



Test Report For PMP9454

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Overview

The PMP9454 is an easy to use synchronous regulator with LM43603 SIMPLE SWITCHER step-down DC-DC converter. PMP9454 is capable of driving up to 3A load current from a wide input voltage ranging from 7 to 36V. It provides exceptional efficiency, output voltage accuracy and dropout voltage in a small package. The adjustable frequency of PMP9454 module ranges from 200 kHz to 2.2MHz. However the board has 500 kHz default frequency. PMP9454 is footprint compatible to the POLA module PTN78060W.

Power Specification

V_{IN} : 7V – 36V

Nominal V_{IN} = 12V, 24V

F_{SW} = 500 kHz

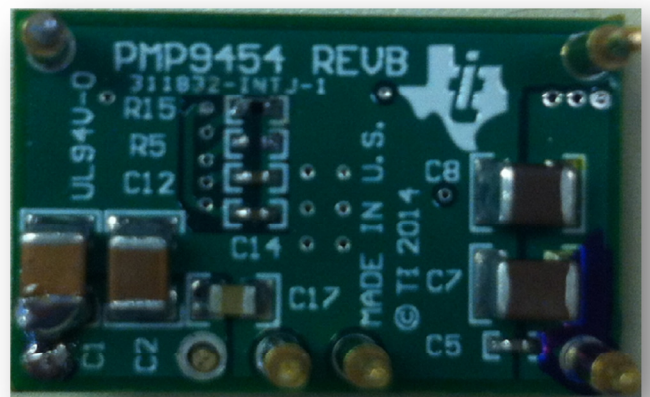
Output Voltage Settings

The 3 output voltages for this report were achieved by varying the feedback resistor R_2 and are as follows:

- $R_2 = 25.5\Omega$ for 5V V_{out}
- $R_2 = 43.2\Omega$ for 3.3V V_{out}
- $R_2 = 69.1\Omega$ for 2.5V V_{out}



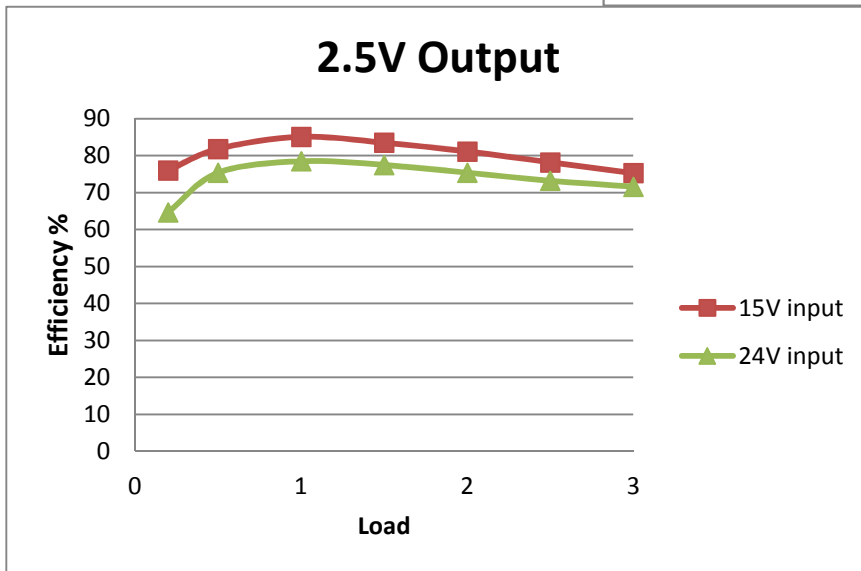
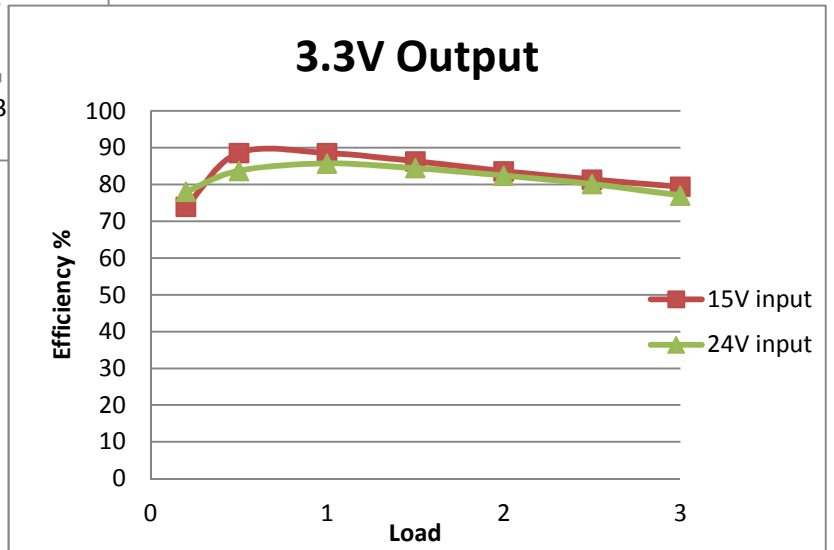
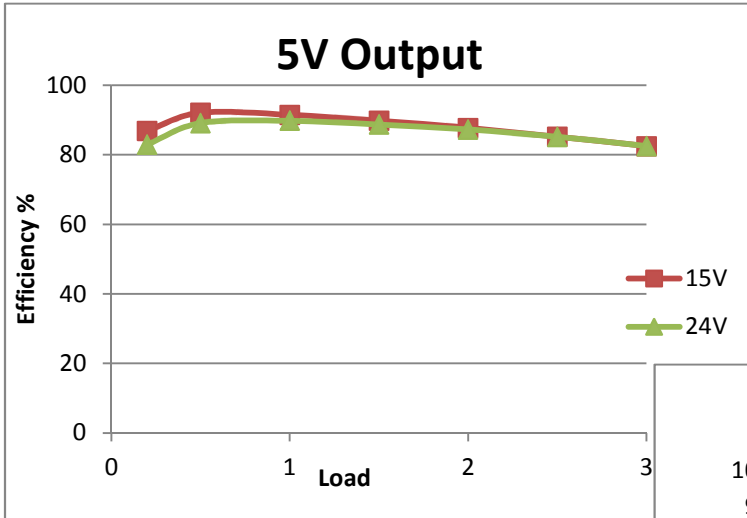
PMP9454 Board top Image



PMP9454 Board bottom Image

Efficiency

The efficiency is calculated for all three outputs with **15V & 24V** input voltages and output load current incrementing from **200mA to 3A**.



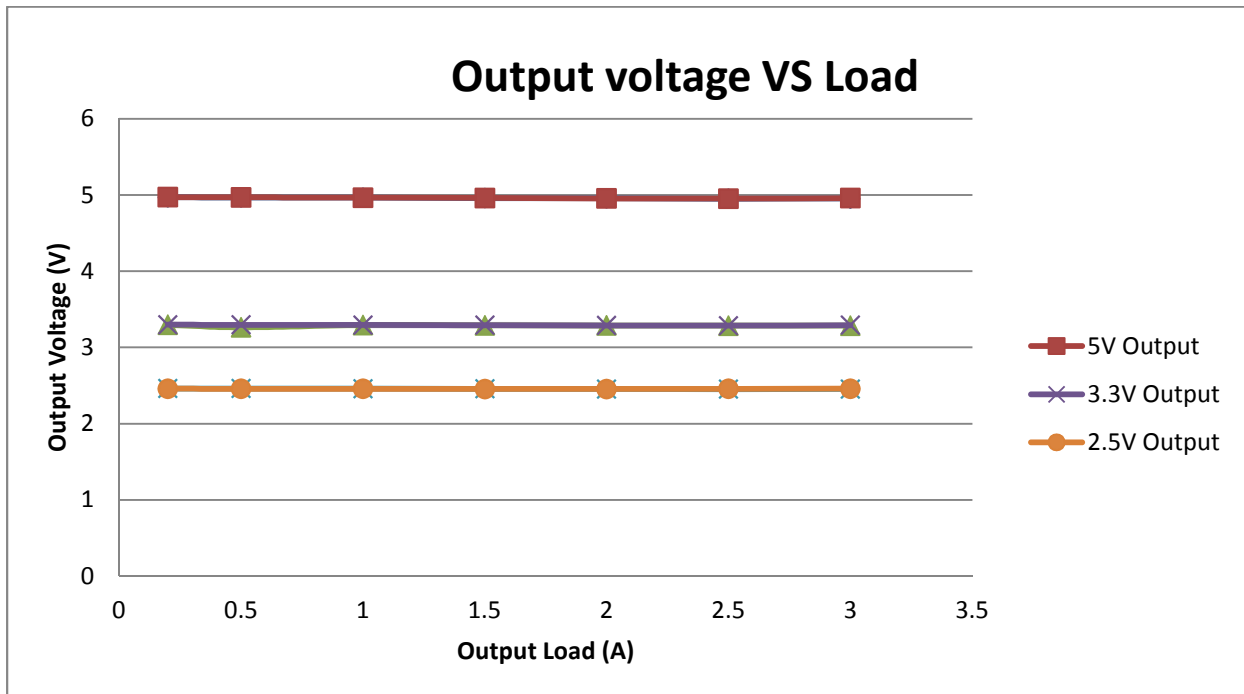
Variation in Output Voltage

5V, 3.3V, 2.5V Output Voltages

Test Conditions: $V_{in} = 24V$ and $15V$

Output Load increments from 200mA to 3A

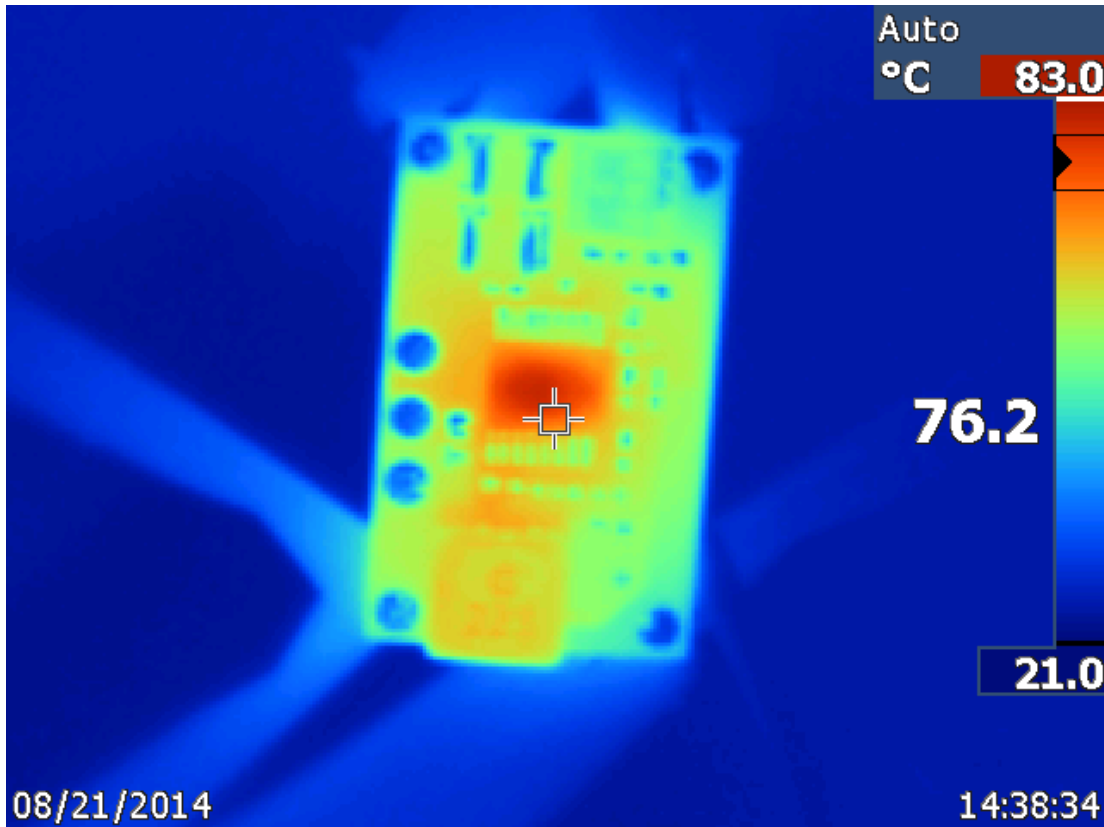
$$F_{SW} = 500kHz$$



Thermal Images

5V output

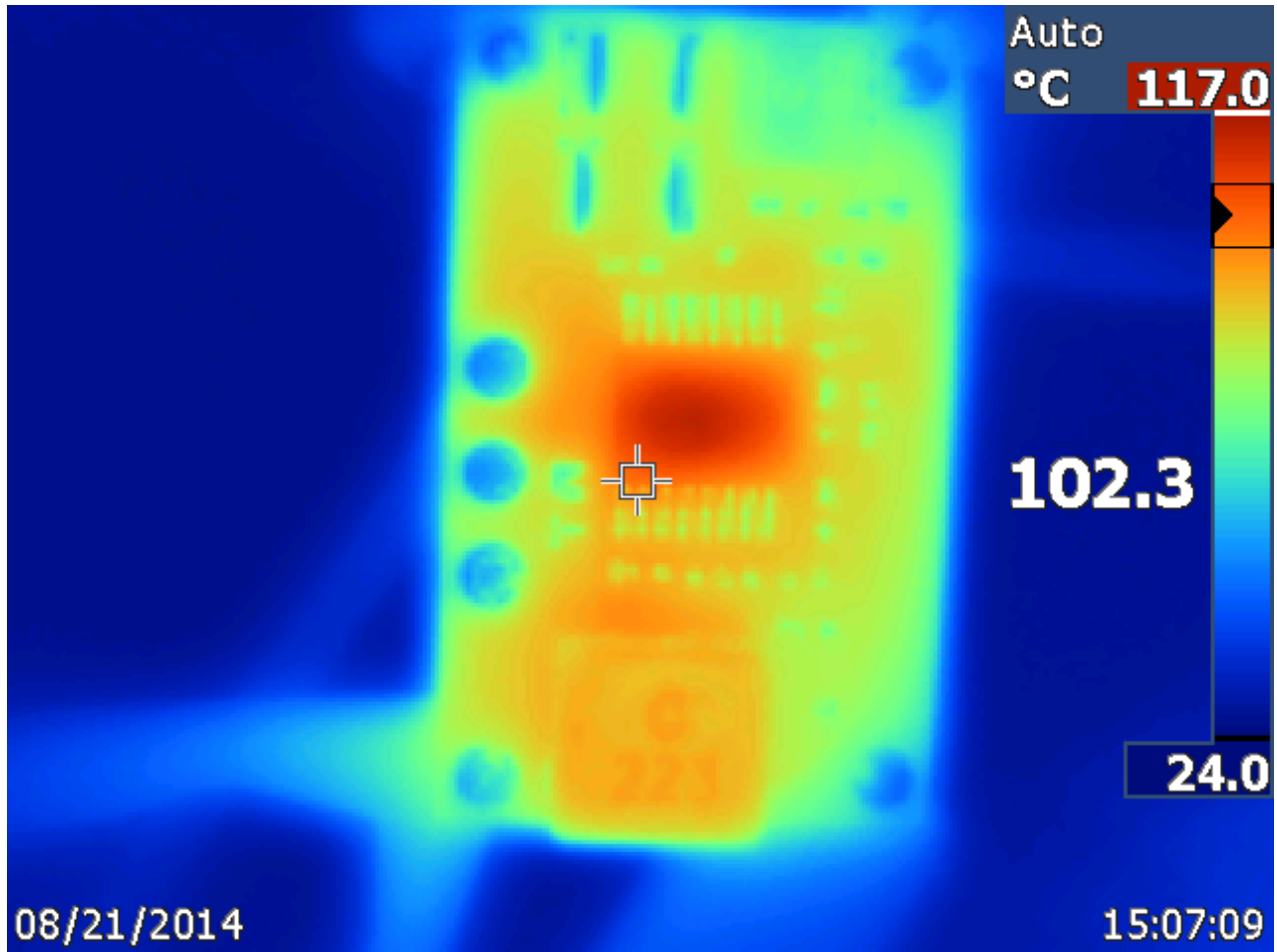
Test Conditions: $V_{in} = 24V$, 5V output with 3A load. $F_{SW} = 500kHz$



Thermal Images

3.3V output

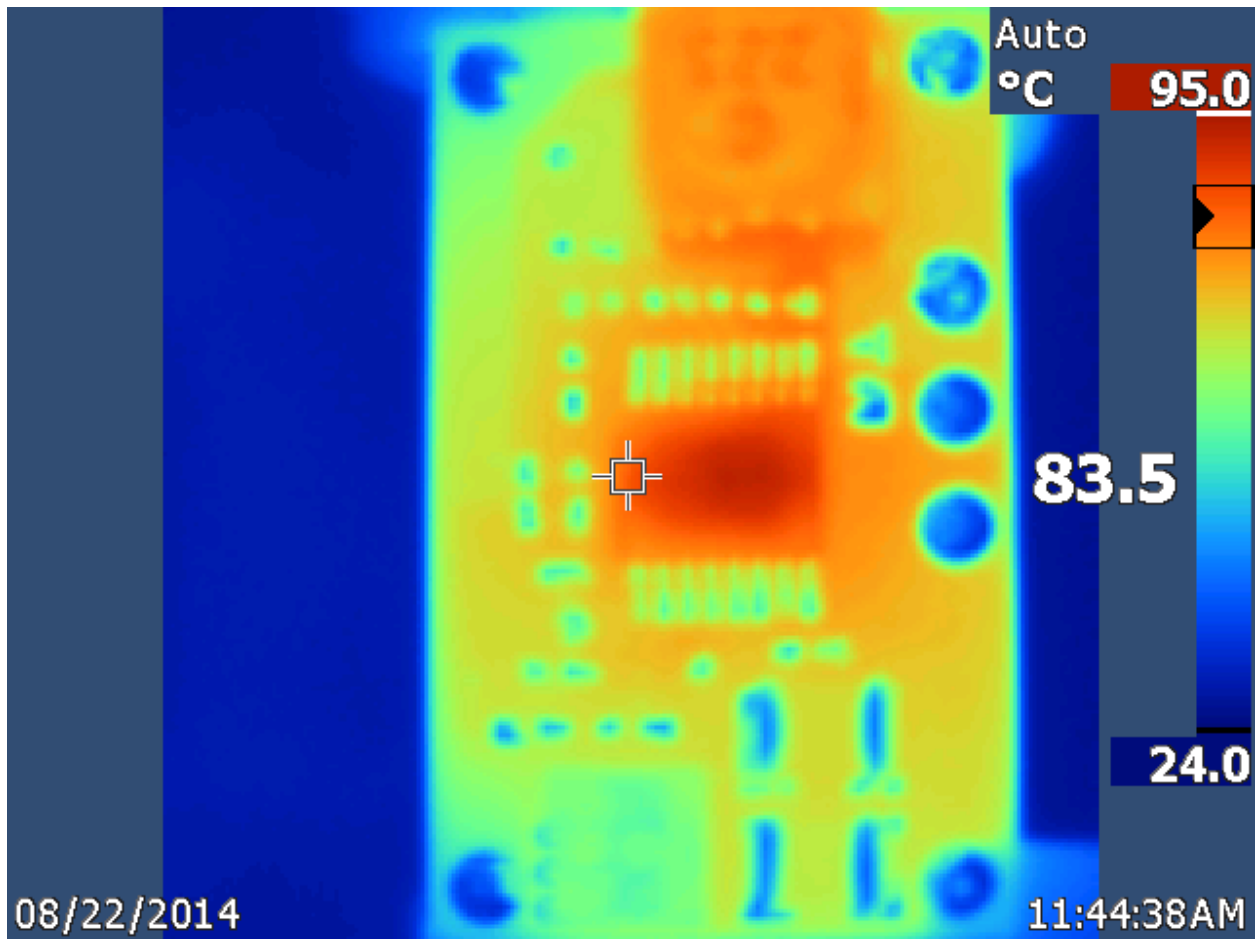
Test Conditions: $V_{in} = 24V$, 3.3V output with 3A load. $F_{SW} = 500kHz$



Thermal Images

2.5V output

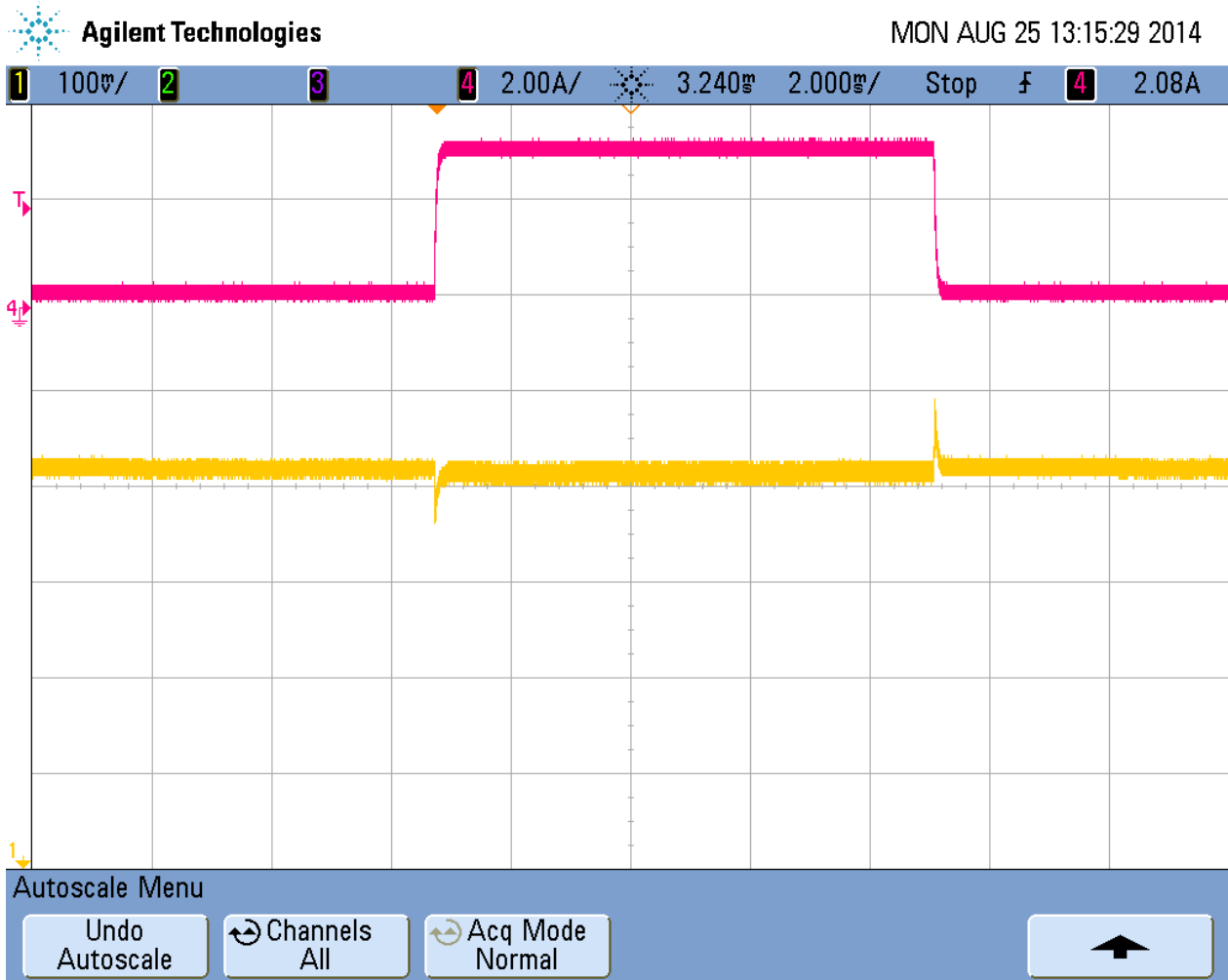
Test Conditions: $V_{in} = 24V$, 2.5V output with 3A load. $F_{SW} = 500kHz$



Transient Response

5V output Load Step

Test Conditions: $V_{in} = 24V$, 5V output with load from 0 to 3A. $F_{SW} = 500kHz$



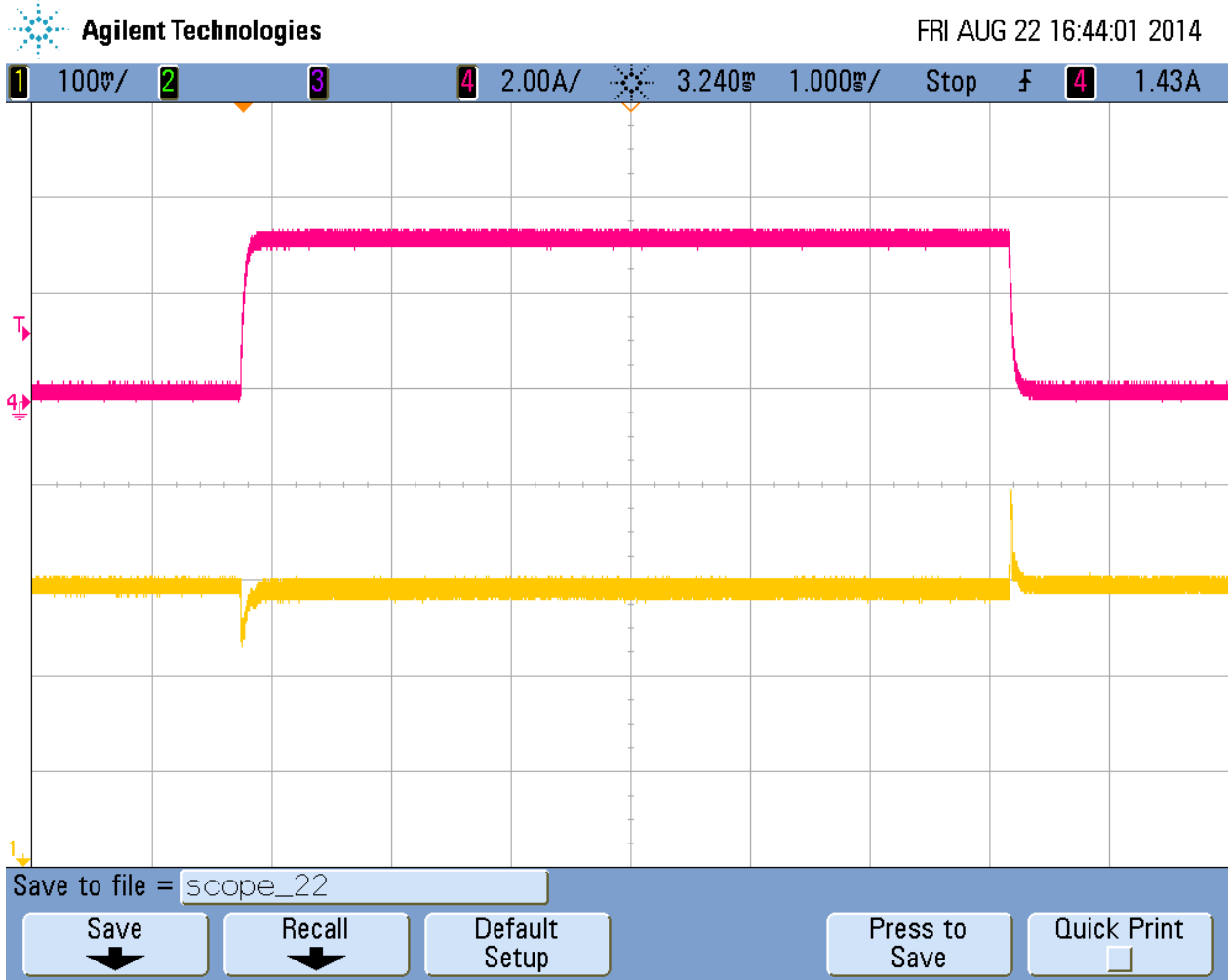
Undershoot ~ 40mV

Overshoot ~95mV

Transient Response

3.3V output Load Step

Test Conditions: $V_{in} = 24V$, 5V output with load from 0 to 3A. $F_{SW} = 500kHz$



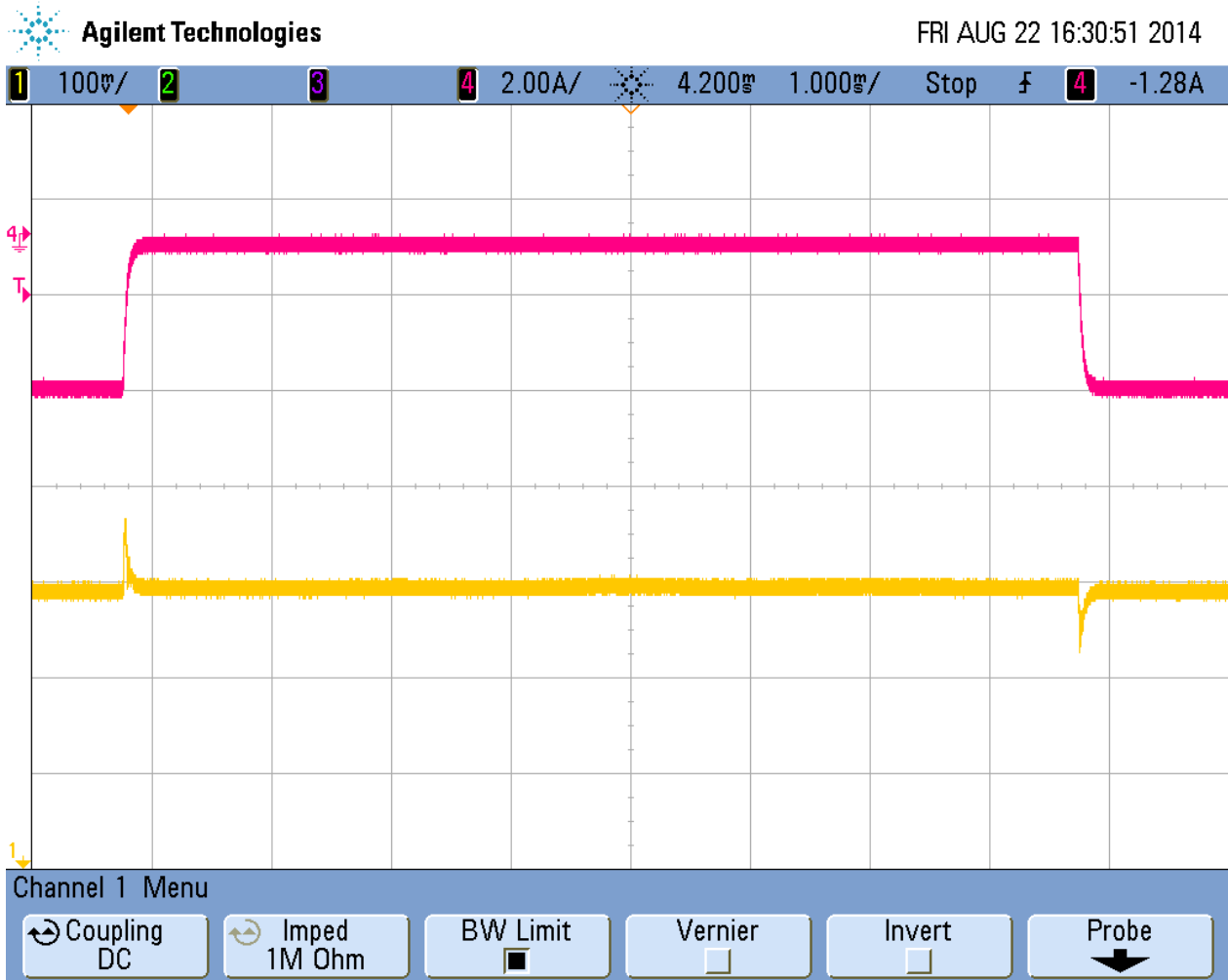
Undershoot ~ 60mV

Overshoot ~95mV

Transient Response

2.5V output Load Step

Test Conditions: $V_{in} = 24V$, 5V output with load from 0 to 3A. $F_{SW} = 500kHz$



Undershoot ~ 65mV

Overshoot ~70mV

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