

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.

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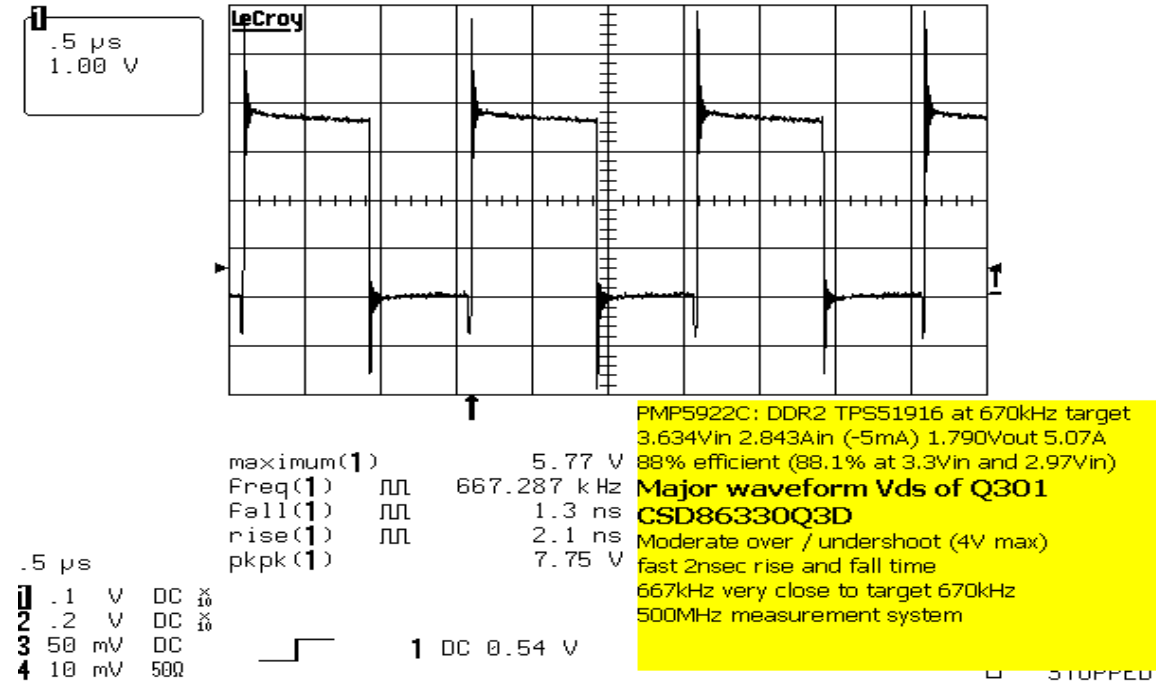
DDR2 channel 1.8V 5A TPS51916 & CSD86330Q3D off 3.3V

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



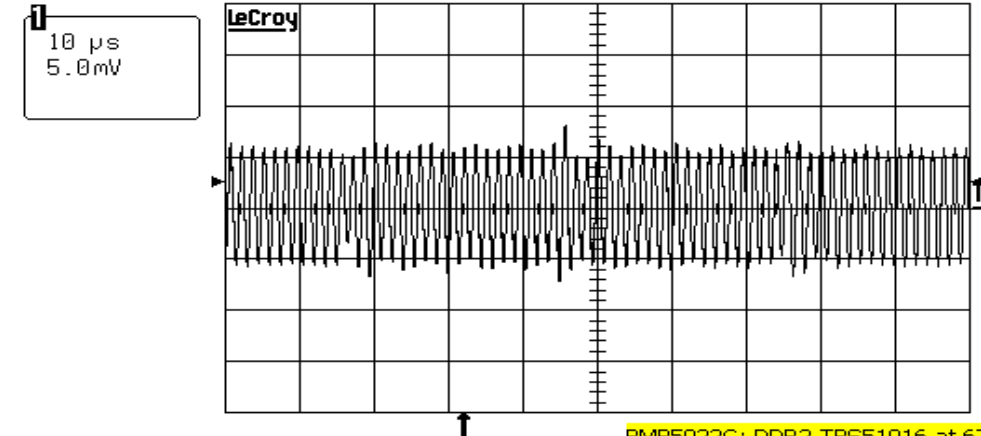
DDR2 channel continued: Major Waveform:

7-Jan-11
16:44:11



Output ripple:

7-Jan-11
16:50:52



10 μs		BWL	pkpk (1)	15.31mV	PMP5922C: DDR2 TPS51916 at 670kHz target 3.634Vin 2.843Ain (-5mA) 1.790Vout 5.07A 88% efficient (88.1% at 3.3Vin and 2.97Vin) Output ripple at C314/C315 Cout = 220uF plus 2x22uF plus 1x 10uF 15.3mV peak to peak ripple
1	5 mV	AC	maximum(1)	8.12mV	
2	.2 V	DC	Freq(1)	668.271 k Hz	
3	50 mV	DC	Fall(1)	415.7 ns	
4	10 mV	50Ω	rise(1)	392.0 ns	

1 DC 2.7mV

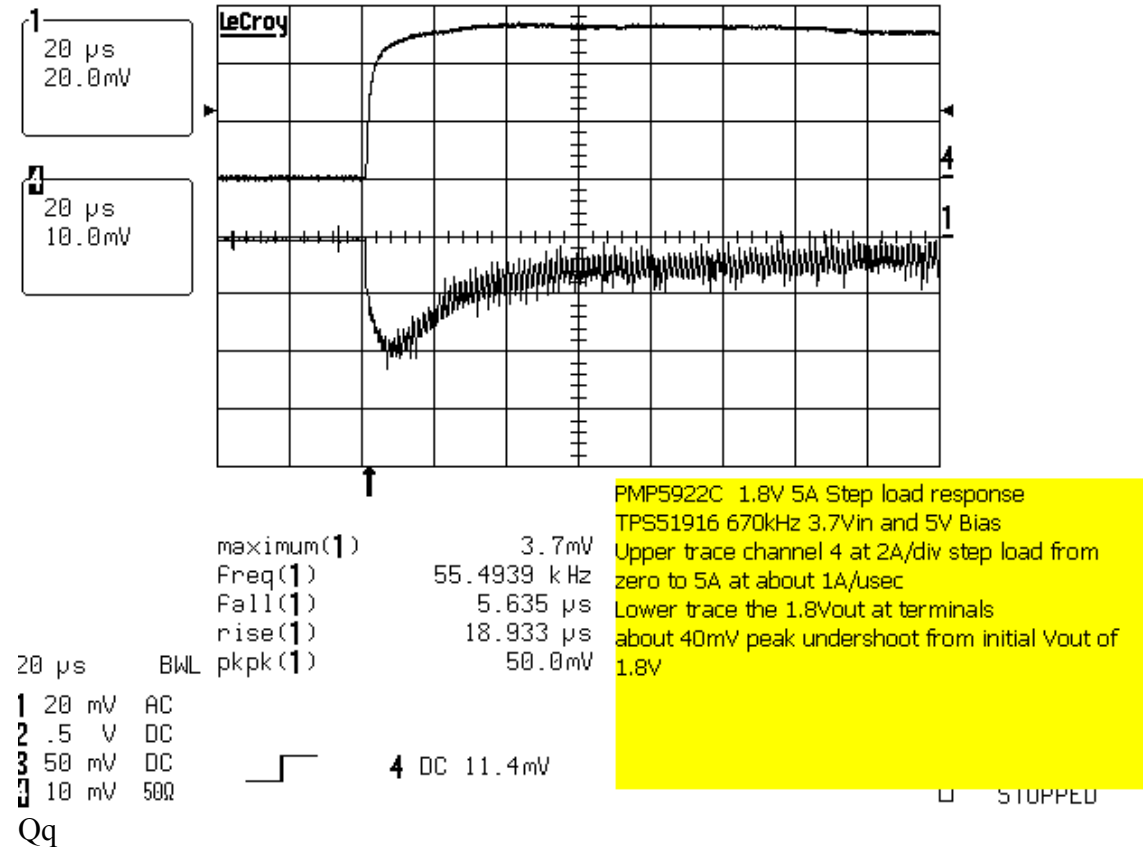
STOPPED

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

DDR2 continued:

Step load response:

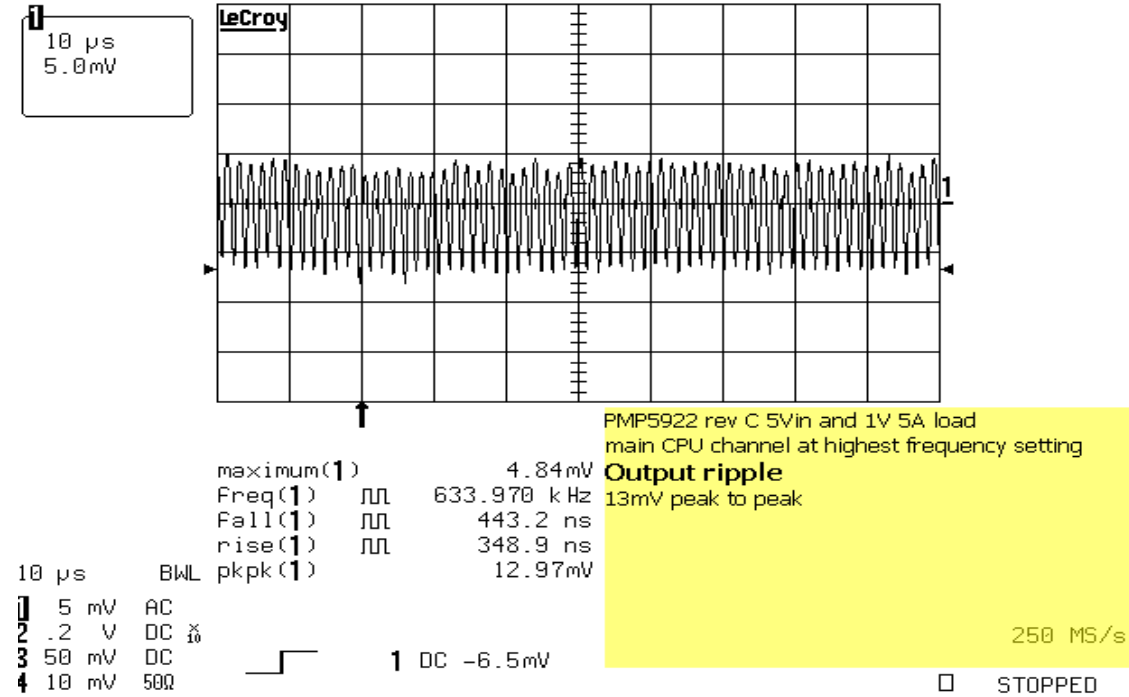
17-Jan-11 Reading Floppy Disk Drive
20:16:34



CPU Channel waveforms:

Full Load Ripple:

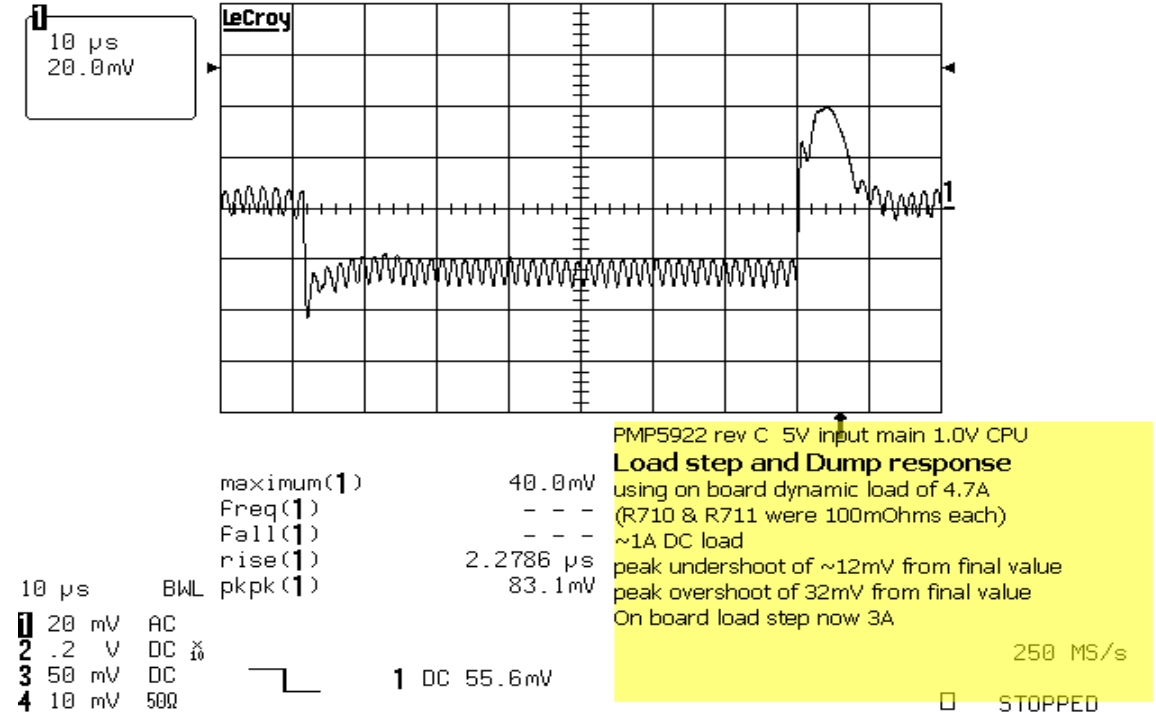
14-Jan-11 Reading Floppy Disk Drive
13:37:39



Qq

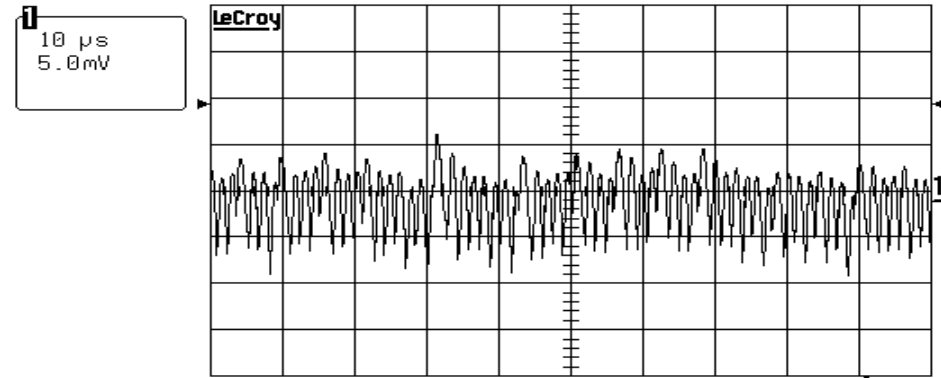
Load step & dump:

14-Jan-11
13:46:55



GPU Channel waveforms:
Beyond Full Load Ripple:

14-Jan-11
14:12:49



10 μs	BWL	pkpk(1)	15.31mV
1	5 mV AC	maximum(1)	7.09mV
2	.2 V DC $\frac{\times}{10}$	Freq(1)	595.786 kHz
3	50 mV DC	Fall(1)	7.0704 μs
4	10 mV 50Ω	rise(1)	30.0504 μs

1 DC 10.5mV

PMP5922 rev C 5Vin and 1V 5A load
GPU channel at highest frequency setting
Output ripple
15.3mV peak to peak
Note: This load is much greater than expected
max load the the GPU would draw!!!

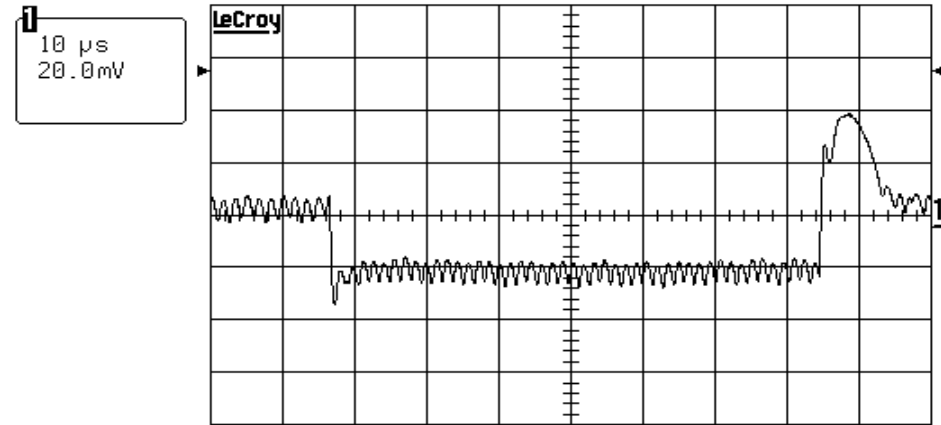
250 MS/s

STOPPED

Qq

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

14-Jan-11
14:05:31



10 μs	BWL	pkpk(1)	73.1 mV
1	20 mV	AC	
2	.2 V	DC	59.6 mV
3	50 mV	DC	
4	10 mV	50Ω	

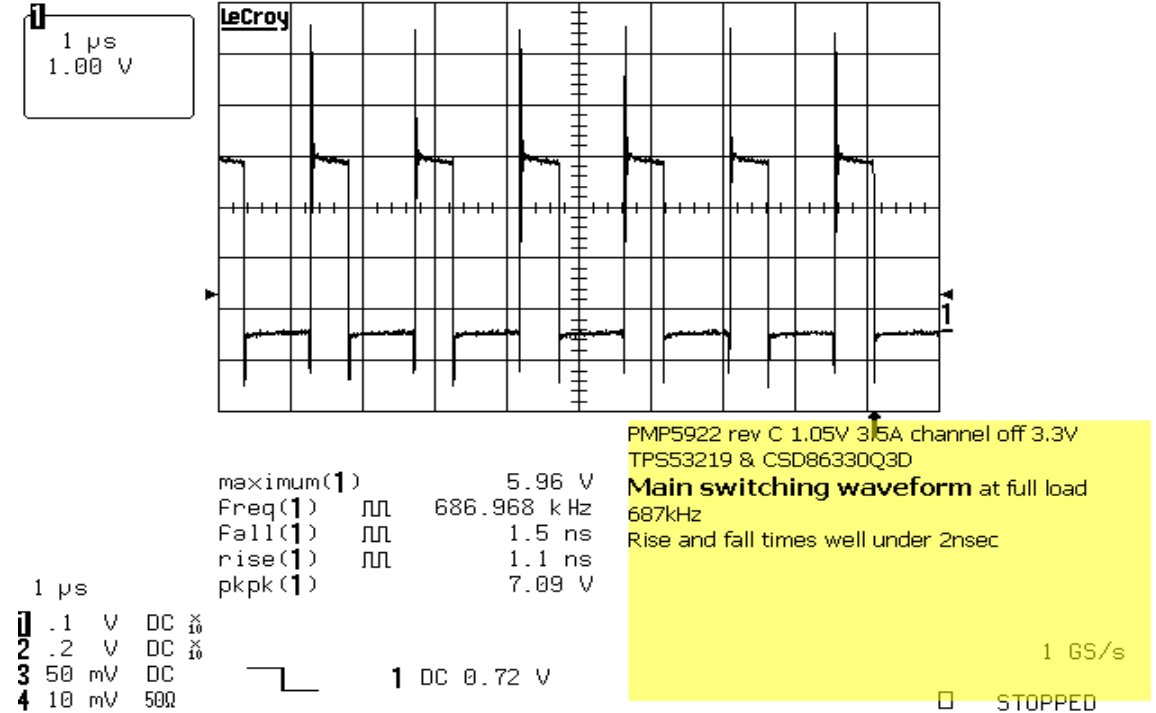
maximum(1)	42.7 mV
Freq(1)	- - -
Fall(1)	215.6 ns
rise(1)	207.6 ns
pkpk(1)	73.1 mV

PMP5922 rev C 5V input main 1.0V GPU
Load step and Dump response
 using on board dynamic load of 4.3A
 (R712 & R713 were 100mOhms each)
 ~1A DC load
 peak undershoot of ~10mV from final value
 peak overshoot of 34mV from final value
 On board load step now 1.5A

250 MS/s
 SLOW TRIGGER
 NORMAL

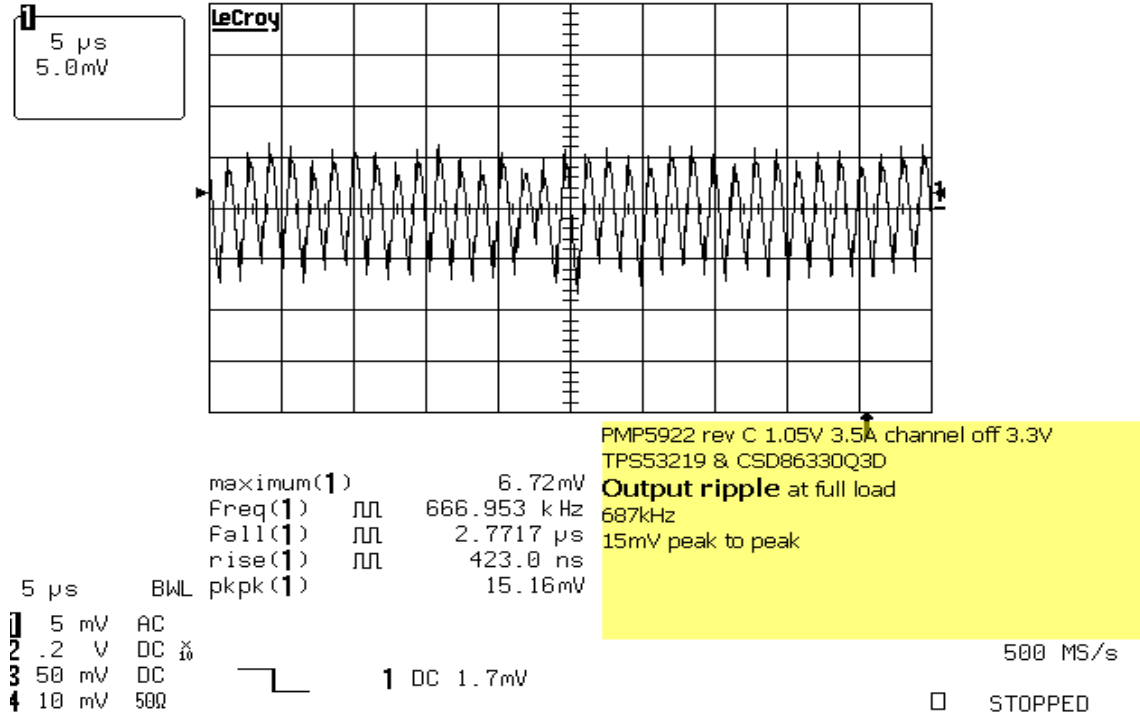
Qq
1.05V 3.5A off 3.3V TPS53219 & CSD86330Q3D
Main waveform:

14-Jan-11
16:10:06



Output ripple:

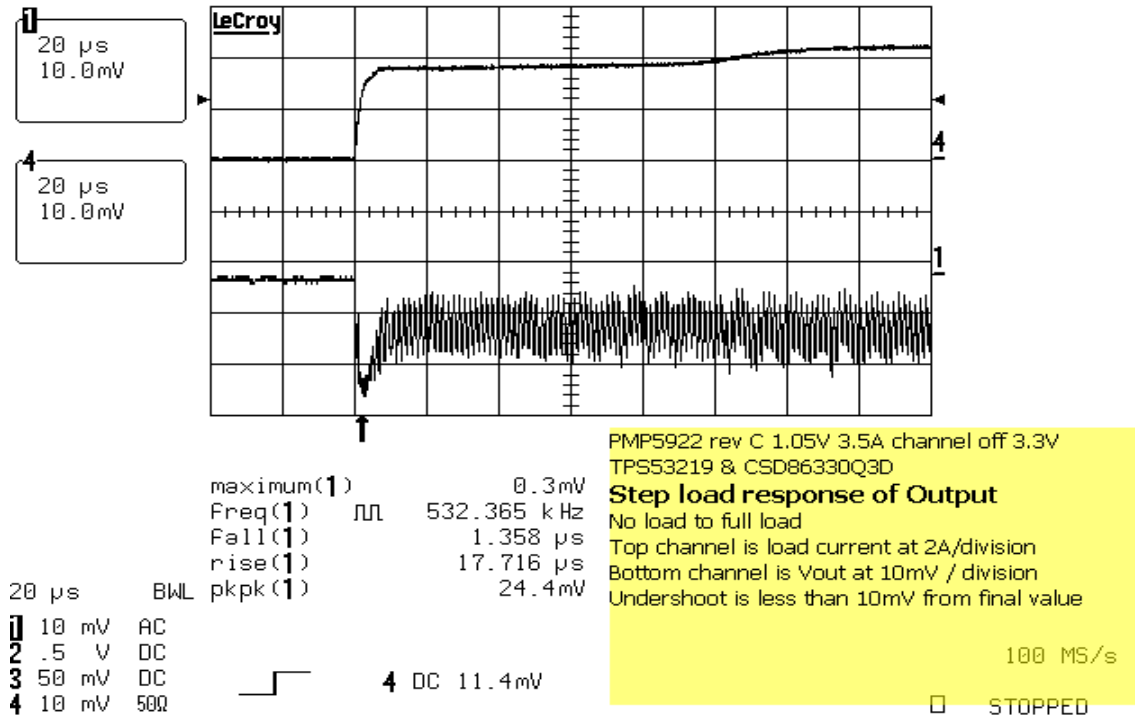
14-Jan-11
16:11:40



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

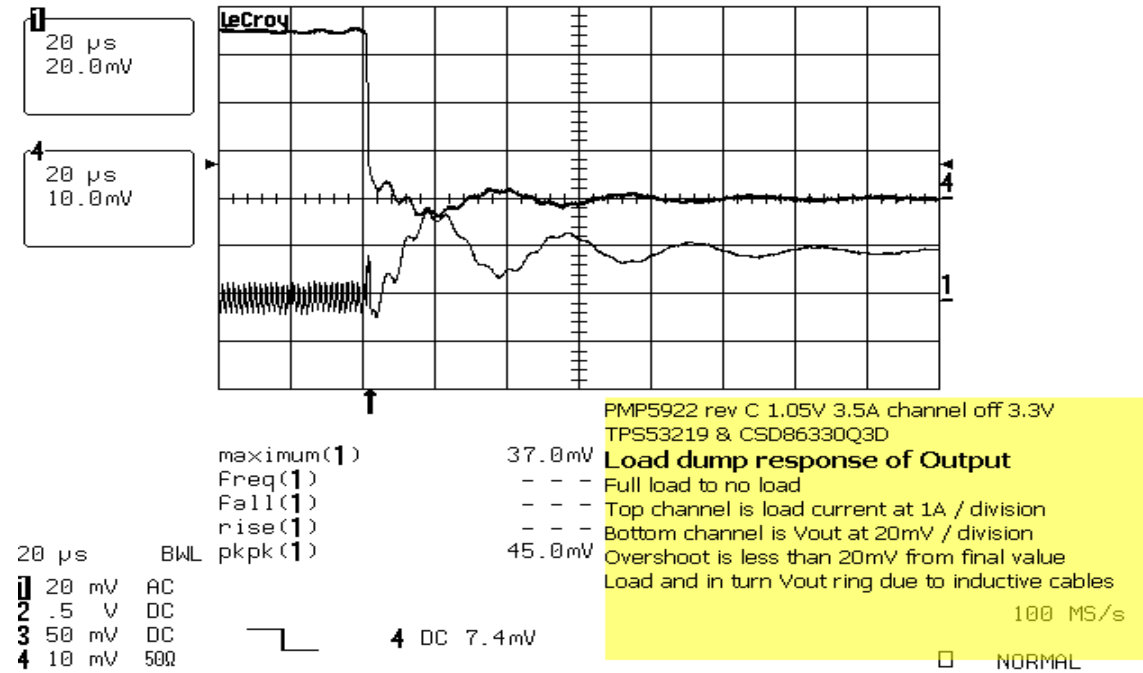
18-Jan-11
13:26:44

Reading Floppy Disk Drive



Load dump response:

18-Jan-11
13:38:11

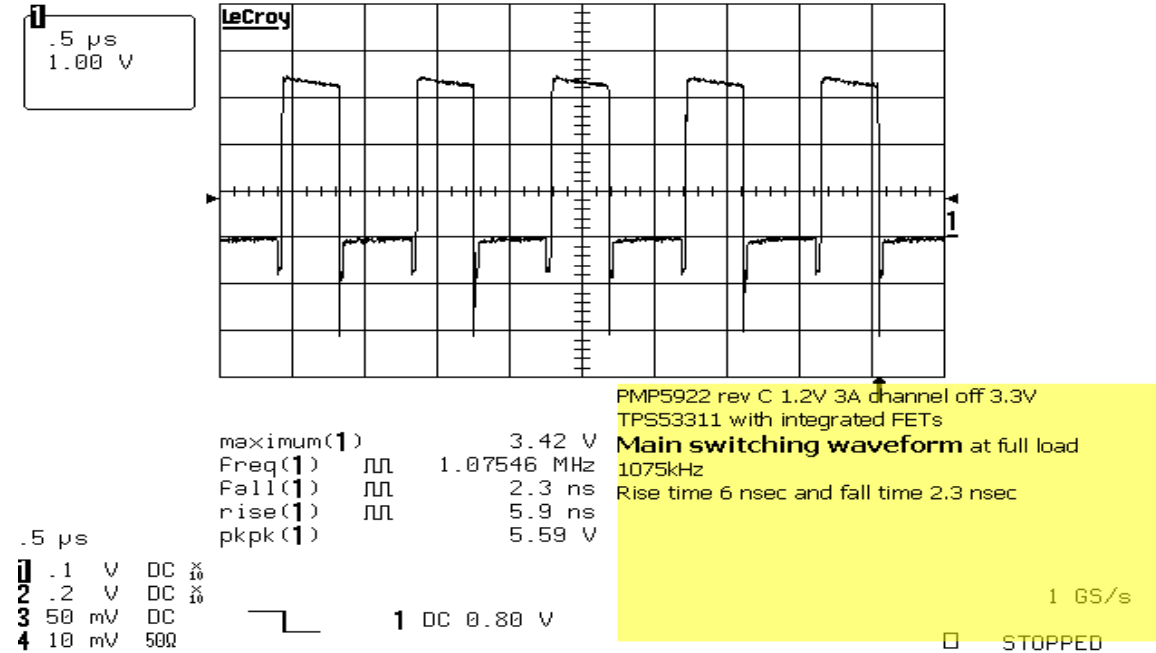


Qq

1.2V Channel: TPS53311 with integrated FETs

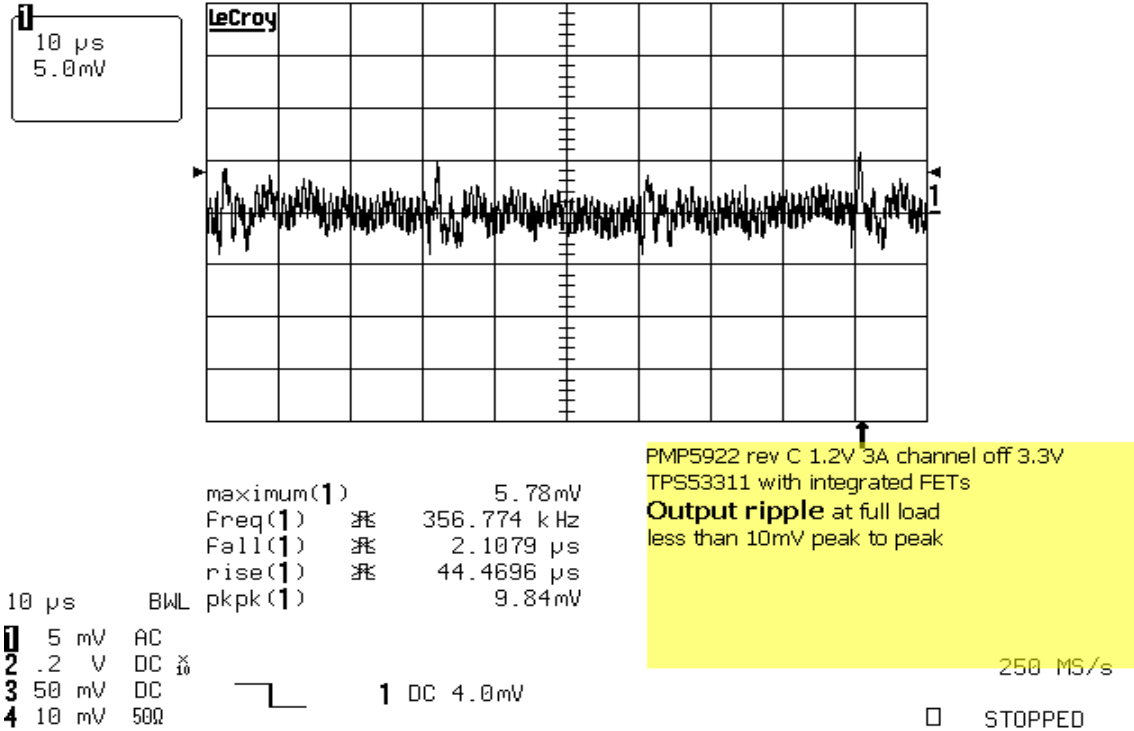
Main waveform:

14-Jan-11
16:29:25



Output ripple:

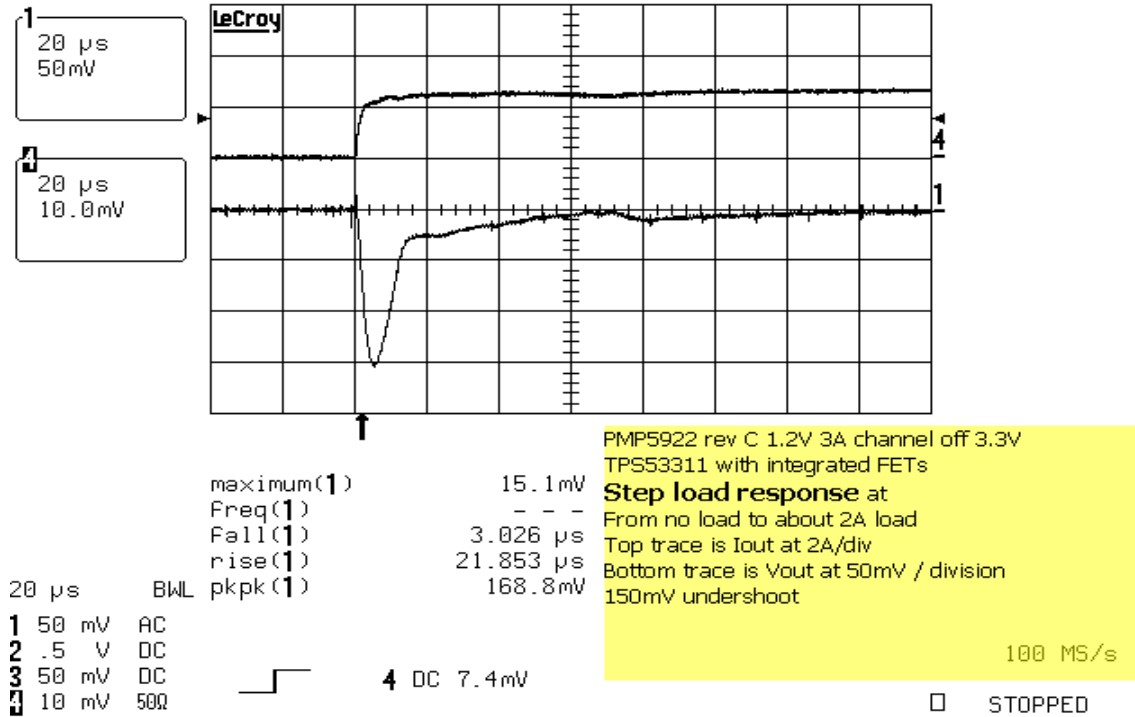
14-Jan-11
16:32:19



Qq

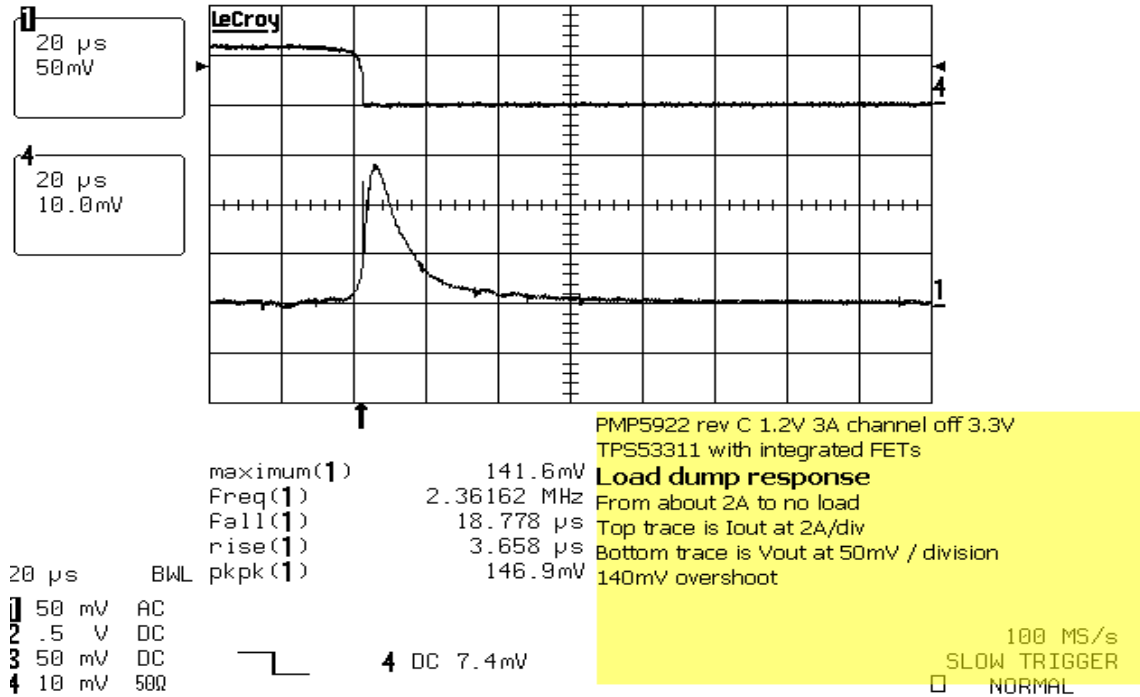
1.2V Channel: TPS53311 with integrated FETs continued:
Step load response:

18-Jan-11
13:57:01



Load dump response:

18-Jan-11
13:59:51



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