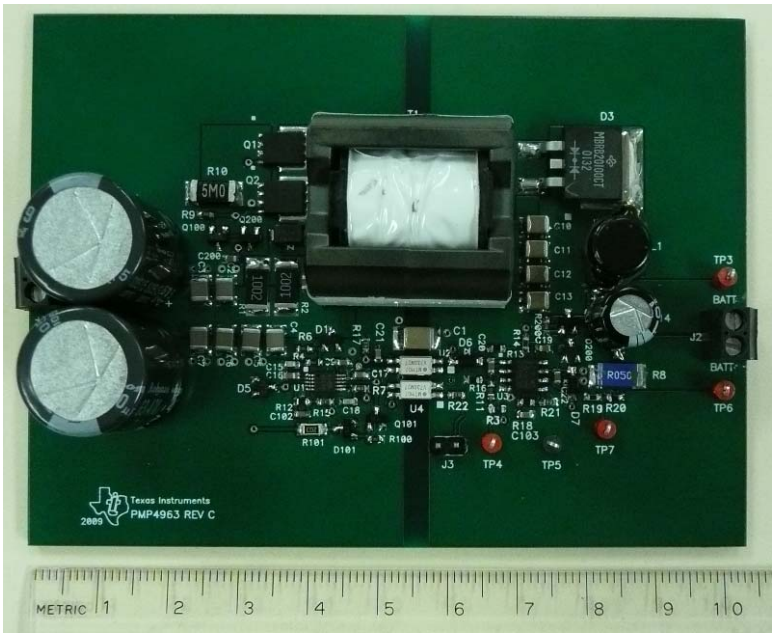
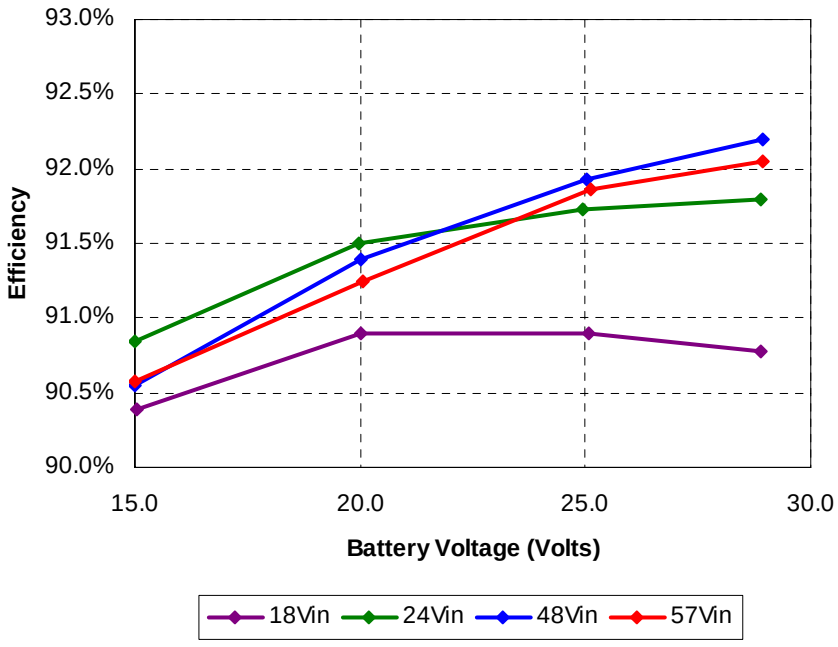
1 Photo

A photograph of the PMP4963 Rev D evaluation board is shown below. This board was built using a PMP4963 Rev C PWB.



2 Efficiency

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



Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
2.997	14.98	57.04	0.869	44.90	4.673	90.6%
2.995	20.04	57.00	1.154	60.02	5.758	91.2%
2.993	25.13	57.02	1.436	75.21	6.667	91.9%
2.991	28.94	56.99	1.650	86.56	7.474	92.1%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
2.995	14.98	48.01	1.032	44.87	4.681	90.6%
2.993	20.01	47.97	1.366	59.89	5.637	91.4%
2.991	25.01	47.92	1.698	74.80	6.563	91.9%
2.991	28.94	47.88	1.961	86.56	7.333	92.2%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
2.996	14.99	24.01	2.059	44.91	4.527	90.8%
2.994	19.98	24.01	2.723	59.82	5.559	91.5%
2.992	24.93	24.00	3.388	74.59	6.721	91.7%
2.991	28.90	23.96	3.93	86.44	7.723	91.8%

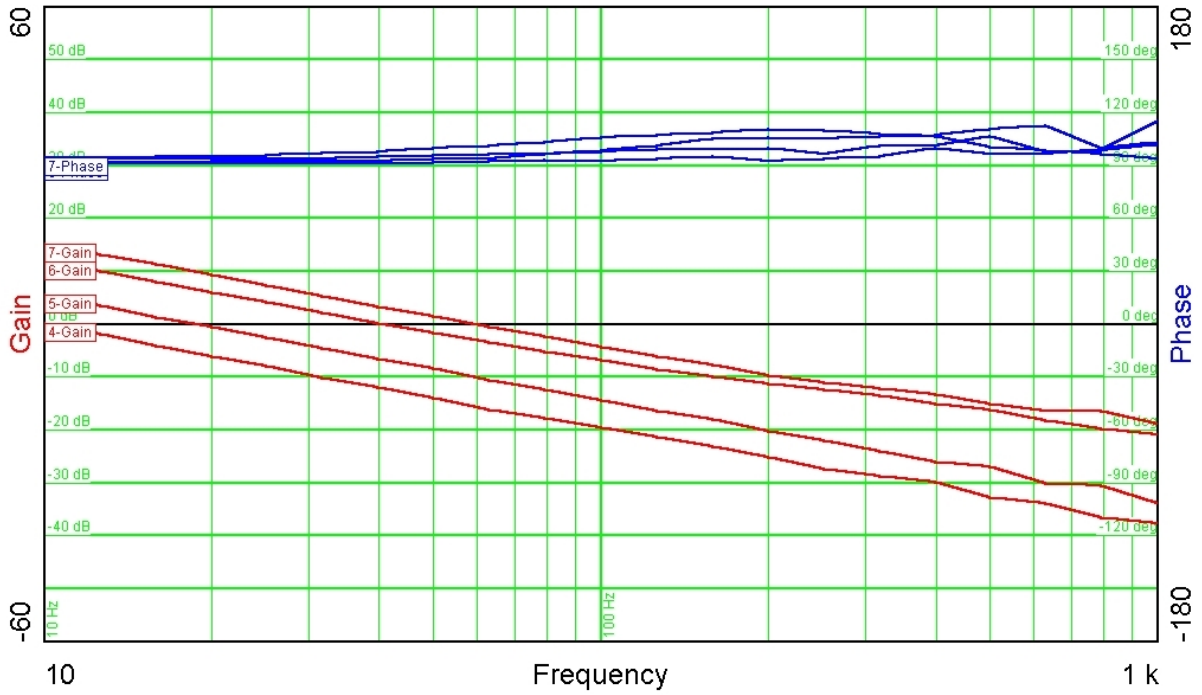
Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
2.992	15.05	18.05	2.760	45.03	4.788	90.4%
2.991	20.01	18.00	3.658	59.85	5.994	90.9%
2.990	25.09	18.02	4.58	75.02	7.512	90.9%
2.989	28.88	18.01	5.28	86.32	8.770	90.8%

3 Thermal Image

The thermal image below shows a top view of the board. The ambient temperature was 26ºC with no forced air flow. The input was 18VDC, and the output was 3A at 29V. The snubber resistor (R1) was the hottest component on the board and measured 78.3ºC.

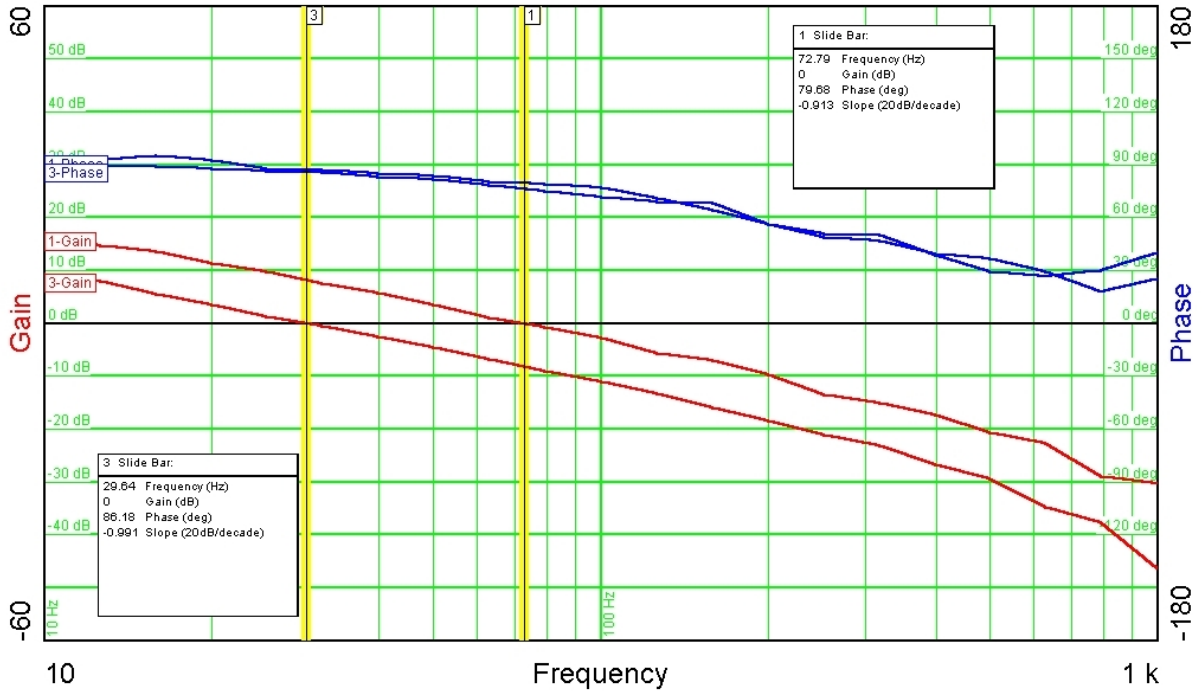
4 Frequency Response – Current Regulation

The frequency response of the feedback loop during current regulation is shown below. For Plot 4, the input was set to 57VDC and the load voltage was set to 15V. For Plot 5, the input was 57DC and the load voltage was 28V. For Plot 6, the input was 18VDC and the load voltage was 15V. For Plot 7, the input was 18V and the load voltage was 28V. A constant resistance load was used.



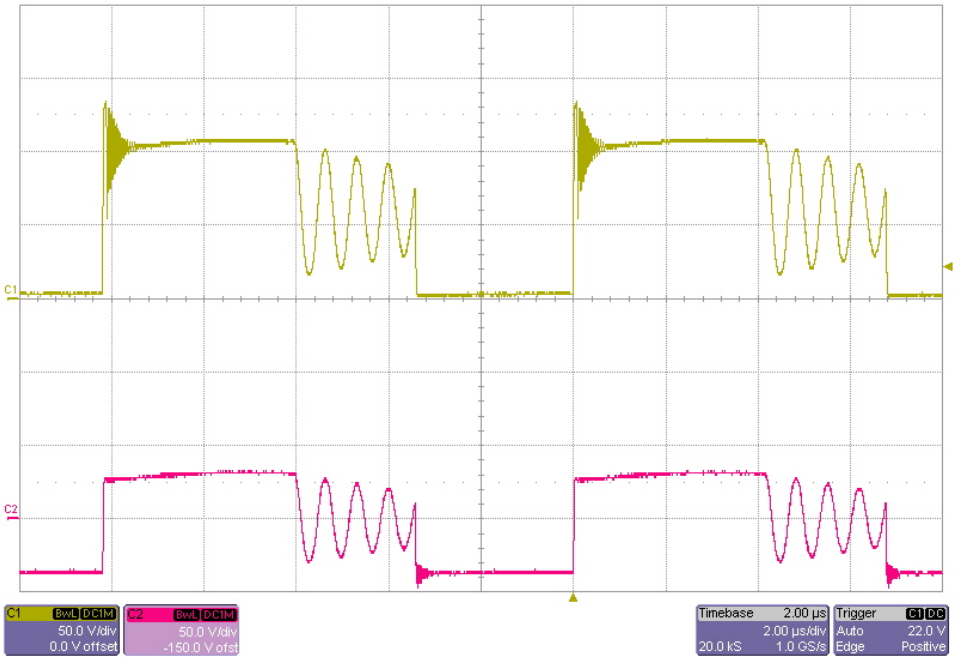
5 Frequency Response – Voltage Regulation

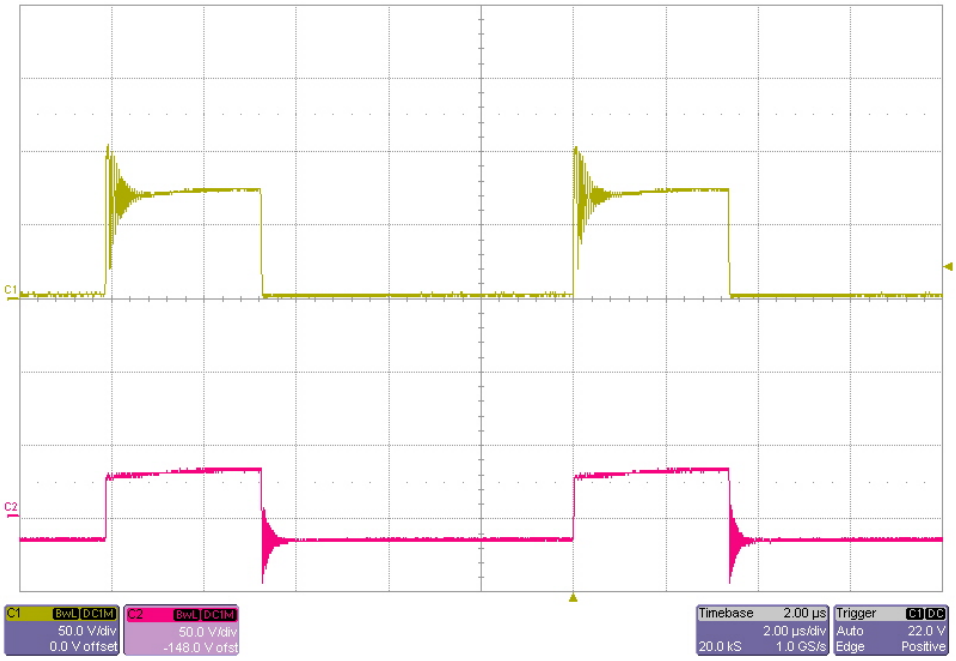
The frequency response of the feedback loop during voltage regulation is shown below. For Plot 1, the input was set to 18VDC and the load current was 2.9A. For Plot 3, the input was 57VDC and the load was 2.9A.



6 Switching Waveforms

The images below show the drain-to-source voltage waveform on the primary MOSFETs (channel 1) and the voltage on the anode of the output diode (channel 2). The output was 29V/3A. For the top image, input was set to 57VDC. For the bottom image, the input was set to 18VDC.





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