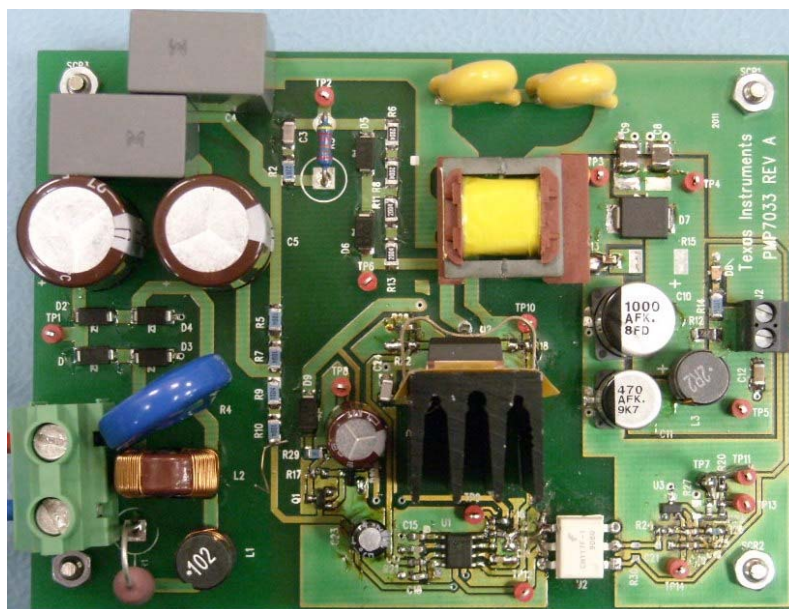


The PMP7033 is an AC/DC SMPS quasi resonant flyback design. It has the following specification:

- 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.**

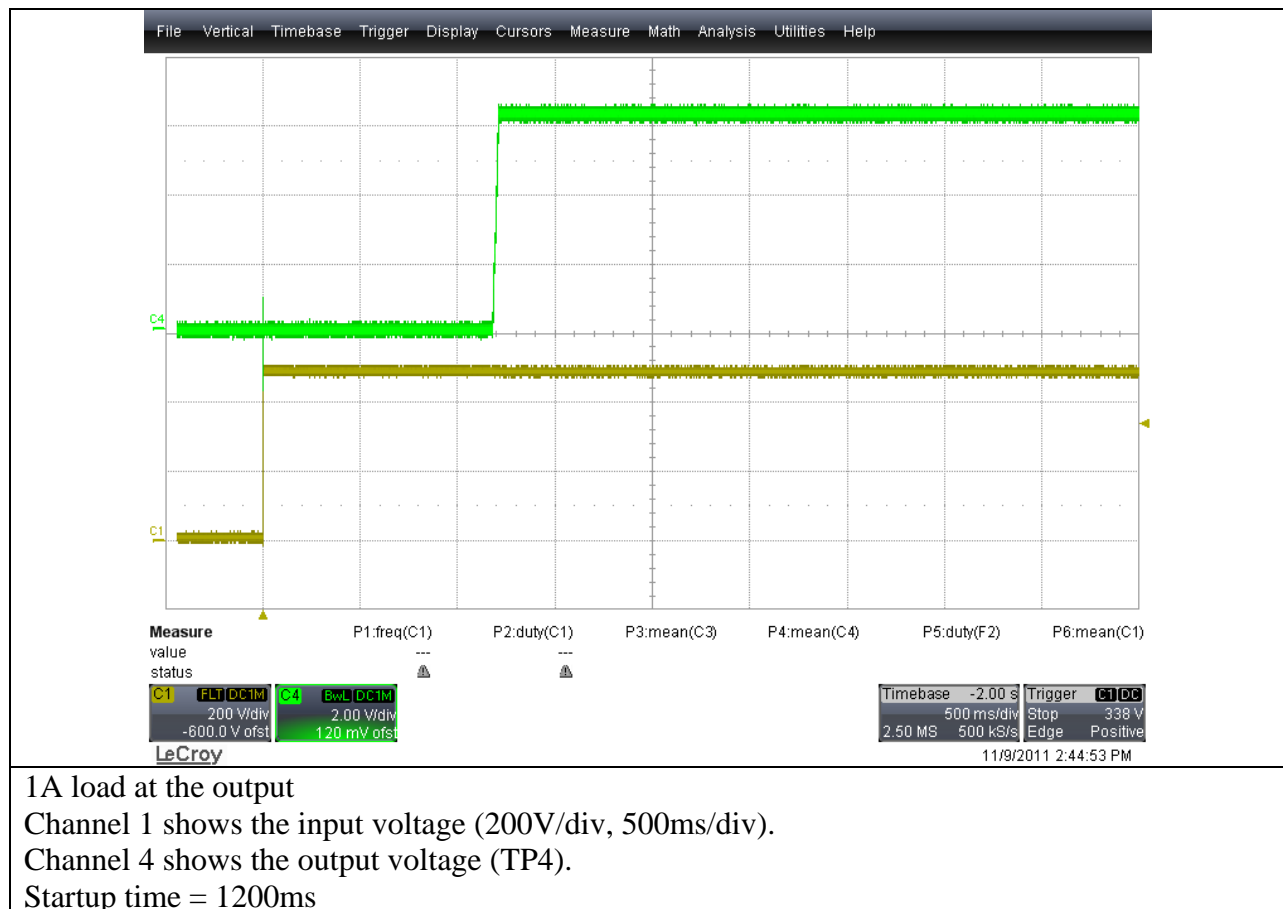


PCB - Top side view

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

## 1 Startup

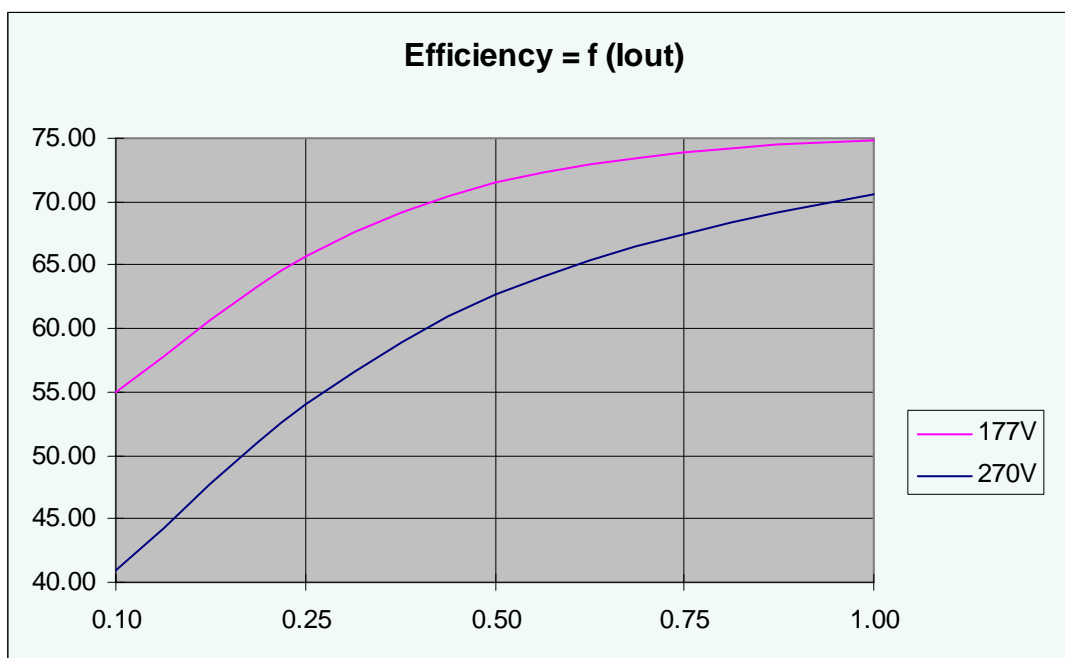
The output voltage and current at startup are shown in the image below.



## 2 Current consumption, Efficiency

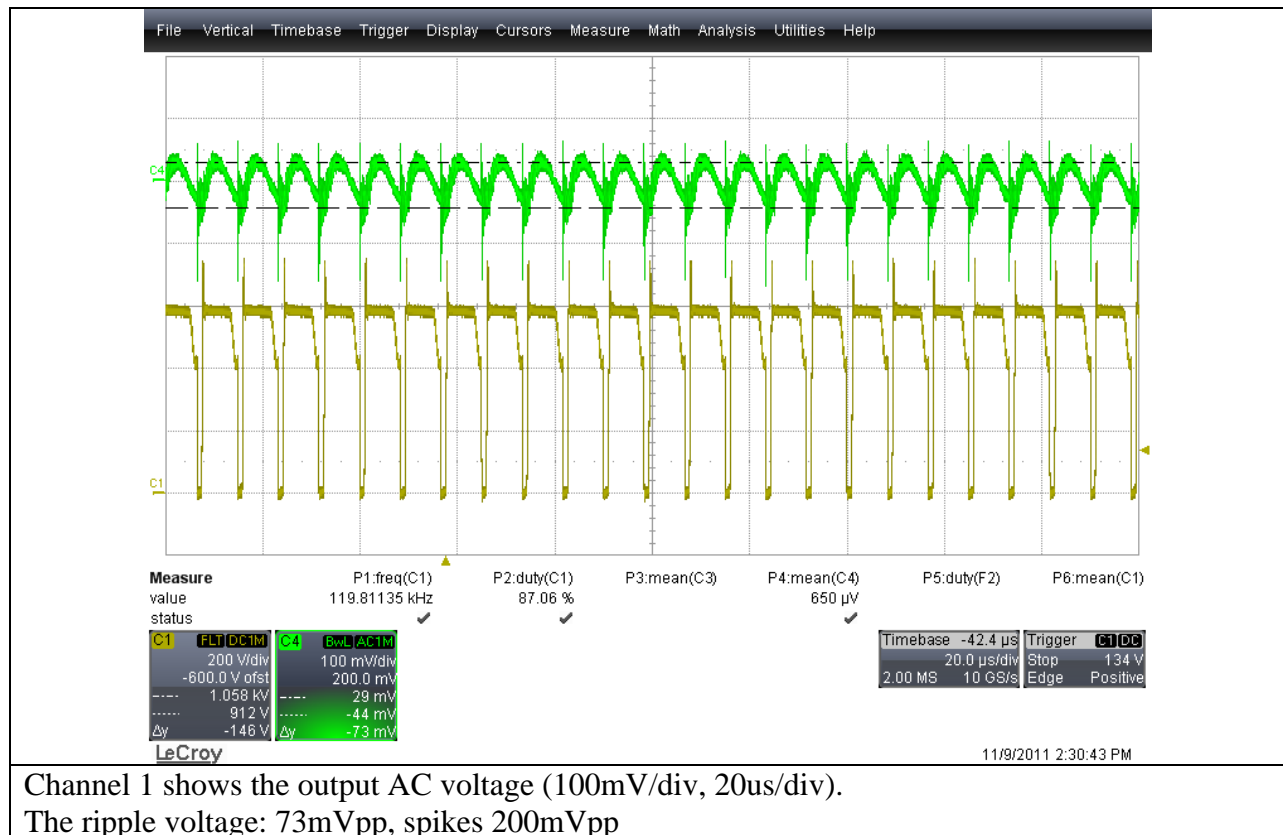
| 177Vac      |      |       |       |       |       |        |
|-------------|------|-------|-------|-------|-------|--------|
| Uout 6V2    | 6.26 | 6.26  | 6.26  | 6.26  | 6.26  | 6.26   |
| Iout 6V2    | 0.00 | 0.10  | 0.25  | 0.50  | 0.75  | 1.00   |
| Pout        | 0.00 | 0.63  | 1.57  | 3.13  | 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  |



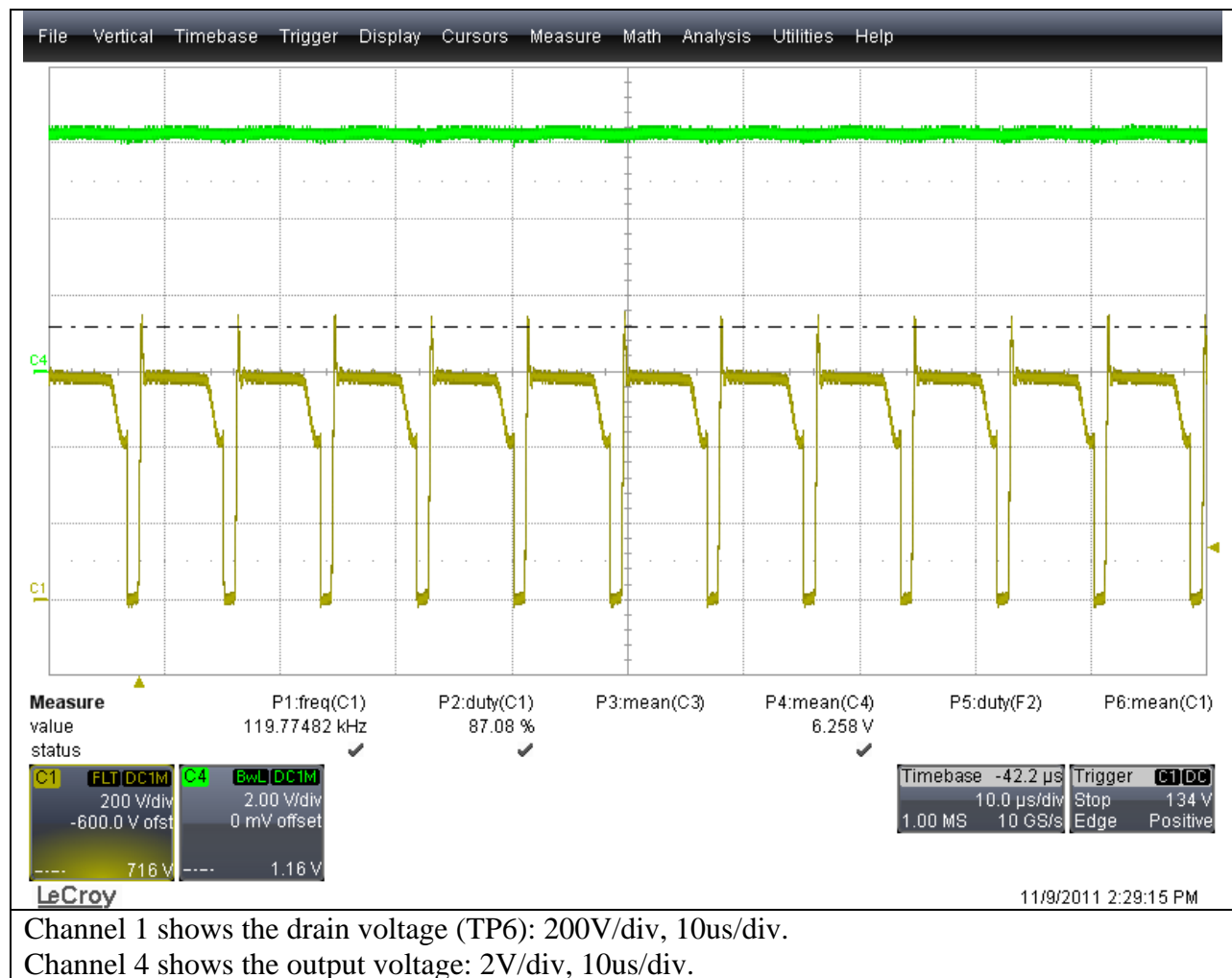
### 3 Output Ripple Voltage and current

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

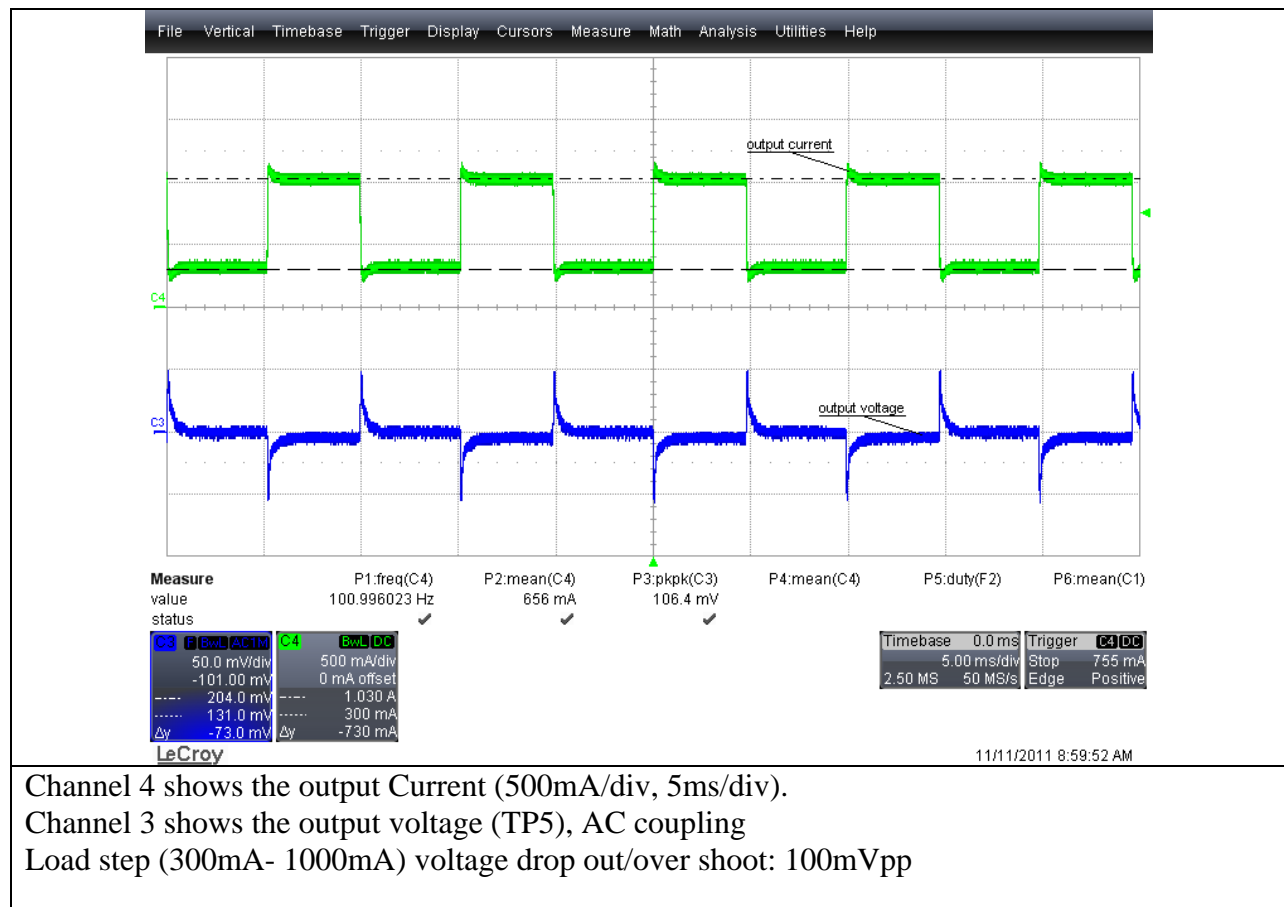


## 4 Switching Node Waveform

The image below shows the drain- source voltage.

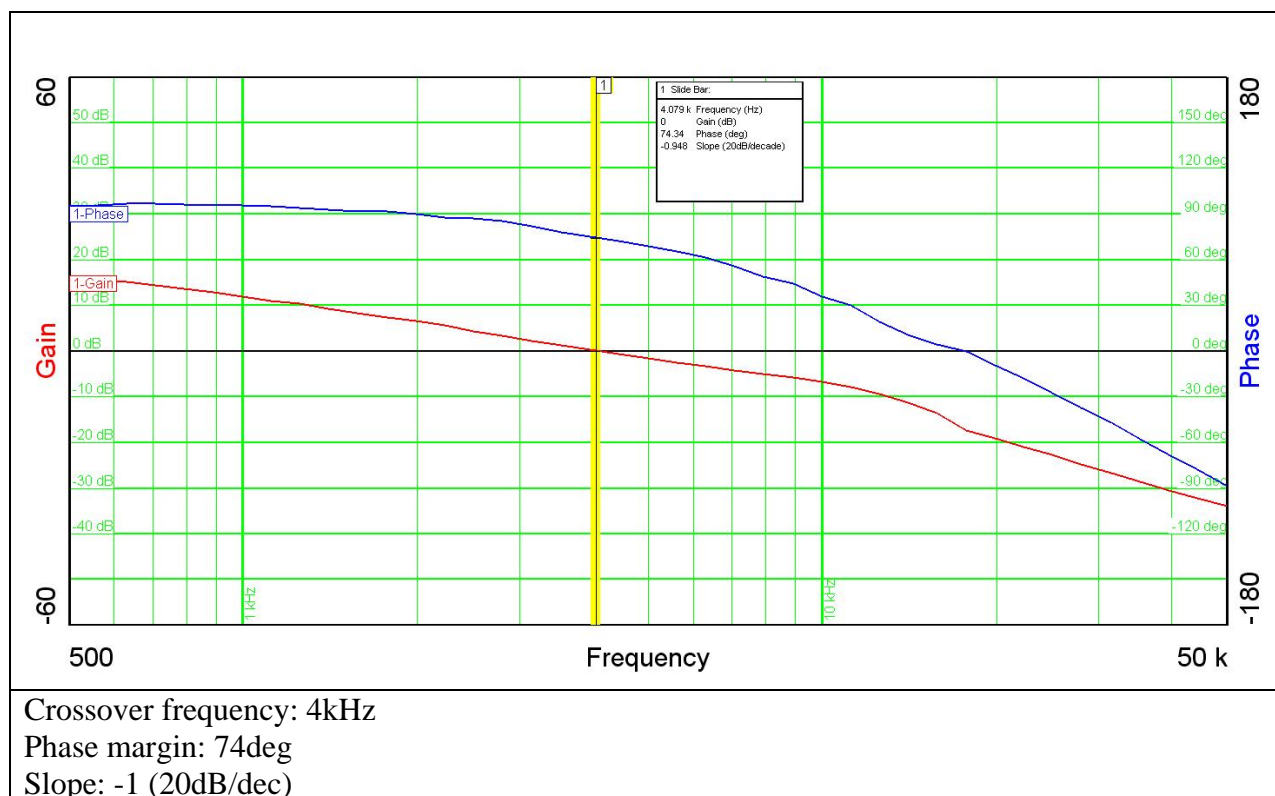


## 5 Load step response

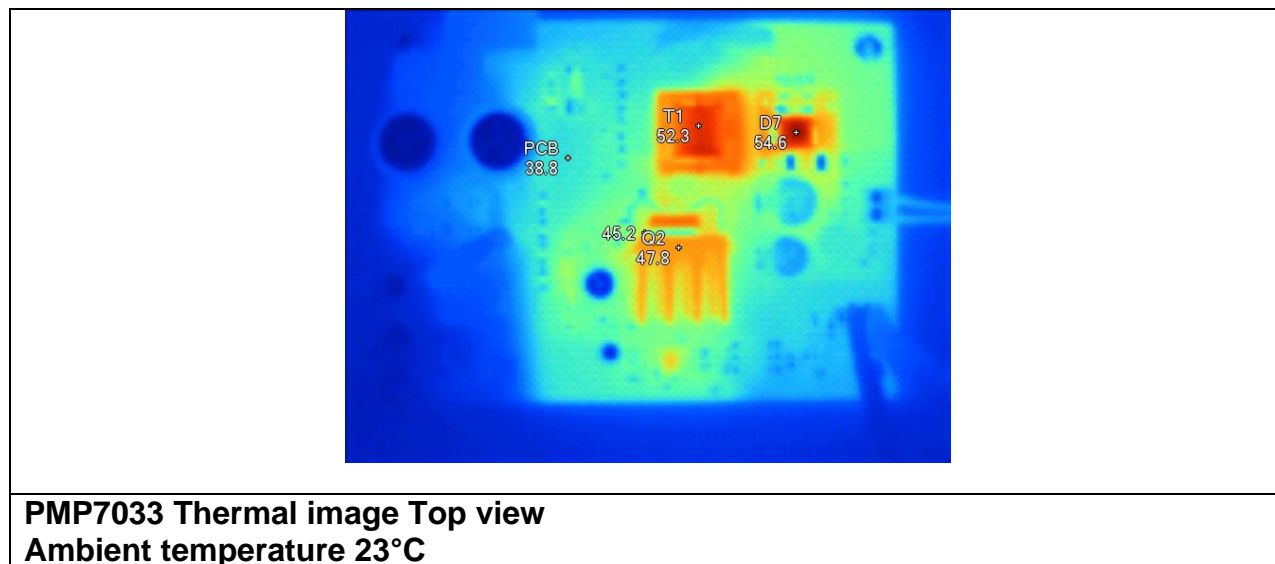


## 6 Loop Response

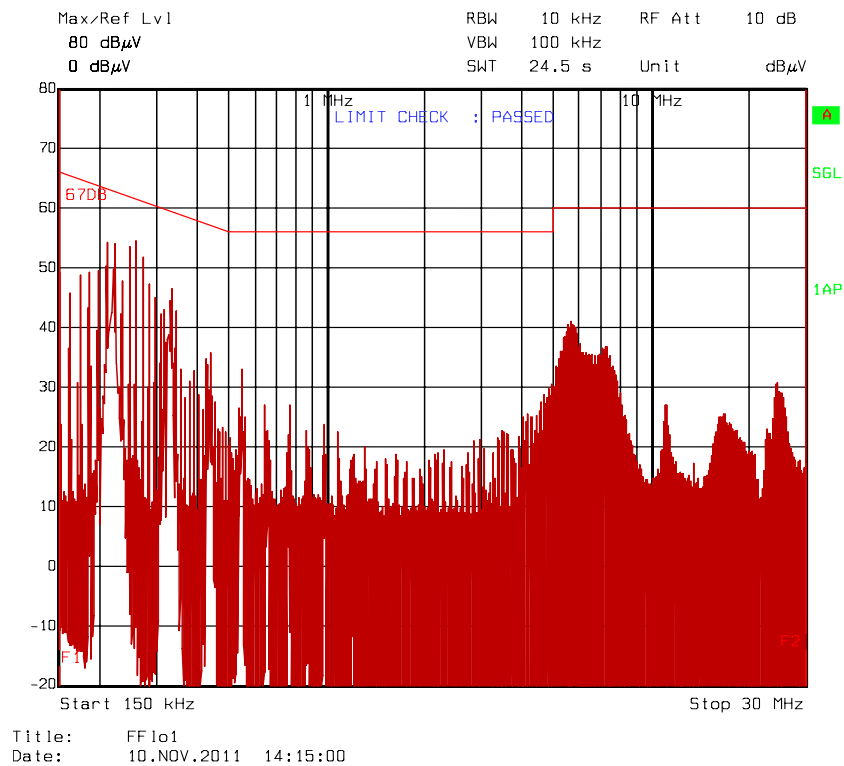
Measured Bode plot below



## 7 Thermal Image



## 8 EMI Measurements



**Conducted emission measurements – Not agency approved**

**Uin = 270Vac**

**Iout = 1A**



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