



**Mitsubishi
TPS54283 Dual Buck Project
2/13/08**

The following test report is for the TPS54283 dual buck project.

The tests performed were as follows:

- A. TPS54283 – 5V@2A; 3.3V@2A
 - 1. Turn-On (No load)
 - 2. Turn-Off (100mA load)
 - 3. Output Voltage Ripple (full load)
 - 4. Transient Response (100mA to 2A)
 - 5. Load Regulation (No load to full load)
 - 6. Efficiency
 - 7. Switch Node (20MHz Bandwidth Limited with full load)
 - 8. Bode Plot (Full Load)

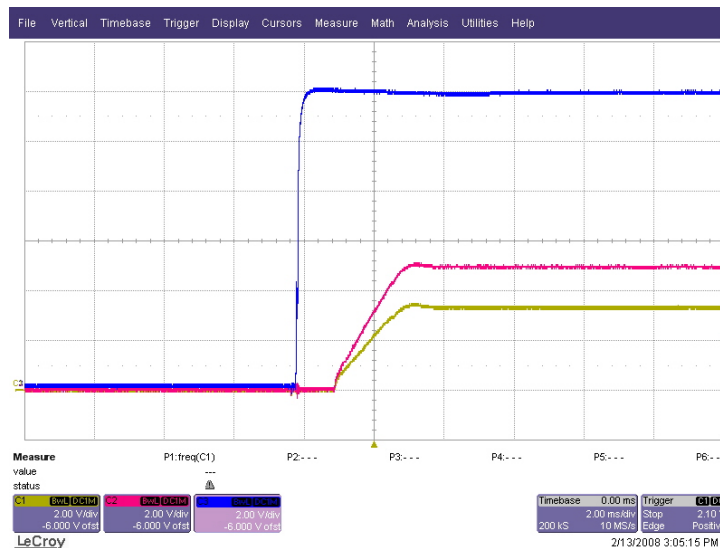
1 Startup – (TPS54283 : 5V@2A; 3.3V@2A)

The photo below shows the startup waveform. The input voltage is 12V, the outputs are not loaded. The time-base is set to 2ms/Division.

Channel 1 – Yellow : 3.3V Output – (2V/Division)

Channel 2 – Pink : 5V Output – (2V/Division)

Channel 3 – Blue : 12V Input – (2V/Division)



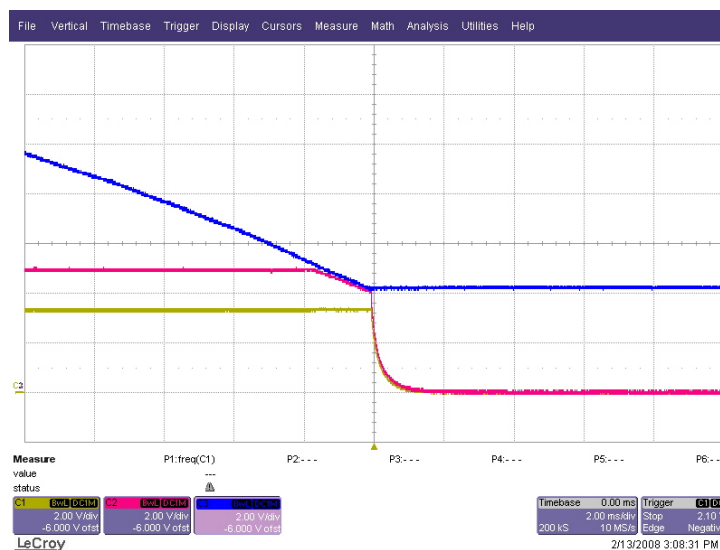
2 Shutdown – (TPS54283 : 5V@2A; 3.3V@2A)

The photo below shows the shutdown waveform. The input voltage is 12V. The outputs are loaded with 100mA.

Channel 1 – Yellow : 3.3V Output – (2V/Division)

Channel 2 – Pink : 5V Output – (2V/Division)

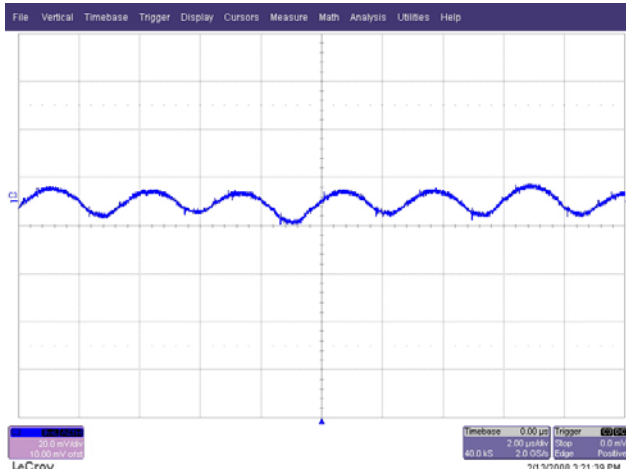
Channel 3 – Blue : 12V Input – (2V/Division)



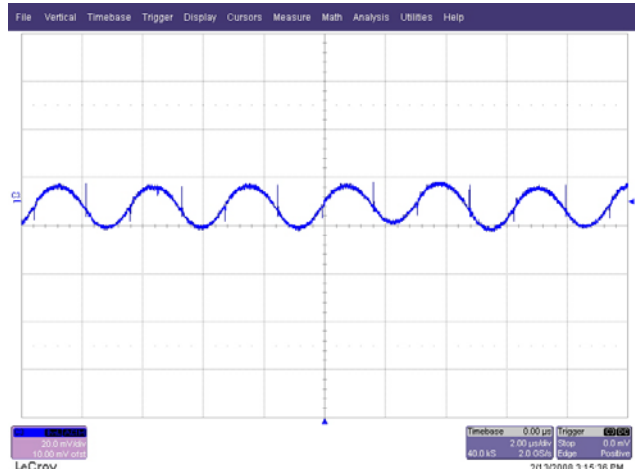
3 Output Ripple Voltage – (TPS54283 : 5V@2A; 3.3V@2A)

The output voltage ripple is shown in the figures below. The input is 12V. The outputs are fully loaded.

Channel 3: Output Voltage – (50mV/Division; AC Coupled)



3.3V @ 2A



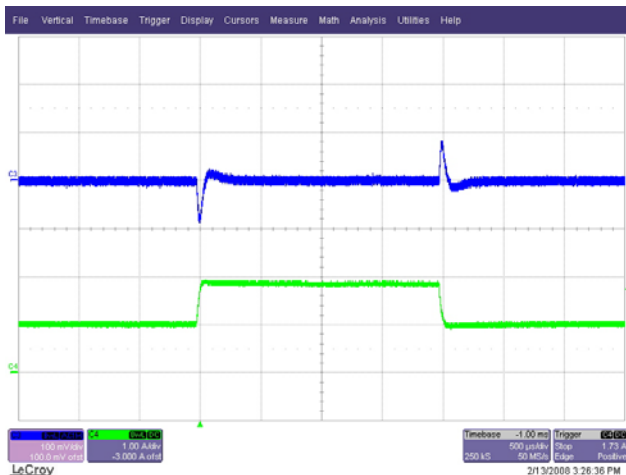
5V @ 2A

4 Transient Response – (TPS54283 : 5V@2A; 3.3V@2A)

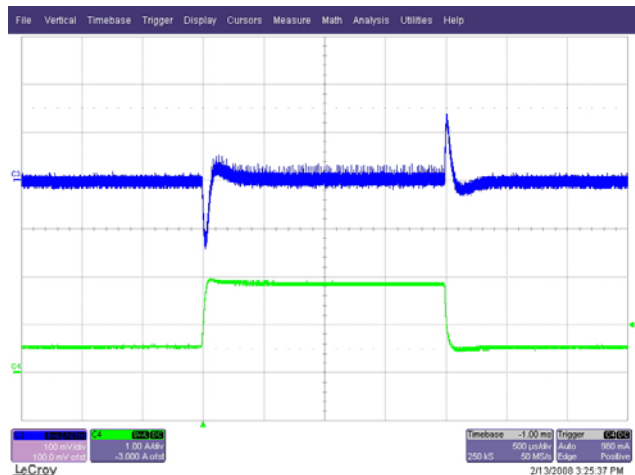
The transient response of the converter is shown in the figure below. The input voltage is 12V.

Channel 3: Output Voltage – (100mV/Division; AC Coupled)

Channel 4: Output Current – (1A/Division)



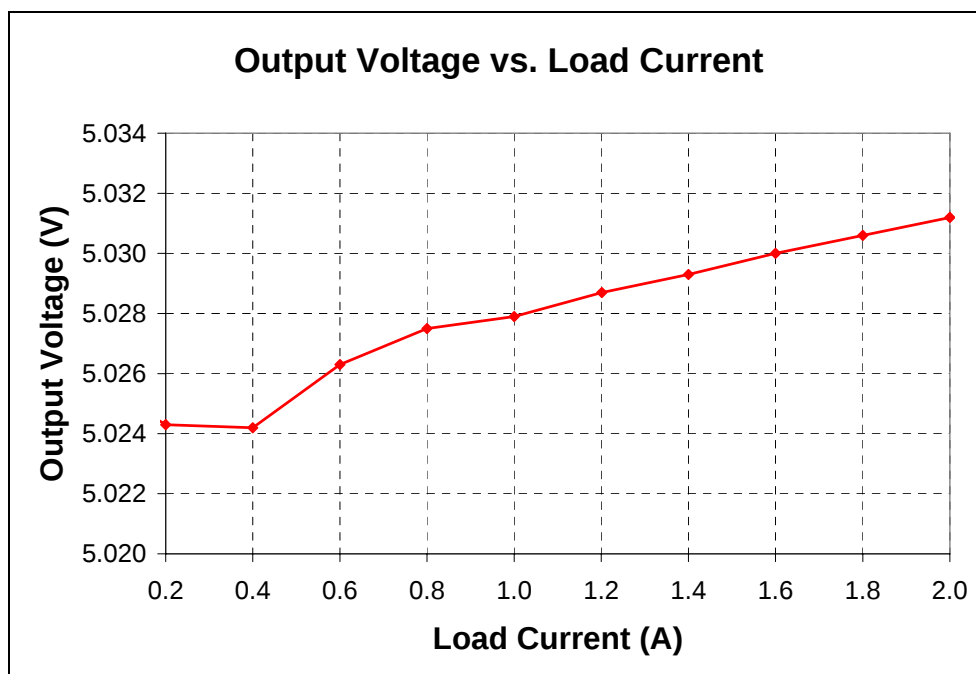
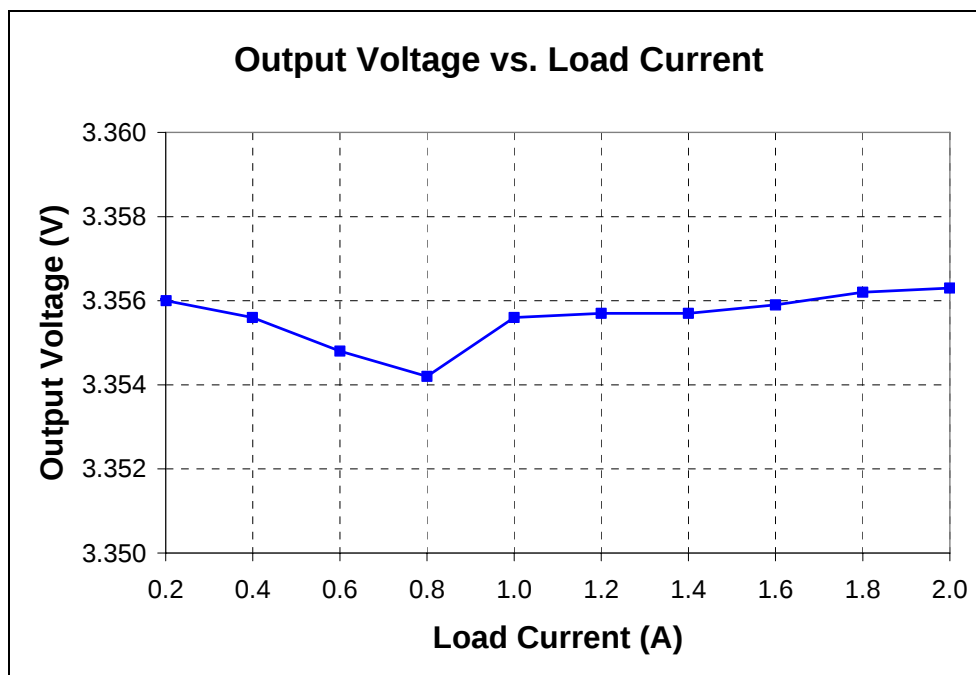
3.3V Output



5.0V Output

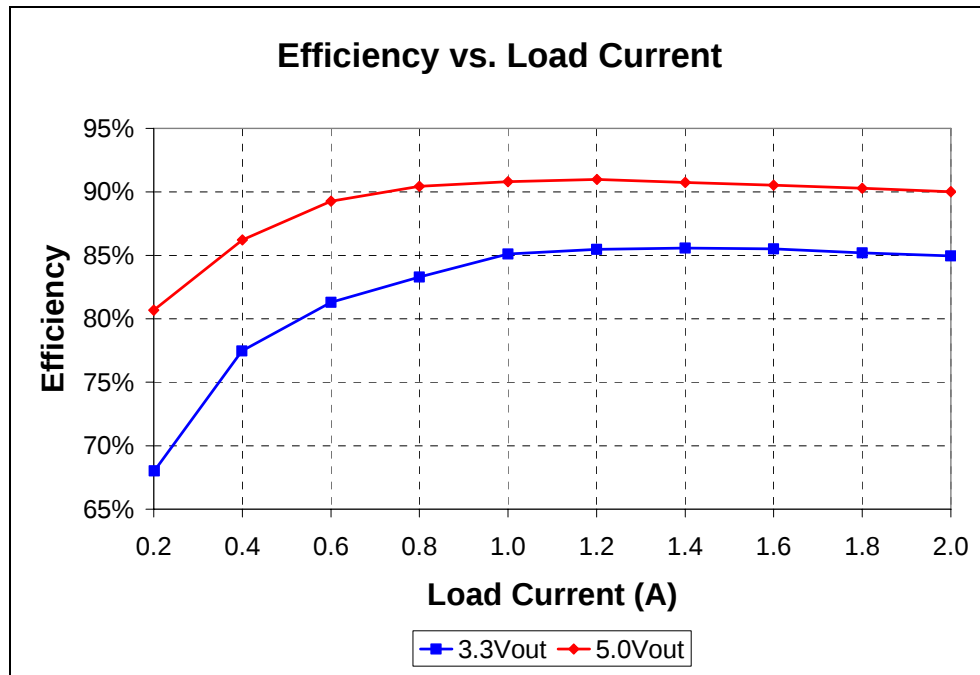
5 Load Regulation – (TPS54283 : 5V@2A; 3.3V@2A)

The load regulation is shown in the figures below.



6 Efficiency – (TPS54283 : 5V@2A; 3.3V@2A)

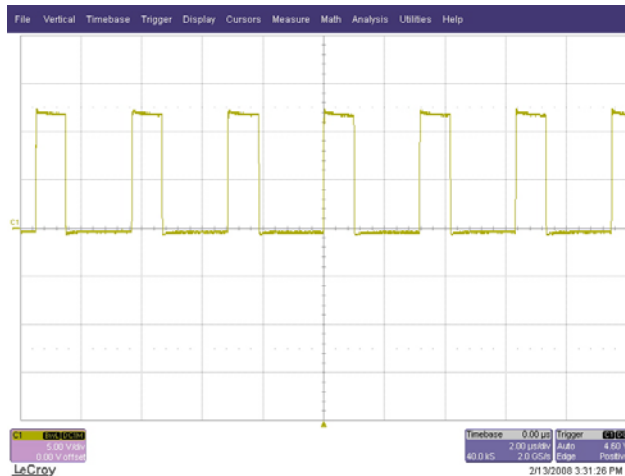
The efficiency of the converter is shown in the picture below.



7 Switching Waveforms – (TPS54283 : 5V@2A; 3.3V@2A)

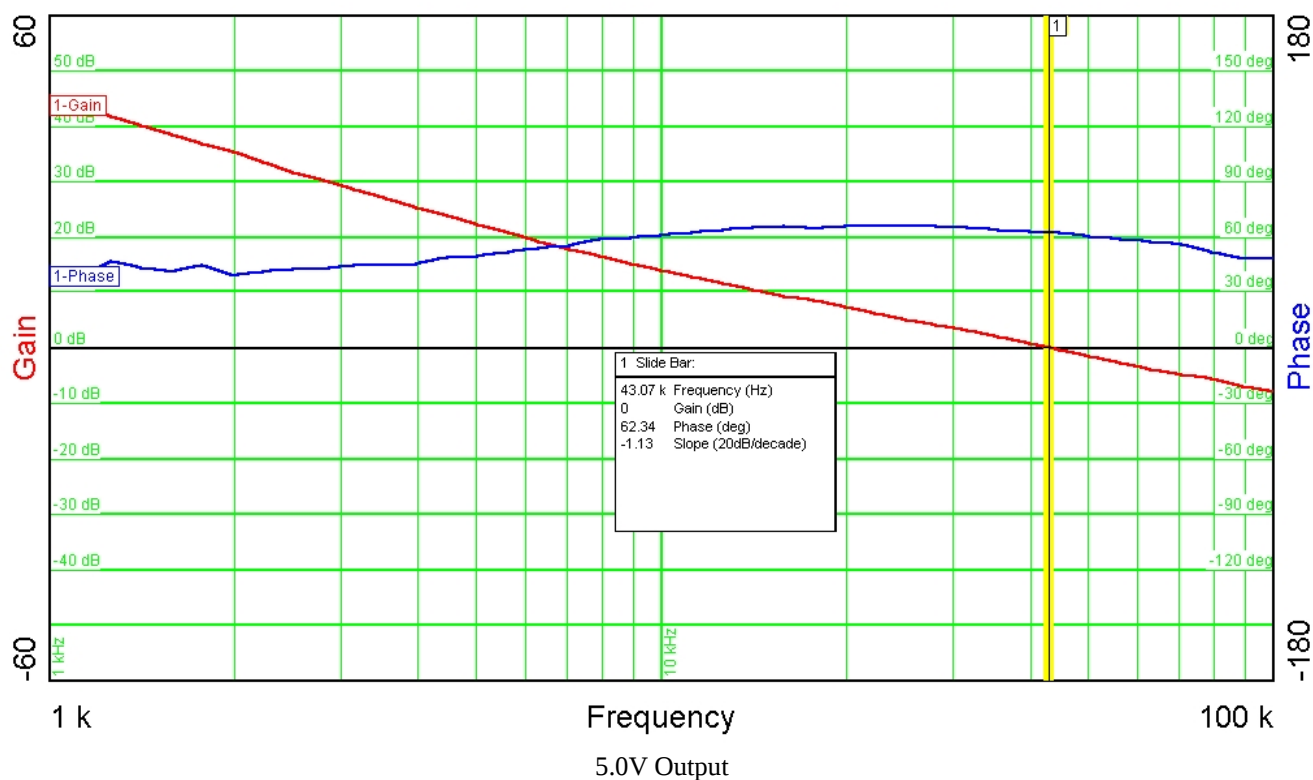
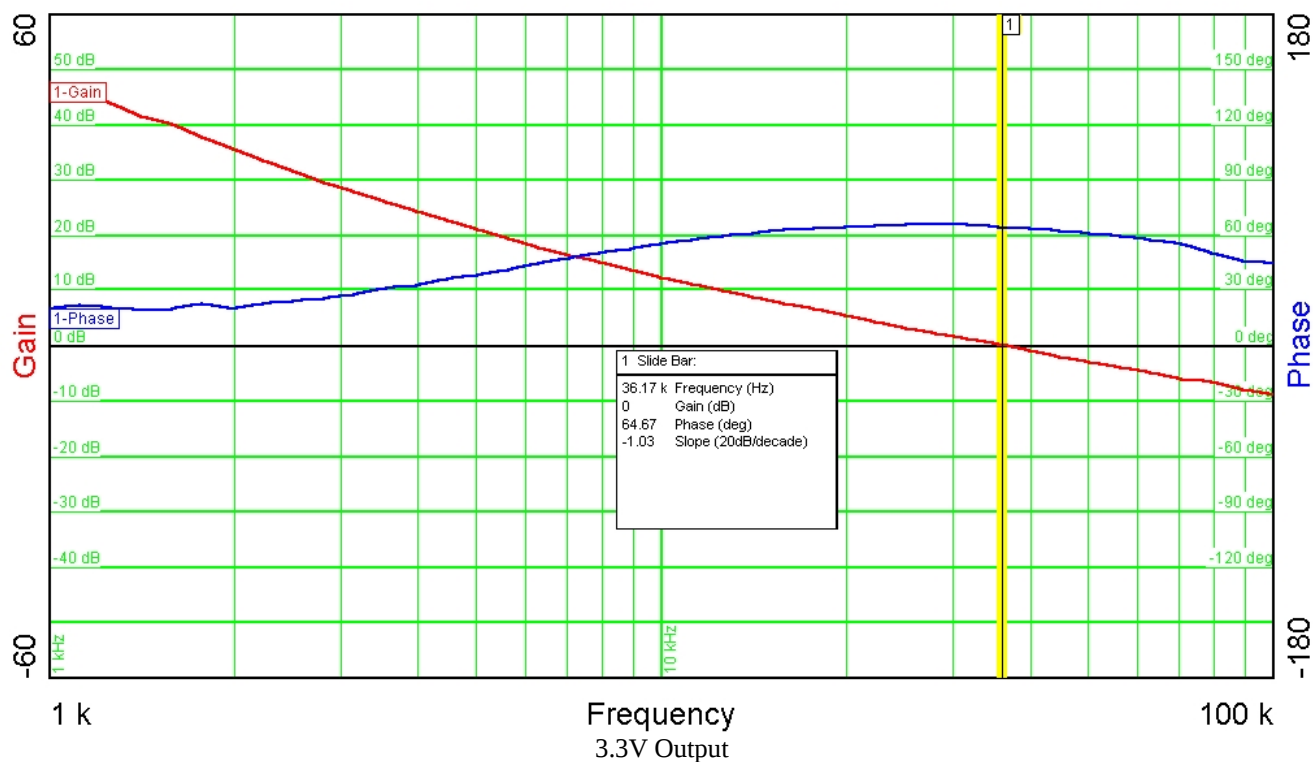
The waveform below shows the switch node. The input is 12V. The outputs are fully loaded.

Channel 1: Switch Node – (5 V/Division)



8 Bode Plot – (TPS54283 : 5V@2A; 3.3V@2A)

The figure below shows the frequency response of the converters. The input voltage is 12V, the outputs are loaded with 2A.



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