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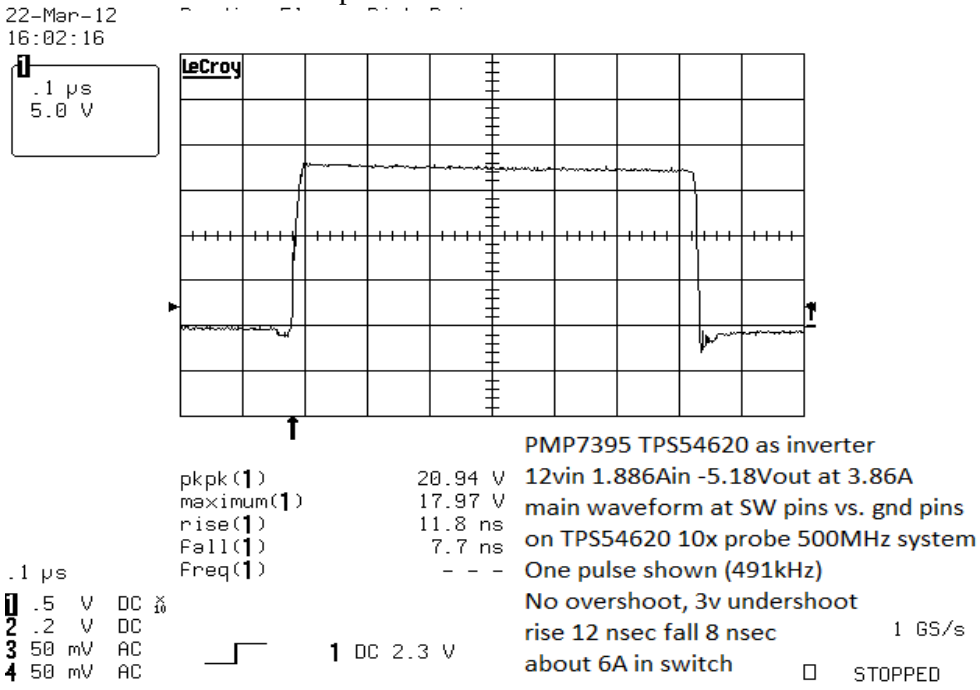
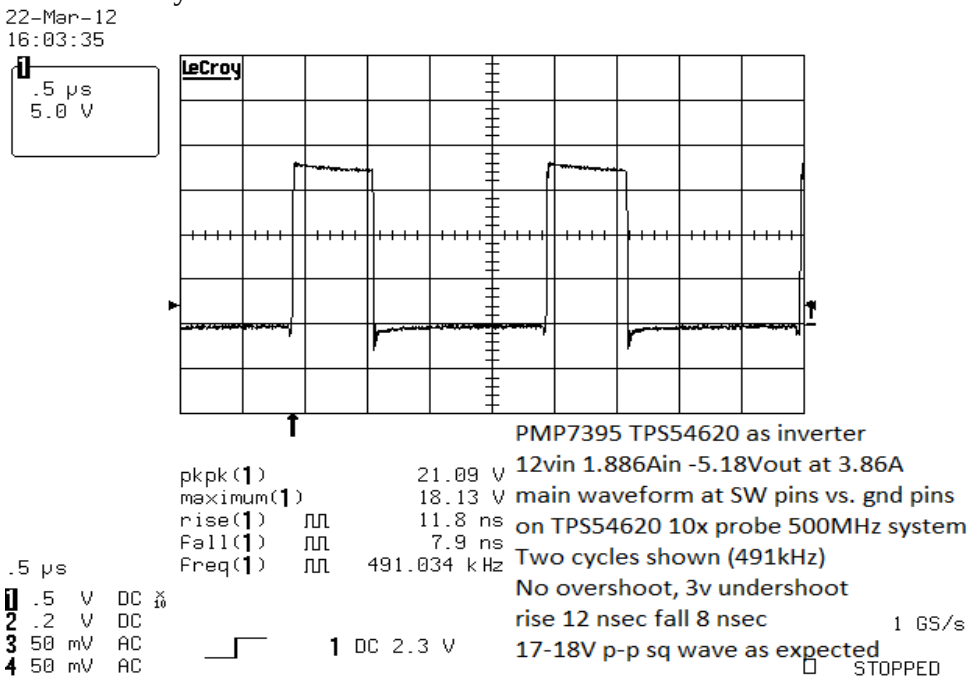
Input, output data and efficiency: (room ambient temperature)
R13 = 49.9 ohms (for Bode testing)

Vin Volts	Iin A	Vout Volts	Iout A	% Effi ciency	Losses in W
12.04	1.850	-5.186	-3.811	88.7	2.510
12.04	1.690	-5.187	-3.499	89.2	2.198
12.00	1.441	-5.188	-3.000	90.0	1.728
12.02	1.194	-5.188	-2.508	90.7	1.340
12.04	0.948	-5.1885	-2.006	91.2	1.006
12.02	0.7115	-5.189	-1.5055	91.3	0.740
12.04	0.477	-5.189	-1.005	90.8	0.528
12.04	0.247	-5.189	-0.504	87.9	0.359
12.05	0.132	-5.190	-0.2515	82.1	0.285
12.05	0.0755	-5.190	-0.1235	70.5	0.269
12.06	0.022	-5.190	0	0.0	0.265
4.997	2.976	-5.187	-2.505	87.4	1.878
5.008	2.326	-5.1875	-2.004	89.2	1.253
5.006	1.7155	-5.188	-1.5045	90.9	0.782
5.004	1.132	-5.188	-1.004	92.0	0.456
4.997	0.573	-5.188	-0.504	91.3	0.249
4.997	0.297	-5.189	-0.251	87.8	0.182
5.008	0.157	-5.189	-0.123	81.2	0.148
5.018	0.027	-5.189	0	0.0	0.135

Main waveform: First one pulse shown:

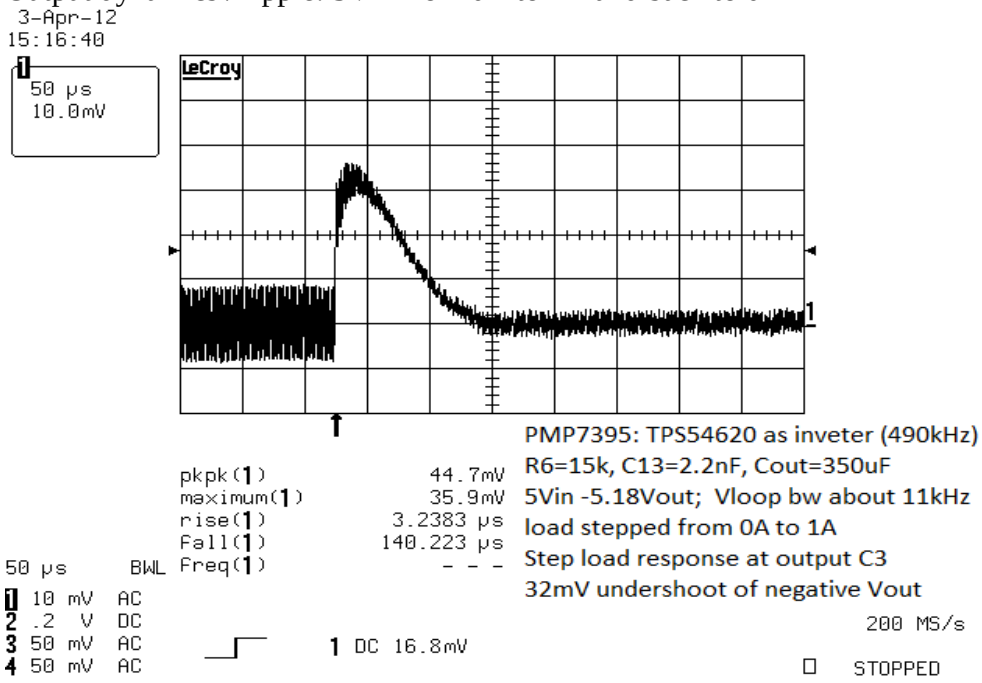


And now 2 cycles:

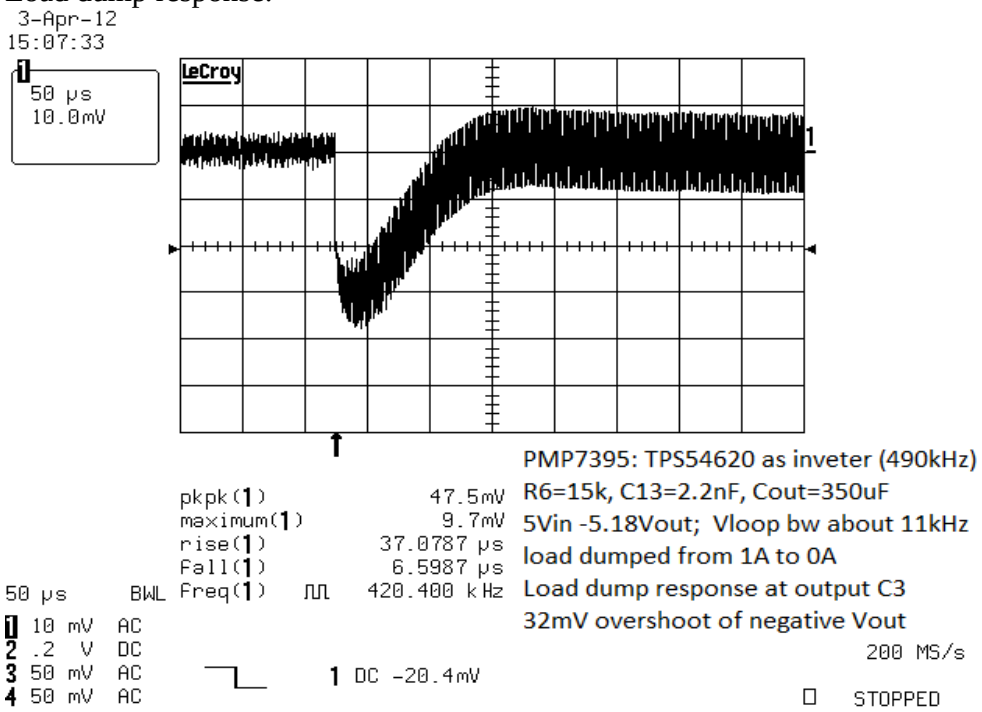


Qq

Output dynamics / ripple: 5Vin from 0A to 1A and back to 0A

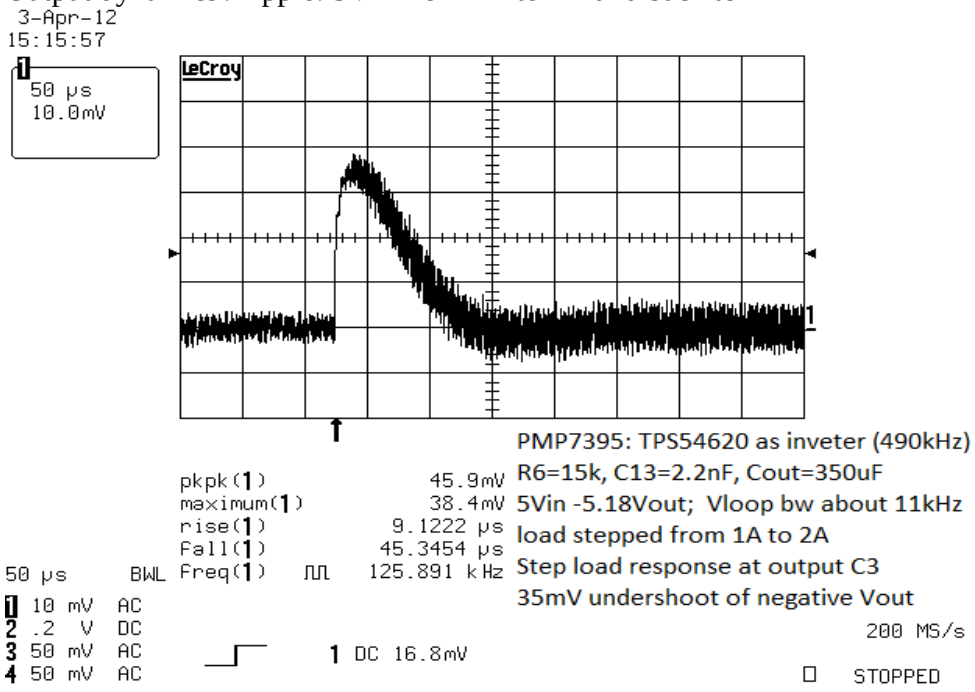


Load dump response:

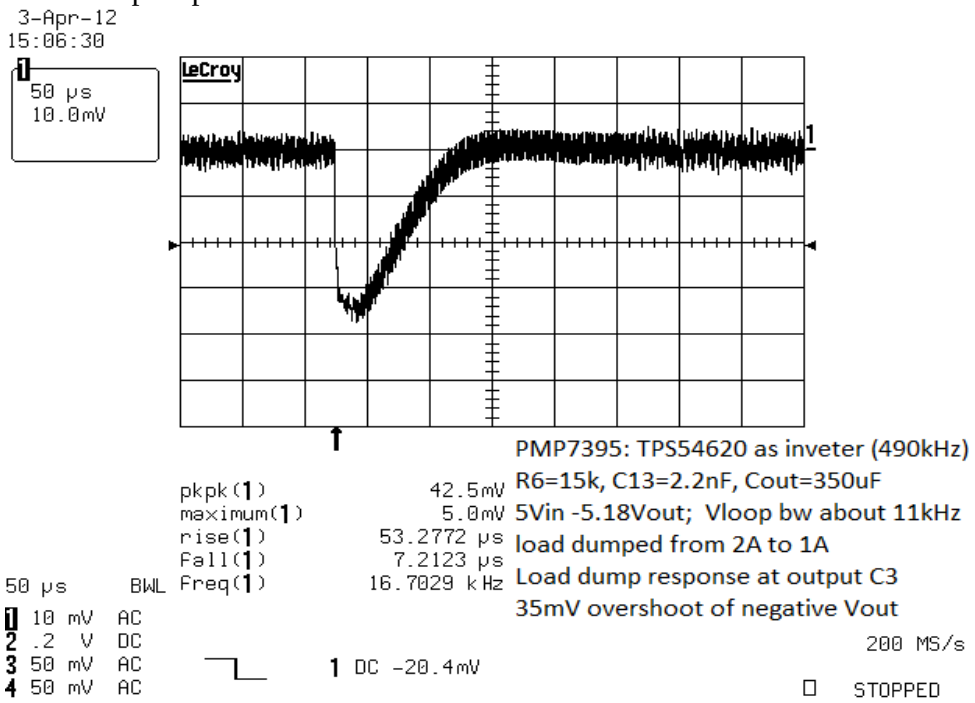


Qq

Output dynamics / ripple: 5Vin from 1A to 2A and back to 1A

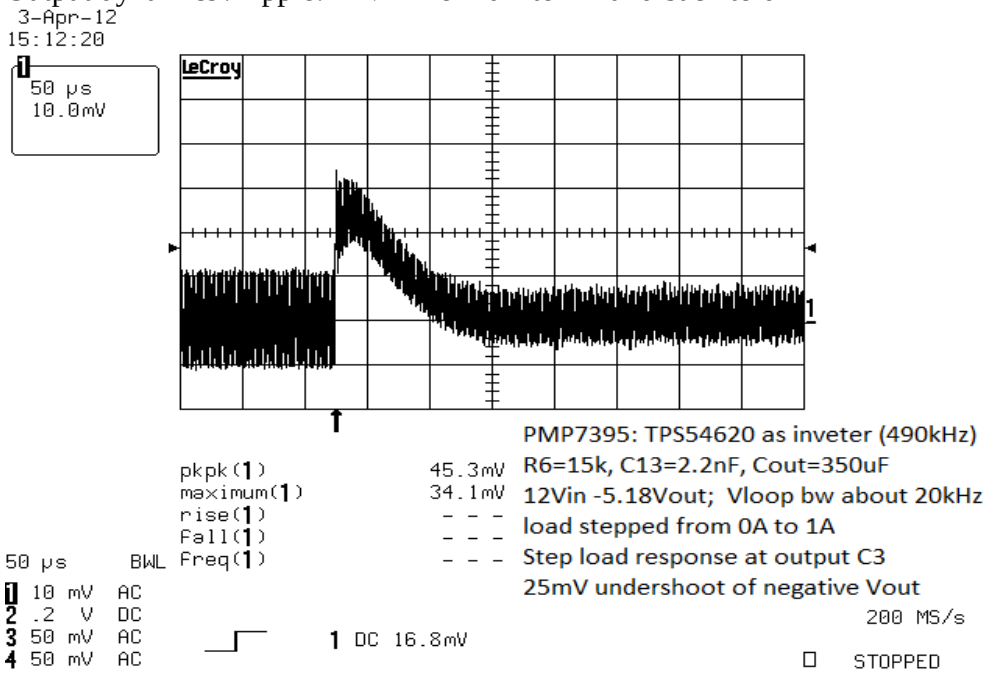


Load dump response:

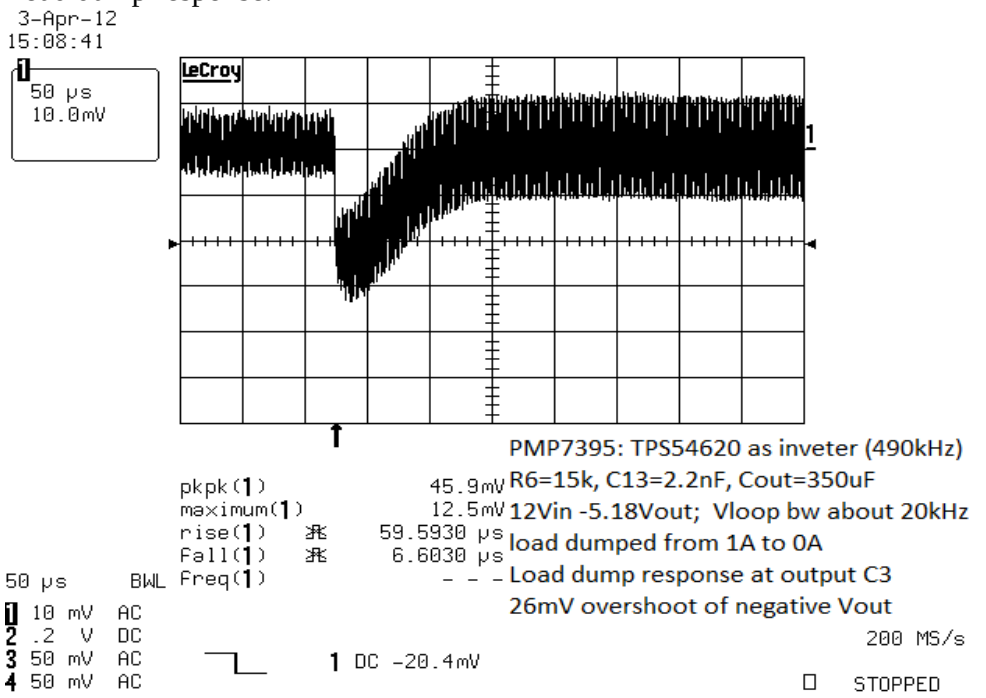


Qq

Output dynamics / ripple: 12Vin from 0A to 1A and back to 0A

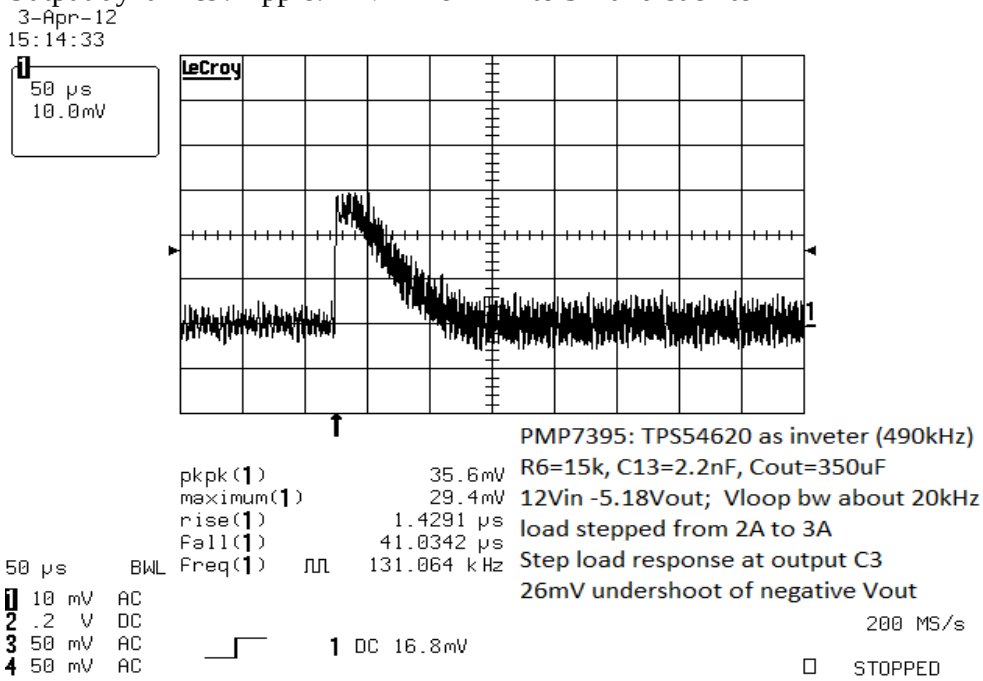


Load dump response:

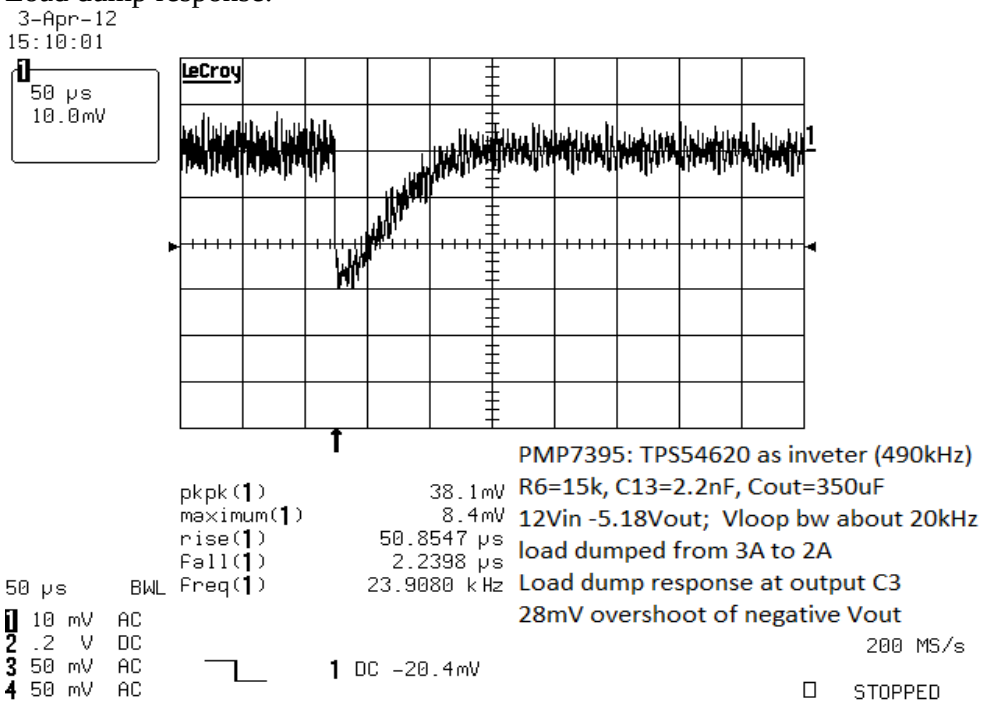


Qq

Output dynamics / ripple: 12Vin from 2A to 3A and back to 2A



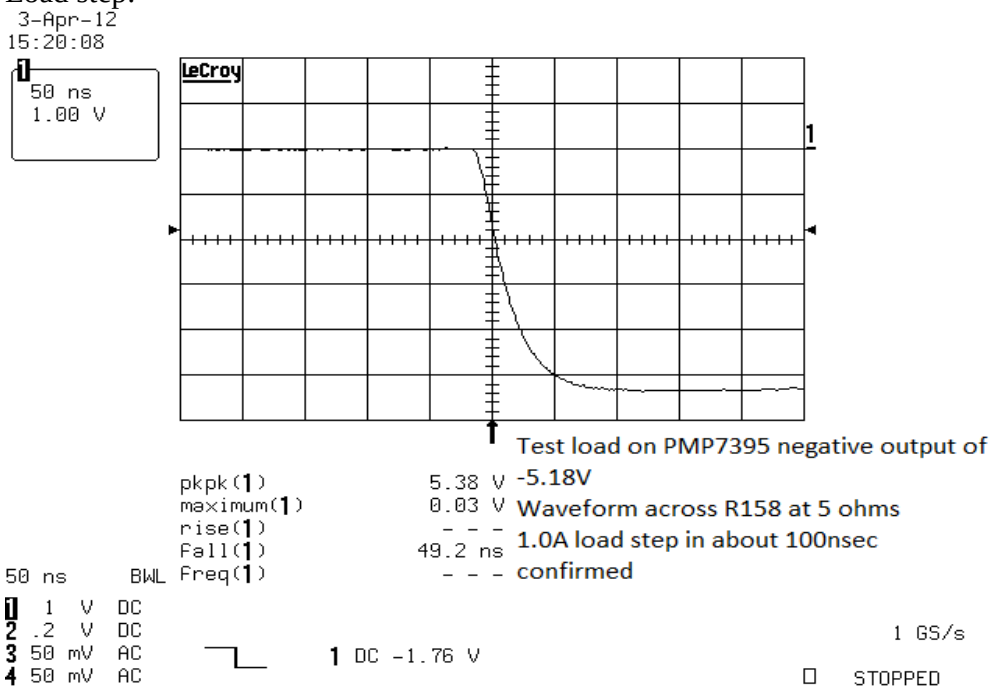
Load dump response:



Qq

Waveforms across dynamic load:

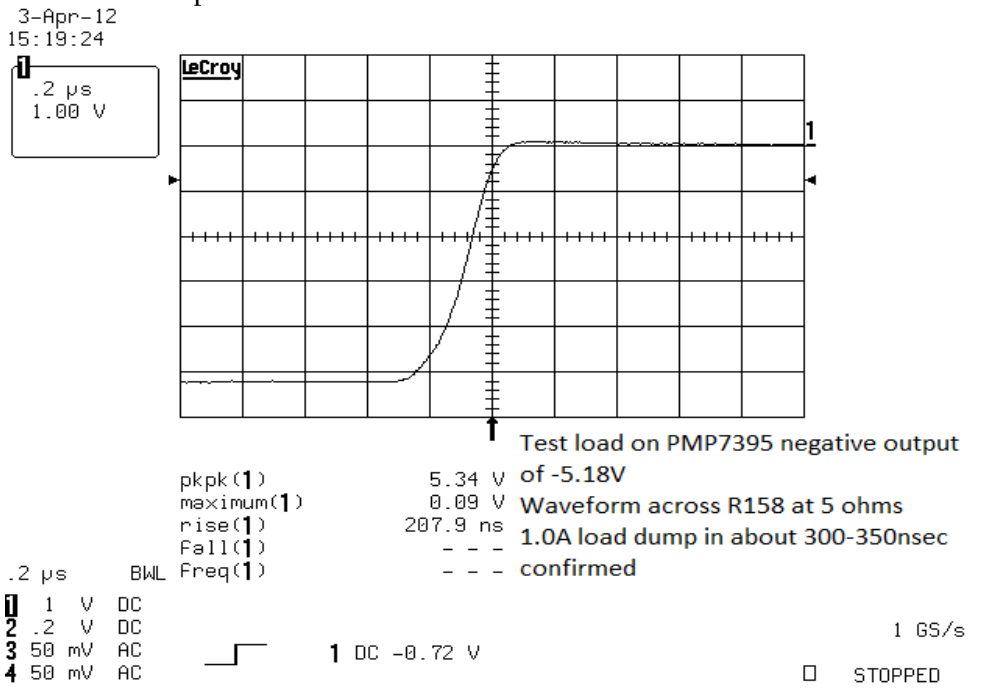
Load step:



Test load on PMP7395 negative output of -5.18V
Waveform across R158 at 5 ohms
1.0A load step in about 100nsec confirmed

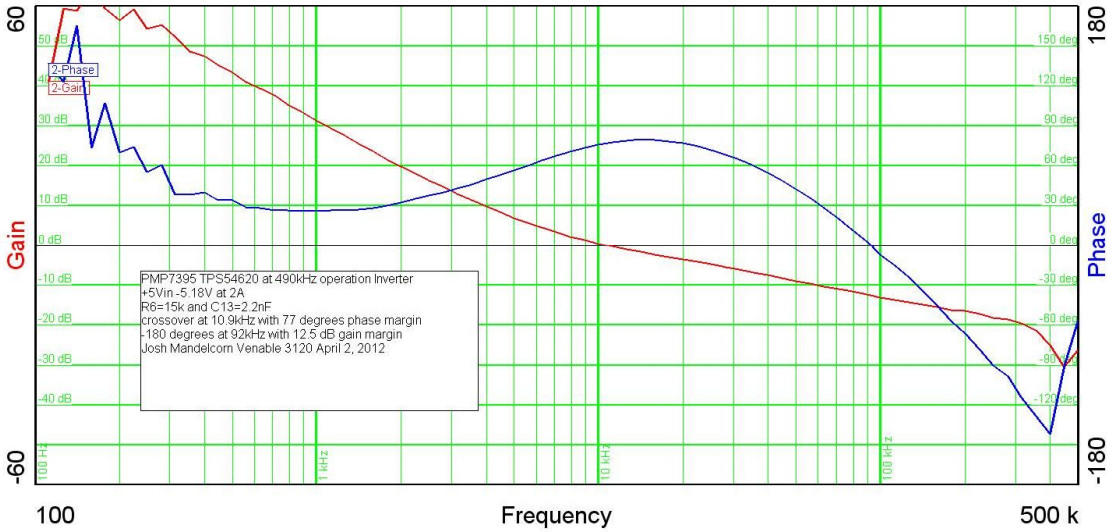
Qq

And Load dump:

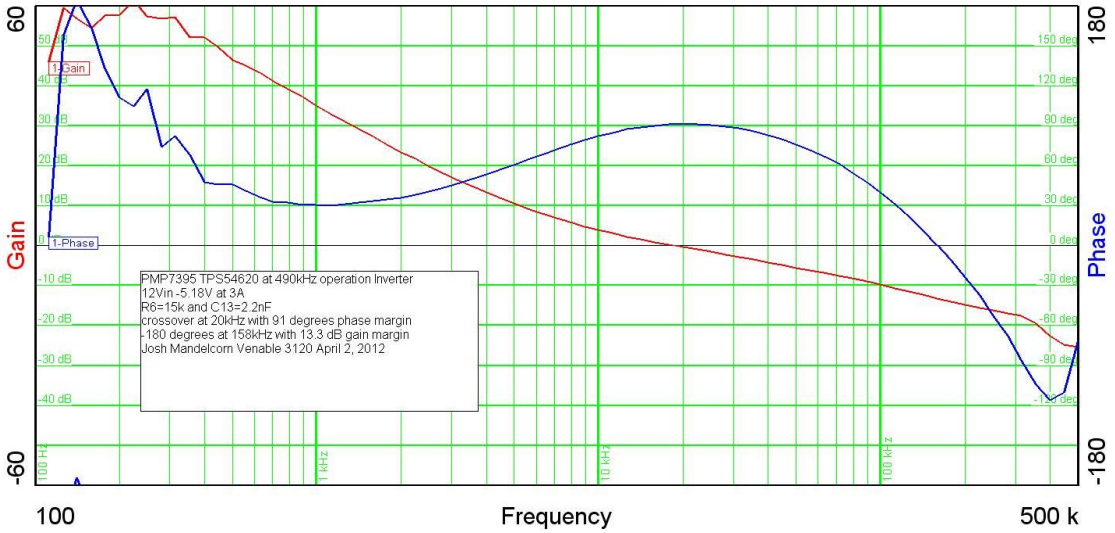


Test load on PMP7395 negative output of -5.18V
Waveform across R158 at 5 ohms
1.0A load dump in about 300-350nsec confirmed

Bode plots of main voltage control loop:
First for 5vin:

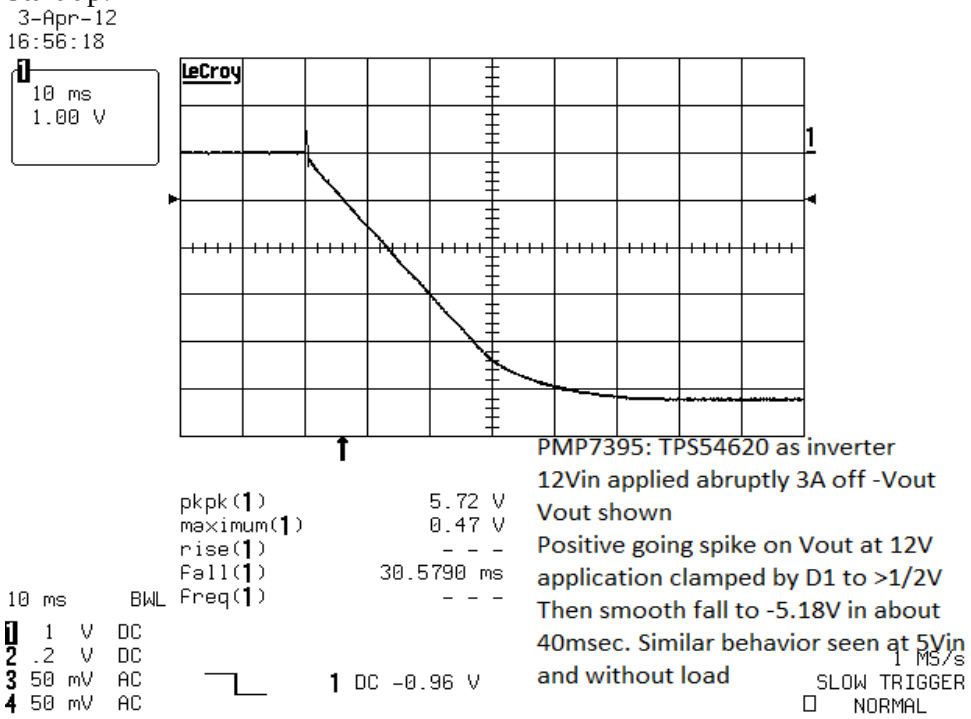


And now for 12Vin:



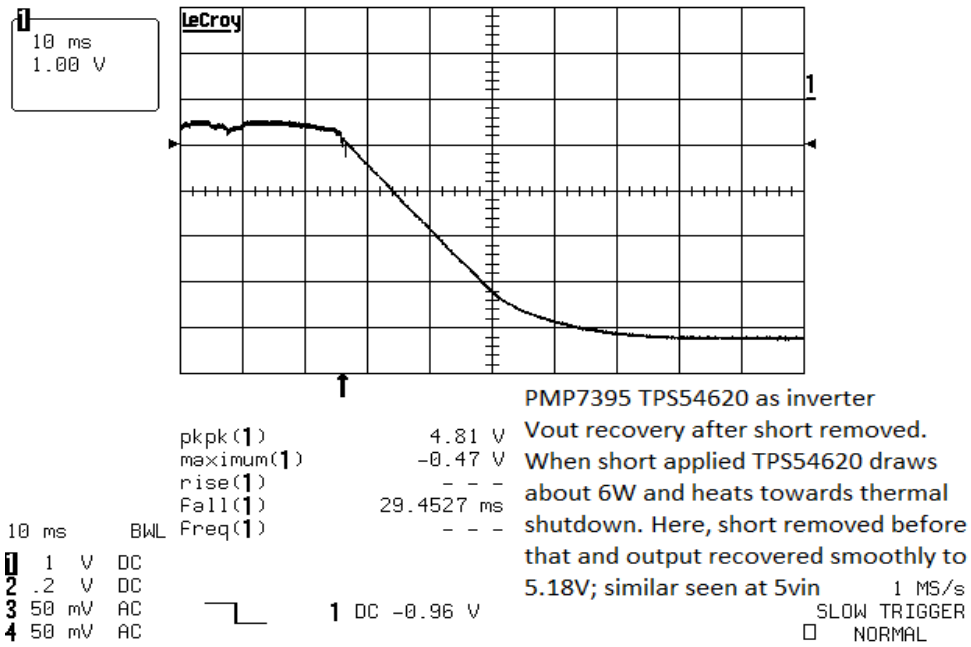
Qq

Start up:



PMP7395: TPS54620 as inverter
12Vin applied abruptly 3A off -Vout
Vout shown
Positive going spike on Vout at 12V application clamped by D1 to >1/2V
Then smooth fall to -5.18V in about 40msec. Similar behavior seen at 5Vin and without load

Short circuit recovery:



PMP7395 TPS54620 as inverter
Vout recovery after short removed.
When short applied TPS54620 draws about 6W and heats towards thermal shutdown. Here, short removed before that and output recovered smoothly to -5.18V; similar seen at 5vin

Qq

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