PMP5922 rev C is what TPS59610EVM-732 is based upon. Below are additional waveforms for each of the 5 switchers on the board. But first is shown a detailed thermal picture of the highest current switcher, the 1.8V at 5A.

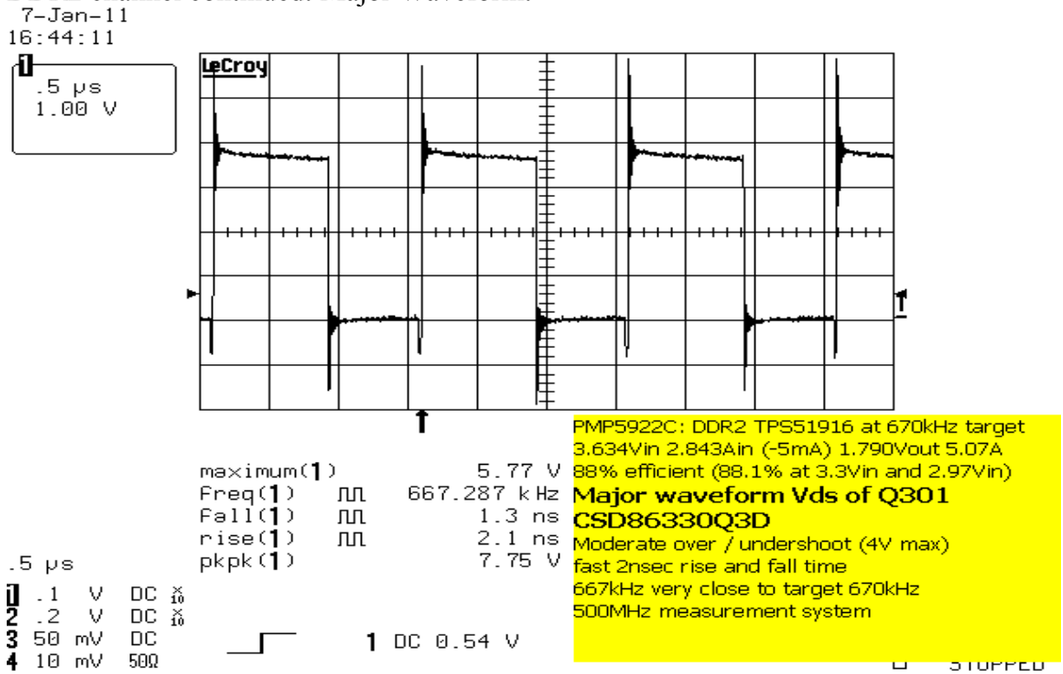
Table of Contents:

DDR2 channel 1.8V 5A TPS51916 & CSD86330Q3D off 3.3V

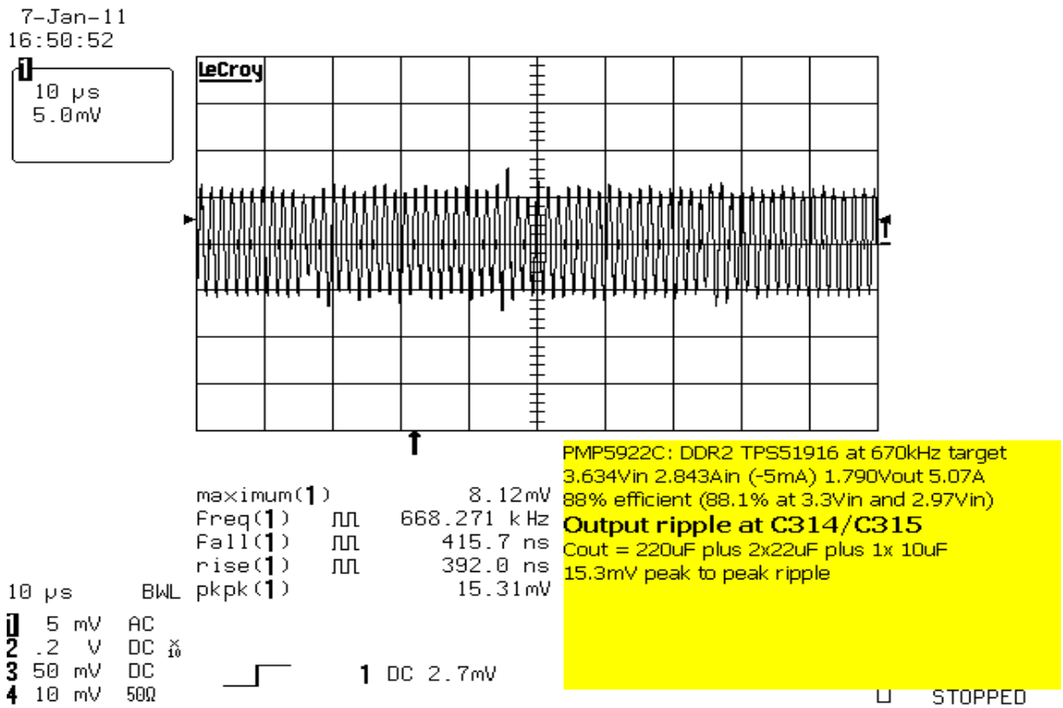
Full load switching Thermal image: 0.9V linear not loaded
PMP5922C: TPS51916 DDR2 switcher only loaded 667kHz
3.634Vin 2.843Iin 1.790Vout at 5.07A Chokes MPT420-R47 x2
Chokes hottest at 61 & 58 degrees Celsius;
dual switch CSD86330Q3D at 44 degrees C;
ambient at 23-25 deg. C


min 25.2 max 61.1
58.5 °C
min 35.7 max 57.7
min 36.3 max 43.9
25.2

DDR2 channel continued: Major Waveform:



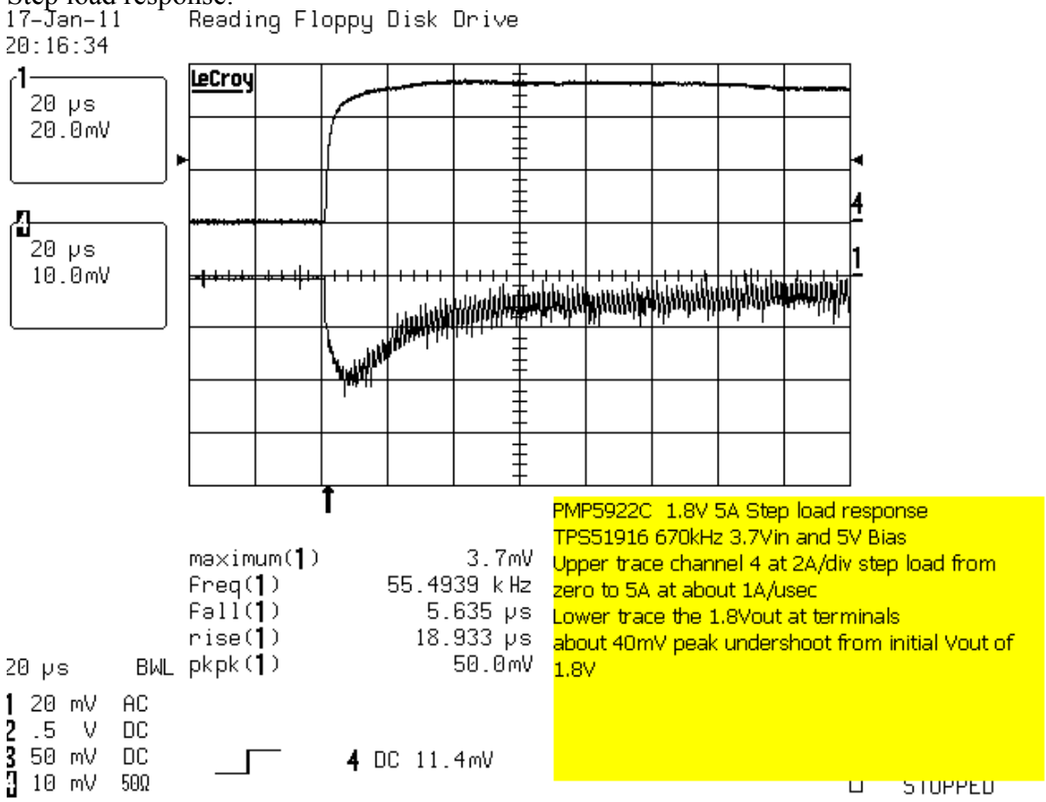
Output ripple:



Qq

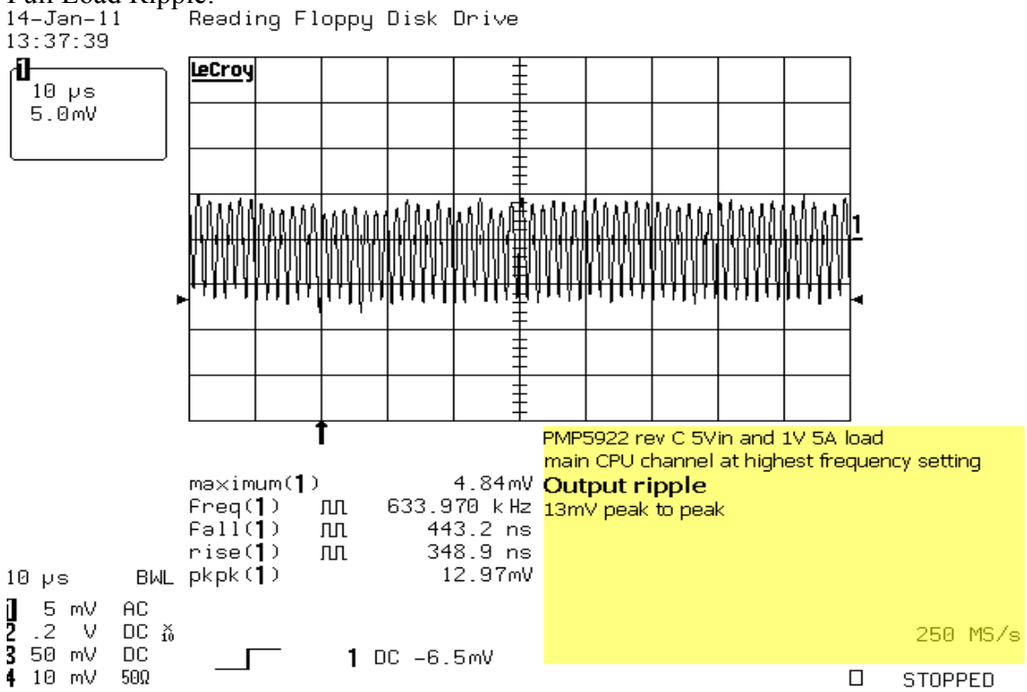
Efficiency calculations above ignore power from 5V used mostly for gate drive.

DDR2 continued:
Step load response:



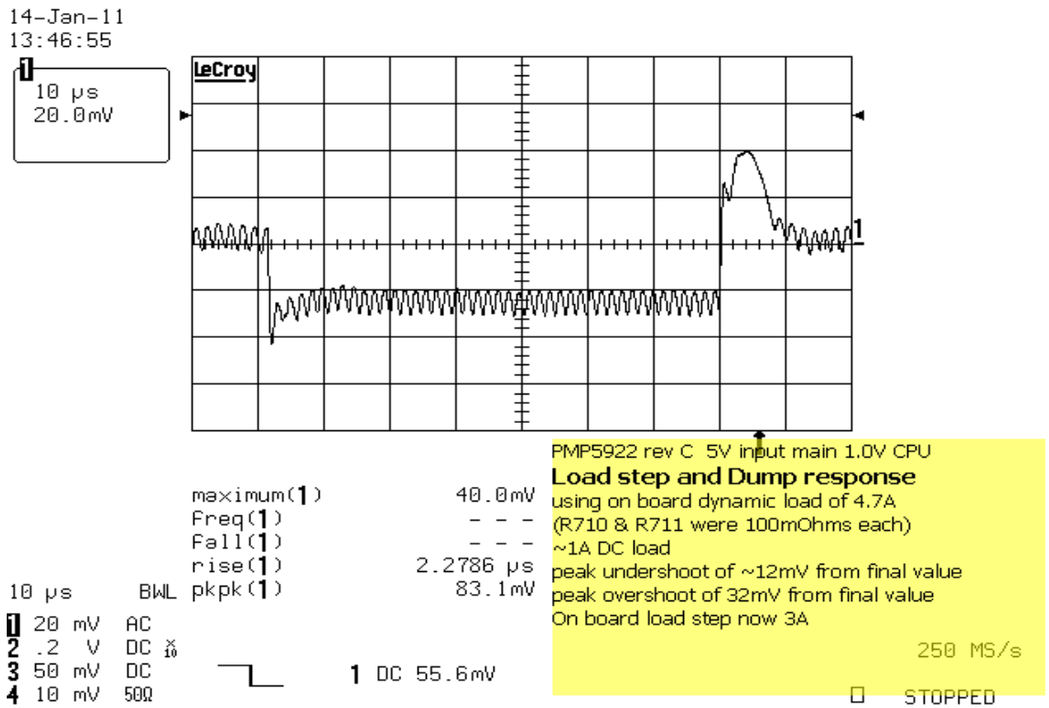
Qq

CPU Channel waveforms:
Full Load Ripple:

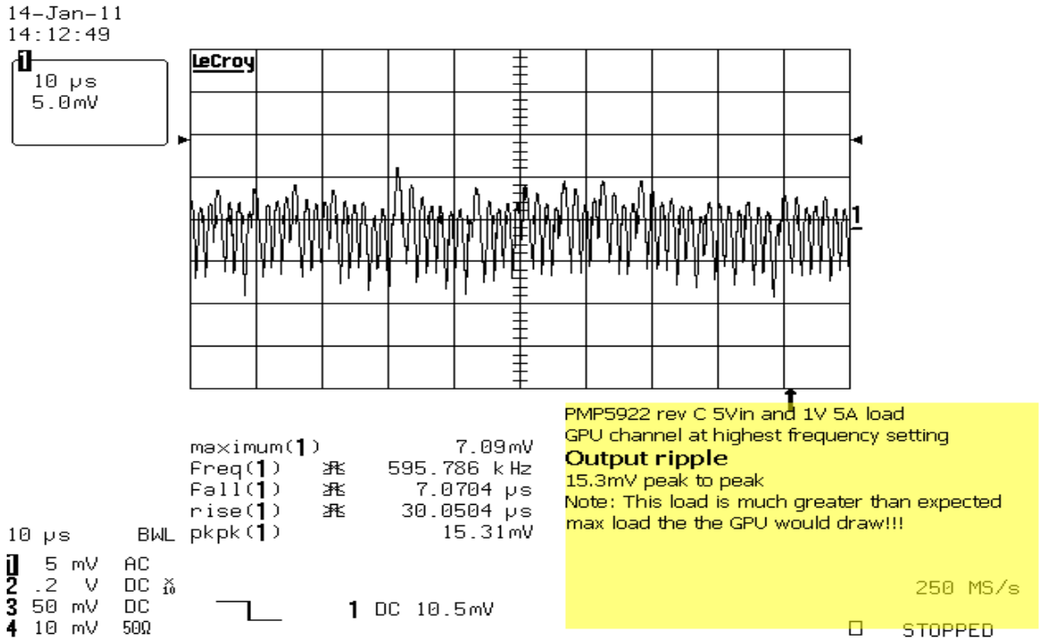


Qq

Load step & dump:

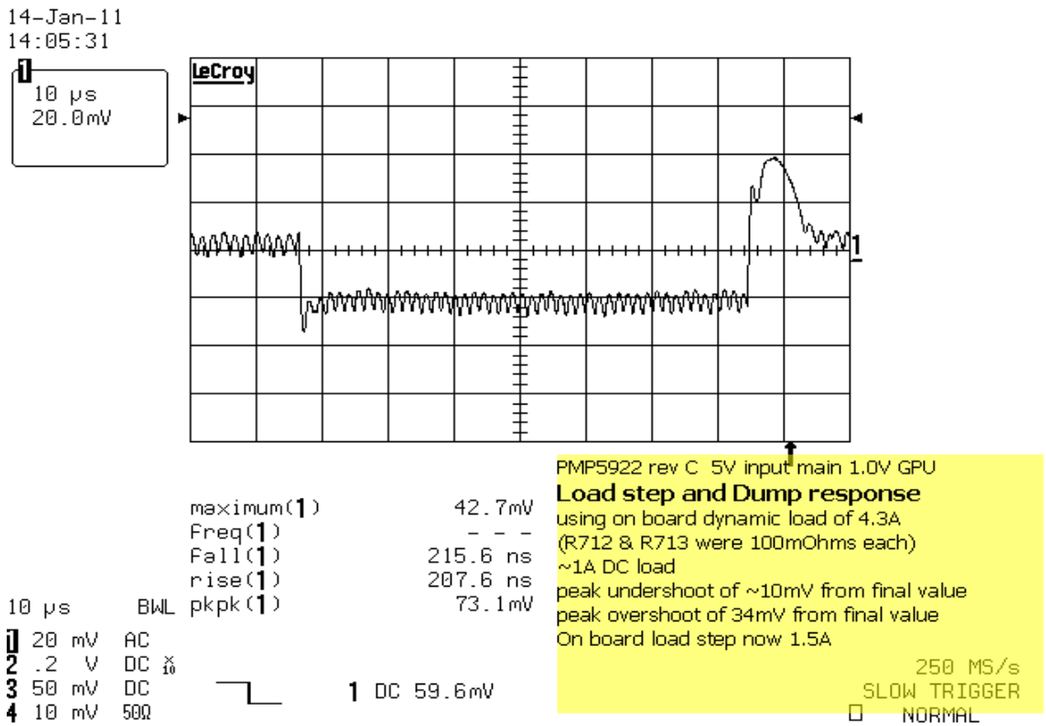


GPU Channel waveforms:
Beyond Full Load Ripple:

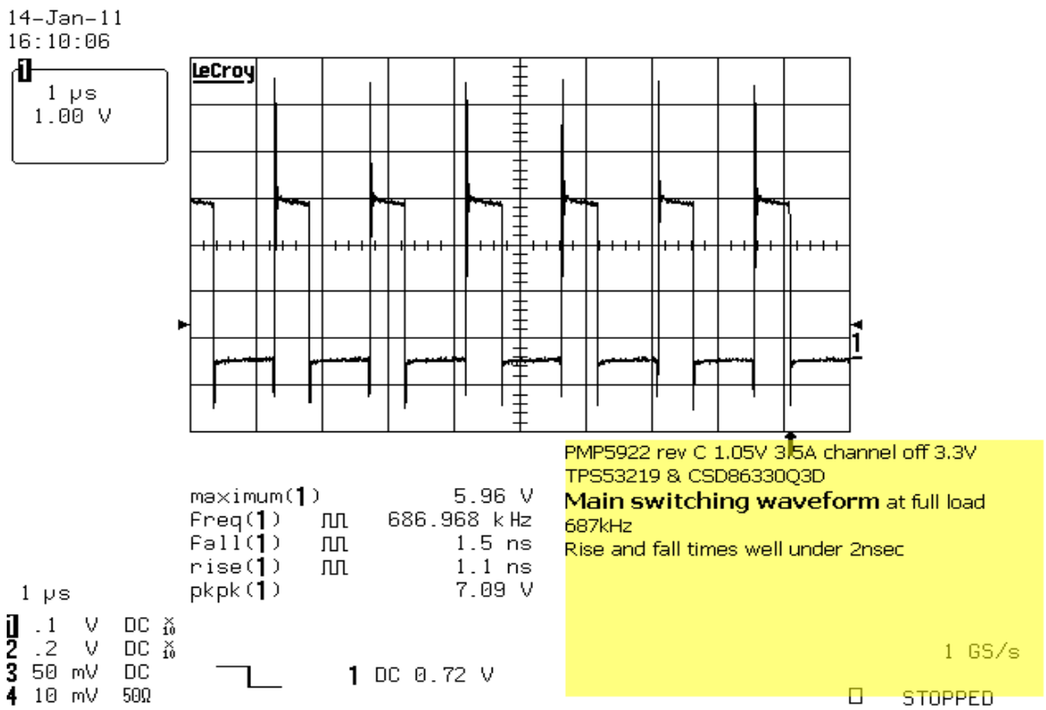


Qq

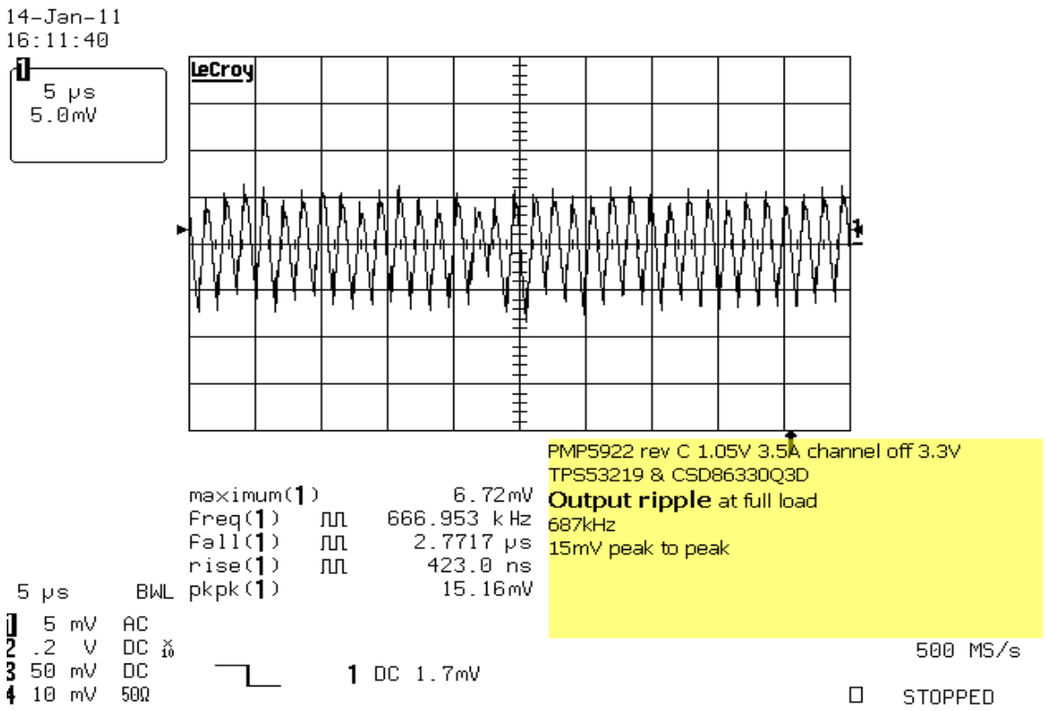
Dynamic load: Note: Step and dump well above max expected application load



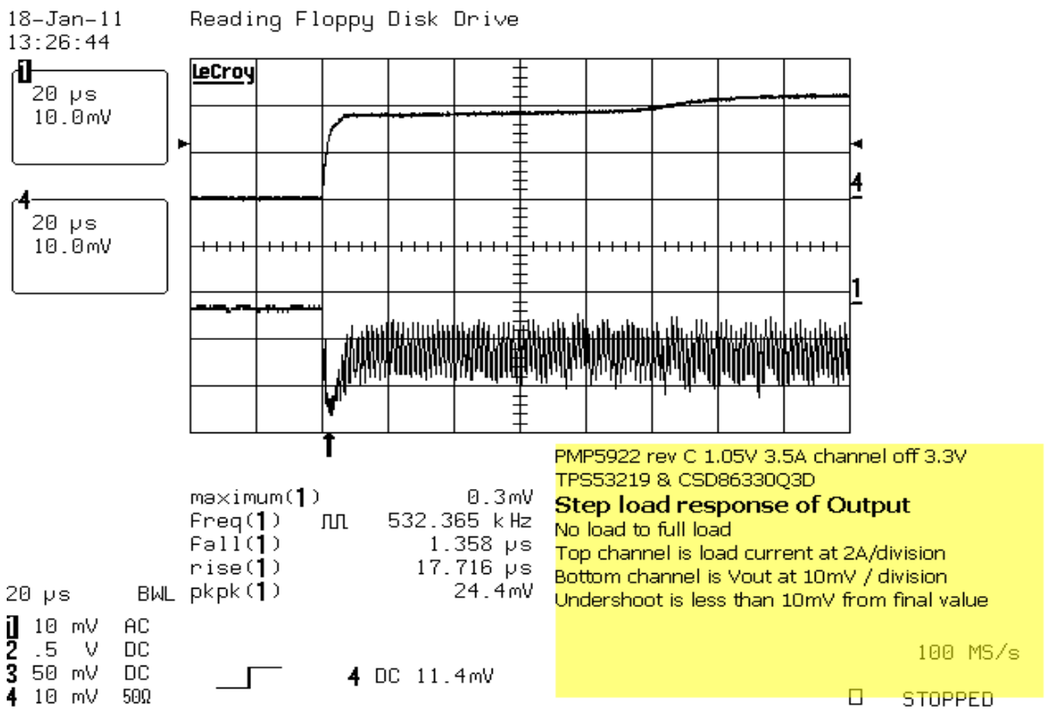
Qq
1.05V 3.5A off 3.3V TPS53219 & CSD86330Q3D
Main waveform:



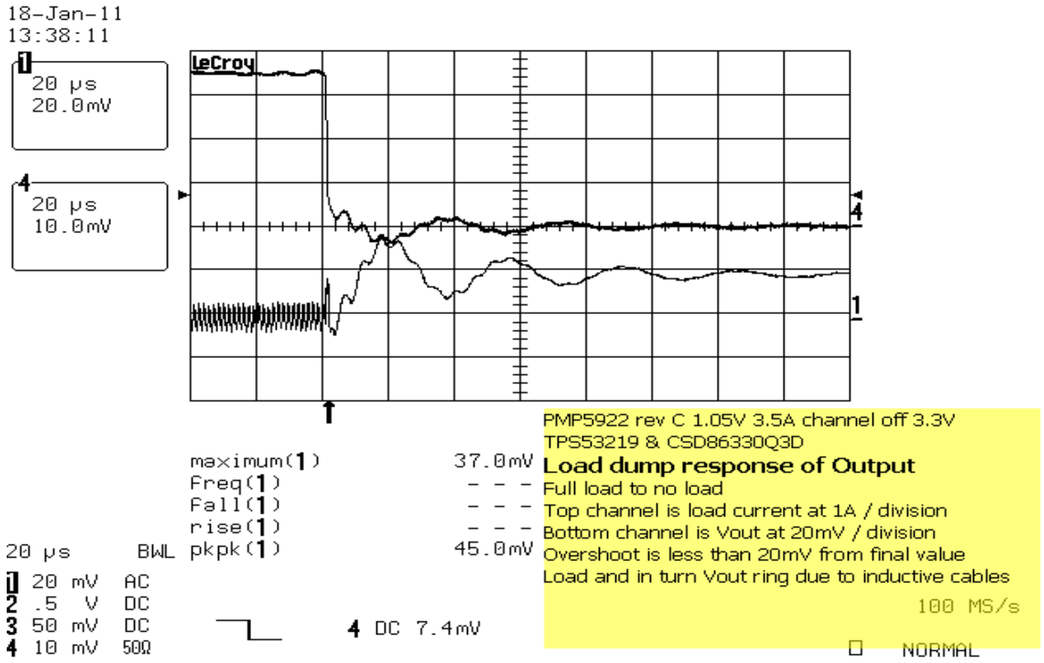
Output ripple:



1.05V 3.5A off 3.3V TPS53219 & CSD86330Q3D continued:
Step load response:

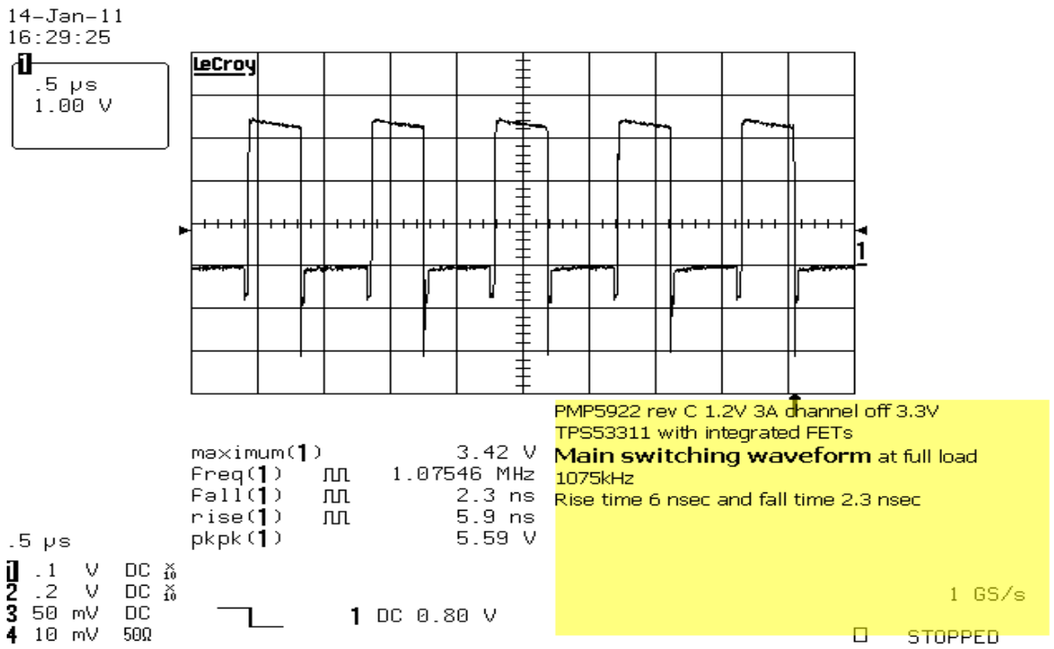


Load dump response:

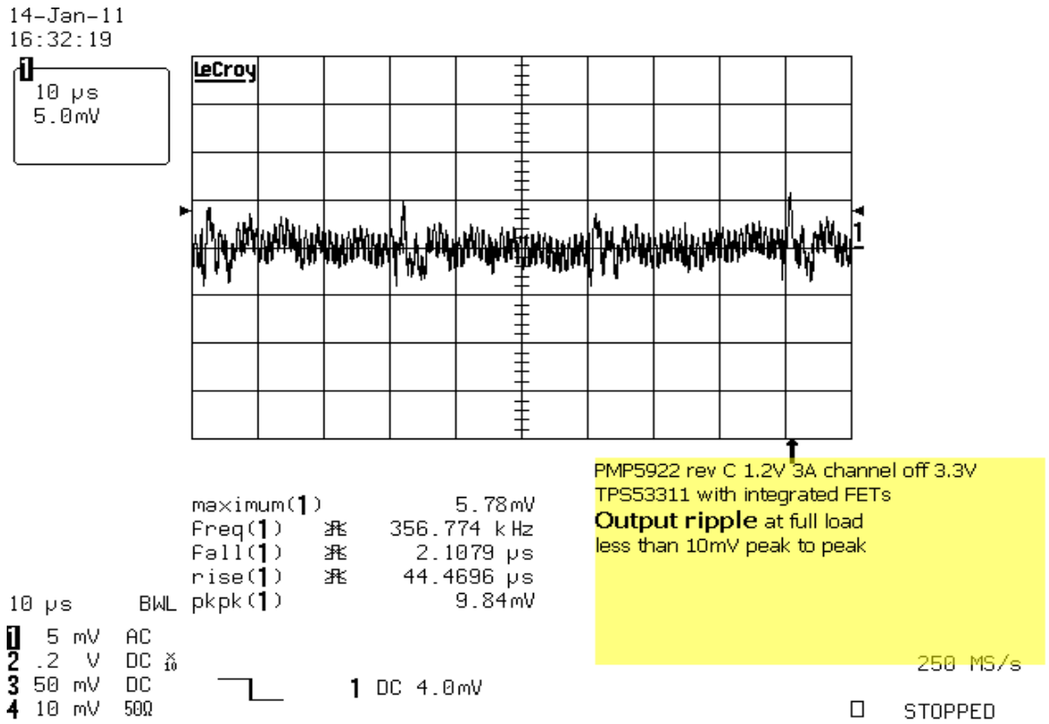


Qq

1.2V Channel: TPS53311 with integrated FETs
Main waveform:

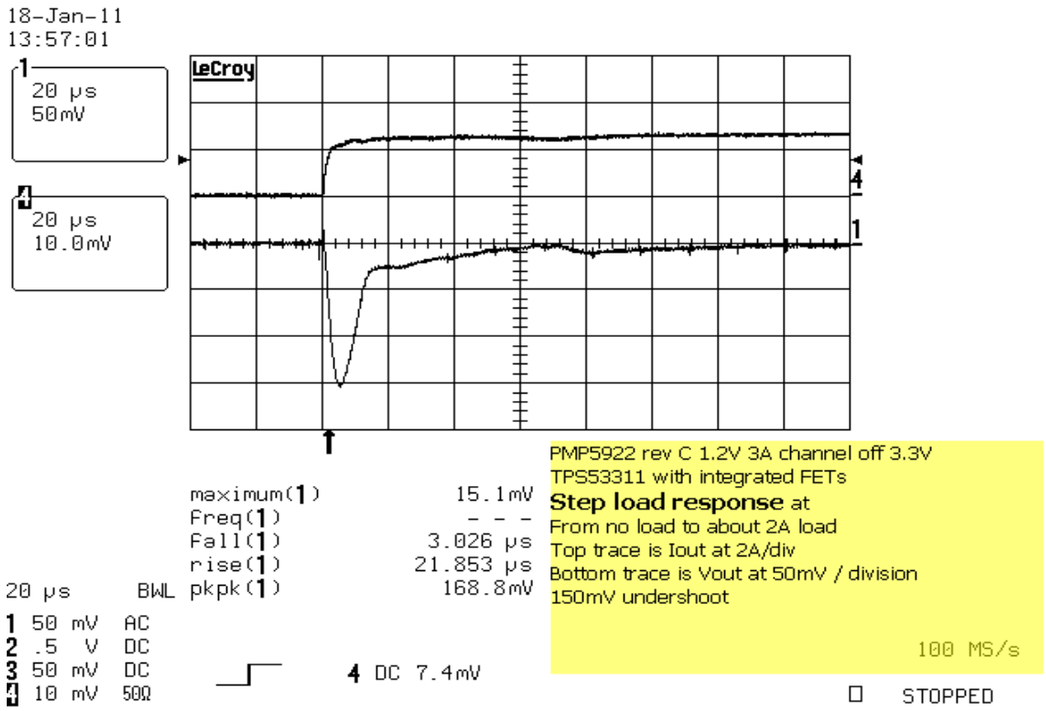


Output ripple:

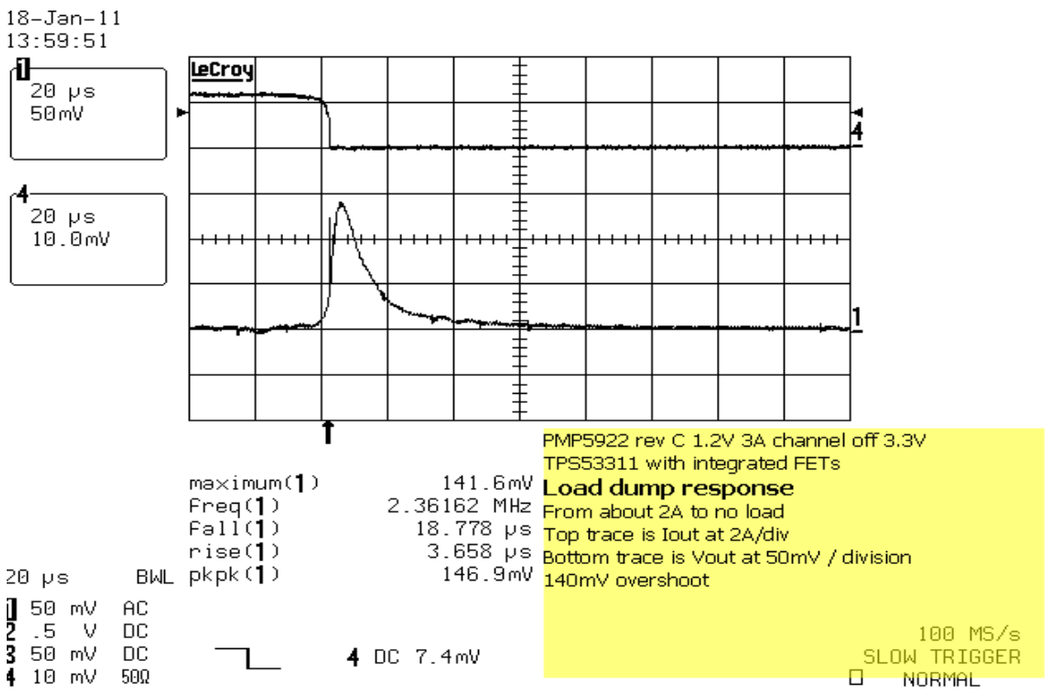


Qq

1.2V Channel: TPS53311 with integrated FETs continued:
Step load response:



Load dump response:


18-Jan-11
13:59:51
LeCroy
1
20 µs
50mV
4
20 µs
10.0mV
maximum(1) 141.6mV
Freq(1) 2.36162 MHz
Fall(1) 18.778 µs
rise(1) 3.658 µs
pkpk(1) 146.9mV
20 µs BWL
1 50 mV AC
2 .5 V DC
3 50 mV DC
4 10 mV 50Ω
4 DC 7.4mV
PMP5922 rev C 1.2V 3A channel off 3.3V
TPS53311 with integrated FETs
Load dump response
From about 2A to no load
Top trace is Iout at 2A/div
Bottom trace is Vout at 50mV / division
140mV overshoot
100 MS/s
SLOW TRIGGER
NORMAL

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