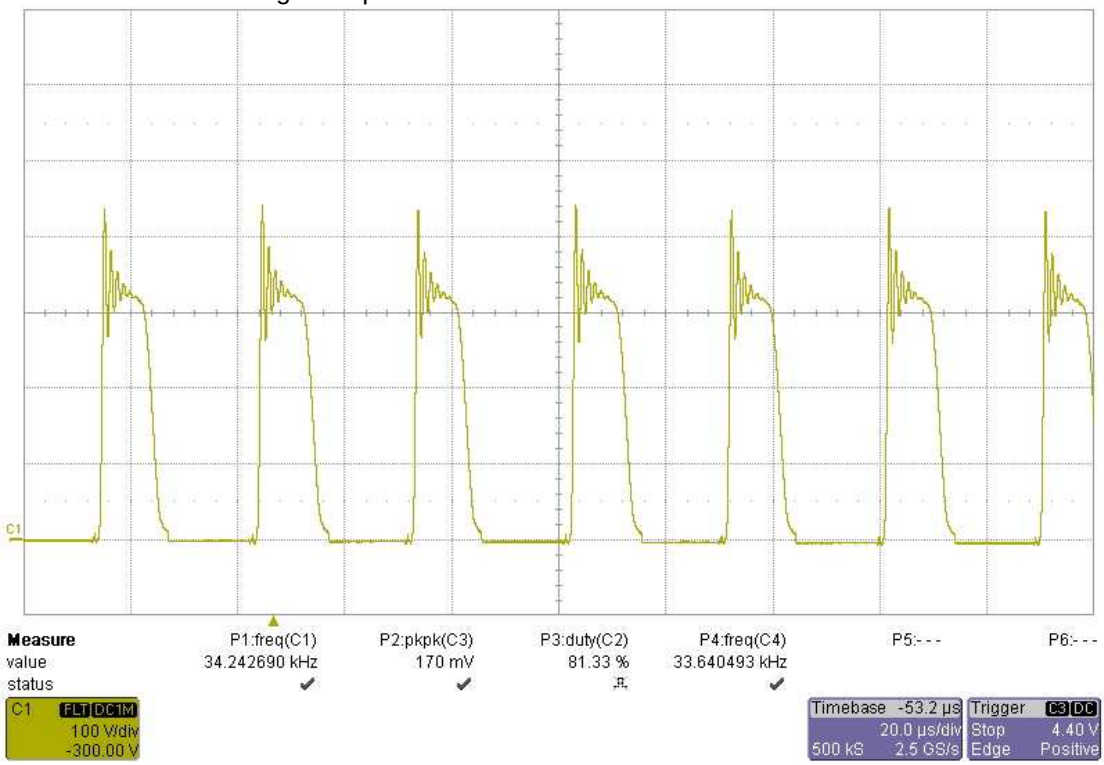


Fig.1 Vds Q2 @ Vin (AC) = 85Vrms, Iout=150mA

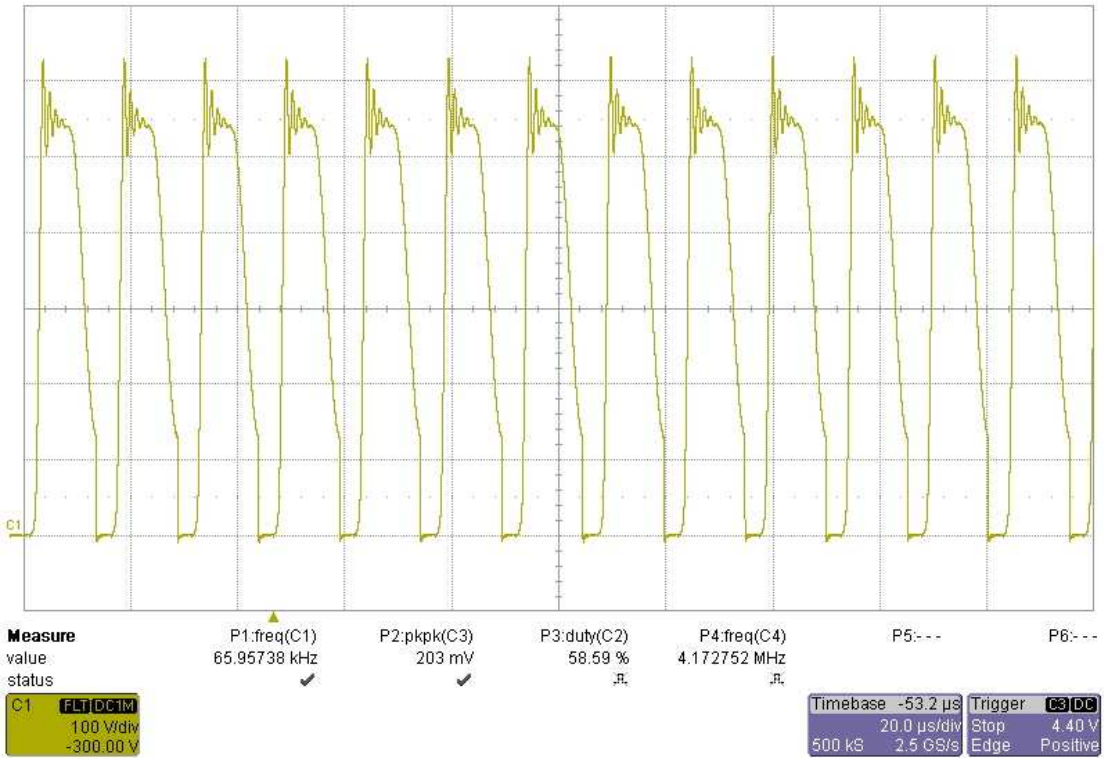


Fig.2 Vds Q2 @ Vin (AC) = 230Vrms, Iout=150mA

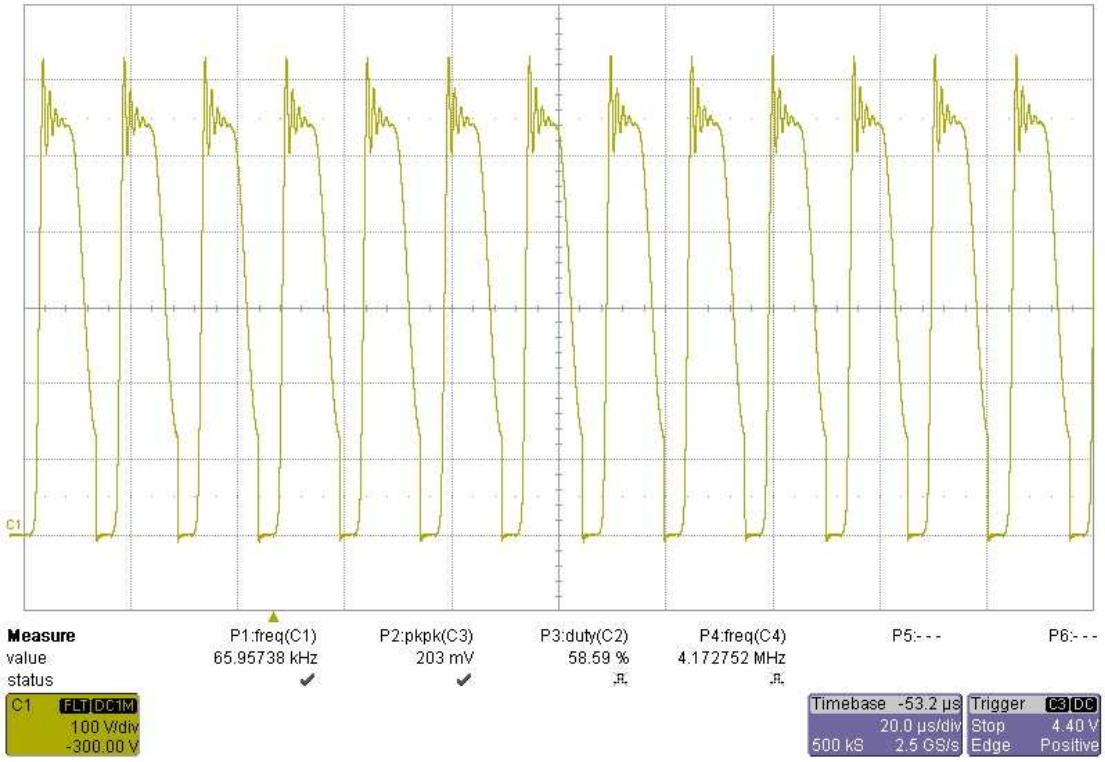


Fig.3 Vds Q2 @ Vin (AC) = 265Vrms, Iout=150mA

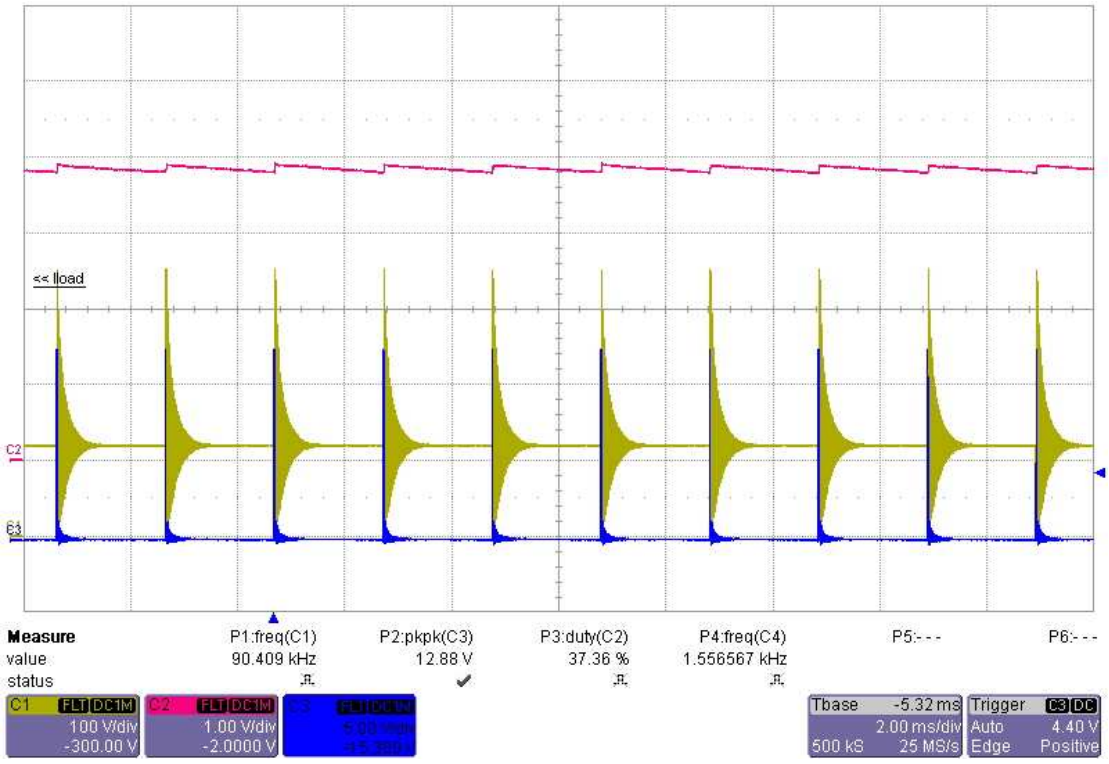


Fig.4 C1: Vds_Q2, C2: V(C20), C3: Vg_Q2, @ Vin(DC)=120V, Iout=0mA with Burst Mode.

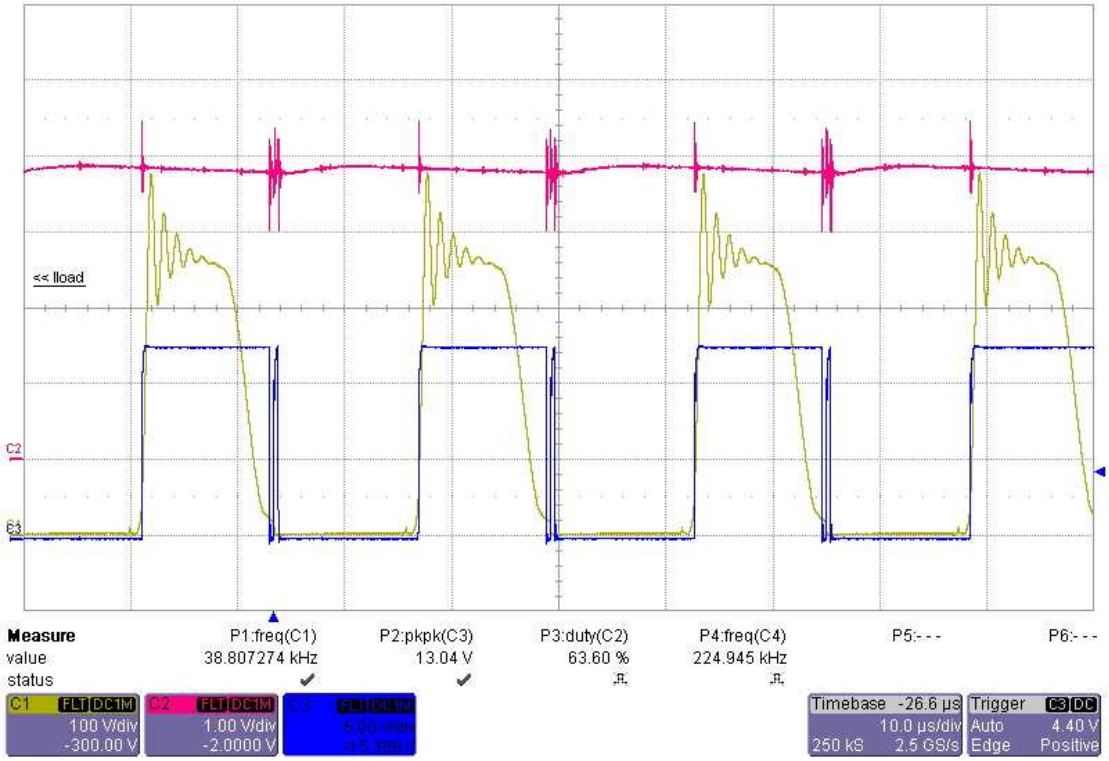


Fig.5 C1: Vds_Q2, C2: V(C20), C3: Vg_Q2, @ Vin(DC)=120V, Iout=150mA

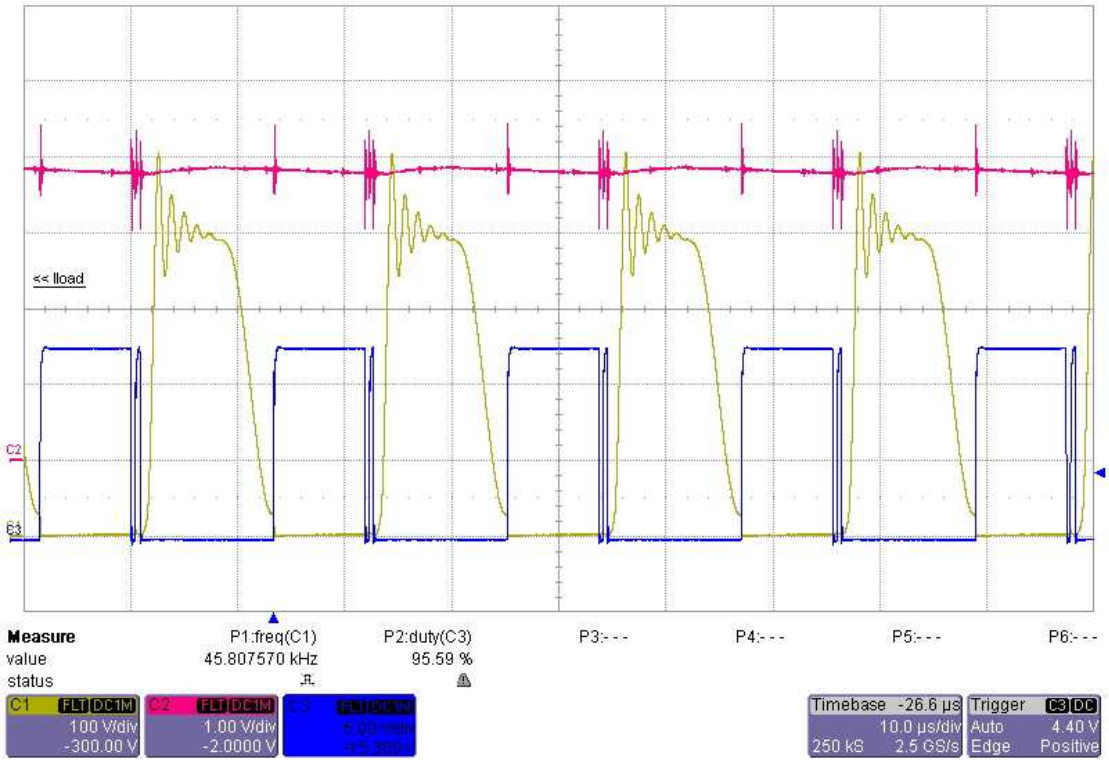


Fig.6 C1: Vds_Q2, C2: V(C20), C3: Vg_Q2, @ Vin(DC)=170V, Iout=150mA

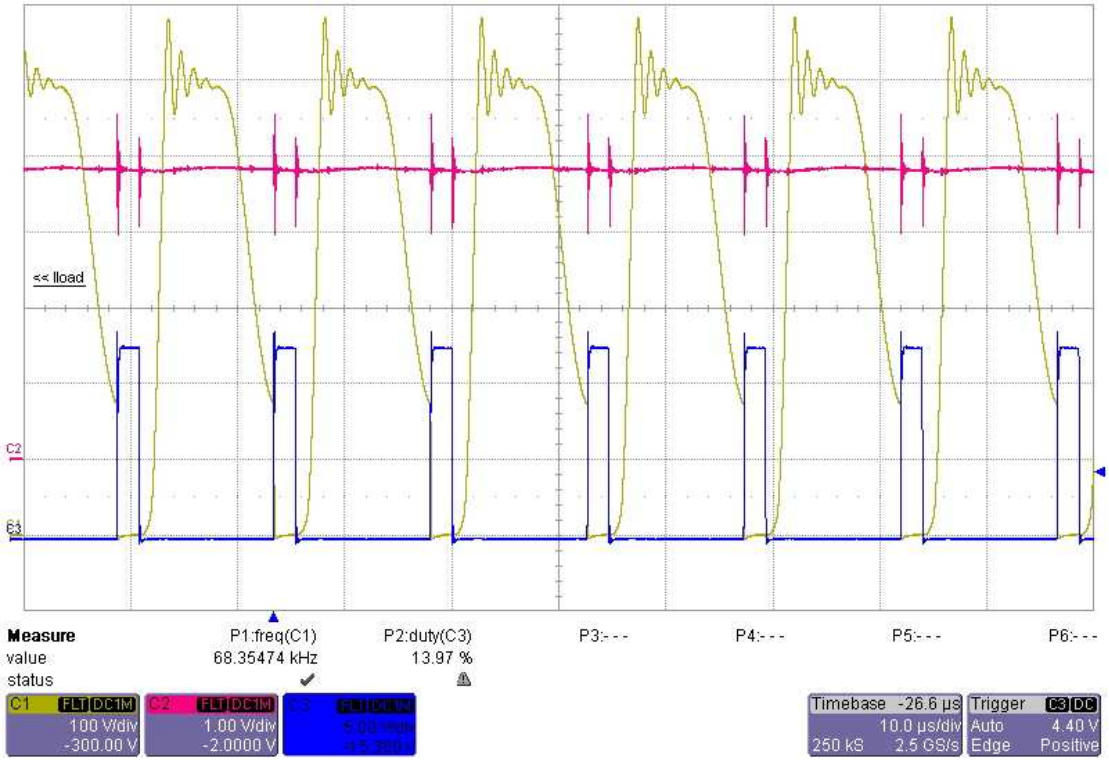


Fig.7 C1: Vds_Q2, C2: V(C20), C3: Vg_Q2, @ Vin(DC)=311V, Iout=150mA

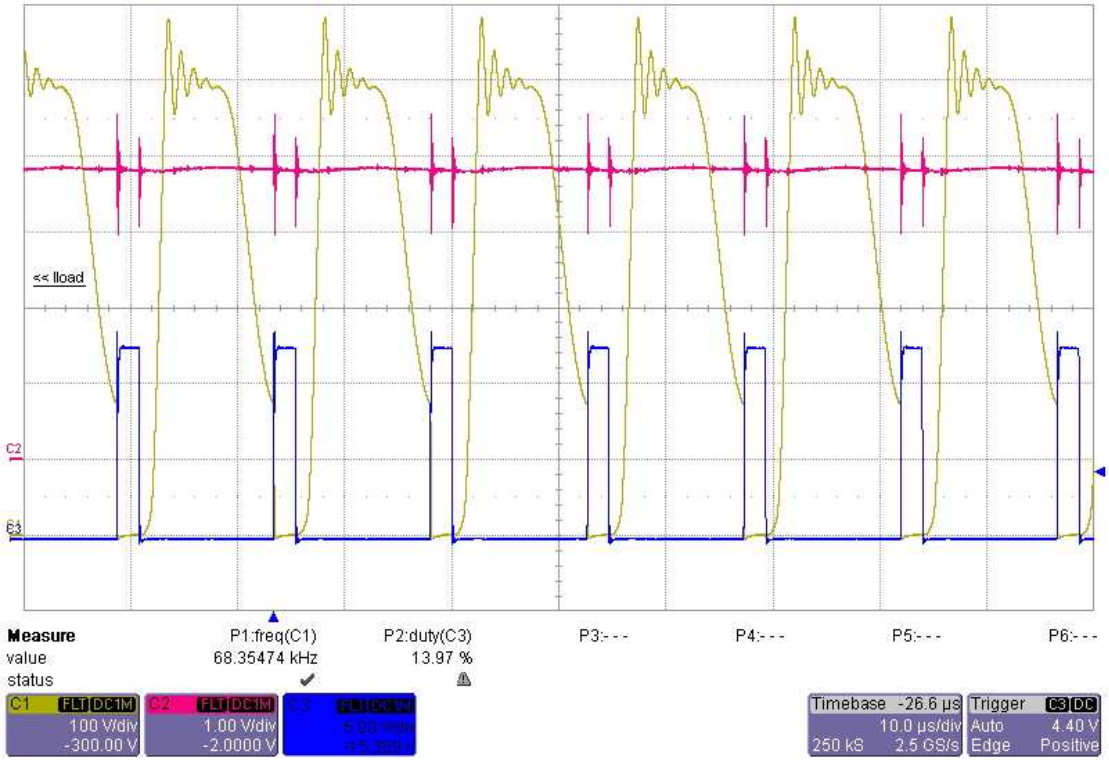


Fig.8 C1: Vds_Q2, C2: V(C20), C3: Vg_Q2, @ Vin(DC)=375V, Iout=150mA

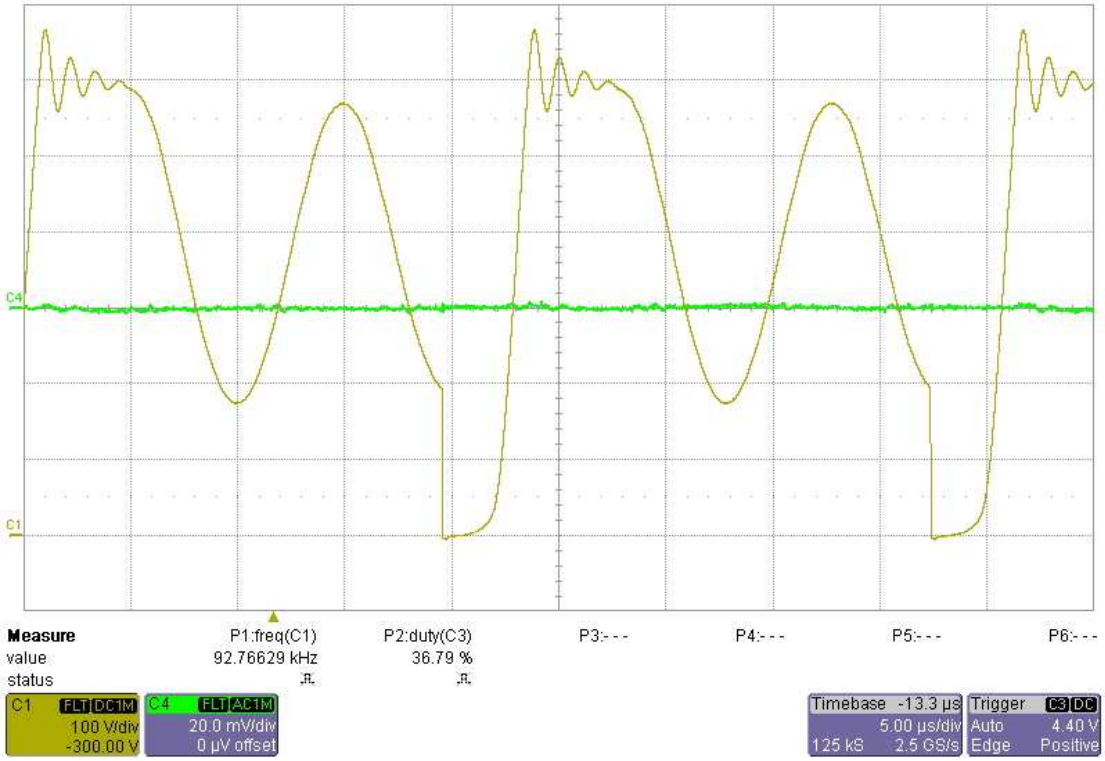


Fig.9 Vout Ripple @ Vin (DC) = 375, Iout=50mA.

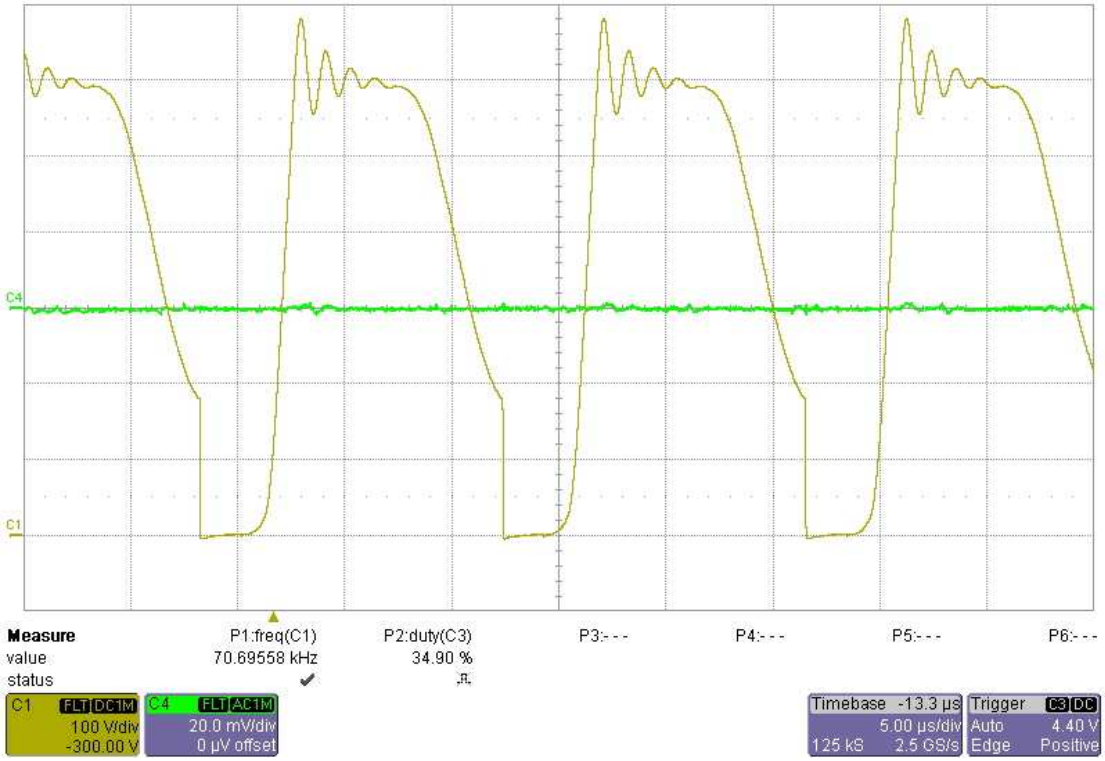


Fig.10 Vout Ripple @ Vin (DC) = 375V, Iout=150mA.

3 Efficiency

Efficiency was estimated only with DC input applied over the input bridge.
Results are shown in the following tables.

Vin [V]	In [mA]	Vout [V]	Iout [mA]	η [%]
118.3	6.87	3.296	**154.1**	**62.49**
168.3	4.88	3.296	**154.1**	**61.84**
264.1	3.21	3.296	**154.1**	**59.91**
310.0	2.84	3.296	**154.1**	**57.69**
368.0	2.50	3.296	**154.1**	**55.21**

Tab.1 Efficiency with changing input voltage at maximum load

Vin [V]	In [mA]	Vout [V]	Iout [mA]	η [%]
368.0	2.50	3.296	**154.1**	**55.21**
367.7	2.19	3.296	**125.2**	**51.24**
367.7	1.88	3.296	**100.7**	**48.01**
367.7	1.54	3.296	**76.7**	**44.64**
371.0	1.38	3.296	**53.6**	**34.51**
370.9	0.90	3.296	**32.13**	**31.79**

Tab.2 Efficiency at maximum line (worst case), with decreasing load

Vin [V]	Vout [V]	Iin [µA]	Pin [mW]
118.3	3.296	210	**24.8**
264.1	3.296	250	**66.0**
310.0	3.296	260	**86.8**
376.8	3.296	290	***109.3***

Tab.3 Input current sunk at no load

4 Loop measurements

Open Loop Gain and Phase of the Type I Compensation is measured in the next picture at 150mA load.

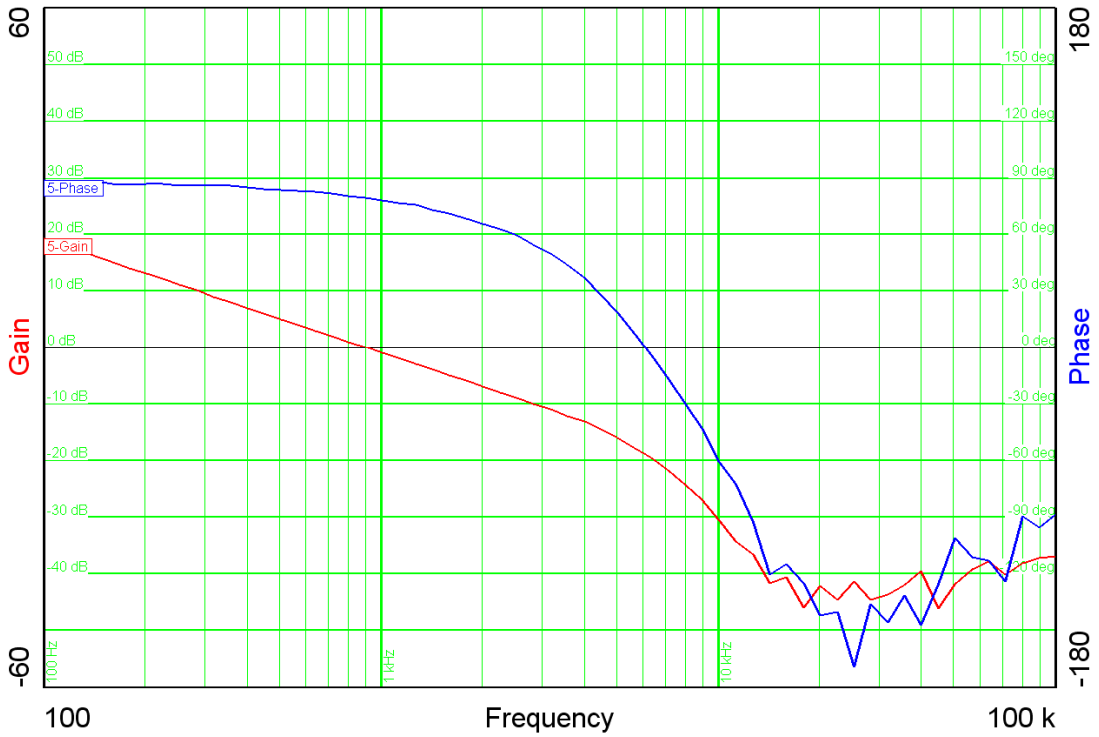


Fig.11 Open Loop Gain with Iout=150mA, Vin_DC = 311V

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