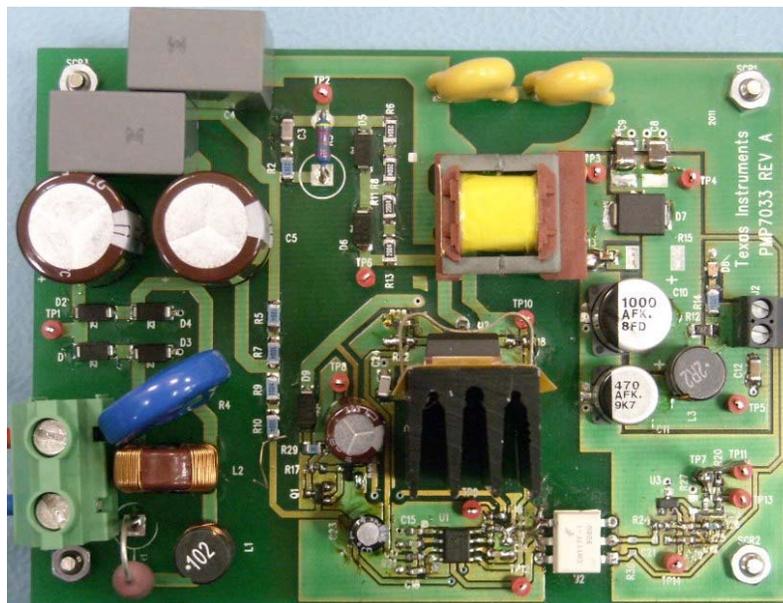


The PMP7033 is an AC/DC SMPS quasi resonant flyback design. It has the following specification:

- 6.2W AC/DC SMPS
- Input voltage range: 177Vac – 577Vac
- Output voltage: 6.2V
- Output current: 1A
- Galvanic isolation: Yes 4kVrms
- Dimensions: 106mm × 78mm
- One side assembly

**Design was tested only up to 500VDC.**

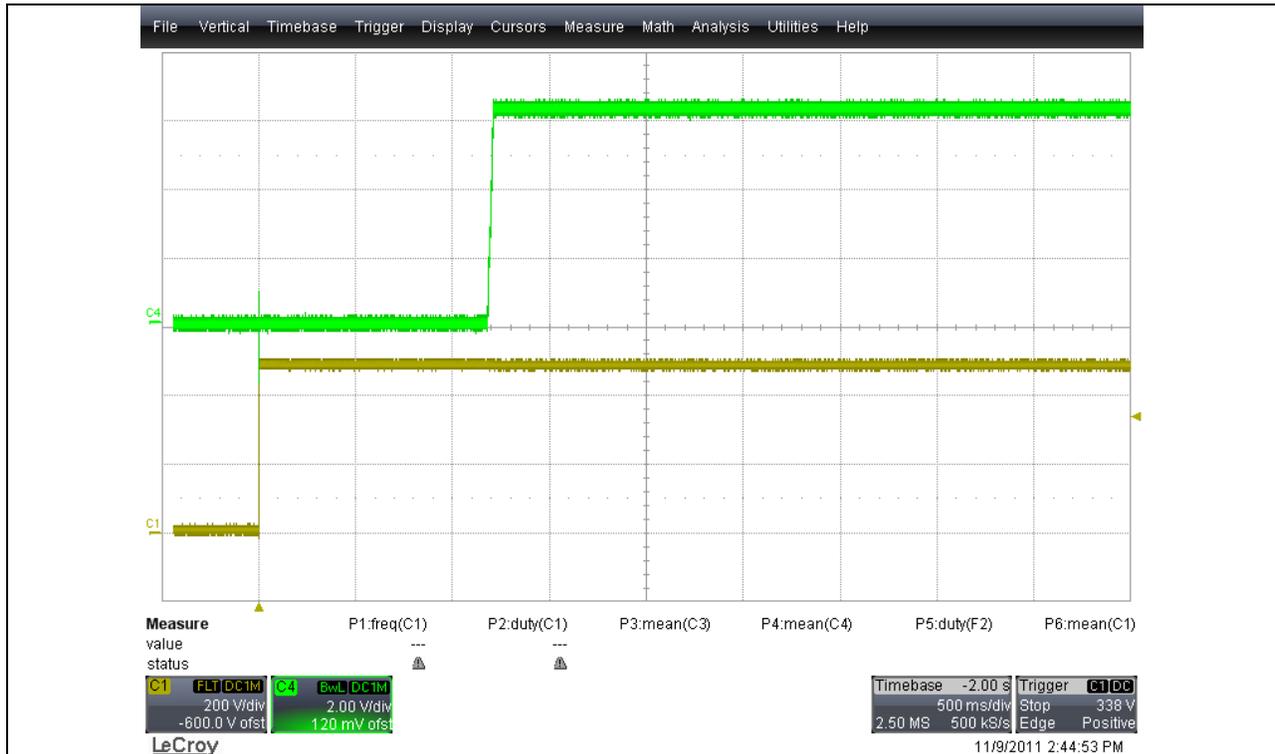


PCB - Top side view

If not other described, all tests are done at 500VDC input voltage.

## 1 Startup

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

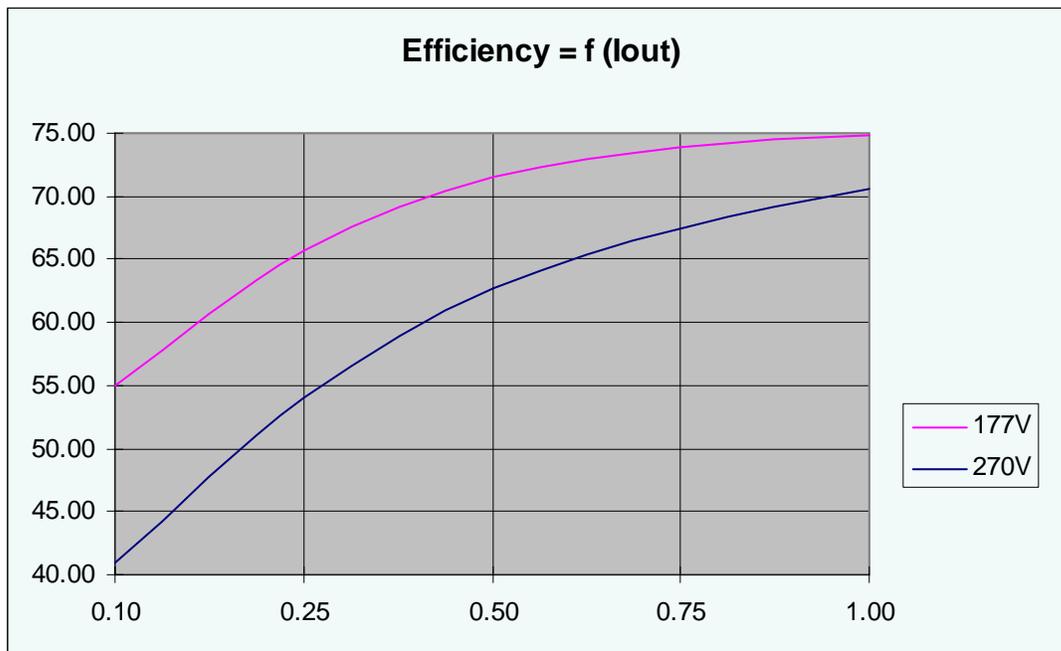


1A load at the output  
 Channel 1 shows the input voltage (200V/div, 500ms/div).  
 Channel 4 shows the output voltage (TP4).  
 Startup time = 1200ms

## 2 Current consumption, Efficiency

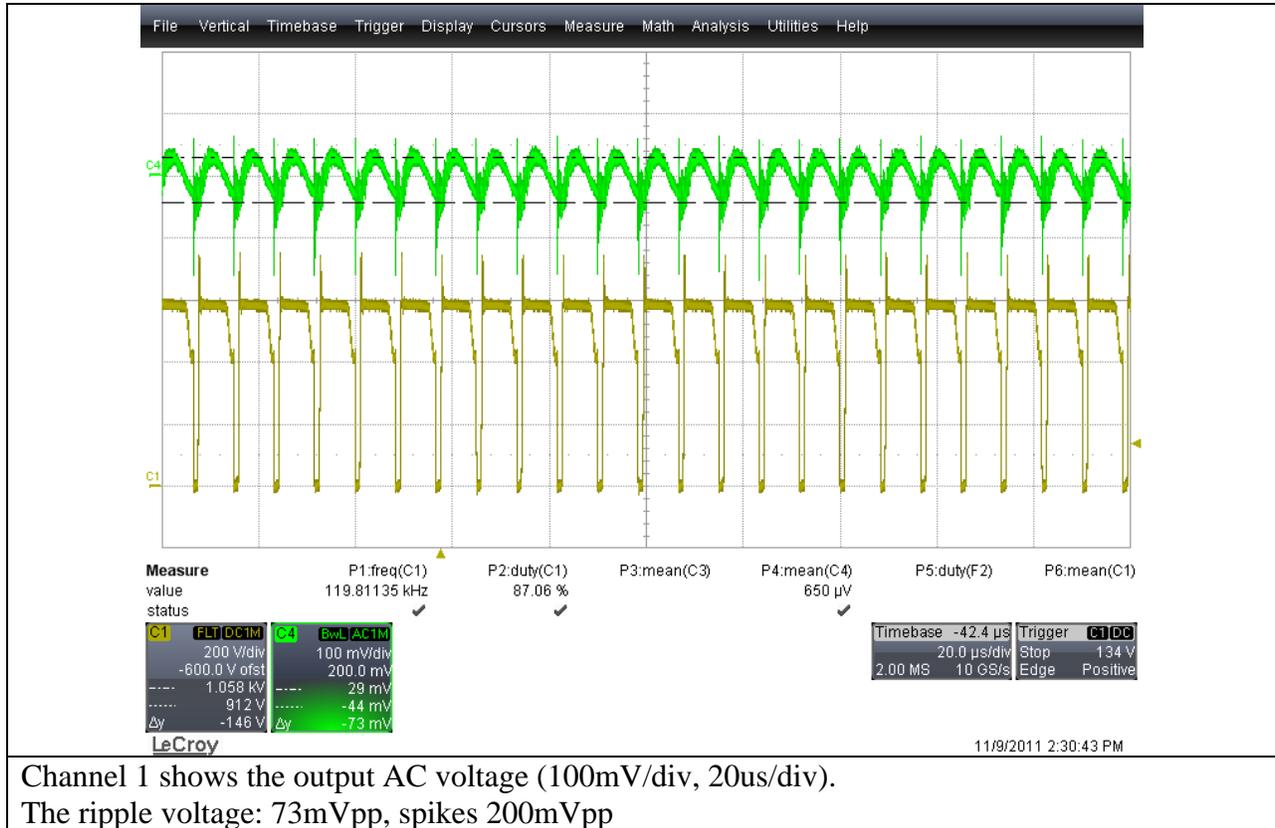
177Vac						
Uout 6V2	6.26	6.26	6.26	6.26	6.26	6.26
Iout 6V2	0.00	0.10	0.25	0.50	0.75	1.00
Pout	0.00	0.63	1.57	3.13	4.70	6.26
Pin	0.29	1.14	2.38	4.38	6.36	8.36
Plosses	0.29	0.51	0.82	1.25	1.67	2.10
Pout/Pmax %	0.00	10.10	25.24	50.48	75.73	100.97
eta	0.00	54.91	65.76	71.46	73.82	74.88

270Vac						
Uout 6V2	6.26	6.26	6.26	6.26	6.26	6.26
Iout 6V2	0.00	0.10	0.25	0.50	0.75	1.00
Pout	0.00	0.63	1.57	3.13	4.70	6.26
Pin	0.67	1.53	2.90	4.99	6.97	8.87
Plosses	0.67	0.90	1.34	1.86	2.28	2.61
Pout/Pmax %	0.00	10.10	25.24	50.48	75.73	100.97
eta	0.00	40.92	53.97	62.73	67.36	70.57



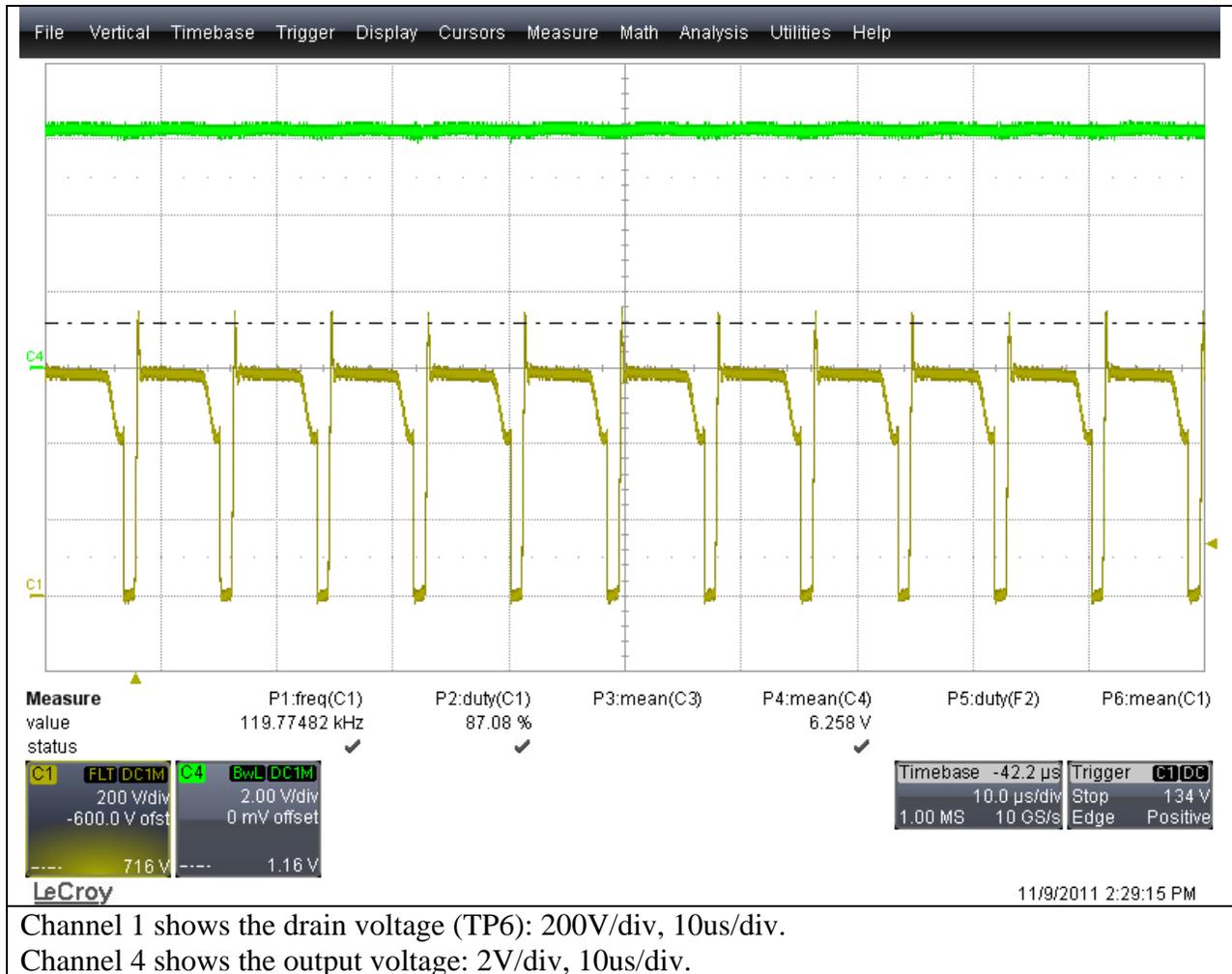
### 3 Output Ripple Voltage and current

The output ripple voltage is shown in the plot below. Load 1A.

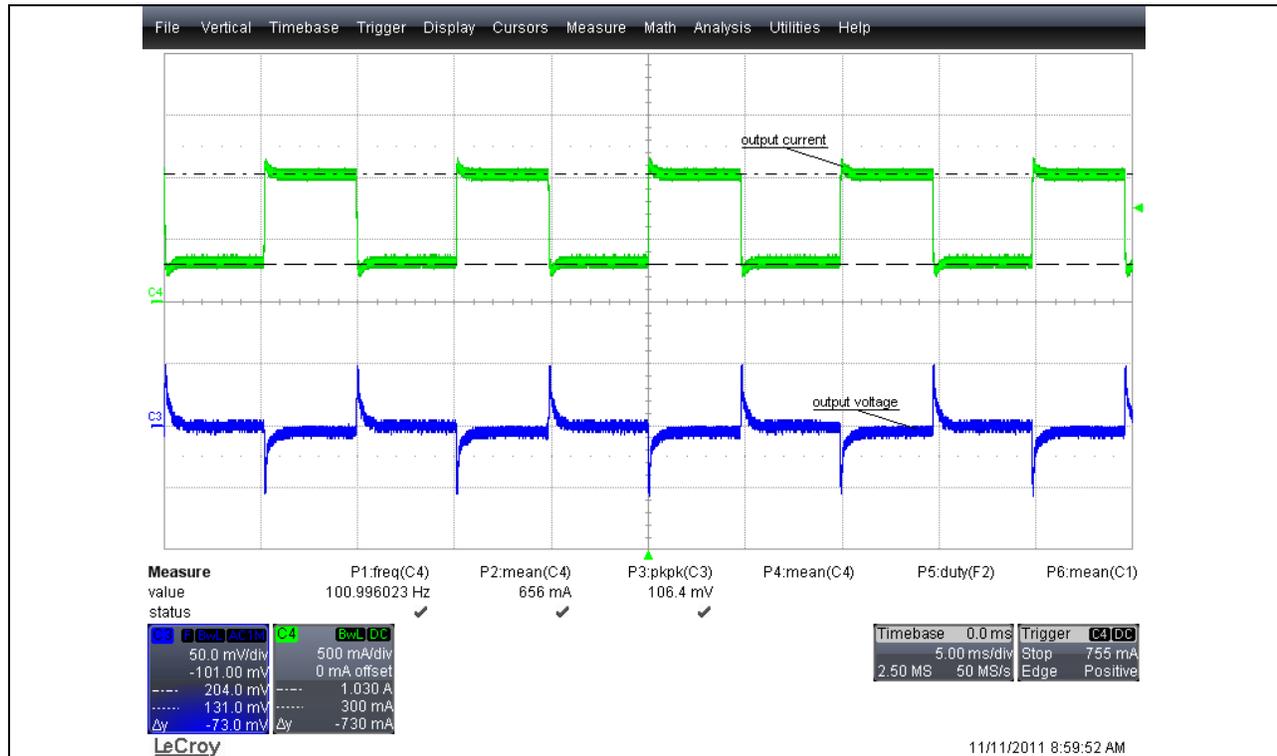


### 4 Switching Node Waveform

The image below shows the drain- source voltage.



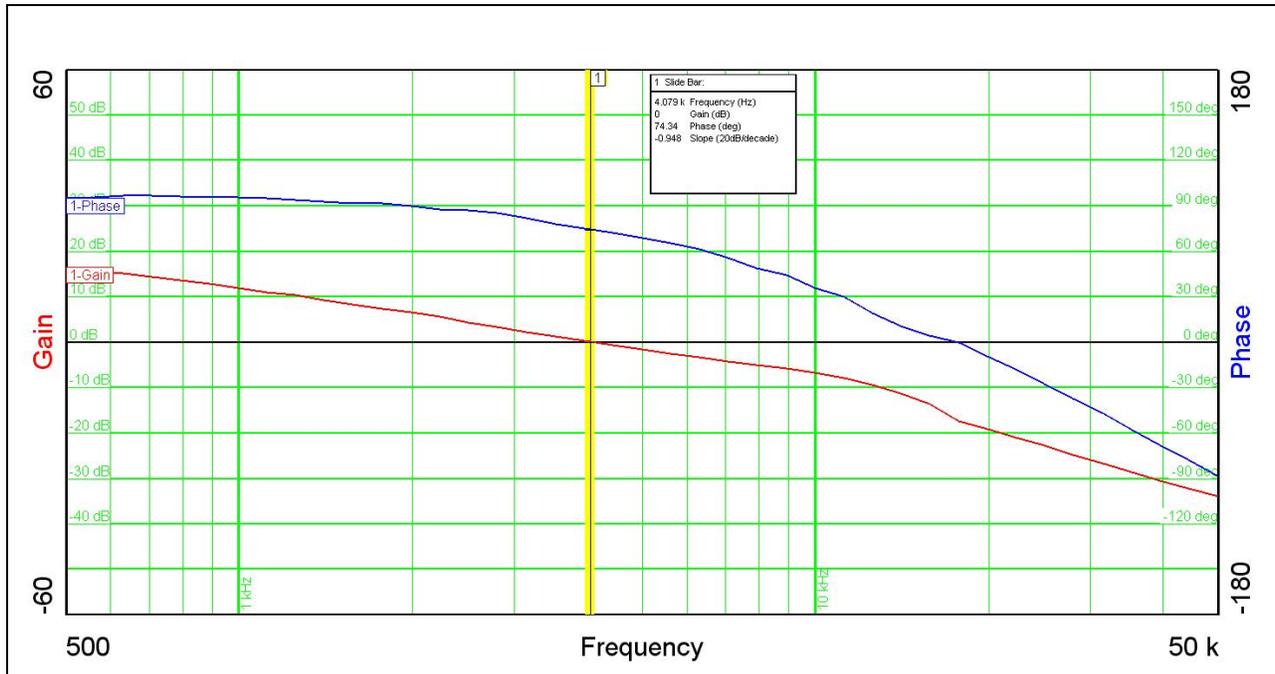
### 5 Load step response



Channel 4 shows the output Current (500mA/div, 5ms/div).  
 Channel 3 shows the output voltage (TP5), AC coupling  
 Load step (300mA- 1000mA) voltage drop out/over shoot: 100mVpp

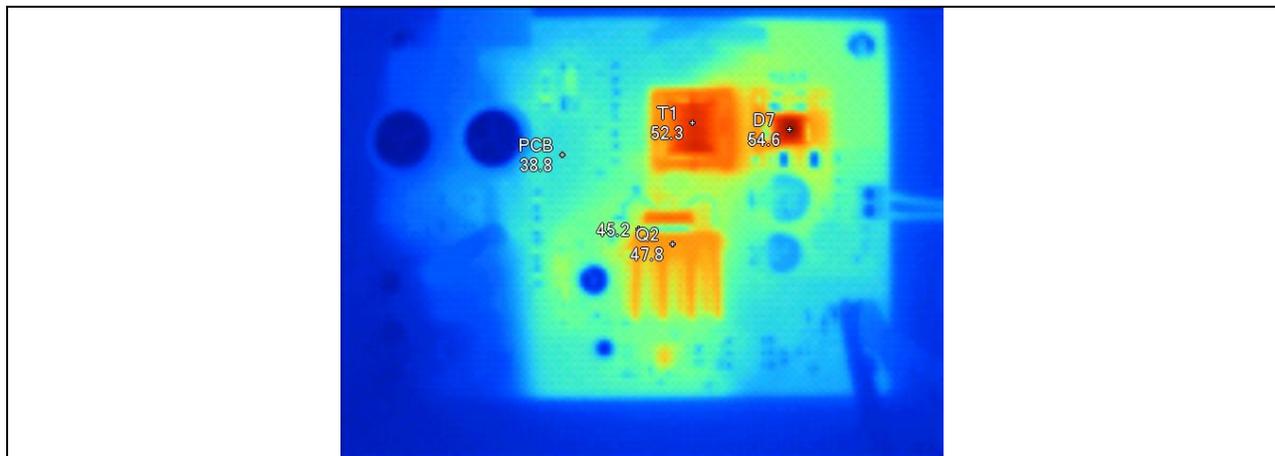
### 6 Loop Response

Measured Bode plot below



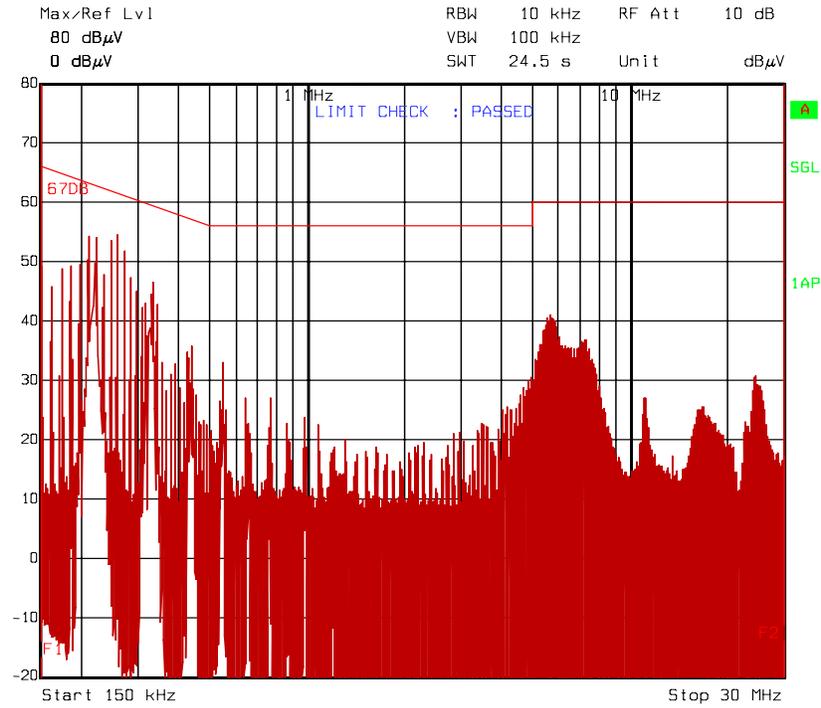
Crossover frequency: 4kHz  
Phase margin: 74deg  
Slope: -1 (20dB/dec)

### 7 Thermal Image



PMP7033 Thermal image Top view  
Ambient temperature 23°C

### 8 EMI Measurements



**Conducted emission measurements – Not agency approved**  
**Uin = 270Vac**  
**Iout = 1A**

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<b>EVALUATION BOARD/KIT/MODULE (EVM) WARNINGS, RESTRICTIONS AND DISCLAIMER</b>
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