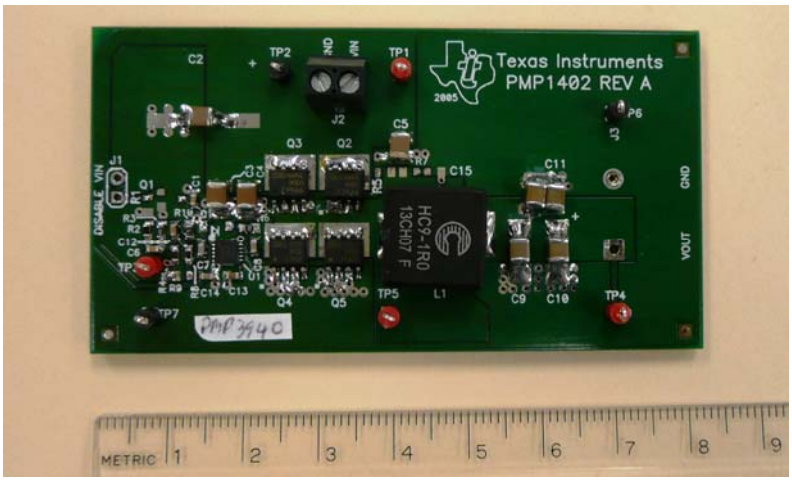
PMP3940 Rev B Test Results

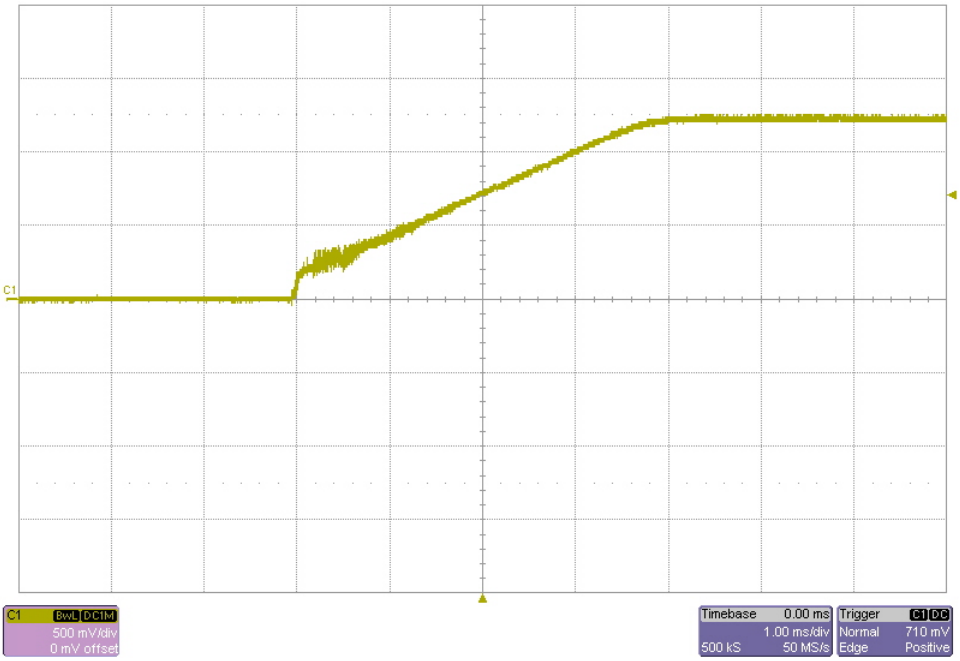
1 Photo

The photograph below shows the top view of the PMP3940 Rev B demo board. The circuit is built on a PMP1402 Rev A PWB.



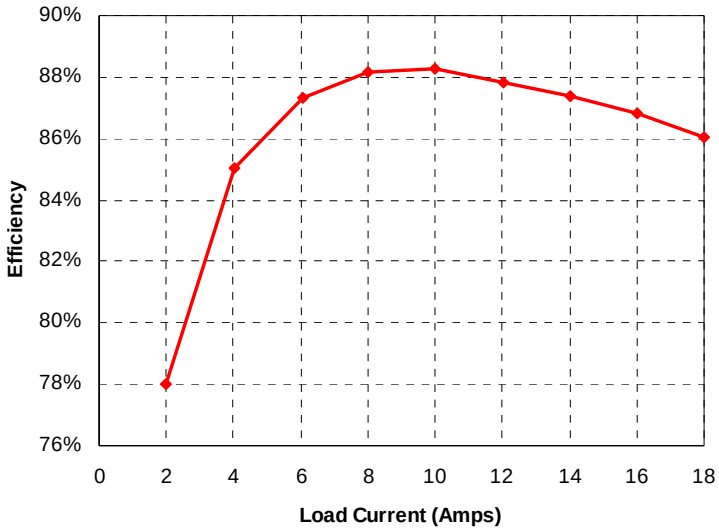
2 Startup

The output voltage at startup is shown in the image below.



3 Efficiency

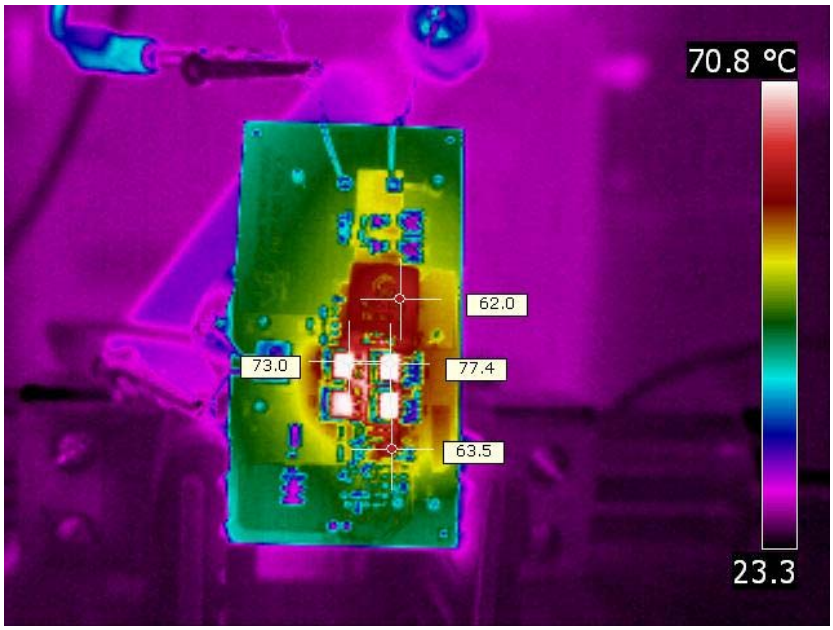
The efficiency data is shown in the tables and graph below.



Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	1.258	12.0	0.042	0.00	0.504	0.0%
2.011	1.257	12.0	0.270	2.53	0.712	78.0%
4.014	1.256	12.0	0.494	5.04	0.886	85.0%
6.05	1.256	12.0	0.725	7.60	1.101	87.3%
8.00	1.255	12.0	0.949	10.04	1.348	88.2%
10.00	1.254	12.0	1.184	12.54	1.668	88.3%
12.03	1.253	12.0	1.430	15.07	2.086	87.8%
14.00	1.253	12.0	1.673	17.54	2.534	87.4%
16.02	1.252	12.0	1.925	20.06	3.043	86.8%
18.00	1.252	12.0	2.183	22.54	3.660	86.0%

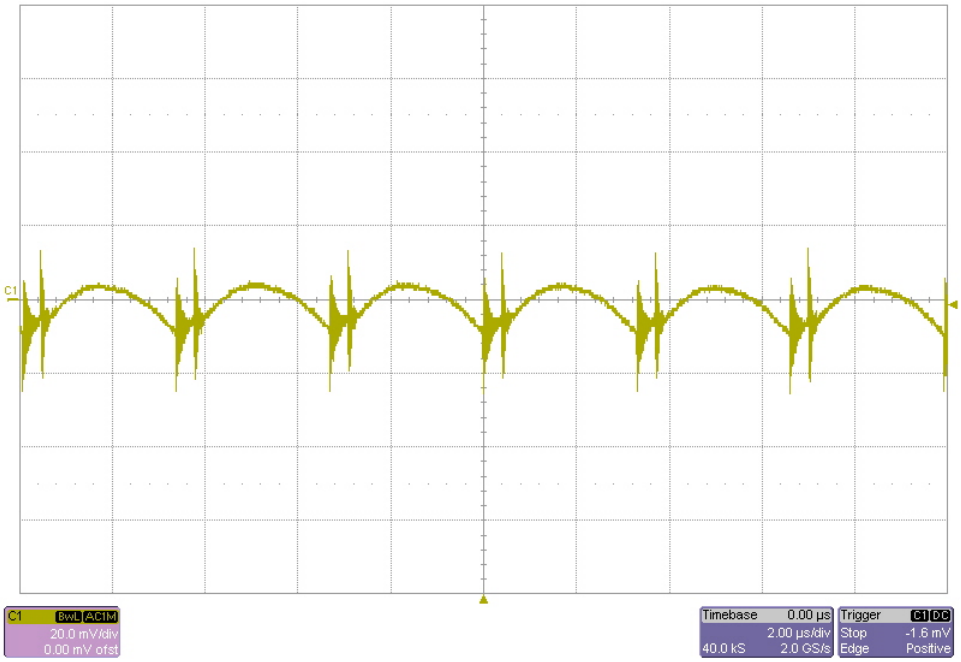
4 Thermal Image

A thermal image of the top side of the board is shown with an 18A load. The ambient temperature was 27ºC, with no forced air flow. The bottom MOSFET (Q5) was the hottest component on the board and measured 77.4ºC.



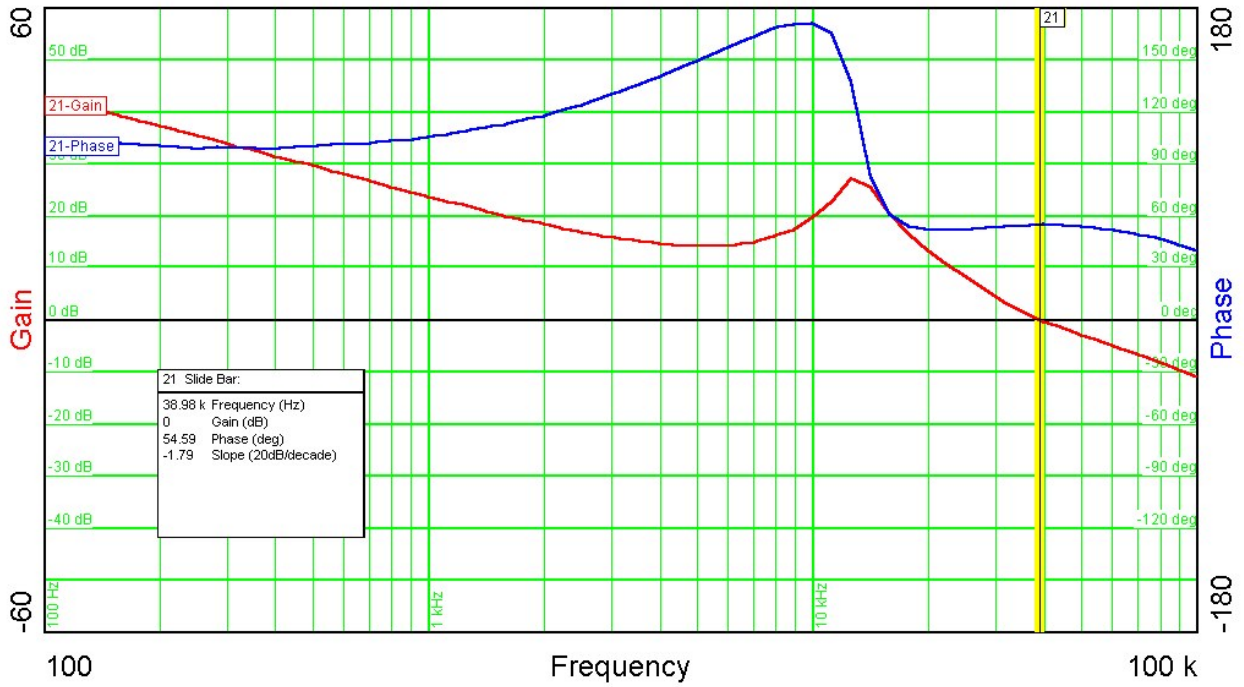
5 Output Ripple Voltage

The output ripple voltage is shown in the plot below. The input was set to 12Vand the load was set to 18A.



6 Frequency Response

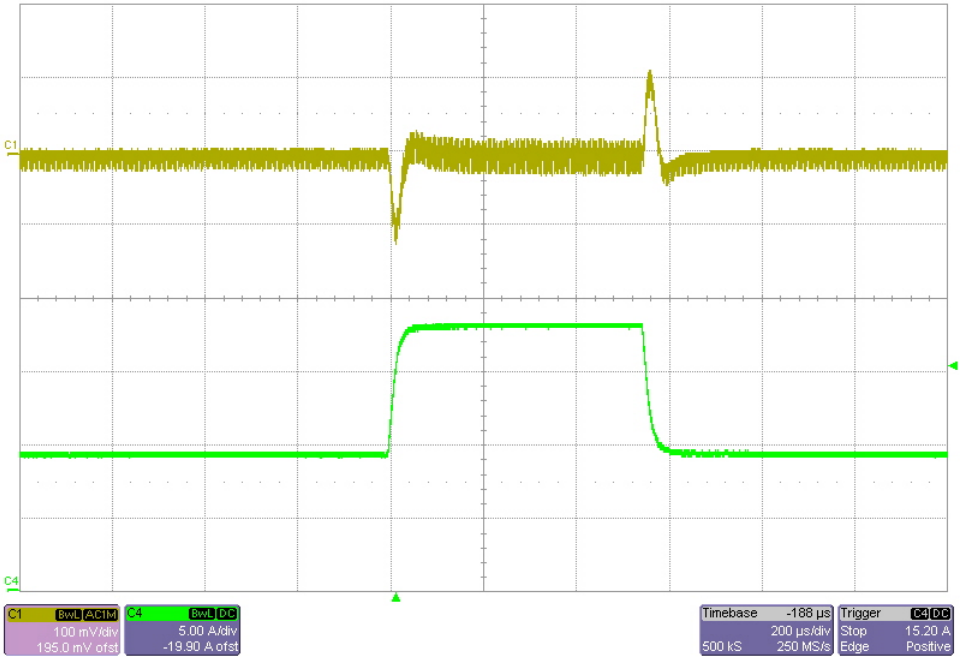
The frequency response of the feedback loop is shown below. The input was set to 12Vand the load was set to 18A.



7 Load Transients

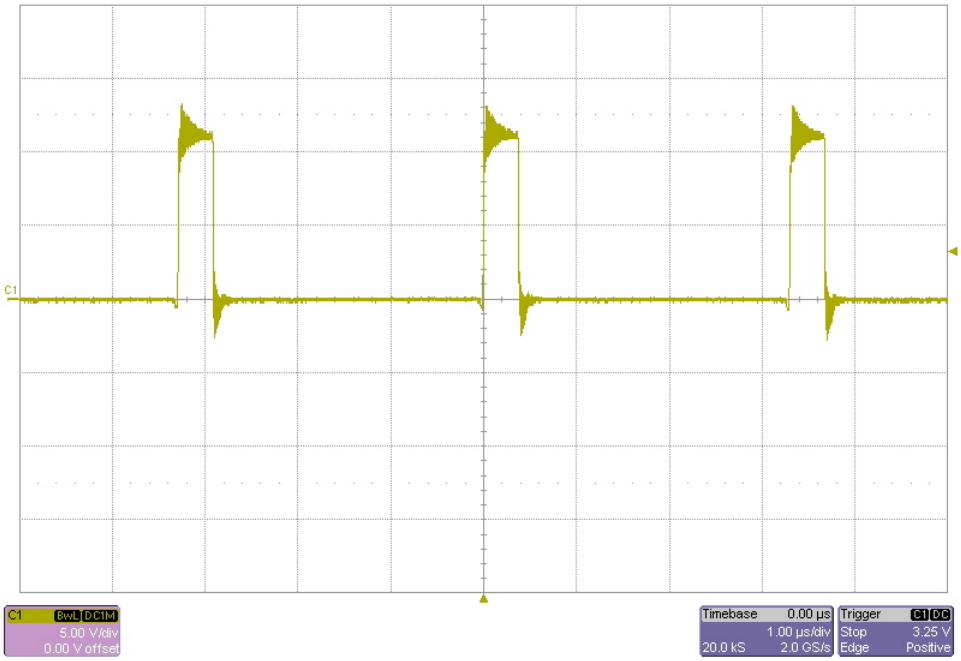
The image below shows the response to a 9A to 18A load transient with the input was set to 12V.

Channel 1: Output Voltage (ac coupled) 100mV/div Channel 4: Output Current 5A/div



8 Switching Waveform

The image below shows the voltage on TP5 with an 18A load.



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