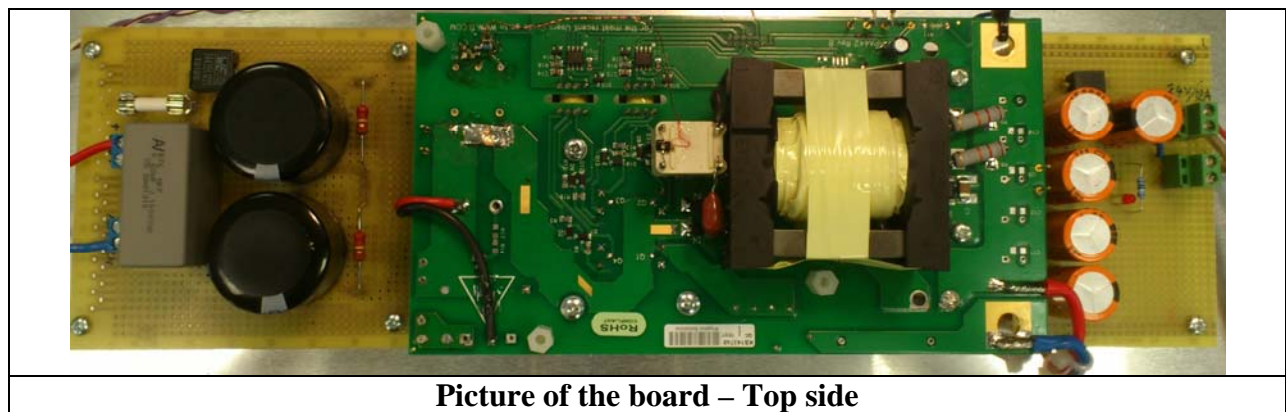


# PMP8606 Rev.B Test Results

The **PMP8606** is a 300W galvanic isolated Full Bridge Phase Shift converter in voltage mode using voltage doubler rectification at the secondary side. This design utilizing UCC28950.

## 1 Design description

Nr.	Description	Capability	Remarks	Comments
1	Minimum Input voltage	350V	DC	
2	Maximum Input voltage	750V	DC	
3	Output voltage	24V		
4	Isolation Primary - secondary	3500Vac		
5	Switching frequency	100kHz		
6	DC accuracy/tolerance for the output voltage	+/- 1%.		
7	Output voltage ripple	50mVpp	(20MHz BW)	
8	Maximum continuous output current	12A		
9	Efficiency	>93%	for currents >6A	see the measurements
10	Over current detection	~12.5A	Hiccup mode	
11	Transient performance			see the measurements
12	Overshoot	<100mV	output current 7App	see the measurements
13	Undershoot	<100mV	output current 7App	see the measurements
14	ON/OFF function		NA	
15	Power good (PGOOD)	No function available	NA	
16	Board size	300mm x 100mm		
17	Absolute maximum components height - top side	35mm		
18	Absolute maximum components height - bottom side	8mm		
19	Component placement	Top & Bottom side		
20	Power MOSFETs package	TO220		
21	Operating temperature range	-40 to +60 deg C.		



Picture of the board – Top side

This board has been tested, according to the test report, 350V, 500Vin, full load, with a cooling fan with 32 cfm placed at 10cm distance.

# PMP8606 Rev.B Test Results

## 2 Efficiency

The efficiency data are shown in the graph below.

The load consisted of an electronic load, manually adjusted;

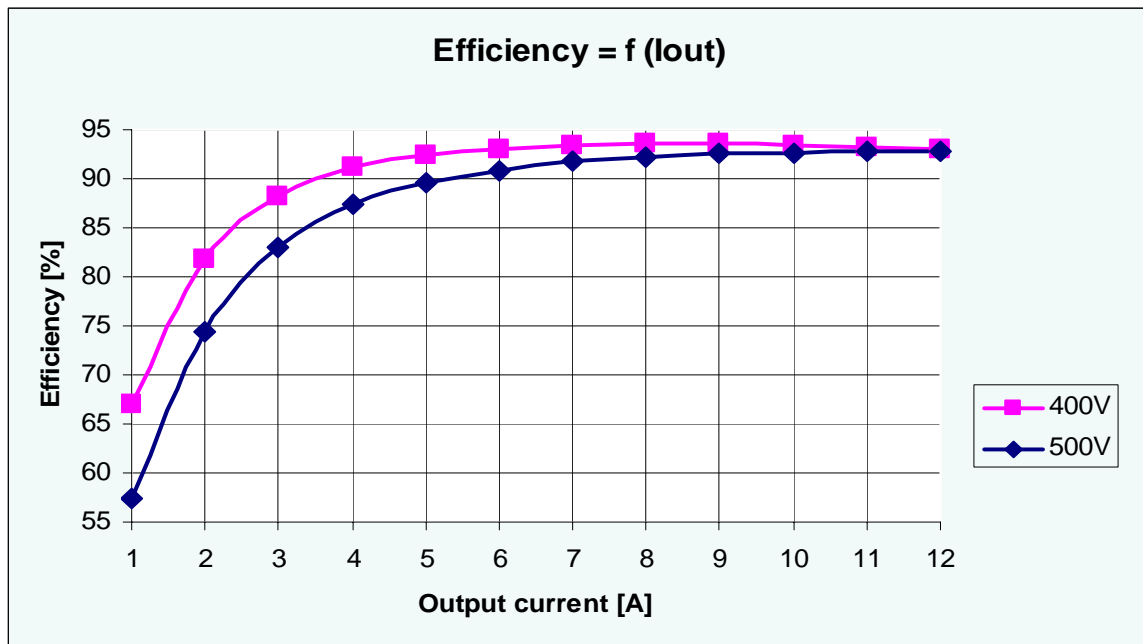
**Efficiency curve measured at 400V and 500Vin; the graph shows the efficiency versus output current (maximum 24V\*12A)**

400

U1out [V]	23.85	23.83	23.86	23.87	23.87	23.87	23.88	23.88	23.88	23.88	23.88	23.88	23.88
I1out [A]	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
P1out [W]	0.00	23.83	47.72	71.61	95.48	119.35	143.28	167.16	191.04	214.92	238.80	262.68	286.56
Iin [mA]	20	89	146	203	262	323	385	447	510	574	639	704	770
Pin [W]	8	36	58	81	105	129	154	179	204	230	256	282	308
Plosses [W]	8.00	11.77	10.68	9.59	9.32	9.85	10.72	11.64	12.96	14.68	16.80	18.92	21.44
eta [%]	0.00	66.94	81.71	88.19	91.11	92.38	93.04	93.49	93.65	93.61	93.43	93.28	93.04

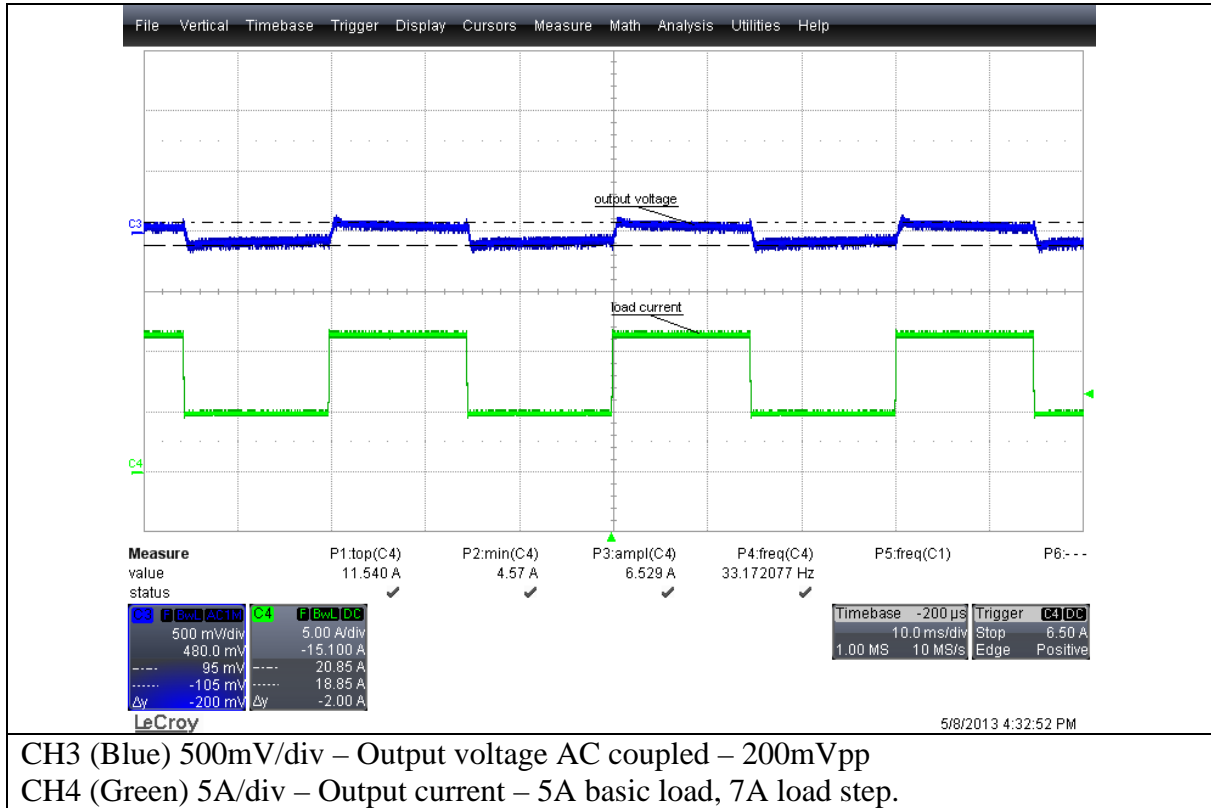
500

U1out [V]	23.85	23.80	23.81	23.80	23.84	23.86	23.86	23.86	23.86	23.86	23.87	23.87	23.88
I1out [A]	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
P1out [W]	0.00	23.80	47.62	71.40	95.36	119.30	143.16	167.02	190.88	214.74	238.70	262.57	286.56
Iin [mA]	9	83	128	172	218	266	315	364	414	464	515	566	618
Pin [W]	5	42	64	86	109	133	158	182	207	232	258	283	309
Plosses [W]	4.50	17.70	16.38	14.60	13.64	13.70	14.34	14.98	16.12	17.26	18.80	20.43	22.44
eta [%]	0.00	57.35	74.41	83.02	87.49	89.70	90.90	91.77	92.21	92.56	92.70	92.78	92.74

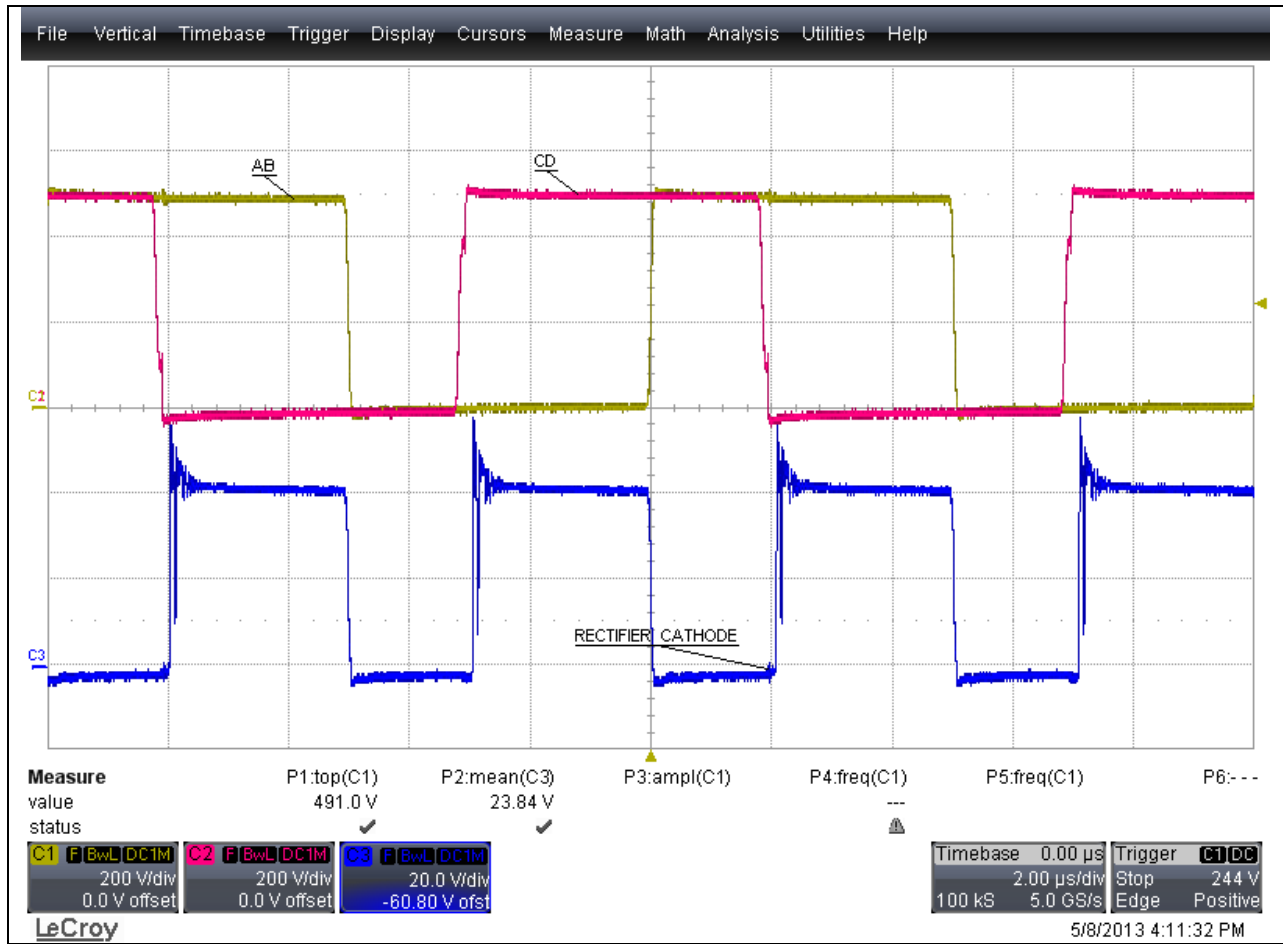


# PMP8606 Rev.B Test Results

## 3 Load step response

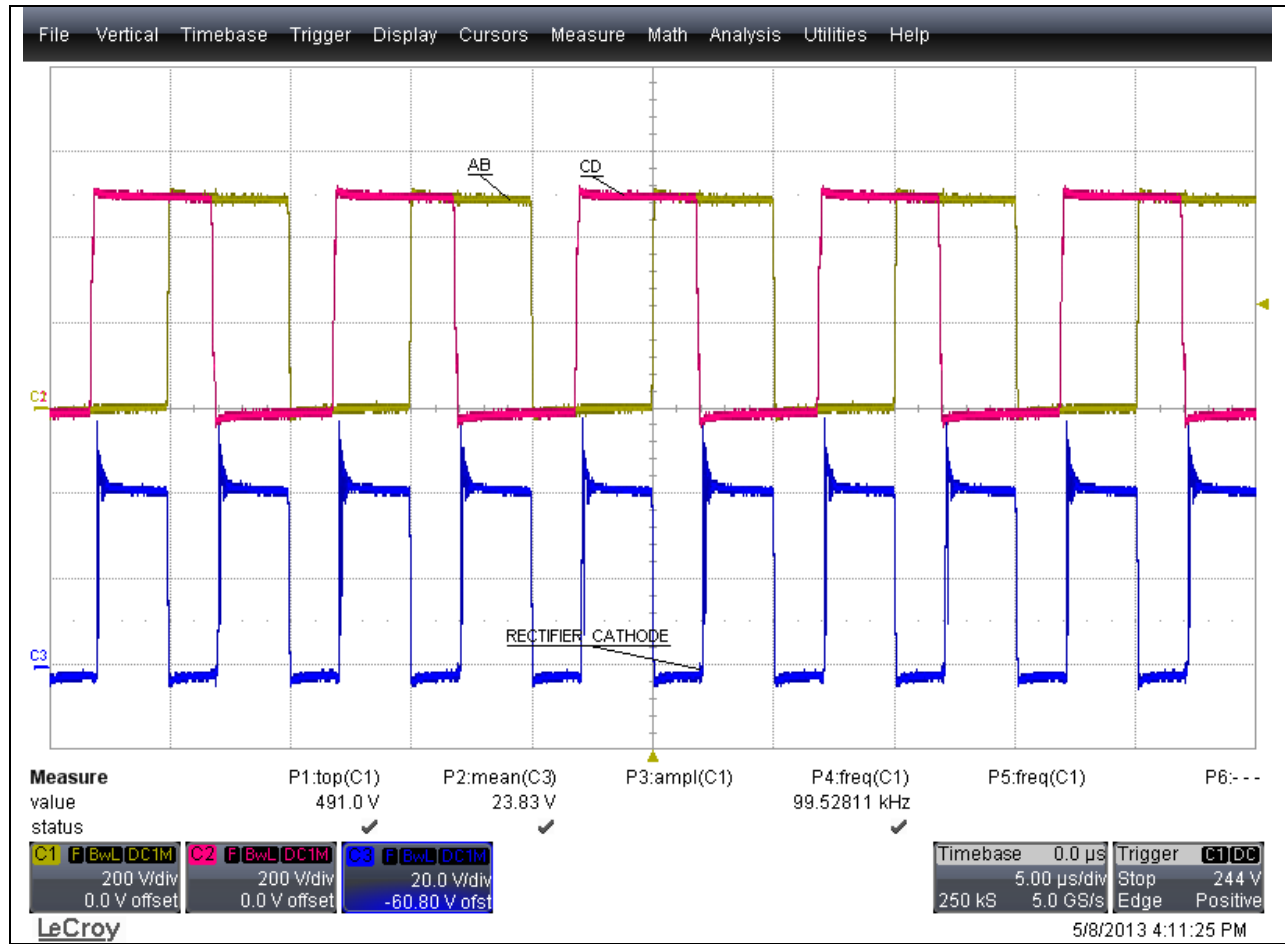


### 4 Switching Node Waveform



**Primary to secondary switch node wave form**  
 CH1 (Yellow) 200V/div – Primary voltage AB Node  
 CH2 (Red) 200V/div – Primary voltage CD Node  
 CH3 (Blue) – 20V/div - Secondary – in front of storage choke

# PMP8606 Rev.B Test Results

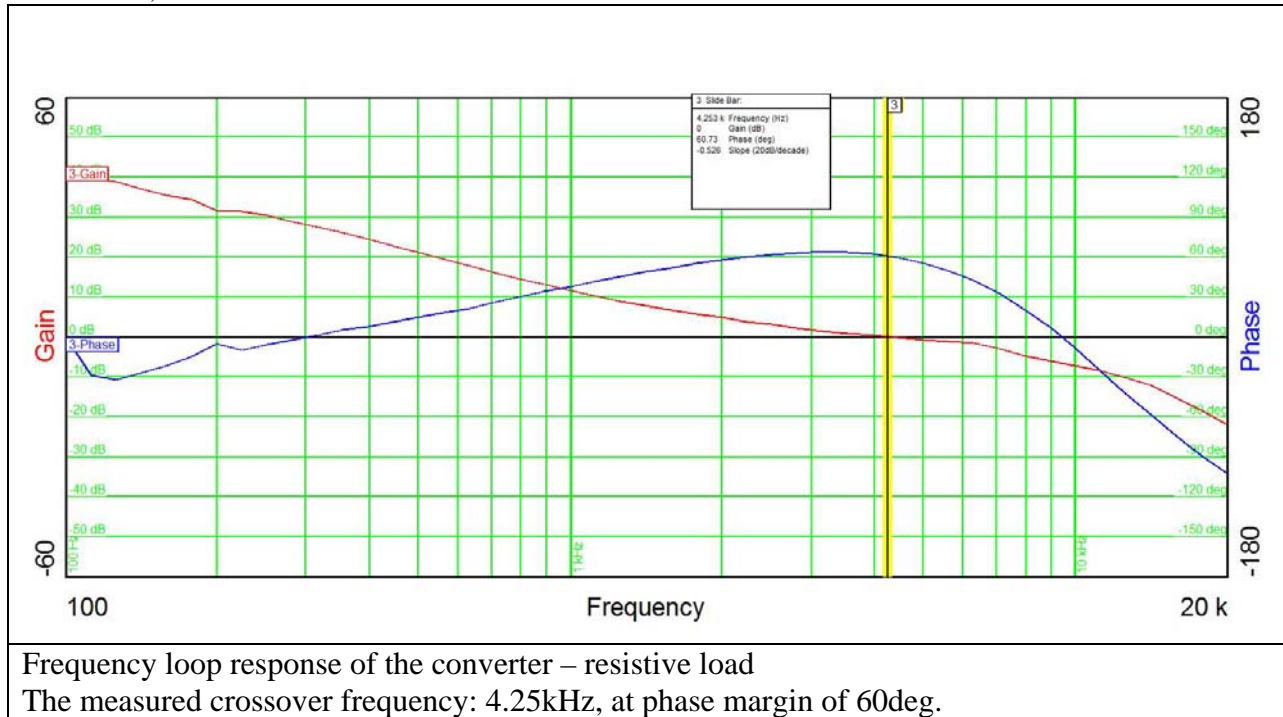


**Primary to secondary switch node wave form**  
 CH1 (Yellow) 200V/div – Primary voltage AB Node  
 CH2 (Red) 200V/div – Primary voltage CD Node  
 CH3 (Blue) – 20V/div - Secondary – in front of storage choke

# PMP8606 Rev.B Test Results

## Loop response

Vin = 400V, load =7.5A.



Frequency loop response of the converter – resistive load  
The measured crossover frequency: 4.25kHz, at phase margin of 60deg.

## PMP8606 Rev.B Test Results

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<b>EVALUATION BOARD/KIT/MODULE (EVM) WARNINGS, RESTRICTIONS AND DISCLAIMER</b>
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**For Feasibility Evaluation Only, in Laboratory/Development Environments.** The EVM is not a complete product. It is intended solely for use for preliminary feasibility evaluation in laboratory / development environments by technically qualified electronics experts who are familiar with the dangers and application risks associated with handling electrical / mechanical components, systems and subsystems. It should not be used as all or part of a production unit.

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