



TPS40180 Three Phase Supply
11/16/07

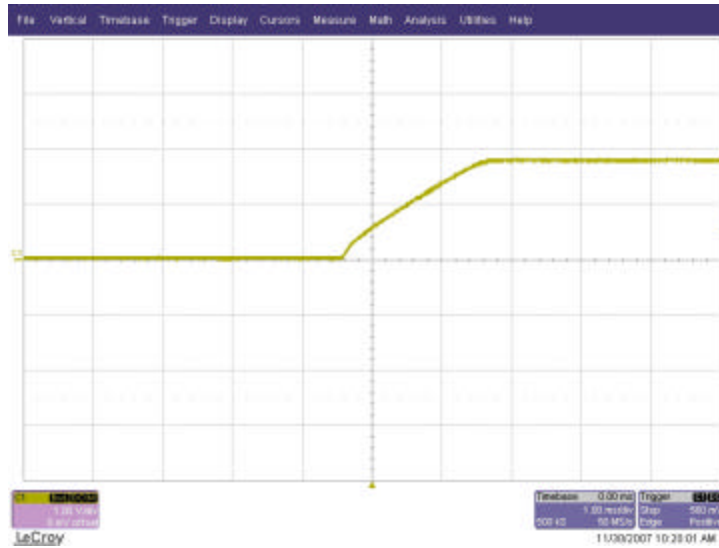
The tests performed on the output voltage rails for this project were as follows:

1. Turn-On (No load)
2. Turn-Off (Output loaded with 1A load)
3. Output Voltage Ripple (Measured at full load)
4. Transient Response (30A to 50A loads)
5. Loop Response (Measured at full load)
6. Efficiency (Measured from 1A load to full load)
7. Load Regulation (Measured from no load to full load)
8. Switch Node (20MHz Bandwidth Limited with full Load)

1 Startup- (TPS40180 - 1.8V Rail)

The photo below shows the startup waveform. The input voltage is 12V, the output is not loaded. The time-base is set to 1ms/Division.

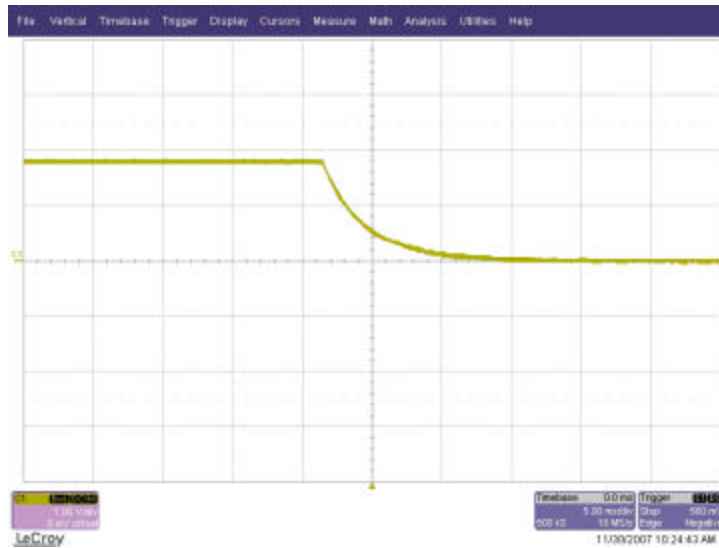
Channel 1 : 1.8V Output – Yellow (1V/Division)



2 Shutdown - (TPS40180 - 1.8V Rail)

The photo below shows the shutdown waveform. The input voltage is 12V. The time-base is set to 5ms/Division. The output is loaded with a 1A load.

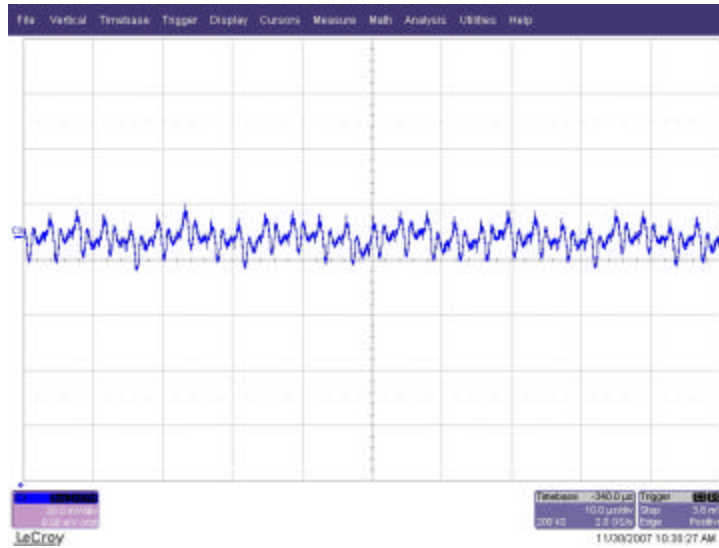
Channel 1 : 1.8V Output – Yellow (1V/Division)



3 Output Ripple Voltage - (TPS40180 - 1.8V Rail)

The output voltage ripple is shown in the figure below. The input is 12V. The time-base is 10us/Division.

Channel 3 : 1.8V – Blue (20mV/Division; AC Coupled)



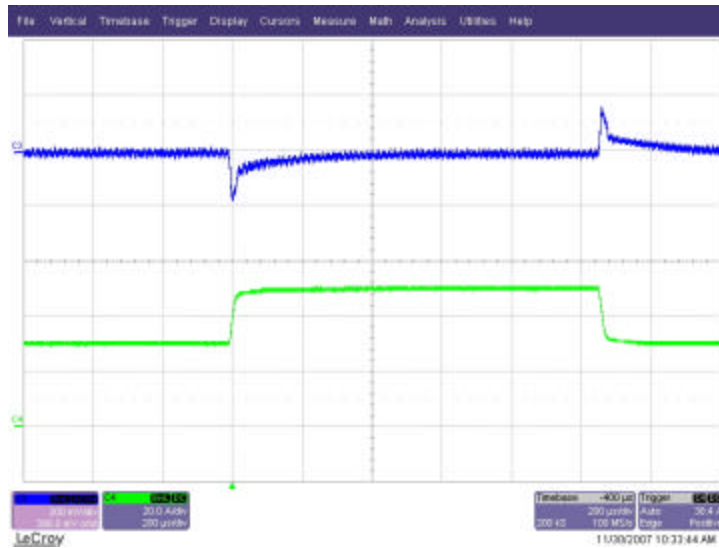
Full Load (60A)

4 Transient Response - (TPS40180 - 1.8V Rail)

The transient response of the converter is shown in the figure below. The output current is pulsed from 30A to 50A. The input voltage is 12V.

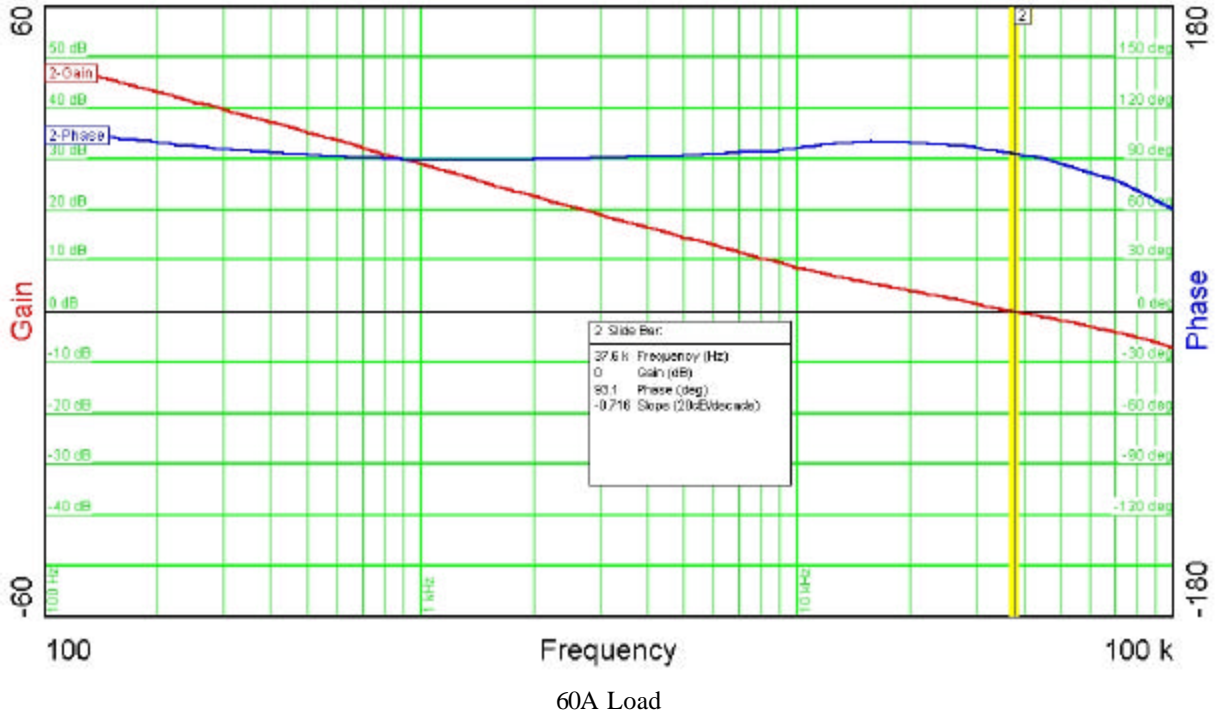
Channel 3 : 1.8V – Blue (200mV/Division; AC Coupled)

Channel 4 : Output Current – Green (20A/Division)



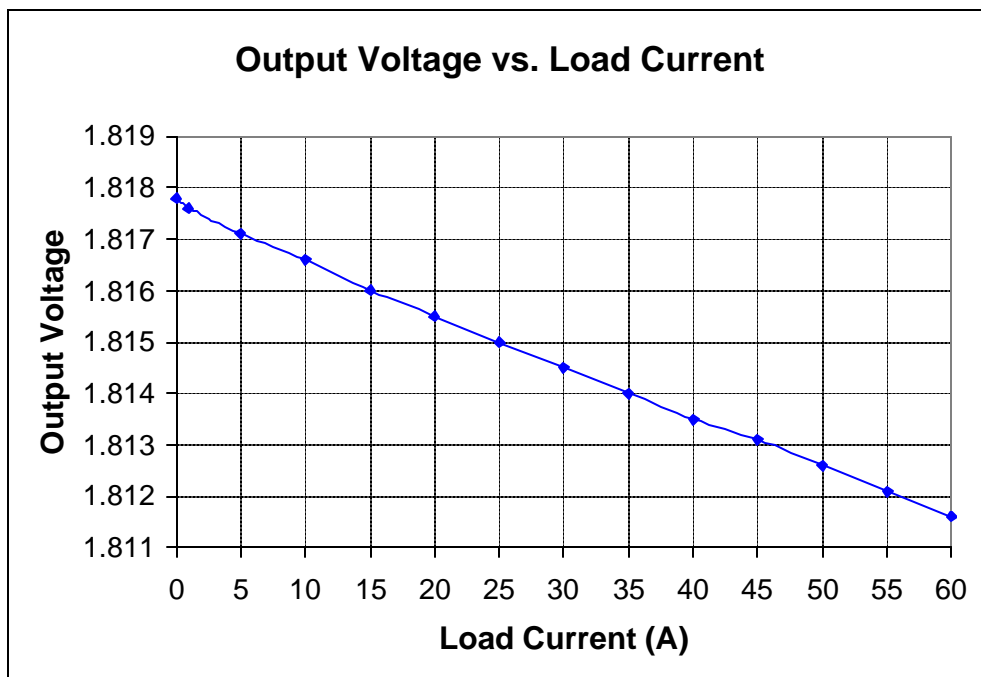
5 Loop Response - (TPS40180 - 1.8V Rail)

The frequency response of the converter is shown in the figures below.



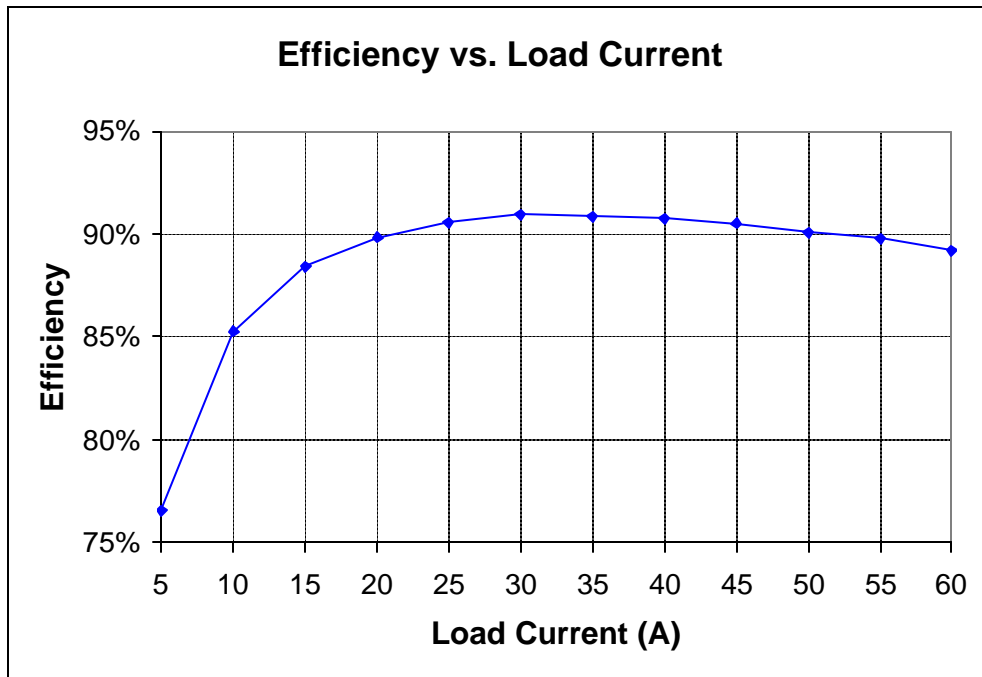
6 Load Regulation - (TPS40180 - 1.8V Rail)

The load regulation of the converter is shown in the figure below.



7 Efficiency - (TPS40180 - 1.8V Rail)

The efficiency of the converter is shown in the graph below.



8 Switching Waveforms - (TPS40180 - 1.8V Rail)

The waveforms below shows the switch node of each phase. The output is loaded with 60A



3 Phases on separate axis



3 Phases on the same axis

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