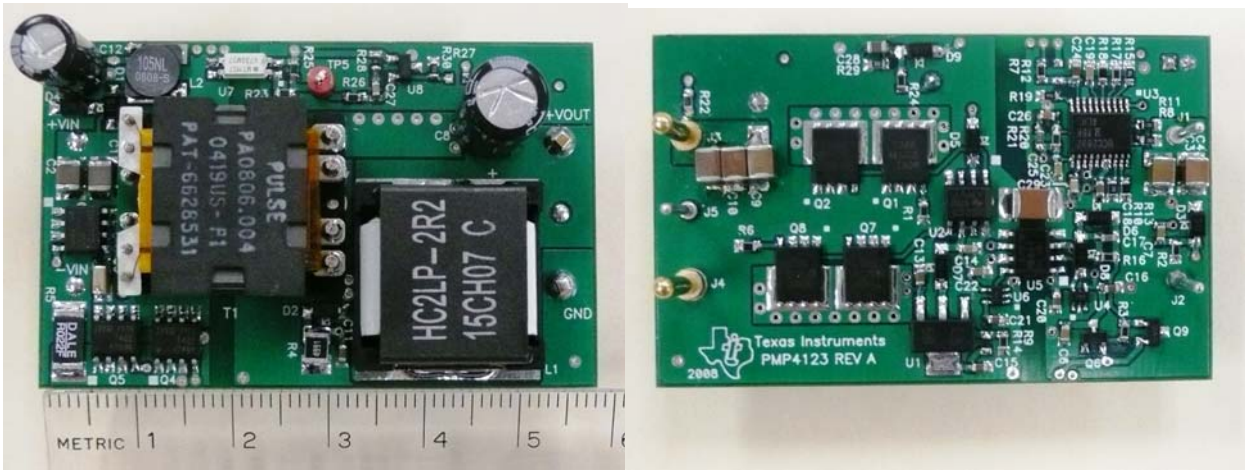
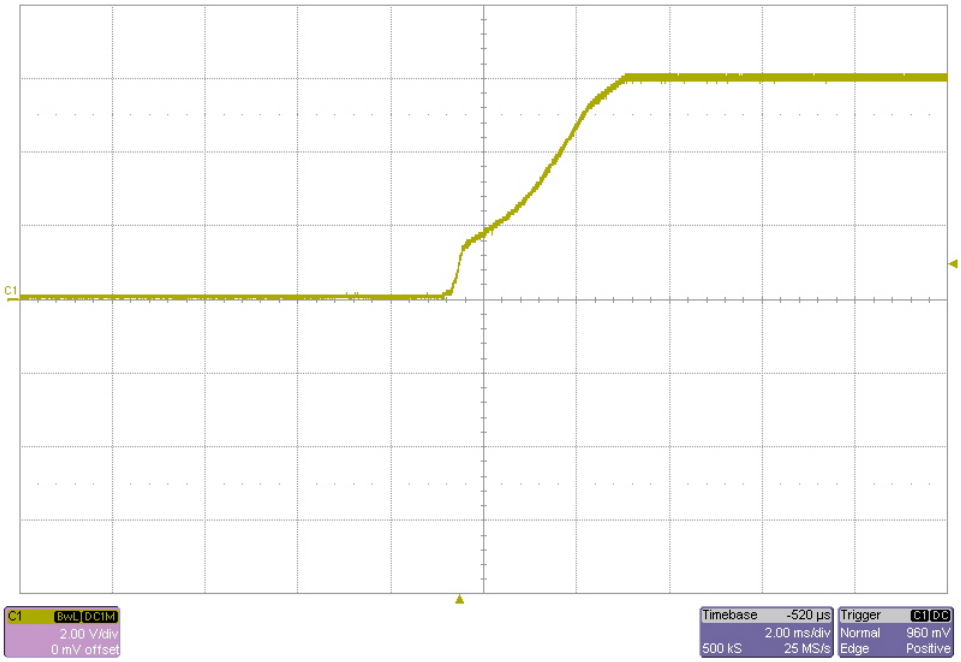
1 Photo

The photographs below show a top and bottom view of the PMP4123 Rev B demo board. The circuit is built on a PMP4123 Rev A PWB.



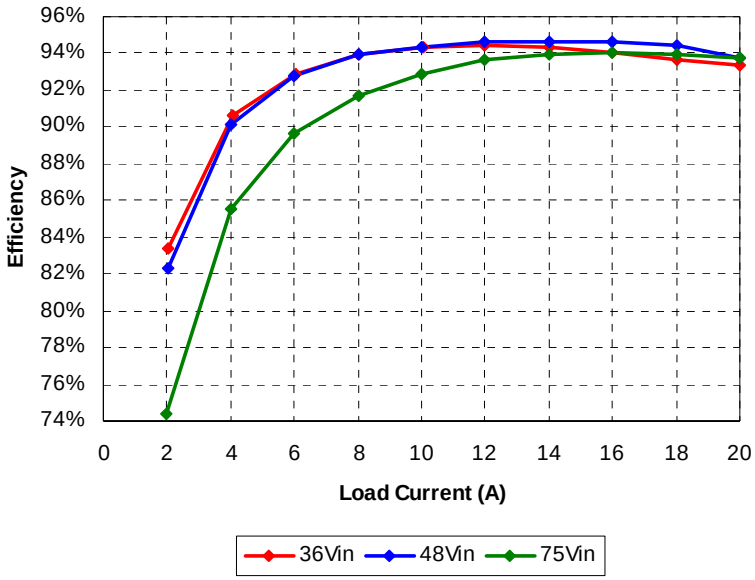
2 Startup

The output voltage at startup is shown in the image below. The input was 48VDC and the output was unloaded.



3 Efficiency

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



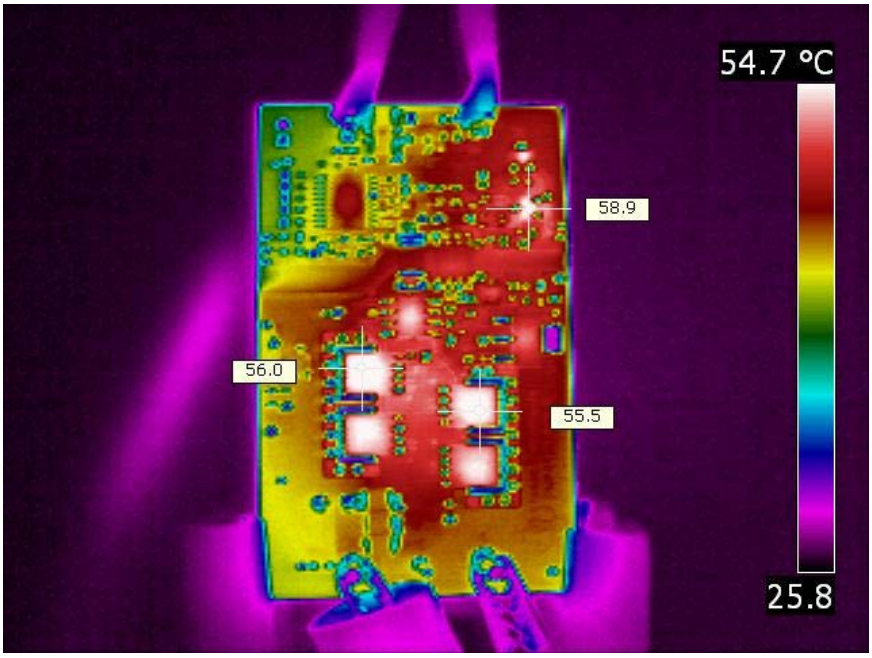
Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.00	6.01	36.0	0.068	0.00	2.447	0.0%
2.018	6.01	36.0	0.404	12.13	2.416	83.4%
4.040	6.01	36.0	0.745	24.28	2.525	90.6%
6.02	6.01	36.0	1.082	36.19	2.766	92.9%
8.00	6.01	36.0	1.422	48.08	3.112	93.9%
10.03	6.01	36.0	1.775	60.28	3.602	94.4%
11.98	6.01	36.0	2.117	72.00	4.212	94.5%
14.00	6.01	36.0	2.478	84.14	5.093	94.3%
16.0	6.01	36.0	2.842	96.16	6.095	94.0%
18.0	6.01	36.0	3.209	108.18	7.312	93.7%
20.0	6.01	36.0	3.578	120.20	8.572	93.3%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.00	6.02	48.0	0.055	0.00	2.640	0.0%
2.008	6.02	48.0	0.306	12.09	2.600	82.3%
4.009	6.02	48.0	0.558	24.13	2.650	90.1%
6.01	6.02	48.0	0.812	36.15	2.826	92.7%
8.00	6.02	48.0	1.068	48.16	3.104	93.9%
9.99	6.01	48.0	1.326	60.04	3.608	94.3%
11.99	6.01	48.0	1.587	72.06	4.116	94.6%
14.00	6.01	48.0	1.853	84.14	4.804	94.6%
16.0	6.01	48.0	2.118	96.16	5.504	94.6%
18.0	6.01	48.0	2.387	108.18	6.396	94.4%
20.0	6.01	48.0	2.671	120.20	8.008	93.8%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.00	6.02	75.0	0.057	0.00	4.275	0.0%
2.003	6.02	75.0	0.216	12.06	4.142	74.4%
3.995	6.02	75.0	0.375	24.05	4.075	85.5%
6.00	6.02	75.0	0.537	36.12	4.155	89.7%
8.00	6.02	75.0	0.700	48.16	4.340	91.7%
10.00	6.02	75.0	0.864	60.20	4.600	92.9%
11.99	6.02	75.0	1.028	72.18	4.920	93.6%
14.00	6.02	75.0	1.196	84.28	5.420	94.0%
16.0	6.01	75.0	1.364	96.16	6.140	94.0%
18.0	6.01	75.0	1.535	108.18	6.945	94.0%
20.0	6.01	75.0	1.710	120.20	8.050	93.7%

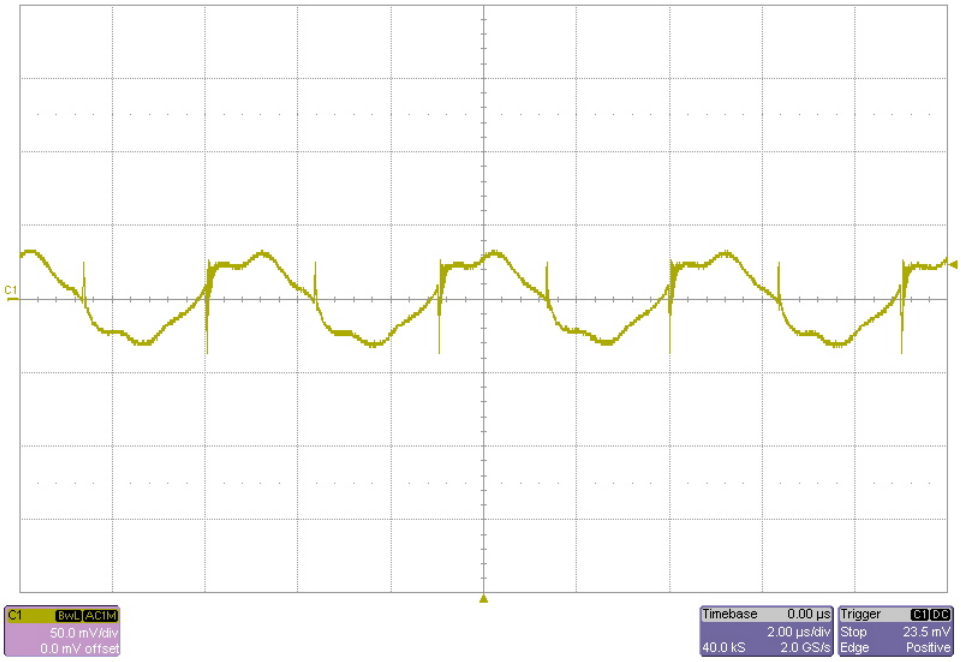
4 Thermal Images

The images below show top and bottom thermal images of the board. The ambient temperature was 26ºC with 200lfm forced air flow. The input was 48VDC and the output was loaded with 20A. The primary current sense resistor (R5) was the hottest component on the board and measured 87.5ºC.



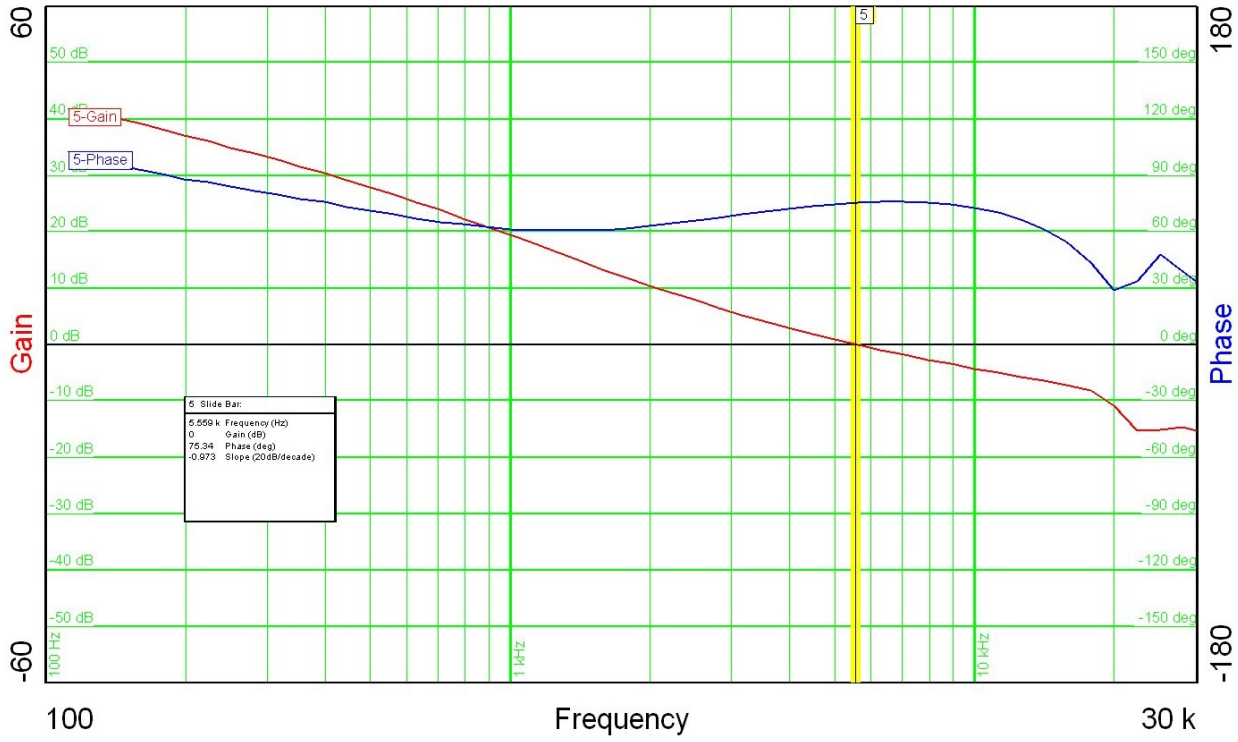
5 Output Ripple Voltage

The output ripple voltage is shown in the plot below. The input was set to 48VDC and the output was loaded with 20A.



6 Frequency Response

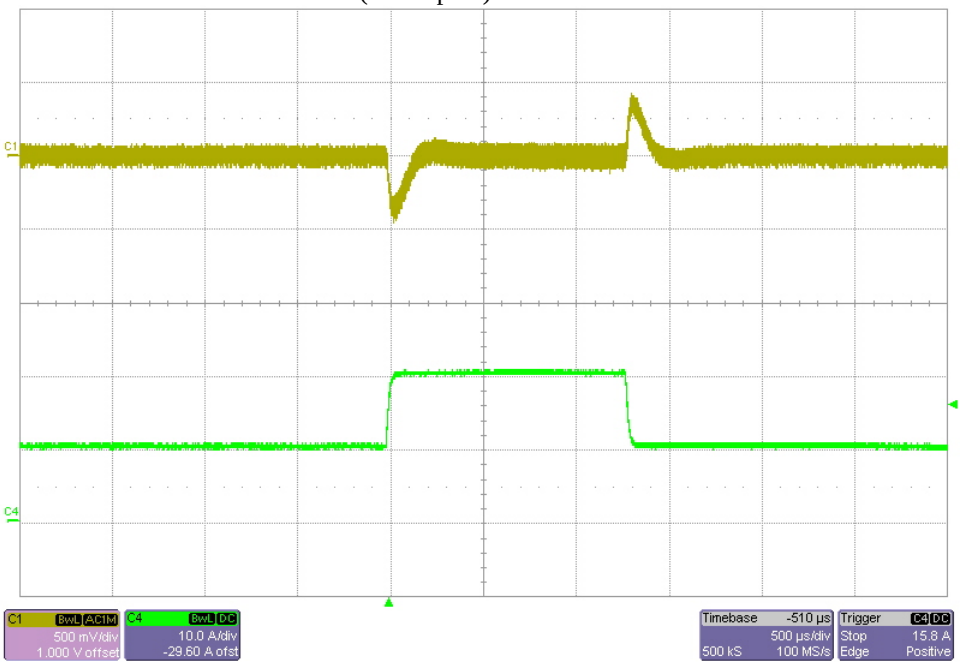
The frequency response of the feedback loop is shown below. The input was set to 48V and the output was loaded with 20A.



7 Load Transients

The response to a load step from 10A to 20A is shown in the image below. The input was set to 48V.

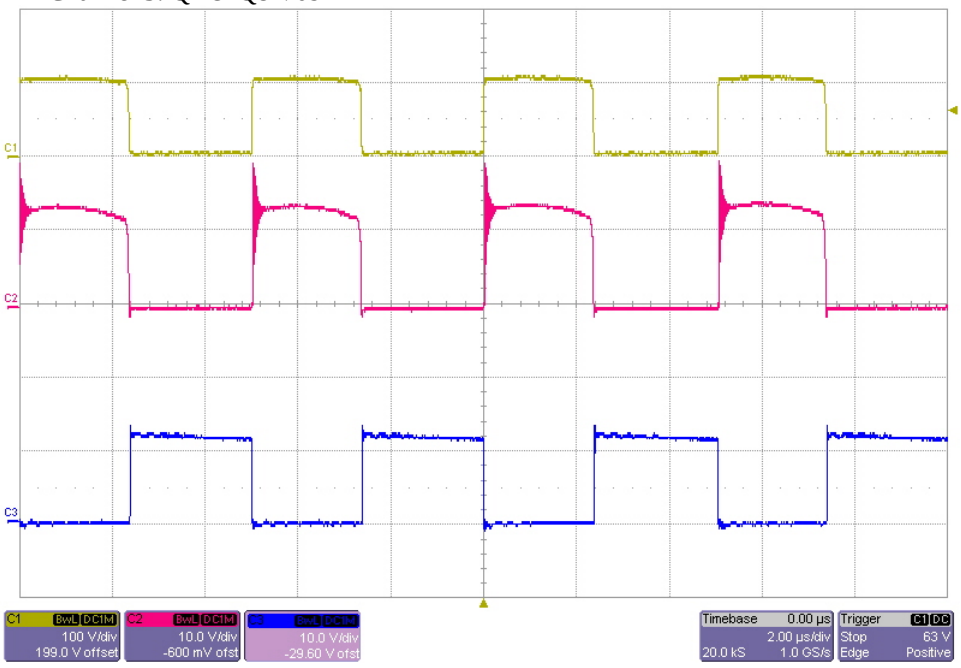
Channel 1: Vout 500mV/div (ac coupled) Channel 4: Iout 10A/div



8 Switching Waveforms

The image below shows the drain-to-source voltage waveforms on the switching MOSFETs. The input was set to 48VDC, and the output was loaded with 20A.

Channel 1: Q4 & Q5 Vds Channel 2: Q1 & Q2 Vds
Channel 3: Q7 & Q8 Vds



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