

1 Startup

The startup waveform with input voltage=85VAC is shown in Figure 1 with full load at the outputs.

Channel CH1: 24.4Vout

Channel CH2: 12Vout

Channel CH3: 5Vout

Channel CH4: 3.3Vout

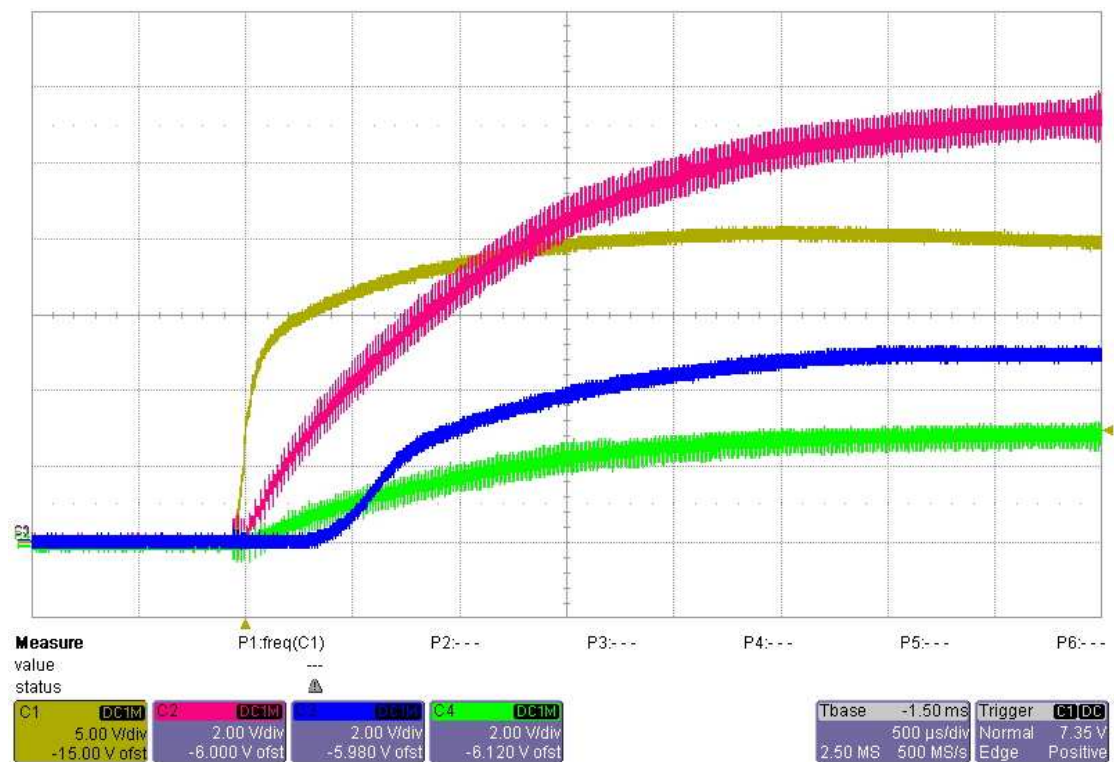


Figure 1

The startup waveform with input voltage=265VAC is shown in Figure 2 with full load at the outputs.

Channel CH1: 24.4Vout

Channel CH2: 12Vout

Channel CH3: 5Vout

Channel CH4: 3.3Vout

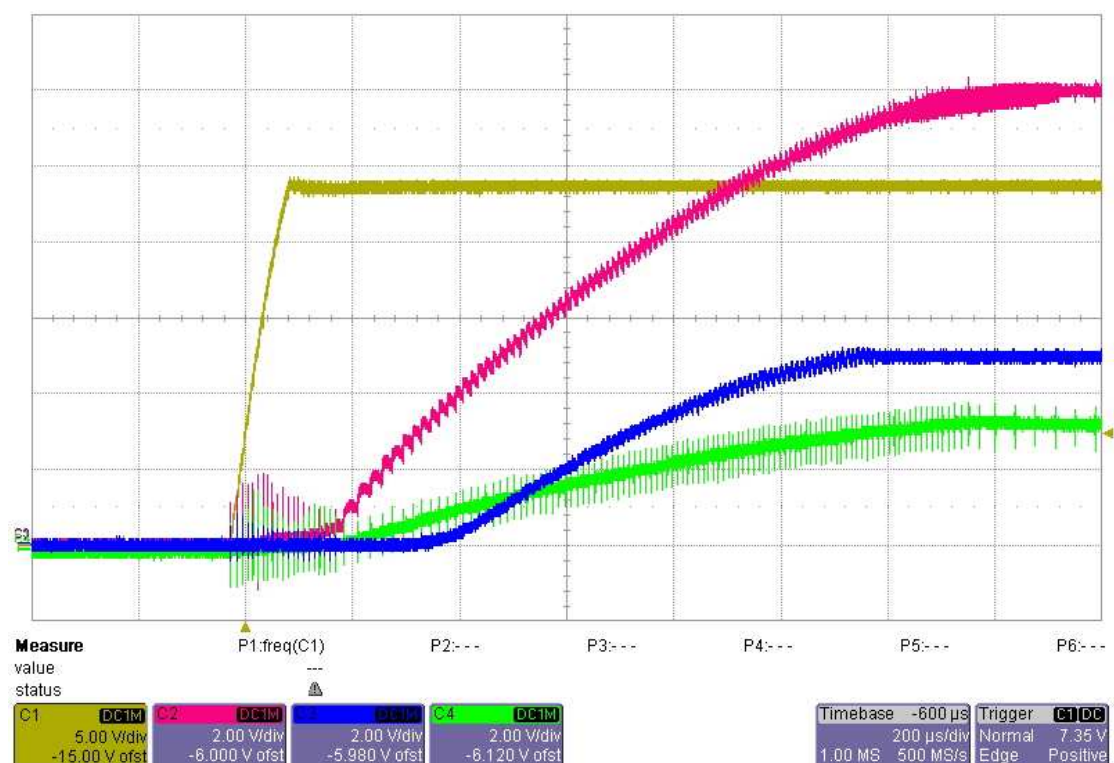


Figure 2

2 Efficiency

The efficiency with different input voltages is shown in Figure 3.

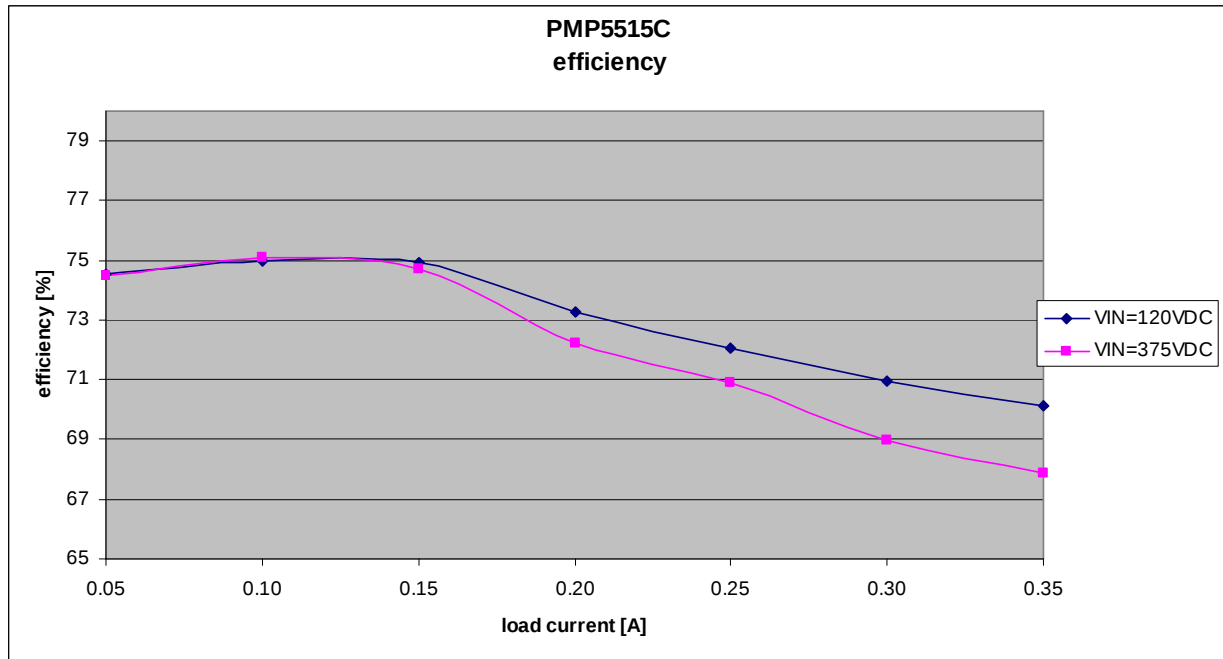


Figure 3

3 Cross regulation

The cross regulation with 85VAC and 265VAC at the input is shown in Figure 4.
The load current of the output 3.3V varies between 0.03A and 0.35A

input voltage [VAC]	output 24.4V		output 12V		output 5V		output 3.3V	
	voltage [V]	current [A]	voltage [V]	current [A]	voltage [V]	current [A]	voltage [V]	current [A]
85.00	22.440	0.002	11.360	0.250	4.930	0.097	3.294	0.030
85.00	22.530	0.002	11.568	0.250	4.958	0.097	3.295	0.050
85.00	22.640	0.002	11.863	0.250	4.958	0.097	3.295	0.100
85.00	22.720	0.002	12.110	0.250	4.958	0.097	3.294	0.150
85.00	22.760	0.002	12.130	0.250	4.958	0.097	3.292	0.200
85.00	22.780	0.002	12.110	0.250	4.958	0.097	3.283	0.250
85.00	22.780	0.002	12.120	0.250	4.958	0.097	3.267	0.300
85.00	22.760	0.002	12.120	0.250	4.958	0.097	3.241	0.350
265.00	24.030	0.002	11.364	0.250	4.956	0.097	3.295	0.030
265.00	24.030	0.002	11.576	0.250	4.957	0.097	3.295	0.050
265.00	24.060	0.002	11.978	0.250	4.957	0.097	3.295	0.100
265.00	24.070	0.002	12.140	0.250	4.958	0.097	3.295	0.150
265.00	24.080	0.002	12.120	0.250	4.958	0.097	3.295	0.200
265.00	24.110	0.002	12.130	0.250	4.958	0.097	3.294	0.250
265.00	24.140	0.002	12.140	0.250	4.957	0.097	3.294	0.300
265.00	24.140	0.002	12.140	0.250	4.957	0.097	3.294	0.350
85.00	23.660	0.002	12.210	0.005	4.965	0.097	3.294	0.355
265.00	24.210	0.002	12.210	0.005	4.965	0.097	3.294	0.355

Figure 4

4 Output ripple voltage

The output ripple voltages with full load are shown in Figure 5 to Figure 12.

Figure 5 shows the output voltage 24.4Vout, at 85VAC at the input. AC coupled, full bandwidth

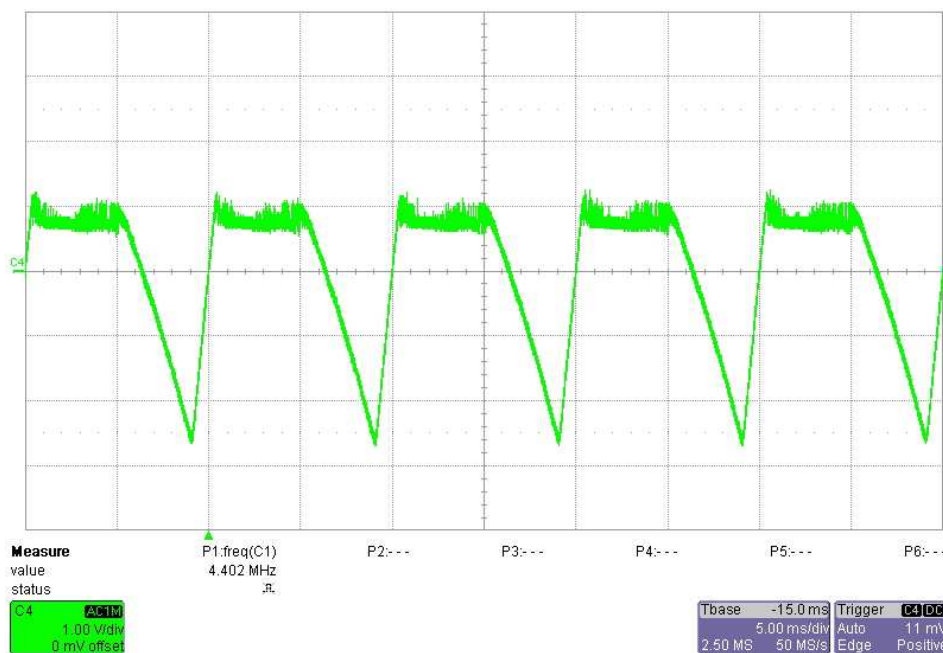


Figure 5

Figure 6 shows the output voltage 24.4Vout, at 265VAC at the input. AC coupled, full bandwidth

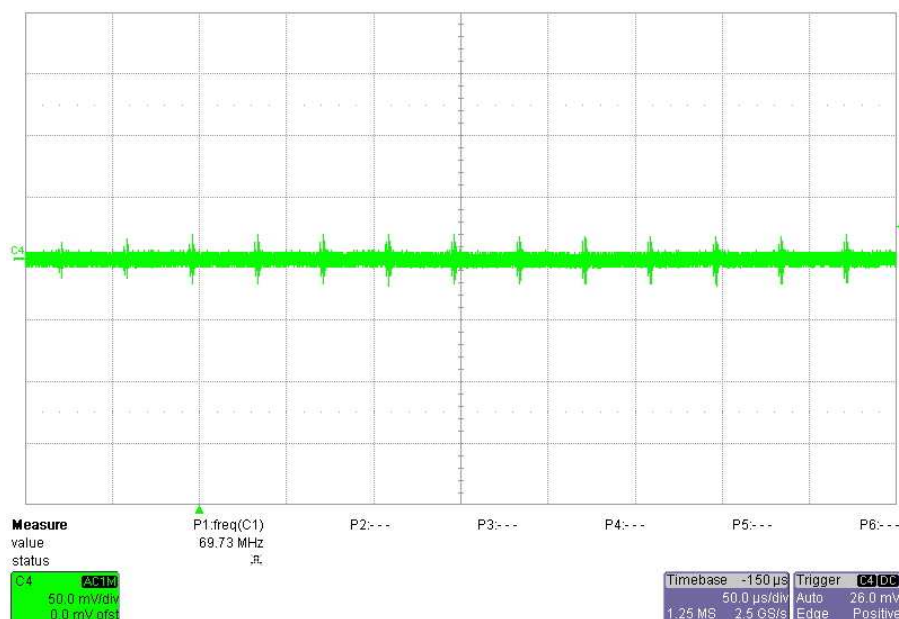


Figure 6

Figure 7 shows the output voltage 12Vout, at 85VAC at the input. AC coupled, full bandwidth

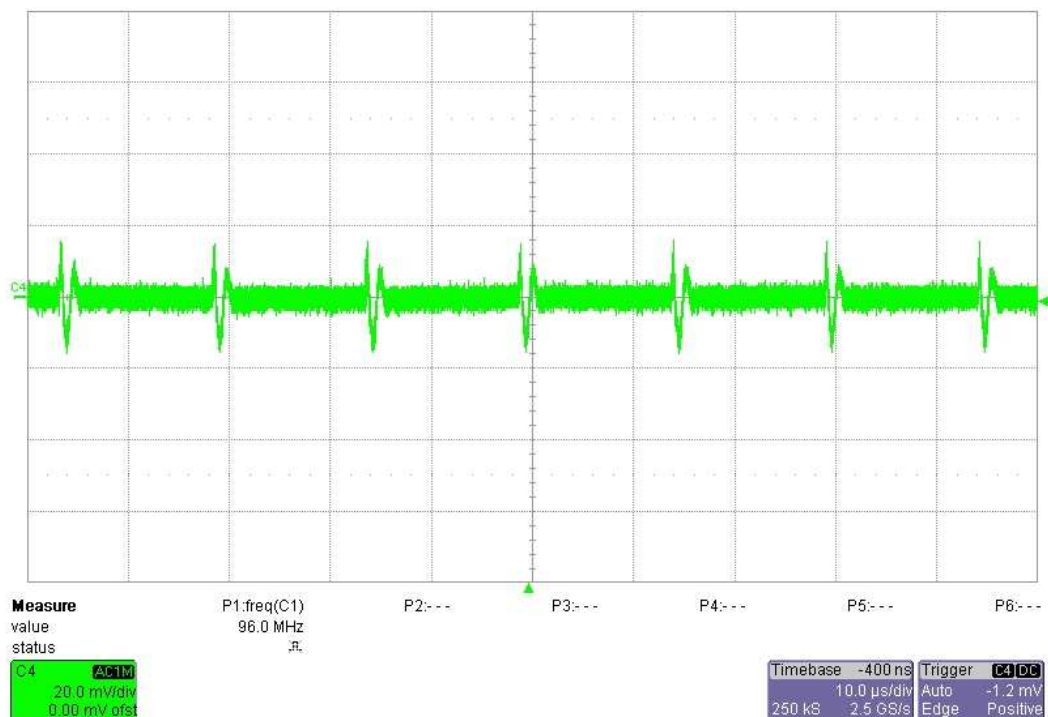


Figure 7

Figure 8 shows the output voltage 12Vout, at 265VAC at the input. AC coupled, full bandwidth

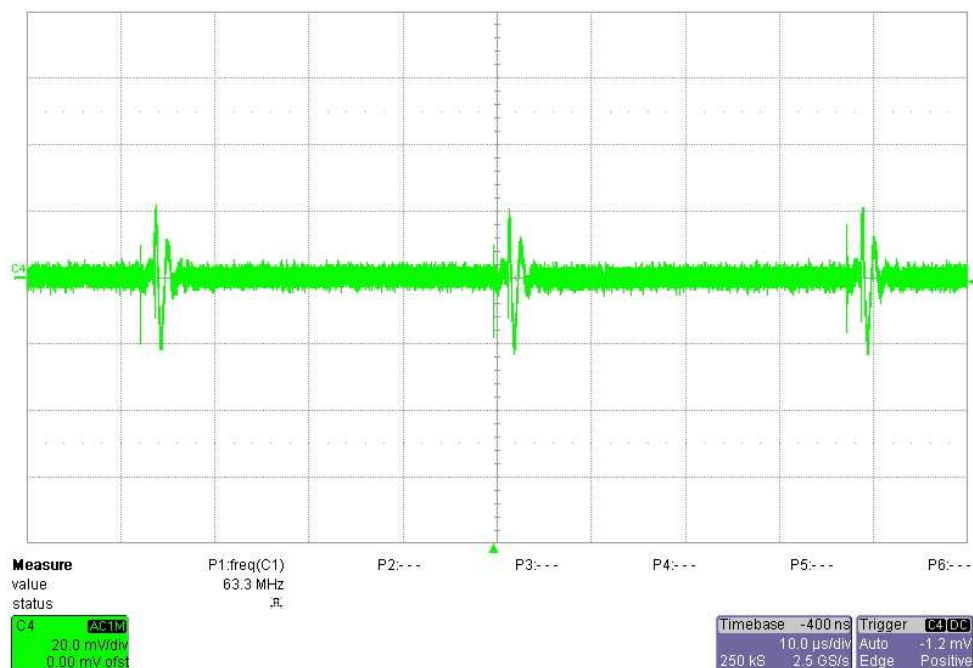


Figure 8

Figure 9 shows the output voltage 5Vout, at 85VAC at the input. AC coupled, full bandwidth

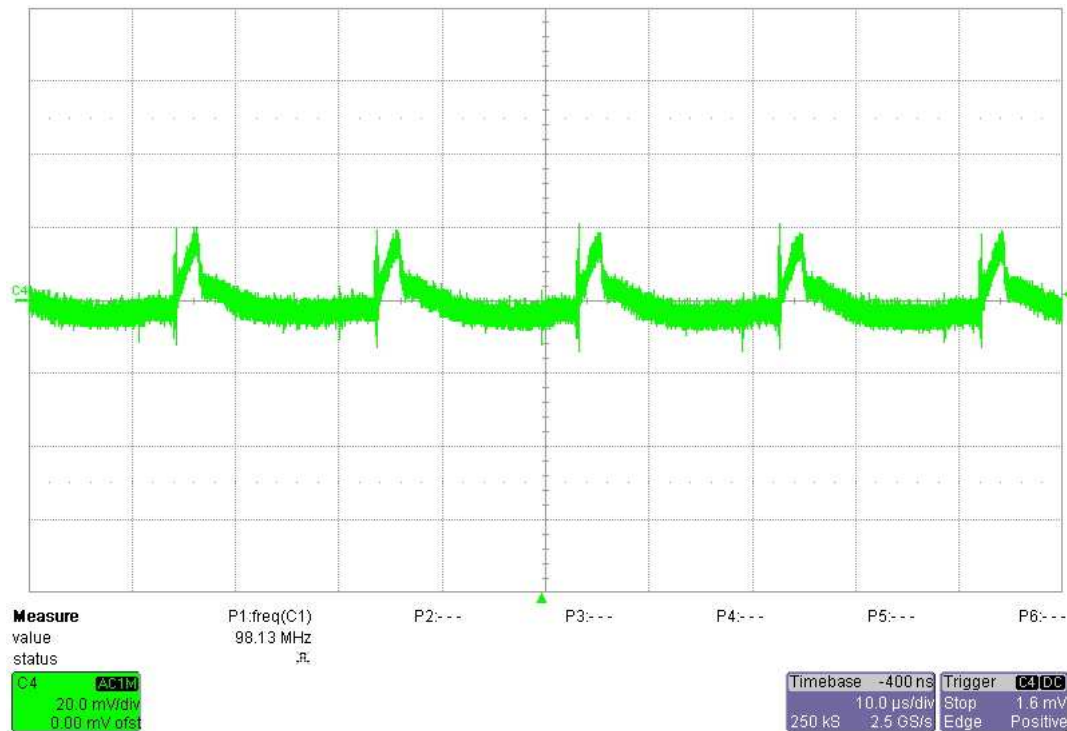


Figure 9

Figure 10 shows the output voltage 5Vout, at 265VAC at the input. AC coupled, full bandwidth

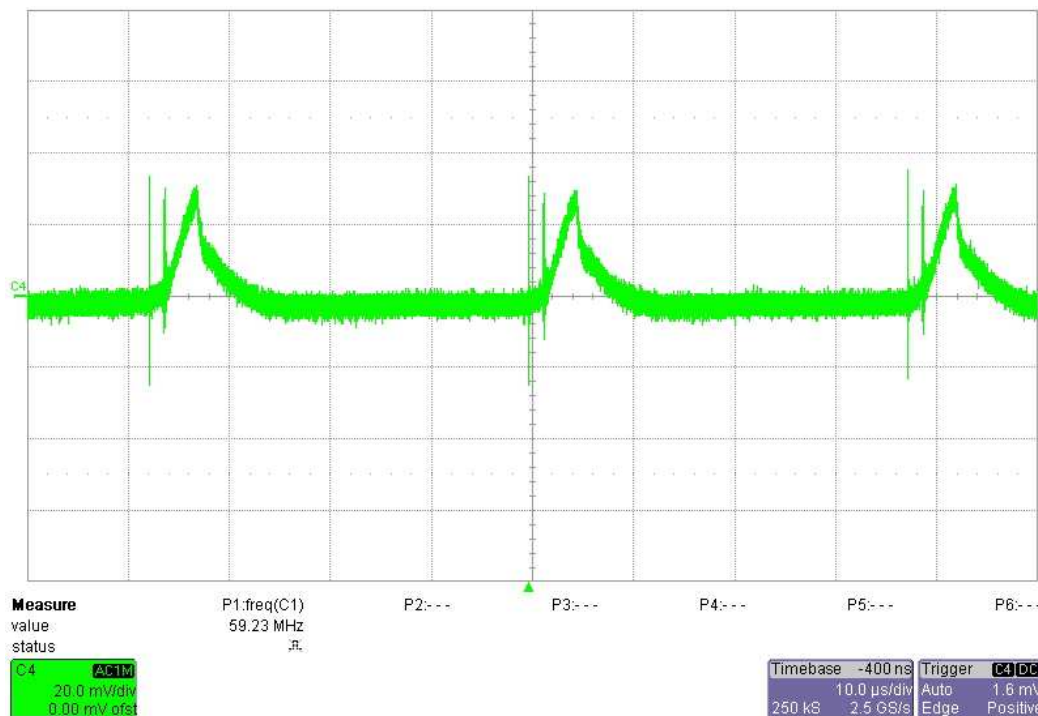


Figure 10

Figure 11 shows the output voltage 3.3Vout, at 85VAC at the input. AC coupled, full bandwidth

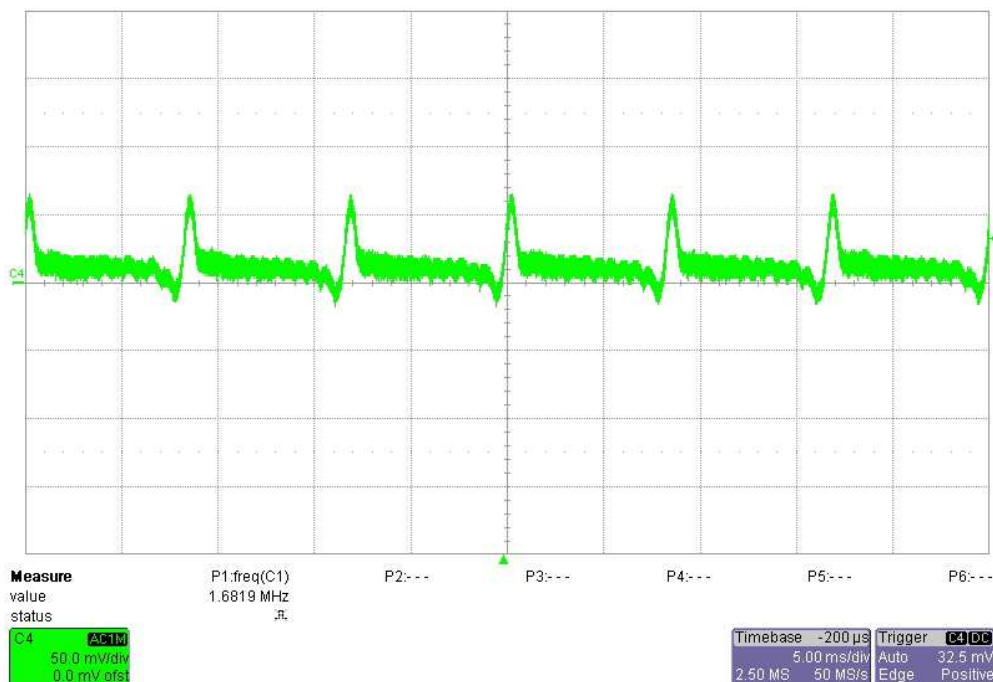


Figure 11

Figure 12 shows the output voltage 3.3Vout, at 265VAC at the input. AC coupled, full bandwidth

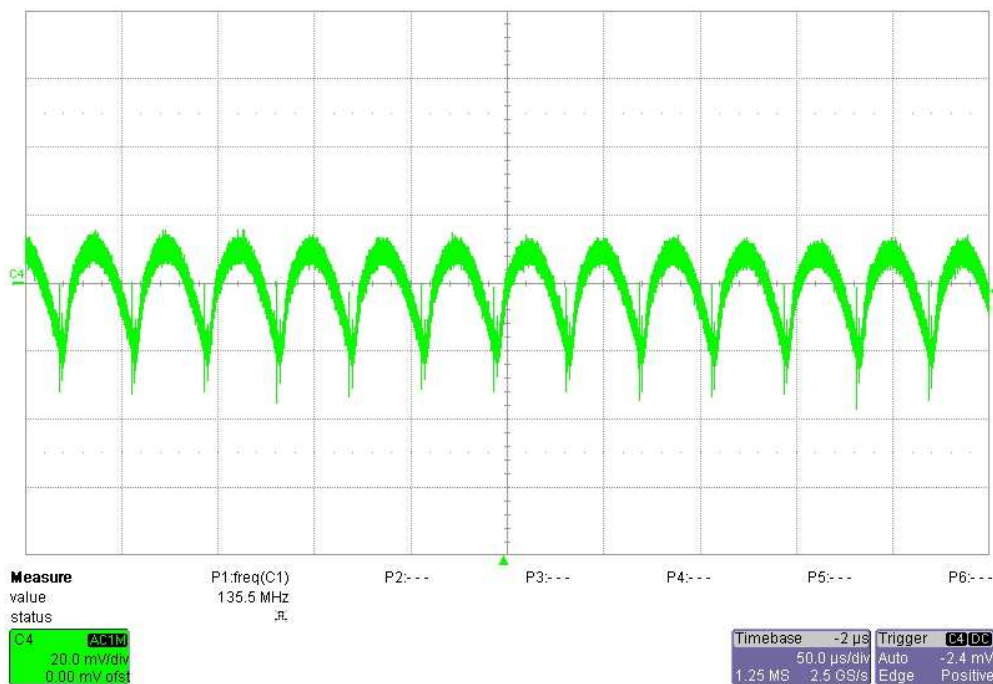


Figure 12

5 Load transients

The response to a load step and a load dump at an input voltage of 85VAC is shown in Figure 13 .

Channel C3: **load current**, load step 0.2A to 0.4A

Channel C4: **output voltage 3.3V_{out}**, AC coupled

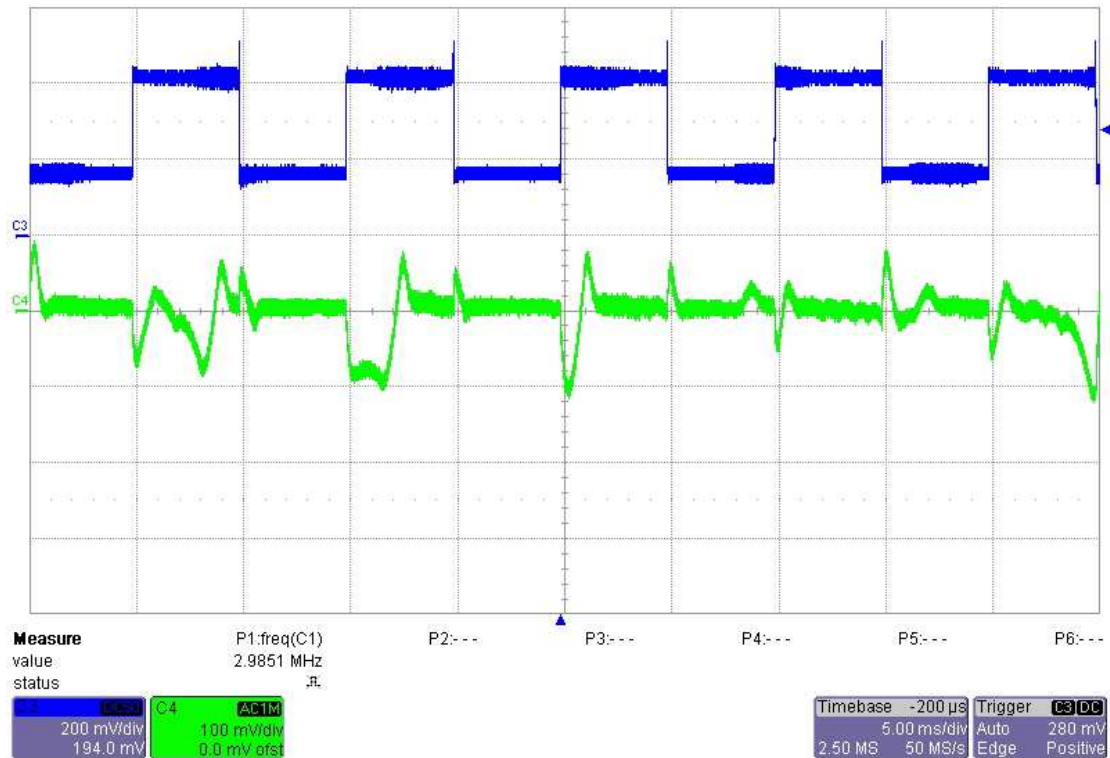


Figure 13

The response to a load step and a load dump at an input voltage of 265VAC is shown in Figure 4 .

Channel C3: **load current**, load step 0.2A to 0.4A

Channel C4: **output voltage 3.3V_{out}**, AC coupled

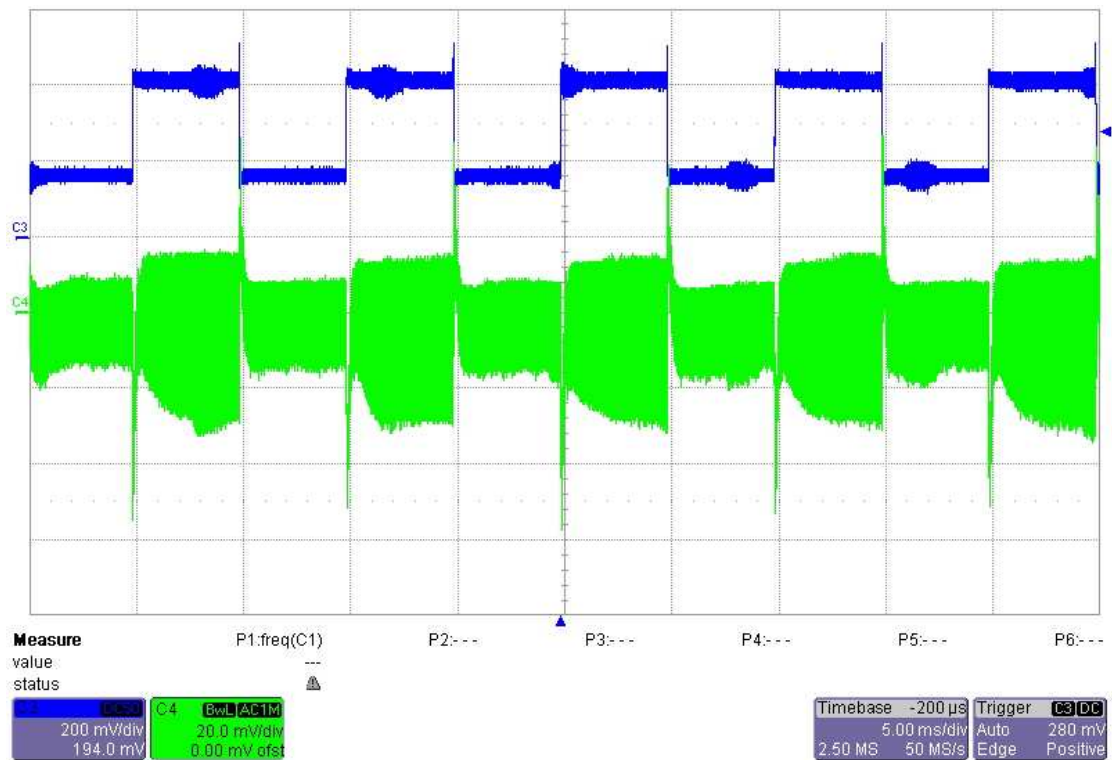
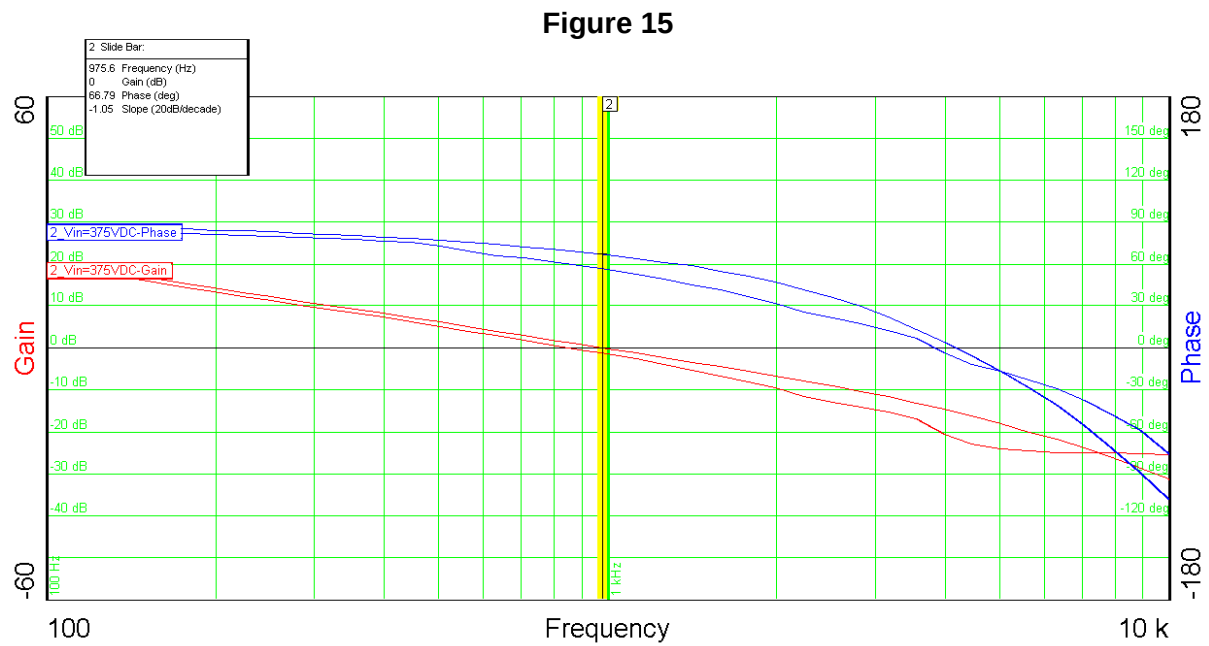


Figure 14

5 Frequency response

Figure 15 shows the loop response with 120VDC and 375VDC input and full loads at the outputs.

66.7° phase margin @ crossover frequency 975Hz



6 Miscellaneous waveforms

The drain-source voltage on the switch node is shown in Figure 6 and Figure 17

Channel 1: switchnode @ 120VDC input

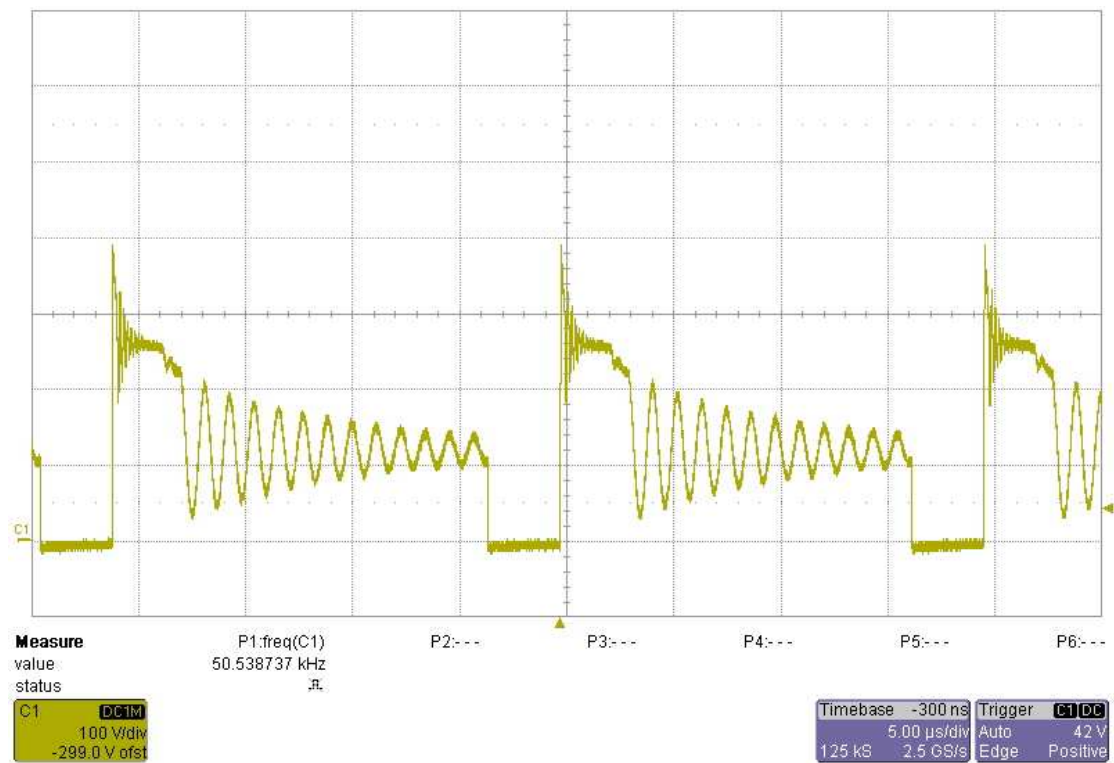


Figure 16

Channel 1: switchnode @ 375VDC input

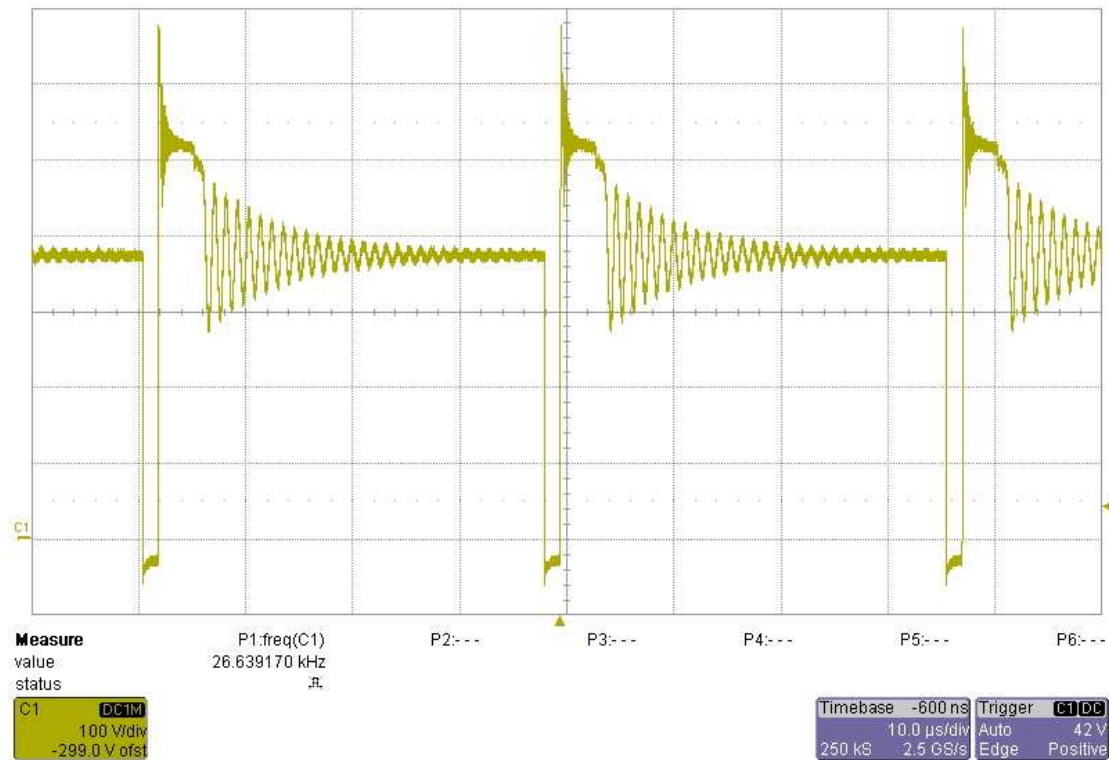


Figure 17

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