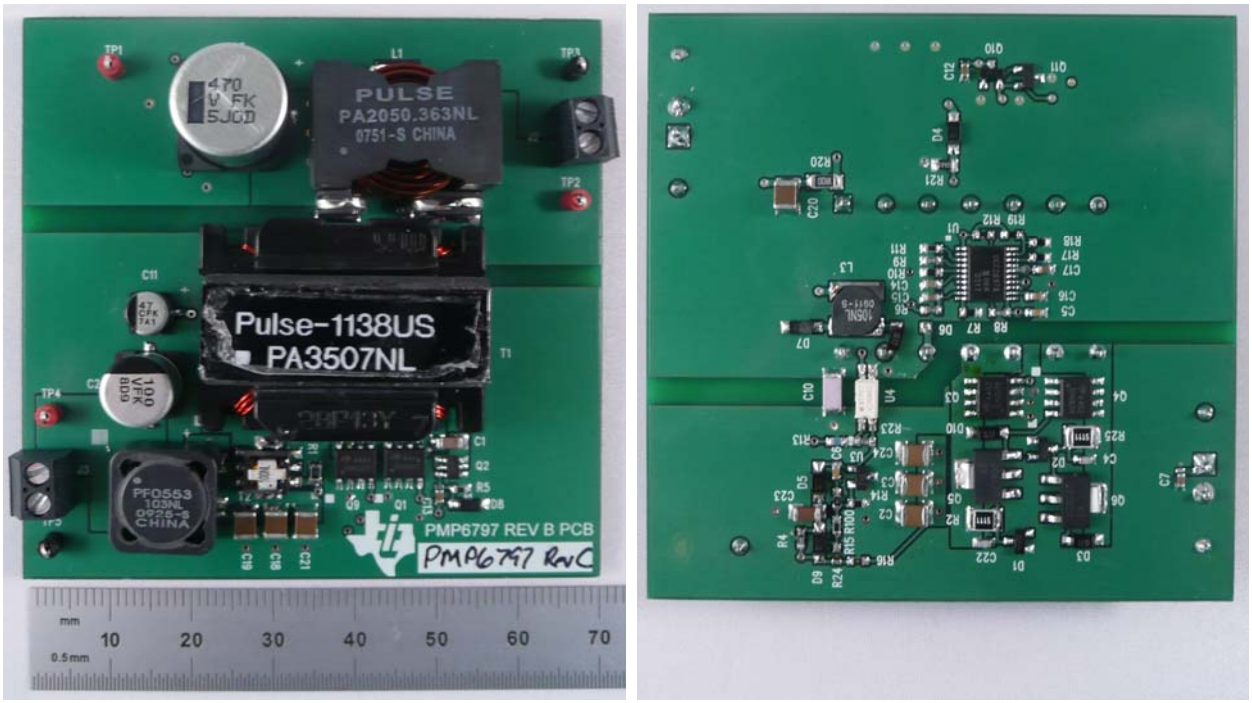
PMP6797 Rev C Test Results

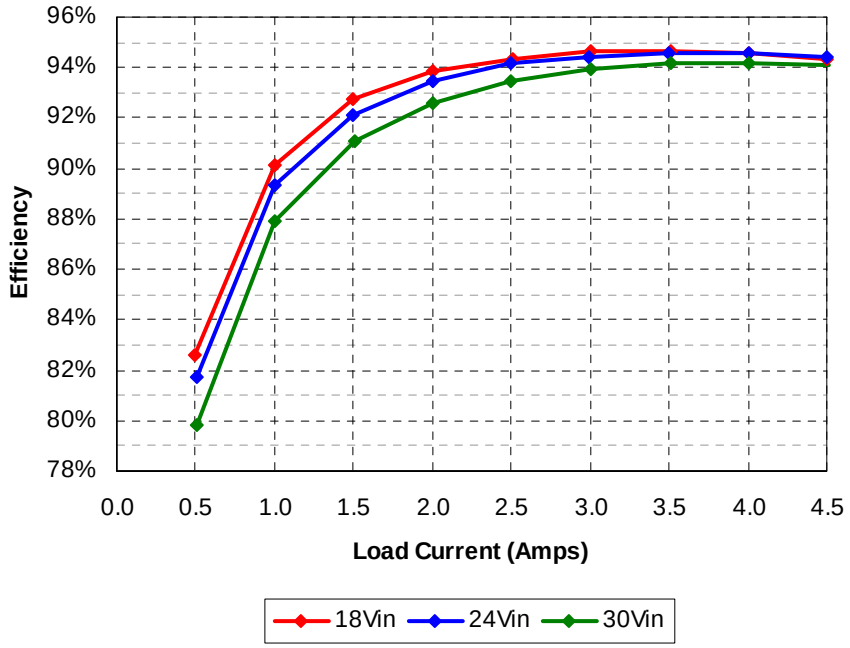
1 Photo

The photos below show the PMP6797 Rev C demo board. This circuit was built on a PMP6797 Rev B PCB.



2 Efficiency

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



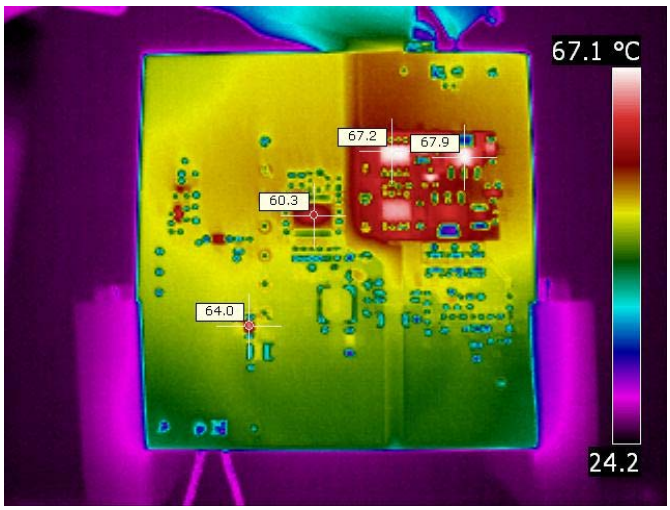
Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
18.03	0.120	0.001	20.22	0.02	2.143	0.9%
17.97	0.670	0.492	20.22	9.95	2.092	82.6%
18.01	1.249	1.003	20.22	20.28	2.214	90.2%
17.95	1.825	1.502	20.22	30.37	2.388	92.7%
18.01	2.398	2.005	20.21	40.52	2.667	93.8%
17.95	2.989	2.504	20.21	50.61	3.047	94.3%
18.00	3.563	3.003	20.21	60.69	3.443	94.6%
18.01	4.156	3.505	20.21	70.84	4.014	94.6%
17.95	4.769	4.005	20.21	80.94	4.662	94.6%
17.99	5.357	4.501	20.20	90.92	5.452	94.3%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
24.00	0.091	0.000	20.22	0.00	2.184	0.0%
23.97	0.520	0.504	20.22	10.19	2.274	81.8%
24.01	0.942	0.999	20.22	20.20	2.418	89.3%
23.96	1.374	1.500	20.22	30.33	2.591	92.1%
23.99	1.807	2.004	20.21	40.50	2.849	93.4%
23.98	2.238	2.500	20.21	50.53	3.142	94.1%
23.94	2.680	2.997	20.21	60.57	3.590	94.4%
24.01	3.109	3.493	20.21	70.59	4.054	94.6%
23.96	3.567	4.000	20.21	80.84	4.625	94.6%
23.99	4.014	4.501	20.20	90.92	5.376	94.4%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
30.02	0.088	0.000	20.22	0.00	2.642	0.0%
29.96	0.426	0.504	20.22	10.19	2.572	79.8%
29.97	0.771	1.005	20.22	20.32	2.786	87.9%
30.00	1.115	1.507	20.22	30.47	2.978	91.1%
29.97	1.459	2.003	20.21	40.48	3.246	92.6%
30.00	1.803	2.501	20.21	50.55	3.545	93.4%
29.96	2.154	2.999	20.21	60.61	3.924	93.9%
29.98	2.509	3.505	20.21	70.84	4.384	94.2%
29.98	2.865	4.004	20.21	80.92	4.972	94.2%
30.00	3.227	4.509	20.20	91.08	5.728	94.1%

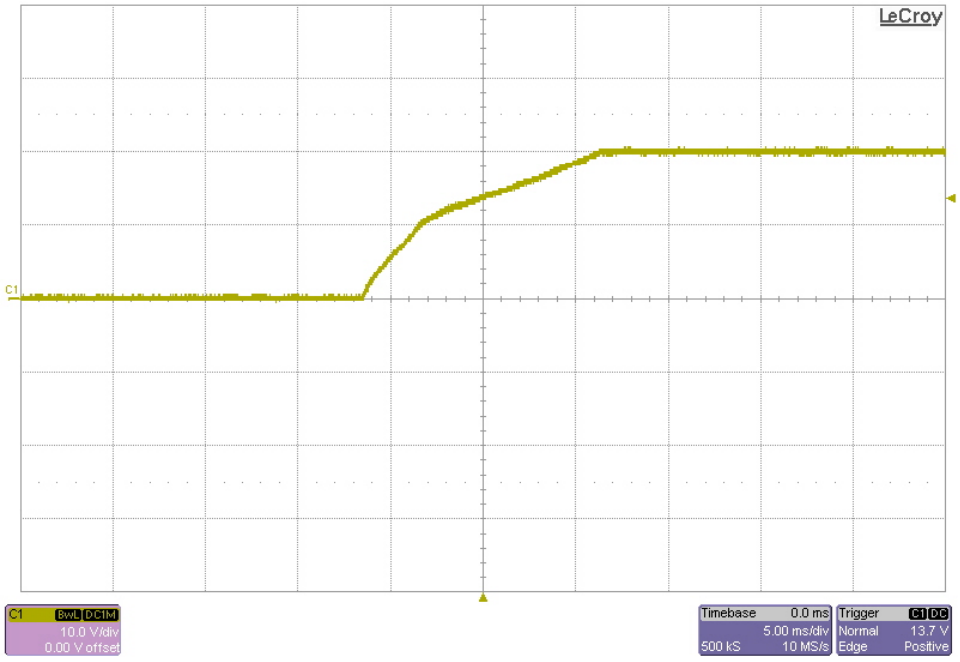
3 Thermal Images

The thermal images below show the top and bottom of the board with a 4.5A load, a 24V input, and no forced air flow. The ambient temperature was 25ºC.



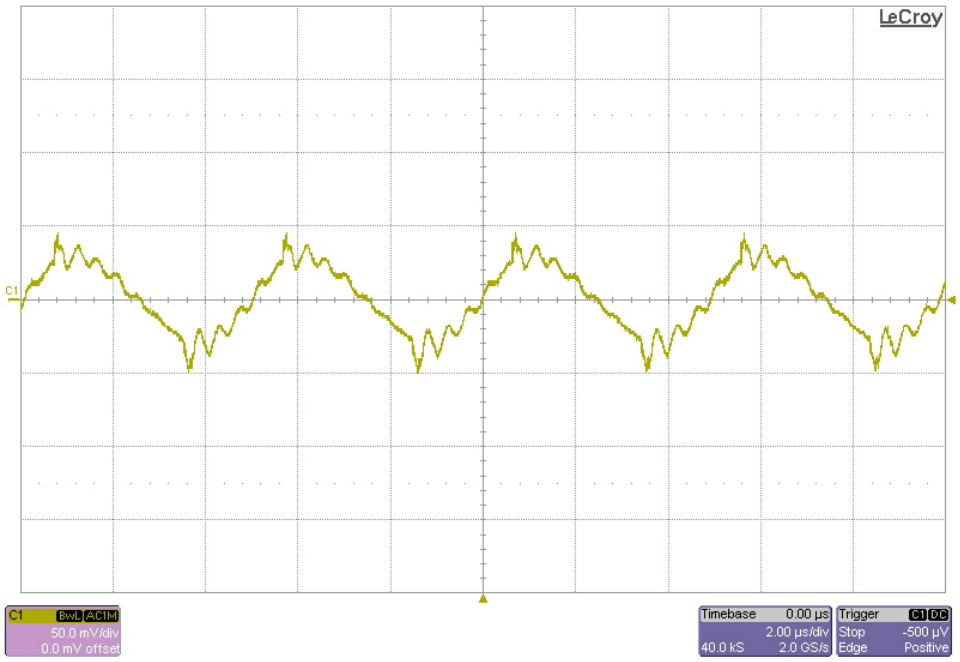
4 Startup

The output voltage at startup is shown in the image below. The input was 24V and the output was unloaded.



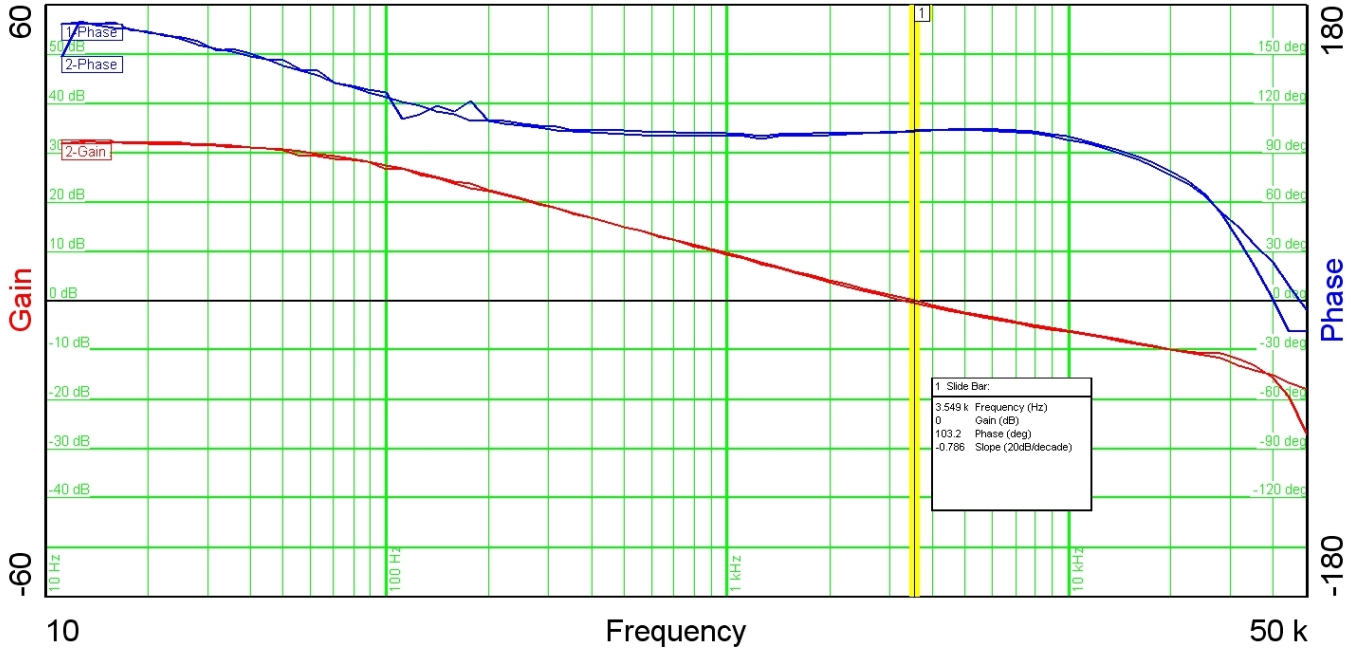
5 Output Ripple Voltage

The output ripple voltage during full load operation (4.5A load) with a 24V input is shown in the image below.



6 Loop Response

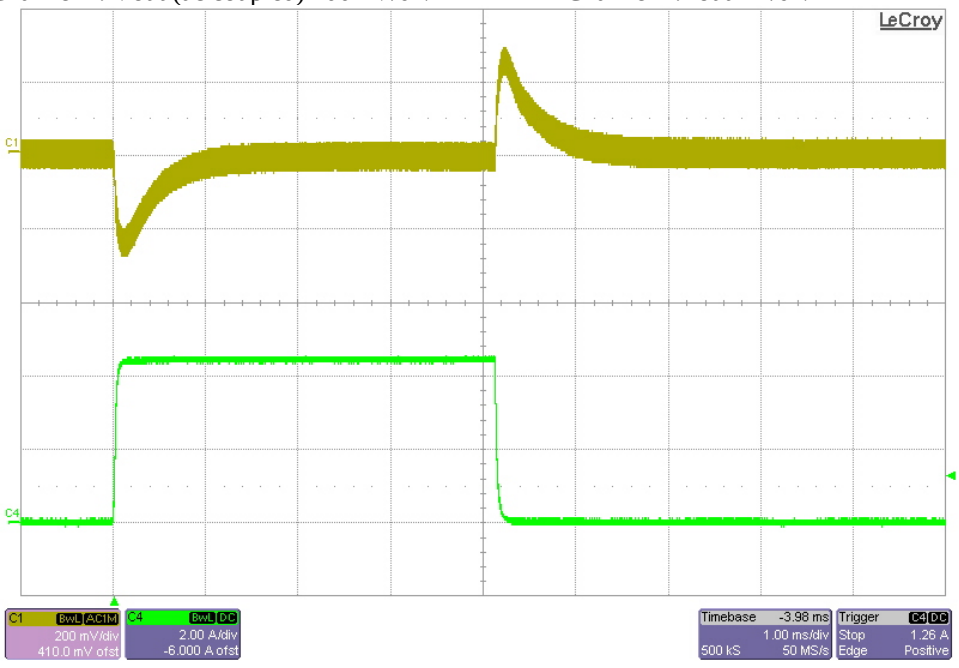
The image below shows the loop response of the converter. For plot #2, the input was 18Vdc. For plot #1, the input was 30Vdc. The output was loaded with 4.5A. The measurement was made by injecting across R24 (50 ohms).



7 Load Transients

The image below show the response to a 0A to 4.5A load transient. The input voltage was set to 24VDC.

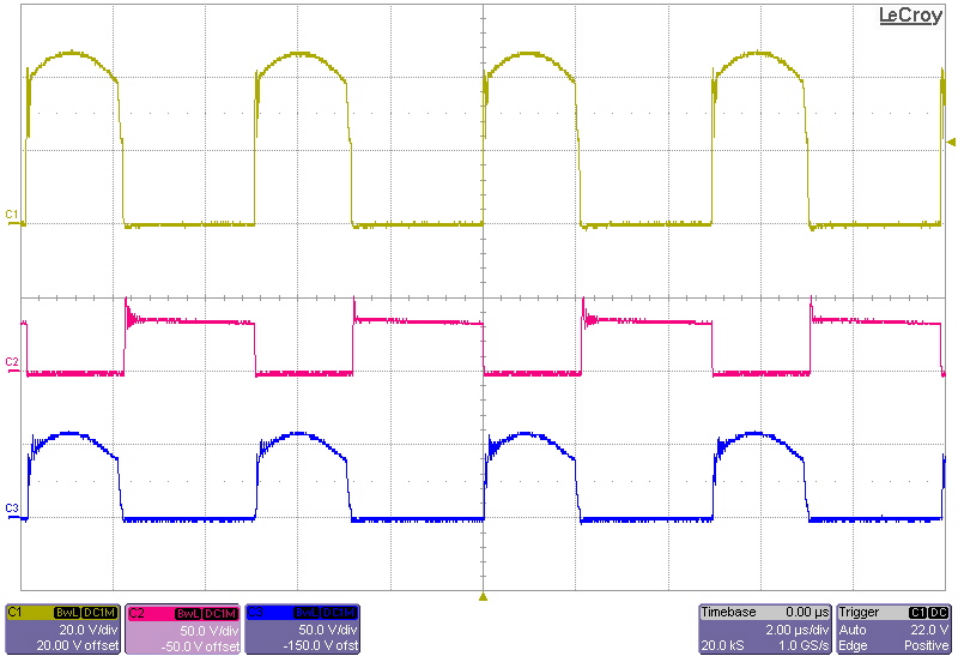
Channel 1: Vout (ac coupled) 200mV/div Channel 4: Iout 2A/div

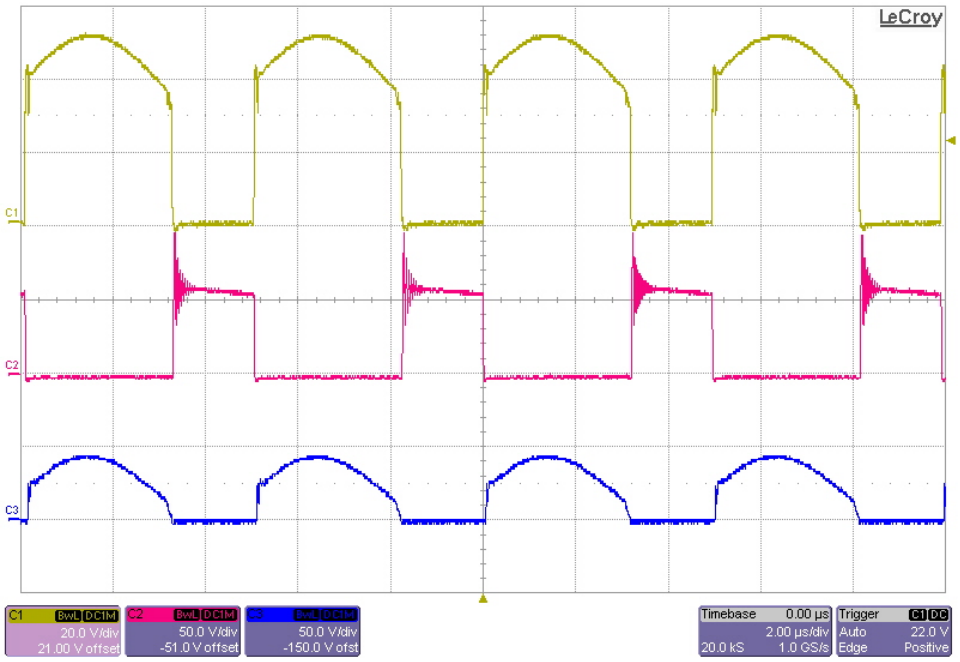


8 Switching Waveforms

The images below show the drain-to-source voltage waveforms on the switching MOSFETs. The output was loaded with 4.5A. For the top image, the input was set to 18V. For the bottom image, the input was set to 30V.

Channel 1: Q1 & Q9 Vds Channel 2: Q4 Vds
Channel 3: Q3 Vds





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