PMP10851 TPS65263 Test Report

1/2/2015

The following test report is for the PMP10851 TPS65263:

VIN = 6.5V
VOUT1 = 3.3 V @ 1.5A
VOUT2 = 1.2 V @ 1A
VOUT3 = 1.8 V @ 0.5A

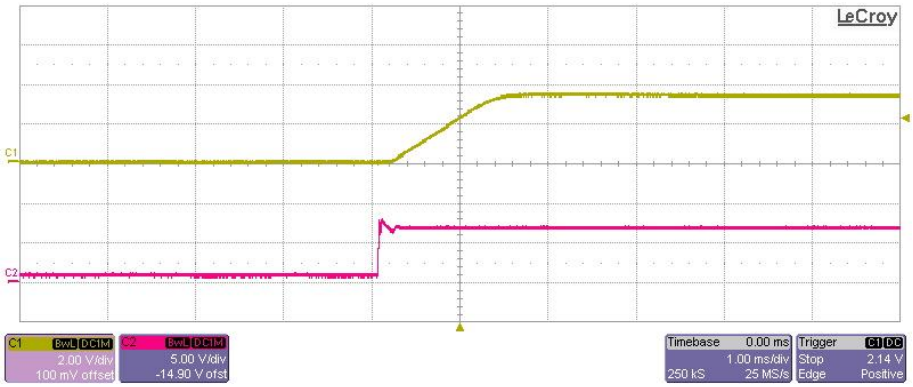
The tests performed were as follows for each output:

1. Startup (No load)
2. Turn Off (10Ω load)
3. Output Voltage Ripple (full load & no load)
4. Load Transient
5. Load Regulation
6. Efficiency
7. Switching Waveforms
8. Bode Plot
9. Thermal Profile
10. EVM Photo

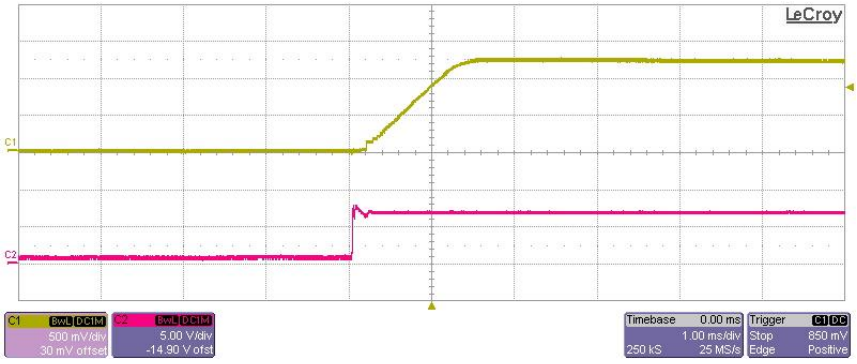
1 Startup

The picture below shows the startup waveform. The input voltage is 12V, the output is not loaded.

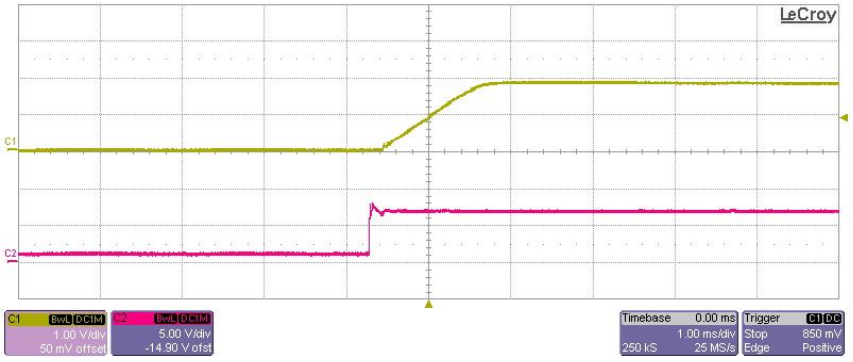
Channel 1 (yellow): 3.3V VOUT1 Output (2V/div)
Channel 2 (pink): 6.5V VIN (5V/ div)



Channel 1 (yellow): 1.2V VOUT2 Output (500mV/div)
Channel 2 (pink): 6.5V VIN (5V/div)



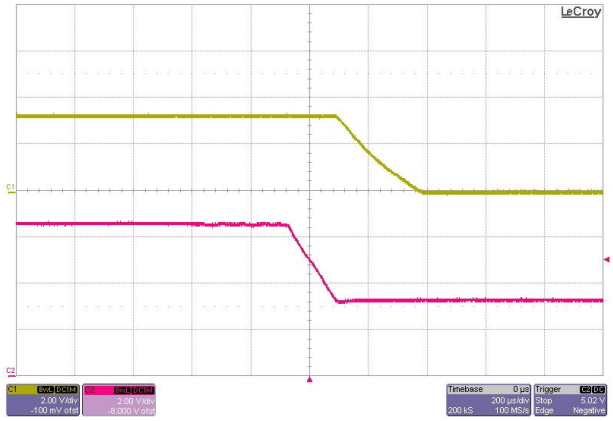
Channel 1 (yellow): 1.8V VOUT3 Output (1V/div)
Channel 2 (pink): 6.5V VIN (5V/div)



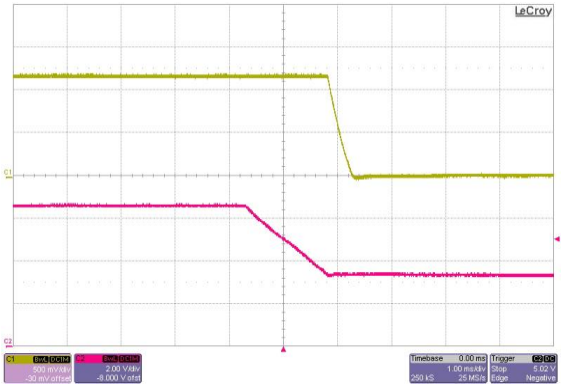
2 Turn Off

The picture below shows the turnoff waveform. The input voltage is 6.5V, all outputs are loaded to 10Ω.

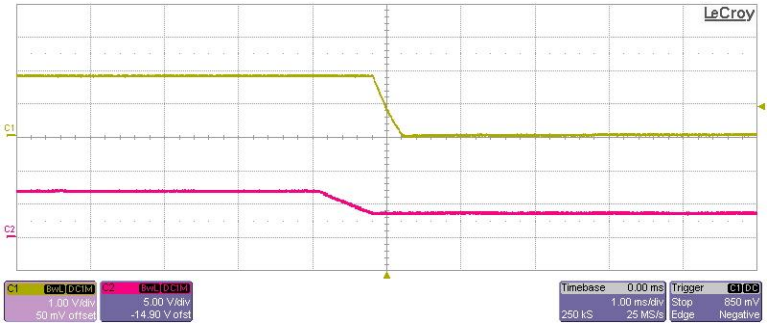
Channel 1 (yellow): 3.3V VOUT Output (2V/div)
Channel 2 (pink): 6.5V VIN (2V/div)



Channel 1 (yellow): 1.2V VOUT Output (500mV/div)
Channel 2 (pink): 6.5V VIN (2V/div)



Channel 1 (yellow): 1.8V VOUT Output (1V/div)
Channel 2 (pink): 6.5V VIN (5V/div)

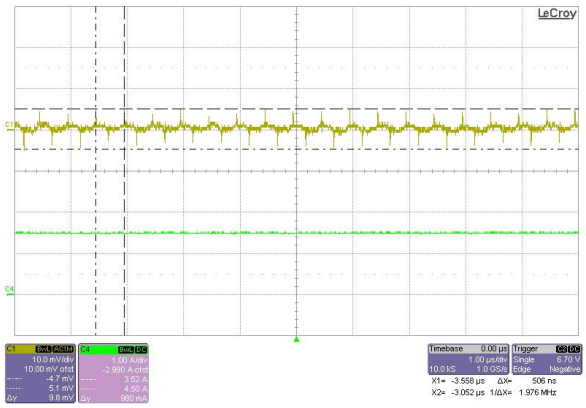


3 Output Voltage Ripple

The output voltage ripple for all 3 outputs is shown in the figure below. The input is 6.5V.

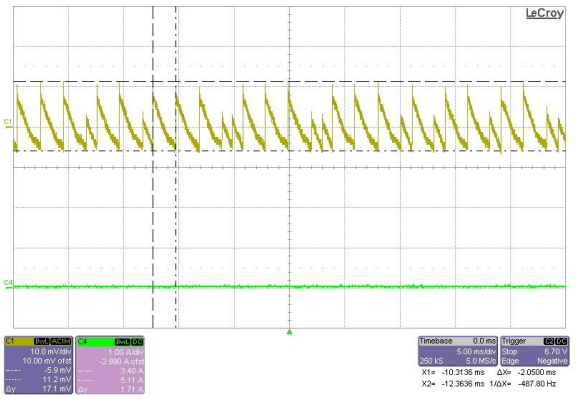
Channel 1 (yellow): 3.3V VOUT Output (10mV/div)
Channel 4 (green): 1.5A Output (2A/div)

Full Load:



Output voltage ripple = 9.8mV

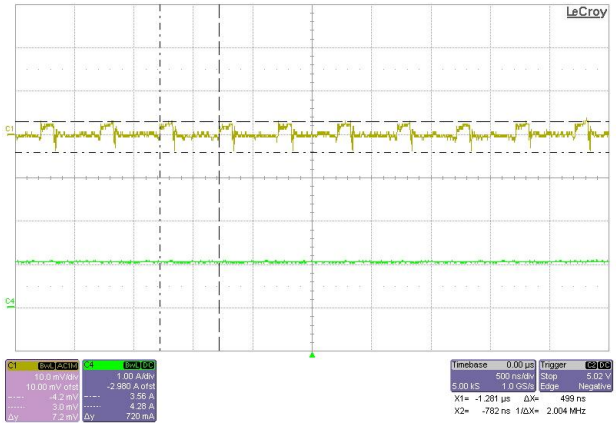
No Load:



Output voltage ripple = 17.1mV

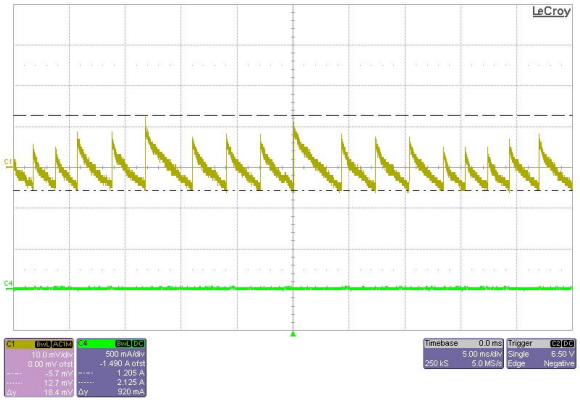
Channel 1 (yellow): 1.2V VOUT Output (10mV/div)
Channel 4 (green): 1A Output (2A/div)

Full Load:



Output voltage ripple = 7.2mV

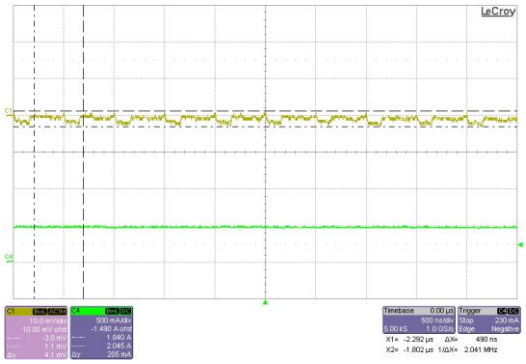
No Load:



Output voltage ripple = 18.4mV

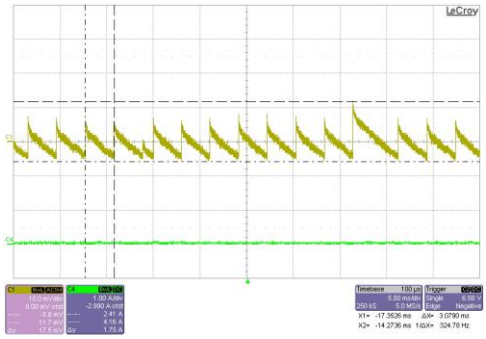
Channel 1 (yellow): 1.8V VOUT Output (10mV/div)
Channel 4 (green): 1A Output (2A/div)

Full Load:



Output voltage ripple = 4.1mV

No Load:

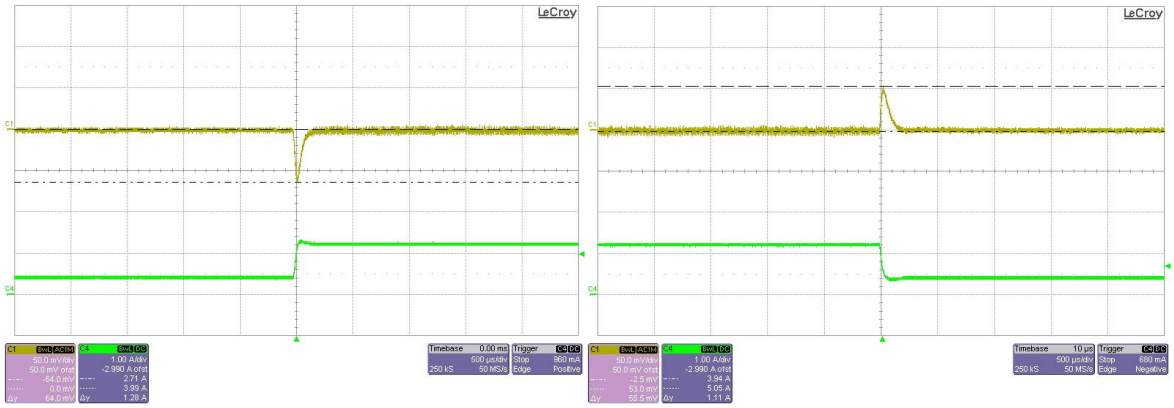


Output voltage ripple = 17.5mV

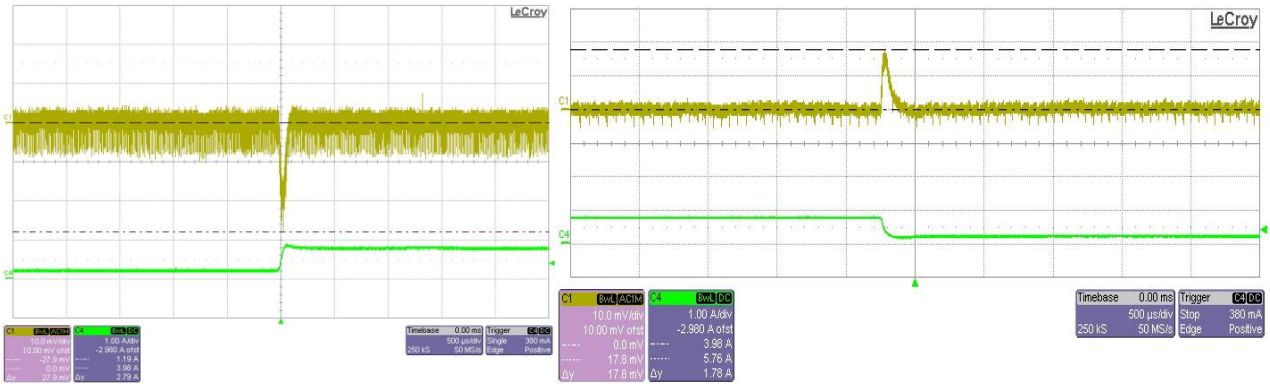
4 Load Transient – VOUT

The transient response is shown in the figure below. The input voltage is 6.5V.

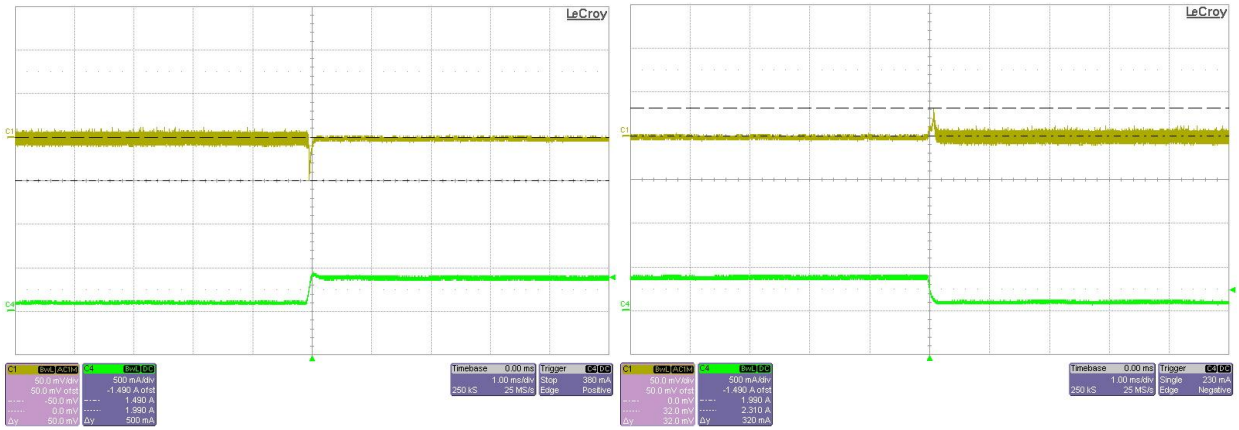
Channel 1 (yellow): VOUT1 Output (50mV/div)
Channel 4 (green): Output Current (1A/div) Slewed from 0.4A – 1.2A



Channel 1 (yellow): VOUT2 Output (10mV/div)
Channel 4 (green): Output Current (1A/div) Slewed from 0.2A – 0.8A

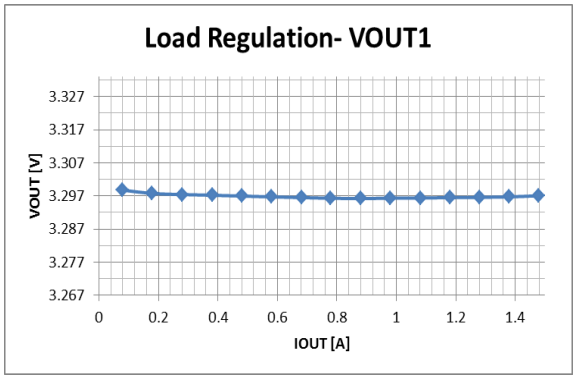


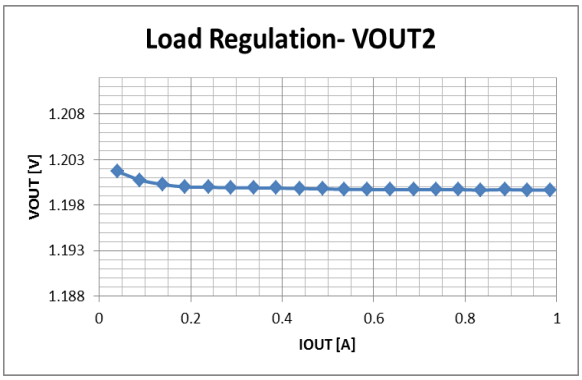
Channel 1 (yellow): VOUT3 Output (50mV/div)
Channel 4 (green): Output Current (500mA/div) Slewed from 0.1A – 0.4A

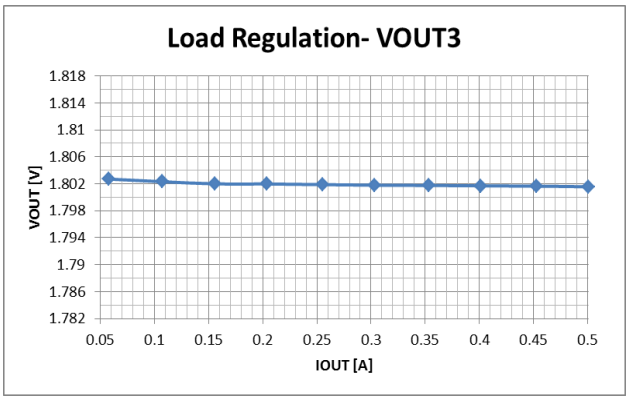


5 Load Regulation

A plot of the load regulations are shown in the figures below. The input voltage is 6.5V

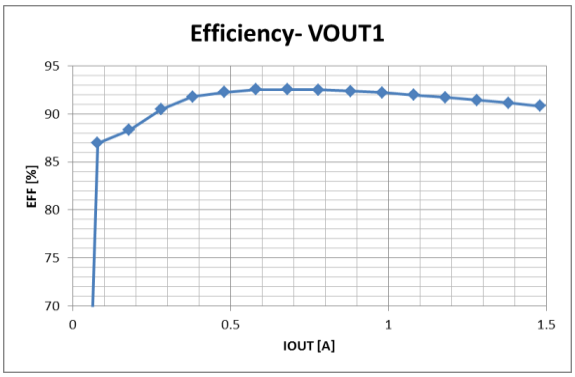


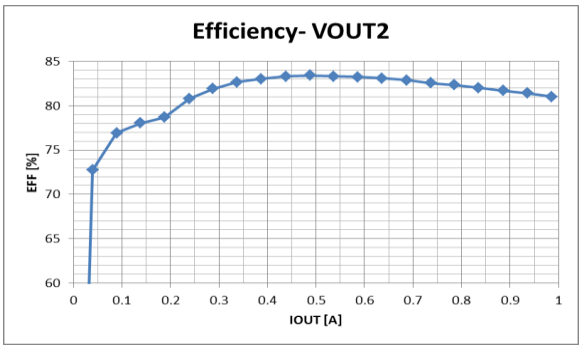


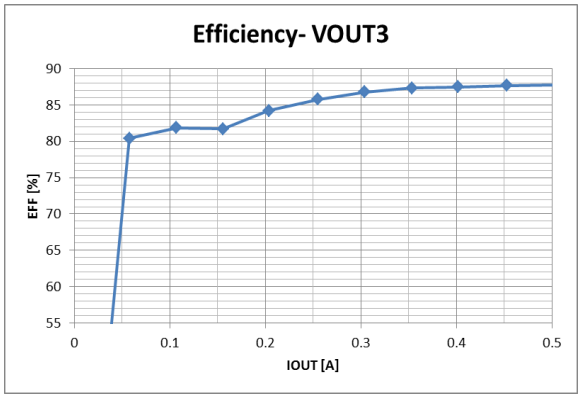


6 Efficiency

The efficiency of the converters is shown in the pictures below. The input voltage is 6.5V



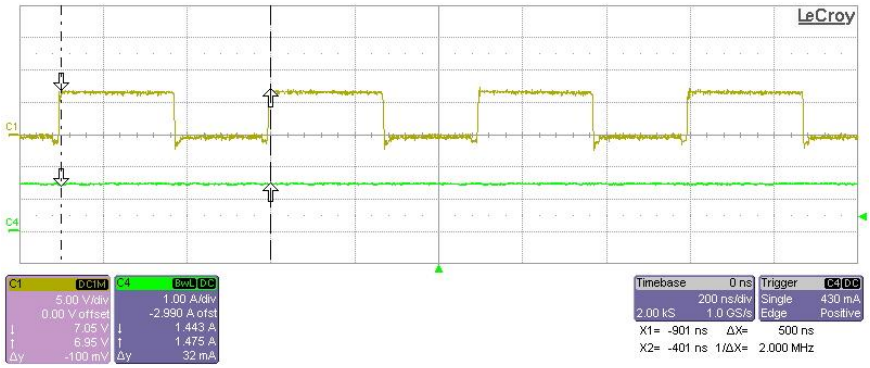




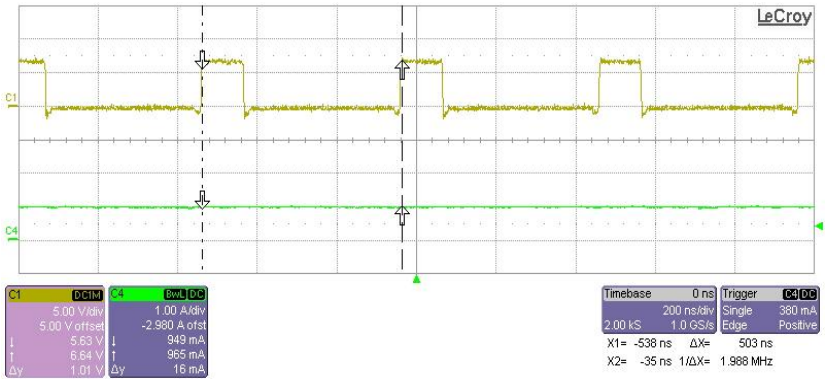
7 Switching Waveforms

The waveform below shows the switch nodes. The input is 6.5V. The outputs are fully loaded.

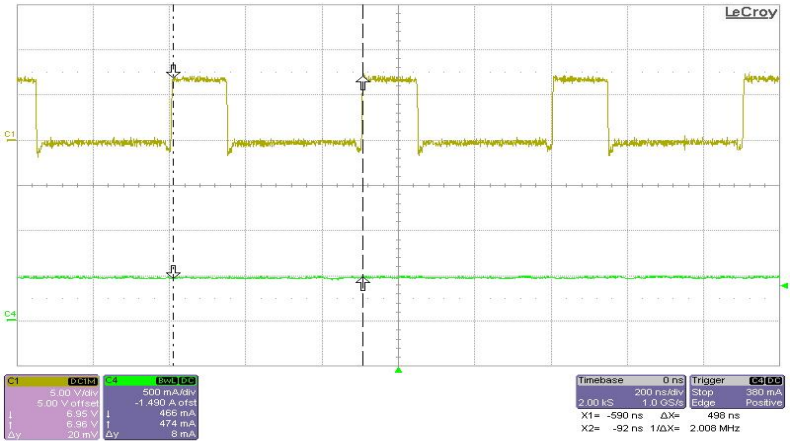
Channel 1 (yellow): SW pin VOUT1 (5V/div)
Channel 4 (green): Output Current (1A/div)



Channel 1 (yellow): SW pin VOUT2 (5V/div)
Channel 4 (green): Output Current (1A/div)



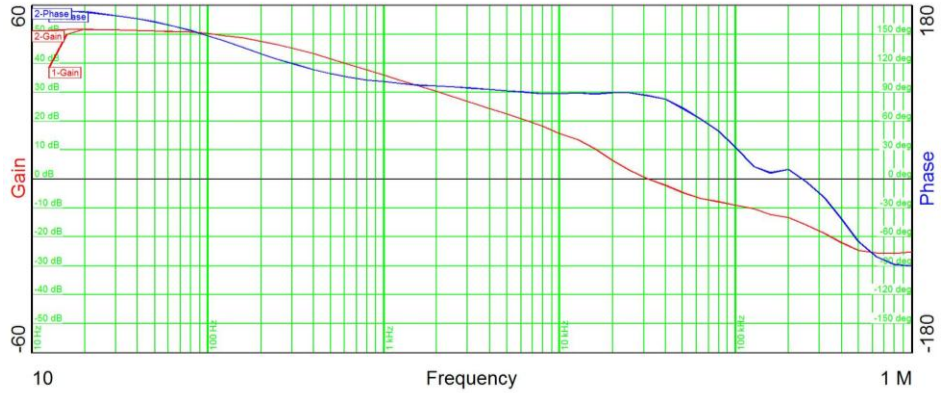
Channel 1 (yellow): SW pin VOUT3 (5V/div)
Channel 4 (green): Output Current (500mA/div)



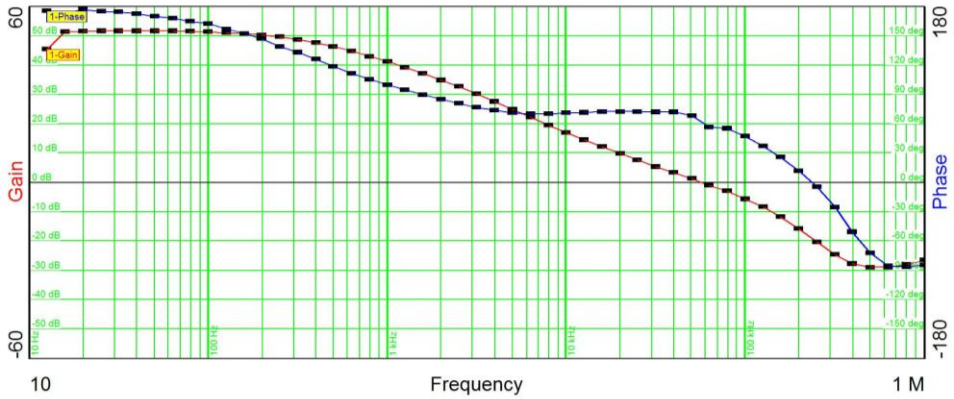
8 Bode Plot

The bode plots for the three outputs are shown below. The input voltage is 6.5V

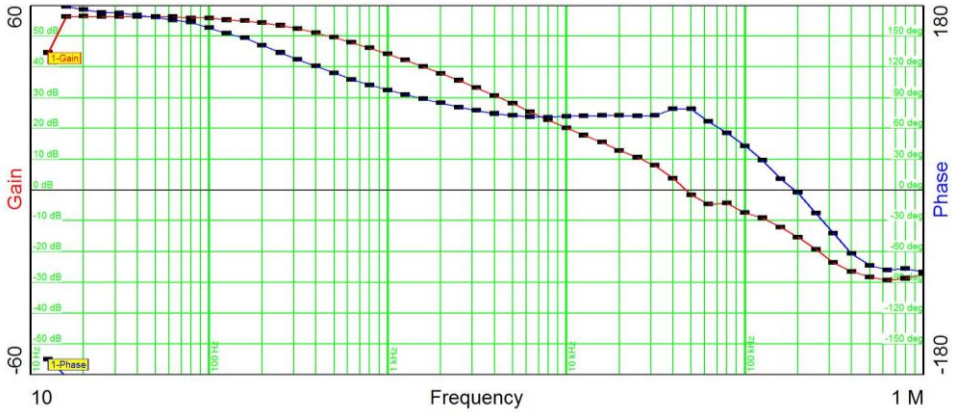
VOUT1:



VOUT2:

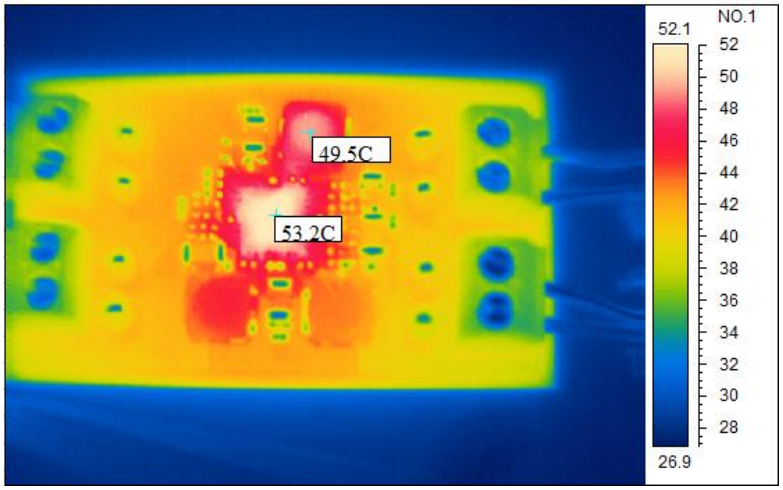


VOUT3:



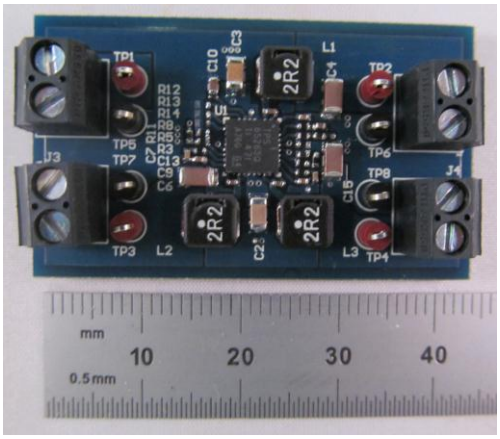
9 Thermal Profile

The figures below show the thermal profile of the board at full loads. The input voltage is 6.5V



Front Side – Max Temp = 53.2°C

10 EVM Photo



Front Side

Back Side

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